# California Department of Education Assessment Development & Administration Division

# California Assessment of Student Performance and Progress

# California Alternate Assessment for English Language Arts/Literacy and Mathematics Technical Report

# 2017–18 Administration

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**Educational Testing Service**

**Contract No. CN150012**

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**Acronyms and Initialisms Used in the *California Alternate Assessments for English Language Arts/Literacy and Mathematics Technical Report***

| Term | Definition |
|---|---|
| 1PL | one-parameter logistic |
| 1PL-IRT | one-parameter item response theory |
| AA-AAS | alternate achievement standards |
| AERA | American Educational Research Association |
| AIR | American Institutes for Research |
| AIS | average item score |
| APA | American Psychological Association |
| CAA | California Alternate Assessments |
| CAASPP | California Assessment of Student Performance and Progress |
| CALPADS | California Longitudinal Pupil Achievement Data System |
| CalTAC | California Technical Assistance Center |
| *CCR* | *California Code of Regulations* |
| CCSS | Common Core State Standards |
| CDE | California Department of Education |
| CDS | county/district/school |
| CI | confidence interval |
| Connectors | Core Content Connectors |
| CR | constructed response |
| CSEM | conditional standard error of measurement |
| *DFA* | *Directions for Administration* |
| DIF | differential item functioning |
| DLM | Dynamic Learning Maps |
| *EC* | *Education Code* |
| EL | English learner |
| ELA | English language arts/literacy |
| eSKM | Enterprise Score Key Management |
| ETS | Educational Testing Service |
| EUs | essential understandings |
| GPCM | general partial credit model |
| HOSS | highest obtainable scale score |
| IDEA | Individuals with Disabilities Education Act |
| IEP | individualized education program |
| IRT | item response theory |
| ISAAP | Individual Student Assessment Accessibility Profile |
| LCI | Learning Characteristics Inventory |
| LEA | local educational agency |
| LEP | limited-English-proficient |
| LOSS | lowest obtainable scale score |
| LPF | Learning Progression Framework |

| Term | Definition |
|---|---|
| MC | multiple choice |
| MH DIF | Mantel-Haenszel differential item functioning |
| MST | multistage test |
| NCME | National Council on Measurement in Education |
| NCSC | National Center and State Collaborative |
| OIB | ordered item booklet |
| ORS | Online Reporting System |
| OTI | Office of Testing Integrity |
| PLD | performance level descriptor |
| QA | quality assurance |
| QC | quality control |
| SBE | State Board of Education |
| SD | standard deviation |
| SEM | standard error of measurement |
| SMD | standardized mean difference |
| SRC | Student Response Check |
| SSC | Survey of Student Characteristics |
| SSPI | State Superintendent of Public Instruction |
| STAIRS | Security and Test Administration Incident Reporting System |
| TCC | test characteristic curve |
| TDS | test delivery system |
| TIF | test information function |
| TOMS | Test Operations Management System |
| USC | United States Code |

# Chapter 1: Introduction

## 1.1. Background

In October 2013, Assembly Bill 484 established the California Assessment of Student Performance and Progress (CAASPP) as the new student assessment system that replaced the Standardized Testing and Reporting program. The primary purpose of the CAASPP System of assessments is to assist teachers, administrators, and students and their parents/ guardians by promoting high-quality teaching and learning through the use of a variety of item types and assessment approaches. These tests provide the foundation for the state's school accountability system.

The online California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics were administered operationally during the 2017–18 CAASPP administration. This assessment is for students whose individualized education program (IEP) teams have determined that a student should take the CAA (CDE, 2018b). (Refer to the participation criteria in subsection *2.4 Participation* for more information.) Note that this technical report focuses on CAAs for ELA and mathematics and *not* the CAA for Science, which is reported upon separately.

During the 2017–18 administration, the overall CAASPP System had the following components:

- Smarter Balanced assessments and tools for the general student population:
  - Summative Assessments—Online assessments for ELA and mathematics in grades three through eight and grade eleven
  - Interim Assessments—Optional resources developed for grades three through eight and grade eleven designed to inform and promote teaching and learning by providing information that can be used to monitor student progress toward mastery of the Common Core State Standards (CCSS) that may be administered to students at any grade level
  - Digital Library—Tools, lesson plans, and practices designed to help teachers utilize formative assessment processes for improved teaching and learning in all grades
- CAAs for ELA and mathematics in grades three through eight and grade eleven for students with significant cognitive disabilities
- Science assessments in grades five, eight, and high school (grades ten, eleven, or twelve; these are the California Science Test and the CAA for Science)
- A primary language assessment, the Standards-based Tests in Spanish for Reading/ Language Arts, in grades two through eleven (optional for eligible Spanish-speaking English learners)
- A new primary language assessment, the California Spanish Assessment, delivered in pilot form at selected local educational agencies (LEAs), to students in grades three through eight and high school who are Spanish-speaking English learners or students seeking a measure that recognizes their Spanish reading, writing, and listening skills

More background information about the CAASPP System can be found on the CAASPP Description – *CalEdFacts* web page at http://www.cde.ca.gov/ta/tg/ai/cefcaaspp.asp.

## 1.2. Test Purpose

The purpose of the CAA is to ensure students with the most significant cognitive disabilities achieve increasingly higher academic outcomes and leave high school ready for postsecondary options. The CAAs for ELA and mathematics are aligned with alternate achievement standards—called the Core Content Connectors (Connectors)—that are linked to the CCSS. A Connector is a representation of the essential "core" content of a standard in the CCSS. Each content standard is assessed through the Connectors and related essential understandings (EUs). Each EU defines a basic, foundational key idea or concept based on the Connector that builds increasing understanding of the grade-level content under a three-tier structure of item complexity.

Connectors address knowledge and skills that are appropriate and challenging for the student. The student who is eligible for CAAs is learning content, linked to (and derived from) the CCSS, that appropriately breaks the standards into smaller steps.

## 1.3. Test Content and Design

The CAAs for ELA and mathematics are administered to eligible students in grades three through eight and grade eleven. These CAAs are delivered online through two-stage adaptive multistage testing (MST). A student's final score is calculated by combining the student's performance on items from both stages.

Under the MST design used for the CAAs for ELA and mathematics, sets of items or modules with varying difficulty or complexity levels are presented to match the ability of each student according to her or his performance on the previous set of test items. The primary advantage of the MST over the conventional fixed-form tests is that MST is more efficient because it uses fewer test items to achieve more precise measurement of students' performance. In addition, by providing an ability-appropriate test, MST also encourages a student's engagement during testing, particularly for students with significant cognitive disabilities. These students represent a population with a large range of challenges and ability levels that cannot be effectively targeted by conventional fixed-form tests.

## 1.4. Intended Population

At each grade level, the CAAs for ELA and mathematics were administered to approximately 5,000 students during the 2017–18 CAASPP administration. All students enrolled in grades three through eight and grade eleven whose IEP designates the use of alternate assessments are required to take part in the CAAs (*California Code of Regulations*, Title 5 [5 *CCR*] Education, Division 1, Chapter 2, Subchapter 3.75, Article 1, Section 851.5[c]). For students with significant cognitive disabilities, the decision whether to administer the Smarter Balanced Summative Assessments or CAAs is made by their IEP team. Parents/Guardians may submit a written request to have their child opted out from taking any or all parts of the Smarter Balanced Summative Assessments or, as designated, the CAAs. Only students whose parents/guardians submit a written request may opt out of taking the tests (*Education Code [EC]* Section 60615).

English learners (ELs) who are in their first 12 months of attending school in the United States are exempt from taking the ELA portion of the assessment. ELs are defined as follows:

> "English learner students are those students for whom there is a report of a primary language other than English on the state-approved Home Language Survey **and** who, on

> the basis of the state approved oral language (kindergarten through grade twelve) assessment procedures and literacy (grades three through twelve only), have been determined to lack the clearly defined English language skills of listening comprehension, speaking, reading, and writing necessary to succeed in the school's regular instructional programs."[1]

EL students within their first 12 months of enrollment in a U.S. school may also participate in the ELA assessment if their parents/guardians elect to do so. These test takers are included in the calculation of the percent of students tested, but their scores are excluded from all aggregate calculations.

## 1.5. Intended Use and Purpose of Test Scores

The results of tests within the CAASPP System, including the CAAs for ELA and mathematics, are used for two primary purposes as described in *EC* sections 60602.5(a) and (a)(4). (Excerpted from the *EC* Section 60602 web page at http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=4.&title=2.&part=33.&chapter=5.&article=1 [outside source].)

> "60602.5(a) It is the intent of the Legislature in enacting this chapter to provide a system of assessments of pupils that has the primary purposes of assisting teachers, administrators, and pupils and their parents; improving teaching and learning; and promoting high-quality teaching and learning using a variety of assessment approaches and item types. The assessments, where applicable and valid, will produce scores that can be aggregated and disaggregated for the purpose of holding schools and local educational agencies accountable for the achievement of all their pupils in learning the California academic content standards."
>
> "60602.5(a)(4) Provide information to pupils, parents or guardians, teachers, schools, and local educational agencies on a timely basis so that the information can be used to further the development of the pupil and to improve the educational program."

Sections 60602.5(c) and (d) provide additional information regarding intent and context for the system of assessments:

> "60602.5(c) It is the intent of the Legislature that parents, classroom teachers, other educators, pupil representatives, institutions of higher education, business community members, and the public be involved, in an active and ongoing basis, in the design and implementation of the statewide pupil assessment system and the development of assessment instruments."
>
> "60602.5(d) It is the intent of the Legislature, insofar as is practically feasible and following the completion of annual testing, that the content, test structure, and test items in the assessments that are part of the statewide pupil assessment system become open and transparent to teachers, parents, and pupils, to assist stakeholders in working together to demonstrate improvement in pupil academic achievement. A planned change in annual test content, format, or design should be made available to educators and the public well before the beginning of the school year in which the change will be implemented."

[1] "English Learner (EL) Students (Formerly Known as Limited-English-Proficient or LEP)," from the CDE Glossary of Terms web page at http://www.cde.ca.gov/ds/sd/cb/glossary.asp.

## 1.6. Testing Window

The CAAs for ELA and mathematics for grades three through eight and grade eleven are administered within a testing window pursuant to 5 *CCR,* sections 855(a)(1), 855(a)(2), 855(b), and 855(c). The testing window begins on the day of completion in which 66 percent of the instructional year is completed. The last possible testing date during the 2017–18 school year was July 16, 2018.

Similar to other CAASPP assessments, the CAAs for ELA and mathematics are untimed for test takers. This assessment is administered individually, and testing time varies from one student to another, on the basis of factors such as the student's response time and attention span. A student may be tested with the CAAs for ELA and mathematics within the LEA's testing window over as many days as required to meet a student's needs (5 *CCR,* Section 855[a][3]).

## 1.7. Significant Developments for the CAAs in 2017–18

Several significant developments occurred for the 2017–18 administration.

### 1.7.1. Update to Testing Availability Start Date

The grade eleven test administration for CAAs for ELA and mathematics was set up using the same criteria as the test administration for grades three through eight. The available testing window began on the day in which 66 percent of a school's or track's annual instructional days were completed. Additionally, the selected testing window for all assessments contained a minimum of 25 instructional days.

### 1.7.2. Additional Embedded Field Test Item and Revised Item Development Specifications

The number of field test items in each operational test version was increased from three to four. The specifications for item development were revised to reduce the text (language) complexity of item content.

### 1.7.3. Revised Training Test

The training test items were revised to reduce the complexity of text (language) in the items and associated *Directions for Administration*.

### 1.7.4. Updated Accessibility Resources

The following new and updated accessibility resources were available for the CAAs for ELA and mathematics:

- Universal tool: line reader (embedded)
- Designated supports: Mouse pointer (embedded) and amplification (non-embedded)
- Accommodation: word prediction (non-embedded)

## 1.8. Groups and Organizations Involved with the CAAs

### 1.8.1. State Board of Education (SBE)

The SBE is the state agency that establishes educational policy for kindergarten through grade twelve in the areas of standards, instructional materials, assessment, and accountability. The SBE adopts textbooks for kindergarten through grade eight, adopts regulations to implement legislation, and has the authority to grant waivers of the *EC*.

In addition to adopting the rules and regulations for itself, its appointees, and California's public schools, the SBE also is the state educational agency responsible for overseeing California's compliance of the Every Student Succeeds Act and the state's Public School Accountability Act, which measures the academic performance and progress of schools on a variety of academic metrics (CDE, 2017).

### 1.8.2. California Department of Education (CDE)

The CDE oversees California's public school system, which is responsible for the education of more than 6,200,000 children and young adults in more than 10,450 schools.[2] California aims to provide a world-class education for all students, from early childhood to adulthood. The CDE serves the state by innovating and collaborating with educators, school staff, parents/guardians, and community partners which together, as a team, prepares students to live, work, and thrive in a highly connected world.

Within the CDE, it is the Performance, Planning, and Technology Branch that oversees programs promoting innovation and improving student achievement. Programs include oversight of statewide assessments and the collection and reporting of educational data (CDE, 2018c).

### 1.8.3. California Educators

A variety of California educators, including teachers experienced in teaching students with cognitive disabilities and school administrators, who were selected based on their qualifications, experiences, demographics, and geographic locations, were invited to participate in the entire CAA assessment development process. California educators participated in tasks that included defining the purpose and scope of the assessment, assessment design, item development, standard setting, score reporting, and scoring constructed response items.

### 1.8.4. Contractors

#### 1.8.4.1. Educational Testing Service

The CDE and the SBE contract with Educational Testing Service (ETS) to develop, administer, and report results of the CAAs. As the prime contractor, ETS has the overall responsibility for working with the CDE to implement and maintain an effective assessment system and to coordinate the work of ETS with its subcontractors. Activities directly conducted by ETS include but are not limited to the following:

- Providing management of the program activities
- Supporting and training counties, LEAs, and direct funded charter schools
- Providing tiered help desk support to LEAs
- Developing all CAA test items
- Constructing, producing, and controlling the quality of CAASPP test forms and related test materials, including grade- and content-specific directions for administration
- Hosting and maintaining a website with resources for LEA CAASPP coordinators

[2] Retrieved from the CDE Fingertip Facts on Education in California – *CalEdFacts* web page at https://www.cde.ca.gov/ds/sd/cb/ceffingertipfacts.asp

- Developing, hosting, and providing support for the Test Operations Management System (TOMS)
- Processing student test assignments
- Producing and distributing score reports
- Developing a score reporting website
- Completing all psychometric procedures

#### 1.8.4.2. American Institutes for Research (AIR)

AIR is the subcontractor to ETS for the CAASPP System of online assessments. Activities conducted by AIR include

- providing the AIR proprietary test delivery system (TDS), including the Student Testing Interface, Test Administrator Interface, secure browser, and practice and training tests;
- hosting and providing support for its TDS and the ORS, a component of the overall CAASPP Assessment Delivery System;
- scoring machine-scorable items; and
- providing Level 3 technology help desk support to LEAs for technology issues directly related to the TDS or ORS.

## 1.9. Systems Overview and Functionality

### 1.9.1. Test Operations Management System (TOMS)

TOMS is the password-protected, web-based system used by LEAs to manage all aspects of CAASPP testing. TOMS serves various functions for the CAAs for ELA and mathematics, including but not limited to the following:

- Managing test administration windows
- Assigning CAA test examiner user roles
- Managing student test assignments and accessibility resources
- Viewing and downloading reports
- Providing a platform for authorized user access to secure materials such as CAA *Directions for Administration,* student data and results, CAASPP user information, and access to the *CAASPP Security and Test Administration Incident Reporting System* form and the Appeals module

TOMS receives student enrollment data and LEA and school hierarchy data from the California Longitudinal Pupil Achievement Data System (CALPADS) via a daily feed. CALPADS is "a longitudinal data system used to maintain individual-level data including student demographics, course data, discipline, assessments, staff assignments, and other data for state and federal reporting."[3] LEA staff involved in the administration of the CAAs—such as LEA CAASPP coordinators, CAASPP test site coordinators, and test examiners—are assigned varying levels of access to TOMS. For example, only an LEA CAASPP

[3] From the CDE California Longitudinal Pupil Achievement Data System (CALPADS) web page at http://www.cde.ca.gov/ds/sp/cl/.

coordinator is given permission to set up the LEA's test administration window; a test examiner cannot download student reports. A description of user roles is explained more extensively in the *2017–18 CAASPP Online Test Administration Manual* (CDE, 2018a).

### 1.9.2. Test Delivery System (TDS)

The TDS is the means by which the statewide online assessments are delivered to students. Components of the TDS include

- the Test Administrator Interface, the web browser–based application that allows test examiners to activate student tests;
- the Student Testing Interface, on which students take the CAAs for ELA and mathematics using the secure browser and with assistance from the test examiner as needed; and
- the secure browser, the online application through which the Student Testing Interface may be accessed. The secure browser prevents students from accessing other applications during testing.

### 1.9.3. Practice and Training Tests

Practice tests for each individual grade and content area and a training test suitable for all grade levels in both ELA and mathematics were provided to LEAs to prepare students and LEA staff for the CAAs. Students, teachers, and the public may access them using a web browser.

These tests simulate the experience of the CAA online assessments and allow students and test examiners to become familiar with the user interface, item formats and functionality, available accessibility resources, and components of the TDS, as well as with the process of starting and completing a testing session. Unlike the summative CAAs for ELA and mathematics, the practice and training tests do not assess standards, gauge student success on the operational test, or produce scores.

### 1.9.4. Online Reporting System (ORS)

The ORS is the system used by LEAs to view preliminary student results from the CAASPP assessments. The primary purposes of the ORS are for LEAs to access completion data to determine which students need to complete testing or start testing, and for LEAs to access preliminary score reports that can provide data for schools within the LEA. Results in the ORS are preliminary and may not be used for accountability purposes.

## 1.10. Overview of the Technical Report

This technical report addresses the characteristics of the CAAs for ELA and mathematics administered in spring 2018 and contains nine additional chapters as follows:

- Chapter 2 presents an overview of the processes involved in a testing cycle for the CAAs for ELA and mathematics. This includes item development, test construction, test administration, test participation, generation of test scores, and score reports.
- Chapter 3 describes the procedures followed during item development; descriptions of various reviews (e.g., item content and bias and sensitivity reviews); and the process of item review.
- Chapter 4 describes the process of test assembly, including the content being measured, the two-stage MST assessment design, as well as the content and

psychometric criteria. Also discussed are the routing rules that guided the construction of the CAAs for ELA and mathematics and the preparation of the test forms for the online multistage delivery.

- Chapter 5 details the processes involved in the actual 2017–18 administration, with emphasis on efforts made to ensure the standardization of CAA online testing. It also describes the procedures followed to maintain test security throughout the test administration process.
- Chapter 6 summarizes the standard-setting process that established the base year achievement level scores. Details include the achievement level descriptors, an overview of the standard setting methodology, and the process to establish the threshold scores that define the score ranges for each achievement level for the CAAs for ELA and mathematics. These standard-setting processes were based on student testing results from the 2015–16 administration.
- Chapter 7 provides information on the scoring processes and summarizes the types of scores and score reports.
- Chapter 8 summarizes the statistical procedures and results for 2017–18, including
  - classical item analysis,
  - differential item functioning analysis,
  - IRT calibration, linking and scaling,
  - reliability analyses, and
  - analyses of the consistency and accuracy of the achievement-level classifications.

  Chapter 8 concludes with a discussion of the procedures designed to ensure the validity of score uses and interpretations.
- Chapter 9 highlights the quality control processes used at various stages of the 2017–18 CAA administration, including item development, test assignment, test administration, scoring procedures, psychometric analysis processes, and score reporting.
- Chapter 10 presents historical comparisons of various test-level results for the 2015–16 (base year), 2016–17, and 2017–18 CAAs for ELA and mathematics administrations.
- Chapter 11 describes analysis and administration processes and features targeted for improvement during the 2018–19 test administration.

## References

*California Code of Regulations,* Title 5, Education, Division 1, Chapter 2, Subchapter 3.75, Article 2. Retrieved from https://www.cde.ca.gov/ta/tg/ca/documents/caasppresubregs.docx

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# Chapter 2: Overview of California Alternate Assessment (CAA) Processes

This chapter provides an overview of the processes implemented by Educational Testing Service (ETS) during the full testing cycle for the 2017–18 California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics, including test development and administration, score production, and reporting. In addition, test participation, fairness, and accessibility for these CAAs are also described.

## 2.1. Item Development

CAAs for ELA and mathematics incorporate innovations and best practices from the recent alternate assessment initiatives on a national level, including the National Center and State Collaborative (NCSC) and the Dynamic Learning Maps (DLM). All items developed and used in the 2017–18 CAA administration are appropriate for the grade level, aligned with the Core Content Connectors (Connectors) and their essential understandings (EUs), correspond to the Common Core State Standards (CCSS), and based on the clarifications and guidelines from the Connectors derived from the CCSS.

Similar to the NCSC model, items were developed to three tiers of item complexity. Items were reviewed and revised at various stages during development by a variety of groups, including the California Department of Education (CDE), California educators, and ETS content specialists and item reviewers. Guidelines for bias and sensitivity, accessibility and accommodations, and style helped item developers and reviewers ensure consistency and fairness through the item development process. Detailed information about CAA for ELA and mathematics item development is described in *Chapter 3: Item Development and Review*.

### 2.1.1. Item Format

The CAAs for ELA and mathematics include the following primary online item formats:

- **Selected response (SR) items—**Students are instructed to select one or more choices. Most CAA items have two or three options; a few items have four options.
- **Constructed response (CR) items—**Students are required to respond by providing words or numbers. Test examiners at a school scored these items based on a rubric.
- **Technology-enhanced items**—Technology beyond simple option selection is incorporated in some items. These items can resemble real-world scenarios, in which students might interact with information using technology.

Table 2.A.1 on page 21 lists the types of technology-enhanced items. The first column contains the types of responses that can be made to test questions; the middle column lists the item type for the response type. The third column describes how the student is expected to use that response type in answering the test item. Detailed information on item format is included in subsection *3.1.4 Item Types* in *Chapter 3: Item Development and Review*.

SR items have either one or two points and are machine-scored. There are a small number of CR items in the CAA for ELA, which are also worth either one or two points. Scoring rubrics specific to each CR item are included in the *Directions for Administration* (*DFA*) (CDE, 2017e) and are used by the test examiners to rate students' responses. All rubric-based human scoring or rating was done by test examiners during the test administration.

### 2.1.2. Item Specifications

The CAA item specifications provide descriptions of item characteristics that are intended to measure each content standard consistently. They were developed based on the CCSS guidelines and clarifications from the Connectors and EUs. During item development, item developers are provided CAA item specifications and a CAA style guide that contains detailed information about the consistency in item development and item review processes. Refer to subsection *3.1.2 Item Specifications* in chapter 3 for detailed information about item specifications.

### 2.1.3. Item Banking

To support sophisticated computer adaptive testing designs, it is necessary to build an item bank where content and statistical attributes of each item are included. All the items in the item bank need to be calibrated and linked onto common scales.

The test forms of the 2017–18 CAA for ELA and mathematics administration include both operational items and newly developed, embedded field-test items. The operational items include

- anchor items that had been used in previous years and served as statistical linkage to link the item response theory (IRT) scale based on 2017–18 test administration data to the baseline scale; and
- nonanchor operational items that were not used as anchor items for linking purposes.

After the 2017–18 CAA administration, initial item analyses were implemented, and the results were reviewed by ETS psychometric and assessment development staff, who provided recommendations to the CDE on whether the items should be included or excluded from the calibrations. Decisions were made in consultation with the CDE; details of this process are in subsection *8.2 Classical Item Analysis Statistics*.

Next, both the nonanchor operational items and field test items were calibrated and linked through the anchor items to the baseline scales that were established in the 2015–16 administration. Refer to subsection *8.3 Item Response Theory (IRT) Analyses* for calibration and linking. Final item analyses were conducted following the calibration and linking step.

Content experts from ETS and the CDE, as well as selected California educators, reviewed the associated item statistics and evaluated the performance of items during the annual data review meeting. They also reviewed the flagged items—those whose statistics fall beyond expected ranges—and worked to provide plausible explanations for these particular items based on their knowledge of the student population.

With the CDE's approval, the nonanchor operational items and field test items, together with their statistical information, were entered into the item bank for form assembly in future administrations. It is expected that more new items will be developed, field tested, and entered into the item bank after the 2017–18 administration. In this way, the item bank will expand gradually to support the multistage test (MST) design.

## 2.2. Test Assembly

### 2.2.1. Test Design

The CAAs for ELA and mathematics use an MST design, which consists of a small number of separate modules that can be assembled to meet a set of specifications for item content and item difficulty. On the basis of their performance in Stage 1, students are routed to an

appropriate module of the next stage. With this design, only a few modules need to be selected to match students' abilities, and students with a variety of ability levels can be measured with higher precision and shorter test length.

The general principle of MST is that students within the eligible testing population who experience difficulties with the simplest tasks should not continue on with more difficult items. Therefore, after the last item in Stage 1, the results from the Stage 1 router allow an algorithm to identify those students for whom meaningful measurement is unlikely to occur, thus resulting in an early exit from the test. Continuing students are routed to one of three Stage 2 modules appropriate for their ability level.

The MST design for the CAAs for ELA and mathematics uses tiered items, which are developed to three tiers of complexity and organized in order of increasing difficulty and cognitive load. This two-stage adaptive procedure has one common Stage-1 module and three Stage-2 modules (easy, moderate, and hard).

MST is beneficial for students with a wide range of cognitive disabilities because routing rules are used to direct students to the modules that fit their ability levels and thus minimize the students' test-taking burden and enhance their testing experience. Refer to subsection *4.2 ELA and Mathematics Test Design* in *Chapter 4: Test Assembly* for more details about the MST design.

The routing rules that determine whether and how a student transitions from the first to second stage of the test are based on a simulation study in which student ability distributions were estimated for each grade level and subject based on the data collected from the 2016–17 administration. Refer to subsection *4.2.3 Routing Rules for the 2017–18 Administration* in *Chapter 4: Test Assembly* for detailed information about the routing rules.

### 2.2.2. Test Blueprints

Test blueprints specify the total number of items on each test and the number of items in each content category according to standards. The standards upon which CAA for ELA and mathematics test blueprints are built consist of the Connectors and EUs, both derived from the CCSS. The blueprints were developed with reference to the blueprints authored by the NCSC; California educators were involved in this procedure. The blueprints for the CAAs for ELA and mathematics for grades three through eight and grade eleven were adopted by the State Board of Education (SBE) in June 2015.

The CAA for ELA and mathematics test blueprints are unique to each grade level and content area. These blueprints designate the breakdown first by content category (e.g., ELA) and then by Connectors. Information on each test blueprint includes

- specific ratio of each content category or domain on the overall test;
- specific Connectors to be assessed;
- specific EUs to be assessed; and
- the maximum number of total items.

The CAA blueprints also include a content coverage percentage comparison to the NCSC blueprints upon which the CAA blueprints are based (CDE, 2015a and 2015b).

### 2.2.3. Test Length

The number of items in each of the CAAs for ELA and mathematics is the same across grades and subjects—there are 10 operational items followed by four embedded field-test items in each version at Stage 1 and then 15 items per module at Stage 2. Each student

answers 29 items for a complete test. The unique core router at Stage 1 is administered to all students along with one of the five embedded field test versions that are randomly assigned at the school level.

At Stage 2, each of the three modules—easy, moderate, and hard—is tailored to a particular student ability level with appropriate items. Each Stage 2 module consists of approximately 7 to 10 items with prior item statistics and five to eight items without prior statistics. All items with prior statistics in Stage 1 and Stage 2 are potentially used as anchor items in post-equating to link items without prior statistics to the baseline scale. As a result, this test design allows the calibration of approximately 36 new items in each grade-level test that can be potentially entered into the item bank and will support the future operational test administrations.

Refer to subsection *4.2 Test Design* in *Chapter 4: Test Assembly* for more details on test form assembly.

### 2.2.4. Psychometric Criteria

Psychometric criteria are usually specified for the test form review before the test administration. However, the 2017–18 MST forms did not have test-level statistical properties or characteristics because a number of operational items did not have statistics prior to the 2017–18 administration. Even though final test-level statistical properties were not developed, the psychometric guidelines of item selection and form building were developed during the preliminary review of the assembled test forms for the 2017–18 administration.

Prior to the 2017–18 administration, ETS content and psychometric staff reviewed the assembled forms thoroughly in regard to the following aspects:

- Coverage of blueprints
- Overall test design and statistical properties
- Statistical properties of individual items with prior item statistics
- Number and position of anchor items

Details of the psychometric criteria of form review are included in subsection *4.3 Test Production Process*. Psychometric criteria of items can be found in *Appendix 4.B Statistical Specifications for Test Development* of *Chapter 4: Test Assembly*.

## 2.3. Test Administration

The CAAs for ELA and mathematics are administered online using the secure browser and test delivery system, ensuring a secure, confidential, standardized, consistent, and appropriate administration for students. Each CAA is administered in a one-to-one setting by a trained test examiner, usually the student's teacher. Test examiners and students have an opportunity to use the CAA for ELA and mathematics training and practice tests to gain experience with different types of questions before taking the scored tests.

### 2.3.1. Test Security and Confidentiality

All tests within the California Assessment of Student Performance and Progress (CAASPP) System are secure. For the CAAs, every person having access to test materials maintains the security and confidentiality of the tests. ETS internal Code of Ethics requires that all test information, including tangible materials associated with the CAAs (such as test questions and test results), confidential files, processes, and activities are kept secure. To ensure security for all tests that ETS develops or handles, ETS maintains an Office of Testing

Integrity (OTI). A detailed description of the OTI and its mission is presented in subsection *5.2.1 ETS' Office of Testing Integrity (OTI)*.

In pursuit of enforcing secure practices, ETS strives to safeguard the various processes involved in a test development and administration cycle. Those processes are listed next and discussed in detail in chapter 5.

- Standardization of test security
- Security of electronic files using a firewall
- Transfer of scores via secure data exchange
- Data management
- Statistical analysis
- Student confidentiality
- Student test results

### 2.3.2. Procedures to Maintain Standardization

ETS takes all necessary measures to ensure the standardization of CAA test administration by individual test examiners. The measures for standardization include, but are not limited to, the aspects described in these subsections.

#### 2.3.2.1. Test Administration

ETS employs processes to ensure the standardization of an administration cycle; these processes are discussed in more detail in *Chapter 5: Test Administration*.

All staff at local educational agencies (LEAs) that are involved in the CAASPP administration, including CAA for ELA and mathematics administration, are provided directions about their responsibilities. Their roles include LEA CAASPP coordinators, CAASPP test site coordinators, and CAA test examiners. The responsibilities of each of the staff members specifically for the CAAs are described in the *2017–18 CAASPP Online Test Administration Manual* (CDE, 2018c).

#### 2.3.2.2. Test Directions

Several series of instructions regarding the CAASPP including administration of the CAAs for ELA and mathematics are compiled in detailed manuals and provided to the LEA staff. Such documents include, but are not limited to, the following:

- ***CAA for ELA and Mathematics Directions for Administration* (*DFA*s)—**A manual that provides the script and directions for administration to be followed exactly by test examiners during a testing session. The secure *DFAs* for the CAAs for ELA and mathematics contain item-specific instructions, and therefore are grade- and version-specific. (Refer to *5.4.4.1 Directions for Administration* in chapter 5 for more information.)
- ***CAASPP Online Test Administration Manual*—**A manual that provides test administration procedures and guidelines for LEA CAASPP coordinators, CAASPP test site coordinators, test examiners, and test administrators (CDE, 2018c). (Refer to *5.4.4.2 CAASPP Online Test Administration Manual* in chapter 5 for more information.)
- ***Test Operations Management System (TOMS) Pre-Administration Guide for CAASPP Testing*—**A manual that provides instructions for TOMS that allow LEA staff, including LEA CAASPP coordinators and CAASPP test site coordinators, to perform a number of tasks including setting up test administrations, adding and managing users,

and configuring online student test settings. (CDE, 2018e) (Refer to *5.4.4.3 TOMS Pre-Administration Guide for CAASPP Testing* in chapter 5 for more information.)

## 2.4. Participation

The decision to assign a student to take a CAA is made by his or her individualized education program (IEP) team using the information on the CAA Guidance for IEP Teams web page to make the determination. This web page describes the CAA and its administration as well as criteria for participation and the students who should be assigned to take this test (CDE, 2018b).

A student must meet all three of the following criteria to participate in the CAA:

1. **A student with a significant cognitive disability.** Review of the student's school records indicates a disability or multiple disabilities that significantly impact intellectual functioning and adaptive behavior essential for someone to live independently and to function safely in daily life.
2. **The student is learning content derived from the California CCSS and CA NGSS.** Goals and instruction listed in the IEP for the student are linked to the enrolled grade-level CCSS and address knowledge and skills that are appropriate and challenging for this student.
3. **The student's need for extensive, direct individualized instruction and substantial supports to achieve measurable gains in the grade-level and age-appropriate curriculum.** The student:
    a. Requires extensive, repeated, individualized instruction and support that is not of a temporary or transient nature; and
    b. Uses substantially adapted materials and individualized methods of accessing information in alternative ways to acquire, maintain, generalize, demonstrate, and transfer skills across multiple settings.

All students who are eligible to take the CAAs are required to participate. All students who are logged on and presented with at least the first test item are counted as having participated. Students who do not provide a consistent, observable response to the first item are not required to be administered the entire test but are counted as having participated (CDE, 2017, slide 24).

Refer to appendix 2.B regarding the number of participants and the percent of participation of all students and the selected demographic groups for each test during the 2017–18 administration. Note that the data in the *Number Tested* columns includes students whose attemptedness codes indicate completion, partial-completion, and non-completion; these are discussed in subsection *7.1.1 Incomplete and Complete Cases*.

## 2.5. Fairness and Accessibility

There are several procedures in place to ensure that the CAAs for ELA and mathematics are fair and accessible to all test takers. This subsection provides information on the available accessibility resources for use with the online CAAs for ELA and mathematics. Additionally, the differential item functioning (DIF) analysis used to identify items that may function differently across groups of examinees (e.g., gender, ethnicity) is also discussed briefly.

### 2.5.1. Universal Tools, Designated Supports, and Accommodations

The CAAs are specifically designed for students with significant cognitive disabilities and an IEP that calls for the use of a CAA. Additional resources are sometimes needed for these students. The CDE maintains a list of the universal tools, designated supports, and accommodations that are permitted for use in CAASPP online assessments in its web document "Matrix One: Universal Tools, Designated Supports, and Accommodations for the CAASPP System"[4] (CDE, 2018d).

**Universal tools** are available to all CAA students. These resources may be turned on and off when embedded as part of the technology platform for the online CAA assessments on the basis of student preference and selection.

**Designated supports** are available to CAA students when determined as needed by an educator or team of educators, with parent/guardian and student input as appropriate, or when specified in the student's IEP.

**Accommodations** must be permitted on CAAs for all eligible students when specified in the student's IEP.

While most of the resources presented for the CAASPP online assessments are accessible for the CAAs, there are a few resources that are not applicable because the CAAs are designed to be given one-on-one in the student's language of instruction, using the student's identified instructional resources.

For CAAs, designated supports and accommodations are assigned to individual students based on their needs. Such assignments are implemented in TOMS by the LEA CAASPP coordinator or CAASPP test site coordinator, either through individual assignment in the student's profile in TOMS or by batch upload, where settings were uploaded into TOMS for multiple students. Settings were either selected and entered into a macro-enabled template called the Individual Student Assessment Accessibility Profile (ISAAP) Tool that created an upload file; or entered into a template. These designated supports and accommodations were delivered to the student through the test delivery system at the time of testing.

Appendix 2.C presents the numbers and percentages of students using designated supports, accommodations, or unlisted resources. The use of universal tools is not tracked because they are available to all students in the test delivery system.

#### 2.5.1.1. Resources for Selection of Accessibility Resources

The full list of the universal tools, designated supports, and accommodations that are used in CAASPP online assessments are documented in Matrix One (CDE, 2018d). Most embedded universal tools, designated supports, and accommodations listed in Parts 1 and 2 of Matrix One are available for the CAAs for ELA and mathematics through the online testing interface. Part 3 of Matrix One includes non-embedded universal tools, designated supports, accommodations, and unlisted resources that are available particularly for CAA for ELA and mathematics testing. School-level personnel and IEP teams use Matrix One when deciding how best to support the student's test-taking experience. On the rare occasion when a student has both an IEP and a Section 504 plan, the Section 504 plan also should be referenced for accessibility resources.

[4] This technical report is based on the version of Matrix One that was available during the 2017–18 CAASPP administration.

In addition to assigning accessibility resources individually and via file upload in TOMS, LEAs had the option of using the ISAAP Tool to assign resources to students. *The ISAAP Tool is used by LEAs in conjunction with the* Smarter Balanced Assessment Consortium's *Usability, Accessibility, and Accommodations Guidelines* (Smarter Balanced, 2018) *and the Accessibility Guide for CAASPP Online Testing* (CDE, 2018a)*,* as well as with state regulations and policies (such as Matrix One) related to assessment accessibility.

#### 2.5.1.2. Delivery of Accessibility Resources

Universal tools, designated supports, and accommodations can be delivered as either embedded or non-embedded resources. Embedded resources are digitally delivered features or settings available as part of the technology platform for the online CAAs. Examples of embedded resources applicable to the CAAs include masking, color contrast, and print size. Non-embedded resources for the CAAs include magnification, calculator, and scribe.

#### 2.5.1.3. Unlisted Resources

An unlisted resource is an instructional support a student regularly uses in daily instruction, assessment, or both, and has not been previously identified as a universal tool, designated support, or accommodation. Matrix One includes an inventory of unlisted resources that have already been identified and preapproved (CDE, 2018d). During the 2017–18 CAASPP administration, an LEA CAASPP coordinator or a CAASPP test site coordinator had the option to submit a web form available in TOMS to request such a resource for an eligible student. The resource was required to be specified in the eligible student's IEP and only assigned with the CDE's approval.

For an unlisted resource to be approved, it must not change the construct of what is being tested for accountability purposes. If it did, the student received a score with a footnote that the test was administered under conditions that resulted in a score that may not be an accurate representation of the student's achievement. Appendix 2.C presents counts and percentages of students using designated supports, accommodations, and unlisted resources.

### 2.5.2. Differential Item Functioning (DIF)

DIF analyses are conducted to detect possible test bias by locating items for which one group of students performs significantly better than another group. DIF is a collection of statistical methods utilized to recognize if performance varies across different groups of examinees (e.g., male vs. female or white vs. African-American). If an item performs differentially across student groups when students are matched on ability, the item may be measuring something other than the intended construct. Therefore, it is important to identify items flagged for DIF. Content experts and bias and sensitivity experts from diverse backgrounds review these DIF-flagged items and determine the sources and meanings of performance differences. Refer to subsection *8.5. Differential Item Functioning (DIF)* for DIF analyses, and appendix 8.D for DIF analysis results.

## 2.6. Scores

### 2.6.1. Estimating Ability Scores

The IRT inverse test characteristic curve (TCC) method (Stocking, 1996)—where the student's ability value is estimated to be the value for which the expected number-correct score is equal to the student's number-correct score—is used to estimate students' overall ability parameters. For the purpose of reporting, students' ability estimates (theta scores)

are then expressed in three-digit scale scores by applying the appropriate linear transformation for each grade-level, content-area CAA for ELA or mathematics. Student performance on the reporting scale is designated into one of three achievement levels:

1. Level 1—Alternate
2. Level 2—Alternate
3. Level 3—Alternate

For information regarding score specifications and the establishment of score-reporting scales, refer to *Chapter 7: Scoring and Reporting*. For information regarding achievement levels, refer to *Chapter 6: Standard Setting* for a description of the process used to set achievement level standards.

### 2.6.2. Score Reporting

TOMS is a secure website hosted by ETS that allows LEA CAASPP coordinators to download Student Score Reports as PDF files and aggregated results for the LEA. CAA scores can also be viewed through the Online Reporting System (ORS), a secure website that provides authorized users with interactive and cumulative online reports for ELA and mathematics at the student, school, and LEA levels. The ORS provides three types of score reports: an individual student score report, a school report, and an LEA report. Refer to subsection *7.3.1 Online Reporting* for details about TOMS and the ORS; and subsection *7.3.3 Types of Score Reports* for the content of each type of score report.

### 2.6.3. Aggregation Procedures

In order to provide meaningful results to the stakeholders, CAA scores for a given grade and content area are aggregated and generated at the school, LEA or direct funded charter school, county, and state levels. State-level results are available on the CAASPP Public Web Reporting website at http://caaspp.cde.ca.gov/. The aggregated scores are presented for all students, or selected demographic student groups.

A variety of aggregated score types are also used to check the validity of the scores.

The aggregation procedures used to present CAA results are described in subsection *7.2 Overview of Score Aggregation Procedures*. Aggregated scores that summarize student performance by content area and grade for selected groups of students are provided in Table 7.D.1 through Table 7.D.14 starting on page 163. The tables show the numbers of students with valid scores in each group, scale score means and standard deviations, and percentage at an achievement level. Students are grouped by demographic characteristics, including gender, ethnicity, English-language fluency, primary disability, and economic status. Definitions for the demographic groups included in these tables are provided in Table 7.5 on page 98.

## 2.7. Equating

The purpose of equating using IRT models is to place item difficulty and student ability estimates onto a common theta scale for a given grade and content area. As a result, scores on pathways that include the router and different modules of Stage 2 are statistically adjusted to compensate for any differences in test difficulty; refer to Table 4.1 on page 52 in subsection *4.2.1.4 Pathways* in *Chapter 4: Test Assembly* for details about pathways.

IRT models (Hambleton & Swaminathan, 1985) are used to establish a common scale initially and provide ongoing maintenance of the program. The baseline scale for the CAAs for ELA and mathematics were established by calibrating samples of item response data

from the 2015–16 administration to which the item calibrations of the subsequent administrations could be linked. For the 2017–18 administration, the new item parameters were calibrated and placed on the reference scale by using a set of anchor items selected from the 2015–16 and 2016–17 forms and readministered in 2017–18.

CAA for ELA and mathematics equating has three steps: item calibration, linking, and scaling, as described next. The results of this procedure are further used to support scoring and item banking.

### 2.7.1. Calibration

A concurrent calibration is implemented to estimate parameters for all 2017–18 items, including embedded field-test items and all operational items. As a result of the concurrent calibration, the item parameter estimates are placed on a common scale for test items from the same grade and content area.

The concurrent calibration requires either "common items" or "random equivalent groups." The CAAs for ELA and mathematics MST tests are assembled with common items between modules, which supports the efficiency and accuracy of the concurrent calibrations. Refer to subsection *4.2.2. ELA and Mathematics Test Design* in *Chapter 4: Test Assembly* for the number and distributions of these items in each test.

The one-parameter logistic IRT model (Hambleton and Rogers, 1991) and the partial credit model (Masters, 1982) were used for item calibration of the CAAs with flexMIRT® (Cai, 2018) version 3.5 software.

Detailed procedures for the concurrent calibrations are included in subsection *8.3.2.1 Item Calibration*.

### 2.7.2. Linking

Linking is a procedure where items from different test forms or administrations are placed onto the reference scale so that items can be compared across forms and administrations. Calibrated item parameters for items on each grade-level test in the 2017–18 administration are linked to the reference scale that was established in spring 2016 with the mean-to-mean linking method (Loyd & Hoover, 1980).

Refer to subsection *8.3.2.2 Linking the Item Parameters* in *Chapter 8: Analyses* for additional information.

### 2.7.3. Scaling

Scaling refers to the procedure by which the number-correct scores (raw scores) on each new form are transformed to the scale scores on the reference-year scale, so that the scores of students who take different forms are comparable. Once the new item calibrations for each test are transformed to the reference year scale, the new form number-correct scores (raw scores) can also be transformed to their respective ability (theta) scores. Subsequently, these ability (theta) scores can be transformed to scale scores through linear transformation.

Details of the scaling procedure can be found in subsection *8.3.2.3 Scaling the Scores* of *Chapter 8: Analyses*.

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# Appendix 2.A: Item Types

**Table 2.A.1 California Alternate Assessment (CAA) Item Types**

| Response Type | Item Type | Description |
|---|---|---|
| Multiple choice (MC) single select | MC | The item generally consists of a stem and list of choices; test taker can select only one choice to respond. May also include a stimulus. |
| MC multiple selects | MC | The item generally consists of a stem and list of choices; test taker can select two or more choices to respond. May also include a stimulus. |
| Inline choice list single select | MC | The stem contains a single blank; test taker must fill in the blank by selecting a choice from its corresponding choice list. |
| Inline choice list multiple select | MC | The stem contains two or more blanks; test taker must fill in each blank by selecting a choice from the corresponding choice lists. |
| Numeric | Short CR | The test taker responds by filling in a single entry box with a numeric value. The entry box may be standalone, in line with text, or displayed on top of an image. |
| Grid single select * | MC | The test taker responds by marking a single cell in a table grid. |
| Zones single select * | Hot Spot | An item where the answer choices are predefined “hotspots” on an image. When the test taker selects (clicks) on the spot, the selection is highlighted, shaded, or outlined in red. The test taker selects one zone to respond. |
| Zone multiple select * | Hot Spot | An item where the answer choices are predefined “hotspots” on an image. When the test taker selects (clicks) on the spot, the selection is highlighted, shaded, or outlined in red. The test taker selects two or more zones to respond. |

| Response Type | Item Type | Description |
|---|---|---|
| Match single select * | Drag & Drop | The test taker responds by dragging and dropping a single choice ("source") into the appropriate location ("target"). For the CAA items, students do not drag items, they simply select (click) the source and then the target area, and the source snaps to the target area.<br>There are four main varieties of this item type:<br>1. Target Table—text-based sources with targets arranged in table structure<br>2. Target Passage—text-based sources with targets arranged in paragraphs of text<br>3. Target Positions—text-based sources with targets arranged on top of an image<br>4. Image Map—image-based sources, and both sources and targets are arranged on top of an image |

| Response Type | Item Type | Description |
|---|---|---|
| Match multiple select * | Drag & Drop | The test taker responds by dragging and dropping two or more choices ("sources") into the appropriate locations ("targets"). For the CAA items, students do not drag items, they simply select (click) the source and then the target area, and the source snaps to the target area.<br>There are four main varieties:<br>1. Target Table—text-based sources with targets arranged in table structure<br>2. Target Passage—text-based sources with targets arranged in paragraphs of text<br>3. Target Positions—text-based sources with targets arranged on top of an image<br>4. Image Map—image-based sources, and both sources and targets are arranged on top of an image<br>These varieties allow for following scenarios:<br>• Exact matching (i.e., ordering)<br>• Sources correctly placed in multiple different targets<br>• Reuse sources<br>• Reuse targets<br>• Partial scoring |
| Bar graph single select * | Short CR | The test taker responds by manipulating a single bar on a graph. Bars can be solid or consist of stacked icons (e.g., dollar signs representing money, stick figures representing people, etc.). Bars can be horizontally or vertically oriented. |

| Response Type | Item Type | Description |
|---|---|---|
| Bar graph multiple select * | Short CR | The test taker responds by manipulating two or more bars on a graph. Bars can be solid or consist of stacked icons (e.g., dollar signs representing money, stick figures representing people, etc.). Bars can be horizontally or vertically oriented. |
| Composite | Composite Objective | Interactions vary depending on which item types were associated. Keys vary depending on which item types were associated. |

* Indicates technology-enhanced items

# Appendix 2.B: California Alternate Assessment (CAA) Participation

**Table 2.B.1 CAA 2017–18 Participation—English Language Arts/Literacy (ELA) Grades Three Through Six**

| Student Group | Grade 3: Number Enrolled | Grade 3: Number Tested | Grade 3: Percent Tested | Grade 4: Number Enrolled | Grade 4: Number Tested | Grade 4: Percent Tested | Grade 5: Number Enrolled | Grade 5: Number Tested | Grade 5: Percent Tested | Grade 6: Number Enrolled | Grade 6: Number Tested | Grade 6: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All | 5,518 | 5,102 | 92% | 5,710 | 5,324 | 93% | 5,766 | 5,330 | 92% | 5,887 | 5,386 | 91% |
| Gender: Male | 3,829 | 3,540 | 92% | 3,853 | 3,600 | 93% | 3,922 | 3,643 | 93% | 3,942 | 3,606 | 91% |
| Gender Female | 1,689 | 1,562 | 92% | 1,857 | 1,724 | 93% | 1,844 | 1,687 | 91% | 1,945 | 1,780 | 92% |
| Ethnicity: American Indian or Alaska Native | 38 | 34 | 89% | 32 | 30 | 94% | 33 | 32 | 97% | 32 | 29 | 91% |
| Ethnicity: Asian | 444 | 398 | 90% | 450 | 419 | 93% | 438 | 412 | 94% | 456 | 415 | 91% |
| Ethnicity: Native Hawaiian or Other Pacific Islander | 24 | 23 | 96% | 31 | 29 | 94% | 28 | 27 | 96% | 26 | 25 | 96% |
| Ethnicity: Filipino | 139 | 131 | 94% | 131 | 126 | 96% | 137 | 130 | 95% | 158 | 139 | 88% |
| Ethnicity: Hispanic or Latino | 3,103 | 2,921 | 94% | 3,213 | 3,049 | 95% | 3,296 | 3,098 | 94% | 3,401 | 3,188 | 94% |
| Ethnicity: Black or African American | 426 | 388 | 91% | 455 | 418 | 92% | 441 | 397 | 90% | 480 | 433 | 90% |
| Ethnicity: White | 1,073 | 957 | 89% | 1,134 | 1,020 | 90% | 1,178 | 1,035 | 88% | 1,107 | 970 | 88% |
| Ethnicity: Two or more races | 271 | 250 | 92% | 264 | 233 | 88% | 215 | 199 | 93% | 227 | 187 | 82% |

| Student Group | Grade 3: Number Enrolled | Grade 3: Number Tested | Grade 3: Percent Tested | Grade 4: Number Enrolled | Grade 4: Number Tested | Grade 4: Percent Tested | Grade 5: Number Enrolled | Grade 5: Number Tested | Grade 5: Percent Tested | Grade 6: Number Enrolled | Grade 6: Number Tested | Grade 6: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| English proficiency: English only | 3,408 | 3,124 | 92% | 3,497 | 3,217 | 92% | 3,406 | 3,095 | 91% | 3,408 | 3,071 | 90% |
| English proficiency: Initial fluent English proficient | 39 | 36 | 92% | 54 | 48 | 89% | 42 | 40 | 95% | 57 | 57 | 100% |
| English proficiency: English learner | 1,874 | 1,764 | 94% | 1,886 | 1,792 | 95% | 1,947 | 1,844 | 95% | 1,934 | 1,801 | 93% |
| English proficiency: Reclassified fluent English proficient | 184 | 169 | 92% | 264 | 259 | 98% | 362 | 342 | 94% | 479 | 450 | 94% |
| English proficiency: To be determined | 5 | 4 | 80% | 6 | 5 | 83% | 4 | 4 | 100% | 4 | 3 | 75% |
| English proficiency: English proficiency unknown | 8 | 5 | 63% | 3 | 3 | 100% | 5 | 5 | 100% | 5 | 4 | 80% |
| Economic status: Not economically disadvantaged | 1,877 | 1,666 | 89% | 1,919 | 1,722 | 90% | 2,009 | 1,782 | 89% | 2,002 | 1,743 | 87% |
| Economic status: Economically disadvantaged | 3,641 | 3,436 | 94% | 3,791 | 3,602 | 95% | 3,757 | 3,548 | 94% | 3,885 | 3,643 | 94% |
| Primary disability: Intellectual disability | 1,694 | 1,592 | 94% | 1,892 | 1,786 | 94% | 2,014 | 1,893 | 94% | 2,129 | 1,997 | 94% |
| Primary disability: Hearing impairment | 52 | 48 | 92% | 54 | 53 | 98% | 42 | 41 | 98% | 67 | 63 | 94% |
| Primary disability: Speech or language impairment | 225 | 205 | 91% | 195 | 187 | 96% | 177 | 168 | 95% | 126 | 118 | 94% |

| Student Group | Grade 3: Number Enrolled | Grade 3: Number Tested | Grade 3: Percent Tested | Grade 4: Number Enrolled | Grade 4: Number Tested | Grade 4: Percent Tested | Grade 5: Number Enrolled | Grade 5: Number Tested | Grade 5: Percent Tested | Grade 6: Number Enrolled | Grade 6: Number Tested | Grade 6: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Primary disability: Visual impairment | 19 | 18 | 95% | 25 | 22 | 88% | 32 | 24 | 75% | 28 | 23 | 82% |
| Primary disability: Emotional disturbance | 26 | 23 | 88% | 36 | 29 | 81% | 39 | 34 | 87% | 36 | 34 | 94% |
| Primary disability: Orthopedic impairment | 210 | 172 | 82% | 245 | 217 | 89% | 284 | 242 | 85% | 302 | 243 | 80% |
| Primary disability: Other health impairment | 347 | 308 | 89% | 329 | 308 | 94% | 296 | 273 | 92% | 291 | 263 | 90% |
| Primary disability: Specific learning disability | 302 | 288 | 95% | 411 | 394 | 96% | 419 | 397 | 95% | 408 | 384 | 94% |
| Primary disability: Deaf–blindness | 4 | 3 | 75% | 3 | 1 | 33% | NA | NA | NA | 6 | 5 | 83% |
| Primary disability: Multiple disabilities | 313 | 260 | 83% | 331 | 276 | 83% | 348 | 293 | 84% | 384 | 320 | 83% |
| Primary disability: Autism | 2,297 | 2,159 | 94% | 2,166 | 2,030 | 94% | 2,088 | 1,944 | 93% | 2,068 | 1,901 | 92% |
| Primary disability: Traumatic brain injury | 29 | 26 | 90% | 23 | 21 | 91% | 27 | 21 | 78% | 42 | 35 | 83% |
| Primary disability: Not classified (changed or removed after student testing) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 2.B.2 CAA 2017–18 Participation—ELA, Grades Seven Through Eight and Grade Eleven**

| Student Group | Grade 7: Number Enrolled | Grade 7: Number Tested | Grade 7: Percent Tested | Grade 8: Number Enrolled | Grade 8: Number Tested | Grade 8: Percent Tested | Grade 11: Number Enrolled | Grade 11: Number Tested | Grade 11: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|
| All | 5,969 | 5,383 | 90% | 5,808 | 5,238 | 90% | 5,330 | 4,457 | 84% |
| Gender: Male | 4,007 | 3,630 | 91% | 3,905 | 3,531 | 90% | 3,498 | 2,924 | 84% |
| Gender Female | 1,962 | 1,753 | 89% | 1,903 | 1,707 | 90% | 1,832 | 1,533 | 84% |
| Ethnicity: American Indian or Alaska Native | 38 | 33 | 87% | 34 | 31 | 91% | 40 | 35 | 88% |
| Ethnicity: Asian | 435 | 402 | 92% | 491 | 437 | 89% | 413 | 351 | 85% |
| Ethnicity: Native Hawaiian or Other Pacific Islander | 33 | 29 | 88% | 26 | 24 | 92% | 23 | 18 | 78% |
| Ethnicity: Filipino | 164 | 152 | 93% | 176 | 164 | 93% | 163 | 128 | 79% |
| Ethnicity: Hispanic or Latino | 3,359 | 3,097 | 92% | 3,201 | 2,968 | 93% | 2,841 | 2,432 | 86% |
| Ethnicity: Black or African American | 511 | 464 | 91% | 478 | 429 | 90% | 499 | 420 | 84% |
| Ethnicity: White | 1,195 | 994 | 83% | 1,227 | 1,028 | 84% | 1,186 | 934 | 79% |
| Ethnicity: Two or more races | 234 | 212 | 91% | 175 | 157 | 90% | 165 | 139 | 84% |
| English proficiency: English only | 3,526 | 3,104 | 88% | 3,384 | 2,978 | 88% | 3,183 | 2,619 | 82% |
| English proficiency: Initial fluent English proficient | 87 | 83 | 95% | 97 | 93 | 96% | 83 | 71 | 86% |
| English proficiency: English learner | 1,846 | 1,721 | 93% | 1,773 | 1,644 | 93% | 1,465 | 1,237 | 84% |
| English proficiency: Reclassified fluent English proficient | 499 | 467 | 94% | 545 | 516 | 95% | 586 | 519 | 89% |
| English proficiency: To be determined | 4 | 2 | 50% | 3 | 2 | 67% | 2 | 1 | 50% |
| English proficiency: English proficiency unknown | 7 | 6 | 86% | 6 | 5 | 83% | 11 | 10 | 91% |

| Student Group | Grade 7: Number Enrolled | Grade 7: Number Tested | Grade 7: Percent Tested | Grade 8: Number Enrolled | Grade 8: Number Tested | Grade 8: Percent Tested | Grade 11: Number Enrolled | Grade 11: Number Tested | Grade 11: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|
| Economic status: Not economically disadvantaged | 2,099 | 1,792 | 85% | 2,142 | 1,817 | 85% | 2,018 | 1,594 | 79% |
| Economic status: Economically disadvantaged | 3,870 | 3,591 | 93% | 3,666 | 3,421 | 93% | 3,312 | 2,863 | 86% |
| Primary disability: Intellectual disability | 2,279 | 2,090 | 92% | 2,255 | 2,075 | 92% | 2,189 | 1,892 | 86% |
| Primary disability: Hearing impairment | 50 | 47 | 94% | 55 | 51 | 93% | 58 | 50 | 86% |
| Primary disability: Speech or language impairment | 117 | 109 | 93% | 112 | 104 | 93% | 51 | 47 | 92% |
| Primary disability: Visual impairment | 24 | 18 | 75% | 37 | 31 | 84% | 42 | 30 | 71% |
| Primary disability: Emotional disturbance | 58 | 48 | 83% | 47 | 35 | 74% | 65 | 39 | 60% |
| Primary disability: Orthopedic impairment | 289 | 235 | 81% | 274 | 213 | 78% | 295 | 231 | 78% |
| Primary disability: Other health impairment | 348 | 300 | 86% | 318 | 279 | 88% | 240 | 192 | 80% |
| Primary disability: Specific learning disability | 448 | 422 | 94% | 364 | 343 | 94% | 334 | 276 | 83% |
| Primary disability: Deaf–blindness | NA | NA | NA | 6 | 3 | 50% | 3 | 2 | 67% |
| Primary disability: Multiple disabilities | 324 | 266 | 82% | 341 | 280 | 82% | 292 | 227 | 78% |
| Primary disability: Autism | 1,999 | 1,821 | 91% | 1,973 | 1,801 | 91% | 1,712 | 1,434 | 84% |
| Primary disability: Traumatic brain injury | 33 | 27 | 82% | 26 | 23 | 88% | 49 | 37 | 76% |
| Primary disability: Not classified (changed or removed after student testing) | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 2.B.3 CAA 2017–18 Participation—Mathematics, Grades Three Through Six**

| Student Group | Grade 3: Number Enrolled | Grade 3: Number Tested | Grade 3: Percent Tested | Grade 4: Number Enrolled | Grade 4: Number Tested | Grade 4: Percent Tested | Grade 5: Number Enrolled | Grade 5: Number Tested | Grade 5: Percent Tested | Grade 6: Number Enrolled | Grade 6: Number Tested | Grade 6: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All | 5,518 | 5,101 | 92% | 5,710 | 5,309 | 93% | 5,766 | 5,319 | 92% | 5,887 | 5,366 | 91% |
| Gender: Male | 3,829 | 3,536 | 92% | 3,853 | 3,587 | 93% | 3,922 | 3,632 | 93% | 3,942 | 3,592 | 91% |
| Gender Female | 1,689 | 1,565 | 93% | 1,857 | 1,722 | 93% | 1,844 | 1,687 | 91% | 1,945 | 1,774 | 91% |
| Ethnicity: American Indian or Alaska Native | 38 | 34 | 89% | 32 | 30 | 94% | 33 | 32 | 97% | 32 | 29 | 91% |
| Ethnicity: Asian | 444 | 401 | 90% | 450 | 417 | 93% | 438 | 408 | 93% | 456 | 415 | 91% |
| Ethnicity: Native Hawaiian or Other Pacific Islander | 24 | 23 | 96% | 31 | 29 | 94% | 28 | 27 | 96% | 26 | 25 | 96% |
| Ethnicity: Filipino | 139 | 130 | 94% | 131 | 125 | 95% | 137 | 130 | 95% | 158 | 139 | 88% |
| Ethnicity: Hispanic or Latino | 3,103 | 2,911 | 94% | 3,213 | 3,044 | 95% | 3,296 | 3,100 | 94% | 3,401 | 3,171 | 93% |
| Ethnicity: Black or African American | 426 | 391 | 92% | 455 | 417 | 92% | 441 | 394 | 89% | 480 | 432 | 90% |
| Ethnicity: White | 1,073 | 959 | 89% | 1,134 | 1,014 | 89% | 1,178 | 1,031 | 88% | 1,107 | 969 | 88% |
| Ethnicity: Two or more races | 271 | 252 | 93% | 264 | 233 | 88% | 215 | 197 | 92% | 227 | 186 | 82% |
| English proficiency: English only | 3,408 | 3,116 | 91% | 3,497 | 3,201 | 92% | 3,406 | 3,088 | 91% | 3,408 | 3,054 | 90% |
| English proficiency: Initial fluent English proficient | 39 | 35 | 90% | 54 | 47 | 87% | 42 | 40 | 95% | 57 | 57 | 100% |
| English proficiency: English learner | 1,874 | 1,770 | 94% | 1,886 | 1,796 | 95% | 1,947 | 1,841 | 95% | 1,934 | 1,797 | 93% |

| Student Group | Grade 3: Number Enrolled | Grade 3: Number Tested | Grade 3: Percent Tested | Grade 4: Number Enrolled | Grade 4: Number Tested | Grade 4: Percent Tested | Grade 5: Number Enrolled | Grade 5: Number Tested | Grade 5: Percent Tested | Grade 6: Number Enrolled | Grade 6: Number Tested | Grade 6: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| English proficiency: Reclassified fluent English proficient | 184 | 169 | 92% | 264 | 257 | 97% | 362 | 341 | 94% | 479 | 451 | 94% |
| English proficiency: To be determined | 5 | 4 | 80% | 6 | 5 | 83% | 4 | 4 | 100% | 4 | 3 | 75% |
| English proficiency: English proficiency unknown | 8 | 7 | 88% | 3 | 3 | 100% | 5 | 5 | 100% | 5 | 4 | 80% |
| Economic status: Not economically disadvantaged | 1,877 | 1,667 | 89% | 1,919 | 1,714 | 89% | 2,009 | 1,777 | 88% | 2,002 | 1,734 | 87% |
| Economic status: Economically disadvantaged | 3,641 | 3,434 | 94% | 3,791 | 3,595 | 95% | 3,757 | 3,542 | 94% | 3,885 | 3,632 | 93% |
| Primary disability: Intellectual disability | 1,694 | 1,599 | 94% | 1,892 | 1,784 | 94% | 2,014 | 1,892 | 94% | 2,129 | 1,986 | 93% |
| Primary disability: Hearing impairment | 52 | 48 | 92% | 54 | 53 | 98% | 42 | 41 | 98% | 67 | 62 | 93% |
| Primary disability: Speech or language impairment | 225 | 206 | 92% | 195 | 187 | 96% | 177 | 166 | 94% | 126 | 116 | 92% |
| Primary disability: Visual impairment | 19 | 17 | 89% | 25 | 22 | 88% | 32 | 25 | 78% | 28 | 23 | 82% |
| Primary disability: Emotional disturbance | 26 | 23 | 88% | 36 | 29 | 81% | 39 | 34 | 87% | 36 | 33 | 92% |
| Primary disability: Orthopedic impairment | 210 | 174 | 83% | 245 | 216 | 88% | 284 | 242 | 85% | 302 | 244 | 81% |

| Student Group | Grade 3: Number Enrolled | Grade 3: Number Tested | Grade 3: Percent Tested | Grade 4: Number Enrolled | Grade 4: Number Tested | Grade 4: Percent Tested | Grade 5: Number Enrolled | Grade 5: Number Tested | Grade 5: Percent Tested | Grade 6: Number Enrolled | Grade 6: Number Tested | Grade 6: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Primary disability: Other health impairment | 347 | 307 | 88% | 329 | 309 | 94% | 296 | 271 | 92% | 291 | 263 | 90% |
| Primary disability: Specific learning disability | 302 | 292 | 97% | 411 | 393 | 96% | 419 | 396 | 95% | 408 | 380 | 93% |
| Primary disability: Deaf–blindness | 4 | 3 | 75% | 3 | 1 | 33% | NA | NA | NA | 6 | 5 | 83% |
| Primary disability: Multiple disabilities | 313 | 258 | 82% | 331 | 277 | 84% | 348 | 295 | 85% | 384 | 320 | 83% |
| Primary disability: Autism | 2,297 | 2,148 | 94% | 2,166 | 2,017 | 93% | 2,088 | 1,937 | 93% | 2,068 | 1,899 | 92% |
| Primary disability: Traumatic brain injury | 29 | 26 | 90% | 23 | 21 | 91% | 27 | 20 | 74% | 42 | 35 | 83% |
| Primary disability: Not classified (changed or removed after student testing) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 2.B.4 CAA 2017–18 Participation—Mathematics, Grades Seven Through Eight and Grade Eleven**

| Student Group | Grade 7: Number Enrolled | Grade 7: Number Tested | Grade 7: Percent Tested | Grade 8: Number Enrolled | Grade 8: Number Tested | Grade 8: Percent Tested | Grade 11: Number Enrolled | Grade 11: Number Tested | Grade 11: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|
| All | 5,969 | 5,375 | 90% | 5,808 | 5,229 | 90% | 5,330 | 4,437 | 83% |
| Gender: Male | 4,007 | 3,632 | 91% | 3,905 | 3,532 | 90% | 3,498 | 2,916 | 83% |
| Gender Female | 1,962 | 1,743 | 89% | 1,903 | 1,697 | 89% | 1,832 | 1,521 | 83% |
| Ethnicity: American Indian or Alaska Native | 38 | 34 | 89% | 34 | 31 | 91% | 40 | 34 | 85% |
| Ethnicity: Asian | 435 | 402 | 92% | 491 | 435 | 89% | 413 | 346 | 84% |
| Ethnicity: Native Hawaiian or Other Pacific Islander | 33 | 28 | 85% | 26 | 24 | 92% | 23 | 18 | 78% |
| Ethnicity: Filipino | 164 | 152 | 93% | 176 | 163 | 93% | 163 | 128 | 79% |
| Ethnicity: Hispanic or Latino | 3,359 | 3,096 | 92% | 3,201 | 2,968 | 93% | 2,841 | 2,430 | 86% |
| Ethnicity: Black or African American | 511 | 465 | 91% | 478 | 430 | 90% | 499 | 416 | 83% |
| Ethnicity: White | 1,195 | 984 | 82% | 1,227 | 1,023 | 83% | 1,186 | 931 | 78% |
| Ethnicity: Two or more races | 234 | 214 | 91% | 175 | 155 | 89% | 165 | 134 | 81% |
| English proficiency: English only | 3,526 | 3,090 | 88% | 3,384 | 2,965 | 88% | 3,183 | 2,599 | 82% |
| English proficiency: Initial fluent English proficient | 87 | 84 | 97% | 97 | 93 | 96% | 83 | 70 | 84% |
| English proficiency: English learner | 1,846 | 1,729 | 94% | 1,773 | 1,648 | 93% | 1,465 | 1,239 | 85% |
| English proficiency: Reclassified fluent English proficient | 499 | 464 | 93% | 545 | 515 | 94% | 586 | 517 | 88% |
| English proficiency: To be determined | 4 | 2 | 50% | 3 | 2 | 67% | 2 | 1 | 50% |
| English proficiency: English proficiency unknown | 7 | 6 | 86% | 6 | 6 | 100% | 11 | 11 | 100% |

| Student Group | Grade 7: Number Enrolled | Grade 7: Number Tested | Grade 7: Percent Tested | Grade 8: Number Enrolled | Grade 8: Number Tested | Grade 8: Percent Tested | Grade 11: Number Enrolled | Grade 11: Number Tested | Grade 11: Percent Tested |
|---|---|---|---|---|---|---|---|---|---|
| Economic status: Not economically disadvantaged | 2,099 | 1,781 | 85% | 2,142 | 1,820 | 85% | 2,018 | 1,580 | 78% |
| Economic status: Economically disadvantaged | 3,870 | 3,594 | 93% | 3,666 | 3,409 | 93% | 3,312 | 2,857 | 86% |
| Primary disability: Intellectual disability | 2,279 | 2,093 | 92% | 2,255 | 2,084 | 92% | 2,189 | 1,876 | 86% |
| Primary disability: Hearing impairment | 50 | 47 | 94% | 55 | 50 | 91% | 58 | 50 | 86% |
| Primary disability: Speech or language impairment | 117 | 109 | 93% | 112 | 104 | 93% | 51 | 46 | 90% |
| Primary disability: Visual impairment | 24 | 18 | 75% | 37 | 31 | 84% | 42 | 29 | 69% |
| Primary disability: Emotional disturbance | 58 | 48 | 83% | 47 | 36 | 77% | 65 | 39 | 60% |
| Primary disability: Orthopedic impairment | 289 | 231 | 80% | 274 | 214 | 78% | 295 | 230 | 78% |
| Primary disability: Other health impairment | 348 | 299 | 86% | 318 | 280 | 88% | 240 | 190 | 79% |
| Primary disability: Specific learning disability | 448 | 423 | 94% | 364 | 341 | 94% | 334 | 275 | 82% |
| Primary disability: Deaf–blindness | NA | NA | NA | 6 | 3 | 50% | 3 | 3 | 100% |
| Primary disability: Multiple disabilities | 324 | 263 | 81% | 341 | 278 | 82% | 292 | 230 | 79% |
| Primary disability: Autism | 1,999 | 1,817 | 91% | 1,973 | 1,785 | 90% | 1,712 | 1,431 | 84% |
| Primary disability: Traumatic brain injury | 33 | 27 | 82% | 26 | 23 | 88% | 49 | 38 | 78% |
| Primary disability: Not classified (changed or removed after student testing) | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# Appendix 2.C: Accessibility

**Table 2.C.1 Assignment of Designated Supports and Accommodations—English Language Arts/Literacy (ELA), Grades Three through Six**

| Accessibility Resource | Grade 3: N | Grade 3: % of Total Tested | Grade 4: N | Grade 4: % of Total Tested | Grade 5: N | Grade 5: % of Total Tested | Grade 6: N | Grade 6: % of Total Tested |
|---|---|---|---|---|---|---|---|---|
| Embedded Accommodation—Streamlining | 198 | 4% | 207 | 4% | 270 | 5% | 276 | 5% |
| Non-Embedded Accommodation—Print on Demand | 48 | 1% | 81 | 2% | 95 | 2% | 98 | 2% |
| Non-Embedded Accommodation—Alternate Response Options | 539 | 11% | 610 | 11% | 701 | 13% | 648 | 12% |
| Non-Embedded Accommodation—Read Aloud | 1,296 | 25% | 1,484 | 28% | 1,546 | 29% | 1,465 | 27% |
| Non-Embedded Accommodation—Unlisted Resources | 3 | 0% | 8 | 0% | 13 | 0% | 0 | 0% |
| Non-Embedded Accommodation—Word Prediction | 75 | 1% | 58 | 1% | 46 | 1% | 52 | 1% |
| Non-Embedded Accommodation—Scribe | 571 | 11% | 614 | 12% | 687 | 13% | 589 | 11% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 667 | 13% | 876 | 16% | 776 | 15% | 765 | 14% |
| Embedded Designated Support—Color Contrast | 43 | 1% | 53 | 1% | 57 | 1% | 67 | 1% |
| Embedded Designated Support—Masking | 285 | 6% | 326 | 6% | 381 | 7% | 419 | 8% |
| Embedded Designated Support—Mouse Pointer | 50 | 1% | 34 | 1% | 33 | 1% | 30 | 1% |
| Embedded Designated Support—Print Size | 114 | 2% | 148 | 3% | 154 | 3% | 190 | 4% |
| Embedded Designated Support—Permissive Mode | 136 | 3% | 130 | 2% | 152 | 3% | 146 | 3% |
| Embedded Designated Support—Turn off Any Universal Tool | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

| Accessibility Resource | Grade 3: N | Grade 3: % of Total Tested | Grade 4: N | Grade 4: % of Total Tested | Grade 5: N | Grade 5: % of Total Tested | Grade 6: N | Grade 6: % of Total Tested |
|---|---|---|---|---|---|---|---|---|
| Non-Embedded Designated Support—Amplification | 42 | 1% | 20 | 0% | 22 | 0% | 30 | 1% |
| Non-Embedded Designated Support—Color Contrast | 35 | 1% | 45 | 1% | 49 | 1% | 55 | 1% |
| Non-Embedded Designated Support—Color Overlay | 18 | 0% | 24 | 0% | 53 | 1% | 42 | 1% |
| Non-Embedded Designated Support—Magnification | 163 | 3% | 164 | 3% | 205 | 4% | 216 | 4% |
| Non-Embedded Designated Support—Noise Buffers | 472 | 9% | 561 | 11% | 564 | 11% | 459 | 9% |
| Non-Embedded Designated Support—Read Aloud | 1,359 | 27% | 1,597 | 30% | 1,893 | 36% | 1,705 | 32% |
| Non-Embedded Designated Support—Scribe | 593 | 12% | 642 | 12% | 786 | 15% | 669 | 12% |
| Non-Embedded Designated Support—Separate Setting | 1,439 | 28% | 1,685 | 32% | 1,843 | 35% | 1,696 | 31% |
| **Total Students Tested** | **5,102** | **NA** | **5,324** | **NA** | **5,330** | **NA** | **5,386** | **NA** |

**Table 2.C.2 Assignment of Designated Supports and Accommodations—ELA, Grades Seven through Eight and Grade Eleven**

| Accessibility Resource | Grade 7: N | Grade 7: % of Total Tested | Grade 8: N | Grade 8: % of Total Tested | Grade 11: N | Grade 11: % of Total Tested |
|---|---|---|---|---|---|---|
| Embedded Accommodation—Streamlining | 211 | 4% | 174 | 3% | 74 | 2% |
| Non-Embedded Accommodation—Print on Demand | 97 | 2% | 117 | 2% | 41 | 1% |
| Non-Embedded Accommodation—Alternate Response Options | 646 | 12% | 591 | 11% | 215 | 5% |
| Non-Embedded Accommodation—Read Aloud | 1,509 | 28% | 1,393 | 27% | 630 | 14% |
| Non-Embedded Accommodation—Unlisted Resources | 1 | 0% | 2 | 0% | 1 | 0% |
| Non-Embedded Accommodation—Word Prediction | 54 | 1% | 27 | 1% | 57 | 1% |
| Non-Embedded Accommodation—Scribe | 612 | 11% | 522 | 10% | 234 | 5% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 759 | 14% | 635 | 12% | 318 | 7% |
| Embedded Designated Support—Color Contrast | 43 | 1% | 44 | 1% | 37 | 1% |
| Embedded Designated Support—Masking | 411 | 8% | 342 | 7% | 154 | 3% |
| Embedded Designated Support—Mouse Pointer | 28 | 1% | 28 | 1% | 37 | 1% |
| Embedded Designated Support—Print Size | 185 | 3% | 173 | 3% | 87 | 2% |
| Embedded Designated Support—Permissive Mode | 140 | 3% | 132 | 3% | 81 | 2% |
| Embedded Designated Support—Turn off Any Universal Tool | 0 | NA | 0 | NA | 0 | NA |

| Accessibility Resource | Grade 7: N | Grade 7: % of Total Tested | Grade 8: N | Grade 8: % of Total Tested | Grade 11: N | Grade 11: % of Total Tested |
|---|---|---|---|---|---|---|
| Non-Embedded Designated Support—Amplification | 25 | 0% | 30 | 1% | 25 | 1% |
| Non-Embedded Designated Support—Color Contrast | 49 | 1% | 44 | 1% | 21 | 0% |
| Non-Embedded Designated Support—Color Overlay | 32 | 1% | 44 | 1% | 38 | 1% |
| Non-Embedded Designated Support—Magnification | 213 | 4% | 213 | 4% | 111 | 2% |
| Non-Embedded Designated Support—Noise Buffers | 482 | 9% | 469 | 9% | 207 | 5% |
| Non-Embedded Designated Support—Read Aloud | 1,777 | 33% | 1,632 | 31% | 805 | 18% |
| Non-Embedded Designated Support—Scribe | 678 | 13% | 586 | 11% | 282 | 6% |
| Non-Embedded Designated Support—Separate Setting | 1,818 | 34% | 1,668 | 32% | 889 | 20% |
| **Total Students Tested** | **5,383** | **NA** | **5,238** | **NA** | **4,457** | **NA** |

**Table 2.C.3 Assignment of Designated Supports and Accommodations—Mathematics, Grades Three through Six**

| Accessibility Resource | Grade 3: N | Grade 3: % of Total Tested | Grade 4: N | Grade 4: % of Total Tested | Grade 5: N | Grade 5: % of Total Tested | Grade 6: N | Grade 6: % of Total Tested |
|---|---|---|---|---|---|---|---|---|
| Embedded Accommodation—Streamlining | 197 | 4% | 209 | 4% | 267 | 5% | 274 | 5% |
| Non-Embedded Accommodation—Print on Demand | 47 | 1% | 81 | 2% | 95 | 2% | 98 | 2% |
| Non-Embedded Accommodation—Alternate Response Options | 538 | 11% | 613 | 12% | 694 | 13% | 651 | 12% |
| Non-Embedded Accommodation—Unlisted Resources | 3 | 0% | 7 | 0% | 13 | 0% | 0 | 0% |
| Non-Embedded Accommodation—Word Prediction | 75 | 1% | 60 | 1% | 47 | 1% | 52 | 1% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 663 | 13% | 875 | 16% | 776 | 15% | 764 | 14% |
| Non-Embedded Accommodation—Abacus | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| Non-Embedded Accommodation—Calculator | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| Non-Embedded Accommodation—Multiplication Table | 0 | NA | 576 | 11% | 857 | 16% | 1035 | 19% |
| Non-Embedded Accommodation-100s Number Table | 0 | NA | 743 | 14% | 488 | 9% | 475 | 9% |
| Embedded Designated Support —Color Contrast | 41 | 1% | 54 | 1% | 57 | 1% | 66 | 1% |
| Embedded Designated Support—Masking | 287 | 6% | 324 | 6% | 379 | 7% | 418 | 8% |
| Embedded Designated Support—Mouse Pointer | 50 | 1% | 35 | 1% | 30 | 1% | 29 | 1% |
| Embedded Designated Support—Print Size | 115 | 2% | 146 | 3% | 153 | 3% | 189 | 4% |
| Embedded Designated Support—Permissive Mode | 128 | 3% | 128 | 2% | 151 | 3% | 144 | 3% |
| Embedded Designated Support—Turn off Any Universal Tool | 0 | NA | 0 | NA | 0 | NA | 0 | NA |

| Accessibility Resource | Grade 3: N | Grade 3: % of Total Tested | Grade 4: N | Grade 4: % of Total Tested | Grade 5: N | Grade 5: % of Total Tested | Grade 6: N | Grade 6: % of Total Tested |
|---|---|---|---|---|---|---|---|---|
| Non-Embedded Designated Support—Amplification | 42 | 1% | 20 | 0% | 21 | 0% | 30 | 1% |
| Non-Embedded Designated Support—Color Contrast | 34 | 1% | 46 | 1% | 49 | 1% | 55 | 1% |
| Non-Embedded Designated Support—Color Overlay | 17 | 0% | 26 | 0% | 53 | 1% | 42 | 1% |
| Non-Embedded Designated Support—Magnification | 162 | 3% | 166 | 3% | 203 | 4% | 215 | 4% |
| Non-Embedded Designated Support—Noise Buffers | 473 | 9% | 562 | 11% | 560 | 11% | 461 | 9% |
| Non-Embedded Designated Support—Read Aloud | 1,360 | 27% | 1,593 | 30% | 1,891 | 36% | 1,705 | 32% |
| Non-Embedded Designated Support—Scribe | 595 | 12% | 640 | 12% | 787 | 15% | 671 | 13% |
| Non-Embedded Designated Support—Separate Setting | 1,437 | 28% | 1,680 | 32% | 1,837 | 35% | 1,690 | 31% |
| **Total Students Tested** | **5,101** | **NA** | **5,309** | **NA** | **5,319** | **NA** | **5,366** | **NA** |

**Table 2.C.4 Assignment of Designated Supports and Accommodations—Mathematics, Grades Seven through Eight and Grade Eleven**

| Accessibility Resource | Grade 7: N | Grade 7: % of Total Tested | Grade 8: N | Grade 8: % of Total Tested | Grade 11: N | Grade 11: % of Total Tested |
|---|---|---|---|---|---|---|
| Embedded Accommodation—Streamlining | 212 | 4% | 171 | 3% | 75 | 2% |
| Non-Embedded Accommodation—Print on Demand | 97 | 2% | 115 | 2% | 41 | 1% |
| Non-Embedded Accommodation—Alternate Response Options | 644 | 12% | 589 | 11% | 217 | 5% |
| Non-Embedded Accommodation—Unlisted Resources | 1 | 0% | 2 | 0% | 1 | 0% |
| Non-Embedded Accommodation—Word Prediction | 54 | 1% | 27 | 1% | 57 | 1% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 752 | 14% | 634 | 12% | 320 | 7% |
| Non-Embedded Accommodation—Abacus | 0 | NA | 0 | NA | 0 | NA |
| Non-Embedded Accommodation—Calculator | 0 | NA | 0 | NA | 0 | NA |
| Non-Embedded Accommodation—Multiplication Table | 1128 | 21% | 1057 | 20% | 455 | 10% |
| Non-Embedded Accommodation—100s Number Table | 557 | 10% | 178 | 3% | 245 | 6% |
| Embedded Designated Support—Color Contrast | 41 | 1% | 45 | 1% | 37 | 1% |
| Embedded Designated Support—Masking | 410 | 8% | 342 | 7% | 155 | 3% |
| Embedded Designated Support—Mouse Pointer | 30 | 1% | 27 | 1% | 38 | 1% |
| Embedded Designated Support—Print Size | 181 | 3% | 172 | 3% | 91 | 2% |
| Embedded Designated Support—Permissive Mode | 141 | 3% | 136 | 3% | 78 | 2% |
| Embedded Designated Support—Turn off Any Universal Tool | 0 | NA | 0 | NA | 0 | NA |

| Accessibility Resource | Grade 7: N | Grade 7: % of Total Tested | Grade 8: N | Grade 8: % of Total Tested | Grade 11: N | Grade 11: % of Total Tested |
|---|---|---|---|---|---|---|
| Non-Embedded Designated Support—Amplification | 25 | 0% | 28 | 1% | 25 | 1% |
| Non-Embedded Designated Support—Color Contrast | 49 | 1% | 44 | 1% | 22 | 1% |
| Non-Embedded Designated Support—Color Overlay | 32 | 1% | 44 | 1% | 39 | 1% |
| Non-Embedded Designated Support—Magnification | 211 | 4% | 212 | 4% | 112 | 3% |
| Non-Embedded Designated Support—Noise Buffers | 481 | 9% | 466 | 9% | 208 | 5% |
| Non-Embedded Designated Support—Read Aloud | 1,771 | 33% | 1,618 | 31% | 803 | 18% |
| Non-Embedded Designated Support—Scribe | 673 | 13% | 576 | 11% | 281 | 6% |
| Non-Embedded Embedded Designated Support—Separate Setting | 1,807 | 34% | 1,660 | 32% | 886 | 20% |
| **Total Students Tested** | **5,375** | **NA** | **5,229** | **NA** | **4,437** | **NA** |

# Chapter 3: Item Development and Review

This chapter provides an overview of the processes implemented by Educational Testing Service (ETS) to develop items for use on the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics. These processes include those that are entirely internal to ETS and those that are conducted in coordination with the California Department of Education (CDE), the American Institutes for Research, or both.

The chapter provides a brief description of each process and a summary of the associated specifications. More details about the specifications and the analyses associated with each process are described in other chapters that are referenced in the subsections that follow.

## 3.1. Item Development and Review

### 3.1.1. Overview

Each CAA for ELA and mathematics item is developed through a comprehensive cycle and designed to conform to principles of item writing defined by ETS. Each item in the CAA operational item bank was developed to measure a specific Core Content Connector (Connector) or the essential understanding (EU) of a Connector derived from the Common Core State Standards (CCSS). In addition, guidelines for style, fairness, and bias and sensitivity help item developers and reviewers ensure consistency across the item development process.

### 3.1.2. Item Specifications

ETS maintains item development specifications for the CAAs in ELA and mathematics. These specifications describe the characteristics of the items that should be written to measure each content standard and help ensure that all items developed for CAA measure the content standards consistently. Item writing emphasis is determined in consultation with the CDE.

The specifications include

- a full statement of each CCSS, Connector, and EU;
- a description of the item guidelines expected by tier for each standard;
- sample item stems for some standards;
- a general list of elements to avoid (e.g. for mathematics, the use of certain variables such as m and n in the same item, which can be difficult for students with visual impairments to distinguish);
- a description of the kinds of item stems, formats, or both stems and formats appropriate to assess each standard;
- a description of appropriate data representations (such as charts, tables, graphs, or other illustrations);
- the content limits of the standard (such as one or two variables, maximum place values of numbers);
- a description of appropriate reading passages, if applicable; and
- for ELA, guidelines for passages used to assess reading comprehension, including

- a list of topics to be avoided,
- the acceptable ranges for the number of words on a stimulus card,
- expected use of artwork, and
- the target number of tasks attached to each reading stimulus card.

### 3.1.3. Item Format

CAA items are designed to engage the target population. ELA and mathematics items are developed with the understanding that a test examiner delivers each item individually to a tested student and assists him or her in navigating through the test and recording the answer to each item. Note that item responses themselves must come from the student and not from prompting by the test examiner.

Students who are able may select responses using a mouse, touchscreen, or other supported input device. In some cases, students need to use other modes of communication, such as eye gaze or gesture, to indicate responses to the test examiner. The test examiner enters these responses into the testing device for the student.

The majority of items are presented in a split-screen format, with a “stimulus” on the left side of the screen and the item to be answered on the right. For ELA items, the stimulus is usually a passage or vocabulary set. For mathematics items, the stimulus is item-specific information or general mathematical knowledge. A selected number of items have a multimedia stimulus, either a short audio file, a video, an animation, or, for students with a visual impairment, alternative text read by the test examiner.

Items developed for the CAAs for ELA and mathematics may be scored as being worth one point or two points.

### 3.1.4. Item Types

Each Connector or EU may be assessed through one or more of nine available item types. An individual item may consist of one or more of the following:

1. **Multiple Choice (Single Select)—**Item that generally consists of a stem and a list of choices; the student can select only one choice (option) to respond. This type may also include a stimulus. Options use a radio button, but the student can select text or an image to fill in the radio button.
2. **Multiple Choice (Multiple Select)—**Item that generally consists of a stem and a list of choices; the student can select one or more choices (options) to respond. This type may also include a stimulus. Partial and summative scoring are available. Options use a radio button, but the student can select text or an image to fill in the button.
3. **Inline Choice List (Single Select)—**Item where the stem contains a single blank, and the student must fill the blank by selecting a choice from its corresponding choice list.
4. **Inline Choice List (Multiple Select)—**Item where the stem contains two or more blanks, and the student must fill each blank by selecting a choice from the corresponding choice lists. Partial and summative scoring are available.
5. **Numeric—**Item where the student responds by filling in a single entry box with a numeric value. The entry box may be standalone or in-line with text. Keys may be integers, decimals, fractions, or all or some of these.

6. **Grid Single Select—**Item where the student responds by marking a single cell in a table grid.
7. **Zone (Single Select)—**Item where the answer choices are predefined "hotspots" on an image. When the student selects (clicks on) the spot, the selection is highlighted, shaded, or outlined in red. The student selects one zone to respond.
8. **Zone (Multiple Select)—**Item where the answer choices are predefined "hotspots" on an image. When the student selects (clicks on) the spot, the selection is highlighted, shaded, or outlined in red. The student selects two or more zones to respond.
9. **Composite Objective—**Item that contains two or more item parts from the machine-scored list (item types 2–6 above); the item score, as a whole, is based on the student's response to each individual part (machine scored).
10. **Match (Single Select)—**Item where the student responds by dragging and dropping a single choice ("source") into the appropriate location ("target").
11. **Match (Multiple Select)—**Item where the student responds by dragging and dropping two or more choices ("sources") into the appropriate locations ("targets").
12. **Bar Picturegraph (Single Select)—**Item where the student responds by manipulating a single bar on a graph.
13. **Bar Picturegraph (Multiple Select)—**Item where the student responds by manipulating two or more bars on a graph.

### 3.1.5. Selection of Item Writers

The items for the CAAs for ELA and mathematics are written by individual item writers with a thorough understanding of the Connectors and EU. Applications for item writing are screened by senior ETS content staff. Only those with strong content and teaching backgrounds are approved for inclusion in the training program for item writing. All item-writing participants are current or former California educators who are particularly knowledgeable about the standards assessed by the CAAs for ELA and mathematics and experienced with the test-taking population.

All item writers meet the following minimum qualifications:

- Possession of a bachelor's degree in the relevant content area or in the field of education with special focus on a particular content area; an advanced degree in the relevant content is desirable
- Current teaching experience in California, when possible, especially experience teaching students with cognitive disabilities
- Previous experience or training in writing items for standards-based assessments, including knowledge of the many considerations that are important when developing items for special student populations
- Previous experience or training in writing items in the content areas covered by CAA grades, content areas, or both
- Familiarity, understanding, and support of the Connectors

## 3.2. Item Review Process

### 3.2.1. Overview

Items developed for the CAA for ELA and mathematics undergo an extensive item review process that is designed to provide the best standards-based assessments possible. This subsection summarizes the item review process that ensures the quality of CAA items.

Item writer submissions are carefully reviewed by ETS assessment specialists, who determine whether or not each item meets the criteria expected for submission, including accuracy and adherence to the item specifications. Items that do not meet minimal criteria are rejected, with notes for future revision submitted to authors. Items that meet the criteria are accepted into the pool and authored into the system.

Once an item is accepted for authoring—that is, once it has been entered into ETS' item bank and formatted for use in an assessment—ETS employs a series of internal reviews. These reviews use established criteria to judge the quality of item content and ensure that each item measures what it is intended to measure. These internal reviews also examine the overall quality of the test items before presentation to the CDE and California educators.

The ETS review process for the CAA includes the following:

1. Content review
2. Editorial review
3. Sensitivity review

Throughout this multistep item review process, the lead content-area assessment specialists and development team members continually evaluate the items in adherence to the rules for item development.

### 3.2.2. ETS Content Review

Items and stimuli undergo three reviews by content-area assessment specialists. These assessment specialists ensure that the items and stimuli are in compliance with ETS' written guidelines for clarity, style, accuracy, and appropriateness for California students as well as in compliance with the approved item specifications. Assessment specialists reviewed each item in terms of the following characteristics:

- Relevance of each item to the purpose of the test
- Match of each item to the item specifications, including the tier of item complexity
- Match of each item to the principles of quality item writing
- Match of each item to the identified standard or standards
- Difficulty of the item
- Accuracy of the content of the item
- Readability of the item or passage
- Grade-level appropriateness of the item
- Appropriateness of any illustrations, graphs, or figures

Each item is classified with the Connector, EU, or Connector and EU it is intended to measure. The assessment specialists check each item against its classification codes, both to evaluate the correctness of the classification and to ensure that the task posed by the item is relevant to the outcome it was intended to measure. The reviewers can accept the item and classification as written, suggest revisions, or recommend that the item be discarded. These steps occur prior to the CDE's review.

### 3.2.3. ETS Editorial Review

After the content-area assessment specialists review each item, a group of specially trained editors also review each item in preparation for consideration by the CDE and California educators. The editors check items for clarity, correctness of language, appropriateness of language for the grade level assessed, adherence to the style guidelines, and conformity with accepted item-writing practices.

### 3.2.4. ETS Sensitivity and Fairness Review

ETS assessment specialists who are specially trained to identify and eliminate questions that contain content or wording that could be construed to be offensive to or biased against members of specific ethnic, racial, or gender groups conduct the next level of review. These trained staff members review every item before the CDE and formal item reviews.

The review process promotes a general awareness of and responsiveness to the following:

- Diversity of background, cultural tradition, and viewpoints to be found in the test-taking population
- Changing roles and attitudes toward various groups
- Role of language in setting and changing attitudes toward various groups
- Contributions of diverse groups (including ethnic and minority groups, individuals with disabilities, and women) to the history and culture of the United States and the achievements of individuals within these groups
- Item accessibility for English learners

## 3.3. Content Expert Reviews

### 3.3.1. California Educators as Content Experts

Meetings with California educators are held at the end of the item review process as the final content expert review that items must undergo before being placed on an operational assessment. The California educators fill an advisory role to the CDE and ETS and provide guidance on matters related to item development for the CAAs for ELA and mathematics. These educators are responsible for reviewing all newly developed items for alignment to the California content standards. Meeting participants also review the items for the accuracy of content, clarity of phrasing, and quality. In their examination of test items, participants can raise concerns related to age or grade appropriateness and gender, racial, ethnic, or socioeconomic bias.

### 3.3.2. Composition of Item Review Meetings

California educators participating in item review meetings consist of current and former teachers, resource specialists, administrators, curricular experts, and other education professionals. Minimum qualifications to be invited to participate are

- three or more years of teaching experience in grades kindergarten through twelve and in the relevant content areas (ELA or mathematics),
- bachelor’s or higher degree in a grade or content area related to ELA or mathematics, and
- knowledge and experience with the California content standards in ELA or mathematics.

Preferred qualifications include

- special education credential,
- experience with more than one type of disability, and
- three to five years of experience as a teacher or school administrator with a special education credential.

School administrators; local educational agency (LEA), county content, or program specialists; or university educators must meet the following qualifications to be invited to participate:

- Three or more years of experience as a school administrator; LEA, county content, or program specialist; or university instructor in a grade-specific area;
- Bachelor's or higher degree in a grade-specific; and
- Knowledge of and experience with the California content standards in ELA or mathematics.

Every effort is made to ensure that groups of item reviewers include a wide representation of genders and of the geographic regions and ethnic groups in California. Efforts also are made to ensure representation by members with experience serving California's diverse special education population.

Table 3.1 shows the educational qualifications, present occupation, and credentials of the individuals who participated in CAA item review.

**Table 3.1 CAA Item Review Qualifications, by Content Area and Total**

| Qualification Type | Qualification | ELA | Math | Total |
|---|---|---|---|---|
| **Any** | **Total** | **26** | **27** | **53** |
| **Occupation** | Teacher or Program Specialist, Elementary School | 3 | 1 | 4 |
| **Occupation** | Teacher or Program Specialist, Middle School | 2 | 3 | 5 |
| **Occupation** | Teacher or Program Specialist, High School | 2 | 2 | 4 |
| **Occupation** | Other District Personnel | 0 | 2 | 2 |
| **Highest Degree Earned** | Bachelor's Degree | 4 | 0 | 4 |
| **Highest Degree Earned** | Master's Degree | 3 | 7 | 10 |
| **Highest Degree Earned** | Doctorate | 0 | 1 | 1 |
| **K–12 Teaching Credential** | Elementary Teaching (multiple subjects) | 4 | 2 | 6 |
| **K–12 Teaching Credential** | Secondary Teaching (single subject) | 0 | 1 | 1 |
| **K–12 Teaching Credential** | Special Education | 7 | 7 | 14 |
| **K–12 Teaching Credential** | Reading Specialist | 1 | 1 | 2 |
| **K–12 Teaching Credential** | English Learner (CLAD, BCLAD) | 0 | 0 | 0 |
| **K–12 Teaching Credential** | Administrative | 0 | 0 | 0 |
| **K–12 Teaching Credential** | Other | 0 | 0 | 0 |

**Note:** Numbers may not match the totals because members may have multiple occupations or teaching credentials, or are currently working toward earning their highest degree.

Item reviewers are recruited through an application process. Recommendations are solicited from LEAs and county offices of education as well as from the CDE. Applications are reviewed by ETS assessment directors, who confirm that an applicant's qualifications meet the specified criteria. Applicants who meet the criteria have their information forwarded to the CDE for further review and agreement before invitations to participate are distributed.

### 3.3.3. Meetings for Review of CAA for ELA and Mathematics Items

ETS content-area assessment specialists facilitate CAA for ELA and mathematics item review meetings. Each meeting begins with a brief training session on how to review items. ETS provides this training, which consists of the following topics:

- Overview of the purpose and scope of the CAA
- Overview of the CAA test design specifications and blueprints
- Analysis of the CAA item specifications
- Overview of criteria for evaluating test items
- Review and evaluation of items for bias and sensitivity issues

The criteria for evaluating items include the following:

- Overall technical quality
- Match to the Connectors
- Match to the construct being assessed by the standard
- Difficulty range
- Clarity
- Correctness of the answer
- Plausibility of the distractors
- Bias and sensitivity factors

Criteria also encompass more global factors, including the quality of the alternative text (that it describes an image in an age- and audience-appropriate manner within the context of the question) and, for ELA, the appropriateness, difficulty, and readability of reading passages. Meeting participants also are trained on how to make recommendations for revising items.

Guidelines for reviewing items are provided by ETS and approved by the CDE. The set of guidelines for reviewing items is summarized next.

Does the item

- have one and only one clearly correct answer for single-select items?
- measure the content standard?
- match the test item specifications?
- align with the construct being measured?
- test worthwhile concepts or information?

Is the stimulus, if any, for the item

- required in order to answer the item?
- likely to be interesting to students?
- clearly and correctly labeled?
- Providing all the information needed to answer the item?

## 3.4. Data Review Meetings

After items have been included in an operational test and administered to students, ETS prepares the items and the associated statistics for review by the CDE and California educators. Review materials include items with their statistical data along with annotated comment sheets for use by reviewers. ETS conducts an introductory training to highlight any new issues and serve as a statistical refresher. Reviewers then make decisions about which items should be included in the item bank for future assembly. If an item is considered problematic and not to be included in the item bank, it will be revised and once again follow the steps in the item development process, including field testing. ETS psychometric and content staff are available to reviewers throughout this process.

# Chapter 4: Test Assembly

This chapter provides details of test assembly, including a description of the content being measured (i.e., test blueprints), the design of the multistage test (MST), and routing rules that guide students from Stage 1 to modules of Stage 2. The process of item selection, final reviews before test production, and the production process (e.g., preparation of the test forms for online test delivery) also are included.

## 4.1. Test Content Specifications and Test Blueprints

The California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics incorporate innovations and best practices from recent national alternate assessment initiatives, including the National Center and State Collaborative (NCSC) and the Dynamic Learning Maps. All items and tasks are developed to grade-level standards and the Core Content Connectors (Connectors) developed by the NCSC (NCSC, 2014a [reading], 2014b [writing], and 2014c [mathematics]). An essential understanding (EU) is identified for each Connector. EUs define a basic, foundational key idea or concept based on the Connector that builds increasing understanding of the grade-level content.

These Connectors are aligned with the Common Core State Standards (CCSS).

### 4.1.1. Test Content Specifications

The CAA assesses each CCSS through the NCSC-developed Connectors and EUs derived from the Connectors. These Connectors identify the most salient grade-level, core academic content in ELA and mathematics found in both the CCSS (Common Core State Standards Initiative, 2018) and the Learning Progression Frameworks (LPF) (NCSC, 2015), and illustrate the necessary knowledge and skills required in order to reach the learning targets within the LPF and the CCSS. Additionally, the Connectors focus on the core content, knowledge, and skills needed to help students at each grade level succeed; and identify priorities in each content area to guide the instruction for students in this population and for an alternate assessment. Finally, Connectors provide a foundation that permits teachers, parents/guardians, and the students themselves to help students with significant cognitive disabilities achieve increasingly higher academic outcomes and leave high school ready for post-secondary options (NCSC, 2015).

Each content standard is assessed through the Connectors and related EUs under a three-tier structure of item complexity. Detailed information on the tiered items is provided in subsection *4.2 Test Design*.

### 4.1.2. Test Blueprints

The CAA test blueprints are unique to each grade level and content area (California Department of Education [CDE], 2015a [ELA] and 2015b [mathematics]). These blueprints designate the breakdown of each assessment, first by Content Category (for ELA) or Domain (for mathematics) and then by Connectors. Information on a test blueprint for a given grade and content area includes

- specific ratio of each content category and domain on overall test,
- specific Connectors to be assessed,
- specific EUs to be assessed, and
- the maximum number of items on a test.

A summary of blueprint alignment for the 2017–18 forms is presented in Table 4.1, which shows the absolute percentage differences of items per content domain for each test between the 2017–18 form and the test blueprint. More information regarding the alignment of each CAA for ELA and mathematics test with the test blueprints is provided in Table 4.A.1 through Table 4.A.14 in appendix 4.A. Similar information for the 2015–16 and 2016–17 forms is provided in Table 4.A.15 and Table 4.A.16.

Overall, the percent of items per content domain based on the Connector assigned during item development and those in the CAA blueprint are comparable—differences are less than 10 percent, with only one exception of 10 percent—for all grades in the 2017–18 administration.

**Table 4.1. Absolute Percentage Differences of Items per Content Domain for the 2017–18 Administration**

| 2017–18 | Router + Easy | Router + Moderate | Router + Hard |
|---|---|---|---|
| ELA 3 | 1%~2% | 1%~6% | 1%~2% |
| ELA 4 | 3%~10% | 1%~6% | 1%~6% |
| ELA 5 | 2%~2% | 2%~2% | 2%~2% |
| ELA 6 | 0%~2% | 0%~2% | 0%~2% |
| ELA 7 | 0%~2% | 0%~6% | 2%~6% |
| ELA 8 | 0%~2% | 0%~2% | 0%~2% |
| ELA 11 | 1%~2% | 1%~3% | 1%~2% |
| Mathematics 3 | 0%~2% | 0%~2% | 0%~2% |
| Mathematics 4 | 0%~2% | 0%~3% | 0%~3% |
| Mathematics 5 | 0%~2% | 0%~2% | 0%~2% |
| Mathematics 6 | 0%~2% | 0%~2% | 0%~2% |
| Mathematics 7 | 0%~3% | 0%~3% | 0%~3% |
| Mathematics 8 | 0%~2% | 0%~5% | 0%~2% |
| Mathematics 11 | 0%~3% | 0%~3% | 0%~3% |

## 4.2. Test Design

### 4.2.1. Multistage Test (MST) Design

As the simplest and most robust form of adaptive testing, an MST design consists of a number of modules. Each module can be assembled to meet a set of specifications such as item content and item difficulty and complexity; refer to subsection *3.1.2 Item Specifications* for additional information about the item specifications.

Educational Testing Service (ETS) employs a two-stage MST design for the CAAs for ELA and mathematics. Students at different ability levels, based on their performance on Stage 1, are routed to one of three alternative modules at Stage 2 that is appropriate for their abilities.

This design improves measurement quality and student engagement, particularly for students who represent a diverse population with a wide range of ability levels and whose ability levels may not be appropriately targeted by conventional fixed-form tests. It allows test developers to develop thoughtful test item sets (modules) that maximize the information provided about a student by routing students to test modules appropriate for their ability

levels. Compared with the fixed-form tests, the MST design provides a better balance between test standardization and individual customization.

The CAAs for ELA and mathematics test assembly design meets content and psychometric requirements for items and forms. The design contains a number of important features that are descibed in the following subsections.

#### 4.2.1.1. Tiered Items

An important feature of the CAAs for ELA and mathematics MST is the usage of tiered items. Given that the target population encompasses many types of cognitive disabilities and an extremely wide range of abilities, items developed to three tiers of complexity are organized in order of increasing complexity and cognitive load. Items developed at Tier 1, considered the most accessible level, typically rely heavily on graphics. Items developed at Tier 2, considered the middle level, typically use a mix of graphics and text. Items developed at Tier 3, which is considered the most challenging level (with increased rigor and difficulty), rely more on text and less on graphics than the lower tiers. Typically:

- A Tier 1 item would provide images with dichotomous answer choices.
- A Tier 2 item would provide three answer choices with fewer images.
- A Tier 3 item would provide three or more answer choices with more complicated text and the fewest images.

As the text complexity increases for higher tier levels, the length of passages in an ELA assessment also increases. Within the same grade level, relatively speaking, a Tier 1 ELA passage contains few sentences with heavy use of graphics. A Tier 2 passage typically contains several sentences with fewer graphics. A Tier 3 passage contains a paragraph or two of text with less reliance on graphics.

Beginning in the 2017–18 development cycle, CAAs for ELA and mathematics item specifications were updated to reflect a desire for lower language complexity in these CAA content areas. The rationale behind the request was to make the items more accessible to this population. ETS made efforts to make sure that complexity is reflected in the rigor of the tasks and not in the wording and sentence structure of the item. This was achieved by reducing the amount of the text in items, as well as the elimination of high-vocabulary words. These lower text-complexity items were used as embedded field test items and in the Stage 2 modules as items without statistics.

#### 4.2.1.2. Modules

Items and passages from each tier are carefully assembled into modules for both stages of CAAs for ELA and mathematics delivery. The Stage 1 module consists of a total of 14 items, of which 10 are operational items and 4 are embedded field test items. The operational portion of the Stage 1 module is the router with six Tier 1 items appearing first followed by four Tier 2 items. Five versions of the Stage 1 module were administered; they differed only in regard to the embedded field test items. Thus, each Stage 1 module version had the same operational items but different embedded field test items.

The five versions of the Stage 1 modules are randomly assigned at the school level statewide during online administration. In addition, the Stage 1 router is divided into two sections, Stage 1A and Stage 1B, where Stage 1A consists of the first four operational items, of which all four items are at Tier 1. Stage 1A is the Student Response Check (SRC), whereby a student's testing experience could end if he or she could not orient successfully

or provide a consistent response to any of the easiest items administered. Stage 1B consists of the remaining six operational items, of which the first two items are Tier 1 and the remaining four are Tier 2. Refer to subsection *4.2.2 ELA and Mathematics Test Design* for more information.

At Stage 2, each of the three modules—easy, moderate, and hard—is tailored to a particular student ability level with appropriate item sets. Each Stage 2 module consists of approximately 7 to 10 items with statistics and an average of 5 to 8 items without prior statistics. Due to the small number of items in the existing item bank, there is a small subset of items that are classified as operational even though they have no prior statistics.[5] Items with prior statistics at Stage 1 or Stage 2 are eligible for use as anchor items in post-equating to link all operational items without prior statistics and embedded field test items on the baseline scale.

#### 4.2.1.3. Embedded Field Test

Embedded field testing is a preferred method for building an item bank because the items are administered within an operational test setting. The field test items are not counted toward student scores. For the 2017–18 CAAs for ELA and mathematics administration, four field test items are embedded at Stage 1. Scores from these items are not included in routing decisions from Stage 1 to Stage 2.

For the CAA Stage 1 router, one core module is administered with 10 operational items that are common across five versions that support five different embedded field test sets of four items each. The five versions of Stage 1 modules are distributed by random assignment at the school level so that a large representative sample of students respond to the field test items embedded in these versions. The random assignment of specific versions ensures that a diverse sample of students take each field test set. The students do not know which items are being field tested and which items are operational; therefore, their motivation is not expected to differ over the two types of items (Patrick & Way, 2008).

#### 4.2.1.4. Pathways

The Stage 1 and Stage 2 module combination administered to any one student is called a "pathway." The pathway varies depending on a student's performance on the items and the routing rules. The two-stage MST design with the Stage 1 router and three modules at Stage 2 generates four possible pathways, including an early exit pathway, defined by a student exit from the test after Stage 1.

The four possible pathways can be regarded as multiple forms of a linear test. Each MST pathway combination of the Stage 1 and Stage 2 modules is shown in Table 4.2.[6]

[5] Some Stage 2 modules had as few as three items without statistics.

[6] Students who answer fewer than four items at Stage 1 are considered as "partial completers"; students who do not answer any items are considered as "non-completers." "Non-completers" and "partial completers" receive the lowest possible scale score. Therefore, scores of such students are not included in the analysis. Refer to subsection *7.1.1 Incomplete and Complete Cases* for a list of cases where the tests are considered as "incomplete."

**Table 4.2 Four Effective Unique Forms for Each Grade and Test Configuration**

| Pathway | Effective Unique Form | Configuration |
|---|---|---|
| 1. | ABO | Stage 1 items and end the test |
| 2. | ABE | Stage 1 items and Stage 2 easy items |
| 3. | ABM | Stage 1 items and Stage 2 medium items |
| 4. | ABH | Stage 1 items and Stage 2 hard items |

### 4.2.2. ELA and Mathematics Test Design

For the 2017–18 CAA administration in ELA and mathematics, most students were required to complete a full-length test: the routing test in Stage 1A and Stage 1B, as well as one of the three modules in Stage 2.

The CAAs for ELA and mathematics are designed as follows:

1. Stage 1
    a. SRC with the four easiest Tier 1 items; router Stage 1A
    b. Two to three Tier 1 items, three to four Tier 2 items, and three embedded field test items; router Stage 1B
2. Stage 2
    a. Module 1—Easy
        - 15 operational items
            - Seven to 10 operational items with statistics from the 2015–16 or 2016–17 operational administration
            - Five to eight operational items without prior statistics
                - Nine Tier 1 items
                - Six Tier 2 items
    b. Module 2—Moderate
        - 15 operational items
            - Seven to 10 operational items with statistics from the 2015–16 or 2016–17 operational administration
            - Five to eight operational items without prior statistics
                - Three Tier 1 items
                - Nine Tier 2 items
                - Three Tier 3 items
    c. Module 3—Hard
        - 15 operational items
            - Seven to 10 operational items with statistics from the 2015–16 or 2016–17 operational administration

- Five to eight operational items without prior statistics
  - Six Tier 2 items
  - Nine Tier 3 items

#### 4.2.2.1. Stage 1 Design

Stage 1A comprises the SRC, which consists of the four easiest Tier 1 items based on the item response theory (IRT) *b*-parameter values. For students who do not provide observable and reasonable responses to the items, test examiners are directed to end the assessment using the [**End Test**] button. These checks occur at the first item and the fourth item. The responsibilities of test examiners regarding these checks can be found in subsection *5.1 Test Administration* in *Chapter 5: Test Administration*.

Students who do not pass the SRC are exited from the test. Stage 1B consists of six operational items with prior statistics. After the last item of Stage 1, the results from the router are used to identify students for whom meaningful measurement is unlikely to occur. These students are exited from the test instead of proceeding to Stage 2. Continuing students are routed to one of the three Stage 2 modules. Refer to subsection *7.1.1 Incomplete and Complete Cases* for the scoring of each situation described above.

#### 4.2.2.2. Stage 2 Design

At Stage 2, the three modules are defined as Module 1 (Easy), Module 2 (Moderate), or Module 3 (Hard). Module 1 consists of approximately nine Tier 1 items and six Tier 2 items. Module 2 consists of approximately three Tier 1 items, nine Tier 2 items, and three Tier 3 items. Module 3 consists of approximately six Tier 2 items and nine Tier 3 items. Students are routed to one of the three modules of Stage 2 based on their performance on the Stage 1 router.

#### 4.2.2.3. Survey of Student Characteristics (SSC)

The SSC includes three questions embedded within the assessment as the last segment of the test. The SSC is not presented to students who do not respond or orient; their testing is terminated at Item 1 or Item 4. The SSC allows a test examiner to describe the student's engagement on the test. The text of the three SSC questions is as follows:

1) Did you end this test early because the student's productivity and engagement had significantly declined, even after allowing the student breaks over multiple days?
   - ○ Yes
   - ○ No
2) Please indicate your student's mode(s) of communication that was used on this test. (Select all that apply)
   - ☐ Student used a mouse, touchscreen, and/or a computer keyboard to enter responses directly in the system.
   - ☐ Student provided a verbal response.
   - ☐ Student used gestures or pointed to indicate a response.
   - ☐ Student used the accommodation of print on demand and responded (check, circle, fill-in, etc.) on paper.

- ☐ Student used an assistive/augmentative communication device.
- ☐ Student used eye gaze.
- ☐ Other

3) How engaged was your student with this test you just administered?
   - 0 – not engaged at all
   - 1 – minimally engaged
   - 2 – moderately engaged
   - 3 – fully engaged

The summary of the SSC data results is provided in subsection *8.7.5.1 Survey of Student Characteristics (SSC)*.

### 4.2.3. Routing Rules for the 2017–18 Administration

Given that the CAA-eligible population consists of students with a wide range of cognitive disabilities, routing rules are used to minimize the test-taking burden on students, in addition to directing students to the modules that fit their ability levels. Students experiencing difficulties with the simplest tasks should not continue with more complex items. Each student should be routed to a module that is appropriate for his or her ability level.

The routing rules for the 2017–18 CAAs for ELA and mathematics administration are illustrated in Table 4.3. The early exit routing rule is designed for students who demonstrate the ability to communicate and provide responses but have significant difficulties successfully completing Tier 1 items. The first threshold, $t_1$, based on his or her performance on the router portion of Stage 1, determines whether a student will end the test early or continue to one of the three Stage 2 modules. The intent is to end the test early for those students who are most likely to find the second-stage testing more stressful than productive or are otherwise unable to engage with the content. For those students who continue to Stage 2, the remaining thresholds, $t_2$ and $t_3$, determine which of the available pathways will be taken.

**Table 4.3 Routing Rule Summary for the 2017–18 Administration**

| Condition | Decision |
|---|---|
| Router score is less than $t_1$ | End the test after Stage 1. |
| Router score is greater than or equal to $t_1$ and less than $t_2$ | Continue the test with Module 1 in Stage 2. |
| Router score is greater than or equal to $t_2$ and less than $t_3$ | Continue the test with Module 2 in Stage 2. |
| Router score is greater than or equal to $t_3$ | Continue the test with Module 3 in Stage 2. |

The routing thresholds were estimated through a simulation using the 2016–17 CAAs for ELA and mathematics administration data. In this simulation, student ability distributions were estimated for each grade level and content area. Observed ability estimates for all scored students were tabulated and then smoothed through kernel smoothing methods (ETS, 2011). The IRT item parameters used for the simulation evaluation were estimated from the 2015–16 or 2016–17 administration. If statistics for both 2015–16 and 2016–17 administrations were available, then the most recent statistics were used.

Each simulated student was administered all items in the full MST, including the router portion of Stage 1 and all three Stage 2 modules. Following the simulation of each test, aggregated results across all the simulated students were collected, including the true ability, the score on the router portion of Stage 1, and the overall score across all modules in the full MST (a total of 55 items). For the current assessment, an ideal set of threshold values are chosen to maximize the test reliability, proportion of productive tests, and test information function by ensuring that each student is routed to the most informative Stage 2 module. The final thresholds of routing are determined in consultation with the CDE.

The raw score point values in the router portion of Stage 1 are used by the routing engine in the test delivery system to determine routing pathways for students. The router includes both 1-point and 2-point items, and the router score is the sum of item scores from the 10 operational items in the router. For example, the maximum score points for the Stage 1 for grade three ELA is 15. When a student earns fewer than 3 score points, the student's testing experience ends. When a student earns greater than or equal to 3 and fewer than 11 score points, he or she is routed to the easy Stage 2 module. When a student earns greater than or equal to 11 and fewer than 14 score points, he or she is routed to the moderate Stage 2 module. When a student earns 14 or more score points, he or she is routed to the hard Stage 2 module. A summary of the routing thresholds is presented in Table 4.C.1 and Table 4.C.2 in appendix 4.C.

## 4.3. Test Production Process

### 4.3.1. Psychometric Criteria and Identification of Eligible Items

In addition to the blueprints (CDE, 2015a [ELA] and 2015b [mathematics]) and test design documents, statistical guidelines were developed by the ETS psychometrics team to assist in test assembly. The guidelines include the following:

- The first four items in Stage 1 comprise the SRC, which must have prior item statistics.
- Seven to 10 of the 15 items in each Stage 2 module must have prior item statistics. Items can be shared across the modules in the following ways:
  - Items included in both Easy and Moderate modules are Tier 1, Tier 2, or both types of items.
  - Items included in both Moderate and Hard modules are Tier 2, Tier 3, or both types of items.
- Any item that has prior item statistics will be used as an anchor item to place the 2017–18 tests onto the baseline scale.
- Any previously administered item that requires editing and additional field testing due to a flaw in the item cannot be used as an anchor item. The item sets that require additional field testing should be placed in Stage 2 only.
- Each test pathway with 25 items should conform to the specifications in the test blueprint.

Refer to appendix 4.B for a description of the statistical specifications used during development of the CAAs for ELA and mathematics.

### 4.3.2. Selection of Items

From the eligible item pool, test developers select items that, as a whole

- meet the coverage specifications of the test blueprint,
- meet the form-building guidelines developed by the ETS psychometrics team,
- represent a wide variety of item types, and
- provide a wide variety of item context.

### 4.3.3. Verification of Statistics

ETS test developers send the proposed assessment to the ETS psychometrics team for approval. The proposed assessment is reviewed to ensure that all statistical guidelines are met for both individual items and the assessment as a whole.

### 4.3.4. Content Review of Forms

After psychometric approval, the proposed assessment undergoes two additional content reviews and one editorial review. The form reviewers are content specialists who work on testing programs other than the CAA for ETS, and who thereby are able to bring a set of "fresh eyes" to the review. They are given the appropriate materials to verify the following:

- Verification of item keys
- Identification of possible clueing across the items
- Verification that individual items meet the standard
- Verification of coverage of the standards
- Identification of any possible grammatical or production errors

### 4.3.5. CDE Review of Forms

Following the ETS content review, all proposed assessments are sent to the CDE for review to ensure the proposed assessments meet CAAs for ELA and mathematics test blueprint requirements and to check there is no clueing between items or statistical issues. The CDE is provided with the following materials:

- Hardcopies of the proposed forms
- Modified form planners
- Comment sheets

Comments from the CDE are resolved during a virtual meeting with the ETS test development team.

### 4.3.6. Configuration of the Test Delivery System (TDS)

Once all the test reviews are completed and concerns, if any, have been resolved, the official ordered item sequence of the proposed forms are sent to the American Institutes for Research (AIR) for configuration of the test delivery system (TDS).

AIR's TDS supports a variety of item layouts. Most of the item layouts have the stimulus and item response options and response area displayed side by side. In each of these item layouts, both the stimulus and response options have independent scroll bars. Each item undergoes an extensive platform review on different operating systems such as Windows, Linux, and iOS, to ensure that the item looks consistent across all platforms.

The platform review is conducted by a team at AIR consisting of a team leader and several team members. The team leader presents the item as it was approved in ETS and AIR item banks. Each team member is assigned a different platform—hardware device and operating system—and reviews the item to see that it renders as expected. This platform review

meeting ensures that all items will be presented consistently to all students regardless of testing device or operating system for standardization of the test administration.

Prior to operational deployment, the testing system and content are deployed to a staging server where they are subject to user acceptance testing (UAT) by both ETS and AIR staff. The TDS UAT serves as both a software evaluation and a content approval role.

The UAT procedures followed by the ETS staff include reviewing all items for ELA and mathematics. The possible routing outcomes, in conjunction with the separate grade- and version-specific *CAA Directions for Administration* manuals, are also checked.

Following the UAT by ETS and AIR staff, separate UAT cycles are conducted by the CDE. The UAT review provides the CDE with an opportunity to interact with the exact test that will be administered to the students. The CDE must approve the CAA UAT before the test can be released for administration to students.

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# Appendix 4.A: Test Blueprints Alignment by California Alternate Assessment (CAA) Form

**Notes:**

- ABO refers to Stage 1 Items Only.
- ABE refers to Stage 1 + Stage 2 Easy Module.
- ABM refers to Stage 1 +Stage 2 Moderate Module.
- ABH refers to Stage 1 + Stage 2 Hard Module.

**Table 4.A.1 Test Blueprints Alignment by Form—English Language Arts/Literacy (ELA), Grade Three**

| Content Category | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Reading: Literary | 30% | 4 | 40% | 7 | 28% | 7 | 28% | 7 | 28% |
| Reading: Informational | 25% | 1 | 10% | 6 | 24% | 6 | 24% | 6 | 24% |
| Reading: Vocabulary | 9% | 2 | 20% | 2 | 8% | 2 | 8% | 2 | 8% |
| Reading: Foundation | 6% | 0 | 0% | 2 | 8% | 1 | 4% | 2 | 8% |
| Writing | 30% | 3 | 30% | 8 | 32% | 9 | 36% | 8 | 32% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.2 Test Blueprints Alignment by Form—ELA, Grade Four**

| Content Category | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Reading: Literary | 30% | 2 | 20% | 9 | 36% | 9 | 36% | 9 | 36% |
| Reading: Informational | 25% | 3 | 30% | 5 | 20% | 6 | 24% | 5 | 20% |
| Reading: Vocabulary | 9% | 1 | 10% | 3 | 12% | 2 | 8% | 2 | 8% |
| Reading: Foundation | 6% | 1 | 10% | 3 | 12% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 5 | 20% | 6 | 24% | 7 | 28% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.3 Test Blueprints Alignment by Form—ELA, Grade Five**

| Content Category | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Reading: Literary | 30% | 3 | 30% | 8 | 32% | 8 | 32% | 7 | 28% |
| Reading: Informational | 30% | 3 | 30% | 7 | 28% | 7 | 28% | 8 | 32% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 2 | 8% | 3 | 12% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% | 7 | 28% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.4 Test Blueprints Alignment by Form—ELA, Grade Six**

| Content Category | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Reading: Literary | 20% | 2 | 20% | 5 | 20% | 5 | 20% | 5 | 20% |
| Reading: Informational | 40% | 5 | 50% | 10 | 40% | 10 | 40% | 10 | 40% |
| Reading: Vocabulary | 10% | 0 | 0% | 3 | 12% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 7 | 28% | 8 | 32% | 8 | 32% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.5 Test Blueprints Alignment by Form—ELA, Grade Seven**

| Content Category | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Reading: Literary | 20% | 4 | 40% | 5 | 20% | 5 | 20% | 6 | 24% |
| Reading: Informational | 40% | 2 | 20% | 10 | 40% | 9 | 36% | 11 | 44% |
| Reading: Vocabulary | 10% | 0 | 0% | 3 | 12% | 2 | 8% | 1 | 4% |
| Writing | 30% | 4 | 40% | 7 | 28% | 9 | 36% | 7 | 28% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.6 Test Blueprints Alignment by Form—ELA, Grade Eight**

| Content Category | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Reading: Literary | 20% | 2 | 20% | 5 | 20% | 5 | 20% | 5 | 20% |
| Reading: Informational | 40% | 4 | 40% | 10 | 40% | 10 | 40% | 10 | 40% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% | 8 | 32% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.7 Test Blueprints Alignment by Form—ELA, Grade Eleven**

| Content Category | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Reading: Literary | 15% | 0 | 0% | 4 | 16% | 3 | 12% | 4 | 16% |
| Reading: Informational | 45% | 6 | 60% | 11 | 44% | 11 | 44% | 11 | 44% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 3 | 12% | 3 | 12% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% | 7 | 28% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.8 Test Blueprints Alignment by Form—Mathematics, Grade Three**

| Domain | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Operational & Algebraic Thinking | 30% | 2 | 20% | 7 | 28% | 8 | 32% | 7 | 28% |
| Numbers & Operations in Base Ten and Fractions | 40% | 4 | 40% | 10 | 40% | 10 | 40% | 10 | 40% |
| Measurement & Data and Geometry | 30% | 4 | 40% | 8 | 32% | 7 | 28% | 8 | 32% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.9 Test Blueprints Alignment by Form—Mathematics, Grade Four**

| Domain | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Operational & Algebraic Thinking | 35% | 2 | 20% | 9 | 36% | 8 | 32% | 9 | 36% |
| Numbers & Operations in Base Ten and Fractions | 30% | 1 | 10% | 7 | 28% | 8 | 32% | 8 | 32% |
| Measurement & Data and Geometry | 35% | 7 | 70% | 9 | 36% | 9 | 36% | 8 | 32% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.10 Test Blueprints Alignment by Form—Mathematics, Grade Five**

| Domain | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Operational & Algebraic Thinking | 10% | 1 | 10% | 3 | 12% | 3 | 12% | 3 | 12% |
| Numbers & Operations in Base Ten and Fractions | 60% | 6 | 60% | 15 | 60% | 15 | 60% | 15 | 60% |
| Measurement & Data and Geometry | 30% | 3 | 30% | 7 | 28% | 7 | 28% | 7 | 28% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.11 Test Blueprints Alignment by Form—Mathematics, Grade Six**

| Domain | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Ratios and Proportional Relationships | 30% | 5 | 50% | 8 | 32% | 8 | 32% | 8 | 32% |
| The Number System | 30% | 4 | 40% | 7 | 28% | 8 | 32% | 7 | 28% |
| Expressions & Equations | 20% | 0 | 0% | 5 | 20% | 5 | 20% | 5 | 20% |
| Geometry | 10% | 1 | 10% | 3 | 12% | 2 | 8% | 3 | 12% |
| Statistics & Probability | 10% | 0 | 0% | 2 | 8% | 2 | 8% | 2 | 8% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.12 Test Blueprints by Form—Mathematics, Grade Seven**

| Domain | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Ratios and Proportional Relationships | 40% | 5 | 50% | 10 | 40% | 10 | 40% | 10 | 40% |
| The Number System | 15% | 1 | 10% | 4 | 16% | 4 | 16% | 4 | 16% |
| Expressions & Equations | 15% | 1 | 10% | 4 | 16% | 3 | 12% | 3 | 12% |
| Geometry | 15% | 1 | 10% | 3 | 12% | 4 | 16% | 4 | 16% |
| Statistics & Probability | 15% | 2 | 20% | 4 | 16% | 4 | 16% | 4 | 16% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.13 Test Blueprints Alignment by Form—Mathematics, Grade Eight**

| Domain | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| The Number System | 10% | 0 | 0% | 2 | 8% | 2 | 8% | 3 | 12% |
| Expressions & Equations and Functions | 35% | 4 | 40% | 9 | 36% | 10 | 40% | 9 | 36% |
| Geometry | 30% | 3 | 30% | 8 | 32% | 7 | 28% | 7 | 28% |
| Statistics & Probability | 25% | 3 | 30% | 6 | 24% | 6 | 24% | 6 | 24% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.14 Test Blueprints Alignment by Form—Mathematics, Grade Eleven**

| Domain | % of the blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABM N | ABM Pct | ABH N | ABH Pct |
|---|---|---|---|---|---|---|---|---|---|
| Number and Quantity: The Real Number System and Quantities | 25% | 3 | 30% | 7 | 28% | 6 | 24% | 6 | 24% |
| Algebra: Creating Equations, and Functions: Interpreting Functions | 40% | 6 | 60% | 10 | 40% | 10 | 40% | 10 | 40% |
| Geometry: Similarity, Right Triangles, and Trigonometry | 10% | 0 | 0% | 2 | 8% | 2 | 8% | 2 | 8% |
| Statistics and Probability: Interpreting Categorical and Quantitative Data | 25% | 1 | 10% | 6 | 24% | 7 | 28% | 7 | 28% |
| **Total** | **100%** | **10** | **100%** | **25** | **100%** | **25** | **100%** | **25** | **100%** |

**Table 4.A.15 Absolute Percentage Differences of Items per Domain for 2015–16 Administration**

| 2015–16 | R1+Easy | R1+Moderate | R1+Hard | R2+Easy | R2+Moderate | R2+Hard |
|---|---|---|---|---|---|---|
| ELA 3 | 0%~3% | 0%~5% | 0%~3% | 0%~3% | 0%~5% | 0%~3% |
| ELA 4 | 0%~2% | 0%~4% | 0%~4% | 0%~2% | 0%~4% | 0%~4% |
| ELA 5 | 0%~3% | 0%~3% | 0%~11% | 0%~3% | 0%~3% | 0%~7% |
| ELA 6 | 0%~19% | 0%~8% | 3%~12% | 0%~12% | 0%~3% | 2%~4% |
| ELA 7 | 0%~9% | 1%~3% | 1%~3% | 0%~9% | 1%~3% | 1%~3% |
| ELA 8 | 1%~8% | 1%~10% | 1%~8% | 1%~8% | 1%~8% | 1%~8% |
| ELA 11 | 1%~11% | 1%~15% | 1%~11% | 3%~8% | 3%~11% | 3%~8% |
| Mathematics 3 | 2%~3% | 2%~3% | 2%~3% | 0%~2% | 0%~2% | 0%~2% |
| Mathematics 4 | 0%~3% | 0%~3% | 0%~3% | 1%~4% | 1%~4% | 1%~4% |
| Mathematics 5 | 0%~4% | 0%~4% | 0%~4% | 0%~4% | 0%~4% | 0%~4% |
| Mathematics 6 | 1%~5% | 1%~5% | 1%~5% | 1%~8% | 1%~8% | 1%~8% |
| Mathematics 7 | 2%~9% | 2%~9% | 2%~9% | 0%~7% | 0%~7% | 0%~7% |
| Mathematics 8 | 0%~6% | 0%~6% | 0%~6% | 2%~3% | 2%~3% | 2%~3% |
| Mathematics 11 | 1%~9% | 1%~9% | 1%~9% | 1%~6% | 1%~6% | 1%~6% |

**Table 4.A.16 Absolute Percentage Differences of Items per Domain for the 2016–17 Administration**

| 2016–17 | Router + Easy | Router + Moderate | Router + Hard |
|---|---|---|---|
| ELA 3 | 1%~6% | 1%~3% | 1%~**10%** |
| ELA 4 | 1%~3% | 1%~3% | 1%~2% |
| ELA 5 | 2%~2% | 2%~2% | 2%~2% |
| ELA 6 | 0%~6% | 0%~2% | 0%~6% |
| ELA 7 | 0%~2% | 0%~2% | 0%~2% |
| ELA 8 | 0%~2% | 0%~2% | 0%~2% |
| ELA 11 | 1%~2% | 1%~2% | 1%~2% |
| Mathematics 3 | 0%~2% | 0%~2% | 0%~2% |
| Mathematics 4 | 1%~3% | 1%~3% | 1%~3% |
| Mathematics 5 | 0%~2% | 0%~2% | 0%~2% |
| Mathematics 6 | 0%~2% | 0%~2% | 0%~2% |
| Mathematics 7 | 0%~3% | 0%~5% | 0%~3% |
| Mathematics 8 | 1%~2% | 1%~2% | 1%~2% |
| Mathematics 11 | 0%~2% | 0%~2% | 0%~2% |

# Appendix 4.B: Statistical Specifications for 2017–18 Test Development

Test assembly must follow guidelines to ensure the validity and reliability of test scores. These guidelines fall into two major categories: content-related and psychometric guidelines. Content-related guidelines ensure the appropriateness of item content and the alignment with standards. Psychometric guidelines provide specifications on statistical properties of the items, modules, and the entire MST.

The purpose of this specification is to summarize the specific *statistical* properties that were met when selecting items for the 2017–18 CAAs.

## Statistical Properties of Individual Items

Individual items need to satisfy a number of statistical specifications to be usable in the forms.

### 1. Average Item Score (AIS) Range

Items that are too difficult or too easy, indicated by a low or high AIS, should not be used as they serve little purpose of differentiating test takers' abilities. The acceptable AIS range is generally between .10 and .95 for 1-point multiple-choice items and between .2 and 1.90 for 2-point items.

### 2. Polyserial Correlations

Nondiscriminating items, indicated by a low polyserial correlation value, should not be used. For test assembly, the recommended minimum polyserial correlation value is .20. However, given the limited number of CAA items in the item bank, for the spring 2017–18 administration, items with a polyserial correlation value between .10 and .20 could be included on the CAA forms to ensure complete test content coverage.

### 3. Differential Item Functioning (DIF)

Items analyzed for DIF at ETS are classified into one of three categories, A, B, or C. Category A indicates that DIF is negligible or nonsignificant, Category B indicates that DIF is slight to moderate, and Category C indicates that DIF is moderate to large. In addition, when DIF is detected, a plus or minus sign is often used in conjunction with the specific DIF category to indicate the direction of DIF: Classifications of B- or C- indicate DIF is in favor of the reference group; classifications of B+ and C+ indicate DIF is in favor of the focal group. Items that function differentially across different demographic examinee student groups that have similar overall test performance should not be used.

An item classified into category C shows moderate to large DIF and should not be included in the operational form. If it is absolutely necessary to include an item exhibiting C-DIF on a test or if such an item is found on an operational form, the item must be reviewed by a panel that includes members of the focal group(s) affected. The members of the panel should not have a vested interest in the outcome of the decision. If no explanation for the DIF can be found, the item may be scored if in an operational form or may appear on the assembled test. In the latter case, the inclusion of no C-DIF items is preferred because this circumstance is beyond reproach in most cases. Additionally, if an item exhibiting C-DIF must be selected, then a balance with regard to the C-DIF item should be considered; that is, C-DIF items should not be all C- or all C+.

# Appendix 4.C: Routing Thresholds

**Table 4.C.1 CAA for ELA Routing Thresholds**

| Test | Stage 1 | Stage 2–Easy | Stage 2–Moderate | Stage 2–Hard |
|---|---|---|---|---|
| ELA 3 | RS < 3 | 3 <= RS < 11 | 11 <= RS < 14 | RS > = 14 |
| ELA 4 | RS < 3 | 3 <= RS < 9 | 9 <= RS < 12 | RS > = 12 |
| ELA 5 | RS < 4 | 4 <= RS < 12 | 12 <= RS < 15 | RS > = 15 |
| ELA 6 | RS < 3 | 3 <= RS < 8 | 8 <= RS < 13 | RS > = 13 |
| ELA 7 | RS < 3 | 3 <= RS < 9 | 9 <= RS < 12 | RS > = 12 |
| ELA 8 | RS < 4 | 4 <= RS < 11 | 11 <= RS < 14 | RS > = 14 |
| ELA 11 | RS < 3 | 3 <= RS < 9 | 9 <= RS < 13 | RS > = 13 |

**Note:** RS indicates the raw score of 10 operational items in the router portion of Stage 1.

**Table 4.C.2 CAA for Mathematics Routing Thresholds**

| Test | Stage 1 | Stage 2–Easy | Stage 2–Moderate | Stage 2–Hard |
|---|---|---|---|---|
| Mathematics 3 | RS < 2 | 2 <= RS < 6 | 6 <= RS < 9 | RS >= 9 |
| Mathematics 4 | RS < 2 | 2 <= RS < 9 | 9 <= RS < 13 | RS >= 13 |
| Mathematics 5 | RS < 2 | 2 <= RS < 7 | 7 <= RS < 11 | RS >=11 |
| Mathematics 6 | RS < 2 | 2 <= RS < 7 | 7 <= RS < 10 | RS >=10 |
| Mathematics 7 | RS < 3 | 3 <= RS < 7 | 7 <= RS < 11 | RS >=11 |
| Mathematics 8 | RS < 2 | 2 <= RS < 7 | 7 <= RS < 11 | RS >=11 |
| Mathematics 11 | RS < 2 | 2 <= RS < 7 | 7 <= RS < 10 | RS >=10 |

**Note:** RS indicates the raw score of 10 operational items in the router portion of Stage 1.

# Chapter 5: Test Administration

This chapter provides an overview of the test administration of the 2017–18 California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics and includes a system functionality overview, descriptions of the efforts and measures to ensure test security, procedures to maintain standardization, and procedures for implementation of test accommodations based on the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 2014, Chapter 6).

## 5.1. Test Administration

The window for 2017–18 administration of the CAAs for ELA and mathematics was January 9 through July 16, 2018. Specific test administration schedules within that window were determined locally pursuant to the *California Code of Regulations*, Title 5 (5 *CCR),* Sections 855(a)(1), 855(a)(2), 855(b), and 855(c).

To ensure the 2017–18 test administration was a successful experience for CAA test examiners and students, Educational Testing Service (ETS) provided an online, self-guided training tutorial for CAA test examiners as well as on-site test administration workshops in various locations throughout California in January and February 2018. ETS also produced webcasts and videos for detailed information on California Assessment of Student Performance and Progress (CAASPP) test administration procedures. The on-site workshops included a session dedicated exclusively to the topic of the CAA test administration procedures. In addition, ETS developed and posted a number of test administration resources for schools and LEAs on both the public website on caaspp.org and on the secure Test Operations Management System (TOMS) website. These resources included detailed information on topics such as technology readiness, test administration, test security, accommodations, using the test delivery system, and general testing rules.

The 2017–18 CAAs for ELA and mathematics are a two-stage multistage test (MST). Refer to *Chapter 4: Test Assembly* for the details of the MST design. Figure 5.1 presents the components of CAA test administration.

Given that the CAAs are administered to students who have the most significant cognitive disabilities, every individual student is assigned with a test examiner for a one-to-one test administration. Refer to *Chapter 4: Test Assembly* for the details in the MST design.

Figure 5.1 displays how the CAA items are routed, with details on Stage 1, Stage 2, and the Survey of Student Characteristics. Stage 1 is the Student Response Check (SRC), which determines which tier the student falls in for Stage 2 (Tier 1, Tier 2, or Tier 3). The [**End Test**] button will be available on question 1 or question 4 should the student not pass the student response check. Some students will stop testing after Stage 1 based on their performance in Stage 1.

In Stage 2, the student is routed to either the 15 easy items in Tier 1, 15 moderate items in Tier 2, or 15 hard items in Tier 3.

The Survey of Student Characteristics is the last step, which includes questions to be completed by the test examiner. If the student does not pass the SRC, the test examiner can use the [**End Test**] button to end the test and the student stops testing in Stage 1.

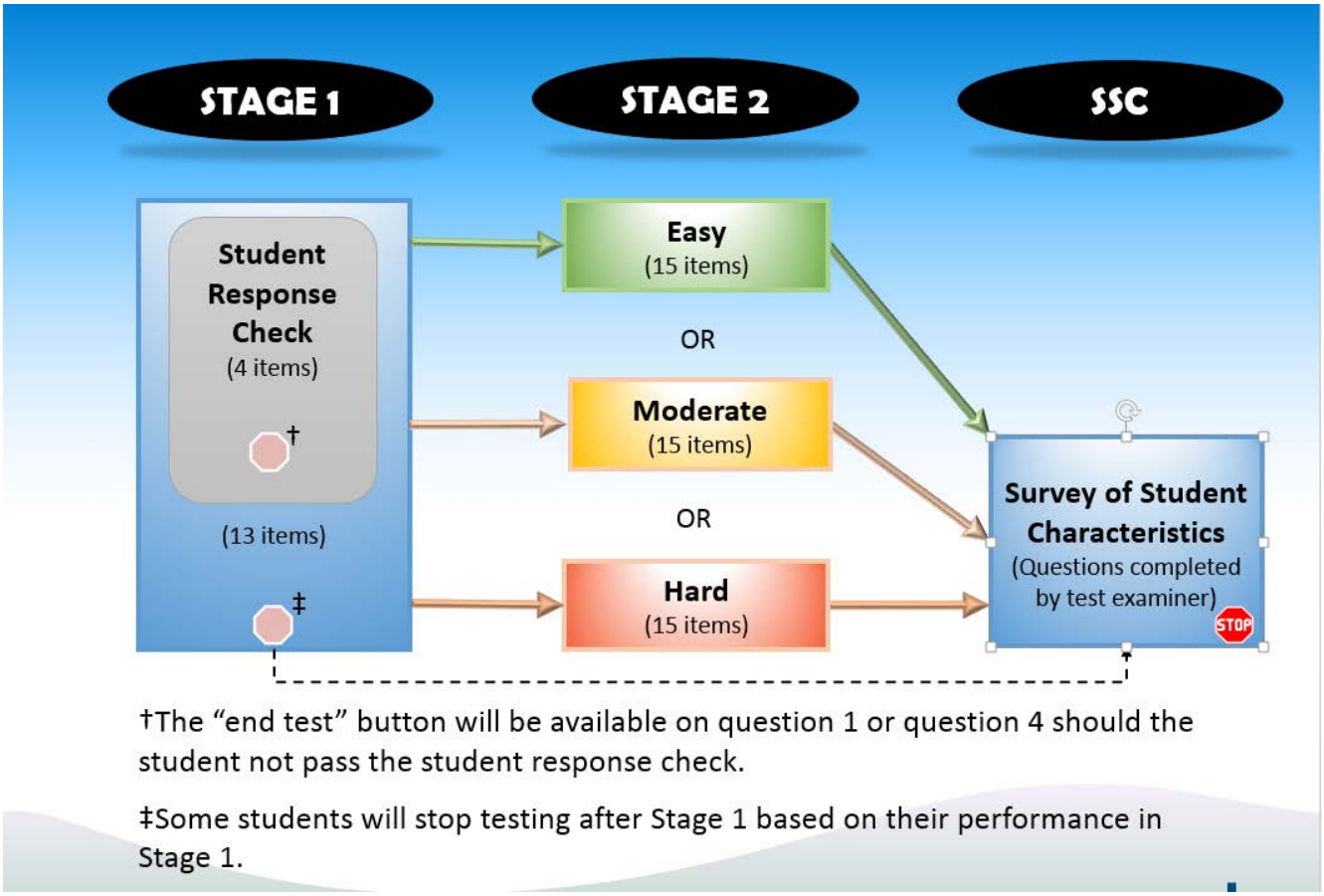


**Figure 5.1 Test Components and Administration Process**

### 5.1.1. Administration of the Student Response Check (SRC)

Test examiners respond to the SRC during the first stage of test administration for both the ELA and mathematics assessments to ensure that these CAAs are accessible and students are able to take the test. The SRC is comprised of four questions. The instructions that are provided in the *CAA Directions for Administration* include information on specific behaviors that a test examiner should observe. There are three possible outcomes from administering the first test item.

1. The student demonstrates an observable, consistent response, even though the answer to the item may be incorrect.
2. The student demonstrates an observable, but inconsistent, response.
3. The student does not demonstrate any observable responses.

If the SRC outcome is **1**, the test examiner administers the entire assessment (including the remaining items in Stage 1A and all items in stages 1B and 2).

If the outcome is **2**, the test examiner finishes the next three items and, if a consistent and observable response is elicited through the next three items, the entire assessment is administered.

If the outcome is **3**, the test examiner is instructed not to administer the assessment and ends the test. If, during testing, the student ceases to provide any observable response, the test examiner is instructed to end the test.

### 5.1.2. Administration of the CAAs for ELA and Mathematics

If the decision is made to continue with the test administration as a result of the SRC, students are given the following opportunities for continuing to the end of the full test or exiting early at the end of Stage 1 as shown in Figure 5.1.

- After completion of the first 10 operational items (Stage 1), the test delivery system (TDS) compares the student's performance against the routing thresholds as shown in Table 4.C.1 (ELA) or Table 4.C.2 (mathematics) and determines whether to direct the student to Stage 2 or end testing and route directly to the Survey of Student Characteristics (SSC).
- After the completion of the full Stage 1, if a minimum score threshold is met to continue with testing, the TDS routes the student to one of the three modules of Stage 2, as shown in Figure 5.1.

### 5.1.3. Administration of the Survey of Student Characteristics (SSC)

For the final three questions for both the ELA and mathematics assessments, the test examiner is asked to respond to SSC about the student who just tested. These questions are intended to elicit information about a student's characteristics and to explore whether the test examiners' knowledge of students can be used to improve and develop the CAAs for future years. The test examiner completes the SSC on the student's testing device through the CAASPP secure browser. The SSC was not presented for students whose tests were ended early as a result of the Student Response Check.

## 5.2. Test Security and Confidentiality

For the CAA test administration, every person who works with the assessments, communicates test results, or receives testing information is responsible for maintaining the security and confidentiality of the tests, including California Department of Education (CDE) staff, ETS staff, ETS subcontractors, LEA assessment coordinators, school assessment coordinators, students, parents/guardians, teachers, and cooperative educational service agency staff. ETS' Code of Ethics requires that all test information, including tangible materials (such as test items), confidential files (such as those containing personally identifiable student information), and processes related to test administration (such as the configurations of secure servers) are kept secure. To ensure security for all the tests that ETS develops or handles, ETS maintains an Office of Testing Integrity (OTI), which is described in the next subsection.

All tests within the CAASPP System, as well as the confidentiality of student information, should be protected to ensure the validity, reliability, and fairness of the results. As stated in Standard 7.9 (AERA, APA, & NCME, 2014), "The documentation should explain the steps necessary to protect test materials and to prevent inappropriate exchange of information during the test administration session" (p. 128).

This section of the *CAA for ELA and Mathematics Technical Report* describes the measures intended to prevent potential test security incidents prior to testing and the actions that were taken to handle security incidents occurring during or after the testing window using the Security and Test Administration Incident Reporting System (STAIRS) process.

### 5.2.1. ETS' Office of Testing Integrity (OTI)

The OTI is a division of ETS that provides quality assurance services for all testing programs managed by ETS. This division resides in the ETS legal department. The Office of Professional Standards Compliance at ETS publishes and maintains the *ETS Standards for Quality and Fairness* (2014), which supports the OTI's goals and activities. The *ETS Standards for Quality and Fairness* provides guidelines to help ETS staff design, develop, and deliver technically sound, fair, and beneficial products and services and help the public and auditors evaluate those products and services.

The OTI's mission is to

- minimize any testing security violations that can impact the fairness of testing;
- minimize and investigate any security breach that threatens the validity of the interpretation of test scores; and
- report on security activities.

The OTI helps prevent misconduct on the part of students and administrators, detects potential misconduct through empirically established indicators, and resolves situations involving misconduct in a fair and balanced way that reflects the laws and professional standards governing the integrity of testing. In its pursuit of enforcing secure testing practices, the OTI strives to safeguard the various processes involved in a test development and administration cycle.

### 5.2.2. Procedures to Maintain Standardization of Test Security

Test security requires the accounting of all secure materials—including online summative test items, and student data—before, during, and after each test administration. The LEA CAASPP coordinator is responsible for keeping all electronic test materials secure, keeping student information confidential, and making sure the CAASPP test site coordinators and test examiners are properly trained regarding security policies and procedures.

The CAASPP test site coordinator is responsible for mitigating test security incidents at the test site and for reporting incidents to the LEA CAASPP coordinator.

The test examiner is responsible for reporting testing incidents to the CAASPP test site coordinator and securely destroying printed and digital media for items and passages generated by the print-on-demand feature of the TDS (CDE, 2018a).

The following measures ensured the security of CAASPP System assessments administered in 2017–18:

- LEA CAASPP coordinators and test site coordinators must have signed and submitted a "CAASPP Test Security Agreement for LEA CAASPP coordinators and CAASPP test site coordinators" form to the California Technical Assistance Center before ETS granted the coordinators access to TOMS. (*California Code of Regulations*, Title 5 [5 *CCR*], Education, Division 1, Chapter 2, Subchapter 3.75, Article 1, Section 859[a])
- Anyone having access to the testing materials must have signed and submitted a "Test Security Affidavit for Test Examiners, Test Administrators, Proctors, Translators, Scribes, and Any Other Person Having Access to CAASPP Tests" form to the CAASPP test site coordinator before receiving access to any testing materials. (5 *CCR*, Section 859[c])

In addition, it was the responsibility of every participant in the CAASPP System to report immediately any violation or suspected violation of test security or confidentiality. The CAASPP test site coordinator reported to the LEA CAASPP coordinator. The LEA CAASPP coordinator reported to the CDE within 24 hours of the incident. (5 *CCR*, Section 859[e])

### 5.2.3. Security of Electronic Files Using a Firewall

A firewall software is currently used to prevent unauthorized entry to files, email, and other organization-specific information. All ETS data exchanges and internal email remain within the ETS firewall at all ETS locations, ranging from Princeton, New Jersey, to San Antonio, Texas, to Concord and Sacramento, California.

All electronic applications that are included in TOMS remain protected by the ETS firewall software at all times. Due to the sensitive nature of the student information processed by TOMS, the firewall plays a significant role in maintaining assurance of confidentiality among the users of this information.

Refer to subsection *1.9 Systems Overview and Functionality* in *Chapter 1: Introduction* for more information on TOMS.

### 5.2.4. Transfer of Scores via Secure Data Exchange

Due to the confidential nature of test results, ETS currently uses secure file transfer protocol (SFTP) and encryption for all data file transfers; test data is never sent via email. SFTP is a method for reliable and exclusive routing of files. Files reside on a password-protected server that only authorized users can access. ETS shares an SFTP server with the CDE. On that site, ETS posts Microsoft Word and Excel files, Adobe Acrobat PDFs, or other document files for the CDE to review; the CDE returns reviewed materials in the same manner. Files are deleted upon retrieval.

The SFTP server is used as a conduit for the transfer of files; secure test data is only temporarily stored on the shared SFTP server. Industry-standard secure protocols are used to transfer test content and student data from the ETS internal data center to any external systems.

ETS enters information about the files posted to the SFTP server in a web form on a SharePoint website. A CDE staff member checks this log throughout the day to check the status of deliverables and downloads and deletes the file from the SFTP server when its status shows it has been posted.

### 5.2.5. Data Management in the Secure Database

ETS currently maintains a secure database to house all student demographic data and assessment results. Information associated with each student has a database relationship to the LEA, school, and grade codes, as data is collected during operational testing. Only individuals with the appropriate credentials can access the data. ETS builds all interfaces with the most stringent security considerations, including interfaces with data encryption for databases that store test items and student data. ETS applies best and up-to-date security practices, including system-to-system authentication and authorization, in all solution designs.

All stored test content and student data is encrypted. ETS complies with the Family Educational Rights and Privacy Act (20 *United States Code [USC]* § 1232g; 34 *Code of Federal Regulations* Part 99) and the Children's Online Privacy Protection Act (15 USC §§ 6501-6506, P.L. No. 105–277, 112 Stat. 2681–1728).

In TOMS, staff at LEAs and test sites have different levels of access appropriate to the role assigned to them.

### 5.2.6. Statistical Analysis on Secure Servers

During CAASPP testing, the information technology staff at ETS retrieves data files from the American Institutes for Research and loads them into a database. The ETS Data Quality Services staff extracts the data from the database and performs quality control procedures (e.g., the values of all variables are as expected) before passing files to the ETS statistical analysis group. The statistical analysis staff store the files on secure servers. All staff members involved with the data adhere to the ETS Code of Ethics and the ETS Information Protection Policies to prevent any unauthorized access to data.

### 5.2.7. Student Confidentiality

To meet requirements of the Every Student Succeeds Act as well as state requirements, LEAs must collect demographic data about students' ethnicity, disabilities, parent/guardian education, and so forth during the school year. ETS takes every precaution to prevent any of this information from becoming public or being used for anything other than for testing and score-reporting purposes. These procedures are applied to all documents in which student demographic data appears, such as technical reports.

### 5.2.8. Student Test Results

#### 5.2.8.1. Types of Results

The following deliverables are produced for reporting of the CAAs:

- Individual Student Score Reports (printed and electronic)
- Internet reports aggregated by content area and state, county, LEA, or test site

#### 5.2.8.2. Security of Results Files

ETS takes measures to protect files and reports that show students' scores and achievement levels. ETS is committed to safeguarding all secure information in its possession from unauthorized access, disclosure, modification, or destruction. ETS has strict information security policies in place to protect the confidentiality of both student and client data. ETS staff access to production databases is limited to personnel with a business need to access the data. User IDs for production systems must be person-specific or for systems use only.

ETS has implemented network controls for routers, gateways, switches, firewalls, network tier management, and network connectivity. Routers, gateways, and switches represent points of access between networks. However, these do not contain mass storage or represent points of vulnerability, particularly for unauthorized access or denial of service.

ETS has many facilities, policies, and procedures to protect computer files. Software and procedures such as firewalls, intrusion detection, and virus control are in place to provide for physical security, data security, and disaster recovery. ETS is certified in the BS 25999-2 standard for business continuity and conducts disaster recovery exercises annually. ETS routinely backs up all data to either disks through deduplication or to tapes, all of which are stored off site.

Access to the ETS Computer Processing Center is controlled by employee and visitor identification badges. The Center is secured by doors that only can be unlocked by the badges of personnel who have functional responsibilities within its secure perimeter. Authorized personnel accompany visitors to the ETS Computer Processing Center at all

times. Extensive smoke detection and alarm systems, as well as a preaction fire-control system, are installed in the Center.

#### 5.2.8.3. Security of Individual Results

ETS protects individual students' results on both electronic files and paper reports during the following events:

- Scoring
- Transfer of scores by means of secure data exchange
- Reporting
- Posting of aggregate data
- Storage

In addition to protecting the confidentiality of testing materials, ETS' Code of Ethics further prohibits ETS employees from financial misuse, conflicts of interest, and unauthorized appropriation of ETS property and resources. Specific rules are also given to ETS employees and their immediate families who may take a test developed by ETS (e.g., a CAA). The ETS OTI verifies that these standards are followed throughout ETS. This verification is conducted, in part, by periodic on-site security audits of departments, with follow-up reports containing recommendations for improvement.

### 5.2.9. Security and Test Administration Incident Reporting System (STAIRS) Process

Test security incidents, such as improprieties, irregularities, and breaches, are prohibited behaviors that give a student an unfair advantage or compromise the secure administration of the tests, which, in turn, compromises the reliability and validity of test results (CDE, 2018b). Whether intentional or unintentional, failure by staff or students to comply with security rules constitutes a test security incident. Test security incidents have impacts on scoring and affect students' performance on the test.

LEA CAASPP coordinators and CAASPP test site coordinators must ensure that all test security and summative administration incidents are documented by filling out the secure STAIRS form for reporting, which contains selectable options to guide coordinators in their submittal. After the form is submitted, an email containing a case number and next steps will be sent to the submitter (and to the LEA CAASPP coordinator, if the form is submitted by the CAASPP test site coordinator). Coordinators cannot file an appeal without the case number that is created by submitting the *CAASPP STAIRS* form. The *CAASPP STAIRS* form provides the LEA CAASPP coordinator, the CDE, and the California Technical Assistance Center (CalTAC) with the opportunity to interact and communicate regarding the STAIRS process. (CDE, 2018b)

Incidents are then resolved when the LEA CAASPP coordinator or CAASPP test site coordinator either files an appeal to reset, re-open, invalidate, restore, or grant a grace period extension to a student's test, or by following other instructions in a system-generated email in response to the *STAIRS* form submittal.

The following types of STAIRS reports, as applicable to the CAA, are also forwarded to the CDE:

- Security breach (where secure materials are exposed)
- Accidental access to a summative assessment

- Incorrect Statewide Student Identifier used (intentionally switched)
- Restoring a test that had been reset

Appeals requests are reviewed by the CDE. When a request to submit an appeal has been approved, the coordinator receives a system-generated email with the appeal type that has been approved. The coordinator then returns to TOMS to access the Appeal System, where the appeal is filed (CDE, 2018b).

#### 5.2.9.1. Impropriety

A testing impropriety is an unusual circumstance that has a low impact on the individual or group of students who are testing, and has a low risk of potentially affecting student performance on the test, test security, or test validity. An impropriety can be corrected and contained at a local level. An impropriety should be reported to the LEA CAASPP coordinator and CAASPP test site coordinator immediately. The coordinator reported the incident within 24 hours, using the online *CAASPP STAIRS* form.

#### 5.2.9.2. Irregularity

A testing irregularity is an unusual circumstance that impacts an individual or a group of students who are testing and may potentially affect student performance on the test, or impact test security or test validity. These circumstances can be corrected and contained at the local level and submitted in the online Appeals System for resolution. An irregularity must be reported to the LEA CAASPP coordinator and CAASPP test site coordinator immediately. The coordinator reported the irregularity within 24 hours, using the online *CAASPP STAIRS* form.

#### 5.2.9.3. Breach

A testing breach is an event that poses a threat to the validity of the test. Breaches require immediate attention and escalation to CalTAC (for social media breaches) or the CDE (for all other breaches) via telephone. Following the call, the CAASPP test site coordinator or LEA CAASPP coordinator must complete the online *CAASPP STAIRS* form within 24 hours. Examples may include such situations as a release of secure materials or a security or system risk. These circumstances have external implications for the CDE and may result in a decision to remove the test item(s) from the available secure item bank. A breach incident was reported to the LEA CAASPP coordinator immediately.

### 5.2.10. Appeals

For test security incidents reported in STAIRS that result in a need to reset, reopen, invalidate, or restore individual online student assessments, the CDE must approve the request. In most instances, an appeal will be submitted to address a test security breach or irregularity. The LEA CAASPP coordinator or CAASPP test site coordinator may submit appeals in TOMS. All submitted appeals are available for retrieval and review by the appropriate credentialed users within a given organization. However, the view of appeals is restricted according to the user role as established in TOMS (CDE, 2018c).

Types of appeals available during the 2017–18 CAASPP administration are described in Table 5.1.

**Table 5.1 Types of Appeals in CAASPP Testing**

| Type of Appeal | Description |
|---|---|
| Reset | Resetting a student's summative assessment removes that assessment from the system and enables the student to start a new assessment from the beginning. |
| Invalidation | Invalidated summative assessments will be scored, and scores will be provided on the Student Score Report with a note that an irregularity occurred. The student(s) will be counted as participating in the calculation of the school's participation rate for accountability purposes. |
| Re-open | Reopening a summative assessment allows a student to access an assessment that has already been submitted. |
| Restore | Restoring a summative assessment returns an assessment from the Reset status to its prior status. This action can only be performed on assessments that have been previously reset. |

## 5.3. Processing and Scoring

The CAAs for ELA and mathematics are administered online only and require two internet-connected devices: a student testing device and a separate device the test examiner uses to start a test session through the Test Administrator Interface. Test examiners also used their device to open a *Directions for Administration (DFA)* document, which is used to guide the student through the test. The CAAs for ELA and mathematics require the installation of CAASPP secure browsers on student testing devices. These are the same secure browsers that are used for the other online CAASPP assessments.

All item types are designed to be machine-scorable with the exception of a small subset of constructed response (CR) items. For CR items, item-specific rubrics are included in the *DFAs* to be used by the test examiner for rating a student's response. All rubric-based scoring is conducted and entered into the TDS by the test examiner during test administration. Scoring rubrics are included in the *DFAs*.

## 5.4. Procedures to Maintain Standardization

The test administration and scoring procedures are designed so that the tests are administered and scored in a standardized manner. ETS takes all necessary measures to ensure the standardization of test administration, as described in this subsection of the technical report.

### 5.4.1. LEA CAASPP Coordinator

An LEA CAASPP coordinator was designated by the district superintendent at the beginning of the 2017–18 school year. LEAs include public school districts, statewide benefit charter schools, State Board of Education–authorized charter schools, county office of education programs, and direct funded charter schools.

LEA CAASPP coordinators are responsible for ensuring the proper and consistent administration of the assessments that are part of the CAASPP System, including the CAAs. In addition to the responsibilities set forth in 5 *CCR* Section 857, their responsibilities include

- adding CAASPP test site coordinators and test examiners into TOMS;
- training CAASPP test site coordinators and test examiners regarding state requirements and CAA administration as well as security policies and procedures;
- reporting test security incidents (including testing irregularities) to the CDE;
- overseeing test administration activities;
- filing a report of a testing incident in STAIRS; and
- requesting an appeal (if the STAIRS response email indicates that an appeal is warranted).

### 5.4.2. CAASPP Test Site Coordinator

A CAASPP test site coordinator is trained by the LEA CAASPP coordinator for each test site (5 *CCR* Section 857[f]). A test site coordinator must be an employee of the LEA and must sign a security agreement (5 *CCR* Section 859[a]).

A test site coordinator is responsible for identifying test examiners and ensuring that they have signed CAASPP Test Security Affidavits. CAASPP test site coordinators' duties may include

- adding test examiners into TOMS;
- entering test settings for students;
- creating testing schedules and procedures for a school consistent with state and LEA policies;
- working with technology staff to ensure secure browsers are installed and any technical issues are resolved;
- monitoring testing progress during the testing window and ensuring all students participate, as appropriate;
- coordinating and verifying the correction of student data errors in the California Longitudinal Pupil Achievement Data System;
- ensuring a student's test session is rescheduled, if necessary;
- addressing testing problems;
- reporting security incidents;
- overseeing administration activities at a school site;
- filing a report of a testing incident in STAIRS; and
- requesting an appeal (if the STAIRS response email indicates that an appeal is warranted).

### 5.4.3. Test Examiners

Test examiners are identified by CAASPP test site coordinators as individuals who will administer the CAASPP assessments. A test examiner must be a certificated or licensed school staff member (5 *CCR* Section 850[ag]).

A test examiner must sign a security affidavit (5 *CCR* Section 859[d]). A test examiner's duties may include

- participating in training by either viewing the online test administration tutorial or attending any locally provided training;
- ensuring the physical conditions of the testing room meet the criteria for a secure test environment;
- administering the CAAs;
- reporting all test security incidents to the test site coordinator and LEA CAASPP coordinator in a manner consistent with state and LEA policies;
- viewing student information prior to testing to ensure that the correct student receives the proper test with appropriate resources and reporting potential data errors to test site coordinators and LEA CAASPP coordinators;
- monitoring student progress throughout the test session using the Test Administrator Interface; and
- complying fully with all directions provided in the Directions for Administration for the California Alternate Assessments.

### 5.4.4. Instructions for Test Examiners and Staff Involved in CAA Administration

#### 5.4.4.1. *Directions for Administration*

Test examiners use a grade-level edition of the *Directions for Administration for the California Alternate Assessments* to administer the CAAs for ELA and mathematics to students. Test examiners must follow all directions and guidelines and read, word-for-word, the instructions to students in the administration script to ensure standardization of test administration. *DFAs* also include scoring rubrics where warranted.

Sample *Directions for Administration for the California Alternate Assessments* to be used in conjunction with the CAA practice and training tests are provided to LEAs as well (CDE, 2017a, 2018d).

#### 5.4.4.2. *CAASPP Online Test Administration Manual*

The *CAASPP Online Test Administration Manual* (CDE, 2018a) contains information and instructions on overall procedures and guidelines for all LEA and test site staff involved in the administration of online assessments. Sections include the following topics:

- Roles and responsibilities of those involved with CAASPP testing
- Test administration resources
- Test security
- Administration preparation and planning
- General test administration
- Instructions for steps to take before, during, and after testing
- Overview of the student testing interface

Appendices include definitions of common terms, item types, descriptions of different aspects of the test and systems associated with the test, and checklists of activities for LEA CAASPP coordinators, CAASPP test site coordinators, and test examiners.

#### 5.4.4.3. *TOMS Pre-Administration Guide for CAASPP Testing*

TOMS is a web-based application that allows LEA CAASPP coordinators to set up test administrations, add and manage users, and submit online student test settings. Test examiners access TOMS to retrieve *CAA DFAs*.

TOMS modules include the following (CDE, 2018c):

- **Test Administration Setup—**This module allows LEAs to determine and calculate dates for the LEA's 2017–18 administration of the CAA assessments.
- **Adding and Managing Users—**This module allows LEA CAASPP coordinators to add CAASPP test site coordinators and test examiners to TOMS so that the designated user can administer, monitor, and manage the online alternate assessments.
- **Student Test Assignment—**This module allows LEA CAASPP coordinators to designate students to take the alternate assessments.
- **Online Student Test Settings—**This module allows LEA CAASPP coordinators and CAASPP test site coordinators to configure online test settings so students receive the assigned accessibility resources and accommodations for the online alternate assessments.

#### 5.4.4.4. Other System Manuals

Other manuals were created to assist LEA CAASPP coordinators and others with the technological components of the CAASPP System and are listed next.

- ***Technical Specifications and Configuration Guide for CAASPP Online Testing—*** This manual provides information, tools, and recommended configuration details to help technology staff prepare computers and install the secure browser to be used for the online CAASPP assessments (CDE, 2018e).
- ***Security Incidents and Appeals Procedure Guide—***This manual provides information on how to report and submit an appeal to the CDE to reset, reopen, invalidate, or restore individual online student assessments (CDE, 2018b).
- ***Accessibility Guide for CAASPP Online Testing—***This manual provides descriptions of the accessibility features for online tests as well as information about supported hardware and software requirements for administering tests to students using accessibility resources, including those with a braille accommodation using the software Job Access With Speech (JAWS®) tool or a braille embosser (hardware). Students with a braille accommodation are able to take advantage of the adaptive algorithm using the TDS's Enhanced Accessibility Mode and JAWS (CDE, 2018f).

## 5.5. LEA Training

ETS established and implemented a training plan for LEA assessment staff on all aspects of the assessment program. The CDE and ETS, in collaboration with the CDE Senior Assessment Fellows and other stakeholders as needed, determined the audience, topics, frequency, and mode (in-person, webcast, videos, modules, etc.) of the training, including such elements as format, participants, and logistics.

ETS conducted 16 in-person pretest workshops and presented four webcasts for the 2017–18 administration. Additionally, ETS produced a tutorial for CAA administration.

Following approval by the CDE, the ancillary materials were posted for each webcast on the CAASPP website at http://www.caaspp.org/training/caaspp/ so the LEAs could download the training materials.

### 5.5.1. In-person Training

ETS provided a series of in-person trainings. Beginning in January 2018, the first in-person trainings provided were the pretest workshops, which focused on training LEA CAASPP coordinators on how to prepare for administering the CAASPP. Additionally, a two-session Post-Test Workshop was offered in May and June 2018 with the sessions “Principles of Scoring and Reporting” and “The Results Are In—Now What?”

### 5.5.2. Webcasts

ETS provided a series of live webcasts throughout the school year that were archived and made available for training LEA and test site staff as well as test examiners. Webcast viewers were provided with a method of electronically submitting questions to the presenters during the webcast. The webcasts were recorded and archived for on-demand viewing on the CAASPP Summative Assessment Videos and Archived Webcasts web page at http://www.caaspp.org/training/caaspp/. CAASPP webcasts are available to everyone and require neither preregistration nor a logon account.

### 5.5.3. Videos and Narrated PowerPoint Presentations

To supplement the in-person workshops and the live webcast, ETS also produced short “how-to” videos and narrated PowerPoint presentations that were available on the CAASPP Summative Assessment Videos and Archived Webcasts web page at http://www.caaspp.org/training/caaspp/.

Finally, ETS produces an online module, the CAA Test Examiner Tutorial, designed to teach test examiners how to administer the CAAs for ELA and mathematics. Test examiners are required to complete a training session before administering the CAAs by either completing a local training or completing this stand-alone online training module (CDE, 2017b).

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# Chapter 6: Standard Setting

This chapter summarizes the standard-setting process through which California Alternate Assessment (CAA) for English language arts/literacy (ELA) and mathematics achievement levels were established. Included are an overview of the standard-setting methodology, a summary of the standard-setting procedure, the description of the performance level descriptors, and the results. The detailed standard-setting information for the CAAs for ELA and mathematics is described in the *Standard-Setting Technical Report for the California Alternate Assessments* (ETS, 2016).

## 6.1. Background

Standard setting refers to a class of methodologies by which one or more performance threshold scores are used to determine achievement levels. The purpose of the standard-setting process for the CAAs was to collect recommendations from California educators for the placement of the CAA threshold scores for review by the California Department of Education (CDE), with final determination by the State Board of Education (SBE). The content of the CAAs for ELA and mathematics is aligned to the Core Content Connectors (Connectors) that are derived from the Common Core State Standards (CCSS).

Educational Testing Service (ETS) conducted standard-setting workshops in 2016, following the first operational administration of the ELA and mathematics assessments. The Bookmark standard-setting method was applied to all items on each test, by grade. Refer to subsection *6.3 Standard-Setting Methodology* for more information about the Bookmark method.

Through the standard-setting process, input and recommendations on performance standards are solicited from California educators and local educational agencies (LEAs). The CDE reviews the input and recommendations, and the SBE establishes the standards based on these recommendations. There are three achievement levels for each test per grade and content area. In order from low to high performance, these are: Level 1—Alternate, Level 2—Alternate, and Level 3—Alternate. Two achievement threshold scores are needed to define the three achievement levels. Students with scale scores lower than the threshold score for the Level 2—Alternate achievement level are assigned to the lowest achievement level, Level 1—Alternate. Students with scale scores that are equal to or greater than the threshold score for the Level 3—Alternate achievement level are assigned to the highest achievement level, Level 3—Alternate. The rest of the students with valid scores are assigned to Level 2—Alternate.

## 6.2. Performance Level Descriptors (PLDs)

The CAAs for ELA and mathematics general (policy) performance level descriptors (PLDs), which were derived from the documents of the National Center and State Collaborative, describe what students at each performance level know and are able to do. General PLDs are short policy descriptors that convey the expectation at a given achievement level.

A team of LEA educators who are familiar with the Connectors and the target student population reviewed the general PLDs for California's target student population. They developed more specific descriptions for each grade and content area using the CAA blueprints and the Connectors as resources. The grade- and content-specific PLDs, together with threshold scores and the assessment results, are accessible to educators, parents, students, and the public (CDE, 2016a and 2016b).

Table 6.1 provides a description of the three general PLDs, with Level 3 reflecting the highest level of achievement (CDE, 2018).

**Table 6.1 Three General PLDs and CAAs for ELA and Mathematics Achievement Levels**

| Level | General Performance Level Descriptors | CAA Achievement Level |
|---|---|---|
| 3 | Students at this level demonstrate **understanding** of core subject matter in the content area. They are actively working with adapted grade-level content that focuses on the essential knowledge and skills and may need occasional prompts and assistance to complete tasks and activities. | Level 3—Alternate |
| 2 | Students at this level demonstrate **foundational** understanding of core subject matter in the content area when provided with frequent prompts and supports. They are actively working with adapted grade-level content that focuses on the essential knowledge and skills and may frequently need supports to complete tasks and activities. | Level 2—Alternate |
| 1 | Students at this level demonstrate **limited** understanding of adapted grade-level content that focuses on much of the basic knowledge and skills, even with extensive supports. | Level 1—Alternate |

## 6.3. Standard-Setting Methodology

For the CAAs for ELA and mathematics, the Bookmark method was used for standard setting. The Bookmark method is an item-mapping procedure that allows multiple performance threshold scores to be set in an efficient manner. This method represents an appropriate balance between statistical rigor and informed opinion, as explained in the following subsection.

### 6.3.1. Bookmark Method

The Bookmark method (Lewis, et al., 1998; Mitzel, et al., 2001) is a commonly used item-mapping procedure in which test items are ordered from easiest to most difficult based on actual student performance; the ordered items are presented in a booklet known as an ordered item booklet (OIB). The task of each panelist is to place a “bookmark” in the OIB that differentiates content that a student with just enough content knowledge and skills to be performing at a defined achievement level would likely know from content that he or she would not likely know. A bookmark is placed in the OIB for each item defined at the border of each achievement level. For each CAA, two bookmarks were required to set three achievement levels: Level 1—Alternate, Level 2—Alternate, and Level 3—Alternate.

The Bookmark method has its basis in item response theory (IRT) analysis. IRT is used to estimate item difficulties. These estimates are used to order items from easiest to hardest and to place item difficulty estimates on the score scale. One benefit of this approach is that once panelists make judgments in the OIB, the difficulty values associated with each item have a built-in relationship to scale scores through theta, a fact that allows results to be provided to score users and policy makers on the familiar metric of the scale score.

## 6.4. Standard-Setting Procedures

This subsection describes what occurred prior to and during the standard-setting workshop.

### 6.4.1. Panelists

Prior to the standard setting, panelists were recruited from across the state to be representative of the educators of CAA-eligible students; panelists were primarily special education teachers. Special efforts were made to assemble panels that were representative of the geographic and socioeconomic diversity of California in general and the CAA educator population in particular. The educators who participated in the standard setting included representatives from across regions in California (north, south, and central) and across gender, race, and ethnic categories. The final selection of panelists invited to the workshops was made by the CDE. The total number of panelists who participated was 68. Of these, 61 teachers have experience in special education, 43 administered the CAAs, and 7 were general education teachers.

### 6.4.2. Materials

Panelists were provided with a letter describing the purpose and procedure of the standard-setting workshop along with a preworkshop assignment specific to their panel assignments, instructions, a note-taking form, and the links to the general PLDs and the CAA blueprints. During the workshop, panelists received training materials, a draft list of competencies to develop borderline student definitions, a set of operational materials, and evaluation forms. The set of operational materials included *Directions for Administration (DFA)* for the assessment, the OIB, bookmark recording forms, and an item map. All references such as the CCSS, the Connectors, and the essential understandings were made available for panelists during the workshop. The detailed procedure with regard to securing those materials was described in the *Standard Setting Technical Report for the California Alternate Assessments* (ETS, 2016).

### 6.4.3. Process

Prior to making judgments in the OIB, panelists reviewed and discussed the test blueprints and the SBE-approved PLDs, including the specific PLDs for each level, and then developed borderline student definitions as a group. Two borderline student definitions were developed, one for Level 2 and one for Level 3. For example, a borderline Level 2 student is a student at the beginning of Level 2; this student definition represents the knowledge and skills of the lowest-performing Level 2 student, and differentiates this student from the knowledge and skills of the highest-performing Level 1 student.

Figure 6.1 shows where borderline students are located. This graph shows six figures representing students in the Level 1—Alternate group, six figures in the Level 2—Alternate Group, and six figures in the Level 3—Alternate Group. The arrow pointing to the leftmost figure in the Level 2 group indicates that this is the borderline Level 2 student. The arrow pointing to the leftmost figure in the Level 3 group indicates that this is the borderline Level 3 student.

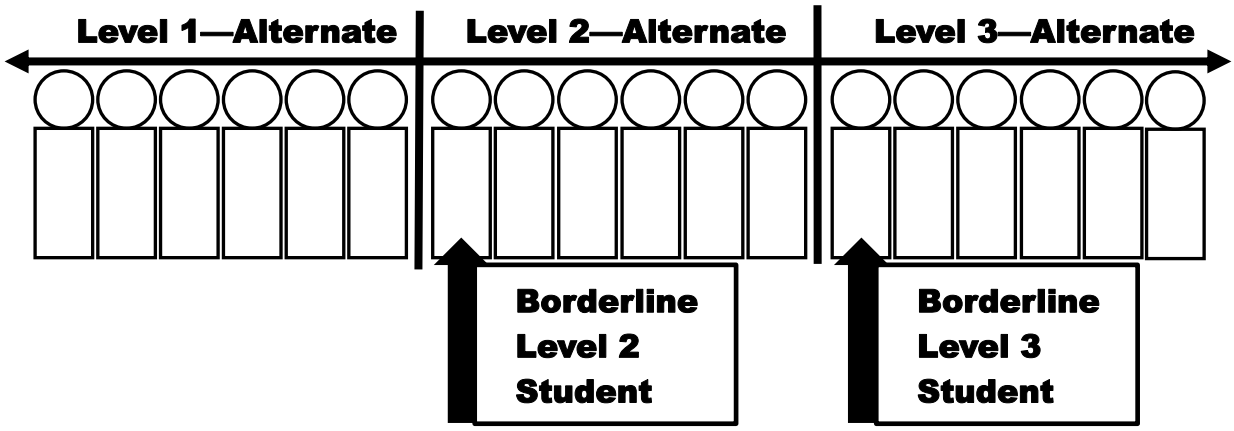


**Figure 6.1. Location of Borderline Students**

To make judgments and place bookmarks in the OIB, panelists reviewed each item in the OIB in sequence and considered if the student at the beginning of Level 2, known as the borderline Level 2 student, would most likely be able to answer the item correctly. A panelist placed the Level 2 bookmark on the first item encountered in the OIB that he or she believed the borderline Level 2 student would most likely not be able to address because items beyond that point were too difficult for that borderline student. The panelist continued from that point in the OIB and then stopped at the item that the borderline Level 3 student would not likely be able to address (i.e., the item that likely exceeds the ability of the borderline Level 3 student). Note that in the Bookmark method, the definition of "most likely" is related to the IRT model. That is, panelists were instructed to think of "most likely" as having a two-thirds likelihood of answering a multiple-choice item correctly. In ordering the items in the OIB, a response probability of 0.67 is employed in the IRT model; thus, the instructions to the panelists and the analytical model are aligned.[7]

The Bookmark process was implemented in three rounds. Each test-specific panel was split up and seated in small groups at separate tables to facilitate discussion. This table format provided an environment more conducive to panelists' sharing their opinions and rationales, as some panelists may be less inclined to speak or have less opportunity to be heard in a large group. The table format also increased the independence of the threshold-score recommendations, because each group of experts provided its own recommendations, which were then aggregated across groups.

The final recommended threshold scores were based on the median of panelists' judgment scores. At the conclusion of the workshop, the results were shared with the panelists and the CDE.

As part of the standard-setting process, the CDE analyzed the standard-setting panel's judgments and refined the threshold scores for consistency across all the CAAs for ELA and mathematics grade levels tested. The CDE's recommendations were then presented to the SBE for approval.

[7] In several applications of the Bookmark method, a target probability of two-thirds is used to define "most likely." Refer, for example, to Mitzel, et al. (2001).

## 6.5. Results of the Standard Setting

The SBE approved the recommendation of the final threshold scores for the CAAs. The recommendations are presented in Table 6.2 (ELA) and Table 6.3 (mathematics). The scales in these tables were presented and used in the standard-setting process. They range from 50 to 350 score points and are more user friendly than the theta metric. The theta score was not used because panelists might not be familiar with the concept of theta. As the theta scores range from -6.00 to 6.00 approximately, it was less accessible to panelists as well. As a result, the theta scale was transformed linearly to a score scale unique to each grade.

The tables show the percent of students statewide that would be placed at this alternate achievement standard (level) on the basis of the results of the 2015–16 CAASPP administration. Also shown in both tables is the percentage of students statewide that would be at and above this alternate achievement standard (level) on the basis of the results of the 2015–16 administration. Finally, the standard-setting threshold score is the minimum standard-setting scale score needed to achieve an alternate achievement standard (level) on the 2015–16 administration of tests. Note that threshold scores were generated solely for the standard-setting process; reporting scales were developed to report scores on the Student Score Report and public reporting.

**Table 6.2 SSPI's Recommendations for the Proposed Achievement Standards (Levels) for the CAA for ELA**

| Grade | % of Students in Level 1 | % At or Above Level 1 | % of Students in Level 2 | Standard-Setting Scale Threshold Score for Level 2 | % At or Above in Level 2 | % of Students in Level 3 | Standard-Setting Scale Threshold Score for Level 3 | % At or Above in Level 3 |
|---|---|---|---|---|---|---|---|---|
| 3 | 54.3 | 100 | 24.7 | 195 | 45.7 | 21.0 | 220 | 21.0 |
| 4 | 60.6 | 100 | 27.8 | 200 | 39.4 | 11.6 | 225 | 11.6 |
| 5 | 57.0 | 100 | 34.5 | 200 | 43.0 | 8.5 | 225 | 8.5 |
| 6 | 57.0 | 100 | 36.2 | 200 | 43.0 | 6.8 | 230 | 6.8 |
| 7 | 59.4 | 100 | 32.2 | 200 | 40.6 | 8.4 | 225 | 8.4 |
| 8 | 49.4 | 100 | 43.0 | 195 | 50.6 | 7.5 | 225 | 7.5 |
| 11 | 46.0 | 100 | 46.8 | 195 | 54.0 | 7.1 | 225 | 7.1 |

**Table 6.3 SSPI's Recommendations for the Proposed Achievement Standards (Levels) for the CAA for Mathematics**

| Grade | % of Students in Level 1 | % At or Above Level 1 | % of Students in Level 2 | Standard-Setting Scale Threshold Score for Level 2 | % At or Above in Level 2 | % of Students in Level 3 | Standard-Setting Scale Threshold Score for Level 3 | % At or Above in Level 3 |
|---|---|---|---|---|---|---|---|---|
| 3 | 72.3 | 100 | 23.1 | 205 | 27.7 | 4.6 | 225 | 4.6 |
| 4 | 70.0 | 100 | 25.8 | 205 | 30.0 | 4.3 | 225 | 4.3 |
| 5 | 72.8 | 100 | 23.0 | 205 | 27.2 | 4.2 | 225 | 4.2 |
| 6 | 72.7 | 100 | 23.2 | 205 | 27.3 | 4.1 | 225 | 4.1 |
| 7 | 70.4 | 100 | 24.4 | 205 | 29.6 | 5.2 | 225 | 5.2 |
| 8 | 71.1 | 100 | 24.5 | 205 | 28.9 | 4.4 | 225 | 4.4 |
| 11 | 68.4 | 100 | 26.2 | 205 | 31.6 | 5.4 | 225 | 5.4 |

The reporting scale score range for each achievement level at different grades is presented in Table 7.2 on page 94. The performance threshold score for each level is the lower bound of each scale score range. The scale score ranges do not change from year to year. Once established, they remain unchanged from administration to administration until such time that new performance standards are adopted. Table 7.3 and Table 7.4 on page 95 in chapter 7 present the percentages of students meeting each achievement level in the 2017–18 administration of the CAAs for ELA and mathematics.

# References

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# Chapter 7: Scoring and Reporting

Student item responses are scored and analyzed in order to determine individual students' scores for the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics. Based on the analyses of the item responses, individual student scores (i.e., overall scale scores) are calculated and reported. In addition, student test scores are aggregated to produce summary reports for schools and local educational agencies (LEAs). This chapter describes how the various types of student responses are scored for the CAA online assessments, as well as the various types of scores and reports that are generated.

## 7.1. Student Test Scores

Overall scale scores and achievement levels for the CAAs for ELA and mathematics are reported at the individual student level. In order to obtain these overall scale scores and achievement levels, the ability (theta) scores need to be estimated.

Prior to the test administration, Educational Testing Service (ETS) assessment development staff review each item and determine the keys and scoring rubrics. The keys and rubrics are provided to the American Institutes for Research (AIR) for implementation in the test delivery system (TDS). After AIR finishes machine scoring of item responses, scores and responses are delivered to ETS. ETS' enterprise score key management (eSKM) system collects and calculates individual students' overall scores (e.g., total raw scores).

ETS uses two parallel scoring systems to produce and verify students' scores: the eSKM scoring system, which receives individual students' item scores and item responses from AIR and computes individual student scores for the ETS reporting system; and the score computation by ETS' Psychometric Analysis and Research team, which also computes individual student scores based on the same data files but using SAS, statistical analysis system software. The scores from the two systems are then compared for the purpose of internal quality control. Inconsistency in the total raw scores are discussed and resolved. The parallel scoring process ensures the quality and accuracy of scoring and supports the transfer of scores into the database of the student records scoring system, the Test Operations Management System (TOMS).

### 7.1.1. Incomplete and Complete Cases

Whether a test should be scored or reported depends on the "complete" status of the test and how much of the test was submitted for scoring. Depending on the nature of the missing data, different actions are taken.

As defined in the CAA scoring and reporting specifications, tests are considered "complete" if students respond to a minimum of four items; "partially complete" if students respond to one to three items; and "non-complete" if students log on but do not respond to any item. ETS, in consultation with the California Department of Education (CDE), implemented several rules to identify an incomplete test; these rules are presented in Table 7.1, which includes the following four specifications:

1. Attemptedness/Participation rules that describe when a test is considered attempted or participated
2. When a test is scored

3. How and when incomplete tests are scored
4. When a score is reported

**Table 7.1 Rules for Incomplete Tests**

| If the student | Classify the student as participating? | Score the student's responses? | Classify the student as attempting the test (test completion status) or is there another status? | Report a score for the student? |
|---|---|---|---|---|
| Logged on to the test, but answered no items | Yes | Yes, Lowest obtainable scale score (LOSS) for the test | Yes, INC0 (Non-completion) | Yes |
| Logged on to the test, and answered at least one item but not more than three items | Yes | Yes, Next lowest obtainable scale score for the test (LOSS+1) | Yes, INC1 (Partial completion) | Yes |
| Logged on to the test and answered at least four items | Yes | Yes | Yes (Completion) | Yes |
| Did not log on to the test | No | N/A | Not Tested | No |
| Logged on and answered at least one item with a special condition code (refer to subsection *7.3.2 Special Cases*) | No | N/A | Not Tested | No |

### 7.1.2. Theta Scores

The CAAs for ELA and mathematics use a two-stage multistage test (MST) design; refer to subsection *4.2 Test Design* in *Chapter 4: Test Assembly* for details about MST design. Based on this design, there are multiple pathways (combinations) of Stage 1 and Stage 2 modules; each pathway consisting of a Stage 1 module and a Stage 2 module is illustrated in Table 4.1 on page 52. Because the tests are not vertically scaled, each test (by grade and content area) has its own theta scale. After all new items are calibrated and linked onto the reference scale, the raw score can be computed as a sum of dichotomous and polytomous item scores and can be transformed into an ability estimate (theta) by using the IRT inverse test characteristic curve (TCC) method (Stocking, 1996). With this method, the student's estimated ability is the ability value at which the expected raw score is equal to the student's raw score. Refer to subsection *8.3.2 Equating* for equating procedures and the IRT inverse TCC method. Note that the estimation of ability is implemented by using the

item parameters that are either in the item bank or from the calibration, and that each pathway has a unique set of item parameters.

When a conversion table from the raw score to theta score is created for each pathway (i.e., each combination of Stage 1 and Stage 2 modules), the theta score of each individual student can be obtained in the conversion table. Refer to appendix 7.B for the raw-score-to-theta-score conversion tables.

The overall theta score distributions for each grade and content area are presented in Table 7.A.1 and Table 7.A.2 in appendix 7.A. To compare the ability distributions across pathways, the estimated theta score distributions for each grade, content area, and test pathway are presented in Table 7.A.3 through Table 7.A.16. The theta distributions show the ability differences between students taking different pathways

### 7.1.3. Scale Scores for the Total Assessment

The following requirements were used to develop and define the CAAs for ELA and mathematics reporting scale ranges:

1. Each scale score has three digits (e.g., 320, 551, or 780) where the first digit is indicative of the grade being reported. The leading digit is defined by the grade for elementary and middle school, while the high school leading digit is set to “9.” The latter two digits represent the scale score as derived from the transformation from the raw scores to the scale scores as described in the previous paragraph.
2. Score ranges are grade-specific. For example, the possible scale scores would be 300 to 399 for grade three with the lowest obtainable scale score (LOSS) at 300 and the highest obtainable scale score (HOSS) at 399. For grade four, this range is 400 to 499 with a LOSS of 400 and a HOSS of 499, and so on for the other grades. For grade eleven, the scale ranges from 900 to 999 with a LOSS of 900 and a HOSS of 999.
3. Each threshold score on the scale is the same from year to year. Also, across the grade levels, the last two digits corresponding to the Level 2—Alternate and Level 3—Alternate threshold scores are the same (refer to subsection *7.1.4 Achievement Levels* for a brief description of alternate achievement levels).
4. Students with incomplete tests, as shown in Table 7.1, have two possible scale scores. If a student logged on to the test system but did not answer any items (INC0), this student would be assigned a scale score of LOSS (e.g., 300 for a third-grade student and 400 for a fourth-grade student). If a student logged on to the TDS and answered one but fewer than four items (INC1), he or she would be assigned a scale score of LOSS+1 (i.e., 301 for a third-grade student and 401 for a fourth-grade student).

For students who complete a CAA, their scale scores cannot be lower than LOSS+3 or higher than the HOSS as a result of truncation in the scale score transformation listed in Table 8.6. For example, the scale scores for grade three are truncated at a minimum of 303 and a maximum of 399. As a result, the range of student ability estimates [-6, +6] are transformed to the scale score range [303, 399] for grade three and [403, 499] for grade four. The scale score ranges for other grades follow the same pattern.

In addition to the special requirements of the CAA reporting scale, an equating procedure is implemented to place scores on the basis of different forms or administrations on the reference scales to make scores comparable.

First, to express the students' ability estimates on the scale score metric of CAA tests, the inverse TCC procedure is used to convert each possible raw score to an ability estimate (theta score). Refer to subsection *8.3.2.3.1 Inverse Test Characteristic Curve (TCC) Procedure* for details of this procedure.

Second, theta scores are transformed linearly to the appropriate CAA for ELA and mathematics scale scores. Refer to subsection *8.3.2.3.2 Transformation from Theta Scores to Scale Scores* for details of the transformation. The slopes and intercepts for such linear transformations are presented in Table 8.6. Once the theta scores are transformed, the theta-to-scale score relationship can be mapped to the raw scores.

Finally, the raw-to-scale score conversion tables are established. The complete raw-to-scale score conversion tables for each CAA pathway are presented in Table 7.B.1 through Table 7.B.14 in appendix 7.B. The raw scores, theta scores, transformed scale scores, and the number and percentage of students at each raw score are listed in those tables. Refer to Table 4.A.1 through Table 4.A.14 in *Appendix 4.B: Statistical Specification for 2017–18 Test Development* for pathways of each test.

### 7.1.4. Achievement Levels

CAA reporting scales classify each student's performance into one of the three achievement levels,[8] with Level 1—Alternate indicating the lowest level of performance and Level 3—Alternate indicating the highest level of performance. The range of possible scale scores is divided into three achievement levels. Student test results are reported in the following overall achievement levels:

**Level 1—Alternate:** Student demonstrates a limited understanding of core concepts in ELA and mathematics.

**Level 2—Alternate:** Student demonstrates a foundational understanding of core concepts in ELA and mathematics.

**Level 3—Alternate:** Student demonstrates an understanding of core concepts in ELA and mathematics.

The scale score ranges defining the various achievement levels and grades are presented in Table 7.2.

**Table 7.2 CAAs for ELA and Mathematics Reporting Scale Score Ranges for Each Achievement Level and Grade**

| Grade | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate |
|---|---|---|---|
| 3 | 300–344 | 345–359 | 360–399 |
| 4 | 400–444 | 445–459 | 460–499 |
| 5 | 500–544 | 545–559 | 560–599 |
| 6 | 600–644 | 645–659 | 660–699 |
| 7 | 700–744 | 745–759 | 760–799 |
| 8 | 800–844 | 845–859 | 860–899 |
| 11 | 900–944 | 945–959 | 960–999 |

[8] Detailed information regarding the determination of the achievement levels can be found in the *CAA Standard Setting Technical Report* (ETS, 2016).

## 7.2. Overview of Score Aggregation Procedures

To provide meaningful results to the stakeholders, test scores for a given grade and content area are aggregated at the school, LEA or direct funded charter school, county, and state levels. The aggregated scores are generated for the selected groups of interest (gender, ethnicity, primary disability, etc.) and for the total population. This subsection contains a description of the types of aggregation that are performed on the CAA for ELA and mathematics summary test scores.

### 7.2.1. Individual Student Score Distributions and Summary Statistics

Summary statistics that describe student performance on each test are presented in Table 7.3. Included in the table are the number of students taking each test and the means and standard deviations of student scores expressed in terms of both scale scores and theta scores.

**Table 7.3 Mean and Standard Deviation of Scale and Theta Scores**

| Content Area and Grade | Number of Students Tested | Scale Score Mean | Scale Score SD | Theta Score* Mean | Theta Score* SD |
|---|---|---|---|---|---|
| ELA 3 | 5,102 | 340 | 25 | -1.04 | 2.56 |
| ELA 4 | 5,324 | 438 | 23 | -0.91 | 2.42 |
| ELA 5 | 5,330 | 539 | 23 | -0.88 | 2.43 |
| ELA 6 | 5,386 | 639 | 20 | -0.81 | 2.26 |
| ELA 7 | 5,383 | 738 | 23 | -0.92 | 2.41 |
| ELA 8 | 5,238 | 840 | 21 | -0.92 | 2.33 |
| ELA 11 | 4,457 | 943 | 22 | -0.66 | 2.37 |
| Mathematics 3 | 5,101 | 335 | 21 | -1.06 | 2.44 |
| Mathematics 4 | 5,309 | 434 | 21 | -1.05 | 2.33 |
| Mathematics 5 | 5,319 | 535 | 21 | -1.01 | 2.38 |
| Mathematics 6 | 5,366 | 635 | 20 | -1.02 | 2.38 |
| Mathematics 7 | 5,375 | 735 | 20 | -0.89 | 2.24 |
| Mathematics 8 | 5,229 | 834 | 20 | -1.01 | 2.35 |
| Mathematics 11 | 4,437 | 935 | 21 | -0.84 | 2.20 |

* The incomplete cases are not included in the analysis. The number of students who did not complete a test or who did not answer any items is shown in Table 7.A.1 and Table 7.A.2 in appendix 7.A.

The number and percentage of students at each achievement level for each test is presented in Table 7.4.

**Table 7.4 Numbers and Percentages of Students in Achievement Levels**

| Content Area and Grade | Level 1 N | Level 1 % | Level 2 N | Level 2 % | Level 3 N | Level 3 % |
|---|---|---|---|---|---|---|
| ELA 3 | 2,593 | 51 | 1,419 | 28 | 1,090 | 21 |
| ELA 4 | 2,929 | 55 | 1,419 | 27 | 976 | 18 |
| ELA 5 | 2,735 | 51 | 1,607 | 30 | 988 | 19 |
| ELA 6 | 2,922 | 54 | 1,870 | 35 | 594 | 11 |
| ELA 7 | 2,973 | 55 | 1,445 | 27 | 965 | 18 |
| ELA 8 | 2,527 | 48 | 2,038 | 39 | 673 | 13 |
| ELA 11 | 1,954 | 44 | 1,556 | 35 | 947 | 21 |
| Mathematics 3 | 3,179 | 62 | 1,515 | 30 | 407 | 8 |
| Mathematics 4 | 3,470 | 65 | 1,400 | 26 | 439 | 8 |
| Mathematics 5 | 3,348 | 63 | 1,518 | 29 | 453 | 9 |
| Mathematics 6 | 3,586 | 67 | 1,392 | 26 | 388 | 7 |
| Mathematics 7 | 3,516 | 65 | 1,472 | 27 | 387 | 7 |
| Mathematics 8 | 3,350 | 64 | 1,529 | 29 | 350 | 7 |
| Mathematics 11 | 2,886 | 65 | 1,135 | 26 | 416 | 9 |

Figure 7.1 presents the percentages of students at each achievement level by grade for ELA.

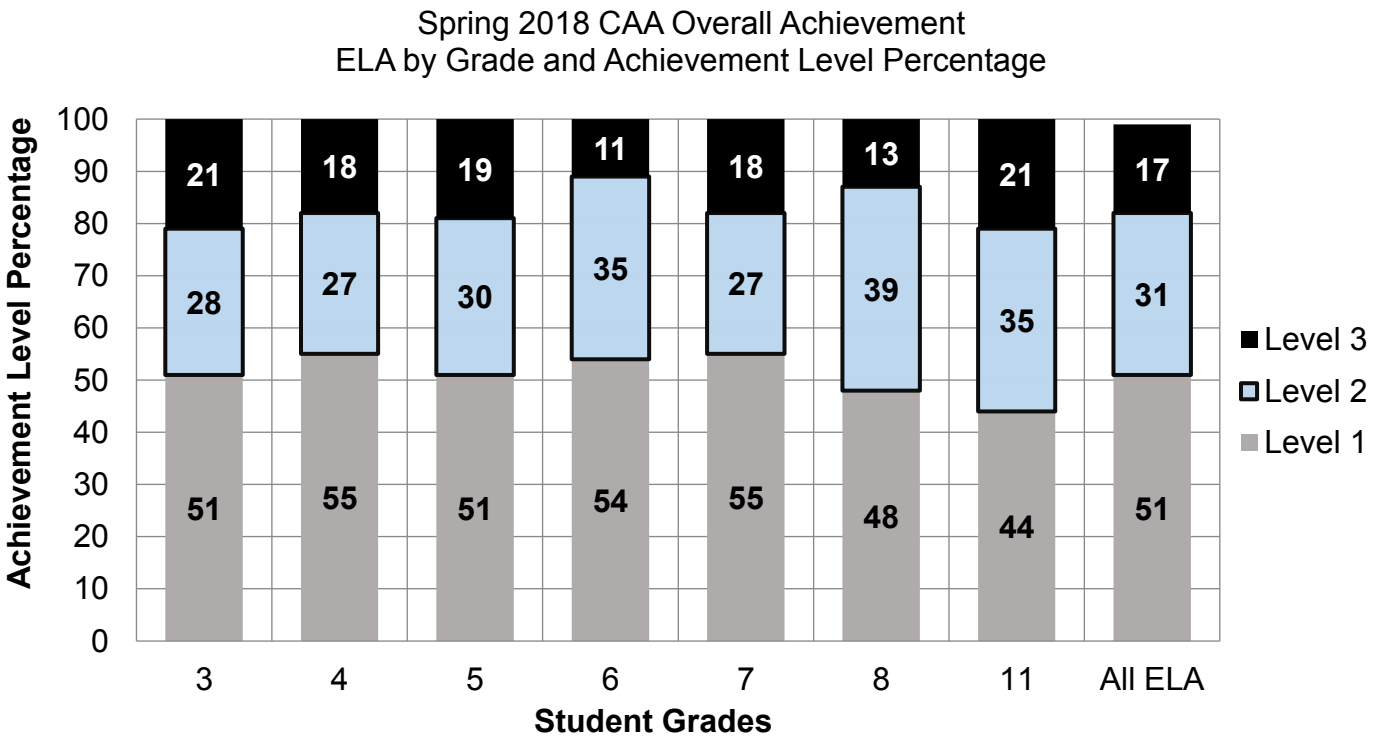


**Figure 7.1 Percentage of Students at Each Achievement Level in ELA**

Figure 7.2 presents the percentages of students at each achievement level by grade for mathematics.

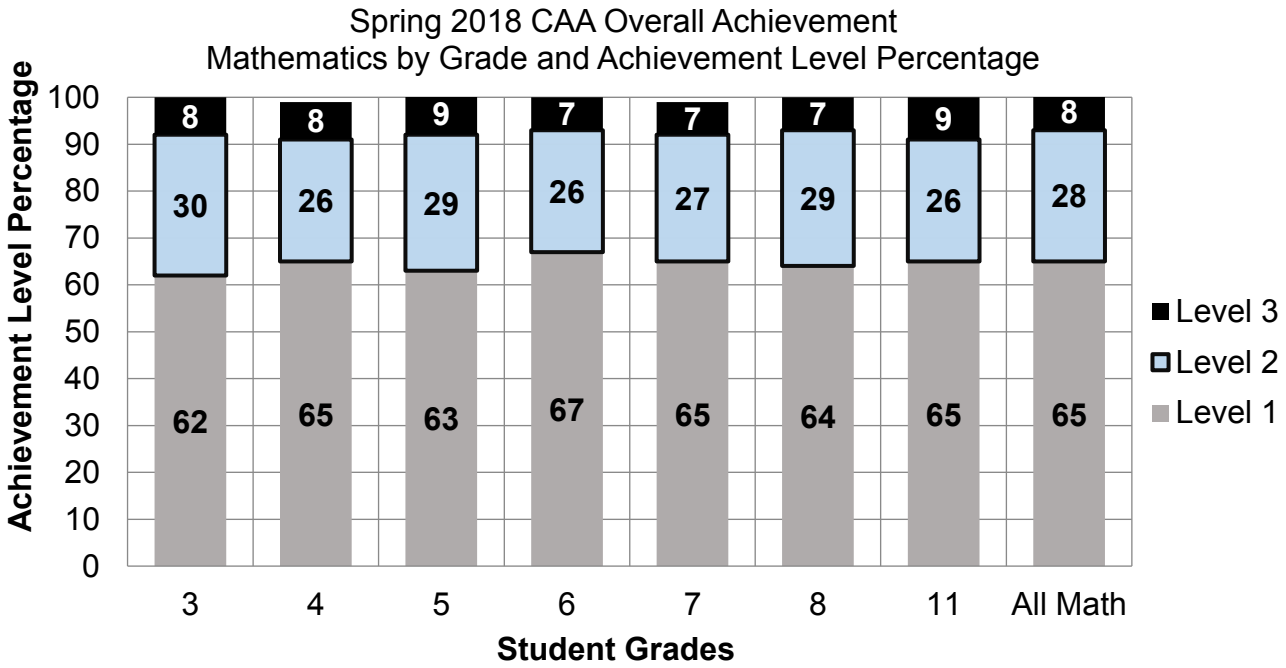


**Figure 7.2 Percentage of Students at Each Achievement Level in Mathematics**

The selected percentiles of the scale score distributions are presented in Table 7.C.1 and Table 7.C.2 in appendix 7.C. CAA reporting scale score distribution information for each grade and content area is available in Table 7.C.3 through Table 7.C.16 starting on page 149.

### 7.2.2. Group Scores

Statistics summarizing student performance by content area and grade for selected groups of students are provided in appendix 7.D. In Table 7.D.1 through Table 7.D.14, students are grouped by demographic characteristics, including gender, ethnicity, English-language fluency, economic status (disadvantaged or not), primary disability, migrant status, and ethnicity by economic status. For each demographic student group, the number of students with a valid scale score, scale score means and standard deviations, and the percentage of students in each achievement level are included in the tables.

Table 7.5 provides definitions of the demographic student groups. To protect student privacy, when the number of students in a student group is 10 or fewer, the summary statistics are not reported and are presented as “NA.”

**Table 7.5 Demographic Student Groups to Be Reported**

| Category | Student Groups |
|---|---|
| Gender | • Male<br>• Female |
| Ethnicity | • American Indian or Alaska Native<br>• Asian<br>• Native Hawaiian or Other Pacific Islander<br>• Filipino<br>• Hispanic or Latino<br>• Black or African American<br>• White<br>• Two or more races |
| English-Language Fluency | • English only<br>• Initial fluent English proficient<br>• English learner<br>• Reclassified fluent English proficient<br>• To be determined<br>• English proficiency Unknown |
| Economic Status | • Not economically disadvantaged<br>• Economically disadvantaged |
| Primary Disability Type | • Intellectual disability<br>• Hearing Impairment<br>• Speech or language impairment<br>• Visual Impairment<br>• Emotional disturbance<br>• Orthopedic impairment<br>• Other health impairment<br>• Specific learning disability<br>• Deaf-blindness<br>• Multiple disabilities<br>• Autism<br>• Traumatic brain injury<br>• Not classified[9] |
| Migrant Status | • Eligible for the Title I Part C Migrant Program (Migrant)<br>• Not eligible for the Title I Part C Migrant Program (Nonmigrant) |

[9] Disability information was changed or removed after student testing.

## 7.3. Reports Produced and Scores for Each Report

Score summaries are reported for different purposes for the CAAs for ELA and mathematics online assessments. The four major purposes are to

1. help facilitate conversations between parents/guardians and teachers about student performance;
2. serve as a tool to help parents/guardians and teachers work together to improve student learning;
3. help schools and school districts identify strengths and areas that need improvement in their educational programs; and
4. provide the public and policymakers with information about student achievement.

This subsection provides detailed descriptions of the uses and applications of the California Assessment of Student Performance and Progress (CAASPP) reporting for students. CAAs for ELA and mathematics, as one of the components in CAASPP, are reported through the CAASPP reporting system.

### 7.3.1. Online Reporting

TOMS is a secure website hosted by ETS that permits LEA users to manage the CAASPP online summative assessments and to inform the TDS. This system uses a role-specific design to restrict access to certain tools and applications based on the user's designated role. Specific functions of TOMS include the following:

- Manage user access privileges
- Manage test administration calendars and testing windows
- Manage student test assignments
- Manage and confirm the accuracy of students' test settings (i.e., designated supports and accommodations) prior to testing
- Generate and download various reports

In addition, TOMS communicates with the Online Reporting System (ORS) that provides authorized users with interactive and cumulative online reports for ELA and mathematics at the student, school, and LEA levels. The ORS provides access to two CAASPP functions: Score Reports, which provide preliminary score data for each administered test available in the reporting system; and Completion Status Reports, which provide completion data for students taking the test in the reporting system.

Based on CAA reporting requirements for ELA and mathematics, the ORS generates preliminary summative reports containing information describing student knowledge and skills. The online aggregate reports provide data at the student, classroom, school, and LEA levels and are available to be downloaded in PDF, Excel, and comma-separated value formats.

### 7.3.2. Special Cases

Student scores are not reported for the following cases:

- Student was absent from the test administration
- Student moved or had a medical emergency during testing
- Student's parent/guardian requested exemption from testing

- Student did not log on to test systems
- Student was administered out-of-grade level tests
- Student was invalidated in the system (not reported in aggregated reporting)

### 7.3.3. Types of Score Reports

CAASPP reports fall into three categories. The specific reports within each category are presented in this subsection.

#### 7.3.3.1. Student Score Report

The CAA Student Score Report is the official score report for parents or guardians and describes the student's results, including scale scores and achievement levels, for both ELA and mathematics.

Scores for students who use accommodations or designated supports are reported in the same way as for students without accommodations or designated supports. Detailed information about accessibility resources is described in subsection *2.5.1 Universal Tools, Designated Supports, and Accommodations* in chapter 2.

LEAs receive printed Student Score Reports and distribute them to parents/guardians and students' schools. This report is also provided in a printable PDF file that the LEA CAASPP coordinator may download from TOMS. CAA Student Score Reports that include individual student results are not distributed beyond the student's school. Further information about the Student Score Report and other reports is provided on the CDE CAASPP Student Score Report Information web page at https://www.cde.ca.gov/ta/tg/ca/caasppssrinfo.asp.

#### 7.3.3.2. School Report

The school performance report provides group information by content area, including the school's average scale score and the percentage of students at each achievement level. This report also provides a list of students' scale scores and achievement levels.

The school scale score report is presented as a dashboard to provide group information by content area. It includes a histogram showing the distribution of students' scale scores.

#### 7.3.3.3. District Report

The district performance report provides school-level information by content area, including the school average scale score and the percentage of students at each achievement level.

This report lists all the proficiency information for each school, including the testing status as shown in subsection *7.3.2 Special Cases*, number of students who completed testing, average scale score, and percentage of students in each achievement level.

The district scale score report is presented as a dashboard to provide cumulative information. A histogram is included to show the frequency of schools with mean scale scores in each score interval.

The CAASPP aggregate reports and student data files for the LEA are available for the LEA CAASPP coordinator to download from TOMS. The LEA CAASPP coordinator forwards the appropriate reports to test sites.

Internet reports are described on the CDE website and are accessible to the public online at http://caaspp.cde.ca.gov/.

Preliminary individual student scores are also available to LEAs prior to the release of final reports via electronic reporting that can be accessed using the ORS. This application permits LEAs to view preliminary results for all tests taken.

### 7.3.4. Score Report Applications

CAAs for ELA and mathematics test results provide parents or guardians with information about their child's progress. The results are a tool for increasing communication and collaboration between parents or guardians and teachers. These results are one measure of student's academic performance and provide limited information. Like any important measure of student performance, they should be viewed with other available information such as progress on individualized education program goals, assignments, and teacher conferences. Results can be used to communicate with a student's teachers about how to help the student progress in ELA and mathematics.

Schools may use the CAAs for ELA and mathematics results to help make decisions about how to support student achievement. CAA results, however, should never be used as the only source of information to make important decisions about a child's education.

CAAs for ELA and mathematics results help schools and LEAs identify strengths and weaknesses in their instructional programs. Each year, staff from schools and LEAs examine CAA test results at each grade level and content area tested. Their findings are used to help determine

- the extent to which students are learning the alternate achievement standards,
- instructional areas that can be improved,
- teaching strategies that can be developed to address needs of students, and
- decisions about how to use funds to help ensure that students achieve the alternate achievement standards.

### 7.3.5. Criteria for Interpreting Individual Test Scores

LEAs may use the CAA results to help inform decisions around instructional needs, but the CAA results should not be used in isolation to make inferences about instructional needs. It is important to remember that results from a single test can provide only limited information. Other relevant information should be considered as well. It is advisable for parents to evaluate their child's strengths and weaknesses in the relevant topics by reviewing classroom work and progress reports in addition to the student's CAAs for ELA and mathematics results. It is also important to note that a student's score in a content area contains measurement error and could vary to some extent if the student were retested.

### 7.3.6. Criteria for Interpreting Group Score Reports

The information presented in various reports must be interpreted with caution when making performance comparisons. When comparing scale scores and achievement-level results, the user is limited to the comparisons within a content area and grade level. The score scales for ELA and mathematics are not comparable to each other, nor are the score scales comparable across grade levels. The user may compare scale scores for the same content area and grade, within a school, between schools, or between a school and its district, its county, or the state. For more details on the criteria for interpreting information provided on the score reports, refer to the *2017–18 CAASPP Post-Test Guide* (CDE, 2018).

# References

California Department of Education. (2018). *2017–18 CAASPP post-test guide: Technical information for student score reports for CAASPP LEA and test site coordinators and research specialists.* Sacramento, CA: California Department of Education. Retrieved from http://www.caaspp.org/rsc/pdfs/CAASPP.post-test_guide.2017-18.pdf

Educational Testing Service. (2016). *Standard-setting technical report for the California Alternate Assessments: English language arts/literacy and mathematics grades three through eight and grade eleven.* Princeton, NJ: Educational Testing Service. Retrieved from http://www.cde.ca.gov/ta/tg/ca/documents/caa16standardsetting.pdf

Stocking, M. L. (1996). An alternative method for scoring adaptive tests. *Journal of Educational and Behavioral Statistics, 21*, 365–389.

# Appendix 7.A: Theta Scores (Estimated Ability Values) of Students Taking Each Test

**Notes:**

- An expression that opens with a parenthesis and closes with a bracket indicates that a value is greater than the first number and is less than or equal to the second number. For example, "(0.5, 2]" indicates a value greater than 0.5 but less than or equal to 2.
- To protect student privacy, when the number of students in a student group is 10 or fewer, the summary statistics of performance are not reported and are presented as "NA."

**Table 7.A.1 Frequency Distribution of Theta for Overall Scores—English Language Arts/Literacy (ELA)**

| Theta Score | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|
| Incomplete | 975 | 869 | 865 | 807 | 826 | 863 | 617 |
| [–6.0, –6.0] | 3 | 5 | 1 | 3 | 2 | 1 | 1 |
| (–6.0, –5.5] | NA | NA | NA | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | 6 | NA | 22 | NA | NA |
| (–5.0, –4.5] | 13 | 18 | 15 | NA | NA | 9 | 19 |
| (–4.5, –4.0] | NA | NA | 29 | 9 | 43 | NA | 41 |
| (–4.0, –3.5] | 32 | 39 | 13 | 20 | 47 | 14 | 13 |
| (–3.5, –3.0] | 16 | 39 | 30 | 10 | 32 | 63 | 17 |
| (–3.0, –2.5] | 43 | 39 | 31 | 43 | 41 | 22 | 14 |
| (–2.5, –2.0] | 78 | 60 | 65 | 70 | 50 | 21 | 40 |
| (–2.0, –1.5] | 137 | 123 | 147 | 142 | 157 | 69 | 102 |
| (–1.5, –1.0] | 327 | 408 | 409 | 278 | 418 | 215 | 291 |
| (–1.0, –0.5] | 611 | 740 | 515 | 852 | 560 | 617 | 464 |
| (–0.5, 0.0] | 722 | 600 | 759 | 838 | 775 | 1,121 | 713 |
| ( 0.0, 0.5] | 749 | 774 | 705 | 842 | 896 | 934 | 588 |
| ( 0.5, 1.0] | 517 | 753 | 752 | 700 | 641 | 709 | 590 |
| ( 1.0, 1.5] | 453 | 510 | 602 | 502 | 432 | 374 | 452 |
| ( 1.5, 2.0] | 219 | 197 | 260 | 177 | 302 | 118 | 307 |
| ( 2.0, 2.5] | 91 | 77 | 60 | 45 | 94 | 45 | 124 |
| ( 2.5, 3.0] | 57 | 34 | 25 | 44 | 20 | 24 | 44 |
| ( 3.0, 3.5] | 33 | 25 | 27 | NA | 17 | 16 | 12 |
| ( 3.5, 4.0] | 16 | 11 | 11 | 4 | NA | 2 | NA |
| ( 4.0, 4.5] | NA | NA | NA | NA | 4 | NA | 6 |
| ( 4.5, 5.0] | NA | NA | NA | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA | NA | NA | NA |
| ( 5.5, 6.0] | 10 | 3 | 3 | NA | 4 | 1 | 2 |

**Table 7.A.2 Frequency Distribution of Theta for Overall Scores—Mathematics**

| Theta Score | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|
| Incomplete | 989 | 938 | 946 | 980 | 852 | 955 | 635 |
| [–6.0, –6.0] | 10 | 4 | 11 | 12 | 12 | 3 | 14 |
| (–6.0, –5.5] | NA | NA | NA | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA | NA | NA | NA |
| (–4.5, –4.0] | NA | 18 | NA | NA | NA | NA | NA |
| (–4.0, –3.5] | 49 | NA | 39 | NA | 27 | 13 | 38 |
| (–3.5, –3.0] | NA | 11 | 16 | 49 | NA | NA | 25 |
| (–3.0, –2.5] | 26 | 39 | 24 | 19 | 74 | 21 | 21 |
| (–2.5, –2.0] | 49 | 56 | 27 | 16 | 13 | 41 | 51 |
| (–2.0, –1.5] | 52 | 93 | 85 | 37 | 46 | 36 | 42 |
| (–1.5, –1.0] | 115 | 223 | 153 | 106 | 159 | 157 | 169 |
| (–1.0, –0.5] | 436 | 559 | 599 | 470 | 642 | 484 | 532 |
| (–0.5, 0.0] | 1,118 | 1,186 | 1,137 | 1,494 | 1,231 | 1,363 | 1,009 |
| ( 0.0, 0.5] | 998 | 1,154 | 1,111 | 1,178 | 1,278 | 1,257 | 925 |
| ( 0.5, 1.0] | 852 | 712 | 718 | 617 | 654 | 549 | 571 |
| ( 1.0, 1.5] | 293 | 208 | 311 | 269 | 216 | 225 | 241 |
| ( 1.5, 2.0] | 52 | 74 | 104 | 63 | 104 | 81 | 112 |
| ( 2.0, 2.5] | 32 | 21 | 17 | 40 | 40 | 33 | 17 |
| ( 2.5, 3.0] | 17 | 4 | 13 | 6 | 12 | 4 | 25 |
| ( 3.0, 3.5] | 8 | 9 | 4 | 5 | 14 | 6 | NA |
| ( 3.5, 4.0] | 3 | NA | NA | 4 | NA | NA | 9 |
| ( 4.0, 4.5] | 1 | NA | 2 | NA | 1 | 1 | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA | NA | NA | NA |
| ( 5.5, 6.0] | 1 | NA | 2 | 1 | NA | NA | 1 |

**Table 7.A.3 Frequency Distribution of Theta by Pathway for ELA, Grade Three**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 973 | 2 | NA | NA |
| [–6.0, –6.0] | 3 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | 13 | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 28 | 4 | NA | NA |
| (–3.5, –3.0] | 1 | 15 | NA | NA |
| (–3.0, –2.5] | 3 | 40 | NA | NA |
| (–2.5, –2.0] | 4 | 74 | NA | NA |
| (–2.0, –1.5] | 6 | 131 | NA | NA |
| (–1.5, –1.0] | 3 | 317 | 7 | NA |
| (–1.0, –0.5] | NA | 557 | 53 | 1 |
| (–0.5, 0.0] | NA | 434 | 283 | 5 |
| ( 0.0, 0.5] | NA | 234 | 457 | 58 |
| ( 0.5, 1.0] | NA | 23 | 302 | 192 |
| ( 1.0, 1.5] | NA | 2 | 229 | 222 |
| ( 1.5, 2.0] | NA | NA | 46 | 173 |
| ( 2.0, 2.5] | NA | NA | 23 | 68 |
| ( 2.5, 3.0] | NA | NA | 7 | 50 |
| ( 3.0, 3.5] | NA | NA | NA | 33 |
| ( 3.5, 4.0] | NA | NA | NA | 16 |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 10 |

**Table 7.A.4 Frequency Distribution of Theta by Pathway for ELA, Grade Four**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 869 | NA | NA | NA |
| [–6.0, –6.0] | 5 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | 18 | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 39 | NA | NA | NA |
| (–3.5, –3.0] | 16 | 23 | NA | NA |
| (–3.0, –2.5] | 7 | 32 | NA | NA |
| (–2.5, –2.0] | 1 | 59 | NA | NA |
| (–2.0, –1.5] | 7 | 108 | 8 | NA |
| (–1.5, –1.0] | 2 | 398 | 8 | NA |
| (–1.0, –0.5] | NA | 613 | 127 | NA |
| (–0.5, 0.0] | NA | 256 | 326 | 18 |
| ( 0.0, 0.5] | NA | 66 | 624 | 84 |
| ( 0.5, 1.0] | NA | 2 | 348 | 403 |
| ( 1.0, 1.5] | NA | NA | 152 | 358 |
| ( 1.5, 2.0] | NA | NA | 25 | 172 |
| ( 2.0, 2.5] | NA | NA | 3 | 74 |
| ( 2.5, 3.0] | NA | NA | NA | 34 |
| ( 3.0, 3.5] | NA | NA | NA | 25 |
| ( 3.5, 4.0] | NA | NA | NA | 11 |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 3 |

**Table 7.A.5 Frequency Distribution of Theta by Pathway for ELA, Grade Five**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 859 | 6 | NA | NA |
| [–6.0, –6.0] | 1 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | 6 | NA | NA | NA |
| (–5.0, –4.5] | 15 | NA | NA | NA |
| (–4.5, –4.0] | 29 | NA | NA | NA |
| (–4.0, –3.5] | 7 | 6 | NA | NA |
| (–3.5, –3.0] | 16 | 14 | NA | NA |
| (–3.0, –2.5] | 4 | 27 | NA | NA |
| (–2.5, –2.0] | 2 | 63 | NA | NA |
| (–2.0, –1.5] | 10 | 128 | 9 | NA |
| (–1.5, –1.0] | 4 | 390 | 15 | NA |
| (–1.0, –0.5] | NA | 392 | 119 | 4 |
| (–0.5, 0.0] | NA | 276 | 474 | 9 |
| ( 0.0, 0.5] | NA | 53 | 481 | 171 |
| ( 0.5, 1.0] | NA | 2 | 389 | 361 |
| ( 1.0, 1.5] | NA | NA | 168 | 434 |
| ( 1.5, 2.0] | NA | NA | 13 | 247 |
| ( 2.0, 2.5] | NA | NA | 6 | 54 |
| ( 2.5, 3.0] | NA | NA | NA | 25 |
| ( 3.0, 3.5] | NA | NA | NA | 27 |
| ( 3.5, 4.0] | NA | NA | NA | 11 |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 3 |

**Table 7.A.6 Frequency Distribution of Theta by Pathway for ELA, Grade Six**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 802 | 5 | NA | NA |
| [–6.0, –6.0] | 3 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | 9 | NA | NA | NA |
| (–4.0, –3.5] | 20 | NA | NA | NA |
| (–3.5, –3.0] | 8 | 2 | NA | NA |
| (–3.0, –2.5] | 17 | 26 | NA | NA |
| (–2.5, –2.0] | 13 | 46 | 11 | NA |
| (–2.0, –1.5] | 7 | 99 | 36 | NA |
| (–1.5, –1.0] | 3 | 152 | 115 | 8 |
| (–1.0, –0.5] | NA | 78 | 759 | 15 |
| (–0.5, 0.0] | NA | 5 | 741 | 92 |
| ( 0.0, 0.5] | NA | NA | 273 | 569 |
| ( 0.5, 1.0] | NA | NA | 89 | 611 |
| ( 1.0, 1.5] | NA | NA | 7 | 495 |
| ( 1.5, 2.0] | NA | NA | NA | 177 |
| ( 2.0, 2.5] | NA | NA | NA | 45 |
| ( 2.5, 3.0] | NA | NA | NA | 44 |
| ( 3.0, 3.5] | NA | NA | NA | NA |
| ( 3.5, 4.0] | NA | NA | NA | 4 |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | NA |

**Table 7.A.7 Frequency Distribution of Theta by Pathway for ELA, Grade Seven**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 826 | NA | NA | NA |
| [–6.0, –6.0] | 2 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | 22 | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | 43 | NA | NA | NA |
| (–4.0, –3.5] | 23 | 24 | NA | NA |
| (–3.5, –3.0] | 3 | 29 | NA | NA |
| (–3.0, –2.5] | 5 | 36 | NA | NA |
| (–2.5, –2.0] | 3 | 47 | NA | NA |
| (–2.0, –1.5] | 2 | 142 | 13 | NA |
| (–1.5, –1.0] | NA | 394 | 24 | NA |
| (–1.0, –0.5] | NA | 430 | 126 | 4 |
| (–0.5, 0.0] | NA | 347 | 410 | 18 |
| ( 0.0, 0.5] | NA | 56 | 781 | 59 |
| ( 0.5, 1.0] | NA | 2 | 369 | 270 |
| ( 1.0, 1.5] | NA | NA | 144 | 288 |
| ( 1.5, 2.0] | NA | NA | 39 | 263 |
| ( 2.0, 2.5] | NA | NA | NA | 94 |
| ( 2.5, 3.0] | NA | NA | NA | 20 |
| ( 3.0, 3.5] | NA | NA | NA | 17 |
| ( 3.5, 4.0] | NA | NA | NA | NA |
| ( 4.0, 4.5] | NA | NA | NA | 4 |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 4 |

**Table 7.A.8 Frequency Distribution of Theta by Pathway for ELA, Grade Eight**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 862 | 1 | NA | NA |
| [–6.0, –6.0] | 1 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | 9 | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 14 | NA | NA | NA |
| (–3.5, –3.0] | 56 | 7 | NA | NA |
| (–3.0, –2.5] | 9 | 13 | NA | NA |
| (–2.5, –2.0] | NA | 21 | NA | NA |
| (–2.0, –1.5] | 5 | 64 | NA | NA |
| (–1.5, –1.0] | 5 | 197 | 13 | NA |
| (–1.0, –0.5] | 1 | 547 | 69 | NA |
| (–0.5, 0.0] | NA | 705 | 410 | 6 |
| ( 0.0, 0.5] | NA | 135 | 712 | 87 |
| ( 0.5, 1.0] | NA | 26 | 359 | 324 |
| ( 1.0, 1.5] | NA | NA | 127 | 247 |
| ( 1.5, 2.0] | NA | NA | 20 | 98 |
| ( 2.0, 2.5] | NA | NA | 1 | 44 |
| ( 2.5, 3.0] | NA | NA | NA | 24 |
| ( 3.0, 3.5] | NA | NA | NA | 16 |
| ( 3.5, 4.0] | NA | NA | NA | 2 |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 1 |

**Table 7.A.9 Frequency Distribution of Theta by Pathway for ELA, Grade Eleven**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 617 | NA | NA | NA |
| [–6.0, –6.0] | 1 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | 19 | NA | NA | NA |
| (–4.5, –4.0] | 41 | NA | NA | NA |
| (–4.0, –3.5] | 6 | 7 | NA | NA |
| (–3.5, –3.0] | 4 | 13 | NA | NA |
| (–3.0, –2.5] | NA | 14 | NA | NA |
| (–2.5, –2.0] | 4 | 36 | NA | NA |
| (–2.0, –1.5] | 4 | 98 | NA | NA |
| (–1.5, –1.0] | 1 | 268 | 22 | NA |
| (–1.0, –0.5] | NA | 313 | 150 | 1 |
| (–0.5, 0.0] | NA | 178 | 533 | 2 |
| ( 0.0, 0.5] | NA | 41 | 524 | 23 |
| ( 0.5, 1.0] | NA | 11 | 410 | 169 |
| ( 1.0, 1.5] | NA | NA | 197 | 255 |
| ( 1.5, 2.0] | NA | NA | 18 | 289 |
| ( 2.0, 2.5] | NA | NA | 1 | 123 |
| ( 2.5, 3.0] | NA | NA | NA | 44 |
| ( 3.0, 3.5] | NA | NA | NA | 12 |
| ( 3.5, 4.0] | NA | NA | NA | NA |
| ( 4.0, 4.5] | NA | NA | NA | 6 |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 2 |

**Table 7.A.10 Frequency Distribution of Theta by Pathway for Mathematics, Grade Three**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 983 | 6 | NA | NA |
| [–6.0, –6.0] | 10 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 49 | NA | NA | NA |
| (–3.5, –3.0] | NA | NA | NA | NA |
| (–3.0, –2.5] | 13 | 13 | NA | NA |
| (–2.5, –2.0] | 12 | 37 | NA | NA |
| (–2.0, –1.5] | 4 | 39 | 9 | NA |
| (–1.5, –1.0] | 8 | 79 | 28 | NA |
| (–1.0, –0.5] | 1 | 307 | 125 | 3 |
| (–0.5, 0.0] | NA | 157 | 843 | 118 |
| ( 0.0, 0.5] | NA | 28 | 493 | 477 |
| ( 0.5, 1.0] | NA | NA | 53 | 799 |
| ( 1.0, 1.5] | NA | NA | NA | 293 |
| ( 1.5, 2.0] | NA | NA | NA | 52 |
| ( 2.0, 2.5] | NA | NA | NA | 32 |
| ( 2.5, 3.0] | NA | NA | NA | 17 |
| ( 3.0, 3.5] | NA | NA | NA | 8 |
| ( 3.5, 4.0] | NA | NA | NA | 3 |
| ( 4.0, 4.5] | NA | NA | NA | 1 |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 1 |

**Table 7.A.11 Frequency Distribution of Theta by Pathway for Mathematics, Grade Four**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 926 | 12 | NA | NA |
| [–6.0, –6.0] | 4 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | 18 | NA | NA | NA |
| (–4.0, –3.5] | NA | NA | NA | NA |
| (–3.5, –3.0] | 7 | 4 | NA | NA |
| (–3.0, –2.5] | 13 | 26 | NA | NA |
| (–2.5, –2.0] | 8 | 48 | NA | NA |
| (–2.0, –1.5] | 8 | 85 | NA | NA |
| (–1.5, –1.0] | 4 | 206 | 13 | NA |
| (–1.0, –0.5] | 2 | 489 | 68 | NA |
| (–0.5, 0.0] | NA | 522 | 661 | 3 |
| ( 0.0, 0.5] | NA | 49 | 1,023 | 82 |
| ( 0.5, 1.0] | NA | NA | 392 | 320 |
| ( 1.0, 1.5] | NA | NA | 72 | 136 |
| ( 1.5, 2.0] | NA | NA | 8 | 66 |
| ( 2.0, 2.5] | NA | NA | 1 | 20 |
| ( 2.5, 3.0] | NA | NA | 1 | 3 |
| ( 3.0, 3.5] | NA | NA | NA | 9 |
| ( 3.5, 4.0] | NA | NA | NA | NA |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | NA |

**Table 7.A.12 Frequency Distribution of Theta by Pathway for Mathematics, Grade Five**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 941 | 5 | NA | NA |
| [–6.0, –6.0] | 11 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 39 | NA | NA | NA |
| (–3.5, –3.0] | 9 | 7 | NA | NA |
| (–3.0, –2.5] | 12 | 12 | NA | NA |
| (–2.5, –2.0] | 7 | 20 | NA | NA |
| (–2.0, –1.5] | 6 | 72 | 7 | NA |
| (–1.5, –1.0] | 2 | 127 | 24 | NA |
| (–1.0, –0.5] | 2 | 417 | 180 | NA |
| (–0.5, 0.0] | NA | 252 | 862 | 23 |
| ( 0.0, 0.5] | NA | 25 | 800 | 286 |
| ( 0.5, 1.0] | NA | NA | 181 | 537 |
| ( 1.0, 1.5] | NA | NA | 10 | 301 |
| ( 1.5, 2.0] | NA | NA | 1 | 103 |
| ( 2.0, 2.5] | NA | NA | NA | 17 |
| ( 2.5, 3.0] | NA | NA | NA | 13 |
| ( 3.0, 3.5] | NA | NA | NA | 4 |
| ( 3.5, 4.0] | NA | NA | NA | NA |
| ( 4.0, 4.5] | NA | NA | NA | 2 |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 2 |

**Table 7.A.13 Frequency Distribution of Theta by Pathway for Mathematics, Grade Six**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 974 | 6 | NA | NA |
| [–6.0, –6.0] | 12 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | NA | NA | NA | NA |
| (–3.5, –3.0] | 49 | NA | NA | NA |
| (–3.0, –2.5] | 12 | 7 | NA | NA |
| (–2.5, –2.0] | 7 | 9 | NA | NA |
| (–2.0, –1.5] | 6 | 31 | NA | NA |
| (–1.5, –1.0] | 6 | 97 | 3 | NA |
| (–1.0, –0.5] | 3 | 439 | 28 | NA |
| (–0.5, 0.0] | NA | 863 | 614 | 17 |
| ( 0.0, 0.5] | NA | 194 | 754 | 230 |
| ( 0.5, 1.0] | NA | 5 | 263 | 349 |
| ( 1.0, 1.5] | NA | NA | 20 | 249 |
| ( 1.5, 2.0] | NA | NA | 3 | 60 |
| ( 2.0, 2.5] | NA | NA | 1 | 39 |
| ( 2.5, 3.0] | NA | NA | NA | 6 |
| ( 3.0, 3.5] | NA | NA | NA | 5 |
| ( 3.5, 4.0] | NA | NA | NA | 4 |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 1 |

**Table 7.A.14 Frequency Distribution of Theta by Pathway for Mathematics, Grade Seven**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 848 | 4 | NA | NA |
| [–6.0, –6.0] | 12 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 27 | NA | NA | NA |
| (–3.5, –3.0] | NA | NA | NA | NA |
| (–3.0, –2.5] | 66 | 8 | NA | NA |
| (–2.5, –2.0] | 5 | 8 | NA | NA |
| (–2.0, –1.5] | 3 | 43 | NA | NA |
| (–1.5, –1.0] | 3 | 97 | 59 | NA |
| (–1.0, –0.5] | 4 | 385 | 242 | 11 |
| (–0.5, 0.0] | NA | 127 | 827 | 277 |
| ( 0.0, 0.5] | NA | 5 | 504 | 769 |
| ( 0.5, 1.0] | NA | NA | 63 | 591 |
| ( 1.0, 1.5] | NA | NA | 2 | 214 |
| ( 1.5, 2.0] | NA | NA | 1 | 103 |
| ( 2.0, 2.5] | NA | NA | NA | 40 |
| ( 2.5, 3.0] | NA | NA | NA | 12 |
| ( 3.0, 3.5] | NA | NA | NA | 14 |
| ( 3.5, 4.0] | NA | NA | NA | NA |
| ( 4.0, 4.5] | NA | NA | NA | 1 |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | NA |

**Table 7.A.15 Frequency Distribution of Theta by Pathway for Mathematics, Grade Eight**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 946 | 9 | NA | NA |
| [–6.0, –6.0] | 3 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 13 | NA | NA | NA |
| (–3.5, –3.0] | NA | NA | NA | NA |
| (–3.0, –2.5] | 17 | 4 | NA | NA |
| (–2.5, –2.0] | 20 | 21 | NA | NA |
| (–2.0, –1.5] | 5 | 31 | NA | NA |
| (–1.5, –1.0] | 4 | 111 | 42 | NA |
| (–1.0, –0.5] | 1 | 229 | 251 | 3 |
| (–0.5, 0.0] | 1 | 221 | 1,037 | 104 |
| ( 0.0, 0.5] | NA | 17 | 650 | 590 |
| ( 0.5, 1.0] | NA | NA | 98 | 451 |
| ( 1.0, 1.5] | NA | NA | 4 | 221 |
| ( 1.5, 2.0] | NA | NA | 1 | 80 |
| ( 2.0, 2.5] | NA | NA | NA | 33 |
| ( 2.5, 3.0] | NA | NA | NA | 4 |
| ( 3.0, 3.5] | NA | NA | NA | 6 |
| ( 3.5, 4.0] | NA | NA | NA | NA |
| ( 4.0, 4.5] | NA | NA | NA | 1 |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | NA |

**Table 7.A.16 Frequency Distribution of Theta by Pathway for Mathematics, Grade Eleven**

| Theta Score | Early Exit | Easy Pathway | Moderate Pathway | Hard Pathway |
|---|---|---|---|---|
| Incomplete | 629 | 6 | NA | NA |
| [–6.0, –6.0] | 14 | NA | NA | NA |
| (–6.0, –5.5] | NA | NA | NA | NA |
| (–5.5, –5.0] | NA | NA | NA | NA |
| (–5.0, –4.5] | NA | NA | NA | NA |
| (–4.5, –4.0] | NA | NA | NA | NA |
| (–4.0, –3.5] | 38 | NA | NA | NA |
| (–3.5, –3.0] | 11 | 14 | NA | NA |
| (–3.0, –2.5] | 4 | 17 | NA | NA |
| (–2.5, –2.0] | 8 | 43 | NA | NA |
| (–2.0, –1.5] | 3 | 39 | NA | NA |
| (–1.5, –1.0] | 2 | 150 | 17 | NA |
| (–1.0, –0.5] | NA | 475 | 53 | 4 |
| (–0.5, 0.0] | NA | 397 | 552 | 60 |
| ( 0.0, 0.5] | NA | 73 | 603 | 249 |
| ( 0.5, 1.0] | NA | 2 | 110 | 459 |
| ( 1.0, 1.5] | NA | NA | 1 | 240 |
| ( 1.5, 2.0] | NA | NA | NA | 112 |
| ( 2.0, 2.5] | NA | NA | NA | 17 |
| ( 2.5, 3.0] | NA | NA | NA | 25 |
| ( 3.0, 3.5] | NA | NA | NA | NA |
| ( 3.5, 4.0] | NA | NA | NA | 9 |
| ( 4.0, 4.5] | NA | NA | NA | NA |
| ( 4.5, 5.0] | NA | NA | NA | NA |
| ( 5.0, 5.5] | NA | NA | NA | NA |
| ( 5.5, 6.0] | NA | NA | NA | 1 |

# Appendix 7.B: Raw Score, Theta, and Scale Score Distributions for Each Pathway on Each Test

**Notes:**

- An incomplete test was assigned either the lowest obtainable scale score (LOSS) or lowest scale score +1 (LOSS+1).
- When a student was logged on to the test delivery system but did not answer any item, LOSS was assigned as 300 for grade three, 400 for grade four, . . . , 900 for grade 11.
- When a student was logged on and answered fewer than four items, LOSS+1 was assigned, such as 301 for grade three, 401 for grade four, . . . , 901 for grade eleven.
- For those incomplete test cases, raw scores were overwritten as zero and theta scores were not estimated.
- Percentages for some pathways may not sum up to exactly 100 due to rounding.
- In Table 7.B.1 through Table 7.B.14, the pathway indicates the set of modules a given student received:

| Pathway | Combination of Modules |
|---|---|
| Early Exit | Stage 1 (as router) and Exit the test |
| Easy | Stage 1 (as router) and Stage 2 Easy Module |
| Moderate | Stage 1 (as router) and Stage 2 Moderate Module |
| Hard | Stage 1 (as router) and Stage 2 Hard Module |

**Table 7.B.1 Raw-Score-to-Scale-Score Distribution for ELA, Grade Three**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 300 | 706 | 68% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 301 | 267 | 26% | NA | 301 | 2 | 0% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 303 | 3 | 0% | NA | 303 | NA | NA | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 1 | -4.753 | 303 | 13 | 1% | NA | 303 | NA | NA | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 2 | -3.995 | 303 | 26 | 3% | NA | 303 | NA | NA | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 3 | -3.525 | 303 | 2 | 0% | -3.525 | 303 | 4 | 0% | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 4 | -3.173 | 303 | 1 | 0% | -3.173 | 303 | 15 | 1% | NA | 307 | NA | NA | NA | 305 | NA | NA |
| 5 | -2.886 | 305 | 2 | 0% | -2.886 | 305 | 22 | 1% | NA | 311 | NA | NA | NA | 309 | NA | NA |
| 6 | -2.641 | 308 | 1 | 0% | -2.641 | 308 | 18 | 1% | NA | 315 | NA | NA | NA | 313 | NA | NA |
| 7 | NA | 312 | NA | NA | -2.426 | 312 | 17 | 1% | NA | 318 | NA | NA | NA | 316 | NA | NA |
| 8 | -2.231 | 315 | 2 | 0% | -2.231 | 315 | 34 | 2% | NA | 321 | NA | NA | NA | 319 | NA | NA |
| 9 | -2.054 | 317 | 2 | 0% | -2.054 | 317 | 23 | 1% | NA | 324 | NA | NA | NA | 322 | NA | NA |
| 10 | -1.889 | 320 | 3 | 0% | -1.889 | 320 | 45 | 2% | NA | 326 | NA | NA | NA | 325 | NA | NA |
| 11 | -1.735 | 322 | 2 | 0% | -1.735 | 322 | 34 | 2% | -1.313 | 328 | 1 | 0% | NA | 327 | NA | NA |
| 12 | -1.590 | 324 | 1 | 0% | -1.590 | 324 | 52 | 3% | -1.170 | 330 | 3 | 0% | NA | 330 | NA | NA |
| 13 | -1.451 | 326 | 2 | 0% | -1.451 | 326 | 64 | 3% | -1.033 | 333 | 3 | 0% | NA | 332 | NA | NA |
| 14 | -1.317 | 328 | 1 | 0% | -1.317 | 328 | 73 | 4% | -0.901 | 334 | 7 | 1% | -0.935 | 334 | 1 | 0% |
| 15 | NA | 330 | NA | NA | -1.187 | 330 | 95 | 5% | -0.772 | 336 | 9 | 1% | NA | 336 | NA | NA |
| 16 | NA | 332 | NA | NA | -1.061 | 332 | 85 | 5% | -0.647 | 338 | 17 | 1% | NA | 338 | NA | NA |
| 17 | NA | 334 | NA | NA | -0.937 | 334 | 126 | 7% | -0.524 | 340 | 20 | 1% | NA | 340 | NA | NA |
| 18 | NA | 336 | NA | NA | -0.814 | 336 | 123 | 7% | -0.402 | 342 | 47 | 3% | NA | 342 | NA | NA |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 338 | NA | NA | -0.692 | 338 | 169 | 9% | -0.282 | 344 | 60 | 4% | -0.260 | 344 | 2 | 0% |
| 20 | NA | 339 | NA | NA | -0.570 | 339 | 139 | 8% | -0.161 | 346 | 84 | 6% | -0.129 | 346 | 3 | 0% |
| 21 | NA | 341 | NA | NA | -0.448 | 341 | 131 | 7% | -0.040 | 347 | 92 | 7% | 0.001 | 348 | 7 | 1% |
| 22 | NA | 343 | NA | NA | -0.325 | 343 | 118 | 6% | 0.082 | 349 | 104 | 7% | 0.132 | 350 | 14 | 2% |
| 23 | NA | 345 | NA | NA | -0.200 | 345 | 92 | 5% | 0.207 | 351 | 117 | 8% | 0.264 | 352 | 18 | 2% |
| 24 | NA | 347 | NA | NA | -0.071 | 347 | 93 | 5% | 0.335 | 353 | 106 | 8% | 0.398 | 354 | 19 | 2% |
| 25 | NA | 349 | NA | NA | 0.061 | 349 | 88 | 5% | 0.467 | 355 | 130 | 9% | 0.534 | 356 | 37 | 4% |
| 26 | NA | 351 | NA | NA | 0.199 | 351 | 63 | 3% | 0.605 | 357 | 110 | 8% | 0.674 | 358 | 36 | 4% |
| 27 | NA | 353 | NA | NA | 0.344 | 353 | 47 | 3% | 0.752 | 359 | 106 | 8% | 0.819 | 360 | 58 | 7% |
| 28 | NA | 355 | NA | NA | 0.500 | 355 | 36 | 2% | 0.909 | 362 | 86 | 6% | 0.970 | 363 | 61 | 7% |
| 29 | NA | 358 | NA | NA | 0.669 | 358 | 17 | 1% | 1.080 | 364 | 103 | 7% | 1.129 | 365 | 60 | 7% |
| 30 | NA | 361 | NA | NA | 0.857 | 361 | 6 | 0% | 1.270 | 367 | 74 | 5% | 1.299 | 367 | 76 | 9% |
| 31 | NA | 364 | NA | NA | 1.072 | 364 | 2 | 0% | 1.486 | 370 | 52 | 4% | 1.483 | 370 | 86 | 10% |
| 32 | NA | 368 | NA | NA | NA | 368 | NA | NA | 1.743 | 374 | 46 | 3% | 1.687 | 373 | 87 | 11% |
| 33 | NA | 373 | NA | NA | NA | 373 | NA | NA | 2.063 | 379 | 23 | 2% | 1.921 | 377 | 86 | 10% |
| 34 | NA | 379 | NA | NA | NA | 379 | NA | NA | 2.500 | 386 | 7 | 1% | 2.197 | 381 | 68 | 8% |
| 35 | NA | 390 | NA | NA | NA | 390 | NA | NA | NA | 396 | NA | NA | 2.545 | 386 | 50 | 6% |
| 36 | NA | 399 | NA | NA | NA | 399 | NA | NA | NA | 399 | NA | NA | 3.022 | 393 | 33 | 4% |
| 37 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 3.809 | 399 | 16 | 2% |
| 38 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6.000 | 399 | 10 | 1% |

**Table 7.B.2 Raw-Score-to-Scale-Score Distribution for ELA, Grade Four**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 400 | 628 | 65% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 401 | 241 | 25% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 403 | 5 | 1% | NA | 403 | NA | NA | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 1 | -4.665 | 403 | 18 | 2% | NA | 403 | NA | NA | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 2 | -3.917 | 403 | 39 | 4% | NA | 403 | NA | NA | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 3 | -3.456 | 403 | 8 | 1% | -3.456 | 403 | 12 | 1% | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 4 | -3.112 | 403 | 8 | 1% | -3.112 | 403 | 11 | 1% | NA | 403 | NA | NA | NA | 409 | NA | NA |
| 5 | -2.832 | 403 | 6 | 1% | -2.832 | 403 | 13 | 1% | NA | 407 | NA | NA | NA | 413 | NA | NA |
| 6 | -2.593 | 406 | 1 | 0% | -2.593 | 406 | 19 | 1% | NA | 411 | NA | NA | NA | 417 | NA | NA |
| 7 | -2.381 | 409 | 1 | 0% | -2.381 | 409 | 21 | 1% | NA | 414 | NA | NA | NA | 420 | NA | NA |
| 8 | NA | 412 | NA | NA | -2.191 | 412 | 18 | 1% | NA | 417 | NA | NA | NA | 423 | NA | NA |
| 9 | NA | 415 | NA | NA | -2.016 | 415 | 20 | 1% | -1.685 | 420 | 3 | 0% | NA | 426 | NA | NA |
| 10 | -1.853 | 417 | 1 | 0% | -1.853 | 417 | 27 | 2% | -1.515 | 422 | 5 | 0% | NA | 429 | NA | NA |
| 11 | -1.700 | 420 | 3 | 0% | -1.700 | 420 | 29 | 2% | -1.356 | 425 | 1 | 0% | NA | 431 | NA | NA |
| 12 | -1.555 | 422 | 3 | 0% | -1.555 | 422 | 52 | 3% | -1.203 | 427 | 3 | 0% | NA | 434 | NA | NA |
| 13 | -1.416 | 424 | 1 | 0% | -1.416 | 424 | 69 | 4% | -1.057 | 429 | 4 | 0% | NA | 436 | NA | NA |
| 14 | -1.282 | 426 | 1 | 0% | -1.282 | 426 | 75 | 5% | -0.915 | 431 | 5 | 0% | -0.446 | 438 | 1 | 0% |
| 15 | NA | 428 | NA | NA | -1.152 | 428 | 120 | 8% | -0.777 | 433 | 16 | 1% | NA | 440 | NA | NA |
| 16 | NA | 430 | NA | NA | -1.024 | 430 | 134 | 9% | -0.642 | 435 | 42 | 3% | -0.158 | 443 | 6 | 1% |
| 17 | NA | 432 | NA | NA | -0.899 | 432 | 163 | 10% | -0.510 | 437 | 64 | 4% | -0.019 | 445 | 11 | 1% |
| 18 | NA | 433 | NA | NA | -0.774 | 433 | 158 | 10% | -0.379 | 439 | 72 | 4% | 0.120 | 447 | 10 | 1% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 435 | NA | NA | -0.649 | 435 | 132 | 8% | -0.249 | 441 | 109 | 7% | 0.257 | 449 | 30 | 3% |
| 20 | NA | 437 | NA | NA | -0.524 | 437 | 160 | 10% | -0.119 | 443 | 145 | 9% | 0.395 | 451 | 44 | 4% |
| 21 | NA | 439 | NA | NA | -0.396 | 439 | 114 | 7% | 0.011 | 445 | 140 | 9% | 0.535 | 453 | 79 | 7% |
| 22 | NA | 441 | NA | NA | -0.266 | 441 | 81 | 5% | 0.142 | 447 | 161 | 10% | 0.678 | 455 | 92 | 8% |
| 23 | NA | 443 | NA | NA | -0.132 | 443 | 61 | 4% | 0.275 | 449 | 156 | 10% | 0.824 | 457 | 113 | 10% |
| 24 | NA | 445 | NA | NA | 0.008 | 445 | 33 | 2% | 0.411 | 451 | 167 | 10% | 0.977 | 460 | 119 | 10% |
| 25 | NA | 447 | NA | NA | 0.154 | 447 | 21 | 1% | 0.550 | 453 | 128 | 8% | 1.138 | 462 | 99 | 8% |
| 26 | NA | 450 | NA | NA | 0.310 | 450 | 7 | 0% | 0.694 | 455 | 120 | 7% | 1.310 | 465 | 116 | 10% |
| 27 | NA | 452 | NA | NA | 0.477 | 452 | 5 | 0% | 0.844 | 458 | 100 | 6% | 1.497 | 467 | 143 | 12% |
| 28 | NA | 455 | NA | NA | 0.659 | 455 | 2 | 0% | 1.003 | 460 | 63 | 4% | 1.704 | 471 | 104 | 9% |
| 29 | NA | 458 | NA | NA | NA | 458 | NA | NA | 1.172 | 463 | 55 | 3% | 1.939 | 474 | 68 | 6% |
| 30 | NA | 461 | NA | NA | NA | 461 | NA | NA | 1.356 | 465 | 34 | 2% | 2.214 | 478 | 74 | 6% |
| 31 | NA | 465 | NA | NA | NA | 465 | NA | NA | 1.559 | 468 | 14 | 1% | 2.555 | 483 | 34 | 3% |
| 32 | NA | 471 | NA | NA | NA | 471 | NA | NA | 1.789 | 472 | 11 | 1% | 3.013 | 490 | 25 | 2% |
| 33 | NA | 477 | NA | NA | NA | 477 | NA | NA | 2.059 | 476 | 3 | 0% | 3.759 | 499 | 11 | 1% |
| 34 | NA | 489 | NA | NA | NA | 489 | NA | NA | NA | 481 | NA | NA | 6.000 | 499 | 3 | 0% |
| 35 | NA | 499 | NA | NA | NA | 499 | NA | NA | NA | 488 | NA | NA | NA | NA | NA | NA |
| 36 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 499 | NA | NA | NA | NA | NA | NA |
| 37 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 499 | NA | NA | NA | NA | NA | NA |

**Table 7.B.3 Raw-Score-to Scale-Score Distribution for ELA, Grade Five**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 500 | 694 | 73% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 501 | 165 | 17% | NA | 501 | 6 | 0% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 503 | 1 | 0% | NA | 503 | NA | NA | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 1 | -5.269 | 503 | 6 | 1% | NA | 503 | NA | NA | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 2 | -4.513 | 503 | 15 | 2% | NA | 503 | NA | NA | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 3 | -4.043 | 503 | 29 | 3% | NA | 503 | NA | NA | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 4 | -3.688 | 503 | 7 | 1% | -3.688 | 503 | 6 | 0% | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 5 | -3.397 | 503 | 11 | 1% | -3.397 | 503 | 7 | 1% | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 6 | -3.145 | 503 | 5 | 1% | -3.145 | 503 | 7 | 1% | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 7 | -2.920 | 503 | 3 | 0% | -2.920 | 503 | 9 | 1% | NA | 506 | NA | NA | NA | 506 | NA | NA |
| 8 | -2.714 | 504 | 1 | 0% | -2.714 | 504 | 10 | 1% | NA | 509 | NA | NA | NA | 509 | NA | NA |
| 9 | NA | 507 | NA | NA | -2.523 | 507 | 8 | 1% | NA | 512 | NA | NA | NA | 513 | NA | NA |
| 10 | -2.344 | 510 | 1 | 0% | -2.344 | 510 | 20 | 1% | NA | 515 | NA | NA | NA | 516 | NA | NA |
| 11 | -2.173 | 512 | 1 | 0% | -2.173 | 512 | 19 | 1% | NA | 517 | NA | NA | NA | 519 | NA | NA |
| 12 | NA | 515 | NA | NA | -2.011 | 515 | 24 | 2% | -1.680 | 520 | 5 | 0% | NA | 522 | NA | NA |
| 13 | -1.854 | 517 | 5 | 1% | -1.854 | 517 | 24 | 2% | -1.522 | 522 | 4 | 0% | NA | 525 | NA | NA |
| 14 | -1.704 | 519 | 3 | 0% | -1.704 | 519 | 43 | 3% | -1.371 | 524 | 4 | 0% | NA | 528 | NA | NA |
| 15 | -1.558 | 522 | 2 | 0% | -1.558 | 522 | 61 | 5% | -1.224 | 527 | 6 | 0% | -0.988 | 530 | 1 | 0% |
| 16 | -1.416 | 524 | 1 | 0% | -1.416 | 524 | 63 | 5% | -1.081 | 529 | 5 | 0% | -0.823 | 533 | 1 | 0% |
| 17 | -1.277 | 526 | 3 | 0% | -1.277 | 526 | 98 | 7% | -0.942 | 531 | 10 | 1% | -0.666 | 535 | 1 | 0% |
| 18 | NA | 528 | NA | NA | -1.141 | 528 | 98 | 7% | -0.806 | 533 | 23 | 1% | -0.514 | 537 | 1 | 0% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 530 | NA | NA | -1.007 | 530 | 131 | 10% | -0.671 | 535 | 30 | 2% | NA | 539 | NA | NA |
| 20 | NA | 532 | NA | NA | -0.874 | 532 | 146 | 11% | -0.539 | 537 | 56 | 3% | -0.226 | 542 | 3 | 0% |
| 21 | NA | 534 | NA | NA | -0.741 | 534 | 125 | 9% | -0.407 | 539 | 92 | 6% | -0.089 | 544 | 6 | 0% |
| 22 | NA | 536 | NA | NA | -0.608 | 536 | 121 | 9% | -0.276 | 541 | 103 | 6% | 0.046 | 546 | 12 | 1% |
| 23 | NA | 538 | NA | NA | -0.474 | 538 | 119 | 9% | -0.145 | 543 | 129 | 8% | 0.180 | 548 | 36 | 3% |
| 24 | NA | 540 | NA | NA | -0.338 | 540 | 68 | 5% | -0.013 | 545 | 150 | 9% | 0.312 | 550 | 48 | 4% |
| 25 | NA | 542 | NA | NA | -0.200 | 542 | 53 | 4% | 0.119 | 547 | 169 | 10% | 0.445 | 552 | 75 | 6% |
| 26 | NA | 544 | NA | NA | -0.057 | 544 | 36 | 3% | 0.254 | 549 | 154 | 9% | 0.579 | 554 | 107 | 8% |
| 27 | NA | 546 | NA | NA | 0.092 | 546 | 25 | 2% | 0.392 | 551 | 158 | 9% | 0.716 | 556 | 119 | 9% |
| 28 | NA | 549 | NA | NA | 0.246 | 549 | 19 | 1% | 0.535 | 553 | 134 | 8% | 0.858 | 558 | 135 | 10% |
| 29 | NA | 551 | NA | NA | 0.410 | 551 | 9 | 1% | 0.684 | 555 | 150 | 9% | 1.007 | 560 | 148 | 11% |
| 30 | NA | 554 | NA | NA | 0.585 | 554 | 2 | 0% | 0.843 | 558 | 105 | 6% | 1.164 | 562 | 151 | 11% |
| 31 | NA | 557 | NA | NA | NA | 557 | NA | NA | 1.016 | 560 | 80 | 5% | 1.333 | 565 | 135 | 10% |
| 32 | NA | 560 | NA | NA | NA | 560 | NA | NA | 1.206 | 563 | 53 | 3% | 1.518 | 568 | 103 | 8% |
| 33 | NA | 563 | NA | NA | NA | 563 | NA | NA | 1.424 | 566 | 35 | 2% | 1.723 | 571 | 85 | 6% |
| 34 | NA | 567 | NA | NA | NA | 567 | NA | NA | 1.681 | 570 | 13 | 1% | 1.956 | 574 | 59 | 4% |
| 35 | NA | 572 | NA | NA | NA | 572 | NA | NA | 2.002 | 575 | 6 | 0% | 2.231 | 578 | 54 | 4% |
| 36 | NA | 579 | NA | NA | NA | 579 | NA | NA | NA | 582 | NA | NA | 2.572 | 584 | 25 | 2% |
| 37 | NA | 590 | NA | NA | NA | 590 | NA | NA | NA | 593 | NA | NA | 3.032 | 590 | 27 | 2% |
| 38 | NA | 599 | NA | NA | NA | 599 | NA | NA | NA | 599 | NA | NA | 3.782 | 599 | 11 | 1% |
| 39 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6.000 | 599 | 3 | 0% |

**Table 7.B.4 Raw-Score-to Scale-Score Distribution for ELA, Grade Six**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 600 | 594 | 67% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 601 | 208 | 24% | NA | 601 | 5 | 1% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 603 | 3 | 0% | NA | 603 | NA | NA | NA | 603 | NA | NA | NA | 603 | NA | NA |
| 1 | -4.478 | 603 | 9 | 1% | NA | 603 | NA | NA | NA | 603 | NA | NA | NA | 603 | NA | NA |
| 2 | -3.722 | 603 | 20 | 2% | NA | 603 | NA | NA | NA | 603 | NA | NA | NA | 603 | NA | NA |
| 3 | -3.259 | 604 | 8 | 1% | -3.259 | 604 | 2 | 0% | NA | 603 | NA | NA | NA | 605 | NA | NA |
| 4 | -2.921 | 608 | 10 | 1% | -2.921 | 608 | 8 | 2% | NA | 606 | NA | NA | NA | 609 | NA | NA |
| 5 | -2.652 | 612 | 7 | 1% | -2.652 | 612 | 18 | 4% | NA | 610 | NA | NA | NA | 612 | NA | NA |
| 6 | -2.429 | 615 | 8 | 1% | -2.429 | 615 | 14 | 3% | NA | 613 | NA | NA | NA | 615 | NA | NA |
| 7 | -2.237 | 617 | 3 | 0% | -2.237 | 617 | 10 | 2% | NA | 615 | NA | NA | NA | 618 | NA | NA |
| 8 | -2.068 | 619 | 2 | 0% | -2.068 | 619 | 22 | 5% | -2.194 | 618 | 4 | 0% | NA | 620 | NA | NA |
| 9 | -1.916 | 621 | 2 | 0% | -1.916 | 621 | 20 | 5% | -2.025 | 620 | 7 | 0% | NA | 623 | NA | NA |
| 10 | -1.777 | 623 | 2 | 0% | -1.777 | 623 | 14 | 3% | -1.870 | 622 | 15 | 1% | NA | 625 | NA | NA |
| 11 | -1.648 | 624 | 2 | 0% | -1.648 | 624 | 34 | 8% | -1.725 | 623 | 11 | 1% | NA | 626 | NA | NA |
| 12 | -1.527 | 626 | 1 | 0% | -1.527 | 626 | 31 | 8% | -1.588 | 625 | 10 | 0% | NA | 628 | NA | NA |
| 13 | -1.412 | 627 | 1 | 0% | -1.412 | 627 | 51 | 12% | -1.457 | 627 | 15 | 1% | -1.202 | 630 | 4 | 0% |
| 14 | -1.301 | 629 | 1 | 0% | -1.301 | 629 | 40 | 10% | -1.331 | 628 | 24 | 1% | -1.064 | 632 | 4 | 0% |
| 15 | -1.193 | 630 | 1 | 0% | -1.193 | 630 | 36 | 9% | -1.208 | 630 | 36 | 2% | -0.928 | 633 | 1 | 0% |
| 16 | NA | 631 | NA | NA | -1.087 | 631 | 25 | 6% | -1.088 | 631 | 40 | 2% | -0.792 | 635 | 4 | 0% |
| 17 | NA | 633 | NA | NA | -0.983 | 633 | 25 | 6% | -0.970 | 633 | 97 | 5% | -0.657 | 637 | 3 | 0% |
| 18 | NA | 634 | NA | NA | -0.879 | 634 | 21 | 5% | -0.853 | 634 | 119 | 6% | -0.522 | 638 | 7 | 0% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 635 | NA | NA | -0.776 | 635 | 14 | 3% | -0.736 | 636 | 184 | 9% | -0.386 | 640 | 17 | 1% |
| 20 | NA | 637 | NA | NA | -0.671 | 637 | 8 | 2% | -0.619 | 637 | 159 | 8% | -0.249 | 642 | 35 | 2% |
| 21 | NA | 638 | NA | NA | -0.564 | 638 | 10 | 2% | -0.501 | 639 | 200 | 10% | -0.110 | 644 | 40 | 2% |
| 22 | NA | 639 | NA | NA | -0.455 | 639 | 4 | 1% | -0.381 | 640 | 203 | 10% | 0.031 | 645 | 84 | 4% |
| 23 | NA | 641 | NA | NA | -0.342 | 641 | 1 | 0% | -0.258 | 642 | 211 | 10% | 0.174 | 647 | 117 | 6% |
| 24 | NA | 642 | NA | NA | NA | 642 | NA | NA | -0.132 | 643 | 177 | 9% | 0.318 | 649 | 160 | 8% |
| 25 | NA | 644 | NA | NA | NA | 644 | NA | NA | -0.001 | 645 | 150 | 7% | 0.466 | 651 | 208 | 10% |
| 26 | NA | 645 | NA | NA | NA | 645 | NA | NA | 0.135 | 647 | 120 | 6% | 0.616 | 653 | 202 | 10% |
| 27 | NA | 647 | NA | NA | NA | 647 | NA | NA | 0.278 | 648 | 88 | 4% | 0.770 | 655 | 215 | 10% |
| 28 | NA | 649 | NA | NA | NA | 649 | NA | NA | 0.428 | 650 | 65 | 3% | 0.930 | 657 | 194 | 9% |
| 29 | NA | 651 | NA | NA | NA | 651 | NA | NA | 0.589 | 652 | 50 | 2% | 1.096 | 659 | 172 | 8% |
| 30 | NA | 653 | NA | NA | NA | 653 | NA | NA | 0.761 | 655 | 24 | 1% | 1.272 | 661 | 167 | 8% |
| 31 | NA | 656 | NA | NA | NA | 656 | NA | NA | 0.949 | 657 | 15 | 1% | 1.460 | 663 | 156 | 8% |
| 32 | NA | 658 | NA | NA | NA | 658 | NA | NA | 1.158 | 659 | 6 | 0% | 1.667 | 666 | 98 | 5% |
| 33 | NA | 662 | NA | NA | NA | 662 | NA | NA | 1.394 | 662 | 1 | 0% | 1.899 | 669 | 79 | 4% |
| 34 | NA | 666 | NA | NA | NA | 666 | NA | NA | NA | 666 | NA | NA | 2.170 | 672 | 45 | 2% |
| 35 | NA | 672 | NA | NA | NA | 672 | NA | NA | NA | 670 | NA | NA | 2.505 | 676 | 28 | 1% |
| 36 | NA | 681 | NA | NA | NA | 681 | NA | NA | NA | 676 | NA | NA | 2.957 | 682 | 16 | 1% |
| 37 | NA | 699 | NA | NA | NA | 699 | NA | NA | NA | 685 | NA | NA | 3.697 | 691 | 4 | 0% |
| 38 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 699 | NA | NA | NA | 699 | NA | NA |

**Table 7.B.5 Raw-Score-to-Scale-Score Distribution for ELA, Grade Seven**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 700 | 571 | 61% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 701 | 255 | 27% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 703 | 2 | 0% | NA | 703 | NA | NA | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 1 | -5.187 | 703 | 22 | 2% | NA | 703 | NA | NA | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 2 | -4.417 | 703 | 43 | 5% | NA | 703 | NA | NA | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 3 | -3.934 | 703 | 16 | 2% | -3.934 | 703 | 5 | 0% | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 4 | -3.568 | 703 | 7 | 1% | -3.568 | 703 | 19 | 1% | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 5 | -3.265 | 703 | 1 | 0% | -3.265 | 703 | 14 | 1% | NA | 703 | NA | NA | NA | 707 | NA | NA |
| 6 | -3.003 | 703 | 2 | 0% | -3.003 | 703 | 15 | 1% | NA | 707 | NA | NA | NA | 712 | NA | NA |
| 7 | -2.768 | 703 | 2 | 0% | -2.768 | 703 | 19 | 1% | NA | 711 | NA | NA | NA | 717 | NA | NA |
| 8 | -2.552 | 707 | 3 | 0% | -2.552 | 707 | 17 | 1% | NA | 714 | NA | NA | NA | 721 | NA | NA |
| 9 | -2.352 | 710 | 1 | 0% | -2.352 | 710 | 24 | 2% | -1.825 | 718 | 7 | 0% | NA | 724 | NA | NA |
| 10 | -2.164 | 713 | 2 | 0% | -2.164 | 713 | 23 | 2% | -1.619 | 721 | 6 | 0% | NA | 728 | NA | NA |
| 11 | -1.985 | 715 | 2 | 0% | -1.985 | 715 | 32 | 2% | -1.425 | 724 | 7 | 0% | NA | 731 | NA | NA |
| 12 | NA | 718 | NA | NA | -1.814 | 718 | 42 | 3% | -1.240 | 726 | 6 | 0% | NA | 734 | NA | NA |
| 13 | NA | 720 | NA | NA | -1.651 | 720 | 68 | 5% | -1.063 | 729 | 11 | 1% | -0.542 | 737 | 4 | 0% |
| 14 | NA | 723 | NA | NA | -1.493 | 723 | 54 | 4% | -0.894 | 732 | 18 | 1% | -0.370 | 739 | 7 | 1% |
| 15 | NA | 725 | NA | NA | -1.341 | 725 | 88 | 6% | -0.730 | 734 | 43 | 2% | -0.208 | 742 | 3 | 0% |
| 16 | NA | 727 | NA | NA | -1.193 | 727 | 125 | 8% | -0.571 | 736 | 65 | 3% | -0.054 | 744 | 8 | 1% |
| 17 | NA | 729 | NA | NA | -1.049 | 729 | 127 | 8% | -0.416 | 739 | 107 | 6% | 0.094 | 746 | 9 | 1% |
| 18 | NA | 731 | NA | NA | -0.907 | 731 | 147 | 10% | -0.265 | 741 | 151 | 8% | 0.237 | 749 | 17 | 2% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 733 | NA | NA | -0.768 | 733 | 145 | 10% | -0.115 | 743 | 152 | 8% | 0.376 | 751 | 33 | 3% |
| 20 | NA | 736 | NA | NA | -0.631 | 736 | 138 | 9% | 0.033 | 745 | 198 | 10% | 0.513 | 753 | 51 | 5% |
| 21 | NA | 738 | NA | NA | -0.493 | 738 | 126 | 8% | 0.182 | 748 | 210 | 11% | 0.649 | 755 | 63 | 6% |
| 22 | NA | 740 | NA | NA | -0.355 | 740 | 95 | 6% | 0.332 | 750 | 187 | 10% | 0.786 | 757 | 84 | 8% |
| 23 | NA | 742 | NA | NA | -0.215 | 742 | 68 | 5% | 0.485 | 752 | 186 | 10% | 0.926 | 759 | 72 | 7% |
| 24 | NA | 744 | NA | NA | -0.071 | 744 | 58 | 4% | 0.643 | 755 | 152 | 8% | 1.069 | 761 | 99 | 10% |
| 25 | NA | 746 | NA | NA | 0.077 | 746 | 26 | 2% | 0.808 | 757 | 125 | 7% | 1.219 | 763 | 102 | 10% |
| 26 | NA | 748 | NA | NA | 0.232 | 748 | 24 | 2% | 0.984 | 760 | 92 | 5% | 1.377 | 766 | 87 | 8% |
| 27 | NA | 751 | NA | NA | 0.396 | 751 | 6 | 0% | 1.173 | 763 | 89 | 5% | 1.546 | 768 | 103 | 10% |
| 28 | NA | 754 | NA | NA | 0.572 | 754 | 2 | 0% | 1.382 | 766 | 55 | 3% | 1.731 | 771 | 98 | 9% |
| 29 | NA | 756 | NA | NA | NA | 756 | NA | NA | 1.617 | 769 | 24 | 1% | 1.938 | 774 | 62 | 6% |
| 30 | NA | 760 | NA | NA | NA | 760 | NA | NA | 1.893 | 773 | 15 | 1% | 2.174 | 778 | 49 | 5% |
| 31 | NA | 763 | NA | NA | NA | 763 | NA | NA | NA | 778 | NA | NA | 2.453 | 782 | 45 | 4% |
| 32 | NA | 767 | NA | NA | NA | 767 | NA | NA | NA | 785 | NA | NA | 2.802 | 787 | 20 | 2% |
| 33 | NA | 773 | NA | NA | NA | 773 | NA | NA | NA | 796 | NA | NA | 3.274 | 794 | 17 | 2% |
| 34 | NA | 780 | NA | NA | NA | 780 | NA | NA | NA | 799 | NA | NA | 4.041 | 799 | 4 | 0% |
| 35 | NA | 791 | NA | NA | NA | 791 | NA | NA | NA | NA | NA | NA | 6.000 | 799 | 4 | 0% |
| 36 | NA | 799 | NA | NA | NA | 799 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 7.B.6 Raw-Score-to-Scale-Score Distribution for ELA, Grade Eight**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 800 | 646 | 67% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 801 | 216 | 22% | NA | 801 | 1 | 0% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 803 | 1 | 0% | NA | 803 | NA | NA | NA | 803 | NA | NA | NA | 803 | NA | NA |
| 1 | -4.664 | 803 | 9 | 1% | NA | 803 | NA | NA | NA | 803 | NA | NA | NA | 803 | NA | NA |
| 2 | -3.900 | 803 | 14 | 1% | NA | 803 | NA | NA | NA | 803 | NA | NA | NA | 803 | NA | NA |
| 3 | -3.424 | 805 | 46 | 5% | NA | 805 | NA | NA | NA | 806 | NA | NA | NA | 805 | NA | NA |
| 4 | -3.064 | 809 | 10 | 1% | -3.064 | 809 | 7 | 0% | NA | 810 | NA | NA | NA | 809 | NA | NA |
| 5 | -2.768 | 813 | 7 | 1% | -2.768 | 813 | 7 | 0% | NA | 814 | NA | NA | NA | 813 | NA | NA |
| 6 | -2.514 | 816 | 2 | 0% | -2.514 | 816 | 6 | 0% | NA | 817 | NA | NA | NA | 817 | NA | NA |
| 7 | NA | 819 | NA | NA | -2.287 | 819 | 6 | 0% | NA | 820 | NA | NA | NA | 820 | NA | NA |
| 8 | NA | 821 | NA | NA | -2.082 | 821 | 15 | 1% | NA | 823 | NA | NA | NA | 823 | NA | NA |
| 9 | -1.893 | 824 | 2 | 0% | -1.893 | 824 | 16 | 1% | NA | 826 | NA | NA | NA | 825 | NA | NA |
| 10 | -1.718 | 826 | 2 | 0% | -1.718 | 826 | 19 | 1% | NA | 828 | NA | NA | NA | 828 | NA | NA |
| 11 | -1.554 | 828 | 1 | 0% | -1.554 | 828 | 29 | 2% | -1.400 | 830 | 5 | 0% | NA | 830 | NA | NA |
| 12 | -1.399 | 830 | 5 | 1% | -1.399 | 830 | 38 | 2% | -1.239 | 832 | 2 | 0% | NA | 832 | NA | NA |
| 13 | NA | 832 | NA | NA | -1.252 | 832 | 55 | 3% | -1.088 | 834 | 6 | 0% | NA | 834 | NA | NA |
| 14 | NA | 834 | NA | NA | -1.112 | 834 | 104 | 6% | -0.944 | 836 | 4 | 0% | NA | 836 | NA | NA |
| 15 | NA | 835 | NA | NA | -0.978 | 835 | 96 | 6% | -0.807 | 837 | 11 | 1% | NA | 838 | NA | NA |
| 16 | NA | 837 | NA | NA | -0.849 | 837 | 123 | 7% | -0.675 | 839 | 23 | 1% | NA | 840 | NA | NA |
| 17 | -0.724 | 838 | 1 | 0% | -0.724 | 838 | 139 | 8% | -0.547 | 841 | 31 | 2% | NA | 841 | NA | NA |
| 18 | NA | 840 | NA | NA | -0.602 | 840 | 189 | 11% | -0.422 | 842 | 61 | 4% | -0.350 | 843 | 1 | 0% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 841 | NA | NA | -0.483 | 841 | 179 | 10% | -0.300 | 844 | 86 | 5% | -0.220 | 845 | 1 | 0% |
| 20 | NA | 843 | NA | NA | -0.364 | 843 | 164 | 10% | -0.179 | 845 | 121 | 7% | -0.091 | 846 | 4 | 0% |
| 21 | NA | 844 | NA | NA | -0.246 | 844 | 142 | 8% | -0.058 | 847 | 142 | 8% | 0.036 | 848 | 7 | 1% |
| 22 | NA | 846 | NA | NA | -0.128 | 846 | 116 | 7% | 0.063 | 848 | 163 | 10% | 0.163 | 850 | 16 | 2% |
| 23 | NA | 847 | NA | NA | -0.008 | 847 | 104 | 6% | 0.186 | 850 | 183 | 11% | 0.290 | 851 | 25 | 3% |
| 24 | NA | 849 | NA | NA | 0.116 | 849 | 57 | 3% | 0.311 | 851 | 203 | 12% | 0.420 | 853 | 39 | 5% |
| 25 | NA | 851 | NA | NA | 0.243 | 851 | 52 | 3% | 0.439 | 853 | 163 | 10% | 0.552 | 854 | 68 | 8% |
| 26 | NA | 852 | NA | NA | 0.376 | 852 | 26 | 2% | 0.572 | 855 | 147 | 9% | 0.688 | 856 | 80 | 9% |
| 27 | NA | 854 | NA | NA | 0.516 | 854 | 15 | 1% | 0.710 | 856 | 132 | 8% | 0.830 | 858 | 83 | 10% |
| 28 | NA | 856 | NA | NA | 0.667 | 856 | 9 | 1% | 0.857 | 858 | 80 | 5% | 0.978 | 860 | 93 | 11% |
| 29 | NA | 858 | NA | NA | 0.830 | 858 | 2 | 0% | 1.013 | 860 | 58 | 3% | 1.136 | 862 | 88 | 10% |
| 30 | NA | 860 | NA | NA | NA | 860 | NA | NA | 1.181 | 862 | 48 | 3% | 1.305 | 864 | 88 | 10% |
| 31 | NA | 863 | NA | NA | NA | 863 | NA | NA | 1.364 | 865 | 21 | 1% | 1.490 | 866 | 71 | 8% |
| 32 | NA | 866 | NA | NA | NA | 866 | NA | NA | 1.569 | 867 | 14 | 1% | 1.696 | 869 | 48 | 6% |
| 33 | NA | 869 | NA | NA | NA | 869 | NA | NA | 1.801 | 870 | 6 | 0% | 1.930 | 872 | 50 | 6% |
| 34 | NA | 873 | NA | NA | NA | 873 | NA | NA | 2.075 | 873 | 1 | 0% | 2.206 | 875 | 44 | 5% |
| 35 | NA | 879 | NA | NA | NA | 879 | NA | NA | NA | 878 | NA | NA | 2.546 | 879 | 24 | 3% |
| 36 | NA | 888 | NA | NA | NA | 888 | NA | NA | NA | 883 | NA | NA | 3.004 | 885 | 16 | 2% |
| 37 | NA | 899 | NA | NA | NA | 899 | NA | NA | NA | 893 | NA | NA | 3.750 | 894 | 2 | 0% |
| 38 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 899 | NA | NA | 6.000 | 899 | 1 | 0% |

**Table 7.B.7 Raw-Score-to-Scale-Score Distribution for ELA, Grade Eleven**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 900 | 472 | 68% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 901 | 145 | 21% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 903 | 1 | 0% | NA | 903 | NA | NA | NA | 903 | NA | NA | NA | 903 | NA | NA |
| 1 | -4.786 | 903 | 19 | 3% | NA | 903 | NA | NA | NA | 903 | NA | NA | NA | 903 | NA | NA |
| 2 | -4.027 | 903 | 41 | 6% | NA | 903 | NA | NA | NA | 904 | NA | NA | NA | 904 | NA | NA |
| 3 | -3.555 | 903 | 6 | 1% | -3.555 | 903 | 7 | 1% | NA | 910 | NA | NA | NA | 910 | NA | NA |
| 4 | -3.201 | 907 | 4 | 1% | -3.201 | 907 | 13 | 1% | NA | 915 | NA | NA | NA | 915 | NA | NA |
| 5 | NA | 911 | NA | NA | -2.911 | 911 | 9 | 1% | NA | 918 | NA | NA | NA | 919 | NA | NA |
| 6 | NA | 914 | NA | NA | -2.662 | 914 | 5 | 1% | NA | 921 | NA | NA | NA | 922 | NA | NA |
| 7 | -2.441 | 917 | 3 | 0% | -2.441 | 917 | 8 | 1% | NA | 924 | NA | NA | NA | 925 | NA | NA |
| 8 | -2.242 | 919 | 1 | 0% | -2.242 | 919 | 11 | 1% | NA | 927 | NA | NA | NA | 928 | NA | NA |
| 9 | NA | 922 | NA | NA | -2.058 | 922 | 17 | 2% | -1.492 | 929 | 4 | 0% | NA | 930 | NA | NA |
| 10 | -1.888 | 924 | 2 | 0% | -1.888 | 924 | 22 | 2% | -1.331 | 931 | 1 | 0% | NA | 932 | NA | NA |
| 11 | -1.728 | 926 | 2 | 0% | -1.728 | 926 | 39 | 4% | -1.180 | 933 | 5 | 0% | NA | 934 | NA | NA |
| 12 | NA | 928 | NA | NA | -1.577 | 928 | 37 | 4% | -1.039 | 935 | 12 | 1% | NA | 936 | NA | NA |
| 13 | NA | 930 | NA | NA | -1.433 | 930 | 43 | 4% | -0.904 | 936 | 16 | 1% | -0.731 | 938 | 1 | 0% |
| 14 | -1.295 | 931 | 1 | 0% | -1.295 | 931 | 63 | 6% | -0.775 | 938 | 25 | 1% | NA | 940 | NA | NA |
| 15 | NA | 933 | NA | NA | -1.162 | 933 | 70 | 7% | -0.649 | 939 | 44 | 2% | NA | 942 | NA | NA |
| 16 | NA | 935 | NA | NA | -1.032 | 935 | 92 | 9% | -0.526 | 941 | 65 | 4% | NA | 944 | NA | NA |
| 17 | NA | 936 | NA | NA | -0.906 | 936 | 80 | 8% | -0.404 | 942 | 88 | 5% | -0.153 | 946 | 2 | 0% |
| 18 | NA | 938 | NA | NA | -0.782 | 938 | 93 | 10% | -0.281 | 944 | 126 | 7% | NA | 947 | NA | NA |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 939 | NA | NA | -0.659 | 939 | 83 | 8% | -0.158 | 946 | 141 | 8% | 0.118 | 949 | 3 | 0% |
| 20 | NA | 941 | NA | NA | -0.537 | 941 | 57 | 6% | -0.033 | 947 | 178 | 10% | 0.252 | 951 | 9 | 1% |
| 21 | NA | 942 | NA | NA | -0.415 | 942 | 73 | 7% | 0.095 | 949 | 179 | 10% | 0.385 | 952 | 11 | 1% |
| 22 | NA | 944 | NA | NA | -0.292 | 944 | 48 | 5% | 0.227 | 950 | 177 | 10% | 0.519 | 954 | 23 | 2% |
| 23 | NA | 945 | NA | NA | -0.168 | 945 | 23 | 2% | 0.365 | 952 | 168 | 9% | 0.653 | 956 | 31 | 3% |
| 24 | NA | 947 | NA | NA | -0.041 | 947 | 34 | 3% | 0.510 | 954 | 153 | 8% | 0.790 | 957 | 48 | 5% |
| 25 | NA | 949 | NA | NA | 0.089 | 949 | 20 | 2% | 0.662 | 956 | 144 | 8% | 0.931 | 959 | 67 | 7% |
| 26 | NA | 950 | NA | NA | 0.224 | 950 | 11 | 1% | 0.825 | 958 | 113 | 6% | 1.077 | 961 | 83 | 9% |
| 27 | NA | 952 | NA | NA | 0.364 | 952 | 10 | 1% | 1.001 | 960 | 100 | 5% | 1.229 | 963 | 81 | 9% |
| 28 | NA | 954 | NA | NA | 0.512 | 954 | 8 | 1% | 1.192 | 962 | 59 | 3% | 1.391 | 965 | 91 | 10% |
| 29 | NA | 956 | NA | NA | 0.669 | 956 | 3 | 0% | 1.405 | 965 | 38 | 2% | 1.565 | 967 | 89 | 10% |
| 30 | NA | 958 | NA | NA | NA | 958 | NA | NA | 1.645 | 968 | 14 | 1% | 1.754 | 969 | 118 | 13% |
| 31 | NA | 960 | NA | NA | NA | 960 | NA | NA | 1.926 | 972 | 4 | 0% | 1.965 | 972 | 82 | 9% |
| 32 | NA | 963 | NA | NA | NA | 963 | NA | NA | 2.271 | 976 | 1 | 0% | 2.205 | 975 | 71 | 8% |
| 33 | NA | 966 | NA | NA | NA | 966 | NA | NA | NA | 982 | NA | NA | 2.487 | 979 | 52 | 6% |
| 34 | NA | 969 | NA | NA | NA | 969 | NA | NA | NA | 991 | NA | NA | 2.835 | 983 | 44 | 5% |
| 35 | NA | 973 | NA | NA | NA | 973 | NA | NA | NA | 999 | NA | NA | 3.302 | 989 | 12 | 1% |
| 36 | NA | 979 | NA | NA | NA | 979 | NA | NA | NA | NA | NA | NA | 4.060 | 998 | 6 | 1% |
| 37 | NA | 989 | NA | NA | NA | 989 | NA | NA | NA | NA | NA | NA | 6.000 | 999 | 2 | 0% |
| 38 | NA | 999 | NA | NA | NA | 999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 7.B.8 Raw-Score-to-Scale-Score Distribution for Mathematics, Grade Three**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 300 | 761 | 70% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 301 | 222 | 21% | NA | 301 | 6 | 1% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 303 | 10 | 1% | NA | 303 | NA | NA | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 1 | -3.579 | 303 | 49 | 5% | NA | 303 | NA | NA | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 2 | -2.848 | 303 | 13 | 1% | -2.848 | 303 | 13 | 2% | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 3 | -2.406 | 303 | 10 | 1% | -2.406 | 303 | 15 | 2% | NA | 303 | NA | NA | NA | 303 | NA | NA |
| 4 | -2.084 | 303 | 2 | 0% | -2.084 | 303 | 22 | 3% | NA | 303 | NA | NA | NA | 309 | NA | NA |
| 5 | -1.828 | 307 | 2 | 0% | -1.828 | 307 | 21 | 3% | NA | 308 | NA | NA | NA | 315 | NA | NA |
| 6 | -1.613 | 311 | 2 | 0% | -1.613 | 311 | 18 | 3% | -1.527 | 313 | 9 | 1% | NA | 319 | NA | NA |
| 7 | -1.428 | 315 | 1 | 0% | -1.428 | 315 | 21 | 3% | -1.332 | 316 | 7 | 0% | NA | 323 | NA | NA |
| 8 | -1.265 | 318 | 5 | 0% | -1.265 | 318 | 17 | 3% | -1.159 | 320 | 11 | 1% | NA | 327 | NA | NA |
| 9 | -1.117 | 320 | 2 | 0% | -1.117 | 320 | 41 | 6% | -1.002 | 323 | 10 | 1% | -0.614 | 330 | 3 | 0% |
| 10 | -0.981 | 323 | 1 | 0% | -0.981 | 323 | 50 | 8% | -0.858 | 325 | 25 | 2% | -0.454 | 333 | 7 | 0% |
| 11 | NA | 325 | NA | NA | -0.855 | 325 | 55 | 8% | -0.724 | 328 | 39 | 3% | -0.304 | 336 | 17 | 1% |
| 12 | NA | 327 | NA | NA | -0.736 | 327 | 66 | 10% | -0.598 | 330 | 61 | 4% | -0.160 | 338 | 28 | 2% |
| 13 | NA | 330 | NA | NA | -0.623 | 330 | 58 | 9% | -0.478 | 332 | 104 | 7% | -0.022 | 341 | 66 | 4% |
| 14 | NA | 332 | NA | NA | -0.514 | 332 | 78 | 12% | -0.363 | 334 | 141 | 9% | 0.112 | 343 | 118 | 7% |
| 15 | NA | 334 | NA | NA | -0.408 | 334 | 51 | 8% | -0.252 | 337 | 189 | 12% | 0.244 | 346 | 159 | 9% |
| 16 | NA | 336 | NA | NA | -0.304 | 336 | 47 | 7% | -0.143 | 339 | 210 | 14% | 0.374 | 348 | 200 | 11% |
| 17 | NA | 338 | NA | NA | -0.200 | 338 | 35 | 5% | -0.035 | 341 | 199 | 13% | 0.503 | 351 | 265 | 15% |
| 18 | NA | 339 | NA | NA | -0.097 | 339 | 24 | 4% | 0.072 | 343 | 194 | 13% | 0.633 | 353 | 222 | 12% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 341 | NA | NA | 0.008 | 341 | 13 | 2% | 0.180 | 345 | 169 | 11% | 0.765 | 356 | 171 | 9% |
| 20 | NA | 343 | NA | NA | 0.114 | 343 | 10 | 2% | 0.289 | 347 | 87 | 6% | 0.900 | 358 | 141 | 8% |
| 21 | NA | 345 | NA | NA | 0.224 | 345 | 4 | 1% | 0.401 | 349 | 43 | 3% | 1.039 | 361 | 102 | 6% |
| 22 | NA | 348 | NA | NA | 0.337 | 348 | 1 | 0% | 0.517 | 351 | 27 | 2% | 1.183 | 363 | 85 | 5% |
| 23 | NA | 350 | NA | NA | NA | 350 | NA | NA | 0.638 | 353 | 17 | 1% | 1.335 | 366 | 64 | 4% |
| 24 | NA | 352 | NA | NA | NA | 352 | NA | NA | 0.766 | 356 | 7 | 0% | 1.496 | 369 | 42 | 2% |
| 25 | NA | 355 | NA | NA | NA | 355 | NA | NA | 0.903 | 358 | 2 | 0% | 1.669 | 373 | 38 | 2% |
| 26 | NA | 358 | NA | NA | NA | 358 | NA | NA | NA | 361 | NA | NA | 1.856 | 376 | 14 | 1% |
| 27 | NA | 361 | NA | NA | NA | 361 | NA | NA | NA | 364 | NA | NA | 2.062 | 380 | 22 | 1% |
| 28 | NA | 364 | NA | NA | NA | 364 | NA | NA | NA | 368 | NA | NA | 2.291 | 384 | 10 | 1% |
| 29 | NA | 368 | NA | NA | NA | 368 | NA | NA | NA | 372 | NA | NA | 2.552 | 389 | 13 | 1% |
| 30 | NA | 373 | NA | NA | NA | 373 | NA | NA | NA | 376 | NA | NA | 2.856 | 395 | 4 | 0% |
| 31 | NA | 379 | NA | NA | NA | 379 | NA | NA | NA | 383 | NA | NA | 3.227 | 399 | 8 | 0% |
| 32 | NA | 387 | NA | NA | NA | 387 | NA | NA | NA | 391 | NA | NA | 3.718 | 399 | 3 | 0% |
| 33 | NA | 399 | NA | NA | NA | 399 | NA | NA | NA | 399 | NA | NA | 4.499 | 399 | 1 | 0% |
| 34 | NA | 399 | NA | NA | NA | 399 | NA | NA | NA | 399 | NA | NA | 6.000 | 399 | 1 | 0% |

**Table 7.B.9 Raw-Score-to-Scale-Score Distribution for Mathematics, Grade Four**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 400 | 782 | 79% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 401 | 144 | 15% | NA | 401 | 12 | 1% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 403 | 4 | 0% | NA | 403 | NA | NA | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 1 | -4.217 | 403 | 18 | 2% | NA | 403 | NA | NA | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 2 | -3.461 | 403 | 7 | 1% | -3.461 | 403 | 4 | 0% | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 3 | -2.996 | 403 | 4 | 0% | -2.996 | 403 | 12 | 1% | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 4 | -2.650 | 403 | 9 | 1% | -2.650 | 403 | 14 | 1% | NA | 403 | NA | NA | NA | 403 | NA | NA |
| 5 | -2.371 | 403 | 6 | 1% | -2.371 | 403 | 24 | 2% | NA | 403 | NA | NA | NA | 404 | NA | NA |
| 6 | -2.135 | 403 | 2 | 0% | -2.135 | 403 | 24 | 2% | NA | 406 | NA | NA | NA | 409 | NA | NA |
| 7 | -1.928 | 405 | 5 | 1% | -1.928 | 405 | 23 | 2% | NA | 410 | NA | NA | NA | 413 | NA | NA |
| 8 | -1.744 | 409 | 2 | 0% | -1.744 | 409 | 29 | 2% | NA | 413 | NA | NA | NA | 417 | NA | NA |
| 9 | -1.576 | 412 | 1 | 0% | -1.576 | 412 | 33 | 2% | -1.309 | 417 | 8 | 0% | NA | 421 | NA | NA |
| 10 | -1.422 | 415 | 3 | 0% | -1.422 | 415 | 37 | 3% | -1.143 | 420 | 5 | 0% | NA | 425 | NA | NA |
| 11 | -1.278 | 417 | 1 | 0% | -1.278 | 417 | 48 | 3% | -0.988 | 423 | 12 | 1% | NA | 428 | NA | NA |
| 12 | NA | 420 | NA | NA | -1.143 | 420 | 48 | 3% | -0.841 | 426 | 7 | 0% | NA | 431 | NA | NA |
| 13 | NA | 422 | NA | NA | -1.016 | 422 | 73 | 5% | -0.702 | 428 | 21 | 1% | -0.408 | 434 | 2 | 0% |
| 14 | NA | 425 | NA | NA | -0.894 | 425 | 81 | 6% | -0.568 | 431 | 28 | 1% | NA | 436 | NA | NA |
| 15 | -0.776 | 427 | 2 | 0% | -0.776 | 427 | 118 | 8% | -0.438 | 433 | 61 | 3% | -0.116 | 439 | 1 | 0% |
| 16 | NA | 429 | NA | NA | -0.663 | 429 | 142 | 10% | -0.312 | 435 | 127 | 6% | 0.024 | 442 | 6 | 1% |
| 17 | NA | 431 | NA | NA | -0.552 | 431 | 148 | 10% | -0.188 | 438 | 192 | 9% | 0.161 | 444 | 11 | 2% |
| 18 | NA | 433 | NA | NA | -0.443 | 433 | 151 | 10% | -0.065 | 440 | 281 | 13% | 0.296 | 447 | 26 | 4% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 435 | NA | NA | -0.335 | 435 | 140 | 10% | 0.058 | 442 | 299 | 13% | 0.432 | 449 | 39 | 6% |
| 20 | NA | 437 | NA | NA | -0.228 | 437 | 95 | 7% | 0.180 | 445 | 275 | 12% | 0.567 | 452 | 74 | 12% |
| 21 | NA | 439 | NA | NA | -0.121 | 439 | 88 | 6% | 0.304 | 447 | 250 | 11% | 0.703 | 454 | 84 | 13% |
| 22 | NA | 441 | NA | NA | -0.013 | 441 | 48 | 3% | 0.431 | 449 | 199 | 9% | 0.841 | 457 | 93 | 15% |
| 23 | NA | 443 | NA | NA | 0.097 | 443 | 27 | 2% | 0.560 | 452 | 142 | 6% | 0.983 | 460 | 69 | 11% |
| 24 | NA | 445 | NA | NA | 0.211 | 445 | 16 | 1% | 0.695 | 454 | 110 | 5% | 1.129 | 462 | 53 | 8% |
| 25 | NA | 447 | NA | NA | 0.328 | 447 | 5 | 0% | 0.835 | 457 | 86 | 4% | 1.280 | 465 | 46 | 7% |
| 26 | NA | 450 | NA | NA | 0.450 | 450 | 1 | 0% | 0.983 | 460 | 54 | 2% | 1.439 | 468 | 37 | 6% |
| 27 | NA | 452 | NA | NA | NA | 452 | NA | NA | 1.141 | 463 | 46 | 2% | 1.607 | 471 | 28 | 4% |
| 28 | NA | 455 | NA | NA | NA | 455 | NA | NA | 1.311 | 466 | 18 | 1% | 1.787 | 475 | 17 | 3% |
| 29 | NA | 458 | NA | NA | NA | 458 | NA | NA | 1.497 | 469 | 8 | 0% | 1.982 | 478 | 21 | 3% |
| 30 | NA | 461 | NA | NA | NA | 461 | NA | NA | 1.704 | 473 | 6 | 0% | 2.199 | 483 | 14 | 2% |
| 31 | NA | 464 | NA | NA | NA | 464 | NA | NA | 1.940 | 478 | 2 | 0% | 2.444 | 487 | 6 | 1% |
| 32 | NA | 468 | NA | NA | NA | 468 | NA | NA | 2.217 | 483 | 1 | 0% | 2.731 | 493 | 3 | 0% |
| 33 | NA | 473 | NA | NA | NA | 473 | NA | NA | 2.559 | 489 | 1 | 0% | 3.084 | 499 | 9 | 1% |
| 34 | NA | 479 | NA | NA | NA | 479 | NA | NA | NA | 498 | NA | NA | NA | 499 | NA | NA |
| 35 | NA | 487 | NA | NA | NA | 487 | NA | NA | NA | 499 | NA | NA | NA | 499 | NA | NA |
| 36 | NA | 499 | NA | NA | NA | 499 | NA | NA | NA | 499 | NA | NA | NA | 499 | NA | NA |
| 37 | NA | 499 | NA | NA | NA | 499 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 7.B.10 Raw-Score-to-Scale-Score Distribution for Mathematics, Grade Five**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 500 | 799 | 78% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 501 | 142 | 14% | NA | 501 | 5 | 1% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 503 | 11 | 1% | NA | 503 | NA | NA | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 1 | -3.781 | 503 | 39 | 4% | NA | 503 | NA | NA | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 2 | -3.043 | 503 | 9 | 1% | -3.043 | 503 | 7 | 1% | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 3 | -2.593 | 503 | 12 | 1% | -2.593 | 503 | 12 | 1% | NA | 503 | NA | NA | NA | 503 | NA | NA |
| 4 | -2.263 | 503 | 7 | 1% | -2.263 | 503 | 20 | 2% | NA | 503 | NA | NA | NA | 508 | NA | NA |
| 5 | -1.997 | 504 | 2 | 0% | -1.997 | 504 | 26 | 3% | NA | 504 | NA | NA | NA | 513 | NA | NA |
| 6 | -1.774 | 508 | 2 | 0% | -1.774 | 508 | 22 | 2% | NA | 508 | NA | NA | NA | 517 | NA | NA |
| 7 | -1.580 | 512 | 2 | 0% | -1.580 | 512 | 24 | 3% | -1.552 | 512 | 7 | 0% | NA | 521 | NA | NA |
| 8 | -1.408 | 515 | 1 | 0% | -1.408 | 515 | 26 | 3% | -1.366 | 516 | 5 | 0% | NA | 525 | NA | NA |
| 9 | -1.252 | 518 | 1 | 0% | -1.252 | 518 | 45 | 5% | -1.196 | 519 | 7 | 0% | NA | 528 | NA | NA |
| 10 | NA | 521 | NA | NA | -1.109 | 521 | 56 | 6% | -1.041 | 522 | 12 | 1% | NA | 531 | NA | NA |
| 11 | -0.976 | 523 | 1 | 0% | -0.976 | 523 | 76 | 8% | -0.896 | 525 | 17 | 1% | -0.430 | 533 | 3 | 0% |
| 12 | NA | 525 | NA | NA | -0.852 | 525 | 77 | 8% | -0.759 | 527 | 22 | 1% | -0.297 | 536 | 1 | 0% |
| 13 | NA | 528 | NA | NA | -0.734 | 528 | 94 | 10% | -0.630 | 529 | 57 | 3% | -0.169 | 538 | 6 | 0% |
| 14 | -0.622 | 530 | 1 | 0% | -0.622 | 530 | 78 | 8% | -0.506 | 532 | 84 | 4% | -0.045 | 540 | 13 | 1% |
| 15 | NA | 532 | NA | NA | -0.514 | 532 | 92 | 10% | -0.386 | 534 | 134 | 6% | 0.075 | 543 | 29 | 2% |
| 16 | NA | 534 | NA | NA | -0.410 | 534 | 72 | 8% | -0.270 | 536 | 181 | 9% | 0.194 | 545 | 54 | 4% |
| 17 | NA | 536 | NA | NA | -0.307 | 536 | 59 | 6% | -0.156 | 538 | 251 | 12% | 0.311 | 547 | 86 | 7% |
| 18 | NA | 537 | NA | NA | -0.207 | 537 | 46 | 5% | -0.043 | 540 | 296 | 14% | 0.427 | 549 | 117 | 9% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 539 | NA | NA | -0.107 | 539 | 47 | 5% | 0.069 | 543 | 271 | 13% | 0.544 | 552 | 145 | 11% |
| 20 | NA | 541 | NA | NA | -0.008 | 541 | 28 | 3% | 0.181 | 545 | 207 | 10% | 0.662 | 554 | 140 | 11% |
| 21 | NA | 543 | NA | NA | 0.093 | 543 | 11 | 1% | 0.295 | 547 | 187 | 9% | 0.782 | 556 | 123 | 10% |
| 22 | NA | 545 | NA | NA | 0.194 | 545 | 11 | 1% | 0.410 | 549 | 135 | 7% | 0.904 | 558 | 129 | 10% |
| 23 | NA | 547 | NA | NA | 0.298 | 547 | 3 | 0% | 0.528 | 551 | 83 | 4% | 1.031 | 561 | 97 | 8% |
| 24 | NA | 549 | NA | NA | NA | 549 | NA | NA | 0.649 | 553 | 57 | 3% | 1.161 | 563 | 74 | 6% |
| 25 | NA | 551 | NA | NA | NA | 551 | NA | NA | 0.776 | 556 | 25 | 1% | 1.298 | 566 | 72 | 6% |
| 26 | NA | 553 | NA | NA | NA | 553 | NA | NA | 0.909 | 558 | 16 | 1% | 1.443 | 568 | 58 | 5% |
| 27 | NA | 556 | NA | NA | NA | 556 | NA | NA | 1.049 | 561 | 6 | 0% | 1.597 | 571 | 41 | 3% |
| 28 | NA | 558 | NA | NA | NA | 558 | NA | NA | 1.200 | 564 | 3 | 0% | 1.763 | 574 | 35 | 3% |
| 29 | NA | 561 | NA | NA | NA | 561 | NA | NA | 1.363 | 567 | 1 | 0% | 1.944 | 578 | 27 | 2% |
| 30 | NA | 564 | NA | NA | NA | 564 | NA | NA | NA | 570 | NA | NA | 2.146 | 582 | 12 | 1% |
| 31 | NA | 567 | NA | NA | NA | 567 | NA | NA | 1.742 | 574 | 1 | 0% | 2.376 | 586 | 5 | 0% |
| 32 | NA | 571 | NA | NA | NA | 571 | NA | NA | NA | 578 | NA | NA | 2.647 | 591 | 11 | 1% |
| 33 | NA | 576 | NA | NA | NA | 576 | NA | NA | NA | 583 | NA | NA | 2.983 | 597 | 2 | 0% |
| 34 | NA | 582 | NA | NA | NA | 582 | NA | NA | NA | 590 | NA | NA | 3.437 | 599 | 4 | 0% |
| 35 | NA | 590 | NA | NA | NA | 590 | NA | NA | NA | 598 | NA | NA | 4.178 | 599 | 2 | 0% |
| 36 | NA | 599 | NA | NA | NA | 599 | NA | NA | NA | 599 | NA | NA | 6.000 | 599 | 2 | 0% |
| 37 | NA | 599 | NA | NA | NA | 599 | NA | NA | NA | 599 | NA | NA | NA | NA | NA | NA |

**Table 7.B.11 Raw-Score-to-Scale-Score Distribution for Mathematics, Grade Six**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 600 | 841 | 79% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 601 | 133 | 12% | NA | 601 | 6 | 0% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 603 | 12 | 1% | NA | 603 | NA | NA | NA | 603 | NA | NA | NA | 603 | NA | NA |
| 1 | -3.221 | 603 | 49 | 5% | NA | 603 | NA | NA | NA | 603 | NA | NA | NA | 603 | NA | NA |
| 2 | -2.510 | 603 | 12 | 1% | -2.510 | 603 | 7 | 0% | NA | 603 | NA | NA | NA | 603 | NA | NA |
| 3 | -2.088 | 603 | 7 | 1% | -2.088 | 603 | 9 | 1% | NA | 603 | NA | NA | NA | 607 | NA | NA |
| 4 | -1.785 | 608 | 3 | 0% | -1.785 | 608 | 16 | 1% | NA | 609 | NA | NA | NA | 613 | NA | NA |
| 5 | -1.547 | 612 | 3 | 0% | -1.547 | 612 | 15 | 1% | NA | 614 | NA | NA | NA | 617 | NA | NA |
| 6 | -1.349 | 616 | 2 | 0% | -1.349 | 616 | 27 | 2% | NA | 618 | NA | NA | NA | 621 | NA | NA |
| 7 | -1.180 | 619 | 3 | 0% | -1.180 | 619 | 25 | 2% | -1.062 | 621 | 3 | 0% | NA | 625 | NA | NA |
| 8 | -1.030 | 622 | 1 | 0% | -1.030 | 622 | 45 | 3% | -0.897 | 624 | 8 | 0% | NA | 628 | NA | NA |
| 9 | NA | 625 | NA | NA | -0.895 | 625 | 69 | 4% | -0.747 | 627 | 5 | 0% | NA | 630 | NA | NA |
| 10 | -0.771 | 627 | 2 | 0% | -0.771 | 627 | 91 | 6% | -0.608 | 630 | 15 | 1% | -0.447 | 633 | 2 | 0% |
| 11 | -0.655 | 629 | 1 | 0% | -0.655 | 629 | 129 | 8% | -0.478 | 632 | 32 | 2% | -0.322 | 635 | 2 | 0% |
| 12 | NA | 631 | NA | NA | -0.546 | 631 | 150 | 9% | -0.354 | 635 | 76 | 5% | -0.203 | 637 | 2 | 0% |
| 13 | NA | 633 | NA | NA | -0.441 | 633 | 199 | 12% | -0.235 | 637 | 122 | 7% | -0.089 | 640 | 11 | 1% |
| 14 | NA | 635 | NA | NA | -0.341 | 635 | 191 | 12% | -0.119 | 639 | 172 | 10% | 0.022 | 642 | 18 | 2% |
| 15 | NA | 637 | NA | NA | -0.242 | 637 | 175 | 11% | -0.005 | 641 | 212 | 13% | 0.130 | 644 | 29 | 3% |
| 16 | NA | 639 | NA | NA | -0.145 | 639 | 160 | 10% | 0.108 | 643 | 228 | 14% | 0.237 | 646 | 45 | 5% |
| 17 | NA | 640 | NA | NA | -0.049 | 640 | 138 | 8% | 0.220 | 645 | 205 | 12% | 0.344 | 648 | 58 | 6% |
| 18 | NA | 642 | NA | NA | 0.048 | 642 | 84 | 5% | 0.334 | 648 | 179 | 11% | 0.451 | 650 | 80 | 8% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 644 | NA | NA | 0.146 | 644 | 44 | 3% | 0.449 | 650 | 142 | 8% | 0.559 | 652 | 88 | 9% |
| 20 | NA | 646 | NA | NA | 0.246 | 646 | 36 | 2% | 0.567 | 652 | 107 | 6% | 0.669 | 654 | 102 | 11% |
| 21 | NA | 648 | NA | NA | 0.349 | 648 | 24 | 1% | 0.689 | 654 | 91 | 5% | 0.782 | 656 | 85 | 9% |
| 22 | NA | 650 | NA | NA | 0.456 | 650 | 6 | 0% | 0.817 | 657 | 37 | 2% | 0.899 | 658 | 74 | 8% |
| 23 | NA | 652 | NA | NA | 0.570 | 652 | 3 | 0% | 0.952 | 659 | 28 | 2% | 1.023 | 660 | 67 | 7% |
| 24 | NA | 654 | NA | NA | 0.691 | 654 | 1 | 0% | 1.096 | 662 | 6 | 0% | 1.153 | 663 | 76 | 8% |
| 25 | NA | 657 | NA | NA | 0.823 | 657 | 1 | 0% | 1.252 | 665 | 10 | 1% | 1.293 | 666 | 60 | 6% |
| 26 | NA | 659 | NA | NA | NA | 659 | NA | NA | 1.423 | 668 | 4 | 0% | 1.445 | 668 | 46 | 5% |
| 27 | NA | 663 | NA | NA | NA | 663 | NA | NA | 1.615 | 672 | 3 | 0% | 1.613 | 672 | 29 | 3% |
| 28 | NA | 666 | NA | NA | NA | 666 | NA | NA | NA | 676 | NA | NA | 1.801 | 675 | 31 | 3% |
| 29 | NA | 670 | NA | NA | NA | 670 | NA | NA | 2.096 | 681 | 1 | 0% | 2.020 | 679 | 23 | 2% |
| 30 | NA | 676 | NA | NA | NA | 676 | NA | NA | NA | 687 | NA | NA | 2.280 | 684 | 16 | 2% |
| 31 | NA | 684 | NA | NA | NA | 684 | NA | NA | NA | 695 | NA | NA | 2.608 | 690 | 6 | 1% |
| 32 | NA | 697 | NA | NA | NA | 697 | NA | NA | NA | 699 | NA | NA | 3.057 | 699 | 5 | 1% |
| 33 | NA | 699 | NA | NA | NA | 699 | NA | NA | NA | 699 | NA | NA | 3.798 | 699 | 4 | 0% |
| 34 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6.000 | 699 | 1 | 0% |

**Table 7.B.12 Raw-Score-to-Scale-Score Distribution for Mathematics, Grade Seven**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 700 | 632 | 65% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 701 | 216 | 22% | NA | 701 | 4 | 1% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 703 | 12 | 1% | NA | 703 | NA | NA | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 1 | -3.695 | 703 | 27 | 3% | NA | 703 | NA | NA | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 2 | -2.972 | 703 | 61 | 6% | NA | 703 | NA | NA | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 3 | -2.539 | 703 | 5 | 1% | -2.539 | 703 | 8 | 1% | NA | 703 | NA | NA | NA | 703 | NA | NA |
| 4 | -2.227 | 703 | 5 | 1% | -2.227 | 703 | 8 | 1% | NA | 703 | NA | NA | NA | 705 | NA | NA |
| 5 | -1.982 | 704 | 2 | 0% | -1.982 | 704 | 13 | 2% | NA | 707 | NA | NA | NA | 710 | NA | NA |
| 6 | NA | 708 | NA | NA | -1.780 | 708 | 20 | 3% | NA | 711 | NA | NA | NA | 714 | NA | NA |
| 7 | -1.607 | 711 | 1 | 0% | -1.607 | 711 | 10 | 1% | -1.458 | 714 | 15 | 1% | NA | 717 | NA | NA |
| 8 | -1.456 | 714 | 1 | 0% | -1.456 | 714 | 19 | 3% | -1.300 | 717 | 7 | 0% | NA | 720 | NA | NA |
| 9 | NA | 717 | NA | NA | -1.320 | 717 | 19 | 3% | -1.158 | 720 | 10 | 1% | NA | 723 | NA | NA |
| 10 | -1.197 | 719 | 1 | 0% | -1.197 | 719 | 27 | 4% | -1.028 | 722 | 27 | 2% | NA | 726 | NA | NA |
| 11 | -1.084 | 721 | 1 | 0% | -1.084 | 721 | 32 | 5% | -0.908 | 724 | 27 | 2% | -0.704 | 728 | 4 | 0% |
| 12 | -0.978 | 723 | 1 | 0% | -0.978 | 723 | 48 | 7% | -0.794 | 726 | 47 | 3% | -0.583 | 730 | 7 | 0% |
| 13 | -0.878 | 725 | 2 | 0% | -0.878 | 725 | 49 | 7% | -0.686 | 728 | 64 | 4% | -0.466 | 733 | 10 | 0% |
| 14 | -0.783 | 727 | 1 | 0% | -0.783 | 727 | 59 | 9% | -0.582 | 730 | 104 | 6% | -0.352 | 735 | 19 | 1% |
| 15 | NA | 728 | NA | NA | -0.691 | 728 | 82 | 12% | -0.481 | 732 | 120 | 7% | -0.239 | 737 | 47 | 2% |
| 16 | NA | 730 | NA | NA | -0.602 | 730 | 77 | 11% | -0.382 | 734 | 163 | 10% | -0.126 | 739 | 77 | 4% |
| 17 | NA | 732 | NA | NA | -0.515 | 732 | 70 | 10% | -0.284 | 736 | 179 | 11% | -0.014 | 741 | 124 | 6% |
| 18 | NA | 733 | NA | NA | -0.429 | 733 | 54 | 8% | -0.186 | 738 | 198 | 12% | 0.099 | 743 | 158 | 8% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 735 | NA | NA | -0.344 | 735 | 38 | 6% | -0.089 | 740 | 167 | 10% | 0.214 | 745 | 189 | 9% |
| 20 | NA | 736 | NA | NA | -0.258 | 736 | 23 | 3% | 0.010 | 741 | 136 | 8% | 0.331 | 748 | 217 | 11% |
| 21 | NA | 738 | NA | NA | -0.172 | 738 | 8 | 1% | 0.109 | 743 | 162 | 10% | 0.451 | 750 | 205 | 10% |
| 22 | NA | 740 | NA | NA | -0.084 | 740 | 4 | 1% | 0.211 | 745 | 88 | 5% | 0.573 | 752 | 167 | 8% |
| 23 | NA | 741 | NA | NA | 0.005 | 741 | 2 | 0% | 0.315 | 747 | 82 | 5% | 0.699 | 754 | 174 | 9% |
| 24 | NA | 743 | NA | NA | 0.097 | 743 | 2 | 0% | 0.423 | 749 | 36 | 2% | 0.828 | 757 | 129 | 6% |
| 25 | NA | 745 | NA | NA | 0.193 | 745 | 1 | 0% | 0.534 | 751 | 36 | 2% | 0.963 | 759 | 121 | 6% |
| 26 | NA | 747 | NA | NA | NA | 747 | NA | NA | 0.651 | 753 | 19 | 1% | 1.103 | 762 | 91 | 4% |
| 27 | NA | 749 | NA | NA | NA | 749 | NA | NA | 0.772 | 756 | 6 | 0% | 1.249 | 765 | 70 | 3% |
| 28 | NA | 751 | NA | NA | NA | 751 | NA | NA | 0.901 | 758 | 2 | 0% | 1.403 | 768 | 53 | 3% |
| 29 | NA | 753 | NA | NA | NA | 753 | NA | NA | 1.038 | 761 | 2 | 0% | 1.567 | 771 | 38 | 2% |
| 30 | NA | 756 | NA | NA | NA | 756 | NA | NA | NA | 764 | NA | NA | 1.743 | 774 | 29 | 1% |
| 31 | NA | 758 | NA | NA | NA | 758 | NA | NA | NA | 767 | NA | NA | 1.935 | 778 | 36 | 2% |
| 32 | NA | 762 | NA | NA | NA | 762 | NA | NA | NA | 770 | NA | NA | 2.147 | 782 | 22 | 1% |
| 33 | NA | 765 | NA | NA | NA | 765 | NA | NA | 1.718 | 774 | 1 | 0% | 2.388 | 786 | 18 | 1% |
| 34 | NA | 769 | NA | NA | NA | 769 | NA | NA | NA | 778 | NA | NA | 2.670 | 791 | 12 | 1% |
| 35 | NA | 775 | NA | NA | NA | 775 | NA | NA | NA | 783 | NA | NA | 3.017 | 798 | 6 | 0% |
| 36 | NA | 781 | NA | NA | NA | 781 | NA | NA | NA | 789 | NA | NA | 3.483 | 799 | 8 | 0% |
| 37 | NA | 790 | NA | NA | NA | 790 | NA | NA | NA | 797 | NA | NA | 4.237 | 799 | 1 | 0% |
| 38 | NA | 799 | NA | NA | NA | 799 | NA | NA | NA | 799 | NA | NA | NA | 799 | NA | NA |
| 39 | NA | 799 | NA | NA | NA | 799 | NA | NA | NA | 799 | NA | NA | NA | NA | NA | NA |

**Table 7.B.13 Raw-Score-to-Scale-Score Distribution for Mathematics, Grade Eight**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 800 | 766 | 76% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 801 | 180 | 18% | NA | 801 | 9 | 1% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 803 | 3 | 0% | NA | 803 | NA | NA | NA | 803 | NA | NA | NA | 803 | NA | NA |
| 1 | -3.656 | 803 | 13 | 1% | NA | 803 | NA | NA | NA | 803 | NA | NA | NA | 803 | NA | NA |
| 2 | -2.931 | 803 | 17 | 2% | -2.931 | 803 | 4 | 1% | NA | 803 | NA | NA | NA | 803 | NA | NA |
| 3 | -2.496 | 803 | 14 | 1% | -2.496 | 803 | 11 | 2% | NA | 803 | NA | NA | NA | 803 | NA | NA |
| 4 | -2.181 | 803 | 6 | 1% | -2.181 | 803 | 10 | 2% | NA | 804 | NA | NA | NA | 806 | NA | NA |
| 5 | -1.933 | 805 | 3 | 0% | -1.933 | 805 | 10 | 2% | NA | 809 | NA | NA | NA | 811 | NA | NA |
| 6 | -1.726 | 809 | 1 | 0% | -1.726 | 809 | 14 | 2% | NA | 813 | NA | NA | NA | 816 | NA | NA |
| 7 | -1.549 | 812 | 1 | 0% | -1.549 | 812 | 7 | 1% | -1.323 | 816 | 7 | 0% | NA | 819 | NA | NA |
| 8 | -1.393 | 815 | 1 | 0% | -1.393 | 815 | 17 | 3% | -1.158 | 820 | 14 | 1% | NA | 822 | NA | NA |
| 9 | NA | 818 | NA | NA | -1.253 | 818 | 23 | 4% | -1.010 | 822 | 21 | 1% | NA | 825 | NA | NA |
| 10 | -1.126 | 820 | 2 | 0% | -1.126 | 820 | 33 | 5% | -0.875 | 825 | 26 | 1% | NA | 828 | NA | NA |
| 11 | -1.007 | 822 | 1 | 0% | -1.007 | 822 | 38 | 6% | -0.750 | 827 | 44 | 2% | -0.585 | 830 | 3 | 0% |
| 12 | -0.897 | 824 | 1 | 0% | -0.897 | 824 | 51 | 8% | -0.632 | 829 | 70 | 3% | -0.463 | 833 | 2 | 0% |
| 13 | NA | 826 | NA | NA | -0.792 | 826 | 58 | 9% | -0.521 | 832 | 111 | 5% | -0.346 | 835 | 10 | 1% |
| 14 | NA | 828 | NA | NA | -0.691 | 828 | 51 | 8% | -0.415 | 834 | 147 | 7% | -0.235 | 837 | 12 | 1% |
| 15 | NA | 830 | NA | NA | -0.594 | 830 | 69 | 11% | -0.312 | 835 | 191 | 9% | -0.128 | 839 | 37 | 2% |
| 16 | -0.500 | 832 | 1 | 0% | -0.500 | 832 | 68 | 11% | -0.213 | 837 | 236 | 11% | -0.023 | 841 | 43 | 3% |
| 17 | NA | 834 | NA | NA | -0.407 | 834 | 50 | 8% | -0.115 | 839 | 245 | 12% | 0.080 | 843 | 81 | 5% |
| 18 | NA | 835 | NA | NA | -0.315 | 835 | 36 | 6% | -0.019 | 841 | 218 | 10% | 0.181 | 845 | 113 | 8% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 837 | NA | NA | -0.224 | 837 | 32 | 5% | 0.077 | 843 | 185 | 9% | 0.281 | 847 | 125 | 8% |
| 20 | NA | 839 | NA | NA | -0.132 | 839 | 23 | 4% | 0.173 | 845 | 157 | 8% | 0.382 | 848 | 119 | 8% |
| 21 | NA | 841 | NA | NA | -0.039 | 841 | 12 | 2% | 0.270 | 846 | 133 | 6% | 0.483 | 850 | 152 | 10% |
| 22 | NA | 842 | NA | NA | 0.055 | 842 | 9 | 1% | 0.369 | 848 | 99 | 5% | 0.586 | 852 | 135 | 9% |
| 23 | NA | 844 | NA | NA | 0.152 | 844 | 2 | 0% | 0.470 | 850 | 76 | 4% | 0.690 | 854 | 126 | 8% |
| 24 | NA | 846 | NA | NA | 0.252 | 846 | 4 | 1% | 0.575 | 852 | 43 | 2% | 0.797 | 856 | 101 | 7% |
| 25 | NA | 848 | NA | NA | 0.357 | 848 | 1 | 0% | 0.683 | 854 | 26 | 1% | 0.907 | 858 | 89 | 6% |
| 26 | NA | 850 | NA | NA | 0.466 | 850 | 1 | 0% | 0.797 | 856 | 18 | 1% | 1.021 | 860 | 78 | 5% |
| 27 | NA | 852 | NA | NA | NA | 852 | NA | NA | 0.917 | 858 | 11 | 1% | 1.139 | 863 | 66 | 4% |
| 28 | NA | 855 | NA | NA | NA | 855 | NA | NA | 1.046 | 861 | 3 | 0% | 1.263 | 865 | 37 | 2% |
| 29 | NA | 857 | NA | NA | NA | 857 | NA | NA | NA | 864 | NA | NA | 1.393 | 867 | 40 | 3% |
| 30 | NA | 860 | NA | NA | NA | 860 | NA | NA | 1.336 | 866 | 1 | 0% | 1.532 | 870 | 34 | 2% |
| 31 | NA | 863 | NA | NA | NA | 863 | NA | NA | 1.504 | 870 | 1 | 0% | 1.680 | 873 | 22 | 1% |
| 32 | NA | 867 | NA | NA | NA | 867 | NA | NA | NA | 873 | NA | NA | 1.841 | 876 | 24 | 2% |
| 33 | NA | 872 | NA | NA | NA | 872 | NA | NA | NA | 877 | NA | NA | 2.017 | 879 | 14 | 1% |
| 34 | NA | 877 | NA | NA | NA | 877 | NA | NA | NA | 882 | NA | NA | 2.214 | 883 | 13 | 1% |
| 35 | NA | 885 | NA | NA | NA | 885 | NA | NA | NA | 888 | NA | NA | 2.438 | 887 | 6 | 0% |
| 36 | NA | 899 | NA | NA | NA | 899 | NA | NA | NA | 896 | NA | NA | 2.703 | 892 | 4 | 0% |
| 37 | NA | 899 | NA | NA | NA | 899 | NA | NA | NA | 899 | NA | NA | 3.033 | 898 | 3 | 0% |
| 38 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 899 | NA | NA | 3.480 | 899 | 3 | 0% |
| 39 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4.214 | 899 | 1 | 0% |
| 40 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 899 | NA | NA |

**Table 7.B.14 Raw-Score-to-Scale-Score Distribution for Mathematics, Grade Eleven**

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NA | NA | 900 | 499 | 70% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | 901 | 130 | 18% | NA | 901 | 6 | 0% | NA | NA | NA | NA | NA | NA | NA | NA |
| 0 | -6.000 | 903 | 14 | 2% | NA | 903 | NA | NA | NA | 903 | NA | NA | NA | 903 | NA | NA |
| 1 | -3.773 | 903 | 38 | 5% | NA | 903 | NA | NA | NA | 903 | NA | NA | NA | 903 | NA | NA |
| 2 | -3.041 | 903 | 11 | 2% | -3.041 | 903 | 14 | 1% | NA | 903 | NA | NA | NA | 903 | NA | NA |
| 3 | -2.600 | 903 | 4 | 1% | -2.600 | 903 | 17 | 1% | NA | 903 | NA | NA | NA | 903 | NA | NA |
| 4 | -2.280 | 903 | 4 | 1% | -2.280 | 903 | 18 | 1% | NA | 904 | NA | NA | NA | 909 | NA | NA |
| 5 | -2.026 | 903 | 4 | 1% | -2.026 | 903 | 25 | 2% | NA | 908 | NA | NA | NA | 913 | NA | NA |
| 6 | -1.816 | 907 | 2 | 0% | -1.816 | 907 | 18 | 1% | NA | 912 | NA | NA | NA | 917 | NA | NA |
| 7 | -1.635 | 911 | 1 | 0% | -1.635 | 911 | 21 | 2% | -1.370 | 916 | 4 | 0% | NA | 920 | NA | NA |
| 8 | -1.476 | 914 | 1 | 0% | -1.476 | 914 | 26 | 2% | -1.214 | 919 | 7 | 1% | NA | 923 | NA | NA |
| 9 | -1.333 | 916 | 1 | 0% | -1.333 | 916 | 32 | 3% | -1.072 | 921 | 6 | 0% | NA | 926 | NA | NA |
| 10 | NA | 919 | NA | NA | -1.202 | 919 | 36 | 3% | -0.941 | 924 | 1 | 0% | -0.702 | 928 | 2 | 0% |
| 11 | NA | 921 | NA | NA | -1.081 | 921 | 56 | 5% | -0.818 | 926 | 11 | 1% | -0.578 | 930 | 2 | 0% |
| 12 | NA | 923 | NA | NA | -0.968 | 923 | 86 | 7% | -0.703 | 928 | 16 | 1% | -0.459 | 933 | 3 | 0% |
| 13 | NA | 925 | NA | NA | -0.862 | 925 | 85 | 7% | -0.592 | 930 | 25 | 2% | -0.344 | 935 | 2 | 0% |
| 14 | NA | 927 | NA | NA | -0.760 | 927 | 87 | 7% | -0.485 | 932 | 65 | 5% | -0.232 | 937 | 9 | 1% |
| 15 | NA | 929 | NA | NA | -0.662 | 929 | 109 | 9% | -0.381 | 934 | 93 | 7% | -0.122 | 939 | 19 | 2% |
| 16 | NA | 931 | NA | NA | -0.566 | 931 | 108 | 9% | -0.279 | 936 | 117 | 9% | -0.012 | 941 | 27 | 2% |
| 17 | NA | 932 | NA | NA | -0.473 | 932 | 90 | 7% | -0.177 | 938 | 133 | 10% | 0.098 | 943 | 29 | 2% |
| 18 | NA | 934 | NA | NA | -0.381 | 934 | 98 | 8% | -0.077 | 940 | 144 | 11% | 0.208 | 945 | 54 | 5% |

| Raw Score | Early Exit Theta | Early Exit Scale Score | Early Exit N | Early Exit Percent | Easy Pathway Theta | Easy Pathway Scale Score | Easy Pathway N | Easy Pathway Percent | Moderate Pathway Theta | Moderate Pathway Scale Score | Moderate Pathway N | Moderate Pathway Percent | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | NA | 936 | NA | NA | -0.289 | 936 | 63 | 5% | 0.025 | 942 | 151 | 11% | 0.319 | 947 | 81 | 7% |
| 20 | NA | 938 | NA | NA | -0.197 | 938 | 64 | 5% | 0.127 | 944 | 145 | 11% | 0.432 | 949 | 85 | 7% |
| 21 | NA | 939 | NA | NA | -0.103 | 939 | 45 | 4% | 0.232 | 946 | 135 | 10% | 0.548 | 952 | 88 | 7% |
| 22 | NA | 941 | NA | NA | -0.008 | 941 | 37 | 3% | 0.340 | 948 | 97 | 7% | 0.668 | 954 | 135 | 11% |
| 23 | NA | 943 | NA | NA | 0.090 | 943 | 25 | 2% | 0.453 | 950 | 75 | 6% | 0.792 | 956 | 120 | 10% |
| 24 | NA | 945 | NA | NA | 0.192 | 945 | 26 | 2% | 0.571 | 952 | 49 | 4% | 0.921 | 959 | 116 | 10% |
| 25 | NA | 947 | NA | NA | 0.299 | 947 | 13 | 1% | 0.697 | 954 | 31 | 2% | 1.058 | 961 | 92 | 8% |
| 26 | NA | 949 | NA | NA | 0.412 | 949 | 9 | 1% | 0.833 | 957 | 19 | 1% | 1.204 | 964 | 91 | 8% |
| 27 | NA | 951 | NA | NA | 0.535 | 951 | 2 | 0% | 0.981 | 960 | 11 | 1% | 1.362 | 967 | 57 | 5% |
| 28 | NA | 954 | NA | NA | NA | 954 | NA | NA | 1.146 | 963 | 1 | 0% | 1.534 | 970 | 49 | 4% |
| 29 | NA | 957 | NA | NA | NA | 957 | NA | NA | NA | 966 | NA | NA | 1.728 | 974 | 39 | 3% |
| 30 | NA | 960 | NA | NA | NA | 960 | NA | NA | NA | 970 | NA | NA | 1.950 | 978 | 24 | 2% |
| 31 | NA | 964 | NA | NA | NA | 964 | NA | NA | NA | 975 | NA | NA | 2.215 | 983 | 17 | 1% |
| 32 | NA | 968 | NA | NA | NA | 968 | NA | NA | NA | 981 | NA | NA | 2.546 | 989 | 14 | 1% |
| 33 | NA | 974 | NA | NA | NA | 974 | NA | NA | NA | 990 | NA | NA | 2.997 | 997 | 11 | 1% |
| 34 | NA | 982 | NA | NA | NA | 982 | NA | NA | NA | 999 | NA | NA | 3.739 | 999 | 9 | 1% |
| 35 | NA | 995 | NA | NA | NA | 995 | NA | NA | NA | 999 | NA | NA | 6.000 | 999 | 1 | 0% |
| 36 | NA | 999 | NA | NA | NA | 999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

# Appendix 7.C: Scale Scores

**Table 7.C.1 Percentiles of Scale Scores in English Language Arts/Literacy (ELA)**

| Percentile | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|
| p1 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| p10 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| p20 | 303 | 415 | 517 | 626 | 715 | 828 | 930 |
| p30 | 330 | 430 | 530 | 634 | 729 | 838 | 938 |
| p40 | 338 | 437 | 538 | 639 | 736 | 842 | 944 |
| p50 | 344 | 441 | 543 | 642 | 742 | 845 | 947 |
| p60 | 349 | 447 | 549 | 647 | 748 | 848 | 950 |
| p70 | 355 | 453 | 554 | 651 | 752 | 851 | 956 |
| p80 | 362 | 458 | 558 | 655 | 757 | 856 | 960 |
| p90 | 370 | 465 | 565 | 661 | 766 | 860 | 967 |
| p99 | 393 | 483 | 584 | 672 | 782 | 875 | 983 |

**Table 7.C.2 Percentiles of Scale Scores in Mathematics**

| Percentile | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|
| p1 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| p10 | 300 | 400 | 500 | 600 | 700 | 800 | 900 |
| p20 | 303 | 403 | 504 | 603 | 717 | 805 | 916 |
| p30 | 330 | 427 | 529 | 631 | 730 | 830 | 929 |
| p40 | 336 | 433 | 536 | 635 | 734 | 835 | 934 |
| p50 | 339 | 438 | 539 | 639 | 739 | 839 | 938 |
| p60 | 343 | 442 | 543 | 642 | 743 | 843 | 942 |
| p70 | 347 | 445 | 547 | 645 | 745 | 846 | 947 |
| p80 | 351 | 449 | 552 | 650 | 750 | 850 | 952 |
| p90 | 358 | 457 | 558 | 656 | 757 | 856 | 959 |
| p99 | 380 | 478 | 578 | 679 | 782 | 876 | 983 |

**Note:** In Table 7.C.3 through Table 7.C.16, an expression that opens and closes with a bracket indicates that a value is greater than or equal to the first number and is less than or equal to the second number. For example, "[345, 347]" indicates a value greater than or equal to 345 but less than or equal to 347.

**Table 7.C.3 Frequency Distribution of Overall Scale Scores—ELA, Grade Three**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [300, 302] | 975 | 975 | 19% | 19% |
| [303, 305] | 88 | 1,063 | 2% | 21% |
| [306, 308] | 19 | 1,082 | 0% | 21% |
| [309, 311] | 0 | 1,082 | 0% | 21% |
| [312, 314] | 17 | 1,099 | 0% | 22% |
| [315, 317] | 61 | 1,160 | 1% | 23% |
| [318, 320] | 48 | 1,208 | 1% | 24% |
| [321, 323] | 36 | 1,244 | 1% | 24% |
| [324, 326] | 119 | 1,363 | 2% | 27% |
| [327, 329] | 75 | 1,438 | 1% | 28% |
| [330, 332] | 183 | 1,621 | 4% | 32% |
| [333, 335] | 137 | 1,758 | 3% | 34% |
| [336, 338] | 318 | 2,076 | 6% | 41% |
| [339, 341] | 290 | 2,366 | 6% | 46% |
| [342, 344] | 227 | 2,593 | 4% | 51% |
| [345, 347] | 364 | 2,957 | 7% | 58% |
| [348, 350] | 213 | 3,170 | 4% | 62% |
| [351, 353] | 351 | 3,521 | 7% | 69% |
| [354, 356] | 222 | 3,743 | 4% | 73% |
| [357, 359] | 269 | 4,012 | 5% | 79% |
| [360, 362] | 150 | 4,162 | 3% | 82% |
| [363, 365] | 226 | 4,388 | 4% | 86% |
| [366, 368] | 150 | 4,538 | 3% | 89% |
| [369, 371] | 138 | 4,676 | 3% | 92% |
| [372, 374] | 133 | 4,809 | 3% | 94% |
| [375, 377] | 86 | 4,895 | 2% | 96% |
| [378, 380] | 23 | 4,918 | 0% | 96% |
| [381, 383] | 68 | 4,986 | 1% | 98% |
| [384, 386] | 57 | 5,043 | 1% | 99% |
| [387, 389] | 0 | 5,043 | 0% | 99% |
| [390, 392] | 0 | 5,043 | 0% | 99% |
| [393, 395] | 33 | 5,076 | 1% | 99% |
| [396, 398] | 0 | 5,076 | 0% | 99% |
| [399, 399] | 26 | 5,102 | 1% | 100% |

**Table 7.C.4 Frequency Distribution of Overall Scale Scores—ELA, Grade Four**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [400, 402] | 869 | 869 | 16% | 16% |
| [403, 405] | 120 | 989 | 2% | 19% |
| [406, 408] | 20 | 1,009 | 0% | 19% |
| [409, 411] | 22 | 1,031 | 0% | 19% |
| [412, 414] | 18 | 1,049 | 0% | 20% |
| [415, 417] | 48 | 1,097 | 1% | 21% |
| [418, 420] | 35 | 1,132 | 1% | 21% |
| [421, 423] | 60 | 1,192 | 1% | 22% |
| [424, 426] | 147 | 1,339 | 3% | 25% |
| [427, 429] | 127 | 1,466 | 2% | 28% |
| [430, 432] | 302 | 1,768 | 6% | 33% |
| [433, 435] | 348 | 2,116 | 7% | 40% |
| [436, 438] | 225 | 2,341 | 4% | 44% |
| [439, 441] | 376 | 2,717 | 7% | 51% |
| [442, 444] | 212 | 2,929 | 4% | 55% |
| [445, 447] | 376 | 3,305 | 7% | 62% |
| [448, 450] | 193 | 3,498 | 4% | 66% |
| [451, 453] | 423 | 3,921 | 8% | 74% |
| [454, 456] | 214 | 4,135 | 4% | 78% |
| [457, 459] | 213 | 4,348 | 4% | 82% |
| [460, 462] | 281 | 4,629 | 5% | 87% |
| [463, 465] | 205 | 4,834 | 4% | 91% |
| [466, 468] | 157 | 4,991 | 3% | 94% |
| [469, 471] | 104 | 5,095 | 2% | 96% |
| [472, 474] | 79 | 5,174 | 1% | 97% |
| [475, 477] | 3 | 5,177 | 0% | 97% |
| [478, 480] | 74 | 5,251 | 1% | 99% |
| [481, 483] | 34 | 5,285 | 1% | 99% |
| [484, 486] | 0 | 5,285 | 0% | 99% |
| [487, 489] | 0 | 5,285 | 0% | 99% |
| [490, 492] | 25 | 5,310 | 0% | 100% |
| [493, 495] | 0 | 5,310 | 0% | 100% |
| [496, 498] | 0 | 5,310 | 0% | 100% |
| [499, 499] | 14 | 5,324 | 0% | 100% |

**Table 7.C.5 Frequency Distribution of Overall Scale Scores—ELA, Grade Five**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [500, 502] | 865 | 865 | 16% | 16% |
| [503, 505] | 117 | 982 | 2% | 18% |
| [506, 508] | 8 | 990 | 0% | 19% |
| [509, 511] | 21 | 1,011 | 0% | 19% |
| [512, 514] | 20 | 1,031 | 0% | 19% |
| [515, 517] | 53 | 1,084 | 1% | 20% |
| [518, 520] | 51 | 1,135 | 1% | 21% |
| [521, 523] | 67 | 1,202 | 1% | 23% |
| [524, 526] | 169 | 1,371 | 3% | 26% |
| [527, 529] | 109 | 1,480 | 2% | 28% |
| [530, 532] | 288 | 1,768 | 5% | 33% |
| [533, 535] | 180 | 1,948 | 3% | 37% |
| [536, 538] | 297 | 2,245 | 6% | 42% |
| [539, 541] | 263 | 2,508 | 5% | 47% |
| [542, 544] | 227 | 2,735 | 4% | 51% |
| [545, 547] | 356 | 3,091 | 7% | 58% |
| [548, 550] | 257 | 3,348 | 5% | 63% |
| [551, 553] | 376 | 3,724 | 7% | 70% |
| [554, 556] | 378 | 4,102 | 7% | 77% |
| [557, 559] | 240 | 4,342 | 5% | 81% |
| [560, 562] | 379 | 4,721 | 7% | 89% |
| [563, 565] | 188 | 4,909 | 4% | 92% |
| [566, 568] | 138 | 5,047 | 3% | 95% |
| [569, 571] | 98 | 5,145 | 2% | 97% |
| [572, 574] | 59 | 5,204 | 1% | 98% |
| [575, 577] | 6 | 5,210 | 0% | 98% |
| [578, 580] | 54 | 5,264 | 1% | 99% |
| [581, 583] | 0 | 5,264 | 0% | 99% |
| [584, 586] | 25 | 5,289 | 0% | 99% |
| [587, 589] | 0 | 5,289 | 0% | 99% |
| [590, 592] | 27 | 5,316 | 1% | 100% |
| [593, 595] | 0 | 5,316 | 0% | 100% |
| [596, 598] | 0 | 5,316 | 0% | 100% |
| [599, 599] | 14 | 5,330 | 0% | 100% |

**Table 7.C.6 Frequency Distribution of Overall Scale Scores—ELA, Grade Six**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [600, 602] | 807 | 807 | 15% | 15% |
| [603, 605] | 42 | 849 | 1% | 16% |
| [606, 608] | 18 | 867 | 0% | 16% |
| [609, 611] | 0 | 867 | 0% | 16% |
| [612, 614] | 25 | 892 | 0% | 17% |
| [615, 617] | 35 | 927 | 1% | 17% |
| [618, 620] | 35 | 962 | 1% | 18% |
| [621, 623] | 64 | 1,026 | 1% | 19% |
| [624, 626] | 78 | 1,104 | 1% | 20% |
| [627, 629] | 132 | 1,236 | 2% | 23% |
| [630, 632] | 146 | 1,382 | 3% | 26% |
| [633, 635] | 281 | 1,663 | 5% | 31% |
| [636, 638] | 371 | 2,034 | 7% | 38% |
| [639, 641] | 425 | 2,459 | 8% | 46% |
| [642, 644] | 463 | 2,922 | 9% | 54% |
| [645, 647] | 471 | 3,393 | 9% | 63% |
| [648, 650] | 313 | 3,706 | 6% | 69% |
| [651, 653] | 460 | 4,166 | 9% | 77% |
| [654, 656] | 239 | 4,405 | 4% | 82% |
| [657, 659] | 387 | 4,792 | 7% | 89% |
| [660, 662] | 168 | 4,960 | 3% | 92% |
| [663, 665] | 156 | 5,116 | 3% | 95% |
| [666, 668] | 98 | 5,214 | 2% | 97% |
| [669, 671] | 79 | 5,293 | 1% | 98% |
| [672, 674] | 45 | 5,338 | 1% | 99% |
| [675, 677] | 28 | 5,366 | 1% | 100% |
| [678, 680] | 0 | 5,366 | 0% | 100% |
| [681, 683] | 16 | 5,382 | 0% | 100% |
| [684, 686] | 0 | 5,382 | 0% | 100% |
| [687, 689] | 0 | 5,382 | 0% | 100% |
| [690, 692] | 4 | 5,386 | 0% | 100% |
| [693, 695] | 0 | 5,386 | 0% | 100% |
| [696, 698] | 0 | 5,386 | 0% | 100% |
| [699, 699] | 0 | 5,386 | 0% | 100% |

**Table 7.C.7 Frequency Distribution of Overall Scale Scores—ELA, Grade Seven**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [700, 702] | 826 | 826 | 15% | 15% |
| [703, 705] | 167 | 993 | 3% | 18% |
| [706, 708] | 20 | 1,013 | 0% | 19% |
| [709, 711] | 25 | 1,038 | 0% | 19% |
| [712, 714] | 25 | 1,063 | 0% | 20% |
| [715, 717] | 34 | 1,097 | 1% | 20% |
| [718, 720] | 117 | 1,214 | 2% | 23% |
| [721, 723] | 60 | 1,274 | 1% | 24% |
| [724, 726] | 101 | 1,375 | 2% | 26% |
| [727, 729] | 263 | 1,638 | 5% | 30% |
| [730, 732] | 165 | 1,803 | 3% | 33% |
| [733, 735] | 188 | 1,991 | 3% | 37% |
| [736, 738] | 333 | 2,324 | 6% | 43% |
| [739, 741] | 360 | 2,684 | 7% | 50% |
| [742, 744] | 289 | 2,973 | 5% | 55% |
| [745, 747] | 233 | 3,206 | 4% | 60% |
| [748, 750] | 438 | 3,644 | 8% | 68% |
| [751, 753] | 276 | 3,920 | 5% | 73% |
| [754, 756] | 217 | 4,137 | 4% | 77% |
| [757, 759] | 281 | 4,418 | 5% | 82% |
| [760, 762] | 191 | 4,609 | 4% | 86% |
| [763, 765] | 191 | 4,800 | 4% | 89% |
| [766, 768] | 245 | 5,045 | 5% | 94% |
| [769, 771] | 122 | 5,167 | 2% | 96% |
| [772, 774] | 77 | 5,244 | 1% | 97% |
| [775, 777] | 0 | 5,244 | 0% | 97% |
| [778, 780] | 49 | 5,293 | 1% | 98% |
| [781, 783] | 45 | 5,338 | 1% | 99% |
| [784, 786] | 0 | 5,338 | 0% | 99% |
| [787, 789] | 20 | 5,358 | 0% | 100% |
| [790, 792] | 0 | 5,358 | 0% | 100% |
| [793, 795] | 17 | 5,375 | 0% | 100% |
| [796, 798] | 0 | 5,375 | 0% | 100% |
| [799, 799] | 8 | 5,383 | 0% | 100% |

**Table 7.C.8 Frequency Distribution of Overall Scale Scores—ELA, Grade Eight**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [800, 802] | 863 | 863 | 16% | 16% |
| [803, 805] | 70 | 933 | 1% | 18% |
| [806, 808] | 0 | 933 | 0% | 18% |
| [809, 811] | 17 | 950 | 0% | 18% |
| [812, 814] | 14 | 964 | 0% | 18% |
| [815, 817] | 8 | 972 | 0% | 19% |
| [818, 820] | 6 | 978 | 0% | 19% |
| [821, 823] | 15 | 993 | 0% | 19% |
| [824, 826] | 39 | 1,032 | 1% | 20% |
| [827, 829] | 30 | 1,062 | 1% | 20% |
| [830, 832] | 105 | 1,167 | 2% | 22% |
| [833, 835] | 206 | 1,373 | 4% | 26% |
| [836, 838] | 278 | 1,651 | 5% | 32% |
| [839, 841] | 422 | 2,073 | 8% | 40% |
| [842, 844] | 454 | 2,527 | 9% | 48% |
| [845, 847] | 488 | 3,015 | 9% | 58% |
| [848, 850] | 426 | 3,441 | 8% | 66% |
| [851, 853] | 508 | 3,949 | 10% | 75% |
| [854, 856] | 451 | 4,400 | 9% | 84% |
| [857, 859] | 165 | 4,565 | 3% | 87% |
| [860, 862] | 287 | 4,852 | 5% | 93% |
| [863, 865] | 109 | 4,961 | 2% | 95% |
| [866, 868] | 85 | 5,046 | 2% | 96% |
| [869, 871] | 54 | 5,100 | 1% | 97% |
| [872, 874] | 51 | 5,151 | 1% | 98% |
| [875, 877] | 44 | 5,195 | 1% | 99% |
| [878, 880] | 24 | 5,219 | 0% | 100% |
| [881, 883] | 0 | 5,219 | 0% | 100% |
| [884, 886] | 16 | 5,235 | 0% | 100% |
| [887, 889] | 0 | 5,235 | 0% | 100% |
| [890, 892] | 0 | 5,235 | 0% | 100% |
| [893, 895] | 2 | 5,237 | 0% | 100% |
| [896, 898] | 0 | 5,237 | 0% | 100% |
| [899, 899] | 1 | 5,238 | 0% | 100% |

**Table 7.C.9 Frequency Distribution of Overall Scale Scores—ELA, Grade Eleven**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [900, 902] | 617 | 617 | 14% | 14% |
| [903, 905] | 74 | 691 | 2% | 16% |
| [906, 908] | 17 | 708 | 0% | 16% |
| [909, 911] | 9 | 717 | 0% | 16% |
| [912, 914] | 5 | 722 | 0% | 16% |
| [915, 917] | 11 | 733 | 0% | 16% |
| [918, 920] | 12 | 745 | 0% | 17% |
| [921, 923] | 17 | 762 | 0% | 17% |
| [924, 926] | 65 | 827 | 1% | 19% |
| [927, 929] | 41 | 868 | 1% | 19% |
| [930, 932] | 108 | 976 | 2% | 22% |
| [933, 935] | 179 | 1,155 | 4% | 26% |
| [936, 938] | 215 | 1,370 | 5% | 31% |
| [939, 941] | 249 | 1,619 | 6% | 36% |
| [942, 944] | 335 | 1,954 | 8% | 44% |
| [945, 947] | 378 | 2,332 | 8% | 52% |
| [948, 950] | 390 | 2,722 | 9% | 61% |
| [951, 953] | 198 | 2,920 | 4% | 66% |
| [954, 956] | 362 | 3,282 | 8% | 74% |
| [957, 959] | 228 | 3,510 | 5% | 79% |
| [960, 962] | 242 | 3,752 | 5% | 84% |
| [963, 965] | 210 | 3,962 | 5% | 89% |
| [966, 968] | 103 | 4,065 | 2% | 91% |
| [969, 971] | 118 | 4,183 | 3% | 94% |
| [972, 974] | 86 | 4,269 | 2% | 96% |
| [975, 977] | 72 | 4,341 | 2% | 97% |
| [978, 980] | 52 | 4,393 | 1% | 99% |
| [981, 983] | 44 | 4,437 | 1% | 100% |
| [984, 986] | 0 | 4,437 | 0% | 100% |
| [987, 989] | 12 | 4,449 | 0% | 100% |
| [990, 992] | 0 | 4,449 | 0% | 100% |
| [993, 995] | 0 | 4,449 | 0% | 100% |
| [996, 998] | 6 | 4,455 | 0% | 100% |
| [999, 999] | 2 | 4,457 | 0% | 100% |

**Table 7.C.10 Frequency Distribution of Overall Scale Scores—Mathematics, Grade Three**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [300, 302] | 989 | 989 | 19% | 19% |
| [303, 305] | 134 | 1,123 | 3% | 22% |
| [306, 308] | 23 | 1,146 | 0% | 22% |
| [309, 311] | 20 | 1,166 | 0% | 23% |
| [312, 314] | 9 | 1,175 | 0% | 23% |
| [315, 317] | 29 | 1,204 | 1% | 24% |
| [318, 320] | 76 | 1,280 | 1% | 25% |
| [321, 323] | 61 | 1,341 | 1% | 26% |
| [324, 326] | 80 | 1,421 | 2% | 28% |
| [327, 329] | 105 | 1,526 | 2% | 30% |
| [330, 332] | 304 | 1,830 | 6% | 36% |
| [333, 335] | 199 | 2,029 | 4% | 40% |
| [336, 338] | 316 | 2,345 | 6% | 46% |
| [339, 341] | 512 | 2,857 | 10% | 56% |
| [342, 344] | 322 | 3,179 | 6% | 62% |
| [345, 347] | 419 | 3,598 | 8% | 71% |
| [348, 350] | 244 | 3,842 | 5% | 75% |
| [351, 353] | 531 | 4,373 | 10% | 86% |
| [354, 356] | 178 | 4,551 | 3% | 89% |
| [357, 359] | 143 | 4,694 | 3% | 92% |
| [360, 362] | 102 | 4,796 | 2% | 94% |
| [363, 365] | 85 | 4,881 | 2% | 96% |
| [366, 368] | 64 | 4,945 | 1% | 97% |
| [369, 371] | 42 | 4,987 | 1% | 98% |
| [372, 374] | 38 | 5,025 | 1% | 99% |
| [375, 377] | 14 | 5,039 | 0% | 99% |
| [378, 380] | 22 | 5,061 | 0% | 99% |
| [381, 383] | 0 | 5,061 | 0% | 99% |
| [384, 386] | 10 | 5,071 | 0% | 99% |
| [387, 389] | 13 | 5,084 | 0% | 100% |
| [390, 392] | 0 | 5,084 | 0% | 100% |
| [393, 395] | 4 | 5,088 | 0% | 100% |
| [396, 398] | 0 | 5,088 | 0% | 100% |
| [399, 399] | 13 | 5,101 | 0% | 100% |

**Table 7.C.11 Frequency Distribution of Overall Scale Scores—Mathematics, Grade Four**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [400, 402] | 938 | 938 | 18% | 18% |
| [403, 405] | 156 | 1,094 | 3% | 21% |
| [406, 408] | 0 | 1,094 | 0% | 21% |
| [409, 411] | 31 | 1,125 | 1% | 21% |
| [412, 414] | 34 | 1,159 | 1% | 22% |
| [415, 417] | 97 | 1,256 | 2% | 24% |
| [418, 420] | 53 | 1,309 | 1% | 25% |
| [421, 423] | 85 | 1,394 | 2% | 26% |
| [424, 426] | 88 | 1,482 | 2% | 28% |
| [427, 429] | 283 | 1,765 | 5% | 33% |
| [430, 432] | 176 | 1,941 | 3% | 37% |
| [433, 435] | 481 | 2,422 | 9% | 46% |
| [436, 438] | 287 | 2,709 | 5% | 51% |
| [439, 441] | 418 | 3,127 | 8% | 59% |
| [442, 444] | 343 | 3,470 | 6% | 65% |
| [445, 447] | 572 | 4,042 | 11% | 76% |
| [448, 450] | 239 | 4,281 | 5% | 81% |
| [451, 453] | 216 | 4,497 | 4% | 85% |
| [454, 456] | 194 | 4,691 | 4% | 88% |
| [457, 459] | 179 | 4,870 | 3% | 92% |
| [460, 462] | 176 | 5,046 | 3% | 95% |
| [463, 465] | 92 | 5,138 | 2% | 97% |
| [466, 468] | 55 | 5,193 | 1% | 98% |
| [469, 471] | 36 | 5,229 | 1% | 98% |
| [472, 474] | 6 | 5,235 | 0% | 99% |
| [475, 477] | 17 | 5,252 | 0% | 99% |
| [478, 480] | 23 | 5,275 | 0% | 99% |
| [481, 483] | 15 | 5,290 | 0% | 100% |
| [484, 486] | 0 | 5,290 | 0% | 100% |
| [487, 489] | 7 | 5,297 | 0% | 100% |
| [490, 492] | 0 | 5,297 | 0% | 100% |
| [493, 495] | 3 | 5,300 | 0% | 100% |
| [496, 498] | 0 | 5,300 | 0% | 100% |
| [499, 499] | 9 | 5,309 | 0% | 100% |

**Table 7.C.12 Frequency Distribution of Overall Scale Scores—Mathematics, Grade Five**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [500, 502] | 946 | 946 | 18% | 18% |
| [503, 505] | 145 | 1,091 | 3% | 21% |
| [506, 508] | 24 | 1,115 | 0% | 21% |
| [509, 511] | 0 | 1,115 | 0% | 21% |
| [512, 514] | 33 | 1,148 | 1% | 22% |
| [515, 517] | 32 | 1,180 | 1% | 22% |
| [518, 520] | 53 | 1,233 | 1% | 23% |
| [521, 523] | 145 | 1,378 | 3% | 26% |
| [524, 526] | 94 | 1,472 | 2% | 28% |
| [527, 529] | 173 | 1,645 | 3% | 31% |
| [530, 532] | 255 | 1,900 | 5% | 36% |
| [533, 535] | 209 | 2,109 | 4% | 40% |
| [536, 538] | 544 | 2,653 | 10% | 50% |
| [539, 541] | 384 | 3,037 | 7% | 57% |
| [542, 544] | 311 | 3,348 | 6% | 63% |
| [545, 547] | 548 | 3,896 | 10% | 73% |
| [548, 550] | 252 | 4,148 | 5% | 78% |
| [551, 553] | 285 | 4,433 | 5% | 83% |
| [554, 556] | 288 | 4,721 | 5% | 89% |
| [557, 559] | 145 | 4,866 | 3% | 91% |
| [560, 562] | 103 | 4,969 | 2% | 93% |
| [563, 565] | 77 | 5,046 | 1% | 95% |
| [566, 568] | 131 | 5,177 | 2% | 97% |
| [569, 571] | 41 | 5,218 | 1% | 98% |
| [572, 574] | 36 | 5,254 | 1% | 99% |
| [575, 577] | 0 | 5,254 | 0% | 99% |
| [578, 580] | 27 | 5,281 | 1% | 99% |
| [581, 583] | 12 | 5,293 | 0% | 100% |
| [584, 586] | 5 | 5,298 | 0% | 100% |
| [587, 589] | 0 | 5,298 | 0% | 100% |
| [590, 592] | 11 | 5,309 | 0% | 100% |
| [593, 595] | 0 | 5,309 | 0% | 100% |
| [596, 598] | 2 | 5,311 | 0% | 100% |
| [599, 599] | 8 | 5,319 | 0% | 100% |

**Table 7.C.13 Frequency Distribution of Overall Scale Scores—Mathematics, Grade Six**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [600, 602] | 980 | 980 | 18% | 18% |
| [603, 605] | 96 | 1,076 | 2% | 20% |
| [606, 608] | 19 | 1,095 | 0% | 20% |
| [609, 611] | 0 | 1,095 | 0% | 20% |
| [612, 614] | 18 | 1,113 | 0% | 21% |
| [615, 617] | 29 | 1,142 | 1% | 21% |
| [618, 620] | 28 | 1,170 | 1% | 22% |
| [621, 623] | 49 | 1,219 | 1% | 23% |
| [624, 626] | 77 | 1,296 | 1% | 24% |
| [627, 629] | 228 | 1,524 | 4% | 28% |
| [630, 632] | 197 | 1,721 | 4% | 32% |
| [633, 635] | 470 | 2,191 | 9% | 41% |
| [636, 638] | 299 | 2,490 | 6% | 46% |
| [639, 641] | 693 | 3,183 | 13% | 59% |
| [642, 644] | 403 | 3,586 | 8% | 67% |
| [645, 647] | 286 | 3,872 | 5% | 72% |
| [648, 650] | 489 | 4,361 | 9% | 81% |
| [651, 653] | 198 | 4,559 | 4% | 85% |
| [654, 656] | 279 | 4,838 | 5% | 90% |
| [657, 659] | 140 | 4,978 | 3% | 93% |
| [660, 662] | 73 | 5,051 | 1% | 94% |
| [663, 665] | 86 | 5,137 | 2% | 96% |
| [666, 668] | 110 | 5,247 | 2% | 98% |
| [669, 671] | 0 | 5,247 | 0% | 98% |
| [672, 674] | 32 | 5,279 | 1% | 98% |
| [675, 677] | 31 | 5,310 | 1% | 99% |
| [678, 680] | 23 | 5,333 | 0% | 99% |
| [681, 683] | 1 | 5,334 | 0% | 99% |
| [684, 686] | 16 | 5,350 | 0% | 100% |
| [687, 689] | 0 | 5,350 | 0% | 100% |
| [690, 692] | 6 | 5,356 | 0% | 100% |
| [693, 695] | 0 | 5,356 | 0% | 100% |
| [696, 698] | 0 | 5,356 | 0% | 100% |
| [699, 699] | 10 | 5,366 | 0% | 100% |

**Table 7.C.14 Frequency Distribution of Overall Scale Scores—Mathematics, Grade Seven**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [700, 702] | 852 | 852 | 16% | 16% |
| [703, 705] | 141 | 993 | 3% | 18% |
| [706, 708] | 20 | 1,013 | 0% | 19% |
| [709, 711] | 11 | 1,024 | 0% | 19% |
| [712, 714] | 35 | 1,059 | 1% | 20% |
| [715, 717] | 26 | 1,085 | 0% | 20% |
| [718, 720] | 38 | 1,123 | 1% | 21% |
| [721, 723] | 109 | 1,232 | 2% | 23% |
| [724, 726] | 125 | 1,357 | 2% | 25% |
| [727, 729] | 210 | 1,567 | 4% | 29% |
| [730, 732] | 378 | 1,945 | 7% | 36% |
| [733, 735] | 284 | 2,229 | 5% | 41% |
| [736, 738] | 455 | 2,684 | 8% | 50% |
| [739, 741] | 510 | 3,194 | 9% | 59% |
| [742, 744] | 322 | 3,516 | 6% | 65% |
| [745, 747] | 360 | 3,876 | 7% | 72% |
| [748, 750] | 458 | 4,334 | 9% | 81% |
| [751, 753] | 222 | 4,556 | 4% | 85% |
| [754, 756] | 180 | 4,736 | 3% | 88% |
| [757, 759] | 252 | 4,988 | 5% | 93% |
| [760, 762] | 93 | 5,081 | 2% | 95% |
| [763, 765] | 70 | 5,151 | 1% | 96% |
| [766, 768] | 53 | 5,204 | 1% | 97% |
| [769, 771] | 38 | 5,242 | 1% | 98% |
| [772, 774] | 30 | 5,272 | 1% | 98% |
| [775, 777] | 0 | 5,272 | 0% | 98% |
| [778, 780] | 36 | 5,308 | 1% | 99% |
| [781, 783] | 22 | 5,330 | 0% | 99% |
| [784, 786] | 18 | 5,348 | 0% | 99% |
| [787, 789] | 0 | 5,348 | 0% | 99% |
| [790, 792] | 12 | 5,360 | 0% | 100% |
| [793, 795] | 0 | 5,360 | 0% | 100% |
| [796, 798] | 6 | 5,366 | 0% | 100% |
| [799, 799] | 9 | 5,375 | 0% | 100% |

**Table 7.C.15 Frequency Distribution of Overall Scale Scores—Mathematics, Grade Eight**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [800, 802] | 955 | 955 | 18% | 18% |
| [803, 805] | 91 | 1,046 | 2% | 20% |
| [806, 808] | 0 | 1,046 | 0% | 20% |
| [809, 811] | 15 | 1,061 | 0% | 20% |
| [812, 814] | 8 | 1,069 | 0% | 20% |
| [815, 817] | 25 | 1,094 | 0% | 21% |
| [818, 820] | 72 | 1,166 | 1% | 22% |
| [821, 823] | 60 | 1,226 | 1% | 23% |
| [824, 826] | 136 | 1,362 | 3% | 26% |
| [827, 829] | 165 | 1,527 | 3% | 29% |
| [830, 832] | 252 | 1,779 | 5% | 34% |
| [833, 835] | 436 | 2,215 | 8% | 42% |
| [836, 838] | 280 | 2,495 | 5% | 48% |
| [839, 841] | 578 | 3,073 | 11% | 59% |
| [842, 844] | 277 | 3,350 | 5% | 64% |
| [845, 847] | 532 | 3,882 | 10% | 74% |
| [848, 850] | 448 | 4,330 | 9% | 83% |
| [851, 853] | 178 | 4,508 | 3% | 86% |
| [854, 856] | 271 | 4,779 | 5% | 91% |
| [857, 859] | 100 | 4,879 | 2% | 93% |
| [860, 862] | 81 | 4,960 | 2% | 95% |
| [863, 865] | 103 | 5,063 | 2% | 97% |
| [866, 868] | 41 | 5,104 | 1% | 98% |
| [869, 871] | 35 | 5,139 | 1% | 98% |
| [872, 874] | 22 | 5,161 | 0% | 99% |
| [875, 877] | 24 | 5,185 | 0% | 99% |
| [878, 880] | 14 | 5,199 | 0% | 99% |
| [881, 883] | 13 | 5,212 | 0% | 100% |
| [884, 886] | 0 | 5,212 | 0% | 100% |
| [887, 889] | 6 | 5,218 | 0% | 100% |
| [890, 892] | 4 | 5,222 | 0% | 100% |
| [893, 895] | 0 | 5,222 | 0% | 100% |
| [896, 898] | 3 | 5,225 | 0% | 100% |
| [899, 899] | 4 | 5,229 | 0% | 100% |

**Table 7.C.16 Frequency Distribution of Overall Scale Scores—Mathematics, Grade Eleven**

| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| [900, 902] | 635 | 635 | 14% | 14% |
| [903, 905] | 149 | 784 | 3% | 18% |
| [906, 908] | 20 | 804 | 0% | 18% |
| [909, 911] | 22 | 826 | 0% | 19% |
| [912, 914] | 27 | 853 | 1% | 19% |
| [915, 917] | 37 | 890 | 1% | 20% |
| [918, 920] | 43 | 933 | 1% | 21% |
| [921, 923] | 148 | 1,081 | 3% | 24% |
| [924, 926] | 97 | 1,178 | 2% | 27% |
| [927, 929] | 214 | 1,392 | 5% | 31% |
| [930, 932] | 290 | 1,682 | 7% | 38% |
| [933, 935] | 196 | 1,878 | 4% | 42% |
| [936, 938] | 386 | 2,264 | 9% | 51% |
| [939, 941] | 272 | 2,536 | 6% | 57% |
| [942, 944] | 350 | 2,886 | 8% | 65% |
| [945, 947] | 309 | 3,195 | 7% | 72% |
| [948, 950] | 266 | 3,461 | 6% | 78% |
| [951, 953] | 139 | 3,600 | 3% | 81% |
| [954, 956] | 286 | 3,886 | 6% | 88% |
| [957, 959] | 135 | 4,021 | 3% | 91% |
| [960, 962] | 103 | 4,124 | 2% | 93% |
| [963, 965] | 92 | 4,216 | 2% | 95% |
| [966, 968] | 57 | 4,273 | 1% | 96% |
| [969, 971] | 49 | 4,322 | 1% | 97% |
| [972, 974] | 39 | 4,361 | 1% | 98% |
| [975, 977] | 0 | 4,361 | 0% | 98% |
| [978, 980] | 24 | 4,385 | 1% | 99% |
| [981, 983] | 17 | 4,402 | 0% | 99% |
| [984, 986] | 0 | 4,402 | 0% | 99% |
| [987, 989] | 14 | 4,416 | 0% | 100% |
| [990, 992] | 0 | 4,416 | 0% | 100% |
| [993, 995] | 0 | 4,416 | 0% | 100% |
| [996, 998] | 11 | 4,427 | 0% | 100% |
| [999, 999] | 10 | 4,437 | 0% | 100% |

# Appendix 7.D: Demographic Summaries

**Notes:**

- To protect privacy when the number of students in a student group is 10 or fewer, the summary statistics at the test and reporting levels are not reported and are presented as "NA" in the tables in appendix 7.D.
- Percentages in these tables may not sum up to 100 due to rounding.

**Table 7.D.1 Demographic Summary for ELA, Grade Three**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,102 | 340 | 25 | 51% | 28% | 21% |
| Male | 3,540 | 340 | 25 | 51% | 28% | 21% |
| Female | 1,562 | 340 | 25 | 51% | 28% | 22% |
| American Indian or Alaska Native | 34 | 342 | 26 | 38% | 32% | 29% |
| Asian | 398 | 336 | 23 | 58% | 29% | 14% |
| Native Hawaiian or Other Pacific Islander | 23 | 337 | 25 | 57% | 30% | 13% |
| Filipino | 131 | 336 | 24 | 54% | 34% | 11% |
| Hispanic or Latino | 2,921 | 340 | 25 | 50% | 28% | 22% |
| Black or African American | 388 | 340 | 25 | 52% | 26% | 22% |
| White | 957 | 340 | 26 | 51% | 24% | 24% |
| Two or more races | 250 | 338 | 24 | 51% | 32% | 17% |
| English only | 3,124 | 340 | 25 | 51% | 26% | 22% |
| Initial fluent English proficient | 36 | 332 | 26 | 58% | 33% | 8% |
| English learner | 1,764 | 341 | 24 | 49% | 30% | 21% |
| Reclassified fluent English proficient | 169 | 336 | 25 | 57% | 25% | 17% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,592 | 338 | 22 | 56% | 31% | 14% |
| Hearing impairment | 48 | 342 | 24 | 42% | 35% | 23% |
| Speech or language impairment | 205 | 357 | 18 | 19% | 34% | 48% |
| Visual impairment | 18 | 334 | 33 | 56% | 6% | 39% |
| Emotional disturbance | 23 | 361 | 14 | 17% | 35% | 48% |
| Orthopedic impairment | 172 | 326 | 27 | 67% | 21% | 12% |
| Other health impairment | 308 | 351 | 23 | 36% | 25% | 39% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Specific learning disability | 288 | 368 | 14 | 3% | 22% | 75% |
| Deaf-blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 260 | 319 | 22 | 82% | 14% | 3% |
| Autism | 2,159 | 338 | 24 | 54% | 28% | 17% |
| Traumatic brain injury | 26 | 337 | 25 | 54% | 31% | 15% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,666 | 336 | 25 | 58% | 25% | 17% |
| Economically disadvantaged | 3,436 | 342 | 25 | 48% | 29% | 23% |
| Migrant | 23 | 342 | 23 | 48% | 26% | 26% |
| Nonmigrant | 5,079 | 340 | 25 | 51% | 28% | 21% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 6 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 238 | 335 | 22 | 61% | 28% | 11% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 7 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 82 | 338 | 24 | 50% | 38% | 12% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 600 | 336 | 26 | 57% | 24% | 20% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 107 | 336 | 25 | 64% | 19% | 17% |
| White (Primary ethnicity—Not economically disadvantaged) | 501 | 337 | 25 | 58% | 24% | 18% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 125 | 337 | 24 | 52% | 31% | 17% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 28 | 343 | 26 | 36% | 32% | 32% |
| Asian (Primary ethnicity—Economically disadvantaged) | 160 | 338 | 24 | 52% | 30% | 18% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 16 | 342 | 22 | 50% | 38% | 13% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 49 | 333 | 22 | 61% | 29% | 10% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,321 | 342 | 25 | 48% | 29% | 23% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 281 | 342 | 25 | 47% | 29% | 23% |
| White (Primary ethnicity—Economically disadvantaged) | 456 | 344 | 27 | 44% | 25% | 31% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 125 | 339 | 24 | 50% | 33% | 17% |

**Table 7.D.2 Demographic Summary for ELA, Grade Four**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,324 | 438 | 23 | 55% | 27% | 18% |
| Male | 3,600 | 439 | 23 | 54% | 27% | 19% |
| Female | 1,724 | 438 | 22 | 57% | 26% | 18% |
| American Indian or Alaska Native | 30 | 448 | 22 | 37% | 33% | 30% |
| Asian | 419 | 434 | 21 | 64% | 26% | 10% |
| Native Hawaiian or Other Pacific Islander | 29 | 440 | 17 | 55% | 34% | 10% |
| Filipino | 126 | 429 | 23 | 63% | 29% | 8% |
| Hispanic or Latino | 3,049 | 439 | 23 | 53% | 28% | 19% |
| Black or African American | 418 | 437 | 23 | 59% | 25% | 16% |
| White | 1,020 | 439 | 23 | 55% | 24% | 21% |
| Two or more races | 233 | 434 | 24 | 60% | 21% | 18% |
| English only | 3,217 | 438 | 23 | 55% | 26% | 19% |
| Initial fluent English proficient | 48 | 434 | 22 | 67% | 23% | 10% |
| English learner | 1,792 | 438 | 22 | 55% | 28% | 17% |
| Reclassified fluent English proficient | 259 | 440 | 21 | 51% | 34% | 15% |
| To be determined | 5 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,786 | 436 | 20 | 62% | 26% | 11% |
| Hearing impairment | 53 | 446 | 22 | 30% | 42% | 28% |
| Speech or language impairment | 187 | 453 | 16 | 22% | 36% | 41% |
| Visual impairment | 22 | 431 | 29 | 64% | 23% | 14% |
| Emotional disturbance | 29 | 458 | 19 | 17% | 24% | 59% |
| Orthopedic impairment | 217 | 429 | 26 | 67% | 18% | 15% |
| Other health impairment | 308 | 447 | 21 | 38% | 31% | 31% |
| Specific learning disability | 394 | 461 | 14 | 8% | 33% | 59% |
| Deaf-blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 276 | 418 | 21 | 84% | 12% | 4% |
| Autism | 2,030 | 436 | 22 | 59% | 27% | 14% |
| Traumatic brain injury | 21 | 440 | 23 | 52% | 33% | 14% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,722 | 434 | 23 | 63% | 22% | 14% |
| Economically disadvantaged | 3,602 | 440 | 22 | 51% | 29% | 20% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 43 | 445 | 20 | 40% | 42% | 19% |
| Nonmigrant | 5,281 | 438 | 23 | 55% | 27% | 18% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 13 | 446 | 22 | 46% | 23% | 31% |
| Asian (Primary ethnicity—Not economically disadvantaged) | 248 | 432 | 20 | 70% | 23% | 7% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 10 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 80 | 426 | 23 | 71% | 21% | 8% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 592 | 435 | 24 | 61% | 23% | 16% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 114 | 432 | 22 | 69% | 24% | 7% |
| White (Primary ethnicity—Not economically disadvantaged) | 551 | 436 | 24 | 61% | 21% | 18% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 114 | 430 | 23 | 67% | 22% | 11% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 17 | 450 | 24 | 29% | 41% | 29% |
| Asian (Primary ethnicity—Economically disadvantaged) | 171 | 436 | 22 | 56% | 32% | 13% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 19 | 442 | 14 | 47% | 42% | 11% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 46 | 435 | 22 | 50% | 41% | 9% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,457 | 440 | 22 | 51% | 29% | 20% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 304 | 439 | 23 | 55% | 25% | 19% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 469 | 442 | 22 | 49% | 27% | 24% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 119 | 438 | 25 | 54% | 21% | 25% |

**Table 7.D.3 Demographic Summary for ELA, Grade Five**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,330 | 539 | 23 | 51% | 30% | 19% |
| Male | 3,643 | 539 | 23 | 51% | 30% | 19% |
| Female | 1,687 | 538 | 22 | 53% | 30% | 17% |
| American Indian or Alaska Native | 32 | 549 | 21 | 31% | 38% | 31% |
| Asian | 412 | 535 | 22 | 60% | 28% | 12% |
| Native Hawaiian or Other Pacific Islander | 27 | 532 | 24 | 56% | 37% | 7% |
| Filipino | 130 | 535 | 22 | 59% | 32% | 9% |
| Hispanic or Latino | 3,098 | 540 | 23 | 49% | 31% | 20% |
| Black or African American | 397 | 540 | 22 | 52% | 31% | 17% |
| White | 1,035 | 538 | 24 | 53% | 27% | 20% |
| Two or more races | 199 | 536 | 24 | 56% | 28% | 16% |
| English only | 3,095 | 538 | 23 | 52% | 29% | 19% |
| Initial fluent English proficient | 40 | 534 | 21 | 68% | 23% | 10% |
| English learner | 1,844 | 539 | 22 | 51% | 31% | 18% |
| Reclassified fluent English proficient | 342 | 543 | 22 | 41% | 37% | 23% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,893 | 537 | 21 | 56% | 31% | 13% |
| Hearing impairment | 41 | 545 | 21 | 32% | 49% | 20% |
| Speech or language impairment | 168 | 555 | 12 | 14% | 50% | 36% |
| Visual impairment | 24 | 522 | 26 | 71% | 17% | 13% |
| Emotional disturbance | 34 | 554 | 16 | 26% | 35% | 38% |
| Orthopedic impairment | 242 | 525 | 25 | 71% | 18% | 11% |
| Other health impairment | 273 | 547 | 22 | 38% | 33% | 30% |
| Specific learning disability | 397 | 560 | 13 | 10% | 35% | 55% |
| Deaf-blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 293 | 520 | 22 | 82% | 15% | 3% |
| Autism | 1,944 | 538 | 22 | 54% | 30% | 16% |
| Traumatic brain injury | 21 | 543 | 26 | 38% | 29% | 33% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,782 | 535 | 23 | 59% | 27% | 14% |
| Economically disadvantaged | 3,548 | 541 | 22 | 47% | 32% | 21% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 30 | 547 | 20 | 37% | 30% | 33% |
| Nonmigrant | 5,300 | 539 | 23 | 51% | 30% | 18% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 8 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 240 | 534 | 22 | 60% | 30% | 10% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 2 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 85 | 537 | 21 | 55% | 34% | 11% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 588 | 534 | 24 | 59% | 25% | 16% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 119 | 536 | 21 | 62% | 29% | 9% |
| White (Primary ethnicity—Not economically disadvantaged) | 621 | 536 | 23 | 59% | 25% | 16% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 119 | 533 | 23 | 61% | 28% | 12% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 24 | 556 | 17 | 13% | 46% | 42% |
| Asian (Primary ethnicity—Economically disadvantaged) | 172 | 537 | 23 | 60% | 24% | 16% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 25 | 530 | 24 | 60% | 32% | 8% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 45 | 531 | 23 | 67% | 27% | 7% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,510 | 541 | 22 | 47% | 33% | 20% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 278 | 542 | 22 | 47% | 32% | 21% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 414 | 543 | 23 | 44% | 30% | 26% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 80 | 539 | 26 | 50% | 28% | 23% |

**Table 7.D.4 Demographic Summary for ELA, Grade Six**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,386 | 639 | 20 | 54% | 35% | 11% |
| Male | 3,606 | 640 | 20 | 52% | 36% | 12% |
| Female | 1,780 | 637 | 21 | 59% | 31% | 10% |
| American Indian or Alaska Native | 29 | 639 | 23 | 52% | 24% | 24% |
| Asian | 415 | 635 | 20 | 65% | 29% | 6% |
| Native Hawaiian or Other Pacific Islander | 25 | 634 | 24 | 64% | 20% | 16% |
| Filipino | 139 | 636 | 19 | 69% | 23% | 8% |
| Hispanic or Latino | 3,188 | 639 | 20 | 52% | 37% | 11% |
| Black or African American | 433 | 639 | 20 | 56% | 35% | 10% |
| White | 970 | 639 | 21 | 53% | 33% | 14% |
| Two or more races | 187 | 636 | 21 | 59% | 33% | 9% |
| English only | 3,071 | 639 | 20 | 53% | 35% | 12% |
| Initial fluent English proficient | 57 | 634 | 20 | 65% | 32% | 4% |
| English learner | 1,801 | 638 | 20 | 56% | 33% | 10% |
| Reclassified fluent English proficient | 450 | 639 | 19 | 51% | 41% | 9% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,997 | 638 | 18 | 59% | 34% | 7% |
| Hearing impairment | 63 | 643 | 15 | 49% | 41% | 10% |
| Speech or language impairment | 118 | 652 | 11 | 23% | 53% | 24% |
| Visual impairment | 23 | 629 | 20 | 78% | 17% | 4% |
| Emotional disturbance | 34 | 653 | 16 | 26% | 32% | 41% |
| Orthopedic impairment | 243 | 627 | 24 | 71% | 19% | 9% |
| Other health impairment | 263 | 646 | 20 | 36% | 42% | 22% |
| Specific learning disability | 384 | 656 | 11 | 14% | 49% | 38% |
| Deaf-blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 320 | 619 | 21 | 86% | 12% | 3% |
| Autism | 1,901 | 639 | 19 | 55% | 36% | 9% |
| Traumatic brain injury | 35 | 635 | 25 | 54% | 34% | 11% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,743 | 636 | 21 | 61% | 30% | 9% |
| Economically disadvantaged | 3,643 | 640 | 20 | 51% | 37% | 12% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 33 | 646 | 18 | 45% | 39% | 15% |
| Nonmigrant | 5,353 | 639 | 20 | 54% | 35% | 11% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 8 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 220 | 634 | 20 | 65% | 31% | 5% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 12 | 644 | 18 | 50% | 25% | 25% |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 94 | 634 | 19 | 70% | 23% | 6% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 623 | 636 | 21 | 59% | 32% | 9% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 126 | 634 | 20 | 66% | 27% | 7% |
| White (Primary ethnicity—Not economically disadvantaged) | 552 | 637 | 21 | 59% | 31% | 10% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 108 | 630 | 22 | 69% | 25% | 6% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 21 | 638 | 22 | 57% | 24% | 19% |
| Asian (Primary ethnicity—Economically disadvantaged) | 195 | 636 | 20 | 65% | 28% | 8% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 13 | 625 | 25 | 77% | 15% | 8% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 45 | 639 | 18 | 67% | 22% | 11% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,565 | 640 | 20 | 50% | 38% | 12% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 307 | 641 | 19 | 51% | 38% | 11% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 418 | 642 | 21 | 45% | 37% | 19% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 79 | 643 | 16 | 44% | 43% | 13% |

**Table 7.D.5 Demographic Summary for ELA, Grade Seven**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,383 | 738 | 23 | 55% | 27% | 18% |
| Male | 3,630 | 739 | 23 | 55% | 26% | 19% |
| Female | 1,753 | 738 | 23 | 55% | 29% | 16% |
| American Indian or Alaska Native | 33 | 747 | 22 | 30% | 36% | 33% |
| Asian | 402 | 733 | 22 | 67% | 24% | 9% |
| Native Hawaiian or Other Pacific Islander | 29 | 744 | 23 | 38% | 38% | 24% |
| Filipino | 152 | 737 | 22 | 61% | 24% | 16% |
| Hispanic or Latino | 3,097 | 738 | 23 | 55% | 27% | 17% |
| Black or African American | 464 | 739 | 23 | 55% | 25% | 20% |
| White | 994 | 741 | 23 | 51% | 27% | 22% |
| Two or more races | 212 | 739 | 23 | 53% | 28% | 19% |
| English only | 3,104 | 739 | 23 | 54% | 27% | 19% |
| Initial fluent English proficient | 83 | 729 | 22 | 76% | 18% | 6% |
| English learner | 1,721 | 737 | 22 | 58% | 27% | 15% |
| Reclassified fluent English proficient | 467 | 741 | 22 | 50% | 28% | 21% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Intellectual disability | 2,090 | 736 | 21 | 62% | 25% | 13% |
| Hearing impairment | 47 | 744 | 17 | 43% | 45% | 13% |
| Speech or language impairment | 109 | 752 | 17 | 29% | 39% | 31% |
| Visual impairment | 18 | 727 | 22 | 61% | 33% | 6% |
| Emotional disturbance | 48 | 754 | 18 | 29% | 27% | 44% |
| Orthopedic impairment | 235 | 727 | 25 | 69% | 19% | 11% |
| Other health impairment | 300 | 750 | 21 | 29% | 37% | 34% |
| Specific learning disability | 422 | 757 | 16 | 16% | 35% | 49% |
| Deaf-blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 266 | 720 | 23 | 81% | 14% | 5% |
| Autism | 1,821 | 737 | 22 | 58% | 27% | 15% |
| Traumatic brain injury | 27 | 732 | 23 | 63% | 30% | 7% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,792 | 735 | 23 | 60% | 25% | 15% |
| Economically disadvantaged | 3,591 | 740 | 22 | 53% | 28% | 20% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 36 | 742 | 24 | 42% | 33% | 25% |
| Nonmigrant | 5,347 | 738 | 23 | 55% | 27% | 18% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 12 | 745 | 24 | 25% | 42% | 33% |
| Asian (Primary ethnicity—Not economically disadvantaged) | 228 | 732 | 21 | 68% | 24% | 8% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 7 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 103 | 732 | 22 | 67% | 21% | 12% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 631 | 733 | 24 | 62% | 23% | 15% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 120 | 731 | 24 | 65% | 23% | 12% |
| White (Primary ethnicity—Not economically disadvantaged) | 578 | 738 | 23 | 55% | 28% | 18% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 113 | 736 | 23 | 60% | 28% | 12% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 21 | 749 | 22 | 33% | 33% | 33% |
| Asian (Primary ethnicity—Economically disadvantaged) | 174 | 734 | 22 | 65% | 24% | 11% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 22 | 743 | 21 | 41% | 32% | 27% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 49 | 747 | 17 | 47% | 29% | 24% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,466 | 739 | 22 | 54% | 28% | 18% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 344 | 741 | 22 | 51% | 26% | 23% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 416 | 744 | 23 | 46% | 27% | 27% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 99 | 744 | 23 | 45% | 27% | 27% |

**Table 7.D.6 Demographic Summary for ELA, Grade Eight**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,238 | 840 | 21 | 48% | 39% | 13% |
| Male | 3,531 | 840 | 21 | 48% | 38% | 14% |
| Female | 1,707 | 839 | 21 | 49% | 40% | 11% |
| American Indian or Alaska Native | 31 | 843 | 24 | 35% | 39% | 26% |
| Asian | 437 | 837 | 20 | 57% | 36% | 7% |
| Native Hawaiian or Other Pacific Islander | 24 | 835 | 22 | 54% | 42% | 4% |
| Filipino | 164 | 839 | 21 | 52% | 38% | 10% |
| Hispanic or Latino | 2,968 | 840 | 21 | 47% | 40% | 13% |
| Black or African American | 429 | 841 | 20 | 46% | 41% | 13% |
| White | 1,028 | 840 | 22 | 48% | 36% | 16% |
| Two or more races | 157 | 843 | 19 | 45% | 44% | 11% |
| English only | 2,978 | 840 | 21 | 48% | 38% | 14% |
| Initial fluent English proficient | 93 | 833 | 22 | 61% | 34% | 4% |
| English learner | 1,644 | 839 | 21 | 49% | 40% | 11% |
| Reclassified fluent English proficient | 516 | 843 | 19 | 41% | 44% | 15% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Intellectual disability | 2,075 | 840 | 19 | 50% | 41% | 9% |
| Hearing impairment | 51 | 841 | 18 | 51% | 45% | 4% |
| Speech or language impairment | 104 | 854 | 14 | 19% | 44% | 37% |
| Visual impairment | 31 | 826 | 24 | 65% | 32% | 3% |
| Emotional disturbance | 35 | 854 | 13 | 20% | 46% | 34% |
| Orthopedic impairment | 213 | 829 | 25 | 62% | 31% | 7% |
| Other health impairment | 279 | 848 | 18 | 30% | 45% | 25% |
| Specific learning disability | 343 | 857 | 11 | 10% | 49% | 41% |
| Deaf-blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 280 | 820 | 23 | 79% | 19% | 3% |
| Autism | 1,801 | 839 | 20 | 52% | 37% | 11% |
| Traumatic brain injury | 23 | 846 | 23 | 26% | 52% | 22% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,817 | 837 | 22 | 54% | 34% | 12% |
| Economically disadvantaged | 3,421 | 841 | 20 | 45% | 41% | 13% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 34 | 847 | 17 | 29% | 50% | 21% |
| Nonmigrant | 5,204 | 840 | 21 | 48% | 39% | 13% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 7 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 236 | 835 | 21 | 61% | 33% | 6% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 9 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 91 | 839 | 21 | 51% | 38% | 11% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 619 | 837 | 22 | 55% | 34% | 11% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 139 | 838 | 23 | 47% | 38% | 14% |
| White (Primary ethnicity—Not economically disadvantaged) | 640 | 838 | 23 | 52% | 33% | 15% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 76 | 842 | 21 | 50% | 37% | 13% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 24 | 844 | 24 | 38% | 38% | 25% |
| Asian (Primary ethnicity—Economically disadvantaged) | 201 | 840 | 19 | 53% | 39% | 8% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 15 | 842 | 19 | 40% | 53% | 7% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 73 | 839 | 20 | 55% | 37% | 8% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,349 | 841 | 20 | 45% | 41% | 13% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 290 | 842 | 19 | 46% | 42% | 12% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 388 | 844 | 20 | 41% | 41% | 18% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 81 | 843 | 18 | 40% | 51% | 10% |

**Table 7.D.7 Demographic Summary for ELA, Grade Eleven**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 4,457 | 943 | 22 | 44% | 35% | 21% |
| Male | 2,924 | 943 | 22 | 44% | 34% | 22% |
| Female | 1,533 | 942 | 21 | 44% | 37% | 19% |
| American Indian or Alaska Native | 35 | 952 | 21 | 23% | 46% | 31% |
| Asian | 351 | 939 | 22 | 54% | 28% | 17% |
| Native Hawaiian or Other Pacific Islander | 18 | 933 | 23 | 56% | 39% | 6% |
| Filipino | 128 | 942 | 21 | 44% | 41% | 15% |
| Hispanic or Latino | 2,432 | 943 | 22 | 43% | 35% | 22% |
| Black or African American | 420 | 942 | 22 | 44% | 36% | 20% |
| White | 934 | 944 | 23 | 42% | 35% | 23% |
| Two or more races | 139 | 943 | 23 | 42% | 37% | 21% |
| English only | 2,619 | 943 | 22 | 44% | 34% | 22% |
| Initial fluent English proficient | 71 | 944 | 23 | 38% | 39% | 23% |
| English learner | 1,237 | 942 | 22 | 45% | 37% | 19% |
| Reclassified fluent English proficient | 519 | 945 | 21 | 43% | 34% | 24% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 10 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,892 | 943 | 20 | 44% | 39% | 17% |
| Hearing impairment | 50 | 945 | 21 | 38% | 32% | 30% |
| Speech or language impairment | 47 | 958 | 11 | 11% | 45% | 45% |
| Visual impairment | 30 | 931 | 27 | 63% | 23% | 13% |
| Emotional disturbance | 39 | 956 | 24 | 23% | 18% | 59% |
| Orthopedic impairment | 231 | 932 | 27 | 58% | 24% | 18% |
| Other health impairment | 192 | 953 | 20 | 25% | 34% | 41% |
| Specific learning disability | 276 | 961 | 13 | 8% | 37% | 55% |
| Deaf-blindness | 2 | NA | NA | NA | NA | NA |
| Multiple disabilities | 227 | 923 | 24 | 76% | 16% | 7% |
| Autism | 1,434 | 942 | 21 | 46% | 35% | 18% |
| Traumatic brain injury | 37 | 930 | 26 | 65% | 24% | 11% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,594 | 940 | 23 | 49% | 33% | 18% |
| Economically disadvantaged | 2,863 | 944 | 21 | 41% | 36% | 23% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 17 | 946 | 20 | 41% | 35% | 24% |
| Nonmigrant | 4,440 | 943 | 22 | 44% | 35% | 21% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 13 | 943 | 27 | 38% | 38% | 23% |
| Asian (Primary ethnicity—Not economically disadvantaged) | 179 | 938 | 21 | 56% | 29% | 15% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 8 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 73 | 943 | 21 | 44% | 38% | 18% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 539 | 938 | 23 | 52% | 30% | 18% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 151 | 939 | 22 | 54% | 29% | 17% |
| White (Primary ethnicity—Not economically disadvantaged) | 552 | 943 | 23 | 44% | 36% | 20% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 79 | 940 | 25 | 48% | 37% | 15% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 22 | 957 | 14 | 14% | 50% | 36% |
| Asian (Primary ethnicity—Economically disadvantaged) | 172 | 940 | 22 | 52% | 28% | 20% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 10 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Economically disadvantaged) | 55 | 940 | 20 | 44% | 45% | 11% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 1,893 | 944 | 21 | 41% | 36% | 23% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 269 | 944 | 21 | 39% | 40% | 21% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 382 | 946 | 22 | 39% | 33% | 28% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 60 | 948 | 19 | 33% | 38% | 28% |

**Table 7.D.8 Demographic Summary for Mathematics, Grade Three**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,101 | 335 | 21 | 62% | 30% | 8% |
| Male | 3,536 | 335 | 22 | 62% | 30% | 9% |
| Female | 1,565 | 334 | 21 | 64% | 29% | 6% |
| American Indian or Alaska Native | 34 | 334 | 22 | 47% | 50% | 3% |
| Asian | 401 | 333 | 22 | 67% | 24% | 9% |
| Native Hawaiian or Other Pacific Islander | 23 | 330 | 22 | 61% | 35% | 4% |
| Filipino | 130 | 333 | 21 | 65% | 28% | 7% |
| Hispanic or Latino | 2,911 | 335 | 21 | 62% | 30% | 7% |
| Black or African American | 391 | 335 | 22 | 59% | 31% | 10% |
| White | 959 | 335 | 23 | 61% | 29% | 10% |
| Two or more races | 252 | 334 | 21 | 63% | 30% | 6% |
| English only | 3,116 | 334 | 22 | 62% | 30% | 8% |
| Initial fluent English proficient | 35 | 329 | 24 | 69% | 26% | 6% |
| English learner | 1,770 | 335 | 21 | 62% | 31% | 8% |
| Reclassified fluent English proficient | 169 | 333 | 22 | 68% | 25% | 7% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 7 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,599 | 333 | 20 | 67% | 29% | 4% |
| Hearing impairment | 48 | 337 | 21 | 46% | 50% | 4% |
| Speech or language impairment | 206 | 346 | 15 | 40% | 44% | 16% |
| Visual impairment | 17 | 333 | 33 | 59% | 18% | 24% |
| Emotional disturbance | 23 | 354 | 18 | 17% | 52% | 30% |
| Orthopedic impairment | 174 | 321 | 23 | 82% | 15% | 3% |
| Other health impairment | 307 | 341 | 19 | 52% | 35% | 13% |
| Specific learning disability | 292 | 354 | 14 | 24% | 47% | 29% |
| Deaf-blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 258 | 316 | 19 | 88% | 11% | 0% |
| Autism | 2,148 | 334 | 21 | 63% | 29% | 8% |
| Traumatic brain injury | 26 | 328 | 22 | 77% | 19% | 4% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,667 | 332 | 22 | 68% | 25% | 8% |
| Economically disadvantaged | 3,434 | 336 | 21 | 60% | 32% | 8% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 22 | 333 | 19 | 73% | 27% | 0% |
| Nonmigrant | 5,079 | 335 | 22 | 62% | 30% | 8% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 6 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 240 | 333 | 22 | 71% | 18% | 11% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 7 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 81 | 334 | 21 | 65% | 26% | 9% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 598 | 331 | 22 | 67% | 26% | 7% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 109 | 333 | 23 | 64% | 28% | 7% |
| White (Primary ethnicity—Not economically disadvantaged) | 500 | 332 | 23 | 67% | 25% | 8% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 126 | 333 | 21 | 67% | 28% | 5% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 28 | 336 | 22 | 43% | 54% | 4% |
| Asian (Primary ethnicity—Economically disadvantaged) | 161 | 333 | 22 | 61% | 33% | 6% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 16 | 334 | 21 | 56% | 38% | 6% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 49 | 333 | 20 | 63% | 33% | 4% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,313 | 336 | 21 | 61% | 32% | 7% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 282 | 336 | 22 | 57% | 32% | 11% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 459 | 338 | 22 | 54% | 32% | 13% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 126 | 335 | 21 | 60% | 33% | 8% |

**Table 7.D.9 Demographic Summary for Mathematics, Grade Four**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,309 | 434 | 21 | 65% | 26% | 8% |
| Male | 3,587 | 434 | 21 | 65% | 26% | 9% |
| Female | 1,722 | 433 | 20 | 67% | 27% | 6% |
| American Indian or Alaska Native | 30 | 442 | 22 | 47% | 30% | 23% |
| Asian | 417 | 431 | 21 | 71% | 23% | 6% |
| Native Hawaiian or Other Pacific Islander | 29 | 432 | 20 | 66% | 28% | 7% |
| Filipino | 125 | 428 | 21 | 74% | 18% | 8% |
| Hispanic or Latino | 3,044 | 434 | 20 | 65% | 27% | 8% |
| Black or African American | 417 | 433 | 20 | 69% | 23% | 8% |
| White | 1,014 | 435 | 21 | 63% | 29% | 9% |
| Two or more races | 233 | 431 | 22 | 67% | 23% | 10% |
| English only | 3,201 | 434 | 20 | 65% | 27% | 8% |
| Initial fluent English proficient | 47 | 433 | 19 | 77% | 15% | 9% |
| English learner | 1,796 | 433 | 21 | 65% | 26% | 9% |
| Reclassified fluent English proficient | 257 | 435 | 20 | 65% | 28% | 7% |
| To be determined | 5 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,784 | 432 | 19 | 72% | 23% | 5% |
| Hearing impairment | 53 | 442 | 17 | 55% | 30% | 15% |
| Speech or language impairment | 187 | 447 | 14 | 34% | 49% | 17% |
| Visual impairment | 22 | 424 | 22 | 77% | 18% | 5% |
| Emotional disturbance | 29 | 448 | 17 | 31% | 48% | 21% |
| Orthopedic impairment | 216 | 425 | 23 | 72% | 22% | 6% |
| Other health impairment | 309 | 439 | 19 | 59% | 28% | 13% |
| Specific learning disability | 393 | 451 | 14 | 25% | 47% | 28% |
| Deaf-blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 277 | 417 | 20 | 87% | 12% | 1% |
| Autism | 2,017 | 433 | 21 | 68% | 25% | 7% |
| Traumatic brain injury | 21 | 434 | 18 | 67% | 33% | 0% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,714 | 431 | 21 | 70% | 23% | 7% |
| Economically disadvantaged | 3,595 | 435 | 20 | 63% | 28% | 9% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 43 | 443 | 20 | 42% | 47% | 12% |
| Nonmigrant | 5,266 | 434 | 21 | 66% | 26% | 8% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 13 | 442 | 22 | 46% | 31% | 23% |
| Asian (Primary ethnicity—Not economically disadvantaged) | 249 | 431 | 21 | 70% | 24% | 6% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 10 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 79 | 425 | 21 | 78% | 13% | 9% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 592 | 431 | 21 | 69% | 26% | 5% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 112 | 430 | 21 | 75% | 18% | 7% |
| White (Primary ethnicity—Not economically disadvantaged) | 546 | 432 | 21 | 68% | 23% | 9% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 113 | 427 | 22 | 73% | 22% | 5% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 17 | 441 | 23 | 47% | 29% | 24% |
| Asian (Primary ethnicity—Economically disadvantaged) | 168 | 432 | 21 | 71% | 22% | 7% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 19 | 431 | 21 | 63% | 26% | 11% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 46 | 433 | 21 | 67% | 26% | 7% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,452 | 435 | 20 | 64% | 27% | 9% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 305 | 435 | 19 | 66% | 25% | 9% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 468 | 437 | 20 | 56% | 35% | 9% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 120 | 435 | 22 | 62% | 24% | 14% |

**Table 7.D.10 Demographic Summary for Mathematics, Grade Five**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,319 | 535 | 21 | 63% | 29% | 9% |
| Male | 3,632 | 535 | 21 | 62% | 29% | 9% |
| Female | 1,687 | 534 | 20 | 66% | 27% | 7% |
| American Indian or Alaska Native | 32 | 542 | 18 | 53% | 34% | 13% |
| Asian | 408 | 533 | 22 | 64% | 29% | 7% |
| Native Hawaiian or Other Pacific Islander | 27 | 529 | 24 | 59% | 37% | 4% |
| Filipino | 130 | 534 | 20 | 63% | 30% | 7% |
| Hispanic or Latino | 3,100 | 535 | 21 | 63% | 29% | 9% |
| Black or African American | 394 | 535 | 20 | 65% | 26% | 9% |
| White | 1,031 | 535 | 22 | 62% | 29% | 10% |
| Two or more races | 197 | 531 | 22 | 68% | 26% | 6% |
| English only | 3,088 | 534 | 21 | 64% | 28% | 8% |
| Initial fluent English proficient | 40 | 530 | 24 | 68% | 23% | 10% |
| English learner | 1,841 | 535 | 21 | 63% | 29% | 8% |
| Reclassified fluent English proficient | 341 | 538 | 20 | 56% | 33% | 10% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,892 | 533 | 19 | 70% | 25% | 5% |
| Hearing impairment | 41 | 539 | 20 | 51% | 37% | 12% |
| Speech or language impairment | 166 | 548 | 12 | 35% | 47% | 18% |
| Visual impairment | 25 | 518 | 22 | 80% | 20% | 0% |
| Emotional disturbance | 34 | 545 | 18 | 41% | 41% | 18% |
| Orthopedic impairment | 242 | 522 | 23 | 80% | 16% | 4% |
| Other health impairment | 271 | 542 | 19 | 48% | 38% | 14% |
| Specific learning disability | 396 | 553 | 13 | 24% | 48% | 27% |
| Deaf-blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 295 | 518 | 20 | 87% | 12% | 2% |
| Autism | 1,937 | 534 | 21 | 63% | 29% | 8% |
| Traumatic brain injury | 20 | 536 | 22 | 55% | 35% | 10% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,777 | 531 | 21 | 69% | 25% | 7% |
| Economically disadvantaged | 3,542 | 536 | 21 | 60% | 30% | 9% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 30 | 539 | 18 | 60% | 33% | 7% |
| Nonmigrant | 5,289 | 535 | 21 | 63% | 29% | 9% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 8 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 238 | 531 | 22 | 65% | 29% | 5% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 2 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 85 | 536 | 19 | 64% | 28% | 8% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 586 | 530 | 22 | 72% | 22% | 6% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 120 | 532 | 20 | 73% | 19% | 8% |
| White (Primary ethnicity—Not economically disadvantaged) | 619 | 533 | 21 | 65% | 26% | 8% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 119 | 529 | 21 | 74% | 24% | 3% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 24 | 546 | 16 | 46% | 38% | 17% |
| Asian (Primary ethnicity—Economically disadvantaged) | 170 | 534 | 22 | 63% | 29% | 8% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 25 | 527 | 24 | 60% | 36% | 4% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 45 | 530 | 23 | 62% | 33% | 4% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,514 | 536 | 20 | 61% | 30% | 9% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 274 | 537 | 20 | 61% | 29% | 10% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 412 | 538 | 22 | 56% | 32% | 12% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 78 | 535 | 24 | 58% | 31% | 12% |

**Table 7.D.11 Demographic Summary for Mathematics, Grade Six**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,366 | 635 | 20 | 67% | 26% | 7% |
| Male | 3,592 | 636 | 20 | 64% | 27% | 8% |
| Female | 1,774 | 632 | 20 | 72% | 23% | 5% |
| American Indian or Alaska Native | 29 | 636 | 23 | 62% | 24% | 14% |
| Asian | 415 | 634 | 21 | 70% | 21% | 9% |
| Native Hawaiian or Other Pacific Islander | 25 | 626 | 19 | 88% | 12% | 0% |
| Filipino | 139 | 633 | 22 | 73% | 20% | 6% |
| Hispanic or Latino | 3,171 | 635 | 20 | 66% | 28% | 6% |
| Black or African American | 432 | 635 | 20 | 71% | 22% | 7% |
| White | 969 | 635 | 21 | 65% | 25% | 10% |
| Two or more races | 186 | 631 | 21 | 68% | 27% | 4% |
| English only | 3,054 | 635 | 21 | 66% | 26% | 8% |
| Initial fluent English proficient | 57 | 628 | 20 | 82% | 12% | 5% |
| English learner | 1,797 | 635 | 20 | 68% | 25% | 6% |
| Reclassified fluent English proficient | 451 | 636 | 19 | 65% | 29% | 6% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Intellectual disability | 1,986 | 634 | 18 | 72% | 24% | 4% |
| Hearing impairment | 62 | 640 | 16 | 66% | 24% | 10% |
| Speech or language impairment | 116 | 646 | 14 | 52% | 35% | 13% |
| Visual impairment | 23 | 627 | 22 | 87% | 4% | 9% |
| Emotional disturbance | 33 | 651 | 17 | 39% | 27% | 33% |
| Orthopedic impairment | 244 | 623 | 23 | 80% | 16% | 5% |
| Other health impairment | 263 | 639 | 20 | 57% | 33% | 10% |
| Specific learning disability | 380 | 651 | 15 | 31% | 46% | 24% |
| Deaf-blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 320 | 617 | 20 | 86% | 13% | 1% |
| Autism | 1,899 | 635 | 20 | 66% | 26% | 7% |
| Traumatic brain injury | 35 | 633 | 26 | 60% | 23% | 17% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,734 | 632 | 22 | 70% | 23% | 7% |
| Economically disadvantaged | 3,632 | 636 | 20 | 65% | 27% | 7% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 33 | 641 | 18 | 52% | 39% | 9% |
| Nonmigrant | 5,333 | 635 | 20 | 67% | 26% | 7% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 8 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 221 | 633 | 22 | 70% | 20% | 10% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 12 | 631 | 18 | 92% | 8% | 0% |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 94 | 630 | 19 | 77% | 22% | 1% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 619 | 632 | 22 | 70% | 24% | 7% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 124 | 629 | 20 | 80% | 18% | 2% |
| White (Primary ethnicity—Not economically disadvantaged) | 549 | 634 | 22 | 66% | 24% | 10% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 107 | 627 | 23 | 71% | 26% | 3% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 21 | 637 | 23 | 62% | 24% | 14% |
| Asian (Primary ethnicity—Economically disadvantaged) | 194 | 635 | 19 | 70% | 23% | 7% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 13 | 621 | 20 | 85% | 15% | 0% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 45 | 637 | 25 | 67% | 16% | 18% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,552 | 636 | 19 | 65% | 28% | 6% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 308 | 637 | 20 | 67% | 24% | 9% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 420 | 637 | 20 | 63% | 26% | 11% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 79 | 636 | 18 | 65% | 29% | 6% |

**Table 7.D.12 Demographic Summary for Mathematics, Grade Seven**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,375 | 735 | 20 | 65% | 27% | 7% |
| Male | 3,632 | 736 | 21 | 64% | 28% | 8% |
| Female | 1,743 | 734 | 20 | 68% | 26% | 6% |
| American Indian or Alaska Native | 34 | 740 | 24 | 62% | 21% | 18% |
| Asian | 402 | 732 | 21 | 72% | 20% | 7% |
| Native Hawaiian or Other Pacific Islander | 28 | 737 | 20 | 68% | 29% | 4% |
| Filipino | 152 | 733 | 18 | 75% | 22% | 3% |
| Hispanic or Latino | 3,096 | 735 | 20 | 65% | 28% | 7% |
| Black or African American | 465 | 736 | 20 | 66% | 26% | 8% |
| White | 984 | 736 | 20 | 62% | 30% | 8% |
| Two or more races | 214 | 735 | 21 | 66% | 23% | 10% |
| English only | 3,090 | 735 | 21 | 65% | 28% | 7% |
| Initial fluent English proficient | 84 | 728 | 20 | 85% | 13% | 2% |
| English learner | 1,729 | 735 | 20 | 67% | 26% | 7% |
| Reclassified fluent English proficient | 464 | 738 | 19 | 60% | 32% | 8% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Intellectual disability | 2,093 | 733 | 19 | 72% | 24% | 4% |
| Hearing impairment | 47 | 743 | 16 | 47% | 51% | 2% |
| Speech or language impairment | 109 | 746 | 13 | 48% | 44% | 8% |
| Visual impairment | 18 | 719 | 20 | 89% | 11% | 0% |
| Emotional disturbance | 48 | 747 | 14 | 44% | 44% | 13% |
| Orthopedic impairment | 231 | 722 | 22 | 81% | 16% | 3% |
| Other health impairment | 299 | 743 | 19 | 46% | 43% | 11% |
| Specific learning disability | 423 | 753 | 14 | 28% | 49% | 24% |
| Deaf-blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 263 | 717 | 20 | 88% | 10% | 2% |
| Autism | 1,817 | 735 | 20 | 66% | 26% | 8% |
| Traumatic brain injury | 27 | 731 | 23 | 70% | 22% | 7% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,781 | 732 | 21 | 71% | 22% | 6% |
| Economically disadvantaged | 3,594 | 737 | 20 | 62% | 30% | 8% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 36 | 738 | 20 | 67% | 19% | 14% |
| Nonmigrant | 5,339 | 735 | 20 | 65% | 27% | 7% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 12 | 740 | 21 | 50% | 33% | 17% |
| Asian (Primary ethnicity—Not economically disadvantaged) | 229 | 730 | 21 | 76% | 17% | 7% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 6 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 103 | 729 | 19 | 83% | 16% | 2% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 627 | 731 | 21 | 72% | 23% | 5% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 120 | 730 | 21 | 77% | 17% | 7% |
| White (Primary ethnicity—Not economically disadvantaged) | 570 | 734 | 21 | 66% | 26% | 8% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 114 | 733 | 21 | 68% | 23% | 9% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 22 | 740 | 26 | 68% | 14% | 18% |
| Asian (Primary ethnicity—Economically disadvantaged) | 173 | 734 | 21 | 68% | 25% | 8% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 22 | 735 | 16 | 68% | 32% | 0% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 49 | 742 | 14 | 59% | 35% | 6% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,469 | 736 | 20 | 63% | 30% | 7% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 345 | 738 | 19 | 63% | 29% | 9% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 414 | 739 | 20 | 55% | 36% | 9% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 100 | 738 | 19 | 64% | 24% | 12% |

**Table 7.D.13 Demographic Summary for Mathematics, Grade Eight**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 5,229 | 834 | 20 | 64% | 29% | 7% |
| Male | 3,532 | 835 | 20 | 63% | 30% | 7% |
| Female | 1,697 | 833 | 20 | 66% | 28% | 6% |
| American Indian or Alaska Native | 31 | 838 | 21 | 52% | 32% | 16% |
| Asian | 435 | 833 | 21 | 65% | 29% | 7% |
| Native Hawaiian or Other Pacific Islander | 24 | 828 | 20 | 83% | 13% | 4% |
| Filipino | 163 | 836 | 21 | 60% | 32% | 8% |
| Hispanic or Latino | 2,968 | 835 | 20 | 63% | 30% | 7% |
| Black or African American | 430 | 835 | 18 | 66% | 30% | 4% |
| White | 1,023 | 834 | 21 | 66% | 27% | 7% |
| Two or more races | 155 | 836 | 20 | 66% | 26% | 8% |
| English only | 2,965 | 835 | 20 | 65% | 29% | 6% |
| Initial fluent English proficient | 93 | 829 | 21 | 73% | 23% | 4% |
| English learner | 1,648 | 834 | 21 | 63% | 30% | 7% |
| Reclassified fluent English proficient | 515 | 837 | 19 | 60% | 33% | 8% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Intellectual disability | 2,084 | 834 | 19 | 69% | 27% | 4% |
| Hearing impairment | 50 | 842 | 21 | 50% | 34% | 16% |
| Speech or language impairment | 104 | 848 | 14 | 38% | 48% | 14% |
| Visual impairment | 31 | 818 | 20 | 87% | 10% | 3% |
| Emotional disturbance | 36 | 845 | 16 | 33% | 56% | 11% |
| Orthopedic impairment | 214 | 822 | 22 | 79% | 17% | 4% |
| Other health impairment | 280 | 842 | 18 | 49% | 40% | 12% |
| Specific learning disability | 341 | 851 | 13 | 28% | 51% | 21% |
| Deaf-blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 278 | 817 | 21 | 84% | 14% | 2% |
| Autism | 1,785 | 834 | 20 | 65% | 28% | 6% |
| Traumatic brain injury | 23 | 836 | 20 | 57% | 39% | 4% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,820 | 832 | 21 | 69% | 25% | 7% |
| Economically disadvantaged | 3,409 | 836 | 20 | 62% | 32% | 7% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 34 | 841 | 18 | 44% | 47% | 9% |
| Nonmigrant | 5,195 | 834 | 20 | 64% | 29% | 7% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 7 | NA | NA | NA | NA | NA |
| Asian (Primary ethnicity—Not economically disadvantaged) | 236 | 831 | 22 | 67% | 28% | 6% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 9 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 90 | 838 | 20 | 60% | 32% | 8% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 622 | 832 | 21 | 70% | 23% | 7% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 140 | 833 | 21 | 61% | 31% | 7% |
| White (Primary ethnicity—Not economically disadvantaged) | 640 | 832 | 21 | 70% | 24% | 6% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 76 | 834 | 20 | 72% | 20% | 8% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 24 | 839 | 21 | 50% | 33% | 17% |
| Asian (Primary ethnicity—Economically disadvantaged) | 199 | 835 | 20 | 62% | 30% | 8% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 15 | 833 | 19 | 73% | 20% | 7% |
| Filipino (Primary ethnicity—Economically disadvantaged) | 73 | 834 | 22 | 60% | 32% | 8% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 2,346 | 836 | 20 | 61% | 32% | 7% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 290 | 835 | 17 | 68% | 30% | 3% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 383 | 837 | 20 | 60% | 31% | 8% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 79 | 837 | 19 | 61% | 32% | 8% |

**Table 7.D.14 Demographic Summary for Mathematics, Grade Eleven**

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| All Valid Scores | 4,437 | 935 | 21 | 65% | 26% | 9% |
| Male | 2,916 | 936 | 21 | 62% | 27% | 11% |
| Female | 1,521 | 934 | 20 | 70% | 23% | 7% |
| American Indian or Alaska Native | 34 | 946 | 18 | 38% | 44% | 18% |
| Asian | 346 | 934 | 21 | 70% | 22% | 8% |
| Native Hawaiian or Other Pacific Islander | 18 | 932 | 24 | 56% | 33% | 11% |
| Filipino | 128 | 936 | 21 | 68% | 22% | 10% |
| Hispanic or Latino | 2,430 | 935 | 20 | 66% | 25% | 9% |
| Black or African American | 416 | 936 | 21 | 64% | 26% | 10% |
| White | 931 | 936 | 21 | 62% | 28% | 11% |
| Two or more races | 134 | 935 | 23 | 64% | 25% | 10% |
| English only | 2,599 | 936 | 21 | 64% | 26% | 10% |
| Initial fluent English proficient | 70 | 936 | 22 | 63% | 29% | 9% |
| English learner | 1,239 | 934 | 21 | 68% | 24% | 8% |
| Reclassified fluent English proficient | 517 | 938 | 20 | 63% | 26% | 11% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 11 | 923 | 19 | 91% | 9% | 0% |
| Intellectual disability | 1,876 | 934 | 18 | 71% | 24% | 5% |
| Hearing impairment | 50 | 939 | 21 | 58% | 28% | 14% |
| Speech or language impairment | 46 | 951 | 14 | 41% | 30% | 28% |
| Visual impairment | 29 | 922 | 24 | 86% | 10% | 3% |
| Emotional disturbance | 39 | 949 | 22 | 36% | 36% | 28% |
| Orthopedic impairment | 230 | 925 | 22 | 75% | 20% | 5% |
| Other health impairment | 190 | 943 | 20 | 49% | 35% | 15% |
| Specific learning disability | 275 | 954 | 14 | 21% | 48% | 31% |
| Deaf-blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 230 | 918 | 21 | 87% | 11% | 3% |
| Autism | 1,431 | 937 | 21 | 63% | 26% | 11% |
| Traumatic brain injury | 38 | 927 | 23 | 82% | 16% | 3% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Not economically disadvantaged | 1,580 | 933 | 22 | 68% | 23% | 9% |
| Economically disadvantaged | 2,857 | 937 | 20 | 63% | 27% | 10% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| Migrant | 16 | 940 | 18 | 63% | 31% | 6% |
| Nonmigrant | 4,421 | 935 | 21 | 65% | 26% | 9% |
| American Indian or Alaska Native (Primary ethnicity—Not economically disadvantaged) | 12 | 939 | 21 | 58% | 33% | 8% |
| Asian (Primary ethnicity—Not economically disadvantaged) | 178 | 934 | 21 | 71% | 22% | 7% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Not economically disadvantaged) | 8 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Not economically disadvantaged) | 74 | 936 | 21 | 68% | 20% | 12% |
| Hispanic or Latino (Primary ethnicity—Not economically disadvantaged) | 535 | 931 | 22 | 72% | 21% | 8% |
| Black or African American (Primary ethnicity—Not economically disadvantaged) | 150 | 933 | 22 | 70% | 19% | 11% |
| White (Primary ethnicity—Not economically disadvantaged) | 547 | 935 | 22 | 64% | 27% | 9% |
| Two or more races (Primary ethnicity—Not economically disadvantaged) | 76 | 933 | 23 | 66% | 25% | 9% |
| American Indian or Alaska Native (Primary ethnicity—Economically disadvantaged) | 22 | 950 | 16 | 27% | 50% | 23% |
| Asian (Primary ethnicity—Economically disadvantaged) | 168 | 934 | 20 | 69% | 21% | 10% |
| Native Hawaiian or Other Pacific Islander (Primary ethnicity—Economically disadvantaged) | 10 | NA | NA | NA | NA | NA |
| Filipino (Primary ethnicity—Economically disadvantaged) | 54 | 934 | 21 | 69% | 24% | 7% |
| Hispanic or Latino (Primary ethnicity—Economically disadvantaged) | 1,895 | 936 | 20 | 65% | 26% | 9% |
| Black or African American (Primary ethnicity—Economically disadvantaged) | 266 | 938 | 20 | 60% | 30% | 10% |

| Student Group | Number Tested | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1—Alternate | Percent in Achievement Level 2—Alternate | Percent in Achievement Level 3—Alternate |
|---|---|---|---|---|---|---|
| White (Primary ethnicity—Economically disadvantaged) | 384 | 938 | 21 | 58% | 29% | 13% |
| Two or more races (Primary ethnicity—Economically disadvantaged) | 58 | 937 | 22 | 62% | 26% | 12% |

# Chapter 8: Analyses

This chapter contains the item- and test-level statistics from the analyses conducted for the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics administered during the 2017–18 California Assessment of Student Performance and Progress (CAASPP) administration.

## 8.1. Background

This chapter provides information on the psychometric analyses of the 2017–18 CAA operational data. It describes the data samples used for the statistical analyses, presents the results of the item and test analyses, and provides explanations for all statistical procedures implemented in the psychometric analyses. Those procedures include item analyses, differential item functioning (DIF) analyses, item response theory (IRT) calibration, equating and scaling, and computation of reliability, standard errors of measurement, and decision consistency and accuracy of the achievement-level classifications. The procedures designed to ensure the validity of score uses and interpretations also are provided.

### 8.1.1. Summary of the Analyses

The following lists the analyses conducted for the CAAs for ELA and mathematics. Each analysis is described in the text subsequently, and the corresponding analysis results are provided in the appendices.

1. **Classical Item Analyses (IA).** Classical item analysis for the CAAs for ELA and mathematics is discussed in subsection *8.2 Classical Item Analysis Statistics*. Appendix 8.A presents results of the classical item analyses, including item difficulty indices, item-total correlation coefficient, and the distribution of score points for the dichotomous and polytomous items. In addition, the item type and associated item flags are also provided.
2. **IRT Analyses.** IRT analyses, including calibration, equating, and scaling for the CAAs for ELA and mathematics are elaborated in subsection *8.3 Item Response Theory (IRT) Analyses*. Appendix 8.B includes scatterplots showing the relationship between item bank item difficulty parameter estimates (*b*-value) of the common items and their spring 2017–18 item difficulty parameter estimates (*b*-value) for the common item set after transforming the 2016–17 estimates onto the reference scale from the 2015–16 administration. Appendix 8.C includes summaries of the linked item difficulty parameter estimates (*b*-value) for all of the items in each test. For polytomous items, partial credit step values (*d*-values) are also provided.
3. **Omission and Completion Analyses.** The omit rate and item difficulty information for the CAAs for ELA and mathematics are presented in subsection *8.4 Omission and Completion Rates*, and the results of omission and completion analyses are presented in appendix 8.D. These analyses examine whether the items with high omit rates are systematically more difficult than items with low omit rates. Table 8.D.17 through Table 8.D.24 in appendix 8.D, and starting on page 377, present the total number of items answered by students at each performance level.
4. **Differential Item Functioning (DIF) Analyses.** DIF analysis for the CAAs for ELA and mathematics is described in subsection *8.5 Differential Item Functioning (DIF)*. Appendix 8.E presents the results of the DIF analyses for all items with sufficient student sample sizes. The distributions of items across DIF categories are listed.

5. **Reliability Analyses.** Reliability estimation for the CAAs for ELA and mathematics is illustrated in subsection *8.6 Reliability Analyses*. Table 8.F.1 through Table 8.F.18 in appendix 8.F provide results of the reliability analyses of total test scores for the population as a whole, selected student groups of interest (e.g., gender, ethnicity, etc.), and each version of the grade-level, content area assessments. Table 8.F.19 through Table 8.F.32, starting on page 463, present the score conversion tables with the conditional standard errors of measurement (CSEM) for the reporting scale scores of each pathway. Table 8.F.33 through Table 8.F.60, starting on page 492, present statistics describing the decision accuracy and decision consistency of the performance classifications.
6. **Validity Evidence.** Validity evidence related to the CAAs for ELA and mathematics is discussed in subsection *8.7 Validity Evidence*. Table 8.G.1 through Table 8.G.4 in appendix 8.G, starting on page 498, present distributions of the observed testing time to complete the total test for each content area. Table 8.G.5 through Table 8.G.11, starting on page 505, present correlations between ELA and mathematics scores calculated for all students and for demographic student groups of interest.

### 8.1.2. Samples for the Analyses

In general, analyses included in the technical report are based on all valid students' scores in the tested population. The actual data sample used depends on the time that data source becomes available as well as the information contained in the data in order to meet the analysis timeline.

The classical item analyses (appendix 8.A), IRT analyses (appendix 8.B and appendix 8.C), and item-level DIF analyses (appendix 8.E) were based on the data file available in June 2018 (i.e., the analysis sample). All other analyses, such as the reliability analyses, used the final version of the production data file for student reports, which became available in October 2018. Both data sources include all valid student scores. A small number of student scores were excluded from the final production data as a result of the data validation process. Students who did not answer any items (non-completion) or answered fewer than four items (partial completion) were excluded from the analysis sample for both classical item analysis and item calibration. Refer to subsection *7.1.1 Incomplete and Complete Cases* for a list of cases where the tests are considered as "incomplete," and subsection *7.3.2 Special Cases* for a list of cases where the scores are not reported.

Table 8.1 shows small differences in student counts between the two data sources, i.e., the analysis sample and the final production data file. Note that the analysis sample includes only students who answered at least four items (i.e., completers), while the sample data is representative of the population. Final production data files were received later and contained a larger number of completers than the analysis sample.

**Table 8.1 CAA 2017–18 Analyses Data Sources**

| Content Area and Grade | Analyses Sample Completers | Final Data Completers | Final Data Partial Completers | Final Data Non-Completers | Final Data Total No. Tested |
|---|---|---|---|---|---|
| ELA 3 | 4,119 | 4,127 | 269 | 706 | 5,102 |
| ELA 4 | 4,444 | 4,455 | 241 | 628 | 5,324 |
| ELA 5 | 4,455 | 4,465 | 171 | 694 | 5,330 |
| ELA 6 | 4,572 | 4,579 | 213 | 594 | 5,386 |
| ELA 7 | 4,555 | 4,557 | 255 | 571 | 5,383 |
| ELA 8 | 4,364 | 4,375 | 217 | 646 | 5,238 |
| ELA 11 | 3,840 | 3,840 | 145 | 472 | 4,457 |
| Mathematics 3 | 4,095 | 4,112 | 228 | 761 | 5,101 |
| Mathematics 4 | 4,364 | 4,371 | 156 | 782 | 5,309 |
| Mathematics 5 | 4,363 | 4,373 | 147 | 799 | 5,319 |
| Mathematics 6 | 4,383 | 4,386 | 139 | 841 | 5,366 |
| Mathematics 7 | 4,522 | 4,523 | 220 | 632 | 5,375 |
| Mathematics 8 | 4,270 | 4,274 | 189 | 766 | 5,229 |
| Mathematics 11 | 3,799 | 3,802 | 136 | 499 | 4,437 |

**Note:** Students who do not answer any items are considered "non-completers." Students who answer more than one item, but fewer than four items, are considered "partial completers." Students who answer at least four items are considered "completers."

## 8.2. Classical Item Analysis Statistics

Classical item analyses are conducted to evaluate the performance of all operational test items with respect to item difficulty, item discrimination, and student performance on key-based selected-response or dichotomous items and rubric-based constructed-response items or polytomous items. Due to the nature of the multistage test (MST) design, routing rules present the items in each Stage 2 module to a group of students instead of to all students. The combination of Stage 1 and Stage 2 modules produces multiple linear test forms. Pathways of these forms are provided in Table 4.1. As a result, item analyses must be conducted on each pathway.

### 8.2.1. Description of Classical Item Analysis Statistics

The classical item analyses include the computation of item difficulty indices and the item-total correlation indices. Flagging rules based on these statistics identify items not performing as expected. The omit rate of each item, the proportion of test takers choosing each distractor, the correlation of each distractor with the total score, and the distribution of each score point for the polytomous items are also included in the classical item analyses.

Some classical item analyses, such as item-total correlation and DIF analysis, require a criterion variable—typically, the total raw score. However, using the total raw score as a criterion variable for the CAAs for ELA and mathematics is not possible because of the MST design, in which different students take different combinations of modules. To circumvent these issues and provide the best available criterion score, a linearly transformed scale score based on theta score is used as the criterion score. Refer to subsection *8.3 Item Response Theory (IRT) Analyses*, which provides a description of the methods used to compute theta scores.

#### 8.2.1.1. Classical Item Difficulty Indices (*p*-value and Average Item Score)

For dichotomous items, item difficulty is indicated by the *p*-value, which is the proportion of students who answer an item correctly. The range of *p*-values is from 0.00 to 1.00. Items with higher *p*-values are easier items; those with lower *p*-values are more difficult items. Dichotomous items are flagged for review if their *p*-values are above 0.95 (i.e., too easy) or below 0.33 (i.e., too difficult).

The formula for *p*-value for dichotomous item is:

$$p\text{–}value_{dich} = \frac{\sum X_{ic}}{N_i}, \tag{8.1}$$

where,

$X_{ic}$ is the score received for a given dichotomous item $i$ for student $j$, and

$N_i$ is the total number of students who were presented with item $i$.

For polytomous items, difficulty is indicated by the average item score (AIS). The AIS can range from 0.00 to the maximum total possible points for an item. Desired AIS values for polytomous items generally fall within the range of 30 percent to 80 percent of the maximum obtainable item score; items with values outside this range are flagged for review. To facilitate interpretation, the AIS values for polytomous items are often expressed as the proportion of the maximum possible score, which is analogous to the *p*-values of dichotomous items.

For polytomous items, the *p-value* is defined as:

$$p\text{–}value_{poly} = \frac{\sum X_{ij}}{N_i \times Max(X_i)} \tag{8.2}$$

where,

$X_{ij}$ is the score received for a given polytomous item $i$ for student $j$,

$N_i$ is the total number of students who were presented with item $i$, and

$Max\ (X_i)$ is the maximum score for item $i$.

#### 8.2.1.2. Item-Total Correlation

Item-total correlation describes the relationship between students' performance on a specific item and their performance on the total assessment.

In general, the item-total correlation ranges from -1.0 (for a perfect negative relationship) to 1.0 (for a perfect positive relationship). A relatively high positive item-total correlation is

desired, as it indicates that students with higher scores on the assessment tend to perform better on the item than students with lower scores. A negative item-total correlation, which indicates that students with low scores on the assessment are more likely to get higher scores on the item than students with high scores on the assessment, typically signifies a problem with the item.

Because the product-moment correlation is limited by the distributions of the variables being correlated, the item discrimination index used in these analyses is a variation of the biserial correlation (for dichotomous items) or the polyserial correlation (for polytomous items). This statistic is an estimate of the correlation between the criterion and an unobservable continuous variable assumed to determine performance on the item. The criterion—in this case, the student's theta score—is the ability value for which the expected total score is equal to the student's total score. The estimation formula is

$$r_{polyreg} = \frac{\widehat{\beta} s_{tot}}{\sqrt{\widehat{\beta}^2 s_{tot}^2 + 1}} \tag{8.3}$$

where,

$\hat{\beta}$ is the estimated slope of the regression of the unobservable continuous variable (assumed to account for the item response) on the criterion, and

$s_{tot}$ is the standard deviation of the criterion (the students' theta scores).

There are as many regressions as the number of boundaries between item scores with all regressions for the same item sharing a common slope, $\beta$. For a polytomous item with $k$ possible score values, there are $k$-1 regressions. Beta ($\beta$) is the common slope for all $k$-1 regressions.

Desired values for this correlation are positive and larger than 0.20. Negative item-total correlations indicate that low-ability students tend to obtain higher scores on the item than high-ability students, an indication that the scoring key may be incorrect or the item did not function as intended for the students taking the CAA. Items with item-total correlations below 0.20 were flagged for review.

Note that "not presented" items were treated as blank in the response data file.

#### 8.2.1.3. Distribution of Item Scores

For polytomous items, examination of the distribution of scores helps to show how well the items performed. If no students receive the highest possible score, the item may not be functioning as expected. The item may be confusing, poorly worded, or just unexpectedly difficult; the scoring rubric may be flawed; or students may not have had an opportunity to learn the content tested by the item. If all or most students score at the extreme ends of the distribution—students receive either full credit or zero credit, but no partial credit—there may be problems with the item or the rubric.

Items with a low percentage (i.e., less than 1 percent) of students obtaining any possible item score are flagged for further review. Such items may pose problems during the IRT calibrations. They need to be carefully reviewed and may need to be excluded from the item calibration analyses.

### 8.2.2. Summary of Classical Item Analysis Flagging Criteria

Items are flagged for review if the item analysis yields any of the following results:

1. The *p*-value is above 0.95 for dichotomous items or above 0.80 for polytomous items.
2. The *p*-value is below 0.33 for dichotomous items or below 0.30 for polytomous items.
3. Item-total correlation (r-polyserial) is below 0.20.
4. Among the highest-performing students (the top 20 percent), the number of students choosing any distractor is greater than the number of those choosing the key.
5. The omit rate is above 5 percent for dichotomous items or above 15 percent for polytomous items.
6. The percentage of students receiving a score category is below 3 percent for polytomous items.

Also refer to Note 2 of appendix 8.A for the flagging symbols, descriptions, and their criteria.

ETS' psychometric staff and content assessment development staff carefully reviewed each of the flagged items and summarized the results for the California Department of Education (CDE), with recommendations for subsequent analyses. The classical item statistics are also entered into the item bank and used by the assessment development team for test assembly for future operational administrations.

### 8.2.3. Classical Item Analysis Results Summary

This subsection presents tables of the classical item analysis results for the 2017–18 test items. Table 8.2 and Table 8.3 present a summary of *p*-value and item-total correlation by module for ELA and mathematics tests, respectively.

Detailed results of the item analyses for each item by grade and subject are presented in appendix 8.A. The item statistics, including AIS, *p*-value, polyserial correlation, statistical flagging criteria, and item type are listed in those tables. The distribution of item scores on each polytomous item is presented in Table 8.A.15 through Table 8.A.28.

**Table 8.2 Classical Item Statistics for Each Module for ELA**

| Module | No. of Unique Items | Max No. of Students | Mean *p*-value[a] | Minimum *p*-value | Maximum *p*-value | Mean Item-Total Polyserial Correlation |
|---|---|---|---|---|---|---|
| **Grade 3 Total:** | 51 | 4,119 | 0.62 | 0.32 | 0.97 | 0.57 |
| Grade 3 Stage 1 router | 10 | 4,119 | 0.71 | 0.48 | 0.81 | 0.58 |
| Grade 3 Stage 2 easy | 15 | 1,827 | 0.50 | 0.32 | 0.78 | 0.59 |
| Grade 3 Stage 2 moderate | 15 | 1,406 | 0.60 | 0.37 | 0.78 | 0.55 |
| Grade 3 Stage 2 hard | 15 | 825 | 0.67 | 0.38 | 0.97 | 0.59 |

| Module | No. of Unique Items | Max No. of Students | Mean *p*-value[a] | Minimum *p*-value | Maximum *p*-value | Mean Item-Total Polyserial Correlation |
|---|---|---|---|---|---|---|
| **Grade 4 Total:** | 51 | 4,444 | 0.56 | 0.24 | 0.81 | 0.50 |
| Grade 4 Stage 1 router | 10 | 4,444 | 0.67 | 0.48 | 0.80 | 0.56 |
| Grade 4 Stage 2 easy | 15 | 1,553 | 0.50 | 0.31 | 0.76 | 0.50 |
| Grade 4 Stage 2 moderate | 15 | 1,617 | 0.54 | 0.24 | 0.81 | 0.47 |
| Grade 4 Stage 2 hard | 15 | 1,180 | 0.60 | 0.36 | 0.81 | 0.49 |
| **Grade 5 Total:** | 53 | 4,455 | 0.58 | 0.27 | 0.87 | 0.50 |
| Grade 5 Stage 1 router | 10 | 4,455 | 0.71 | 0.36 | 0.87 | 0.58 |
| Grade 5 Stage 2 easy | 15 | 1,349 | 0.46 | 0.27 | 0.71 | 0.46 |
| Grade 5 Stage 2 moderate | 15 | 1,669 | 0.59 | 0.34 | 0.83 | 0.51 |
| Grade 5 Stage 2 hard | 15 | 1,345 | 0.60 | 0.34 | 0.86 | 0.47 |
| **Grade 6 Total:** | 54 | 4,572 | 0.51 | 0.07 | 0.91 | 0.49 |
| Grade 6 Stage 1 router | 10 | 4,572 | 0.72 | 0.61 | 0.88 | 0.57 |
| Grade 6 Stage 2 easy | 15 | 408 | 0.32 | 0.07 | 0.47 | 0.52 |
| Grade 6 Stage 2 moderate | 15 | 2,029 | 0.51 | 0.25 | 0.80 | 0.44 |
| Grade 6 Stage 2 hard | 15 | 2,056 | 0.56 | 0.31 | 0.91 | 0.45 |
| **Grade 7 Total:** | 54 | 4,555 | 0.56 | 0.19 | 0.84 | 0.52 |
| Grade 7 Stage 1 router | 10 | 4,555 | 0.68 | 0.54 | 0.84 | 0.56 |
| Grade 7 Stage 2 easy | 15 | 1,507 | 0.49 | 0.24 | 0.76 | 0.53 |
| Grade 7 Stage 2 moderate | 15 | 1,906 | 0.55 | 0.32 | 0.78 | 0.50 |
| Grade 7 Stage 2 hard | 15 | 1,041 | 0.59 | 0.19 | 0.80 | 0.52 |
| **Grade 8 Total:** | 48 | 4,364 | 0.58 | 0.28 | 0.93 | 0.48 |
| Grade 8 Stage 1 router | 10 | 4,364 | 0.65 | 0.37 | 0.89 | 0.48 |
| Grade 8 Stage 2 easy | 15 | 1,714 | 0.52 | 0.35 | 0.77 | 0.46 |
| Grade 8 Stage 2 moderate | 15 | 1,707 | 0.53 | 0.28 | 0.77 | 0.45 |
| Grade 8 Stage 2 hard | 15 | 849 | 0.63 | 0.33 | 0.93 | 0.51 |
| **Grade 11 Total:** | 52 | 3,840 | 0.57 | 0.27 | 0.89 | 0.51 |
| Grade 11 Stage 1 router | 10 | 3,840 | 0.68 | 0.53 | 0.78 | 0.58 |
| Grade 11 Stage 2 easy | 15 | 979 | 0.46 | 0.29 | 0.62 | 0.55 |
| Grade 11 Stage 2 moderate | 15 | 1,855 | 0.53 | 0.27 | 0.76 | 0.45 |
| Grade 11 Stage 2 hard | 15 | 926 | 0.64 | 0.31 | 0.89 | 0.51 |

[a.] Each module is taken by different groups of students, so modules are not comparable

**Table 8.3 Classical Item Statistics for Each Module for Mathematics**

| Module | No. of Unique Items | Max No. of Students | Mean *p*-value[a] | Minimum *p*-value | Maximum *p*–value | Mean Item-Total Polyserial Correlation |
|---|---|---|---|---|---|---|
| **Grade 3 Total:** | 53 | 4,095 | 0.44 | 0.10 | 0.74 | 0.45 |
| Grade 3 Stage 1 router | 10 | 4,095 | 0.63 | 0.42 | 0.74 | 0.49 |
| Grade 3 Stage 2 easy | 15 | 658 | 0.39 | 0.19 | 0.56 | 0.49 |
| Grade 3 Stage 2 moderate | 15 | 1,549 | 0.43 | 0.22 | 0.57 | 0.35 |
| Grade 3 Stage 2 hard | 15 | 1,797 | 0.37 | 0.10 | 0.64 | 0.44 |
| **Grade 4 Total:** | 51 | 4,364 | 0.47 | 0.26 | 0.79 | 0.43 |
| Grade 4 Stage 1 router | 10 | 4,364 | 0.65 | 0.46 | 0.79 | 0.51 |
| Grade 4 Stage 2 easy | 15 | 1,426 | 0.44 | 0.28 | 0.64 | 0.44 |
| Grade 4 Stage 2 moderate | 15 | 2,234 | 0.43 | 0.26 | 0.64 | 0.37 |
| Grade 4 Stage 2 hard | 15 | 641 | 0.44 | 0.26 | 0.55 | 0.41 |
| **Grade 5 Total:** | 54 | 4,363 | 0.44 | 0.15 | 0.80 | 0.45 |
| Grade 5 Stage 1 router | 10 | 4,363 | 0.60 | 0.34 | 0.80 | 0.52 |
| Grade 5 Stage 2 easy | 15 | 930 | 0.38 | 0.25 | 0.51 | 0.51 |
| Grade 5 Stage 2 moderate | 15 | 2,062 | 0.42 | 0.15 | 0.57 | 0.34 |
| Grade 5 Stage 2 hard | 15 | 1,289 | 0.42 | 0.23 | 0.57 | 0.45 |
| **Grade 6 Total:** | 48 | 4,383 | 0.48 | 0.20 | 0.67 | 0.42 |
| Grade 6 Stage 1 router | 10 | 4,383 | 0.58 | 0.42 | 0.67 | 0.49 |
| Grade 6 Stage 2 easy | 15 | 1,642 | 0.45 | 0.37 | 0.54 | 0.40 |
| Grade 6 Stage 2 moderate | 15 | 1,685 | 0.44 | 0.30 | 0.56 | 0.37 |
| Grade 6 Stage 2 hard | 15 | 961 | 0.46 | 0.20 | 0.65 | 0.45 |
| **Grade 7 Total:** | 49 | 4,522 | 0.45 | 0.14 | 0.80 | 0.47 |
| Grade 7 Stage 1 router | 10 | 4,522 | 0.66 | 0.49 | 0.80 | 0.52 |
| Grade 7 Stage 2 easy | 15 | 672 | 0.41 | 0.25 | 0.53 | 0.46 |
| Grade 7 Stage 2 moderate | 15 | 1,698 | 0.39 | 0.23 | 0.56 | 0.42 |
| Grade 7 Stage 2 hard | 15 | 2,032 | 0.39 | 0.14 | 0.56 | 0.49 |
| **Grade 8 Total:** | 49 | 4,270 | 0.46 | 0.15 | 0.81 | 0.45 |
| Grade 8 Stage 1 router | 10 | 4,270 | 0.58 | 0.38 | 0.81 | 0.44 |
| Grade 8 Stage 2 easy | 15 | 634 | 0.47 | 0.25 | 0.59 | 0.50 |
| Grade 8 Stage 2 moderate | 15 | 2,082 | 0.42 | 0.15 | 0.59 | 0.45 |
| Grade 8 Stage 2 hard | 15 | 1,491 | 0.43 | 0.23 | 0.59 | 0.46 |

| Module | No. of Unique Items | Max No. of Students | Mean *p*-value[a] | Minimum *p*-value | Maximum *p*–value | Mean Item-Total Polyserial Correlation |
|---|---|---|---|---|---|---|
| **Grade 11 Total:** | 50 | 3,799 | 0.50 | 0.27 | 0.84 | 0.48 |
| Grade 11 Stage 1 router | 10 | 3,799 | 0.58 | 0.49 | 0.74 | 0.54 |
| Grade 11 Stage 2 easy | 15 | 1,211 | 0.48 | 0.35 | 0.74 | 0.54 |
| Grade 11 Stage 2 moderate | 15 | 1,333 | 0.48 | 0.29 | 0.74 | 0.38 |
| Grade 11 Stage 2 hard | 15 | 1,175 | 0.51 | 0.27 | 0.84 | 0.50 |

[a.] Each module is taken by different groups of students, so modules are not comparable.

## 8.3. Item Response Theory (IRT) Analyses

IRT is built upon the item response function, which describes the probability of a given response as a function of a person's true ability. IRT can be used to implement item calibrations, link item parameters, and scale test scores across different forms or test administrations, evaluate item performance, build an item bank, and assemble test forms.

This section describes how IRT models are used in CAA tests for calibrating items, linking item parameters onto the reference scale (i.e., the 2015–16 baseline scale), and scaling the test scores from different forms onto a common scale so that they can be compared. The topics, such as IRT data file preparation and IRT model, are also covered in this section.

### 8.3.1. IRT Models

The one-parameter logistic item response theory model (1PL-IRT) is used for the CAAs for ELA and mathematics item calibration and was selected after consultation with the CDE. In particular, the generalized partial credit model (GPCM) (Muraki, 1992) restricted for 1PL-IRT, which is essentially the partial credit model (PCM; Masters, 1982), is applied to both dichotomous and polytomous items. The mathematical form of the GPCM is the following:

$$P_{ih}(\theta_j) = \begin{cases} \dfrac{\exp(\sum_{v=1}^{h} Da_i(\theta_j - b_i + d_{iv}))}{1 + \sum_{c=1}^{n_i} \exp(\sum_{v=1}^{c} Da_i(\theta_j - b_i + d_{iv}))}, & \text{if score } h = 1, 2, ...., n_i \\ \\ \dfrac{1}{1 + \sum_{c=1}^{n_i} \exp(\sum_{v=1}^{c} Da_i(\theta_j - b_i + d_{iv}))}, & \text{if score } h = 0 \end{cases} \tag{8.4}$$

where,

$P_{ih}(\theta_j)$ is the probability of student with proficiency $\theta_j$ obtaining score $h$ on item $i$;

$n_i$ is the maximum number of score points for item $i$;

$a_i$ is the discrimination parameter and is fixed to 0.588 for every item;

$b_i$ is the location parameter for item $i$;

$d_{iv}$ is the category parameter for item $i$ on score $v$; and

$D$ is a scaling constant of 1.7 that makes the logistic model approximate the normal ogive model.

When $n_i = 1$, equation 8.4 becomes an expression of the 1-parameter logistic model for dichotomous items. Essentially, the one-parameter logistic (1PL) model (Hambleton, Swaminathan, & Rogers, 1991) and the partial credit model (PCM) (Masters, 1982) were used for dichotomous items and polytomous items, respectively.

### 8.3.2. Equating

Equating is a procedure where test scores from different test forms that are assembled based on the same specifications are placed onto the reference scale so that scores from different test administrations are comparable. The 2017–18 CAAs for ELA and mathematics in grades three through eight and grade eleven are equated to the baseline scale established in the 2015–16 administration for each assessment using a common-item nonequivalent group design (Kolen & Brennan, 2004). The equating procedure for the CAAs for ELA and mathematics has three steps: item calibration, linking, and scaling.

#### 8.3.2.1. Item Calibration

After the 2017–18 CAA administration, all the items within each test (grade and content area) were calibrated concurrently, using all available data. Previous studies show that compared with separate calibration, concurrent calibration is more accurate when the data fits the IRT model (Kim & Cohen, 1998; Hanson & Béguin, 2002). After consultation with the CDE and its CAASPP Technical Advisory Group, a single-group concurrent calibration approach is used for item calibration of the CAAs for ELA and mathematics.

The 10 operational items in the router at Stage 1, together with some overlapping items between the pathways, serve as common items between the pathways for the concurrent calibration. The nonanchor operational items in the three Stage 2 modules, as well as the embedded field-test items are calibrated onto the existing IRT scale in this concurrent calibration. Refer to *4.2.2. ELA and Mathematics Test Design* in *Chapter 4: Test Assembly* for the distributions of these items in modules. As stated in subsection *8.3.1 IRT Models*, the one-parameter logistic (1PL) model (Hambleton, Swaminathan, & Rogers, 1991) and the corresponding PCM are jointly used to concurrently calibrate dichotomously and polytomously scored items. The software flexMIRT® (Cai, 2018) version 3.5 is used for calibration.

#### *8.3.2.1.1 Data Preparation*

Prior to IRT calibration analyses, ETS psychometricians reviewed the results of the classical item analyses to decide whether any items were of poor quality and needed to be removed from calibration. The results were also reviewed by ETS content experts and the CDE. The decision to remove items from calibration were made in consultation with the CDE. For the 2017–18 administration of the CAAs for ELA and mathematics, no items were excluded from the calibration analyses.

For IRT calibration, scored item response data was used to create the IRT analysis input data files for each grade and content area, including responses to items at both Stage 1 and Stage 2. For each possible form (i.e., pathway), there are 29 items in total, with 14 items from Stage 1 and 15 items from Stage 2. The IRT analysis input data file is a sparse matrix, because each student completed only one of the four possible forms (refer to Table 4.1 for the list of forms). Similar to the classical item analyses, "omit" items are treated as incorrect and "not-presented" items are treated as blank.

#### *8.3.2.1.2 Description of the Calibration Procedure*

FlexMIRT (Cai, 2018), a multilevel and multiple-group IRT software package for item analysis and test scoring, is used for CAA item calibration analysis. This software can fit a variety of IRT models to both single-level and multilevel data that are dichotomous, polytomous, or both, and is chosen for its superior flexibility among IRT software programs.

The calibration procedure is as follows:

1. Receive test form planners and create the item mapping files.
2. Receive data.
3. Run complete item analysis and create the sparse matrices.
4. Create the item analysis summary information workbooks.
5. Create the flexMIRT control files.
6. Run flexMIRT and evaluate the results.

The procedure described next was followed to calibrate the 2017–18 student response data using flexMIRT for each grade and subject.

1. Prepare and format the input data files as required by flexMIRT.
2. Prepare flexMIRT control files and specify the IRT models and analyses. The 1PL-IRT model and the corresponding partial credit model were used.
3. Evaluate the flexMIRT output to examine whether every execution of flexMIRT analysis reached satisfactory convergence.
4. Review the item parameter estimates to examine whether these estimates were reasonable.
    a. At the form level, the summary statistics for the *b*-parameter estimates (location difficulty) and *d*-parameter estimates (step difficulty) were examined, including the mean, standard deviation, median, minimum, maximum, and goodness-of-fit.
    b. At the item level, statistics of individual items were examined, including item difficulty estimates, model-fit statistics, and the order-of-step parameters.
5. Items that did not perform as expected were flagged. All flagged items were discussed thoroughly with the CDE to decide whether those items should be removed from calibration or whether the scoring categories need to be collapsed.

As a result of consultation with the CDE, no items used during the 2017–18 CAA administration were removed from the analysis and no categories were collapsed.

The calibration process was paralleled by two ETS psychometricians to ensure quality and accuracy of results. Specifically, two psychometricians independently created flexMIRT control files and ran the same input data files and then compared the calibration results. Any differences in the output were investigated. Refer to subsection *9.3 Quality Control of Psychometric Processes* for more details of this procedure.

#### 8.3.2.2. Linking the Item Parameters

The new items in the 2017–18 CAA tests for grades three through eight and grade eleven are linked to a calibrated item pool using a common-item nonequivalent groups design (Kolen & Brennan, 2004). The "base" or "reference" scales for the CAA were established based on data from the 2015–16 administration. The 2017–18 items were placed on the reference 2015–16 scale by using a set of linking items (i.e., anchor set) selected from the 2015–16 and 2016–17 calibrated item pool and readministered in 2017–18 for each grade.

After IRT calibration was performed with the 2017–18 items, the complete set of anchor items was used to calculate the linking constants to place the 2017–18 item parameters onto the 2015–16 scale by using the mean-to-mean method described in the next subsection. The linking process was carried out iteratively by inspecting differences between the transformed new and reference estimates for the anchor items and by removing items for which the item difficulty estimates changed significantly; this is called the robust-z procedure. Robust-z is also described in more detail in a subsequent subsection.

##### *8.3.2.2.1. Mean-to-Mean Transformation*

The item difficulty estimates from the 2017–18 calibration may not be comparable to those from the 2015–16 calibration. The 2017–18 difficulty estimates need to be transformed onto the reference scale in order to make them comparable to the item bank parameters. The item bank parameters were either calibrated in 2015–16 or calibrated in 2016–17 and then linked back to the 2015–16 scale. If an anchor item was used in both the 2015–16 and 2016–17 administrations, then the more recent statistics were used as the item bank parameters.

The mean-to-mean transformation assumes that the item bank and the 2017–18 difficulty values differ by a constant; that is, the item bank and 2017–18 difficulty values can be made comparable by adding the same constant for all items. If this assumption is correct, then that constant is the difference between the means of the item bank and 2017–18 difficulty values for the anchor items.

An iterative procedure is implemented to calculate the linking constants using common items across the 2015–16 and 2016–17 administrations and 2017–18 administration. For each iteration of linking constants computation, the procedure described in subsection *8.3.2.2.2 Robust-Z Procedure* is intended to inspect the differences between the transformed new (2017–18) and reference estimates (2015–16 or 2016–17) for the anchor items, and remove anchor items for which the item difficulty estimates changed significantly.

There are nine steps involved in making mean-to-mean transformation.

1. Identify the anchor items in both the item bank (2015–16 or 2016–17 administration) and the 2017–18 administration.
2. Obtain the item difficulty parameters (*b*-values) of these anchor items from the item bank that are on the reference scale.

3. Obtain the item difficulty parameters (*b*-values) of these anchor items from the calibration of the 2017–18 administration.
4. Calculate the average item difficulty for the anchor set on the reference scale.
5. Calculate the average item difficulty for the anchor set from the calibration from the 2017–18 administration.
6. Obtain the transformation constant by taking the difference between the two average item difficulties (*b*-values), using the average item difficulty for the anchor set on the reference scale subtracting the average item difficulty for the anchor set from the calibration of the 2017–18 administration.
7. Obtain a set of adjusted item difficulty parameters (*b*-values) by applying the linking constant to the item difficulty parameters of the anchor items from the 2017–18 administration.
8. Remove anchor items by following the procedure as described in subsection *8.3.2.2.2 Robust-Z Procedure*. For the first iteration, the anchor set includes all anchor items, while for the following iterations, the anchor set includes the remaining anchor items after removing unstable anchors one-by-one.
9. Repeat steps 1 through 8 until no more items are identified with significant differences between the adjusted new and reference item difficulty parameter values.

Table 8.4 shows a summary of the procedure described previously, which includes the number of all anchor items at the beginning, the number of anchor items that are removed as a result of mean-to-mean transformation and robust-z procedure, the remaining anchor items, and the linking constants of the final iteration of each test.

**Table 8.4 Final Linking Summary**

| Content Area and Grade | Number of Items in Initial Anchor Set | Number of Items Removed from the Anchor Set | Number of Items in Final Linking Set | Linking Constant |
|---|---|---|---|---|
| ELA 3 | 32 | 7 | 25 | 0.0917 |
| ELA 4 | 36 | 8 | 28 | 0.0731 |
| ELA 5 | 28 | 4 | 24 | 0.1139 |
| ELA 6 | 27 | 5 | 22 | 0.0604 |
| ELA 7 | 36 | 7 | 29 | 0.0462 |
| ELA 8 | 28 | 5 | 23 | 0.0734 |
| ELA 11 | 34 | 7 | 27 | 0.2154 |

| Content Area and Grade | Number of Items in Initial Anchor Set | Number of Items Removed from the Anchor Set | Number of Items in Final Linking Set | Linking Constant |
|---|---|---|---|---|
| Mathematics 3 | 45 | 7 | 38 | 0.0956 |
| Mathematics 4 | 38 | 3 | 35 | -0.0094 |
| Mathematics 5 | 45 | 9 | 36 | 0.0672 |
| Mathematics 6 | 43 | 9 | 34 | 0.0818 |
| Mathematics 7 | 49 | 10 | 39 | 0.0361 |
| Mathematics 8 | 45 | 7 | 38 | 0.0670 |
| Mathematics 11 | 49 | 10 | 39 | 0.0117 |

Table 8.5 presents the summary statistics of the final equating and linking results after items with unstable parameters are detected and removed from the anchor set. The statistics provide the number of remaining items in the final anchor set, average item difficulties of the anchor set both in the item bank and from the 2017–18 administration, along with their differences, as well as the criteria for evaluating the differences.

**Table 8.5 Linked Item Parameter Results**

| Content Area and Grade | N Anchor Items | Item Bank Baseline Scale Average *b*-parameter | Linked 2017–18 Average *b*-Parameter | Difference of Average *b*-parameters | Criteria for the Acceptable Difference |
|---|---|---|---|---|---|
| ELA 3 | 32 | -0.47 | -0.39 | -0.08 | < 0.1 |
| ELA 4 | 36 | -0.23 | -0.19 | -0.03 | < 0.1 |
| ELA 5 | 28 | -0.44 | -0.48 | 0.04 | < 0.1 |
| ELA 6 | 27 | -0.38 | -0.42 | 0.05 | < 0.1 |
| ELA 7 | 36 | -0.19 | -0.18 | -0.01 | < 0.1 |
| ELA 8 | 28 | -0.12 | -0.15 | 0.03 | < 0.1 |
| ELA 11 | 34 | -0.12 | -0.04 | -0.08 | < 0.1 |
| Mathematics 3 | 45 | 0.25 | 0.28 | -0.03 | < 0.1 |
| Mathematics 4 | 38 | 0.07 | 0.06 | 0.02 | < 0.1 |
| Mathematics 5 | 45 | 0.14 | 0.23 | -0.10 | < 0.1 |
| Mathematics 6 | 43 | 0.27 | 0.26 | 0.02 | < 0.1 |

| Content Area and Grade | N Anchor Items | Item Bank Baseline Scale Average *b*-parameter | Linked 2017–18 Average *b*-Parameter | Difference of Average *b*-parameters | Criteria for the Acceptable Difference |
|---|---|---|---|---|---|
| Mathematics 7 | 49 | 0.15 | 0.14 | 0.01 | < 0.1 |
| Mathematics 8 | 45 | 0.11 | 0.17 | -0.06 | < 0.1 |
| Mathematics 11 | 49 | 0.05 | 0.07 | -0.01 | < 0.1 |

For the 2017–18 CAA administration, 20 embedded field-test items were administered for each content area and grade. The field-test items were included in 2017–18 item concurrent calibration with the operational items. All field-test item parameters were then linked to the 2015–16 base scale by applying the linking constants in Table 8.4.

#### *8.3.2.2.2. Robust-Z Procedure*

To identify any unstable anchor items, ETS utilized an outlier detection procedure based on the "robust-z" statistic (Huynh, 2000; Huynh & Rawls, 2009). In this application, robust-z listed, as described in equation 8.5, was calculated based on the distribution of the difficulty difference for the anchor items between the item bank and the 2017–18 administration.

$$z = \frac{|D - Md_D|}{0.74 \times IQR} \tag{8.5}$$

where,

$D$ is the difference between the reference and transformed new item difficulty of an anchor item,

$Md_D$ is the median of a distribution of $D$ for all anchor items, and

$IQR$ is the interquartile range of a distribution of $D$ for all anchor items, which is defined as the difference between the third quartile (Q3) and the first quartile (Q1) when all the $D$ values are rank-ordered.

A large value of this statistic for any anchor item indicates that the item bank difficulty parameter and the linked 2017–18 difficulty parameter for that item differed substantially.

The criterion for removing anchor items is that the robust-z value is greater than 1.645. One anchor item was removed at each iteration. The following criteria were evaluated at each iteration:

- The correlation between the item bank and 2017–18 difficulty estimates for the anchor sets should be no less than .95.
- The ratio of standard deviations of the item bank and 2017–18 difficulty estimates for the anchor items should be between .95 and 1.1.

After each iteration, the mean difficulty difference of the anchor sets between the item bank and the 2017–18 administrations was recomputed based on the remaining anchor items. Once the final anchor item set was obtained, ETS discussed its psychometric characteristics with the CDE and received approval from the CDE. Removed anchor items were not used in the computation of the linking constants but were still included in calibration and deriving raw-to-theta conversions.

Figure 8.B.1 through Figure 8.B.14 in appendix 8.B provide scatterplots that show the comparison between two sets of item parameters for a common set of anchor items, one being the item parameters on the reference scale from the item bank and the other the item parameters that were calibrated in 2017–18 calibrations and linked back to the reference scale. The removed anchor items are included in the scatterplots.

#### 8.3.2.3. Scaling the Scores

The number-correct scores (raw scores) on each new form are transformed to scale scores on the reference scale (i.e., the 2015–16 baseline scale) by a three-step procedure. First, the new item difficulty estimates for each test are transformed to the reference year scale, as described in subsection *8.3.2.2.1 Mean-to-Mean Transformation*. Then, the new form number-correct scores (raw scores) are transformed to ability (theta) scores on the reference scale by the inverse test characteristic curve procedure described in the next subsection, 8.3.2.3.1. Finally, these ability (theta) scores are transformed to scale scores through the linear transformation described in subsection 8.3.2.3.2. The requirements that are particularly applied to the CAA reporting scale are also listed in subsection 8.3.2.3.2.

##### *8.3.2.3.1. Inverse Test Characteristic Curve (TCC) Procedure*

After all the item difficulty estimates are transformed to the reference scale derived from the 2015–16 administration, students' overall ability estimates can be derived from the input data file that was described in subsection *8.3.2.1.1 Data Preparation*, through the IRT inverse TCC method (Stocking, 1996). This method transforms the sum of the student's item scores into an ability estimate. That estimate is the value that makes the sum of the expected scores on the items administered to the student equal to the sum of the scores that the student actually received on those items.

The TCC expresses the expected total score on a set of items as a function of the student's ability, which is shown in equation 8.6:

$$\xi(\theta) = \sum_{i=1}^{ndich} P_i(\theta) + \sum_{j=1}^{npoly} \sum_{x=1}^{m} s_{xj} P_{xj}(\theta) \tag{8.6}$$

where,

$ndich$ is the number of dichotomous items in the test,

$P_i(\theta)$ is the probability of a correct response to item $i$ at ability $\theta$ on the dichotomous item in equation 8.4,

$npoly$ is the number of polytomous items in the test,

$m$ is the number of score categories for each polytomous item,

$s_{xj}$ is the value for score category $x$ for the polytomous item $j$,

$Pxj(\theta)$ is the probability that an examinee with ability $\theta$ obtains score $s_x$ on the polytomous item $j$ in equation 8.4, and

$\xi(\theta)$ is the corresponding expected total score.

#### *8.3.2.3.2. Transformation from Theta Scores to Scale Scores*

Students' ability estimates (theta scores) were expressed on the scale score metric by applying the appropriate linear transformation with the applicable slope and intercept for each content area and grade level as described in equation 8.7. The scale score transformations are integrated with the scale score threshold for Level 2 and Level 3 that were approved by California State Board of Education (SBE) after standard setting. Table 6.2 on page 88 and Table 6.3 on page 89 show the standard-setting threshold scores.

$$Scale\ Score = Intercept + Slope \times \hat{\theta} \tag{8.7}$$

where,

$\hat{\theta}$ represents student ability.

The slope and intercept are calculated in equations 8.8 and 8.9 for the Level 2—Alternate and Level 3—Alternate thresholds that were set as 45 and 60, respectively.

$$\text{Slope} = \frac{60-45}{\hat{\theta}_{Level3} - \hat{\theta}_{Level2}} \tag{8.8}$$

$$\text{Intercept} = 60 - \hat{\theta}_{Level3} \times \left( \frac{60-45}{\hat{\theta}_{Level3} - \hat{\theta}_{Level2}} \right) \tag{8.9}$$

where,

$\hat{\theta}_{Level3}$ represents the threshold score for Level 3—Alternate on the theta scale, and

$\hat{\theta}_{Level2}$ represents the threshold score for Level 2—Alternate on the theta scale.

The slopes and intercepts for each grade and content are shown in Table 8.6. Also refer to subsection *7.1.3 Scale Scores for the Total Assessment* for the special requirements for the CAA reporting scale.

**Table 8.6 Slopes and Intercepts That Convert Theta Score to Reporting Scale Scores**

| Content Area and Grade | Threshold Theta Score for Level 2—Alternate | Threshold Theta Score for Level 3—Alternate | Reporting Scale Score for Level 2—Alternate | Reporting Scale Score for Level 3—Alternate | Slope | Intercept |
|---|---|---|---|---|---|---|
| ELA 3 | -0.2 | 0.8 | 45 | 60 | 15.00 | 48.0 |
| ELA 4 | 0.0 | 1.0 | 45 | 60 | 15.00 | 45.0 |
| ELA 5 | 0.0 | 1.0 | 45 | 60 | 15.00 | 45.0 |
| ELA 6 | 0.0 | 1.2 | 45 | 60 | 12.50 | 45.0 |

| Content Area and Grade | Threshold Theta Score for Level 2—Alternate | Threshold Theta Score for Level 3—Alternate | Reporting Scale Score for Level 2—Alternate | Reporting Scale Score for Level 3—Alternate | Slope | Intercept |
|---|---|---|---|---|---|---|
| ELA 7 | 0.0 | 1.0 | 45 | 60 | 15.00 | 45.0 |
| ELA 8 | -0.2 | 1.0 | 45 | 60 | 12.50 | 47.5 |
| ELA 11 | -0.2 | 1.0 | 45 | 60 | 12.50 | 47.5 |
| Mathematics 3 | 0.2 | 1.0 | 45 | 60 | 18.75 | 41.3 |
| Mathematics 4 | 0.2 | 1.0 | 45 | 60 | 18.75 | 41.3 |
| Mathematics 5 | 0.2 | 1.0 | 45 | 60 | 18.75 | 41.3 |
| Mathematics 6 | 0.2 | 1.0 | 45 | 60 | 18.75 | 41.3 |
| Mathematics 7 | 0.2 | 1.0 | 45 | 60 | 18.75 | 41.3 |
| Mathematics 8 | 0.2 | 1.0 | 45 | 60 | 18.75 | 41.3 |
| Mathematics 11 | 0.2 | 1.0 | 45 | 60 | 18.75 | 41.3 |

The 2017–18 student ability estimates that are derived from the IRT models using the linked item parameters are converted to the established score scales using the procedures and conversion constants described previously. The scale scores can be found through the raw-to-scale score conversion tables presented in Table 7.B.1 through Table 7.B.14 in appendix 7.B.

### 8.3.3. Summaries of Linked IRT *b*-Parameters

Once the 2017–18 IRT *b*-parameters were placed on the 2015–16 baseline scale for CAAs at all grade levels for ELA and mathematics, analyses were performed to assess the overall test difficulty and the distribution of item difficulty.

The overall summary of the linked IRT *b*-value estimates for 2017–18 CAAs for ELA and mathematics calibration is shown in Table 8.7. The mean, standard deviation (SD), minimum, and maximum values are presented, in addition to the number of items for each test.

**Table 8.7 IRT Linked Parameter Estimates for All ELA and Mathematics Items**

| Content Area and Grade | Number of Items | Average of *b*-value | SD *b*-value | Minimum *b*-value | Maximum *b*–value |
|---|---|---|---|---|---|
| ELA 3 | 79 | -0.3628 | 0.8599 | -2.3055 | 1.3617 |
| ELA 4 | 71 | -0.3494 | 0.8753 | -2.0914 | 1.7066 |
| ELA 5 | 75 | -0.4997 | 0.9194 | -2.2502 | 1.7626 |
| ELA 6 | 76 | -0.4219 | 0.7985 | -1.7819 | 1.6361 |
| ELA 7 | 74 | -0.3076 | 0.9408 | -2.1068 | 2.7420 |
| ELA 8 | 62 | -0.3713 | 0.7867 | -2.2501 | 1.2406 |
| ELA 11 | 64 | -0.1574 | 0.8212 | -1.5476 | 2.2196 |
| Mathematics 3 | 95 | 0.2386 | 0.8071 | -1.0350 | 2.8350 |
| Mathematics 4 | 91 | 0.2700 | 0.8425 | -1.4787 | 3.3489 |
| Mathematics 5 | 106 | 0.3341 | 0.7679 | -1.4594 | 2.5154 |
| Mathematics 6 | 82 | 0.1985 | 0.5676 | -0.8342 | 2.1394 |
| Mathematics 7 | 85 | 0.1356 | 0.7648 | -1.4418 | 2.4216 |
| Mathematics 8 | 79 | 0.1036 | 0.7324 | -1.5089 | 1.7651 |
| Mathematics 11 | 78 | 0.1237 | 0.7677 | -1.1774 | 1.8294 |

Table 8.C.1 through Table 8.C.14 in appendix 8.C provide the linked IRT difficulty and step parameter estimates at the item level for each grade level for ELA and mathematics. Table 8.C.15 through Table 8.C.18 present the summary statistics (i.e., mean, SD, minimum, maximum, and median) of the IRT *b*-values for all items in the test and also present the summary statistics of linked IRT *b*-value by tier level (refer to subsection *4.2.1.1 Tiered Items* for discussion of tier levels). In addition, the distributions of the linked IRT *b*-values of all operational items and embedded field-test items conditional on test stage and item tier level are provided in Table 8.C.19 through Table 8.C.32, which start on page 363.

### 8.3.4. Evaluation of Equating

As described in subsection *8.3.2 Equating*, calibrations for the 2017–18 CAAs for ELA and mathematics were linked to the reference scale of 2015–16 through mean-to-mean transformation. As mentioned previously, two indices were used for CAA to evaluate the quality of such linking procedures: the ratio of the standard deviations (RSD) of the two sets of item difficulty estimates for the anchor items (i.e., the 2015–16 and 2017–18 estimates), and the correlation (CORR) between the two sets of item difficulty estimates for the anchor items (Huynh, 2009). If the correlation (CORR) is at least 0.95 and the RSD is between 0.9 and 1.1, the linking results are considered acceptable, and all anchor items are regarded as stable in the linking process.

Table 8.8 presents the total number of operational items, the number of remaining anchor items after robust-z evaluation, the percentage of remaining anchor items out of all the operational items, the correlation between the final set of the transformed new (2017–18) and reference (2015–16) difficulty estimates for the anchor items, and the RSD between the final set of the transformed new (2017–18) and reference (2015–16) item parameters for anchor items.

**Table 8.8 Evaluation of Anchor Set (Common Items) Between 2016–17 and 2015–16**

| Content Area and Grade | Number of Unique Operational Items | Number of Remained Anchor Items | Percentage of Remained Anchors out of All Operational Items | Correlation Between Item Bank Item Parameters and 2017–18 Item Parameters | RSD of Item Parameters Between Item Bank and 2017–18 Administration |
|---|---|---|---|---|---|
| ELA 3 | 51 | 25 | 49% | 0.9873 | 1.0464 |
| ELA 4 | 51 | 28 | 55% | 0.9768 | 0.9594 |
| ELA 5 | 53 | 24 | 45% | 0.9834 | 0.9083 |
| ELA 6 | 54 | 22 | 41% | 0.9849 | 0.9459 |
| ELA 7 | 54 | 29 | 54% | 0.9879 | 0.9154 |
| ELA 8 | 48 | 23 | 48% | 0.9791 | 1.0038 |
| ELA 11 | 52 | 27 | 52% | 0.9849 | 0.9291 |
| Mathematics 3 | 53 | 38 | 72% | 0.9861 | 1.0122 |
| Mathematics 4 | 51 | 35 | 69% | 0.9775 | 0.9566 |
| Mathematics 5 | 54 | 36 | 67% | 0.9848 | 0.9838 |
| Mathematics 6 | 48 | 34 | 71% | 0.9827 | 0.9024 |
| Mathematics 7 | 49 | 39 | 80% | 0.9787 | 0.9378 |
| Mathematics 8 | 49 | 38 | 78% | 0.9869 | 0.9849 |
| Mathematics 11 | 50 | 39 | 78% | 0.9749 | 1.0005 |

## 8.4. Omission and Completion Rates

### 8.4.1. Omit Rates

For both dichotomous and polytomous items, examining item omission and completion is useful for identifying potential problems with test features such as testing time and item or test layout. Typically, given that students have an adequate amount of testing time, approximately 95 percent of students should attempt to answer each question on the test. Two types of missing responses are possible for CAAs for ELA and mathematics:

1. An item is considered “omit”: An item that has been presented but has not been answered (i.e., left blank) in the middle of an administered assessment wherein the student has viewed and responded to successive items.
2. An item is considered “not presented” or “omitted-by-design”: A set of items that are not presented to the student. For example, students may experience significant cognitive challenges on the Stage 1 items and be exited from the test at the end of Stage 1 without moving on to Stage 2. For these early exit cases, all items in Stage 2 are “not presented” and treated as incorrect when calculating an overall score.

Table 8.D.1 through Table 8.D.14 in appendix 8.D provide the item omit rates. Overall, students assigned to the easy Stage 2 module had higher omit rates on items administered to them than students assigned to other modules had on their items. This pattern suggests that students with the most severe cognitive disabilities experienced significant challenges completing a version of the CAA that consisted primarily of the most accessible content.

The items with high omit rates were flagged. Omit rates for polytomous items tended to be higher than for dichotomous items. Overall, the omit rate for flagging individual items was 5 percent for selected-response items and 15 percent for constructed-response items. An omit response was scored as zero and included in the N-count for that item (i.e., the number of students who answered the item) when calculating item statistics. A response that is considered omit-by-design was not scored or included in the N-count for the item.

Table 8.D.1 through Table 8.D.14 present the relationship between the omit rate and IRT item difficulty for each item. Table 8.D.15 and Table 8.D.16 present the average number of omitted items for each form and the number of items in each module for each form.

### 8.4.2. Completion Rates

Completion rates indicate the proportion of students who complete a certain number of items on the test. A student's record for the test is not considered complete unless the student answered at least four items.

Table 8.D.17 through Table 8.D.24 present the distribution of total number of answered items by performance level. Most students answered all 29 items, including the four embedded field-test items.

## 8.5. Differential Item Functioning (DIF)

DIF analyses were conducted for 2017–18 CAA items with sufficient sample sizes. The minimum sample size requirements for the DIF analyses were 400 in the combined focal and reference groups and 100 in the smaller of the two groups. These sample sizes are based on standard operating procedures for DIF analysis at ETS.

If an item performs differentially across identifiable student groups—e.g., gender or ethnicity—when students are matched on ability, the item may be measuring something else other than the intended construct (i.e., possible evidence of bias). It is important, however, to recognize that item performance differences flagged for DIF might be related to actual differences in relevant knowledge or skills between student groups (i.e., impact) or statistical Type I error, which might falsely find DIF in an item. As a result, DIF analysis is used mainly as a statistical tool to identify *potential* item bias. Subsequent reviews by content experts and bias and sensitivity experts are required to determine the source and meaning of performance differences.

### 8.5.1. Dichotomous Items

The Mantel-Haenszel (MH) DIF statistic was calculated for dichotomous items (Mantel & Haenszel, 1959; Holland & Thayer, 1985). Using the IRT theta score as the criterion score, students in each theta score category in the focal group (e.g., females) are compared with examinees in the same theta score category in the reference group (e.g., males). The common odds ratio is estimated across all categories of matched student ability using the formula in equation 8.10 (Dorans & Holland, 1993). The resulting estimate is interpreted as the relative likelihood of success on a particular item for members of two groups when matched on ability.

$$\alpha_{MH} = \frac{\left(\sum_m R_{rm} \frac{W_{fm}}{N_{tm}}\right)}{\left(\sum_m R_{fm} \frac{W_{rm}}{N_{tm}}\right)} \tag{8.10}$$

where,

$m$ indexes the score categories,

$R_{rm}$ is the number of students in the reference group who answer the item correctly,

$W_{fm}$ is the number of students in the focal group who answer the item incorrectly,

$N_{tm}$ is the total number of students,

$R_{fm}$ is the number of students in the focal group who answer the item correctly, and

$W_{rm}$ is the number of students in the reference group who answer the item incorrectly.

To facilitate the interpretation of MH results, the common odds ratio is frequently transformed to the delta scale using the following formula (Holland & Thayer, 1985):

$$\text{MHD-DIF} = -2.35 \ln\left[\alpha_{MH}\right] \tag{8.11}$$

Positive values indicate DIF in favor of the focal group—i.e., positive DIF items are differentially easier for the focal group—whereas negative values indicate DIF in favor of the reference group (i.e., negative DIF items are differentially easier for the reference group).

### 8.5.2. Polytomous Items

The standardization DIF (Dorans & Schmitt, 1993; Zwick, Thayer & Mazzeo, 1997; Dorans, 2013) is used in conjunction with the Mantel chi-square statistic (Mantel, 1963; Mantel & Haenszel, 1959) to identify polytomous items with DIF; the former measures the size of the DIF while the latter indicates the significance level of the DIF. The standardized mean difference (SMD) compares the item means of the two groups after adjusting for differences in the distribution of students across the values of the matching variable and is calculated using the following formula:

$$SMD = \frac{\sum_{m=1}^{M} N_{fm} \times (E_f(Y \mid X = m) - E_r(Y \mid X = m))}{\sum_{m=1}^{M} N_{fm}} \tag{8.12}$$

where,

$X$ *is* the criterion score,

$Y$ *is* the item score,

$M$ *is* the number of score categories on X,

$N_{rm}$ is the number of students in the reference group in score category m,

$N_{fm}$ is the number of students in the focal group in score category m,

$E_r$ is the expected item score for the reference group, and

$E_f$ is the expected item score for the focal group.

A positive SMD value means that, conditional on the criterion score, the focal group has a higher mean item score than the reference group. In contrast, a negative SMD value means that, conditional upon the criterion score, the focal group has a lower mean item score than the reference group.

### 8.5.3. Classification

Based on the DIF statistics and significance tests, items are classified into three categories and assigned values of A, B, or C (Holland & Wainer, 1993). Category A items contain negligible DIF, Category B items exhibit slight to moderate DIF, and Category C items possess moderate to large DIF values.

The flagging criteria for dichotomous items are presented in Table 8.9; the flagging criteria for polytomous items are provided in Table 8.10.

**Table 8.9 DIF Categories for Dichotomous Items**

| DIF Category | Criteria |
|---|---|
| A (negligible) | • Absolute value of MH D-DIF is not significantly different from zero, or is less than one.<br>• Positive values are classified as “A+” and negative values as “A-.” |
| B (moderate) | • Absolute value of MH D-DIF is significantly different from zero but not from one, and is at least one; OR<br>• Absolute value of MH D-DIF is significantly different from one, but is less than 1.5.<br>• Positive values are classified as “B+” and negative values as “B-.” |
| C (large) | • Absolute value of MH D-DIF is significantly different from one, and is at least 1.5.<br>• Positive values are classified as “C+” and negative values as “C-.” |

**Table 8.10 DIF Categories for Polytomous Items**

| DIF Category | Criteria |
|---|---|
| A (negligible) | • Mantel Chi-square *p value* > 0.05 or \|SMD/SD\| ≤ 0.17 |
| B (moderate) | • Mantel Chi-square *p value* < 0.05 or 0.17< \|SMD/SD\| ≤ 0.25 |
| C (large) | • Mantel Chi-square *p value* < 0.05 or \|SMD/*SD*\| > 0.25 |

**Note:** *SMD* = standardized DIF; SD = total group standard deviation of item score.

DIF analyses were conducted on each test for designated comparison groups on the basis of demographic variables, including gender, race or ethnicity, and primary disabilities, if the number of students in the group was sufficient. These comparison groups are specified in Table 8.11.

**Table 8.11 Student Groups for DIF Comparison**

| DIF Type | Reference Group | Focal Group |
|---|---|---|
| **Gender** | Male | • Female |
| **Race or Ethnicity** | White | • American Indian or Alaska Native *<br>• Asian<br>• Black or African American<br>• Filipino<br>• Hispanic or Latino<br>• Native Hawaiian or Other Pacific Islander *<br>• Two or more races |
| **Disability** | Intellectual Disability | • Autism<br>• Deaf-blindness *<br>• Emotional disturbance *<br>• Hearing Impairment *<br>• Multiple disabilities<br>• Orthopedic impairment<br>• Other health impairment<br>• Specific learning disability<br>• Speech or language impairment<br>• Traumatic brain injury *<br>• Visual Impairment* |

* DIF analysis was not performed due to insufficient sample sizes.

The DIF results can be found in appendix 8.E. In the DIF results tables, data in the *N* column show the number of item occurrences with sufficient sample sizes to be included in DIF analyses. In addition, “NA” indicates that either the DIF analysis did not classify any items in the particular DIF category, or the DIF analysis was not performed due to insufficient sample size. Note that “NA” occurs mostly for items at Stage 2 due to the small sample sizes for easy and hard modules at Stage 2.

## 8.6. Reliability Analyses

Reliability is the extent to which differences in test scores reflect true differences in the knowledge, ability, or skill being tested rather than fluctuations due to chance. Thus, reliability is the consistency of scores across conditions that do not differ systematically and only contain random measurement errors. In statistical terms, the variance in the distributions of test scores—essentially, the differences among individuals—is due partly to real differences in the knowledge, skill, or ability being tested (true variance) and due partly to measurement error inherent in the measurement process (error variance). The reliability coefficient is an estimate of the proportion of the total variance that is true variance.

Reliability coefficients usually range from 0 to 1. The higher the reliability coefficient for a set of scores, the more likely individuals are to obtain very similar scores upon repeated testing occasions (assuming there is no memory or practice effect) if the students do not change in their level of the knowledge or skills measured by the test.

There are several different ways of estimating reliability. Marginal reliability (Green, Bock, Humphreys, Linn, & Reckase, 1984) was calculated because it was more appropriate for the multistage testing (MST) design. More details can be found in the next subsection, 8.6.1.

The standard error of measurement (SEM) is a measure of the extent to which students' scores tend to differ from their true scores. The larger the SEM, the more the variability of a student's observed scores across repeated testing. Observed scores with large SEMs pose a challenge to the valid interpretation of test scores.

Also reported for CAA is the reliability of classification, which is an estimate of the proportion of students who are accurately and consistently classified into achievement levels. There are two kinds of classification reliability statistics: decision accuracy and decision consistency. Decision accuracy is the agreement between the classifications actually made and the classifications that would be made if the test scores were perfectly reliable. Decision consistency is the agreement between the classifications that would be made on two test forms.

### 8.6.1. Internal Consistency Reliability

In classical test theory, the reliability coefficient can be defined as the squared correlation between the observed score and the true score, which is equal to the correlation between parallel observed scores (Lord and Novick, 1968, p.61). In applied settings, the requirement of repeated administrations is impractical, and methodologies estimating reliability from relationships among student performances on items within a single test form are often used. Coefficient alpha (Cronbach, 1951) is among the most common of these methodologies.

However, these classical test theory–based reliability indices are not directly applicable to an MST scenario because each student takes one of the four pathways based on his or her ability. Therefore, an IRT-based approach called marginal reliability (Green, Bock, Humphreys, Linn, & Reckase, 1984) is used to estimate the reliability of MST scores. The estimates of reliability coefficients reported here are for item response model-based ability estimates. Because the scale score is a linear transformation of the ability estimate, the reliability coefficient of the ability estimates will also apply to the scale scores based on them.

This reliability coefficient for theta estimates, $\rho_{\hat{\theta}\hat{\theta}'}$ is defined, based on the single test administration, as shown in equation 8.13:

$$\rho_{\hat{\theta}\hat{\theta}'} = 1 - \frac{M_{SEM^2_{\hat{\theta}}}}{s^2_{\hat{\theta}}} \tag{8.13}$$

where,

$\hat{\theta}$ is an ability estimate (i.e., theta score),

$M_{SEM^2_{\hat{\theta}}}$ is an average of the squared CSEM (i.e., error variances) at each value of the ability estimate, and

$S^2_{\hat{\theta}}$ is the measure of variance in ability estimates.

### 8.6.2. Standard Error of Measurement (SEM)

The SEM provides a measure of score instability on the scale score metric. The SEM is the square root of the error variance in the scores, i.e., the standard deviation of the distribution of the differences between students' observed scores and their true scores. The SEM is calculated by:

$$SEM = s_t\sqrt{1-\rho_{\hat{\theta}\hat{\theta}'}} \tag{8.14}$$

where,

$\rho_{\hat{\theta}\hat{\theta}'}$ is the reliability estimated in equation 8.13, and

$s_t$ is the standard deviation of the total score (either theta or scale score).

The SEM is useful in determining the confidence interval (CI) that likely captures a student's true score. A student's true score can be thought of as the mean of observed scores a student would earn over an infinite number of independent administrations of the test. Approximately 95 percent of the students will have scores within the range of their true scores: -1.96 SEMs to their true scores +1.96 SEMs (Crocker & Algina, 1986). For example, if a student's observed score on a given test equals 345 points, and the SEM equals 5, one can be 95 percent confident that the student's true score lies between 335 and 355 points (i.e., 345 ± 10).

Table 8.12 presents the total score reliability for theta, and the mean, SD, and SEM of both thetas and scale scores for each of the 14 tests, along with the number of student results upon which those analyses were performed. Note that the reliability is for the whole test on the theta score scale.

**Table 8.12 Summary Statistics for Scale Scores, Theta Scores, and Marginal Reliability**

| Content Area and Grade | N Unique Operational Items | No. of Students | Marginal Reliability | Scale Score Mean | Scale Score SD | Scale Score SEM | Theta Score Mean | Theta Score SD | Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 51 | 4,127 | 0.88 | 349.17 | 17.77 | 6.14 | 0.07 | 1.26 | 0.44 |
| ELA 4 | 51 | 4,455 | 0.88 | 445.76 | 16.86 | 5.81 | 0.03 | 1.21 | 0.42 |
| ELA 5 | 53 | 4,465 | 0.88 | 546.45 | 16.55 | 5.72 | 0.07 | 1.19 | 0.41 |
| ELA 6 | 54 | 4,579 | 0.86 | 645.49 | 13.07 | 4.89 | 0.03 | 1.06 | 0.40 |
| ELA 7 | 54 | 4,557 | 0.89 | 745.21 | 17.50 | 5.76 | -0.02 | 1.29 | 0.43 |
| ELA 8 | 48 | 4,375 | 0.85 | 847.83 | 12.28 | 4.79 | 0.03 | 1.00 | 0.39 |
| ELA 11 | 52 | 3,840 | 0.89 | 949.65 | 15.00 | 4.99 | 0.16 | 1.24 | 0.41 |

| Content Area and Grade | N Unique Operational Items | No. of Students | Marginal Reliability | Scale Score Mean | Scale Score SD | Scale Score SEM | Theta Score Mean | Theta Score SD | Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|
| Mathematics 3 | 53 | 4,112 | 0.80 | 342.83 | 14.86 | 6.61 | 0.04 | 0.93 | 0.41 |
| Mathematics 4 | 51 | 4,371 | 0.82 | 440.94 | 14.88 | 6.36 | -0.04 | 0.88 | 0.38 |
| Mathematics 5 | 54 | 4,373 | 0.82 | 542.19 | 15.03 | 6.44 | 0.02 | 0.93 | 0.40 |
| Mathematics 6 | 48 | 4,386 | 0.75 | 642.48 | 13.48 | 6.79 | 0.04 | 0.83 | 0.42 |
| Mathematics 7 | 49 | 4,523 | 0.82 | 741.70 | 14.99 | 6.37 | -0.01 | 0.93 | 0.39 |
| Mathematics 8 | 49 | 4,274 | 0.80 | 842.13 | 13.28 | 6.00 | 0.03 | 0.77 | 0.35 |
| Mathematics 11 | 50 | 3,802 | 0.83 | 941.37 | 16.16 | 6.59 | -0.04 | 1.01 | 0.41 |

The reliabilities and SEMs of the CAAs for ELA and mathematics were also examined for various student groups from the population. Table 8.F.1 through Table 8.F.16 present the reliabilities for the student groups based on gender, ethnicity, English-language fluency, economic status, migrant status, primary disability, accommodation, and designated support. Table 8.F.17 and Table 8.F.18 show reliabilities and SEMS for each of the five versions of grade-level ELA and mathematics assessments, respectively.

### 8.6.3. Standard Error of Measurement (SEM) for Theta Scores

For the CAAs for ELA and mathematics, theta scores are obtained through an IRT inverse test characteristic curve approach. The test information function (TIF) is the sum of information from each item on the test. The SEM is the standard deviation of the distribution of theta scores that the student would earn under different testing conditions. In IRT, the only differences taken into account in the SEM are those associated with different sets of items that could be presented to the student. In the framework of IRT, the SEM is the reciprocal of the square root of the test information function (TIF) based on the items taken by each student. The SEM for a student with proficiency $\theta j$ is:

$$SEM(\theta_j) = \frac{1}{\sqrt{I(\theta_j)}} \tag{8.15}$$

where,

$I(\theta_j)$ is the test information for student $j$, and is calculated as

$$I(\theta_j) = \sum_{i=1}^{n} I_i(\theta_j) \tag{8.16}$$

where,

$I_i(\theta_j)$ is the item information of item $i$ for student $j$.

Item information is calculated as

$$I_i(\theta_j) = [s_{i2}(\theta_j) - s_i^2(\theta_j)] \tag{8.17}$$

where,

$s_i(\theta_j)$ is the expected item score for item $i$ on a theta score $\theta_j$ calculated as

$$s_i(\theta_j) = \sum_{h=0}^{n_i} h p_{ih}(\theta_j), \tag{8.18}$$

and

$$s_{i2}(\theta_j) = \sum_{h=0}^{n_i} h^2 p_{ih}(\theta_j) \tag{8.19}$$

where,

$p_{ih}(\theta_j)$ is the probability of an examinee with $\theta_j$ getting score $h$ on item $i$, the computation of which is shown in equation 8.4 on page 213, and

$n_i$ is the maximum number of score points for item $i$.

The theta score and theta CSEM are shown in Table 8.F.19 through Table 8.F.32.

### 8.6.4. Conditional Standard Errors of Measurement (CSEM) for Scale Scores

CSEMs for scale scores are computed by transforming CSEMs of theta scores onto the reporting scale. Refer to subsection *8.3.2.3.2 Transformation from Theta Scores to Scale Scores* for scaling factors of transformation. A student's CSEM under the IRT framework is equal to the reciprocal of the square root of the TIF multiplied by the scaling factor $a$:

$$\mathrm{CSEM(SS)} = \frac{1}{\sqrt{\mathrm{I}(\hat{\theta})}} a \tag{8.20}$$

where,

$SS = a \times \theta + b$

$\mathrm{CSEM}(SS)$ is the conditional standard error of measurement on scale score scale,

$I(\hat{\theta})$ is the test information function at ability level $\hat{\theta}$ as shown in equations 8.17, 8.18, and 8.19, and

$a$ is the scaling factor (the slope) needed to transform theta to the scale score metric.

The value of $a$ varies by content area (refer to the slope values in Table 8.6).

CSEMs vary across the scale, and are typically smaller in scale score units toward the center of the scale where more items are located, whereas larger at the extreme ends of the scale. When a test has cut scores, it is important to provide CSEMs at the cut scores. Table 8.13 presents the scale score CSEMs at the lowest score required for a student to be classified in the Level 2—Alternate and Level 3—Alternate achievement levels for each CAA.

**Table 8.13 Scale Score CSEM at Achievement-Level Threshold**

| Content Area and Grade | Level 2—Alternate Scale Score Threshold | Level 2—Alternate CSEM | Level 3—Alternate Scale Score Threshold | Level 3—Alternate CSEM |
|---|---|---|---|---|
| ELA 3 | 345 | 5 | 360 | 6 |
| ELA 4 | 445 | 6 | 460 | 6 |
| ELA 5 | 545 | 5 | 560 | 6 |
| ELA 6 | 645 | 5 | 660 | 6 |
| ELA 7 | 745 | 6 | 760 | 6 |
| ELA 8 | 845 | 4 | 860 | 5 |
| ELA 11 | 945 | 4 | 960 | 5 |
| Mathematics 3 | 345 | 6 | 360 | 7 |
| Mathematics 4 | 445 | 7 | 460 | 7 |
| Mathematics 5 | 545 | 6 | 560 | 7 |
| Mathematics 6 | 645 | 6 | 660 | 7 |
| Mathematics 7 | 745 | 6 | 760 | 7 |
| Mathematics 8 | 845 | 6 | 860 | 7 |
| Mathematics 11 | 945 | 6 | 960 | 7 |

The scale score and scale score CSEM are shown in Table 8.F.19 through Table 8.F.32.

### 8.6.5. Decision Classification Analyses

When an assessment uses achievement levels as the primary method to report test results, accuracy and consistency of decisions become key indicators about the quality of the assessment.

The methodology used for estimating the reliability of classification decisions (Livingston & Lewis,1995) is implemented using the Educational Testing Service (ETS)-proprietary computer program RELCLASS-COMP (Version 4.14).

Decision accuracy describes the extent to which students are classified in the same way as they would be on the basis of the average of all possible forms of a test. Decision accuracy answers the question of how closely the actual classification of students, based on their single-form scores, agrees with the classification that would be made on the basis of their true scores, if their true scores could somehow be known.

Decision consistency describes the extent to which students are classified in the same way as they would be on the basis of a single form of a test other than the one for which data is available. Decision consistency answers the question of what the agreement is between the classifications based on two nonoverlapping, equally difficult forms of the test.

Reliability of classification at a cut score is estimated by combining the multivariate distribution at any particular cut score into a two-by-two table indicating whether the students are above or below the cut score and summing the entries in the diagonal. For both decision accuracy and decision consistency, the estimated proportion of classifications with exact agreement is the sum of the entries in the diagonal of a contingency table representing the multivariate distribution (refer to Figure 8.1 and Figure 8.2). Decision consistency values are always lower than the corresponding decision accuracy values because in decision consistency, both of the classifications of the student are based on scores that depend on which form of the test the student took. In decision accuracy, only one of the classifications is based on a score that can vary in this way.

| True status on all-forms average | Does not reach an achievement level | Reaches an achievement level |
|---|---|---|
| Does not reach an achievement level | Correct classification | Misclassification |
| Reaches an achievement level | Misclassification | Correct classification |

**Figure 8.1 Decision Accuracy for Reaching an Achievement Level on the All-Forms Average**

| Decision made on the form taken | Does not reach an achievement level | Reaches an achievement level |
|---|---|---|
| Does not reach an achievement level | Correct classification | Misclassification |
| Reaches an achievement level | Misclassification | Correct classification |

**Figure 8.2 Decision Consistency for Reaching an Achievement Level on a Hypothetical Alternate Form**

The results of these analyses are presented in Table 8.F.33 through Table 8.F.60 in appendix 8.F. Included are the contingency tables for both accuracy and consistency of the various achievement-level classifications.

## 8.7. Validity Evidence

Validity refers to the degree to which each interpretation or use of a test score is supported by the accumulated evidence (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 2014; ETS, 2014). It constitutes the central notion underlying the development, administration, scoring, and the uses and interpretations of test scores. The validation process does not rely on a single study or gathering only one type of evidence. Rather, validation involves multiple investigations and different kinds of supporting evidence (AERA, APA, & NCME, 2014; Cronbach, 1971; ETS, 2014; Kane, 2006). It begins with the test design and is implicit throughout the entire assessment process, which includes item development and field testing, analyses of items, test scaling and linking, scoring, reporting, and score usage.

In this subsection, the evidence gathered is presented to support the intended uses and interpretations of scores for the CAA. This subsection is organized primarily around the

principles prescribed by AERA, APA, and NCME's *Standards for Educational and Psychological Testing* (2014). These *Standards* require a clear definition of the purpose of the test, a description of the constructs to be assessed, and the population to be assessed, as well as how the scores are to be interpreted and used.

The *Standards* identify five kinds of evidence that can provide support for score interpretations and uses:

1. Evidence based on test content
2. Evidence based on relations to other variables
3. Evidence based on response processes
4. Evidence based on internal structure
5. Evidence based on the consequences of testing

The next subsection defines the purpose of the CAAs, followed by a description and discussion of different kinds of validity evidence that have been gathered.

## 8.7.1. Evidence in the Design of the CAAs

### 8.7.1.1. Purpose

The CAAs are designed to assess students with the most significant cognitive disabilities whose individualized education program (IEP) team has designated the use of an alternate assessment on the statewide summative assessments. The goals of the CAAs are to ensure that students with the most significant cognitive disabilities achieve increasingly higher academic outcomes and leave high school ready for postsecondary options.

### 8.7.1.2. The Constructs to Be Measured

The CAAs for ELA and mathematics are designed to show how well students perform relative to the Core Content Connectors (Connectors) for ELA and mathematics, which were developed by the National Center and State Collaborative (NCSC). These Connectors are content targets linked to the Common Core State Standards (CCSS) and yet are less complex than the CCSS, while focusing on the main academic content at each subject and grade level.

The Connectors illustrate the necessary knowledge and skills needed to reach the learning targets within the CCSS and the knowledge and skills needed at each grade level. The Connectors identify priorities in each content area to guide instruction for students in this population and for the alternate assessment.

Test blueprints are used to measure the Connectors. They also provide an operational definition of the construct to which each set of standards refers and define the following for each content area:

- Subject to be assessed
- Tasks to be presented
- Administration instructions to be given
- Rules used to score student responses

The test blueprints control as many aspects of the measurement procedure as possible so that the testing conditions will remain the same over test administrations (Cronbach, 1971) in order to minimize construct irrelevant score variance (Messick, 1989).

ETS developed all CAA for ELA and mathematics test items to conform to the SBE-approved Connectors and test blueprints (CDE, 2015a [ELA] and 2015b [mathematics]).

#### 8.7.1.3. The Interpretations and Uses of the Scores

Overall student performance expressed as scale scores are generated for the CAAs for ELA and mathematics. The total score is also used to classify students in terms of their achievement level in the content area by grade.

The grade- and content-specific achievement level descriptors describe what students at each achievement level know and can do, by grade and content area. The achievement level descriptors reflect the level of expectation on students' performance, the specific content reflected in the CCSS and the Connectors, as well as the essential understandings (EUs). California educators gathered to develop the grade- and content-specific achievement level descriptors using the general PLDs, which provided the number of reporting levels and the general definition of each reporting level. The importance of the grade- and content-specific PLDs is that they define the knowledge or skill expectations at each achievement level on a functional basis, define the standards as they apply to threshold scores, and give standardized meaning to scores or score ranges.

A description of the uses and applications of the CAA for ELA and mathematics results is presented in *Chapter 7: Scoring and Reporting*. Additional information can be found in the *2017–18 CAASPP Post-Test Guide* (CDE, 2017b).

The CAA test results have four primary purposes:

1. Help facilitate conversations between parents/guardians and teachers about student performance
2. Serve as a tool to help parents/guardians and teachers work together to improve student learning
3. Help staff from schools and local educational agencies identify strengths and areas that need improvement in their educational programs
4. Provide the public and policymakers with information about student achievement

More detailed descriptions regarding score use can be found in the *Education Code* Section 60602 web page at http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=4.&title=2.&part=33.&chapter=5.&article=1 (outside source).

#### 8.7.1.4. Intended Test Population

Only eligible students may participate in the administration of the CAAs. Any student identified for alternate testing takes CAAs. IEP teams "shall determine when a child with a significant cognitive disability shall participate in an alternate assessment aligned with the alternate academic achievement standards."[10]

### 8.7.2. Evidence Based on Test Content

Evidence based on test content refers to traditional forms of content validity evidence, such as the rating of test specifications and test items (Crocker, Miller, & Franks, 1989; Sireci, 1998), as well as alignment methods for educational tests that evaluate the interactions between curriculum frameworks, testing, and instruction (Rothman, Slattery, Vranek, & Resnick, 2002; Bhola, Impara & Buckendahl, 2003; Martone & Sireci, 2009).

[10] S. 1177—114th Congress: Every Student Succeeds Act. 2015. Title 1, Part A, Subpart 1, Section 1111(b)(2)(D)(ii )(I)

With MST test design, an additional dimension of content validity evidence is to ensure that the pathways and combination of two stages produce, for individual students, test forms that conform to the test blueprint. The extent to which test forms administered in 2017–18 meet the blueprints is provided in *Chapter 4: Test Assembly*, and in Table 4.A.1 through Table 4.A.14.

#### 8.7.2.1. Description of the State Standards

The CAAs for ELA and mathematics are aligned with the alternate achievement standards, the Connectors, for ELA and mathematics. The purpose of the Connectors is to ensure that students with the most significant cognitive disabilities achieve increasingly higher academic outcomes and leave high school ready for postsecondary options. The Connectors illustrate the necessary knowledge and skills needed to reach the learning targets within the CCSS and the knowledge and skills needed in each grade. They also identify priorities in each content area to guide the instruction for students in this population and for the alternate assessment (NCSC, 2014a [Reading], 2014b [Writing], and 2014c [mathematics]).

#### 8.7.2.2. Item Specifications

Item specifications describe the characteristics of items that are written to measure each content standard. The specifications for ELA and mathematics are described in *Chapter 3: Item Development and Review*.

#### 8.7.2.3. Module Selection and Pathway

The routing rules for the stages are designed to cover the alternate content standards-based blueprints in the assembly of MST forms. The general module routing approach is based on the routing rules (refer to *Chapter 4: Test Assembly*) that evaluate a module's contribution to each of these measures:

1. A measure of content match to the blueprint
2. A measure of overall test information
3. A measure of content complexity (tier)

#### 8.7.2.4. Assessment Blueprints

The CAA test blueprints describe the content of the ELA and mathematics assessments for all grades tested and how that content is assessed. The test blueprints address the basic core content domains, the CCSS, the Connectors, and the essential understanding for each standard. Each test is described by a single blueprint. The degree to which test forms administered in 2017–18 meet the blueprint is provided in *Chapter 4: Test Assembly* and in Table 4.A.1 through Table 4.A.14.

#### 8.7.2.5. Form Assembly Process

The content standards, blueprints, and routing rules are the basis for choosing items and modules for each assessment. Additionally, item difficulty and the content complexity of items are provided to evaluate the statistical characteristics of test forms. Refer to *Chapter 4: Test Assembly* for information on the test assembly process.

### 8.7.3. Evidence Based on Response Processes

Validity evidence based on response processes refers to "evidence concerning the fit between the construct and the detailed nature of performance or response actually engaged in by students" (AERA et al., 2014, p. 12). This type of evidence generally includes documentation of activities such as

- systematic observations of test response behavior,
- showing the relationships of items intended to require demonstrations or applications of knowledge and skills to other measures that require similar levels of cognitive complexity in the content (i.e., teacher ratings of student performance), and
- evaluation of the reasoning processes students employ when solving test items (Embretson, 1983; Messick, 1989).

This type of evidence is used to confirm that the CAAs are measuring the cognitive skills that are intended as the objects of measurement and are used by students to respond to the items, for example, the Survey of Student Characteristics (SSC) and Student Response Check described in subsection *5.1 Test Administration* in chapter 5. Also, use of the SSC is planned as part of a research agenda, and the goal is to improve routing during the future administrations.

#### 8.7.3.1. Analysis of Testing Time

Testing time for each administration can be evaluated for consistency by examining the expected response processes for the items presented to students. The length of time it takes students to complete a test is collected and analyzed to build a profile describing what a typical testing event looks like for each content area and grade. In addition, variability in testing time is investigated to determine whether a student's testing time should be viewed as unusual or irregular. It should be noted that the CAAs for ELA and mathematics are untimed tests.

The students with no item response and students who did not answer at least four items were removed from these analyses. The remaining testing population is partitioned into quartiles based on scale scores. These quartile groupings are not the same as the achievement levels.

Descriptive statistics of the time required to complete the total test are computed for each of the four quartile groups by content area and grade level.

Some cases of extremely long testing time may be attributed to students with special needs taking longer to complete the tests, or the test not being closed down properly. With that being said, the results should be interpreted with caution. The medians (50th percentile) are more meaningful in the interpretation of the time comparisons because medians are less impacted by extreme values than means.

Table 8.G.1 and Table 8.G.2, which start on page 498, provide the descriptive statistics for ELA and mathematics testing time for each test pathway, respectively. These tables include total testing time and percentile information for each test pathway. Table 8.G.3 and Table 8.G.4 present total testing time and percentile information at each student performance quartile level. The unit of testing time is minutes; for example, in Table 8.G.3, the median of the testing time for the first quartile group (Q1) of ELA grade three is 27.19 minutes.

Overall, students at the lowest quartile level (Q1) have shorter testing times than students in the other quartile groups. The median total testing time generally increases as the quartile level increases from Q1 to Q4. ELA shows longer testing times than mathematics.

### 8.7.4. Evidence Based on Internal Structure

Internal structure evidence evaluates the strength or salience of the major dimensions underlying an assessment using indices of measurement precision such as DIF analysis, test reliability, decision accuracy and consistency, generalizability coefficients, conditional and unconditional SEMs, and TIFs.

#### 8.7.4.1. Differential Item Functioning (DIF)

DIF analyses were conducted to assess differences in the item performance of groups of students who differ in their demographic characteristics. For both ELA and mathematics, few items were identified as having significant levels of DIF. Refer to subsection *8.5 Differential Item Functioning* for a description the DIF analyses and appendix 8.E, where the results of the DIF analyses are reported.

#### 8.7.4.2. Overall Reliability Estimates

The results of reliability analyses on the theta scores and scale score for each test are presented in Table 8.12. The results indicate that the reliability estimates for all tests are moderately high, ranging from 0.75 to 0.89.

#### 8.7.4.3. Student Groups Reliability Estimates

The reliabilities are also examined for various student groups. The student groups considered were based on gender, ethnicity, economic status, primary disability, migrant status, and English-language fluency. Reliability estimates and SEM information for the theta scores are reported for each student group in Table 8.F.1 through Table 8.F.16. This same data is presented for each of the five versions of the grade-level, content area assessments in Table 8.F.17 (ELA) and Table 8.F.18 (mathematics).

#### 8.7.4.4. Reliability of Performance Classifications

The methodology used for estimating the reliability of classification decisions is described with the decision classification analyses in subsection *8.6.5 Decision Classification Analyses*. The results of these analyses are presented in Table 8.F.33 through Table 8.F.60 in appendix 8.F.

#### 8.7.4.5. Correlations Between Content Area Test Scores

The degree to which students' content area test scores correlate as expected provides evidence that those scores are measuring the intended constructs. Table 8.14 provides the correlations between scores on the ELA and mathematics tests and the number of students on which these correlations are based. Sample sizes for the individual tests are shown on the left. The correlations are provided in the upper right and are based on all students with valid scale scores for both tests and are provided by grade, and the sample sizes are shown on the lower right in bold font and indicated with an asterisk.

**Table 8.14 Correlations Between ELA and Mathematics for All Students**

| Content Area and Grade | Number of Students | R and Sample Size |
|---|---|---|
| ELA 3 | 4,127 | 0.63 |
| Mathematics 3 | 4,112 | ***3,969** |
| ELA 4 | 4,455 | 0.64 |
| Mathematics 4 | 4,371 | ***4,277** |
| ELA 5 | 4,465 | 0.63 |
| Mathematics 5 | 4,373 | ***4,294** |

| Content Area and Grade | Number of Students | R and Sample Size |
|---|---|---|
| ELA 6 | 4,579 | 0.60 |
| Mathematics 6 | 4,386 | ***4,320** |
| ELA 7 | 4,557 | 0.65 |
| Mathematics 7 | 4,523 | ***4,397** |
| ELA 8 | 4,375 | 0.61 |
| Mathematics 8 | 4,274 | ***4,169** |
| ELA 11 | 3,840 | 0.66 |
| Mathematics 11 | 3,802 | ***3,700** |

**Notes:**

- Numbers in **bold** font and indicated with an asterisk are the sample sizes to calculate the correlations.
- Sample sizes of the individual assessments are in the *Number of Students* column.
- R denotes the correlation coefficient; these are decimals that begin with "0" (zero).

Results for these students appear to be consistent with expectations. In general, students' ELA scores correlated moderately with their mathematics scores.

Table 8.G.5 through Table 8.G.11 starting on page 505 in appendix 8.G provide the content area test score correlations by gender, ethnicity, English-language fluency, economic status, and migrant status. Similar patterns of correlations were found between students' ELA and mathematics results within the student groups.

Note that the correlations are reported only for groups of more than 10 students. Correlations between scores on any two content area tests where 10 or fewer students took the tests are expressed as "NA."

### 8.7.5. Evidence Based on Relationship to Other Variables

Evidence based on *relations to other variables* can be evaluated using the correlation between the CAAs for ELA and mathematics assessment results and variables related to students, as well as the correlation between the CAAs for ELA and mathematics scores with teacher judgments of student readiness for the next grade level. This type of evidence is essential for supporting the validity of certain inferences based on scores from the CAA and the SSC.

Table 8.15 presents the relationship between the CAA for ELA and mathematics scale scores and the level of test engagement reported by teachers on a Likert scale of 0–3 in the final question of the SSC. Refer to subsection *8.7.5.1 Survey of Student Characteristics* for additional information.

During the 2017–18 CAAs for ELA and mathematics administration, the correlations between scale scores and the test engagement range from .53 to .59 for ELA and from .45 to .52 for mathematics. All correlations are significant, with $p<.01$.

Results show a moderately strong correlation between the test engagement and student achievement (scale scores) across all tests; in particular, the correlation in ELA is stronger

than that in mathematics. As is shown by their test engagement, high school students seem to have the highest level of test engagement, on average, than other grades.

**Table 8.15 Correlations between Scale Scores and SSC Test Engagement Response**

| Content Area and Grade | SS_Mean | Resp_Mean | SS_SD | Resp_SD | N | Correlation |
|---|---|---|---|---|---|---|
| ELA 3 | 348.32 | 2.07 | 18.88 | 0.87 | 4,158 | .59* |
| ELA 4 | 445.36 | 2.13 | 17.41 | 0.84 | 4,462 | .58* |
| ELA 5 | 546.06 | 2.23 | 17.13 | 0.84 | 4,479 | .57* |
| ELA 6 | 645.03 | 2.18 | 13.99 | 0.85 | 4,579 | .56* |
| ELA 7 | 745.00 | 2.24 | 17.86 | 0.86 | 4,538 | .53* |
| ELA 8 | 847.25 | 2.26 | 13.53 | 0.86 | 4,386 | .55* |
| ELA 11 | 949.11 | 2.38 | 15.87 | 0.83 | 3,858 | .57* |
| Mathematics 3 | 342.49 | 2.03 | 15.40 | 0.88 | 4,123 | .45* |
| Mathematics 4 | 440.48 | 2.08 | 15.52 | 0.89 | 4,382 | .51* |
| Mathematics 5 | 541.85 | 2.14 | 15.52 | 0.87 | 4,389 | .47* |
| Mathematics 6 | 641.80 | 2.18 | 14.51 | 0.87 | 4,434 | .45* |
| Mathematics 7 | 741.25 | 2.19 | 15.63 | 0.88 | 4,542 | .48* |
| Mathematics 8 | 841.32 | 2.20 | 14.45 | 0.89 | 4,326 | .47* |
| Mathematics 11 | 940.93 | 2.35 | 16.68 | 0.86 | 3,823 | .52* |

**Note:** * $p<0.01$

#### 8.7.5.1. Survey of Student Characteristics (SSC)

The purpose of the SSC is to elicit information from teachers regarding the student's characteristics. The SSC focuses on the characteristics of the student's disability as well as types and level of engagement.

The SSC includes three selected questions from the Learner Characteristics Inventory (LCI) (Kearns, Kleinert, Kleinert, & Towles, 2006), with two of these questions on the student's preferable means of responding to the CAAs in ELA and mathematics, respectively. The LCI for alternate assessments based on alternate achievement standards (AA-AAS) were developed by the National Alternate Assessment Center to gather data on characteristics of students taking alternate assessments.

The purposes of LCI are to identify the learner characteristic patterns across grades and years, provide validity evidence regarding the population, and support the use of the AA-AAS for this population. The survey was completed by teachers of students who took the CAAs. Three survey questionnaires and the summary of responses are presented in Table 8.G.12 and Table 8.G.13 for ELA and mathematics, respectively. In general, the percentage of respondents for each survey category is similar across grades and content areas. The key findings from the survey results are summarized next.

- For either ELA or mathematics, 9 to 12 percent of test examiners for each grade reported that they ended the test early because the student's productivity and engagement had significantly declined, even after allowing breaks over multiple days.

- The majority of the test examiners—over 50 percent for each grade of either ELA or mathematics—reported that their students communicated by using a mouse, touch screen, or a computer keyboard to enter responses directly in the system.
- When asked about the level of engagement of students in ELA assessments, 30 to 50 percent of the test examiners reported that students were fully engaged, and 23 to 32 percent reported that students were moderately engaged for each grade.
- When asked about the level of engagement in mathematics assessments, 29 to 49 percent of the text examiners reported that students were fully engaged in the ELA assessment, and 22 to 30 percent reported that students were moderately engaged.

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# Appendix 8.A: Classical Item Analyses

**Note 1:** In Table 8.A.1 through Table 8.A.28, the value in the *I mtem Use* column indicates the item use for analysis.

| Item Use | Description |
|---|---|
| E | Operational items with the prior statistics. Items are used for linking |
| O | Operational items without the prior statistics |
| P | Field test items |

**Note 2:** Items with poor statistics are flagged. Refer to the table, next, for a description of each flag and possible values that will appear in the *Flag* column in Table 8.A.1 through Table 8.A.14.

| Flag | Description | Criteria |
|---|---|---|
| A | Indicates low average item score (AIS) /low *p*-value (difficult item) | Dichotomous item: *p*-value < 0.33<br>Polytomous item: AIS < 30 percent of maximum possible score points |
| H | Indicates high average item score (AIS) /high *p*-value (easy item) | Dichotomous item: *p*-value > 0.95<br>Polytomous item: AIS > 80 percent of maximum possible score points |
| Rpoly | Indicates low correlation with the criterion Item – Total Correlation < 0.20 | Polyserial < 0.20 |
| O | Indicates high percent of omits or not responding | Dichotomous item: %omit > 5%<br>Polytomous item: %omit > 20% |
| D | Indicates high ability students select distractor | Dichotomous item: High scoring students tend to select distractor over correct option<br>Polytomous item: High scoring students tend to score lower than at the top score level (0 score for completion item, 0 or 1 for 2-point item) |
| L | Indicates a small percentageof students obtaining a score category | Polytomous item: lower than or equal to 3% |

**Note 3:** Items that do not have a flagged are indicated with "[no flag]" in the *Flag* column in Table 8.A.1 through Table 8.A.14.

**Table 8.A.1 Average Item Score and Polyserial for English Language Arts/Literacy (ELA), Grade Three**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTW3020108T1 | E | 0.74 | 0.19 | Rpoly | 1 | ZoneSS Discrete |
| CLTR3020057T1-M | E | 1.42 | 0.66 | [no flag] | 2 | ZoneMS Member |
| CLTR3020058T1-M | E | 0.80 | 0.67 | [no flag] | 1 | MCSS Member |
| CLTR3020059T1-O | E | 1.62 | 0.60 | H | 2 | MCMA - Member |
| CLTW3020095T1 | E | 1.53 | 0.64 | [no flag] | 2 | ZoneMS Discrete |
| CLTR3020105T1 | E | 0.72 | 0.72 | [no flag] | 1 | MCSS Discrete |
| CLTW3020107T1 | E | 0.81 | 0.59 | [no flag] | 1 | MCSS Discrete |
| CLTR3020140T2-M | E | 1.43 | 0.63 | L | 2 | ZoneMS Member |
| CLTR3020141T2-M | E | 0.48 | 0.47 | [no flag] | 1 | MCSS Member |
| CLTR3020142T2-M | E | 1.04 | 0.65 | [no flag] | 2 | MCMA - Member |
| CLTR3020051T1 | E | 0.51 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTR3020052T1 | E | 0.53 | 0.66 | O | 1 | MCSS Member |
| CLTR3020053T1-M | E | 0.50 | 0.65 | [no flag] | 1 | MatchSS Member |
| CLTR3020170T1 | E | 0.65 | 0.54 | [no flag] | 2 | MCMA - Member |
| CLTR3020169T1 | E | 1.07 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTW3020171T1-R | O | 0.32 | 0.65 | A | 1 | ZoneMS Member |
| CLTR3020093T1 | E | 0.47 | 0.54 | O | 1 | MCSS Discrete |
| CLTR3040231T1 | O | 0.78 | 0.51 | O | 1 | ZoneSS Member |
| CLTW3020146T2 | E | 1.14 | 0.68 | [no flag] | 2 | ZoneMS Discrete |
| CLTR3020143T2 | E | 0.56 | 0.63 | O | 1 | MCSS Discrete |
| CLTW3020145T2-M | E | 1.05 | 0.68 | O | 2 | MatchMS Member |
| CLTW3020162T2 | E | 0.52 | 0.38 | O | 1 | MCSS Discrete |
| CLTW3040186T2 | O | 0.81 | 0.54 | [no flag] | 2 | ZoneMS Member |
| CLTR3030110T2 | O | 1.30 | 0.67 | [no flag] | 2 | ZoneMS Member |
| CLTR3030028T1 | O | 0.35 | 0.61 | O | 1 | MCSS Discrete |
| CLTR3020094T1 | E | 0.55 | 0.59 | [no flag] | 1 | MCSS Discrete |
| CLTW3030030T1 | E | 1.20 | 0.61 | [no flag] | 2 | MatchMS Discrete |
| CLTR3030136T1 | O | 1.56 | 0.55 | [no flag] | 2 | Composite - Member |
| CLTW3020165T2 | O | 0.66 | 0.29 | [no flag] | 1 | MatchSS Member |
| CLTR3020163T2 | O | 0.65 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR3020164T2 | O | 0.72 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR3030080T2 | E | 0.55 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTR3030081T2 | E | 0.62 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTW3030082T2 | E | 1.45 | 0.61 | [no flag] | 2 | ZoneMS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTW3030113T2 | E | 1.43 | 0.72 | [no flag] | 2 | MatchMS Discrete |
| CLTR3040181T2 | O | 1.45 | 0.55 | [no flag] | 2 | Composite - Member |
| CLTW3020403T3 | E | 0.97 | 0.56 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW3020161T2 | E | 0.38 | 0.59 | [no flag] | 1 | MatchMS Discrete |
| CLTR3040191T3 | O | 0.37 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR3030168T3 | E | 0.54 | 0.55 | [no flag] | 1 | MCSS Discrete |
| CLTR3040188T2 | O | 0.85 | 0.73 | [no flag] | 1 | MCSS Member |
| CLTR3040187T2 | O | 1.10 | 0.45 | [no flag] | 2 | Composite - Member |
| CLTR3040189T2 | O | 0.73 | 0.45 | [no flag] | 1 | MCSS Member |
| CLTR3040182T2 | O | 0.74 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTW3020179T3 | E | 1.00 | 0.65 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR3030158T3-R | O | 0.97 | 0.66 | H | 1 | MCSS Member |
| CLTR3030159T3 | E | 0.53 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTW3030160T3 | E | 1.08 | 0.78 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR3030166T3 | O | 1.44 | 0.43 | [no flag] | 2 | ZoneMS Member |
| CLTR3040194T3 | O | 0.72 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTR3040190T3 | O | 1.80 | 0.47 | H L | 2 | ZoneMS Member |
| CLTR3040024T1 | P | 0.59 | 0.75 | [no flag] | 1 | MCSS Member |
| CLTR3040025T1 | P | 1.58 | 0.77 | L | 2 | ZoneMS Member |
| CLTR3040026T1 | P | 0.64 | 0.71 | [no flag] | 1 | MCSS Member |
| CLTW3040004T1 | P | 0.54 | 0.59 | [no flag] | 1 | ZoneSS Member |
| CLTR3040039T1 | P | 0.45 | 0.55 | [no flag] | 1 | MCSS Member |
| CLTR3040038T1 | P | 1.20 | 0.56 | [no flag] | 2 | Composite - Member |
| CLTR3040040T1 | P | 0.46 | 0.39 | [no flag] | 1 | ZoneSS Member |
| CLTW3040227T2 | P | 0.26 | 0.46 | A | 1 | MatchSS Member |
| CLTR3040232T1 | P | 1.40 | 0.68 | [no flag] | 2 | ZoneMS Discrete |
| CLTR3040183T2 | P | 1.50 | 0.57 | L | 2 | ZoneMS Discrete |
| CLTW3040184T2 | P | 0.39 | 0.61 | [no flag] | 1 | MCMS Member |
| CLTW3040022T1 | P | 0.78 | 0.74 | [no flag] | 1 | MCSS Member |
| CLTR3040180T2 | P | 0.46 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTR3040085T2 | P | 0.30 | 0.46 | A O | 1 | MCSS Member |
| CLTR3040084T2 | P | 0.44 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTW3040086T2 | P | 1.17 | 0.69 | [no flag] | 2 | MatchMS Member |
| CLTR3030164T3 | P | 1.50 | 0.80 | L | 2 | ZoneMS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR3040179T2 | P | 0.69 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTW3040193T3 | P | 0.77 | 0.60 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR3040192T3 | P | 1.26 | 0.67 | [no flag] | 2 | MCMA - Member |

**Table 8.A.2 Average Item Score and Polyserial for ELA, Grade Four**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR4020239T1 | E | 0.80 | 0.60 | [no flag] | 1 | MCSS Discrete |
| CLTR4020304T1-M | E | 0.66 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTR4020305T1-M | E | 1.40 | 0.59 | [no flag] | 2 | ZoneMS Member |
| CLTW4020306T1-O | E | 1.39 | 0.55 | [no flag] | 2 | ZoneMS Member |
| CLTW4020240T1-M | E | 1.49 | 0.71 | [no flag] | 2 | MatchMS Member |
| CLTR4020308T1 | E | 0.64 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTR4020084T2 | E | 0.78 | 0.35 | [no flag] | 1 | MCSS Discrete |
| CLTR4030020T2 | E | 0.59 | 0.53 | [no flag] | 1 | MCSS Member |
| CLTR4030021T2 | E | 1.16 | 0.59 | [no flag] | 2 | ZoneMS Member |
| CLTW4030022T2 | E | 0.48 | 0.53 | O | 1 | MCSS Member |
| CLTR4020256T1-M | E | 0.43 | 0.48 | O | 1 | MCSS Member |
| CLTR4020257T1-M | E | 1.17 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTR4020258T1-M | E | 1.08 | 0.51 | [no flag] | 2 | MCMA - Member |
| CLTR4040202T1 | O | 0.63 | 0.55 | O | 1 | MCSS Discrete |
| CLTR4030173T1 | O | 0.40 | 0.42 | O | 1 | MCSS Member |
| CLTR4020237T1 | E | 0.72 | 0.58 | O | 1 | MCSS Discrete |
| CLTR4030170T1 | E | 0.34 | 0.44 | O | 1 | MCSS Member |
| CLTR4030171T1 | O | 1.52 | 0.75 | L | 2 | ZoneMS Member |
| CLTW4040203T1 | O | 0.62 | 0.35 | [no flag] | 1 | ZoneSS Member |
| CLTR4020116T2 | E | 0.45 | 0.49 | O | 1 | MCSS Member |
| CLTR4020117T2 | E | 1.13 | 0.54 | [no flag] | 2 | ZoneMS Member |
| CLTW4020118T2 | E | 0.32 | 0.41 | A O | 1 | MCSS Member |
| CLTR4030023T2-R | O | 0.42 | 0.44 | O | 1 | MCSS Member |
| CLTR4030024T2 | E | 0.94 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTR4030025T2 | E | 0.63 | 0.43 | [no flag] | 2 | MCMA - Member |
| CLTR4040200T1 | O | 0.32 | 0.36 | A | 1 | MCSS Member |
| CLTR4030172T1 | E | 1.37 | 0.55 | [no flag] | 2 | ZoneMS Member |
| CLTR4030062T2 | O | 1.62 | 0.70 | H | 2 | MatchMS Member |
| CLTW4040074T2 | O | 0.47 | 0.21 | [no flag] | 1 | MCSS Member |
| CLTR4040005T2 | O | 0.77 | 0.58 | [no flag] | 1 | MatchSS Discrete |
| CLTR4040069T2 | O | 0.51 | 0.40 | [no flag] | 1 | MCSS Member |
| CLTW4020138T2 | E | 0.67 | 0.17 | Rpoly | 1 | MCSS Discrete |
| CLTR4020090T2 | E | 0.24 | 0.32 | A | 1 | MCSS Member |
| CLTR4020091T2 | E | 1.11 | 0.43 | [no flag] | 2 | ZoneMS Member |
| CLTR4020092T2 | E | 1.08 | 0.52 | [no flag] | 2 | MCMA - Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR4040072T2 | O | 1.15 | 0.53 | [no flag] | 2 | ZoneMS Member |
| CLTR4020245T3 | E | 0.47 | 0.49 | [no flag] | 1 | MCSS Member |
| CLTR4020244T3-M | E | 0.68 | 0.50 | [no flag] | 2 | MatchMS Member |
| CLTW4020246T3 | E | 0.77 | 0.48 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR4020119T2-M | E | 0.36 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR4020120T2-M | E | 1.14 | 0.40 | [no flag] | 2 | ZoneMS Member |
| CLTW4020121T2-M | E | 0.54 | 0.27 | [no flag] | 1 | ZoneSS Member |
| CLTR4020083T2 | E | 0.61 | 0.46 | [no flag] | 1 | MCSS Discrete |
| CLTR4040195T3 | O | 0.58 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR4030089T3 | E | 0.58 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTR4030090T3 | E | 1.26 | 0.49 | [no flag] | 2 | ZoneMS Member |
| CLTR4030091T3 | E | 1.39 | 0.51 | [no flag] | 2 | MCMA - Member |
| CLTW4030132T3-R | O | 0.55 | 0.56 | [no flag] | 1 | MatchMS Member |
| CLTW4030133T3-R | O | 1.25 | 0.58 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR4020128T3 | O | 0.78 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTR4030131T3 | E | 0.63 | 0.49 | [no flag] | 1 | MCSS Discrete |
| CLTR4040006T1 | P | 0.71 | 0.77 | [no flag] | 1 | MCSS Member |
| CLTR4040007T1 | P | 1.51 | 0.75 | [no flag] | 2 | ZoneMS Member |
| CLTW4040008T1 | P | 1.27 | 0.66 | [no flag] | 2 | ZoneMS Member |
| CLTR4040199T1 | P | 0.84 | 0.73 | [no flag] | 1 | MCSS Member |
| CLTR4040001T2 | P | 0.70 | 0.58 | [no flag] | 1 | MCSS Member |
| CLTR4040002T2 | P | 0.55 | 0.64 | [no flag] | 1 | ZoneSS Member |
| CLTR4040003T2 | P | 1.49 | 0.57 | [no flag] | 2 | MCMA - Member |
| CLTR4040071T2 | P | 0.66 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR4040100T1 | P | 0.86 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTR4040101T1 | P | 1.47 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTW4040102T1 | P | 0.42 | 0.69 | [no flag] | 1 | MCSS Member |
| CLTR4040201T1 | P | 1.38 | 0.55 | L | 2 | ZoneMS Discrete |
| CLTR4040051T2 | P | 0.64 | 0.78 | [no flag] | 1 | MCSS Member |
| CLTR4040052T2 | P | 1.23 | 0.50 | [no flag] | 2 | ZoneMS Member |
| CLTW4040053T2 | P | 0.41 | 0.53 | O | 1 | MCSS Member |
| CLTW4040076T2 | P | 1.35 | 0.75 | [no flag] | 2 | ZoneMS Member |
| CLTR4040070T2 | P | 1.43 | 0.55 | L | 2 | ZoneMS Member |
| CLTW4040073T2 | P | 0.40 | 0.30 | [no flag] | 1 | MCSS Member |
| CLTW4040009T3 | P | 0.82 | 0.55 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR4040197T3 | P | 0.77 | 0.70 | [no flag] | 1 | MCSS Member |

**Table 8.A.3 Average Item Score and Polyserial for ELA, Grade Five**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTW5020317T1 | E | 1.63 | 0.60 | H L | 2 | ZoneMS Discrete |
| CLTR5020453T1-M | E | 1.75 | 0.72 | H L | 2 | ZoneMS Member |
| CLTW5020454T1-M | E | 1.45 | 0.71 | [no flag] | 2 | ZoneMS Member |
| CLTR5030154T1 | E | 1.57 | 0.71 | [no flag] | 2 | ZoneMS Member |
| CLTR5030156T1 | E | 1.60 | 0.67 | H L | 2 | ZoneMS Discrete |
| CLTR5020314T1 | E | 0.66 | 0.59 | [no flag] | 1 | MCSS Discrete |
| CLTR5030185T2 | E | 1.63 | 0.48 | H L | 2 | ZoneMS Member |
| CLTR5020253T2-M | E | 0.58 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTR5020254T2-M | E | 1.36 | 0.48 | L | 2 | ZoneMS Member |
| CLTW5020255T2-M | E | 0.36 | 0.35 | O | 1 | MCSS Member |
| CLTW5030157T1 | E | 0.71 | 0.40 | O | 1 | MCSS Member |
| CLTR5040041T1 | O | 0.42 | 0.41 | [no flag] | 1 | MCSS Member |
| CLTR5020327T1-M | E | 0.47 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTR5020328T1-M | E | 1.11 | 0.51 | [no flag] | 2 | ZoneMS Member |
| CLTW5020329T1-M | E | 0.39 | 0.30 | O | 1 | MCSS Member |
| CLTW5020335T1 | O | 0.27 | 0.23 | D A O | 1 | MCSS Discrete |
| CLTR5030263T1 | O | 0.42 | 0.44 | O | 1 | MCSS Member |
| CLTR5030264T1 | O | 1.09 | 0.60 | [no flag] | 2 | ZoneMS Member |
| CLTW5030265T1 | O | 0.31 | 0.45 | A O | 1 | MCSS Member |
| CLTR5020047T2 | E | 1.14 | 0.62 | [no flag] | 2 | ZoneMS Discrete |
| CLTR5020346T2 | E | 0.96 | 0.44 | [no flag] | 2 | MCMA - Discrete |
| CLTR5030183T2 | O | 1.08 | 0.61 | [no flag] | 2 | ZoneMS Member |
| CLTR5040104T2 | O | 0.40 | 0.52 | O | 1 | MCSS Member |
| CLTW5040105T2 | O | 1.05 | 0.62 | [no flag] | 2 | ZoneMS Member |
| CLTR5040103T2 | O | 0.28 | 0.24 | D A O | 1 | MCSS Member |
| CLTR5030122T1 | E | 0.54 | 0.47 | [no flag] | 1 | MCSS Member |
| CLTR5030123T1-M | O | 0.84 | 0.43 | [no flag] | 2 | MCMA - Member |
| CLTW5030124T1 | E | 1.49 | 0.55 | L | 2 | MatchMS Member |
| CLTW5020347T2 | E | 0.40 | 0.37 | [no flag] | 1 | MCSS Discrete |
| CLTR5030179T2 | E | 0.60 | 0.47 | [no flag] | 1 | MCSS Member |
| CLTR5030180T2 | E | 1.46 | 0.39 | L | 2 | ZoneMS Member |
| CLTW5030181T2-R | O | 0.50 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTR5040116T2 | O | 0.48 | 0.44 | [no flag] | 1 | MCSS Member |
| CLTR5020342T2 | E | 1.10 | 0.36 | [no flag] | 2 | MCMA - Discrete |
| CLTR5040109T2 | O | 0.83 | 0.68 | [no flag] | 1 | MCSS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR5040110T2 | O | 1.51 | 0.69 | [no flag] | 2 | Composite - Member |
| CLTW5040111T2 | O | 1.61 | 0.68 | H | 2 | MatchMS Member |
| CLTR5030140T3 | E | 0.51 | 0.36 | [no flag] | 1 | MCSS Member |
| CLTR5020073T3 | E | 0.34 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTW5030139T3 | O | 0.62 | 0.66 | [no flag] | 1 | MatchMS Member |
| CLTR5040087T2 | O | 0.72 | 0.58 | [no flag] | 1 | MCSS Member |
| CLTR5040088T2 | O | 1.68 | 0.62 | H L | 2 | ZoneMS Member |
| CLTR5040089T2 | O | 1.25 | 0.60 | [no flag] | 2 | MCMA - Member |
| CLTR5040115T2 | O | 1.73 | 0.55 | H L | 2 | ZoneMS Member |
| CLTR5020038T3-M | E | 0.34 | 0.42 | [no flag] | 1 | MCMS Member |
| CLTR5020039T3-M | E | 0.39 | 0.39 | [no flag] | 1 | MCSS Member |
| CLTW5020040T3-M | E | 0.77 | 0.51 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR5020341T3 | E | 1.24 | 0.23 | L | 2 | ZoneMS Discrete |
| CLTR5040171T3 | O | 0.64 | 0.37 | [no flag] | 1 | MatchSS Member |
| CLTW5040230T3 | O | 1.56 | 0.56 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR5040228T3 | O | 0.54 | 0.49 | [no flag] | 1 | MCSS Member |
| CLTR5040229T3 | O | 0.54 | 0.48 | [no flag] | 1 | MCSS Member |
| CLTW5040174T3 | O | 0.76 | 0.58 | [no flag] | 1 | MatchMS Discrete |
| CLTW5040019T1 | P | 0.65 | 0.69 | [no flag] | 1 | MCSS Member |
| CLTR5040014T1 | P | 0.73 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR5040013T1 | P | 1.68 | 0.79 | H L | 2 | ZoneMS Member |
| CLTW5040015T1 | P | 1.50 | 0.73 | [no flag] | 2 | MatchMS Member |
| CLTW5030187T2-R | P | 0.54 | 0.68 | [no flag] | 1 | MatchSS Member |
| CLTR5040035T1 | P | 0.73 | 0.71 | [no flag] | 1 | MCSS Member |
| CLTW5040036T1 | P | 0.79 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR5040034T1 | P | 1.53 | 0.71 | L | 2 | ZoneMS Member |
| CLTR5040118T2 | P | 1.57 | 0.61 | L | 2 | ZoneMS Member |
| CLTR5020250T3 | P | 1.16 | 0.66 | [no flag] | 2 | MatchMS Member |
| CLTW5020251T3 | P | 1.34 | 0.63 | [no flag] | 2 | MatchMS Member |
| CLTR5020252T3 | P | 0.39 | 0.59 | [no flag] | 1 | MCSS Member |
| CLTR5030145T1 | P | 0.74 | 0.73 | [no flag] | 1 | MCSS Member |
| CLTR5040016T1 | P | 0.79 | 0.70 | [no flag] | 1 | MCSS Member |
| CLTR5040018T1 | P | 1.37 | 0.67 | [no flag] | 2 | MCMA - Member |
| CLTR5040017T1 | P | 1.51 | 0.62 | L | 2 | ZoneMS Member |
| CLTR5020336T1 | P | 1.44 | 0.60 | [no flag] | 2 | MCMA - Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR5030182T2-R | P | 0.57 | 0.65 | [no flag] | 1 | MCSS Member |
| CLTR5040117T2 | P | 0.64 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTW5040120T2 | P | 0.43 | 0.45 | [no flag] | 1 | MCSS Member |

**Table 8.A.4 Average Item Score and Polyserial for ELA, Grade Six**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR6020097T1 | E | 1.76 | 0.62 | H | 2 | MCMA - Discrete |
| CLTR6030030T1 | E | 1.50 | 0.57 | [no flag] | 2 | MCMA - Member |
| CLTR6030031T1 | E | 0.79 | 0.44 | [no flag] | 1 | MCSS Member |
| CLTW6030032T1-O | E | 1.29 | 0.63 | [no flag] | 2 | ZoneMS Member |
| CLTW6030202T1 | E | 0.69 | 0.47 | [no flag] | 1 | MatchMS Member |
| CLTW6020104T1 | E | 1.44 | 0.58 | [no flag] | 2 | ZoneMS Discrete |
| CLTR6020204T2 | E | 1.54 | 0.59 | L | 2 | ZoneMS Discrete |
| CLTR6020200T2-M | E | 0.61 | 0.54 | [no flag] | 1 | MCSS Member |
| CLTR6020199T2-M | E | 0.66 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTR6020202T2 | E | 1.45 | 0.63 | [no flag] | 2 | ZoneMS Discrete |
| CLTR6020101T1-R | O | 0.36 | 0.56 | O | 1 | MCSS Discrete |
| CLTW6030012T1-R | O | 0.27 | 0.33 | A O | 1 | ZoneSS Member |
| CLTR6030010T1-R | O | 0.32 | 0.51 | A O | 1 | MCSS Member |
| CLTR6030011T1-R | O | 0.36 | 0.50 | A O | 2 | MatchMS Member |
| CLTR6030203T1 | E | 0.32 | 0.54 | A O | 1 | MCSS Member |
| CLTR6020098T1 | E | 0.86 | 0.61 | [no flag] | 2 | ZoneMS Discrete |
| CLTR6030042T1 | O | 0.71 | 0.42 | [no flag] | 2 | MCMA - Member |
| CLTR6040124T1 | O | 0.47 | 0.60 | O | 1 | MCSS Member |
| CLTR6020099T1 | E | 0.88 | 0.62 | [no flag] | 2 | MCMA - Discrete |
| CLTR6030073T2 | E | 0.26 | 0.52 | A O | 1 | MCSS Member |
| CLTR6030074T2-R | O | 0.07 | 0.42 | A O | 1 | MCMS Member |
| CLTW6030075T2 | E | 0.71 | 0.69 | O | 2 | MatchMS Member |
| CLTW6040204T2 | O | 0.28 | 0.42 | A O | 1 | MatchMS Member |
| CLTR6030128T2 | O | 0.79 | 0.59 | O | 2 | ZoneMS Member |
| CLTW6020208T2 | E | 0.36 | 0.49 | O | 1 | MCSS Discrete |
| CLTR6030064T1-R | O | 0.64 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTR6030065T1-R | O | 0.80 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTW6030066T1 | E | 0.97 | 0.51 | [no flag] | 2 | MatchMS Member |
| CLTW6040166T2 | O | 1.28 | 0.59 | [no flag] | 2 | ZoneMS Member |
| CLTR6030260T2 | O | 0.53 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTR6030261T2 | O | 1.03 | 0.50 | [no flag] | 2 | Composite - Member |
| CLTR6030262T2 | O | 1.18 | 0.55 | [no flag] | 2 | MCMA - Member |
| CLTW6040165T2 | O | 0.38 | 0.24 | [no flag] | 1 | MatchSS Member |
| CLTR6030197T2 | E | 0.45 | 0.18 | Rpoly | 1 | ZoneSS Member |
| CLTR6030147T2 | E | 0.35 | 0.35 | [no flag] | 1 | MCSS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR6030148T2 | E | 1.14 | 0.48 | [no flag] | 2 | ZoneMS Member |
| CLTW6030149T2 | E | 0.47 | 0.40 | [no flag] | 1 | MatchSS Member |
| CLTR6030205T3 | E | 1.08 | 0.34 | [no flag] | 2 | ZoneMS Member |
| CLTW6040033T3 | O | 0.25 | 0.39 | A | 1 | MatchMS Member |
| CLTR6040030T3 | O | 0.99 | 0.56 | [no flag] | 2 | ZoneMS Member |
| CLTR6040163T2 | O | 0.47 | 0.43 | [no flag] | 1 | MCMS Member |
| CLTW6040168T2 | O | 1.82 | 0.65 | H L | 2 | ZoneMS Member |
| CLTR6040169T2 | O | 0.78 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTR6040170T2 | O | 0.41 | 0.50 | [no flag] | 1 | MatchMS Member |
| CLTW6020209T2 | E | 1.12 | 0.49 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW6030228T3 | O | 0.69 | 0.50 | [no flag] | 1 | MatchMS Member |
| CLTR6020418T3 | E | 0.80 | 0.39 | [no flag] | 2 | MCMA – Member |
| CLTR6020416T3 | E | 0.31 | 0.39 | A | 1 | MCMS Member |
| CLTR6020417T3 | E | 1.19 | 0.21 | [no flag] | 2 | ZoneMS Member |
| CLTW6020424T3 | E | 0.40 | 0.38 | [no flag] | 1 | MCSS Discrete |
| CLTR6040032T3 | O | 1.39 | 0.53 | [no flag] | 2 | ZoneMS Member |
| CLTR6040010T3 | O | 1.67 | 0.59 | H L | 2 | ZoneMS Member |
| CLTR6040011T3 | O | 0.50 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTW6040012T3 | O | 0.89 | 0.51 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW6040123T1 | P | 1.55 | 0.67 | L | 2 | ZoneMS Member |
| CLTR6040112T1 | P | 1.64 | 0.68 | H | 2 | MCMA – Member |
| CLTR6040114T1 | P | 0.61 | 0.70 | O | 1 | MCSS Member |
| CLTR6040113T1 | P | 0.77 | 0.46 | O | 1 | MCSS Member |
| CLTR6040176T2 | P | 1.62 | 0.74 | H L | 2 | ZoneMS Member |
| CLTW6040177T2 | P | 0.62 | 0.65 | [no flag] | 1 | MatchMS Member |
| CLTR6040178T2 | P | 0.48 | 0.37 | [no flag] | 1 | MCSS Member |
| CLTR6040164T2 | P | 0.53 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTW6040108T1 | P | 0.52 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTR6040106T1 | P | 0.68 | 0.79 | [no flag] | 1 | MCMS Member |
| CLTR6040107T1 | P | 1.04 | 0.59 | [no flag] | 2 | MatchMS Member |
| CLTR6040167T2 | P | 1.43 | 0.62 | L | 2 | ZoneMS Member |
| CLTW6020103T1 | P | 0.49 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR6040236T1 | P | 1.38 | 0.59 | L | 2 | ZoneMS Discrete |
| CLTR6040121T1 | P | 1.39 | 0.62 | [no flag] | 2 | MCMA – Member |
| CLTW6020102T1 | P | 0.65 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTR6020423T2-R | P | 0.74 | 0.72 | [no flag] | 1 | MCSS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR6040031T3 | P | 0.35 | 0.37 | [no flag] | 1 | MCSS Member |
| CLTW6040138T1 | P | 0.45 | 0.56 | [no flag] | 1 | MatchMS Member |
| CLTR6040122T1 | P | 0.69 | 0.68 | [no flag] | 1 | MCSS Member |

**Table 8.A.5 Average Item Score and Polyserial for ELA, Grade Seven**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTW7020385T1 | E | 0.81 | 0.60 | [no flag] | 1 | MCSS Discrete |
| CLTR7020411T1 | E | 0.84 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR7020410T1 | E | 0.64 | 0.70 | [no flag] | 1 | MCSS Member |
| CLTW7020412T1 | E | 1.22 | 0.58 | [no flag] | 2 | ZoneMS Member |
| CLTR7020380T1 | E | 0.79 | 0.30 | [no flag] | 1 | MCSS Discrete |
| CLTW7020386T1 | E | 1.36 | 0.60 | [no flag] | 2 | ZoneMS Discrete |
| CLTR7020368T2 | E | 1.32 | 0.61 | [no flag] | 2 | ZoneMS Discrete |
| CLTR7030070T2 | E | 1.28 | 0.53 | [no flag] | 2 | ZoneMS Member |
| CLTR7030071T2 | E | 0.54 | 0.55 | [no flag] | 1 | MCSS Member |
| CLTW7030072T2 | E | 0.61 | 0.71 | [no flag] | 1 | MCSS Member |
| CLTR7020382T1 | E | 1.03 | 0.61 | [no flag] | 2 | ZoneMS Discrete |
| CLTR7030252T1-R | E | 0.75 | 0.39 | O | 1 | MCSS Member |
| CLTR7030253T1-R | E | 0.30 | 0.44 | A O | 1 | MCSS Member |
| CLTW7030254T1 | E | 1.12 | 0.46 | [no flag] | 2 | ZoneMS Member |
| CLTR7020379T1 | E | 1.18 | 0.50 | [no flag] | 2 | ZoneMS Discrete |
| CLTR7020383T1 | E | 0.82 | 0.60 | [no flag] | 2 | MCMA - Discrete |
| CLTR7040127T1 | O | 0.74 | 0.48 | O | 1 | MCSS Member |
| CLTR7040128T1 | O | 0.39 | 0.63 | O | 1 | MCSS Member |
| CLTW7040129T1 | O | 1.28 | 0.67 | LO | 2 | MatchMS Member |
| CLTR7020378T2 | E | 0.60 | 0.40 | A | 2 | MCMA - Member |
| CLTR7020377T2 | E | 0.24 | 0.40 | A O | 1 | MCSS Member |
| CLTR7020376T2 | E | 0.32 | 0.45 | A O | 1 | MCSS Member |
| CLTW7040065T2 | O | 1.52 | 0.71 | [no flag] | 2 | ZoneMS Member |
| CLTW7040066T2 | O | 0.37 | 0.63 | O | 1 | MCSS Member |
| CLTR7040175T2 | O | 0.39 | 0.54 | O | 1 | MCSS Member |
| CLTW7030246T1 | O | 0.64 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTR7020381T1 | E | 0.56 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTW7020384T1 | E | 0.32 | 0.39 | A | 1 | MCSS Discrete |
| CLTR7030054T2 | E | 0.63 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR7030055T2 | E | 0.41 | 0.57 | [no flag] | 1 | MCSS Member |
| CLTW7030056T2 | E | 1.05 | 0.51 | [no flag] | 2 | MatchMS Member |
| CLTW7030242T2 | O | 0.74 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTWT020155T2 | E | 0.98 | 0.45 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR7020154T2 | E | 0.78 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR7020153T2 | E | 0.37 | 0.24 | [no flag] | 1 | MCSS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR7020370T2 | E | 0.49 | 0.35 | [no flag] | 1 | MCSS Discrete |
| CLTR7020365T3 | E | 0.96 | 0.45 | [no flag] | 2 | MCMA - Discrete |
| CLTR7040062T3 | O | 1.29 | 0.29 | [no flag] | 2 | ZoneMS Member |
| CLTR7030250T3 | O | 0.46 | 0.45 | [no flag] | 1 | MCSS Member |
| CLTR7020158T2 | E | 1.40 | 0.62 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR7020156T2 | E | 0.57 | 0.29 | [no flag] | 1 | MCSS Member |
| CLTR7020157T2 | E | 0.47 | 0.48 | [no flag] | 1 | MCSS Member |
| CLTR7040045T2 | O | 0.78 | 0.57 | [no flag] | 1 | MCMS Member |
| CLTR7040046T2 | O | 0.80 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTR7040047T2 | O | 1.48 | 0.67 | [no flag] | 2 | MatchMS Member |
| CLTR7020360T3 | O | 1.29 | 0.36 | L | 2 | ZoneMS Member |
| CLTR7020362T3 | E | 0.49 | 0.49 | [no flag] | 1 | MCMS Discrete |
| CLTW7030116T3 | O | 1.09 | 0.65 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR7030114T3 | O | 0.72 | 0.62 | [no flag] | 1 | MCMS Member |
| CLTR7030115T3 | O | 0.63 | 0.47 | [no flag] | 1 | MCSS Member |
| CLTW7020350T3 | E | 1.15 | 0.65 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR7020348T3 | E | 0.44 | 0.34 | [no flag] | 1 | MCSS Member |
| CLTR7020349T3 | E | 0.19 | 0.35 | A | 1 | MCMS Member |
| CLTR7040061T3 | O | 1.12 | 0.66 | [no flag] | 2 | MCMA - Member |
| CLTR7040153T2 | P | 0.68 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTR7040154T2 | P | 1.45 | 0.60 | [no flag] | 2 | ZoneMS Member |
| CLTW7040155T2 | P | 1.44 | 0.74 | [no flag] | 2 | MatchMS Member |
| CLTR7040162T1 | P | 0.80 | 0.67 | [no flag] | 1 | MCSS Member |
| CLTR7040042T2 | P | 0.65 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR7040043T2 | P | 0.68 | 0.65 | O | 1 | MCSS Member |
| CLTW7040044T2 | P | 1.44 | 0.65 | [no flag] | 2 | ZoneMS Member |
| CLTR7040064T2 | P | 0.42 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTR7040077T3 | P | 0.41 | 0.51 | [no flag] | 1 | MCMS Member |
| CLTR7040078T3 | P | 0.44 | 0.49 | [no flag] | 1 | MCMS Member |
| CLTW7040079T3 | P | 0.85 | 0.57 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW7040068T2 | P | 0.43 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTR7040049T2 | P | 0.57 | 0.49 | [no flag] | 1 | MCSS Member |
| CLTR7040048T2 | P | 1.28 | 0.55 | [no flag] | 2 | ZoneMS Member |
| CLTW7040050T2 | P | 0.56 | 0.38 | O | 1 | MCSS Member |
| CLTR7040063T2 | P | 0.57 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR7040125T1 | P | 1.45 | 0.79 | [no flag] | 2 | MCMA - Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR7040156T1 | P | 1.66 | 0.82 | H L | 2 | ZoneMS Member |
| CLTW7040157T1 | P | 0.58 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTR7040126T1 | P | 0.64 | 0.44 | [no flag] | 1 | MatchSS Member |

**Table 8.A.6 Average Item Score and Polyserial for ELA, Grade Eight**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTW8020390T1 | E | 0.89 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTR8020394T1-M | E | 1.16 | 0.42 | [no flag] | 2 | ZoneMS Member |
| CLTR8020395T1-M | E | 0.76 | 0.27 | [no flag] | 1 | MCSS Member |
| CLTW8020396T1-O | E | 1.23 | 0.50 | [no flag] | 2 | ZoneMS Member |
| CLTR8020446T1 | E | 1.45 | 0.65 | [no flag] | 2 | ZoneMS Discrete |
| CLTR8020447T1 | E | 1.20 | 0.25 | [no flag] | 2 | ZoneMS Discrete |
| CLTR8020321T2-M | E | 1.47 | 0.72 | [no flag] | 2 | ZoneMS Member |
| CLTR8020322T2-M | E | 0.37 | 0.28 | [no flag] | 1 | MCSS Member |
| CLTR8020323T2-M | E | 1.21 | 0.65 | [no flag] | 2 | MCMA – Member |
| CLTW8030219T2 | E | 1.23 | 0.58 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW8030212T1 | E | 1.06 | 0.26 | [no flag] | 2 | ZoneMS Discrete |
| CLTR8020445T1 | E | 0.54 | 0.49 | [no flag] | 1 | MCSS Discrete |
| CLTR8020210T1-R | O | 0.54 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTR8020211T1-M | E | 0.49 | 0.54 | O | 1 | MCSS Member |
| CLTW8020212T1-M | E | 0.72 | 0.42 | O | 1 | MCSS Member |
| CLTR8040080T1 | O | 0.70 | 0.50 | [no flag] | 2 | MCMA – Member |
| CLTR8040151T2 | O | 0.57 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTW8040037T1 | O | 0.77 | 0.55 | [no flag] | 1 | MCSS Member |
| CLTR8030210T1-R | O | 0.53 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTW8020260T2 | E | 0.84 | 0.40 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR8030207T2 | E | 0.36 | 0.29 | O | 1 | MCSS Member |
| CLTR8030208T2 | E | 0.94 | 0.55 | [no flag] | 2 | ZoneMS Member |
| CLTW8030209T2-R | O | 0.46 | 0.58 | O | 1 | MCSS Member |
| CLTR8020259T2 | O | 1.22 | 0.61 | [no flag] | 2 | ZoneMS Discrete |
| CLTR8040152T2 | O | 0.43 | 0.32 | [no flag] | 1 | MCSS Member |
| CLTW8040158T2 | O | 0.67 | 0.54 | [no flag] | 1 | MCSS Member |
| CLTR8040150T2 | O | 0.99 | 0.56 | [no flag] | 2 | MatchMS Member |
| CLTR8040145T2 | O | 0.28 | 0.27 | A | 1 | MCSS Member |
| CLTR8040146T2 | O | 1.54 | 0.56 | L | 2 | ZoneMS Member |
| CLTW8040147T2 | O | 1.48 | 0.59 | L | 2 | ZoneMS Member |
| CLTR8020290T2 | E | 0.56 | 0.53 | [no flag] | 1 | MCSS Discrete |
| CLTR8020285T2-M | E | 0.45 | 0.39 | [no flag] | 1 | MCSS Member |
| CLTR8020286T2-M | E | 0.52 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTW8020287T2-M | E | 0.33 | 0.27 | [no flag] | 1 | MatchMS Member |
| CLTR8020072T3 | E | 0.35 | 0.33 | [no flag] | 1 | MCSS Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTR8020439T3 | E | 1.14 | 0.55 | [no flag] | 2 | ZoneMS Discrete |
| CLTW8030129T3 | O | 1.09 | 0.43 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR8030223T2 | O | 0.79 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR8040148T2 | O | 1.52 | 0.55 | L | 2 | ZoneMS Member |
| CLTR8020066T3-M | E | 1.20 | 0.48 | [no flag] | 2 | ZoneMS Member |
| CLTR8020068T3-M | E | 1.31 | 0.56 | [no flag] | 2 | MCMA – Member |
| CLTR8020067T3-M | E | 0.55 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTR8030120T3 | E | 0.52 | 0.62 | [no flag] | 1 | MCMS Member |
| CLTW8020069T3 | E | 0.47 | 0.33 | [no flag] | 1 | MCSS Discrete |
| CLTR8040214T3 | O | 1.59 | 0.58 | L | 2 | ZoneMS Member |
| CLTR8040215T3 | O | 1.40 | 0.55 | L | 2 | ZoneMS Member |
| CLTW8040216T3 | O | 1.33 | 0.53 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW8040220T3 | O | 0.93 | 0.63 | [no flag] | 1 | MatchSS Member |
| CLTR8040090T1 | P | 0.69 | 0.25 | [no flag] | 1 | MCSS Member |
| CLTR8040091T1 | P | 1.57 | 0.75 | L | 2 | ZoneMS Member |
| CLTW8040092T1 | P | 1.44 | 0.66 | [no flag] | 2 | ZoneMS Member |
| CLTR8040219T3 | P | 1.02 | 0.40 | [no flag] | 2 | MCMA – Member |
| CLTR8040142T2 | P | 0.76 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR8040144T2 | P | 1.27 | 0.59 | [no flag] | 2 | ZoneMS Member |
| CLTR8040143T2 | P | 0.86 | 0.75 | [no flag] | 2 | Composite – Member |
| CLTR8040217T3 | P | 0.47 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR8040218T3 | P | 0.55 | 0.69 | [no flag] | 1 | MCSS Member |
| CLTR8030125T1 | P | 1.41 | 0.74 | [no flag] | 2 | ZoneMS Member |
| CLTR8030126T1 | P | 0.76 | 0.75 | [no flag] | 1 | MCSS Member |
| CLTW8030127T1 | P | 1.49 | 0.72 | [no flag] | 2 | ZoneMS Member |

**Table 8.A.7 Average Item Score and Polyserial for ELA, Grade Eleven**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTRH020034T1 | E | 0.78 | 0.20 | Rpoly | 1 | MCSS Discrete |
| CLTRH020230T1 | E | 0.58 | 0.53 | [no flag] | 1 | MCSS Member |
| CLTRH020231T1 | E | 0.78 | 0.70 | [no flag] | 1 | MCSS Member |
| CLTWH020232T1 | E | 1.44 | 0.64 | [no flag] | 2 | ZoneMS Member |
| CLTRH020033T1 | E | 1.25 | 0.52 | [no flag] | 2 | ZoneMS Discrete |
| CLTRH020234T1 | E | 1.52 | 0.58 | [no flag] | 2 | MCMA – Discrete |
| CLTRH020220T2 | E | 0.70 | 0.72 | [no flag] | 1 | MCSS Member |
| CLTRH020221T2 | E | 0.53 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTWH020222T2 | E | 1.36 | 0.65 | [no flag] | 2 | ZoneMS Member |
| CLTWH020226T2 | E | 1.23 | 0.62 | [no flag] | 2 | ZoneMS Discrete |
| CLTRH020233T1 | E | 0.56 | 0.49 | [no flag] | 1 | MCSS Discrete |
| CLTWH020236T1 | E | 1.24 | 0.55 | [no flag] | 2 | ZoneMS Discrete |
| CLTRH020032T1-M | E | 0.98 | 0.39 | [no flag] | 2 | MatchMS Member |
| CLTRH030038T1 | E | 0.58 | 0.51 | A | 2 | MCMA – Member |
| CLTRH030037T1 | E | 0.90 | 0.66 | [no flag] | 2 | ZoneMS Member |
| CLTRH030036T1-R | O | 0.46 | 0.63 | O | 1 | MCSS Member |
| CLTRH040131T1 | O | 1.11 | 0.73 | [no flag] | 2 | ZoneMS Member |
| CLTRH040132T1 | O | 1.04 | 0.64 | [no flag] | 2 | ZoneMS Member |
| CLTWH040133T1 | O | 0.38 | 0.43 | O | 1 | MCSS Member |
| CLTRH020217T2 | E | 0.51 | 0.44 | O | 1 | MCSS Member |
| CLTRH020218T2 | E | 0.91 | 0.56 | [no flag] | 2 | ZoneMS Member |
| CLTWH020219T2 | E | 0.32 | 0.49 | A O | 1 | MCSS Member |
| CLTRH020214T2 | E | 0.89 | 0.52 | [no flag] | 2 | MatchMS Discrete |
| CLTWH040207T2 | O | 0.52 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTWH040222T2 | O | 0.39 | 0.56 | O | 1 | MCSS Member |
| CLTWH030151T1 | E | 0.46 | 0.28 | [no flag] | 1 | MCSS Member |
| CLTRH040130T1 | O | 0.58 | 0.60 | [no flag] | 1 | MCMS Member |
| CLTRH040221T2 | O | 0.64 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTRH040208T2 | O | 1.11 | 0.56 | [no flag] | 2 | ZoneMS Member |
| CLTRH040209T2 | O | 1.51 | 0.56 | L | 2 | ZoneMS Member |
| CLTWH040210T2 | O | 0.34 | 0.44 | [no flag] | 1 | MatchSS Member |
| CLTRH020189T2 | E | 1.45 | 0.53 | [no flag] | 2 | MCMA – Member |
| CLTRH020187T2 | E | 0.29 | 0.46 | A | 1 | MCMS Member |
| CLTRH020223T2 | E | 0.53 | 0.16 | Rpoly | 1 | MCSS Discrete |
| CLTRH020213T2 | E | 0.42 | 0.31 | [no flag] | 1 | MCSS Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTWH030230T3 | E | 0.27 | 0.20 | A | 1 | MCMS Member |
| CLTRH040056T3 | O | 1.36 | 0.58 | [no flag] | 2 | MCMA – Member |
| CLTWH040096T3 | O | 0.61 | 0.72 | [no flag] | 1 | MatchMS Member |
| CLTRH030093T2 | E | 1.65 | 0.46 | H L | 2 | ZoneMS Member |
| CLTRH030092T2 | E | 0.69 | 0.48 | [no flag] | 1 | MCSS Member |
| CLTRH030094T2 | E | 1.50 | 0.53 | [no flag] | 2 | MCMA – Member |
| CLTRH020224T2 | E | 1.40 | 0.53 | [no flag] | 2 | MCMA – Discrete |
| CLTRH040224T2 | O | 1.42 | 0.54 | L | 2 | ZoneMS Member |
| CLTRH040225T2 | O | 0.89 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTWH040226T2 | O | 1.69 | 0.54 | H | 2 | MatchMS Member |
| CLTRH020278T3 | E | 0.31 | 0.41 | A | 1 | MCSS Discrete |
| CLTWH020433T3 | E | 1.02 | 0.41 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTRH020266T3 | E | 0.45 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTWH020268T3 | E | 0.44 | 0.31 | [no flag] | 1 | MCSS Member |
| CLTRH020267T3 | E | 1.18 | 0.45 | [no flag] | 2 | ZoneMS Member |
| CLTRH040054T3 | O | 0.61 | 0.57 | [no flag] | 1 | MCMS Member |
| CLTRH020275T3 | O | 0.65 | 0.64 | [no flag] | 1 | MCMS Member |
| CLTWH040137T1 | P | 0.75 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTRH040206T2 | P | 1.36 | 0.69 | [no flag] | 2 | ZoneMS Member |
| CLTRH040223T2 | P | 0.71 | 0.74 | [no flag] | 1 | MCSS Member |
| CLTRH040205T2 | P | 0.40 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTWH030052T1-R | P | 0.70 | 0.71 | [no flag] | 1 | MCSS Member |
| CLTRH020031T1 | P | 0.65 | 0.66 | [no flag] | 1 | MatchMS Member |
| CLTWH030153T2-R | P | 0.53 | 0.65 | [no flag] | 1 | MCSS Member |
| CLTRH030152T2 | P | 0.67 | 0.59 | [no flag] | 1 | MCSS Member |
| CLTRH040134T1 | P | 0.94 | 0.60 | [no flag] | 2 | MCMA – Member |
| CLTRH040135T1 | P | 0.58 | 0.69 | [no flag] | 1 | MCMS Member |
| CLTWH040136T1 | P | 1.34 | 0.67 | L | 2 | ZoneMS Member |
| CLTRH030229T3-R | P | 0.54 | 0.60 | [no flag] | 1 | MCSS Member |

**Table 8.A.8 Average Item Score and Polyserial for Mathematics, Grade Three**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM3020004T1 | E | 0.73 | 0.52 | [no flag] | 1 | MCSS Discrete |
| CLTM3020210T1 | E | 0.71 | 0.32 | [no flag] | 1 | MCSS Discrete |
| CLTM3020186T1 | E | 0.73 | 0.44 | [no flag] | 1 | MCSS Discrete |
| CLTM3030566T1 | E | 0.71 | 0.57 | [no flag] | 1 | MCSS Discrete |
| CLTM3020059T1 | E | 0.66 | 0.50 | [no flag] | 1 | MCSS Discrete |
| CLTM3020065T1 | E | 0.74 | 0.58 | [no flag] | 1 | ZoneSS Discrete |
| CLTM3020063T2 | E | 1.24 | 0.65 | [no flag] | 2 | MCMA – Discrete |
| CLTM3030592T2 | E | 1.02 | 0.41 | [no flag] | 2 | ZoneMS Member |
| CLTM3020008T2 | E | 0.42 | 0.45 | O | 1 | MCSS Discrete |
| CLTM3020172T2 | E | 0.94 | 0.48 | [no flag] | 2 | MCMA – Discrete |
| CLTM3020018T1 | E | 0.44 | 0.39 | O | 1 | MCSS Discrete |
| CLTM3181019T2 | O | 0.59 | 0.62 | A O | 2 | Composite – Discrete |
| CLTM3030500T1 | E | 0.49 | 0.25 | [no flag] | 1 | ZoneSS Discrete |
| CLTM3020017T1 | O | 0.53 | 0.43 | O | 1 | MCSS Discrete |
| CLTM3030506T1 | E | 0.39 | 0.39 | O | 1 | ZoneSS Member |
| CLTM3020007T1 | E | 0.43 | 0.14 | Rpoly | 1 | ZoneSS Discrete |
| CLTM3020062T1 | E | 0.80 | 0.69 | O | 2 | MCMA – Discrete |
| CLTM3020001T1 | E | 0.82 | 0.51 | [no flag] | 2 | MCMA – Discrete |
| CLTM3180964T2 | O | 0.37 | 0.50 | A O | 2 | Composite – Member |
| CLTM3030569T1 | E | 0.79 | 0.65 | O | 2 | Composite – Member |
| CLTM3180960T2 | O | 0.31 | 0.56 | A O | 1 | MCSS Member |
| CLTM3030496T2-R | O | 0.35 | 0.47 | O | 1 | MCSS Discrete |
| CLTM3020060T2 | E | 0.36 | 0.51 | O | 1 | MCSS Discrete |
| CLTM3020010T1 | E | 0.65 | 0.59 | O | 2 | MCMA – Discrete |
| CLTM3030578T1-R | O | 0.56 | 0.60 | O | 1 | MCSS Discrete |
| CLTM3020171T1 | E | 0.82 | 0.42 | [no flag] | 2 | MCMA – Discrete |
| CLTM3030591T1 | E | 1.15 | 0.39 | [no flag] | 2 | ZoneMS Member |
| CLTM3020057T2 | E | 0.49 | 0.41 | [no flag] | 1 | MCSS Discrete |
| CLTM3020054T2 | E | 0.66 | 0.38 | [no flag] | 2 | MCMA – Discrete |
| CLTM3020202T2 | E | 0.47 | 0.43 | [no flag] | 1 | MCSS Discrete |
| CLTM3030582T2 | E | 1.04 | 0.48 | [no flag] | 2 | MatchMS Discrete |
| CLTM3030567T2 | E | 0.45 | 0.30 | O | 1 | MCSS Member |
| CLTM3030499T2 | E | 0.71 | 0.36 | [no flag] | 2 | Composite – Member |
| CLTM3030579T2 | E | 0.42 | 0.37 | [no flag] | 1 | MCSS Discrete |
| CLTM3020205T3 | E | 0.41 | 0.41 | O | 1 | MCSS Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM3020187T2 | E | 0.22 | 0.25 | D A O | 1 | MCSS Discrete |
| CLTM3030502T3 | E | 0.43 | 0.38 | O | 1 | MCSS Member |
| CLTM3020003T3 | E | 0.97 | 0.26 | [no flag] | 2 | MCMA – Discrete |
| CLTM3020209T3 | E | 0.15 | 0.20 | D A Rpoly | 1 | MCSS Discrete |
| CLTM3020204T2 | E | 0.38 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTM3030565T3 | E | 0.44 | 0.27 | [no flag] | 1 | MCSS Member |
| CLTM3020066T2 | E | 0.64 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTM3020168T2 | E | 0.45 | 0.59 | [no flag] | 1 | MCSS Discrete |
| CLTM3030583T3 | E | 0.86 | 0.41 | [no flag] | 2 | MCMS Member |
| CLTM3181023T3 | O | 0.96 | 0.48 | [no flag] | 2 | Composite – Member |
| CLTM3020058T3 | E | 0.10 | 0.49 | A | 1 | Numeric Discrete |
| CLTM3020169T3 | E | 0.16 | 0.67 | A | 1 | Numeric Discrete |
| CLTM3020173T3 | E | 0.83 | 0.41 | [no flag] | 2 | MCMA – Discrete |
| CLTM3030574T3-R | O | 0.92 | 0.71 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM3030590T2 | E | 0.69 | 0.19 | Rpoly | 2 | Composite – Member |
| CLTM3030710T3 | E | 0.67 | 0.36 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM3020175T2 | E | 0.44 | 0.38 | [no flag] | 1 | MCSS Discrete |
| CLTM3020203T3 | E | 0.34 | 0.41 | [no flag] | 1 | MCSS Discrete |
| CLTM3030497T3-R | P | 0.10 | 0.55 | A | 1 | Numeric Discrete |
| CLTM3180958T1 | P | 0.59 | 0.49 | [no flag] | 1 | MCSS Discrete |
| CLTM3181018T2 | P | 0.95 | 0.65 | [no flag] | 2 | Composite – Discrete |
| CLTM3180887T1 | P | 0.72 | 0.62 | [no flag] | 1 | ZoneSS Discrete |
| CLTM3180889T3 | P | 0.47 | 0.44 | [no flag] | 1 | ZoneSS Discrete |
| CLTM3181024T1 | P | 0.57 | 0.36 | [no flag] | 1 | MCSS Member |
| CLTM3180961T2 | P | 0.61 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTM3180890T1 | P | 0.61 | 0.26 | [no flag] | 1 | ZoneSS Discrete |
| CLTM3181020T3 | P | 0.85 | 0.47 | [no flag] | 2 | MCMS Discrete |
| CLTM3030501T2-R | P | 0.42 | 0.62 | O | 1 | MCSS Discrete |
| CLTM3180963T1 | P | 1.17 | 0.60 | [no flag] | 2 | Composite – Member |
| CLTM3180891T2 | P | 0.30 | 0.54 | A O | 1 | MCSS Member |
| CLTM3180957T1 | P | 0.63 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTM3180884T1 | P | 1.32 | 0.65 | [no flag] | 2 | Composite – Member |
| CLTM3180888T2 | P | 0.47 | 0.39 | [no flag] | 1 | MCSS Discrete |
| CLTM3180886T2 | P | 0.57 | 0.57 | A | 2 | Composite – Member |
| CLTM3180962T3 | P | 0.71 | 0.54 | [no flag] | 2 | Composite – Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM3180959T1 | P | 0.54 | 0.46 | [no flag] | 1 | ZoneSS Discrete |
| CLTM3180885T2 | P | 0.95 | 0.70 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM3030563T1-R | P | 0.43 | 0.43 | [no flag] | 1 | MCSS Member |

**Table 8.A.9 Average Item Score and Polyserial for Mathematics, Grade Four**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM4020255T1 | E | 0.79 | 0.56 | [no flag] | 1 | MCSS Discrete |
| CLTM4030475T1 | E | 1.54 | 0.57 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4030481T1 | E | 0.69 | 0.45 | [no flag] | 1 | MCSS Member |
| CLTM4020246T1 | E | 0.68 | 0.40 | [no flag] | 1 | MCSS Discrete |
| CLTM4020177T1 | E | 1.24 | 0.51 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4020189T1 | E | 0.60 | 0.43 | [no flag] | 1 | MCSS Discrete |
| CLTM4030612T1 | E | 1.50 | 0.64 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4030484T1 | E | 0.93 | 0.35 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM4030482T2 | E | 0.57 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTM4020178T2 | E | 1.04 | 0.52 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM4030490T1 | E | 0.42 | 0.29 | O | 1 | MCSS Member |
| CLTM4181003T2 | O | 0.68 | 0.50 | [no flag] | 2 | ZoneMS Member |
| CLTM4020170T1 | E | 0.90 | 0.43 | [no flag] | 2 | MCMA – Discrete |
| CLTM4180848T1 | O | 0.50 | 0.37 | O | 1 | MCSS Member |
| CLTM4180852T1 | O | 0.49 | 0.36 | [no flag] | 1 | ZoneSS Member |
| CLTM4020252T1 | E | 0.53 | 0.30 | O | 1 | MCSS Discrete |
| CLTM4020237T1 | E | 0.52 | 0.51 | O | 1 | MCSS Discrete |
| CLTM4020231T1 | E | 0.90 | 0.54 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4030613T2 | E | 0.90 | 0.61 | O | 2 | InLineChoicelistMS Member |
| CLTM4030650T1 | E | 1.28 | 0.64 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM4180850T2 | O | 0.28 | 0.21 | D A O | 1 | MCSS Member |
| CLTM4180854T2 | O | 0.31 | 0.41 | A O | 1 | MCSS Member |
| CLTM4030494T2 | E | 0.83 | 0.48 | O | 2 | Composite – Member |
| CLTM4020219T1 | E | 0.46 | 0.29 | O | 1 | MCSS Discrete |
| CLTM4030476T2 | E | 0.71 | 0.65 | O | 2 | MatchMS Member |
| CLTM4020253T2 | E | 0.38 | 0.45 | [no flag] | 1 | MCSS Discrete |
| CLTM4020247T2 | E | 0.48 | 0.33 | [no flag] | 1 | MCSS Discrete |
| CLTM4030668T1 | E | 0.40 | 0.29 | [no flag] | 1 | MCSS Member |
| CLTM4020244T2 | E | 0.26 | 0.22 | D A | 1 | MCSS Discrete |
| CLTM4020250T2 | E | 1.03 | 0.43 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4180853T2 | O | 0.27 | 0.37 | A | 1 | MCSS Member |
| CLTM4030616T2-R | O | 0.42 | 0.18 | Rpoly | 1 | MCSS Discrete |
| CLTM4030479T2 | E | 0.83 | 0.57 | [no flag] | 2 | Composite – Member |
| CLTM4020230T3 | E | 0.89 | 0.38 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4020238T2 | O | 0.35 | 0.21 | [no flag] | 1 | MCSS Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM4020221T3 | E | 0.42 | 0.27 | [no flag] | 1 | MCSS Discrete |
| CLTM4020212T3 | E | 0.84 | 0.43 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4180849T2 | O | 0.56 | 0.34 | [no flag] | 1 | MCSS Member |
| CLTM4030491T2 | E | 0.44 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTM4020239T3 | O | 0.39 | 0.11 | D Rpoly | 1 | MCSS Discrete |
| CLTM4030669T2 | E | 0.42 | 0.37 | [no flag] | 1 | MCSS Member |
| CLTM4181004T3 | O | 0.66 | 0.55 | [no flag] | 2 | Composite – Discrete |
| CLTM4020190T2 | E | 0.52 | 0.53 | [no flag] | 1 | MCSS Discrete |
| CLTM4020233T3 | E | 0.94 | 0.59 | [no flag] | 2 | MCMA – Discrete |
| CLTM4030617T3-R | O | 0.49 | 0.40 | [no flag] | 1 | MCSS Discrete |
| CLTM4030492T3-R | O | 0.48 | 0.50 | [no flag] | 1 | MCSS Discrete |
| CLTM4020224T3 | E | 0.63 | 0.32 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM4030672T2 | E | 1.10 | 0.43 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4020194T3 | E | 0.43 | 0.28 | [no flag] | 1 | MCSS Discrete |
| CLTM4020229T2 | E | 1.06 | 0.49 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM4020245T3 | E | 0.47 | 0.44 | [no flag] | 1 | MCSS Discrete |
| CLTM4180855T3 | P | 0.04 | 0.61 | A | 1 | Numeric Member |
| CLTM4181000T1 | P | 0.46 | 0.43 | [no flag] | 1 | ZoneSS Member |
| CLTM4181010T2 | P | 0.66 | 0.49 | [no flag] | 2 | Composite – Member |
| CLTM4180857T2 | P | 0.59 | 0.60 | [no flag] | 1 | ZoneSS Discrete |
| CLTM4180851T3 | P | 0.15 | 0.19 | D A Rpoly | 1 | MCSS Member |
| CLTM4181002T1 | P | 1.39 | 0.70 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4180858T2 | P | 0.56 | 0.61 | [no flag] | 1 | MatchSS Discrete |
| CLTM4181027T2 | P | 1.05 | 0.77 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM4181035T3 | P | 0.43 | 0.60 | O | 1 | MCSS Discrete |
| CLTM4181032T2 | P | 0.72 | 0.48 | [no flag] | 2 | Composite – Member |
| CLTM4181005T1 | P | 1.16 | 0.62 | [no flag] | 2 | Composite – Member |
| CLTM4030649T3-R | P | 0.40 | 0.36 | O | 1 | MCSS Discrete |
| CLTM4030652T3-R | P | 0.79 | 0.50 | [no flag] | 2 | Composite – Discrete |
| CLTM4181031T1 | P | 0.90 | 0.47 | [no flag] | 2 | Composite – Discrete |
| CLTM4030648T2-R | P | 0.22 | 0.41 | A O | 1 | MCSS Member |
| CLTM4181006T2 | P | 0.62 | 0.39 | [no flag] | 2 | Composite – Member |
| CLTM4030670T3-R | P | 0.22 | 0.32 | D A | 1 | MCSS Discrete |
| CLTM4181030T1 | P | 0.97 | 0.51 | [no flag] | 2 | MatchMS Discrete |
| CLTM4181009T2 | P | 0.77 | 0.58 | [no flag] | 2 | Composite – Member |
| CLTM4030673T3-R | P | 0.97 | 0.33 | [no flag] | 2 | ZoneMS Discrete |

**Table 8.A.10 Average Item Score and Polyserial for Mathematics, Grade Five**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM5030609T1 | E | 0.80 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTM5020180T1 | E | 0.77 | 0.54 | [no flag] | 1 | MCSS Discrete |
| CLTM5020338T1 | E | 1.43 | 0.66 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5030557T1 | E | 0.66 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTM5030458T1 | E | 1.26 | 0.50 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5020184T2 | E | 0.93 | 0.45 | [no flag] | 2 | MCMA - Discrete |
| CLTM5020268T2 | E | 0.84 | 0.52 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5030456T2 | E | 0.34 | 0.33 | [no flag] | 1 | ZoneSS Member |
| CLTM5020258T1 | E | 0.53 | 0.50 | [no flag] | 1 | MCSS Discrete |
| CLTM5020352T2 | E | 1.25 | 0.66 | [no flag] | 2 | MCMA - Discrete |
| CLTM5030463T1 | E | 0.85 | 0.52 | [no flag] | 2 | Composite - Member |
| CLTM5180906T2 | O | 0.27 | 0.56 | A O | 1 | MCSS Member |
| CLTM5030676T1 | E | 0.81 | 0.51 | [no flag] | 2 | ZoneMS Member |
| CLTM5020165T1 | E | 0.45 | 0.54 | O | 1 | MCSS Discrete |
| CLTM5020404T1 | E | 0.51 | 0.24 | [no flag] | 1 | MCSS Discrete |
| CLTM5020357T1 | E | 0.87 | 0.54 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5020354T1 | E | 0.45 | 0.53 | O | 1 | MCSS Discrete |
| CLTM5180907T2 | O | 0.35 | 0.09 | D Rpoly O | 1 | MCSS Member |
| CLTM5020183T1 | E | 0.98 | 0.52 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5020341T2 | E | 0.51 | 0.64 | A | 2 | MCMA - Discrete |
| CLTM5020262T2 | E | 0.25 | 0.63 | A O | 1 | MCSS Discrete |
| CLTM5020345T1 | E | 0.44 | 0.50 | O | 1 | MCSS Discrete |
| CLTM5181015T2 | O | 0.54 | 0.65 | A | 2 | Composite - Member |
| CLTM5030707T1-R | O | 0.60 | 0.65 | A | 2 | MCMA - Member |
| CLTM5030610T2 | E | 0.38 | 0.56 | O | 1 | MCSS Member |
| CLTM5030561T2-R | O | 0.36 | 0.31 | [no flag] | 1 | InLineChoicelistSS Member |
| CLTM5030465T3 | E | 1.15 | 0.43 | [no flag] | 2 | ZoneMS Member |
| CLTM5030464T2 | E | 1.03 | 0.31 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM5020215T3 | E | 0.15 | 0.36 | A | 1 | Graph Discrete |
| CLTM5020358T2 | E | 0.78 | 0.37 | [no flag] | 2 | MCMA - Discrete |
| CLTM5030576T2 | E | 0.94 | 0.44 | [no flag] | 2 | Composite - Member |
| CLTM5180968T2 | O | 0.21 | 0.25 | A | 1 | InLineChoicelistSS Member |
| CLTM5020265T2 | E | 0.42 | 0.36 | [no flag] | 1 | MCSS Discrete |
| CLTM5020355T2 | E | 0.29 | 0.12 | D A Rpoly | 1 | MCSS Discrete |
| CLTM5020361T2 | E | 0.39 | 0.31 | [no flag] | 1 | MCSS Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM5030575T1 | E | 0.97 | 0.46 | [no flag] | 2 | Composite - Member |
| CLTM5180912T2 | O | 0.47 | 0.41 | [no flag] | 1 | MCSS Member |
| CLTM5020359T3 | E | 1.10 | 0.41 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5030607T2 | E | 1.01 | 0.37 | [no flag] | 2 | Composite - Member |
| CLTM5030708T2 | E | 0.97 | 0.48 | [no flag] | 2 | Composite - Member |
| CLTM5181014T3 | O | 0.46 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTM5020346T2 | E | 0.46 | 0.55 | [no flag] | 1 | MCSS Discrete |
| CLTM5020347T3 | E | 0.36 | 0.59 | [no flag] | 1 | MCSS Discrete |
| CLTM5020343T2 | E | 0.28 | 0.30 | A | 1 | InLineChoicelistSS Discrete |
| CLTM5020181T2 | E | 0.39 | 0.56 | [no flag] | 1 | MCSS Discrete |
| CLTM5020356T3 | E | 0.46 | 0.35 | [no flag] | 1 | MCSS Discrete |
| CLTM5030577T3 | E | 1.08 | 0.45 | [no flag] | 2 | Composite - Member |
| CLTM5020344T3 | E | 0.41 | 0.46 | [no flag] | 1 | MCSS Discrete |
| CLTM5030678T3 | E | 1.03 | 0.61 | [no flag] | 2 | MatchMS Member |
| CLTM5030709T3 | E | 1.14 | 0.23 | [no flag] | 2 | Composite - Member |
| CLTM5020259T2 | E | 0.46 | 0.35 | [no flag] | 1 | MCSS Discrete |
| CLTM5180915T3 | O | 0.53 | 0.35 | A | 2 | Composite - Member |
| CLTM5020266T3 | E | 0.23 | 0.68 | A | 1 | Numeric Discrete |
| CLTM5030462T2 | E | 0.84 | 0.35 | [no flag] | 2 | Composite - Member |
| CLTM5180909T2 | P | 0.56 | 0.42 | A | 2 | Composite - Member |
| CLTM5030558T2-R | P | 0.25 | 0.36 | A | 1 | MCSS Discrete |
| CLTM5180971T1 | P | 1.11 | 0.51 | [no flag] | 2 | Composite - Discrete |
| CLTM5180905T1 | P | 0.52 | 0.27 | [no flag] | 1 | MCSS Member |
| CLTM5020349T2-R | P | 0.29 | 0.30 | A | 1 | MCSS Discrete |
| CLTM5181016T3 | P | 0.61 | 0.35 | [no flag] | 2 | Composite - Member |
| CLTM5180970T1 | P | 0.46 | 0.32 | [no flag] | 1 | ZoneSS Member |
| CLTM5180821T2 | P | 0.62 | 0.52 | [no flag] | 2 | Composite - Member |
| CLTM5180818T1 | P | 1.47 | 0.49 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5030559T3-R | P | 0.09 | 0.53 | A | 1 | Numeric Discrete |
| CLTM5180908T2 | P | 0.65 | 0.48 | [no flag] | 2 | Composite - Member |
| CLTM5030455T1-R | P | 0.69 | 0.60 | [no flag] | 1 | MCSS Member |
| CLTM5180911T1 | P | 0.66 | 0.51 | [no flag] | 1 | ZoneSS Member |
| CLTM5180824T3 | P | 0.45 | 0.29 | [no flag] | 1 | InLineChoicelistSS Member |
| CLTM5180819T2 | P | 0.70 | 0.53 | [no flag] | 2 | Composite - Member |
| CLTM5180910T1 | P | 0.56 | 0.40 | [no flag] | 1 | MCSS Member |
| CLTM5180904T1 | P | 0.50 | 0.23 | [no flag] | 1 | MCSS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM5180967T2 | P | 0.29 | 0.59 | A | 1 | ZoneSS Discrete |
| CLTM5180972T3 | P | 0.65 | 0.43 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM5180822T1 | P | 1.13 | 0.51 | [no flag] | 2 | ZoneMS Member |

**Table 8.A.11 Average Item Score and Polyserial for Mathematics, Grade Six**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM6020284T1 | E | 0.67 | 0.48 | [no flag] | 1 | MCSS Discrete |
| CLTM6020198T1 | E | 0.64 | 0.37 | [no flag] | 1 | MCSS Discrete |
| CLTM6020293T1 | E | 0.63 | 0.51 | [no flag] | 1 | ZoneSS Discrete |
| CLTM6030685T1 | E | 0.67 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTM6020427T1 | E | 0.63 | 0.33 | [no flag] | 1 | MCSS Discrete |
| CLTM6020287T1 | E | 1.26 | 0.49 | [no flag] | 2 | MCMA – Discrete |
| CLTM6020314T1 | E | 0.90 | 0.42 | [no flag] | 2 | MCMA – Discrete |
| CLTM6030683T2 | E | 0.52 | 0.63 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM6020285T2 | E | 0.55 | 0.61 | [no flag] | 1 | MCSS Discrete |
| CLTM6020364T2 | E | 0.84 | 0.52 | [no flag] | 2 | MCMA – Discrete |
| CLTM6180894T2 | O | 0.41 | 0.46 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM6030618T1 | E | 1.00 | 0.58 | [no flag] | 2 | MCMA – Member |
| CLTM6030621T1 | E | 0.51 | 0.36 | [no flag] | 1 | MCSS Member |
| CLTM6020320T1 | E | 0.42 | 0.23 | O | 1 | MCSS Discrete |
| CLTM6030598T1 | E | 0.37 | 0.33 | O | 1 | MCSS Member |
| CLTM6030472T1 | E | 0.46 | 0.43 | O | 1 | MCSS Member |
| CLTM6020051T2 | O | 0.99 | 0.46 | [no flag] | 2 | MCMA – Discrete |
| CLTM6020433T2 | E | 0.75 | 0.44 | [no flag] | 2 | MCMA – Discrete |
| CLTM6030682T1 | E | 0.54 | 0.41 | O | 1 | MCSS Member |
| CLTM6030599T2 | E | 0.49 | 0.34 | [no flag] | 1 | MatchSS Member |
| CLTM6020291T2 | E | 0.86 | 0.28 | [no flag] | 2 | MCMA – Discrete |
| CLTM6020097T1 | E | 0.44 | 0.45 | [no flag] | 1 | ZoneMS Discrete |
| CLTM6020425T2 | E | 0.37 | 0.32 | O | 1 | MCSS Discrete |
| CLTM6030469T1 | E | 0.99 | 0.46 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM6020037T1 | E | 0.50 | 0.42 | O | 1 | MCSS Discrete |
| CLTM6030637T3 | E | 0.46 | 0.28 | [no flag] | 1 | MCSS Member |
| CLTM6030686T2-R | O | 0.54 | 0.38 | [no flag] | 1 | MCSS Discrete |
| CLTM6030602T2 | E | 0.70 | 0.35 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM6020094T1 | E | 0.84 | 0.36 | [no flag] | 2 | ZoneMS Discrete |
| CLTM6180988T2 | O | 0.56 | 0.43 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM6020200T3 | E | 0.51 | 0.25 | [no flag] | 1 | ZoneSS Discrete |
| CLTM6180989T2 | O | 0.53 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTM6030473T2 | E | 0.30 | 0.25 | A | 1 | MCSS Discrete |
| CLTM6030619T2 | E | 0.66 | 0.27 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM6020367T2 | E | 0.66 | 0.46 | [no flag] | 2 | ZoneMS Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM6030635T1 | E | 0.51 | 0.33 | [no flag] | 1 | MCSS Member |
| CLTM6020039T3 | E | 0.85 | 0.43 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM6020199T2 | E | 0.65 | 0.54 | [no flag] | 1 | MCSS Discrete |
| CLTM6030622T2 | E | 0.61 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTM6020099T3 | E | 0.20 | 0.17 | A Rpoly | 1 | ZoneSS Discrete |
| CLTM6020368T3 | E | 0.95 | 0.34 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM6020434T3 | E | 1.10 | 0.51 | [no flag] | 2 | ZoneMS Discrete |
| CLTM6020295T3 | E | 0.40 | 0.71 | [no flag] | 1 | Numeric Discrete |
| CLTM6030687T3 | E | 0.47 | 0.31 | [no flag] | 1 | ZoneSS Member |
| CLTM6030603T3 | E | 0.97 | 0.59 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM6020322T3 | E | 0.28 | 0.31 | A | 1 | MCSS Discrete |
| CLTM6020041T2 | E | 0.54 | 0.67 | [no flag] | 1 | MCSS Discrete |
| CLTM6020289T3 | E | 0.96 | 0.37 | [no flag] | 2 | MCMA - Discrete |
| CLTM6180981T1 | P | 1.28 | 0.62 | [no flag] | 2 | Composite - Discrete |
| CLTM6180893T2 | P | 0.53 | 0.56 | [no flag] | 1 | MCSS Discrete |
| CLTM6180898T1 | P | 0.71 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTM6180901T3 | P | 1.06 | 0.69 | [no flag] | 2 | Composite - Discrete |
| CLTM6180832T2 | P | 0.52 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTM6180835T2 | P | 0.49 | 0.67 | [no flag] | 1 | MCSS Discrete |
| CLTM6180899T2 | P | 0.57 | 0.55 | A | 2 | Composite - Member |
| CLTM6180836T2 | P | 0.43 | 0.45 | [no flag] | 1 | MCSS Discrete |
| CLTM6180986T1 | P | 0.61 | 0.54 | [no flag] | 1 | MCSS Discrete |
| CLTM6180979T2 | P | 0.63 | 0.49 | [no flag] | 2 | Composite - Member |
| CLTM6180897T2 | P | 0.42 | 0.46 | O | 1 | ZoneSS Discrete |
| CLTM6180903T2 | P | 0.39 | 0.55 | [no flag] | 1 | MCSS Member |
| CLTM6030636T2-R | P | 0.47 | 0.43 | [no flag] | 1 | MCSS Discrete |
| CLTM6180896T1 | P | 0.63 | 0.37 | [no flag] | 1 | MCSS Discrete |
| CLTM6180985T2 | P | 0.34 | 0.42 | [no flag] | 1 | MatchSS Discrete |
| CLTM6180987T1 | P | 1.04 | 0.51 | [no flag] | 2 | Composite - Discrete |
| CLTM6180983T1 | P | 0.99 | 0.46 | [no flag] | 2 | Composite - Member |
| CLTM6180978T3 | P | 0.41 | 0.52 | [no flag] | 1 | ZoneSS Discrete |
| CLTM6180984T1 | P | 0.65 | 0.47 | [no flag] | 1 | MCSS Member |
| CLTM6180980T2 | P | 1.15 | 0.70 | [no flag] | 2 | Composite - Discrete |

**Table 8.A.12 Average Item Score and Polyserial for Mathematics, Grade Seven**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM7020050T1 | E | 0.80 | 0.55 | [no flag] | 1 | MCSS Discrete |
| CLTM7030688T1 | E | 0.68 | 0.53 | [no flag] | 1 | MCSS Member |
| CLTM7020085T1 | E | 0.65 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTM7020280T1 | E | 0.74 | 0.62 | [no flag] | 1 | MCSS Discrete |
| CLTM7020047T1 | E | 1.36 | 0.50 | [no flag] | 2 | MCMA - Discrete |
| CLTM7020091T1 | E | 1.42 | 0.71 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7020299T1 | E | 0.64 | 0.33 | [no flag] | 1 | MCSS Discrete |
| CLTM7020089T2 | E | 0.99 | 0.46 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7020048T2 | E | 1.09 | 0.23 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7020092T2 | E | 1.35 | 0.76 | L | 2 | ZoneMS Discrete |
| CLTM7020034T1 | E | 0.53 | 0.36 | O | 1 | MCSS Discrete |
| CLTM7030522T2 | E | 0.82 | 0.45 | [no flag] | 2 | ZoneMS Member |
| CLTM7030691T1 | E | 0.49 | 0.39 | O | 1 | MCSS Member |
| CLTM7020323T1 | E | 0.35 | 0.34 | D O | 1 | MCSS Discrete |
| CLTM7020329T1 | E | 0.67 | 0.51 | O | 2 | ZoneMS Discrete |
| CLTM7020296T1 | E | 0.47 | 0.37 | O | 1 | MCSS Discrete |
| CLTM7020369T1 | E | 0.51 | 0.47 | O | 1 | MCSS Discrete |
| CLTM7020419T2 | E | 0.70 | 0.46 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7020327T2 | E | 0.71 | 0.50 | [no flag] | 2 | MCMA - Discrete |
| CLTM7030515T1 | E | 0.86 | 0.58 | O | 2 | InLineChoicelistMS Member |
| CLTM7020086T2 | E | 0.37 | 0.53 | O | 1 | MCSS Discrete |
| CLTM7030512T1 | E | 0.69 | 0.58 | O | 2 | InLineChoicelistMS Member |
| CLTM7030585T2 | E | 0.88 | 0.39 | [no flag] | 2 | ZoneMS Member |
| CLTM7030518T1 | E | 0.88 | 0.45 | [no flag] | 2 | MCMA - Member |
| CLTM7020330T2 | E | 0.51 | 0.45 | A O | 2 | ZoneMS Discrete |
| CLTM7030653T1 | E | 0.50 | 0.44 | [no flag] | 1 | MCSS Discrete |
| CLTM7030509T1 | E | 1.12 | 0.45 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM7020297T2 | E | 0.39 | 0.53 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM7020418T1 | E | 0.89 | 0.28 | [no flag] | 2 | MCMA - Discrete |
| CLTM7030516T2 | E | 0.68 | 0.42 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM7030519T2 | E | 0.68 | 0.44 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM7020300T2 | E | 0.31 | 0.37 | A O | 1 | MCSS Discrete |
| CLTM7020328T3 | E | 0.92 | 0.36 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7020282T2 | E | 0.68 | 0.45 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7020298T3 | E | 0.40 | 0.47 | [no flag] | 1 | InLineChoicelistSS Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM7030510T2 | E | 0.83 | 0.52 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM7020451T3 | E | 0.23 | 0.29 | D A O | 1 | MCSS Discrete |
| CLTM7020324T2 | E | 0.33 | 0.37 | A O | 1 | MCSS Discrete |
| CLTM7020093T3 | E | 0.79 | 0.42 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7030705T2 | E | 0.37 | 0.58 | [no flag] | 1 | MCSS Member |
| CLTM7020373T2 | E | 0.94 | 0.54 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7020423T3 | E | 0.35 | 0.43 | [no flag] | 1 | MCSS Discrete |
| CLTM7030589T3 | E | 0.37 | 0.59 | [no flag] | 1 | InLineChoicelistSS Member |
| CLTM7020371T3 | E | 0.35 | 0.46 | [no flag] | 1 | MCSS Discrete |
| CLTM7020035T2 | E | 0.56 | 0.66 | [no flag] | 1 | MCSS Discrete |
| CLTM7030514T3 | E | 0.94 | 0.44 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7030586T3 | E | 0.78 | 0.33 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM7020331T3 | E | 0.92 | 0.49 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7020036T3 | E | 0.14 | 0.62 | A | 1 | Numeric Discrete |
| CLTM7180846T3 | P | 1.25 | 0.52 | [no flag] | 2 | ZoneMS Member |
| CLTM7030587T1-R | P | 0.76 | 0.64 | [no flag] | 1 | MCSS Discrete |
| CLTM7180937T1 | P | 0.98 | 0.40 | [no flag] | 2 | Composite - Discrete |
| CLTM7180994T2 | P | 1.21 | 0.72 | [no flag] | 2 | Composite - Member |
| CLTM7030704T1-R | P | 0.66 | 0.43 | [no flag] | 1 | MCSS Member |
| CLTM7180997T2 | P | 0.52 | 0.37 | A | 2 | Composite - Member |
| CLTM7180996T2 | P | 0.47 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTM7180927T1 | P | 1.13 | 0.53 | [no flag] | 2 | Composite - Member |
| CLTM7180932T2 | P | 1.04 | 0.59 | [no flag] | 2 | MatchMS Member |
| CLTM7030696T3-R | P | 0.11 | 0.54 | A | 1 | Numeric Member |
| CLTM7180951T1 | P | 1.08 | 0.50 | [no flag] | 2 | Composite - Discrete |
| CLTM7180993T1 | P | 1.13 | 0.70 | [no flag] | 2 | Composite - Member |
| CLTM7180933T2 | P | 0.88 | 0.56 | [no flag] | 2 | Composite - Member |
| CLTM7180928T1 | P | 0.61 | 0.34 | [no flag] | 1 | MCSS Member |
| CLTM7180953T2 | P | 0.87 | 0.38 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7030511T3-R | P | 0.95 | 0.48 | [no flag] | 2 | ZoneMS Member |
| CLTM7180949T1 | P | 1.17 | 0.68 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7180935T2 | P | 0.11 | 0.72 | A | 1 | Numeric Member |
| CLTM7180952T2 | P | 1.05 | 0.59 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7180995T3 | P | 0.90 | 0.69 | [no flag] | 2 | Composite - Member |

**Table 8.A.13 Average Item Score and Polyserial for Mathematics, Grade Eight**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM8020332T1 | E | 0.81 | 0.49 | [no flag] | 1 | MCSS Discrete |
| CLTM8030638T1 | E | 0.76 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTM8020302T1 | E | 0.70 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTM8020028T1 | E | 1.37 | 0.61 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8030530T1 | E | 1.04 | 0.37 | [no flag] | 2 | MCMA - Member |
| CLTM8030536T2 | E | 0.97 | 0.38 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8020305T1 | E | 0.92 | 0.40 | [no flag] | 2 | MCMA - Discrete |
| CLTM8020416T2 | E | 0.77 | 0.42 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020277T1 | E | 1.03 | 0.47 | [no flag] | 2 | MCMA - Discrete |
| CLTM8030539T2 | E | 1.02 | 0.44 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8020079T1 | E | 0.55 | 0.39 | O | 1 | MCSS Discrete |
| CLTM8020278T1 | E | 0.51 | 0.44 | O | 1 | MCSS Discrete |
| CLTM8030535T1 | E | 1.04 | 0.66 | [no flag] | 2 | MCMA - Member |
| CLTM8030528T2 | E | 0.98 | 0.38 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8030697T1 | E | 0.45 | 0.48 | O | 1 | MCSS Discrete |
| CLTM8030659T1 | E | 0.51 | 0.47 | O | 1 | MCSS Member |
| CLTM8180880T2 | O | 0.25 | 0.40 | A O | 1 | MCSS Member |
| CLTM8020378T1 | E | 0.90 | 0.57 | [no flag] | 2 | MCMA - Discrete |
| CLTM8180817T2 | O | 0.48 | 0.65 | [no flag] | 1 | ZoneSS Discrete |
| CLTM8020412T1 | E | 0.52 | 0.39 | O | 1 | MCSS Discrete |
| CLTM8020388T1 | E | 0.46 | 0.43 | O | 1 | MCSS Discrete |
| CLTM8180975T2 | O | 0.59 | 0.66 | [no flag] | 1 | MCSS Discrete |
| CLTM8030538T1 | E | 0.95 | 0.63 | [no flag] | 2 | MCMA - Member |
| CLTM8020029T2 | E | 0.86 | 0.57 | O | 2 | InLineChoicelistMS Discrete |
| CLTM8180860T1 | O | 0.39 | 0.41 | O | 1 | ZoneSS Discrete |
| CLTM8030527T1 | E | 1.05 | 0.56 | [no flag] | 2 | MCMA - Member |
| CLTM8030624T1 | E | 0.53 | 0.45 | [no flag] | 1 | ZoneSS Discrete |
| CLTM8020390T3 | E | 0.15 | 0.48 | A | 1 | Numeric Discrete |
| CLTM8020026T2 | E | 0.43 | 0.35 | [no flag] | 1 | MCSS Discrete |
| CLTM8020379T2 | E | 0.42 | 0.33 | A | 2 | ZoneMS Discrete |
| CLTM8030663T2 | E | 0.35 | 0.27 | [no flag] | 1 | MCSS Member |
| CLTM8020083T2 | E | 0.43 | 0.27 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM8030698T2 | E | 0.48 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTM8020030T3 | E | 0.77 | 0.53 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020415T1 | E | 1.05 | 0.51 | [no flag] | 2 | MCMA - Discrete |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTM8020084T3 | E | 0.42 | 0.46 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM8020080T2 | E | 0.73 | 0.42 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020307T3 | E | 1.06 | 0.60 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020027T3 | E | 0.41 | 0.57 | [no flag] | 1 | MCSS Discrete |
| CLTM8020046T2 | E | 0.47 | 0.33 | A | 2 | ZoneMS Discrete |
| CLTM8020393T3 | E | 0.63 | 0.20 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020279T3 | E | 0.54 | 0.41 | [no flag] | 1 | MCSS Discrete |
| CLTM8030540T3 | E | 0.82 | 0.42 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8020392T2 | E | 0.86 | 0.52 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020453T3 | E | 0.44 | 0.46 | [no flag] | 1 | ZoneSS Discrete |
| CLTM8020417T3 | E | 0.88 | 0.50 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020069T2 | E | 0.31 | 0.32 | A | 1 | ZoneSS Discrete |
| CLTM8020380T3 | E | 0.60 | 0.36 | A | 2 | ZoneMS Discrete |
| CLTM8030537T3 | E | 0.96 | 0.44 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8180881T3 | P | 0.40 | 0.54 | O | 1 | ZoneSS Member |
| CLTM8180805T2 | P | 0.74 | 0.59 | [no flag] | 1 | MCSS Discrete |
| CLTM8180862T1 | P | 1.08 | 0.52 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8180877T2 | P | 0.44 | 0.43 | [no flag] | 1 | MCSS Member |
| CLTM8030524T1-R | P | 0.67 | 0.54 | O | 1 | ZoneSS Discrete |
| CLTM8180815T2 | P | 0.71 | 0.57 | [no flag] | 1 | MatchSS Member |
| CLTM8180865T2 | P | 0.72 | 0.55 | [no flag] | 2 | Composite - Member |
| CLTM8180804T3 | P | 1.22 | 0.58 | [no flag] | 2 | MCMS Member |
| CLTM8180802T1 | P | 1.22 | 0.52 | [no flag] | 2 | Composite - Member |
| CLTM8030660T2-R | P | 0.43 | 0.50 | [no flag] | 1 | MCSS Discrete |
| CLTM8180808T3 | P | 0.67 | 0.60 | [no flag] | 2 | Composite - Member |
| CLTM8030625T2-R | P | 0.34 | 0.19 | D Rpoly | 1 | MCSS Discrete |
| CLTM8180874T1 | P | 0.58 | 0.55 | [no flag] | 1 | MatchSS Discrete |
| CLTM8030661T3-R | P | 0.50 | 0.31 | [no flag] | 1 | ZoneMS Discrete |
| CLTM8180867T2 | P | 0.60 | 0.54 | [no flag] | 2 | Composite - Member |
| CLTM8180816T1 | P | 0.68 | 0.46 | [no flag] | 1 | MCSS Discrete |
| CLTM8180814T1 | P | 0.79 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTM8180863T2 | P | 0.74 | 0.55 | [no flag] | 2 | Composite - Member |
| CLTM8180866T1 | P | 1.36 | 0.60 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8180869T3 | P | 0.29 | 0.67 | A | 1 | Numeric Discrete |

**Table 8.A.14 Average Item Score and Polyserial for Mathematics, Grade Eleven**

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTMH020019T1 | E | 0.74 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTMH020272T1 | E | 0.72 | 0.50 | [no flag] | 1 | MCSS Discrete |
| CLTMH020447T1 | E | 0.61 | 0.69 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH030553T1 | E | 0.70 | 0.48 | [no flag] | 1 | MCSS Discrete |
| CLTMH020406T1 | E | 1.01 | 0.44 | [no flag] | 2 | MCMA - Discrete |
| CLTMH030642T2 | E | 1.03 | 0.48 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTMH020397T1 | E | 1.03 | 0.58 | [no flag] | 2 | MCMA - Discrete |
| CLTMH030628T2 | E | 0.52 | 0.65 | [no flag] | 1 | MCSS Member |
| CLTMH020076T1 | E | 0.51 | 0.66 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH030555T2 | E | 0.99 | 0.48 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTMH020022T1 | E | 0.51 | 0.39 | [no flag] | 1 | MCSS Discrete |
| CLTMH020043T1 | E | 0.35 | 0.51 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH030645T2 | E | 1.48 | 0.69 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTMH030549T1 | E | 0.43 | 0.44 | O | 1 | MCSS Member |
| CLTMH020398T2 | E | 1.08 | 0.54 | [no flag] | 2 | ZoneMS Discrete |
| CLTMH030644T1 | E | 0.74 | 0.70 | L | 2 | MatchMS Member |
| CLTMH030630T1 | E | 0.35 | 0.47 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH020068T1 | E | 0.58 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTMH030665T1 | E | 0.80 | 0.71 | L | 2 | MatchMS Member |
| CLTMH030551T2 | E | 1.16 | 0.56 | [no flag] | 2 | ZoneMS Member |
| CLTMH180926T1 | O | 0.47 | 0.28 | O | 1 | MCSS Member |
| CLTMH020020T2 | E | 0.51 | 0.51 | O | 1 | MCSS Discrete |
| CLTMH030666T2 | E | 1.26 | 0.61 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTMH020336T2 | E | 0.35 | 0.57 | [no flag] | 1 | ZoneMS Discrete |
| CLTMH020381T1 | E | 0.80 | 0.57 | [no flag] | 2 | MCMA - Discrete |
| CLTMH030641T1 | E | 1.06 | 0.53 | [no flag] | 2 | MCMA - Member |
| CLTMH020045T3 | E | 0.48 | 0.28 | [no flag] | 1 | MCSS Discrete |
| CLTMH020402T2 | E | 0.94 | 0.39 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTMH030542T2 | E | 0.43 | 0.22 | [no flag] | 1 | ZoneMS Discrete |
| CLTMH020044T2 | E | 0.29 | 0.19 | D A Rpoly | 1 | MCSS Discrete |
| CLTMH020400T2 | E | 0.34 | 0.15 | Rpoly | 1 | MCSS Discrete |
| CLTMH020385T2 | E | 0.90 | 0.33 | [no flag] | 2 | MCMA - Discrete |
| CLTMH020270T2 | E | 0.37 | 0.25 | [no flag] | 1 | MCSS Discrete |
| CLTMH020077T2 | E | 0.36 | 0.28 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH030552T3 | E | 1.09 | 0.46 | [no flag] | 2 | InLineChoicelistMS Member |

| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
|---|---|---|---|---|---|---|
| CLTMH020337T3 | E | 0.56 | 0.29 | [no flag] | 1 | MCSS Discrete |
| CLTMH030712T1 | E | 0.44 | 0.53 | [no flag] | 1 | ZoneSS Member |
| CLTMH020023T2 | E | 0.62 | 0.62 | [no flag] | 1 | MCSS Discrete |
| CLTMH020313T3 | E | 0.58 | 0.40 | [no flag] | 1 | MCSS Discrete |
| CLTMH030646T3 | E | 1.66 | 0.79 | H | 2 | BarPicturegraphMS Member |
| CLTMH020078T3 | E | 0.33 | 0.25 | A | 1 | ZoneSS Discrete |
| CLTMH020382T2 | E | 0.80 | 0.49 | [no flag] | 2 | MCMA - Discrete |
| CLTMH030543T3 | E | 0.53 | 0.53 | [no flag] | 1 | MCSS Discrete |
| CLTMH030667T3 | E | 1.69 | 0.80 | H | 2 | BarPicturegraphMS Member |
| CLTMH020401T3 | E | 0.49 | 0.47 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH030714T3 | E | 0.32 | 0.36 | A | 1 | MCSS Discrete |
| CLTMH020407T2 | E | 1.01 | 0.52 | [no flag] | 2 | MCMA - Discrete |
| CLTMH030631T2 | E | 0.36 | 0.23 | [no flag] | 1 | MCSS Discrete |
| CLTMH020446T3 | E | 0.27 | 0.65 | A | 1 | Numeric Discrete |
| CLTMH030643T3 | E | 0.88 | 0.44 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTMH180831T3 | P | 0.19 | 0.64 | A | 1 | Numeric Discrete |
| CLTMH180826T1 | P | 0.70 | 0.49 | [no flag] | 1 | MCSS Member |
| CLTMH180919T2 | P | 1.11 | 0.65 | [no flag] | 2 | Composite - Member |
| CLTMH180924T2 | P | 0.53 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTMH180917T3 | P | 0.20 | 0.74 | A | 2 | Composite - Member |
| CLTMH180813T1 | P | 0.51 | 0.30 | [no flag] | 1 | MCSS Discrete |
| CLTMH180828T2 | P | 0.54 | 0.55 | [no flag] | 1 | InLineChoicelistSS Member |
| CLTMH180812T2 | P | 0.27 | 0.14 | D A Rpoly | 1 | MCSS Member |
| CLTMH180947T3 | P | 0.46 | 0.52 | A | 2 | Composite - Member |
| CLTMH180830T2 | P | 0.62 | 0.67 | [no flag] | 1 | InLineChoicelistSS Member |
| CLTMH180811T1 | P | 1.22 | 0.54 | [no flag] | 2 | MCMA - Member |
| CLTMH030713T2-R | P | 0.27 | 0.34 | A | 1 | MCSS Discrete |
| CLTMH180809T3 | P | 1.07 | 0.79 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTMH180976T2 | P | 0.65 | 0.71 | [no flag] | 1 | MCSS Member |
| CLTMH180827T2 | P | 0.56 | 0.39 | [no flag] | 1 | MCSS Member |
| CLTMH180940T2 | P | 0.70 | 0.62 | [no flag] | 1 | ZoneMS Discrete |
| CLTMH030634T3-R | P | 0.16 | 0.61 | A | 1 | Numeric Discrete |
| CLTMH180921T1 | P | 0.99 | 0.70 | [no flag] | 2 | MatchMS Member |
| CLTMH030633T2-R | P | 0.43 | 0.49 | [no flag] | 1 | MCSS Member |
| CLTMH180943T2 | P | 0.70 | 0.42 | [no flag] | 2 | Composite - Member |

**Note:** In Table 8.A.15 through Table 8.A.28, the columns *Score 0, Score 1,* and *Score 2* indicate the possible scores for the item.

**Table 8.A.15 Distribution of Item Scores for ELA, Grade Three**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTW3020108T1 | E | 1 | 13% | 74% | NA | 13% | 4,119 |
| CLTR3020057T1-M | E | 2 | 4% | 42% | 50% | 5% | 4,119 |
| CLTR3020059T1-O | E | 2 | 13% | 6% | 78% | 2% | 4,119 |
| CLTW3020095T1 | E | 2 | 3% | 37% | 58% | 2% | 4,114 |
| CLTR3020140T2-M | E | 2 | 3% | 46% | 48% | 3% | 4,114 |
| CLTR3020142T2-M | E | 2 | 36% | 15% | 44% | 4% | 4,114 |
| CLTR3020053T1-M | E | 1 | 35% | 50% | NA | 14% | 1,827 |
| CLTR3020170T1 | E | 2 | 48% | 17% | 24% | 11% | 1,827 |
| CLTR3020169T1 | E | 2 | 7% | 55% | 26% | 12% | 1,827 |
| CLTW3020171T1-R | O | 1 | 57% | 32% | NA | 11% | 1,827 |
| CLTR3040231T1 | O | 1 | 6% | 78% | NA | 15% | 1,827 |
| CLTW3020146T2 | E | 2 | 4% | 62% | 26% | 8% | 1,827 |
| CLTW3020145T2-M | E | 2 | 10% | 42% | 31% | 16% | 1,827 |
| CLTW3040186T2 | O | 2 | 29% | 43% | 19% | 9% | 1,827 |
| CLTR3030110T2 | O | 2 | 4% | 44% | 43% | 8% | 1,827 |
| CLTW3030030T1 | E | 2 | 22% | 32% | 44% | 3% | 1,406 |
| CLTR3030136T1 | O | 2 | 6% | 32% | 62% | 0% | 1,406 |
| CLTW3020165T2 | O | 1 | 31% | 66% | NA | 3% | 1,406 |
| CLTW3030082T2 | E | 2 | 5% | 41% | 52% | 2% | 1,406 |
| CLTW3030113T2 | E | 2 | 17% | 20% | 61% | 2% | 2,231 |
| CLTR3040181T2 | O | 2 | 7% | 35% | 55% | 3% | 2,231 |
| CLTW3020403T3 | E | 2 | 33% | 25% | 36% | 6% | 2,231 |
| CLTW3020161T2 | E | 1 | 60% | 38% | NA | 2% | 2,231 |
| CLTR3040187T2 | O | 2 | 5% | 76% | 17% | 2% | 825 |
| CLTW3020179T3 | E | 2 | 28% | 35% | 33% | 4% | 825 |
| CLTW3030160T3 | E | 2 | 30% | 20% | 44% | 5% | 825 |
| CLTR3030166T3 | O | 2 | 3% | 48% | 48% | 1% | 825 |
| CLTR3040190T3 | O | 2 | 0% | 18% | 81% | 1% | 825 |
| CLTR3040025T1 | P | 2 | 3% | 32% | 63% | 3% | 1,082 |
| CLTW3040004T1 | P | 1 | 37% | 54% | NA | 9% | 1,082 |
| CLTR3040038T1 | P | 2 | 7% | 55% | 33% | 6% | 758 |
| CLTR3040040T1 | P | 1 | 44% | 46% | NA | 9% | 758 |
| CLTW3040227T2 | P | 1 | 62% | 26% | NA | 13% | 758 |
| CLTR3040232T1 | P | 2 | 5% | 43% | 49% | 4% | 755 |
| CLTR3040183T2 | P | 2 | 3% | 37% | 56% | 4% | 755 |
| CLTW3040184T2 | P | 1 | 55% | 39% | NA | 7% | 755 |
| CLTW3040086T2 | P | 2 | 9% | 41% | 38% | 12% | 782 |

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTR3030164T3 | P | 2 | 2% | 39% | 55% | 3% | 737 |
| CLTW3040193T3 | P | 2 | 42% | 22% | 28% | 8% | 737 |
| CLTR3040192T3 | P | 2 | 30% | 9% | 58% | 3% | 737 |

**Table 8.A.16 Distribution of Item Scores for ELA, Grade Four**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTR4020305T1-M | E | 2 | 4% | 41% | 50% | 6% | 4,444 |
| CLTW4020306T1-O | E | 2 | 5% | 45% | 47% | 3% | 4,444 |
| CLTW4020240T1-M | E | 2 | 8% | 27% | 61% | 5% | 4,419 |
| CLTR4030021T2 | E | 2 | 6% | 58% | 29% | 7% | 4,419 |
| CLTR4020257T1-M | E | 2 | 7% | 51% | 33% | 9% | 1,553 |
| CLTR4020258T1-M | E | 2 | 33% | 10% | 49% | 8% | 1,553 |
| CLTR4030171T1 | O | 2 | 2% | 37% | 57% | 4% | 3,170 |
| CLTW4040203T1 | O | 1 | 26% | 62% | NA | 12% | 1,553 |
| CLTR4020117T2 | E | 2 | 8% | 54% | 29% | 8% | 1,553 |
| CLTR4030024T2 | E | 2 | 9% | 62% | 16% | 13% | 1,553 |
| CLTR4030025T2 | E | 2 | 47% | 20% | 21% | 11% | 1,553 |
| CLTR4030172T1 | E | 2 | 11% | 40% | 49% | 1% | 1,617 |
| CLTR4030062T2 | O | 2 | 6% | 24% | 69% | 1% | 2,797 |
| CLTR4040005T2 | O | 1 | 21% | 77% | NA | 2% | 1,617 |
| CLTR4020091T2 | E | 2 | 10% | 65% | 23% | 2% | 1,617 |
| CLTR4020092T2 | E | 2 | 34% | 21% | 43% | 2% | 1,617 |
| CLTR4040072T2 | O | 2 | 12% | 57% | 28% | 2% | 1,617 |
| CLTR4020244T3-M | E | 2 | 48% | 28% | 20% | 4% | 1,617 |
| CLTW4020246T3 | E | 2 | 35% | 39% | 19% | 6% | 1,617 |
| CLTR4020120T2-M | E | 2 | 17% | 49% | 32% | 2% | 1,180 |
| CLTW4020121T2-M | E | 1 | 44% | 54% | NA | 2% | 1,180 |
| CLTR4030090T3 | E | 2 | 7% | 57% | 35% | 1% | 1,180 |
| CLTR4030091T3 | E | 2 | 22% | 14% | 63% | 2% | 1,180 |
| CLTW4030132T3-R | O | 1 | 44% | 55% | NA | 1% | 1,180 |
| CLTW4030133T3-R | O | 2 | 19% | 29% | 48% | 3% | 1,180 |
| CLTR4040007T1 | P | 2 | 7% | 27% | 61% | 4% | 1,043 |
| CLTW4040008T1 | P | 2 | 5% | 51% | 38% | 6% | 1,043 |
| CLTR4040002T2 | P | 1 | 38% | 55% | NA | 7% | 832 |
| CLTR4040003T2 | P | 2 | 15% | 12% | 68% | 5% | 832 |
| CLTR4040101T1 | P | 2 | 3% | 38% | 54% | 4% | 805 |
| CLTR4040201T1 | P | 2 | 2% | 52% | 43% | 3% | 805 |
| CLTR4040052T2 | P | 2 | 4% | 55% | 34% | 8% | 881 |
| CLTW4040076T2 | P | 2 | 5% | 45% | 45% | 5% | 881 |
| CLTR4040070T2 | P | 2 | 2% | 46% | 48% | 3% | 858 |
| CLTW4040009T3 | P | 2 | 38% | 25% | 28% | 8% | 858 |

**Table 8.A.17 Distribution of Item Scores for ELA, Grade Five**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTW5020317T1 | E | 2 | 2% | 31% | 66% | 1% | 4,455 |
| CLTR5020453T1-M | E | 2 | 1% | 20% | 77% | 1% | 4,455 |
| CLTW5020454T1-M | E | 2 | 3% | 43% | 51% | 2% | 4,455 |
| CLTR5030154T1 | E | 2 | 4% | 31% | 63% | 2% | 4,455 |
| CLTR5030156T1 | E | 2 | 2% | 31% | 64% | 2% | 4,428 |
| CLTR5030185T2 | E | 2 | 1% | 31% | 66% | 2% | 4,428 |
| CLTR5020254T2-M | E | 2 | 3% | 50% | 43% | 5% | 4,428 |
| CLTR5020328T1-M | E | 2 | 10% | 51% | 30% | 9% | 1,349 |
| CLTR5030264T1 | O | 2 | 6% | 62% | 23% | 9% | 1,349 |
| CLTR5020047T2 | E | 2 | 4% | 63% | 26% | 7% | 1,349 |
| CLTR5020346T2 | E | 2 | 36% | 19% | 39% | 6% | 1,349 |
| CLTR5030183T2 | O | 2 | 6% | 64% | 21% | 8% | 1,349 |
| CLTW5040105T2 | O | 2 | 8% | 61% | 22% | 9% | 1,349 |
| CLTR5030123T1-M | O | 2 | 46% | 20% | 32% | 2% | 1,669 |
| CLTW5030124T1 | E | 2 | 0% | 42% | 54% | 5% | 1,669 |
| CLTR5030180T2 | E | 2 | 2% | 42% | 52% | 3% | 1,669 |
| CLTR5020342T2 | E | 2 | 39% | 11% | 49% | 1% | 3,014 |
| CLTR5040110T2 | O | 2 | 7% | 27% | 62% | 4% | 1,669 |
| CLTW5040111T2 | O | 2 | 5% | 23% | 68% | 3% | 1,669 |
| CLTW5030139T3 | O | 1 | 36% | 62% | NA | 3% | 1,669 |
| CLTR5040088T2 | O | 2 | 1% | 27% | 70% | 1% | 1,345 |
| CLTR5040089T2 | O | 2 | 29% | 14% | 56% | 1% | 1,345 |
| CLTR5040115T2 | O | 2 | 0% | 27% | 73% | 0% | 1,345 |
| CLTR5020038T3-M | E | 1 | 66% | 34% | NA | 1% | 1,345 |
| CLTW5020040T3-M | E | 2 | 43% | 31% | 23% | 3% | 1,345 |
| CLTR5020341T3 | E | 2 | 1% | 72% | 26% | 1% | 1,345 |
| CLTR5040171T3 | O | 1 | 35% | 63% | NA | 1% | 1,345 |
| CLTW5040230T3 | O | 2 | 10% | 17% | 69% | 3% | 1,345 |
| CLTW5040174T3 | O | 1 | 23% | 76% | NA | 1% | 1,345 |
| CLTR5040013T1 | P | 2 | 2% | 21% | 73% | 3% | 1,028 |
| CLTW5040015T1 | P | 2 | 5% | 29% | 60% | 5% | 1,028 |
| CLTW5030187T2-R | P | 1 | 41% | 54% | NA | 5% | 906 |
| CLTR5040034T1 | P | 2 | 2% | 36% | 58% | 3% | 906 |
| CLTR5040118T2 | P | 2 | 2% | 36% | 61% | 1% | 831 |
| CLTR5020250T3 | P | 2 | 20% | 34% | 41% | 4% | 831 |
| CLTW5020251T3 | P | 2 | 14% | 25% | 55% | 6% | 831 |
| CLTR5040018T1 | P | 2 | 23% | 8% | 65% | 5% | 820 |
| CLTR5040017T1 | P | 2 | 2% | 29% | 61% | 8% | 820 |
| CLTR5020336T1 | P | 2 | 23% | 7% | 68% | 1% | 843 |

**Table 8.A.18 Distribution of Item Scores for ELA, Grade Six**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTR6020097T1 | E | 2 | 9% | 4% | 86% | 1% | 4,572 |
| CLTR6030030T1 | E | 2 | 17% | 13% | 69% | 2% | 4,572 |
| CLTW6030032T1-O | E | 2 | 12% | 42% | 44% | 3% | 4,572 |
| CLTW6030202T1 | E | 1 | 29% | 69% | NA | 2% | 4,533 |
| CLTW6020104T1 | E | 2 | 4% | 45% | 50% | 2% | 4,533 |
| CLTR6020204T2 | E | 2 | 2% | 39% | 57% | 2% | 4,533 |
| CLTR6020202T2 | E | 2 | 4% | 42% | 51% | 3% | 4,533 |
| CLTW6030012T1-R | O | 1 | 49% | 26% | NA | 25% | 408 |
| CLTR6030011T1-R | O | 2 | 51% | 23% | 7% | 19% | 408 |
| CLTR6020098T1 | E | 2 | 14% | 60% | 13% | 13% | 408 |
| CLTR6030042T1 | O | 2 | 47% | 8% | 31% | 13% | 408 |
| CLTR6020099T1 | E | 2 | 39% | 8% | 40% | 13% | 408 |
| CLTR6030074T2-R | O | 1 | 71% | 7% | NA | 21% | 408 |
| CLTW6030075T2 | E | 2 | 20% | 30% | 20% | 29% | 408 |
| CLTW6040204T2 | O | 1 | 52% | 28% | NA | 20% | 408 |
| CLTR6030128T2 | O | 2 | 18% | 46% | 16% | 19% | 408 |
| CLTW6030066T1 | E | 2 | 17% | 56% | 21% | 6% | 2,029 |
| CLTW6040166T2 | O | 2 | 4% | 59% | 34% | 3% | 2,029 |
| CLTR6030261T2 | O | 2 | 17% | 53% | 25% | 5% | 2,029 |
| CLTR6030262T2 | O | 2 | 28% | 13% | 52% | 6% | 2,029 |
| CLTW6040165T2 | O | 1 | 57% | 38% | NA | 5% | 2,029 |
| CLTR6030197T2 | E | 1 | 50% | 45% | NA | 5% | 4,085 |
| CLTR6030148T2 | E | 2 | 8% | 55% | 30% | 8% | 2,029 |
| CLTW6030149T2 | E | 1 | 45% | 47% | NA | 8% | 2,029 |
| CLTR6030205T3 | E | 2 | 10% | 62% | 23% | 4% | 2,029 |
| CLTW6040033T3 | O | 1 | 69% | 25% | NA | 6% | 2,029 |
| CLTR6040030T3 | O | 2 | 16% | 59% | 20% | 5% | 2,029 |
| CLTR6040163T2 | O | 1 | 53% | 47% | NA | 0% | 2,056 |
| CLTW6040168T2 | O | 2 | 0% | 16% | 83% | 1% | 2,056 |
| CLTR6040170T2 | O | 1 | 58% | 41% | NA | 1% | 2,056 |
| CLTW6020209T2 | E | 2 | 18% | 45% | 34% | 3% | 2,056 |
| CLTW6030228T3 | O | 1 | 30% | 69% | NA | 1% | 2,056 |
| CLTR6020418T3 | E | 2 | 47% | 23% | 28% | 2% | 2,056 |
| CLTR6020416T3 | E | 1 | 66% | 31% | NA | 3% | 2,056 |
| CLTR6020417T3 | E | 2 | 5% | 65% | 27% | 3% | 2,056 |
| CLTR6040032T3 | O | 2 | 4% | 50% | 44% | 1% | 2,056 |
| CLTR6040010T3 | O | 2 | 1% | 26% | 70% | 2% | 2,056 |
| CLTW6040012T3 | O | 2 | 33% | 33% | 28% | 5% | 2,056 |

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTW6040123T1 | P | 2 | 3% | 35% | 60% | 2% | 1,075 |
| CLTR6040112T1 | P | 2 | 12% | 7% | 78% | 3% | 1,075 |
| CLTR6040176T2 | P | 2 | 2% | 27% | 67% | 4% | 844 |
| CLTW6040177T2 | P | 1 | 32% | 62% | NA | 5% | 844 |
| CLTR6040106T1 | P | 1 | 29% | 68% | NA | 3% | 947 |
| CLTR6040107T1 | P | 2 | 30% | 24% | 40% | 5% | 947 |
| CLTR6040167T2 | P | 2 | 2% | 47% | 48% | 3% | 947 |
| CLTR6040236T1 | P | 2 | 3% | 48% | 45% | 4% | 835 |
| CLTR6040121T1 | P | 2 | 21% | 12% | 63% | 3% | 835 |
| CLTW6040138T1 | P | 1 | 50% | 45% | NA | 4% | 832 |

**Table 8.A.19 Distribution of Item Scores for ELA, Grade Seven**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTW7020412T1 | E | 2 | 3% | 70% | 26% | 1% | 4,555 |
| CLTW7020386T1 | E | 2 | 4% | 53% | 41% | 1% | 4,519 |
| CLTR7020368T2 | E | 2 | 3% | 57% | 38% | 2% | 4,519 |
| CLTR7030070T2 | E | 2 | 4% | 57% | 35% | 3% | 4,519 |
| CLTR7020382T1 | E | 2 | 11% | 64% | 19% | 5% | 1,507 |
| CLTW7030254T1 | E | 2 | 7% | 56% | 28% | 9% | 1,507 |
| CLTR7020379T1 | E | 2 | 6% | 57% | 30% | 7% | 1,507 |
| CLTR7020383T1 | E | 2 | 46% | 11% | 35% | 7% | 1,507 |
| CLTW7040129T1 | O | 2 | 1% | 40% | 44% | 15% | 1,507 |
| CLTR7020378T2 | E | 2 | 50% | 20% | 20% | 10% | 1,507 |
| CLTW7040065T2 | O | 2 | 4% | 32% | 59% | 4% | 3,413 |
| CLTW7030056T2 | E | 2 | 20% | 46% | 29% | 5% | 1,906 |
| CLTWT020155T2 | E | 2 | 24% | 43% | 27% | 6% | 1,906 |
| CLTR7020365T3 | E | 2 | 43% | 15% | 40% | 2% | 1,906 |
| CLTR7040062T3 | O | 2 | 4% | 58% | 35% | 2% | 1,906 |
| CLTR7020158T2 | E | 2 | 10% | 32% | 54% | 4% | 1,041 |
| CLTR7040045T2 | O | 1 | 22% | 77% | NA | 0% | 1,041 |
| CLTR7040047T2 | O | 2 | 21% | 8% | 70% | 1% | 1,041 |
| CLTR7020360T3 | O | 2 | 2% | 65% | 31% | 0% | 1,041 |
| CLTR7020362T3 | E | 1 | 50% | 49% | NA | 1% | 1,041 |
| CLTW7030116T3 | O | 2 | 23% | 32% | 38% | 6% | 1,041 |
| CLTR7030114T3 | O | 1 | 26% | 72% | NA | 1% | 1,041 |
| CLTW7020350T3 | E | 2 | 18% | 38% | 38% | 5% | 1,041 |
| CLTR7020349T3 | E | 1 | 78% | 19% | NA | 3% | 1,041 |
| CLTR7040061T3 | O | 2 | 36% | 16% | 47% | 0% | 1,041 |
| CLTR7040154T2 | P | 2 | 4% | 36% | 54% | 5% | 918 |
| CLTW7040155T2 | P | 2 | 8% | 27% | 58% | 6% | 918 |
| CLTW7040044T2 | P | 2 | 4% | 37% | 53% | 6% | 834 |
| CLTR7040077T3 | P | 1 | 56% | 41% | NA | 3% | 967 |
| CLTR7040078T3 | P | 1 | 51% | 44% | NA | 5% | 967 |
| CLTW7040079T3 | P | 2 | 35% | 24% | 30% | 10% | 967 |
| CLTR7040048T2 | P | 2 | 3% | 55% | 37% | 5% | 915 |
| CLTR7040125T1 | P | 2 | 21% | 9% | 68% | 2% | 885 |
| CLTR7040156T1 | P | 2 | 2% | 25% | 70% | 2% | 885 |
| CLTR7040126T1 | P | 1 | 27% | 64% | NA | 9% | 885 |

**Table 8.A.20 Distribution of Item Scores for ELA, Grade Eight**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTR8020394T1-M | E | 2 | 6% | 66% | 25% | 3% | 4,364 |
| CLTW8020396T1-O | E | 2 | 7% | 60% | 32% | 2% | 4,364 |
| CLTR8020446T1 | E | 2 | 3% | 46% | 50% | 1% | 4,330 |
| CLTR8020447T1 | E | 2 | 5% | 68% | 25% | 1% | 4,330 |
| CLTR8020321T2-M | E | 2 | 4% | 39% | 54% | 3% | 4,330 |
| CLTR8020323T2-M | E | 2 | 31% | 11% | 54% | 3% | 4,330 |
| CLTW8030219T2 | E | 2 | 22% | 22% | 50% | 5% | 4,330 |
| CLTW8030212T1 | E | 2 | 17% | 53% | 26% | 3% | 3,421 |
| CLTR8040080T1 | O | 2 | 53% | 15% | 28% | 4% | 1,714 |
| CLTW8020260T2 | E | 2 | 32% | 29% | 27% | 11% | 1,714 |
| CLTR8030208T2 | E | 2 | 10% | 65% | 14% | 10% | 1,714 |
| CLTR8020259T2 | O | 2 | 9% | 49% | 36% | 5% | 1,714 |
| CLTR8040150T2 | O | 2 | 38% | 22% | 38% | 2% | 1,707 |
| CLTR8040146T2 | O | 2 | 2% | 36% | 59% | 3% | 1,707 |
| CLTW8040147T2 | O | 2 | 1% | 42% | 53% | 3% | 1,707 |
| CLTW8020287T2-M | E | 1 | 64% | 33% | NA | 2% | 2,556 |
| CLTR8020439T3 | E | 2 | 13% | 57% | 28% | 1% | 1,707 |
| CLTW8030129T3 | O | 2 | 21% | 36% | 36% | 6% | 1,707 |
| CLTR8040148T2 | O | 2 | 2% | 43% | 54% | 0% | 849 |
| CLTR8020066T3-M | E | 2 | 9% | 60% | 30% | 1% | 849 |
| CLTR8020068T3-M | E | 2 | 27% | 13% | 59% | 1% | 849 |
| CLTR8030120T3 | E | 1 | 48% | 52% | NA | 0% | 849 |
| CLTR8040214T3 | O | 2 | 1% | 37% | 61% | 2% | 849 |
| CLTR8040215T3 | O | 2 | 2% | 53% | 43% | 2% | 849 |
| CLTW8040216T3 | O | 2 | 16% | 28% | 52% | 3% | 849 |
| CLTW8040220T3 | O | 1 | 7% | 93% | NA | 0% | 849 |
| CLTR8040091T1 | P | 2 | 2% | 31% | 63% | 4% | 1,846 |
| CLTW8040092T1 | P | 2 | 4% | 39% | 52% | 4% | 1,846 |
| CLTR8040219T3 | P | 2 | 40% | 15% | 43% | 2% | 1,846 |
| CLTR8040144T2 | P | 2 | 5% | 52% | 37% | 5% | 1,642 |
| CLTR8040143T2 | P | 2 | 35% | 36% | 25% | 4% | 1,642 |
| CLTR8030125T1 | P | 2 | 6% | 41% | 50% | 2% | 842 |
| CLTW8030127T1 | P | 2 | 4% | 34% | 58% | 5% | 842 |

**Table 8.A.21 Distribution of Item Scores for ELA, Grade Eleven**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTWH020232T1 | E | 2 | 3% | 45% | 49% | 2% | 3,840 |
| CLTRH020033T1 | E | 2 | 5% | 61% | 32% | 2% | 3,823 |
| CLTRH020234T1 | E | 2 | 16% | 12% | 70% | 2% | 3,823 |
| CLTWH020222T2 | E | 2 | 5% | 45% | 45% | 4% | 3,823 |
| CLTWH020226T2 | E | 2 | 8% | 57% | 33% | 2% | 3,823 |
| CLTWH020236T1 | E | 2 | 4% | 56% | 34% | 6% | 979 |
| CLTRH020032T1-M | E | 2 | 21% | 47% | 25% | 6% | 2,834 |
| CLTRH030038T1 | E | 2 | 54% | 16% | 21% | 9% | 979 |
| CLTRH030037T1 | E | 2 | 11% | 61% | 15% | 13% | 979 |
| CLTRH040131T1 | O | 2 | 8% | 58% | 26% | 7% | 979 |
| CLTRH040132T1 | O | 2 | 8% | 53% | 25% | 13% | 979 |
| CLTRH020218T2 | E | 2 | 10% | 68% | 12% | 10% | 979 |
| CLTRH020214T2 | E | 2 | 24% | 42% | 23% | 11% | 979 |
| CLTRH040130T1 | O | 1 | 41% | 58% | NA | 1% | 1,855 |
| CLTRH040208T2 | O | 2 | 16% | 52% | 30% | 2% | 1,855 |
| CLTRH040209T2 | O | 2 | 3% | 34% | 59% | 5% | 1,855 |
| CLTWH040210T2 | O | 1 | 61% | 34% | NA | 5% | 1,855 |
| CLTRH020189T2 | E | 2 | 21% | 9% | 68% | 2% | 1,855 |
| CLTRH020187T2 | E | 1 | 68% | 29% | NA | 3% | 1,855 |
| CLTWH030230T3 | E | 1 | 71% | 27% | NA | 2% | 1,855 |
| CLTRH040056T3 | O | 2 | 24% | 12% | 62% | 2% | 1,855 |
| CLTWH040096T3 | O | 1 | 36% | 61% | NA | 2% | 2,781 |
| CLTRH030093T2 | E | 2 | 1% | 31% | 67% | 1% | 926 |
| CLTRH030094T2 | E | 2 | 17% | 14% | 68% | 1% | 926 |
| CLTRH020224T2 | E | 2 | 24% | 12% | 64% | 0% | 926 |
| CLTRH040224T2 | O | 2 | 2% | 53% | 45% | 1% | 926 |
| CLTWH040226T2 | O | 2 | 3% | 19% | 75% | 3% | 926 |
| CLTWH020433T3 | E | 2 | 25% | 35% | 33% | 6% | 926 |
| CLTRH020267T3 | E | 2 | 10% | 61% | 28% | 1% | 926 |
| CLTRH040054T3 | O | 1 | 39% | 60% | NA | 0% | 926 |
| CLTRH020275T3 | O | 1 | 34% | 65% | NA | 0% | 926 |
| CLTRH040206T2 | P | 2 | 5% | 48% | 43% | 3% | 1,649 |
| CLTRH020031T1 | P | 1 | 31% | 65% | NA | 4% | 1,418 |
| CLTRH040134T1 | P | 2 | 41% | 17% | 38% | 4% | 756 |
| CLTRH040135T1 | P | 1 | 39% | 58% | NA | 3% | 756 |
| CLTWH040136T1 | P | 2 | 3% | 49% | 42% | 5% | 756 |

**Table 8.A.22 Distribution of Item Scores for Mathematics, Grade Three**

| Item ID | Item use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM3020065T1 | E | 1 | 23% | 74% | NA | 3% | 4,077 |
| CLTM3020063T2 | E | 2 | 30% | 9% | 57% | 3% | 4,077 |
| CLTM3030592T2 | E | 2 | 13% | 63% | 19% | 4% | 4,077 |
| CLTM3020172T2 | E | 2 | 37% | 23% | 35% | 4% | 4,077 |
| CLTM3181019T2 | O | 2 | 33% | 42% | 9% | 16% | 658 |
| CLTM3030500T1 | E | 1 | 41% | 49% | NA | 10% | 2,207 |
| CLTM3030506T1 | E | 1 | 43% | 39% | NA | 18% | 658 |
| CLTM3020007T1 | E | 1 | 50% | 43% | NA | 7% | 2,207 |
| CLTM3020062T1 | E | 2 | 42% | 6% | 37% | 15% | 658 |
| CLTM3020001T1 | E | 2 | 38% | 14% | 34% | 14% | 658 |
| CLTM3180964T2 | O | 2 | 50% | 25% | 6% | 19% | 658 |
| CLTM3030569T1 | E | 2 | 24% | 35% | 22% | 19% | 658 |
| CLTM3020010T1 | E | 2 | 45% | 14% | 26% | 16% | 658 |
| CLTM3020171T1 | E | 2 | 45% | 24% | 29% | 2% | 1,549 |
| CLTM3030591T1 | E | 2 | 14% | 54% | 30% | 2% | 1,549 |
| CLTM3020054T2 | E | 2 | 58% | 9% | 29% | 4% | 1,549 |
| CLTM3030582T2 | E | 2 | 18% | 43% | 31% | 9% | 1,549 |
| CLTM3030499T2 | E | 2 | 33% | 50% | 11% | 7% | 1,549 |
| CLTM3020003T3 | E | 2 | 41% | 10% | 43% | 5% | 1,549 |
| CLTM3030583T3 | E | 2 | 22% | 68% | 9% | 1% | 1,797 |
| CLTM3181023T3 | O | 2 | 24% | 53% | 21% | 2% | 1,797 |
| CLTM3020058T3 | E | 1 | 87% | 10% | NA | 3% | 1,797 |
| CLTM3020169T3 | E | 1 | 80% | 16% | NA | 4% | 1,797 |
| CLTM3020173T3 | E | 2 | 50% | 13% | 35% | 2% | 1,797 |
| CLTM3030574T3-R | O | 2 | 40% | 19% | 37% | 5% | 1,797 |
| CLTM3030590T2 | E | 2 | 39% | 47% | 11% | 3% | 1,797 |
| CLTM3030710T3 | E | 2 | 42% | 40% | 13% | 5% | 1,797 |
| CLTM3030497T3-R | P | 1 | 80% | 10% | NA | 9% | 1,072 |
| CLTM3181018T2 | P | 2 | 32% | 34% | 30% | 3% | 1,072 |
| CLTM3180887T1 | P | 1 | 22% | 71% | NA | 6% | 1,072 |
| CLTM3180889T3 | P | 1 | 43% | 47% | NA | 10% | 749 |
| CLTM3180890T1 | P | 1 | 31% | 61% | NA | 8% | 749 |
| CLTM3181020T3 | P | 2 | 21% | 62% | 11% | 5% | 747 |
| CLTM3180963T1 | P | 2 | 15% | 43% | 37% | 5% | 747 |
| CLTM3180884T1 | P | 2 | 13% | 34% | 49% | 3% | 774 |
| CLTM3180886T2 | P | 2 | 53% | 35% | 11% | 0% | 774 |
| CLTM3180962T3 | P | 2 | 42% | 35% | 18% | 5% | 735 |
| CLTM3180959T1 | P | 1 | 40% | 54% | NA | 5% | 735 |
| CLTM3180885T2 | P | 2 | 44% | 15% | 39% | 0% | 735 |

**Table 8.A.23 Distribution of Item Scores for Mathematics, Grade Four**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM4030475T1 | E | 2 | 3% | 37% | 59% | 2% | 4,364 |
| CLTM4020177T1 | E | 2 | 9% | 54% | 35% | 2% | 4,339 |
| CLTM4030612T1 | E | 2 | 3% | 40% | 55% | 2% | 4,339 |
| CLTM4030484T1 | E | 2 | 34% | 25% | 34% | 7% | 4,339 |
| CLTM4020178T2 | E | 2 | 25% | 32% | 36% | 7% | 4,339 |
| CLTM4181003T2 | O | 2 | 28% | 53% | 8% | 12% | 1,426 |
| CLTM4020170T1 | E | 2 | 39% | 24% | 33% | 4% | 3,660 |
| CLTM4180852T1 | O | 1 | 41% | 49% | NA | 10% | 1,426 |
| CLTM4020231T1 | E | 2 | 13% | 64% | 13% | 10% | 1,426 |
| CLTM4030613T2 | E | 2 | 20% | 33% | 29% | 18% | 1,426 |
| CLTM4030650T1 | E | 2 | 10% | 34% | 47% | 9% | 3,660 |
| CLTM4030494T2 | E | 2 | 23% | 40% | 22% | 15% | 1,426 |
| CLTM4030476T2 | E | 2 | 36% | 14% | 28% | 21% | 1,426 |
| CLTM4020250T2 | E | 2 | 12% | 68% | 18% | 3% | 2,234 |
| CLTM4030479T2 | E | 2 | 38% | 36% | 23% | 3% | 2,234 |
| CLTM4020230T3 | E | 2 | 24% | 57% | 16% | 3% | 2,875 |
| CLTM4020212T3 | E | 2 | 26% | 58% | 13% | 3% | 2,234 |
| CLTM4181004T3 | O | 2 | 46% | 41% | 13% | 1% | 641 |
| CLTM4020233T3 | E | 2 | 37% | 28% | 33% | 1% | 641 |
| CLTM4020224T3 | E | 2 | 43% | 48% | 7% | 1% | 641 |
| CLTM4030672T2 | E | 2 | 7% | 74% | 18% | 1% | 641 |
| CLTM4020229T2 | E | 2 | 19% | 52% | 27% | 2% | 641 |
| CLTM4180855T3 | P | 1 | 90% | 4% | NA | 6% | 1,039 |
| CLTM4181000T1 | P | 1 | 50% | 45% | NA | 5% | 1,039 |
| CLTM4181010T2 | P | 2 | 45% | 33% | 17% | 5% | 1,039 |
| CLTM4180857T2 | P | 1 | 36% | 59% | NA | 5% | 1,039 |
| CLTM4181002T1 | P | 2 | 4% | 48% | 45% | 3% | 809 |
| CLTM4180858T2 | P | 1 | 39% | 56% | NA | 4% | 809 |
| CLTM4181027T2 | P | 2 | 29% | 20% | 42% | 8% | 809 |
| CLTM4181032T2 | P | 2 | 34% | 48% | 12% | 6% | 802 |
| CLTM4181005T1 | P | 2 | 18% | 41% | 37% | 3% | 802 |
| CLTM4030652T3-R | P | 2 | 34% | 41% | 19% | 6% | 845 |
| CLTM4181031T1 | P | 2 | 25% | 53% | 19% | 4% | 845 |
| CLTM4181006T2 | P | 2 | 41% | 47% | 8% | 5% | 845 |
| CLTM4181030T1 | P | 2 | 42% | 9% | 44% | 5% | 844 |
| CLTM4181009T2 | P | 2 | 37% | 43% | 17% | 3% | 844 |
| CLTM4030673T3-R | P | 2 | 21% | 54% | 21% | 3% | 844 |

**Table 8.A.24 Distribution of Item Scores for Mathematics, Grade Five**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM5020338T1 | E | 2 | 7% | 40% | 52% | 1% | 4,363 |
| CLTM5030458T1 | E | 2 | 13% | 46% | 40% | 1% | 4,330 |
| CLTM5020184T2 | E | 2 | 39% | 24% | 34% | 2% | 4,330 |
| CLTM5020268T2 | E | 2 | 28% | 45% | 19% | 7% | 4,330 |
| CLTM5030456T2 | E | 1 | 56% | 34% | NA | 10% | 4,330 |
| CLTM5020352T2 | E | 2 | 31% | 7% | 59% | 2% | 4,330 |
| CLTM5030463T1 | E | 2 | 31% | 37% | 24% | 8% | 930 |
| CLTM5030676T1 | E | 2 | 16% | 63% | 9% | 12% | 930 |
| CLTM5020357T1 | E | 2 | 18% | 47% | 20% | 14% | 930 |
| CLTM5020183T1 | E | 2 | 16% | 42% | 28% | 14% | 930 |
| CLTM5020341T2 | E | 2 | 60% | 10% | 21% | 9% | 930 |
| CLTM5181015T2 | O | 2 | 47% | 31% | 12% | 11% | 930 |
| CLTM5030707T1-R | O | 2 | 54% | 8% | 26% | 12% | 930 |
| CLTM5030561T2-R | O | 1 | 61% | 36% | NA | 2% | 2,062 |
| CLTM5030465T3 | E | 2 | 6% | 67% | 24% | 3% | 2,062 |
| CLTM5030464T2 | E | 2 | 13% | 65% | 19% | 3% | 2,062 |
| CLTM5020215T3 | E | 1 | 76% | 15% | NA | 9% | 2,062 |
| CLTM5020358T2 | E | 2 | 51% | 14% | 32% | 3% | 2,062 |
| CLTM5030576T2 | E | 2 | 22% | 55% | 19% | 3% | 2,062 |
| CLTM5180968T2 | O | 1 | 75% | 21% | NA | 3% | 2,062 |
| CLTM5030575T1 | E | 2 | 27% | 44% | 27% | 3% | 2,062 |
| CLTM5020359T3 | E | 2 | 20% | 44% | 33% | 3% | 2,062 |
| CLTM5030607T2 | E | 2 | 20% | 52% | 24% | 3% | 2,062 |
| CLTM5030708T2 | E | 2 | 29% | 43% | 27% | 1% | 1,289 |
| CLTM5020343T2 | E | 1 | 71% | 28% | NA | 2% | 1,289 |
| CLTM5030577T3 | E | 2 | 30% | 28% | 40% | 1% | 1,289 |
| CLTM5030678T3 | E | 2 | 35% | 25% | 39% | 1% | 1,289 |
| CLTM5030709T3 | E | 2 | 18% | 46% | 34% | 2% | 1,289 |
| CLTM5180915T3 | O | 2 | 53% | 37% | 8% | 1% | 1,289 |
| CLTM5020266T3 | E | 1 | 74% | 23% | NA | 2% | 1,289 |
| CLTM5030462T2 | E | 2 | 32% | 46% | 19% | 3% | 1,289 |
| CLTM5180909T2 | P | 2 | 50% | 37% | 10% | 4% | 1,008 |
| CLTM5180971T1 | P | 2 | 21% | 42% | 34% | 3% | 1,008 |
| CLTM5181016T3 | P | 2 | 46% | 43% | 9% | 2% | 873 |
| CLTM5180970T1 | P | 1 | 50% | 46% | NA | 4% | 873 |
| CLTM5180821T2 | P | 2 | 46% | 39% | 12% | 3% | 873 |
| CLTM5180818T1 | P | 2 | 9% | 32% | 57% | 1% | 814 |
| CLTM5030559T3-R | P | 1 | 77% | 9% | NA | 14% | 814 |

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM5180908T2 | P | 2 | 45% | 36% | 14% | 4% | 814 |
| CLTM5180911T1 | P | 1 | 29% | 65% | NA | 6% | 800 |
| CLTM5180824T3 | P | 1 | 50% | 45% | NA | 6% | 800 |
| CLTM5180819T2 | P | 2 | 41% | 38% | 16% | 5% | 800 |
| CLTM5180967T2 | P | 1 | 66% | 29% | NA | 5% | 835 |
| CLTM5180972T3 | P | 2 | 52% | 23% | 21% | 4% | 835 |
| CLTM5180822T1 | P | 2 | 12% | 58% | 27% | 3% | 835 |

**Table 8.A.25 Distribution of Item Scores for Mathematics, Grade Six**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM6020293T1 | E | 1 | 35% | 63% | NA | 2% | 4,383 |
| CLTM6020287T1 | E | 2 | 29% | 11% | 58% | 2% | 4,356 |
| CLTM6020314T1 | E | 2 | 42% | 23% | 34% | 1% | 4,356 |
| CLTM6030683T2 | E | 1 | 45% | 52% | NA | 3% | 4,356 |
| CLTM6020364T2 | E | 2 | 44% | 25% | 30% | 2% | 4,356 |
| CLTM6180894T2 | O | 1 | 55% | 41% | NA | 3% | 4,288 |
| CLTM6030618T1 | E | 2 | 42% | 9% | 45% | 4% | 1,642 |
| CLTM6020051T2 | O | 2 | 43% | 10% | 44% | 2% | 4,288 |
| CLTM6020433T2 | E | 2 | 50% | 17% | 29% | 4% | 1,642 |
| CLTM6030599T2 | E | 1 | 45% | 49% | NA | 6% | 4,288 |
| CLTM6020291T2 | E | 2 | 47% | 10% | 38% | 5% | 1,642 |
| CLTM6020097T1 | E | 1 | 50% | 44% | NA | 6% | 3,327 |
| CLTM6030469T1 | E | 2 | 27% | 32% | 33% | 7% | 1,642 |
| CLTM6030602T2 | E | 2 | 44% | 39% | 15% | 2% | 1,685 |
| CLTM6020094T1 | E | 2 | 28% | 57% | 13% | 1% | 1,685 |
| CLTM6180988T2 | O | 1 | 42% | 56% | NA | 2% | 1,685 |
| CLTM6020200T3 | E | 1 | 45% | 51% | NA | 4% | 1,685 |
| CLTM6030619T2 | E | 2 | 47% | 37% | 14% | 2% | 1,685 |
| CLTM6020367T2 | E | 2 | 42% | 45% | 10% | 2% | 1,685 |
| CLTM6020039T3 | E | 2 | 35% | 44% | 20% | 1% | 961 |
| CLTM6020099T3 | E | 1 | 76% | 20% | NA | 3% | 961 |
| CLTM6020368T3 | E | 2 | 32% | 38% | 29% | 2% | 961 |
| CLTM6020434T3 | E | 2 | 36% | 16% | 47% | 1% | 961 |
| CLTM6020295T3 | E | 1 | 58% | 40% | NA | 2% | 961 |
| CLTM6030687T3 | E | 1 | 48% | 47% | NA | 4% | 961 |
| CLTM6030603T3 | E | 2 | 27% | 47% | 25% | 1% | 961 |
| CLTM6020289T3 | E | 2 | 39% | 24% | 36% | 1% | 961 |
| CLTM6180981T1 | P | 2 | 14% | 32% | 48% | 6% | 1,027 |
| CLTM6180901T3 | P | 2 | 23% | 43% | 31% | 2% | 1,027 |
| CLTM6180899T2 | P | 2 | 49% | 41% | 8% | 1% | 797 |
| CLTM6180979T2 | P | 2 | 49% | 36% | 14% | 2% | 915 |
| CLTM6180897T2 | P | 1 | 31% | 42% | NA | 27% | 915 |
| CLTM6180985T2 | P | 1 | 58% | 34% | NA | 8% | 809 |
| CLTM6180987T1 | P | 2 | 18% | 55% | 24% | 2% | 809 |
| CLTM6180983T1 | P | 2 | 28% | 39% | 30% | 2% | 808 |
| CLTM6180978T3 | P | 1 | 51% | 40% | NA | 8% | 808 |
| CLTM6180980T2 | P | 2 | 22% | 37% | 38% | 2% | 808 |

**Table 8.A.26 Distribution of Item Scores for Mathematics, Grade Seven**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM7020047T1 | E | 2 | 26% | 10% | 63% | 1% | 4,485 |
| CLTM7020091T1 | E | 2 | 23% | 3% | 69% | 5% | 4,485 |
| CLTM7020089T2 | E | 2 | 13% | 68% | 15% | 3% | 4,485 |
| CLTM7020048T2 | E | 2 | 30% | 26% | 42% | 3% | 4,485 |
| CLTM7020092T2 | E | 2 | 26% | 3% | 66% | 5% | 4,485 |
| CLTM7030522T2 | E | 2 | 19% | 63% | 10% | 8% | 2,370 |
| CLTM7020329T1 | E | 2 | 45% | 8% | 29% | 17% | 672 |
| CLTM7020419T2 | E | 2 | 42% | 32% | 19% | 7% | 4,402 |
| CLTM7020327T2 | E | 2 | 42% | 24% | 24% | 11% | 672 |
| CLTM7030515T1 | E | 2 | 23% | 36% | 25% | 15% | 672 |
| CLTM7030512T1 | E | 2 | 29% | 34% | 17% | 19% | 672 |
| CLTM7030585T2 | E | 2 | 19% | 65% | 11% | 5% | 2,704 |
| CLTM7030518T1 | E | 2 | 37% | 11% | 39% | 13% | 672 |
| CLTM7020330T2 | E | 2 | 47% | 16% | 17% | 19% | 672 |
| CLTM7030509T1 | E | 2 | 24% | 34% | 39% | 3% | 1,698 |
| CLTM7020297T2 | E | 1 | 56% | 39% | NA | 5% | 1,698 |
| CLTM7020418T1 | E | 2 | 40% | 25% | 32% | 3% | 1,698 |
| CLTM7030516T2 | E | 2 | 41% | 41% | 14% | 4% | 1,698 |
| CLTM7030519T2 | E | 2 | 46% | 35% | 16% | 2% | 3,730 |
| CLTM7020328T3 | E | 2 | 16% | 66% | 13% | 5% | 1,698 |
| CLTM7020282T2 | E | 2 | 41% | 34% | 17% | 8% | 1,698 |
| CLTM7020298T3 | E | 1 | 55% | 40% | NA | 5% | 3,730 |
| CLTM7030510T2 | E | 2 | 32% | 42% | 20% | 6% | 1,698 |
| CLTM7020093T3 | E | 2 | 41% | 37% | 21% | 1% | 2,032 |
| CLTM7020373T2 | E | 2 | 25% | 52% | 21% | 2% | 2,032 |
| CLTM7030589T3 | E | 1 | 61% | 37% | NA | 2% | 2,032 |
| CLTM7030514T3 | E | 2 | 24% | 52% | 21% | 3% | 2,032 |
| CLTM7030586T3 | E | 2 | 37% | 43% | 18% | 3% | 2,032 |
| CLTM7020331T3 | E | 2 | 23% | 57% | 17% | 3% | 2,032 |
| CLTM7020036T3 | E | 1 | 82% | 14% | NA | 4% | 2,032 |
| CLTM7180846T3 | P | 2 | 7% | 55% | 35% | 3% | 920 |
| CLTM7180937T1 | P | 2 | 26% | 41% | 28% | 4% | 920 |
| CLTM7180994T2 | P | 2 | 17% | 40% | 40% | 2% | 920 |
| CLTM7180997T2 | P | 2 | 57% | 28% | 12% | 3% | 821 |
| CLTM7180927T1 | P | 2 | 27% | 27% | 43% | 3% | 821 |
| CLTM7180932T2 | P | 2 | 31% | 25% | 39% | 4% | 966 |
| CLTM7030696T3-R | P | 1 | 77% | 11% | NA | 12% | 966 |
| CLTM7180951T1 | P | 2 | 19% | 46% | 31% | 4% | 966 |
| CLTM7180993T1 | P | 2 | 25% | 29% | 42% | 4% | 966 |

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM7180933T2 | P | 2 | 41% | 25% | 31% | 2% | 914 |
| CLTM7180953T2 | P | 2 | 17% | 68% | 10% | 5% | 914 |
| CLTM7030511T3-R | P | 2 | 19% | 57% | 19% | 4% | 914 |
| CLTM7180949T1 | P | 2 | 22% | 31% | 43% | 4% | 864 |
| CLTM7180935T2 | P | 1 | 83% | 11% | NA | 6% | 864 |
| CLTM7180952T2 | P | 2 | 10% | 65% | 20% | 5% | 864 |
| CLTM7180995T3 | P | 2 | 30% | 43% | 23% | 3% | 864 |

**Table 8.A.27 Distribution of Item Scores for Mathematics, Grade Eight**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM8020028T1 | E | 2 | 8% | 42% | 48% | 2% | 4,270 |
| CLTM8030530T1 | E | 2 | 39% | 14% | 45% | 2% | 4,238 |
| CLTM8030536T2 | E | 2 | 32% | 33% | 32% | 3% | 4,238 |
| CLTM8020305T1 | E | 2 | 44% | 14% | 39% | 3% | 4,238 |
| CLTM8020416T2 | E | 2 | 34% | 47% | 15% | 3% | 4,238 |
| CLTM8020277T1 | E | 2 | 35% | 19% | 42% | 3% | 4,238 |
| CLTM8030539T2 | E | 2 | 24% | 44% | 29% | 3% | 4,238 |
| CLTM8030535T1 | E | 2 | 35% | 7% | 48% | 9% | 634 |
| CLTM8030528T2 | E | 2 | 19% | 52% | 23% | 6% | 2,716 |
| CLTM8020378T1 | E | 2 | 43% | 5% | 42% | 9% | 634 |
| CLTM8180817T2 | O | 1 | 43% | 48% | NA | 9% | 4,207 |
| CLTM8030538T1 | E | 2 | 38% | 6% | 44% | 12% | 634 |
| CLTM8020029T2 | E | 2 | 21% | 38% | 24% | 17% | 634 |
| CLTM8180860T1 | O | 1 | 41% | 39% | NA | 20% | 634 |
| CLTM8030527T1 | E | 2 | 36% | 20% | 42% | 1% | 2,082 |
| CLTM8030624T1 | E | 1 | 36% | 53% | NA | 11% | 2,082 |
| CLTM8020390T3 | E | 1 | 80% | 15% | NA | 4% | 2,082 |
| CLTM8020379T2 | E | 2 | 50% | 31% | 5% | 14% | 2,082 |
| CLTM8020083T2 | E | 1 | 53% | 43% | NA | 4% | 2,082 |
| CLTM8020030T3 | E | 2 | 38% | 40% | 18% | 3% | 2,082 |
| CLTM8020415T1 | E | 2 | 35% | 19% | 43% | 3% | 2,082 |
| CLTM8020084T3 | E | 1 | 53% | 42% | NA | 5% | 2,082 |
| CLTM8020080T2 | E | 2 | 35% | 46% | 13% | 5% | 2,082 |
| CLTM8020307T3 | E | 2 | 28% | 35% | 35% | 1% | 1,491 |
| CLTM8020046T2 | E | 2 | 55% | 34% | 6% | 4% | 1,491 |
| CLTM8020393T3 | E | 2 | 47% | 40% | 11% | 2% | 1,491 |
| CLTM8030540T3 | E | 2 | 37% | 40% | 21% | 2% | 1,491 |
| CLTM8020392T2 | E | 2 | 33% | 42% | 22% | 3% | 1,491 |
| CLTM8020453T3 | E | 1 | 54% | 44% | NA | 2% | 1,491 |
| CLTM8020417T3 | E | 2 | 26% | 56% | 16% | 2% | 1,491 |
| CLTM8020069T2 | E | 1 | 66% | 31% | NA | 3% | 1,491 |
| CLTM8020380T3 | E | 2 | 47% | 38% | 11% | 5% | 1,491 |
| CLTM8030537T3 | E | 2 | 23% | 53% | 22% | 2% | 1,491 |
| CLTM8180881T3 | P | 1 | 44% | 40% | NA | 16% | 902 |
| CLTM8180862T1 | P | 2 | 22% | 41% | 33% | 3% | 902 |
| CLTM8030524T1-R | P | 1 | 13% | 67% | NA | 20% | 764 |
| CLTM8180815T2 | P | 1 | 25% | 71% | NA | 5% | 764 |
| CLTM8180865T2 | P | 2 | 42% | 39% | 16% | 2% | 764 |
| CLTM8180804T3 | P | 2 | 7% | 60% | 31% | 2% | 764 |

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTM8180802T1 | P | 2 | 15% | 44% | 39% | 2% | 922 |
| CLTM8180808T3 | P | 2 | 46% | 36% | 15% | 2% | 922 |
| CLTM8180874T1 | P | 1 | 35% | 58% | NA | 6% | 837 |
| CLTM8030661T3-R | P | 1 | 48% | 50% | NA | 2% | 837 |
| CLTM8180867T2 | P | 2 | 50% | 33% | 14% | 3% | 837 |
| CLTM8180863T2 | P | 2 | 41% | 39% | 17% | 2% | 813 |
| CLTM8180866T1 | P | 2 | 14% | 32% | 52% | 2% | 813 |
| CLTM8180869T3 | P | 1 | 66% | 29% | NA | 5% | 813 |

**Table 8.A.28 Distribution of Item Scores for Mathematics, Grade Eleven**

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTMH020447T1 | E | 1 | 32% | 61% | NA | 7% | 3,799 |
| CLTMH020406T1 | E | 2 | 43% | 10% | 45% | 1% | 3,784 |
| CLTMH030642T2 | E | 2 | 18% | 49% | 27% | 6% | 3,784 |
| CLTMH020397T1 | E | 2 | 39% | 14% | 45% | 3% | 3,784 |
| CLTMH020076T1 | E | 1 | 44% | 51% | NA | 5% | 3,784 |
| CLTMH030555T2 | E | 2 | 20% | 48% | 25% | 6% | 3,784 |
| CLTMH020043T1 | E | 1 | 56% | 35% | NA | 9% | 1,211 |
| CLTMH030645T2 | E | 2 | 14% | 14% | 67% | 5% | 3,719 |
| CLTMH020398T2 | E | 2 | 10% | 56% | 26% | 8% | 1,211 |
| CLTMH030644T1 | E | 2 | 47% | 1% | 36% | 15% | 1,211 |
| CLTMH030630T1 | E | 1 | 50% | 35% | NA | 15% | 1,211 |
| CLTMH030665T1 | E | 2 | 46% | 1% | 39% | 13% | 1,211 |
| CLTMH030551T2 | E | 2 | 7% | 52% | 32% | 9% | 1,211 |
| CLTMH030666T2 | E | 2 | 20% | 17% | 54% | 8% | 2,544 |
| CLTMH020336T2 | E | 1 | 54% | 35% | NA | 11% | 1,211 |
| CLTMH020381T1 | E | 2 | 43% | 12% | 34% | 10% | 1,211 |
| CLTMH030641T1 | E | 2 | 41% | 9% | 48% | 1% | 1,333 |
| CLTMH020402T2 | E | 2 | 23% | 54% | 20% | 3% | 1,333 |
| CLTMH030542T2 | E | 1 | 53% | 43% | NA | 3% | 1,333 |
| CLTMH020385T2 | E | 2 | 46% | 13% | 38% | 3% | 1,333 |
| CLTMH020077T2 | E | 1 | 59% | 35% | NA | 6% | 2,508 |
| CLTMH030552T3 | E | 2 | 20% | 43% | 33% | 4% | 1,333 |
| CLTMH030712T1 | E | 1 | 50% | 44% | NA | 5% | 1,333 |
| CLTMH030646T3 | E | 2 | 11% | 9% | 78% | 1% | 1,175 |
| CLTMH020078T3 | E | 1 | 65% | 33% | NA | 3% | 1,175 |
| CLTMH020382T2 | E | 2 | 52% | 14% | 33% | 1% | 1,175 |
| CLTMH030667T3 | E | 2 | 11% | 8% | 80% | 1% | 1,175 |
| CLTMH020401T3 | E | 1 | 46% | 49% | NA | 5% | 1,175 |
| CLTMH020407T2 | E | 2 | 41% | 15% | 43% | 1% | 1,175 |
| CLTMH020446T3 | E | 1 | 71% | 27% | NA | 2% | 1,175 |
| CLTMH030643T3 | E | 2 | 32% | 45% | 21% | 1% | 1,175 |
| CLTMH180831T3 | P | 1 | 73% | 18% | NA | 8% | 877 |
| CLTMH180919T2 | P | 2 | 25% | 32% | 39% | 4% | 877 |
| CLTMH180917T3 | P | 2 | 79% | 9% | 6% | 6% | 707 |
| CLTMH180828T2 | P | 1 | 41% | 54% | NA | 5% | 707 |
| CLTMH180947T3 | P | 2 | 55% | 33% | 7% | 5% | 754 |
| CLTMH180830T2 | P | 1 | 34% | 62% | NA | 4% | 754 |
| CLTMH180811T1 | P | 2 | 31% | 10% | 55% | 3% | 754 |
| CLTMH180809T3 | P | 2 | 29% | 16% | 45% | 9% | 750 |

| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
|---|---|---|---|---|---|---|---|
| CLTMH180940T2 | P | 1 | 27% | 69% | NA | 3% | 750 |
| CLTMH030634T3-R | P | 1 | 78% | 16% | NA | 5% | 696 |
| CLTMH180921T1 | P | 2 | 36% | 12% | 44% | 8% | 696 |
| CLTMH180943T2 | P | 2 | 41% | 41% | 14% | 3% | 696 |

# Appendix 8.B: Item Parameters for the Linking Set

For Figure 8.B.1 through Figure 8.B.14, the X-axis presents IRT *b*-parameter from the 2015–16 base scale of the item bank. The item bank *b*-parameters were either calibrated in 2015–16 or calibrated in 2016–17 but linked back to the 2015–16 base scale. The Y-axis presents the IRT *b*-parameter from the 2017–18 calibration that were linked back to the base scale. A square indicates that an item was dropped from the anchor set by robust-z statistics.

Data for these graphs is presented in Table 8.B.1 through Table 8.B.14. Each table follows its associated graph.

## English Language Arts/Literacy (ELA) Graph and Table, Grade Three

Figure 8.B.1 indicates, in the grade three ELA assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.1, which immediately follows the graph.

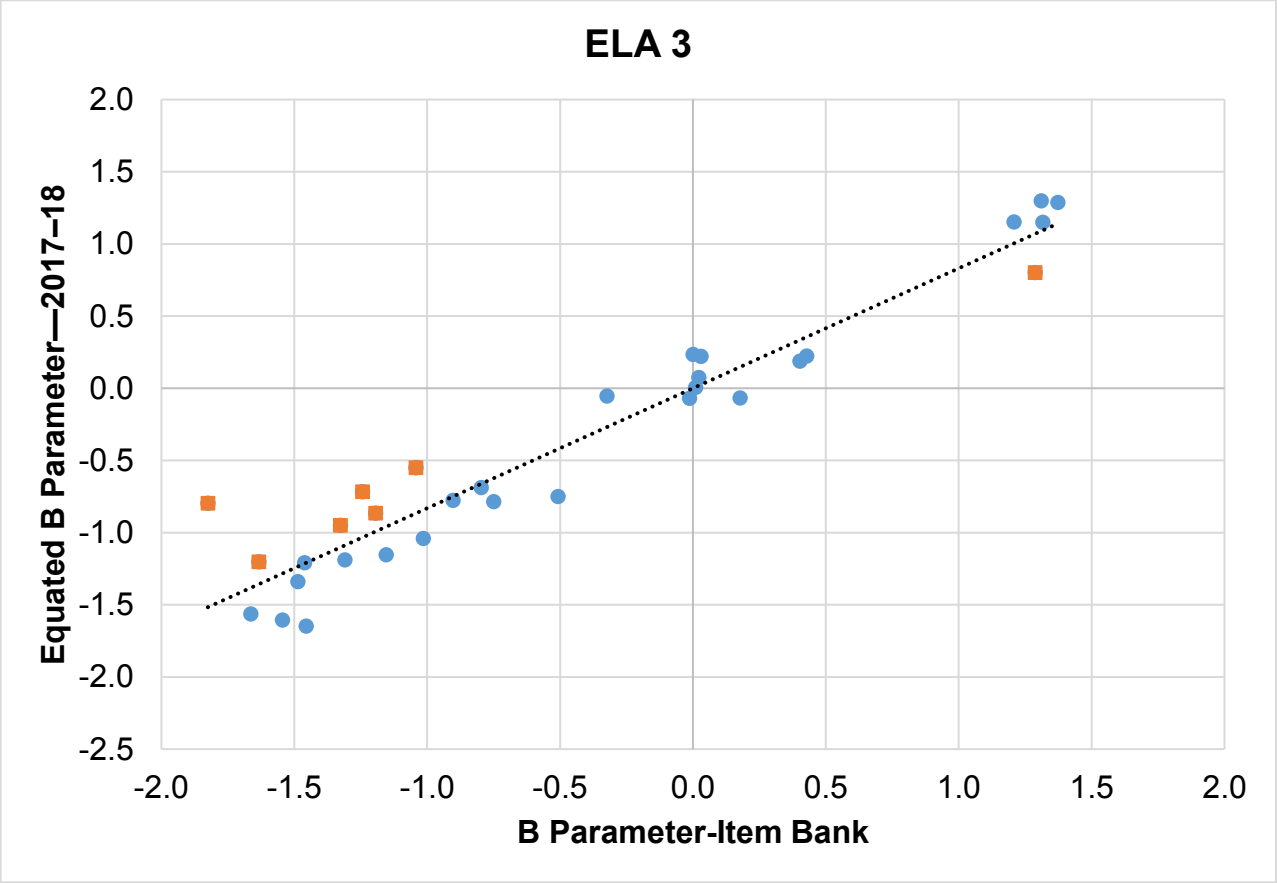


**Figure 8.B.1 *B*-Parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Three**

**Table 8.B.1 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Three**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.4615 | -1.2102 |
| -1.5447 | -1.6049 |
| -1.0144 | -1.0400 |
| -1.4551 | -1.6479 |
| -1.4873 | -1.3405 |
| 0.4019 | 0.1868 |
| 0.0098 | 0.0048 |
| -1.2439 | -0.7166 |
| -1.8255 | -0.7978 |
| -0.7968 | -0.6887 |
| -0.3234 | -0.0536 |
| -1.1947 | -0.8655 |
| -1.0421 | -0.5518 |
| -1.1547 | -1.1548 |
| -1.3273 | -0.9488 |
| -0.7502 | -0.7860 |
| -0.9032 | -0.7764 |
| 0.0304 | 0.2199 |
| 0.0213 | 0.0746 |
| 0.4280 | 0.2232 |
| -0.0126 | -0.0696 |
| -0.5083 | -0.7508 |
| 0.1767 | -0.0673 |
| 1.3096 | 1.2992 |
| 1.2872 | 0.8013 |
| 0.0001 | 0.2347 |
| 1.3727 | 1.2861 |
| 1.3158 | 1.1488 |
| 1.2073 | 1.1526 |

## ELA Graph and Table, Grade Four

Figure 8.B.2 indicates, in the grade four ELA assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.2, which immediately follows the graph.

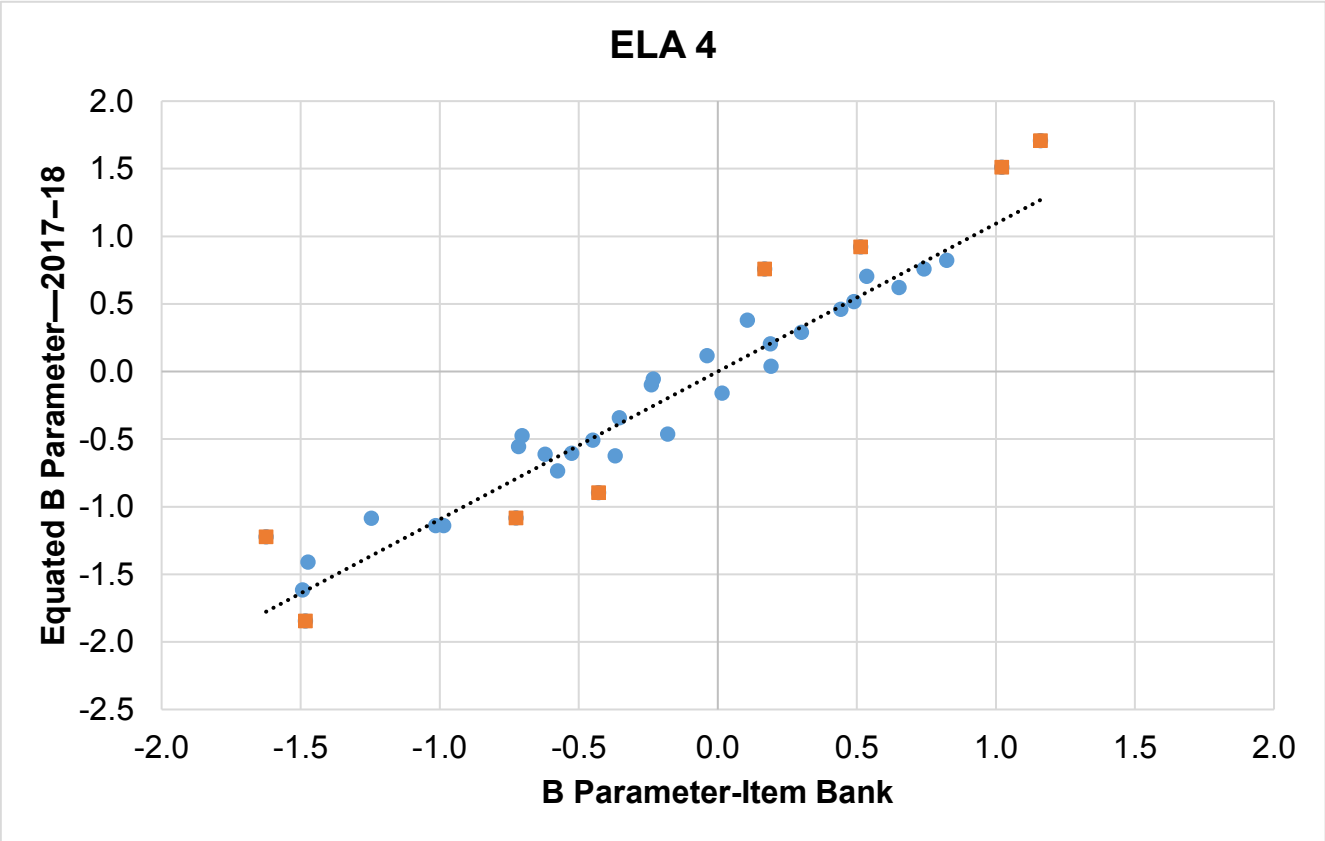


**Figure 8.B.2 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Four**

**Table 8.B.2 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Four**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.4936 | -1.6174 |
| -0.5766 | -0.7356 |
| -1.2457 | -1.0852 |
| -1.0151 | -1.1399 |
| -0.7262 | -1.0839 |
| -0.6205 | -0.6124 |
| -1.4738 | -1.4097 |
| -0.3542 | -0.3440 |
| -0.1798 | -0.4636 |
| 0.1890 | 0.2043 |
| -0.7034 | -0.4757 |
| -1.6244 | -1.2245 |
| -0.4286 | -0.8979 |
| -1.4825 | -1.8467 |
| -0.2318 | -0.0558 |
| -0.7168 | -0.5571 |
| -0.9859 | -1.1405 |
| 0.1919 | 0.0373 |
| -0.3695 | -0.6240 |
| 0.0156 | -0.1607 |
| -0.5258 | -0.6059 |
| -0.4492 | -0.5089 |
| 1.0212 | 1.5100 |
| -0.2391 | -0.0996 |
| -0.0386 | 0.1171 |
| 0.1061 | 0.3779 |
| 0.8227 | 0.8215 |
| 0.5352 | 0.7030 |
| 1.1600 | 1.7066 |
| 0.1683 | 0.7580 |
| 0.5131 | 0.9203 |
| 0.6517 | 0.6193 |
| 0.7411 | 0.7575 |
| 0.3006 | 0.2882 |
| 0.4418 | 0.4597 |
| 0.4896 | 0.5158 |

## ELA Graph and Table, Grade Five

Figure 8.B.3 indicates, in the grade five ELA assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.3, which immediately follows the graph.

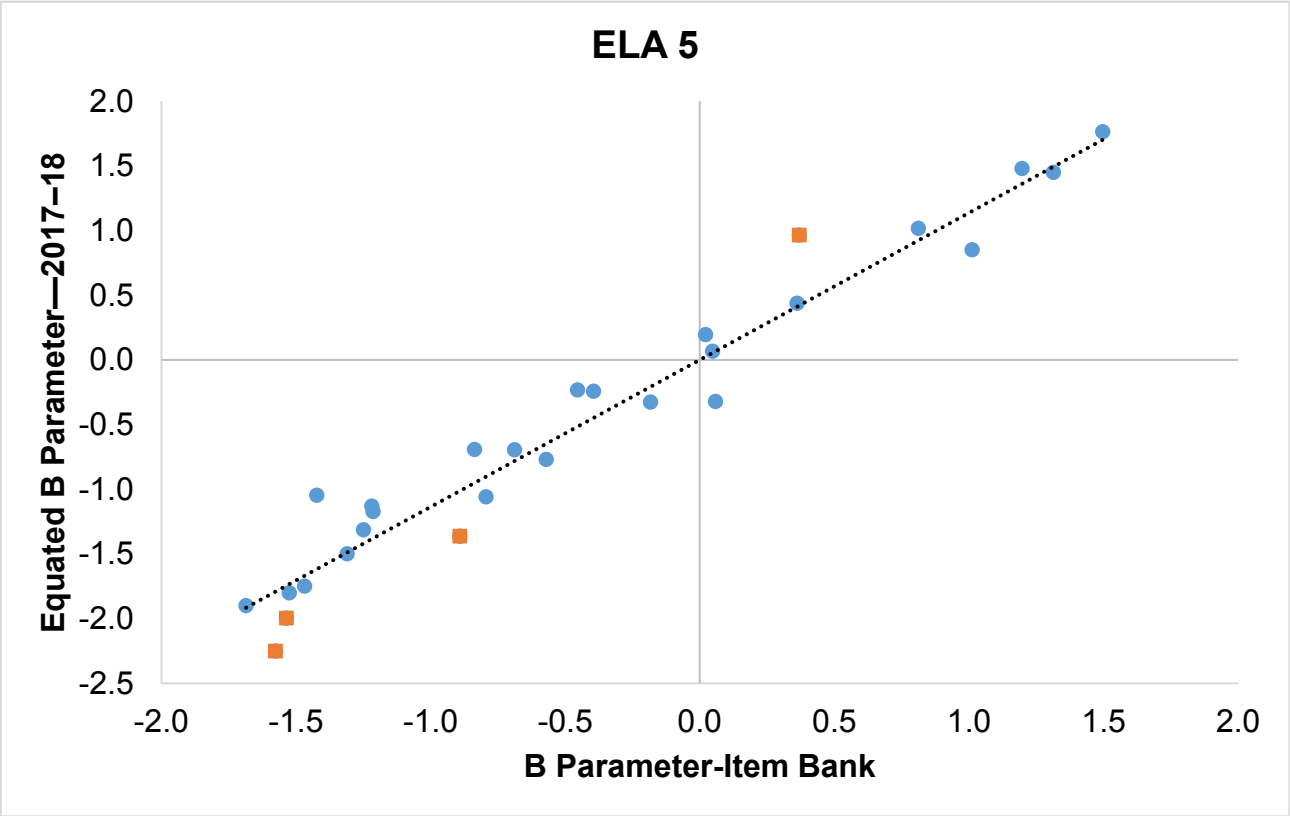


**Figure 8.B.3 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Five**

**Table 8.B.3 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Five**

| ***B*-parameter from Item Bank** | ***B*-parameter from 2017–18** |
|---|---|
| -1.6857 | -1.9011 |
| -1.5765 | -2.2502 |
| -0.8924 | -1.3627 |
| -1.3106 | -1.4992 |
| -1.4687 | -1.7498 |
| -0.6889 | -0.6965 |
| -1.5360 | -1.9952 |
| -0.3951 | -0.2421 |
| -1.4227 | -1.0471 |
| 1.0113 | 0.8506 |
| -1.5255 | -1.8021 |
| -0.8366 | -0.6918 |
| -1.2184 | -1.1309 |
| -0.1828 | -0.3277 |
| -1.2499 | -1.3143 |
| -0.5709 | -0.7685 |
| 0.0472 | 0.0665 |
| -1.2145 | -1.1720 |
| 0.8120 | 1.0173 |
| -0.4549 | -0.2329 |
| -0.7938 | -1.0597 |
| 0.3609 | 0.4367 |
| 0.0207 | 0.1947 |
| 0.3694 | 0.9652 |
| 1.4970 | 1.7626 |
| 1.1969 | 1.4798 |
| 1.3132 | 1.4492 |
| 0.0578 | -0.3228 |

## ELA Graph and Table, Grade Six

Figure 8.B.4 indicates, in the grade six ELA assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.4, which immediately follows the graph.

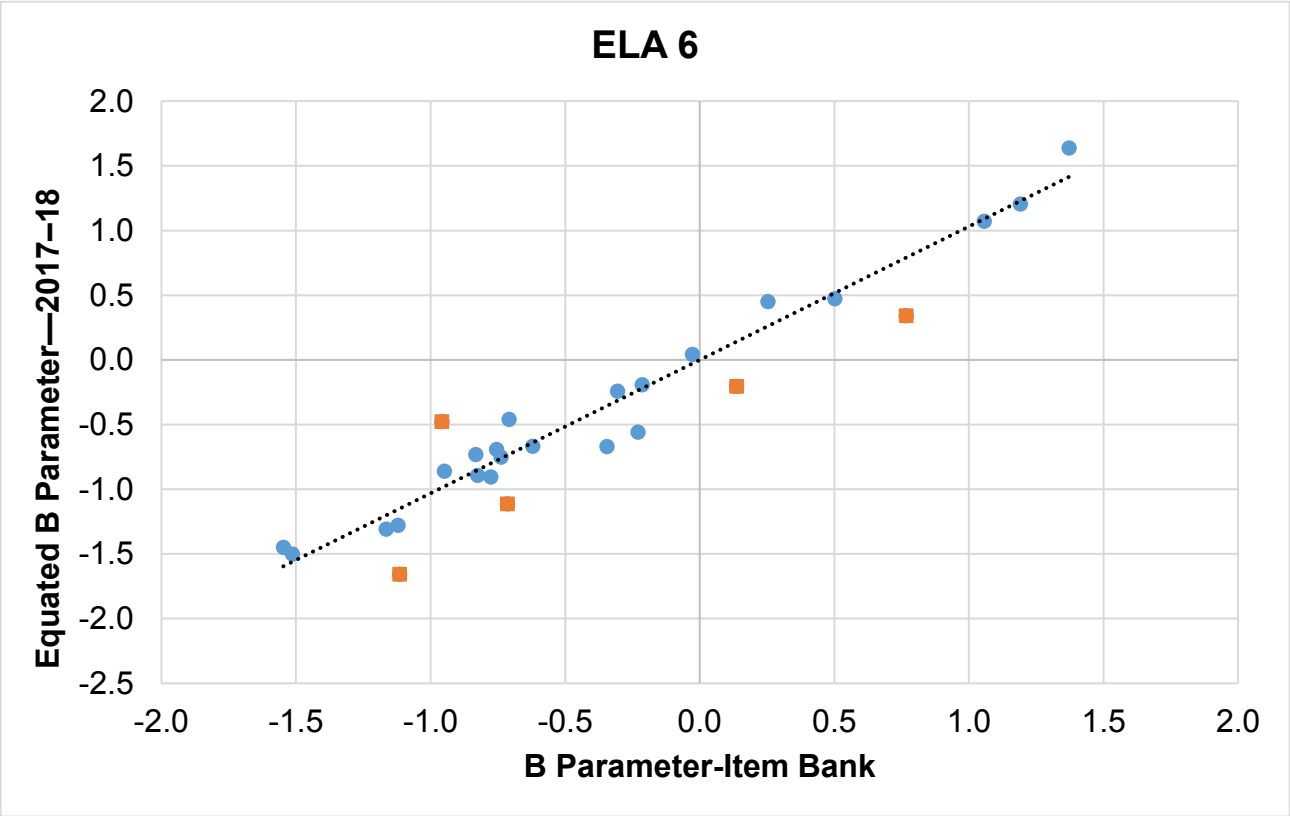


**Figure 8.B.4 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Six**

**Table 8.B.4 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Six**

| ***B*-parameter from Item Bank** | ***B*-parameter from 2017–18** |
|---|---|
| -1.5136 | -1.5022 |
| -0.8255 | -0.8929 |
| -1.5474 | -1.4499 |
| -0.6208 | -0.6686 |
| -0.9484 | -0.8621 |
| -1.1655 | -1.3098 |
| -1.1152 | -1.6579 |
| -0.7084 | -0.4611 |
| -0.8319 | -0.7328 |
| -1.1218 | -1.2802 |
| -0.9579 | -0.4786 |
| -0.7761 | -0.9065 |
| -0.7141 | -1.1127 |
| -0.2144 | -0.1930 |
| -0.7380 | -0.7524 |
| -0.3444 | -0.6704 |
| -0.3057 | -0.2440 |
| 0.2528 | 0.4507 |
| 0.7668 | 0.3415 |
| -0.7555 | -0.6922 |
| 0.1368 | -0.2069 |
| -0.2296 | -0.5599 |
| 0.5019 | 0.4724 |
| 1.0566 | 1.0706 |
| 1.3716 | 1.6361 |
| -0.0280 | 0.0423 |
| 1.1909 | 1.2052 |

## ELA Graph and Table, Grade Seven

Figure 8.B.5 indicates, in the grade seven ELA assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.5, which immediately follows the graph.

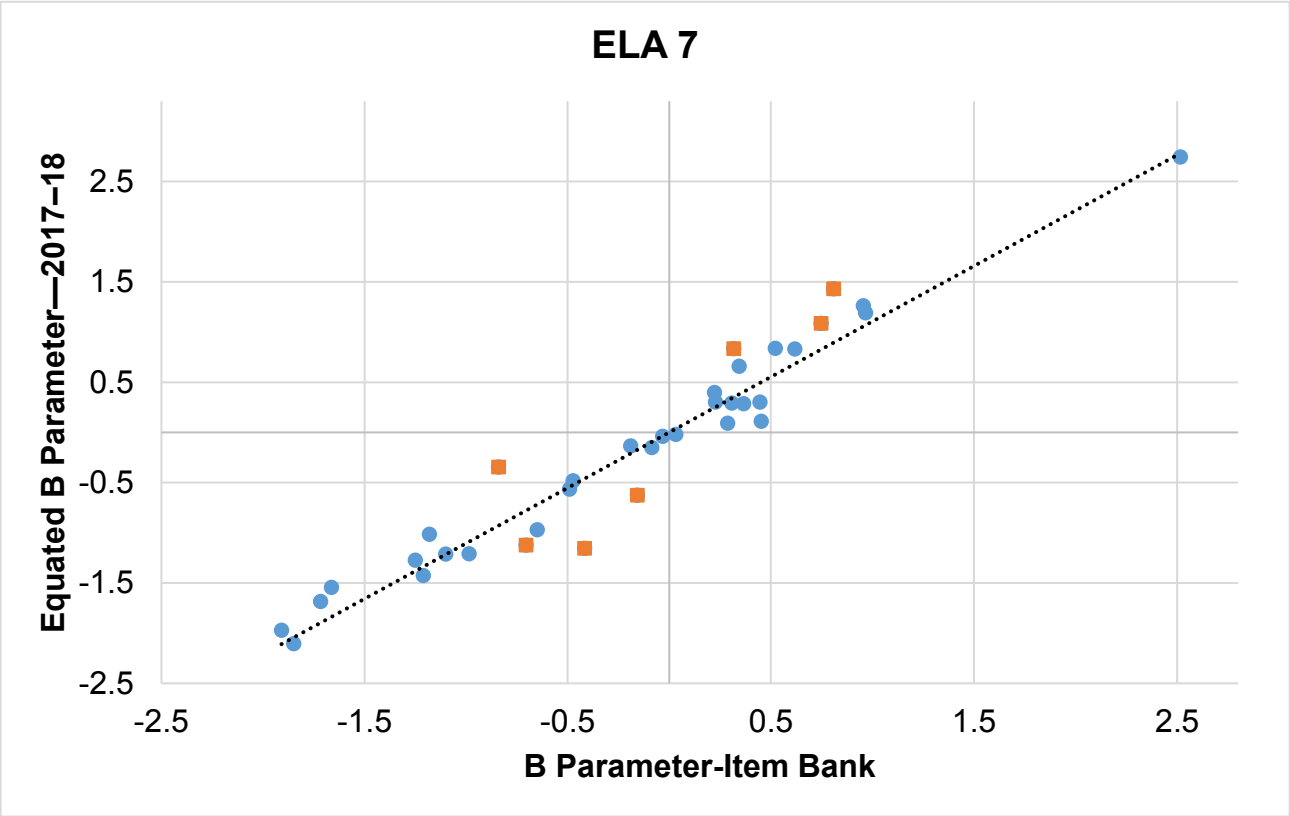


**Figure 8.B.5 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Seven**

**Table 8.B.5 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Seven**

| ***B*-parameter from Item Bank** | ***B*-parameter from 2017–18** |
|---|---|
| -1.7163 | -1.6861 |
| -1.9090 | -1.9730 |
| -0.1567 | -0.6278 |
| -0.7061 | -1.1234 |
| -1.6637 | -1.5455 |
| -1.2499 | -1.2743 |
| -1.1009 | -1.2142 |
| -0.6505 | -0.9702 |
| -0.1899 | -0.1371 |
| -0.4747 | -0.4838 |
| -1.1810 | -1.0172 |
| -1.8489 | -2.1068 |
| 0.2864 | 0.0891 |
| -0.9860 | -1.2100 |
| -1.2117 | -1.4273 |
| -0.4905 | -0.5676 |
| -0.0859 | -0.1525 |
| 0.2218 | 0.3969 |
| -0.0325 | -0.0407 |
| 0.0322 | -0.0201 |
| 0.7465 | 1.0863 |
| -0.8406 | -0.3464 |
| 0.3443 | 0.6589 |
| 0.4529 | 0.1099 |
| 0.3081 | 0.2908 |
| -0.4165 | -1.1547 |
| 0.5212 | 0.8376 |
| 0.3664 | 0.2863 |
| 0.4458 | 0.3014 |
| 0.2269 | 0.3013 |
| 0.6171 | 0.8286 |
| 0.9544 | 1.2602 |
| 0.9664 | 1.1906 |
| 0.3166 | 0.8337 |
| 0.8082 | 1.4285 |
| 2.5152 | 2.7420 |

## ELA Graph and Table, Grade Eight

Figure 8.B.6 indicates, in the grade eight ELA assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.6, which immediately follows the graph.

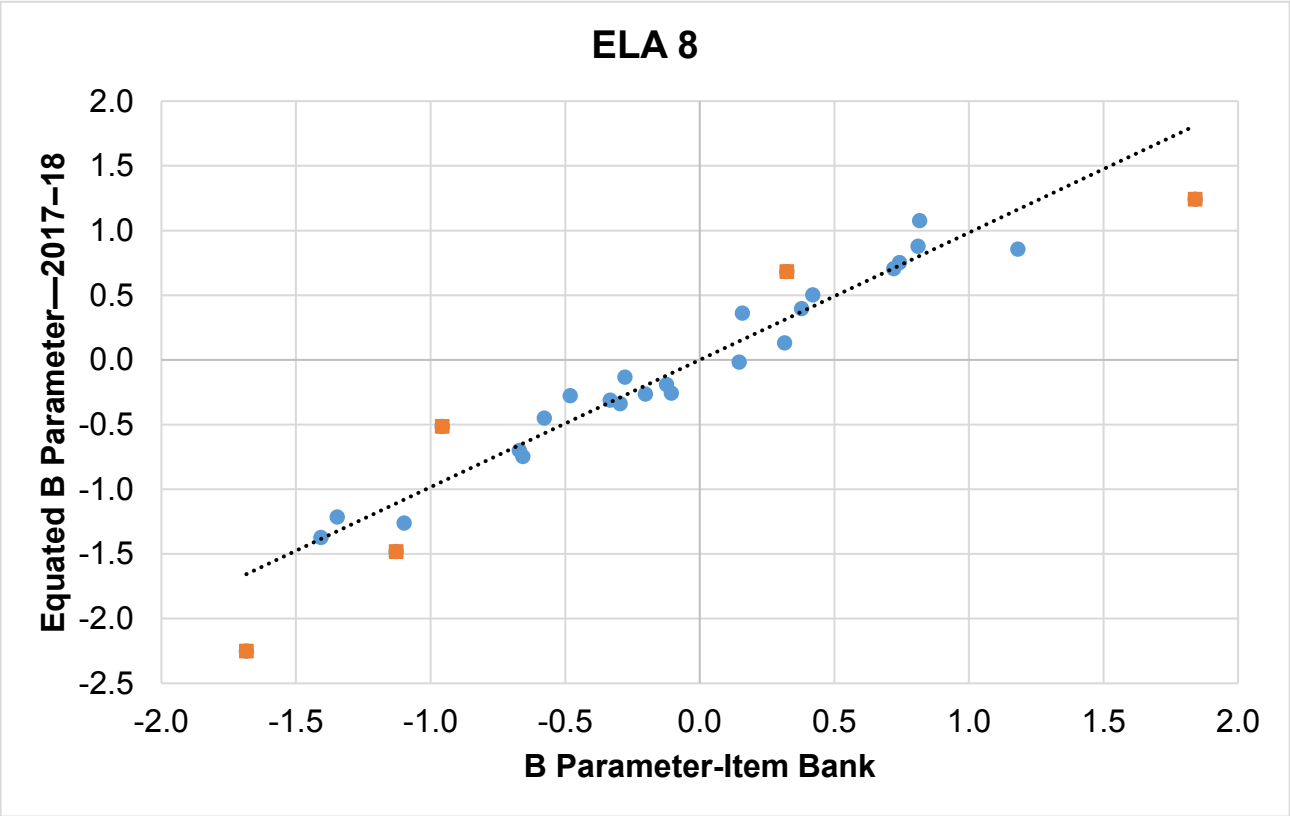


**Figure 8.B.6 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Eight**

**Table 8.B.6 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Eight**

| ***B*-parameter from Item Bank** | ***B*-parameter from 2017–18** |
|---|---|
| -1.6844 | -2.2501 |
| -0.9574 | -0.5150 |
| -1.0981 | -1.2627 |
| -0.6707 | -0.7011 |
| -1.4083 | -1.3740 |
| -0.6578 | -0.7467 |
| -1.3467 | -1.2155 |
| 0.7200 | 0.7042 |
| -0.1057 | -0.2572 |
| -0.2960 | -0.3388 |
| -0.2025 | -0.2648 |
| -0.4820 | -0.2786 |
| -0.5774 | -0.4503 |
| -1.1281 | -1.4828 |
| -0.1240 | -0.1906 |
| 0.3155 | 0.1309 |
| -0.3334 | -0.3118 |
| 0.1464 | -0.0189 |
| 0.3234 | 0.6815 |
| 0.3783 | 0.3964 |
| 1.8404 | 1.2406 |
| 0.8109 | 0.8787 |
| -0.2779 | -0.1348 |
| 0.1583 | 0.3599 |
| 0.4197 | 0.5023 |
| 0.7422 | 0.7505 |
| 1.1815 | 0.8543 |
| 0.8169 | 1.0765 |

## ELA Graph and Table, Grade Eleven

Figure 8.B.7 indicates, in the grade eleven ELA assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.7, which immediately follows the graph.

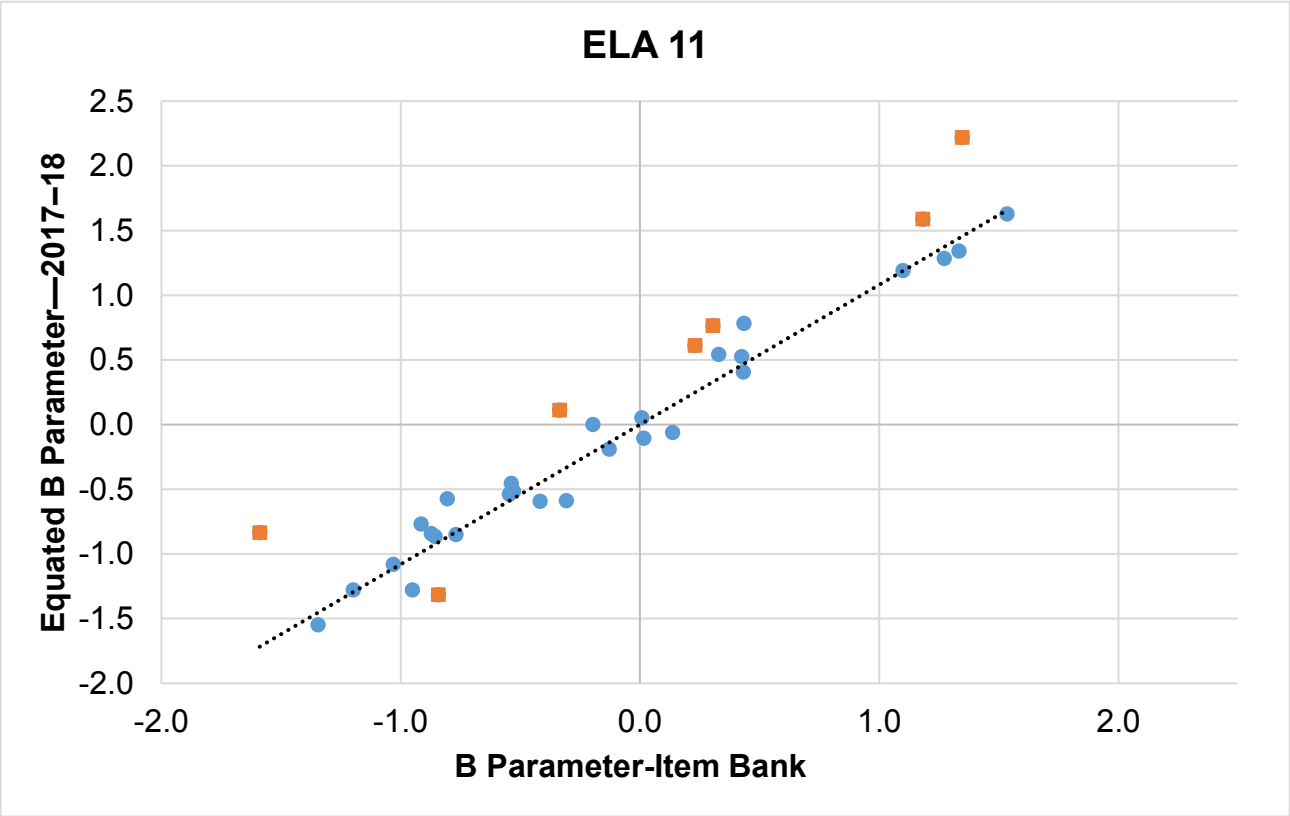


**Figure 8.B.7 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Eleven**

**Table 8.B.7 *B*-parameters from Item Bank and 2017–18 for the Equating Set of ELA, Grade Eleven**

| ***B*-parameter from Item Bank** | ***B*-parameter from 2017–18** |
|---|---|
| -1.1990 | -1.2786 |
| -0.1290 | -0.1901 |
| -0.8423 | -1.3156 |
| -0.9516 | -1.2782 |
| -0.9145 | -0.7680 |
| -0.7695 | -0.8520 |
| -1.5894 | -0.8357 |
| 0.0071 | 0.0512 |
| -0.8565 | -0.8664 |
| -0.4176 | -0.5926 |
| -1.0316 | -1.0806 |
| -1.3459 | -1.5476 |
| 0.1362 | -0.0607 |
| 0.0154 | -0.1071 |
| -0.5459 | -0.5394 |
| -0.8724 | -0.8429 |
| -0.5292 | -0.5160 |
| -0.1969 | 0.0011 |
| -0.3073 | -0.5888 |
| 0.4320 | 0.4047 |
| -0.5382 | -0.4560 |
| 1.0986 | 1.1892 |
| -0.3356 | 0.1116 |
| 0.2294 | 0.6112 |
| 1.2713 | 1.2837 |
| -0.8060 | -0.5727 |
| 0.3294 | 0.5422 |
| 0.4254 | 0.5242 |
| 0.3048 | 0.7639 |
| 1.3462 | 2.2196 |
| 1.3337 | 1.3405 |
| 1.1820 | 1.5877 |
| 1.5344 | 1.6275 |
| 0.4344 | 0.7806 |

### Mathematics Graph and Table, Grade Three

Figure 8.B.8 indicates, in the grade three mathematics assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.8, which immediately follows the graph.

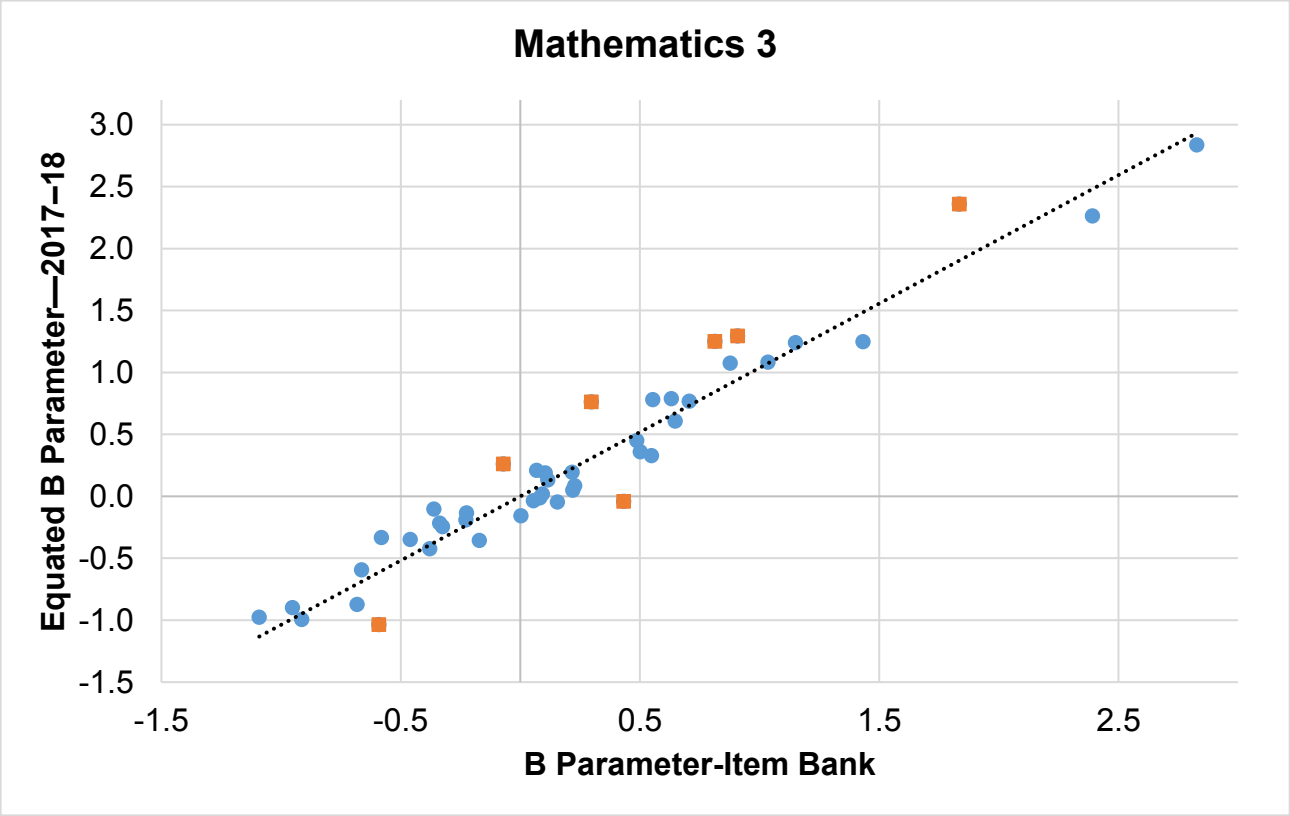


**Figure 8.B.8 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Three**

**Table 8.B.8 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Three**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.0912 | -0.9779 |
| -0.9525 | -0.8992 |
| -0.9135 | -0.9952 |
| -0.6822 | -0.8739 |
| -0.6635 | -0.5946 |
| -0.5915 | -1.0350 |
| -0.3260 | -0.2444 |
| 0.0920 | 0.0178 |
| 0.4863 | 0.4500 |
| 0.2161 | 0.1946 |
| -0.5809 | -0.3327 |
| -0.2280 | -0.1922 |
| -0.2246 | -0.1349 |
| 0.2274 | 0.0848 |
| -0.4612 | -0.3502 |
| -0.1717 | -0.3565 |
| -0.3371 | -0.2178 |
| -0.3611 | -0.1035 |
| 0.0540 | -0.0368 |
| 0.1037 | 0.1875 |
| -0.3792 | -0.4250 |
| 0.0814 | -0.0125 |
| 0.5006 | 0.3581 |
| 0.2194 | 0.0486 |
| 0.0024 | -0.1575 |
| 0.1147 | 0.1322 |
| 0.6469 | 0.6077 |
| -0.0720 | 0.2620 |
| 1.4316 | 1.2470 |
| 0.5482 | 0.3277 |
| 0.0673 | 0.2082 |
| 0.1549 | -0.0464 |
| 1.0348 | 1.0812 |
| 0.4321 | -0.0417 |
| 0.7053 | 0.7680 |
| 0.9080 | 1.2947 |
| 0.5534 | 0.7803 |

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| 1.8350 | 2.3584 |
| 0.6313 | 0.7878 |
| 0.8774 | 1.0742 |
| 2.8268 | 2.8350 |
| 2.3913 | 2.2633 |
| 0.2962 | 0.7618 |
| 0.8128 | 1.2512 |
| 1.1500 | 1.2403 |

### Mathematics Graph and Table, Grade Four

Figure 8.B.9 indicates, in the grade four mathematics assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.1, which immediately follows the graph.

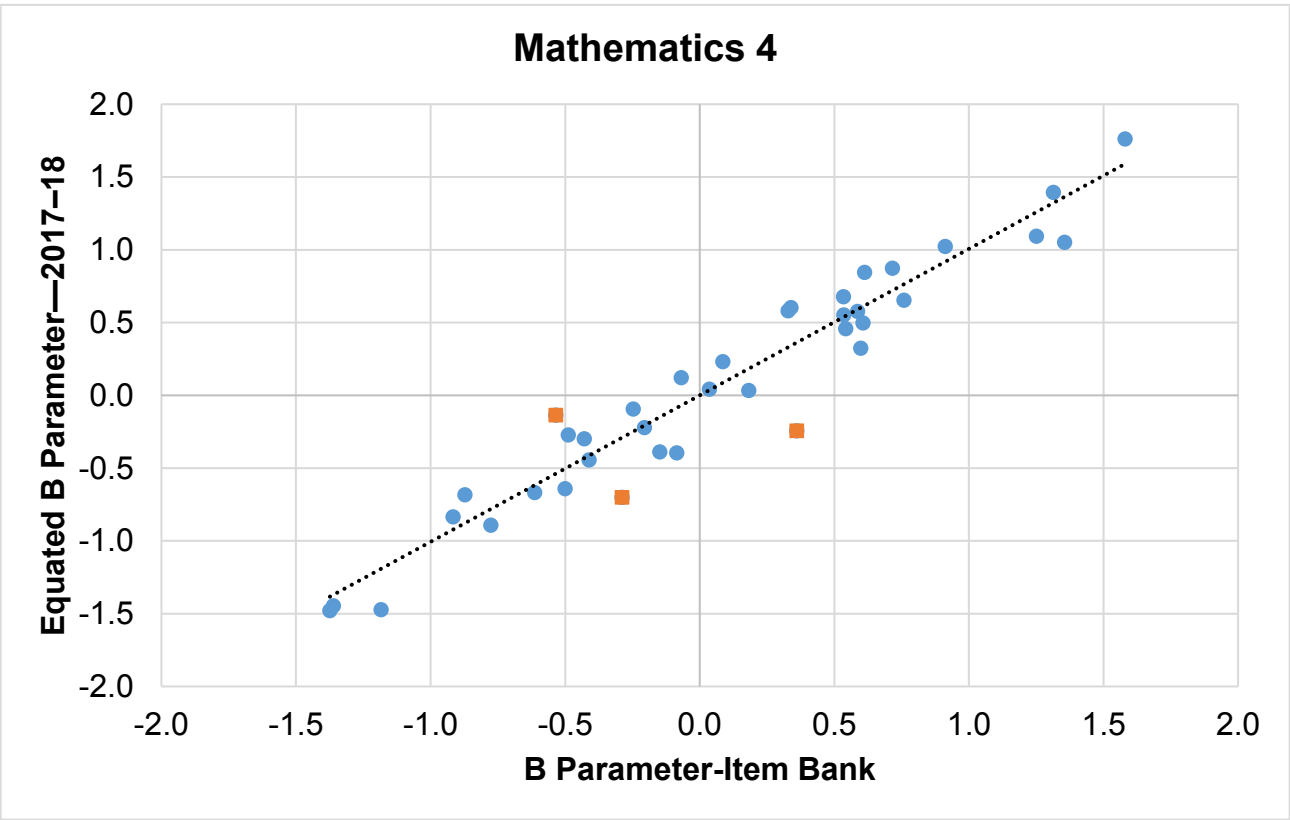


**Figure 8.B.9 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Four**

**Table 8.B.9 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Four**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.3743 | -1.4787 |
| -1.1847 | -1.4725 |
| -0.7759 | -0.8915 |
| -0.9167 | -0.8350 |
| -0.8724 | -0.6833 |
| -0.4114 | -0.4436 |
| -1.3616 | -1.4449 |
| -0.0695 | 0.1219 |
| -0.4293 | -0.2978 |
| -0.2477 | -0.0930 |
| -0.2059 | -0.2218 |
| 0.1822 | 0.0333 |
| -0.2894 | -0.6998 |
| -0.5004 | -0.6409 |
| -0.4892 | -0.2709 |
| -0.6131 | -0.6668 |
| -0.1486 | -0.3875 |
| -0.0854 | -0.3937 |
| 0.3600 | -0.2433 |
| -0.5346 | -0.1355 |
| 0.3281 | 0.5824 |
| 0.7582 | 0.6537 |
| 0.0857 | 0.2309 |
| 1.3134 | 1.3955 |
| 0.0350 | 0.0425 |
| 0.5422 | 0.4576 |
| 0.5349 | 0.5525 |
| 0.6056 | 0.4971 |
| 0.5862 | 0.5779 |
| 0.9114 | 1.0244 |
| 1.2502 | 1.0934 |
| 0.5339 | 0.6780 |
| 0.5973 | 0.3240 |
| 0.3392 | 0.6025 |
| 0.6119 | 0.8442 |

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| 1.5794 | 1.7623 |
| 1.3554 | 1.0519 |
| 0.7152 | 0.8742 |

### Mathematics Graph and Table, Grade Five

Figure 8.B.10 indicates, in the grade five mathematics assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.10, which immediately follows the graph.

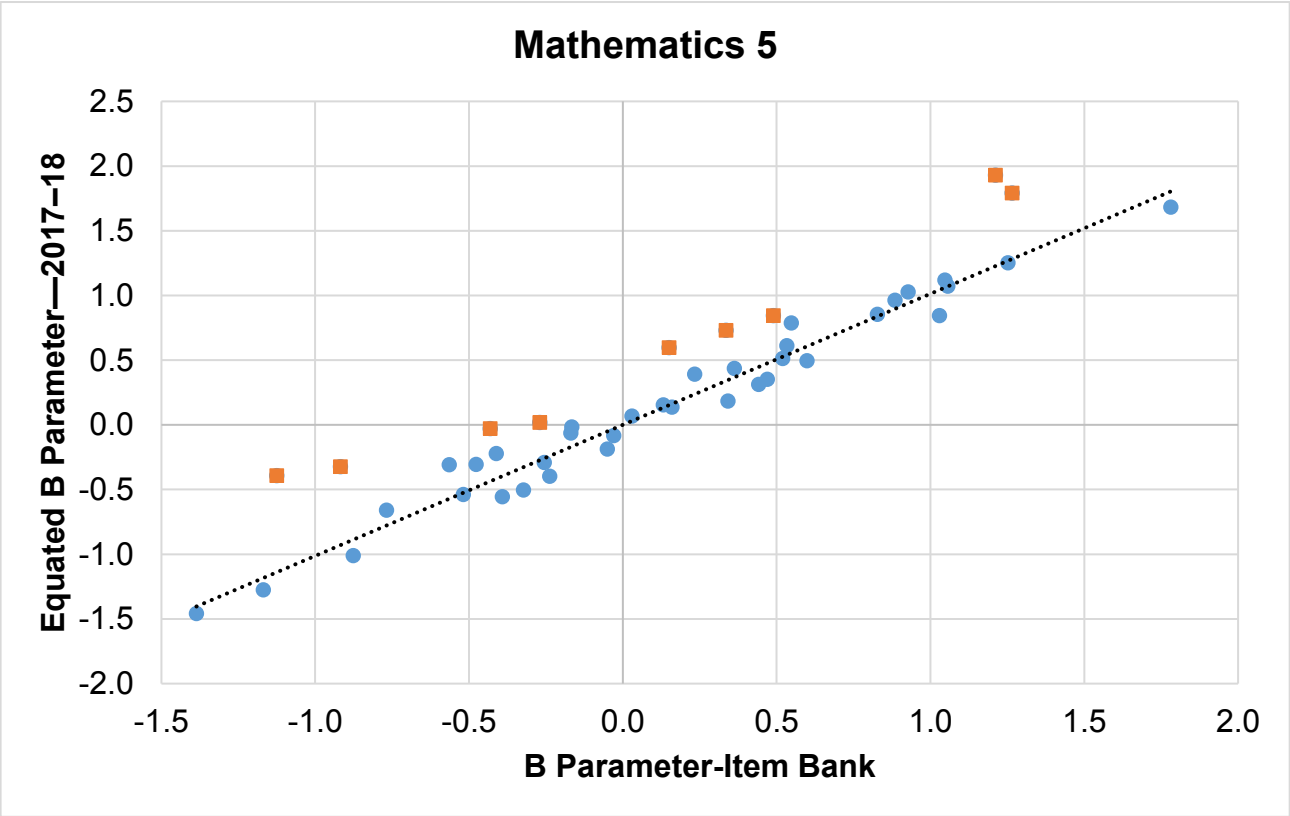


**Figure 8.B.10 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Five**

**Table 8.B.10 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Five**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.3863 | -1.4594 |
| -1.1694 | -1.2752 |
| -0.8771 | -1.0109 |
| -0.7683 | -0.6594 |
| -0.5184 | -0.5385 |
| -0.4316 | -0.0297 |
| 0.3411 | 0.1833 |
| 0.3622 | 0.4364 |
| 0.5470 | 0.7870 |
| -0.2558 | -0.2908 |
| -0.5650 | -0.3079 |
| -0.2705 | 0.0171 |
| -0.2379 | -0.3983 |
| -0.4118 | -0.2221 |
| -0.4768 | -0.3072 |
| -1.1252 | -0.3936 |
| -0.3920 | -0.5552 |
| -0.9179 | -0.3222 |
| 0.1592 | 0.1358 |
| 0.1500 | 0.5978 |
| -0.1691 | -0.0649 |
| 0.0293 | 0.0666 |
| -0.0296 | -0.0836 |
| 0.4415 | 0.3128 |
| 0.1309 | 0.1547 |
| 0.4695 | 0.3524 |
| 0.8840 | 0.9625 |
| 0.5984 | 0.4941 |
| -0.1660 | -0.0171 |
| -0.3232 | -0.5029 |
| 1.2649 | 1.7924 |
| -0.0508 | -0.1878 |
| 0.3347 | 0.7295 |
| 1.0291 | 0.8444 |
| 1.7806 | 1.6823 |
| 1.0462 | 1.1193 |
| 0.8274 | 0.8533 |

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| 0.9271 | 1.0274 |
| 1.2521 | 1.2528 |
| 0.4896 | 0.8444 |
| 0.5194 | 0.5125 |
| 1.0561 | 1.0721 |
| 0.5326 | 0.6117 |
| 0.2334 | 0.3906 |
| 1.2107 | 1.9307 |

### Mathematics Graph and Table, Grade Six

Figure 8.B.11 indicates, in the grade six mathematics assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.11, which immediately follows the graph.

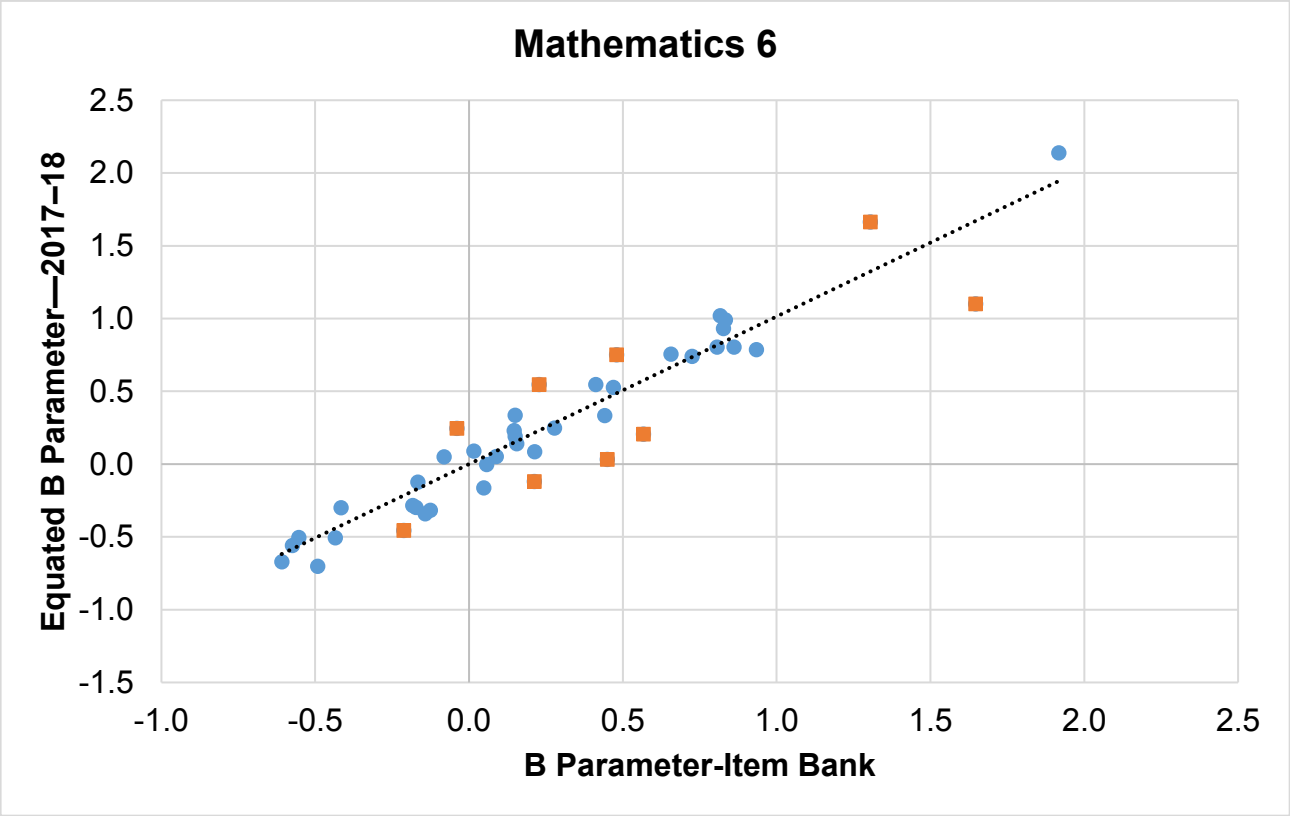


**Figure 8.B.11 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Six**

**Table 8.B.11 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Six**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -0.6092 | -0.6716 |
| -0.5739 | -0.5597 |
| -0.5540 | -0.5033 |
| -0.4923 | -0.7010 |
| -0.4354 | -0.5059 |
| -0.4165 | -0.2983 |
| 0.1470 | 0.2314 |
| 0.0575 | -0.0033 |
| -0.1663 | -0.1223 |
| 0.1495 | 0.3370 |
| -0.1726 | -0.2976 |
| -0.1431 | -0.3412 |
| -0.0813 | 0.0506 |
| -0.0402 | 0.2456 |
| 0.0482 | -0.1622 |
| -0.2121 | -0.4555 |
| 0.1495 | 0.1905 |
| -0.1828 | -0.2833 |
| -0.1257 | -0.3178 |
| 0.0883 | 0.0526 |
| 0.1553 | 0.1408 |
| 0.2121 | -0.1192 |
| 0.2781 | 0.2483 |
| 0.4122 | 0.5479 |
| 0.0150 | 0.0889 |
| 0.7254 | 0.7412 |
| 0.8060 | 0.8047 |
| 0.8267 | 0.9326 |
| 0.4412 | 0.3340 |
| 0.2129 | 0.0851 |
| 0.8166 | 1.0208 |
| 0.4495 | 0.0317 |
| 0.5666 | 0.2054 |
| 0.4686 | 0.5282 |
| 0.8326 | 0.9922 |
| 1.9169 | 2.1394 |
| 0.9335 | 0.7862 |

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| 0.2276 | 0.5477 |
| 1.6469 | 1.1014 |
| 0.8616 | 0.8035 |
| 0.4792 | 0.7507 |
| 1.3042 | 1.6630 |
| 0.6559 | 0.7564 |

## Mathematics Graph and Table, Grade Seven

Figure 8.B.12 indicates, in the grade seven mathematics assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.12, which immediately follows the graph.

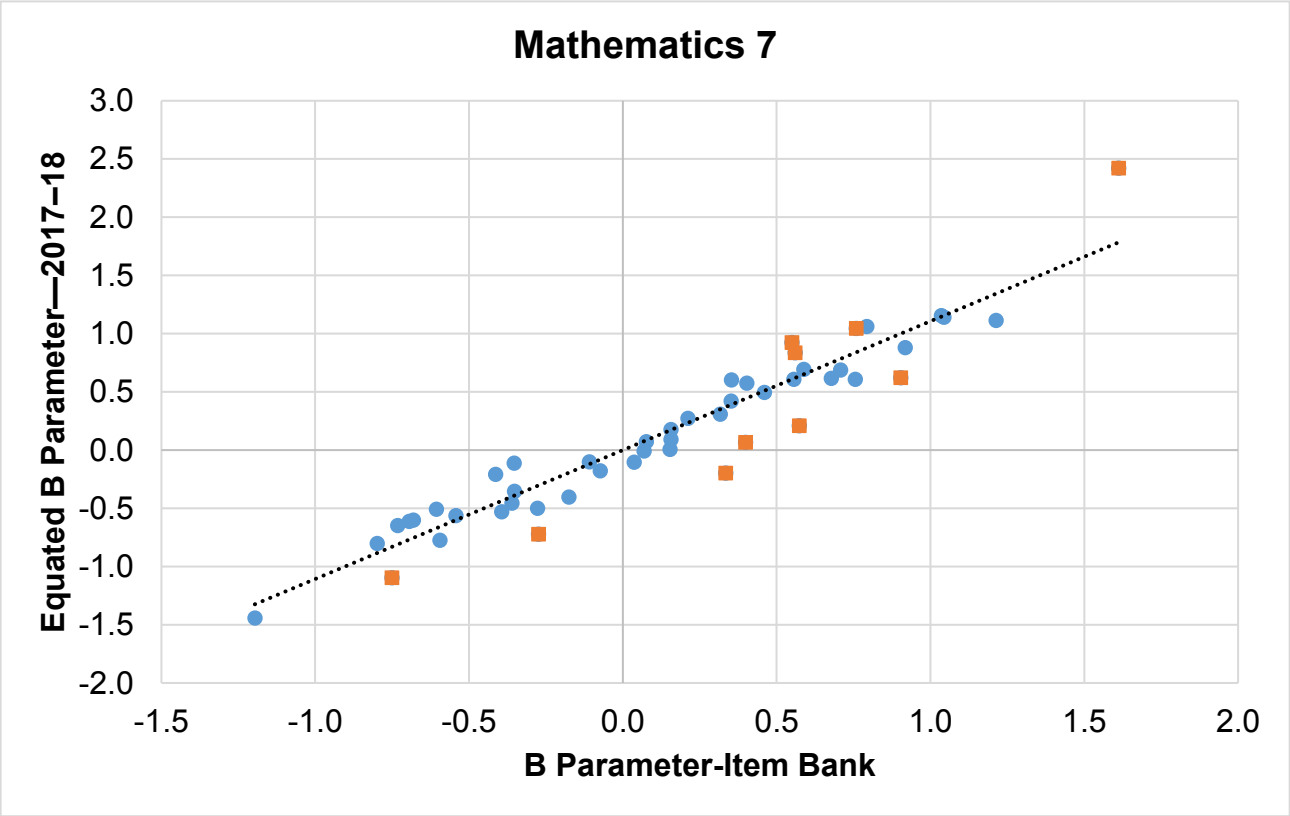


**Figure 8.B.12 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Seven**

**Table 8.B.12 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Seven**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.1962 | -1.4418 |
| -0.7987 | -0.8009 |
| -0.7316 | -0.6483 |
| -0.7504 | -1.0960 |
| -0.6060 | -0.5086 |
| -0.5423 | -0.5635 |
| -0.6947 | -0.6127 |
| 0.0766 | 0.0726 |
| -0.3536 | -0.1126 |
| -0.3609 | -0.4549 |
| -0.5952 | -0.7756 |
| -0.6811 | -0.6009 |
| 0.0684 | -0.0081 |
| -0.4143 | -0.2081 |
| -0.3936 | -0.5298 |
| -0.2740 | -0.7237 |
| -0.1753 | -0.4040 |
| -0.1085 | -0.1013 |
| -0.2779 | -0.4990 |
| 0.2115 | 0.2734 |
| 0.9036 | 0.6208 |
| 0.3343 | -0.1970 |
| 0.0366 | -0.1055 |
| 0.6770 | 0.6157 |
| 0.1565 | 0.0909 |
| -0.0737 | -0.1772 |
| -0.3524 | -0.3530 |
| 0.1534 | 0.0057 |
| 0.3161 | 0.3069 |
| 0.4599 | 0.4941 |
| 0.5597 | 0.8349 |
| 0.7072 | 0.6872 |
| 0.3514 | 0.4208 |
| 0.1562 | 0.1749 |
| 0.4032 | 0.5738 |
| 0.3989 | 0.0660 |
| 0.3531 | 0.6031 |

| ***B*-parameter from Item Bank** | ***B*-parameter from 2017–18** |
|---|---|
| 1.2129 | 1.1140 |
| 0.7931 | 1.0622 |
| 0.5554 | 0.6068 |
| 0.5737 | 0.2080 |
| 0.9176 | 0.8798 |
| 1.0355 | 1.1556 |
| 0.7584 | 1.0448 |
| 1.0435 | 1.1413 |
| 0.7554 | 0.6079 |
| 0.5491 | 0.9249 |
| 0.5883 | 0.6921 |
| 1.6117 | 2.4216 |

## Mathematics Graph and Table, Grade Eight

Figure 8.B.13 indicates, in the grade eight mathematics assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.13, which immediately follows the graph.

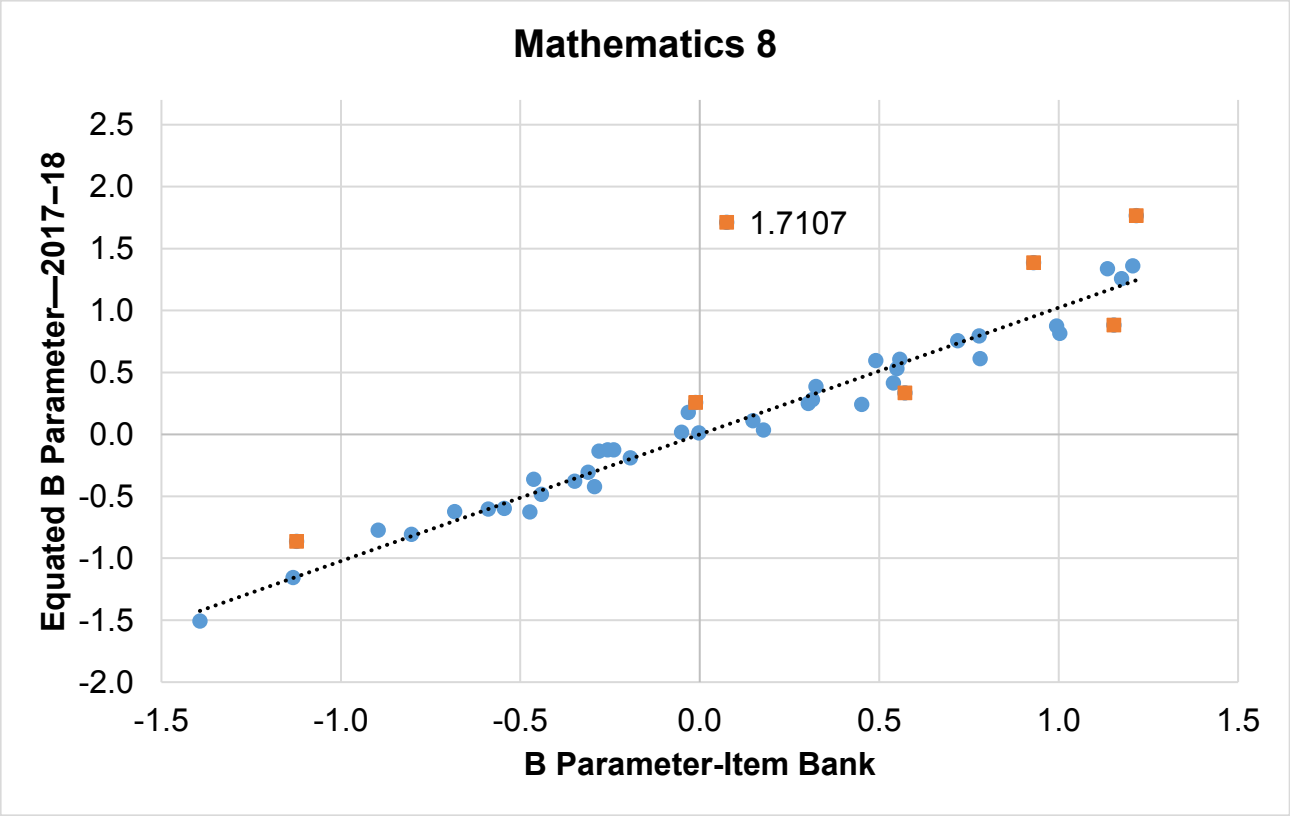


**Figure 8.B.13 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Eight**

**Table 8.B.13 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Eight**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.3928 | -1.5089 |
| -1.1330 | -1.1554 |
| -1.1239 | -0.8641 |
| -0.8037 | -0.8075 |
| -0.0026 | 0.0101 |
| -0.0319 | 0.1774 |
| -0.0508 | 0.0154 |
| 0.1482 | 0.1090 |
| 0.5573 | 0.6049 |
| 0.1772 | 0.0353 |
| -0.8966 | -0.7751 |
| -0.5899 | -0.6044 |
| -0.5449 | -0.5980 |
| -0.4630 | -0.3633 |
| -0.6834 | -0.6245 |
| -0.2938 | -0.4215 |
| -0.4735 | -0.6267 |
| -0.3486 | -0.3786 |
| -0.4417 | -0.4858 |
| -0.2810 | -0.1366 |
| -0.3115 | -0.3076 |
| -0.2572 | -0.1265 |
| -0.1933 | -0.1894 |
| -0.2399 | -0.1267 |
| 0.3022 | 0.2486 |
| 1.1753 | 1.2565 |
| 0.4902 | 0.5942 |
| 0.4510 | 0.2403 |
| -0.0115 | 0.2564 |
| 0.5495 | 0.5293 |
| 0.0748 | 1.7107 |
| 0.3233 | 0.3850 |
| 0.3134 | 0.2806 |
| 1.2159 | 1.7651 |
| 0.7780 | 0.7953 |
| 1.2064 | 1.3596 |
| 0.5389 | 0.4143 |

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| 1.1538 | 0.8825 |
| 1.1362 | 1.3376 |
| 0.5718 | 0.3337 |
| 0.9945 | 0.8748 |
| 0.7187 | 0.7543 |
| 1.0029 | 0.8153 |
| 0.9297 | 1.3858 |
| 0.7811 | 0.6101 |

## Mathematics Graph and Table, Grade Eleven

Figure 8.B.14 indicates, in the grade eleven mathematics assessment, the relationship between the item bank parameters (calibrated in 2015–16 or 2016–17) and the equated parameters from 2017–18, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank parameter, and the y-axis is the 2017–18 spring equated parameters. Data used to create this graph is found in Table 8.B.14, which immediately follows the graph.

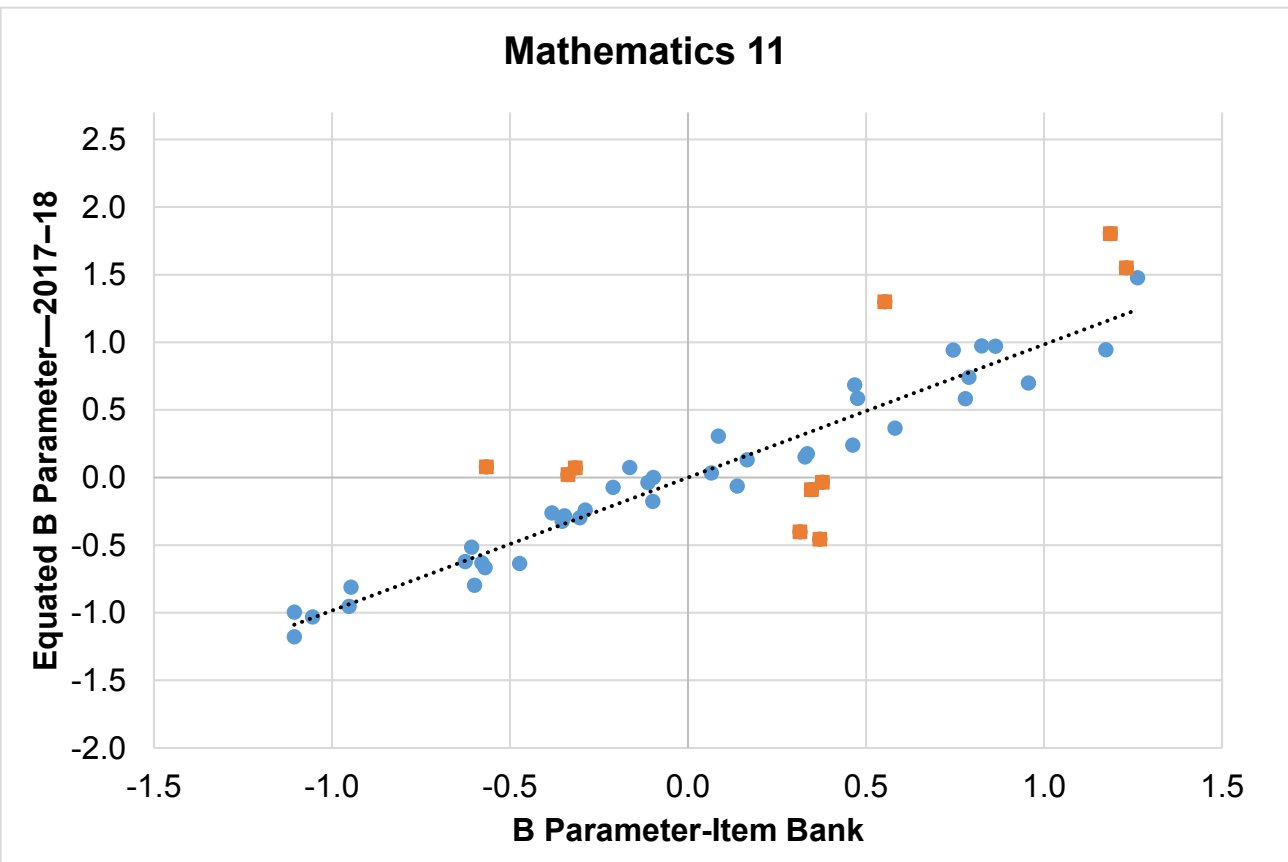


**Figure 8.B.14 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Eleven**

**Table 8.B.14 *B*-parameters from Item Bank and 2017–18 for the Equating Set of Mathematics, Grade Eleven**

| *B*-parameter from Item Bank | *B*-parameter from 2017–18 |
|---|---|
| -1.1058 | -1.1774 |
| -1.0545 | -1.0296 |
| -0.6080 | -0.5134 |
| -0.9523 | -0.9528 |
| -0.0973 | 0.0006 |
| -0.1124 | -0.0370 |
| 0.3775 | -0.0341 |
| 0.1377 | -0.0620 |
| 0.3467 | -0.0883 |
| 0.0653 | 0.0334 |
| -0.5794 | -0.6315 |
| -0.5668 | 0.0798 |
| -0.3473 | -0.2817 |
| -0.2886 | -0.2400 |
| -0.3373 | 0.0222 |
| -0.4733 | -0.6360 |
| -0.3534 | -0.3223 |
| -0.3039 | -0.2956 |
| -0.5994 | -0.7954 |
| -0.9469 | -0.8107 |
| -1.1060 | -0.9957 |
| -0.6261 | -0.6200 |
| -0.5704 | -0.6664 |
| -0.3163 | 0.0734 |
| -0.2105 | -0.0727 |
| 0.4627 | 0.2400 |
| 0.3287 | 0.1521 |
| 0.0849 | 0.3075 |
| 1.1733 | 0.9452 |
| 0.9556 | 0.7005 |
| 0.1661 | 0.1327 |
| 0.4760 | 0.5866 |
| 0.8244 | 0.9734 |
| -0.1637 | 0.0743 |
| -0.0988 | -0.1770 |
| -0.3827 | -0.2610 |
| 0.3349 | 0.1773 |

| ***B*-parameter from Item Bank** | ***B*-parameter from 2017–18** |
|---|---|
| 0.8632 | 0.9714 |
| 0.4675 | 0.6864 |
| 0.5521 | 1.3016 |
| 0.5809 | 0.3654 |
| 0.3146 | -0.4016 |
| 1.2625 | 1.4771 |
| 0.7788 | 0.5830 |
| 0.3698 | -0.4551 |
| 0.7886 | 0.7419 |
| 1.2306 | 1.5509 |
| 1.1857 | 1.8040 |
| 0.7451 | 0.9441 |

# Appendix 8.C: IRT Analyses Results

**Note:** For Table 8.C.1 through Table 8.C.14, "NA" in the *d-values* and *d-values Standard Error (SE)* columns indicates that the item is a 1-point item with no *d*-value. The colon ( : ) is used to separate the two *d*-values.

**Table 8.C.1 Item Response Theory (IRT) Item Difficulty for English Language Arts/ Literacy (ELA), Grade Three**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTW3020108T1 | -1.2020 | 0.05 | NA | NA |
| CLTR3020057T1-M | -1.1884 | 0.04 | 1.1777 : -1.1777 | 0.0416 : 0.0416 |
| CLTR3020058T1-M | -1.5636 | 0.05 | NA | NA |
| CLTR3020059T1-O | -1.2102 | 0.03 | -1.3367 : 1.3367 | 0.0681 : 0.0681 |
| CLTW3020095T1 | -1.6049 | 0.05 | 1.1986 : -1.1986 | 0.0483 : 0.0483 |
| CLTR3020105T1 | -1.0400 | 0.05 | NA | NA |
| CLTW3020107T1 | -1.6479 | 0.05 | NA | NA |
| CLTR3020140T2-M | -1.3405 | 0.04 | 1.4481 : -1.4481 | 0.0453 : 0.0453 |
| CLTR3020141T2-M | 0.1868 | 0.04 | NA | NA |
| CLTR3020142T2-M | 0.0048 | 0.03 | -0.6796 : 0.6796 | 0.0458 : 0.0458 |
| CLTR3020051T1 | -0.7166 | 0.06 | NA | NA |
| CLTR3020052T1 | -0.7978 | 0.06 | NA | NA |
| CLTR3020053T1-M | -0.6887 | 0.06 | NA | NA |
| CLTR3020170T1 | -0.0536 | 0.04 | -0.5992 : 0.5992 | 0.0663 : 0.0663 |
| CLTR3020169T1 | -0.8655 | 0.05 | 1.1487 : -1.1487 | 0.0514 : 0.0514 |
| CLTW3020171T1-R | 0.1886 | 0.06 | NA | NA |
| CLTR3020093T1 | -0.5518 | 0.06 | NA | NA |
| CLTR3040231T1 | -2.1147 | 0.07 | NA | NA |
| CLTW3020146T2 | -1.1548 | 0.06 | 1.5341 : -1.5341 | 0.0586 : 0.0586 |
| CLTR3020143T2 | -0.9488 | 0.06 | NA | NA |
| CLTW3020145T2-M | -0.7860 | 0.04 | 0.6112 : -0.6112 | 0.0516 : 0.0516 |
| CLTW3020162T2 | -0.7764 | 0.06 | NA | NA |
| CLTW3040186T2 | -0.2539 | 0.04 | 0.6966 : -0.6966 | 0.0509 : 0.0509 |
| CLTR3030110T2 | -1.4258 | 0.05 | 0.8875 : -0.8875 | 0.0579 : 0.0579 |
| CLTR3030028T1 | 0.0353 | 0.06 | NA | NA |
| CLTR3020094T1 | 0.2199 | 0.06 | NA | NA |
| CLTW3030030T1 | 0.0746 | 0.04 | 0.1532 : -0.1532 | 0.0602 : 0.0602 |
| CLTR3030136T1 | -0.8994 | 0.06 | 0.6495 : -0.6495 | 0.0755 : 0.0755 |
| CLTW3020165T2 | -0.2936 | 0.06 | NA | NA |
| CLTR3020163T2 | -0.2373 | 0.06 | NA | NA |
| CLTR3020164T2 | -0.5903 | 0.07 | NA | NA |
| CLTR3030080T2 | 0.2232 | 0.06 | NA | NA |
| CLTR3030081T2 | -0.0696 | 0.06 | NA | NA |
| CLTW3030082T2 | -0.7508 | 0.06 | 0.9865 : -0.9865 | 0.0717 : 0.0717 |
| CLTW3030113T2 | -0.0673 | 0.04 | -0.26 : 0.26 | 0.0569 : 0.0569 |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR3040181T2 | -0.3181 | 0.05 | 0.6322 : -0.6322 | 0.0535 : 0.0535 |
| CLTW3020403T3 | 0.8013 | 0.04 | -0.1798 : 0.1798 | 0.0506 : 0.0506 |
| CLTW3020161T2 | 1.2992 | 0.05 | NA | NA |
| CLTR3040191T3 | 1.0254 | 0.06 | NA | NA |
| CLTR3030168T3 | 0.2347 | 0.06 | NA | NA |
| CLTR3040188T2 | -0.5843 | 0.11 | NA | NA |
| CLTR3040187T2 | 0.8023 | 0.09 | 2.1643 : -2.1643 | 0.0908 : 0.0908 |
| CLTR3040189T2 | 0.1509 | 0.09 | NA | NA |
| CLTR3040182T2 | 0.1579 | 0.09 | NA | NA |
| CLTW3020179T3 | 1.2861 | 0.06 | 0.2959 : -0.2959 | 0.0775 : 0.0775 |
| CLTR3030158T3-R | -2.3055 | 0.21 | NA | NA |
| CLTR3030159T3 | 1.1488 | 0.08 | NA | NA |
| CLTW3030160T3 | 1.1526 | 0.06 | -0.473 : 0.473 | 0.0914 : 0.0914 |
| CLTR3030166T3 | -0.1375 | 0.10 | 1.4494 : -1.4494 | 0.1068 : 0.1068 |
| CLTR3040194T3 | 0.2198 | 0.09 | NA | NA |
| CLTR3040190T3 | -1.2824 | 0.19 | 0.8855 : -0.8855 | 0.2042 : 0.2042 |
| CLTR3040024T1 | -0.3107 | 0.08 | NA | NA |
| CLTR3040025T1 | -1.6008 | 0.09 | 1.0031 : -1.0031 | 0.0957 : 0.0957 |
| CLTR3040026T1 | -0.5753 | 0.08 | NA | NA |
| CLTW3040004T1 | -0.0122 | 0.07 | NA | NA |
| CLTR3040039T1 | 0.3047 | 0.09 | NA | NA |
| CLTR3040038T1 | -0.5971 | 0.07 | 1.3993 : -1.3993 | 0.0841 : 0.0841 |
| CLTR3040040T1 | 0.2238 | 0.08 | NA | NA |
| CLTW3040227T2 | 1.3617 | 0.09 | NA | NA |
| CLTR3040232T1 | -1.1344 | 0.09 | 1.1986 : -1.1986 | 0.0963 : 0.0963 |
| CLTR3040183T2 | -1.4139 | 0.09 | 1.1072 : -1.1072 | 0.1061 : 0.1061 |
| CLTW3040184T2 | 0.6629 | 0.09 | NA | NA |
| CLTW3040022T1 | -1.3976 | 0.11 | NA | NA |
| CLTR3040180T2 | 0.1562 | 0.08 | NA | NA |
| CLTR3040085T2 | 1.0056 | 0.09 | NA | NA |
| CLTR3040084T2 | 0.2345 | 0.09 | NA | NA |
| CLTW3040086T2 | -0.5037 | 0.07 | 0.7516 : -0.7516 | 0.0797 : 0.0797 |
| CLTR3030164T3 | -1.4405 | 0.11 | 1.2273 : -1.2273 | 0.1134 : 0.1134 |
| CLTR3040179T2 | -0.7722 | 0.10 | NA | NA |
| CLTW3040193T3 | 0.6194 | 0.06 | -0.1479 : 0.1479 | 0.094 : 0.094 |
| CLTR3040192T3 | -0.3103 | 0.05 | -1.285 : 1.285 | 0.1363 : 0.1363 |

**Table 8.C.2 IRT Item Difficulty for ELA, Grade Four**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR4020239T1 | -1.6174 | 0.05 | NA | NA |
| CLTR4020304T1-M | -0.7356 | 0.04 | NA | NA |
| CLTR4020305T1-M | -1.0852 | 0.04 | 1.0683 : -1.0683 | 0.0391 : 0.0391 |
| CLTW4020306T1-O | -1.1399 | 0.04 | 1.2711 : -1.2711 | 0.0395 : 0.0395 |
| CLTW4020240T1-M | -1.0839 | 0.03 | 0.3671 : -0.3671 | 0.0399 : 0.0399 |
| CLTR4020308T1 | -0.6124 | 0.04 | NA | NA |
| CLTR4020084T2 | -1.4097 | 0.04 | NA | NA |
| CLTR4030020T2 | -0.3440 | 0.04 | NA | NA |
| CLTR4030021T2 | -0.4636 | 0.03 | 1.5181 : -1.5181 | 0.0354 : 0.0354 |
| CLTW4030022T2 | 0.2043 | 0.04 | NA | NA |
| CLTR4020256T1-M | -0.4757 | 0.06 | NA | NA |
| CLTR4020257T1-M | -1.2245 | 0.05 | 1.0088 : -1.0088 | 0.0573 : 0.0573 |
| CLTR4020258T1-M | -0.8979 | 0.04 | -1.3175 : 1.3175 | 0.0868 : 0.0868 |
| CLTR4040202T1 | -1.3672 | 0.06 | NA | NA |
| CLTR4030173T1 | -0.3374 | 0.06 | NA | NA |
| CLTR4020237T1 | -1.8467 | 0.07 | NA | NA |
| CLTR4030170T1 | -0.0558 | 0.06 | NA | NA |
| CLTR4030171T1 | -1.7140 | 0.05 | 1.0277 : -1.0277 | 0.0572 : 0.0572 |
| CLTW4040203T1 | -1.3333 | 0.06 | NA | NA |
| CLTR4020116T2 | -0.5571 | 0.06 | NA | NA |
| CLTR4020117T2 | -1.1405 | 0.05 | 1.1147 : -1.1147 | 0.0576 : 0.0576 |
| CLTW4020118T2 | 0.0373 | 0.06 | NA | NA |
| CLTR4030023T2-R | -0.4582 | 0.06 | NA | NA |
| CLTR4030024T2 | -0.6240 | 0.05 | 1.416 : -1.416 | 0.0572 : 0.0572 |
| CLTR4030025T2 | -0.1607 | 0.04 | -0.4186 : 0.4186 | 0.0679 : 0.0679 |
| CLTR4040200T1 | 1.0577 | 0.06 | NA | NA |
| CLTR4030172T1 | -0.6059 | 0.05 | 0.6798 : -0.6798 | 0.0596 : 0.0596 |
| CLTR4030062T2 | -0.8180 | 0.05 | 0.3222 : -0.3222 | 0.056 : 0.056 |
| CLTW4040074T2 | 0.7441 | 0.05 | NA | NA |
| CLTR4040005T2 | -1.0417 | 0.07 | NA | NA |
| CLTR4040069T2 | 0.5668 | 0.05 | NA | NA |
| CLTW4020138T2 | -0.5089 | 0.06 | NA | NA |
| CLTR4020090T2 | 1.5100 | 0.07 | NA | NA |
| CLTR4020091T2 | -0.0996 | 0.05 | 1.5126 : -1.5126 | 0.0559 : 0.0559 |
| CLTR4020092T2 | 0.1171 | 0.04 | -0.4643 : 0.4643 | 0.0631 : 0.0631 |
| CLTR4040072T2 | -0.1543 | 0.05 | 1.2021 : -1.2021 | 0.0541 : 0.0541 |
| CLTR4020245T3 | 0.3779 | 0.06 | NA | NA |
| CLTR4020244T3-M | 0.8215 | 0.04 | -0.0068 : 0.0068 | 0.0598 : 0.0598 |
| CLTW4020246T3 | 0.7030 | 0.04 | 0.4621 : -0.4621 | 0.0551 : 0.0551 |
| CLTR4020119T2-M | 1.7066 | 0.07 | NA | NA |
| CLTR4020120T2-M | 0.7580 | 0.05 | 0.8737 : -0.8737 | 0.0614 : 0.0614 |
| CLTW4020121T2-M | 0.9203 | 0.07 | NA | NA |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR4020083T2 | 0.6193 | 0.07 | NA | NA |
| CLTR4040195T3 | 0.7261 | 0.07 | NA | NA |
| CLTR4030089T3 | 0.7575 | 0.07 | NA | NA |
| CLTR4030090T3 | 0.2882 | 0.06 | 1.3919 : -1.3919 | 0.0704 : 0.0704 |
| CLTR4030091T3 | 0.4597 | 0.05 | -0.8522 : 0.8522 | 0.0883 : 0.0883 |
| CLTW4030132T3-R | 0.8818 | 0.07 | NA | NA |
| CLTW4030133T3-R | 0.6248 | 0.05 | 0.0483 : -0.0483 | 0.0674 : 0.0674 |
| CLTR4020128T3 | -0.2647 | 0.08 | NA | NA |
| CLTR4030131T3 | 0.5158 | 0.07 | NA | NA |
| CLTR4040006T1 | -0.9121 | 0.09 | NA | NA |
| CLTR4040007T1 | -1.0469 | 0.07 | 0.3942 : -0.3942 | 0.0841 : 0.0841 |
| CLTW4040008T1 | -0.6390 | 0.07 | 1.2921 : -1.2921 | 0.0738 : 0.0738 |
| CLTR4040199T1 | -1.7658 | 0.10 | NA | NA |
| CLTR4040001T2 | -0.9917 | 0.09 | NA | NA |
| CLTR4040002T2 | -0.2325 | 0.08 | NA | NA |
| CLTR4040003T2 | -0.9432 | 0.05 | -0.7752 : 0.7752 | 0.1135 : 0.1135 |
| CLTR4040071T2 | -0.7951 | 0.09 | NA | NA |
| CLTR4040100T1 | -2.0914 | 0.12 | NA | NA |
| CLTR4040101T1 | -1.2662 | 0.08 | 1.0156 : -1.0156 | 0.0975 : 0.0975 |
| CLTW4040102T1 | 0.4418 | 0.09 | NA | NA |
| CLTR4040201T1 | -1.2849 | 0.10 | 1.6228 : -1.6228 | 0.1057 : 0.1057 |
| CLTR4040051T2 | -0.6473 | 0.09 | NA | NA |
| CLTR4040052T2 | -0.6973 | 0.07 | 1.4413 : -1.4413 | 0.0814 : 0.0814 |
| CLTW4040053T2 | 0.4830 | 0.08 | NA | NA |
| CLTW4040076T2 | -1.0349 | 0.08 | 1.1992 : -1.1992 | 0.0866 : 0.0866 |
| CLTR4040070T2 | -1.3240 | 0.10 | 1.4626 : -1.4626 | 0.105 : 0.105 |
| CLTW4040073T2 | 0.6081 | 0.08 | NA | NA |
| CLTW4040009T3 | 0.4733 | 0.05 | -0.0196 : 0.0196 | 0.0823 : 0.0823 |
| CLTR4040197T3 | -1.3567 | 0.10 | NA | NA |

**Table 8.C.3 IRT Item Difficulty for ELA, Grade Five**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTW5020317T1 | -1.9011 | 0.05 | 1.1669 : -1.1669 | 0.0532 : 0.0532 |
| CLTR5020453T1-M | -2.2502 | 0.06 | 0.8333 : -0.8333 | 0.0634 : 0.0634 |
| CLTW5020454T1-M | -1.3627 | 0.04 | 1.3623 : -1.3623 | 0.0451 : 0.0451 |
| CLTR5030154T1 | -1.4992 | 0.04 | 0.8485 : -0.8485 | 0.0463 : 0.0463 |
| CLTR5030156T1 | -1.7498 | 0.05 | 1.0828 : -1.0828 | 0.0523 : 0.0523 |
| CLTR5020314T1 | -0.6965 | 0.04 | NA | NA |
| CLTR5030185T2 | -1.9952 | 0.06 | 1.2737 : -1.2737 | 0.0608 : 0.0608 |
| CLTR5020253T2-M | -0.2421 | 0.04 | NA | NA |
| CLTR5020254T2-M | -1.0471 | 0.04 | 1.438 : -1.438 | 0.0404 : 0.0404 |
| CLTW5020255T2-M | 0.8506 | 0.04 | NA | NA |
| CLTW5030157T1 | -1.8021 | 0.07 | NA | NA |
| CLTR5040041T1 | -0.4708 | 0.06 | NA | NA |
| CLTR5020327T1-M | -0.6918 | 0.07 | NA | NA |
| CLTR5020328T1-M | -1.1309 | 0.05 | 0.9358 : -0.9358 | 0.0591 : 0.0591 |
| CLTW5020329T1-M | -0.3277 | 0.07 | NA | NA |
| CLTW5020335T1 | 0.2349 | 0.07 | NA | NA |
| CLTR5030263T1 | -0.4589 | 0.07 | NA | NA |
| CLTR5030264T1 | -1.1141 | 0.06 | 1.4323 : -1.4323 | 0.0643 : 0.0643 |
| CLTW5030265T1 | 0.0480 | 0.07 | NA | NA |
| CLTR5020047T2 | -1.3143 | 0.06 | 1.5055 : -1.5055 | 0.067 : 0.067 |
| CLTR5020346T2 | -0.7685 | 0.04 | -0.5784 : 0.5784 | 0.0721 : 0.0721 |
| CLTR5030183T2 | -1.0902 | 0.06 | 1.5106 : -1.5106 | 0.0647 : 0.0647 |
| CLTR5040104T2 | -0.3695 | 0.07 | NA | NA |
| CLTW5040105T2 | -0.9806 | 0.06 | 1.3464 : -1.3464 | 0.0624 : 0.0624 |
| CLTR5040103T2 | 0.1779 | 0.07 | NA | NA |
| CLTR5030122T1 | 0.0665 | 0.06 | NA | NA |
| CLTR5030123T1-M | 0.4855 | 0.04 | -0.4859 : 0.4859 | 0.0632 : 0.0632 |
| CLTW5030124T1 | -1.1720 | 0.07 | 1.1472 : -1.1472 | 0.0791 : 0.0791 |
| CLTW5020347T2 | 1.0173 | 0.04 | NA | NA |
| CLTR5030179T2 | -0.2329 | 0.06 | NA | NA |
| CLTR5030180T2 | -1.0597 | 0.06 | 1.0929 : -1.0929 | 0.0711 : 0.0711 |
| CLTW5030181T2-R | 0.2081 | 0.06 | NA | NA |
| CLTR5040116T2 | 0.3342 | 0.06 | NA | NA |
| CLTR5020342T2 | 0.4367 | 0.03 | -1.2502 : 1.2502 | 0.0619 : 0.0619 |
| CLTR5040109T2 | -1.5157 | 0.08 | NA | NA |
| CLTR5040110T2 | -0.8283 | 0.05 | 0.2216 : -0.2216 | 0.0669 : 0.0669 |
| CLTW5040111T2 | -1.0580 | 0.06 | 0.1803 : -0.1803 | 0.0734 : 0.0734 |
| CLTR5030140T3 | 0.1947 | 0.06 | NA | NA |
| CLTR5020073T3 | 0.9652 | 0.06 | NA | NA |
| CLTW5030139T3 | -0.2891 | 0.06 | NA | NA |
| CLTR5040087T2 | 0.0143 | 0.07 | NA | NA |
| CLTR5040088T2 | -0.9520 | 0.10 | 0.978 : -0.978 | 0.1116 : 0.1116 |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR5040089T2 | 0.6296 | 0.04 | -0.9032 : 0.9032 | 0.0806 : 0.0806 |
| CLTR5040115T2 | -1.9590 | 0.26 | 1.9064 : -1.9064 | 0.2608 : 0.2608 |
| CLTR5020038T3-M | 1.7626 | 0.07 | NA | NA |
| CLTR5020039T3-M | 1.4798 | 0.06 | NA | NA |
| CLTW5020040T3-M | 1.4492 | 0.04 | 0.1673 : -0.1673 | 0.0617 : 0.0617 |
| CLTR5020341T3 | -0.3228 | 0.10 | 2.4683 : -2.4683 | 0.1078 : 0.1078 |
| CLTR5040171T3 | 0.4117 | 0.06 | NA | NA |
| CLTW5040230T3 | 0.0323 | 0.05 | -0.4708 : 0.4708 | 0.0805 : 0.0805 |
| CLTR5040228T3 | 0.8469 | 0.06 | NA | NA |
| CLTR5040229T3 | 0.8469 | 0.06 | NA | NA |
| CLTW5040174T3 | -0.2379 | 0.07 | NA | NA |
| CLTW5040019T1 | -0.5331 | 0.08 | NA | NA |
| CLTR5040014T1 | -0.9810 | 0.08 | NA | NA |
| CLTR5040013T1 | -1.7599 | 0.10 | 0.5689 : -0.5689 | 0.1111 : 0.1111 |
| CLTW5040015T1 | -1.0834 | 0.07 | 0.5615 : -0.5615 | 0.0828 : 0.0828 |
| CLTW5030187T2-R | -0.1486 | 0.08 | NA | NA |
| CLTR5040035T1 | -1.1546 | 0.10 | NA | NA |
| CLTW5040036T1 | -1.5350 | 0.10 | NA | NA |
| CLTR5040034T1 | -1.5457 | 0.09 | 1.1016 : -1.1016 | 0.1014 : 0.1014 |
| CLTR5040118T2 | -1.7846 | 0.12 | 1.331 : -1.331 | 0.123 : 0.123 |
| CLTR5020250T3 | -0.2407 | 0.06 | 0.3936 : -0.3936 | 0.0769 : 0.0769 |
| CLTW5020251T3 | -0.6012 | 0.06 | 0.0343 : -0.0343 | 0.086 : 0.086 |
| CLTR5020252T3 | 0.6292 | 0.08 | NA | NA |
| CLTR5030145T1 | -1.1075 | 0.10 | NA | NA |
| CLTR5040016T1 | -1.4732 | 0.11 | NA | NA |
| CLTR5040018T1 | -0.5330 | 0.05 | -1.2947 : 1.2947 | 0.1335 : 0.1335 |
| CLTR5040017T1 | -1.1961 | 0.08 | 0.6154 : -0.6154 | 0.0965 : 0.0965 |
| CLTR5020336T1 | -0.6850 | 0.05 | -1.4169 : 1.4169 | 0.1396 : 0.1396 |
| CLTR5030182T2-R | -0.2204 | 0.09 | NA | NA |
| CLTR5040117T2 | -0.5769 | 0.09 | NA | NA |
| CLTW5040120T2 | 0.4517 | 0.08 | NA | NA |

**Table 8.C.4 IRT Item Difficulty for ELA, Grade Six**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR6020097T1 | -1.5022 | 0.03 | -1.6343 : 1.6343 | 0.0796 : 0.0796 |
| CLTR6030030T1 | -0.8929 | 0.03 | -0.7381 : 0.7381 | 0.0484 : 0.0484 |
| CLTR6030031T1 | -1.4499 | 0.04 | NA | NA |
| CLTW6030032T1-O | -0.6686 | 0.03 | 0.8043 : -0.8043 | 0.0338 : 0.0338 |
| CLTW6030202T1 | -0.8621 | 0.04 | NA | NA |
| CLTW6020104T1 | -1.3098 | 0.04 | 1.3108 : -1.3108 | 0.0435 : 0.0435 |
| CLTR6020204T2 | -1.6579 | 0.05 | 1.3009 : -1.3009 | 0.0526 : 0.0526 |
| CLTR6020200T2-M | -0.4611 | 0.04 | NA | NA |
| CLTR6020199T2-M | -0.7328 | 0.04 | NA | NA |
| CLTR6020202T2 | -1.2802 | 0.04 | 1.1829 : -1.1829 | 0.0432 : 0.0432 |
| CLTR6020101T1-R | -0.6821 | 0.12 | NA | NA |
| CLTW6030012T1-R | -0.2067 | 0.13 | NA | NA |
| CLTR6030010T1-R | -0.5276 | 0.12 | NA | NA |
| CLTR6030011T1-R | 0.0392 | 0.11 | 0.1748 : -0.1748 | 0.152 : 0.152 |
| CLTR6030203T1 | -0.4786 | 0.12 | NA | NA |
| CLTR6020098T1 | -0.9065 | 0.11 | 1.3091 : -1.3091 | 0.1131 : 0.1131 |
| CLTR6030042T1 | -0.8831 | 0.07 | -1.5637 : 1.5637 | 0.1931 : 0.1931 |
| CLTR6040124T1 | -1.1619 | 0.12 | NA | NA |
| CLTR6020099T1 | -1.1127 | 0.07 | -1.6406 : 1.6406 | 0.1951 : 0.1951 |
| CLTR6030073T2 | -0.1930 | 0.13 | NA | NA |
| CLTR6030074T2-R | 1.4046 | 0.21 | NA | NA |
| CLTW6030075T2 | -0.7524 | 0.08 | 0.1129 : -0.1129 | 0.1192 : 0.1192 |
| CLTW6040204T2 | -0.2741 | 0.13 | NA | NA |
| CLTR6030128T2 | -0.8376 | 0.09 | 0.7813 : -0.7813 | 0.1133 : 0.1133 |
| CLTW6020208T2 | -0.6704 | 0.12 | NA | NA |
| CLTR6030064T1-R | -0.9326 | 0.05 | NA | NA |
| CLTR6030065T1-R | -1.7819 | 0.06 | NA | NA |
| CLTW6030066T1 | -0.2440 | 0.04 | 1.0808 : -1.0808 | 0.0466 : 0.0466 |
| CLTW6040166T2 | -1.2360 | 0.06 | 1.5068 : -1.5068 | 0.0594 : 0.0594 |
| CLTR6030260T2 | -0.4466 | 0.05 | NA | NA |
| CLTR6030261T2 | -0.3778 | 0.04 | 0.9673 : -0.9673 | 0.0463 : 0.0463 |
| CLTR6030262T2 | -0.5699 | 0.03 | -1.0635 : 1.0635 | 0.0687 : 0.0687 |
| CLTW6040165T2 | 0.2025 | 0.05 | NA | NA |
| CLTR6030197T2 | 0.4507 | 0.04 | NA | NA |
| CLTR6030147T2 | 0.3415 | 0.05 | NA | NA |
| CLTR6030148T2 | -0.6922 | 0.04 | 1.0886 : -1.0886 | 0.0487 : 0.0487 |
| CLTW6030149T2 | -0.2069 | 0.05 | NA | NA |
| CLTR6030205T3 | -0.5599 | 0.05 | 1.3699 : -1.3699 | 0.0492 : 0.0492 |
| CLTW6040033T3 | 0.8573 | 0.06 | NA | NA |
| CLTR6040030T3 | -0.2947 | 0.04 | 1.221 : -1.221 | 0.0476 : 0.0476 |
| CLTR6040163T2 | 0.8887 | 0.05 | NA | NA |
| CLTW6040168T2 | -1.5690 | 0.10 | 0.5244 : -0.5244 | 0.1133 : 0.1133 |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR6040169T2 | -0.6047 | 0.06 | NA | NA |
| CLTR6040170T2 | 1.1444 | 0.05 | NA | NA |
| CLTW6020209T2 | 0.4724 | 0.04 | 0.7034 : -0.7034 | 0.0467 : 0.0467 |
| CLTW6030228T3 | -0.1409 | 0.05 | NA | NA |
| CLTR6020418T3 | 1.0706 | 0.03 | -0.3387 : 0.3387 | 0.0545 : 0.0545 |
| CLTR6020416T3 | 1.6361 | 0.05 | NA | NA |
| CLTR6020417T3 | 0.0423 | 0.05 | 1.6841 : -1.6841 | 0.0547 : 0.0547 |
| CLTW6020424T3 | 1.2052 | 0.05 | NA | NA |
| CLTR6040032T3 | -0.4727 | 0.06 | 1.3778 : -1.3778 | 0.0624 : 0.0624 |
| CLTR6040010T3 | -1.0384 | 0.07 | 0.7288 : -0.7288 | 0.0801 : 0.0801 |
| CLTR6040011T3 | 0.7180 | 0.05 | NA | NA |
| CLTW6040012T3 | 0.9452 | 0.04 | 0.1804 : -0.1804 | 0.0488 : 0.0488 |
| CLTW6040123T1 | -1.4798 | 0.08 | 0.9944 : -0.9944 | 0.0943 : 0.0943 |
| CLTR6040112T1 | -1.1193 | 0.06 | -1.2681 : 1.2681 | 0.1272 : 0.1272 |
| CLTR6040114T1 | -0.3989 | 0.08 | NA | NA |
| CLTR6040113T1 | -1.3521 | 0.08 | NA | NA |
| CLTR6040176T2 | -1.6746 | 0.09 | 0.6966 : -0.6966 | 0.1093 : 0.1093 |
| CLTW6040177T2 | -0.5834 | 0.08 | NA | NA |
| CLTR6040178T2 | 0.1444 | 0.08 | NA | NA |
| CLTR6040164T2 | -0.1195 | 0.08 | NA | NA |
| CLTW6040108T1 | 0.0059 | 0.08 | NA | NA |
| CLTR6040106T1 | -0.7685 | 0.09 | NA | NA |
| CLTR6040107T1 | 0.0207 | 0.05 | -0.1863 : 0.1863 | 0.0811 : 0.0811 |
| CLTR6040167T2 | -1.3129 | 0.09 | 1.4425 : -1.4425 | 0.1005 : 0.1005 |
| CLTW6020103T1 | 0.1112 | 0.08 | NA | NA |
| CLTR6040236T1 | -1.1335 | 0.08 | 1.3106 : -1.3106 | 0.0939 : 0.0939 |
| CLTR6040121T1 | -0.6711 | 0.05 | -0.8765 : 0.8765 | 0.1109 : 0.1109 |
| CLTW6020102T1 | -0.6868 | 0.09 | NA | NA |
| CLTR6020423T2-R | -1.1826 | 0.10 | NA | NA |
| CLTR6040031T3 | 0.8050 | 0.08 | NA | NA |
| CLTW6040138T1 | 0.2959 | 0.08 | NA | NA |
| CLTR6040122T1 | -0.8701 | 0.09 | NA | NA |

**Table 8.C.5 IRT Item Difficulty for ELA, Grade Seven**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTW7020385T1 | -1.6861 | 0.05 | NA | NA |
| CLTR7020411T1 | -1.9730 | 0.05 | NA | NA |
| CLTR7020410T1 | -0.6278 | 0.04 | NA | NA |
| CLTW7020412T1 | -1.1234 | 0.05 | 2.3954 : -2.3954 | 0.0483 : 0.0483 |
| CLTR7020380T1 | -1.5455 | 0.05 | NA | NA |
| CLTW7020386T1 | -1.2743 | 0.04 | 1.6936 : -1.6936 | 0.0437 : 0.0437 |
| CLTR7020368T2 | -1.2142 | 0.05 | 1.8255 : -1.8255 | 0.0455 : 0.0455 |
| CLTR7030070T2 | -0.9702 | 0.04 | 1.712 : -1.712 | 0.041 : 0.041 |
| CLTR7030071T2 | -0.1371 | 0.04 | NA | NA |
| CLTW7030072T2 | -0.4838 | 0.04 | NA | NA |
| CLTR7020382T1 | -1.0172 | 0.06 | 1.5399 : -1.5399 | 0.0588 : 0.0588 |
| CLTR7030252T1-R | -2.1068 | 0.07 | NA | NA |
| CLTR7030253T1-R | 0.0891 | 0.07 | NA | NA |
| CLTW7030254T1 | -1.2100 | 0.05 | 1.1999 : -1.1999 | 0.0585 : 0.0585 |
| CLTR7020379T1 | -1.4273 | 0.06 | 1.3255 : -1.3255 | 0.0632 : 0.0632 |
| CLTR7020383T1 | -0.5676 | 0.04 | -1.1793 : 1.1793 | 0.0854 : 0.0854 |
| CLTR7040127T1 | -2.0499 | 0.07 | NA | NA |
| CLTR7040128T1 | -0.3863 | 0.06 | NA | NA |
| CLTW7040129T1 | -1.5035 | 0.05 | 0.6615 : -0.6615 | 0.0635 : 0.0635 |
| CLTR7020378T2 | -0.1525 | 0.04 | -0.361 : 0.361 | 0.0693 : 0.0693 |
| CLTR7020377T2 | 0.3969 | 0.07 | NA | NA |
| CLTR7020376T2 | -0.0407 | 0.07 | NA | NA |
| CLTW7040065T2 | -1.6017 | 0.05 | 0.7465 : -0.7465 | 0.0504 : 0.0504 |
| CLTW7040066T2 | -0.2578 | 0.07 | NA | NA |
| CLTR7040175T2 | -0.3799 | 0.06 | NA | NA |
| CLTW7030246T1 | -0.3904 | 0.06 | NA | NA |
| CLTR7020381T1 | -0.0201 | 0.05 | NA | NA |
| CLTW7020384T1 | 1.0863 | 0.06 | NA | NA |
| CLTR7030054T2 | -0.3464 | 0.06 | NA | NA |
| CLTR7030055T2 | 0.6589 | 0.06 | NA | NA |
| CLTW7030056T2 | 0.1099 | 0.04 | 0.7291 : -0.7291 | 0.0477 : 0.0477 |
| CLTW7030242T2 | -0.8996 | 0.06 | NA | NA |
| CLTWT020155T2 | 0.2908 | 0.04 | 0.5744 : -0.5744 | 0.0484 : 0.0484 |
| CLTR7020154T2 | -1.1547 | 0.07 | NA | NA |
| CLTR7020153T2 | 0.8376 | 0.05 | NA | NA |
| CLTR7020370T2 | 0.2863 | 0.05 | NA | NA |
| CLTR7020365T3 | 0.3014 | 0.03 | -0.8691 : 0.8691 | 0.0657 : 0.0657 |
| CLTR7040062T3 | -0.7241 | 0.06 | 1.5122 : -1.5122 | 0.06 : 0.06 |
| CLTR7030250T3 | 0.4306 | 0.05 | NA | NA |
| CLTR7020158T2 | 0.3013 | 0.06 | 0.3566 : -0.3566 | 0.0776 : 0.0776 |
| CLTR7020156T2 | 0.8286 | 0.07 | NA | NA |
| CLTR7020157T2 | 1.2602 | 0.07 | NA | NA |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR7040045T2 | -0.2055 | 0.09 | NA | NA |
| CLTR7040046T2 | -0.3633 | 0.09 | NA | NA |
| CLTR7040047T2 | 0.3984 | 0.05 | -1.4821 : 1.4821 | 0.1225 : 0.1225 |
| CLTR7020360T3 | -0.2154 | 0.11 | 2.184 : -2.184 | 0.1109 : 0.1109 |
| CLTR7020362T3 | 1.1906 | 0.07 | NA | NA |
| CLTW7030116T3 | 0.9769 | 0.05 | 0.1483 : -0.1483 | 0.0714 : 0.0714 |
| CLTR7030114T3 | 0.0743 | 0.08 | NA | NA |
| CLTR7030115T3 | 0.5775 | 0.07 | NA | NA |
| CLTW7020350T3 | 0.8337 | 0.06 | 0.4384 : -0.4384 | 0.0707 : 0.0707 |
| CLTR7020348T3 | 1.4285 | 0.07 | NA | NA |
| CLTR7020349T3 | 2.7420 | 0.09 | NA | NA |
| CLTR7040061T3 | 0.9730 | 0.05 | -0.768 : 0.768 | 0.0874 : 0.0874 |
| CLTR7040153T2 | -0.8531 | 0.09 | NA | NA |
| CLTR7040154T2 | -1.2058 | 0.07 | 0.9018 : -0.9018 | 0.0873 : 0.0873 |
| CLTW7040155T2 | -0.9855 | 0.07 | 0.3076 : -0.3076 | 0.0873 : 0.0873 |
| CLTR7040162T1 | -1.5846 | 0.10 | NA | NA |
| CLTR7040042T2 | -0.6917 | 0.09 | NA | NA |
| CLTR7040043T2 | -0.8560 | 0.09 | NA | NA |
| CLTW7040044T2 | -1.1822 | 0.08 | 0.9832 : -0.9832 | 0.0918 : 0.0918 |
| CLTR7040064T2 | 0.4710 | 0.08 | NA | NA |
| CLTR7040077T3 | 0.5296 | 0.08 | NA | NA |
| CLTR7040078T3 | 0.3545 | 0.08 | NA | NA |
| CLTW7040079T3 | 0.3923 | 0.05 | -0.0906 : 0.0906 | 0.079 : 0.079 |
| CLTW7040068T2 | 0.4125 | 0.08 | NA | NA |
| CLTR7040049T2 | -0.3388 | 0.08 | NA | NA |
| CLTR7040048T2 | -0.9566 | 0.08 | 1.5558 : -1.5558 | 0.0846 : 0.0846 |
| CLTW7040050T2 | -0.2663 | 0.07 | NA | NA |
| CLTR7040063T2 | -0.3444 | 0.08 | NA | NA |
| CLTR7040125T1 | -0.7918 | 0.06 | -1.1737 : 1.1737 | 0.1279 : 0.1279 |
| CLTR7040156T1 | -1.9263 | 0.11 | 0.8345 : -0.8345 | 0.1201 : 0.1201 |
| CLTW7040157T1 | -0.3065 | 0.09 | NA | NA |
| CLTR7040126T1 | -0.6443 | 0.08 | NA | NA |

**Table 8.C.6 IRT Item Difficulty for ELA, Grade Eight**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTW8020390T1 | -2.2501 | 0.06 | NA | NA |
| CLTR8020394T1-M | -0.5150 | 0.04 | 1.7532 : -1.7532 | 0.0372 : 0.0372 |
| CLTR8020395T1-M | -1.2627 | 0.04 | NA | NA |
| CLTW8020396T1-O | -0.7011 | 0.04 | 1.535 : -1.535 | 0.038 : 0.038 |
| CLTR8020446T1 | -1.3740 | 0.05 | 1.381 : -1.381 | 0.0483 : 0.0483 |
| CLTR8020447T1 | -0.7467 | 0.04 | 1.9917 : -1.9917 | 0.0431 : 0.0431 |
| CLTR8020321T2-M | -1.2155 | 0.04 | 0.9677 : -0.9677 | 0.044 : 0.044 |
| CLTR8020322T2-M | 0.7042 | 0.04 | NA | NA |
| CLTR8020323T2-M | -0.2572 | 0.02 | -1.0948 : 1.0948 | 0.05 : 0.05 |
| CLTW8030219T2 | -0.3388 | 0.03 | -0.2922 : 0.2922 | 0.0393 : 0.0393 |
| CLTW8030212T1 | -0.2648 | 0.03 | 1.0117 : -1.0117 | 0.0361 : 0.0361 |
| CLTR8020445T1 | -0.2786 | 0.04 | NA | NA |
| CLTR8020210T1-R | -0.6614 | 0.06 | NA | NA |
| CLTR8020211T1-M | -0.4503 | 0.06 | NA | NA |
| CLTW8020212T1-M | -1.4828 | 0.06 | NA | NA |
| CLTR8040080T1 | -0.0307 | 0.04 | -0.8737 : 0.8737 | 0.0712 : 0.0712 |
| CLTR8040151T2 | -0.4291 | 0.04 | NA | NA |
| CLTW8040037T1 | -1.7813 | 0.07 | NA | NA |
| CLTR8030210T1-R | -0.6131 | 0.06 | NA | NA |
| CLTW8020260T2 | -0.1906 | 0.04 | -0.0382 : 0.0382 | 0.0565 : 0.0565 |
| CLTR8030207T2 | 0.1309 | 0.06 | NA | NA |
| CLTR8030208T2 | -0.3118 | 0.05 | 1.4943 : -1.4943 | 0.0542 : 0.0542 |
| CLTW8030209T2-R | -0.3173 | 0.06 | NA | NA |
| CLTR8020259T2 | -1.0014 | 0.05 | 0.904 : -0.904 | 0.0545 : 0.0545 |
| CLTR8040152T2 | -0.1641 | 0.06 | NA | NA |
| CLTW8040158T2 | -0.2878 | 0.05 | NA | NA |
| CLTR8040150T2 | 0.2580 | 0.03 | -0.4463 : 0.4463 | 0.0598 : 0.0598 |
| CLTR8040145T2 | 1.2234 | 0.06 | NA | NA |
| CLTR8040146T2 | -1.1841 | 0.07 | 0.9424 : -0.9424 | 0.0789 : 0.0789 |
| CLTW8040147T2 | -1.0882 | 0.07 | 1.1174 : -1.1174 | 0.0761 : 0.0761 |
| CLTR8020290T2 | -0.0189 | 0.06 | NA | NA |
| CLTR8020285T2-M | 0.6815 | 0.05 | NA | NA |
| CLTR8020286T2-M | 0.3964 | 0.05 | NA | NA |
| CLTW8020287T2-M | 1.2406 | 0.05 | NA | NA |
| CLTR8020072T3 | 0.8787 | 0.06 | NA | NA |
| CLTR8020439T3 | -0.1348 | 0.05 | 1.1866 : -1.1866 | 0.0528 : 0.0528 |
| CLTW8030129T3 | 0.0753 | 0.04 | 0.2544 : -0.2544 | 0.0523 : 0.0523 |
| CLTR8030223T2 | -0.4635 | 0.09 | NA | NA |
| CLTR8040148T2 | -0.7487 | 0.12 | 1.4778 : -1.4778 | 0.1304 : 0.1304 |
| CLTR8020066T3-M | 0.3599 | 0.07 | 1.4075 : -1.4075 | 0.0789 : 0.0789 |
| CLTR8020068T3-M | 0.5023 | 0.05 | -1.0476 : 1.0476 | 0.1076 : 0.1076 |
| CLTR8020067T3-M | 0.7505 | 0.08 | NA | NA |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTR8030120T3 | 0.8543 | 0.08 | NA | NA |
| CLTW8020069T3 | 1.0765 | 0.08 | NA | NA |
| CLTR8040214T3 | -0.8796 | 0.13 | 1.3095 : -1.3095 | 0.138 : 0.138 |
| CLTR8040215T3 | -0.4919 | 0.11 | 1.6939 : -1.6939 | 0.1171 : 0.1171 |
| CLTW8040216T3 | 0.3649 | 0.05 | 0.0361 : -0.0361 | 0.081 : 0.081 |
| CLTW8040220T3 | -1.7665 | 0.15 | NA | NA |
| CLTR8040090T1 | -0.8413 | 0.06 | NA | NA |
| CLTR8040091T1 | -1.3863 | 0.06 | 0.7063 : -0.7063 | 0.0739 : 0.0739 |
| CLTW8040092T1 | -1.0583 | 0.06 | 0.8485 : -0.8485 | 0.0638 : 0.0638 |
| CLTR8040219T3 | 0.0357 | 0.03 | -0.8336 : 0.8336 | 0.068 : 0.068 |
| CLTR8040142T2 | -1.1994 | 0.07 | NA | NA |
| CLTR8040144T2 | -0.7148 | 0.05 | 1.2528 : -1.2528 | 0.0601 : 0.0601 |
| CLTR8040143T2 | 0.3681 | 0.04 | 0.3916 : -0.3916 | 0.0549 : 0.0549 |
| CLTR8040217T3 | 0.2453 | 0.06 | NA | NA |
| CLTR8040218T3 | -0.1672 | 0.08 | NA | NA |
| CLTR8030125T1 | -0.9950 | 0.08 | 0.9372 : -0.9372 | 0.09 : 0.09 |
| CLTR8030126T1 | -1.2165 | 0.10 | NA | NA |
| CLTW8030127T1 | -1.1438 | 0.08 | 0.7264 : -0.7264 | 0.094 : 0.094 |

**Table 8.C.7 IRT Item Difficulty for ELA, Grade Eleven**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTRH020034T1 | -1.2786 | 0.05 | NA | NA |
| CLTRH020230T1 | -0.1901 | 0.04 | NA | NA |
| CLTRH020231T1 | -1.3156 | 0.05 | NA | NA |
| CLTWH020232T1 | -1.2782 | 0.05 | 1.4444 : -1.4444 | 0.0482 : 0.0482 |
| CLTRH020033T1 | -0.7680 | 0.05 | 1.8409 : -1.8409 | 0.0456 : 0.0456 |
| CLTRH020234T1 | -0.8520 | 0.03 | -0.7317 : 0.7317 | 0.0544 : 0.0544 |
| CLTRH020220T2 | -0.8357 | 0.05 | NA | NA |
| CLTRH020221T2 | 0.0512 | 0.04 | NA | NA |
| CLTWH020222T2 | -0.8664 | 0.04 | 1.1879 : -1.1879 | 0.0426 : 0.0426 |
| CLTWH020226T2 | -0.5926 | 0.04 | 1.5851 : -1.5851 | 0.0407 : 0.0407 |
| CLTRH020233T1 | -1.0806 | 0.08 | NA | NA |
| CLTWH020236T1 | -1.5476 | 0.07 | 1.3083 : -1.3083 | 0.0793 : 0.0793 |
| CLTRH020032T1-M | -0.0607 | 0.04 | 0.8504 : -0.8504 | 0.0396 : 0.0396 |
| CLTRH030038T1 | -0.1071 | 0.05 | -0.6841 : 0.6841 | 0.0959 : 0.0959 |
| CLTRH030037T1 | -0.5394 | 0.07 | 1.3852 : -1.3852 | 0.073 : 0.073 |
| CLTRH030036T1-R | -0.6395 | 0.08 | NA | NA |
| CLTRH040131T1 | -1.1302 | 0.07 | 1.2619 : -1.2619 | 0.0739 : 0.0739 |
| CLTRH040132T1 | -0.9282 | 0.06 | 1.0206 : -1.0206 | 0.071 : 0.071 |
| CLTWH040133T1 | -0.2914 | 0.08 | NA | NA |
| CLTRH020217T2 | -0.8429 | 0.07 | NA | NA |
| CLTRH020218T2 | -0.5160 | 0.07 | 1.7088 : -1.7088 | 0.0765 : 0.0765 |
| CLTWH020219T2 | 0.0011 | 0.08 | NA | NA |
| CLTRH020214T2 | -0.5888 | 0.05 | 0.5834 : -0.5834 | 0.0699 : 0.0699 |
| CLTWH040207T2 | -0.2398 | 0.05 | NA | NA |
| CLTWH040222T2 | -0.2963 | 0.08 | NA | NA |
| CLTWH030151T1 | 0.4047 | 0.05 | NA | NA |
| CLTRH040130T1 | -0.1258 | 0.06 | NA | NA |
| CLTRH040221T2 | -0.3976 | 0.06 | NA | NA |
| CLTRH040208T2 | -0.0488 | 0.04 | 0.9653 : -0.9653 | 0.0498 : 0.0498 |
| CLTRH040209T2 | -0.9805 | 0.05 | 0.6586 : -0.6586 | 0.0636 : 0.0636 |
| CLTWH040210T2 | 0.9602 | 0.06 | NA | NA |
| CLTRH020189T2 | -0.4560 | 0.04 | -1.3693 : 1.3693 | 0.0875 : 0.0875 |
| CLTRH020187T2 | 1.1892 | 0.06 | NA | NA |
| CLTRH020223T2 | 0.1116 | 0.05 | NA | NA |
| CLTRH020213T2 | 0.6112 | 0.06 | NA | NA |
| CLTWH030230T3 | 1.2837 | 0.06 | NA | NA |
| CLTRH040056T3 | -0.3124 | 0.04 | -1.0251 : 1.0251 | 0.0749 : 0.0749 |
| CLTWH040096T3 | 0.0670 | 0.05 | NA | NA |
| CLTRH030093T2 | -0.5727 | 0.13 | 1.1398 : -1.1398 | 0.1336 : 0.1336 |
| CLTRH030092T2 | 0.5422 | 0.08 | NA | NA |
| CLTRH030094T2 | 0.5242 | 0.06 | -0.7011 : 0.7011 | 0.1013 : 0.1013 |
| CLTRH020224T2 | 0.7639 | 0.05 | -1.013 : 1.013 | 0.1069 : 0.1069 |
| CLTRH040224T2 | -0.1969 | 0.12 | 1.7701 : -1.7701 | 0.1207 : 0.1207 |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTRH040225T2 | -0.8962 | 0.12 | NA | NA |
| CLTWH040226T2 | -0.1769 | 0.08 | 0.108 : -0.108 | 0.1088 : 0.1088 |
| CLTRH020278T3 | 2.2196 | 0.08 | NA | NA |
| CLTWH020433T3 | 1.3405 | 0.05 | 0.2872 : -0.2872 | 0.071 : 0.071 |
| CLTRH020266T3 | 1.5877 | 0.08 | NA | NA |
| CLTWH020268T3 | 1.6275 | 0.08 | NA | NA |
| CLTRH020267T3 | 0.7806 | 0.07 | 1.4915 : -1.4915 | 0.077 : 0.077 |
| CLTRH040054T3 | 0.9265 | 0.08 | NA | NA |
| CLTRH020275T3 | 0.6812 | 0.08 | NA | NA |
| CLTWH040137T1 | -1.1490 | 0.07 | NA | NA |
| CLTRH040206T2 | -1.0104 | 0.07 | 1.4123 : -1.4123 | 0.069 : 0.069 |
| CLTRH040223T2 | -0.8669 | 0.07 | NA | NA |
| CLTRH040205T2 | 0.7038 | 0.06 | NA | NA |
| CLTWH030052T1-R | -0.7944 | 0.07 | NA | NA |
| CLTRH020031T1 | -0.5027 | 0.07 | NA | NA |
| CLTWH030153T2-R | 0.0933 | 0.07 | NA | NA |
| CLTRH030152T2 | -0.6261 | 0.07 | NA | NA |
| CLTRH040134T1 | 0.3429 | 0.05 | -0.5222 : 0.5222 | 0.1004 : 0.1004 |
| CLTRH040135T1 | -0.1637 | 0.09 | NA | NA |
| CLTWH040136T1 | -0.8738 | 0.09 | 1.3775 : -1.3775 | 0.0976 : 0.0976 |
| CLTRH030229T3-R | 0.0468 | 0.09 | NA | NA |

**Table 8.C.8 IRT Item Difficulty for Mathematics, Grade Three**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM3020004T1 | -0.9779 | 0.04 | NA | NA |
| CLTM3020210T1 | -0.8992 | 0.04 | NA | NA |
| CLTM3020186T1 | -0.9952 | 0.04 | NA | NA |
| CLTM3030566T1 | -0.8739 | 0.04 | NA | NA |
| CLTM3020059T1 | -0.5946 | 0.04 | NA | NA |
| CLTM3020065T1 | -1.0350 | 0.04 | NA | NA |
| CLTM3020063T2 | -0.2444 | 0.02 | -1.3967 : 1.3967 | 0.0572 : 0.0572 |
| CLTM3030592T2 | 0.0178 | 0.03 | 1.4232 : -1.4232 | 0.0342 : 0.0342 |
| CLTM3020008T2 | 0.4500 | 0.04 | NA | NA |
| CLTM3020172T2 | 0.1946 | 0.02 | -0.3325 : 0.3325 | 0.0404 : 0.0404 |
| CLTM3020018T1 | -0.3327 | 0.09 | NA | NA |
| CLTM3181019T2 | 0.3369 | 0.08 | 0.8082 : -0.8082 | 0.1013 : 0.1013 |
| CLTM3030500T1 | -0.1922 | 0.05 | NA | NA |
| CLTM3020017T1 | -0.7523 | 0.09 | NA | NA |
| CLTM3030506T1 | -0.1349 | 0.09 | NA | NA |
| CLTM3020007T1 | 0.0848 | 0.05 | NA | NA |
| CLTM3020062T1 | -0.3502 | 0.05 | -1.9157 : 1.9157 | 0.1724 : 0.1724 |
| CLTM3020001T1 | -0.3565 | 0.05 | -1.0158 : 1.0158 | 0.1214 : 0.1214 |
| CLTM3180964T2 | 0.7474 | 0.09 | 0.2979 : -0.2979 | 0.1185 : 0.1185 |
| CLTM3030569T1 | -0.2178 | 0.06 | 0.2611 : -0.2611 | 0.0886 : 0.0886 |
| CLTM3180960T2 | 0.2349 | 0.10 | NA | NA |
| CLTM3030496T2-R | 0.0419 | 0.10 | NA | NA |
| CLTM3020060T2 | -0.0368 | 0.09 | NA | NA |
| CLTM3020010T1 | -0.1035 | 0.06 | -0.9646 : 0.9646 | 0.122 : 0.122 |
| CLTM3030578T1-R | -0.8594 | 0.09 | NA | NA |
| CLTM3020171T1 | 0.1875 | 0.04 | -0.3392 : 0.3392 | 0.0635 : 0.0635 |
| CLTM3030591T1 | -0.4250 | 0.04 | 0.9442 : -0.9442 | 0.0542 : 0.0542 |
| CLTM3020057T2 | -0.0125 | 0.06 | NA | NA |
| CLTM3020054T2 | 0.3581 | 0.04 | -1.4346 : 1.4346 | 0.0918 : 0.0918 |
| CLTM3020202T2 | 0.0486 | 0.06 | NA | NA |
| CLTM3030582T2 | -0.1575 | 0.04 | 0.4759 : -0.4759 | 0.0535 : 0.0535 |
| CLTM3030567T2 | 0.1322 | 0.06 | NA | NA |
| CLTM3030499T2 | 0.6077 | 0.05 | 0.9557 : -0.9557 | 0.0584 : 0.0584 |
| CLTM3030579T2 | 0.2620 | 0.06 | NA | NA |
| CLTM3020205T3 | 0.3277 | 0.06 | NA | NA |
| CLTM3020187T2 | 1.2470 | 0.07 | NA | NA |
| CLTM3030502T3 | 0.2082 | 0.06 | NA | NA |
| CLTM3020003T3 | -0.0464 | 0.03 | -1.4164 : 1.4164 | 0.0884 : 0.0884 |
| CLTM3020209T3 | 2.3584 | 0.07 | NA | NA |
| CLTM3020204T2 | 1.0812 | 0.05 | NA | NA |
| CLTM3030565T3 | 0.7878 | 0.05 | NA | NA |
| CLTM3020066T2 | -0.0417 | 0.06 | NA | NA |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM3020168T2 | 0.7680 | 0.06 | NA | NA |
| CLTM3030583T3 | 1.0742 | 0.05 | 1.7224 : -1.7224 | 0.0576 : 0.0576 |
| CLTM3181023T3 | 0.6404 | 0.04 | 0.908 : -0.908 | 0.0493 : 0.0493 |
| CLTM3020058T3 | 2.8350 | 0.09 | NA | NA |
| CLTM3020169T3 | 2.2633 | 0.08 | NA | NA |
| CLTM3020173T3 | 0.7618 | 0.03 | -1.0944 : 1.0944 | 0.0731 : 0.0731 |
| CLTM3030574T3-R | 0.6458 | 0.04 | -0.647 : 0.647 | 0.0621 : 0.0621 |
| CLTM3030590T2 | 1.2947 | 0.04 | 0.8802 : -0.8802 | 0.0547 : 0.0547 |
| CLTM3030710T3 | 1.2512 | 0.04 | 0.6043 : -0.6043 | 0.0541 : 0.0541 |
| CLTM3020175T2 | 0.7803 | 0.05 | NA | NA |
| CLTM3020203T3 | 1.2403 | 0.06 | NA | NA |
| CLTM3030497T3-R | 2.5023 | 0.11 | NA | NA |
| CLTM3180958T1 | -0.2453 | 0.07 | NA | NA |
| CLTM3181018T2 | 0.2299 | 0.05 | 0.2348 : -0.2348 | 0.067 : 0.067 |
| CLTM3180887T1 | -0.8950 | 0.08 | NA | NA |
| CLTM3180889T3 | 0.2240 | 0.08 | NA | NA |
| CLTM3181024T1 | -0.2343 | 0.08 | NA | NA |
| CLTM3180961T2 | -0.4038 | 0.09 | NA | NA |
| CLTM3180890T1 | -0.4166 | 0.08 | NA | NA |
| CLTM3181020T3 | 0.5898 | 0.07 | 1.4924 : -1.4924 | 0.0847 : 0.0847 |
| CLTM3030501T2-R | 0.4706 | 0.09 | NA | NA |
| CLTM3180963T1 | -0.2796 | 0.06 | 0.6419 : -0.6419 | 0.0798 : 0.0798 |
| CLTM3180891T2 | 1.0145 | 0.09 | NA | NA |
| CLTM3180957T1 | -0.5745 | 0.08 | NA | NA |
| CLTM3180884T1 | -0.6030 | 0.06 | 0.3539 : -0.3539 | 0.0838 : 0.0838 |
| CLTM3180888T2 | 0.1641 | 0.08 | NA | NA |
| CLTM3180886T2 | 0.9677 | 0.07 | 0.5664 : -0.5664 | 0.0889 : 0.0889 |
| CLTM3180962T3 | 0.7078 | 0.06 | 0.3652 : -0.3652 | 0.0847 : 0.0847 |
| CLTM3180959T1 | -0.0841 | 0.08 | NA | NA |
| CLTM3180885T2 | 0.1985 | 0.05 | -0.8628 : 0.8628 | 0.1065 : 0.1065 |
| CLTM3030563T1-R | 0.4549 | 0.08 | NA | NA |

**Table 8.C.9 IRT Item Difficulty for Mathematics, Grade Four**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM4020255T1 | -1.4787 | 0.04 | NA | NA |
| CLTM4030475T1 | -1.4725 | 0.04 | 0.9798 : -0.9798 | 0.0462 : 0.0462 |
| CLTM4030481T1 | -0.8915 | 0.04 | NA | NA |
| CLTM4020246T1 | -0.8350 | 0.04 | NA | NA |
| CLTM4020177T1 | -0.6833 | 0.03 | 1.2203 : -1.2203 | 0.0351 : 0.0351 |
| CLTM4020189T1 | -0.4436 | 0.04 | NA | NA |
| CLTM4030612T1 | -1.4449 | 0.04 | 1.1306 : -1.1306 | 0.0474 : 0.0474 |
| CLTM4030484T1 | 0.1219 | 0.02 | -0.1986 : 0.1986 | 0.0366 : 0.0366 |
| CLTM4030482T2 | -0.2978 | 0.04 | NA | NA |
| CLTM4020178T2 | -0.0930 | 0.02 | 0.1533 : -0.1533 | 0.0339 : 0.0339 |
| CLTM4030490T1 | -0.2218 | 0.06 | NA | NA |
| CLTM4181003T2 | 0.3212 | 0.06 | 1.2365 : -1.2365 | 0.0666 : 0.0666 |
| CLTM4020170T1 | 0.0333 | 0.03 | -0.3069 : 0.3069 | 0.0403 : 0.0403 |
| CLTM4180848T1 | -0.5668 | 0.06 | NA | NA |
| CLTM4180852T1 | -0.5298 | 0.06 | NA | NA |
| CLTM4020252T1 | -0.6998 | 0.06 | NA | NA |
| CLTM4020237T1 | -0.6409 | 0.06 | NA | NA |
| CLTM4020231T1 | -0.2709 | 0.05 | 1.4509 : -1.4509 | 0.0608 : 0.0608 |
| CLTM4030613T2 | -0.3937 | 0.04 | 0.111 : -0.111 | 0.0612 : 0.0612 |
| CLTM4030650T1 | -0.6668 | 0.03 | 0.2989 : -0.2989 | 0.0397 : 0.0397 |
| CLTM4180850T2 | 0.4004 | 0.07 | NA | NA |
| CLTM4180854T2 | 0.2802 | 0.06 | NA | NA |
| CLTM4030494T2 | -0.2433 | 0.04 | 0.435 : -0.435 | 0.0576 : 0.0576 |
| CLTM4020219T1 | -0.3875 | 0.06 | NA | NA |
| CLTM4030476T2 | -0.1355 | 0.04 | -0.9089 : 0.9089 | 0.0792 : 0.0792 |
| CLTM4020253T2 | 0.6537 | 0.05 | NA | NA |
| CLTM4020247T2 | 0.2309 | 0.05 | NA | NA |
| CLTM4030668T1 | 0.5824 | 0.05 | NA | NA |
| CLTM4020244T2 | 1.3955 | 0.05 | NA | NA |
| CLTM4020250T2 | 0.0425 | 0.04 | 1.5291 : -1.5291 | 0.0472 : 0.0472 |
| CLTM4180853T2 | 1.2014 | 0.05 | NA | NA |
| CLTM4030616T2-R | 0.5131 | 0.05 | NA | NA |
| CLTM4030479T2 | 0.4576 | 0.03 | 0.2659 : -0.2659 | 0.047 : 0.047 |
| CLTM4020230T3 | 0.5525 | 0.03 | 1.1349 : -1.1349 | 0.0404 : 0.0404 |
| CLTM4020238T2 | 0.7842 | 0.05 | NA | NA |
| CLTM4020221T3 | 0.4971 | 0.05 | NA | NA |
| CLTM4020212T3 | 0.5779 | 0.04 | 1.2105 : -1.2105 | 0.0473 : 0.0473 |
| CLTM4180849T2 | -0.0956 | 0.05 | NA | NA |
| CLTM4030491T2 | 1.0244 | 0.09 | NA | NA |
| CLTM4020239T3 | 1.2266 | 0.09 | NA | NA |
| CLTM4030669T2 | 1.0934 | 0.09 | NA | NA |
| CLTM4181004T3 | 1.4996 | 0.08 | 0.6739 : -0.6739 | 0.0932 : 0.0932 |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM4020190T2 | 0.6780 | 0.09 | NA | NA |
| CLTM4020233T3 | 0.8442 | 0.06 | -0.1581 : 0.1581 | 0.0923 : 0.0923 |
| CLTM4030617T3-R | 0.7795 | 0.09 | NA | NA |
| CLTM4030492T3-R | 0.8607 | 0.09 | NA | NA |
| CLTM4020224T3 | 1.7623 | 0.09 | 1.1049 : -1.1049 | 0.1007 : 0.1007 |
| CLTM4030672T2 | 0.3240 | 0.09 | 1.968 : -1.968 | 0.0993 : 0.0993 |
| CLTM4020194T3 | 1.0519 | 0.09 | NA | NA |
| CLTM4020229T2 | 0.6025 | 0.07 | 0.933 : -0.933 | 0.0842 : 0.0842 |
| CLTM4020245T3 | 0.8742 | 0.09 | NA | NA |
| CLTM4180855T3 | 3.3489 | 0.17 | NA | NA |
| CLTM4181000T1 | 0.2107 | 0.07 | NA | NA |
| CLTM4181010T2 | 0.6963 | 0.05 | 0.2975 : -0.2975 | 0.0733 : 0.0733 |
| CLTM4180857T2 | -0.3882 | 0.07 | NA | NA |
| CLTM4180851T3 | 1.8148 | 0.10 | NA | NA |
| CLTM4181002T1 | -1.1815 | 0.09 | 1.256 : -1.256 | 0.0974 : 0.0974 |
| CLTM4180858T2 | -0.3349 | 0.08 | NA | NA |
| CLTM4181027T2 | -0.1316 | 0.05 | -0.4917 : 0.4917 | 0.092 : 0.092 |
| CLTM4181035T3 | 0.3204 | 0.08 | NA | NA |
| CLTM4181032T2 | 0.6780 | 0.06 | 0.9689 : -0.9689 | 0.0803 : 0.0803 |
| CLTM4181005T1 | -0.3523 | 0.06 | 0.5811 : -0.5811 | 0.0765 : 0.0765 |
| CLTM4030649T3-R | 0.4241 | 0.08 | NA | NA |
| CLTM4030652T3-R | 0.4356 | 0.06 | 0.5913 : -0.5913 | 0.075 : 0.075 |
| CLTM4181031T1 | 0.2297 | 0.06 | 1.0033 : -1.0033 | 0.0727 : 0.0727 |
| CLTM4030648T2-R | 1.3491 | 0.09 | NA | NA |
| CLTM4181006T2 | 0.9989 | 0.07 | 1.1114 : -1.1114 | 0.0861 : 0.0861 |
| CLTM4030670T3-R | 1.4880 | 0.09 | NA | NA |
| CLTM4181030T1 | 0.0976 | 0.04 | -1.5032 : 1.5032 | 0.1274 : 0.1274 |
| CLTM4181009T2 | 0.5628 | 0.06 | 0.7106 : -0.7106 | 0.0769 : 0.0769 |
| CLTM4030673T3-R | 0.1274 | 0.06 | 1.044 : -1.044 | 0.0732 : 0.0732 |

**Table 8.C.10 IRT Item Difficulty for Mathematics, Grade Five**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM5030609T1 | -1.4594 | 0.04 | NA | NA |
| CLTM5020180T1 | -1.2752 | 0.04 | NA | NA |
| CLTM5020338T1 | -1.0109 | 0.03 | 0.8521 : -0.8521 | 0.0398 : 0.0398 |
| CLTM5030557T1 | -0.6594 | 0.04 | NA | NA |
| CLTM5030458T1 | -0.5385 | 0.03 | 0.8426 : -0.8426 | 0.0347 : 0.0347 |
| CLTM5020184T2 | 0.1833 | 0.02 | -0.2761 : 0.2761 | 0.0374 : 0.0374 |
| CLTM5020268T2 | 0.4364 | 0.03 | 0.7028 : -0.7028 | 0.0328 : 0.0328 |
| CLTM5030456T2 | 0.7870 | 0.04 | NA | NA |
| CLTM5020258T1 | -0.0297 | 0.04 | NA | NA |
| CLTM5020352T2 | -0.2908 | 0.02 | -1.6644 : 1.6644 | 0.0619 : 0.0619 |
| CLTM5030463T1 | -0.3079 | 0.05 | 0.3077 : -0.3077 | 0.0708 : 0.0708 |
| CLTM5180906T2 | 0.4824 | 0.08 | NA | NA |
| CLTM5030676T1 | 0.0171 | 0.07 | 1.4963 : -1.4963 | 0.0799 : 0.0799 |
| CLTM5020165T1 | -0.3983 | 0.08 | NA | NA |
| CLTM5020404T1 | -0.2221 | 0.04 | NA | NA |
| CLTM5020357T1 | -0.3072 | 0.06 | 0.7229 : -0.7229 | 0.0728 : 0.0728 |
| CLTM5020354T1 | -0.3936 | 0.08 | NA | NA |
| CLTM5180907T2 | 0.0714 | 0.08 | NA | NA |
| CLTM5020183T1 | -0.5552 | 0.05 | 0.5197 : -0.5197 | 0.0722 : 0.0722 |
| CLTM5020341T2 | 0.1358 | 0.05 | -1.2918 : 1.2918 | 0.1217 : 0.1217 |
| CLTM5020262T2 | 0.5978 | 0.09 | NA | NA |
| CLTM5020345T1 | -0.3222 | 0.07 | NA | NA |
| CLTM5181015T2 | 0.3176 | 0.06 | 0.2652 : -0.2652 | 0.0821 : 0.0821 |
| CLTM5030707T1-R | -0.0364 | 0.05 | -1.5936 : 1.5936 | 0.1311 : 0.1311 |
| CLTM5030610T2 | -0.0649 | 0.08 | NA | NA |
| CLTM5030561T2-R | 0.5872 | 0.05 | NA | NA |
| CLTM5030465T3 | -0.5029 | 0.05 | 1.6285 : -1.6285 | 0.0533 : 0.0533 |
| CLTM5030464T2 | -0.0836 | 0.04 | 1.3902 : -1.3902 | 0.0483 : 0.0483 |
| CLTM5020215T3 | 1.7924 | 0.07 | NA | NA |
| CLTM5020358T2 | 0.3128 | 0.03 | -1.0037 : 1.0037 | 0.0658 : 0.0658 |
| CLTM5030576T2 | 0.1547 | 0.04 | 0.9837 : -0.9837 | 0.0458 : 0.0458 |
| CLTM5180968T2 | 1.3572 | 0.06 | NA | NA |
| CLTM5020265T2 | 0.3524 | 0.05 | NA | NA |
| CLTM5020355T2 | 0.9625 | 0.05 | NA | NA |
| CLTM5020361T2 | 0.4941 | 0.05 | NA | NA |
| CLTM5030575T1 | 0.0666 | 0.03 | 0.5199 : -0.5199 | 0.0459 : 0.0459 |
| CLTM5180912T2 | 0.1222 | 0.05 | NA | NA |
| CLTM5020359T3 | -0.1878 | 0.03 | 0.5304 : -0.5304 | 0.0466 : 0.0466 |
| CLTM5030607T2 | -0.0171 | 0.04 | 0.8715 : -0.8715 | 0.0454 : 0.0454 |
| CLTM5030708T2 | 0.7295 | 0.04 | 0.5046 : -0.5046 | 0.0587 : 0.0587 |
| CLTM5181014T3 | 0.8444 | 0.06 | NA | NA |
| CLTM5020346T2 | 0.8444 | 0.07 | NA | NA |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM5020347T3 | 1.2528 | 0.07 | NA | NA |
| CLTM5020343T2 | 1.6823 | 0.07 | NA | NA |
| CLTM5020181T2 | 1.1193 | 0.07 | NA | NA |
| CLTM5020356T3 | 0.8444 | 0.06 | NA | NA |
| CLTM5030577T3 | 0.5125 | 0.04 | -0.1233 : 0.1233 | 0.0639 : 0.0639 |
| CLTM5020344T3 | 1.0721 | 0.06 | NA | NA |
| CLTM5030678T3 | 0.6117 | 0.04 | -0.3255 : 0.3255 | 0.0668 : 0.0668 |
| CLTM5030709T3 | 0.3906 | 0.05 | 0.6927 : -0.6927 | 0.0586 : 0.0586 |
| CLTM5020259T2 | 0.8533 | 0.06 | NA | NA |
| CLTM5180915T3 | 1.7712 | 0.06 | 0.7171 : -0.7171 | 0.0731 : 0.0731 |
| CLTM5020266T3 | 1.9307 | 0.08 | NA | NA |
| CLTM5030462T2 | 1.0274 | 0.05 | 0.722 : -0.722 | 0.0594 : 0.0594 |
| CLTM5180909T2 | 1.1307 | 0.06 | 0.6967 : -0.6967 | 0.0801 : 0.0801 |
| CLTM5030558T2-R | 1.3346 | 0.08 | NA | NA |
| CLTM5180971T1 | -0.1125 | 0.05 | 0.5674 : -0.5674 | 0.0671 : 0.0671 |
| CLTM5180905T1 | 0.0368 | 0.07 | NA | NA |
| CLTM5020349T2-R | 1.0000 | 0.08 | NA | NA |
| CLTM5181016T3 | 0.9852 | 0.07 | 0.877 : -0.877 | 0.0832 : 0.0832 |
| CLTM5180970T1 | 0.1908 | 0.07 | NA | NA |
| CLTM5180821T2 | 0.8611 | 0.06 | 0.6368 : -0.6368 | 0.0808 : 0.0808 |
| CLTM5180818T1 | -0.9884 | 0.07 | 0.5005 : -0.5005 | 0.0885 : 0.0885 |
| CLTM5030559T3-R | 2.5154 | 0.13 | NA | NA |
| CLTM5180908T2 | 0.7900 | 0.06 | 0.484 : -0.484 | 0.081 : 0.081 |
| CLTM5030455T1-R | -0.8488 | 0.09 | NA | NA |
| CLTM5180911T1 | -0.6005 | 0.08 | NA | NA |
| CLTM5180824T3 | 0.3188 | 0.08 | NA | NA |
| CLTM5180819T2 | 0.7038 | 0.06 | 0.539 : -0.539 | 0.081 : 0.081 |
| CLTM5180910T1 | -0.1779 | 0.08 | NA | NA |
| CLTM5180904T1 | 0.0811 | 0.08 | NA | NA |
| CLTM5180967T2 | 1.0659 | 0.09 | NA | NA |
| CLTM5180972T3 | 0.6814 | 0.05 | -0.2106 : 0.2106 | 0.0875 : 0.0875 |
| CLTM5180822T1 | -0.2961 | 0.07 | 1.2713 : -1.2713 | 0.0771 : 0.0771 |

**Table 8.C.11 IRT Item Difficulty for Mathematics, Grade Six**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM6020284T1 | -0.6716 | 0.04 | NA | NA |
| CLTM6020198T1 | -0.5597 | 0.04 | NA | NA |
| CLTM6020293T1 | -0.5033 | 0.04 | NA | NA |
| CLTM6030685T1 | -0.7010 | 0.04 | NA | NA |
| CLTM6020427T1 | -0.5059 | 0.04 | NA | NA |
| CLTM6020287T1 | -0.2983 | 0.02 | -1.2464 : 1.2464 | 0.0515 : 0.0515 |
| CLTM6020314T1 | 0.2314 | 0.02 | -0.401 : 0.401 | 0.0406 : 0.0406 |
| CLTM6030683T2 | -0.0033 | 0.04 | NA | NA |
| CLTM6020285T2 | -0.1223 | 0.04 | NA | NA |
| CLTM6020364T2 | 0.3370 | 0.02 | -0.2488 : 0.2488 | 0.0399 : 0.0399 |
| CLTM6180894T2 | 0.4639 | 0.04 | NA | NA |
| CLTM6030618T1 | -0.2976 | 0.03 | -1.5438 : 1.5438 | 0.0907 : 0.0907 |
| CLTM6030621T1 | -0.3412 | 0.06 | NA | NA |
| CLTM6020320T1 | 0.0506 | 0.06 | NA | NA |
| CLTM6030598T1 | 0.2456 | 0.06 | NA | NA |
| CLTM6030472T1 | -0.1622 | 0.06 | NA | NA |
| CLTM6020051T2 | 0.0892 | 0.02 | -1.3253 : 1.3253 | 0.0522 : 0.0522 |
| CLTM6020433T2 | 0.0526 | 0.03 | -0.7319 : 0.7319 | 0.0698 : 0.0698 |
| CLTM6030682T1 | -0.4555 | 0.06 | NA | NA |
| CLTM6030599T2 | 0.1408 | 0.03 | NA | NA |
| CLTM6020291T2 | -0.1192 | 0.03 | -1.4373 : 1.4373 | 0.0875 : 0.0875 |
| CLTM6020097T1 | 0.1905 | 0.04 | NA | NA |
| CLTM6020425T2 | 0.2483 | 0.06 | NA | NA |
| CLTM6030469T1 | -0.2833 | 0.03 | 0.0353 : -0.0353 | 0.0544 : 0.0544 |
| CLTM6020037T1 | -0.3178 | 0.05 | NA | NA |
| CLTM6030637T3 | 0.3340 | 0.05 | NA | NA |
| CLTM6030686T2-R | -0.0190 | 0.05 | NA | NA |
| CLTM6030602T2 | 0.7412 | 0.04 | 0.469 : -0.469 | 0.0544 : 0.0544 |
| CLTM6020094T1 | 0.5479 | 0.04 | 1.1343 : -1.1343 | 0.0531 : 0.0531 |
| CLTM6180988T2 | -0.0959 | 0.06 | NA | NA |
| CLTM6020200T3 | 0.0851 | 0.05 | NA | NA |
| CLTM6180989T2 | 0.0089 | 0.05 | NA | NA |
| CLTM6030473T2 | 1.0208 | 0.06 | NA | NA |
| CLTM6030619T2 | 0.8047 | 0.04 | 0.4071 : -0.4071 | 0.0555 : 0.0555 |
| CLTM6020367T2 | 0.9326 | 0.05 | 0.8465 : -0.8465 | 0.0575 : 0.0575 |
| CLTM6030635T1 | 0.0889 | 0.05 | NA | NA |
| CLTM6020039T3 | 0.9922 | 0.05 | 0.6373 : -0.6373 | 0.0681 : 0.0681 |
| CLTM6020199T2 | 0.0317 | 0.08 | NA | NA |
| CLTM6030622T2 | 0.2054 | 0.07 | NA | NA |
| CLTM6020099T3 | 2.1394 | 0.08 | NA | NA |
| CLTM6020368T3 | 0.7862 | 0.05 | 0.2843 : -0.2843 | 0.0687 : 0.0687 |
| CLTM6020434T3 | 0.5477 | 0.04 | -0.8898 : 0.8898 | 0.0918 : 0.0918 |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM6020295T3 | 1.1014 | 0.08 | NA | NA |
| CLTM6030687T3 | 0.8035 | 0.07 | NA | NA |
| CLTM6030603T3 | 0.7507 | 0.05 | 0.6571 : -0.6571 | 0.0672 : 0.0672 |
| CLTM6020322T3 | 1.6630 | 0.08 | NA | NA |
| CLTM6020041T2 | 0.5282 | 0.08 | NA | NA |
| CLTM6020289T3 | 0.7564 | 0.04 | -0.3607 : 0.3607 | 0.0787 : 0.0787 |
| CLTM6180981T1 | -0.3846 | 0.05 | 0.1647 : -0.1647 | 0.0715 : 0.0715 |
| CLTM6180893T2 | -0.0160 | 0.07 | NA | NA |
| CLTM6180898T1 | -0.8342 | 0.08 | NA | NA |
| CLTM6180901T3 | -0.0072 | 0.05 | 0.5913 : -0.5913 | 0.0667 : 0.0667 |
| CLTM6180832T2 | -0.0245 | 0.08 | NA | NA |
| CLTM6180835T2 | 0.0961 | 0.08 | NA | NA |
| CLTM6180899T2 | 1.1051 | 0.08 | 0.8838 : -0.8838 | 0.0906 : 0.0906 |
| CLTM6180836T2 | 0.3225 | 0.08 | NA | NA |
| CLTM6180986T1 | -0.3822 | 0.08 | NA | NA |
| CLTM6180979T2 | 0.8553 | 0.06 | 0.4396 : -0.4396 | 0.0779 : 0.0779 |
| CLTM6180897T2 | 0.4553 | 0.07 | NA | NA |
| CLTM6180903T2 | 0.5914 | 0.08 | NA | NA |
| CLTM6030636T2-R | 0.2277 | 0.08 | NA | NA |
| CLTM6180896T1 | -0.4782 | 0.08 | NA | NA |
| CLTM6180985T2 | 0.7806 | 0.08 | NA | NA |
| CLTM6180987T1 | -0.0165 | 0.06 | 1.0309 : -1.0309 | 0.074 : 0.074 |
| CLTM6180983T1 | 0.0760 | 0.05 | 0.3831 : -0.3831 | 0.0752 : 0.0752 |
| CLTM6180978T3 | 0.4479 | 0.08 | NA | NA |
| CLTM6180984T1 | -0.5665 | 0.08 | NA | NA |
| CLTM6180980T2 | -0.2138 | 0.06 | 0.3385 : -0.3385 | 0.0773 : 0.0773 |

**Table 8.C.12 IRT Item Difficulty for Mathematics, Grade Seven**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM7020050T1 | -1.4418 | 0.04 | NA | NA |
| CLTM7030688T1 | -0.8009 | 0.04 | NA | NA |
| CLTM7020085T1 | -0.6483 | 0.04 | NA | NA |
| CLTM7020280T1 | -1.0960 | 0.04 | NA | NA |
| CLTM7020047T1 | -0.5086 | 0.02 | -1.2134 : 1.2134 | 0.0522 : 0.0522 |
| CLTM7020091T1 | -0.5635 | 0.02 | -2.3832 : 2.3832 | 0.0868 : 0.0868 |
| CLTM7020299T1 | -0.6127 | 0.04 | NA | NA |
| CLTM7020089T2 | 0.0726 | 0.03 | 1.67 : -1.67 | 0.0342 : 0.0342 |
| CLTM7020048T2 | -0.1126 | 0.02 | -0.1971 : 0.1971 | 0.0355 : 0.0355 |
| CLTM7020092T2 | -0.4549 | 0.02 | -2.6586 : 2.6586 | 0.0974 : 0.0974 |
| CLTM7020034T1 | -0.7756 | 0.09 | NA | NA |
| CLTM7030522T2 | 0.2734 | 0.04 | 1.4617 : -1.4617 | 0.0487 : 0.0487 |
| CLTM7030691T1 | -0.6009 | 0.09 | NA | NA |
| CLTM7020323T1 | -0.0081 | 0.09 | NA | NA |
| CLTM7020329T1 | -0.2081 | 0.05 | -1.5747 : 1.5747 | 0.1523 : 0.1523 |
| CLTM7020296T1 | -0.5298 | 0.09 | NA | NA |
| CLTM7020369T1 | -0.7237 | 0.09 | NA | NA |
| CLTM7020419T2 | 0.6208 | 0.03 | 0.2262 : -0.2262 | 0.0351 : 0.0351 |
| CLTM7020327T2 | -0.1970 | 0.06 | -0.2957 : 0.2957 | 0.0999 : 0.0999 |
| CLTM7030515T1 | -0.4040 | 0.06 | 0.2451 : -0.2451 | 0.0876 : 0.0876 |
| CLTM7020086T2 | -0.1055 | 0.09 | NA | NA |
| CLTM7030512T1 | -0.1013 | 0.06 | 0.2625 : -0.2625 | 0.0921 : 0.0921 |
| CLTM7030585T2 | 0.6157 | 0.04 | 1.6139 : -1.6139 | 0.0447 : 0.0447 |
| CLTM7030518T1 | -0.4990 | 0.05 | -1.3437 : 1.3437 | 0.1344 : 0.1344 |
| CLTM7020330T2 | 0.0909 | 0.06 | -0.6922 : 0.6922 | 0.1148 : 0.1148 |
| CLTM7030653T1 | -0.1772 | 0.06 | NA | NA |
| CLTM7030509T1 | -0.3530 | 0.04 | 0.1657 : -0.1657 | 0.0526 : 0.0526 |
| CLTM7020297T2 | 0.3069 | 0.06 | NA | NA |
| CLTM7020418T1 | 0.0057 | 0.03 | -0.3329 : 0.3329 | 0.0588 : 0.0588 |
| CLTM7030516T2 | 0.4941 | 0.04 | 0.607 : -0.607 | 0.0553 : 0.0553 |
| CLTM7030519T2 | 0.8349 | 0.03 | 0.3965 : -0.3965 | 0.039 : 0.039 |
| CLTM7020300T2 | 0.6872 | 0.06 | NA | NA |
| CLTM7020328T3 | 0.0660 | 0.05 | 1.4569 : -1.4569 | 0.0544 : 0.0544 |
| CLTM7020282T2 | 0.4208 | 0.04 | 0.2796 : -0.2796 | 0.0553 : 0.0553 |
| CLTM7020298T3 | 0.6031 | 0.04 | NA | NA |
| CLTM7030510T2 | 0.1749 | 0.04 | 0.5125 : -0.5125 | 0.052 : 0.052 |
| CLTM7020451T3 | 1.1140 | 0.06 | NA | NA |
| CLTM7020324T2 | 0.5738 | 0.06 | NA | NA |
| CLTM7020093T3 | 0.8798 | 0.04 | 0.3473 : -0.3473 | 0.0484 : 0.0484 |
| CLTM7030705T2 | 1.0622 | 0.05 | NA | NA |
| CLTM7020373T2 | 0.6068 | 0.04 | 0.9259 : -0.9259 | 0.0467 : 0.0467 |
| CLTM7020423T3 | 1.1556 | 0.05 | NA | NA |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM7030589T3 | 1.0448 | 0.05 | NA | NA |
| CLTM7020371T3 | 1.1413 | 0.05 | NA | NA |
| CLTM7020035T2 | 0.2080 | 0.05 | NA | NA |
| CLTM7030514T3 | 0.6079 | 0.04 | 0.927 : -0.927 | 0.0463 : 0.0463 |
| CLTM7030586T3 | 0.9249 | 0.04 | 0.612 : -0.612 | 0.0475 : 0.0475 |
| CLTM7020331T3 | 0.6921 | 0.04 | 1.1464 : -1.1464 | 0.0474 : 0.0474 |
| CLTM7020036T3 | 2.4216 | 0.08 | NA | NA |
| CLTM7180846T3 | -0.6477 | 0.07 | 1.2446 : -1.2446 | 0.0769 : 0.0769 |
| CLTM7030587T1-R | -1.2272 | 0.09 | NA | NA |
| CLTM7180937T1 | 0.0963 | 0.05 | 0.5058 : -0.5058 | 0.0692 : 0.0692 |
| CLTM7180994T2 | -0.3887 | 0.06 | 0.5217 : -0.5217 | 0.0723 : 0.0723 |
| CLTM7030704T1-R | -0.6689 | 0.08 | NA | NA |
| CLTM7180997T2 | 1.0480 | 0.06 | 0.2575 : -0.2575 | 0.0907 : 0.0907 |
| CLTM7180996T2 | 0.1998 | 0.08 | NA | NA |
| CLTM7180927T1 | -0.1631 | 0.05 | -0.1273 : 0.1273 | 0.0826 : 0.0826 |
| CLTM7180932T2 | -0.0404 | 0.05 | -0.2296 : 0.2296 | 0.0775 : 0.0775 |
| CLTM7030696T3-R | 2.2495 | 0.11 | NA | NA |
| CLTM7180951T1 | -0.1246 | 0.05 | 0.6935 : -0.6935 | 0.0679 : 0.0679 |
| CLTM7180993T1 | -0.1935 | 0.05 | -0.0199 : 0.0199 | 0.0755 : 0.0755 |
| CLTM7180933T2 | 0.1883 | 0.05 | -0.2055 : 0.2055 | 0.0802 : 0.0802 |
| CLTM7180928T1 | -0.4938 | 0.07 | NA | NA |
| CLTM7180953T2 | 0.4972 | 0.07 | 1.7341 : -1.7341 | 0.0795 : 0.0795 |
| CLTM7030511T3-R | 0.1158 | 0.06 | 1.1561 : -1.1561 | 0.0716 : 0.0716 |
| CLTM7180949T1 | -0.2975 | 0.05 | 0.1103 : -0.1103 | 0.0793 : 0.0793 |
| CLTM7180935T2 | 2.3358 | 0.13 | NA | NA |
| CLTM7180952T2 | -0.1418 | 0.07 | 1.5575 : -1.5575 | 0.0776 : 0.0776 |
| CLTM7180995T3 | 0.2398 | 0.06 | 0.6491 : -0.6491 | 0.0736 : 0.0736 |

**Table 8.C.13 IRT Item Difficulty for Mathematics, Grade Eight**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM8020332T1 | -1.5089 | 0.04 | NA | NA |
| CLTM8030638T1 | -1.1554 | 0.04 | NA | NA |
| CLTM8020302T1 | -0.8641 | 0.04 | NA | NA |
| CLTM8020028T1 | -0.8075 | 0.03 | 0.776 : -0.776 | 0.0367 : 0.0367 |
| CLTM8030530T1 | 0.0101 | 0.02 | -0.9836 : 0.9836 | 0.0464 : 0.0464 |
| CLTM8030536T2 | 0.1090 | 0.02 | 0.1306 : -0.1306 | 0.0334 : 0.0334 |
| CLTM8020305T1 | 0.1774 | 0.02 | -0.9424 : 0.9424 | 0.0456 : 0.0456 |
| CLTM8020416T2 | 0.6049 | 0.03 | 0.8463 : -0.8463 | 0.0335 : 0.0335 |
| CLTM8020277T1 | 0.0154 | 0.02 | -0.5978 : 0.5978 | 0.0425 : 0.0425 |
| CLTM8030539T2 | 0.0353 | 0.03 | 0.6033 : -0.6033 | 0.0321 : 0.0321 |
| CLTM8020079T1 | -0.7751 | 0.09 | NA | NA |
| CLTM8020278T1 | -0.6044 | 0.09 | NA | NA |
| CLTM8030535T1 | -0.5980 | 0.05 | -1.8532 : 1.8532 | 0.1709 : 0.1709 |
| CLTM8030528T2 | -0.1366 | 0.03 | 0.8701 : -0.8701 | 0.0398 : 0.0398 |
| CLTM8030697T1 | -0.3633 | 0.09 | NA | NA |
| CLTM8030659T1 | -0.6245 | 0.09 | NA | NA |
| CLTM8180880T2 | 0.5718 | 0.10 | NA | NA |
| CLTM8020378T1 | -0.4215 | 0.05 | -2.1377 : 2.1377 | 0.1902 : 0.1902 |
| CLTM8180817T2 | 0.1622 | 0.04 | NA | NA |
| CLTM8020412T1 | -0.6267 | 0.09 | NA | NA |
| CLTM8020388T1 | -0.3786 | 0.09 | NA | NA |
| CLTM8180975T2 | -0.3401 | 0.04 | NA | NA |
| CLTM8030538T1 | -0.4858 | 0.05 | -1.9318 : 1.9318 | 0.1716 : 0.1716 |
| CLTM8020029T2 | -0.3076 | 0.06 | 0.3513 : -0.3513 | 0.0857 : 0.0857 |
| CLTM8180860T1 | -0.1049 | 0.09 | NA | NA |
| CLTM8030527T1 | -0.1265 | 0.03 | -0.5918 : 0.5918 | 0.0585 : 0.0585 |
| CLTM8030624T1 | -0.1894 | 0.05 | NA | NA |
| CLTM8020390T3 | 1.7107 | 0.07 | NA | NA |
| CLTM8020026T2 | 0.2486 | 0.05 | NA | NA |
| CLTM8020379T2 | 1.2565 | 0.05 | 0.5941 : -0.5941 | 0.0633 : 0.0633 |
| CLTM8030663T2 | 0.5942 | 0.05 | NA | NA |
| CLTM8020083T2 | 0.2403 | 0.05 | NA | NA |
| CLTM8030698T2 | 0.2564 | 0.04 | NA | NA |
| CLTM8020030T3 | 0.3850 | 0.04 | 0.4573 : -0.4573 | 0.0478 : 0.0478 |
| CLTM8020415T1 | -0.1267 | 0.03 | -0.6888 : 0.6888 | 0.061 : 0.061 |
| CLTM8020084T3 | 0.2806 | 0.05 | NA | NA |
| CLTM8020080T2 | 0.5293 | 0.04 | 0.7795 : -0.7795 | 0.0486 : 0.0486 |
| CLTM8020307T3 | 0.4143 | 0.04 | 0.2036 : -0.2036 | 0.0555 : 0.0555 |
| CLTM8020027T3 | 0.8825 | 0.06 | NA | NA |
| CLTM8020046T2 | 1.7651 | 0.06 | 0.6959 : -0.6959 | 0.0711 : 0.0711 |
| CLTM8020393T3 | 1.3376 | 0.05 | 0.6673 : -0.6673 | 0.0616 : 0.0616 |
| CLTM8020279T3 | 0.3337 | 0.06 | NA | NA |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTM8030540T3 | 0.8748 | 0.04 | 0.451 : -0.451 | 0.0551 : 0.0551 |
| CLTM8020392T2 | 0.7953 | 0.04 | 0.5174 : -0.5174 | 0.0548 : 0.0548 |
| CLTM8020453T3 | 0.7543 | 0.06 | NA | NA |
| CLTM8020417T3 | 0.8153 | 0.05 | 1.0658 : -1.0658 | 0.055 : 0.055 |
| CLTM8020069T2 | 1.3596 | 0.06 | NA | NA |
| CLTM8020380T3 | 1.3858 | 0.05 | 0.5843 : -0.5843 | 0.0617 : 0.0617 |
| CLTM8030537T3 | 0.6101 | 0.04 | 0.926 : -0.926 | 0.0531 : 0.0531 |
| CLTM8180881T3 | 0.5046 | 0.08 | NA | NA |
| CLTM8180805T2 | -1.0695 | 0.08 | NA | NA |
| CLTM8180862T1 | -0.1102 | 0.05 | 0.4989 : -0.4989 | 0.0698 : 0.0698 |
| CLTM8180877T2 | 0.3145 | 0.07 | NA | NA |
| CLTM8030524T1-R | -0.6695 | 0.08 | NA | NA |
| CLTM8180815T2 | -0.8584 | 0.09 | NA | NA |
| CLTM8180865T2 | 0.6733 | 0.06 | 0.5203 : -0.5203 | 0.0803 : 0.0803 |
| CLTM8180804T3 | -0.6158 | 0.08 | 1.4604 : -1.4604 | 0.087 : 0.087 |
| CLTM8180802T1 | -0.4189 | 0.05 | 0.6688 : -0.6688 | 0.0719 : 0.0719 |
| CLTM8030660T2-R | 0.3668 | 0.07 | NA | NA |
| CLTM8180808T3 | 0.7301 | 0.06 | 0.4463 : -0.4463 | 0.0775 : 0.0775 |
| CLTM8030625T2-R | 0.7946 | 0.07 | NA | NA |
| CLTM8180874T1 | -0.3284 | 0.08 | NA | NA |
| CLTM8030661T3-R | 0.0463 | 0.07 | NA | NA |
| CLTM8180867T2 | 0.8391 | 0.06 | 0.3508 : -0.3508 | 0.0827 : 0.0827 |
| CLTM8180816T1 | -0.7727 | 0.08 | NA | NA |
| CLTM8180814T1 | -1.3101 | 0.09 | NA | NA |
| CLTM8180863T2 | 0.6207 | 0.06 | 0.5175 : -0.5175 | 0.0774 : 0.0774 |
| CLTM8180866T1 | -0.6247 | 0.06 | 0.2827 : -0.2827 | 0.0824 : 0.0824 |
| CLTM8180869T3 | 1.0688 | 0.09 | NA | NA |

**Table 8.C.14 IRT Item Difficulty for Mathematics, Grade Eleven**

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTMH020019T1 | -1.1774 | 0.04 | NA | NA |
| CLTMH020272T1 | -1.0296 | 0.04 | NA | NA |
| CLTMH020447T1 | -0.5134 | 0.04 | NA | NA |
| CLTMH030553T1 | -0.9528 | 0.04 | NA | NA |
| CLTMH020406T1 | 0.0006 | 0.03 | -1.2916 : 1.2916 | 0.0575 : 0.0575 |
| CLTMH030642T2 | -0.0620 | 0.03 | 0.9081 : -0.9081 | 0.0347 : 0.0347 |
| CLTMH020397T1 | -0.0370 | 0.03 | -0.9584 : 0.9584 | 0.0517 : 0.0517 |
| CLTMH030628T2 | -0.0883 | 0.04 | NA | NA |
| CLTMH020076T1 | -0.0341 | 0.04 | NA | NA |
| CLTMH030555T2 | 0.0334 | 0.03 | 0.8616 : -0.8616 | 0.0346 : 0.0346 |
| CLTMH020022T1 | -0.6315 | 0.07 | NA | NA |
| CLTMH020043T1 | 0.0798 | 0.07 | NA | NA |
| CLTMH030645T2 | -0.7954 | 0.03 | -0.7519 : 0.7519 | 0.0559 : 0.0559 |
| CLTMH030549T1 | -0.2817 | 0.07 | NA | NA |
| CLTMH020398T2 | -0.8107 | 0.06 | 1.0788 : -1.0788 | 0.0635 : 0.0635 |
| CLTMH030644T1 | -0.2400 | 0.04 | -3.4845 : 3.4845 | 0.2673 : 0.2673 |
| CLTMH030630T1 | 0.0222 | 0.07 | NA | NA |
| CLTMH020068T1 | -0.6360 | 0.05 | NA | NA |
| CLTMH030665T1 | -0.3223 | 0.04 | -3.3144 : 3.3144 | 0.2453 : 0.2453 |
| CLTMH030551T2 | -0.9957 | 0.06 | 0.9435 : -0.9435 | 0.0669 : 0.0669 |
| CLTMH180926T1 | -0.4530 | 0.07 | NA | NA |
| CLTMH020020T2 | -0.6200 | 0.07 | NA | NA |
| CLTMH030666T2 | -0.6664 | 0.03 | -0.6705 : 0.6705 | 0.0598 : 0.0598 |
| CLTMH020336T2 | 0.0734 | 0.07 | NA | NA |
| CLTMH020381T1 | -0.2956 | 0.04 | -1.1328 : 1.1328 | 0.094 : 0.094 |
| CLTMH030641T1 | -0.0727 | 0.04 | -1.4854 : 1.4854 | 0.1001 : 0.1001 |
| CLTMH020045T3 | 0.0743 | 0.06 | NA | NA |
| CLTMH020402T2 | 0.1521 | 0.05 | 0.9622 : -0.9622 | 0.0575 : 0.0575 |
| CLTMH030542T2 | 0.3075 | 0.06 | NA | NA |
| CLTMH020044T2 | 0.9452 | 0.07 | NA | NA |
| CLTMH020400T2 | 0.7005 | 0.06 | NA | NA |
| CLTMH020385T2 | 0.1327 | 0.04 | -1.1392 : 1.1392 | 0.0879 : 0.0879 |
| CLTMH020270T2 | 0.5866 | 0.06 | NA | NA |
| CLTMH020077T2 | 0.9734 | 0.05 | NA | NA |
| CLTMH030552T3 | -0.1770 | 0.04 | 0.4856 : -0.4856 | 0.0579 : 0.0579 |
| CLTMH020337T3 | -0.2610 | 0.06 | NA | NA |
| CLTMH030712T1 | 0.2400 | 0.06 | NA | NA |
| CLTMH020023T2 | 0.1773 | 0.07 | NA | NA |
| CLTMH020313T3 | 0.3654 | 0.07 | NA | NA |
| CLTMH030646T3 | -0.4016 | 0.06 | -1.1392 : 1.1392 | 0.113 : 0.113 |
| CLTMH020078T3 | 1.4771 | 0.07 | NA | NA |
| CLTMH020382T2 | 0.9714 | 0.04 | -0.9444 : 0.9444 | 0.0882 : 0.0882 |

| Item ID | *b*-value | *b*-value SE | *d*-values | *d*-values SE |
|---|---|---|---|---|
| CLTMH030543T3 | 0.5830 | 0.07 | NA | NA |
| CLTMH030667T3 | -0.4551 | 0.07 | -1.2691 : 1.2691 | 0.1204 : 0.1204 |
| CLTMH020401T3 | 0.7419 | 0.07 | NA | NA |
| CLTMH030714T3 | 1.5509 | 0.07 | NA | NA |
| CLTMH020407T2 | 0.6864 | 0.04 | -0.9041 : 0.9041 | 0.086 : 0.086 |
| CLTMH030631T2 | 1.3016 | 0.07 | NA | NA |
| CLTMH020446T3 | 1.8040 | 0.08 | NA | NA |
| CLTMH030643T3 | 0.9441 | 0.05 | 0.6645 : -0.6645 | 0.0625 : 0.0625 |
| CLTMH180831T3 | 1.7593 | 0.10 | NA | NA |
| CLTMH180826T1 | -0.9283 | 0.08 | NA | NA |
| CLTMH180919T2 | -0.1731 | 0.05 | 0.174 : -0.174 | 0.0775 : 0.0775 |
| CLTMH180924T2 | -0.0804 | 0.08 | NA | NA |
| CLTMH180917T3 | 1.8294 | 0.11 | -0.561 : 0.561 | 0.1562 : 0.1562 |
| CLTMH180813T1 | 0.0069 | 0.08 | NA | NA |
| CLTMH180828T2 | -0.1705 | 0.09 | NA | NA |
| CLTMH180812T2 | 1.1994 | 0.09 | NA | NA |
| CLTMH180947T3 | 1.3456 | 0.09 | 0.6986 : -0.6986 | 0.1065 : 0.1065 |
| CLTMH180830T2 | -0.5298 | 0.09 | NA | NA |
| CLTMH180811T1 | -0.3084 | 0.05 | -1.2204 : 1.2204 | 0.1236 : 0.1236 |
| CLTMH030713T2-R | 1.1092 | 0.09 | NA | NA |
| CLTMH180809T3 | -0.1151 | 0.06 | -0.8032 : 0.8032 | 0.1062 : 0.1062 |
| CLTMH180976T2 | -0.7215 | 0.09 | NA | NA |
| CLTMH180827T2 | -0.2489 | 0.08 | NA | NA |
| CLTMH180940T2 | -0.9344 | 0.09 | NA | NA |
| CLTMH030634T3-R | 1.7872 | 0.12 | NA | NA |
| CLTMH180921T1 | -0.0260 | 0.05 | -1.0629 : 1.0629 | 0.12 : 0.12 |
| CLTMH030633T2-R | 0.2787 | 0.09 | NA | NA |
| CLTMH180943T2 | 0.6631 | 0.07 | 0.7075 : -0.7075 | 0.0868 : 0.0868 |

**Table 8.C.15 IRT Item Difficulty Summary for Operational Items by the Content Complexity (Tier) for ELA**

| Test | Tier Set | Number of Items | Mean *b*-value | SD *b*-value | Minimum *b*-value | Maximum *b*-value | Median *b*-value |
|---|---|---|---|---|---|---|---|
| **Grade 3** | Tier 1-Op | 19 | -0.8225 | 0.6807 | -2.1147 | 0.2199 | -0.8655 |
| **Grade 3** | Tier 2-Op | 22 | -0.3078 | 0.6631 | -1.4258 | 1.2992 | -0.2738 |
| **Grade 3** | Tier 3-Op | 10 | 0.2143 | 1.1841 | -2.3055 | 1.2861 | 0.5180 |
| **Grade 3** | All Operational Items | 51 | -0.3972 | 0.8665 | -2.3055 | 1.2992 | -0.3181 |
| **Grade 4** | Tier 1-Op | 17 | -0.8868 | 0.7047 | -1.8467 | 1.0577 | -1.0839 |
| **Grade 4** | Tier 2-Op | 23 | -0.0260 | 0.8123 | -1.4097 | 1.7066 | -0.1543 |
| **Grade 4** | Tier 3-Op | 11 | 0.5356 | 0.3249 | -0.2647 | 0.8818 | 0.6248 |
| **Grade 4** | All Operational Items | 51 | -0.1918 | 0.8739 | -1.8467 | 1.7066 | -0.2647 |
| **Grade 5** | Tier 1-Op | 18 | -0.8774 | 0.8018 | -2.2502 | 0.4855 | -0.9053 |
| **Grade 5** | Tier 2-Op | 23 | -0.5106 | 0.8608 | -1.9952 | 1.0173 | -0.7685 |
| **Grade 5** | Tier 3-Op | 12 | 0.5949 | 0.7366 | -0.3228 | 1.7626 | 0.6293 |
| **Grade 5** | All Operational Items | 53 | -0.3849 | 0.9752 | -2.2502 | 1.7626 | -0.3277 |
| **Grade 6** | Tier 1-Op | 18 | -0.8647 | 0.4799 | -1.7819 | 0.0392 | -0.8880 |
| **Grade 6** | Tier 2-Op | 24 | -0.3191 | 0.8001 | -1.6579 | 1.4046 | -0.4539 |
| **Grade 6** | Tier 3-Op | 12 | 0.3307 | 0.8437 | -1.0384 | 1.6361 | 0.3801 |
| **Grade 6** | All Operational Items | 54 | -0.3566 | 0.8335 | -1.7819 | 1.6361 | -0.5031 |
| **Grade 7** | Tier 1-Op | 18 | -0.9852 | 0.8465 | -2.1068 | 1.0863 | -1.1667 |
| **Grade 7** | Tier 2-Op | 24 | -0.1183 | 0.7092 | -1.6017 | 1.2602 | -0.1448 |
| **Grade 7** | Tier 3-Op | 12 | 0.7157 | 0.8848 | -0.7241 | 2.7420 | 0.7056 |
| **Grade 7** | All Operational Items | 54 | -0.2219 | 1.0062 | -2.1068 | 2.7420 | -0.2105 |
| **Grade 8** | Tier 1-Op | 14 | -0.8866 | 0.6440 | -2.2501 | -0.0307 | -0.6812 |
| **Grade 8** | Tier 2-Op | 22 | -0.1537 | 0.6993 | -1.2155 | 1.2406 | -0.2725 |
| **Grade 8** | Tier 3-Op | 12 | 0.1325 | 0.8360 | -1.7665 | 1.0765 | 0.3624 |
| **Grade 8** | All Operational Items | 48 | -0.2959 | 0.8106 | -2.2501 | 1.2406 | -0.2998 |
| **Grade 11** | Tier 1-Op | 17 | -0.6899 | 0.5557 | -1.5476 | 0.4047 | -0.7680 |
| **Grade 11** | Tier 2-Op | 25 | -0.1500 | 0.6163 | -0.9805 | 1.1892 | -0.2398 |
| **Grade 11** | Tier 3-Op | 10 | 1.0202 | 0.7577 | -0.3124 | 2.2196 | 1.1051 |
| **Grade 11** | All Operational Items | 52 | -0.1015 | 0.8603 | -1.5476 | 2.2196 | -0.2184 |

**Table 8.C.16 IRT Item Difficulty Summary for Operational Items by the Content Complexity (Tier) for Mathematics**

| Test | Tier Set | Number of Items | Mean *b*-value | SD *b*-value | Minimum *b*-value | Maximum *b*-value | Median *b*-value |
|---|---|---|---|---|---|---|---|
| **Grade 3** | Tier 1-Op | 18 | -0.4904 | 0.3922 | -1.0350 | 0.1875 | -0.3907 |
| **Grade 3** | Tier 2-Op | 22 | 0.3687 | 0.4500 | -0.2444 | 1.2947 | 0.2485 |
| **Grade 3** | Tier 3-Op | 13 | 1.1037 | 0.8815 | -0.0464 | 2.8350 | 0.7878 |
| **Grade 3** | All Operational Items | 53 | 0.2572 | 0.8302 | -1.0350 | 2.8350 | 0.1322 |
| **Grade 4** | Tier 1-Op | 18 | -0.5831 | 0.5452 | -1.4787 | 0.5824 | -0.6038 |
| **Grade 4** | Tier 2-Op | 22 | 0.3975 | 0.5042 | -0.3937 | 1.3955 | 0.3622 |
| **Grade 4** | Tier 3-Op | 11 | 0.9570 | 0.4005 | 0.4971 | 1.7623 | 0.8607 |
| **Grade 4** | All Operational Items | 51 | 0.1721 | 0.7766 | -1.4787 | 1.7623 | 0.2802 |
| **Grade 5** | Tier 1-Op | 17 | -0.4027 | 0.5039 | -1.4594 | 0.5872 | -0.3222 |
| **Grade 5** | Tier 2-Op | 25 | 0.5027 | 0.4883 | -0.2908 | 1.6823 | 0.4364 |
| **Grade 5** | Tier 3-Op | 12 | 0.8610 | 0.7630 | -0.5029 | 1.9307 | 0.8444 |
| **Grade 5** | All Operational Items | 54 | 0.2973 | 0.7446 | -1.4594 | 1.9307 | 0.2480 |
| **Grade 6** | Tier 1-Op | 18 | -0.2079 | 0.3562 | -0.7010 | 0.5479 | -0.2979 |
| **Grade 6** | Tier 2-Op | 18 | 0.2347 | 0.3305 | -0.1223 | 0.9326 | 0.1150 |
| **Grade 6** | Tier 3-Op | 12 | 0.9151 | 0.5521 | 0.0851 | 2.1394 | 0.7949 |
| **Grade 6** | All Operational Items | 48 | 0.2388 | 0.5915 | -0.7010 | 2.1394 | 0.1150 |
| **Grade 7** | Tier 1-Op | 19 | -0.5288 | 0.3628 | -1.4418 | 0.0057 | -0.5298 |
| **Grade 7** | Tier 2-Op | 19 | 0.3249 | 0.3874 | -0.4549 | 1.0622 | 0.3069 |
| **Grade 7** | Tier 3-Op | 11 | 0.9683 | 0.5803 | 0.0660 | 2.4216 | 0.9249 |
| **Grade 7** | All Operational Items | 49 | 0.1383 | 0.7236 | -1.4418 | 2.4216 | 0.0726 |
| **Grade 8** | Tier 1-Op | 20 | -0.4779 | 0.4198 | -1.5089 | 0.1774 | -0.4536 |
| **Grade 8** | Tier 2-Op | 17 | 0.4555 | 0.5824 | -0.3401 | 1.7651 | 0.2564 |
| **Grade 8** | Tier 3-Op | 12 | 0.8154 | 0.4590 | 0.2806 | 1.7107 | 0.7848 |
| **Grade 8** | All Operational Items | 49 | 0.1627 | 0.7342 | -1.5089 | 1.7651 | 0.1622 |
| **Grade 11** | Tier 1-Op | 18 | -0.3519 | 0.4057 | -1.1774 | 0.2400 | -0.2887 |
| **Grade 11** | Tier 2-Op | 20 | 0.1501 | 0.6739 | -0.9957 | 1.3016 | 0.1424 |
| **Grade 11** | Tier 3-Op | 12 | 0.5205 | 0.7965 | -0.4551 | 1.8040 | 0.4742 |
| **Grade 11** | All Operational Items | 50 | 0.0583 | 0.7023 | -1.1774 | 1.8040 | -0.0168 |

**Table 8.C.17 IRT Item Difficulty Summary for Field Test Items by the Content Complexity (Tier) for ELA**

| Test | Tier Set | Number of Items | Mean *b*-value | SD *b*-value | Minimum *b*-value | Maximum *b*-value | Median *b*-value |
|---|---|---|---|---|---|---|---|
| **Grade 3** | Tier 1-FT | 9 | -0.5666 | 0.6928 | -1.6008 | 0.3047 | -0.5753 |
| **Grade 3** | Tier 2-FT | 8 | 0.0914 | 0.9386 | -1.4139 | 1.3617 | 0.1953 |
| **Grade 3** | Tier 3-FT | 3 | -0.3771 | 1.0316 | -1.4405 | 0.6194 | -0.3103 |
| **Grade 3** | All Field-test Items | 20 | -0.2750 | 0.8586 | -1.6008 | 1.3617 | -0.3105 |
| **Grade 4** | Tier 1-FT | 8 | -1.0706 | 0.7661 | -2.0914 | 0.4418 | -1.1566 |
| **Grade 4** | Tier 2-FT | 10 | -0.5575 | 0.6484 | -1.3240 | 0.6081 | -0.7462 |
| **Grade 4** | Tier 3-FT | 2 | -0.4417 | 1.2940 | -1.3567 | 0.4733 | -0.4417 |
| **Grade 4** | All Field-test Items | 20 | -0.7512 | 0.7591 | -2.0914 | 0.6081 | -0.9277 |
| **Grade 5** | Tier 1-FT | 12 | -1.1323 | 0.4036 | -1.7599 | -0.5330 | -1.1311 |
| **Grade 5** | Tier 2-FT | 5 | -0.4558 | 0.8297 | -1.7846 | 0.4517 | -0.2204 |
| **Grade 5** | Tier 3-FT | 3 | -0.0709 | 0.6325 | -0.6012 | 0.6292 | -0.2407 |
| **Grade 5** | All Field-test Items | 20 | -0.8040 | 0.6828 | -1.7846 | 0.6292 | -0.8330 |
| **Grade 6** | Tier 1-FT | 13 | -0.6190 | 0.5848 | -1.4798 | 0.2959 | -0.6868 |
| **Grade 6** | Tier 2-FT | 6 | -0.7881 | 0.7177 | -1.6746 | 0.1444 | -0.8830 |
| **Grade 6** | Tier 3-FT | 1 | 0.8050 | NA | 0.8050 | 0.8050 | 0.8050 |
| **Grade 6** | All Field-test Items | 20 | -0.5985 | 0.6833 | -1.6746 | 0.8050 | -0.6790 |
| **Grade 7** | Tier 1-FT | 8 | -1.0373 | 0.5215 | -1.9263 | -0.3065 | -0.9193 |
| **Grade 7** | Tier 2-FT | 9 | -0.4170 | 0.5762 | -1.1822 | 0.4710 | -0.3444 |
| **Grade 7** | Tier 3-FT | 3 | 0.4254 | 0.0921 | 0.3545 | 0.5296 | 0.3923 |
| **Grade 7** | All Field-test Items | 20 | -0.5387 | 0.7066 | -1.9263 | 0.5296 | -0.6680 |
| **Grade 8** | Tier 1-FT | 6 | -1.1069 | 0.1881 | -1.3863 | -0.8413 | -1.1010 |
| **Grade 8** | Tier 2-FT | 3 | -0.5154 | 0.8026 | -1.1994 | 0.3681 | -0.7148 |
| **Grade 8** | Tier 3-FT | 3 | 0.0379 | 0.2063 | -0.1672 | 0.2453 | 0.0357 |
| **Grade 8** | All Field-test Items | 12 | -0.6728 | 0.6231 | -1.3863 | 0.3681 | -0.9181 |
| **Grade 11** | Tier 1-FT | 6 | -0.5235 | 0.5418 | -1.1490 | 0.3429 | -0.6486 |
| **Grade 11** | Tier 2-FT | 5 | -0.3413 | 0.7222 | -1.0104 | 0.7038 | -0.6261 |
| **Grade 11** | Tier 3-FT | 1 | 0.0468 | NA | 0.0468 | 0.0468 | 0.0468 |
| **Grade 11** | All Field-test Items | 12 | -0.4000 | 0.5926 | -1.1490 | 0.7038 | -0.5644 |

**Table 8.C.18 IRT Item Difficulty Summary for Field Test Items by the Content Complexity (Tier) for Mathematics**

| Test | Tier Set | Number of Items | Mean *b*-value | SD *b*-value | Minimum *b*-value | Maximum *b*-value | Median *b*-value |
|---|---|---|---|---|---|---|---|
| **Grade 3** | Tier 1-FT | 9 | -0.3197 | 0.3800 | -0.8950 | 0.4549 | -0.2796 |
| **Grade 3** | Tier 2-FT | 7 | 0.3774 | 0.4954 | -0.4038 | 1.0145 | 0.2299 |
| **Grade 3** | Tier 3-FT | 4 | 1.0060 | 1.0186 | 0.2240 | 2.5023 | 0.6488 |
| **Grade 3** | All Field-test Items | 20 | 0.1894 | 0.7605 | -0.8950 | 2.5023 | 0.1813 |
| **Grade 4** | Tier 1-FT | 5 | -0.1991 | 0.5976 | -1.1815 | 0.2297 | 0.0976 |
| **Grade 4** | Tier 2-FT | 8 | 0.4288 | 0.6424 | -0.3882 | 1.3491 | 0.6204 |
| **Grade 4** | Tier 3-FT | 7 | 1.1370 | 1.1663 | 0.1274 | 3.3489 | 0.4356 |
| **Grade 4** | All Field-test Items | 20 | 0.5197 | 0.9678 | -1.1815 | 3.3489 | 0.3723 |
| **Grade 5** | Tier 1-FT | 9 | -0.3017 | 0.4206 | -0.9884 | 0.1908 | -0.1779 |
| **Grade 5** | Tier 2-FT | 7 | 0.9837 | 0.2170 | 0.7038 | 1.3346 | 1.0000 |
| **Grade 5** | Tier 3-FT | 4 | 1.1252 | 0.9660 | 0.3188 | 2.5154 | 0.8333 |
| **Grade 5** | All Field-test Items | 20 | 0.4336 | 0.8396 | -0.9884 | 2.5154 | 0.5001 |
| **Grade 6** | Tier 1-FT | 7 | -0.3694 | 0.3136 | -0.8342 | 0.0760 | -0.3846 |
| **Grade 6** | Tier 2-FT | 11 | 0.3800 | 0.4175 | -0.2138 | 1.1051 | 0.3225 |
| **Grade 6** | Tier 3-FT | 2 | 0.2204 | 0.3218 | -0.0072 | 0.4479 | 0.2204 |
| **Grade 6** | All Field-test Items | 20 | 0.1017 | 0.5063 | -0.8342 | 1.1051 | 0.0344 |
| **Grade 7** | Tier 1-FT | 8 | -0.3841 | 0.4131 | -1.2272 | 0.0963 | -0.2455 |
| **Grade 7** | Tier 2-FT | 8 | 0.4622 | 0.8734 | -0.3887 | 2.3358 | 0.1940 |
| **Grade 7** | Tier 3-FT | 4 | 0.4893 | 1.2373 | -0.6477 | 2.2495 | 0.1778 |
| **Grade 7** | All Field-test Items | 20 | 0.1291 | 0.8778 | -1.2272 | 2.3358 | -0.0825 |
| **Grade 8** | Tier 1-FT | 7 | -0.6049 | 0.3842 | -1.3101 | -0.1102 | -0.6247 |
| **Grade 8** | Tier 2-FT | 8 | 0.2101 | 0.7498 | -1.0695 | 0.8391 | 0.4938 |
| **Grade 8** | Tier 3-FT | 5 | 0.3468 | 0.6538 | -0.6158 | 1.0688 | 0.5046 |
| **Grade 8** | All Field-test Items | 20 | -0.0410 | 0.7260 | -1.3101 | 1.0688 | -0.0319 |
| **Grade 11** | Tier 1-FT | 4 | -0.3140 | 0.4333 | -0.9283 | 0.0069 | -0.1672 |
| **Grade 11** | Tier 2-FT | 11 | 0.0356 | 0.7053 | -0.9344 | 1.1994 | -0.1705 |
| **Grade 11** | Tier 3-FT | 5 | 1.3213 | 0.8263 | -0.1151 | 1.8294 | 1.7593 |
| **Grade 11** | All Field-test Items | 20 | 0.2871 | 0.9107 | -0.9344 | 1.8294 | -0.0532 |

**Note:** In Table 8.C.19 through Table 8.C.32, an expression that opens with a parenthesis and closes with a bracket indicates that a value is greater than the first number and is less than or equal to the second number. For example, "(0.5, 2]" indicates a value greater than 0.5 but less than or equal to 2.

**Table 8.C.19 Distribution of IRT Item Difficulty by Stage and Tier Set—ELA, Grade Three**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | 1 | NA |
| (-2.2, -2.0] | NA | NA | 1 | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | 2 | NA | NA | NA | NA | 1 |
| (-1.6, -1.4] | 1 | NA | NA | 1 | NA | 2 |
| (-1.4, -1.2] | 2 | 1 | NA | NA | 1 | 1 |
| (-1.2, -1.0] | 2 | NA | NA | 1 | NA | 1 |
| (-1.0, -0.8] | NA | NA | 2 | 1 | NA | NA |
| (-0.8, -0.6] | NA | NA | 3 | 3 | NA | 1 |
| (-0.6, -0.4] | NA | NA | 1 | 2 | NA | 3 |
| (-0.4, -0.2] | NA | NA | NA | 4 | NA | 2 |
| (-0.2, 0.0] | NA | NA | 1 | 2 | 1 | 1 |
| ( 0.0, 0.2] | NA | 2 | 3 | 2 | NA | 1 |
| ( 0.2, 0.4] | NA | NA | 1 | 1 | 2 | 3 |
| ( 0.4, 0.6] | NA | NA | NA | NA | NA | NA |
| ( 0.6, 0.8] | NA | NA | NA | NA | NA | 2 |
| ( 0.8, 1.0] | NA | NA | NA | 1 | 1 | NA |
| ( 1.0, 1.2] | NA | NA | NA | NA | 3 | 1 |
| ( 1.2, 1.4] | NA | NA | NA | 1 | 1 | 1 |
| ( 1.4, 1.6] | NA | NA | NA | NA | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | NA | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.20 Distribution of IRT Item Difficulty by Stage and Tier Set—ELA, Grade Four**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | 1 |
| (-2.0, -1.8] | NA | NA | 1 | NA | NA | NA |
| (-1.8, -1.6] | 1 | NA | 1 | NA | NA | 1 |
| (-1.6, -1.4] | NA | 1 | NA | NA | NA | NA |
| (-1.4, -1.2] | NA | NA | 3 | NA | NA | 4 |
| (-1.2, -1.0] | 3 | NA | NA | 2 | NA | 2 |
| (-1.0, -0.8] | NA | NA | 1 | 1 | NA | 3 |
| (-0.8, -0.6] | 2 | NA | 1 | 1 | NA | 4 |
| (-0.6, -0.4] | NA | 1 | 1 | 3 | NA | NA |
| (-0.4, -0.2] | NA | 1 | 1 | NA | 1 | 1 |
| (-0.2, 0.0] | NA | NA | 1 | 3 | NA | NA |
| ( 0.0, 0.2] | NA | NA | NA | 2 | NA | NA |
| ( 0.2, 0.4] | NA | 1 | NA | NA | 2 | NA |
| ( 0.4, 0.6] | NA | NA | NA | 1 | 2 | 3 |
| ( 0.6, 0.8] | NA | NA | NA | 3 | 4 | 1 |
| ( 0.8, 1.0] | NA | NA | NA | 1 | 2 | NA |
| ( 1.0, 1.2] | NA | NA | 1 | NA | NA | NA |
| ( 1.2, 1.4] | NA | NA | NA | NA | NA | NA |
| ( 1.4, 1.6] | NA | NA | NA | 1 | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | 1 | NA | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.21 Distribution of IRT Item Difficulty by Stage and Tier Set—ELA, Grade Five**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | 1 | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | 1 | 1 | 1 | 1 | NA | NA |
| (-1.8, -1.6] | 1 | NA | NA | NA | NA | 2 |
| (-1.6, -1.4] | 1 | NA | NA | 1 | NA | 3 |
| (-1.4, -1.2] | 1 | NA | NA | 1 | NA | NA |
| (-1.2, -1.0] | NA | 1 | 3 | 3 | NA | 4 |
| (-1.0, -0.8] | NA | NA | NA | 3 | NA | 1 |
| (-0.8, -0.6] | 1 | NA | 1 | 1 | NA | 2 |
| (-0.6, -0.4] | NA | NA | 2 | NA | NA | 3 |
| (-0.4, -0.2] | NA | 1 | 1 | 2 | 3 | 2 |
| (-0.2, 0.0] | NA | NA | NA | NA | NA | 1 |
| ( 0.0, 0.2] | NA | NA | 2 | 2 | 2 | NA |
| ( 0.2, 0.4] | NA | NA | 1 | 2 | NA | NA |
| ( 0.4, 0.6] | NA | NA | 1 | 1 | 1 | 1 |
| ( 0.6, 0.8] | NA | NA | NA | 1 | NA | 1 |
| ( 0.8, 1.0] | NA | 1 | NA | NA | 3 | NA |
| ( 1.0, 1.2] | NA | NA | NA | 1 | NA | NA |
| ( 1.2, 1.4] | NA | NA | NA | NA | NA | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | 2 | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | 1 | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.22 Distribution of IRT Item Difficulty by Stage and Tier Set—ELA, Grade Six**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | 1 | 1 | NA | NA | 1 |
| (-1.6, -1.4] | 2 | NA | NA | 1 | NA | 1 |
| (-1.4, -1.2] | 1 | 1 | NA | 1 | NA | 2 |
| (-1.2, -1.0] | NA | NA | 2 | NA | 1 | 3 |
| (-1.0, -0.8] | 2 | NA | 3 | 1 | NA | 1 |
| (-0.8, -0.6] | 1 | 1 | 1 | 4 | NA | 3 |
| (-0.6, -0.4] | NA | 1 | 2 | 2 | 2 | 1 |
| (-0.4, -0.2] | NA | NA | 2 | 3 | 1 | 1 |
| (-0.2, 0.0] | NA | NA | NA | 1 | 1 | 1 |
| ( 0.0, 0.2] | NA | NA | 1 | NA | 1 | 4 |
| ( 0.2, 0.4] | NA | NA | NA | 2 | NA | 1 |
| ( 0.4, 0.6] | NA | NA | NA | 2 | NA | NA |
| ( 0.6, 0.8] | NA | NA | NA | NA | 1 | NA |
| ( 0.8, 1.0] | NA | NA | NA | 1 | 2 | 1 |
| ( 1.0, 1.2] | NA | NA | NA | 1 | 1 | NA |
| ( 1.2, 1.4] | NA | NA | NA | NA | 1 | NA |
| ( 1.4, 1.6] | NA | NA | NA | 1 | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | 1 | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.23 Distribution of IRT Item Difficulty by Stage and Tier Set—ELA, Grade Seven**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | 2 | NA | NA | NA |
| (-2.0, -1.8] | 1 | NA | NA | NA | NA | 1 |
| (-1.8, -1.6] | 1 | NA | NA | 1 | NA | NA |
| (-1.6, -1.4] | 1 | NA | 2 | NA | NA | 1 |
| (-1.4, -1.2] | 1 | 1 | 1 | NA | NA | 1 |
| (-1.2, -1.0] | 1 | NA | 1 | 1 | NA | 1 |
| (-1.0, -0.8] | NA | 1 | NA | 1 | NA | 4 |
| (-0.8, -0.6] | 1 | NA | NA | NA | 1 | 3 |
| (-0.6, -0.4] | NA | 1 | 1 | NA | NA | NA |
| (-0.4, -0.2] | NA | NA | 2 | 5 | 1 | 4 |
| (-0.2, 0.0] | NA | 1 | 1 | 2 | NA | NA |
| ( 0.0, 0.2] | NA | NA | 1 | 1 | 1 | NA |
| ( 0.2, 0.4] | NA | NA | NA | 5 | 1 | 2 |
| ( 0.4, 0.6] | NA | NA | NA | NA | 2 | 3 |
| ( 0.6, 0.8] | NA | NA | NA | 1 | NA | NA |
| ( 0.8, 1.0] | NA | NA | NA | 2 | 3 | NA |
| ( 1.0, 1.2] | NA | NA | 1 | NA | 1 | NA |
| ( 1.2, 1.4] | NA | NA | NA | 1 | NA | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | 1 | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | NA | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | 1 | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.24 Distribution of IRT Item Difficulty by Stage and Tier Set—ELA, Grade Eight**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | 1 | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | 1 | NA | 1 | NA |
| (-1.6, -1.4] | NA | NA | 1 | NA | NA | NA |
| (-1.4, -1.2] | 2 | 1 | NA | NA | NA | 2 |
| (-1.2, -1.0] | NA | NA | NA | 3 | NA | 3 |
| (-1.0, -0.8] | NA | NA | NA | NA | 1 | 2 |
| (-0.8, -0.6] | 2 | NA | 2 | 1 | NA | 1 |
| (-0.6, -0.4] | 1 | NA | 1 | 2 | 1 | NA |
| (-0.4, -0.2] | NA | 2 | 2 | 3 | NA | NA |
| (-0.2, 0.0] | NA | NA | 1 | 3 | 1 | 1 |
| ( 0.0, 0.2] | NA | NA | NA | 1 | 1 | 1 |
| ( 0.2, 0.4] | NA | NA | NA | 2 | 2 | 2 |
| ( 0.4, 0.6] | NA | NA | NA | NA | 1 | NA |
| ( 0.6, 0.8] | NA | 1 | NA | 1 | 1 | NA |
| ( 0.8, 1.0] | NA | NA | NA | NA | 2 | NA |
| ( 1.0, 1.2] | NA | NA | NA | NA | 1 | NA |
| ( 1.2, 1.4] | NA | NA | NA | 2 | NA | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | NA | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.25 Distribution of IRT Item Difficulty by Stage and Tier Set—ELA, Grade Eleven**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | NA | NA | 1 | NA | NA | NA |
| (-1.4, -1.2] | 3 | NA | NA | NA | NA | NA |
| (-1.2, -1.0] | NA | NA | 2 | NA | NA | 2 |
| (-1.0, -0.8] | 1 | 2 | 1 | 3 | NA | 2 |
| (-0.8, -0.6] | 1 | NA | 1 | NA | NA | 2 |
| (-0.6, -0.4] | NA | 1 | 1 | 4 | NA | 1 |
| (-0.4, -0.2] | NA | NA | 1 | 3 | 1 | NA |
| (-0.2, 0.0] | 1 | NA | 3 | 3 | NA | 1 |
| ( 0.0, 0.2] | NA | 1 | NA | 2 | 1 | 2 |
| ( 0.2, 0.4] | NA | NA | NA | NA | NA | 1 |
| ( 0.4, 0.6] | NA | NA | 1 | 2 | NA | NA |
| ( 0.6, 0.8] | NA | NA | NA | 2 | 2 | 1 |
| ( 0.8, 1.0] | NA | NA | NA | 1 | 1 | NA |
| ( 1.0, 1.2] | NA | NA | NA | 1 | NA | NA |
| ( 1.2, 1.4] | NA | NA | NA | NA | 2 | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | 1 | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | 1 | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | 1 | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.26 Distribution of IRT Item Difficulty by Stage and Tier Set—Mathematics, Grade Three**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | NA | NA | NA | NA | NA | NA |
| (-1.4, -1.2] | NA | NA | NA | NA | NA | NA |
| (-1.2, -1.0] | 1 | NA | NA | NA | NA | NA |
| (-1.0, -0.8] | 4 | NA | 1 | NA | NA | 1 |
| (-0.8, -0.6] | NA | NA | 1 | NA | NA | 1 |
| (-0.6, -0.4] | 1 | NA | 1 | NA | NA | 3 |
| (-0.4, -0.2] | NA | 1 | 4 | NA | NA | 3 |
| (-0.2, 0.0] | NA | NA | 3 | 4 | 1 | 1 |
| ( 0.0, 0.2] | NA | 2 | 2 | 3 | NA | 2 |
| ( 0.2, 0.4] | NA | NA | NA | 4 | 2 | 2 |
| ( 0.4, 0.6] | NA | 1 | NA | NA | NA | 3 |
| ( 0.6, 0.8] | NA | NA | NA | 4 | 4 | 1 |
| ( 0.8, 1.0] | NA | NA | NA | NA | NA | 1 |
| ( 1.0, 1.2] | NA | NA | NA | 1 | 1 | 1 |
| ( 1.2, 1.4] | NA | NA | NA | 2 | 2 | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | NA | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | 2 | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | 1 |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | 1 | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.27 Distribution of IRT Item Difficulty by Stage and Tier Set—Mathematics, Grade Four**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | 3 | NA | NA | NA | NA | NA |
| (-1.4, -1.2] | NA | NA | NA | NA | NA | NA |
| (-1.2, -1.0] | NA | NA | NA | NA | NA | 1 |
| (-1.0, -0.8] | 2 | NA | NA | NA | NA | NA |
| (-0.8, -0.6] | 1 | NA | 3 | NA | NA | NA |
| (-0.6, -0.4] | 1 | NA | 2 | NA | NA | NA |
| (-0.4, -0.2] | NA | 1 | 3 | 2 | NA | 3 |
| (-0.2, 0.0] | NA | 1 | NA | 2 | NA | 1 |
| ( 0.0, 0.2] | 1 | NA | 1 | 1 | NA | 2 |
| ( 0.2, 0.4] | NA | NA | NA | 4 | NA | 3 |
| ( 0.4, 0.6] | NA | NA | 1 | 3 | 3 | 3 |
| ( 0.6, 0.8] | NA | NA | NA | 4 | 1 | 2 |
| ( 0.8, 1.0] | NA | NA | NA | NA | 3 | 1 |
| ( 1.0, 1.2] | NA | NA | NA | 2 | 1 | NA |
| ( 1.2, 1.4] | NA | NA | NA | 2 | 1 | 1 |
| ( 1.4, 1.6] | NA | NA | NA | NA | 1 | 1 |
| ( 1.6, 1.8] | NA | NA | NA | NA | 1 | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | 1 |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | 1 |

**Table 8.C.28 Distribution of IRT Item Difficulty by Stage and Tier Set—Mathematics, Grade Five**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | 1 | NA | NA | NA | NA | NA |
| (-1.4, -1.2] | 1 | NA | NA | NA | NA | NA |
| (-1.2, -1.0] | 1 | NA | NA | NA | NA | NA |
| (-1.0, -0.8] | NA | NA | NA | NA | NA | 2 |
| (-0.8, -0.6] | 1 | NA | NA | NA | NA | 1 |
| (-0.6, -0.4] | 1 | NA | 1 | NA | 1 | NA |
| (-0.4, -0.2] | NA | 1 | 6 | NA | NA | 1 |
| (-0.2, 0.0] | 1 | NA | 1 | 3 | 1 | 2 |
| ( 0.0, 0.2] | NA | 1 | 2 | 4 | NA | 3 |
| ( 0.2, 0.4] | NA | NA | NA | 3 | 1 | 1 |
| ( 0.4, 0.6] | NA | 1 | 1 | 3 | 1 | NA |
| ( 0.6, 0.8] | NA | 1 | NA | 1 | 1 | 3 |
| ( 0.8, 1.0] | NA | NA | NA | 3 | 2 | 3 |
| ( 1.0, 1.2] | NA | NA | NA | 2 | 1 | 2 |
| ( 1.2, 1.4] | NA | NA | NA | 1 | 1 | 1 |
| ( 1.4, 1.6] | NA | NA | NA | NA | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | 1 | 2 | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | 1 | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | 1 |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.29 Distribution of IRT Item Difficulty by Stage and Tier Set—Mathematics, Grade Six**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | NA | NA | NA | NA | NA | NA |
| (-1.4, -1.2] | NA | NA | NA | NA | NA | NA |
| (-1.2, -1.0] | NA | NA | NA | NA | NA | NA |
| (-1.0, -0.8] | NA | NA | NA | NA | NA | 1 |
| (-0.8, -0.6] | 2 | NA | NA | NA | NA | NA |
| (-0.6, -0.4] | 3 | NA | 1 | NA | NA | 2 |
| (-0.4, -0.2] | 1 | NA | 4 | NA | NA | 3 |
| (-0.2, 0.0] | NA | 2 | 1 | 3 | NA | 4 |
| ( 0.0, 0.2] | NA | NA | 3 | 5 | 1 | 2 |
| ( 0.2, 0.4] | 1 | 1 | 1 | 2 | 1 | 2 |
| ( 0.4, 0.6] | NA | NA | 1 | 2 | 1 | 3 |
| ( 0.6, 0.8] | NA | NA | NA | 1 | 3 | 1 |
| ( 0.8, 1.0] | NA | NA | NA | 2 | 2 | 1 |
| ( 1.0, 1.2] | NA | NA | NA | NA | 2 | 1 |
| ( 1.2, 1.4] | NA | NA | NA | NA | NA | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | 1 | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | 1 | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.30 Distribution of IRT Item Difficulty by Stage and Tier Set—Mathematics, Grade Seven**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | 1 | NA | NA | NA | NA | NA |
| (-1.4, -1.2] | NA | NA | NA | NA | NA | 1 |
| (-1.2, -1.0] | 1 | NA | NA | NA | NA | NA |
| (-1.0, -0.8] | 1 | NA | NA | NA | NA | NA |
| (-0.8, -0.6] | 2 | NA | 3 | NA | NA | 2 |
| (-0.6, -0.4] | 2 | 1 | 3 | NA | NA | 1 |
| (-0.4, -0.2] | NA | NA | 2 | NA | NA | 2 |
| (-0.2, 0.0] | NA | 1 | 3 | 2 | NA | 5 |
| ( 0.0, 0.2] | NA | 1 | 1 | 2 | 1 | 4 |
| ( 0.2, 0.4] | NA | NA | NA | 3 | NA | 1 |
| ( 0.4, 0.6] | NA | NA | NA | 3 | NA | 1 |
| ( 0.6, 0.8] | NA | NA | NA | 4 | 3 | NA |
| ( 0.8, 1.0] | NA | NA | NA | 1 | 2 | NA |
| ( 1.0, 1.2] | NA | NA | NA | 1 | 4 | 1 |
| ( 1.2, 1.4] | NA | NA | NA | NA | NA | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | NA | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | 2 |
| ( 2.4, 2.6] | NA | NA | NA | NA | 1 | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.31 Distribution of IRT Item Difficulty by Stage and Tier Set—Mathematics, Grade Eight**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | 1 | NA | NA | NA | NA | NA |
| (-1.4, -1.2] | NA | NA | NA | NA | NA | 1 |
| (-1.2, -1.0] | 1 | NA | NA | NA | NA | 1 |
| (-1.0, -0.8] | 2 | NA | NA | NA | NA | 1 |
| (-0.8, -0.6] | NA | NA | 4 | NA | NA | 4 |
| (-0.6, -0.4] | NA | NA | 3 | NA | NA | 1 |
| (-0.4, -0.2] | NA | NA | 2 | 2 | NA | 1 |
| (-0.2, 0.0] | NA | NA | 4 | 1 | NA | 1 |
| ( 0.0, 0.2] | 3 | 2 | NA | 1 | NA | 1 |
| ( 0.2, 0.4] | NA | NA | NA | 3 | 3 | 2 |
| ( 0.4, 0.6] | NA | NA | NA | 3 | 1 | 1 |
| ( 0.6, 0.8] | NA | 1 | NA | 1 | 2 | 4 |
| ( 0.8, 1.0] | NA | NA | NA | NA | 3 | 1 |
| ( 1.0, 1.2] | NA | NA | NA | NA | NA | 1 |
| ( 1.2, 1.4] | NA | NA | NA | 2 | 2 | NA |
| ( 1.4, 1.6] | NA | NA | NA | NA | NA | NA |
| ( 1.6, 1.8] | NA | NA | NA | 1 | 1 | NA |
| ( 1.8, 2.0] | NA | NA | NA | NA | NA | NA |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

**Table 8.C.32 Distribution of IRT Item Difficulty by Stage and Tier Set—Mathematics, Grade Eleven**

| *b*-value | Stage 1 Tier 1 | Stage 1 Tier 2 | Stage 2 Tier 1 | Stage 2 Tier 2 | Stage 2 Tier 3 | Field-test Items |
|---|---|---|---|---|---|---|
| (-3.0, -2.8] | NA | NA | NA | NA | NA | NA |
| (-2.8, -2.6] | NA | NA | NA | NA | NA | NA |
| (-2.6, -2.4] | NA | NA | NA | NA | NA | NA |
| (-2.4, -2.2] | NA | NA | NA | NA | NA | NA |
| (-2.2, -2.0] | NA | NA | NA | NA | NA | NA |
| (-2.0, -1.8] | NA | NA | NA | NA | NA | NA |
| (-1.8, -1.6] | NA | NA | NA | NA | NA | NA |
| (-1.6, -1.4] | NA | NA | NA | NA | NA | NA |
| (-1.4, -1.2] | NA | NA | NA | NA | NA | NA |
| (-1.2, -1.0] | 2 | NA | NA | NA | NA | NA |
| (-1.0, -0.8] | 1 | NA | NA | 2 | NA | 2 |
| (-0.8, -0.6] | NA | NA | 2 | 3 | NA | 1 |
| (-0.6, -0.4] | 1 | NA | 1 | NA | 2 | 1 |
| (-0.4, -0.2] | NA | NA | 4 | NA | 1 | 2 |
| (-0.2, 0.0] | 2 | 2 | 1 | NA | 1 | 5 |
| ( 0.0, 0.2] | 1 | 1 | 2 | 4 | 1 | 1 |
| ( 0.2, 0.4] | NA | NA | 1 | 1 | 1 | 1 |
| ( 0.4, 0.6] | NA | NA | NA | 1 | 1 | NA |
| ( 0.6, 0.8] | NA | NA | NA | 2 | 1 | 1 |
| ( 0.8, 1.0] | NA | NA | NA | 3 | 1 | NA |
| ( 1.0, 1.2] | NA | NA | NA | NA | NA | 2 |
| ( 1.2, 1.4] | NA | NA | NA | 1 | NA | 1 |
| ( 1.4, 1.6] | NA | NA | NA | NA | 2 | NA |
| ( 1.6, 1.8] | NA | NA | NA | NA | NA | 2 |
| ( 1.8, 2.0] | NA | NA | NA | NA | 1 | 1 |
| ( 2.0, 2.2] | NA | NA | NA | NA | NA | NA |
| ( 2.2, 2.4] | NA | NA | NA | NA | NA | NA |
| ( 2.4, 2.6] | NA | NA | NA | NA | NA | NA |
| ( 2.6, 2.8] | NA | NA | NA | NA | NA | NA |
| ( 2.8, 3.0] | NA | NA | NA | NA | NA | NA |
| ( 3.0, 3.2] | NA | NA | NA | NA | NA | NA |
| ( 3.2, 3.4] | NA | NA | NA | NA | NA | NA |

# Appendix 8.D: Omission and Completion Rates

**Note:** In Table 8.D.1 through Table 8.D.14, the value in the *Position* column indicates the item location in the module and version.

**Table 8.D.1 Item Difficulties and Omit Rate—English Language Arts/Literacy (ELA), Grade Three**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTW3020108T1 | ZoneSS Discrete | 0.74 | -1.20 | 13% |
| CLTR3020057T1-M | ZoneMS Member | 0.71 | -1.19 | 5% |
| CLTR3020058T1-M | MCSS Member | 0.80 | -1.56 | 3% |
| CLTR3020059T1-O | MCMA - Member | 0.81 | -1.21 | 2% |
| CLTW3020095T1 | ZoneMS Discrete | 0.77 | -1.60 | 2% |
| CLTR3020105T1 | MCSS Discrete | 0.72 | -1.04 | 1% |
| CLTW3020107T1 | MCSS Discrete | 0.81 | -1.65 | 2% |
| CLTR3020140T2-M | ZoneMS Member | 0.71 | -1.34 | 3% |
| CLTR3020141T2-M | MCSS Member | 0.48 | 0.19 | 3% |
| CLTR3020142T2-M | MCMA - Member | 0.52 | 0.00 | 4% |
| CLTR3020051T1 | MCSS Member | 0.51 | -0.72 | 5% |
| CLTR3020052T1 | MCSS Member | 0.53 | -0.80 | 5% |
| CLTR3020053T1-M | MatchSS Member | 0.50 | -0.69 | 14% |
| CLTR3020170T1 | MCMA - Member | 0.32 | -0.05 | 11% |
| CLTR3020169T1 | ZoneMS Member | 0.54 | -0.87 | 12% |
| CLTW3020171T1-R | ZoneMS Member | 0.32 | 0.19 | 11% |
| CLTR3020093T1 | MCSS Discrete | 0.47 | -0.55 | 7% |
| CLTR3040231T1 | ZoneSS Member | 0.78 | -2.11 | 15% |
| CLTW3020146T2 | ZoneMS Discrete | 0.57 | -1.15 | 8% |
| CLTR3020143T2 | MCSS Discrete | 0.56 | -0.95 | 8% |
| CLTW3020145T2-M | MatchMS Member | 0.53 | -0.79 | 16% |
| CLTW3020162T2 | MCSS Discrete | 0.52 | -0.78 | 9% |
| CLTW3040186T2 | ZoneMS Member | 0.41 | -0.25 | 9% |
| CLTR3030110T2 | ZoneMS Member | 0.65 | -1.43 | 8% |
| CLTR3030028T1 | MCSS Discrete | 0.35 | 0.04 | 13% |
| CLTR3020094T1 | MCSS Discrete | 0.55 | 0.22 | 1% |
| CLTW3030030T1 | MatchMS Discrete | 0.60 | 0.07 | 3% |
| CLTR3030136T1 | Composite - Member | 0.78 | -0.90 | 0% |
| CLTW3020165T2 | MatchSS Member | 0.66 | -0.29 | 3% |
| CLTR3020163T2 | MCSS Member | 0.65 | -0.24 | 3% |
| CLTR3020164T2 | MCSS Member | 0.72 | -0.59 | 2% |
| CLTR3030080T2 | MCSS Member | 0.55 | 0.22 | 1% |
| CLTR3030081T2 | MCSS Member | 0.62 | -0.07 | 2% |
| CLTW3030082T2 | ZoneMS Member | 0.73 | -0.75 | 2% |
| CLTW3030113T2 | MatchMS Discrete | 0.71 | -0.07 | 2% |
| CLTR3040181T2 | Composite - Member | 0.72 | -0.32 | 3% |
| CLTW3020403T3 | MCSS Partial Credit Member | 0.48 | 0.80 | 6% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTW3020161T2 | MatchMS Discrete | 0.38 | 1.30 | 2% |
| CLTR3040191T3 | MCSS Member | 0.37 | 1.03 | 3% |
| CLTR3030168T3 | MCSS Discrete | 0.54 | 0.23 | 2% |
| CLTR3040188T2 | MCSS Member | 0.85 | -0.58 | 1% |
| CLTR3040187T2 | Composite - Member | 0.55 | 0.80 | 2% |
| CLTR3040189T2 | MCSS Member | 0.73 | 0.15 | 1% |
| CLTR3040182T2 | MCSS Member | 0.74 | 0.16 | 0% |
| CLTW3020179T3 | MCSS Partial Credit Member | 0.50 | 1.29 | 4% |
| CLTR3030158T3-R | MCSS Member | 0.97 | -2.31 | 2% |
| CLTR3030159T3 | MCSS Member | 0.53 | 1.15 | 1% |
| CLTW3030160T3 | MCSS Partial Credit Member | 0.54 | 1.15 | 5% |
| CLTR3030166T3 | ZoneMS Member | 0.72 | -0.14 | 1% |
| CLTR3040194T3 | MCSS Member | 0.72 | 0.22 | 3% |
| CLTR3040190T3 | ZoneMS Member | 0.90 | -1.28 | 1% |
| CLTR3040024T1 | MCSS Member | 0.59 | -0.31 | 2% |
| CLTR3040025T1 | ZoneMS Member | 0.79 | -1.60 | 3% |
| CLTR3040026T1 | MCSS Member | 0.64 | -0.58 | 3% |
| CLTW3040004T1 | ZoneSS Member | 0.54 | -0.01 | 9% |
| CLTR3040039T1 | MCSS Member | 0.45 | 0.30 | 3% |
| CLTR3040038T1 | Composite - Member | 0.60 | -0.60 | 6% |
| CLTR3040040T1 | ZoneSS Member | 0.46 | 0.22 | 9% |
| CLTW3040227T2 | MatchSS Member | 0.26 | 1.36 | 13% |
| CLTR3040232T1 | ZoneMS Discrete | 0.70 | -1.13 | 4% |
| CLTR3040183T2 | ZoneMS Discrete | 0.75 | -1.41 | 4% |
| CLTW3040184T2 | MCMS Member | 0.39 | 0.66 | 7% |
| CLTW3040022T1 | MCSS Member | 0.78 | -1.40 | 2% |
| CLTR3040180T2 | MCSS Member | 0.46 | 0.16 | 3% |
| CLTR3040085T2 | MCSS Member | 0.30 | 1.01 | 6% |
| CLTR3040084T2 | MCSS Member | 0.44 | 0.23 | 5% |
| CLTW3040086T2 | MatchMS Member | 0.59 | -0.50 | 12% |
| CLTR3030164T3 | ZoneMS Member | 0.75 | -1.44 | 3% |
| CLTR3040179T2 | MCSS Member | 0.69 | -0.77 | 3% |
| CLTW3040193T3 | MCSS Partial Credit Member | 0.39 | 0.62 | 8% |
| CLTR3040192T3 | MCMA - Member | 0.63 | -0.31 | 3% |

**Table 8.D.2 Item Difficulties and Omit Rate—ELA, Grade Four**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTR4020239T1 | MCSS Discrete | 0.80 | -1.62 | 1% |
| CLTR4020304T1-M | MCSS Member | 0.66 | -0.74 | 2% |
| CLTR4020305T1-M | ZoneMS Member | 0.70 | -1.09 | 6% |
| CLTW4020306T1-O | ZoneMS Member | 0.70 | -1.14 | 3% |
| CLTW4020240T1-M | MatchMS Member | 0.74 | -1.08 | 5% |
| CLTR4020308T1 | MCSS Discrete | 0.64 | -0.61 | 2% |
| CLTR4020084T2 | MCSS Discrete | 0.78 | -1.41 | 2% |
| CLTR4030020T2 | MCSS Member | 0.59 | -0.34 | 3% |
| CLTR4030021T2 | ZoneMS Member | 0.58 | -0.46 | 7% |
| CLTW4030022T2 | MCSS Member | 0.48 | 0.20 | 5% |
| CLTR4020256T1-M | MCSS Member | 0.43 | -0.48 | 7% |
| CLTR4020257T1-M | ZoneMS Member | 0.59 | -1.22 | 9% |
| CLTR4020258T1-M | MCMA - Member | 0.54 | -0.90 | 8% |
| CLTR4040202T1 | MCSS Discrete | 0.63 | -1.37 | 6% |
| CLTR4030173T1 | MCSS Member | 0.40 | -0.34 | 9% |
| CLTR4020237T1 | MCSS Discrete | 0.72 | -1.85 | 5% |
| CLTR4030170T1 | MCSS Member | 0.34 | -0.06 | 6% |
| CLTR4030171T1 | ZoneMS Member | 0.76 | -1.71 | 4% |
| CLTW4040203T1 | ZoneSS Member | 0.62 | -1.33 | 12% |
| CLTR4020116T2 | MCSS Member | 0.45 | -0.56 | 7% |
| CLTR4020117T2 | ZoneMS Member | 0.57 | -1.14 | 8% |
| CLTW4020118T2 | MCSS Member | 0.32 | 0.04 | 9% |
| CLTR4030023T2-R | MCSS Member | 0.42 | -0.46 | 9% |
| CLTR4030024T2 | ZoneMS Member | 0.47 | -0.62 | 13% |
| CLTR4030025T2 | MCMA - Member | 0.31 | -0.16 | 11% |
| CLTR4040200T1 | MCSS Member | 0.32 | 1.06 | 0% |
| CLTR4030172T1 | ZoneMS Member | 0.69 | -0.61 | 1% |
| CLTR4030062T2 | MatchMS Member | 0.81 | -0.82 | 1% |
| CLTW4040074T2 | MCSS Member | 0.47 | 0.74 | 1% |
| CLTR4040005T2 | MatchSS Discrete | 0.77 | -1.04 | 2% |
| CLTR4040069T2 | MCSS Member | 0.51 | 0.57 | 1% |
| CLTW4020138T2 | MCSS Discrete | 0.67 | -0.51 | 1% |
| CLTR4020090T2 | MCSS Member | 0.24 | 1.51 | 1% |
| CLTR4020091T2 | ZoneMS Member | 0.55 | -0.10 | 2% |
| CLTR4020092T2 | MCMA - Member | 0.54 | 0.12 | 2% |
| CLTR4040072T2 | ZoneMS Member | 0.57 | -0.15 | 2% |
| CLTR4020245T3 | MCSS Member | 0.47 | 0.38 | 4% |
| CLTR4020244T3-M | MatchMS Member | 0.34 | 0.82 | 4% |
| CLTW4020246T3 | MCSS Partial Credit Member | 0.39 | 0.70 | 6% |
| CLTR4020119T2-M | MCSS Member | 0.36 | 1.71 | 1% |
| CLTR4020120T2-M | ZoneMS Member | 0.57 | 0.76 | 2% |
| CLTW4020121T2-M | ZoneSS Member | 0.54 | 0.92 | 2% |
| CLTR4020083T2 | MCSS Discrete | 0.61 | 0.62 | 1% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTR4040195T3 | MCSS Member | 0.58 | 0.73 | 0% |
| CLTR4030089T3 | MCSS Member | 0.58 | 0.76 | 1% |
| CLTR4030090T3 | ZoneMS Member | 0.63 | 0.29 | 1% |
| CLTR4030091T3 | MCMA - Member | 0.70 | 0.46 | 2% |
| CLTW4030132T3-R | MatchMS Member | 0.55 | 0.88 | 1% |
| CLTW4030133T3-R | MCSS Partial Credit Member | 0.62 | 0.62 | 3% |
| CLTR4020128T3 | MCSS Member | 0.78 | -0.26 | 1% |
| CLTR4030131T3 | MCSS Discrete | 0.63 | 0.52 | 2% |
| CLTR4040006T1 | MCSS Member | 0.71 | -0.91 | 2% |
| CLTR4040007T1 | ZoneMS Member | 0.75 | -1.05 | 4% |
| CLTW4040008T1 | ZoneMS Member | 0.63 | -0.64 | 6% |
| CLTR4040199T1 | MCSS Member | 0.84 | -1.77 | 2% |
| CLTR4040001T2 | MCSS Member | 0.70 | -0.99 | 3% |
| CLTR4040002T2 | ZoneSS Member | 0.55 | -0.23 | 7% |
| CLTR4040003T2 | MCMA - Member | 0.74 | -0.94 | 5% |
| CLTR4040071T2 | MCSS Member | 0.66 | -0.80 | 3% |
| CLTR4040100T1 | MCSS Member | 0.86 | -2.09 | 3% |
| CLTR4040101T1 | ZoneMS Member | 0.73 | -1.27 | 4% |
| CLTW4040102T1 | MCSS Member | 0.42 | 0.44 | 5% |
| CLTR4040201T1 | ZoneMS Discrete | 0.69 | -1.28 | 3% |
| CLTR4040051T2 | MCSS Member | 0.64 | -0.65 | 3% |
| CLTR4040052T2 | ZoneMS Member | 0.61 | -0.70 | 8% |
| CLTW4040053T2 | MCSS Member | 0.41 | 0.48 | 6% |
| CLTW4040076T2 | ZoneMS Member | 0.68 | -1.03 | 5% |
| CLTR4040070T2 | ZoneMS Member | 0.72 | -1.32 | 3% |
| CLTW4040073T2 | MCSS Member | 0.40 | 0.61 | 3% |
| CLTW4040009T3 | MCSS Partial Credit Member | 0.41 | 0.47 | 8% |
| CLTR4040197T3 | MCSS Member | 0.77 | -1.36 | 4% |

**Table 8.D.3 Item Difficulties and Omit Rate—ELA, Grade Five**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTW5020317T1 | ZoneMS Discrete | 0.81 | -1.90 | 1% |
| CLTR5020453T1-M | ZoneMS Member | 0.87 | -2.25 | 1% |
| CLTW5020454T1-M | ZoneMS Member | 0.73 | -1.36 | 2% |
| CLTR5030154T1 | ZoneMS Member | 0.78 | -1.50 | 2% |
| CLTR5030156T1 | ZoneMS Discrete | 0.80 | -1.75 | 2% |
| CLTR5020314T1 | MCSS Discrete | 0.66 | -0.70 | 1% |
| CLTR5030185T2 | ZoneMS Member | 0.82 | -2.00 | 2% |
| CLTR5020253T2-M | MCSS Member | 0.58 | -0.24 | 2% |
| CLTR5020254T2-M | ZoneMS Member | 0.68 | -1.05 | 5% |
| CLTW5020255T2-M | MCSS Member | 0.36 | 0.85 | 5% |
| CLTW5030157T1 | MCSS Member | 0.71 | -1.80 | 5% |
| CLTR5040041T1 | MCSS Member | 0.42 | -0.47 | 4% |
| CLTR5020327T1-M | MCSS Member | 0.47 | -0.69 | 5% |
| CLTR5020328T1-M | ZoneMS Member | 0.56 | -1.13 | 9% |
| CLTW5020329T1-M | MCSS Member | 0.39 | -0.33 | 8% |
| CLTW5020335T1 | MCSS Discrete | 0.27 | 0.23 | 5% |
| CLTR5030263T1 | MCSS Member | 0.42 | -0.46 | 6% |
| CLTR5030264T1 | ZoneMS Member | 0.54 | -1.11 | 9% |
| CLTW5030265T1 | MCSS Member | 0.31 | 0.05 | 8% |
| CLTR5020047T2 | ZoneMS Discrete | 0.57 | -1.31 | 7% |
| CLTR5020346T2 | MCMA - Discrete | 0.48 | -0.77 | 6% |
| CLTR5030183T2 | ZoneMS Member | 0.54 | -1.09 | 8% |
| CLTR5040104T2 | MCSS Member | 0.40 | -0.37 | 8% |
| CLTW5040105T2 | ZoneMS Member | 0.52 | -0.98 | 9% |
| CLTR5040103T2 | MCSS Member | 0.28 | 0.18 | 11% |
| CLTR5030122T1 | MCSS Member | 0.54 | 0.07 | 2% |
| CLTR5030123T1-M | MCMA - Member | 0.42 | 0.49 | 2% |
| CLTW5030124T1 | MatchMS Member | 0.74 | -1.17 | 5% |
| CLTW5020347T2 | MCSS Discrete | 0.40 | 1.02 | 1% |
| CLTR5030179T2 | MCSS Member | 0.60 | -0.23 | 2% |
| CLTR5030180T2 | ZoneMS Member | 0.73 | -1.06 | 3% |
| CLTW5030181T2-R | MCSS Member | 0.50 | 0.21 | 3% |
| CLTR5040116T2 | MCSS Member | 0.48 | 0.33 | 1% |
| CLTR5020342T2 | MCMA - Discrete | 0.55 | 0.44 | 1% |
| CLTR5040109T2 | MCSS Member | 0.83 | -1.52 | 2% |
| CLTR5040110T2 | Composite - Member | 0.76 | -0.83 | 4% |
| CLTW5040111T2 | MatchMS Member | 0.80 | -1.06 | 3% |
| CLTR5030140T3 | MCSS Member | 0.51 | 0.19 | 2% |
| CLTR5020073T3 | MCSS Discrete | 0.34 | 0.97 | 2% |
| CLTW5030139T3 | MatchMS Member | 0.62 | -0.29 | 3% |
| CLTR5040087T2 | MCSS Member | 0.72 | 0.01 | 1% |
| CLTR5040088T2 | ZoneMS Member | 0.84 | -0.95 | 1% |
| CLTR5040089T2 | MCMA - Member | 0.63 | 0.63 | 1% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTR5040115T2 | ZoneMS Member | 0.86 | -1.96 | 0% |
| CLTR5020038T3-M | MCMS Member | 0.34 | 1.76 | 1% |
| CLTR5020039T3-M | MCSS Member | 0.39 | 1.48 | 1% |
| CLTW5020040T3-M | MCSS Partial Credit Member | 0.38 | 1.45 | 3% |
| CLTR5020341T3 | ZoneMS Discrete | 0.62 | -0.32 | 1% |
| CLTR5040171T3 | MatchSS Member | 0.64 | 0.41 | 1% |
| CLTW5040230T3 | MCSS Partial Credit Member | 0.78 | 0.03 | 3% |
| CLTR5040228T3 | MCSS Member | 0.54 | 0.85 | 1% |
| CLTR5040229T3 | MCSS Member | 0.54 | 0.85 | 2% |
| CLTW5040174T3 | MatchMS Discrete | 0.76 | -0.24 | 1% |
| CLTW5040019T1 | MCSS Member | 0.65 | -0.53 | 2% |
| CLTR5040014T1 | MCSS Member | 0.73 | -0.98 | 3% |
| CLTR5040013T1 | ZoneMS Member | 0.84 | -1.76 | 3% |
| CLTW5040015T1 | MatchMS Member | 0.75 | -1.08 | 5% |
| CLTW5030187T2-R | MatchSS Member | 0.54 | -0.15 | 5% |
| CLTR5040035T1 | MCSS Member | 0.73 | -1.15 | 3% |
| CLTW5040036T1 | MCSS Member | 0.79 | -1.54 | 5% |
| CLTR5040034T1 | ZoneMS Member | 0.76 | -1.55 | 3% |
| CLTR5040118T2 | ZoneMS Member | 0.79 | -1.78 | 1% |
| CLTR5020250T3 | MatchMS Member | 0.58 | -0.24 | 4% |
| CLTW5020251T3 | MatchMS Member | 0.67 | -0.60 | 6% |
| CLTR5020252T3 | MCSS Member | 0.39 | 0.63 | 5% |
| CLTR5030145T1 | MCSS Member | 0.74 | -1.11 | 1% |
| CLTR5040016T1 | MCSS Member | 0.79 | -1.47 | 2% |
| CLTR5040018T1 | MCMA - Member | 0.69 | -0.53 | 5% |
| CLTR5040017T1 | ZoneMS Member | 0.76 | -1.20 | 8% |
| CLTR5020336T1 | MCMA - Member | 0.72 | -0.69 | 1% |
| CLTR5030182T2-R | MCSS Member | 0.57 | -0.22 | 2% |
| CLTR5040117T2 | MCSS Member | 0.64 | -0.58 | 2% |
| CLTW5040120T2 | MCSS Member | 0.43 | 0.45 | 3% |

**Table 8.D.4 Item Difficulties and Omit Rate—ELA, Grade Six**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTR6020097T1 | MCMA - Discrete | 0.88 | -1.50 | 1% |
| CLTR6030030T1 | MCMA - Member | 0.75 | -0.89 | 2% |
| CLTR6030031T1 | MCSS Member | 0.79 | -1.45 | 4% |
| CLTW6030032T1-O | ZoneMS Member | 0.65 | -0.67 | 3% |
| CLTW6030202T1 | MatchMS Member | 0.69 | -0.86 | 2% |
| CLTW6020104T1 | ZoneMS Discrete | 0.72 | -1.31 | 2% |
| CLTR6020204T2 | ZoneMS Discrete | 0.77 | -1.66 | 2% |
| CLTR6020200T2-M | MCSS Member | 0.61 | -0.46 | 4% |
| CLTR6020199T2-M | MCSS Member | 0.66 | -0.73 | 5% |
| CLTR6020202T2 | ZoneMS Discrete | 0.73 | -1.28 | 3% |
| CLTR6020101T1-R | MCSS Discrete | 0.36 | -0.68 | 14% |
| CLTW6030012T1-R | ZoneSS Member | 0.27 | -0.21 | 25% |
| CLTR6030010T1-R | MCSS Member | 0.32 | -0.53 | 14% |
| CLTR6030011T1-R | MatchMS Member | 0.18 | 0.04 | 19% |
| CLTR6030203T1 | MCSS Member | 0.32 | -0.48 | 11% |
| CLTR6020098T1 | ZoneMS Discrete | 0.43 | -0.91 | 13% |
| CLTR6030042T1 | MCMA - Member | 0.36 | -0.88 | 13% |
| CLTR6040124T1 | MCSS Member | 0.47 | -1.16 | 14% |
| CLTR6020099T1 | MCMA - Discrete | 0.44 | -1.11 | 13% |
| CLTR6030073T2 | MCSS Member | 0.26 | -0.19 | 16% |
| CLTR6030074T2-R | MCMS Member | 0.07 | 1.40 | 21% |
| CLTW6030075T2 | MatchMS Member | 0.36 | -0.75 | 29% |
| CLTW6040204T2 | MatchMS Member | 0.28 | -0.27 | 20% |
| CLTR6030128T2 | ZoneMS Member | 0.39 | -0.84 | 19% |
| CLTW6020208T2 | MCSS Discrete | 0.36 | -0.67 | 22% |
| CLTR6030064T1-R | MCSS Member | 0.64 | -0.93 | 3% |
| CLTR6030065T1-R | MCSS Member | 0.80 | -1.78 | 5% |
| CLTW6030066T1 | MatchMS Member | 0.49 | -0.24 | 6% |
| CLTW6040166T2 | ZoneMS Member | 0.64 | -1.24 | 3% |
| CLTR6030260T2 | MCSS Member | 0.53 | -0.45 | 4% |
| CLTR6030261T2 | Composite - Member | 0.51 | -0.38 | 5% |
| CLTR6030262T2 | MCMA - Member | 0.59 | -0.57 | 6% |
| CLTW6040165T2 | MatchSS Member | 0.38 | 0.20 | 5% |
| CLTR6030197T2 | ZoneSS Member | 0.45 | 0.45 | 5% |
| CLTR6030147T2 | MCSS Member | 0.35 | 0.34 | 4% |
| CLTR6030148T2 | ZoneMS Member | 0.57 | -0.69 | 8% |
| CLTW6030149T2 | MatchSS Member | 0.47 | -0.21 | 8% |
| CLTR6030205T3 | ZoneMS Member | 0.54 | -0.56 | 4% |
| CLTW6040033T3 | MatchMS Member | 0.25 | 0.86 | 6% |
| CLTR6040030T3 | ZoneMS Member | 0.50 | -0.29 | 5% |
| CLTR6040163T2 | MCMS Member | 0.47 | 0.89 | 0% |
| CLTW6040168T2 | ZoneMS Member | 0.91 | -1.57 | 1% |
| CLTR6040169T2 | MCSS Member | 0.78 | -0.60 | 2% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTR6040170T2 | MatchMS Member | 0.41 | 1.14 | 1% |
| CLTW6020209T2 | MCSS Partial Credit Member | 0.56 | 0.47 | 3% |
| CLTW6030228T3 | MatchMS Member | 0.69 | -0.14 | 1% |
| CLTR6020418T3 | MCMA - Member | 0.40 | 1.07 | 2% |
| CLTR6020416T3 | MCMS Member | 0.31 | 1.64 | 3% |
| CLTR6020417T3 | ZoneMS Member | 0.60 | 0.04 | 3% |
| CLTW6020424T3 | MCSS Discrete | 0.40 | 1.21 | 1% |
| CLTR6040032T3 | ZoneMS Member | 0.70 | -0.47 | 1% |
| CLTR6040010T3 | ZoneMS Member | 0.84 | -1.04 | 2% |
| CLTR6040011T3 | MCSS Member | 0.50 | 0.72 | 2% |
| CLTW6040012T3 | MCSS Partial Credit Member | 0.45 | 0.95 | 5% |
| CLTW6040123T1 | ZoneMS Member | 0.78 | -1.48 | 2% |
| CLTR6040112T1 | MCMA - Member | 0.82 | -1.12 | 3% |
| CLTR6040114T1 | MCSS Member | 0.61 | -0.40 | 6% |
| CLTR6040113T1 | MCSS Member | 0.77 | -1.35 | 6% |
| CLTR6040176T2 | ZoneMS Member | 0.81 | -1.67 | 4% |
| CLTW6040177T2 | MatchMS Member | 0.62 | -0.58 | 5% |
| CLTR6040178T2 | MCSS Member | 0.48 | 0.14 | 5% |
| CLTR6040164T2 | MCSS Member | 0.53 | -0.12 | 2% |
| CLTW6040108T1 | MCSS Member | 0.52 | 0.01 | 4% |
| CLTR6040106T1 | MCMS Member | 0.68 | -0.77 | 3% |
| CLTR6040107T1 | MatchMS Member | 0.52 | 0.02 | 5% |
| CLTR6040167T2 | ZoneMS Member | 0.71 | -1.31 | 3% |
| CLTW6020103T1 | MCSS Member | 0.49 | 0.11 | 5% |
| CLTR6040236T1 | ZoneMS Discrete | 0.69 | -1.13 | 4% |
| CLTR6040121T1 | MCMA - Member | 0.70 | -0.67 | 3% |
| CLTW6020102T1 | MCSS Member | 0.65 | -0.69 | 3% |
| CLTR6020423T2-R | MCSS Member | 0.74 | -1.18 | 3% |
| CLTR6040031T3 | MCSS Member | 0.35 | 0.80 | 4% |
| CLTW6040138T1 | MatchMS Member | 0.45 | 0.30 | 4% |
| CLTR6040122T1 | MCSS Member | 0.69 | -0.87 | 3% |

**Table 8.D.5 Item Difficulties and Omit Rate—ELA, Grade Seven**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTW7020385T1 | MCSS Discrete | 0.81 | -1.69 | 1% |
| CLTR7020411T1 | MCSS Member | 0.84 | -1.97 | 1% |
| CLTR7020410T1 | MCSS Member | 0.64 | -0.63 | 3% |
| CLTW7020412T1 | ZoneMS Member | 0.61 | -1.12 | 1% |
| CLTR7020380T1 | MCSS Discrete | 0.79 | -1.55 | 2% |
| CLTW7020386T1 | ZoneMS Discrete | 0.68 | -1.27 | 1% |
| CLTR7020368T2 | ZoneMS Discrete | 0.66 | -1.21 | 2% |
| CLTR7030070T2 | ZoneMS Member | 0.64 | -0.97 | 3% |
| CLTR7030071T2 | MCSS Member | 0.54 | -0.14 | 5% |
| CLTW7030072T2 | MCSS Member | 0.61 | -0.48 | 5% |
| CLTR7020382T1 | ZoneMS Discrete | 0.52 | -1.02 | 5% |
| CLTR7030252T1-R | MCSS Member | 0.75 | -2.11 | 6% |
| CLTR7030253T1-R | MCSS Member | 0.30 | 0.09 | 8% |
| CLTW7030254T1 | ZoneMS Member | 0.56 | -1.21 | 9% |
| CLTR7020379T1 | ZoneMS Discrete | 0.59 | -1.43 | 7% |
| CLTR7020383T1 | MCMA - Discrete | 0.41 | -0.57 | 7% |
| CLTR7040127T1 | MCSS Member | 0.74 | -2.05 | 7% |
| CLTR7040128T1 | MCSS Member | 0.39 | -0.39 | 10% |
| CLTW7040129T1 | MatchMS Member | 0.64 | -1.50 | 15% |
| CLTR7020378T2 | MCMA - Member | 0.30 | -0.15 | 10% |
| CLTR7020377T2 | MCSS Member | 0.24 | 0.40 | 14% |
| CLTR7020376T2 | MCSS Member | 0.32 | -0.04 | 11% |
| CLTW7040065T2 | ZoneMS Member | 0.76 | -1.60 | 4% |
| CLTW7040066T2 | MCSS Member | 0.37 | -0.26 | 9% |
| CLTR7040175T2 | MCSS Member | 0.39 | -0.38 | 9% |
| CLTW7030246T1 | MCSS Member | 0.64 | -0.39 | 1% |
| CLTR7020381T1 | MCSS Discrete | 0.56 | -0.02 | 1% |
| CLTW7020384T1 | MCSS Discrete | 0.32 | 1.09 | 1% |
| CLTR7030054T2 | MCSS Member | 0.63 | -0.35 | 2% |
| CLTR7030055T2 | MCSS Member | 0.41 | 0.66 | 4% |
| CLTW7030056T2 | MatchMS Member | 0.53 | 0.11 | 5% |
| CLTW7030242T2 | MCSS Member | 0.74 | -0.90 | 2% |
| CLTWT020155T2 | MCSS Partial Credit Member | 0.49 | 0.29 | 6% |
| CLTR7020154T2 | MCSS Member | 0.78 | -1.15 | 2% |
| CLTR7020153T2 | MCSS Member | 0.37 | 0.84 | 3% |
| CLTR7020370T2 | MCSS Discrete | 0.49 | 0.29 | 2% |
| CLTR7020365T3 | MCMA - Discrete | 0.48 | 0.30 | 2% |
| CLTR7040062T3 | ZoneMS Member | 0.65 | -0.72 | 2% |
| CLTR7030250T3 | MCSS Member | 0.46 | 0.43 | 2% |
| CLTR7020158T2 | MCSS Partial Credit Member | 0.70 | 0.30 | 4% |
| CLTR7020156T2 | MCSS Member | 0.57 | 0.83 | 0% |
| CLTR7020157T2 | MCSS Member | 0.47 | 1.26 | 1% |
| CLTR7040045T2 | MCMS Member | 0.78 | -0.21 | 0% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTR7040046T2 | MCSS Member | 0.80 | -0.36 | 1% |
| CLTR7040047T2 | MatchMS Member | 0.74 | 0.40 | 1% |
| CLTR7020360T3 | ZoneMS Member | 0.64 | -0.22 | 0% |
| CLTR7020362T3 | MCMS Discrete | 0.49 | 1.19 | 1% |
| CLTW7030116T3 | MCSS Partial Credit Member | 0.55 | 0.98 | 6% |
| CLTR7030114T3 | MCMS Member | 0.72 | 0.07 | 1% |
| CLTR7030115T3 | MCSS Member | 0.63 | 0.58 | 2% |
| CLTW7020350T3 | MCSS Partial Credit Member | 0.58 | 0.83 | 5% |
| CLTR7020348T3 | MCSS Member | 0.44 | 1.43 | 2% |
| CLTR7020349T3 | MCMS Member | 0.19 | 2.74 | 3% |
| CLTR7040061T3 | MCMA - Member | 0.56 | 0.97 | 0% |
| CLTR7040153T2 | MCSS Member | 0.68 | -0.85 | 3% |
| CLTR7040154T2 | ZoneMS Member | 0.73 | -1.21 | 5% |
| CLTW7040155T2 | MatchMS Member | 0.72 | -0.99 | 6% |
| CLTR7040162T1 | MCSS Member | 0.80 | -1.58 | 2% |
| CLTR7040042T2 | MCSS Member | 0.65 | -0.69 | 3% |
| CLTR7040043T2 | MCSS Member | 0.68 | -0.86 | 5% |
| CLTW7040044T2 | ZoneMS Member | 0.72 | -1.18 | 6% |
| CLTR7040064T2 | MCSS Member | 0.42 | 0.47 | 3% |
| CLTR7040077T3 | MCMS Member | 0.41 | 0.53 | 3% |
| CLTR7040078T3 | MCMS Member | 0.44 | 0.35 | 5% |
| CLTW7040079T3 | MCSS Partial Credit Member | 0.42 | 0.39 | 10% |
| CLTW7040068T2 | MCSS Member | 0.43 | 0.41 | 3% |
| CLTR7040049T2 | MCSS Member | 0.57 | -0.34 | 2% |
| CLTR7040048T2 | ZoneMS Member | 0.64 | -0.96 | 5% |
| CLTW7040050T2 | MCSS Member | 0.56 | -0.27 | 5% |
| CLTR7040063T2 | MCSS Member | 0.57 | -0.34 | 2% |
| CLTR7040125T1 | MCMA - Member | 0.72 | -0.79 | 2% |
| CLTR7040156T1 | ZoneMS Member | 0.83 | -1.93 | 2% |
| CLTW7040157T1 | MCSS Member | 0.58 | -0.31 | 3% |
| CLTR7040126T1 | MatchSS Member | 0.64 | -0.64 | 9% |

**Table 8.D.6 Item Difficulties and Omit Rate—ELA, Grade Eight**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTW8020390T1 | MCSS Discrete | 0.89 | -2.25 | 1% |
| CLTR8020394T1-M | ZoneMS Member | 0.58 | -0.51 | 3% |
| CLTR8020395T1-M | MCSS Member | 0.76 | -1.26 | 2% |
| CLTW8020396T1-O | ZoneMS Member | 0.61 | -0.70 | 2% |
| CLTR8020446T1 | ZoneMS Discrete | 0.73 | -1.37 | 1% |
| CLTR8020447T1 | ZoneMS Discrete | 0.60 | -0.75 | 1% |
| CLTR8020321T2-M | ZoneMS Member | 0.74 | -1.22 | 3% |
| CLTR8020322T2-M | MCSS Member | 0.37 | 0.70 | 4% |
| CLTR8020323T2-M | MCMA - Member | 0.60 | -0.26 | 3% |
| CLTW8030219T2 | MCSS Partial Credit Member | 0.62 | -0.34 | 5% |
| CLTW8030212T1 | ZoneMS Discrete | 0.53 | -0.26 | 3% |
| CLTR8020445T1 | MCSS Discrete | 0.54 | -0.28 | 2% |
| CLTR8020210T1-R | MCSS Member | 0.54 | -0.66 | 5% |
| CLTR8020211T1-M | MCSS Member | 0.49 | -0.45 | 8% |
| CLTW8020212T1-M | MCSS Member | 0.72 | -1.48 | 7% |
| CLTR8040080T1 | MCMA - Member | 0.35 | -0.03 | 4% |
| CLTR8040151T2 | MCSS Member | 0.57 | -0.43 | 2% |
| CLTW8040037T1 | MCSS Member | 0.77 | -1.78 | 4% |
| CLTR8030210T1-R | MCSS Member | 0.53 | -0.61 | 4% |
| CLTW8020260T2 | MCSS Partial Credit Member | 0.42 | -0.19 | 11% |
| CLTR8030207T2 | MCSS Member | 0.36 | 0.13 | 6% |
| CLTR8030208T2 | ZoneMS Member | 0.47 | -0.31 | 10% |
| CLTW8030209T2-R | MCSS Member | 0.46 | -0.32 | 8% |
| CLTR8020259T2 | ZoneMS Discrete | 0.61 | -1.00 | 5% |
| CLTR8040152T2 | MCSS Member | 0.43 | -0.16 | 5% |
| CLTW8040158T2 | MCSS Member | 0.67 | -0.29 | 1% |
| CLTR8040150T2 | MatchMS Member | 0.49 | 0.26 | 2% |
| CLTR8040145T2 | MCSS Member | 0.28 | 1.22 | 1% |
| CLTR8040146T2 | ZoneMS Member | 0.77 | -1.18 | 3% |
| CLTW8040147T2 | ZoneMS Member | 0.74 | -1.09 | 3% |
| CLTR8020290T2 | MCSS Discrete | 0.56 | -0.02 | 2% |
| CLTR8020285T2-M | MCSS Member | 0.45 | 0.68 | 2% |
| CLTR8020286T2-M | MCSS Member | 0.52 | 0.40 | 2% |
| CLTW8020287T2-M | MatchMS Member | 0.33 | 1.24 | 2% |
| CLTR8020072T3 | MCSS Discrete | 0.35 | 0.88 | 2% |
| CLTR8020439T3 | ZoneMS Discrete | 0.57 | -0.13 | 1% |
| CLTW8030129T3 | MCSS Partial Credit Member | 0.54 | 0.08 | 6% |
| CLTR8030223T2 | MCSS Member | 0.79 | -0.46 | 0% |
| CLTR8040148T2 | ZoneMS Member | 0.76 | -0.75 | 0% |
| CLTR8020066T3-M | ZoneMS Member | 0.60 | 0.36 | 1% |
| CLTR8020068T3-M | MCMA - Member | 0.65 | 0.50 | 1% |
| CLTR8020067T3-M | MCSS Member | 0.55 | 0.75 | 2% |
| CLTR8030120T3 | MCMS Member | 0.52 | 0.85 | 0% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTW8020069T3 | MCSS Discrete | 0.47 | 1.08 | 1% |
| CLTR8040214T3 | ZoneMS Member | 0.79 | -0.88 | 2% |
| CLTR8040215T3 | ZoneMS Member | 0.70 | -0.49 | 2% |
| CLTW8040216T3 | MCSS Partial Credit Member | 0.66 | 0.36 | 3% |
| CLTW8040220T3 | MatchSS Member | 0.93 | -1.77 | 0% |
| CLTR8040090T1 | MCSS Member | 0.69 | -0.84 | 2% |
| CLTR8040091T1 | ZoneMS Member | 0.78 | -1.39 | 4% |
| CLTW8040092T1 | ZoneMS Member | 0.72 | -1.06 | 4% |
| CLTR8040219T3 | MCMA - Member | 0.51 | 0.04 | 2% |
| CLTR8040142T2 | MCSS Member | 0.76 | -1.20 | 3% |
| CLTR8040144T2 | ZoneMS Member | 0.63 | -0.71 | 5% |
| CLTR8040143T2 | Composite - Member | 0.43 | 0.37 | 4% |
| CLTR8040217T3 | MCSS Member | 0.47 | 0.25 | 3% |
| CLTR8040218T3 | MCSS Member | 0.55 | -0.17 | 3% |
| CLTR8030125T1 | ZoneMS Member | 0.70 | -0.99 | 2% |
| CLTR8030126T1 | MCSS Member | 0.76 | -1.22 | 2% |
| CLTW8030127T1 | ZoneMS Member | 0.75 | -1.14 | 5% |

**Table 8.D.7 Item Difficulties and Omit Rate—ELA, Grade Eleven**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTRH020034T1 | MCSS Discrete | 0.78 | -1.28 | 1% |
| CLTRH020230T1 | MCSS Member | 0.58 | -0.19 | 2% |
| CLTRH020231T1 | MCSS Member | 0.78 | -1.32 | 1% |
| CLTWH020232T1 | ZoneMS Member | 0.72 | -1.28 | 2% |
| CLTRH020033T1 | ZoneMS Discrete | 0.62 | -0.77 | 2% |
| CLTRH020234T1 | MCMA - Discrete | 0.76 | -0.85 | 2% |
| CLTRH020220T2 | MCSS Member | 0.70 | -0.84 | 2% |
| CLTRH020221T2 | MCSS Member | 0.53 | 0.05 | 4% |
| CLTWH020222T2 | ZoneMS Member | 0.68 | -0.87 | 4% |
| CLTWH020226T2 | ZoneMS Discrete | 0.62 | -0.59 | 2% |
| CLTRH020233T1 | MCSS Discrete | 0.56 | -1.08 | 4% |
| CLTWH020236T1 | ZoneMS Discrete | 0.62 | -1.55 | 6% |
| CLTRH020032T1-M | MatchMS Member | 0.49 | -0.06 | 6% |
| CLTRH030038T1 | MCMA - Member | 0.29 | -0.11 | 9% |
| CLTRH030037T1 | ZoneMS Member | 0.45 | -0.54 | 13% |
| CLTRH030036T1-R | MCSS Member | 0.46 | -0.64 | 9% |
| CLTRH040131T1 | ZoneMS Member | 0.55 | -1.13 | 7% |
| CLTRH040132T1 | ZoneMS Member | 0.52 | -0.93 | 13% |
| CLTWH040133T1 | MCSS Member | 0.38 | -0.29 | 8% |
| CLTRH020217T2 | MCSS Member | 0.51 | -0.84 | 8% |
| CLTRH020218T2 | ZoneMS Member | 0.46 | -0.52 | 10% |
| CLTWH020219T2 | MCSS Member | 0.32 | 0.00 | 12% |
| CLTRH020214T2 | MatchMS Discrete | 0.44 | -0.59 | 11% |
| CLTWH040207T2 | MCSS Member | 0.52 | -0.24 | 4% |
| CLTWH040222T2 | MCSS Member | 0.39 | -0.30 | 8% |
| CLTWH030151T1 | MCSS Member | 0.46 | 0.40 | 1% |
| CLTRH040130T1 | MCMS Member | 0.58 | -0.13 | 1% |
| CLTRH040221T2 | MCSS Member | 0.64 | -0.40 | 2% |
| CLTRH040208T2 | ZoneMS Member | 0.56 | -0.05 | 2% |
| CLTRH040209T2 | ZoneMS Member | 0.76 | -0.98 | 5% |
| CLTWH040210T2 | MatchSS Member | 0.34 | 0.96 | 5% |
| CLTRH020189T2 | MCMA - Member | 0.73 | -0.46 | 2% |
| CLTRH020187T2 | MCMS Member | 0.29 | 1.19 | 3% |
| CLTRH020223T2 | MCSS Discrete | 0.53 | 0.11 | 2% |
| CLTRH020213T2 | MCSS Discrete | 0.42 | 0.61 | 2% |
| CLTWH030230T3 | MCMS Member | 0.27 | 1.28 | 2% |
| CLTRH040056T3 | MCMA - Member | 0.68 | -0.31 | 2% |
| CLTWH040096T3 | MatchMS Member | 0.61 | 0.07 | 2% |
| CLTRH030093T2 | ZoneMS Member | 0.82 | -0.57 | 1% |
| CLTRH030092T2 | MCSS Member | 0.69 | 0.54 | 0% |
| CLTRH030094T2 | MCMA - Member | 0.75 | 0.52 | 1% |
| CLTRH020224T2 | MCMA - Discrete | 0.70 | 0.76 | 0% |
| CLTRH040224T2 | ZoneMS Member | 0.71 | -0.20 | 1% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTRH040225T2 | MCSS Member | 0.89 | -0.90 | 1% |
| CLTWH040226T2 | MatchMS Member | 0.85 | -0.18 | 3% |
| CLTRH020278T3 | MCSS Discrete | 0.31 | 2.22 | 1% |
| CLTWH020433T3 | MCSS Partial Credit Member | 0.51 | 1.34 | 6% |
| CLTRH020266T3 | MCSS Member | 0.45 | 1.59 | 2% |
| CLTWH020268T3 | MCSS Member | 0.44 | 1.63 | 2% |
| CLTRH020267T3 | ZoneMS Member | 0.59 | 0.78 | 1% |
| CLTRH040054T3 | MCMS Member | 0.61 | 0.93 | 0% |
| CLTRH020275T3 | MCMS Member | 0.65 | 0.68 | 0% |
| CLTWH040137T1 | MCSS Member | 0.75 | -1.15 | 2% |
| CLTRH040206T2 | ZoneMS Member | 0.68 | -1.01 | 3% |
| CLTRH040223T2 | MCSS Member | 0.71 | -0.87 | 2% |
| CLTRH040205T2 | MCSS Member | 0.40 | 0.70 | 2% |
| CLTWH030052T1-R | MCSS Member | 0.70 | -0.79 | 2% |
| CLTRH020031T1 | MatchMS Member | 0.65 | -0.50 | 4% |
| CLTWH030153T2-R | MCSS Member | 0.53 | 0.09 | 3% |
| CLTRH030152T2 | MCSS Member | 0.67 | -0.63 | 2% |
| CLTRH040134T1 | MCMA - Member | 0.47 | 0.34 | 4% |
| CLTRH040135T1 | MCMS Member | 0.58 | -0.16 | 3% |
| CLTWH040136T1 | ZoneMS Member | 0.67 | -0.87 | 5% |
| CLTRH030229T3-R | MCSS Member | 0.54 | 0.05 | 3% |

**Table 8.D.8 Item Difficulties and Omit Rate—Mathematics, Grade Three**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM3020004T1 | MCSS Discrete | 0.73 | -0.98 | 2% |
| CLTM3020210T1 | MCSS Discrete | 0.71 | -0.90 | 2% |
| CLTM3020186T1 | MCSS Discrete | 0.73 | -1.00 | 2% |
| CLTM3030566T1 | MCSS Discrete | 0.71 | -0.87 | 2% |
| CLTM3020059T1 | MCSS Discrete | 0.66 | -0.59 | 4% |
| CLTM3020065T1 | ZoneSS Discrete | 0.74 | -1.03 | 3% |
| CLTM3020063T2 | MCMA - Discrete | 0.62 | -0.24 | 3% |
| CLTM3030592T2 | ZoneMS Member | 0.51 | 0.02 | 4% |
| CLTM3020008T2 | MCSS Discrete | 0.42 | 0.45 | 6% |
| CLTM3020172T2 | MCMA - Discrete | 0.47 | 0.19 | 4% |
| CLTM3020018T1 | MCSS Discrete | 0.44 | -0.33 | 10% |
| CLTM3181019T2 | Composite - Discrete | 0.30 | 0.34 | 16% |
| CLTM3030500T1 | ZoneSS Discrete | 0.49 | -0.19 | 10% |
| CLTM3020017T1 | MCSS Discrete | 0.53 | -0.75 | 14% |
| CLTM3030506T1 | ZoneSS Member | 0.39 | -0.13 | 18% |
| CLTM3020007T1 | ZoneSS Discrete | 0.43 | 0.08 | 7% |
| CLTM3020062T1 | MCMA - Discrete | 0.40 | -0.35 | 15% |
| CLTM3020001T1 | MCMA - Discrete | 0.41 | -0.36 | 14% |
| CLTM3180964T2 | Composite - Member | 0.19 | 0.75 | 19% |
| CLTM3030569T1 | Composite - Member | 0.39 | -0.22 | 19% |
| CLTM3180960T2 | MCSS Member | 0.31 | 0.23 | 19% |
| CLTM3030496T2-R | MCSS Discrete | 0.35 | 0.04 | 17% |
| CLTM3020060T2 | MCSS Discrete | 0.36 | -0.04 | 21% |
| CLTM3020010T1 | MCMA - Discrete | 0.32 | -0.10 | 16% |
| CLTM3030578T1-R | MCSS Discrete | 0.56 | -0.86 | 16% |
| CLTM3020171T1 | MCMA - Discrete | 0.41 | 0.19 | 2% |
| CLTM3030591T1 | ZoneMS Member | 0.57 | -0.42 | 2% |
| CLTM3020057T2 | MCSS Discrete | 0.49 | -0.01 | 4% |
| CLTM3020054T2 | MCMA - Discrete | 0.33 | 0.36 | 4% |
| CLTM3020202T2 | MCSS Discrete | 0.47 | 0.05 | 5% |
| CLTM3030582T2 | MatchMS Discrete | 0.52 | -0.16 | 9% |
| CLTM3030567T2 | MCSS Member | 0.45 | 0.13 | 5% |
| CLTM3030499T2 | Composite - Member | 0.36 | 0.61 | 7% |
| CLTM3030579T2 | MCSS Discrete | 0.42 | 0.26 | 4% |
| CLTM3020205T3 | MCSS Discrete | 0.41 | 0.33 | 5% |
| CLTM3020187T2 | MCSS Discrete | 0.22 | 1.25 | 5% |
| CLTM3030502T3 | MCSS Member | 0.43 | 0.21 | 5% |
| CLTM3020003T3 | MCMA - Discrete | 0.48 | -0.05 | 5% |
| CLTM3020209T3 | MCSS Discrete | 0.15 | 2.36 | 1% |
| CLTM3020204T2 | MCSS Discrete | 0.38 | 1.08 | 1% |
| CLTM3030565T3 | MCSS Member | 0.44 | 0.79 | 2% |
| CLTM3020066T2 | MCSS Discrete | 0.64 | -0.04 | 1% |
| CLTM3020168T2 | MCSS Discrete | 0.45 | 0.77 | 2% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM3030583T3 | MCMS Member | 0.43 | 1.07 | 1% |
| CLTM3181023T3 | Composite - Member | 0.48 | 0.64 | 2% |
| CLTM3020058T3 | Numeric Discrete | 0.10 | 2.84 | 3% |
| CLTM3020169T3 | Numeric Discrete | 0.16 | 2.26 | 4% |
| CLTM3020173T3 | MCMA - Discrete | 0.42 | 0.76 | 2% |
| CLTM3030574T3-R | BarPicturegraphMS Member | 0.46 | 0.65 | 5% |
| CLTM3030590T2 | Composite - Member | 0.34 | 1.29 | 3% |
| CLTM3030710T3 | InLineChoicelistMS Member | 0.33 | 1.25 | 5% |
| CLTM3020175T2 | MCSS Discrete | 0.44 | 0.78 | 2% |
| CLTM3020203T3 | MCSS Discrete | 0.34 | 1.24 | 3% |
| CLTM3030497T3-R | Numeric Discrete | 0.10 | 2.50 | 9% |
| CLTM3180958T1 | MCSS Discrete | 0.59 | -0.25 | 4% |
| CLTM3181018T2 | Composite - Discrete | 0.48 | 0.23 | 3% |
| CLTM3180887T1 | ZoneSS Discrete | 0.72 | -0.89 | 6% |
| CLTM3180889T3 | ZoneSS Discrete | 0.47 | 0.22 | 10% |
| CLTM3181024T1 | MCSS Member | 0.57 | -0.23 | 3% |
| CLTM3180961T2 | MCSS Member | 0.61 | -0.40 | 5% |
| CLTM3180890T1 | ZoneSS Discrete | 0.61 | -0.42 | 8% |
| CLTM3181020T3 | MCMS Discrete | 0.42 | 0.59 | 5% |
| CLTM3030501T2-R | MCSS Discrete | 0.42 | 0.47 | 6% |
| CLTM3180963T1 | Composite - Member | 0.58 | -0.28 | 5% |
| CLTM3180891T2 | MCSS Member | 0.30 | 1.01 | 7% |
| CLTM3180957T1 | MCSS Discrete | 0.63 | -0.57 | 3% |
| CLTM3180884T1 | Composite - Member | 0.66 | -0.60 | 3% |
| CLTM3180888T2 | MCSS Discrete | 0.47 | 0.16 | 3% |
| CLTM3180886T2 | Composite - Member | 0.29 | 0.97 | 0% |
| CLTM3180962T3 | Composite - Member | 0.36 | 0.71 | 5% |
| CLTM3180959T1 | ZoneSS Discrete | 0.54 | -0.08 | 5% |
| CLTM3180885T2 | BarPicturegraphMS Member | 0.47 | 0.20 | 0% |
| CLTM3030563T1-R | MCSS Member | 0.43 | 0.45 | 3% |

**Table 8.D.9 Item Difficulties and Omit Rate—Mathematics, Grade Four**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM4020255T1 | MCSS Discrete | 0.79 | -1.48 | 2% |
| CLTM4030475T1 | ZoneMS Discrete | 0.77 | -1.47 | 2% |
| CLTM4030481T1 | MCSS Member | 0.69 | -0.89 | 1% |
| CLTM4020246T1 | MCSS Discrete | 0.68 | -0.83 | 2% |
| CLTM4020177T1 | ZoneMS Discrete | 0.62 | -0.68 | 2% |
| CLTM4020189T1 | MCSS Discrete | 0.60 | -0.44 | 2% |
| CLTM4030612T1 | ZoneMS Discrete | 0.75 | -1.44 | 2% |
| CLTM4030484T1 | InLineChoicelistMS Member | 0.46 | 0.12 | 7% |
| CLTM4030482T2 | MCSS Member | 0.57 | -0.30 | 3% |
| CLTM4020178T2 | InLineChoicelistMS Discrete | 0.52 | -0.09 | 7% |
| CLTM4030490T1 | MCSS Member | 0.42 | -0.22 | 7% |
| CLTM4181003T2 | ZoneMS Member | 0.34 | 0.32 | 12% |
| CLTM4020170T1 | MCMA - Discrete | 0.45 | 0.03 | 4% |
| CLTM4180848T1 | MCSS Member | 0.50 | -0.57 | 7% |
| CLTM4180852T1 | ZoneSS Member | 0.49 | -0.53 | 10% |
| CLTM4020252T1 | MCSS Discrete | 0.53 | -0.70 | 9% |
| CLTM4020237T1 | MCSS Discrete | 0.52 | -0.64 | 10% |
| CLTM4020231T1 | ZoneMS Discrete | 0.45 | -0.27 | 10% |
| CLTM4030613T2 | InLineChoicelistMS Member | 0.45 | -0.39 | 18% |
| CLTM4030650T1 | InLineChoicelistMS Member | 0.64 | -0.67 | 9% |
| CLTM4180850T2 | MCSS Member | 0.28 | 0.40 | 11% |
| CLTM4180854T2 | MCSS Member | 0.31 | 0.28 | 12% |
| CLTM4030494T2 | Composite - Member | 0.42 | -0.24 | 15% |
| CLTM4020219T1 | MCSS Discrete | 0.46 | -0.39 | 10% |
| CLTM4030476T2 | MatchMS Member | 0.35 | -0.14 | 21% |
| CLTM4020253T2 | MCSS Discrete | 0.38 | 0.65 | 2% |
| CLTM4020247T2 | MCSS Discrete | 0.48 | 0.23 | 2% |
| CLTM4030668T1 | MCSS Member | 0.40 | 0.58 | 2% |
| CLTM4020244T2 | MCSS Discrete | 0.26 | 1.40 | 1% |
| CLTM4020250T2 | ZoneMS Discrete | 0.52 | 0.04 | 3% |
| CLTM4180853T2 | MCSS Member | 0.27 | 1.20 | 2% |
| CLTM4030616T2-R | MCSS Discrete | 0.42 | 0.51 | 2% |
| CLTM4030479T2 | Composite - Member | 0.41 | 0.46 | 3% |
| CLTM4020230T3 | ZoneMS Discrete | 0.45 | 0.55 | 3% |
| CLTM4020238T2 | MCSS Discrete | 0.35 | 0.78 | 3% |
| CLTM4020221T3 | MCSS Discrete | 0.42 | 0.50 | 3% |
| CLTM4020212T3 | ZoneMS Discrete | 0.42 | 0.58 | 3% |
| CLTM4180849T2 | MCSS Member | 0.56 | -0.10 | 2% |
| CLTM4030491T2 | MCSS Member | 0.44 | 1.02 | 0% |
| CLTM4020239T3 | MCSS Discrete | 0.39 | 1.23 | 1% |
| CLTM4030669T2 | MCSS Member | 0.42 | 1.09 | 0% |
| CLTM4181004T3 | Composite - Discrete | 0.33 | 1.50 | 1% |
| CLTM4020190T2 | MCSS Discrete | 0.52 | 0.68 | 1% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM4020233T3 | MCMA - Discrete | 0.47 | 0.84 | 1% |
| CLTM4030617T3-R | MCSS Discrete | 0.49 | 0.78 | 2% |
| CLTM4030492T3-R | MCSS Discrete | 0.48 | 0.86 | 1% |
| CLTM4020224T3 | InLineChoicelistMS Discrete | 0.31 | 1.76 | 1% |
| CLTM4030672T2 | ZoneMS Discrete | 0.55 | 0.32 | 1% |
| CLTM4020194T3 | MCSS Discrete | 0.43 | 1.05 | 2% |
| CLTM4020229T2 | InLineChoicelistMS Discrete | 0.53 | 0.60 | 2% |
| CLTM4020245T3 | MCSS Discrete | 0.47 | 0.87 | 1% |
| CLTM4180855T3 | Numeric Member | 0.04 | 3.35 | 6% |
| CLTM4181000T1 | ZoneSS Member | 0.46 | 0.21 | 5% |
| CLTM4181010T2 | Composite - Member | 0.33 | 0.70 | 5% |
| CLTM4180857T2 | ZoneSS Discrete | 0.59 | -0.39 | 5% |
| CLTM4180851T3 | MCSS Member | 0.15 | 1.81 | 5% |
| CLTM4181002T1 | ZoneMS Discrete | 0.69 | -1.18 | 3% |
| CLTM4180858T2 | MatchSS Discrete | 0.56 | -0.33 | 4% |
| CLTM4181027T2 | BarPicturegraphMS Member | 0.53 | -0.13 | 8% |
| CLTM4181035T3 | MCSS Discrete | 0.43 | 0.32 | 5% |
| CLTM4181032T2 | Composite - Member | 0.36 | 0.68 | 6% |
| CLTM4181005T1 | Composite - Member | 0.58 | -0.35 | 3% |
| CLTM4030649T3-R | MCSS Discrete | 0.40 | 0.42 | 7% |
| CLTM4030652T3-R | Composite - Discrete | 0.40 | 0.44 | 6% |
| CLTM4181031T1 | Composite - Discrete | 0.45 | 0.23 | 4% |
| CLTM4030648T2-R | MCSS Member | 0.22 | 1.35 | 5% |
| CLTM4181006T2 | Composite - Member | 0.31 | 1.00 | 5% |
| CLTM4030670T3-R | MCSS Discrete | 0.22 | 1.49 | 3% |
| CLTM4181030T1 | MatchMS Discrete | 0.48 | 0.10 | 5% |
| CLTM4181009T2 | Composite - Member | 0.39 | 0.56 | 3% |
| CLTM4030673T3-R | ZoneMS Discrete | 0.49 | 0.13 | 3% |

**Table 8.D.10 Item Difficulties and Omit Rate—Mathematics, Grade Five**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM5030609T1 | MCSS Member | 0.80 | -1.46 | 1% |
| CLTM5020180T1 | MCSS Discrete | 0.77 | -1.28 | 2% |
| CLTM5020338T1 | ZoneMS Discrete | 0.72 | -1.01 | 1% |
| CLTM5030557T1 | MCSS Member | 0.66 | -0.66 | 1% |
| CLTM5030458T1 | ZoneMS Discrete | 0.63 | -0.54 | 1% |
| CLTM5020184T2 | MCMA - Discrete | 0.47 | 0.18 | 2% |
| CLTM5020268T2 | ZoneMS Discrete | 0.42 | 0.44 | 7% |
| CLTM5030456T2 | ZoneSS Member | 0.34 | 0.79 | 10% |
| CLTM5020258T1 | MCSS Discrete | 0.53 | -0.03 | 3% |
| CLTM5020352T2 | MCMA - Discrete | 0.63 | -0.29 | 2% |
| CLTM5030463T1 | Composite - Member | 0.43 | -0.31 | 8% |
| CLTM5180906T2 | MCSS Member | 0.27 | 0.48 | 11% |
| CLTM5030676T1 | ZoneMS Member | 0.40 | 0.02 | 12% |
| CLTM5020165T1 | MCSS Discrete | 0.45 | -0.40 | 10% |
| CLTM5020404T1 | MCSS Discrete | 0.51 | -0.22 | 4% |
| CLTM5020357T1 | ZoneMS Discrete | 0.44 | -0.31 | 14% |
| CLTM5020354T1 | MCSS Discrete | 0.45 | -0.39 | 10% |
| CLTM5180907T2 | MCSS Member | 0.35 | 0.07 | 11% |
| CLTM5020183T1 | ZoneMS Discrete | 0.49 | -0.56 | 14% |
| CLTM5020341T2 | MCMA - Discrete | 0.26 | 0.14 | 9% |
| CLTM5020262T2 | MCSS Discrete | 0.25 | 0.60 | 13% |
| CLTM5020345T1 | MCSS Discrete | 0.44 | -0.32 | 10% |
| CLTM5181015T2 | Composite - Member | 0.27 | 0.32 | 11% |
| CLTM5030707T1-R | MCMA - Member | 0.30 | -0.04 | 12% |
| CLTM5030610T2 | MCSS Member | 0.38 | -0.06 | 13% |
| CLTM5030561T2-R | InLineChoicelistSS Member | 0.36 | 0.59 | 2% |
| CLTM5030465T3 | ZoneMS Member | 0.57 | -0.50 | 3% |
| CLTM5030464T2 | InLineChoicelistMS Member | 0.52 | -0.08 | 3% |
| CLTM5020215T3 | Graph Discrete | 0.15 | 1.79 | 9% |
| CLTM5020358T2 | MCMA - Discrete | 0.39 | 0.31 | 3% |
| CLTM5030576T2 | Composite - Member | 0.47 | 0.15 | 3% |
| CLTM5180968T2 | InLineChoicelistSS Member | 0.21 | 1.36 | 3% |
| CLTM5020265T2 | MCSS Discrete | 0.42 | 0.35 | 3% |
| CLTM5020355T2 | MCSS Discrete | 0.29 | 0.96 | 3% |
| CLTM5020361T2 | MCSS Discrete | 0.39 | 0.49 | 3% |
| CLTM5030575T1 | Composite - Member | 0.49 | 0.07 | 3% |
| CLTM5180912T2 | MCSS Member | 0.47 | 0.12 | 3% |
| CLTM5020359T3 | ZoneMS Discrete | 0.55 | -0.19 | 3% |
| CLTM5030607T2 | Composite - Member | 0.51 | -0.02 | 3% |
| CLTM5030708T2 | Composite - Member | 0.48 | 0.73 | 1% |
| CLTM5181014T3 | MCSS Member | 0.46 | 0.84 | 1% |
| CLTM5020346T2 | MCSS Discrete | 0.46 | 0.84 | 1% |
| CLTM5020347T3 | MCSS Discrete | 0.36 | 1.25 | 1% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM5020343T2 | InLineChoicelistSS Discrete | 0.28 | 1.68 | 2% |
| CLTM5020181T2 | MCSS Discrete | 0.39 | 1.12 | 1% |
| CLTM5020356T3 | MCSS Discrete | 0.46 | 0.84 | 1% |
| CLTM5030577T3 | Composite - Member | 0.54 | 0.51 | 1% |
| CLTM5020344T3 | MCSS Discrete | 0.41 | 1.07 | 2% |
| CLTM5030678T3 | MatchMS Member | 0.52 | 0.61 | 1% |
| CLTM5030709T3 | Composite - Member | 0.57 | 0.39 | 2% |
| CLTM5020259T2 | MCSS Discrete | 0.46 | 0.85 | 1% |
| CLTM5180915T3 | Composite - Member | 0.26 | 1.77 | 1% |
| CLTM5020266T3 | Numeric Discrete | 0.23 | 1.93 | 2% |
| CLTM5030462T2 | Composite - Member | 0.42 | 1.03 | 3% |
| CLTM5180909T2 | Composite - Member | 0.28 | 1.13 | 4% |
| CLTM5030558T2-R | MCSS Discrete | 0.25 | 1.33 | 3% |
| CLTM5180971T1 | Composite - Discrete | 0.56 | -0.11 | 3% |
| CLTM5180905T1 | MCSS Member | 0.52 | 0.04 | 4% |
| CLTM5020349T2-R | MCSS Discrete | 0.29 | 1.00 | 2% |
| CLTM5181016T3 | Composite - Member | 0.30 | 0.99 | 2% |
| CLTM5180970T1 | ZoneSS Member | 0.46 | 0.19 | 4% |
| CLTM5180821T2 | Composite - Member | 0.31 | 0.86 | 3% |
| CLTM5180818T1 | ZoneMS Discrete | 0.73 | -0.99 | 1% |
| CLTM5030559T3-R | Numeric Discrete | 0.09 | 2.52 | 14% |
| CLTM5180908T2 | Composite - Member | 0.32 | 0.79 | 4% |
| CLTM5030455T1-R | MCSS Member | 0.69 | -0.85 | 4% |
| CLTM5180911T1 | ZoneSS Member | 0.66 | -0.60 | 6% |
| CLTM5180824T3 | InLineChoicelistSS Member | 0.45 | 0.32 | 6% |
| CLTM5180819T2 | Composite - Member | 0.35 | 0.70 | 5% |
| CLTM5180910T1 | MCSS Member | 0.56 | -0.18 | 3% |
| CLTM5180904T1 | MCSS Member | 0.50 | 0.08 | 4% |
| CLTM5180967T2 | ZoneSS Discrete | 0.29 | 1.07 | 5% |
| CLTM5180972T3 | InLineChoicelistMS Member | 0.33 | 0.68 | 4% |
| CLTM5180822T1 | ZoneMS Member | 0.57 | -0.30 | 3% |

**Table 8.D.11 Item Difficulties and Omit Rate—Mathematics, Grade Six**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM6020284T1 | MCSS Discrete | 0.67 | -0.67 | 2% |
| CLTM6020198T1 | MCSS Discrete | 0.64 | -0.56 | 2% |
| CLTM6020293T1 | ZoneSS Discrete | 0.63 | -0.50 | 2% |
| CLTM6030685T1 | MCSS Member | 0.67 | -0.70 | 2% |
| CLTM6020427T1 | MCSS Discrete | 0.63 | -0.51 | 2% |
| CLTM6020287T1 | MCMA - Discrete | 0.63 | -0.30 | 2% |
| CLTM6020314T1 | MCMA - Discrete | 0.45 | 0.23 | 1% |
| CLTM6030683T2 | InLineChoicelistSS Discrete | 0.52 | 0.00 | 3% |
| CLTM6020285T2 | MCSS Discrete | 0.55 | -0.12 | 2% |
| CLTM6020364T2 | MCMA - Discrete | 0.42 | 0.34 | 2% |
| CLTM6180894T2 | InLineChoicelistSS Discrete | 0.41 | 0.46 | 3% |
| CLTM6030618T1 | MCMA - Member | 0.50 | -0.30 | 4% |
| CLTM6030621T1 | MCSS Member | 0.51 | -0.34 | 5% |
| CLTM6020320T1 | MCSS Discrete | 0.42 | 0.05 | 5% |
| CLTM6030598T1 | MCSS Member | 0.37 | 0.25 | 6% |
| CLTM6030472T1 | MCSS Member | 0.46 | -0.16 | 5% |
| CLTM6020051T2 | MCMA - Discrete | 0.50 | 0.09 | 2% |
| CLTM6020433T2 | MCMA - Discrete | 0.37 | 0.05 | 4% |
| CLTM6030682T1 | MCSS Member | 0.54 | -0.46 | 5% |
| CLTM6030599T2 | MatchSS Member | 0.49 | 0.14 | 6% |
| CLTM6020291T2 | MCMA - Discrete | 0.43 | -0.12 | 5% |
| CLTM6020097T1 | ZoneMS Discrete | 0.44 | 0.19 | 6% |
| CLTM6020425T2 | MCSS Discrete | 0.37 | 0.25 | 6% |
| CLTM6030469T1 | InLineChoicelistMS Member | 0.50 | -0.28 | 7% |
| CLTM6020037T1 | MCSS Discrete | 0.50 | -0.32 | 7% |
| CLTM6030637T3 | MCSS Member | 0.46 | 0.33 | 2% |
| CLTM6030686T2-R | MCSS Discrete | 0.54 | -0.02 | 1% |
| CLTM6030602T2 | InLineChoicelistMS Member | 0.35 | 0.74 | 2% |
| CLTM6020094T1 | ZoneMS Discrete | 0.42 | 0.55 | 1% |
| CLTM6180988T2 | InLineChoicelistSS Discrete | 0.56 | -0.10 | 2% |
| CLTM6020200T3 | ZoneSS Discrete | 0.51 | 0.09 | 4% |
| CLTM6180989T2 | MCSS Discrete | 0.53 | 0.01 | 2% |
| CLTM6030473T2 | MCSS Discrete | 0.30 | 1.02 | 2% |
| CLTM6030619T2 | InLineChoicelistMS Member | 0.33 | 0.80 | 2% |
| CLTM6020367T2 | ZoneMS Discrete | 0.33 | 0.93 | 2% |
| CLTM6030635T1 | MCSS Member | 0.51 | 0.09 | 3% |
| CLTM6020039T3 | InLineChoicelistMS Discrete | 0.42 | 0.99 | 1% |
| CLTM6020199T2 | MCSS Discrete | 0.65 | 0.03 | 1% |
| CLTM6030622T2 | MCSS Member | 0.61 | 0.21 | 0% |
| CLTM6020099T3 | ZoneSS Discrete | 0.20 | 2.14 | 3% |
| CLTM6020368T3 | InLineChoicelistMS Discrete | 0.47 | 0.79 | 2% |
| CLTM6020434T3 | ZoneMS Discrete | 0.55 | 0.55 | 1% |
| CLTM6020295T3 | Numeric Discrete | 0.40 | 1.10 | 2% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM6030687T3 | ZoneSS Member | 0.47 | 0.80 | 4% |
| CLTM6030603T3 | InLineChoicelistMS Member | 0.48 | 0.75 | 1% |
| CLTM6020322T3 | MCSS Discrete | 0.28 | 1.66 | 1% |
| CLTM6020041T2 | MCSS Discrete | 0.54 | 0.53 | 1% |
| CLTM6020289T3 | MCMA - Discrete | 0.48 | 0.76 | 1% |
| CLTM6180981T1 | Composite - Discrete | 0.64 | -0.38 | 6% |
| CLTM6180893T2 | MCSS Discrete | 0.53 | -0.02 | 2% |
| CLTM6180898T1 | MCSS Member | 0.71 | -0.83 | 2% |
| CLTM6180901T3 | Composite - Discrete | 0.53 | -0.01 | 2% |
| CLTM6180832T2 | MCSS Discrete | 0.52 | -0.02 | 3% |
| CLTM6180835T2 | MCSS Discrete | 0.49 | 0.10 | 2% |
| CLTM6180899T2 | Composite - Member | 0.28 | 1.11 | 1% |
| CLTM6180836T2 | MCSS Discrete | 0.43 | 0.32 | 2% |
| CLTM6180986T1 | MCSS Discrete | 0.61 | -0.38 | 2% |
| CLTM6180979T2 | Composite - Member | 0.32 | 0.86 | 2% |
| CLTM6180897T2 | ZoneSS Discrete | 0.42 | 0.46 | 27% |
| CLTM6180903T2 | MCSS Member | 0.39 | 0.59 | 3% |
| CLTM6030636T2-R | MCSS Discrete | 0.47 | 0.23 | 2% |
| CLTM6180896T1 | MCSS Discrete | 0.63 | -0.48 | 2% |
| CLTM6180985T2 | MatchSS Discrete | 0.34 | 0.78 | 8% |
| CLTM6180987T1 | Composite - Discrete | 0.52 | -0.02 | 2% |
| CLTM6180983T1 | Composite - Member | 0.50 | 0.08 | 2% |
| CLTM6180978T3 | ZoneSS Discrete | 0.41 | 0.45 | 8% |
| CLTM6180984T1 | MCSS Member | 0.65 | -0.57 | 3% |
| CLTM6180980T2 | Composite - Discrete | 0.57 | -0.21 | 2% |

**Table 8.D.12 Item Difficulties and Omit Rate—Mathematics, Grade Seven**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM7020050T1 | MCSS Discrete | 0.80 | -1.44 | 1% |
| CLTM7030688T1 | MCSS Member | 0.68 | -0.80 | 1% |
| CLTM7020085T1 | MCSS Discrete | 0.65 | -0.65 | 2% |
| CLTM7020280T1 | MCSS Discrete | 0.74 | -1.10 | 1% |
| CLTM7020047T1 | MCMA - Discrete | 0.68 | -0.51 | 1% |
| CLTM7020091T1 | ZoneMS Discrete | 0.71 | -0.56 | 5% |
| CLTM7020299T1 | MCSS Discrete | 0.64 | -0.61 | 2% |
| CLTM7020089T2 | ZoneMS Discrete | 0.49 | 0.07 | 3% |
| CLTM7020048T2 | ZoneMS Discrete | 0.54 | -0.11 | 3% |
| CLTM7020092T2 | ZoneMS Discrete | 0.67 | -0.45 | 5% |
| CLTM7020034T1 | MCSS Discrete | 0.53 | -0.78 | 9% |
| CLTM7030522T2 | ZoneMS Member | 0.41 | 0.27 | 8% |
| CLTM7030691T1 | MCSS Member | 0.49 | -0.60 | 10% |
| CLTM7020323T1 | MCSS Discrete | 0.35 | -0.01 | 10% |
| CLTM7020329T1 | ZoneMS Discrete | 0.33 | -0.21 | 17% |
| CLTM7020296T1 | MCSS Discrete | 0.47 | -0.53 | 8% |
| CLTM7020369T1 | MCSS Discrete | 0.51 | -0.72 | 10% |
| CLTM7020419T2 | InLineChoicelistMS Discrete | 0.35 | 0.62 | 7% |
| CLTM7020327T2 | MCMA - Discrete | 0.35 | -0.20 | 11% |
| CLTM7030515T1 | InLineChoicelistMS Member | 0.43 | -0.40 | 15% |
| CLTM7020086T2 | MCSS Discrete | 0.37 | -0.11 | 14% |
| CLTM7030512T1 | InLineChoicelistMS Member | 0.35 | -0.10 | 19% |
| CLTM7030585T2 | ZoneMS Member | 0.44 | 0.62 | 5% |
| CLTM7030518T1 | MCMA - Member | 0.44 | -0.50 | 13% |
| CLTM7020330T2 | ZoneMS Discrete | 0.25 | 0.09 | 19% |
| CLTM7030653T1 | MCSS Discrete | 0.50 | -0.18 | 2% |
| CLTM7030509T1 | InLineChoicelistMS Member | 0.56 | -0.35 | 3% |
| CLTM7020297T2 | InLineChoicelistSS Discrete | 0.39 | 0.31 | 5% |
| CLTM7020418T1 | MCMA - Discrete | 0.45 | 0.01 | 3% |
| CLTM7030516T2 | InLineChoicelistMS Member | 0.34 | 0.49 | 4% |
| CLTM7030519T2 | InLineChoicelistMS Member | 0.34 | 0.83 | 2% |
| CLTM7020300T2 | MCSS Discrete | 0.31 | 0.69 | 6% |
| CLTM7020328T3 | ZoneMS Discrete | 0.46 | 0.07 | 5% |
| CLTM7020282T2 | InLineChoicelistMS Discrete | 0.34 | 0.42 | 8% |
| CLTM7020298T3 | InLineChoicelistSS Discrete | 0.40 | 0.60 | 5% |
| CLTM7030510T2 | InLineChoicelistMS Member | 0.41 | 0.17 | 6% |
| CLTM7020451T3 | MCSS Discrete | 0.23 | 1.11 | 7% |
| CLTM7020324T2 | MCSS Discrete | 0.33 | 0.57 | 5% |
| CLTM7020093T3 | InLineChoicelistMS Discrete | 0.39 | 0.88 | 1% |
| CLTM7030705T2 | MCSS Member | 0.37 | 1.06 | 2% |
| CLTM7020373T2 | InLineChoicelistMS Discrete | 0.47 | 0.61 | 2% |
| CLTM7020423T3 | MCSS Discrete | 0.35 | 1.16 | 3% |
| CLTM7030589T3 | InLineChoicelistSS Member | 0.37 | 1.04 | 2% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM7020371T3 | MCSS Discrete | 0.35 | 1.14 | 2% |
| CLTM7020035T2 | MCSS Discrete | 0.56 | 0.21 | 2% |
| CLTM7030514T3 | InLineChoicelistMS Discrete | 0.47 | 0.61 | 3% |
| CLTM7030586T3 | InLineChoicelistMS Member | 0.39 | 0.92 | 3% |
| CLTM7020331T3 | InLineChoicelistMS Discrete | 0.46 | 0.69 | 3% |
| CLTM7020036T3 | Numeric Discrete | 0.14 | 2.42 | 4% |
| CLTM7180846T3 | ZoneMS Member | 0.62 | -0.65 | 3% |
| CLTM7030587T1-R | MCSS Discrete | 0.76 | -1.23 | 3% |
| CLTM7180937T1 | Composite - Discrete | 0.49 | 0.10 | 4% |
| CLTM7180994T2 | Composite - Member | 0.61 | -0.39 | 2% |
| CLTM7030704T1-R | MCSS Member | 0.66 | -0.67 | 3% |
| CLTM7180997T2 | Composite - Member | 0.26 | 1.05 | 3% |
| CLTM7180996T2 | MCSS Member | 0.47 | 0.20 | 2% |
| CLTM7180927T1 | Composite - Member | 0.56 | -0.16 | 3% |
| CLTM7180932T2 | MatchMS Member | 0.52 | -0.04 | 4% |
| CLTM7030696T3-R | Numeric Member | 0.11 | 2.25 | 12% |
| CLTM7180951T1 | Composite - Discrete | 0.54 | -0.12 | 4% |
| CLTM7180993T1 | Composite - Member | 0.57 | -0.19 | 4% |
| CLTM7180933T2 | Composite - Member | 0.44 | 0.19 | 2% |
| CLTM7180928T1 | MCSS Member | 0.61 | -0.49 | 3% |
| CLTM7180953T2 | ZoneMS Discrete | 0.44 | 0.50 | 5% |
| CLTM7030511T3-R | ZoneMS Member | 0.48 | 0.12 | 4% |
| CLTM7180949T1 | InLineChoicelistMS Discrete | 0.58 | -0.30 | 4% |
| CLTM7180935T2 | Numeric Member | 0.11 | 2.34 | 6% |
| CLTM7180952T2 | ZoneMS Discrete | 0.52 | -0.14 | 5% |
| CLTM7180995T3 | Composite - Member | 0.45 | 0.24 | 3% |

**Table 8.D.13 Item Difficulties and Omit Rate—Mathematics, Grade Eight**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM8020332T1 | MCSS Discrete | 0.81 | -1.51 | 2% |
| CLTM8030638T1 | MCSS Discrete | 0.76 | -1.16 | 1% |
| CLTM8020302T1 | MCSS Discrete | 0.70 | -0.86 | 1% |
| CLTM8020028T1 | InLineChoicelistMS Discrete | 0.69 | -0.81 | 2% |
| CLTM8030530T1 | MCMA - Member | 0.52 | 0.01 | 2% |
| CLTM8030536T2 | InLineChoicelistMS Member | 0.49 | 0.11 | 3% |
| CLTM8020305T1 | MCMA - Discrete | 0.46 | 0.18 | 3% |
| CLTM8020416T2 | InLineChoicelistMS Discrete | 0.38 | 0.60 | 3% |
| CLTM8020277T1 | MCMA - Discrete | 0.52 | 0.02 | 3% |
| CLTM8030539T2 | InLineChoicelistMS Member | 0.51 | 0.04 | 3% |
| CLTM8020079T1 | MCSS Discrete | 0.55 | -0.78 | 8% |
| CLTM8020278T1 | MCSS Discrete | 0.51 | -0.60 | 9% |
| CLTM8030535T1 | MCMA - Member | 0.52 | -0.60 | 9% |
| CLTM8030528T2 | InLineChoicelistMS Member | 0.49 | -0.14 | 6% |
| CLTM8030697T1 | MCSS Discrete | 0.45 | -0.36 | 10% |
| CLTM8030659T1 | MCSS Member | 0.51 | -0.62 | 9% |
| CLTM8180880T2 | MCSS Member | 0.25 | 0.57 | 10% |
| CLTM8020378T1 | MCMA - Discrete | 0.45 | -0.42 | 9% |
| CLTM8180817T2 | ZoneSS Discrete | 0.48 | 0.16 | 9% |
| CLTM8020412T1 | MCSS Discrete | 0.52 | -0.63 | 9% |
| CLTM8020388T1 | MCSS Discrete | 0.46 | -0.38 | 8% |
| CLTM8180975T2 | MCSS Discrete | 0.59 | -0.34 | 3% |
| CLTM8030538T1 | MCMA - Member | 0.47 | -0.49 | 12% |
| CLTM8020029T2 | InLineChoicelistMS Discrete | 0.43 | -0.31 | 17% |
| CLTM8180860T1 | ZoneSS Discrete | 0.39 | -0.10 | 20% |
| CLTM8030527T1 | MCMA - Member | 0.52 | -0.13 | 1% |
| CLTM8030624T1 | ZoneSS Discrete | 0.53 | -0.19 | 11% |
| CLTM8020390T3 | Numeric Discrete | 0.15 | 1.71 | 4% |
| CLTM8020026T2 | MCSS Discrete | 0.43 | 0.25 | 2% |
| CLTM8020379T2 | ZoneMS Discrete | 0.21 | 1.26 | 14% |
| CLTM8030663T2 | MCSS Member | 0.35 | 0.59 | 3% |
| CLTM8020083T2 | InLineChoicelistSS Discrete | 0.43 | 0.24 | 4% |
| CLTM8030698T2 | MCSS Member | 0.48 | 0.26 | 2% |
| CLTM8020030T3 | InLineChoicelistMS Discrete | 0.38 | 0.39 | 3% |
| CLTM8020415T1 | MCMA - Discrete | 0.53 | -0.13 | 3% |
| CLTM8020084T3 | InLineChoicelistSS Discrete | 0.42 | 0.28 | 5% |
| CLTM8020080T2 | InLineChoicelistMS Discrete | 0.37 | 0.53 | 5% |
| CLTM8020307T3 | InLineChoicelistMS Discrete | 0.53 | 0.41 | 1% |
| CLTM8020027T3 | MCSS Discrete | 0.41 | 0.88 | 1% |
| CLTM8020046T2 | ZoneMS Discrete | 0.23 | 1.77 | 4% |
| CLTM8020393T3 | InLineChoicelistMS Discrete | 0.31 | 1.34 | 2% |
| CLTM8020279T3 | MCSS Discrete | 0.54 | 0.33 | 1% |
| CLTM8030540T3 | InLineChoicelistMS Member | 0.41 | 0.87 | 2% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTM8020392T2 | InLineChoicelistMS Discrete | 0.43 | 0.80 | 3% |
| CLTM8020453T3 | ZoneSS Discrete | 0.44 | 0.75 | 2% |
| CLTM8020417T3 | InLineChoicelistMS Discrete | 0.44 | 0.82 | 2% |
| CLTM8020069T2 | ZoneSS Discrete | 0.31 | 1.36 | 3% |
| CLTM8020380T3 | ZoneMS Discrete | 0.30 | 1.39 | 5% |
| CLTM8030537T3 | InLineChoicelistMS Member | 0.48 | 0.61 | 2% |
| CLTM8180881T3 | ZoneSS Member | 0.40 | 0.50 | 16% |
| CLTM8180805T2 | MCSS Discrete | 0.74 | -1.07 | 2% |
| CLTM8180862T1 | InLineChoicelistMS Discrete | 0.54 | -0.11 | 3% |
| CLTM8180877T2 | MCSS Member | 0.44 | 0.31 | 4% |
| CLTM8030524T1-R | ZoneSS Discrete | 0.67 | -0.67 | 20% |
| CLTM8180815T2 | MatchSS Member | 0.71 | -0.86 | 5% |
| CLTM8180865T2 | Composite - Member | 0.36 | 0.67 | 2% |
| CLTM8180804T3 | MCMS Member | 0.61 | -0.62 | 2% |
| CLTM8180802T1 | Composite - Member | 0.61 | -0.42 | 2% |
| CLTM8030660T2-R | MCSS Discrete | 0.43 | 0.37 | 1% |
| CLTM8180808T3 | Composite - Member | 0.34 | 0.73 | 2% |
| CLTM8030625T2-R | MCSS Discrete | 0.34 | 0.79 | 4% |
| CLTM8180874T1 | MatchSS Discrete | 0.58 | -0.33 | 6% |
| CLTM8030661T3-R | ZoneMS Discrete | 0.50 | 0.05 | 2% |
| CLTM8180867T2 | Composite - Member | 0.30 | 0.84 | 3% |
| CLTM8180816T1 | MCSS Discrete | 0.68 | -0.77 | 3% |
| CLTM8180814T1 | MCSS Member | 0.79 | -1.31 | 2% |
| CLTM8180863T2 | Composite - Member | 0.37 | 0.62 | 2% |
| CLTM8180866T1 | InLineChoicelistMS Member | 0.68 | -0.62 | 2% |
| CLTM8180869T3 | Numeric Discrete | 0.29 | 1.07 | 5% |

**Table 8.D.14 Item Difficulties and Omit Rate—Mathematics, Grade Eleven**

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTMH020019T1 | MCSS Discrete | 0.74 | -1.18 | 1% |
| CLTMH020272T1 | MCSS Discrete | 0.72 | -1.03 | 1% |
| CLTMH020447T1 | ZoneSS Discrete | 0.61 | -0.51 | 7% |
| CLTMH030553T1 | MCSS Discrete | 0.70 | -0.95 | 2% |
| CLTMH020406T1 | MCMA - Discrete | 0.50 | 0.00 | 1% |
| CLTMH030642T2 | InLineChoicelistMS Member | 0.51 | -0.06 | 6% |
| CLTMH020397T1 | MCMA - Discrete | 0.51 | -0.04 | 3% |
| CLTMH030628T2 | MCSS Member | 0.52 | -0.09 | 3% |
| CLTMH020076T1 | ZoneSS Discrete | 0.51 | -0.03 | 5% |
| CLTMH030555T2 | InLineChoicelistMS Member | 0.49 | 0.03 | 6% |
| CLTMH020022T1 | MCSS Discrete | 0.51 | -0.63 | 4% |
| CLTMH020043T1 | ZoneSS Discrete | 0.35 | 0.08 | 9% |
| CLTMH030645T2 | InLineChoicelistMS Member | 0.74 | -0.80 | 5% |
| CLTMH030549T1 | MCSS Member | 0.43 | -0.28 | 9% |
| CLTMH020398T2 | ZoneMS Discrete | 0.54 | -0.81 | 8% |
| CLTMH030644T1 | MatchMS Member | 0.37 | -0.24 | 15% |
| CLTMH030630T1 | ZoneSS Discrete | 0.35 | 0.02 | 15% |
| CLTMH020068T1 | MCSS Discrete | 0.58 | -0.64 | 4% |
| CLTMH030665T1 | MatchMS Member | 0.40 | -0.32 | 13% |
| CLTMH030551T2 | ZoneMS Member | 0.58 | -1.00 | 9% |
| CLTMH180926T1 | MCSS Member | 0.47 | -0.45 | 8% |
| CLTMH020020T2 | MCSS Discrete | 0.51 | -0.62 | 10% |
| CLTMH030666T2 | InLineChoicelistMS Member | 0.63 | -0.67 | 8% |
| CLTMH020336T2 | ZoneMS Discrete | 0.35 | 0.07 | 11% |
| CLTMH020381T1 | MCMA - Discrete | 0.40 | -0.30 | 10% |
| CLTMH030641T1 | MCMA - Member | 0.53 | -0.07 | 1% |
| CLTMH020045T3 | MCSS Discrete | 0.48 | 0.07 | 2% |
| CLTMH020402T2 | InLineChoicelistMS Discrete | 0.47 | 0.15 | 3% |
| CLTMH030542T2 | ZoneMS Discrete | 0.43 | 0.31 | 3% |
| CLTMH020044T2 | MCSS Discrete | 0.29 | 0.95 | 2% |
| CLTMH020400T2 | MCSS Discrete | 0.34 | 0.70 | 2% |
| CLTMH020385T2 | MCMA - Discrete | 0.45 | 0.13 | 3% |
| CLTMH020270T2 | MCSS Discrete | 0.37 | 0.59 | 2% |
| CLTMH020077T2 | ZoneSS Discrete | 0.36 | 0.97 | 6% |
| CLTMH030552T3 | InLineChoicelistMS Member | 0.55 | -0.18 | 4% |
| CLTMH020337T3 | MCSS Discrete | 0.56 | -0.26 | 2% |
| CLTMH030712T1 | ZoneSS Member | 0.44 | 0.24 | 5% |
| CLTMH020023T2 | MCSS Discrete | 0.62 | 0.18 | 0% |
| CLTMH020313T3 | MCSS Discrete | 0.58 | 0.37 | 1% |
| CLTMH030646T3 | BarPicturegraphMS Member | 0.83 | -0.40 | 1% |
| CLTMH020078T3 | ZoneSS Discrete | 0.33 | 1.48 | 3% |
| CLTMH020382T2 | MCMA - Discrete | 0.40 | 0.97 | 1% |
| CLTMH030543T3 | MCSS Discrete | 0.53 | 0.58 | 0% |

| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
|---|---|---|---|---|
| CLTMH030667T3 | BarPicturegraphMS Member | 0.84 | -0.46 | 1% |
| CLTMH020401T3 | ZoneSS Discrete | 0.49 | 0.74 | 5% |
| CLTMH030714T3 | MCSS Discrete | 0.32 | 1.55 | 1% |
| CLTMH020407T2 | MCMA - Discrete | 0.50 | 0.69 | 1% |
| CLTMH030631T2 | MCSS Discrete | 0.36 | 1.30 | 1% |
| CLTMH020446T3 | Numeric Discrete | 0.27 | 1.80 | 2% |
| CLTMH030643T3 | InLineChoicelistMS Member | 0.44 | 0.94 | 1% |
| CLTMH180831T3 | Numeric Discrete | 0.19 | 1.76 | 8% |
| CLTMH180826T1 | MCSS Member | 0.70 | -0.93 | 3% |
| CLTMH180919T2 | Composite - Member | 0.55 | -0.17 | 4% |
| CLTMH180924T2 | MCSS Member | 0.53 | -0.08 | 3% |
| CLTMH180917T3 | Composite - Member | 0.10 | 1.83 | 6% |
| CLTMH180813T1 | MCSS Discrete | 0.51 | 0.01 | 2% |
| CLTMH180828T2 | InLineChoicelistSS Member | 0.54 | -0.17 | 5% |
| CLTMH180812T2 | MCSS Member | 0.27 | 1.20 | 4% |
| CLTMH180947T3 | Composite - Member | 0.23 | 1.35 | 5% |
| CLTMH180830T2 | InLineChoicelistSS Member | 0.62 | -0.53 | 4% |
| CLTMH180811T1 | MCMA - Member | 0.61 | -0.31 | 3% |
| CLTMH030713T2-R | MCSS Discrete | 0.27 | 1.11 | 3% |
| CLTMH180809T3 | BarPicturegraphMS Member | 0.54 | -0.12 | 9% |
| CLTMH180976T2 | MCSS Member | 0.65 | -0.72 | 4% |
| CLTMH180827T2 | MCSS Member | 0.56 | -0.25 | 4% |
| CLTMH180940T2 | ZoneMS Discrete | 0.70 | -0.93 | 3% |
| CLTMH030634T3-R | Numeric Discrete | 0.16 | 1.79 | 5% |
| CLTMH180921T1 | MatchMS Member | 0.50 | -0.03 | 8% |
| CLTMH030633T2-R | MCSS Member | 0.43 | 0.28 | 4% |
| CLTMH180943T2 | Composite - Member | 0.35 | 0.66 | 3% |

**Table 8.D.15 Average Number of Item Omits for Each Test Stage—ELA**

| Test | Form ID | Stage 1 (Items 1 through 4) | Stage 1B (Items 5 through 14) | Stage 2 (15 items) |
|---|---|---|---|---|
| Grade 3 | Early Exit | 0.98 | 2.72 | NA |
| Grade 3 | Easy Pathway | 0.34 | 0.58 | 1.51 |
| Grade 3 | Moderate Pathway | 0.15 | 0.16 | 0.36 |
| Grade 3 | Hard Pathway | 0.07 | 0.06 | 0.30 |
| Grade 4 | Early Exit | 0.58 | 2.74 | NA |
| Grade 4 | Easy Pathway | 0.19 | 0.75 | 1.26 |
| Grade 4 | Moderate Pathway | 0.08 | 0.18 | 0.30 |
| Grade 4 | Hard Pathway | 0.01 | 0.06 | 0.18 |
| Grade 5 | Early Exit | 0.70 | 2.23 | NA |
| Grade 5 | Easy Pathway | 0.14 | 0.60 | 1.09 |
| Grade 5 | Moderate Pathway | 0.03 | 0.16 | 0.37 |
| Grade 5 | Hard Pathway | 0.00 | 0.06 | 0.19 |
| Grade 6 | Early Exit | 0.23 | 1.39 | NA |
| Grade 6 | Easy Pathway | 0.38 | 1.58 | 2.62 |
| Grade 6 | Moderate Pathway | 0.11 | 0.28 | 0.80 |
| Grade 6 | Hard Pathway | 0.03 | 0.07 | 0.29 |
| Grade 7 | Early Exit | 0.34 | 2.31 | NA |
| Grade 7 | Easy Pathway | 0.11 | 0.69 | 1.34 |
| Grade 7 | Moderate Pathway | 0.04 | 0.13 | 0.35 |
| Grade 7 | Hard Pathway | 0.01 | 0.05 | 0.29 |
| Grade 8 | Early Exit | 0.57 | 2.16 | NA |
| Grade 8 | Easy Pathway | 0.15 | 0.49 | 0.90 |
| Grade 8 | Moderate Pathway | 0.04 | 0.14 | 0.32 |
| Grade 8 | Hard Pathway | 0.00 | 0.04 | 0.14 |
| Grade 11 | Early Exit | 0.44 | 1.83 | NA |
| Grade 11 | Easy Pathway | 0.14 | 0.63 | 1.40 |
| Grade 11 | Moderate Pathway | 0.02 | 0.11 | 0.34 |
| Grade 11 | Hard Pathway | 0.01 | 0.03 | 0.19 |

**Table 8.D.16 Average Number of Item Omits for Each Test Stage—Mathematics**

| Test | Form ID | Stage 1 (Items 1 through 4) | Stage 1B (Items 5 through 14) | Stage 2 (15 items) |
|---|---|---|---|---|
| Grade 3 | Early Exit | 0.46 | 2.45 | NA |
| Grade 3 | Easy Pathway | 0.23 | 1.35 | 2.47 |
| Grade 3 | Moderate Pathway | 0.05 | 0.33 | 0.73 |
| Grade 3 | Hard Pathway | 0.01 | 0.10 | 0.36 |
| Grade 4 | Early Exit | 0.39 | 1.55 | NA |
| Grade 4 | Easy Pathway | 0.16 | 1.02 | 1.81 |
| Grade 4 | Moderate Pathway | 0.02 | 0.10 | 0.34 |
| Grade 4 | Hard Pathway | 0.00 | 0.02 | 0.17 |
| Grade 5 | Early Exit | 0.45 | 1.84 | NA |
| Grade 5 | Easy Pathway | 0.16 | 1.12 | 1.67 |
| Grade 5 | Moderate Pathway | 0.02 | 0.26 | 0.48 |
| Grade 5 | Hard Pathway | 0.01 | 0.09 | 0.21 |
| Grade 6 | Early Exit | 0.45 | 1.80 | NA |
| Grade 6 | Easy Pathway | 0.13 | 0.44 | 0.89 |
| Grade 6 | Moderate Pathway | 0.02 | 0.15 | 0.31 |
| Grade 6 | Hard Pathway | 0.01 | 0.10 | 0.24 |
| Grade 7 | Early Exit | 0.39 | 2.31 | NA |
| Grade 7 | Easy Pathway | 0.16 | 0.98 | 2.01 |
| Grade 7 | Moderate Pathway | 0.04 | 0.28 | 0.78 |
| Grade 7 | Hard Pathway | 0.01 | 0.07 | 0.35 |
| Grade 8 | Early Exit | 0.30 | 1.91 | NA |
| Grade 8 | Easy Pathway | 0.22 | 1.25 | 1.74 |
| Grade 8 | Moderate Pathway | 0.03 | 0.22 | 0.71 |
| Grade 8 | Hard Pathway | 0.01 | 0.07 | 0.33 |
| Grade 11 | Early Exit | 0.48 | 2.50 | NA |
| Grade 11 | Easy Pathway | 0.24 | 0.94 | 1.54 |
| Grade 11 | Moderate Pathway | 0.05 | 0.14 | 0.44 |
| Grade 11 | Hard Pathway | 0.01 | 0.04 | 0.22 |

**Table 8.D.17 Total Number of Items Answered by Student Achievement Level—ELA, Grades Three and Four**

| Total Number Answered | Grade Three Level 1—Alternate | Grade Three Level 2—Alternate | Grade Three Level 3—Alternate | Grade Four Level 1—Alternate | Grade Four Level 2—Alternate | Grade Four Level 3—Alternate |
|---|---|---|---|---|---|---|
| 29 | 625 | 945 | 792 | 1,074 | 1,037 | 812 |
| 28 | 299 | 290 | 220 | 370 | 257 | 122 |
| 27 | 151 | 99 | 49 | 157 | 78 | 30 |
| 26 | 101 | 39 | 19 | 69 | 27 | 8 |
| 25 | 74 | 23 | 10 | 48 | 11 | 1 |
| 24 | 47 | 10 | NA | 36 | 4 | 2 |
| 23 | 34 | 10 | NA | 33 | 4 | 1 |
| 22 | 32 | 2 | NA | 20 | NA | NA |
| 21 | 25 | NA | NA | 16 | NA | NA |
| 20 | 15 | 1 | NA | 12 | NA | NA |
| 19 | 18 | NA | NA | 11 | 1 | NA |
| 18 | 15 | NA | NA | 13 | NA | NA |
| 17 | 9 | NA | NA | 7 | NA | NA |
| 16 | 12 | NA | NA | 8 | NA | NA |
| 15 | 9 | NA | NA | 4 | NA | NA |
| 14 | 34 | NA | NA | 26 | NA | NA |
| 13 | 14 | NA | NA | 11 | NA | NA |
| 12 | 13 | NA | NA | 10 | NA | NA |
| 11 | 13 | NA | NA | 9 | NA | NA |
| 10 | 11 | NA | NA | 7 | NA | NA |
| 9 | 13 | NA | NA | 14 | NA | NA |
| 8 | 12 | NA | NA | 16 | NA | NA |
| 7 | 8 | NA | NA | 10 | NA | NA |
| 6 | 10 | NA | NA | 13 | NA | NA |
| 5 | 7 | NA | NA | 19 | NA | NA |
| 4 | 17 | NA | NA | 47 | NA | NA |

**Table 8.D.18 Total Number of Items Answered by Student Achievement Level—ELA, Grades Five and Six**

| Total Number Answered | Grade Five Level 1—Alternate | Grade Five Level 2—Alternate | Grade Five Level 3—Alternate | Grade Six Level 1—Alternate | Grade Six Level 2—Alternate | Grade Six Level 3—Alternate |
|---|---|---|---|---|---|---|
| 29 | 1,037 | 1,247 | 868 | 1,110 | 1,432 | 517 |
| 28 | 291 | 257 | 95 | 341 | 291 | 57 |
| 27 | 129 | 65 | 20 | 161 | 84 | 14 |
| 26 | 54 | 19 | 5 | 83 | 29 | 3 |
| 25 | 52 | 13 | NA | 46 | 12 | 1 |
| 24 | 31 | 2 | NA | 31 | 12 | 1 |
| 23 | 28 | 3 | NA | 30 | 3 | NA |
| 22 | 15 | 1 | NA | 39 | 2 | NA |
| 21 | 26 | NA | NA | 21 | 2 | 1 |
| 20 | 12 | NA | NA | 33 | 2 | NA |
| 19 | 18 | NA | NA | 17 | 1 | NA |
| 18 | 15 | NA | NA | 14 | NA | NA |
| 17 | 5 | NA | NA | 8 | NA | NA |
| 16 | 6 | NA | NA | 9 | NA | NA |
| 15 | 3 | NA | NA | 11 | NA | NA |
| 14 | 29 | NA | NA | 23 | NA | NA |
| 13 | 6 | NA | NA | 9 | NA | NA |
| 12 | 5 | NA | NA | 5 | NA | NA |
| 11 | 8 | NA | NA | 10 | NA | NA |
| 10 | 14 | NA | NA | 7 | NA | NA |
| 9 | 10 | NA | NA | 7 | NA | NA |
| 8 | 5 | NA | NA | 7 | NA | NA |
| 7 | 10 | NA | NA | 14 | NA | NA |
| 6 | 6 | NA | NA | 8 | NA | NA |
| 5 | 7 | NA | NA | 13 | NA | NA |
| 4 | 48 | NA | NA | 58 | NA | NA |

**Table 8.D.19 Total Number of Items Answered by Student Achievement Level—ELA, Grades Seven and Eight**

| Total Number Answered | Grade Seven Level 1—Alternate | Grade Seven Level 2—Alternate | Grade Seven Level 3—Alternate | Grade Eight Level 1—Alternate | Grade Eight Level 2—Alternate | Grade Eight Level 3—Alternate |
|---|---|---|---|---|---|---|
| 29 | 1,191 | 1,123 | 836 | 876 | 1,614 | 591 |
| 28 | 335 | 196 | 95 | 248 | 267 | 61 |
| 27 | 134 | 60 | 18 | 143 | 100 | 17 |
| 26 | 81 | 33 | 11 | 60 | 25 | 3 |
| 25 | 50 | 10 | 3 | 38 | 12 | 1 |
| 24 | 41 | 10 | NA | 34 | 6 | NA |
| 23 | 19 | 5 | 1 | 23 | 5 | NA |
| 22 | 22 | 3 | 1 | 18 | 4 | NA |
| 21 | 14 | 2 | NA | 19 | 4 | NA |
| 20 | 19 | 1 | NA | 13 | NA | NA |
| 19 | 14 | 1 | NA | 13 | 1 | NA |
| 18 | 6 | NA | NA | 4 | NA | NA |
| 17 | 13 | 1 | NA | 2 | NA | NA |
| 16 | 8 | NA | NA | 5 | NA | NA |
| 15 | 12 | NA | NA | 11 | NA | NA |
| 14 | 27 | NA | NA | 24 | NA | NA |
| 13 | 7 | NA | NA | 14 | NA | NA |
| 12 | 8 | NA | NA | 9 | NA | NA |
| 11 | 14 | NA | NA | 7 | NA | NA |
| 10 | 9 | NA | NA | 8 | NA | NA |
| 9 | 8 | NA | NA | 8 | NA | NA |
| 8 | 5 | NA | NA | 7 | NA | NA |
| 7 | 17 | NA | NA | 6 | NA | NA |
| 6 | 14 | NA | NA | 10 | NA | NA |
| 5 | 13 | NA | NA | 7 | NA | NA |
| 4 | 66 | NA | NA | 57 | NA | NA |

**Table 8.D.20 Total Number of Items Answered by Student Achievement Level—ELA, Grade Eleven**

| Total Number Answered | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate |
|---|---|---|---|
| 29 | 675 | 1,272 | 829 |
| 28 | 208 | 188 | 98 |
| 27 | 116 | 49 | 13 |
| 26 | 59 | 18 | 5 |
| 25 | 34 | 7 | NA |
| 24 | 27 | 10 | 2 |
| 23 | 17 | 3 | NA |
| 22 | 15 | 4 | NA |
| 21 | 11 | 2 | NA |
| 20 | 6 | 2 | NA |
| 19 | 10 | NA | NA |
| 18 | 5 | NA | NA |
| 17 | 5 | NA | NA |
| 16 | 9 | 1 | NA |
| 15 | 8 | NA | NA |
| 14 | 25 | NA | NA |
| 13 | 5 | NA | NA |
| 12 | 12 | NA | NA |
| 11 | 7 | NA | NA |
| 10 | 8 | NA | NA |
| 9 | 10 | NA | NA |
| 8 | 11 | NA | NA |
| 7 | 8 | NA | NA |
| 6 | 5 | NA | NA |
| 5 | 9 | NA | NA |
| 4 | 32 | NA | NA |

**Table 8.D.21 Total Number of Items Answered by Student Achievement Level—Mathematics, Grades Three and Four**

| Total Number Answered | Grade Three Level 1—Alternate | Grade Three Level 2—Alternate | Grade Three Level 3—Alternate | Grade Four Level 1—Alternate | Grade Four Level 2—Alternate | Grade Four Level 3—Alternate |
|---|---|---|---|---|---|---|
| 29 | 1,204 | 1,217 | 371 | 1,574 | 1,253 | 407 |
| 28 | 327 | 201 | 30 | 324 | 108 | 30 |
| 27 | 143 | 62 | 5 | 102 | 28 | 2 |
| 26 | 70 | 17 | NA | 71 | 4 | NA |
| 25 | 53 | 10 | NA | 51 | 2 | NA |
| 24 | 27 | 3 | NA | 39 | 2 | NA |
| 23 | 31 | NA | 1 | 33 | 2 | NA |
| 22 | 26 | 3 | NA | 28 | NA | NA |
| 21 | 18 | NA | NA | 28 | NA | NA |
| 20 | 13 | 1 | NA | 16 | NA | NA |
| 19 | 11 | NA | NA | 16 | 1 | NA |
| 18 | 18 | NA | NA | 19 | NA | NA |
| 17 | 11 | 1 | NA | 15 | NA | NA |
| 16 | 21 | NA | NA | 16 | NA | NA |
| 15 | 8 | NA | NA | 10 | NA | NA |
| 14 | 39 | NA | NA | 32 | NA | NA |
| 13 | 18 | NA | NA | 17 | NA | NA |
| 12 | 13 | NA | NA | 10 | NA | NA |
| 11 | 12 | NA | NA | 9 | NA | NA |
| 10 | 14 | NA | NA | 12 | NA | NA |
| 9 | 11 | NA | NA | 19 | NA | NA |
| 8 | 12 | NA | NA | 7 | NA | NA |
| 7 | 16 | NA | NA | 17 | NA | NA |
| 6 | 14 | NA | NA | 14 | NA | NA |
| 5 | 16 | NA | NA | 11 | NA | NA |
| 4 | 44 | NA | NA | 42 | NA | NA |

**Table 8.D.22 Total Number of Items Answered by Student Achievement Level—Mathematics, Grades Five and Six**

| Total Number Answered | Grade Five Level 1—Alternate | Grade Five Level 2—Alternate | Grade Five Level 3—Alternate | Grade Six Level 1—Alternate | Grade Six Level 2—Alternate | Grade Six Level 3—Alternate |
|---|---|---|---|---|---|---|
| 29 | 1,441 | 1,251 | 402 | 1,657 | 1,150 | 330 |
| 28 | 389 | 205 | 41 | 407 | 193 | 51 |
| 27 | 125 | 36 | 9 | 146 | 34 | 7 |
| 26 | 67 | 10 | 1 | 64 | 11 | NA |
| 25 | 34 | 3 | NA | 52 | 1 | NA |
| 24 | 27 | 4 | NA | 31 | 1 | NA |
| 23 | 17 | 1 | NA | 17 | NA | NA |
| 22 | 18 | 1 | NA | 18 | 1 | NA |
| 21 | 20 | 3 | NA | 13 | 1 | NA |
| 20 | 12 | 1 | NA | 12 | NA | NA |
| 19 | 14 | 1 | NA | 5 | NA | NA |
| 18 | 15 | 1 | NA | 4 | NA | NA |
| 17 | 12 | NA | NA | 6 | NA | NA |
| 16 | 7 | NA | NA | 6 | NA | NA |
| 15 | 11 | 1 | NA | 6 | NA | NA |
| 14 | 27 | NA | NA | 41 | NA | NA |
| 13 | 17 | NA | NA | 8 | NA | NA |
| 12 | 12 | NA | NA | 10 | NA | NA |
| 11 | 10 | NA | NA | 3 | NA | NA |
| 10 | 8 | NA | NA | 12 | NA | NA |
| 9 | 11 | NA | NA | 10 | NA | NA |
| 8 | 10 | NA | NA | 8 | NA | NA |
| 7 | 18 | NA | NA | 5 | NA | NA |
| 6 | 17 | NA | NA | 8 | NA | NA |
| 5 | 10 | NA | NA | 11 | NA | NA |
| 4 | 53 | NA | NA | 46 | NA | NA |

**Table 8.D.23 Total Number of Items Answered by Student Achievement Level—Mathematics, Grades Seven and Eight**

| Total Number Answered | Grade Seven Level 1—Alternate | Grade Seven Level 2—Alternate | Grade Seven Level 3—Alternate | Grade Eight Level 1—Alternate | Grade Eight Level 2—Alternate | Grade Eight Level 3—Alternate |
|---|---|---|---|---|---|---|
| 29 | 1,653 | 1,310 | 361 | 1,329 | 1,217 | 313 |
| 28 | 317 | 118 | 18 | 435 | 206 | 30 |
| 27 | 126 | 20 | 4 | 179 | 56 | 6 |
| 26 | 75 | 11 | 1 | 85 | 28 | 1 |
| 25 | 46 | 5 | 2 | 45 | 11 | NA |
| 24 | 49 | 2 | 1 | 50 | 5 | NA |
| 23 | 37 | 1 | NA | 20 | 2 | NA |
| 22 | 24 | 1 | NA | 19 | 2 | NA |
| 21 | 22 | 2 | NA | 15 | 1 | NA |
| 20 | 23 | NA | NA | 15 | NA | NA |
| 19 | 18 | 1 | NA | 13 | 1 | NA |
| 18 | 13 | 1 | NA | 12 | NA | NA |
| 17 | 13 | NA | NA | 7 | NA | NA |
| 16 | 8 | NA | NA | 15 | NA | NA |
| 15 | 17 | NA | NA | 13 | NA | NA |
| 14 | 38 | NA | NA | 22 | NA | NA |
| 13 | 23 | NA | NA | 6 | NA | NA |
| 12 | 16 | NA | NA | 10 | NA | NA |
| 11 | 20 | NA | NA | 7 | NA | NA |
| 10 | 9 | NA | NA | 2 | NA | NA |
| 9 | 14 | NA | NA | NA | NA | NA |
| 8 | 10 | NA | NA | 11 | NA | NA |
| 7 | 10 | NA | NA | 12 | NA | NA |
| 6 | 19 | NA | NA | 10 | NA | NA |
| 5 | 10 | NA | NA | 6 | NA | NA |
| 4 | 54 | NA | NA | 57 | NA | NA |

**Table 8.D.24 Total Number of Items Answered by Student Achievement Level—Mathematics, Grade Eleven**

| Total Number Answered | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate |
|---|---|---|---|
| 29 | 1,341 | 968 | 379 |
| 28 | 306 | 118 | 26 |
| 27 | 132 | 31 | 6 |
| 26 | 73 | 8 | 3 |
| 25 | 58 | 5 | NA |
| 24 | 32 | 2 | 2 |
| 23 | 30 | 2 | NA |
| 22 | 19 | NA | NA |
| 21 | 17 | NA | NA |
| 20 | 17 | NA | NA |
| 19 | 12 | NA | NA |
| 18 | 9 | 1 | NA |
| 17 | 11 | NA | NA |
| 16 | 8 | NA | NA |
| 15 | 7 | NA | NA |
| 14 | 33 | NA | NA |
| 13 | 13 | NA | NA |
| 12 | 10 | NA | NA |
| 11 | 9 | NA | NA |
| 10 | 17 | NA | NA |
| 9 | 12 | NA | NA |
| 8 | 12 | NA | NA |
| 7 | 12 | NA | NA |
| 6 | 12 | NA | NA |
| 5 | 16 | NA | NA |
| 4 | 33 | NA | NA |

# Appendix 8.E: Differential Item Functioning (DIF) Analysis

**Note:** The sample size requirements for the differential item functioning (DIF) analyses were 100 in the smaller of either the focal group or the reference group; and 400 in the combined focal and reference groups. The following focal groups did not meet the required sample size for inclusion in the DIF analyses:

- American Indian or Alaska Native
- Native Hawaiian or Other Pacific Islander
- Deaf-Blindness
- Emotional Disturbance
- Traumatic Brain Injury
- Hearing Impairment
- Visual Impairment

**Table 8.E.1 DIF for Operational Items in ELA, Grade Three**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | 1 | 2% | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | 1 | 2% | NA | NA | NA | NA | 1 | 2% | NA | NA |
| A+ | 26 | 51% | 18 | 35% | 15 | 29% | 4 | 8% | 26 | 51% | 3 | 6% |
| A- | 24 | 47% | 10 | 20% | 13 | 25% | 6 | 12% | 22 | 43% | 6 | 12% |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | 2 | 4% | 1 | 2% |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 22 | 43% | 22 | 43% | 41 | 80% | NA | NA | 41 | 80% |
| **Operational Items Total** | **51** | **100%** | **51** | **100%** | **51** | **99%** | **51** | **100%** | **51** | **100%** | **51** | **100%** |

**Table 8.E.2 DIF for Operational Items in ELA, Grade Three (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| B+ | 3 | 6% | NA | NA | NA | NA | 1 | 2% | 1 | 2% | 2 | 4% |
| A+ | 26 | 51% | 4 | 8% | NA | NA | 13 | 25% | 8 | 16% | 6 | 12% |
| A- | 18 | 35% | 5 | 10% | NA | NA | 9 | 18% | 14 | 27% | 6 | 12% |
| B- | 3 | 6% | 1 | 2% | NA | NA | 2 | 4% | 1 | 2% | NA | NA |
| C- | 1 | 2% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 41 | 80% | 51 | 100% | 26 | 51% | 26 | 51% | 37 | 73% |
| **Operational ItemsTotal** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **101%** |

**Table 8.E.3 DIF for Operational Items in ELA, Grade Four**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| A+ | 27 | 53% | 19 | 37% | 15 | 29% | NA | NA | 27 | 53% | 5 | 10% |
| A- | 21 | 41% | 19 | 37% | 12 | 24% | NA | NA | 23 | 45% | 6 | 12% |
| B- | 2 | 4% | 1 | 2% | 1 | 2% | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 12 | 24% | 23 | 45% | 51 | 100% | NA | NA | 40 | 78% |
| **Operational Items Total** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** |

**Table 8.E.4 DIF for Operational Items in ELA, Grade Four (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 2% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | 1 | 2% | NA | NA | 2 | 4% | NA | NA |
| A+ | 26 | 51% | 7 | 14% | 4 | 8% | 10 | 20% | 18 | 35% | 4 | 8% |
| A- | 21 | 41% | 4 | 8% | 5 | 10% | 14 | 27% | 14 | 27% | 9 | 18% |
| B- | 3 | 6% | NA | NA | 1 | 2% | 1 | 2% | 2 | 4% | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| NA | NA | NA | 40 | 78% | 40 | 78% | 26 | 51% | 14 | 27% | 38 | 75% |
| **Operational ItemsTotal** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **99%** | **51** | **101%** |

**Table 8.E.5 DIF for Operational Items in ELA, Grade Five**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | 1 | 2% | 1 | 2% | NA | NA |
| A+ | 30 | 57% | 14 | 26% | 20 | 38% | 5 | 9% | 28 | 53% | 7 | 13% |
| A- | 22 | 42% | 11 | 21% | 17 | 32% | 4 | 8% | 24 | 45% | 3 | 6% |
| B- | 1 | 2% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 28 | 53% | 16 | 30% | 43 | 81% | NA | NA | 43 | 81% |
| **Operational ItemsTotal** | **53** | **101%** | **53** | **100%** | **53** | **100%** | **53** | **100%** | **53** | **100%** | **53** | **100%** |

**Table 8.E.6 DIF for Operational Items in ELA, Grade Five (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 2% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | NA | NA | NA | NA | NA | NA | 5 | 9% | NA | NA |
| A+ | 28 | 53% | 4 | 8% | 2 | 4% | 13 | 25% | 16 | 30% | 6 | 11% |
| A- | 20 | 38% | 6 | 11% | 8 | 15% | 11 | 21% | 12 | 23% | 5 | 9% |
| B- | 3 | 6% | NA | NA | NA | NA | 1 | 2% | 2 | 4% | 1 | 2% |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 3 | 6% | NA | NA |
| NA | NA | NA | 43 | 81% | 43 | 81% | 28 | 53% | 15 | 28% | 41 | 77% |
| **Operational ItemsTotal** | **53** | **101%** | **53** | **100%** | **53** | **100%** | **53** | **101%** | **53** | **100%** | **53** | **99%** |

**Table 8.E.7 DIF for Operational Items in ELA, Grade Six**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | 2 | 4% | 1 | 2% | NA | NA | NA | NA | NA | NA |
| A+ | 25 | 46% | 17 | 31% | 20 | 37% | 5 | 9% | 20 | 37% | 4 | 7% |
| A- | 27 | 50% | 19 | 35% | 17 | 31% | 6 | 11% | 19 | 35% | 6 | 11% |
| B- | 1 | 2% | 1 | 2% | 1 | 2% | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 15 | 28% | 15 | 28% | 43 | 80% | 15 | 28% | 44 | 81% |
| **Operational ItemsTotal** | **54** | **100%** | **54** | **100%** | **54** | **100%** | **54** | **100%** | **54** | **100%** | **54** | **99%** |

**Table 8.E.8 DIF for Operational Items in ELA, Grade Six (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| B+ | 1 | 2% | NA | NA | NA | NA | 1 | 2% | 1 | 2% | NA | NA |
| A+ | 20 | 37% | 6 | 11% | 7 | 13% | 11 | 20% | 10 | 19% | 6 | 11% |
| A- | 16 | 30% | 5 | 9% | 4 | 7% | 13 | 24% | 12 | 22% | 5 | 9% |
| B- | 2 | 4% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| NA | 15 | 28% | 43 | 80% | 43 | 80% | 29 | 54% | 29 | 54% | 43 | 80% |
| **Operational ItemsTotal** | **54** | **101%** | **54** | **100%** | **54** | **100%** | **54** | **100%** | **54** | **101%** | **54** | **100%** |

**Table 8.E.9 DIF for Operational Items in ELA, Grade Seven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | 1 | 2% | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 29 | 54% | 18 | 33% | 14 | 26% | 5 | 9% | 27 | 50% | 3 | 6% |
| A- | 24 | 44% | 19 | 35% | 24 | 44% | 6 | 11% | 27 | 50% | 8 | 15% |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 17 | 31% | 15 | 28% | 43 | 80% | NA | NA | 43 | 80% |
| **Operational ItemsTotal** | **54** | **100%** | **54** | **99%** | **54** | **100%** | **54** | **100%** | **54** | **101%** | **54** | **101%** |

**Table 8.E.10 DIF for Operational Items in ELA, Grade Seven (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 2% | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA |
| B+ | 1 | 2% | NA | NA | NA | NA | 3 | 6% | 4 | 7% | 2 | 4% |
| A+ | 21 | 39% | 6 | 11% | 6 | 11% | 13 | 24% | 11 | 20% | 3 | 6% |
| A- | 30 | 56% | 5 | 9% | 4 | 7% | 21 | 39% | 21 | 39% | 5 | 9% |
| B- | 1 | 2% | NA | NA | 1 | 2% | 3 | 6% | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA |
| NA | NA | NA | 43 | 80% | 43 | 80% | 14 | 26% | 14 | 26% | 44 | 81% |
| **Operational ItemsTotal** | **54** | **101%** | **54** | **100%** | **54** | **100%** | **54** | **101%** | **54** | **100%** | **54** | **100%** |

**Table 8.E.11 DIF for Operational Items ELA, Grade Eight**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | 1 | 2% | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | NA | NA | 1 | 2% | NA | NA | 1 | 2% | NA | NA |
| A+ | 23 | 48% | 20 | 42% | 15 | 31% | 5 | 10% | 23 | 48% | NA | NA |
| A- | 24 | 50% | 17 | 35% | 20 | 42% | 6 | 13% | 24 | 50% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 11 | 23% | 11 | 23% | 35 | 73% | NA | NA | 48 | 100% |
| **Operational ItemsTotal** | **48** | **100%** | **48** | **100%** | **48** | **100%** | **48** | **100%** | **48** | **100%** | **48** | **100%** |

**Table 8.E.12 DIF for Operational Items in ELA, Grade Eight (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | 1 | 2% | NA | NA | 1 | 2% | NA | NA | NA | NA |
| A+ | 20 | 42% | 6 | 13% | 6 | 13% | 6 | 13% | 16 | 33% | 4 | 8% |
| A- | 25 | 52% | 5 | 10% | 7 | 15% | 18 | 38% | 20 | 42% | 5 | 10% |
| B- | 2 | 4% | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% |
| C- | NA | NA | 1 | 2% | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 35 | 73% | 35 | 73% | 23 | 48% | 12 | 25% | 38 | 79% |
| **Operational ItemsTotal** | **48** | **100%** | **48** | **100%** | **48** | **101%** | **48** | **101%** | **48** | **100%** | **48** | **99%** |

**Table 8.E.13 DIF for Operational Items in ELA, Grade Eleven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | 1 | 2% | NA | NA | NA | NA | 2 | 4% |
| A+ | 30 | 58% | 10 | 19% | 11 | 21% | 4 | 8% | 33 | 63% | 3 | 6% |
| A- | 21 | 40% | 15 | 29% | 13 | 25% | 5 | 10% | 18 | 35% | 5 | 10% |
| B- | 1 | 2% | NA | NA | NA | NA | 1 | 2% | 1 | 2% | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 27 | 52% | 27 | 52% | 42 | 81% | NA | NA | 42 | 81% |
| **Operational ItemsTotal** | **52** | **100%** | **52** | **100%** | **52** | **100%** | **52** | **101%** | **52** | **100%** | **52** | **101%** |

**Table 8.E.14 DIF for Operational Items in ELA, Grade Eleven (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 2% | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA |
| B+ | 3 | 6% | NA | NA | 1 | 2% | 1 | 2% | 1 | 2% | NA | NA |
| A+ | 17 | 33% | 4 | 8% | 3 | 6% | 3 | 6% | 13 | 25% | NA | NA |
| A- | 29 | 56% | 6 | 12% | 8 | 15% | 9 | 17% | 20 | 38% | NA | NA |
| B- | 2 | 4% | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA |
| C- | NA | NA | NA | NA | 1 | 2% | NA | NA | 1 | 2% | NA | NA |
| NA | NA | NA | 42 | 81% | 39 | 75% | 39 | 75% | 13 | 25% | 52 | 100% |
| **Operational ItemsTotal** | **52** | **101%** | **52** | **101%** | **52** | **100%** | **52** | **100%** | **52** | **100%** | **52** | **100%** |

**Table 8.E.15 DIF for Operational Items in Mathematics, Grade Three**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | 1 | 2% | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 2% | NA | NA | 1 | 2% | 1 | 2% | NA | NA | NA | NA |
| A+ | 26 | 49% | 12 | 23% | 12 | 23% | 5 | 9% | 23 | 43% | 3 | 6% |
| A- | 26 | 49% | 15 | 28% | 12 | 23% | 4 | 8% | 30 | 57% | 7 | 13% |
| B- | NA | NA | NA | NA | 1 | 2% | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 26 | 49% | 26 | 49% | 43 | 81% | NA | NA | 43 | 81% |
| **Operational ItemsTotal** | **53** | **100%** | **53** | **100%** | **53** | **101%** | **53** | **100%** | **53** | **100%** | **53** | **100%** |

**Table 8.E.16 DIF for Operational Items in Mathematics, Grade Three (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 4 | 8% | 1 | 2% |
| B+ | 2 | 4% | NA | NA | NA | NA | 1 | 2% | NA | NA | 2 | 4% |
| A+ | 23 | 43% | 7 | 13% | NA | NA | 17 | 32% | 7 | 13% | 10 | 19% |
| A- | 25 | 47% | 3 | 6% | NA | NA | 20 | 38% | 8 | 15% | 9 | 17% |
| B- | 2 | 4% | NA | NA | NA | NA | 2 | 4% | 3 | 6% | 1 | 2% |
| C- | 1 | 2% | NA | NA | NA | NA | NA | NA | 3 | 6% | 2 | 4% |
| NA | NA | NA | 43 | 81% | 53 | 100% | 13 | 25% | 28 | 53% | 28 | 53% |
| **Operational ItemsTotal** | **53** | **100%** | **53** | **100%** | **53** | **100%** | **53** | **101%** | **53** | **101%** | **53** | **101%** |

**Table 8.E.17 DIF for Operational Items in Mathematics, Grade Four**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% |
| A+ | 27 | 53% | 8 | 16% | 10 | 20% | NA | NA | 26 | 51% | 5 | 10% |
| A- | 23 | 45% | 16 | 31% | 14 | 27% | NA | NA | 25 | 49% | 6 | 12% |
| B- | 1 | 2% | 1 | 2% | 1 | 2% | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 26 | 51% | 26 | 51% | 51 | 100% | NA | NA | 39 | 76% |
| **Operational ItemsTotal** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** | **51** | **100%** |

**Table 8.E.18 DIF for Operational Items in Mathematics, Grade Four (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 2% | NA | NA | NA | NA | NA | NA | 3 | 6% | 1 | 2% |
| B+ | 2 | 4% | NA | NA | 1 | 2% | 1 | 2% | 2 | 4% | 1 | 2% |
| A+ | 13 | 25% | 7 | 14% | 5 | 10% | 12 | 24% | 4 | 8% | 11 | 22% |
| A- | 20 | 39% | 5 | 10% | 6 | 12% | 12 | 24% | 12 | 24% | 12 | 24% |
| B- | 2 | 4% | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA |
| NA | 13 | 25% | 39 | 76% | 39 | 76% | 26 | 51% | 26 | 51% | 26 | 51% |
| **Operational ItemsTotal** | **51** | **99%** | **51** | **100%** | **51** | **100%** | **51** | **101%** | **51** | **101%** | **51** | **101%** |

**Table 8.E.19 DIF for Operational Items in Mathematics, Grade Five**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | 2 | 4% | 1 | 2% | NA | NA | NA | NA | NA | NA |
| A+ | 28 | 52% | 7 | 13% | 13 | 24% | 4 | 7% | 27 | 50% | 4 | 7% |
| A- | 26 | 48% | 16 | 30% | 9 | 17% | 6 | 11% | 27 | 50% | 6 | 11% |
| B- | NA | NA | NA | NA | 2 | 4% | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 29 | 54% | 29 | 54% | 44 | 81% | NA | NA | 44 | 81% |
| **Operational ItemsTotal** | **54** | **100%** | **54** | **101%** | **54** | **101%** | **54** | **99%** | **54** | **100%** | **54** | **99%** |

**Table 8.E.20 DIF for Operational Items in Mathematics, Grade Five (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 4 | 7% | NA | NA |
| B+ | 2 | 4% | NA | NA | NA | NA | 1 | 2% | 5 | 9% | 4 | 7% |
| A+ | 28 | 52% | 3 | 6% | 7 | 13% | 12 | 22% | 10 | 19% | 2 | 4% |
| A- | 24 | 44% | 8 | 15% | 4 | 7% | 10 | 19% | 14 | 26% | 3 | 6% |
| B- | NA | NA | NA | NA | NA | NA | 2 | 4% | 3 | 6% | 1 | 2% |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 4 | 7% | NA | NA |
| NA | NA | NA | 43 | 80% | 43 | 80% | 29 | 54% | 14 | 26% | 44 | 81% |
| **Operational ItemsTotal** | **54** | **100%** | **54** | **101%** | **54** | **100%** | **54** | **101%** | **54** | **100%** | **54** | **100%** |

**Table 8.E.21 DIF for Operational Items in Mathematics, Grade Six**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | 2 | 4% | NA | NA | 1 | 2% | 1 | 2% | NA | NA |
| A+ | 24 | 50% | 17 | 35% | 15 | 31% | 7 | 15% | 25 | 52% | 5 | 10% |
| A- | 23 | 48% | 16 | 33% | 10 | 21% | 5 | 10% | 21 | 44% | 8 | 17% |
| B- | 1 | 2% | 1 | 2% | NA | NA | NA | NA | 1 | 2% | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 12 | 25% | 23 | 48% | 35 | 73% | NA | NA | 35 | 73% |
| **Operational ItemsTotal** | **48** | **100%** | **48** | **99%** | **48** | **100%** | **48** | **100%** | **48** | **100%** | **48** | **100%** |

**Table 8.E.22 DIF for Operational Items in Mathematics, Grade Six (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 3 | 6% | 2 | 4% |
| B+ | 1 | 2% | NA | NA | NA | NA | 2 | 4% | 5 | 10% | NA | NA |
| A+ | 20 | 42% | 9 | 19% | 7 | 15% | 11 | 23% | 7 | 15% | 6 | 13% |
| A- | 26 | 54% | 5 | 10% | 6 | 13% | 9 | 19% | 16 | 33% | 3 | 6% |
| B- | 1 | 2% | NA | NA | NA | NA | 2 | 4% | 3 | 6% | 2 | 4% |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 3 | 6% | NA | NA |
| NA | NA | NA | 34 | 71% | 35 | 73% | 24 | 50% | 11 | 23% | 35 | 73% |
| **Operational ItemsTotal** | **48** | **100%** | **48** | **100%** | **48** | **101%** | **48** | **100%** | **48** | **99%** | **48** | **100%** |

**Table 8.E.23 DIF for Operational Items in Mathematics, Grade Seven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| B+ | NA | NA | 1 | 2% | NA | NA | 1 | 2% | 1 | 2% | NA | NA |
| A+ | 21 | 43% | 20 | 41% | 18 | 37% | 7 | 14% | 23 | 47% | 6 | 12% |
| A- | 28 | 57% | 15 | 31% | 19 | 39% | 5 | 10% | 24 | 49% | 7 | 14% |
| B- | NA | NA | 1 | 2% | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 12 | 24% | 12 | 24% | 36 | 73% | NA | NA | 36 | 73% |
| **Operational ItemsTotal** | **49** | **100%** | **49** | **100%** | **49** | **100%** | **49** | **99%** | **49** | **100%** | **49** | **99%** |

**Table 8.E.24 DIF for Operational Items in Mathematics, Grade Seven (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 2 | 4% | NA | NA |
| B+ | 2 | 4% | NA | NA | 1 | 2% | 1 | 2% | 3 | 6% | 3 | 6% |
| A+ | 21 | 43% | 6 | 12% | 4 | 8% | 11 | 22% | 8 | 16% | 4 | 8% |
| A- | 26 | 53% | 5 | 10% | 6 | 12% | 12 | 24% | 8 | 16% | 5 | 10% |
| B- | NA | NA | NA | NA | 1 | 2% | 1 | 2% | 4 | 8% | NA | NA |
| C- | NA | NA | NA | NA | 1 | 2% | NA | NA | NA | NA | 1 | 2% |
| NA | NA | NA | 38 | 78% | 36 | 73% | 24 | 49% | 24 | 49% | 36 | 73% |
| **Operational ItemsTotal** | **49** | **100%** | **49** | **100%** | **49** | **99%** | **49** | **99%** | **49** | **99%** | **49** | **99%** |

**Table 8.E.25 DIF for Operational Items in Mathematics, Grade Eight**

| DIF Category | Male-Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | 1 | 2% | 1 | 2% | 1 | 2% | NA | NA | NA | NA |
| A+ | 28 | 57% | 9 | 18% | 11 | 22% | 6 | 12% | 23 | 47% | NA | NA |
| A- | 21 | 43% | 13 | 27% | 13 | 27% | 4 | 8% | 26 | 53% | NA | NA |
| B- | NA | NA | 2 | 4% | NA | NA | 2 | 4% | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 24 | 49% | 24 | 49% | 36 | 73% | NA | NA | 49 | 100% |
| **Operational ItemsTotal** | **49** | **100%** | **49** | **100%** | **49** | **100%** | **49** | **99%** | **49** | **100%** | **49** | **100%** |

**Table 8.E.26 DIF for Operational Items in Mathematics, Grade Eight (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| B+ | 2 | 4% | NA | NA | 1 | 2% | 1 | 2% | 3 | 6% | 1 | 2% |
| A+ | 18 | 37% | 6 | 12% | 6 | 12% | 15 | 31% | 14 | 29% | 4 | 8% |
| A- | 28 | 57% | 4 | 8% | 5 | 10% | 20 | 41% | 12 | 24% | 5 | 10% |
| B- | 1 | 2% | 1 | 2% | NA | NA | 1 | 2% | 3 | 6% | 2 | 4% |
| C- | NA | NA | 1 | 2% | NA | NA | NA | NA | 4 | 8% | NA | NA |
| NA | NA | NA | 37 | 76% | 37 | 76% | 12 | 24% | 12 | 24% | 37 | 76% |
| **Operational ItemsTotal** | **49** | **100%** | **49** | **100%** | **49** | **100%** | **49** | **100%** | **49** | **99%** | **49** | **100%** |

**Table 8.E.27 DIF for Operational Items in Mathematics, Grade Eleven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White-African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 29 | 58% | 11 | 22% | 6 | 12% | 6 | 12% | 26 | 52% | NA | NA |
| A- | 21 | 42% | 14 | 28% | 8 | 16% | 5 | 10% | 24 | 48% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 25 | 50% | 36 | 72% | 39 | 78% | NA | NA | 50 | 100% |
| **Operational ItemsTotal** | **50** | **100%** | **50** | **100%** | **50** | **100%** | **50** | **100%** | **50** | **100%** | **50** | **100%** |

**Table 8.E.28 DIF for Operational Items in Mathematics, Grade Eleven (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| B+ | 2 | 4% | NA | NA | 1 | 2% | 2 | 4% | 2 | 4% | NA | NA |
| A+ | 19 | 38% | 6 | 12% | 4 | 8% | 6 | 12% | 10 | 20% | NA | NA |
| A- | 28 | 56% | 5 | 10% | 7 | 14% | 4 | 8% | 10 | 20% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 2% | NA | NA |
| C- | 1 | 2% | NA | NA | 1 | 2% | NA | NA | 1 | 2% | NA | NA |
| NA | NA | NA | 39 | 78% | 37 | 74% | 38 | 76% | 25 | 50% | 50 | 100% |
| **Operational ItemsTotal** | **50** | **100%** | **50** | **100%** | **50** | **100%** | **50** | **100%** | **50** | **100%** | **50** | **100%** |

**Table 8.E.29 DIF for Field Test Items in ELA, Grade Three**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 11 | 55% | NA | NA | NA | NA | NA | NA | 13 | 65% | NA | NA |
| A- | 9 | 45% | NA | NA | NA | NA | NA | NA | 7 | 35% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.30 DIF for Field Test Items in ELA, Grade Three (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 40% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 9 | 45% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | 2 | 10% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.31 DIF for Field Test Items in ELA, Grade Four**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 40% | NA | NA | NA | NA | NA | NA | 10 | 50% | NA | NA |
| A- | 12 | 60% | NA | NA | NA | NA | NA | NA | 9 | 45% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.32 DIF for Field Test Items in ELA, Grade Four (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 3 | 15% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 40% | NA | NA | NA | NA | NA | NA | 5 | 25% | NA | NA |
| A- | 9 | 45% | NA | NA | NA | NA | NA | NA | 3 | 15% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 12 | 60% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.33 DIF for Field Test Items in ELA, Grade Five**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 9 | 45% | NA | NA | NA | NA | NA | NA | 10 | 50% | NA | NA |
| A- | 8 | 40% | NA | NA | NA | NA | NA | NA | 10 | 50% | NA | NA |
| B- | 2 | 10% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.34 DIF for Field Test Items in ELA, Grade Five (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 10 | 50% | NA | NA | NA | NA | NA | NA | 3 | 15% | NA | NA |
| A- | 9 | 45% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 16 | 80% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.35 DIF for Field Test Items in ELA, Grade Six**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 10 | 50% | NA | NA | NA | NA | NA | NA | 10 | 50% | NA | NA |
| A- | 9 | 45% | NA | NA | NA | NA | NA | NA | 8 | 40% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | 2 | 10% | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.36 DIF for Field Test Items in ELA, Grade Six (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 7 | 35% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 12 | 60% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.37 DIF for Field Test Items in ELA, Grade Seven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | 2 | 10% | NA | NA |
| A+ | 5 | 25% | NA | NA | NA | NA | NA | NA | 9 | 45% | NA | NA |
| A- | 15 | 75% | NA | NA | NA | NA | NA | NA | 9 | 45% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.38 DIF for Field Test Items in ELA, Grade Seven (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 14 | 70% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 5 | 25% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.39 DIF for Field Test Items in ELA, Grade Eight**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 6 | 50% | 2 | 17% | 4 | 33% | NA | NA | 6 | 50% | NA | NA |
| A- | 5 | 42% | 6 | 50% | 4 | 33% | NA | NA | 6 | 50% | NA | NA |
| B- | 1 | 8% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 4 | 33% | 4 | 33% | 12 | 100% | NA | NA | 12 | 100% |
| **Embedded Field-test Items Total** | **12** | **100%** | **12** | **100%** | **12** | **99%** | **12** | **100%** | **12** | **100%** | **12** | **100%** |

**Table 8.E.40 DIF for Field Test Items in ELA, Grade Eight (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 67% | NA | NA | NA | NA | 2 | 17% | 5 | 42% | NA | NA |
| A- | 4 | 33% | NA | NA | NA | NA | 2 | 17% | 3 | 25% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 12 | 100% | 12 | 100% | 8 | 67% | 4 | 33% | 12 | 100% |
| **Embedded Field-test Items Total** | **12** | **100%** | **12** | **100%** | **12** | **100%** | **12** | **101%** | **12** | **100%** | **12** | **100%** |

**Table 8.E.41 DIF for Field Test Items in ELA, Grade Eleven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 3 | 25% | 4 | 33% | 2 | 17% | NA | NA | 4 | 33% | NA | NA |
| A- | 9 | 75% | 4 | 33% | 2 | 17% | NA | NA | 7 | 58% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 8% | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 4 | 33% | 8 | 67% | 12 | 100% | NA | NA | 12 | 100% |
| **Embedded Field-test Items Total** | **12** | **100%** | **12** | **99%** | **12** | **101%** | **12** | **100%** | **12** | **99%** | **12** | **100%** |

**Table 8.E.42 DIF for Field Test Items in ELA, Grade Eleven (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 2 | 17% | NA | NA | NA | NA | NA | NA | 2 | 17% | NA | NA |
| A+ | 7 | 58% | NA | NA | NA | NA | NA | NA | 4 | 33% | NA | NA |
| A- | 3 | 25% | NA | NA | NA | NA | NA | NA | 2 | 17% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 12 | 100% | 12 | 100% | 12 | 100% | 4 | 33% | 12 | 100% |
| **Embedded Field-test Items Total** | **12** | **100%** | **12** | **100%** | **12** | **100%** | **12** | **100%** | **12** | **100%** | **12** | **100%** |

**Table 8.E.43 DIF for Field Test Items in Mathematics, Grade Three**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 5% | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 7 | 35% | NA | NA | NA | NA | NA | NA | 10 | 50% | NA | NA |
| A- | 11 | 55% | NA | NA | NA | NA | NA | NA | 9 | 45% | NA | NA |
| B- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.44 DIF for Field Test Items in Mathematics, Grade Three (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 40% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 10 | 50% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.45 DIF for Field Test Items in Mathematics, Grade Four**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 10 | 50% | NA | NA | NA | NA | NA | NA | 15 | 75% | NA | NA |
| A- | 9 | 45% | NA | NA | NA | NA | NA | NA | 5 | 25% | NA | NA |
| B- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.46 DIF for Field Test Items in Mathematics, Grade Four (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 11 | 55% | NA | NA | NA | NA | NA | NA | 2 | 10% | NA | NA |
| A- | 7 | 35% | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| B- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 16 | 80% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.47 DIF for Field Test Items in Mathematics, Grade Five**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 40% | NA | NA | NA | NA | NA | NA | 11 | 55% | NA | NA |
| A- | 12 | 60% | NA | NA | NA | NA | NA | NA | 9 | 45% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.48 DIF for Field Test Items in Mathematics, Grade Five (Continued)**

| DIF Category | Intellectual Disability-Autism N | Intellectual Disability-Autism Pct | Intellectual Disability-Multiple Disabilities N | Intellectual Disability-Multiple Disabilities Pct | Intellectual Disability-Orthopedic Impairment N | Intellectual Disability-Orthopedic Impairment Pct | Intellectual Disability-Other N | Intellectual Disability-Other Pct | Intellectual Disability-Specific Learning N | Intellectual Disability-Specific Learning Pct | Intellectual Disability-Speech or Language N | Intellectual Disability-Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 40% | NA | NA | NA | NA | NA | NA | 3 | 15% | NA | NA |
| A- | 10 | 50% | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| B- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 16 | 80% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.49 DIF for Field Test Items in Mathematics, Grade Six**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| A+ | 11 | 55% | NA | NA | NA | NA | NA | NA | 4 | 20% | NA | NA |
| A- | 9 | 45% | NA | NA | NA | NA | NA | NA | 14 | 70% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.50 DIF for Field Test Items in Mathematics, Grade Six (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 13 | 65% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 6 | 30% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.51 DIF for Field Test Items in Mathematics, Grade Seven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 8 | 40% | NA | NA | NA | NA | NA | NA | 8 | 40% | NA | NA |
| A- | 12 | 60% | NA | NA | NA | NA | NA | NA | 12 | 60% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.52 DIF for Field Test Items in Mathematics, Grade Seven (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 2 | 10% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 5 | 25% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 12 | 60% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.53 DIF for Field Test Items in Mathematics, Grade Eight**

| DIF Category | Male-Female N | Male–Female Pct | White–African Amer N | White–African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 9 | 45% | NA | NA | NA | NA | NA | NA | 9 | 45% | NA | NA |
| A- | 10 | 50% | NA | NA | NA | NA | NA | NA | 11 | 55% | NA | NA |
| B- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.54 DIF for Field Test Items in Mathematics, Grade Eight (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 2 | 10% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 9 | 45% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 8 | 40% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.55 DIF for Field Test Items in Mathematics, Grade Eleven**

| DIF Category | Male–Female N | Male–Female Pct | White–African Amer N | White-African Amer Pct | White–Asian N | White–Asian Pct | White–Filipino N | White–Filipino Pct | White–Hispanic N | White–Hispanic Pct | White–Two or More N | White–Two or More Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | NA | NA | NA | NA | NA | NA | NA | NA | 1 | 5% | NA | NA |
| A+ | 7 | 35% | NA | NA | NA | NA | NA | NA | 8 | 40% | NA | NA |
| A- | 13 | 65% | NA | NA | NA | NA | NA | NA | 11 | 55% | NA | NA |
| B- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | NA | NA | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

**Table 8.E.56 DIF for Field Test Items in Mathematics, Grade Eleven (Continued)**

| DIF Category | Intellectual Disability–Autism N | Intellectual Disability–Autism Pct | Intellectual Disability–Multiple Disabilities N | Intellectual Disability–Multiple Disabilities Pct | Intellectual Disability–Orthopedic Impairment N | Intellectual Disability–Orthopedic Impairment Pct | Intellectual Disability–Other N | Intellectual Disability–Other Pct | Intellectual Disability–Specific Learning N | Intellectual Disability–Specific Learning Pct | Intellectual Disability–Speech or Language N | Intellectual Disability–Speech or Language Pct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C+ | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B+ | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A+ | 12 | 60% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| A- | 6 | 30% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| B- | 1 | 5% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| C- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| NA | NA | NA | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% | 20 | 100% |
| **Embedded Field-test Items Total** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** | **20** | **100%** |

# Appendix 8.F: Reliability Estimates

**Notes:**

- The reliabilities are reported only for samples that comprise 11 or more examinees.
- In some cases in appendix 8.F, score reliabilities were not estimable and are presented in the tables as “NA.”
- Results based on samples that contain 50 or fewer examinees should be interpreted with caution due to small sample sizes.

**Table 8.F.1 Reliabilities and Standard Errors of Measurement (SEMs) by Gender**

| Content Area and Grade | Male N | Male Reliability | Male Theta Score SEM | Female N | Female Reliability | Female Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 2,859 | 0.88 | 0.43 | 1,268 | 0.87 | 0.46 |
| ELA 4 | 3,012 | 0.88 | 0.42 | 1,443 | 0.88 | 0.41 |
| ELA 5 | 3,048 | 0.88 | 0.41 | 1,417 | 0.88 | 0.41 |
| ELA 6 | 3,117 | 0.86 | 0.40 | 1,462 | 0.86 | 0.40 |
| ELA 7 | 3,102 | 0.90 | 0.43 | 1,455 | 0.88 | 0.41 |
| ELA 8 | 2,975 | 0.85 | 0.39 | 1,400 | 0.83 | 0.39 |
| ELA 11 | 2,505 | 0.89 | 0.41 | 1,335 | 0.89 | 0.41 |
| Mathematics 3 | 2,868 | 0.81 | 0.41 | 1,244 | 0.78 | 0.42 |
| Mathematics 4 | 2,965 | 0.83 | 0.38 | 1,406 | 0.79 | 0.37 |
| Mathematics 5 | 2,987 | 0.82 | 0.41 | 1,386 | 0.80 | 0.39 |
| Mathematics 6 | 2,995 | 0.75 | 0.42 | 1,391 | 0.73 | 0.42 |
| Mathematics 7 | 3,077 | 0.82 | 0.40 | 1,446 | 0.81 | 0.37 |
| Mathematics 8 | 2,906 | 0.80 | 0.34 | 1,368 | 0.79 | 0.37 |
| Mathematics 11 | 2,492 | 0.83 | 0.42 | 1,310 | 0.83 | 0.40 |

**Table 8.F.2 Reliabilities and SEMs by Ethnicity**

| Content Area and Grade | American Indian or Alaska Native N | American Indian or Alaska Native Reliability | American Indian or Alaska Native Theta Score SEM | Asian N | Asian Reliability | Asian Theta Score SEM | Native Hawaiian or Other Pacific Islander N | Native Hawaiian or Other Pacific Islander Reliability | Native Hawaiian or Other Pacific Islander Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 27 | 0.87 | 0.41 | 320 | 0.89 | 0.40 | 18 | 0.89 | 0.39 |
| ELA 4 | 28 | 0.83 | 0.71 | 344 | 0.87 | 0.41 | 28 | 0.89 | 0.42 |
| ELA 5 | 29 | 0.80 | 0.40 | 332 | 0.88 | 0.40 | 19 | 0.82 | 0.38 |
| ELA 6 | 24 | 0.90 | 0.40 | 343 | 0.86 | 0.39 | 18 | 0.83 | 0.38 |
| ELA 7 | 30 | 0.86 | 0.42 | 323 | 0.89 | 0.41 | 25 | 0.78 | 0.65 |
| ELA 8 | 25 | 0.83 | 0.42 | 359 | 0.85 | 0.39 | 18 | 0.75 | 0.37 |
| ELA 11 | 33 | 0.90 | 0.46 | 293 | 0.89 | 0.40 | 13 | 0.83 | 0.37 |
| Mathematics 3 | 25 | 0.51 | 0.35 | 314 | 0.80 | 0.43 | 18 | 0.86 | 0.43 |
| Mathematics 4 | 26 | 0.80 | 0.37 | 338 | 0.83 | 0.39 | 25 | 0.87 | 0.41 |
| Mathematics 5 | 30 | 0.78 | 0.35 | 319 | 0.83 | 0.37 | 18 | 0.75 | 0.78 |
| Mathematics 6 | 23 | 0.80 | 0.35 | 326 | 0.77 | 0.36 | 19 | 0.79 | 0.39 |
| Mathematics 7 | 30 | 0.89 | 0.38 | 321 | 0.81 | 0.39 | 24 | 0.81 | 0.36 |
| Mathematics 8 | 27 | 0.85 | 0.34 | 347 | 0.80 | 0.38 | 17 | 0.59 | 0.32 |
| Mathematics 11 | 33 | 0.80 | 0.64 | 290 | 0.84 | 0.41 | 13 | 0.88 | 0.43 |

**Table 8.F.3 Reliabilities and SEMS by Ethnicity (Continued)**

| Content Area and Grade | Filipino N | Filipino Reliability | Filipino Theta Score SEM | Hispanic or Latino N | Hispanic or Latino Reliability | Hispanic or Latino Theta Score SEM | Black or African American N | Black or African American Reliability | Black or African American Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 103 | 0.87 | 0.41 | 2,370 | 0.87 | 0.44 | 312 | 0.87 | 0.44 |
| ELA 4 | 88 | 0.86 | 0.39 | 2,588 | 0.88 | 0.42 | 347 | 0.88 | 0.41 |
| ELA 5 | 106 | 0.88 | 0.40 | 2,618 | 0.88 | 0.40 | 342 | 0.88 | 0.40 |
| ELA 6 | 116 | 0.84 | 0.38 | 2,734 | 0.86 | 0.40 | 373 | 0.86 | 0.40 |
| ELA 7 | 129 | 0.88 | 0.42 | 2,610 | 0.89 | 0.42 | 399 | 0.90 | 0.42 |
| ELA 8 | 138 | 0.86 | 0.38 | 2,483 | 0.84 | 0.39 | 365 | 0.85 | 0.38 |
| ELA 11 | 112 | 0.88 | 0.40 | 2,103 | 0.89 | 0.41 | 362 | 0.89 | 0.41 |
| Mathematics 3 | 106 | 0.83 | 0.40 | 2,364 | 0.79 | 0.40 | 319 | 0.81 | 0.46 |
| Mathematics 4 | 91 | 0.84 | 0.38 | 2,535 | 0.81 | 0.37 | 343 | 0.81 | 0.39 |
| Mathematics 5 | 106 | 0.81 | 0.37 | 2,568 | 0.81 | 0.40 | 338 | 0.83 | 0.41 |
| Mathematics 6 | 111 | 0.84 | 0.41 | 2,624 | 0.73 | 0.43 | 355 | 0.73 | 0.41 |
| Mathematics 7 | 129 | 0.79 | 0.34 | 2,591 | 0.82 | 0.40 | 405 | 0.83 | 0.40 |
| Mathematics 8 | 135 | 0.82 | 0.35 | 2,437 | 0.80 | 0.34 | 362 | 0.75 | 0.37 |
| Mathematics 11 | 111 | 0.86 | 0.37 | 2,084 | 0.83 | 0.40 | 363 | 0.84 | 0.44 |

**Table 8.F.4 Reliabilities and SEMS by Ethnicity (Continued)**

| Content Area and Grade | White N | White Reliability | White Theta Score SEM | Two or More Races N | Two or More Races Reliability | Two or More Races Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 771 | 0.89 | 0.44 | 206 | 0.88 | 0.44 |
| ELA 4 | 855 | 0.88 | 0.43 | 177 | 0.89 | 0.41 |
| ELA 5 | 863 | 0.88 | 0.44 | 156 | 0.90 | 0.40 |
| ELA 6 | 819 | 0.87 | 0.41 | 152 | 0.86 | 0.39 |
| ELA 7 | 860 | 0.89 | 0.44 | 181 | 0.89 | 0.41 |
| ELA 8 | 849 | 0.86 | 0.39 | 138 | 0.84 | 0.38 |
| ELA 11 | 807 | 0.90 | 0.43 | 117 | 0.84 | 0.46 |
| Mathematics 3 | 758 | 0.82 | 0.40 | 208 | 0.79 | 0.51 |
| Mathematics 4 | 839 | 0.81 | 0.38 | 174 | 0.83 | 0.38 |
| Mathematics 5 | 846 | 0.83 | 0.39 | 148 | 0.82 | 0.37 |
| Mathematics 6 | 788 | 0.76 | 0.44 | 140 | 0.79 | 0.37 |
| Mathematics 7 | 840 | 0.83 | 0.38 | 183 | 0.82 | 0.43 |
| Mathematics 8 | 821 | 0.81 | 0.34 | 128 | 0.74 | 0.33 |
| Mathematics 11 | 797 | 0.84 | 0.43 | 111 | 0.83 | 0.46 |

**Table 8.F.5 Reliabilities and SEMs by English Proficiency**

| Content Area and Grade | English Only N | English Only Reliability | English Only Theta Score SEM | Initial Fluent English Proficient N | Initial Fluent English Proficient Reliability | Initial Fluent English Proficient Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 2,499 | 0.88 | 0.44 | 25 | 0.87 | 0.39 |
| ELA 4 | 2,689 | 0.88 | 0.42 | 40 | 0.91 | 0.44 |
| ELA 5 | 2,550 | 0.88 | 0.42 | 32 | 0.83 | 0.38 |
| ELA 6 | 2,601 | 0.86 | 0.40 | 48 | 0.90 | 0.42 |
| ELA 7 | 2,618 | 0.89 | 0.43 | 60 | 0.82 | 0.39 |
| ELA 8 | 2,497 | 0.85 | 0.39 | 70 | 0.87 | 0.39 |
| ELA 11 | 2,253 | 0.89 | 0.42 | 60 | 0.88 | 0.41 |
| Mathematics 3 | 2,497 | 0.81 | 0.42 | 24 | 0.84 | 0.41 |
| Mathematics 4 | 2,635 | 0.81 | 0.38 | 41 | 0.82 | 0.36 |
| Mathematics 5 | 2,498 | 0.82 | 0.41 | 29 | 0.88 | 0.40 |
| Mathematics 6 | 2,478 | 0.76 | 0.43 | 44 | 0.79 | 0.38 |
| Mathematics 7 | 2,598 | 0.82 | 0.39 | 64 | 0.84 | 0.36 |
| Mathematics 8 | 2,443 | 0.79 | 0.34 | 66 | 0.73 | 0.33 |
| Mathematics 11 | 2,224 | 0.84 | 0.42 | 58 | 0.82 | 0.35 |

**Table 8.F.6 Reliabilities and SEMs by English Proficiency (Continued)**

| Content Area and Grade | English Learner N | English Learner Reliability | English Learner Theta Score SEM | Redesignated Fluent English Proficient N | Redesignated Fluent English Proficient Reliability | Redesignated Fluent English Proficient Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 1,469 | 0.88 | 0.43 | 130 | 0.87 | 0.47 |
| ELA 4 | 1,496 | 0.87 | 0.41 | 224 | 0.86 | 0.40 |
| ELA 5 | 1,572 | 0.88 | 0.40 | 304 | 0.87 | 0.41 |
| ELA 6 | 1,537 | 0.86 | 0.39 | 388 | 0.84 | 0.39 |
| ELA 7 | 1,461 | 0.89 | 0.42 | 410 | 0.88 | 0.41 |
| ELA 8 | 1,350 | 0.84 | 0.38 | 453 | 0.83 | 0.39 |
| ELA 11 | 1,055 | 0.88 | 0.40 | 465 | 0.89 | 0.41 |
| Mathematics 3 | 1,451 | 0.78 | 0.41 | 133 | 0.84 | 0.39 |
| Mathematics 4 | 1,470 | 0.83 | 0.38 | 219 | 0.81 | 0.37 |
| Mathematics 5 | 1,544 | 0.81 | 0.39 | 296 | 0.83 | 0.37 |
| Mathematics 6 | 1,484 | 0.74 | 0.40 | 376 | 0.68 | 0.46 |
| Mathematics 7 | 1,445 | 0.81 | 0.41 | 409 | 0.80 | 0.35 |
| Mathematics 8 | 1,310 | 0.80 | 0.35 | 449 | 0.81 | 0.37 |
| Mathematics 11 | 1,048 | 0.84 | 0.40 | 461 | 0.81 | 0.43 |

**Table 8.F.7 Reliabilities and SEMs by English Proficiency (Continued)**

| Content Area and Grade | To Be Determined N | To Be Determined Reliability | To Be Determined Theta Score SEM | English Proficiency Unknown N | English Proficiency Unknown Reliability | English Proficiency Unknown Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 2 | NA | NA | 2 | NA | NA |
| ELA 4 | 4 | NA | NA | 2 | NA | NA |
| ELA 5 | 2 | NA | NA | 5 | NA | NA |
| ELA 6 | 1 | NA | NA | 4 | NA | NA |
| ELA 7 | 2 | NA | NA | 6 | NA | NA |
| ELA 8 | 2 | NA | NA | 3 | NA | NA |
| ELA 11 | 1 | NA | NA | 6 | NA | NA |
| Mathematics 3 | 2 | NA | NA | 5 | NA | NA |
| Mathematics 4 | 4 | NA | NA | 2 | NA | NA |
| Mathematics 5 | 2 | NA | NA | 4 | NA | NA |
| Mathematics 6 | 2 | NA | NA | 2 | NA | NA |
| Mathematics 7 | 1 | NA | NA | 6 | NA | NA |
| Mathematics 8 | 2 | NA | NA | 4 | NA | NA |
| Mathematics 11 | 1 | NA | NA | 10 | NA | NA |

**Table 8.F.8 Reliabilities and SEMs by Economic Status**

| Content Area and Grade | Not Economically Disadvantaged N | Not Economically Disadvantaged Reliability | Not Economically Disadvantaged Theta Score SEM | Economically Disadvantaged N | Economically Disadvantaged Reliability | Economically Disadvantaged Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 1,288 | 0.88 | 0.43 | 2,839 | 0.88 | 0.44 |
| ELA 4 | 1,359 | 0.89 | 0.42 | 3,096 | 0.88 | 0.42 |
| ELA 5 | 1,427 | 0.89 | 0.42 | 3,038 | 0.87 | 0.41 |
| ELA 6 | 1,410 | 0.86 | 0.40 | 3,169 | 0.86 | 0.40 |
| ELA 7 | 1,434 | 0.90 | 0.43 | 3,123 | 0.89 | 0.42 |
| ELA 8 | 1,434 | 0.86 | 0.39 | 2,941 | 0.84 | 0.39 |
| ELA 11 | 1,316 | 0.89 | 0.43 | 2,524 | 0.89 | 0.41 |
| Mathematics 3 | 1,283 | 0.82 | 0.42 | 2,829 | 0.79 | 0.41 |
| Mathematics 4 | 1,335 | 0.82 | 0.38 | 3,036 | 0.82 | 0.38 |
| Mathematics 5 | 1,385 | 0.82 | 0.41 | 2,988 | 0.81 | 0.39 |
| Mathematics 6 | 1,330 | 0.75 | 0.47 | 3,056 | 0.74 | 0.40 |
| Mathematics 7 | 1,423 | 0.82 | 0.42 | 3,100 | 0.82 | 0.38 |
| Mathematics 8 | 1,409 | 0.81 | 0.35 | 2,865 | 0.79 | 0.35 |
| Mathematics 11 | 1,293 | 0.84 | 0.45 | 2,509 | 0.83 | 0.39 |

**Table 8.F.9 Reliabilities and SEMs by Migrant Status**

| Content Area and Grade | Migrant N | Migrant Reliability | Migrant Theta Score SEM | Nonmigrant N | Nonmigrant Reliability | Nonmigrant Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 19 | 0.81 | 0.39 | 4,108 | 0.88 | 0.44 |
| ELA 4 | 38 | 0.78 | 0.39 | 4,417 | 0.88 | 0.42 |
| ELA 5 | 28 | 0.86 | 0.41 | 4,437 | 0.88 | 0.41 |
| ELA 6 | 31 | 0.88 | 0.42 | 4,548 | 0.86 | 0.40 |
| ELA 7 | 32 | 0.91 | 0.43 | 4,525 | 0.89 | 0.43 |
| ELA 8 | 31 | 0.72 | 0.37 | 4,344 | 0.85 | 0.39 |
| ELA 11 | 15 | 0.82 | 0.39 | 3,825 | 0.89 | 0.41 |
| Mathematics 3 | 17 | 0.07 | 0.34 | 4,095 | 0.80 | 0.41 |
| Mathematics 4 | 38 | 0.71 | 0.37 | 4,333 | 0.82 | 0.38 |
| Mathematics 5 | 27 | 0.75 | 0.35 | 4,346 | 0.82 | 0.40 |
| Mathematics 6 | 30 | 0.78 | 0.36 | 4,356 | 0.75 | 0.42 |
| Mathematics 7 | 32 | 0.75 | 0.65 | 4,491 | 0.82 | 0.39 |
| Mathematics 8 | 32 | 0.83 | 0.34 | 4,242 | 0.80 | 0.35 |
| Mathematics 11 | 15 | 0.80 | 0.34 | 3,787 | 0.83 | 0.41 |

**Table 8.F.10 Reliabilities and SEMs by Primary Disabilities**

| Content Area and Grade | Intellectual Disability N | Intellectual Disability Reliability | Intellectual Disability Theta Score SEM | Hearing Impairment N | Hearing Impairment Reliability | Hearing Impairment Theta Score SEM | Speech or Language Impairment N | Speech or Language Impairment Reliability | Speech or Language Impairment Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 1,313 | 0.87 | 0.40 | 39 | 0.83 | 0.38 | 200 | 0.82 | 0.47 |
| ELA 4 | 1,528 | 0.86 | 0.40 | 49 | 0.89 | 0.42 | 182 | 0.81 | 0.41 |
| ELA 5 | 1,612 | 0.87 | 0.39 | 35 | 0.69 | 0.39 | 168 | 0.76 | 0.41 |
| ELA 6 | 1,749 | 0.84 | 0.38 | 59 | 0.81 | 0.38 | 118 | 0.79 | 0.41 |
| ELA 7 | 1,782 | 0.89 | 0.41 | 43 | 0.74 | 0.39 | 107 | 0.84 | 0.49 |
| ELA 8 | 1,772 | 0.82 | 0.38 | 44 | 0.70 | 0.36 | 103 | 0.84 | 0.42 |
| ELA 11 | 1,680 | 0.88 | 0.40 | 44 | 0.88 | 0.41 | 47 | 0.78 | 0.41 |
| Mathematics 3 | 1,311 | 0.76 | 0.42 | 38 | 0.74 | 0.38 | 201 | 0.76 | 0.37 |
| Mathematics 4 | 1,503 | 0.80 | 0.37 | 48 | 0.59 | 0.36 | 184 | 0.73 | 0.37 |
| Mathematics 5 | 1,570 | 0.79 | 0.38 | 37 | 0.85 | 0.39 | 165 | 0.67 | 0.35 |
| Mathematics 6 | 1,682 | 0.68 | 0.43 | 58 | 0.74 | 0.36 | 115 | 0.75 | 0.35 |
| Mathematics 7 | 1,772 | 0.80 | 0.41 | 44 | 0.68 | 0.34 | 107 | 0.69 | 0.35 |
| Mathematics 8 | 1,747 | 0.78 | 0.36 | 43 | 0.76 | 0.33 | 103 | 0.81 | 0.35 |
| Mathematics 11 | 1,665 | 0.81 | 0.40 | 43 | 0.84 | 0.37 | 46 | 0.76 | 0.36 |

**Table 8.F.11 Reliabilities and SEMs by Primary Disabilities (Continued)**

| Content Area and Grade | Visual Impairment N | Visual Impairment Reliability | Visual Impairment Theta Score SEM | Emotional Disturbance N | Emotional Disturbance Reliability | Emotional Disturbance Theta Score SEM | Orthopedic Impairment N | Orthopedic Impairment Reliability | Orthopedic Impairment Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 10 | NA | NA | 23 | 0.79 | 0.44 | 98 | 0.91 | 0.41 |
| ELA 4 | 13 | 0.84 | 0.42 | 28 | 0.72 | 0.72 | 140 | 0.91 | 0.43 |
| ELA 5 | 12 | 0.89 | 0.39 | 34 | 0.84 | 0.43 | 141 | 0.9 | 0.41 |
| ELA 6 | 17 | 0.85 | 0.37 | 33 | 0.83 | 0.42 | 145 | 0.88 | 0.39 |
| ELA 7 | 13 | 0.90 | 0.41 | 47 | 0.85 | 0.42 | 143 | 0.9 | 0.41 |
| ELA 8 | 17 | 0.79 | 0.37 | 35 | 0.84 | 0.40 | 132 | 0.89 | 0.42 |
| ELA 11 | 20 | 0.92 | 0.42 | 35 | 0.80 | 0.62 | 151 | 0.9 | 0.42 |
| Mathematics 3 | 11 | 0.92 | 0.56 | 22 | 0.79 | 0.40 | 95 | 0.81 | 0.56 |
| Mathematics 4 | 14 | 0.84 | 0.37 | 28 | 0.76 | 0.38 | 130 | 0.81 | 0.37 |
| Mathematics 5 | 11 | 0.74 | 0.95 | 33 | 0.83 | 0.36 | 138 | 0.85 | 0.39 |
| Mathematics 6 | 16 | 0.83 | 0.38 | 32 | 0.77 | 0.36 | 133 | 0.75 | 0.52 |
| Mathematics 7 | 10 | NA | NA | 48 | 0.80 | 0.36 | 142 | 0.84 | 0.48 |
| Mathematics 8 | 16 | 0.82 | 0.35 | 35 | 0.82 | 0.34 | 123 | 0.85 | 0.37 |
| Mathematics 11 | 18 | 0.89 | 0.42 | 37 | 0.78 | 0.64 | 147 | 0.79 | 0.50 |

**Table 8.F.12 Reliabilities and SEMs by Primary Disabilities (Continued)**

| Content Area and Grade | Other Health Impairment N | Other Health Impairment Reliability | Other Health Impairment Theta Score SEM | Specific Learning Disability N | Specific Learning Disability Reliability | Specific Learning Disability Theta Score SEM | Deaf-Blindness N | Deaf-Blindness Reliability | Deaf-Blindness Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 282 | 0.86 | 0.47 | 287 | 0.68 | 0.54 | 0 | NA | NA |
| ELA 4 | 281 | 0.84 | 0.45 | 392 | 0.76 | 0.45 | 0 | NA | NA |
| ELA 5 | 250 | 0.88 | 0.43 | 397 | 0.75 | 0.47 | 0 | NA | NA |
| ELA 6 | 236 | 0.84 | 0.43 | 383 | 0.76 | 0.43 | 1 | NA | NA |
| ELA 7 | 281 | 0.86 | 0.45 | 419 | 0.82 | 0.43 | 0 | NA | NA |
| ELA 8 | 258 | 0.84 | 0.39 | 343 | 0.75 | 0.44 | 0 | NA | NA |
| ELA 11 | 182 | 0.88 | 0.43 | 275 | 0.81 | 0.44 | 0 | NA | NA |
| Mathematics 3 | 275 | 0.79 | 0.37 | 291 | 0.73 | 0.38 | 0 | NA | NA |
| Mathematics 4 | 278 | 0.79 | 0.37 | 391 | 0.75 | 0.38 | 0 | NA | NA |
| Mathematics 5 | 247 | 0.82 | 0.37 | 396 | 0.75 | 0.38 | 0 | NA | NA |
| Mathematics 6 | 226 | 0.75 | 0.36 | 377 | 0.77 | 0.37 | 1 | NA | NA |
| Mathematics 7 | 277 | 0.81 | 0.36 | 422 | 0.76 | 0.37 | 0 | NA | NA |
| Mathematics 8 | 258 | 0.80 | 0.34 | 340 | 0.74 | 0.34 | 0 | NA | NA |
| Mathematics 11 | 178 | 0.85 | 0.37 | 274 | 0.75 | 0.38 | 1 | NA | NA |

**Table 8.F.13 Reliabilities and SEMs by Primary Disabilities (Continued)**

| Content Area and Grade | Multiple Disabilities N | Multiple Disabilities Reliability | Multiple Disabilities Theta Score SEM | Autism N | Autism Reliability | Autism Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 126 | 0.89 | 0.44 | 1,730 | 0.88 | 0.44 |
| ELA 4 | 144 | 0.90 | 0.42 | 1,680 | 0.88 | 0.42 |
| ELA 5 | 161 | 0.88 | 0.39 | 1,638 | 0.88 | 0.42 |
| ELA 6 | 159 | 0.87 | 0.46 | 1,653 | 0.86 | 0.39 |
| ELA 7 | 139 | 0.91 | 0.43 | 1,562 | 0.89 | 0.43 |
| ELA 8 | 135 | 0.87 | 0.42 | 1,517 | 0.86 | 0.39 |
| ELA 11 | 123 | 0.91 | 0.41 | 1,258 | 0.89 | 0.42 |
| Mathematics 3 | 127 | 0.78 | 0.61 | 1,724 | 0.81 | 0.40 |
| Mathematics 4 | 134 | 0.83 | 0.48 | 1,644 | 0.82 | 0.38 |
| Mathematics 5 | 156 | 0.85 | 0.42 | 1,604 | 0.81 | 0.43 |
| Mathematics 6 | 143 | 0.67 | 0.61 | 1,577 | 0.76 | 0.41 |
| Mathematics 7 | 134 | 0.77 | 0.53 | 1,548 | 0.83 | 0.38 |
| Mathematics 8 | 126 | 0.84 | 0.36 | 1,464 | 0.78 | 0.33 |
| Mathematics 11 | 118 | 0.84 | 0.48 | 1,250 | 0.84 | 0.42 |

**Table 8.F.14 Reliabilities and SEMs by Primary Disabilities (Continued)**

| Content Area and Grade | Traumatic Brain Injury N | Traumatic Brain Injury Reliability | Traumatic Brain Injury Theta Score SEM | Not Classified N | Not Classified Reliability | Not Classified Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 19 | 0.82 | 0.38 | 0 | NA | NA |
| ELA 4 | 18 | 0.87 | 0.40 | 0 | NA | NA |
| ELA 5 | 17 | 0.87 | 0.40 | 0 | NA | NA |
| ELA 6 | 26 | 0.89 | 0.41 | 0 | NA | NA |
| ELA 7 | 21 | 0.91 | 0.45 | 0 | NA | NA |
| ELA 8 | 19 | 0.74 | 0.39 | 0 | NA | NA |
| ELA 11 | 25 | 0.92 | 0.42 | 0 | NA | NA |
| Mathematics 3 | 17 | 0.49 | 0.35 | 0 | NA | NA |
| Mathematics 4 | 17 | 0.30 | 0.35 | 0 | NA | NA |
| Mathematics 5 | 16 | 0.80 | 0.35 | 0 | NA | NA |
| Mathematics 6 | 26 | 0.87 | 0.41 | 0 | NA | NA |
| Mathematics 7 | 19 | 0.71 | 0.34 | 0 | NA | NA |
| Mathematics 8 | 19 | 0.76 | 0.33 | 0 | NA | NA |
| Mathematics 11 | 25 | 0.85 | 0.39 | 0 | NA | NA |

**Table 8.F.15 Reliabilities and SEMs by Accommodation**

| Content Area and Grade | Using Accommodations N | Using Accommodations Reliability | Using Accommodations Theta Score SEM | Not Using Accommodations N | Not Using Accommodations Reliability | Not Using Accommodations Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 1,303 | 0.87 | 0.45 | 2,824 | 0.88 | 0.43 |
| ELA 4 | 1,551 | 0.88 | 0.41 | 2,904 | 0.88 | 0.42 |
| ELA 5 | 1,662 | 0.88 | 0.42 | 2,803 | 0.88 | 0.41 |
| ELA 6 | 1,595 | 0.86 | 0.39 | 2,984 | 0.86 | 0.40 |
| ELA 7 | 1,625 | 0.89 | 0.42 | 2,932 | 0.89 | 0.43 |
| ELA 8 | 1,500 | 0.85 | 0.39 | 2,875 | 0.85 | 0.39 |
| ELA 11 | 719 | 0.89 | 0.40 | 3,121 | 0.89 | 0.42 |
| Mathematics 3 | 827 | 0.81 | 0.44 | 3,285 | 0.80 | 0.41 |
| Mathematics 4 | 1,406 | 0.81 | 0.38 | 2,965 | 0.82 | 0.38 |
| Mathematics 5 | 1,467 | 0.82 | 0.38 | 2,906 | 0.81 | 0.41 |
| Mathematics 6 | 1,547 | 0.77 | 0.41 | 2,839 | 0.73 | 0.42 |
| Mathematics 7 | 1,584 | 0.81 | 0.40 | 2,939 | 0.83 | 0.39 |
| Mathematics 8 | 1,445 | 0.79 | 0.36 | 2,829 | 0.80 | 0.34 |
| Mathematics 11 | 656 | 0.84 | 0.42 | 3,146 | 0.83 | 0.41 |

**Table 8.F.16 Reliabilities and SEMs by Designated Support**

| Content Area and Grade | Using Designated Supports N | Using Designated Supports Reliability | Using Designated Supports Theta Score SEM | Not Using Designated Supports N | Not Using Designated Supports Reliability | Not Using Designated Supports Theta Score SEM |
|---|---|---|---|---|---|---|
| ELA 3 | 1,566 | 0.87 | 0.44 | 2,561 | 0.89 | 0.43 |
| ELA 4 | 1,893 | 0.88 | 0.41 | 2,562 | 0.88 | 0.43 |
| ELA 5 | 2,070 | 0.88 | 0.41 | 2,395 | 0.88 | 0.41 |
| ELA 6 | 2,011 | 0.86 | 0.39 | 2,568 | 0.86 | 0.40 |
| ELA 7 | 2,066 | 0.89 | 0.42 | 2,491 | 0.90 | 0.43 |
| ELA 8 | 1,880 | 0.85 | 0.39 | 2,495 | 0.85 | 0.39 |
| ELA 11 | 1,028 | 0.88 | 0.42 | 2,812 | 0.89 | 0.41 |
| Mathematics 3 | 1,563 | 0.79 | 0.40 | 2,549 | 0.81 | 0.42 |
| Mathematics 4 | 1,864 | 0.80 | 0.38 | 2,507 | 0.82 | 0.38 |
| Mathematics 5 | 2,028 | 0.81 | 0.37 | 2,345 | 0.82 | 0.43 |
| Mathematics 6 | 1,944 | 0.75 | 0.43 | 2,442 | 0.75 | 0.41 |
| Mathematics 7 | 2,036 | 0.81 | 0.41 | 2,487 | 0.83 | 0.38 |
| Mathematics 8 | 1,839 | 0.79 | 0.35 | 2,435 | 0.80 | 0.34 |
| Mathematics 11 | 1,025 | 0.84 | 0.42 | 2,777 | 0.83 | 0.41 |

**Table 8.F.17 Reliabilities and SEMs by Version—ELA**

| Content Area and Grade | Version | N | Reliability | Theta Score SEM |
|---|---|---|---|---|
| ELA 3 | 1 | 1,084 | 0.87 | 0.47 |
| ELA 3 | 2 | 757 | 0.88 | 0.42 |
| ELA 3 | 3 | 755 | 0.88 | 0.42 |
| ELA 3 | 4 | 787 | 0.89 | 0.42 |
| ELA 3 | 5 | 739 | 0.88 | 0.43 |
| ELA 4 | 1 | 1,045 | 0.86 | 0.41 |
| ELA 4 | 2 | 832 | 0.88 | 0.41 |
| ELA 4 | 3 | 807 | 0.87 | 0.40 |
| ELA 4 | 4 | 887 | 0.88 | 0.42 |
| ELA 4 | 5 | 859 | 0.88 | 0.43 |
| ELA 5 | 1 | 1,029 | 0.87 | 0.42 |
| ELA 5 | 2 | 906 | 0.87 | 0.40 |
| ELA 5 | 3 | 833 | 0.86 | 0.40 |
| ELA 5 | 4 | 821 | 0.88 | 0.40 |
| ELA 5 | 5 | 848 | 0.88 | 0.43 |
| ELA 6 | 1 | 1,078 | 0.85 | 0.39 |
| ELA 6 | 2 | 846 | 0.85 | 0.39 |
| ELA 6 | 3 | 949 | 0.85 | 0.39 |
| ELA 6 | 4 | 835 | 0.85 | 0.39 |
| ELA 6 | 5 | 832 | 0.86 | 0.40 |
| ELA 7 | 1 | 919 | 0.88 | 0.41 |
| ELA 7 | 2 | 834 | 0.90 | 0.42 |
| ELA 7 | 3 | 968 | 0.87 | 0.43 |
| ELA 7 | 4 | 915 | 0.89 | 0.42 |
| ELA 7 | 5 | 885 | 0.88 | 0.42 |
| ELA 8 | 1 | 914 | 0.84 | 0.38 |
| ELA 8 | 2 | 786 | 0.82 | 0.38 |
| ELA 8 | 3 | 937 | 0.84 | 0.40 |
| ELA 8 | 4 | 859 | 0.83 | 0.38 |
| ELA 8 | 5 | 844 | 0.85 | 0.39 |
| ELA 11 | 1 | 895 | 0.89 | 0.42 |
| ELA 11 | 2 | 713 | 0.88 | 0.42 |
| ELA 11 | 3 | 756 | 0.88 | 0.40 |
| ELA 11 | 4 | 754 | 0.89 | 0.41 |
| ELA 11 | 5 | 705 | 0.88 | 0.41 |

**Table 8.F.18 Reliabilities and SEMs by Version—Mathematics**

| Content Area and Grade | Version | N | Reliability | Theta Score SEM |
|---|---|---|---|---|
| Mathematics 3 | 1 | 1,074 | 0.80 | 0.37 |
| Mathematics 3 | 2 | 750 | 0.79 | 0.37 |
| Mathematics 3 | 3 | 748 | 0.81 | 0.43 |
| Mathematics 3 | 4 | 784 | 0.80 | 0.39 |
| Mathematics 3 | 5 | 738 | 0.79 | 0.45 |
| Mathematics 4 | 1 | 1,040 | 0.80 | 0.38 |
| Mathematics 4 | 2 | 810 | 0.80 | 0.38 |
| Mathematics 4 | 3 | 802 | 0.80 | 0.37 |
| Mathematics 4 | 4 | 850 | 0.80 | 0.38 |
| Mathematics 4 | 5 | 844 | 0.82 | 0.37 |
| Mathematics 5 | 1 | 1,011 | 0.81 | 0.41 |
| Mathematics 5 | 2 | 873 | 0.78 | 0.40 |
| Mathematics 5 | 3 | 815 | 0.81 | 0.39 |
| Mathematics 5 | 4 | 802 | 0.81 | 0.37 |
| Mathematics 5 | 5 | 838 | 0.82 | 0.39 |
| Mathematics 6 | 1 | 1,027 | 0.77 | 0.38 |
| Mathematics 6 | 2 | 800 | 0.72 | 0.38 |
| Mathematics 6 | 3 | 917 | 0.73 | 0.43 |
| Mathematics 6 | 4 | 809 | 0.73 | 0.44 |
| Mathematics 6 | 5 | 806 | 0.76 | 0.39 |
| Mathematics 7 | 1 | 919 | 0.80 | 0.37 |
| Mathematics 7 | 2 | 821 | 0.82 | 0.39 |
| Mathematics 7 | 3 | 967 | 0.82 | 0.35 |
| Mathematics 7 | 4 | 915 | 0.79 | 0.41 |
| Mathematics 7 | 5 | 864 | 0.82 | 0.37 |
| Mathematics 8 | 1 | 904 | 0.80 | 0.36 |
| Mathematics 8 | 2 | 764 | 0.75 | 0.33 |
| Mathematics 8 | 3 | 922 | 0.79 | 0.34 |
| Mathematics 8 | 4 | 839 | 0.75 | 0.35 |
| Mathematics 8 | 5 | 813 | 0.79 | 0.34 |
| Mathematics 11 | 1 | 879 | 0.83 | 0.45 |
| Mathematics 11 | 2 | 707 | 0.84 | 0.40 |
| Mathematics 11 | 3 | 755 | 0.82 | 0.37 |
| Mathematics 11 | 4 | 750 | 0.84 | 0.42 |
| Mathematics 11 | 5 | 696 | 0.83 | 0.38 |

**Note:** In Table 8.F.19 through Table 8.F.32, the pathway indicates the set of modules a given student received.

| Pathway | Combination of Modules |
|---|---|
| Easy | Stage 1 (as router) and Stage 2 Easy Module |
| Moderate | Stage 1 (as router) and Stage 2 Moderate Module |
| Hard | Stage 1 (as router) and Stage 2 Hard Module |

**Table 8.F.19 Scale Score Conversion Tables with CSEMs for ELA, Grade Three**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 1.8401 | 303 | 28 | -6.0000 | 2.2131 | 303 | 33 | -6.0000 | 2.0641 | 303 | 31 |
| 1 | -4.7534 | 1.0315 | 303 | 15 | -4.3610 | 1.0404 | 303 | 16 | -4.5076 | 1.0389 | 303 | 16 |
| 2 | -3.9952 | 0.7514 | 303 | 11 | -3.5866 | 0.7607 | 303 | 11 | -3.7345 | 0.7611 | 303 | 11 |
| 3 | -3.5249 | 0.6306 | 303 | 9 | -3.1042 | 0.6384 | 303 | 10 | -3.2500 | 0.6414 | 303 | 10 |
| 4 | -3.1729 | 0.5601 | 303 | 8 | -2.7443 | 0.5654 | 307 | 8 | -2.8849 | 0.5712 | 305 | 9 |
| 5 | -2.8862 | 0.5127 | 305 | 8 | -2.4534 | 0.5152 | 311 | 8 | -2.5863 | 0.5236 | 309 | 8 |
| 6 | -2.6413 | 0.4781 | 308 | 7 | -2.2073 | 0.4781 | 315 | 7 | -2.3307 | 0.4885 | 313 | 7 |
| 7 | -2.4255 | 0.4514 | 312 | 7 | -1.9924 | 0.4495 | 318 | 7 | -2.1053 | 0.4614 | 316 | 7 |
| 8 | -2.2314 | 0.4301 | 315 | 6 | -1.8006 | 0.4270 | 321 | 6 | -1.9024 | 0.4399 | 319 | 7 |
| 9 | -2.0539 | 0.4127 | 317 | 6 | -1.6259 | 0.4090 | 324 | 6 | -1.7165 | 0.4227 | 322 | 6 |
| 10 | -1.8894 | 0.3984 | 320 | 6 | -1.4645 | 0.3947 | 326 | 6 | -1.5437 | 0.4088 | 325 | 6 |
| 11 | -1.7354 | 0.3865 | 322 | 6 | -1.3133 | 0.3832 | 328 | 6 | -1.3812 | 0.3977 | 327 | 6 |
| 12 | -1.5898 | 0.3768 | 324 | 6 | -1.1699 | 0.3739 | 330 | 6 | -1.2265 | 0.3888 | 330 | 6 |
| 13 | -1.4508 | 0.3689 | 326 | 6 | -1.0329 | 0.3665 | 333 | 5 | -1.0781 | 0.3817 | 332 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | -1.3170 | 0.3625 | 328 | 5 | -0.9007 | 0.3606 | 334 | 5 | -0.9345 | 0.3761 | 334 | 6 |
| 15 | -1.1874 | 0.3576 | 330 | 5 | -0.7723 | 0.3558 | 336 | 5 | -0.7947 | 0.3715 | 336 | 6 |
| 16 | -1.0608 | 0.3538 | 332 | 5 | -0.6470 | 0.3522 | 338 | 5 | -0.6580 | 0.3679 | 338 | 6 |
| 17 | -0.9366 | 0.3512 | 334 | 5 | -0.5239 | 0.3495 | 340 | 5 | -0.5236 | 0.3651 | 340 | 5 |
| 18 | -0.8138 | 0.3495 | 336 | 5 | -0.4023 | 0.3477 | 342 | 5 | -0.3910 | 0.3630 | 342 | 5 |
| 19 | -0.6919 | 0.3487 | 338 | 5 | -0.2817 | 0.3469 | 344 | 5 | -0.2597 | 0.3616 | 344 | 5 |
| 20 | -0.5702 | 0.3489 | 339 | 5 | -0.1612 | 0.3471 | 346 | 5 | -0.1292 | 0.3610 | 346 | 5 |
| 21 | -0.4480 | 0.3500 | 341 | 5 | -0.0402 | 0.3484 | 347 | 5 | 0.0012 | 0.3612 | 348 | 5 |
| 22 | -0.3247 | 0.3522 | 343 | 5 | 0.0821 | 0.3510 | 349 | 5 | 0.1321 | 0.3622 | 350 | 5 |
| 23 | -0.1995 | 0.3555 | 345 | 5 | 0.2066 | 0.3548 | 351 | 5 | 0.2641 | 0.3642 | 352 | 5 |
| 24 | -0.0714 | 0.3603 | 347 | 5 | 0.3345 | 0.3603 | 353 | 5 | 0.3979 | 0.3673 | 354 | 6 |
| 25 | 0.0608 | 0.3669 | 349 | 6 | 0.4668 | 0.3674 | 355 | 6 | 0.5344 | 0.3715 | 356 | 6 |
| 26 | 0.1986 | 0.3757 | 351 | 6 | 0.6053 | 0.3768 | 357 | 6 | 0.6744 | 0.3770 | 358 | 6 |
| 27 | 0.3440 | 0.3871 | 353 | 6 | 0.7517 | 0.3887 | 359 | 6 | 0.8192 | 0.3840 | 360 | 6 |
| 28 | 0.4996 | 0.4020 | 355 | 6 | 0.9086 | 0.4039 | 362 | 6 | 0.9702 | 0.3931 | 363 | 6 |
| 29 | 0.6689 | 0.4214 | 358 | 6 | 1.0796 | 0.4234 | 364 | 6 | 1.1292 | 0.4046 | 365 | 6 |
| 30 | 0.8571 | 0.4471 | 361 | 7 | 1.2695 | 0.4490 | 367 | 7 | 1.2989 | 0.4196 | 367 | 6 |
| 31 | 1.0722 | 0.4817 | 364 | 7 | 1.4862 | 0.4833 | 370 | 7 | 1.4831 | 0.4393 | 370 | 7 |
| 32 | 1.3271 | 0.5303 | 368 | 8 | 1.7426 | 0.5315 | 374 | 8 | 1.6874 | 0.4656 | 373 | 7 |
| 33 | 1.6460 | 0.6034 | 373 | 9 | 2.0626 | 0.6043 | 379 | 9 | 1.9206 | 0.5016 | 377 | 8 |
| 34 | 2.0825 | 0.7284 | 379 | 11 | 2.5001 | 0.7291 | 386 | 11 | 2.1974 | 0.5530 | 381 | 8 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2.8066 | 1.0150 | 390 | 15 | 3.2255 | 1.0158 | 396 | 15 | 2.5450 | 0.6306 | 386 | 9 |
| 36 | 6.0000 | 4.8668 | 399 | 73 | 6.0000 | 3.9457 | 399 | 59 | 3.0223 | 0.7617 | 393 | 11 |
| 37 | NA | NA | NA | NA | NA | NA | NA | NA | 3.8086 | 1.0520 | 399 | 16 |
| 38 | NA | NA | NA | NA | NA | NA | NA | NA | 6.0000 | 2.8577 | 399 | 43 |

**Table 8.F.20 Scale Score Conversion Tables with CSEMs for ELA, Grade Four**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 1.9241 | 403 | 29 | -6.0000 | 2.1942 | 403 | 33 | -6.0000 | 2.6223 | 403 | 39 |
| 1 | -4.6653 | 1.0266 | 403 | 15 | -4.3899 | 1.0314 | 403 | 15 | -4.0188 | 1.0358 | 403 | 16 |
| 2 | -3.9169 | 0.7451 | 403 | 11 | -3.6322 | 0.7510 | 403 | 11 | -3.2523 | 0.7566 | 403 | 11 |
| 3 | -3.4555 | 0.6238 | 403 | 9 | -3.1625 | 0.6300 | 403 | 9 | -2.7745 | 0.6363 | 403 | 10 |
| 4 | -3.1115 | 0.5534 | 403 | 8 | -2.8112 | 0.5597 | 403 | 8 | -2.4154 | 0.5664 | 409 | 8 |
| 5 | -2.8317 | 0.5065 | 403 | 8 | -2.5247 | 0.5128 | 407 | 8 | -2.1215 | 0.5199 | 413 | 8 |
| 6 | -2.5925 | 0.4727 | 406 | 7 | -2.2794 | 0.4790 | 411 | 7 | -1.8689 | 0.4865 | 417 | 7 |
| 7 | -2.3814 | 0.4470 | 409 | 7 | -2.0623 | 0.4535 | 414 | 7 | -1.6446 | 0.4614 | 420 | 7 |
| 8 | -2.1907 | 0.4267 | 412 | 6 | -1.8657 | 0.4336 | 417 | 7 | -1.4407 | 0.4419 | 423 | 7 |
| 9 | -2.0157 | 0.4103 | 415 | 6 | -1.6845 | 0.4178 | 420 | 6 | -1.2522 | 0.4265 | 426 | 6 |
| 10 | -1.8528 | 0.3968 | 417 | 6 | -1.5153 | 0.4050 | 422 | 6 | -1.0756 | 0.4141 | 429 | 6 |
| 11 | -1.6998 | 0.3857 | 420 | 6 | -1.3555 | 0.3946 | 425 | 6 | -0.9082 | 0.4040 | 431 | 6 |
| 12 | -1.5546 | 0.3765 | 422 | 6 | -1.2032 | 0.3861 | 427 | 6 | -0.7483 | 0.3957 | 434 | 6 |
| 13 | -1.4157 | 0.3690 | 424 | 6 | -1.0568 | 0.3791 | 429 | 6 | -0.5944 | 0.3888 | 436 | 6 |
| 14 | -1.2817 | 0.3630 | 426 | 5 | -0.9152 | 0.3735 | 431 | 6 | -0.4455 | 0.3831 | 438 | 6 |
| 15 | -1.1516 | 0.3584 | 428 | 5 | -0.7773 | 0.3690 | 433 | 6 | -0.3004 | 0.3785 | 440 | 6 |
| 16 | -1.0242 | 0.3552 | 430 | 5 | -0.6424 | 0.3655 | 435 | 5 | -0.1584 | 0.3750 | 443 | 6 |
| 17 | -0.8987 | 0.3533 | 432 | 5 | -0.5098 | 0.3629 | 437 | 5 | -0.0187 | 0.3725 | 445 | 6 |
| 18 | -0.7740 | 0.3527 | 433 | 5 | -0.3787 | 0.3611 | 439 | 5 | 0.1195 | 0.3711 | 447 | 6 |
| 19 | -0.6494 | 0.3534 | 435 | 5 | -0.2485 | 0.3602 | 441 | 5 | 0.2572 | 0.3710 | 449 | 6 |
| 20 | -0.5238 | 0.3553 | 437 | 5 | -0.1188 | 0.3602 | 443 | 5 | 0.3954 | 0.3723 | 451 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.3964 | 0.3586 | 439 | 5 | 0.0113 | 0.3611 | 445 | 5 | 0.5350 | 0.3751 | 453 | 6 |
| 22 | -0.2661 | 0.3633 | 441 | 5 | 0.1424 | 0.3629 | 447 | 5 | 0.6775 | 0.3798 | 455 | 6 |
| 23 | -0.1318 | 0.3696 | 443 | 6 | 0.2753 | 0.3659 | 449 | 5 | 0.8242 | 0.3864 | 457 | 6 |
| 24 | 0.0078 | 0.3777 | 445 | 6 | 0.4107 | 0.3701 | 451 | 6 | 0.9770 | 0.3955 | 460 | 6 |
| 25 | 0.1543 | 0.3879 | 447 | 6 | 0.5498 | 0.3757 | 453 | 6 | 1.1381 | 0.4074 | 462 | 6 |
| 26 | 0.3097 | 0.4008 | 450 | 6 | 0.6937 | 0.3830 | 455 | 6 | 1.3102 | 0.4227 | 465 | 6 |
| 27 | 0.4767 | 0.4169 | 452 | 6 | 0.8440 | 0.3924 | 458 | 6 | 1.4971 | 0.4424 | 467 | 7 |
| 28 | 0.6590 | 0.4373 | 455 | 7 | 1.0026 | 0.4042 | 460 | 6 | 1.7040 | 0.4680 | 471 | 7 |
| 29 | 0.8616 | 0.4636 | 458 | 7 | 1.1720 | 0.4192 | 463 | 6 | 1.9388 | 0.5022 | 474 | 8 |
| 30 | 1.0924 | 0.4984 | 461 | 7 | 1.3557 | 0.4385 | 465 | 7 | 2.2143 | 0.5498 | 478 | 8 |
| 31 | 1.3644 | 0.5467 | 465 | 8 | 1.5588 | 0.4636 | 468 | 7 | 2.5546 | 0.6211 | 483 | 9 |
| 32 | 1.7016 | 0.6188 | 471 | 9 | 1.7890 | 0.4973 | 472 | 7 | 3.0130 | 0.7434 | 490 | 11 |
| 33 | 2.1574 | 0.7419 | 477 | 11 | 2.0593 | 0.5446 | 476 | 8 | 3.7592 | 1.0258 | 499 | 15 |
| 34 | 2.9017 | 1.0251 | 489 | 15 | 2.3937 | 0.6161 | 481 | 9 | 6.0000 | 3.0024 | 499 | 45 |
| 35 | 6.0000 | 4.5976 | 499 | 69 | 2.8456 | 0.7389 | 488 | 11 | NA | NA | NA | NA |
| 36 | NA | NA | NA | NA | 3.5851 | 1.0225 | 499 | 15 | NA | NA | NA | NA |
| 37 | NA | NA | NA | NA | 6.0000 | 3.2817 | 499 | 49 | NA | NA | NA | NA |

**Table 8.F.21 Scale Score Conversion Tables with CSEMs for ELA, Grade Five**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 1.4398 | 503 | 22 | -6.0000 | 1.6123 | 503 | 24 | -6.0000 | 1.4754 | 503 | 22 |
| 1 | -5.2690 | 1.0301 | 503 | 15 | -5.0274 | 1.0367 | 503 | 16 | -5.2161 | 1.0499 | 503 | 16 |
| 2 | -4.5128 | 0.7507 | 503 | 11 | -4.2579 | 0.7594 | 503 | 11 | -4.4192 | 0.7771 | 503 | 12 |
| 3 | -4.0426 | 0.6314 | 503 | 9 | -3.7748 | 0.6412 | 503 | 10 | -3.9088 | 0.6623 | 503 | 10 |
| 4 | -3.6884 | 0.5631 | 503 | 8 | -3.4086 | 0.5732 | 503 | 9 | -3.5146 | 0.5975 | 503 | 9 |
| 5 | -3.3972 | 0.5183 | 503 | 8 | -3.1064 | 0.5283 | 503 | 8 | -3.1834 | 0.5556 | 503 | 8 |
| 6 | -3.1453 | 0.4866 | 503 | 7 | -2.8447 | 0.4959 | 503 | 7 | -2.8913 | 0.5263 | 503 | 8 |
| 7 | -2.9201 | 0.4629 | 503 | 7 | -2.6111 | 0.4712 | 506 | 7 | -2.6260 | 0.5044 | 506 | 8 |
| 8 | -2.7144 | 0.4446 | 504 | 7 | -2.3984 | 0.4516 | 509 | 7 | -2.3802 | 0.4872 | 509 | 7 |
| 9 | -2.5233 | 0.4299 | 507 | 6 | -2.2017 | 0.4355 | 512 | 7 | -2.1497 | 0.4729 | 513 | 7 |
| 10 | -2.3436 | 0.4178 | 510 | 6 | -2.0178 | 0.4221 | 515 | 6 | -1.9318 | 0.4605 | 516 | 7 |
| 11 | -2.1733 | 0.4076 | 512 | 6 | -1.8444 | 0.4107 | 517 | 6 | -1.7248 | 0.4492 | 519 | 7 |
| 12 | -2.0106 | 0.3989 | 515 | 6 | -1.6796 | 0.4010 | 520 | 6 | -1.5276 | 0.4387 | 522 | 7 |
| 13 | -1.8544 | 0.3914 | 517 | 6 | -1.5220 | 0.3928 | 522 | 6 | -1.3394 | 0.4287 | 525 | 6 |
| 14 | -1.7037 | 0.3849 | 519 | 6 | -1.3705 | 0.3858 | 524 | 6 | -1.1597 | 0.4190 | 528 | 6 |
| 15 | -1.5577 | 0.3792 | 522 | 6 | -1.2238 | 0.3799 | 527 | 6 | -0.9878 | 0.4098 | 530 | 6 |
| 16 | -1.4156 | 0.3744 | 524 | 6 | -1.0813 | 0.3750 | 529 | 6 | -0.8233 | 0.4011 | 533 | 6 |
| 17 | -1.2769 | 0.3705 | 526 | 6 | -0.9422 | 0.3710 | 531 | 6 | -0.6656 | 0.3929 | 535 | 6 |
| 18 | -1.1407 | 0.3674 | 528 | 6 | -0.8057 | 0.3678 | 533 | 6 | -0.5141 | 0.3855 | 537 | 6 |
| 19 | -1.0065 | 0.3652 | 530 | 5 | -0.6713 | 0.3653 | 535 | 5 | -0.3679 | 0.3789 | 539 | 6 |
| 20 | -0.8735 | 0.3641 | 532 | 5 | -0.5385 | 0.3634 | 537 | 5 | -0.2264 | 0.3734 | 542 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.7410 | 0.3639 | 534 | 5 | -0.4068 | 0.3622 | 539 | 5 | -0.0886 | 0.3689 | 544 | 6 |
| 22 | -0.6081 | 0.3649 | 536 | 5 | -0.2757 | 0.3617 | 541 | 5 | 0.0464 | 0.3657 | 546 | 5 |
| 23 | -0.4742 | 0.3670 | 538 | 6 | -0.1447 | 0.3619 | 543 | 5 | 0.1795 | 0.3639 | 548 | 5 |
| 24 | -0.3383 | 0.3703 | 540 | 6 | -0.0133 | 0.3630 | 545 | 5 | 0.3118 | 0.3636 | 550 | 5 |
| 25 | -0.1995 | 0.3749 | 542 | 6 | 0.1193 | 0.3652 | 547 | 5 | 0.4445 | 0.3650 | 552 | 5 |
| 26 | -0.0566 | 0.3810 | 544 | 6 | 0.2541 | 0.3688 | 549 | 6 | 0.5789 | 0.3681 | 554 | 6 |
| 27 | 0.0915 | 0.3887 | 546 | 6 | 0.3921 | 0.3741 | 551 | 6 | 0.7162 | 0.3732 | 556 | 6 |
| 28 | 0.2464 | 0.3984 | 549 | 6 | 0.5348 | 0.3816 | 553 | 6 | 0.8582 | 0.3805 | 558 | 6 |
| 29 | 0.4100 | 0.4105 | 551 | 6 | 0.6844 | 0.3920 | 555 | 6 | 1.0068 | 0.3904 | 560 | 6 |
| 30 | 0.5847 | 0.4256 | 554 | 6 | 0.8434 | 0.4059 | 558 | 6 | 1.1641 | 0.4031 | 562 | 6 |
| 31 | 0.7739 | 0.4448 | 557 | 7 | 1.0156 | 0.4245 | 560 | 6 | 1.3331 | 0.4193 | 565 | 6 |
| 32 | 0.9827 | 0.4696 | 560 | 7 | 1.2063 | 0.4497 | 563 | 7 | 1.5175 | 0.4400 | 568 | 7 |
| 33 | 1.2185 | 0.5028 | 563 | 8 | 1.4236 | 0.4840 | 566 | 7 | 1.7226 | 0.4665 | 571 | 7 |
| 34 | 1.4941 | 0.5493 | 567 | 8 | 1.6808 | 0.5326 | 570 | 8 | 1.9562 | 0.5014 | 574 | 8 |
| 35 | 1.8332 | 0.6196 | 572 | 9 | 2.0024 | 0.6059 | 575 | 9 | 2.2314 | 0.5497 | 578 | 8 |
| 36 | 2.2891 | 0.7413 | 579 | 11 | 2.4423 | 0.7311 | 582 | 11 | 2.5721 | 0.6219 | 584 | 9 |
| 37 | 3.0315 | 1.0236 | 590 | 15 | 3.1711 | 1.0176 | 593 | 15 | 3.0320 | 0.7450 | 590 | 11 |
| 38 | 6.0000 | 4.3177 | 599 | 65 | 6.0000 | 4.0472 | 599 | 61 | 3.7817 | 1.0281 | 599 | 15 |
| 39 | NA | NA | NA | NA | NA | NA | NA | NA | 6.0000 | 2.9630 | 599 | 44 |

**Table 8.F.22 Scale Score Conversion Tables with CSEMs for ELA, Grade Six**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 2.1001 | 603 | 26 | -6.0000 | 1.8995 | 603 | 24 | -6.0000 | 2.1069 | 603 | 26 |
| 1 | -4.4782 | 1.0324 | 603 | 13 | -4.6862 | 1.0327 | 603 | 13 | -4.4689 | 1.0351 | 603 | 13 |
| 2 | -3.7215 | 0.7482 | 603 | 9 | -3.9266 | 0.7517 | 603 | 9 | -3.7055 | 0.7534 | 603 | 9 |
| 3 | -3.2590 | 0.6219 | 604 | 8 | -3.4570 | 0.6292 | 603 | 8 | -3.2342 | 0.6300 | 605 | 8 |
| 4 | -2.9207 | 0.5455 | 608 | 7 | -3.1078 | 0.5567 | 606 | 7 | -2.8846 | 0.5566 | 609 | 7 |
| 5 | -2.6522 | 0.4926 | 612 | 6 | -2.8259 | 0.5072 | 610 | 6 | -2.6030 | 0.5067 | 612 | 6 |
| 6 | -2.4290 | 0.4534 | 615 | 6 | -2.5874 | 0.4705 | 613 | 6 | -2.3649 | 0.4704 | 615 | 6 |
| 7 | -2.2372 | 0.4232 | 617 | 5 | -2.3794 | 0.4422 | 615 | 6 | -2.1567 | 0.4430 | 618 | 6 |
| 8 | -2.0682 | 0.3994 | 619 | 5 | -2.1939 | 0.4197 | 618 | 5 | -1.9698 | 0.4220 | 620 | 5 |
| 9 | -1.9163 | 0.3805 | 621 | 5 | -2.0253 | 0.4016 | 620 | 5 | -1.7986 | 0.4060 | 623 | 5 |
| 10 | -1.7773 | 0.3653 | 623 | 5 | -1.8699 | 0.3870 | 622 | 5 | -1.6388 | 0.3937 | 625 | 5 |
| 11 | -1.6483 | 0.3532 | 624 | 4 | -1.7248 | 0.3751 | 623 | 5 | -1.4875 | 0.3844 | 626 | 5 |
| 12 | -1.5269 | 0.3436 | 626 | 4 | -1.5876 | 0.3656 | 625 | 5 | -1.3423 | 0.3777 | 628 | 5 |
| 13 | -1.4115 | 0.3360 | 627 | 4 | -1.4566 | 0.3581 | 627 | 4 | -1.2015 | 0.3729 | 630 | 5 |
| 14 | -1.3005 | 0.3303 | 629 | 4 | -1.3305 | 0.3522 | 628 | 4 | -1.0636 | 0.3697 | 632 | 5 |
| 15 | -1.1928 | 0.3262 | 630 | 4 | -1.2080 | 0.3477 | 630 | 4 | -0.9275 | 0.3679 | 633 | 5 |
| 16 | -1.0873 | 0.3234 | 631 | 4 | -1.0882 | 0.3446 | 631 | 4 | -0.7924 | 0.3672 | 635 | 5 |
| 17 | -0.9831 | 0.3220 | 633 | 4 | -0.9701 | 0.3425 | 633 | 4 | -0.6574 | 0.3674 | 637 | 5 |
| 18 | -0.8794 | 0.3218 | 634 | 4 | -0.8531 | 0.3416 | 634 | 4 | -0.5221 | 0.3682 | 638 | 5 |
| 19 | -0.7755 | 0.3229 | 635 | 4 | -0.7363 | 0.3417 | 636 | 4 | -0.3859 | 0.3697 | 640 | 5 |
| 20 | -0.6705 | 0.3250 | 637 | 4 | -0.6192 | 0.3428 | 637 | 4 | -0.2485 | 0.3715 | 642 | 5 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.5638 | 0.3284 | 638 | 4 | -0.5009 | 0.3450 | 639 | 4 | -0.1096 | 0.3736 | 644 | 5 |
| 22 | -0.4545 | 0.3329 | 639 | 4 | -0.3807 | 0.3482 | 640 | 4 | 0.0310 | 0.3761 | 645 | 5 |
| 23 | -0.3417 | 0.3387 | 641 | 4 | -0.2579 | 0.3525 | 642 | 4 | 0.1736 | 0.3788 | 647 | 5 |
| 24 | -0.2245 | 0.3458 | 642 | 4 | -0.1316 | 0.3580 | 643 | 4 | 0.3183 | 0.3819 | 649 | 5 |
| 25 | -0.1020 | 0.3544 | 644 | 4 | -0.0010 | 0.3647 | 645 | 5 | 0.4656 | 0.3855 | 651 | 5 |
| 26 | 0.0273 | 0.3646 | 645 | 5 | 0.1350 | 0.3728 | 647 | 5 | 0.6160 | 0.3900 | 653 | 5 |
| 27 | 0.1647 | 0.3769 | 647 | 5 | 0.2776 | 0.3824 | 648 | 5 | 0.7704 | 0.3957 | 655 | 5 |
| 28 | 0.3123 | 0.3916 | 649 | 5 | 0.4282 | 0.3938 | 650 | 5 | 0.9299 | 0.4031 | 657 | 5 |
| 29 | 0.4726 | 0.4094 | 651 | 5 | 0.5886 | 0.4074 | 652 | 5 | 1.0962 | 0.4128 | 659 | 5 |
| 30 | 0.6492 | 0.4314 | 653 | 5 | 0.7613 | 0.4238 | 655 | 5 | 1.2719 | 0.4257 | 661 | 5 |
| 31 | 0.8472 | 0.4591 | 656 | 6 | 0.9494 | 0.4440 | 657 | 6 | 1.4603 | 0.4430 | 663 | 6 |
| 32 | 1.0744 | 0.4954 | 658 | 6 | 1.1579 | 0.4697 | 659 | 6 | 1.6667 | 0.4664 | 666 | 6 |
| 33 | 1.3440 | 0.5452 | 662 | 7 | 1.3941 | 0.5035 | 662 | 6 | 1.8990 | 0.4988 | 669 | 6 |
| 34 | 1.6803 | 0.6189 | 666 | 8 | 1.6707 | 0.5504 | 666 | 7 | 2.1704 | 0.5453 | 672 | 7 |
| 35 | 2.1375 | 0.7438 | 672 | 9 | 2.0112 | 0.6209 | 670 | 8 | 2.5052 | 0.6163 | 676 | 8 |
| 36 | 2.8866 | 1.0284 | 681 | 13 | 2.4687 | 0.7425 | 676 | 9 | 2.9573 | 0.7390 | 682 | 9 |
| 37 | 6.0000 | 4.6135 | 699 | 58 | 3.2130 | 1.0246 | 685 | 13 | 3.6971 | 1.0228 | 691 | 13 |
| 38 | NA | NA | NA | NA | 6.0000 | 3.9417 | 699 | 49 | 6.0000 | 3.1034 | 699 | 39 |

**Table 8.F.23 Scale Score Conversion Tables with CSEMs for ELA, Grade Seven**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 1.4957 | 703 | 22 | -6.0000 | 1.7267 | 703 | 26 | -6.0000 | 1.8413 | 703 | 28 |
| 1 | -5.1874 | 1.0371 | 703 | 16 | -4.8725 | 1.0529 | 703 | 16 | -4.7227 | 1.0681 | 703 | 16 |
| 2 | -4.4173 | 0.7596 | 703 | 11 | -4.0698 | 0.7803 | 703 | 12 | -3.8857 | 0.8033 | 703 | 12 |
| 3 | -3.9341 | 0.6412 | 703 | 10 | -3.5552 | 0.6646 | 703 | 10 | -3.3329 | 0.6940 | 703 | 10 |
| 4 | -3.5679 | 0.5733 | 703 | 9 | -3.1593 | 0.5979 | 703 | 9 | -2.8956 | 0.6323 | 703 | 9 |
| 5 | -3.2654 | 0.5287 | 703 | 8 | -2.8289 | 0.5535 | 703 | 8 | -2.5224 | 0.5911 | 707 | 9 |
| 6 | -3.0029 | 0.4971 | 703 | 7 | -2.5406 | 0.5214 | 707 | 8 | -2.1915 | 0.5600 | 712 | 8 |
| 7 | -2.7677 | 0.4734 | 703 | 7 | -2.2818 | 0.4967 | 711 | 7 | -1.8922 | 0.5342 | 717 | 8 |
| 8 | -2.5524 | 0.4550 | 707 | 7 | -2.0449 | 0.4769 | 714 | 7 | -1.6189 | 0.5113 | 721 | 8 |
| 9 | -2.3521 | 0.4401 | 710 | 7 | -1.8252 | 0.4606 | 718 | 7 | -1.3679 | 0.4903 | 724 | 7 |
| 10 | -2.1638 | 0.4279 | 713 | 6 | -1.6194 | 0.4468 | 721 | 7 | -1.1369 | 0.4709 | 728 | 7 |
| 11 | -1.9850 | 0.4175 | 715 | 6 | -1.4249 | 0.4350 | 724 | 7 | -0.9235 | 0.4528 | 731 | 7 |
| 12 | -1.8144 | 0.4085 | 718 | 6 | -1.2400 | 0.4248 | 726 | 6 | -0.7258 | 0.4363 | 734 | 7 |
| 13 | -1.6507 | 0.4005 | 720 | 6 | -1.0633 | 0.4158 | 729 | 6 | -0.5418 | 0.4215 | 737 | 6 |
| 14 | -1.4930 | 0.3935 | 723 | 6 | -0.8936 | 0.4080 | 732 | 6 | -0.3697 | 0.4084 | 739 | 6 |
| 15 | -1.3406 | 0.3873 | 725 | 6 | -0.7298 | 0.4013 | 734 | 6 | -0.2075 | 0.3971 | 742 | 6 |
| 16 | -1.1926 | 0.3819 | 727 | 6 | -0.5710 | 0.3956 | 736 | 6 | -0.0535 | 0.3877 | 744 | 6 |
| 17 | -1.0485 | 0.3774 | 729 | 6 | -0.4162 | 0.3910 | 739 | 6 | 0.0940 | 0.3803 | 746 | 6 |
| 18 | -0.9073 | 0.3739 | 731 | 6 | -0.2646 | 0.3876 | 741 | 6 | 0.2365 | 0.3747 | 749 | 6 |
| 19 | -0.7684 | 0.3715 | 733 | 6 | -0.1152 | 0.3855 | 743 | 6 | 0.3755 | 0.3710 | 751 | 6 |
| 20 | -0.6307 | 0.3705 | 736 | 6 | 0.0332 | 0.3849 | 745 | 6 | 0.5125 | 0.3693 | 753 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.4933 | 0.3708 | 738 | 6 | 0.1818 | 0.3859 | 748 | 6 | 0.6489 | 0.3694 | 755 | 6 |
| 22 | -0.3551 | 0.3727 | 740 | 6 | 0.3318 | 0.3888 | 750 | 6 | 0.7862 | 0.3715 | 757 | 6 |
| 23 | -0.2149 | 0.3762 | 742 | 6 | 0.4849 | 0.3939 | 752 | 6 | 0.9257 | 0.3757 | 759 | 6 |
| 24 | -0.0713 | 0.3816 | 744 | 6 | 0.6430 | 0.4014 | 755 | 6 | 1.0693 | 0.3823 | 761 | 6 |
| 25 | 0.0771 | 0.3890 | 746 | 6 | 0.8083 | 0.4120 | 757 | 6 | 1.2189 | 0.3914 | 763 | 6 |
| 26 | 0.2323 | 0.3988 | 748 | 6 | 0.9838 | 0.4261 | 760 | 6 | 1.3769 | 0.4037 | 766 | 6 |
| 27 | 0.3963 | 0.4113 | 751 | 6 | 1.1731 | 0.4447 | 763 | 7 | 1.5463 | 0.4198 | 768 | 6 |
| 28 | 0.5720 | 0.4272 | 754 | 6 | 1.3816 | 0.4693 | 766 | 7 | 1.7313 | 0.4408 | 771 | 7 |
| 29 | 0.7630 | 0.4473 | 756 | 7 | 1.6172 | 0.5026 | 769 | 8 | 1.9375 | 0.4682 | 774 | 7 |
| 30 | 0.9746 | 0.4733 | 760 | 7 | 1.8927 | 0.5494 | 773 | 8 | 2.1736 | 0.5047 | 778 | 8 |
| 31 | 1.2145 | 0.5076 | 763 | 8 | 2.2321 | 0.6200 | 778 | 9 | 2.4533 | 0.5552 | 782 | 8 |
| 32 | 1.4957 | 0.5550 | 767 | 8 | 2.6887 | 0.7419 | 785 | 11 | 2.8018 | 0.6297 | 787 | 9 |
| 33 | 1.8420 | 0.6261 | 773 | 9 | 3.4324 | 1.0243 | 796 | 15 | 3.2740 | 0.7548 | 794 | 11 |
| 34 | 2.3068 | 0.7478 | 780 | 11 | 6.0000 | 3.5350 | 799 | 53 | 4.0414 | 1.0382 | 799 | 16 |
| 35 | 3.0599 | 1.0292 | 791 | 15 | NA | NA | NA | NA | 6.0000 | 2.5866 | 799 | 39 |
| 36 | 6.0000 | 4.2340 | 799 | 64 | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 8.F.24 Scale Score Conversion Tables with CSEMs for ELA, Grade Eight**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 1.9190 | 803 | 24 | -6.0000 | 1.9745 | 803 | 25 | -6.0000 | 1.9033 | 803 | 24 |
| 1 | -4.6641 | 1.0340 | 803 | 13 | -4.6008 | 1.0382 | 803 | 13 | -4.6778 | 1.0379 | 803 | 13 |
| 2 | -3.9004 | 0.7554 | 803 | 9 | -3.8280 | 0.7616 | 803 | 10 | -3.9050 | 0.7620 | 803 | 10 |
| 3 | -3.4235 | 0.6362 | 805 | 8 | -3.3414 | 0.6440 | 806 | 8 | -3.4170 | 0.6457 | 805 | 8 |
| 4 | -3.0638 | 0.5674 | 809 | 7 | -2.9716 | 0.5764 | 810 | 7 | -3.0441 | 0.5799 | 809 | 7 |
| 5 | -2.7683 | 0.5217 | 813 | 7 | -2.6658 | 0.5315 | 814 | 7 | -2.7333 | 0.5370 | 813 | 7 |
| 6 | -2.5136 | 0.4887 | 816 | 6 | -2.4009 | 0.4988 | 817 | 6 | -2.4615 | 0.5067 | 817 | 6 |
| 7 | -2.2873 | 0.4633 | 819 | 6 | -2.1648 | 0.4735 | 820 | 6 | -2.2165 | 0.4837 | 820 | 6 |
| 8 | -2.0820 | 0.4430 | 821 | 6 | -1.9504 | 0.4528 | 823 | 6 | -1.9916 | 0.4650 | 823 | 6 |
| 9 | -1.8933 | 0.4261 | 824 | 5 | -1.7533 | 0.4352 | 826 | 5 | -1.7826 | 0.4491 | 825 | 6 |
| 10 | -1.7178 | 0.4116 | 826 | 5 | -1.5705 | 0.4199 | 828 | 5 | -1.5871 | 0.4350 | 828 | 5 |
| 11 | -1.5536 | 0.3990 | 828 | 5 | -1.3998 | 0.4064 | 830 | 5 | -1.4034 | 0.4221 | 830 | 5 |
| 12 | -1.3987 | 0.3879 | 830 | 5 | -1.2394 | 0.3944 | 832 | 5 | -1.2302 | 0.4102 | 832 | 5 |
| 13 | -1.2519 | 0.3782 | 832 | 5 | -1.0880 | 0.3838 | 834 | 5 | -1.0663 | 0.3993 | 834 | 5 |
| 14 | -1.1121 | 0.3696 | 834 | 5 | -0.9441 | 0.3746 | 836 | 5 | -0.9107 | 0.3894 | 836 | 5 |
| 15 | -0.9782 | 0.3622 | 835 | 5 | -0.8067 | 0.3667 | 837 | 5 | -0.7624 | 0.3808 | 838 | 5 |
| 16 | -0.8492 | 0.3560 | 837 | 4 | -0.6746 | 0.3602 | 839 | 5 | -0.6202 | 0.3734 | 840 | 5 |
| 17 | -0.7242 | 0.3509 | 838 | 4 | -0.5467 | 0.3550 | 841 | 4 | -0.4830 | 0.3673 | 841 | 5 |
| 18 | -0.6024 | 0.3471 | 840 | 4 | -0.4220 | 0.3511 | 842 | 4 | -0.3498 | 0.3626 | 843 | 5 |
| 19 | -0.4827 | 0.3446 | 841 | 4 | -0.2996 | 0.3486 | 844 | 4 | -0.2196 | 0.3591 | 845 | 4 |
| 20 | -0.3644 | 0.3434 | 843 | 4 | -0.1785 | 0.3473 | 845 | 4 | -0.0914 | 0.3569 | 846 | 4 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.2464 | 0.3435 | 844 | 4 | -0.0578 | 0.3473 | 847 | 4 | 0.0358 | 0.3561 | 848 | 4 |
| 22 | -0.1278 | 0.3452 | 846 | 4 | 0.0633 | 0.3486 | 848 | 4 | 0.1627 | 0.3564 | 850 | 4 |
| 23 | -0.0076 | 0.3484 | 847 | 4 | 0.1857 | 0.3513 | 850 | 4 | 0.2904 | 0.3581 | 851 | 4 |
| 24 | 0.1155 | 0.3534 | 849 | 4 | 0.3106 | 0.3553 | 851 | 4 | 0.4197 | 0.3612 | 853 | 5 |
| 25 | 0.2428 | 0.3602 | 851 | 5 | 0.4388 | 0.3609 | 853 | 5 | 0.5519 | 0.3658 | 854 | 5 |
| 26 | 0.3758 | 0.3692 | 852 | 5 | 0.5716 | 0.3680 | 855 | 5 | 0.6880 | 0.3721 | 856 | 5 |
| 27 | 0.5164 | 0.3807 | 854 | 5 | 0.7104 | 0.3770 | 856 | 5 | 0.8295 | 0.3802 | 858 | 5 |
| 28 | 0.6667 | 0.3950 | 856 | 5 | 0.8567 | 0.3881 | 858 | 5 | 0.9780 | 0.3907 | 860 | 5 |
| 29 | 0.8297 | 0.4128 | 858 | 5 | 1.0126 | 0.4017 | 860 | 5 | 1.1357 | 0.4038 | 862 | 5 |
| 30 | 1.0093 | 0.4351 | 860 | 5 | 1.1806 | 0.4184 | 862 | 5 | 1.3053 | 0.4201 | 864 | 5 |
| 31 | 1.2107 | 0.4632 | 863 | 6 | 1.3643 | 0.4392 | 865 | 5 | 1.4904 | 0.4407 | 866 | 6 |
| 32 | 1.4420 | 0.4997 | 866 | 6 | 1.5687 | 0.4656 | 867 | 6 | 1.6962 | 0.4671 | 869 | 6 |
| 33 | 1.7160 | 0.5493 | 869 | 7 | 1.8013 | 0.5002 | 870 | 6 | 1.9303 | 0.5017 | 872 | 6 |
| 34 | 2.0567 | 0.6222 | 873 | 8 | 2.0750 | 0.5480 | 873 | 7 | 2.2056 | 0.5496 | 875 | 7 |
| 35 | 2.5173 | 0.7455 | 879 | 9 | 2.4132 | 0.6194 | 878 | 8 | 2.5457 | 0.6210 | 879 | 8 |
| 36 | 3.2674 | 1.0280 | 888 | 13 | 2.8693 | 0.7417 | 883 | 9 | 3.0039 | 0.7432 | 885 | 9 |
| 37 | 6.0000 | 3.8229 | 899 | 48 | 3.6128 | 1.0243 | 893 | 13 | 3.7498 | 1.0256 | 894 | 13 |
| 38 | NA | NA | NA | NA | 6.0000 | 3.2325 | 899 | 40 | 6.0000 | 3.0171 | 899 | 38 |

**Table 8.F.25 Scale Score Conversion Tables with CSEMs for ELA, Grade Eleven**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 1.8116 | 903 | 23 | -6.0000 | 2.3224 | 903 | 29 | -6.0000 | 2.2805 | 903 | 29 |
| 1 | -4.7857 | 1.0317 | 903 | 13 | -4.2587 | 1.0424 | 903 | 13 | -4.2935 | 1.0451 | 903 | 13 |
| 2 | -4.0268 | 0.7521 | 903 | 9 | -3.4796 | 0.7640 | 904 | 10 | -3.5073 | 0.7697 | 904 | 10 |
| 3 | -3.5550 | 0.6321 | 903 | 8 | -2.9922 | 0.6425 | 910 | 8 | -3.0095 | 0.6516 | 910 | 8 |
| 4 | -3.2006 | 0.5626 | 907 | 7 | -2.6270 | 0.5699 | 915 | 7 | -2.6311 | 0.5826 | 915 | 7 |
| 5 | -2.9106 | 0.5163 | 911 | 6 | -2.3312 | 0.5198 | 918 | 6 | -2.3194 | 0.5358 | 919 | 7 |
| 6 | -2.6616 | 0.4828 | 914 | 6 | -2.0806 | 0.4823 | 921 | 6 | -2.0512 | 0.5011 | 922 | 6 |
| 7 | -2.4410 | 0.4571 | 917 | 6 | -1.8622 | 0.4528 | 924 | 6 | -1.8138 | 0.4740 | 925 | 6 |
| 8 | -2.2415 | 0.4366 | 919 | 5 | -1.6679 | 0.4291 | 927 | 5 | -1.5995 | 0.4522 | 928 | 6 |
| 9 | -2.0582 | 0.4198 | 922 | 5 | -1.4921 | 0.4098 | 929 | 5 | -1.4030 | 0.4345 | 930 | 5 |
| 10 | -1.8878 | 0.4057 | 924 | 5 | -1.3306 | 0.3940 | 931 | 5 | -1.2205 | 0.4200 | 932 | 5 |
| 11 | -1.7280 | 0.3938 | 926 | 5 | -1.1804 | 0.3812 | 933 | 5 | -1.0491 | 0.4082 | 934 | 5 |
| 12 | -1.5768 | 0.3837 | 928 | 5 | -1.0390 | 0.3709 | 935 | 5 | -0.8863 | 0.3986 | 936 | 5 |
| 13 | -1.4328 | 0.3751 | 930 | 5 | -0.9044 | 0.3629 | 936 | 5 | -0.7305 | 0.3908 | 938 | 5 |
| 14 | -1.2948 | 0.3679 | 931 | 5 | -0.7749 | 0.3568 | 938 | 4 | -0.5802 | 0.3844 | 940 | 5 |
| 15 | -1.1616 | 0.3619 | 933 | 5 | -0.6491 | 0.3526 | 939 | 4 | -0.4344 | 0.3791 | 942 | 5 |
| 16 | -1.0323 | 0.3572 | 935 | 4 | -0.5257 | 0.3501 | 941 | 4 | -0.2924 | 0.3747 | 944 | 5 |
| 17 | -0.9060 | 0.3535 | 936 | 4 | -0.4035 | 0.3491 | 942 | 4 | -0.1532 | 0.3711 | 946 | 5 |
| 18 | -0.7819 | 0.3510 | 938 | 4 | -0.2814 | 0.3497 | 944 | 4 | -0.0165 | 0.3682 | 947 | 5 |
| 19 | -0.6592 | 0.3494 | 939 | 4 | -0.1583 | 0.3519 | 946 | 4 | 0.1184 | 0.3662 | 949 | 5 |
| 20 | -0.5372 | 0.3490 | 941 | 4 | -0.0332 | 0.3555 | 947 | 4 | 0.2520 | 0.3650 | 951 | 5 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.4152 | 0.3495 | 942 | 4 | 0.0949 | 0.3605 | 949 | 5 | 0.3852 | 0.3648 | 952 | 5 |
| 22 | -0.2924 | 0.3512 | 944 | 4 | 0.2273 | 0.3671 | 950 | 5 | 0.5187 | 0.3658 | 954 | 5 |
| 23 | -0.1681 | 0.3540 | 945 | 4 | 0.3651 | 0.3752 | 952 | 5 | 0.6534 | 0.3681 | 956 | 5 |
| 24 | -0.0413 | 0.3581 | 947 | 4 | 0.5096 | 0.3850 | 954 | 5 | 0.7903 | 0.3720 | 957 | 5 |
| 25 | 0.0889 | 0.3635 | 949 | 5 | 0.6624 | 0.3967 | 956 | 5 | 0.9309 | 0.3778 | 959 | 5 |
| 26 | 0.2236 | 0.3704 | 950 | 5 | 0.8254 | 0.4107 | 958 | 5 | 1.0765 | 0.3856 | 961 | 5 |
| 27 | 0.3641 | 0.3792 | 952 | 5 | 1.0009 | 0.4274 | 960 | 5 | 1.2291 | 0.3958 | 963 | 5 |
| 28 | 0.5120 | 0.3900 | 954 | 5 | 1.1924 | 0.4480 | 962 | 6 | 1.3908 | 0.4088 | 965 | 5 |
| 29 | 0.6693 | 0.4034 | 956 | 5 | 1.4045 | 0.4738 | 965 | 6 | 1.5646 | 0.4253 | 967 | 5 |
| 30 | 0.8387 | 0.4199 | 958 | 5 | 1.6448 | 0.5076 | 968 | 6 | 1.7543 | 0.4461 | 969 | 6 |
| 31 | 1.0236 | 0.4406 | 960 | 6 | 1.9257 | 0.5544 | 972 | 7 | 1.9651 | 0.4728 | 972 | 6 |
| 32 | 1.2292 | 0.4669 | 963 | 6 | 2.2707 | 0.6246 | 976 | 8 | 2.2049 | 0.5079 | 975 | 6 |
| 33 | 1.4631 | 0.5015 | 966 | 6 | 2.7330 | 0.7457 | 982 | 9 | 2.4869 | 0.5561 | 979 | 7 |
| 34 | 1.7380 | 0.5493 | 969 | 7 | 3.4821 | 1.0269 | 991 | 13 | 2.8349 | 0.6279 | 983 | 8 |
| 35 | 2.0778 | 0.6207 | 973 | 8 | 6.0000 | 3.4415 | 999 | 43 | 3.3024 | 0.7500 | 989 | 9 |
| 36 | 2.5356 | 0.7430 | 979 | 9 | NA | NA | NA | NA | 4.0595 | 1.0314 | 998 | 13 |
| 37 | 3.2811 | 1.0254 | 989 | 13 | NA | NA | NA | NA | 6.0000 | 2.5784 | 999 | 32 |
| 38 | 6.0000 | 3.8067 | 999 | 48 | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 8.F.26 Scale Score Conversion Tables with CSEMs for Mathematics, Grade Three**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 3.3007 | 303 | 62 | -6.0000 | 3.3540 | 303 | 63 | -6.0000 | 3.7780 | 303 | 71 |
| 1 | -3.5793 | 1.0188 | 303 | 19 | -3.5404 | 1.0229 | 303 | 19 | -3.2852 | 1.0316 | 303 | 19 |
| 2 | -2.8481 | 0.7327 | 303 | 14 | -2.8005 | 0.7389 | 303 | 14 | -2.5273 | 0.7509 | 303 | 14 |
| 3 | -2.4062 | 0.6071 | 303 | 11 | -2.3492 | 0.6150 | 303 | 12 | -2.0583 | 0.6291 | 303 | 12 |
| 4 | -2.0838 | 0.5326 | 303 | 10 | -2.0170 | 0.5419 | 303 | 10 | -1.7089 | 0.5573 | 309 | 10 |
| 5 | -1.8275 | 0.4820 | 307 | 9 | -1.7507 | 0.4922 | 308 | 9 | -1.4260 | 0.5085 | 315 | 10 |
| 6 | -1.6133 | 0.4448 | 311 | 8 | -1.5266 | 0.4557 | 313 | 9 | -1.1858 | 0.4727 | 319 | 9 |
| 7 | -1.4283 | 0.4162 | 315 | 8 | -1.3318 | 0.4275 | 316 | 8 | -0.9754 | 0.4453 | 323 | 8 |
| 8 | -1.2645 | 0.3936 | 318 | 7 | -1.1587 | 0.4051 | 320 | 8 | -0.7868 | 0.4238 | 327 | 8 |
| 9 | -1.1167 | 0.3756 | 320 | 7 | -1.0019 | 0.3869 | 323 | 7 | -0.6144 | 0.4068 | 330 | 8 |
| 10 | -0.9811 | 0.3610 | 323 | 7 | -0.8580 | 0.3720 | 325 | 7 | -0.4544 | 0.3934 | 333 | 7 |
| 11 | -0.8550 | 0.3493 | 325 | 7 | -0.7242 | 0.3599 | 328 | 7 | -0.3038 | 0.3829 | 336 | 7 |
| 12 | -0.7362 | 0.3400 | 327 | 6 | -0.5982 | 0.3500 | 330 | 7 | -0.1604 | 0.3747 | 338 | 7 |
| 13 | -0.6231 | 0.3329 | 330 | 6 | -0.4784 | 0.3422 | 332 | 6 | -0.0222 | 0.3686 | 341 | 7 |
| 14 | -0.5140 | 0.3275 | 332 | 6 | -0.3634 | 0.3361 | 334 | 6 | 0.1120 | 0.3642 | 343 | 7 |
| 15 | -0.4080 | 0.3239 | 334 | 6 | -0.2519 | 0.3317 | 337 | 6 | 0.2436 | 0.3613 | 346 | 7 |
| 16 | -0.3037 | 0.3218 | 336 | 6 | -0.1428 | 0.3289 | 339 | 6 | 0.3737 | 0.3600 | 348 | 7 |
| 17 | -0.2004 | 0.3212 | 338 | 6 | -0.0351 | 0.3275 | 341 | 6 | 0.5033 | 0.3600 | 351 | 7 |
| 18 | -0.0969 | 0.3221 | 339 | 6 | 0.0722 | 0.3276 | 343 | 6 | 0.6334 | 0.3615 | 353 | 7 |
| 19 | 0.0076 | 0.3244 | 341 | 6 | 0.1800 | 0.3291 | 345 | 6 | 0.7653 | 0.3646 | 356 | 7 |
| 20 | 0.1141 | 0.3283 | 343 | 6 | 0.2893 | 0.3322 | 347 | 6 | 0.8999 | 0.3693 | 358 | 7 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 0.2236 | 0.3337 | 345 | 6 | 0.4013 | 0.3370 | 349 | 6 | 1.0388 | 0.3759 | 361 | 7 |
| 22 | 0.3374 | 0.3410 | 348 | 6 | 0.5170 | 0.3436 | 351 | 6 | 1.1832 | 0.3843 | 363 | 7 |
| 23 | 0.4568 | 0.3501 | 350 | 7 | 0.6380 | 0.3523 | 353 | 7 | 1.3350 | 0.3949 | 366 | 7 |
| 24 | 0.5834 | 0.3616 | 352 | 7 | 0.7660 | 0.3634 | 356 | 7 | 1.4961 | 0.4079 | 369 | 8 |
| 25 | 0.7193 | 0.3758 | 355 | 7 | 0.9032 | 0.3774 | 358 | 7 | 1.6688 | 0.4235 | 373 | 8 |
| 26 | 0.8671 | 0.3934 | 358 | 7 | 1.0523 | 0.3951 | 361 | 7 | 1.8562 | 0.4423 | 376 | 8 |
| 27 | 1.0305 | 0.4154 | 361 | 8 | 1.2172 | 0.4175 | 364 | 8 | 2.0619 | 0.4651 | 380 | 9 |
| 28 | 1.2145 | 0.4433 | 364 | 8 | 1.4033 | 0.4461 | 368 | 8 | 2.2911 | 0.4930 | 384 | 9 |
| 29 | 1.4271 | 0.4799 | 368 | 9 | 1.6188 | 0.4836 | 372 | 9 | 2.5515 | 0.5285 | 389 | 10 |
| 30 | 1.6811 | 0.5302 | 373 | 10 | 1.8771 | 0.5348 | 376 | 10 | 2.8556 | 0.5763 | 395 | 11 |
| 31 | 2.0007 | 0.6046 | 379 | 11 | 2.2024 | 0.6100 | 383 | 11 | 3.2269 | 0.6464 | 399 | 12 |
| 32 | 2.4394 | 0.7306 | 387 | 14 | 2.6486 | 0.7362 | 391 | 14 | 3.7182 | 0.7657 | 399 | 14 |
| 33 | 3.1677 | 1.0175 | 399 | 19 | 3.3860 | 1.0223 | 399 | 19 | 4.4987 | 1.0425 | 399 | 20 |
| 34 | 6.0000 | 4.0538 | 399 | 76 | 6.0000 | 3.6210 | 399 | 68 | 6.0000 | 2.0690 | 399 | 39 |

**Table 8.F.27 Scale Score Conversion Tables with CSEMs for Mathematics, Grade Four**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 2.3883 | 403 | 45 | -6.0000 | 2.5663 | 403 | 48 | -6.0000 | 2.6636 | 403 | 50 |
| 1 | -4.2167 | 1.0308 | 403 | 19 | -4.0587 | 1.0386 | 403 | 19 | -3.9712 | 1.0464 | 403 | 20 |
| 2 | -3.4612 | 0.7489 | 403 | 14 | -3.2873 | 0.7592 | 403 | 14 | -3.1829 | 0.7707 | 403 | 14 |
| 3 | -2.9955 | 0.6262 | 403 | 12 | -2.8065 | 0.6379 | 403 | 12 | -2.6840 | 0.6522 | 403 | 12 |
| 4 | -2.6499 | 0.5538 | 403 | 10 | -2.4463 | 0.5664 | 403 | 11 | -2.3051 | 0.5828 | 403 | 11 |
| 5 | -2.3708 | 0.5047 | 403 | 9 | -2.1534 | 0.5179 | 403 | 10 | -1.9933 | 0.5358 | 404 | 10 |
| 6 | -2.1345 | 0.4686 | 403 | 9 | -1.9039 | 0.4822 | 406 | 9 | -1.7249 | 0.5012 | 409 | 9 |
| 7 | -1.9280 | 0.4408 | 405 | 8 | -1.6848 | 0.4547 | 410 | 9 | -1.4874 | 0.4742 | 413 | 9 |
| 8 | -1.7435 | 0.4185 | 409 | 8 | -1.4881 | 0.4327 | 413 | 8 | -1.2728 | 0.4524 | 417 | 8 |
| 9 | -1.5760 | 0.4003 | 412 | 8 | -1.3086 | 0.4148 | 417 | 8 | -1.0762 | 0.4345 | 421 | 8 |
| 10 | -1.4218 | 0.3852 | 415 | 7 | -1.1427 | 0.4000 | 420 | 8 | -0.8939 | 0.4196 | 425 | 8 |
| 11 | -1.2783 | 0.3725 | 417 | 7 | -0.9876 | 0.3878 | 423 | 7 | -0.7231 | 0.4071 | 428 | 8 |
| 12 | -1.1434 | 0.3619 | 420 | 7 | -0.8411 | 0.3776 | 426 | 7 | -0.5615 | 0.3967 | 431 | 7 |
| 13 | -1.0157 | 0.3530 | 422 | 7 | -0.7016 | 0.3693 | 428 | 7 | -0.4075 | 0.3882 | 434 | 7 |
| 14 | -0.8936 | 0.3456 | 425 | 6 | -0.5677 | 0.3626 | 431 | 7 | -0.2595 | 0.3812 | 436 | 7 |
| 15 | -0.7763 | 0.3395 | 427 | 6 | -0.4380 | 0.3574 | 433 | 7 | -0.1162 | 0.3758 | 439 | 7 |
| 16 | -0.6626 | 0.3347 | 429 | 6 | -0.3117 | 0.3535 | 435 | 7 | 0.0235 | 0.3718 | 442 | 7 |
| 17 | -0.5518 | 0.3311 | 431 | 6 | -0.1876 | 0.3510 | 438 | 7 | 0.1608 | 0.3690 | 444 | 7 |
| 18 | -0.4430 | 0.3286 | 433 | 6 | -0.0648 | 0.3497 | 440 | 7 | 0.2964 | 0.3675 | 447 | 7 |
| 19 | -0.3354 | 0.3272 | 435 | 6 | 0.0575 | 0.3496 | 442 | 7 | 0.4315 | 0.3672 | 449 | 7 |
| 20 | -0.2284 | 0.3270 | 437 | 6 | 0.1802 | 0.3509 | 445 | 7 | 0.5667 | 0.3681 | 452 | 7 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.1211 | 0.3280 | 439 | 6 | 0.3042 | 0.3535 | 447 | 7 | 0.7030 | 0.3703 | 454 | 7 |
| 22 | -0.0128 | 0.3302 | 441 | 6 | 0.4306 | 0.3575 | 449 | 7 | 0.8414 | 0.3737 | 457 | 7 |
| 23 | 0.0974 | 0.3338 | 443 | 6 | 0.5604 | 0.3630 | 452 | 7 | 0.9829 | 0.3786 | 460 | 7 |
| 24 | 0.2105 | 0.3388 | 445 | 6 | 0.6948 | 0.3702 | 454 | 7 | 1.1287 | 0.3850 | 462 | 7 |
| 25 | 0.3276 | 0.3456 | 447 | 6 | 0.8352 | 0.3792 | 457 | 7 | 1.2801 | 0.3932 | 465 | 7 |
| 26 | 0.4500 | 0.3542 | 450 | 7 | 0.9832 | 0.3903 | 460 | 7 | 1.4387 | 0.4035 | 468 | 8 |
| 27 | 0.5794 | 0.3652 | 452 | 7 | 1.1409 | 0.4040 | 463 | 8 | 1.6067 | 0.4163 | 471 | 8 |
| 28 | 0.7178 | 0.3790 | 455 | 7 | 1.3110 | 0.4209 | 466 | 8 | 1.7867 | 0.4324 | 475 | 8 |
| 29 | 0.8680 | 0.3963 | 458 | 7 | 1.4969 | 0.4419 | 469 | 8 | 1.9824 | 0.4527 | 478 | 8 |
| 30 | 1.0336 | 0.4182 | 461 | 8 | 1.7039 | 0.4686 | 473 | 9 | 2.1989 | 0.4786 | 483 | 9 |
| 31 | 1.2201 | 0.4462 | 464 | 8 | 1.9395 | 0.5034 | 478 | 9 | 2.4441 | 0.5129 | 487 | 10 |
| 32 | 1.4355 | 0.4831 | 468 | 9 | 2.2167 | 0.5515 | 483 | 10 | 2.7311 | 0.5605 | 493 | 11 |
| 33 | 1.6930 | 0.5339 | 473 | 10 | 2.5590 | 0.6229 | 489 | 12 | 3.0838 | 0.6316 | 499 | 12 |
| 34 | 2.0172 | 0.6089 | 479 | 11 | 3.0198 | 0.7451 | 498 | 14 | 3.5560 | 0.7531 | 499 | 14 |
| 35 | 2.4619 | 0.7352 | 487 | 14 | 3.7687 | 1.0271 | 499 | 19 | 4.3179 | 1.0339 | 499 | 19 |
| 36 | 3.1979 | 1.0218 | 499 | 19 | 6.0000 | 2.9854 | 499 | 56 | 6.0000 | 2.2688 | 499 | 43 |
| 37 | 6.0000 | 3.9769 | 499 | 75 | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 8.F.28 Scale Score Conversion Tables with CSEMs for Mathematics, Grade Five**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 2.9791 | 503 | 56 | -6.0000 | 2.8627 | 503 | 54 | -6.0000 | 3.6279 | 503 | 68 |
| 1 | -3.7810 | 1.0220 | 503 | 19 | -3.8480 | 1.0305 | 503 | 19 | -3.3625 | 1.0337 | 503 | 19 |
| 2 | -3.0428 | 0.7377 | 503 | 14 | -3.0926 | 0.7492 | 503 | 14 | -2.6016 | 0.7520 | 503 | 14 |
| 3 | -2.5932 | 0.6137 | 503 | 12 | -2.6262 | 0.6270 | 503 | 12 | -2.1323 | 0.6283 | 503 | 12 |
| 4 | -2.2625 | 0.5406 | 503 | 10 | -2.2792 | 0.5551 | 503 | 10 | -1.7849 | 0.5544 | 508 | 10 |
| 5 | -1.9974 | 0.4911 | 504 | 9 | -1.9985 | 0.5065 | 504 | 9 | -1.5061 | 0.5036 | 513 | 9 |
| 6 | -1.7742 | 0.4548 | 508 | 9 | -1.7603 | 0.4707 | 508 | 9 | -1.2716 | 0.4660 | 517 | 9 |
| 7 | -1.5803 | 0.4267 | 512 | 8 | -1.5519 | 0.4429 | 512 | 8 | -1.0680 | 0.4370 | 521 | 8 |
| 8 | -1.4078 | 0.4042 | 515 | 8 | -1.3656 | 0.4206 | 516 | 8 | -0.8871 | 0.4143 | 525 | 8 |
| 9 | -1.2518 | 0.3859 | 518 | 7 | -1.1964 | 0.4023 | 519 | 8 | -0.7230 | 0.3962 | 528 | 7 |
| 10 | -1.1088 | 0.3706 | 521 | 7 | -1.0406 | 0.3872 | 522 | 7 | -0.5718 | 0.3817 | 531 | 7 |
| 11 | -0.9761 | 0.3579 | 523 | 7 | -0.8956 | 0.3746 | 525 | 7 | -0.4304 | 0.3703 | 533 | 7 |
| 12 | -0.8517 | 0.3473 | 525 | 7 | -0.7592 | 0.3641 | 527 | 7 | -0.2967 | 0.3613 | 536 | 7 |
| 13 | -0.7341 | 0.3385 | 528 | 6 | -0.6297 | 0.3555 | 529 | 7 | -0.1687 | 0.3543 | 538 | 7 |
| 14 | -0.6220 | 0.3313 | 530 | 6 | -0.5058 | 0.3485 | 532 | 7 | -0.0451 | 0.3490 | 540 | 7 |
| 15 | -0.5141 | 0.3256 | 532 | 6 | -0.3862 | 0.3431 | 534 | 6 | 0.0754 | 0.3452 | 543 | 6 |
| 16 | -0.4095 | 0.3211 | 534 | 6 | -0.2698 | 0.3391 | 536 | 6 | 0.1937 | 0.3427 | 545 | 6 |
| 17 | -0.3074 | 0.3180 | 536 | 6 | -0.1557 | 0.3364 | 538 | 6 | 0.3108 | 0.3414 | 547 | 6 |
| 18 | -0.2068 | 0.3160 | 537 | 6 | -0.0431 | 0.3349 | 540 | 6 | 0.4273 | 0.3413 | 549 | 6 |
| 19 | -0.1072 | 0.3153 | 539 | 6 | 0.0690 | 0.3346 | 543 | 6 | 0.5442 | 0.3423 | 552 | 6 |
| 20 | -0.0076 | 0.3157 | 541 | 6 | 0.1813 | 0.3355 | 545 | 6 | 0.6621 | 0.3444 | 554 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 0.0926 | 0.3174 | 543 | 6 | 0.2947 | 0.3377 | 547 | 6 | 0.7819 | 0.3477 | 556 | 7 |
| 22 | 0.1942 | 0.3203 | 545 | 6 | 0.4098 | 0.3410 | 549 | 6 | 0.9043 | 0.3522 | 558 | 7 |
| 23 | 0.2982 | 0.3246 | 547 | 6 | 0.5278 | 0.3457 | 551 | 6 | 1.0305 | 0.3581 | 561 | 7 |
| 24 | 0.4054 | 0.3304 | 549 | 6 | 0.6494 | 0.3519 | 553 | 7 | 1.1613 | 0.3654 | 563 | 7 |
| 25 | 0.5170 | 0.3378 | 551 | 6 | 0.7760 | 0.3596 | 556 | 7 | 1.2982 | 0.3745 | 566 | 7 |
| 26 | 0.6343 | 0.3472 | 553 | 7 | 0.9088 | 0.3692 | 558 | 7 | 1.4426 | 0.3856 | 568 | 7 |
| 27 | 0.7589 | 0.3589 | 556 | 7 | 1.0494 | 0.3809 | 561 | 7 | 1.5965 | 0.3992 | 571 | 7 |
| 28 | 0.8929 | 0.3733 | 558 | 7 | 1.1999 | 0.3951 | 564 | 7 | 1.7625 | 0.4159 | 574 | 8 |
| 29 | 1.0389 | 0.3911 | 561 | 7 | 1.3628 | 0.4124 | 567 | 8 | 1.9440 | 0.4366 | 578 | 8 |
| 30 | 1.2005 | 0.4134 | 564 | 8 | 1.5417 | 0.4339 | 570 | 8 | 2.1461 | 0.4630 | 582 | 9 |
| 31 | 1.3830 | 0.4417 | 567 | 8 | 1.7417 | 0.4611 | 574 | 9 | 2.3763 | 0.4977 | 586 | 9 |
| 32 | 1.5943 | 0.4788 | 571 | 9 | 1.9704 | 0.4965 | 578 | 9 | 2.6474 | 0.5457 | 591 | 10 |
| 33 | 1.8474 | 0.5295 | 576 | 10 | 2.2407 | 0.5452 | 583 | 10 | 2.9831 | 0.6174 | 597 | 12 |
| 34 | 2.1665 | 0.6044 | 582 | 11 | 2.5761 | 0.6174 | 590 | 12 | 3.4368 | 0.7401 | 599 | 14 |
| 35 | 2.6052 | 0.7307 | 590 | 14 | 3.0301 | 0.7406 | 598 | 14 | 4.1780 | 1.0233 | 599 | 19 |
| 36 | 3.3338 | 1.0177 | 599 | 19 | 3.7723 | 1.0239 | 599 | 19 | 6.0000 | 2.4466 | 599 | 46 |
| 37 | 6.0000 | 3.7312 | 599 | 70 | 6.0000 | 2.9874 | 599 | 56 | NA | NA | NA | NA |

**Table 8.F.29 Scale Score Conversion Tables with CSEMs for Mathematics, Grade Six**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 3.9776 | 603 | 75 | -6.0000 | 4.0016 | 603 | 75 | -6.0000 | 4.4372 | 603 | 83 |
| 1 | -3.2213 | 1.0089 | 603 | 19 | -3.1971 | 1.0161 | 603 | 19 | -2.9906 | 1.0152 | 603 | 19 |
| 2 | -2.5102 | 0.7189 | 603 | 13 | -2.4710 | 0.7294 | 603 | 14 | -2.2672 | 0.7271 | 603 | 14 |
| 3 | -2.0882 | 0.5908 | 603 | 11 | -2.0334 | 0.6040 | 603 | 11 | -1.8338 | 0.6001 | 607 | 11 |
| 4 | -1.7849 | 0.5148 | 608 | 10 | -1.7144 | 0.5300 | 609 | 10 | -1.5197 | 0.5249 | 613 | 10 |
| 5 | -1.5466 | 0.4635 | 612 | 9 | -1.4603 | 0.4802 | 614 | 9 | -1.2712 | 0.4742 | 617 | 9 |
| 6 | -1.3492 | 0.4263 | 616 | 8 | -1.2472 | 0.4442 | 618 | 8 | -1.0639 | 0.4376 | 621 | 8 |
| 7 | -1.1796 | 0.3982 | 619 | 7 | -1.0621 | 0.4170 | 621 | 8 | -0.8846 | 0.4101 | 625 | 8 |
| 8 | -1.0298 | 0.3764 | 622 | 7 | -0.8971 | 0.3959 | 624 | 7 | -0.7253 | 0.3888 | 628 | 7 |
| 9 | -0.8946 | 0.3592 | 625 | 7 | -0.7470 | 0.3793 | 627 | 7 | -0.5806 | 0.3722 | 630 | 7 |
| 10 | -0.7705 | 0.3455 | 627 | 6 | -0.6080 | 0.3663 | 630 | 7 | -0.4470 | 0.3591 | 633 | 7 |
| 11 | -0.6549 | 0.3347 | 629 | 6 | -0.4776 | 0.3561 | 632 | 7 | -0.3217 | 0.3489 | 635 | 7 |
| 12 | -0.5457 | 0.3263 | 631 | 6 | -0.3537 | 0.3482 | 635 | 7 | -0.2028 | 0.3409 | 637 | 6 |
| 13 | -0.4413 | 0.3199 | 633 | 6 | -0.2345 | 0.3424 | 637 | 6 | -0.0886 | 0.3349 | 640 | 6 |
| 14 | -0.3405 | 0.3152 | 635 | 6 | -0.1186 | 0.3384 | 639 | 6 | 0.0221 | 0.3305 | 642 | 6 |
| 15 | -0.2421 | 0.3121 | 637 | 6 | -0.0049 | 0.3359 | 641 | 6 | 0.1304 | 0.3277 | 644 | 6 |
| 16 | -0.1452 | 0.3105 | 639 | 6 | 0.1076 | 0.3351 | 643 | 6 | 0.2373 | 0.3263 | 646 | 6 |
| 17 | -0.0489 | 0.3103 | 640 | 6 | 0.2201 | 0.3356 | 645 | 6 | 0.3437 | 0.3261 | 648 | 6 |
| 18 | 0.0478 | 0.3115 | 642 | 6 | 0.3335 | 0.3377 | 648 | 6 | 0.4505 | 0.3273 | 650 | 6 |
| 19 | 0.1456 | 0.3141 | 644 | 6 | 0.4487 | 0.3412 | 650 | 6 | 0.5585 | 0.3299 | 652 | 6 |
| 20 | 0.2456 | 0.3183 | 646 | 6 | 0.5669 | 0.3464 | 652 | 6 | 0.6686 | 0.3338 | 654 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 0.3487 | 0.3242 | 648 | 6 | 0.6892 | 0.3532 | 654 | 7 | 0.7819 | 0.3393 | 656 | 6 |
| 22 | 0.4563 | 0.3320 | 650 | 6 | 0.8170 | 0.3619 | 657 | 7 | 0.8994 | 0.3464 | 658 | 6 |
| 23 | 0.5699 | 0.3420 | 652 | 6 | 0.9520 | 0.3729 | 659 | 7 | 1.0226 | 0.3555 | 660 | 7 |
| 24 | 0.6912 | 0.3549 | 654 | 7 | 1.0961 | 0.3865 | 662 | 7 | 1.1530 | 0.3669 | 663 | 7 |
| 25 | 0.8229 | 0.3711 | 657 | 7 | 1.2520 | 0.4034 | 665 | 8 | 1.2928 | 0.3811 | 666 | 7 |
| 26 | 0.9683 | 0.3920 | 659 | 7 | 1.4233 | 0.4247 | 668 | 8 | 1.4447 | 0.3987 | 668 | 7 |
| 27 | 1.1324 | 0.4191 | 663 | 8 | 1.6151 | 0.4518 | 672 | 8 | 1.6125 | 0.4209 | 672 | 8 |
| 28 | 1.3229 | 0.4552 | 666 | 9 | 1.8351 | 0.4875 | 676 | 9 | 1.8014 | 0.4492 | 675 | 8 |
| 29 | 1.5527 | 0.5056 | 670 | 9 | 2.0963 | 0.5368 | 681 | 10 | 2.0196 | 0.4863 | 679 | 9 |
| 30 | 1.8455 | 0.5810 | 676 | 11 | 2.4227 | 0.6100 | 687 | 11 | 2.2804 | 0.5371 | 684 | 10 |
| 31 | 2.2550 | 0.7093 | 684 | 13 | 2.8677 | 0.7346 | 695 | 14 | 2.6082 | 0.6121 | 690 | 11 |
| 32 | 2.9514 | 1.0011 | 697 | 19 | 3.6014 | 1.0199 | 699 | 19 | 3.0570 | 0.7381 | 699 | 14 |
| 33 | 6.0000 | 4.5860 | 699 | 86 | 6.0000 | 3.2617 | 699 | 61 | 3.7975 | 1.0240 | 699 | 19 |
| 34 | NA | NA | NA | NA | NA | NA | NA | NA | 6.0000 | 2.9482 | 699 | 55 |

**Table 8.F.30 Scale Score Conversion Tables with CSEMs for Mathematics, Grade Seven**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 3.1231 | 703 | 59 | -6.0000 | 3.2722 | 703 | 61 | -6.0000 | 3.5543 | 703 | 67 |
| 1 | -3.6952 | 1.0155 | 703 | 19 | -3.5930 | 1.0204 | 703 | 19 | -3.4216 | 1.0229 | 703 | 19 |
| 2 | -2.9715 | 0.7269 | 703 | 14 | -2.8598 | 0.7332 | 703 | 14 | -2.6841 | 0.7355 | 703 | 14 |
| 3 | -2.5388 | 0.5989 | 703 | 11 | -2.4184 | 0.6058 | 703 | 11 | -2.2399 | 0.6077 | 703 | 11 |
| 4 | -2.2269 | 0.5222 | 703 | 10 | -2.0986 | 0.5294 | 703 | 10 | -1.9181 | 0.5310 | 705 | 10 |
| 5 | -1.9820 | 0.4697 | 704 | 9 | -1.8463 | 0.4771 | 707 | 9 | -1.6644 | 0.4787 | 710 | 9 |
| 6 | -1.7797 | 0.4309 | 708 | 8 | -1.6373 | 0.4386 | 711 | 8 | -1.4536 | 0.4407 | 714 | 8 |
| 7 | -1.6070 | 0.4011 | 711 | 8 | -1.4579 | 0.4091 | 714 | 8 | -1.2721 | 0.4122 | 717 | 8 |
| 8 | -1.4556 | 0.3775 | 714 | 7 | -1.3000 | 0.3861 | 717 | 7 | -1.1113 | 0.3904 | 720 | 7 |
| 9 | -1.3203 | 0.3585 | 717 | 7 | -1.1581 | 0.3678 | 720 | 7 | -0.9655 | 0.3737 | 723 | 7 |
| 10 | -1.1973 | 0.3431 | 719 | 6 | -1.0282 | 0.3532 | 722 | 7 | -0.8306 | 0.3610 | 726 | 7 |
| 11 | -1.0839 | 0.3305 | 721 | 6 | -0.9076 | 0.3416 | 724 | 6 | -0.7038 | 0.3514 | 728 | 7 |
| 12 | -0.9781 | 0.3203 | 723 | 6 | -0.7941 | 0.3324 | 726 | 6 | -0.5827 | 0.3444 | 730 | 6 |
| 13 | -0.8781 | 0.3120 | 725 | 6 | -0.6860 | 0.3253 | 728 | 6 | -0.4658 | 0.3396 | 733 | 6 |
| 14 | -0.7828 | 0.3054 | 727 | 6 | -0.5819 | 0.3199 | 730 | 6 | -0.3515 | 0.3366 | 735 | 6 |
| 15 | -0.6911 | 0.3003 | 728 | 6 | -0.4808 | 0.3160 | 732 | 6 | -0.2387 | 0.3351 | 737 | 6 |
| 16 | -0.6021 | 0.2965 | 730 | 6 | -0.3817 | 0.3135 | 734 | 6 | -0.1264 | 0.3349 | 739 | 6 |
| 17 | -0.5149 | 0.2939 | 732 | 6 | -0.2838 | 0.3122 | 736 | 6 | -0.0140 | 0.3358 | 741 | 6 |
| 18 | -0.4290 | 0.2924 | 733 | 5 | -0.1864 | 0.3120 | 738 | 6 | 0.0994 | 0.3376 | 743 | 6 |
| 19 | -0.3435 | 0.2920 | 735 | 5 | -0.0888 | 0.3128 | 740 | 6 | 0.2143 | 0.3402 | 745 | 6 |
| 20 | -0.2580 | 0.2927 | 736 | 5 | 0.0096 | 0.3145 | 741 | 6 | 0.3312 | 0.3435 | 748 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.1719 | 0.2944 | 738 | 6 | 0.1093 | 0.3171 | 743 | 6 | 0.4506 | 0.3474 | 750 | 7 |
| 22 | -0.0843 | 0.2972 | 740 | 6 | 0.2111 | 0.3207 | 745 | 6 | 0.5729 | 0.3519 | 752 | 7 |
| 23 | 0.0052 | 0.3011 | 741 | 6 | 0.3154 | 0.3252 | 747 | 6 | 0.6987 | 0.3571 | 754 | 7 |
| 24 | 0.0974 | 0.3063 | 743 | 6 | 0.4229 | 0.3306 | 749 | 6 | 0.8284 | 0.3630 | 757 | 7 |
| 25 | 0.1933 | 0.3128 | 745 | 6 | 0.5344 | 0.3370 | 751 | 6 | 0.9627 | 0.3699 | 759 | 7 |
| 26 | 0.2937 | 0.3209 | 747 | 6 | 0.6506 | 0.3446 | 753 | 6 | 1.1025 | 0.3778 | 762 | 7 |
| 27 | 0.3998 | 0.3307 | 749 | 6 | 0.7724 | 0.3535 | 756 | 7 | 1.2488 | 0.3871 | 765 | 7 |
| 28 | 0.5131 | 0.3426 | 751 | 6 | 0.9011 | 0.3639 | 758 | 7 | 1.4029 | 0.3982 | 768 | 7 |
| 29 | 0.6353 | 0.3569 | 753 | 7 | 1.0381 | 0.3762 | 761 | 7 | 1.5668 | 0.4115 | 771 | 8 |
| 30 | 0.7690 | 0.3744 | 756 | 7 | 1.1851 | 0.3909 | 764 | 7 | 1.7428 | 0.4279 | 774 | 8 |
| 31 | 0.9171 | 0.3957 | 758 | 7 | 1.3448 | 0.4086 | 767 | 8 | 1.9346 | 0.4482 | 778 | 8 |
| 32 | 1.0841 | 0.4221 | 762 | 8 | 1.5206 | 0.4303 | 770 | 8 | 2.1470 | 0.4742 | 782 | 9 |
| 33 | 1.2762 | 0.4553 | 765 | 9 | 1.7175 | 0.4578 | 774 | 9 | 2.3878 | 0.5084 | 786 | 10 |
| 34 | 1.5027 | 0.4979 | 769 | 9 | 1.9432 | 0.4936 | 778 | 9 | 2.6699 | 0.5559 | 791 | 10 |
| 35 | 1.7787 | 0.5548 | 775 | 10 | 2.2106 | 0.5427 | 783 | 10 | 3.0171 | 0.6268 | 798 | 12 |
| 36 | 2.1306 | 0.6355 | 781 | 12 | 2.5436 | 0.6156 | 789 | 12 | 3.4828 | 0.7485 | 799 | 14 |
| 37 | 2.6145 | 0.7654 | 790 | 14 | 2.9957 | 0.7395 | 797 | 14 | 4.2371 | 1.0299 | 799 | 19 |
| 38 | 3.4020 | 1.0495 | 799 | 20 | 3.7367 | 1.0236 | 799 | 19 | 6.0000 | 2.3664 | 799 | 44 |
| 39 | 6.0000 | 3.5027 | 799 | 66 | 6.0000 | 3.0410 | 799 | 57 | NA | NA | NA | NA |

**Table 8.F.31 Scale Score Conversion Tables with CSEMs for Mathematics, Grade Eight**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 3.1842 | 803 | 60 | -6.0000 | 3.4456 | 803 | 65 | -6.0000 | 3.6097 | 803 | 68 |
| 1 | -3.6560 | 1.0160 | 803 | 19 | -3.4885 | 1.0211 | 803 | 19 | -3.3881 | 1.0249 | 803 | 19 |
| 2 | -2.9310 | 0.7282 | 803 | 14 | -2.7531 | 0.7353 | 803 | 14 | -2.6450 | 0.7404 | 803 | 14 |
| 3 | -2.4961 | 0.6011 | 803 | 11 | -2.3079 | 0.6096 | 803 | 11 | -2.1923 | 0.6155 | 803 | 12 |
| 4 | -2.1811 | 0.5254 | 803 | 10 | -1.9828 | 0.5348 | 804 | 10 | -1.8601 | 0.5413 | 806 | 10 |
| 5 | -1.9326 | 0.4737 | 805 | 9 | -1.7245 | 0.4838 | 809 | 9 | -1.5949 | 0.4906 | 811 | 9 |
| 6 | -1.7263 | 0.4357 | 809 | 8 | -1.5088 | 0.4462 | 813 | 8 | -1.3727 | 0.4532 | 816 | 8 |
| 7 | -1.5493 | 0.4066 | 812 | 8 | -1.3227 | 0.4172 | 816 | 8 | -1.1805 | 0.4244 | 819 | 8 |
| 8 | -1.3934 | 0.3835 | 815 | 7 | -1.1582 | 0.3942 | 820 | 7 | -1.0101 | 0.4014 | 822 | 8 |
| 9 | -1.2534 | 0.3650 | 818 | 7 | -1.0102 | 0.3756 | 822 | 7 | -0.8564 | 0.3829 | 825 | 7 |
| 10 | -1.1257 | 0.3500 | 820 | 7 | -0.8749 | 0.3603 | 825 | 7 | -0.7157 | 0.3677 | 828 | 7 |
| 11 | -1.0074 | 0.3379 | 822 | 6 | -0.7496 | 0.3478 | 827 | 7 | -0.5851 | 0.3553 | 830 | 7 |
| 12 | -0.8966 | 0.3280 | 824 | 6 | -0.6321 | 0.3376 | 829 | 6 | -0.4625 | 0.3451 | 833 | 6 |
| 13 | -0.7916 | 0.3201 | 826 | 6 | -0.5210 | 0.3293 | 832 | 6 | -0.3462 | 0.3369 | 835 | 6 |
| 14 | -0.6911 | 0.3139 | 828 | 6 | -0.4147 | 0.3226 | 834 | 6 | -0.2349 | 0.3303 | 837 | 6 |
| 15 | -0.5941 | 0.3091 | 830 | 6 | -0.3123 | 0.3175 | 835 | 6 | -0.1275 | 0.3252 | 839 | 6 |
| 16 | -0.4996 | 0.3057 | 832 | 6 | -0.2127 | 0.3137 | 837 | 6 | -0.0230 | 0.3214 | 841 | 6 |
| 17 | -0.4068 | 0.3034 | 834 | 6 | -0.1151 | 0.3111 | 839 | 6 | 0.0795 | 0.3189 | 843 | 6 |
| 18 | -0.3151 | 0.3023 | 835 | 6 | -0.0187 | 0.3098 | 841 | 6 | 0.1808 | 0.3174 | 845 | 6 |
| 19 | -0.2237 | 0.3023 | 837 | 6 | 0.0772 | 0.3096 | 843 | 6 | 0.2814 | 0.3169 | 847 | 6 |
| 20 | -0.1319 | 0.3034 | 839 | 6 | 0.1733 | 0.3105 | 845 | 6 | 0.3820 | 0.3175 | 848 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.0392 | 0.3056 | 841 | 6 | 0.2704 | 0.3125 | 846 | 6 | 0.4833 | 0.3189 | 850 | 6 |
| 22 | 0.0552 | 0.3089 | 842 | 6 | 0.3691 | 0.3157 | 848 | 6 | 0.5858 | 0.3213 | 852 | 6 |
| 23 | 0.1520 | 0.3134 | 844 | 6 | 0.4701 | 0.3201 | 850 | 6 | 0.6902 | 0.3246 | 854 | 6 |
| 24 | 0.2521 | 0.3194 | 846 | 6 | 0.5745 | 0.3258 | 852 | 6 | 0.7970 | 0.3288 | 856 | 6 |
| 25 | 0.3565 | 0.3268 | 848 | 6 | 0.6830 | 0.3330 | 854 | 6 | 0.9069 | 0.3340 | 858 | 6 |
| 26 | 0.4664 | 0.3362 | 850 | 6 | 0.7968 | 0.3417 | 856 | 6 | 1.0205 | 0.3402 | 860 | 6 |
| 27 | 0.5833 | 0.3477 | 852 | 7 | 0.9172 | 0.3523 | 858 | 7 | 1.1388 | 0.3476 | 863 | 7 |
| 28 | 0.7090 | 0.3619 | 855 | 7 | 1.0458 | 0.3650 | 861 | 7 | 1.2627 | 0.3562 | 865 | 7 |
| 29 | 0.8464 | 0.3795 | 857 | 7 | 1.1846 | 0.3802 | 864 | 7 | 1.3932 | 0.3663 | 867 | 7 |
| 30 | 0.9988 | 0.4017 | 860 | 8 | 1.3362 | 0.3987 | 866 | 7 | 1.5317 | 0.3782 | 870 | 7 |
| 31 | 1.1714 | 0.4301 | 863 | 8 | 1.5041 | 0.4213 | 870 | 8 | 1.6801 | 0.3923 | 873 | 7 |
| 32 | 1.3723 | 0.4675 | 867 | 9 | 1.6934 | 0.4496 | 873 | 8 | 1.8407 | 0.4094 | 876 | 8 |
| 33 | 1.6145 | 0.5189 | 872 | 10 | 1.9119 | 0.4863 | 877 | 9 | 2.0169 | 0.4304 | 879 | 8 |
| 34 | 1.9223 | 0.5949 | 877 | 11 | 2.1724 | 0.5364 | 882 | 10 | 2.2135 | 0.4570 | 883 | 9 |
| 35 | 2.3497 | 0.7229 | 885 | 14 | 2.4986 | 0.6101 | 888 | 11 | 2.4381 | 0.4919 | 887 | 9 |
| 36 | 3.0673 | 1.0125 | 899 | 19 | 2.9438 | 0.7348 | 896 | 14 | 2.7033 | 0.5401 | 892 | 10 |
| 37 | 6.0000 | 4.2804 | 899 | 80 | 3.6779 | 1.0201 | 899 | 19 | 3.0328 | 0.6121 | 898 | 11 |
| 38 | NA | NA | NA | NA | 6.0000 | 3.1397 | 899 | 59 | 3.4798 | 0.7355 | 899 | 14 |
| 39 | NA | NA | NA | NA | NA | NA | NA | NA | 4.2140 | 1.0198 | 899 | 19 |
| 40 | NA | NA | NA | NA | NA | NA | NA | NA | 6.0000 | 2.4094 | 899 | 45 |

**Table 8.F.32 Scale Score Conversion Tables with CSEMs for Mathematics, Grade Eleven**

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | -6.0000 | 2.9953 | 903 | 56 | -6.0000 | 3.5494 | 903 | 67 | -6.0000 | 4.0355 | 903 | 76 |
| 1 | -3.7729 | 1.0196 | 903 | 19 | -3.4456 | 1.0113 | 903 | 19 | -3.1878 | 1.0108 | 903 | 19 |
| 2 | -3.0409 | 0.7327 | 903 | 14 | -2.7296 | 0.7223 | 903 | 14 | -2.4740 | 0.7202 | 903 | 14 |
| 3 | -2.5998 | 0.6059 | 903 | 11 | -2.3025 | 0.5952 | 903 | 11 | -2.0505 | 0.5919 | 903 | 11 |
| 4 | -2.2795 | 0.5302 | 903 | 10 | -1.9939 | 0.5202 | 904 | 10 | -1.7457 | 0.5165 | 909 | 10 |
| 5 | -2.0262 | 0.4784 | 903 | 9 | -1.7499 | 0.4699 | 908 | 9 | -1.5054 | 0.4663 | 913 | 9 |
| 6 | -1.8157 | 0.4403 | 907 | 8 | -1.5463 | 0.4336 | 912 | 8 | -1.3049 | 0.4306 | 917 | 8 |
| 7 | -1.6348 | 0.4110 | 911 | 8 | -1.3702 | 0.4064 | 916 | 8 | -1.1309 | 0.4042 | 920 | 8 |
| 8 | -1.4755 | 0.3878 | 914 | 7 | -1.2138 | 0.3853 | 919 | 7 | -0.9757 | 0.3843 | 923 | 7 |
| 9 | -1.3325 | 0.3690 | 916 | 7 | -1.0718 | 0.3686 | 921 | 7 | -0.8340 | 0.3690 | 926 | 7 |
| 10 | -1.2019 | 0.3537 | 919 | 7 | -0.9408 | 0.3553 | 924 | 7 | -0.7022 | 0.3572 | 928 | 7 |
| 11 | -1.0813 | 0.3412 | 921 | 6 | -0.8184 | 0.3447 | 926 | 6 | -0.5779 | 0.3482 | 930 | 7 |
| 12 | -0.9684 | 0.3309 | 923 | 6 | -0.7025 | 0.3362 | 928 | 6 | -0.4590 | 0.3414 | 933 | 6 |
| 13 | -0.8616 | 0.3226 | 925 | 6 | -0.5917 | 0.3296 | 930 | 6 | -0.3441 | 0.3365 | 935 | 6 |
| 14 | -0.7597 | 0.3159 | 927 | 6 | -0.4847 | 0.3245 | 932 | 6 | -0.2319 | 0.3332 | 937 | 6 |
| 15 | -0.6615 | 0.3107 | 929 | 6 | -0.3806 | 0.3208 | 934 | 6 | -0.1215 | 0.3313 | 939 | 6 |
| 16 | -0.5661 | 0.3069 | 931 | 6 | -0.2785 | 0.3184 | 936 | 6 | -0.0120 | 0.3306 | 941 | 6 |
| 17 | -0.4727 | 0.3044 | 932 | 6 | -0.1774 | 0.3173 | 938 | 6 | 0.0975 | 0.3310 | 943 | 6 |
| 18 | -0.3805 | 0.3030 | 934 | 6 | -0.0767 | 0.3175 | 940 | 6 | 0.2075 | 0.3324 | 945 | 6 |
| 19 | -0.2887 | 0.3029 | 936 | 6 | 0.0246 | 0.3189 | 942 | 6 | 0.3188 | 0.3349 | 947 | 6 |
| 20 | -0.1965 | 0.3041 | 938 | 6 | 0.1272 | 0.3217 | 944 | 6 | 0.4322 | 0.3383 | 949 | 6 |

| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Moderate Pathway Theta | Moderate Pathway Theta CSEM | Moderate Pathway Scale Score | Moderate Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | -0.1033 | 0.3065 | 939 | 6 | 0.2321 | 0.3260 | 946 | 6 | 0.5482 | 0.3429 | 952 | 6 |
| 22 | -0.0082 | 0.3103 | 941 | 6 | 0.3403 | 0.3318 | 948 | 6 | 0.6678 | 0.3486 | 954 | 7 |
| 23 | 0.0897 | 0.3156 | 943 | 6 | 0.4529 | 0.3394 | 950 | 6 | 0.7918 | 0.3557 | 956 | 7 |
| 24 | 0.1915 | 0.3226 | 945 | 6 | 0.5714 | 0.3490 | 952 | 7 | 0.9214 | 0.3644 | 959 | 7 |
| 25 | 0.2985 | 0.3316 | 947 | 6 | 0.6974 | 0.3610 | 954 | 7 | 1.0581 | 0.3752 | 961 | 7 |
| 26 | 0.4123 | 0.3430 | 949 | 6 | 0.8331 | 0.3758 | 957 | 7 | 1.2039 | 0.3886 | 964 | 7 |
| 27 | 0.5347 | 0.3572 | 951 | 7 | 0.9812 | 0.3941 | 960 | 7 | 1.3615 | 0.4054 | 967 | 8 |
| 28 | 0.6686 | 0.3750 | 954 | 7 | 1.1455 | 0.4169 | 963 | 8 | 1.5344 | 0.4267 | 970 | 8 |
| 29 | 0.8176 | 0.3975 | 957 | 7 | 1.3312 | 0.4457 | 966 | 8 | 1.7280 | 0.4541 | 974 | 9 |
| 30 | 0.9870 | 0.4263 | 960 | 8 | 1.5463 | 0.4830 | 970 | 9 | 1.9504 | 0.4904 | 978 | 9 |
| 31 | 1.1847 | 0.4642 | 964 | 9 | 1.8037 | 0.5338 | 975 | 10 | 2.2150 | 0.5404 | 983 | 10 |
| 32 | 1.4239 | 0.5162 | 968 | 10 | 2.1275 | 0.6083 | 981 | 11 | 2.5460 | 0.6144 | 989 | 12 |
| 33 | 1.7292 | 0.5929 | 974 | 11 | 2.5710 | 0.7338 | 990 | 14 | 2.9973 | 0.7394 | 997 | 14 |
| 34 | 2.1543 | 0.7215 | 982 | 14 | 3.3039 | 1.0197 | 999 | 19 | 3.7389 | 1.0242 | 999 | 19 |
| 35 | 2.8698 | 1.0115 | 995 | 19 | 6.0000 | 3.7819 | 999 | 71 | 6.0000 | 3.0354 | 999 | 57 |
| 36 | 6.0000 | 4.7284 | 999 | 89 | NA | NA | NA | NA | NA | NA | NA | NA |

**Table 8.F.33 Decision Accuracy All-forms Average—ELA, Grade Three**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 303–344 | 0.34 | 0.05 | 0.00 | 0.39 |
| 345–359 | 0.06 | 0.23 | 0.06 | 0.34 |
| 360–399 | 0.00 | 0.03 | 0.23 | 0.26 |

Estimated Proportion Correctly Classified: Total = 0.79

**Table 8.F.34 Decision Consistency Alternate Form—ELA, Grade Three**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 303–344 | 0.32 | 0.07 | 0.00 | 0.39 |
| 345–359 | 0.08 | 0.18 | 0.08 | 0.34 |
| 360–399 | 0.00 | 0.05 | 0.22 | 0.26 |

Estimated Proportion Consistently Classified: Total = 0.72

**Table 8.F.35 Decision Accuracy All-forms Average—ELA, Grade Four**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 403–444 | 0.41 | 0.06 | 0.00 | 0.46 |
| 445–459 | 0.05 | 0.22 | 0.05 | 0.32 |
| 460–499 | 0.00 | 0.04 | 0.18 | 0.22 |

Estimated Proportion Correctly Classified: Total = 0.80

**Table 8.F.36 Decision Consistency Alternate Form—ELA, Grade Four**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 403–444 | 0.39 | 0.07 | 0.00 | 0.46 |
| 445–459 | 0.07 | 0.18 | 0.07 | 0.32 |
| 460–499 | 0.00 | 0.06 | 0.16 | 0.22 |

Estimated Proportion Consistently Classified: Total = 0.73

**Table 8.F.37 Decision Accuracy All-forms Average—ELA, Grade Five**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 503–544 | 0.37 | 0.05 | 0.00 | 0.42 |
| 545–559 | 0.06 | 0.24 | 0.06 | 0.36 |
| 560–599 | 0.00 | 0.04 | 0.18 | 0.22 |

Estimated Proportion Correctly Classified: Total = 0.80

**Table 8.F.38 Decision Consistency Alternate Form—ELA, Grade Five**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 503–544 | 0.36 | 0.06 | 0.00 | 0.42 |
| 545–559 | 0.08 | 0.20 | 0.08 | 0.36 |
| 560–599 | 0.00 | 0.06 | 0.17 | 0.22 |

Estimated Proportion Consistently Classified: Total = 0.72

**Table 8.F.39 Decision Accuracy All-forms Average—ELA, Grade Six**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 603–644 | 0.39 | 0.07 | 0.00 | 0.46 |
| 645–659 | 0.05 | 0.32 | 0.04 | 0.41 |
| 660–699 | 0.00 | 0.04 | 0.09 | 0.13 |

Estimated Proportion Correctly Classified: Total = 0.80

**Table 8.F.40 Decision Consistency Alternate Form—ELA, Grade Six**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 603–644 | 0.37 | 0.08 | 0.01 | 0.46 |
| 645–659 | 0.07 | 0.27 | 0.06 | 0.41 |
| 660–699 | 0.00 | 0.05 | 0.08 | 0.13 |

Estimated Proportion Consistently Classified: Total = 0.72

**Table 8.F.41 Decision Accuracy All-forms Average—ELA, Grade Seven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 703–744 | 0.41 | 0.06 | 0.00 | 0.47 |
| 745–759 | 0.05 | 0.22 | 0.05 | 0.32 |
| 760–799 | 0.00 | 0.03 | 0.18 | 0.21 |

Estimated Proportion Correctly Classified: Total = 0.81

**Table 8.F.42 Decision Consistency Alternate Form—ELA, Grade Seven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 703–744 | 0.40 | 0.07 | 0.01 | 0.47 |
| 745–759 | 0.07 | 0.18 | 0.07 | 0.32 |
| 760–799 | 0.00 | 0.05 | 0.16 | 0.21 |

Estimated Proportion Consistently Classified: Total = 0.74

**Table 8.F.43 Decision Accuracy All-forms Average—ELA, Grade Eight**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 803–844 | 0.31 | 0.07 | 0.01 | 0.38 |
| 845–859 | 0.04 | 0.37 | 0.05 | 0.47 |
| 860–899 | 0.00 | 0.06 | 0.10 | 0.15 |

Estimated Proportion Correctly Classified: Total = 0.78

**Table 8.F.44 Decision Consistency Alternate Form—ELA, Grade Eight**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 803–844 | 0.29 | 0.08 | 0.01 | 0.38 |
| 845–859 | 0.07 | 0.32 | 0.08 | 0.47 |
| 860–899 | 0.00 | 0.07 | 0.09 | 0.15 |

Estimated Proportion Consistently Classified: Total = 0.70

**Table 8.F.45 Decision Accuracy All-forms Average—ELA, Grade Eleven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 903–944 | 0.30 | 0.05 | 0.00 | 0.35 |
| 945–959 | 0.05 | 0.29 | 0.07 | 0.41 |
| 960–999 | 0.00 | 0.03 | 0.22 | 0.25 |

Estimated Proportion Correctly Classified: Total = 0.81

**Table 8.F.46 Decision Consistency Alternate Form—ELA, Grade Eleven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 903–944 | 0.28 | 0.06 | 0.00 | 0.35 |
| 945–959 | 0.07 | 0.25 | 0.09 | 0.41 |
| 960–999 | 0.00 | 0.05 | 0.20 | 0.25 |

Estimated Proportion Consistently Classified: Total = 0.73

**Table 8.F.47 Decision Accuracy All-forms Average—Mathematics, Grade Three**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 303–344 | 0.45 | 0.08 | 0.00 | 0.53 |
| 345–359 | 0.07 | 0.26 | 0.05 | 0.37 |
| 360–399 | 0.00 | 0.04 | 0.06 | 0.10 |

Estimated Proportion Correctly Classified: Total = 0.76

**Table 8.F.48 Decision Consistency Alternate Form—Mathematics, Grade Three**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 303–344 | 0.43 | 0.10 | 0.01 | 0.53 |
| 345–359 | 0.10 | 0.20 | 0.07 | 0.37 |
| 360–399 | 0.00 | 0.04 | 0.05 | 0.10 |

Estimated Proportion Consistently Classified: Total = 0.68

**Table 8.F.49 Decision Accuracy All-forms Average—Mathematics, Grade Four**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 403–444 | 0.51 | 0.07 | 0.00 | 0.58 |
| 445–459 | 0.06 | 0.23 | 0.03 | 0.32 |
| 460–499 | 0.00 | 0.05 | 0.05 | 0.10 |

Estimated Proportion Correctly Classified: Total = 0.78

**Table 8.F.50 Decision Consistency Alternate Form—Mathematics, Grade Four**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 403–444 | 0.48 | 0.09 | 0.01 | 0.58 |
| 445–459 | 0.09 | 0.18 | 0.05 | 0.32 |
| 460–499 | 0.00 | 0.05 | 0.05 | 0.10 |

Estimated Proportion Consistently Classified: Total = 0.71

**Table 8.F.51 Decision Accuracy All-forms Average—Mathematics, Grade Five**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 503–544 | 0.47 | 0.07 | 0.00 | 0.55 |
| 545–559 | 0.06 | 0.24 | 0.04 | 0.35 |
| 560–599 | 0.00 | 0.04 | 0.06 | 0.10 |

Estimated Proportion Correctly Classified: Total = 0.78

**Table 8.F.52 Decision Consistency Alternate Form—Mathematics, Grade Five**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 503–544 | 0.45 | 0.09 | 0.01 | 0.55 |
| 545–559 | 0.09 | 0.19 | 0.07 | 0.35 |
| 560–599 | 0.00 | 0.04 | 0.06 | 0.10 |

Estimated Proportion Consistently Classified: Total = 0.70

**Table 8.F.53 Decision Accuracy All-forms Average—Mathematics, Grade Six**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 603–644 | 0.49 | 0.09 | 0.01 | 0.59 |
| 645–659 | 0.07 | 0.23 | 0.02 | 0.32 |
| 660–699 | 0.00 | 0.04 | 0.05 | 0.09 |

Estimated Proportion Correctly Classified: Total = 0.76

**Table 8.F.54 Decision Consistency Alternate Form—Mathematics, Grade Six**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 603–644 | 0.46 | 0.12 | 0.02 | 0.59 |
| 645–659 | 0.10 | 0.17 | 0.05 | 0.32 |
| 660–699 | 0.00 | 0.04 | 0.05 | 0.09 |

Estimated Proportion Consistently Classified: Total = 0.68

**Table 8.F.55 Decision Accuracy All-forms Average—Mathematics, Grade Seven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 703–744 | 0.51 | 0.07 | 0.00 | 0.59 |
| 745–759 | 0.07 | 0.22 | 0.04 | 0.33 |
| 760–799 | 0.00 | 0.02 | 0.06 | 0.09 |

Estimated Proportion Correctly Classified: Total = 0.79

**Table 8.F.56 Decision Consistency Alternate Form—Mathematics, Grade Seven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 703–744 | 0.49 | 0.09 | 0.01 | 0.59 |
| 745–759 | 0.09 | 0.17 | 0.06 | 0.33 |
| 760–799 | 0.00 | 0.02 | 0.06 | 0.09 |

Estimated Proportion Consistently Classified: Total = 0.72

**Table 8.F.57 Decision Accuracy All-forms Average—Mathematics, Grade Eight**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 803–844 | 0.49 | 0.07 | 0.00 | 0.56 |
| 845–859 | 0.08 | 0.25 | 0.03 | 0.36 |
| 860–899 | 0.00 | 0.04 | 0.04 | 0.08 |

Estimated Proportion Correctly Classified: Total = 0.79

**Table 8.F.58 Decision Consistency Alternate Form—Mathematics, Grade Eight**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 803–844 | 0.46 | 0.09 | 0.00 | 0.56 |
| 845–859 | 0.10 | 0.20 | 0.05 | 0.36 |
| 860–899 | 0.00 | 0.04 | 0.05 | 0.08 |

Estimated Proportion Consistently Classified: Total = 0.71

**Table 8.F.59 Decision Accuracy All-forms Average—Mathematics, Grade Eleven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 903–944 | 0.51 | 0.07 | 0.01 | 0.59 |
| 945–959 | 0.06 | 0.20 | 0.04 | 0.30 |
| 960–999 | 0.00 | 0.03 | 0.08 | 0.11 |

Estimated Proportion Correctly Classified: Total = 0.79

**Table 8.F.60 Decision Consistency Alternate Form—Mathematics, Grade Eleven**

| Scale Score | Level 1—Alternate | Level 2—Alternate | Level 3—Alternate | Category Total |
|---|---|---|---|---|
| 903–944 | 0.49 | 0.09 | 0.01 | 0.59 |
| 945–959 | 0.08 | 0.16 | 0.06 | 0.30 |
| 960–999 | 0.00 | 0.03 | 0.08 | 0.11 |

Estimated Proportion Consistently Classified: Total = 0.72

# Appendix 8.G: Validity Analyses

**Notes:**

- Pathway Easy includes the router and Stage 2 easy module.
- Pathway Moderate includes the router and Stage 2 moderate module.
- Pathway Hard includes the router and Stage 2 hard module.

**Table 8.G.1 Total Testing Time (In Minutes) at Each Pathway, English Language Arts/Literacy (ELA)**

| Pathways | Number | Mean | Standard Deviation | Minimum | Maximum | Percentile Points 1 | Percentile Points 10 | Percentile Points 25 | Percentile Points 50 | Percentile Points 75 | Percentile Points 90 | Percentile Points 99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 3 Easy | 1,892 | 35.94 | 30.56 | 0.53 | 804.32 | 3.86 | 14.08 | 21.20 | 31.08 | 42.51 | 60.04 | 143.54 |
| Grade 3 Moderate | 1,407 | 48.73 | 22.01 | 6.50 | 199.12 | 13.87 | 26.26 | 33.91 | 44.86 | 58.17 | 74.86 | 124.59 |
| Grade 3 Hard | 828 | 57.73 | 25.15 | 12.67 | 219.15 | 20.04 | 32.81 | 40.90 | 53.56 | 68.29 | 86.99 | 149.59 |
| Grade 4 Easy | 1,652 | 39.97 | 25.79 | 0.45 | 229.60 | 3.58 | 12.27 | 23.98 | 35.76 | 50.20 | 68.94 | 136.38 |
| Grade 4 Moderate | 1,621 | 39.66 | 21.35 | 3.95 | 358.94 | 10.45 | 20.66 | 27.04 | 35.86 | 47.05 | 61.40 | 110.62 |
| Grade 4 Hard | 1,182 | 57.69 | 27.26 | 8.65 | 334.98 | 19.46 | 33.10 | 41.40 | 52.32 | 67.32 | 83.40 | 156.30 |
| Grade 5 Easy | 1,445 | 38.62 | 32.67 | 0.85 | 658.09 | 3.37 | 11.39 | 21.25 | 33.53 | 47.82 | 67.33 | 140.67 |
| Grade 5 Moderate | 1,674 | 49.08 | 24.26 | 1.31 | 231.88 | 11.28 | 25.87 | 33.94 | 43.80 | 58.66 | 77.95 | 138.14 |
| Grade 5 Hard | 1,346 | 63.06 | 28.40 | 4.42 | 238.97 | 14.61 | 35.64 | 44.32 | 57.51 | 75.06 | 97.64 | 161.40 |
| Grade 6 Easy | 488 | 28.13 | 24.04 | 0.27 | 171.04 | 0.53 | 4.71 | 9.60 | 22.90 | 39.30 | 58.49 | 135.44 |
| Grade 6 Moderate | 2,031 | 45.84 | 27.91 | 3.57 | 478.00 | 7.30 | 18.06 | 29.32 | 41.16 | 56.08 | 75.57 | 142.47 |
| Grade 6 Hard | 2,060 | 62.24 | 27.17 | 0.00 | 240.31 | 16.32 | 35.65 | 45.28 | 56.97 | 72.91 | 93.96 | 160.73 |

| Pathways | Number | Mean | Standard Deviation | Minimum | Maximum | Percentile Points 1 | Percentile Points 10 | Percentile Points 25 | Percentile Points 50 | Percentile Points 75 | Percentile Points 90 | Percentile Points 99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 7 Easy | 1,610 | 41.02 | 29.34 | 0.32 | 306.17 | 1.86 | 9.75 | 20.86 | 37.58 | 53.60 | 73.56 | 134.84 |
| Grade 7 Moderate | 1,906 | 56.13 | 29.51 | 4.04 | 436.54 | 9.87 | 27.48 | 38.95 | 51.38 | 67.46 | 88.71 | 155.34 |
| Grade 7 Hard | 1,041 | 93.79 | 47.17 | 9.93 | 390.72 | 21.00 | 51.22 | 64.20 | 83.63 | 108.62 | 149.71 | 297.76 |
| Grade 8 Easy | 1,815 | 40.77 | 29.73 | 0.24 | 485.03 | 2.68 | 10.21 | 23.75 | 36.67 | 51.49 | 71.68 | 134.85 |
| Grade 8 Moderate | 1,711 | 55.70 | 27.24 | 2.64 | 382.89 | 7.63 | 30.03 | 40.07 | 51.11 | 66.12 | 85.50 | 154.30 |
| Grade 8 Hard | 849 | 77.12 | 31.08 | 8.18 | 259.61 | 21.22 | 46.87 | 57.14 | 71.69 | 90.66 | 111.20 | 193.68 |
| Grade 11 Easy | 1,059 | 33.03 | 27.54 | 0.33 | 212.86 | 0.91 | 5.79 | 13.12 | 28.76 | 45.02 | 63.08 | 148.58 |
| Grade 11 Moderate | 1,855 | 41.83 | 23.93 | 2.20 | 334.47 | 6.45 | 16.97 | 27.71 | 38.73 | 51.98 | 66.57 | 114.48 |
| Grade 11 Hard | 926 | 65.50 | 28.18 | 8.33 | 211.66 | 17.82 | 34.50 | 47.97 | 60.82 | 78.52 | 99.30 | 164.98 |

**Table 8.G.2 Total Testing Time (In Minutes) at Each Pathway, Mathematics**

| Pathways | Number | Mean | Standard Deviation | Minimum | Maximum | Percentile Points 1 | Percentile Points 10 | Percentile Points 25 | Percentile Points 50 | Percentile Points 75 | Percentile Points 90 | Percentile Points 99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 3 Easy | 757 | 13.57 | 9.73 | 0.77 | 86.07 | 1.31 | 4.15 | 7.63 | 11.98 | 16.62 | 23.46 | 51.24 |
| Grade 3 Moderate | 1,551 | 17.90 | 10.87 | 1.66 | 227.70 | 4.21 | 8.75 | 11.60 | 15.62 | 21.22 | 29.43 | 53.67 |
| Grade 3 Hard | 1,804 | 21.06 | 10.63 | 1.43 | 105.85 | 6.58 | 10.85 | 14.25 | 18.69 | 24.93 | 33.62 | 59.80 |
| Grade 4 Easy | 1,493 | 15.96 | 14.77 | 0.48 | 400.17 | 1.27 | 5.36 | 9.28 | 13.70 | 19.00 | 27.41 | 54.97 |
| Grade 4 Moderate | 2,239 | 21.36 | 10.75 | 2.73 | 158.68 | 5.96 | 11.41 | 14.72 | 19.23 | 25.58 | 33.01 | 54.39 |
| Grade 4 Hard | 639 | 21.99 | 9.97 | 3.97 | 77.48 | 8.21 | 12.68 | 15.15 | 19.68 | 25.77 | 34.64 | 58.20 |
| Grade 5 Easy | 1,020 | 14.76 | 17.83 | 0.59 | 428.09 | 1.25 | 3.64 | 7.29 | 12.65 | 18.58 | 25.79 | 54.19 |
| Grade 5 Moderate | 2,065 | 18.95 | 10.35 | 1.48 | 118.18 | 4.69 | 9.66 | 12.65 | 16.74 | 22.59 | 30.26 | 57.35 |
| Grade 5 Hard | 1,288 | 24.34 | 12.81 | 2.34 | 126.35 | 5.59 | 12.37 | 16.29 | 21.71 | 28.84 | 38.32 | 75.28 |
| Grade 6 Easy | 1,740 | 16.68 | 10.04 | 0.22 | 92.11 | 1.70 | 5.58 | 10.74 | 15.10 | 20.43 | 28.44 | 52.90 |
| Grade 6 Moderate | 1,686 | 20.99 | 11.90 | 1.72 | 180.60 | 4.45 | 10.83 | 14.09 | 18.55 | 24.42 | 33.35 | 64.59 |
| Grade 6 Hard | 960 | 25.50 | 12.50 | 3.15 | 125.90 | 6.86 | 13.76 | 17.40 | 23.24 | 30.19 | 39.47 | 66.15 |
| Grade 7 Easy | 793 | 17.08 | 13.82 | 0.27 | 161.37 | 0.81 | 4.13 | 8.40 | 14.82 | 21.70 | 31.47 | 69.20 |
| Grade 7 Moderate | 1,698 | 23.12 | 13.88 | 1.07 | 169.85 | 3.38 | 9.72 | 14.82 | 20.68 | 28.01 | 37.56 | 75.41 |
| Grade 7 Hard | 2,032 | 29.76 | 17.06 | 1.32 | 249.84 | 6.57 | 14.43 | 19.94 | 26.64 | 35.57 | 47.65 | 86.56 |
| Grade 8 Easy | 698 | 17.05 | 15.13 | 0.73 | 292.01 | 1.84 | 4.82 | 9.38 | 14.43 | 21.49 | 30.14 | 55.84 |
| Grade 8 Moderate | 2,083 | 23.36 | 12.91 | 1.68 | 144.58 | 3.22 | 10.39 | 15.35 | 21.27 | 28.31 | 37.79 | 72.21 |
| Grade 8 Hard | 1,493 | 28.71 | 13.37 | 2.87 | 134.98 | 5.41 | 15.34 | 20.45 | 26.34 | 34.62 | 44.17 | 74.67 |
| Grade 11 Easy | 1,290 | 17.09 | 11.02 | 0.17 | 84.92 | 1.56 | 5.32 | 9.72 | 15.53 | 21.72 | 30.03 | 60.46 |
| Grade 11 Moderate | 1,336 | 21.61 | 13.73 | 1.58 | 173.88 | 3.28 | 8.98 | 14.03 | 19.26 | 25.23 | 36.29 | 72.44 |
| Grade 11 Hard | 1,176 | 26.05 | 13.95 | 2.10 | 153.23 | 5.45 | 13.23 | 17.70 | 23.44 | 30.94 | 41.94 | 79.00 |

**Table 8.G.3 Total Testing Time (In Minutes) at Each Quartile Group, ELA**

| Student Performance Percentile | Scale Score Range | Number | Mean | Standard Deviation | Minimum | Maximum | Percentile Points 1 | Percentile Points 10 | Percentile Points 25 | Percentile Points 50 | Percentile Points 75 | Percentile Points 90 | Percentile Points 99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 3 Q 1 | 303-336 | 915 | 32.73 | 36.61 | 0.53 | 804.32 | 2.79 | 10.39 | 17.07 | 27.19 | 38.61 | 53.93 | 143.54 |
| Grade 3 Q 2 | 338-348 | 1,074 | 41.06 | 23.72 | 3.67 | 214.77 | 9.19 | 19.05 | 26.96 | 36.90 | 49.22 | 66.04 | 130.76 |
| Grade 3 Q 3 | 349-360 | 1,106 | 48.12 | 22.88 | 8.00 | 194.23 | 15.27 | 25.35 | 32.50 | 43.43 | 58.08 | 74.92 | 127.47 |
| Grade 3 Q 4 | 361-399 | 1,032 | 55.32 | 24.06 | 12.67 | 219.15 | 19.16 | 31.06 | 39.34 | 51.30 | 65.30 | 83.28 | 140.08 |
| Grade 4 Q 1 | 403-433 | 1,073 | 37.10 | 25.78 | 0.45 | 208.29 | 3.22 | 9.42 | 20.14 | 33.29 | 46.95 | 66.78 | 134.07 |
| Grade 4 Q 2 | 435-443 | 987 | 41.70 | 25.48 | 3.07 | 317.08 | 7.79 | 18.95 | 26.97 | 36.85 | 49.03 | 67.37 | 142.32 |
| Grade 4 Q 3 | 445-455 | 1,206 | 43.25 | 22.06 | 3.95 | 229.60 | 11.03 | 22.97 | 28.45 | 38.57 | 52.28 | 70.24 | 125.57 |
| Grade 4 Q 4 | 457-499 | 1,189 | 54.98 | 26.82 | 10.42 | 358.94 | 18.17 | 30.61 | 38.77 | 49.82 | 64.04 | 81.57 | 154.68 |
| Grade 5 Q 1 | 503-535 | 1,083 | 35.83 | 33.17 | 0.85 | 658.09 | 3.16 | 9.83 | 18.43 | 30.93 | 44.19 | 63.56 | 152.97 |
| Grade 5 Q 2 | 536-547 | 1,143 | 46.84 | 27.16 | 4.47 | 431.41 | 9.25 | 22.63 | 31.35 | 41.26 | 55.74 | 76.65 | 138.14 |
| Grade 5 Q 3 | 548-556 | 1,011 | 54.23 | 24.79 | 8.37 | 236.01 | 16.66 | 29.14 | 37.13 | 49.45 | 65.73 | 83.81 | 140.67 |
| Grade 5 Q 4 | 558-599 | 1,228 | 61.64 | 28.00 | 4.42 | 238.97 | 16.86 | 35.14 | 42.93 | 55.82 | 73.07 | 95.91 | 159.52 |
| Grade 6 Q 1 | 603-636 | 1,040 | 34.42 | 26.55 | 0.27 | 221.93 | 2.08 | 7.20 | 16.00 | 29.70 | 45.64 | 64.35 | 135.36 |
| Grade 6 Q 2 | 637-644 | 1,075 | 46.62 | 28.68 | 3.61 | 478.00 | 7.67 | 19.63 | 30.48 | 42.50 | 56.53 | 73.44 | 145.20 |
| Grade 6 Q 3 | 645-653 | 1,244 | 55.88 | 25.59 | 5.40 | 193.52 | 13.22 | 29.77 | 39.36 | 50.90 | 66.35 | 86.87 | 147.82 |
| Grade 6 Q 4 | 655-691 | 1,219 | 65.31 | 27.69 | 12.41 | 240.31 | 24.15 | 37.88 | 47.47 | 60.08 | 75.42 | 97.22 | 164.08 |
| Grade 7 Q 1 | 703-733 | 1,122 | 36.62 | 30.11 | 0.32 | 306.17 | 1.57 | 7.65 | 15.47 | 31.44 | 48.79 | 69.36 | 140.03 |
| Grade 7 Q 2 | 734-744 | 1,025 | 51.37 | 27.60 | 4.03 | 285.65 | 9.87 | 22.75 | 34.31 | 46.79 | 63.35 | 84.30 | 142.80 |
| Grade 7 Q 3 | 745-755 | 1,164 | 59.55 | 29.96 | 5.02 | 272.15 | 10.37 | 30.62 | 40.82 | 53.52 | 71.81 | 96.61 | 168.07 |
| Grade 7 Q 4 | 757-799 | 1,246 | 86.36 | 47.07 | 9.93 | 436.54 | 22.71 | 44.17 | 56.86 | 75.69 | 100.34 | 137.18 | 297.76 |

| Student Performance Percentile | Scale Score Range | Number | Mean | Standard Deviation | Minimum | Maximum | Percentile Points 1 | Percentile Points 10 | Percentile Points 25 | Percentile Points 50 | Percentile Points 75 | Percentile Points 90 | Percentile Points 99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 8 Q 1 | 803-840 | 1,000 | 35.56 | 29.46 | 0.24 | 453.87 | 1.55 | 7.21 | 16.16 | 31.46 | 47.38 | 64.94 | 135.17 |
| Grade 8 Q 2 | 841-847 | 1,152 | 47.72 | 29.84 | 2.64 | 485.03 | 5.83 | 21.11 | 30.93 | 42.29 | 58.41 | 80.38 | 132.71 |
| Grade 8 Q 3 | 848-854 | 1,017 | 57.74 | 27.24 | 5.37 | 243.41 | 11.03 | 31.58 | 40.67 | 51.79 | 69.73 | 90.54 | 153.55 |
| Grade 8 Q 4 | 855-899 | 1,206 | 70.91 | 29.90 | 16.95 | 259.61 | 26.09 | 41.82 | 51.35 | 64.76 | 84.26 | 104.23 | 182.90 |
| Grade 11 Q 1 | 903-939 | 880 | 30.29 | 27.58 | 0.33 | 292.57 | 0.70 | 5.21 | 10.71 | 23.94 | 42.12 | 58.75 | 141.30 |
| Grade 11 Q 2 | 941-949 | 1,037 | 39.96 | 22.65 | 3.29 | 226.25 | 5.82 | 14.60 | 25.59 | 36.82 | 50.13 | 65.40 | 111.90 |
| Grade 11 Q 3 | 950-958 | 909 | 46.02 | 24.65 | 3.23 | 222.77 | 8.36 | 19.91 | 30.72 | 41.70 | 57.16 | 73.67 | 129.66 |
| Grade 11 Q 4 | 959-999 | 1,014 | 62.44 | 29.47 | 7.60 | 334.47 | 18.14 | 32.48 | 43.06 | 57.65 | 75.87 | 96.32 | 171.77 |

**Table 8.G.4 Total Testing Time (In Minutes) at Each Quartile Group, Mathematics**

| Student Performance Percentile | Scale Score Range | Number | Mean | Standard Deviation | Minimum | Maximum | Percentile Points 1 | Percentile Points 10 | Percentile Points 25 | Percentile Points 50 | Percentile Points 75 | Percentile Points 90 | Percentile Points 99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 3 Q 1 | 303-333 | 848 | 13.71 | 9.93 | 0.77 | 86.07 | 1.37 | 4.34 | 7.77 | 11.91 | 16.60 | 23.76 | 53.11 |
| Grade 3 Q 2 | 334-341 | 1,020 | 17.46 | 9.40 | 1.56 | 91.97 | 3.79 | 8.49 | 11.54 | 15.31 | 20.56 | 29.14 | 53.67 |
| Grade 3 Q 3 | 343-349 | 985 | 18.92 | 11.30 | 1.43 | 227.70 | 5.89 | 9.88 | 12.47 | 16.94 | 22.30 | 30.55 | 52.23 |
| Grade 3 Q 4 | 351-399 | 1,259 | 22.21 | 10.99 | 2.16 | 105.85 | 7.11 | 11.74 | 15.13 | 19.66 | 26.35 | 35.48 | 64.02 |
| Grade 4 Q 1 | 403-431 | 1,003 | 14.43 | 10.58 | 0.48 | 129.33 | 1.09 | 4.66 | 7.81 | 12.23 | 17.96 | 26.38 | 50.16 |
| Grade 4 Q 2 | 433-440 | 1,138 | 19.48 | 15.43 | 2.60 | 400.17 | 4.25 | 10.00 | 12.90 | 17.01 | 22.44 | 30.90 | 54.49 |
| Grade 4 Q 3 | 441-447 | 963 | 20.85 | 10.96 | 3.83 | 158.68 | 7.18 | 11.35 | 14.57 | 18.68 | 24.42 | 32.01 | 54.39 |
| Grade 4 Q 4 | 449-499 | 1,267 | 22.89 | 10.44 | 2.98 | 137.18 | 8.85 | 13.03 | 15.86 | 20.68 | 27.44 | 35.19 | 56.47 |
| Grade 5 Q 1 | 503-533 | 957 | 14.12 | 18.27 | 0.59 | 428.09 | 1.22 | 3.50 | 6.64 | 11.60 | 17.56 | 23.93 | 55.21 |
| Grade 5 Q 2 | 534-541 | 1,134 | 18.47 | 9.48 | 1.48 | 63.42 | 4.81 | 9.20 | 12.50 | 16.28 | 22.21 | 30.63 | 53.52 |
| Grade 5 Q 3 | 543-549 | 1,111 | 19.96 | 10.00 | 2.34 | 100.02 | 5.17 | 10.72 | 13.71 | 17.81 | 23.55 | 31.25 | 56.64 |
| Grade 5 Q 4 | 551-599 | 1,171 | 24.68 | 13.64 | 2.34 | 126.35 | 6.14 | 12.27 | 16.38 | 21.77 | 28.87 | 38.89 | 79.62 |
| Grade 6 Q 1 | 603-633 | 942 | 14.70 | 10.21 | 0.22 | 112.69 | 1.19 | 3.96 | 8.48 | 12.94 | 18.49 | 26.09 | 49.79 |
| Grade 6 Q 2 | 635-640 | 1,049 | 18.51 | 11.00 | 2.16 | 180.60 | 4.03 | 8.55 | 12.32 | 16.41 | 21.79 | 29.67 | 58.59 |
| Grade 6 Q 3 | 641-648 | 1,162 | 20.97 | 10.45 | 3.15 | 98.89 | 5.56 | 11.38 | 14.43 | 18.69 | 24.64 | 33.67 | 57.19 |
| Grade 6 Q 4 | 650-699 | 1,233 | 25.34 | 12.65 | 5.53 | 125.90 | 8.51 | 13.82 | 17.40 | 22.77 | 29.61 | 39.49 | 67.27 |
| Grade 7 Q 1 | 703-732 | 1,093 | 17.56 | 15.06 | 0.27 | 169.85 | 0.96 | 4.53 | 8.64 | 14.90 | 22.08 | 31.48 | 69.48 |
| Grade 7 Q 2 | 733-740 | 987 | 22.55 | 12.66 | 1.78 | 122.02 | 3.73 | 9.97 | 14.54 | 19.97 | 27.66 | 36.44 | 66.78 |
| Grade 7 Q 3 | 741-749 | 1,197 | 26.44 | 13.89 | 3.16 | 229.99 | 5.79 | 13.66 | 18.37 | 23.88 | 31.51 | 42.76 | 71.98 |
| Grade 7 Q 4 | 750-799 | 1,246 | 32.24 | 17.94 | 5.04 | 249.84 | 9.96 | 16.61 | 22.05 | 28.75 | 37.92 | 49.98 | 97.58 |

| Student Performance Percentile | Scale Score Range | Number | Mean | Standard Deviation | Minimum | Maximum | Percentile Points 1 | Percentile Points 10 | Percentile Points 25 | Percentile Points 50 | Percentile Points 75 | Percentile Points 90 | Percentile Points 99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 8 Q 1 | 803-834 | 1,023 | 17.41 | 14.23 | 0.73 | 292.01 | 1.86 | 5.03 | 9.69 | 14.97 | 22.14 | 31.13 | 56.04 |
| Grade 8 Q 2 | 835-842 | 1,104 | 22.36 | 11.89 | 2.15 | 113.86 | 3.90 | 10.05 | 14.81 | 20.62 | 27.32 | 36.19 | 62.15 |
| Grade 8 Q 3 | 843-848 | 1,019 | 26.21 | 12.63 | 2.87 | 112.83 | 7.21 | 14.39 | 18.15 | 23.68 | 31.00 | 40.59 | 74.26 |
| Grade 8 Q 4 | 850-899 | 1,128 | 30.34 | 13.90 | 2.90 | 144.58 | 5.89 | 17.29 | 22.09 | 27.90 | 36.34 | 45.56 | 77.28 |
| Grade 11 Q 1 | 903-931 | 892 | 15.63 | 11.87 | 0.17 | 142.56 | 1.17 | 4.22 | 7.87 | 13.40 | 20.21 | 27.90 | 65.50 |
| Grade 11 Q 2 | 932-941 | 1,009 | 20.25 | 12.99 | 1.58 | 173.88 | 3.11 | 8.26 | 12.78 | 18.20 | 24.10 | 33.22 | 62.87 |
| Grade 11 Q 3 | 942-951 | 927 | 22.22 | 11.27 | 2.00 | 102.18 | 4.42 | 10.94 | 15.51 | 20.10 | 25.89 | 35.51 | 62.25 |
| Grade 11 Q 4 | 952-999 | 974 | 27.29 | 14.60 | 2.10 | 153.23 | 6.18 | 14.13 | 18.15 | 24.16 | 32.52 | 43.47 | 80.74 |

**Notes for Table 8.G.5 through Table 8.G.11:**

- Numbers preceded by an asterisk and in **bold** font in the *Mathematics* row of the *[Student Group] R and Sample Size* column are the sample sizes used to calculate the correlations.
- R denotes the correlation coefficient; these are decimals that begin with "0" (zero).

**Table 8.G.5 Content Correlation for Gender Student Groups**

| Content Area and Grade | Male Students | Male R and Sample Size | Female Students | Female R and Sample Size |
|---|---|---|---|---|
| ELA 3 | 2,859 | 0.63 | 1,268 | 0.65 |
| Mathematics 3 | 2,868 | ***2,755** | 1,244 | ***1,214** |
| ELA 4 | 3,012 | 0.64 | 1,443 | 0.64 |
| Mathematics 4 | 2,965 | ***2,893** | 1,406 | ***1,384** |
| ELA 5 | 3,048 | 0.63 | 1,417 | 0.62 |
| Mathematics 5 | 2,987 | ***2,926** | 1,386 | ***1,368** |
| ELA 6 | 3,117 | 0.61 | 1,462 | 0.57 |
| Mathematics 6 | 2,995 | ***2,946** | 1,391 | ***1,374** |
| ELA 7 | 3,102 | 0.66 | 1,455 | 0.62 |
| Mathematics 7 | 3,077 | ***2,993** | 1,446 | ***1,404** |
| ELA 8 | 2,975 | 0.62 | 1,400 | 0.58 |
| Mathematics 8 | 2,906 | ***2,838** | 1,368 | ***1,331** |
| ELA 11 | 2,505 | 0.66 | 1,335 | 0.66 |
| Mathematics 11 | 2,492 | ***2,417** | 1,310 | ***1,283** |

**Table 8.G.6 Content Correlation for Ethnicity Student Groups**

| Content Area and Grade | American Indian or Alaska Native Students | American Indian or Alaska Native R and Sample Size | Asian Students | Asian R and Sample Size | Native Hawaiian or Other Pacific Islander Students | Native Hawaiian or Other Pacific Islander R and Sample Size | Filipino Students | Filipino R and Sample Size |
|---|---|---|---|---|---|---|---|---|
| ELA 3 | 27 | 0.53 | 320 | 0.68 | 18 | 0.77 | 103 | 0.60 |
| Mathematics 3 | 25 | ***25** | 314 | ***303** | 18 | ***18** | 106 | ***99** |
| ELA 4 | 28 | 0.58 | 344 | 0.53 | 28 | 0.83 | 88 | 0.63 |
| Mathematics 4 | 26 | ***26** | 338 | ***324** | 25 | ***25** | 91 | ***85** |
| ELA 5 | 29 | 0.63 | 332 | 0.64 | 19 | 0.53 | 106 | 0.63 |
| Mathematics 5 | 30 | ***29** | 319 | ***314** | 18 | ***18** | 106 | ***104** |
| ELA 6 | 24 | 0.62 | 343 | 0.60 | 18 | 0.25 | 116 | 0.65 |
| Mathematics 6 | 23 | ***23** | 326 | ***319** | 19 | ***17** | 111 | ***111** |
| ELA 7 | 30 | 0.68 | 323 | 0.60 | 25 | 0.78 | 129 | 0.62 |
| Mathematics 7 | 30 | ***29** | 321 | ***314** | 24 | ***24** | 129 | ***125** |
| ELA 8 | 25 | 0.68 | 359 | 0.60 | 18 | 0.40 | 138 | 0.58 |
| Mathematics 8 | 27 | ***25** | 347 | ***335** | 17 | ***17** | 135 | ***134** |
| ELA 11 | 33 | 0.59 | 293 | 0.63 | 13 | 0.16 | 112 | 0.69 |
| Mathematics 11 | 33 | ***33** | 290 | ***282** | 13 | ***12** | 111 | ***108** |

**Table 8.G.7 Content Correlation for Ethnicity Student Groups (Continued)**

| Content Area and Grade | Hispanic or Latino Students | Hispanic or Latino R and Sample Size | Black or African American Students | Black or African American R and Sample Size | White Students | White R and Sample Size | Two or More Races Students | Two or More Races R and Sample Size |
|---|---|---|---|---|---|---|---|---|
| ELA 3 | 2,370 | 0.62 | 312 | 0.61 | 771 | 0.65 | 206 | 0.66 |
| Mathematics 3 | 2,364 | ***2,285** | 319 | ***303** | 758 | ***735** | 208 | ***201** |
| ELA 4 | 2,588 | 0.65 | 347 | 0.64 | 855 | 0.64 | 177 | 0.66 |
| Mathematics 4 | 2,535 | ***2,497** | 343 | ***338** | 839 | ***815** | 174 | ***167** |
| ELA 5 | 2,618 | 0.61 | 342 | 0.68 | 863 | 0.66 | 156 | 0.64 |
| Mathematics 5 | 2,568 | ***2,525** | 338 | ***328** | 846 | ***831** | 148 | ***145** |
| ELA 6 | 2,734 | 0.59 | 373 | 0.59 | 819 | 0.65 | 152 | 0.53 |
| Mathematics 6 | 2,624 | ***2,588** | 355 | ***352** | 788 | ***772** | 140 | ***138** |
| ELA 7 | 2,610 | 0.65 | 399 | 0.69 | 860 | 0.63 | 181 | 0.72 |
| Mathematics 7 | 2,591 | ***2,517** | 405 | ***385** | 840 | ***826** | 183 | ***177** |
| ELA 8 | 2,483 | 0.61 | 365 | 0.52 | 849 | 0.66 | 138 | 0.59 |
| Mathematics 8 | 2,437 | ***2,379** | 362 | ***355** | 821 | ***797** | 128 | ***127** |
| ELA 11 | 2,103 | 0.65 | 362 | 0.65 | 807 | 0.70 | 117 | 0.72 |
| Mathematics 11 | 2,084 | ***2,023** | 363 | ***354** | 797 | ***778** | 111 | ***110** |

**Table 8.G.8 Content Correlation for English Proficiency Student Groups**

| Content Area and Grade | English Only Students | English Only R and Sample Size | Initial Fluent English Proficient Students | Initial Fluent English Proficient R and Sample Size | English Learner Students | English Learner R and Sample Size | Reclassified Fluent English Proficient Students | Reclassified Fluent English Proficient R and Sample Size |
|---|---|---|---|---|---|---|---|---|
| ELA 3 | 2,499 | 0.63 | 25 | 0.61 | 1,469 | 0.63 | 130 | 0.67 |
| Mathematics 3 | 2,497 | ***2,407** | 24 | ***24** | 1,451 | ***1,409** | 133 | ***125** |
| ELA 4 | 2,689 | 0.64 | 40 | 0.72 | 1,496 | 0.63 | 224 | 0.63 |
| Mathematics 4 | 2,635 | ***2,571** | 41 | ***39** | 1,470 | ***1,443** | 219 | ***218** |
| ELA 5 | 2,550 | 0.63 | 32 | 0.56 | 1,572 | 0.62 | 304 | 0.69 |
| Mathematics 5 | 2,498 | ***2,445** | 29 | ***28** | 1,544 | ***1,519** | 296 | ***296** |
| ELA 6 | 2,601 | 0.60 | 48 | 0.62 | 1,537 | 0.60 | 388 | 0.58 |
| Mathematics 6 | 2,478 | ***2,445** | 44 | ***44** | 1,484 | ***1,457** | 376 | ***371** |
| ELA 7 | 2,618 | 0.65 | 60 | 0.47 | 1,461 | 0.65 | 410 | 0.66 |
| Mathematics 7 | 2,598 | ***2,521** | 64 | ***60** | 1,445 | ***1,410** | 409 | ***399** |
| ELA 8 | 2,497 | 0.60 | 70 | 0.67 | 1,350 | 0.62 | 453 | 0.65 |
| Mathematics 8 | 2,443 | ***2,389** | 66 | ***64** | 1,310 | ***1,274** | 449 | ***437** |
| ELA 11 | 2,253 | 0.68 | 60 | 0.47 | 1,055 | 0.66 | 465 | 0.62 |
| Mathematics 11 | 2,224 | ***2,172** | 58 | ***57** | 1,048 | ***1,020** | 461 | ***444** |

**Table 8.G.9 Content Correlation for English Proficiency Student Groups (Continued)**

| Content Area and Grade | To Be Determined Students | To Be Determined R and Sample Size | English Proficiency Unknown Students | English Proficiency Unknown R and Sample Size |
|---|---|---|---|---|
| ELA 3 | 2 | NA | 2 | NA |
| Mathematics 3 | 2 | ***2** | 5 | ***2** |
| ELA 4 | 4 | NA | 2 | NA |
| Mathematics 4 | 4 | ***4** | 2 | ***2** |
| ELA 5 | 2 | NA | 5 | NA |
| Mathematics 5 | 2 | ***2** | 4 | ***4** |
| ELA 6 | 1 | NA | 4 | NA |
| Mathematics 6 | 2 | ***1** | 2 | ***2** |
| ELA 7 | 2 | NA | 6 | NA |
| Mathematics 7 | 1 | ***1** | 6 | ***6** |
| ELA 8 | 2 | NA | 3 | NA |
| Mathematics 8 | 2 | ***2** | 4 | ***3** |
| ELA 11 | 1 | NA | 6 | NA |
| Mathematics 11 | 1 | ***1** | 10 | ***6** |

**Table 8.G.10 Content Correlation for Economic Status Student Groups**

| Content Area and Grade | Not Economically Disadvantaged Students | Not Economically Disadvantaged R and Sample Size | Economically Disadvantaged Students | Economically Disadvantaged R and Sample Size |
|---|---|---|---|---|
| ELA 3 | 1,288 | 0.65 | 2,839 | 0.62 |
| Mathematics 3 | 1,283 | ***1,223** | 2,829 | ***2,746** |
| ELA 4 | 1,359 | 0.65 | 3,096 | 0.63 |
| Mathematics 4 | 1,335 | ***1,297** | 3,036 | ***2,980** |
| ELA 5 | 1,427 | 0.60 | 3,038 | 0.64 |
| Mathematics 5 | 1,385 | ***1,353** | 2,988 | ***2,941** |
| ELA 6 | 1,410 | 0.63 | 3,169 | 0.59 |
| Mathematics 6 | 1,330 | ***1,309** | 3,056 | ***3,011** |
| ELA 7 | 1,434 | 0.66 | 3,123 | 0.65 |
| Mathematics 7 | 1,423 | ***1,369** | 3,100 | ***3,028** |
| ELA 8 | 1,434 | 0.62 | 2,941 | 0.60 |
| Mathematics 8 | 1,409 | ***1,358** | 2,865 | ***2,811** |
| ELA 11 | 1,316 | 0.68 | 2,524 | 0.65 |
| Mathematics 11 | 1,293 | ***1,259** | 2,509 | ***2,441** |

**Table 8.G.11 Content Correlation for Migrant Status Student Groups**

| Content Area and Grade | Migrant Students | Migrant R and Sample Size | Nonmigrant Students | Nonmigrant R and Sample Size |
|---|---|---|---|---|
| ELA 3 | 19 | 0.13 | 4,108 | 0.63 |
| Mathematics 3 | 17 | ***17** | 4,095 | ***3,952** |
| ELA 4 | 38 | 0.35 | 4,417 | 0.64 |
| Mathematics 4 | 38 | ***38** | 4,333 | ***4,239** |
| ELA 5 | 28 | 0.74 | 4,437 | 0.63 |
| Mathematics 5 | 27 | ***27** | 4,346 | ***4,267** |
| ELA 6 | 31 | 0.49 | 4,548 | 0.60 |
| Mathematics 6 | 30 | ***29** | 4,356 | ***4,291** |
| ELA 7 | 32 | 0.71 | 4,525 | 0.65 |
| Mathematics 7 | 32 | ***32** | 4,491 | ***4,365** |
| ELA 8 | 31 | 0.66 | 4,344 | 0.61 |
| Mathematics 8 | 32 | ***31** | 4,242 | ***4,138** |
| ELA 11 | 15 | 0.41 | 3,825 | 0.66 |
| Mathematics 11 | 15 | ***14** | 3,787 | ***3,686** |

**Table 8.G.12 Frequency of Responses for Survey Questions—ELA**

| Questionnaire | Answer Selections | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|---|
| 1. Did you end this test early because the student's productivity and engagement had significantly declined, even after allowing the student breaks over multiple days? | ○ Yes | 9% | 9% | 8% | 9% | 9% | 8% | 12% |
| 1. Did you end this test early because the student's productivity and engagement had significantly declined, even after allowing the student breaks over multiple days? | ○ No | 72% | 74% | 76% | 76% | 75% | 75% | 74% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used a mouse, touchscreen, and/or a computer keyboard to enter responses directly in the system. | 54% | 56% | 58% | 62% | 63% | 62% | 62% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student provided a verbal response. | 49% | 49% | 47% | 44% | 39% | 42% | 31% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used gestures or pointed to indicate a response. | 50% | 46% | 44% | 40% | 36% | 34% | 30% |

| Questionnaire | Answer Selections | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|---|
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used the accommodation of print on demand and responded (check, circle, fill-in, etc.) on paper. | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used an assistive/augmentative communication device. | 2% | 2% | 2% | 2% | 2% | 2% | 1% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used eye gaze. | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Other | 2% | 1% | 2% | 2% | 2% | 2% | 3% |
| 3. How engaged was your student with this test you just administered? | ○ 0 – not engaged at all | 4% | 3% | 3% | 3% | 3% | 3% | 3% |
| 3. How engaged was your student with this test you just administered? | ○ 1 – minimally engaged | 17% | 16% | 13% | 15% | 14% | 13% | 11% |

| Questionnaire | Answer Selections | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|---|
| 3. How engaged was your student with this test you just administered? | ○ 2 – moderately engaged | 31% | 32% | 29% | 30% | 27% | 26% | 23% |
| 3. How engaged was your student with this test you just administered? | ○ 3 – fully engaged | 30% | 33% | 39% | 37% | 41% | 42% | 50% |
| **Total Number Tested:** | | **5,102** | **5,324** | **5,330** | **5,386** | **5,383** | **5,238** | **4,457** |

**Table 8.G.13 Frequency of Responses for Survey Questions—Mathematics**

| Questionnaire | Answer Selections | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|---|
| 1. Did you end this test early because the student's productivity and engagement had significantly declined, even after allowing the student breaks over multiple days? | ○ Yes | 9% | 8% | 8% | 8% | 10% | 8% | 12% |
| 1. Did you end this test early because the student's productivity and engagement had significantly declined, even after allowing the student breaks over multiple days? | ○ No | 71% | 75% | 74% | 74% | 74% | 74% | 73% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used a mouse, touchscreen, and/or a computer keyboard to enter responses directly in the system. | 56% | 58% | 59% | 61% | 65% | 62% | 63% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student provided a verbal response. | 45% | 47% | 45% | 40% | 39% | 39% | 31% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used gestures or pointed to indicate a response. | 48% | 46% | 43% | 37% | 35% | 34% | 30% |

| Questionnaire | Answer Selections | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|---|
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used the accommodation of print on demand and responded (check, circle, fill-in, etc.) on paper. | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used an assistive/augmentative communication device. | 2% | 2% | 2% | 2% | 2% | 2% | 2% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Student used eye gaze. | 3% | 3% | 2% | 2% | 3% | 2% | 3% |
| 2. Please indicate your student's mode(s) of communication that were used on this test. (Select all that apply) | □ Other | 2% | 1% | 1% | 1% | 2% | 2% | 2% |
| 3. How engaged was your student with this test you just administered? | ○ 0 – not engaged at all | 4% | 4% | 3% | 3% | 3% | 4% | 4% |
| 3. How engaged was your student with this test you just administered? | ○ 1 – minimally engaged | 19% | 18% | 16% | 15% | 16% | 14% | 11% |

| Questionnaire | Answer Selections | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
|---|---|---|---|---|---|---|---|---|
| 3. How engaged was your student with this test you just administered? | ○ 2 – moderately engaged | 30% | 28% | 28% | 28% | 27% | 26% | 22% |
| 3. How engaged was your student with this test you just administered? | ○ 3 – fully engaged | 29% | 32% | 34% | 37% | 39% | 38% | 49% |
| **Total Number Tested:** | | **5,101** | **5,309** | **5,319** | **5,366** | **5,375** | **5,229** | **4,437** |

# Chapter 9: Quality Control Procedures

The California Department of Education (CDE) and Educational Testing Service (ETS) implemented rigorous quality control procedures throughout the test development, administration, scoring, analyses, and reporting processes. As part of this effort, ETS staff worked with its Office of Professional Standards Compliance, which publishes and maintains the *ETS Standards for Quality and Fairness* (ETS, 2014).These *Standards* support the goals of delivering technically sound, fair, and useful products and services; and assisting the public and auditors evaluate those products and services. Quality control procedures are outlined in this chapter.

## 9.1. Quality Control of Item Development

ETS' goal is to provide the best standards-based items for the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics. Items developed for the CAAs for ELA and mathematics undergo an extensive item review process. The item writers responsible for developing CAA items were trained in California Assessment of Student Performance and Progress (CAASPP) and ETS policies on quality control of item content, sensitivity, and bias guidelines, as well as guidelines for accessibility to ensure that the items allow the widest possible range of students to demonstrate their content knowledge.

Once a written item is accepted for authoring—that is, once it has been entered into ETS' item bank and formatted for use in an assessment—ETS employs a series of internal and external reviews. These reviews use established criteria and specifications to evaluate the quality of items and to ensure that each item measures what it is intended to measure. These reviews also examine the overall quality of the test items before they are presented to the CDE and item reviewers. Finally, a group of California educators review the items for accessibility, bias and sensitivity, and content prior to their administration to students. The details on quality control of item development are described in subsection *3.2 Item Review Process*.

## 9.2. Quality Control of Test Assembly and Delivery

The assembly of all test forms must conform to blueprints that represent a set of constraints and specifications. There are separate specifications for the English language arts/literacy (ELA) and mathematics assessments (CDE, 2015a [ELA] and 2015b [mathematics]). These blueprints are critical to the formation of valid assessments.

Quality assurance checks on each constructed test form are critical to overall test integrity.

### 9.2.1. Quality Control of Test Form Development

ETS conducts multiple levels of quality assurance checks on each constructed test form to ensure it meets defined statistical criteria. Both ETS assessment development and psychometric staff reviewed and signed off on the accuracy of forms before the test forms were put into production for the operational administration. Detailed information related to test assembly can be found in section *4.3 Test Production Process*.

In particular, the assembly of all test forms went through a certification process that included various checks to verify that

- all answers are correct,
- answers are scored correctly in the item bank,
- all items align with the standard,
- all content in the item is correct,
- distractors are plausible,
- multiple-choice item options are parallel in structure,
- language is grade-level appropriate,
- no more than three multiple choice items in a row have the same key,
- all art is correct,
- there are no mechanical errors in grammar, spelling, punctuation, and the like,
- items adhere to the approved style guide, and
- all items meet the statistical criteria.

Reviews were also conducted for functionality and sequencing during the user acceptance testing process to ensure all items functioned as expected.

### 9.2.2. Quality Control of Test Assignment

Test assignment for the CAASPP assessments, including the CAAs for ELA and mathematics, is controlled by the Test Operations Management System (TOMS) using student demographic information received from the California Longitudinal Pupil Achievement Data System (CALPADS) (CDE, 2018). The two systems are kept in sync during the testing window. Students at eligible grade levels are assigned to the Smarter Balanced assessments by default. For students eligible for the CAAs for ELA and mathematics, local educational agencies (LEAs) log on to TOMS and assign students to take the alternate assessment, which automatically unassigns those students from taking Smarter Balanced Summative Assessments.

The quality of test assignment for the CAAs is monitored and controlled through several strategies. TOMS enforces preconditions for eligibility for the CAAs by permitting assignment only for students with an Individuals with Disabilities Education Act (IDEA)[11] indicator of “Yes” in TOMS. This indicator is set to “Yes” when the CALPADS *Education Program* field (Field 3.13) is equal to 144 (Special Education) and the primary disability code (CALPADS Field 3.21) is not set to blank.

Additionally, TOMS prevents the prohibited “mixing and matching” of assessments. For example, a student assigned to take an alternate assessment for any content area will automatically be prevented from assignment to a general assessment for another content area.

### 9.2.3. Quality Control of Test Administration

The quality of test administration is managed through comprehensive rules and guidelines for maintaining the security and standardization of CAASPP assessments, including the CAA. LEAs receive training on these topics and are provided with tools to report security incidents and resolve testing discrepancies for specific testing sessions.

Several strategies are utilized to monitor and control the quality of test administration for the CAAs as well as all assessments administered as part of the CAASPP System. A fully

[11] The Individuals with Disabilities Education Act is the primary federal program that authorizes state and local aid for special education and related services for children with disabilities.

staffed support center, the California Technical Assistance Center (CalTAC), supports all LEAs in the administration of CAASPP assessments. CalTAC is guided by a core group of LEA outreach and advocacy staff that manage communications to LEAs, regional and web-based trainings, and a website, http://www.caaspp.org/, that houses a full range of manuals, videos, and other instructional and support materials. In addition to providing guidance and answering questions, CalTAC regularly conducts outreach campaigns on particular administration topics to ensure all LEAs understand correct test administration procedures.

The ETS Office of Testing Integrity (OTI) reinforces the quality control procedures for test administration by providing quality assurance services for all testing programs managed by ETS. The detailed procedures OTI developed and applied in quality control are described in subsection *5.2.1. ETS' Office of Testing Integrity (OTI)*.

### 9.2.4. Quality Control of Machine-Scoring Procedures

To ensure valid item-level scoring for the CAAs for ELA and mathematics, quality control procedures are employed by American Institutes for Research (AIR), the CAASPP subcontractor responsible for providing the test delivery system (TDS) and scoring machine-scorable items. AIR psychometric staff members independently review all CAAs for ELA and mathematics test forms by taking sample tests. Responses to the test forms are compared with the answer keys for each form to confirm the accuracy of scoring keys. Score outcomes are contemplated above and below each of the routing thresholds to ensure that the appropriate test stage was assigned in each instance according to the score thresholds approved by the CDE. The scores for all applicable items are recorded prior to the routing action. A final comparison of the test map to each online form as configured in the user acceptance test environment ensures that no changes to the form were introduced prior to operational deployment.

A real-time, quality-monitoring component was built into the TDS. After a test is administered to a student, the TDS passes the resulting data to the Quality Assurance (QA) system. QA conducts a series of data integrity checks, ensuring, for example, that the record for each test contains information for each item, keys for multiple-choice items, score points in each item, and the total number of operational items. In addition, QA also checks to ensure that the test record contains no data from items that have been invalidated.

Data passes directly from the Quality Monitoring System to the Database of Record, which serves as the repository for all test information, and from which all test information for reporting is pulled and transmitted to ETS in a predetermined results format.

## 9.3. Quality Control of Test Materials

### 9.3.1. Developing Online Assessments

The steps taken to develop and ensure the quality of the online assessments are described in *Chapter 4: Test Assembly*.

### 9.3.2. Test Administration Manuals

ETS staff consult with internal subject matter experts and conduct validation checks to verify that test directions and administration manuals accurately match the test materials and testing processes. Copy editors and content editors review each document for spelling, grammar, accuracy, and adherence to CDE style. Each document must be approved by the CDE before it can be published to the CAASPP Portal at http://www.caaspp.org/. Only nonsecure documents are posted on this website. Secure materials, such as the *CAA*

*Directions for Administration*, are made available to designated LEA staff through TOMS, which requires a secure log on.

The manuals used in the administration of the CAA are listed in subsection *5.4.4 Instructions for Test Examiners and Staff Involved in CAA Administration*.

### 9.3.3. Processing Test Materials

Online tests are submitted by test examiners and transmitted from AIR to ETS each day. The AIR and ETS systems check for the completeness of the student record and flag records that are identified as having an error. For example, the system will identify a test module that is missing a content registration ID, a unique identifier that matches the student's opportunity in the final scoring.

## 9.4. Quality Control of Psychometric Processes

### 9.4.1. Development of Scoring Specifications

ETS scoring specifications for the CAA are completed, approved, and checked well in advance of the receipt of student response data. These specifications contain detailed scoring procedures and routing rules, as well as the procedures for determining whether a student has attempted a test and whether that student's response data should be included in the statistical analyses and computing summary data.

### 9.4.2. Development of Scoring Procedures

ETS' enterprise score key management system (eSKM) utilizes scoring procedures specified by psychometricians and provides scoring services. ETS psychometricians carry out a series of quality control checks after scoring to ensure the accuracy of each score.

#### 9.4.2.1. Enterprise Score Key Management System (eSKM) Processing

Prior to the test administration, ETS Assessment Development staff review and verify the keys and scoring rubrics for all items. Then, these keys and rubrics are provided to AIR for its machine-scoring implementation. After AIR finishes machine-scoring, those scores and responses are delivered to ETS. AIR quality control of the machine-scoring procedure is described in subsection *9.2.3 Quality Control of Test Administration*.

ETS' Centralized Repository Distribution System and Enterprise Service Bus departments collect and parse .xml files that contain student response data from AIR. ETS' eSKM system collects and calculates individual students' overall scores (total raw scores) and generates student scores in the approved statistical extract format. These data extracts are sent to ETS' Data Quality Services (DQS) for data validation. Following successful validation, the student response statistical extracts are made available to the psychometric team.

ETS developed two parallel scoring systems to produce and verify student scores: the eSKM scoring system receives an individual student's item scores and item responses from AIR and calculates individual student scores for ETS' reporting systems. The Psychometric Analysis and Research team also computes individual student scores based on item scores delivered by AIR. The scores from the two sources are then compared for internal quality control. Any differences in the scores are discussed and resolved. All scores must comply with the ETS scoring specifications and pass the parallel scoring process to ensure the quality and accuracy of scoring, and to support the transfer of scores into TOMS, the database of the student records scoring system.

#### 9.4.2.2. Psychometric Processing

Psychometricians verify the eSKM scoring by comparing the parallel scoring programs. They also conduct extensive analyses including item analyses, differential item functioning, item response theory (IRT) calibration, linking, and scaling.

The psychometric analyses conducted at ETS undergo comprehensive quality checks by a team of psychometricians and data analysts. Detailed checklists are developed by members of the team for each of the statistical procedures performed on each CAA ELA and mathematics assessment. Classical item analyses are performed to evaluate the performance of items such as item difficulties and correlation between item scores and total scores. Items that are flagged for questionable statistical attributes are sent to Assessment Development (AD) staff for review; AD comments are then reviewed by the psychometricians before items are approved for inclusion in calibration.

During the calibration process, checks are made to ascertain that the input files are established accurately. Checks are also made on the number of items, number of examinees with valid scores, IRT item difficulty estimates, standard errors for the item difficulty estimates, and the linking and scaling process. Two psychometricians conduct parallel calibration processing and compare the results to check for any inconsistency. Psychometricians also perform detailed reviews of relevant statistics to determine whether the chosen IRT model fits the data. In addition, the results of the calibration procedures are reviewed by a psychometric manager.

Once raw-to-scale score conversion tables for each form are generated, psychometricians carry out quality control checks on each scoring table to verify

- all possible raw scores for each form are included in the tables;
- the lowest obtainable scale score (LOSS), LOSS+1, and the highest obtainable scale score (HOSS) match the specifications for each grade respectively; and
- the threshold score for the performance level is correctly identified.

After all quality control steps are completed and any differences are resolved, one final inspection of scoring tables is conducted prior to uploading the tables to eSKM for score reporting.

## 9.5. Quality Control of Reporting

To ensure the quality of CAAs for ELA and mathematics test results for both individual student and summary reports, four general areas are evaluated:

1. Comparison of report formats with input sources from the CDE-approved samples
2. Validation of the report data through quality control checks performed by ETS' DQS and Resolutions teams, as well as running of all the student score reports through ETS' patented Quality Control Integrator software
3. Evaluation of the production of all printed reports by verifying the print quality, comparing number of report copies, sequence of report order, and offset characteristics to the CDE requirements
4. Proofreading of the pilot and production reports by the CDE and ETS prior to any LEA mailings

All reports are required to include a single, accurate LEA code, a charter school number (if applicable), a school district name, and a school name. All elements must conform to the CDE's official county/district/school (CDS) code and naming records. From the start of processing through scoring and reporting, the CDS Master File is used to verify and confirm the accuracy of codes and names. The CDE provides a revised LEA Master File to ETS throughout the year as updates become available.

After the reports are validated in accordance with CDE requirements, a set of reports representing all possible grades, content areas, and reporting outcomes is provided to the CDE and ETS for review and approval. The sample paper reports, representing the way they are expected to look in production are sent to the CDE and ETS for review and approval after a thorough examination.

Upon the CDE's approval of the sample set of reports, ETS proceeds with report production. All reports for all LEAs administering CAAs during the 2017–18 CAASPP administration are produced and distributed as one batch.

### 9.5.1. Exclusion of Student Scores from Summary Reports

ETS provides the CDE with reporting specifications that document when to exclude student scores from summary reports. These specifications include the logic for handling submitted tests and answer documents that, for example, identify students who tested but responded to no items, who were absent, who were not tested due to parent/guardian request, or who did not complete the test due to illness. The methods for handling other anomalies are also covered in the specifications. These anomalies are described in more detail in the subsection *7.3.2 Special Cases*.

### 9.5.2. End-to-End Testing for Operational Administration

ETS conducts end-to-end testing prior to the start of the test administration. The purpose of this testing is to verify that all systems, processes, and resources are ready for the operational administration. ETS employs a number of approaches to verify ongoing systems performance, including monitoring of system availability and online system usage. Time is allotted for user acceptance testing to confirm that the systems meet requirements and to make identified corrections before final deployment. To accomplish system acceptance and sign off, ETS deploys systems to a staging area, which mirrors the final production environment, for operational and user acceptance testing. Final approval by the CDE triggers the final deployment of the system.

# References

California Department of Education. (2015a). *California Alternate Assessments blueprint for English language arts*. Sacramento, CA: California Department of Education. Retrieved from http://www.cde.ca.gov/ta/tg/ca/documents/caa15elablueprts.doc

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California Department of Education. (2018). *TOMS pre-administration guide for CAASPP testing*. Sacramento, CA: California Department of Education. Retrieved from http://www.caaspp.org/rsc/pdfs/CAASPP.TOMS-pre-admin-guide.2017-18.pdf

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# Chapter 10: Historical Comparisons

Historical comparisons of the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics results are performed to identify the trends in student performance and test characteristics over time. Such comparisons were performed for ELA and mathematics for grades three through eight and grade eleven for three operational administrations: 2015–16, 2016–17, and 2017–18, with 2015–16 as the base year. The comparisons are cross-sectional comparisons, which are made between the current year and the previous year for the same grades in a content area. Without a vertical scale established across grades in each test, longitudinal comparisons are not possible as scores are not on the same scale across years.

The indicators of student performance include the mean and standard deviation of scale scores and the percentage of students classified into achievement levels. Test characteristics are compared by examining the reliability and standard error of measurement (SEM) for each test.

## 10.1. Student Performances

In cross-sectional comparisons, different cohorts of students who were at the same grades in 2015–16, 2016–17, and 2017–18 are compared regarding their performances on CAAs for ELA and mathematics administrations. For example, students enrolled in grade three for the 2017–18 CAA administration are compared with students enrolled in grade three for the 2015–16 and 2016–17 CAA administrations. As noted in Table 7.2 on page 94 of *Chapter 7: Scoring and Reporting*, the different grades have different reporting scales, 300s for Grade 3, 400s for Grade 4, …., 900s for Grade 11, for both ELA and mathematics.

### 10.1.1. Summary Statistics

Table 10.A.1 on page 528 shows, for each test, the number of students enrolled, the number of students with valid scores, and the means and standard deviations of students' scale scores from 2015–16 to 2017–18.

### 10.1.2. Achievement Levels of Overall Students

Scale cut scores are used to classify each student into one of three achievement levels: Level 1—Alternate, Level 2—Alternate, and Level 3—Alternate, with higher levels indicating higher performance. Refer to Table 7.2 in chapter 7 for the achievement level scale score ranges for each test. The percentages of students in each achievement level from the 2015–16 administration to the 2017–18 administration are presented in Table 10.A.2.

Note that the percentages for the three achievement levels may not sum to exactly 100 because of rounding. Also note that this information may differ slightly from information found on the California Department of Education (CDE) CAASPP Public Reporting website at https://caaspp.cde.ca.gov/ because of the different dates on which the data was accessed.

### 10.1.3. Scale Score Distributions

Table 10.A.3 through Table 10.A.16 starting on page 530 show the distributions of scale scores observed from the 2015–16 administration to the 2017–18 administration for each grade and content area. Frequency counts are provided for each scale score interval of 3. A blank indicates that there are no obtainable scale scores beyond the scale score range. The scale score ranges for each grade are those defined in Table 7.2 on page 94 of chapter 7 for the scale score ranges.

### 10.1.4. Achievement Levels of Selected Student Groups

Table 10.A.17 through Table 10.A.58, which start on page 544, provide statistics summarizing student achievement by content area and grade for selected student groups. In these tables, students are grouped by demographic characteristics, including gender, ethnicity, English-language fluency, economic status (disadvantaged or not), primary disability groups, migrant status, the use of designated supports (using designated supports or not), and the use of accommodations (using accommodations or not). The tables show, for each demographic student group, the numbers of students with a valid scale score, scale score means and standard deviations, and the percentage of students at each achievement level, for the past three operational administrations.

## 10.2. Test Characteristics

In the context of multistage testing, tier or form reliability is not appropriate, as each form contains a restricted range of difficulty in its items and is administered to only a narrow sample of the performance range. Instead, the marginal reliabilities averaged across student levels and all possible paths or forms were estimated (Green, Bock, Humphreys, Linn, & Reckase, 1984) and presented along with mean, standard deviation (SD), and standard errors of measurement (SEM) of theta scores in Table 10.B.1 on page 586. Reliabilities are affected by both item characteristics and student characteristics. Refer to subsections *8.6.1. Internal Consistency Reliability* and *8.6.2 Standard Error of Measurement (SEM)* for the methods used to calculate marginal reliability and SEM, respectively.

# Reference

Green, B. F., Bock, R. D., Humphreys, L. G., Linn, R. L., & Reckase, M. D. (1984). Technical guidelines for assessing computerized adaptive tests. *Journal of Educational Measurement*, *21*(4), 347–360.

# Appendix 10.A: Cross-Sectional Comparisons of the Overall Group and Selected Groups on the Overall Tests

**Notes:**

- For consistency, the 2015–16, 2016–17, and 2017–18 results are based on the final data.
- Individual achievement level percentages may not sum to 100 or the combined achievement level percentage due to rounding.
- To protect privacy when the number of students in a student group is 10 or fewer, the summary statistics of performance are not reported and are presented as "NA."
- N means the number of valid scores unless it is specified otherwise; for example, "N enrolled" means the number of students enrolled.

**Table 10.A.1 Summary Statistics of the Total Test across 2015–16, 2016–17, and 2017–18, Cross-Sectional Comparisons**

| Content Area and Grade | 2015–16 Number Enrolled | 2015–16 Number Tested | 2015–16 Scale Score Mean | 2015–16 Scale Score SD | 2016–17 Number Enrolled | 2016–17 Number Tested | 2016–17 Scale Score Mean | 2016–17 Scale Score SD | 2017–18 Number Enrolled | 2017–18 Number Tested | 2017–18 Scale Score Mean | 2017–18 Scale Score SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 5,462 | 4,962 | 339 | 25 | 5,385 | 5,003 | 342 | 26 | 5,518 | 5,102 | 340 | 25 |
| ELA 4 | 5,751 | 5,267 | 437 | 22 | 5,817 | 5,410 | 439 | 24 | 5,710 | 5,324 | 438 | 23 |
| ELA 5 | 5,674 | 5,098 | 537 | 21 | 5,965 | 5,533 | 538 | 23 | 5,766 | 5,330 | 539 | 23 |
| ELA 6 | 5,656 | 5,116 | 637 | 20 | 5,805 | 5,336 | 638 | 20 | 5,887 | 5,386 | 639 | 20 |
| ELA 7 | 5,672 | 5,123 | 736 | 21 | 5,807 | 5,288 | 736 | 22 | 5,969 | 5,383 | 738 | 23 |
| ELA 8 | 5,347 | 4,755 | 838 | 21 | 5,784 | 5,247 | 840 | 21 | 5,808 | 5,238 | 840 | 21 |
| ELA 11 | 5,210 | 4,273 | 940 | 20 | 5,322 | 4,505 | 941 | 22 | 5,330 | 4,457 | 943 | 22 |
| Mathematics 3 | 5,462 | 4,978 | 331 | 21 | 5,385 | 4,989 | 333 | 21 | 5,518 | 5,101 | 335 | 21 |
| Mathematics 4 | 5,751 | 5,283 | 432 | 20 | 5,817 | 5,396 | 433 | 21 | 5,710 | 5,309 | 434 | 21 |
| Mathematics 5 | 5,674 | 5,098 | 532 | 20 | 5,965 | 5,543 | 533 | 21 | 5,766 | 5,319 | 535 | 21 |
| Mathematics 6 | 5,656 | 5,123 | 631 | 20 | 5,805 | 5,321 | 634 | 20 | 5,887 | 5,366 | 635 | 20 |
| Mathematics 7 | 5,672 | 5,117 | 732 | 21 | 5,807 | 5,275 | 733 | 22 | 5,969 | 5,375 | 735 | 20 |
| Mathematics 8 | 5,347 | 4,757 | 831 | 20 | 5,784 | 5,232 | 834 | 21 | 5,808 | 5,229 | 834 | 20 |
| Mathematics 11 | 5,210 | 4,268 | 933 | 20 | 5,322 | 4,496 | 934 | 20 | 5,330 | 4,437 | 935 | 21 |

**Table 10.A.2 Percentage of Each Achievement Level across 2015–16, 2016–17, and 2017–18, Cross-Sectional Comparisons**

| Content Area and Grade | Level 1 in 2015–16 | Level 1 in 2016–17 | Level 1 in 2017–18 | Level 2 in 2015–16 | Level 2 in 2016–17 | Level 2 in 2017–18 | Level 3 in 2015–16 | Level 3 in 2016–17 | Level 3 in 2017–18 |
|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 54% | 53% | 51% | 25% | 22% | 28% | 21% | 25% | 21% |
| ELA 4 | 59% | 54% | 55% | 29% | 29% | 27% | 11% | 16% | 18% |
| ELA 5 | 57% | 54% | 51% | 35% | 32% | 30% | 9% | 14% | 19% |
| ELA 6 | 54% | 54% | 54% | 38% | 37% | 35% | 8% | 9% | 11% |
| ELA 7 | 57% | 59% | 55% | 35% | 28% | 27% | 8% | 13% | 18% |
| ELA 8 | 47% | 38% | 48% | 44% | 50% | 39% | 9% | 11% | 13% |
| ELA 11 | 43% | 43% | 44% | 49% | 39% | 35% | 8% | 18% | 21% |
| Mathematics 3 | 72% | 67% | 62% | 23% | 28% | 30% | 5% | 6% | 8% |
| Mathematics 4 | 70% | 68% | 65% | 26% | 25% | 26% | 4% | 7% | 8% |
| Mathematics 5 | 70% | 64% | 63% | 25% | 30% | 29% | 5% | 6% | 9% |
| Mathematics 6 | 73% | 67% | 67% | 23% | 30% | 26% | 4% | 4% | 7% |
| Mathematics 7 | 70% | 69% | 65% | 24% | 24% | 27% | 5% | 8% | 7% |
| Mathematics 8 | 71% | 66% | 64% | 25% | 27% | 29% | 4% | 7% | 7% |
| Mathematics 11 | 66% | 66% | 65% | 29% | 28% | 26% | 6% | 6% | 9% |

**Table 10.A.3 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for ELA, Grade Three**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [300, 302] | 949 | 19% | 826 | 17% | 975 | 19% |
| [303, 305] | 104 | 2% | 188 | 4% | 88 | 2% |
| [306, 308] | 14 | 0% | 20 | 0% | 19 | 0% |
| [309, 311] | 43 | 1% | 12 | 0% | 0 | 0% |
| [312, 314] | 42 | 1% | 16 | 0% | 17 | 0% |
| [315, 317] | 37 | 1% | 25 | 0% | 61 | 1% |
| [318, 320] | 46 | 1% | 28 | 1% | 48 | 1% |
| [321, 323] | 68 | 1% | 37 | 1% | 36 | 1% |
| [324, 326] | 38 | 1% | 109 | 2% | 119 | 2% |
| [327, 329] | 132 | 3% | 97 | 2% | 75 | 1% |
| [330, 332] | 168 | 3% | 114 | 2% | 183 | 4% |
| [333, 335] | 180 | 4% | 298 | 6% | 137 | 3% |
| [336, 338] | 309 | 6% | 334 | 7% | 318 | 6% |
| [339, 341] | 209 | 4% | 184 | 4% | 290 | 6% |
| [342, 344] | 347 | 7% | 351 | 7% | 227 | 4% |
| [345, 347] | 268 | 5% | 210 | 4% | 364 | 7% |
| [348, 350] | 301 | 6% | 218 | 4% | 213 | 4% |
| [351, 353] | 256 | 5% | 230 | 5% | 351 | 7% |
| [354, 356] | 254 | 5% | 185 | 4% | 222 | 4% |
| [357, 359] | 152 | 3% | 264 | 5% | 269 | 5% |
| [360, 362] | 261 | 5% | 152 | 3% | 150 | 3% |
| [363, 365] | 146 | 3% | 125 | 2% | 226 | 4% |
| [366, 368] | 118 | 2% | 146 | 3% | 150 | 3% |
| [369, 371] | 133 | 3% | 120 | 2% | 138 | 3% |
| [372, 374] | 89 | 2% | 155 | 3% | 133 | 3% |
| [375, 377] | 108 | 2% | 148 | 3% | 86 | 2% |
| [378, 380] | 34 | 1% | 119 | 2% | 23 | 0% |
| [381, 383] | 36 | 1% | 0 | 0% | 68 | 1% |
| [384, 386] | 29 | 1% | 113 | 2% | 57 | 1% |
| [387, 389] | 27 | 1% | 0 | 0% | 0 | 0% |
| [390, 392] | 20 | 0% | 95 | 2% | 0 | 0% |
| [393, 395] | 0 | 0% | 0 | 0% | 33 | 1% |
| [396, 398] | 0 | 0% | 0 | 0% | 0 | 0% |
| [399, 399] | 44 | 1% | 84 | 2% | 26 | 1% |

**Table 10.A.4 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for ELA, Grade Four**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [400, 402] | 956 | 18% | 881 | 16% | 869 | 16% |
| [403, 405] | 63 | 1% | 223 | 4% | 120 | 2% |
| [406, 408] | 30 | 1% | 19 | 0% | 20 | 0% |
| [409, 411] | 41 | 1% | 19 | 0% | 22 | 0% |
| [412, 414] | 48 | 1% | 20 | 0% | 18 | 0% |
| [415, 417] | 58 | 1% | 24 | 0% | 48 | 1% |
| [418, 420] | 46 | 1% | 31 | 1% | 35 | 1% |
| [421, 423] | 58 | 1% | 72 | 1% | 60 | 1% |
| [424, 426] | 60 | 1% | 58 | 1% | 147 | 3% |
| [427, 429] | 96 | 2% | 76 | 1% | 127 | 2% |
| [430, 432] | 170 | 3% | 221 | 4% | 302 | 6% |
| [433, 435] | 220 | 4% | 335 | 6% | 348 | 7% |
| [436, 438] | 427 | 8% | 216 | 4% | 225 | 4% |
| [439, 441] | 447 | 8% | 349 | 6% | 376 | 7% |
| [442, 444] | 412 | 8% | 385 | 7% | 212 | 4% |
| [445, 447] | 347 | 7% | 381 | 7% | 376 | 7% |
| [448, 450] | 375 | 7% | 284 | 5% | 193 | 4% |
| [451, 453] | 353 | 7% | 407 | 8% | 423 | 8% |
| [454, 456] | 239 | 5% | 220 | 4% | 214 | 4% |
| [457, 459] | 219 | 4% | 301 | 6% | 213 | 4% |
| [460, 462] | 195 | 4% | 187 | 3% | 281 | 5% |
| [463, 465] | 145 | 3% | 155 | 3% | 205 | 4% |
| [466, 468] | 76 | 1% | 113 | 2% | 157 | 3% |
| [469, 471] | 66 | 1% | 131 | 2% | 104 | 2% |
| [472, 474] | 18 | 0% | 101 | 2% | 79 | 1% |
| [475, 477] | 39 | 1% | 1 | 0% | 3 | 0% |
| [478, 480] | 18 | 0% | 88 | 2% | 74 | 1% |
| [481, 483] | 11 | 0% | 0 | 0% | 34 | 1% |
| [484, 486] | 5 | 0% | 55 | 1% | 0 | 0% |
| [487, 489] | 10 | 0% | 0 | 0% | 0 | 0% |
| [490, 492] | 0 | 0% | 0 | 0% | 25 | 0% |
| [493, 495] | 0 | 0% | 0 | 0% | 0 | 0% |
| [496, 498] | 10 | 0% | 41 | 1% | 0 | 0% |
| [499, 499] | 9 | 0% | 16 | 0% | 14 | 0% |

**Table 10.A.5 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for ELA, Grade Five**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [500, 502] | 879 | 17% | 913 | 17% | 865 | 16% |
| [503, 505] | 37 | 1% | 162 | 3% | 117 | 2% |
| [506, 508] | 26 | 1% | 18 | 0% | 8 | 0% |
| [509, 511] | 23 | 0% | 14 | 0% | 21 | 0% |
| [512, 514] | 28 | 1% | 22 | 0% | 20 | 0% |
| [515, 517] | 57 | 1% | 21 | 0% | 53 | 1% |
| [518, 520] | 56 | 1% | 30 | 1% | 51 | 1% |
| [521, 523] | 73 | 1% | 90 | 2% | 67 | 1% |
| [524, 526] | 81 | 2% | 61 | 1% | 169 | 3% |
| [527, 529] | 87 | 2% | 212 | 4% | 109 | 2% |
| [530, 532] | 134 | 3% | 130 | 2% | 288 | 5% |
| [533, 535] | 236 | 5% | 346 | 6% | 180 | 3% |
| [536, 538] | 224 | 4% | 352 | 6% | 297 | 6% |
| [539, 541] | 483 | 9% | 275 | 5% | 263 | 5% |
| [542, 544] | 472 | 9% | 336 | 6% | 227 | 4% |
| [545, 547] | 516 | 10% | 371 | 7% | 356 | 7% |
| [548, 550] | 431 | 8% | 518 | 9% | 257 | 5% |
| [551, 553] | 287 | 6% | 270 | 5% | 376 | 7% |
| [554, 556] | 217 | 4% | 263 | 5% | 378 | 7% |
| [557, 559] | 316 | 6% | 363 | 7% | 240 | 5% |
| [560, 562] | 138 | 3% | 164 | 3% | 379 | 7% |
| [563, 565] | 88 | 2% | 150 | 3% | 188 | 4% |
| [566, 568] | 117 | 2% | 111 | 2% | 138 | 3% |
| [569, 571] | 0 | 0% | 96 | 2% | 98 | 2% |
| [572, 574] | 41 | 1% | 87 | 2% | 59 | 1% |
| [575, 577] | 24 | 0% | 53 | 1% | 6 | 0% |
| [578, 580] | 15 | 0% | 0 | 0% | 54 | 1% |
| [581, 583] | 0 | 0% | 45 | 1% | 0 | 0% |
| [584, 586] | 0 | 0% | 0 | 0% | 25 | 0% |
| [587, 589] | 6 | 0% | 39 | 1% | 0 | 0% |
| [590, 592] | 0 | 0% | 0 | 0% | 27 | 1% |
| [593, 595] | 0 | 0% | 0 | 0% | 0 | 0% |
| [596, 598] | 6 | 0% | 0 | 0% | 0 | 0% |
| [599, 599] | 0 | 0% | 21 | 0% | 14 | 0% |

**Table 10.A.6 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for ELA, Grade Six**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [600, 602] | 873 | 17% | 770 | 14% | 807 | 15% |
| [603, 605] | 28 | 1% | 74 | 1% | 42 | 1% |
| [606, 608] | 23 | 0% | 68 | 1% | 18 | 0% |
| [609, 611] | 0 | 0% | 0 | 0% | 0 | 0% |
| [612, 614] | 28 | 1% | 23 | 0% | 25 | 0% |
| [615, 617] | 27 | 1% | 24 | 0% | 35 | 1% |
| [618, 620] | 41 | 1% | 38 | 1% | 35 | 1% |
| [621, 623] | 61 | 1% | 15 | 0% | 64 | 1% |
| [624, 626] | 85 | 2% | 59 | 1% | 78 | 1% |
| [627, 629] | 109 | 2% | 118 | 2% | 132 | 2% |
| [630, 632] | 167 | 3% | 195 | 4% | 146 | 3% |
| [633, 635] | 196 | 4% | 295 | 6% | 281 | 5% |
| [636, 638] | 292 | 6% | 361 | 7% | 371 | 7% |
| [639, 641] | 434 | 8% | 487 | 9% | 425 | 8% |
| [642, 644] | 415 | 8% | 366 | 7% | 463 | 9% |
| [645, 647] | 522 | 10% | 451 | 8% | 471 | 9% |
| [648, 650] | 377 | 7% | 464 | 9% | 313 | 6% |
| [651, 653] | 441 | 9% | 488 | 9% | 460 | 9% |
| [654, 656] | 410 | 8% | 390 | 7% | 239 | 4% |
| [657, 659] | 193 | 4% | 195 | 4% | 387 | 7% |
| [660, 662] | 183 | 4% | 230 | 4% | 168 | 3% |
| [663, 665] | 112 | 2% | 83 | 2% | 156 | 3% |
| [666, 668] | 39 | 1% | 64 | 1% | 98 | 2% |
| [669, 671] | 21 | 0% | 36 | 1% | 79 | 1% |
| [672, 674] | 15 | 0% | 19 | 0% | 45 | 1% |
| [675, 677] | 10 | 0% | 0 | 0% | 28 | 1% |
| [678, 680] | 7 | 0% | 13 | 0% | 0 | 0% |
| [681, 683] | 0 | 0% | 0 | 0% | 16 | 0% |
| [684, 686] | 4 | 0% | 0 | 0% | 0 | 0% |
| [687, 689] | 0 | 0% | 6 | 0% | 0 | 0% |
| [690, 692] | 0 | 0% | 0 | 0% | 4 | 0% |
| [693, 695] | 3 | 0% | 0 | 0% | 0 | 0% |
| [696, 698] | 0 | 0% | 0 | 0% | 0 | 0% |
| [699, 699] | 0 | 0% | 4 | 0% | 0 | 0% |

**Table 10.A.7 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for ELA, Grade Seven**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [700, 702] | 958 | 19% | 884 | 17% | 826 | 15% |
| [703, 705] | 87 | 2% | 216 | 4% | 167 | 3% |
| [706, 708] | 20 | 0% | 15 | 0% | 20 | 0% |
| [709, 711] | 21 | 0% | 26 | 0% | 25 | 0% |
| [712, 714] | 42 | 1% | 24 | 0% | 25 | 0% |
| [715, 717] | 27 | 1% | 23 | 0% | 34 | 1% |
| [718, 720] | 86 | 2% | 40 | 1% | 117 | 2% |
| [721, 723] | 92 | 2% | 60 | 1% | 60 | 1% |
| [724, 726] | 137 | 3% | 84 | 2% | 101 | 2% |
| [727, 729] | 85 | 2% | 122 | 2% | 263 | 5% |
| [730, 732] | 137 | 3% | 311 | 6% | 165 | 3% |
| [733, 735] | 208 | 4% | 231 | 4% | 188 | 3% |
| [736, 738] | 198 | 4% | 451 | 9% | 333 | 6% |
| [739, 741] | 427 | 8% | 344 | 7% | 360 | 7% |
| [742, 744] | 376 | 7% | 277 | 5% | 289 | 5% |
| [745, 747] | 383 | 7% | 429 | 8% | 233 | 4% |
| [748, 750] | 489 | 10% | 220 | 4% | 438 | 8% |
| [751, 753] | 402 | 8% | 342 | 6% | 276 | 5% |
| [754, 756] | 194 | 4% | 354 | 7% | 217 | 4% |
| [757, 759] | 323 | 6% | 148 | 3% | 281 | 5% |
| [760, 762] | 108 | 2% | 206 | 4% | 191 | 4% |
| [763, 765] | 164 | 3% | 170 | 3% | 191 | 4% |
| [766, 768] | 45 | 1% | 74 | 1% | 245 | 5% |
| [769, 771] | 40 | 1% | 52 | 1% | 122 | 2% |
| [772, 774] | 35 | 1% | 47 | 1% | 77 | 1% |
| [775, 777] | 20 | 0% | 42 | 1% | 0 | 0% |
| [778, 780] | 0 | 0% | 37 | 1% | 49 | 1% |
| [781, 783] | 8 | 0% | 1 | 0% | 45 | 1% |
| [784, 786] | 2 | 0% | 28 | 1% | 0 | 0% |
| [787, 789] | 2 | 0% | 0 | 0% | 20 | 0% |
| [790, 792] | 0 | 0% | 19 | 0% | 0 | 0% |
| [793, 795] | 6 | 0% | 0 | 0% | 17 | 0% |
| [796, 798] | 0 | 0% | 0 | 0% | 0 | 0% |
| [799, 799] | 1 | 0% | 11 | 0% | 8 | 0% |

**Table 10.A.8 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for ELA, Grade Eight**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [800, 802] | 888 | 19% | 881 | 17% | 863 | 16% |
| [803, 805] | 34 | 1% | 66 | 1% | 70 | 1% |
| [806, 808] | 7 | 0% | 44 | 1% | 0 | 0% |
| [809, 811] | 4 | 0% | 89 | 2% | 17 | 0% |
| [812, 814] | 22 | 0% | 9 | 0% | 14 | 0% |
| [815, 817] | 36 | 1% | 10 | 0% | 8 | 0% |
| [818, 820] | 31 | 1% | 18 | 0% | 6 | 0% |
| [821, 823] | 44 | 1% | 15 | 0% | 15 | 0% |
| [824, 826] | 44 | 1% | 11 | 0% | 39 | 1% |
| [827, 829] | 47 | 1% | 37 | 1% | 30 | 1% |
| [830, 832] | 67 | 1% | 61 | 1% | 105 | 2% |
| [833, 835] | 88 | 2% | 55 | 1% | 206 | 4% |
| [836, 838] | 188 | 4% | 135 | 3% | 278 | 5% |
| [839, 841] | 242 | 5% | 221 | 4% | 422 | 8% |
| [842, 844] | 497 | 10% | 367 | 7% | 454 | 9% |
| [845, 847] | 543 | 11% | 815 | 16% | 488 | 9% |
| [848, 850] | 531 | 11% | 621 | 12% | 426 | 8% |
| [851, 853] | 357 | 8% | 565 | 11% | 508 | 10% |
| [854, 856] | 472 | 10% | 293 | 6% | 451 | 9% |
| [857, 859] | 187 | 4% | 354 | 7% | 165 | 3% |
| [860, 862] | 189 | 4% | 185 | 4% | 287 | 5% |
| [863, 865] | 92 | 2% | 218 | 4% | 109 | 2% |
| [866, 868] | 69 | 1% | 73 | 1% | 85 | 2% |
| [869, 871] | 36 | 1% | 43 | 1% | 54 | 1% |
| [872, 874] | 19 | 0% | 25 | 0% | 51 | 1% |
| [875, 877] | 8 | 0% | 15 | 0% | 44 | 1% |
| [878, 880] | 7 | 0% | 3 | 0% | 24 | 0% |
| [881, 883] | 5 | 0% | 9 | 0% | 0 | 0% |
| [884, 886] | 1 | 0% | 8 | 0% | 16 | 0% |
| [887, 889] | 0 | 0% | 0 | 0% | 0 | 0% |
| [890, 892] | 0 | 0% | 0 | 0% | 0 | 0% |
| [893, 895] | 0 | 0% | 0 | 0% | 2 | 0% |
| [896, 898] | 0 | 0% | 0 | 0% | 0 | 0% |
| [899, 899] | 0 | 0% | 1 | 0% | 1 | 0% |

**Table 10.A.9 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for ELA, Grade Eleven**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [900, 902] | 625 | 15% | 712 | 16% | 617 | 14% |
| [903, 905] | 31 | 1% | 37 | 1% | 74 | 2% |
| [906, 908] | 9 | 0% | 35 | 1% | 17 | 0% |
| [909, 911] | 14 | 0% | 0 | 0% | 9 | 0% |
| [912, 914] | 6 | 0% | 13 | 0% | 5 | 0% |
| [915, 917] | 30 | 1% | 13 | 0% | 11 | 0% |
| [918, 920] | 37 | 1% | 12 | 0% | 12 | 0% |
| [921, 923] | 43 | 1% | 20 | 0% | 17 | 0% |
| [924, 926] | 67 | 2% | 54 | 1% | 65 | 1% |
| [927, 929] | 49 | 1% | 37 | 1% | 41 | 1% |
| [930, 932] | 99 | 2% | 109 | 2% | 108 | 2% |
| [933, 935] | 65 | 2% | 83 | 2% | 179 | 4% |
| [936, 938] | 111 | 3% | 218 | 5% | 215 | 5% |
| [939, 941] | 255 | 6% | 235 | 5% | 249 | 6% |
| [942, 944] | 385 | 9% | 360 | 8% | 335 | 8% |
| [945, 947] | 587 | 14% | 445 | 10% | 378 | 8% |
| [948, 950] | 577 | 14% | 454 | 10% | 390 | 9% |
| [951, 953] | 392 | 9% | 222 | 5% | 198 | 4% |
| [954, 956] | 308 | 7% | 419 | 9% | 362 | 8% |
| [957, 959] | 246 | 6% | 203 | 5% | 228 | 5% |
| [960, 962] | 121 | 3% | 345 | 8% | 242 | 5% |
| [963, 965] | 136 | 3% | 140 | 3% | 210 | 5% |
| [966, 968] | 31 | 1% | 147 | 3% | 103 | 2% |
| [969, 971] | 18 | 0% | 68 | 2% | 118 | 3% |
| [972, 974] | 17 | 0% | 55 | 1% | 86 | 2% |
| [975, 977] | 6 | 0% | 22 | 0% | 72 | 2% |
| [978, 980] | 7 | 0% | 14 | 0% | 52 | 1% |
| [981, 983] | 0 | 0% | 23 | 1% | 44 | 1% |
| [984, 986] | 1 | 0% | 0 | 0% | 0 | 0% |
| [987, 989] | 0 | 0% | 9 | 0% | 12 | 0% |
| [990, 992] | 0 | 0% | 0 | 0% | 0 | 0% |
| [993, 995] | 0 | 0% | 0 | 0% | 0 | 0% |
| [996, 998] | 0 | 0% | 1 | 0% | 6 | 0% |
| [999, 999] | 0 | 0% | 0 | 0% | 2 | 0% |

**Table 10.A.10 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for Mathematics, Grade Three**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [300, 302] | 1,099 | 22% | 919 | 18% | 989 | 19% |
| [303, 305] | 95 | 2% | 351 | 7% | 134 | 3% |
| [306, 308] | 0 | 0% | 0 | 0% | 23 | 0% |
| [309, 311] | 45 | 1% | 23 | 0% | 20 | 0% |
| [312, 314] | 51 | 1% | 19 | 0% | 9 | 0% |
| [315, 317] | 36 | 1% | 20 | 0% | 29 | 1% |
| [318, 320] | 87 | 2% | 36 | 1% | 76 | 1% |
| [321, 323] | 171 | 3% | 41 | 1% | 61 | 1% |
| [324, 326] | 112 | 2% | 86 | 2% | 80 | 2% |
| [327, 329] | 212 | 4% | 174 | 3% | 105 | 2% |
| [330, 332] | 180 | 4% | 136 | 3% | 304 | 6% |
| [333, 335] | 239 | 5% | 282 | 6% | 199 | 4% |
| [336, 338] | 369 | 7% | 326 | 7% | 316 | 6% |
| [339, 341] | 375 | 8% | 369 | 7% | 512 | 10% |
| [342, 344] | 524 | 11% | 542 | 11% | 322 | 6% |
| [345, 347] | 245 | 5% | 392 | 8% | 419 | 8% |
| [348, 350] | 411 | 8% | 397 | 8% | 244 | 5% |
| [351, 353] | 180 | 4% | 179 | 4% | 531 | 10% |
| [354, 356] | 211 | 4% | 305 | 6% | 178 | 3% |
| [357, 359] | 105 | 2% | 100 | 2% | 143 | 3% |
| [360, 362] | 82 | 2% | 85 | 2% | 102 | 2% |
| [363, 365] | 43 | 1% | 67 | 1% | 85 | 2% |
| [366, 368] | 30 | 1% | 53 | 1% | 64 | 1% |
| [369, 371] | 22 | 0% | 19 | 0% | 42 | 1% |
| [372, 374] | 0 | 0% | 31 | 1% | 38 | 1% |
| [375, 377] | 13 | 0% | 15 | 0% | 14 | 0% |
| [378, 380] | 13 | 0% | 6 | 0% | 22 | 0% |
| [381, 383] | 9 | 0% | 0 | 0% | 0 | 0% |
| [384, 386] | 2 | 0% | 6 | 0% | 10 | 0% |
| [387, 389] | 3 | 0% | 0 | 0% | 13 | 0% |
| [390, 392] | 0 | 0% | 3 | 0% | 0 | 0% |
| [393, 395] | 0 | 0% | 0 | 0% | 4 | 0% |
| [396, 398] | 6 | 0% | 0 | 0% | 0 | 0% |
| [399, 399] | 8 | 0% | 7 | 0% | 13 | 0% |

**Table 10.A.11 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for Mathematics, Grade Four**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [400, 402] | 994 | 19% | 1,032 | 19% | 938 | 18% |
| [403, 405] | 136 | 3% | 261 | 5% | 156 | 3% |
| [406, 408] | 55 | 1% | 17 | 0% | 0 | 0% |
| [409, 411] | 65 | 1% | 0 | 0% | 31 | 1% |
| [412, 414] | 0 | 0% | 13 | 0% | 34 | 1% |
| [415, 417] | 92 | 2% | 25 | 0% | 97 | 2% |
| [418, 420] | 107 | 2% | 38 | 1% | 53 | 1% |
| [421, 423] | 131 | 2% | 55 | 1% | 85 | 2% |
| [424, 426] | 93 | 2% | 169 | 3% | 88 | 2% |
| [427, 429] | 201 | 4% | 133 | 2% | 283 | 5% |
| [430, 432] | 177 | 3% | 179 | 3% | 176 | 3% |
| [433, 435] | 182 | 3% | 326 | 6% | 481 | 9% |
| [436, 438] | 507 | 10% | 520 | 10% | 287 | 5% |
| [439, 441] | 443 | 8% | 323 | 6% | 418 | 8% |
| [442, 444] | 510 | 10% | 570 | 11% | 343 | 6% |
| [445, 447] | 427 | 8% | 418 | 8% | 572 | 11% |
| [448, 450] | 416 | 8% | 311 | 6% | 239 | 5% |
| [451, 453] | 217 | 4% | 375 | 7% | 216 | 4% |
| [454, 456] | 174 | 3% | 152 | 3% | 194 | 4% |
| [457, 459] | 131 | 2% | 105 | 2% | 179 | 3% |
| [460, 462] | 71 | 1% | 123 | 2% | 176 | 3% |
| [463, 465] | 33 | 1% | 71 | 1% | 92 | 2% |
| [466, 468] | 52 | 1% | 45 | 1% | 55 | 1% |
| [469, 471] | 12 | 0% | 29 | 1% | 36 | 1% |
| [472, 474] | 16 | 0% | 30 | 1% | 6 | 0% |
| [475, 477] | 10 | 0% | 0 | 0% | 17 | 0% |
| [478, 480] | 9 | 0% | 13 | 0% | 23 | 0% |
| [481, 483] | 1 | 0% | 16 | 0% | 15 | 0% |
| [484, 486] | 4 | 0% | 0 | 0% | 0 | 0% |
| [487, 489] | 4 | 0% | 13 | 0% | 7 | 0% |
| [490, 492] | 0 | 0% | 0 | 0% | 0 | 0% |
| [493, 495] | 8 | 0% | 15 | 0% | 3 | 0% |
| [496, 498] | 0 | 0% | 0 | 0% | 0 | 0% |
| [499, 499] | 5 | 0% | 19 | 0% | 9 | 0% |

**Table 10.A.12 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for Mathematics, Grade Five**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [500, 502] | 1,031 | 20% | 1,021 | 18% | 946 | 18% |
| [503, 505] | 91 | 2% | 321 | 6% | 145 | 3% |
| [506, 508] | 34 | 1% | 17 | 0% | 24 | 0% |
| [509, 511] | 32 | 1% | 0 | 0% | 0 | 0% |
| [512, 514] | 26 | 1% | 28 | 1% | 33 | 1% |
| [515, 517] | 78 | 2% | 18 | 0% | 32 | 1% |
| [518, 520] | 69 | 1% | 62 | 1% | 53 | 1% |
| [521, 523] | 62 | 1% | 72 | 1% | 145 | 3% |
| [524, 526] | 86 | 2% | 79 | 1% | 94 | 2% |
| [527, 529] | 129 | 3% | 261 | 5% | 173 | 3% |
| [530, 532] | 253 | 5% | 187 | 3% | 255 | 5% |
| [533, 535] | 402 | 8% | 369 | 7% | 209 | 4% |
| [536, 538] | 256 | 5% | 233 | 4% | 544 | 10% |
| [539, 541] | 575 | 11% | 542 | 10% | 384 | 7% |
| [542, 544] | 469 | 9% | 349 | 6% | 311 | 6% |
| [545, 547] | 403 | 8% | 598 | 11% | 548 | 10% |
| [548, 550] | 389 | 8% | 358 | 6% | 252 | 5% |
| [551, 553] | 269 | 5% | 354 | 6% | 285 | 5% |
| [554, 556] | 125 | 2% | 233 | 4% | 288 | 5% |
| [557, 559] | 86 | 2% | 123 | 2% | 145 | 3% |
| [560, 562] | 86 | 2% | 101 | 2% | 103 | 2% |
| [563, 565] | 35 | 1% | 58 | 1% | 77 | 1% |
| [566, 568] | 28 | 1% | 32 | 1% | 131 | 2% |
| [569, 571] | 22 | 0% | 32 | 1% | 41 | 1% |
| [572, 574] | 15 | 0% | 25 | 0% | 36 | 1% |
| [575, 577] | 7 | 0% | 16 | 0% | 0 | 0% |
| [578, 580] | 8 | 0% | 10 | 0% | 27 | 1% |
| [581, 583] | 8 | 0% | 0 | 0% | 12 | 0% |
| [584, 586] | 0 | 0% | 12 | 0% | 5 | 0% |
| [587, 589] | 10 | 0% | 13 | 0% | 0 | 0% |
| [590, 592] | 0 | 0% | 0 | 0% | 11 | 0% |
| [593, 595] | 3 | 0% | 7 | 0% | 0 | 0% |
| [596, 598] | 0 | 0% | 0 | 0% | 2 | 0% |
| [599, 599] | 11 | 0% | 12 | 0% | 8 | 0% |

**Table 10.A.13 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for Mathematics, Grade Six**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [600, 602] | 1,003 | 20% | 1,008 | 19% | 980 | 18% |
| [603, 605] | 87 | 2% | 196 | 4% | 96 | 2% |
| [606, 608] | 25 | 0% | 0 | 0% | 19 | 0% |
| [609, 611] | 38 | 1% | 18 | 0% | 0 | 0% |
| [612, 614] | 91 | 2% | 28 | 1% | 18 | 0% |
| [615, 617] | 135 | 3% | 0 | 0% | 29 | 1% |
| [618, 620] | 99 | 2% | 26 | 0% | 28 | 1% |
| [621, 623] | 183 | 4% | 38 | 1% | 49 | 1% |
| [624, 626] | 196 | 4% | 46 | 1% | 77 | 1% |
| [627, 629] | 282 | 6% | 185 | 3% | 228 | 4% |
| [630, 632] | 176 | 3% | 149 | 3% | 197 | 4% |
| [633, 635] | 183 | 4% | 400 | 8% | 470 | 9% |
| [636, 638] | 312 | 6% | 276 | 5% | 299 | 6% |
| [639, 641] | 344 | 7% | 686 | 13% | 693 | 13% |
| [642, 644] | 564 | 11% | 499 | 9% | 403 | 8% |
| [645, 647] | 424 | 8% | 625 | 12% | 286 | 5% |
| [648, 650] | 323 | 6% | 257 | 5% | 489 | 9% |
| [651, 653] | 205 | 4% | 384 | 7% | 198 | 4% |
| [654, 656] | 102 | 2% | 137 | 3% | 279 | 5% |
| [657, 659] | 139 | 3% | 167 | 3% | 140 | 3% |
| [660, 662] | 46 | 1% | 48 | 1% | 73 | 1% |
| [663, 665] | 40 | 1% | 57 | 1% | 86 | 2% |
| [666, 668] | 35 | 1% | 19 | 0% | 110 | 2% |
| [669, 671] | 27 | 1% | 20 | 0% | 0 | 0% |
| [672, 674] | 14 | 0% | 9 | 0% | 32 | 1% |
| [675, 677] | 12 | 0% | 10 | 0% | 31 | 1% |
| [678, 680] | 10 | 0% | 0 | 0% | 23 | 0% |
| [681, 683] | 8 | 0% | 9 | 0% | 1 | 0% |
| [684, 686] | 0 | 0% | 9 | 0% | 16 | 0% |
| [687, 689] | 6 | 0% | 0 | 0% | 0 | 0% |
| [690, 692] | 0 | 0% | 3 | 0% | 6 | 0% |
| [693, 695] | 4 | 0% | 0 | 0% | 0 | 0% |
| [696, 698] | 0 | 0% | 0 | 0% | 0 | 0% |
| [699, 699] | 10 | 0% | 12 | 0% | 10 | 0% |

**Table 10.A.14 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for Mathematics, Grade Seven**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [700, 702] | 1,041 | 20% | 1,034 | 20% | 852 | 16% |
| [703, 705] | 128 | 3% | 289 | 5% | 141 | 3% |
| [706, 708] | 35 | 1% | 20 | 0% | 20 | 0% |
| [709, 711] | 26 | 1% | 23 | 0% | 11 | 0% |
| [712, 714] | 85 | 2% | 10 | 0% | 35 | 1% |
| [715, 717] | 152 | 3% | 15 | 0% | 26 | 0% |
| [718, 720] | 74 | 1% | 31 | 1% | 38 | 1% |
| [721, 723] | 58 | 1% | 82 | 2% | 109 | 2% |
| [724, 726] | 78 | 2% | 118 | 2% | 125 | 2% |
| [727, 729] | 79 | 2% | 164 | 3% | 210 | 4% |
| [730, 732] | 258 | 5% | 296 | 6% | 378 | 7% |
| [733, 735] | 289 | 6% | 426 | 8% | 284 | 5% |
| [736, 738] | 452 | 9% | 271 | 5% | 455 | 8% |
| [739, 741] | 385 | 8% | 400 | 8% | 510 | 9% |
| [742, 744] | 460 | 9% | 454 | 9% | 322 | 6% |
| [745, 747] | 415 | 8% | 453 | 9% | 360 | 7% |
| [748, 750] | 253 | 5% | 253 | 5% | 458 | 9% |
| [751, 753] | 242 | 5% | 277 | 5% | 222 | 4% |
| [754, 756] | 182 | 4% | 118 | 2% | 180 | 3% |
| [757, 759] | 150 | 3% | 140 | 3% | 252 | 5% |
| [760, 762] | 49 | 1% | 82 | 2% | 93 | 2% |
| [763, 765] | 58 | 1% | 62 | 1% | 70 | 1% |
| [766, 768] | 34 | 1% | 49 | 1% | 53 | 1% |
| [769, 771] | 33 | 1% | 47 | 1% | 38 | 1% |
| [772, 774] | 20 | 0% | 31 | 1% | 30 | 1% |
| [775, 777] | 17 | 0% | 28 | 1% | 0 | 0% |
| [778, 780] | 17 | 0% | 24 | 0% | 36 | 1% |
| [781, 783] | 22 | 0% | 25 | 0% | 22 | 0% |
| [784, 786] | 0 | 0% | 0 | 0% | 18 | 0% |
| [787, 789] | 9 | 0% | 20 | 0% | 0 | 0% |
| [790, 792] | 0 | 0% | 11 | 0% | 12 | 0% |
| [793, 795] | 11 | 0% | 0 | 0% | 0 | 0% |
| [796, 798] | 0 | 0% | 0 | 0% | 6 | 0% |
| [799, 799] | 5 | 0% | 22 | 0% | 9 | 0% |

**Table 10.A.15 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for Mathematics, Grade Eight**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [800, 802] | 966 | 20% | 983 | 19% | 955 | 18% |
| [803, 805] | 103 | 2% | 156 | 3% | 91 | 2% |
| [806, 808] | 47 | 1% | 16 | 0% | 0 | 0% |
| [809, 811] | 46 | 1% | 0 | 0% | 15 | 0% |
| [812, 814] | 104 | 2% | 19 | 0% | 8 | 0% |
| [815, 817] | 140 | 3% | 65 | 1% | 25 | 0% |
| [818, 820] | 130 | 3% | 50 | 1% | 72 | 1% |
| [821, 823] | 101 | 2% | 61 | 1% | 60 | 1% |
| [824, 826] | 59 | 1% | 147 | 3% | 136 | 3% |
| [827, 829] | 84 | 2% | 153 | 3% | 165 | 3% |
| [830, 832] | 96 | 2% | 280 | 5% | 252 | 5% |
| [833, 835] | 275 | 6% | 434 | 8% | 436 | 8% |
| [836, 838] | 345 | 7% | 322 | 6% | 280 | 5% |
| [839, 841] | 411 | 9% | 475 | 9% | 578 | 11% |
| [842, 844] | 470 | 10% | 278 | 5% | 277 | 5% |
| [845, 847] | 438 | 9% | 482 | 9% | 532 | 10% |
| [848, 850] | 216 | 5% | 292 | 6% | 448 | 9% |
| [851, 853] | 200 | 4% | 278 | 5% | 178 | 3% |
| [854, 856] | 192 | 4% | 142 | 3% | 271 | 5% |
| [857, 859] | 124 | 3% | 216 | 4% | 100 | 2% |
| [860, 862] | 72 | 2% | 96 | 2% | 81 | 2% |
| [863, 865] | 55 | 1% | 64 | 1% | 103 | 2% |
| [866, 868] | 31 | 1% | 62 | 1% | 41 | 1% |
| [869, 871] | 19 | 0% | 48 | 1% | 35 | 1% |
| [872, 874] | 11 | 0% | 35 | 1% | 22 | 0% |
| [875, 877] | 3 | 0% | 25 | 0% | 24 | 0% |
| [878, 880] | 10 | 0% | 0 | 0% | 14 | 0% |
| [881, 883] | 4 | 0% | 19 | 0% | 13 | 0% |
| [884, 886] | 0 | 0% | 13 | 0% | 0 | 0% |
| [887, 889] | 1 | 0% | 0 | 0% | 6 | 0% |
| [890, 892] | 1 | 0% | 9 | 0% | 4 | 0% |
| [893, 895] | 0 | 0% | 0 | 0% | 0 | 0% |
| [896, 898] | 2 | 0% | 6 | 0% | 3 | 0% |
| [899, 899] | 1 | 0% | 6 | 0% | 4 | 0% |

**Table 10.A.16 Scale Score Distributions across 2015–16, 2016–17, and 2017–18 for Mathematics, Grade Eleven**

| Scale Score | 2015–16 N | 2015–16 Percent | 2016–17 N | 2016–17 Percent | 2017–18 N | 2017–18 Percent |
|---|---|---|---|---|---|---|
| [900, 902] | 695 | 16% | 754 | 17% | 635 | 14% |
| [903, 905] | 144 | 3% | 225 | 5% | 149 | 3% |
| [906, 908] | 19 | 0% | 0 | 0% | 20 | 0% |
| [909, 911] | 35 | 1% | 15 | 0% | 22 | 0% |
| [912, 914] | 85 | 2% | 16 | 0% | 27 | 1% |
| [915, 917] | 79 | 2% | 17 | 0% | 37 | 1% |
| [918, 920] | 87 | 2% | 37 | 1% | 43 | 1% |
| [921, 923] | 76 | 2% | 45 | 1% | 148 | 3% |
| [924, 926] | 77 | 2% | 136 | 3% | 97 | 2% |
| [927, 929] | 106 | 2% | 116 | 3% | 214 | 5% |
| [930, 932] | 106 | 2% | 257 | 6% | 290 | 7% |
| [933, 935] | 329 | 8% | 237 | 5% | 196 | 4% |
| [936, 938] | 204 | 5% | 320 | 7% | 386 | 9% |
| [939, 941] | 502 | 12% | 521 | 12% | 272 | 6% |
| [942, 944] | 268 | 6% | 262 | 6% | 350 | 8% |
| [945, 947] | 456 | 11% | 527 | 12% | 309 | 7% |
| [948, 950] | 365 | 9% | 212 | 5% | 266 | 6% |
| [951, 953] | 137 | 3% | 323 | 7% | 139 | 3% |
| [954, 956] | 182 | 4% | 129 | 3% | 286 | 6% |
| [957, 959] | 77 | 2% | 87 | 2% | 135 | 3% |
| [960, 962] | 62 | 1% | 123 | 3% | 103 | 2% |
| [963, 965] | 37 | 1% | 40 | 1% | 92 | 2% |
| [966, 968] | 31 | 1% | 22 | 0% | 57 | 1% |
| [969, 971] | 28 | 1% | 16 | 0% | 49 | 1% |
| [972, 974] | 16 | 0% | 17 | 0% | 39 | 1% |
| [975, 977] | 17 | 0% | 0 | 0% | 0 | 0% |
| [978, 980] | 15 | 0% | 10 | 0% | 24 | 1% |
| [981, 983] | 0 | 0% | 12 | 0% | 17 | 0% |
| [984, 986] | 12 | 0% | 0 | 0% | 0 | 0% |
| [987, 989] | 0 | 0% | 10 | 0% | 14 | 0% |
| [990, 992] | 8 | 0% | 0 | 0% | 0 | 0% |
| [993, 995] | 0 | 0% | 0 | 0% | 0 | 0% |
| [996, 998] | 0 | 0% | 5 | 0% | 11 | 0% |
| [999, 999] | 13 | 0% | 5 | 0% | 10 | 0% |

**Table 10.A.17 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for ELA, Grade Three**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,962 | 339 | 25 | 54% | 25% | 21% |
| Male | 3,383 | 339 | 25 | 53% | 25% | 22% |
| Female | 1,579 | 337 | 25 | 56% | 24% | 20% |
| American Indian or Alaska Native | 34 | 345 | 20 | 44% | 35% | 21% |
| Asian | 414 | 336 | 24 | 60% | 27% | 14% |
| Native Hawaiian or Other Pacific Islander | 17 | 329 | 25 | 71% | 12% | 18% |
| Filipino | 119 | 332 | 23 | 66% | 22% | 13% |
| Hispanic or Latino | 2,865 | 339 | 25 | 53% | 26% | 21% |
| Black or African American | 357 | 338 | 25 | 56% | 21% | 23% |
| White | 971 | 339 | 26 | 53% | 24% | 23% |
| Two or more races | 185 | 341 | 24 | 51% | 23% | 26% |
| English only | 2,953 | 338 | 26 | 55% | 24% | 21% |
| Initial fluent English proficient | 33 | 335 | 24 | 64% | 24% | 12% |
| English learner | 1,861 | 339 | 24 | 53% | 26% | 21% |
| Reclassified fluent English proficient | 105 | 342 | 25 | 51% | 23% | 26% |
| To be determined | 6 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,315 | 341 | 25 | 50% | 26% | 24% |
| Not economically disadvantaged | 1,647 | 334 | 25 | 62% | 23% | 15% |
| Migrant | 26 | 355 | 24 | 35% | 23% | 42% |
| Nonmigrant | 4,936 | 339 | 25 | 54% | 25% | 21% |
| Intellectual disability | 1,605 | 335 | 22 | 65% | 23% | 12% |
| Hearing impairment | 51 | 345 | 20 | 37% | 39% | 24% |
| Speech or language impairment | 227 | 356 | 19 | 21% | 32% | 47% |
| Visual impairment | 31 | 320 | 27 | 74% | 19% | 6% |
| Emotional disturbance | 20 | 359 | 20 | 20% | 20% | 60% |
| Orthopedic impairment | 243 | 328 | 29 | 68% | 17% | 15% |
| Other health impairment | 283 | 345 | 25 | 45% | 24% | 31% |
| Specific learning disability | 310 | 365 | 17 | 7% | 27% | 66% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 256 | 318 | 22 | 84% | 11% | 4% |
| Autism | 1,863 | 339 | 24 | 53% | 27% | 20% |
| Traumatic brain injury | 17 | 345 | 23 | 35% | 41% | 24% |
| Not classified | 56 | 335 | 23 | 61% | 25% | 14% |
| Using designated supports | 1,318 | 343 | 25 | 48% | 26% | 27% |
| No designated supports | 3,644 | 337 | 25 | 57% | 24% | 19% |
| Using accommodations | 1,092 | 340 | 26 | 52% | 23% | 25% |
| No accommodations | 3,870 | 338 | 25 | 55% | 25% | 20% |

**Table 10.A.18 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for ELA, Grade Three**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,003 | 342 | 26 | 53% | 22% | 25% |
| Male | 3,396 | 342 | 27 | 52% | 22% | 26% |
| Female | 1,607 | 341 | 26 | 54% | 22% | 24% |
| American Indian or Alaska Native | 26 | 353 | 24 | 31% | 35% | 35% |
| Asian | 392 | 336 | 24 | 63% | 23% | 15% |
| Native Hawaiian or Other Pacific Islander | 24 | 342 | 26 | 54% | 21% | 25% |
| Filipino | 117 | 334 | 24 | 62% | 25% | 14% |
| Hispanic or Latino | 2,906 | 343 | 27 | 51% | 22% | 27% |
| Black or African American | 364 | 340 | 26 | 54% | 23% | 23% |
| White | 956 | 342 | 27 | 52% | 22% | 26% |
| Two or more races | 218 | 339 | 27 | 56% | 21% | 24% |
| English only | 3,004 | 342 | 27 | 52% | 22% | 26% |
| Initial fluent English proficient | 47 | 337 | 23 | 66% | 21% | 13% |
| English learner | 1,804 | 342 | 26 | 52% | 23% | 25% |
| Reclassified fluent English proficient | 139 | 340 | 25 | 58% | 22% | 20% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,278 | 344 | 26 | 49% | 22% | 29% |
| Not economically disadvantaged | 1,725 | 336 | 26 | 60% | 22% | 19% |
| Migrant | 44 | 359 | 24 | 32% | 23% | 45% |
| Nonmigrant | 4,959 | 341 | 26 | 53% | 22% | 25% |
| Intellectual disability | 1,655 | 338 | 23 | 61% | 23% | 15% |
| Hearing impairment | 44 | 348 | 24 | 39% | 34% | 27% |
| Speech or language impairment | 217 | 358 | 20 | 24% | 29% | 47% |
| Visual impairment | 21 | 326 | 27 | 67% | 24% | 10% |
| Emotional disturbance | 29 | 362 | 25 | 28% | 7% | 66% |
| Orthopedic impairment | 224 | 331 | 30 | 64% | 17% | 19% |
| Other health impairment | 283 | 352 | 25 | 36% | 26% | 38% |
| Specific learning disability | 357 | 371 | 18 | 9% | 14% | 77% |
| Deaf–blindness | 2 | NA | NA | NA | NA | NA |
| Multiple disabilities | 245 | 320 | 24 | 84% | 9% | 7% |
| Autism | 1,907 | 340 | 25 | 55% | 24% | 22% |
| Traumatic brain injury | 18 | 343 | 29 | 50% | 11% | 39% |
| Not classified | 1 | NA | NA | NA | NA | NA |
| Using designated supports | 1,621 | 345 | 26 | 48% | 22% | 30% |
| No designated supports | 3,382 | 340 | 27 | 55% | 22% | 23% |
| Using accommodations | 1,400 | 342 | 27 | 52% | 22% | 26% |
| No accommodations | 3,603 | 341 | 26 | 53% | 22% | 25% |

**Table 10.A.19 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for ELA, Grade Three**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,102 | 340 | 25 | 51% | 28% | 21% |
| Male | 3,540 | 340 | 25 | 51% | 28% | 21% |
| Female | 1,562 | 340 | 25 | 51% | 28% | 22% |
| American Indian or Alaska Native | 34 | 342 | 26 | 38% | 32% | 29% |
| Asian | 398 | 336 | 23 | 58% | 29% | 14% |
| Native Hawaiian or Other Pacific Islander | 23 | 337 | 25 | 57% | 30% | 13% |
| Filipino | 131 | 336 | 24 | 54% | 34% | 11% |
| Hispanic or Latino | 2,921 | 340 | 25 | 50% | 28% | 22% |
| Black or African American | 388 | 340 | 25 | 52% | 26% | 22% |
| White | 957 | 340 | 26 | 51% | 24% | 24% |
| Two or more races | 250 | 338 | 24 | 51% | 32% | 17% |
| English only | 3,124 | 340 | 25 | 51% | 26% | 22% |
| Initial fluent English proficient | 36 | 332 | 26 | 58% | 33% | 8% |
| English learner | 1,764 | 341 | 24 | 49% | 30% | 21% |
| Reclassified fluent English proficient | 169 | 336 | 25 | 57% | 25% | 17% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,436 | 342 | 25 | 48% | 29% | 23% |
| Not economically disadvantaged | 1,666 | 336 | 25 | 58% | 25% | 17% |
| Migrant | 23 | 342 | 23 | 48% | 26% | 26% |
| Nonmigrant | 5,079 | 340 | 25 | 51% | 28% | 21% |
| Intellectual disability | 1,592 | 338 | 22 | 56% | 31% | 14% |
| Hearing impairment | 48 | 342 | 24 | 42% | 35% | 23% |
| Speech or language impairment | 205 | 357 | 18 | 19% | 34% | 48% |
| Visual impairment | 18 | 334 | 33 | 56% | 6% | 39% |
| Emotional disturbance | 23 | 361 | 14 | 17% | 35% | 48% |
| Orthopedic impairment | 172 | 326 | 27 | 67% | 21% | 12% |
| Other health impairment | 308 | 351 | 23 | 36% | 25% | 39% |
| Specific learning disability | 288 | 368 | 14 | 3% | 22% | 75% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 260 | 319 | 22 | 82% | 14% | 3% |
| Autism | 2,159 | 338 | 24 | 54% | 28% | 17% |
| Traumatic brain injury | 26 | 337 | 25 | 54% | 31% | 15% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 1,828 | 343 | 24 | 46% | 30% | 25% |
| No designated supports | 3,274 | 338 | 25 | 54% | 27% | 20% |
| Using accommodations | 1,571 | 341 | 24 | 50% | 28% | 22% |
| No accommodations | 3,531 | 339 | 25 | 51% | 28% | 21% |

**Table 10.A.20 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for ELA, Grade Four**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,267 | 437 | 22 | 59% | 29% | 11% |
| Male | 3,560 | 437 | 21 | 59% | 30% | 12% |
| Female | 1,707 | 435 | 22 | 61% | 28% | 10% |
| American Indian or Alaska Native | 37 | 439 | 26 | 54% | 32% | 14% |
| Asian | 389 | 431 | 22 | 70% | 23% | 7% |
| Native Hawaiian or Other Pacific Islander | 26 | 440 | 20 | 58% | 27% | 15% |
| Filipino | 148 | 433 | 20 | 71% | 23% | 6% |
| Hispanic or Latino | 3,095 | 438 | 21 | 57% | 31% | 12% |
| Black or African American | 412 | 436 | 23 | 60% | 29% | 11% |
| White | 970 | 437 | 22 | 60% | 27% | 12% |
| Two or more races | 190 | 436 | 24 | 59% | 28% | 13% |
| English only | 3,023 | 436 | 22 | 60% | 29% | 12% |
| Initial fluent English proficient | 59 | 430 | 22 | 73% | 17% | 10% |
| English learner | 2,024 | 437 | 21 | 59% | 30% | 11% |
| Reclassified fluent English proficient | 154 | 437 | 21 | 57% | 32% | 11% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,572 | 439 | 21 | 55% | 32% | 13% |
| Not economically disadvantaged | 1,695 | 432 | 22 | 68% | 24% | 8% |
| Migrant | 54 | 450 | 19 | 37% | 37% | 26% |
| Nonmigrant | 5,213 | 436 | 22 | 60% | 29% | 11% |
| Intellectual disability | 1,802 | 435 | 19 | 66% | 27% | 7% |
| Hearing impairment | 47 | 444 | 18 | 45% | 34% | 21% |
| Speech or language impairment | 195 | 451 | 15 | 30% | 44% | 26% |
| Visual impairment | 30 | 424 | 28 | 77% | 7% | 17% |
| Emotional disturbance | 23 | 456 | 15 | 22% | 39% | 39% |
| Orthopedic impairment | 268 | 426 | 25 | 72% | 20% | 8% |
| Other health impairment | 280 | 444 | 21 | 44% | 36% | 20% |
| Specific learning disability | 408 | 458 | 13 | 11% | 47% | 41% |
| Deaf–blindness | 6 | NA | NA | NA | NA | NA |
| Multiple disabilities | 285 | 417 | 20 | 88% | 11% | 1% |
| Autism | 1,835 | 435 | 21 | 63% | 28% | 8% |
| Traumatic brain injury | 33 | 436 | 27 | 52% | 27% | 21% |
| Not classified | 55 | 438 | 20 | 58% | 35% | 7% |
| Using designated supports | 1,313 | 440 | 21 | 54% | 31% | 15% |
| No designated supports | 3,954 | 435 | 22 | 61% | 28% | 10% |
| Using accommodations | 1,077 | 437 | 23 | 58% | 29% | 13% |
| No accommodations | 4,190 | 436 | 22 | 60% | 29% | 11% |

**Table 10.A.21 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for ELA, Grade Four**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,410 | 439 | 24 | 54% | 29% | 16% |
| Male | 3,699 | 439 | 24 | 54% | 30% | 17% |
| Female | 1,711 | 439 | 23 | 55% | 29% | 16% |
| American Indian or Alaska Native | 37 | 449 | 19 | 30% | 43% | 27% |
| Asian | 414 | 434 | 22 | 65% | 26% | 9% |
| Native Hawaiian or Other Pacific Islander | 25 | 426 | 21 | 76% | 24% | 0% |
| Filipino | 115 | 433 | 21 | 70% | 20% | 10% |
| Hispanic or Latino | 3,214 | 440 | 24 | 52% | 30% | 18% |
| Black or African American | 402 | 438 | 22 | 52% | 35% | 13% |
| White | 1,010 | 438 | 24 | 55% | 29% | 17% |
| Two or more races | 193 | 437 | 23 | 59% | 28% | 13% |
| English only | 3,166 | 438 | 24 | 55% | 29% | 16% |
| Initial fluent English proficient | 37 | 433 | 23 | 65% | 24% | 11% |
| English learner | 1,983 | 440 | 23 | 52% | 30% | 17% |
| Reclassified fluent English proficient | 215 | 440 | 23 | 52% | 34% | 14% |
| To be determined | 5 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,566 | 441 | 23 | 49% | 32% | 19% |
| Not economically disadvantaged | 1,844 | 434 | 23 | 64% | 25% | 11% |
| Migrant | 36 | 453 | 25 | 39% | 17% | 44% |
| Nonmigrant | 5,374 | 439 | 23 | 54% | 30% | 16% |
| Intellectual disability | 1,831 | 436 | 21 | 61% | 30% | 9% |
| Hearing impairment | 48 | 445 | 21 | 35% | 46% | 19% |
| Speech or language impairment | 200 | 452 | 17 | 21% | 51% | 29% |
| Visual impairment | 31 | 420 | 24 | 74% | 16% | 10% |
| Emotional disturbance | 32 | 458 | 16 | 19% | 34% | 47% |
| Orthopedic impairment | 240 | 427 | 26 | 70% | 20% | 10% |
| Other health impairment | 309 | 446 | 24 | 39% | 34% | 27% |
| Specific learning disability | 454 | 463 | 15 | 8% | 32% | 60% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 279 | 418 | 21 | 86% | 13% | 1% |
| Autism | 1,958 | 437 | 22 | 58% | 29% | 13% |
| Traumatic brain injury | 25 | 438 | 23 | 44% | 36% | 20% |
| Not classified | 3 | NA | NA | NA | NA | NA |
| Using designated supports | 1,939 | 442 | 23 | 49% | 31% | 20% |
| No designated supports | 3,471 | 437 | 24 | 57% | 28% | 15% |
| Using accommodations | 1,591 | 440 | 23 | 53% | 29% | 18% |
| No accommodations | 3,819 | 438 | 24 | 55% | 30% | 16% |

**Table 10.A.22 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for ELA, Grade Four**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,324 | 438 | 23 | 55% | 27% | 18% |
| Male | 3,600 | 439 | 23 | 54% | 27% | 19% |
| Female | 1,724 | 438 | 22 | 57% | 26% | 18% |
| American Indian or Alaska Native | 30 | 448 | 22 | 37% | 33% | 30% |
| Asian | 419 | 434 | 21 | 64% | 26% | 10% |
| Native Hawaiian or Other Pacific Islander | 29 | 440 | 17 | 55% | 34% | 10% |
| Filipino | 126 | 429 | 23 | 63% | 29% | 8% |
| Hispanic or Latino | 3,049 | 439 | 23 | 53% | 28% | 19% |
| Black or African American | 418 | 437 | 23 | 59% | 25% | 16% |
| White | 1,020 | 439 | 23 | 55% | 24% | 21% |
| Two or more races | 233 | 434 | 24 | 60% | 21% | 18% |
| English only | 3,217 | 438 | 23 | 55% | 26% | 19% |
| Initial fluent English proficient | 48 | 434 | 22 | 67% | 23% | 10% |
| English learner | 1,792 | 438 | 22 | 55% | 28% | 17% |
| Reclassified fluent English proficient | 259 | 440 | 21 | 51% | 34% | 15% |
| To be determined | 5 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,602 | 440 | 22 | 51% | 29% | 20% |
| Not economically disadvantaged | 1,722 | 434 | 23 | 63% | 22% | 14% |
| Migrant | 43 | 445 | 20 | 40% | 42% | 19% |
| Nonmigrant | 5,281 | 438 | 23 | 55% | 27% | 18% |
| Intellectual disability | 1,786 | 436 | 20 | 62% | 26% | 11% |
| Hearing impairment | 53 | 446 | 22 | 30% | 42% | 28% |
| Speech or language impairment | 187 | 453 | 16 | 22% | 36% | 41% |
| Visual impairment | 22 | 431 | 29 | 64% | 23% | 14% |
| Emotional disturbance | 29 | 458 | 19 | 17% | 24% | 59% |
| Orthopedic impairment | 217 | 429 | 26 | 67% | 18% | 15% |
| Other health impairment | 308 | 447 | 21 | 38% | 31% | 31% |
| Specific learning disability | 394 | 461 | 14 | 8% | 33% | 59% |
| Deaf–blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 276 | 418 | 21 | 84% | 12% | 4% |
| Autism | 2,030 | 436 | 22 | 59% | 27% | 14% |
| Traumatic brain injury | 21 | 440 | 23 | 52% | 33% | 14% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,178 | 441 | 22 | 49% | 29% | 22% |
| No designated supports | 3,146 | 436 | 23 | 59% | 25% | 16% |
| Using accommodations | 1,849 | 439 | 23 | 54% | 28% | 19% |
| No accommodations | 3,475 | 438 | 23 | 56% | 26% | 18% |

**Table 10.A.23 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for ELA, Grade Five**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,098 | 537 | 21 | 57% | 35% | 9% |
| Male | 3,440 | 537 | 21 | 56% | 35% | 9% |
| Female | 1,658 | 536 | 20 | 59% | 34% | 7% |
| American Indian or Alaska Native | 45 | 545 | 18 | 36% | 47% | 18% |
| Asian | 356 | 531 | 21 | 66% | 30% | 4% |
| Native Hawaiian or Other Pacific Islander | 31 | 532 | 23 | 65% | 29% | 6% |
| Filipino | 138 | 534 | 19 | 70% | 28% | 3% |
| Hispanic or Latino | 2,953 | 538 | 21 | 55% | 36% | 8% |
| Black or African American | 408 | 538 | 20 | 58% | 32% | 10% |
| White | 1,002 | 537 | 21 | 56% | 34% | 10% |
| Two or more races | 165 | 535 | 20 | 61% | 31% | 8% |
| English only | 2,968 | 537 | 21 | 57% | 34% | 9% |
| Initial fluent English proficient | 76 | 531 | 20 | 68% | 29% | 3% |
| English learner | 1,865 | 538 | 20 | 56% | 36% | 8% |
| Reclassified fluent English proficient | 177 | 537 | 21 | 56% | 36% | 7% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 8 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,411 | 539 | 20 | 53% | 37% | 10% |
| Not economically disadvantaged | 1,687 | 532 | 21 | 65% | 29% | 6% |
| Migrant | 26 | 545 | 21 | 35% | 54% | 12% |
| Nonmigrant | 5,072 | 537 | 21 | 57% | 35% | 9% |
| Intellectual disability | 1,889 | 536 | 19 | 63% | 32% | 5% |
| Hearing impairment | 50 | 541 | 18 | 48% | 46% | 6% |
| Speech or language impairment | 178 | 551 | 12 | 22% | 58% | 20% |
| Visual impairment | 31 | 525 | 22 | 74% | 26% | 0% |
| Emotional disturbance | 25 | 553 | 16 | 20% | 48% | 32% |
| Orthopedic impairment | 271 | 526 | 24 | 72% | 20% | 8% |
| Other health impairment | 254 | 545 | 19 | 39% | 43% | 18% |
| Specific learning disability | 371 | 556 | 12 | 12% | 57% | 32% |
| Deaf–blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 215 | 518 | 21 | 85% | 14% | 1% |
| Autism | 1,734 | 535 | 20 | 60% | 34% | 6% |
| Traumatic brain injury | 31 | 535 | 24 | 61% | 29% | 10% |
| Not classified | 48 | 538 | 21 | 56% | 40% | 4% |
| Using designated supports | 1,431 | 540 | 20 | 50% | 39% | 11% |
| No designated supports | 3,667 | 536 | 21 | 59% | 33% | 8% |
| Using accommodations | 1,183 | 538 | 21 | 57% | 32% | 10% |
| No accommodations | 3,915 | 537 | 21 | 57% | 35% | 8% |

**Table 10.A.24 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for ELA, Grade Five**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,533 | 538 | 23 | 54% | 32% | 14% |
| Male | 3,729 | 539 | 22 | 52% | 33% | 15% |
| Female | 1,804 | 536 | 23 | 57% | 30% | 12% |
| American Indian or Alaska Native | 33 | 541 | 25 | 48% | 30% | 21% |
| Asian | 431 | 533 | 22 | 62% | 29% | 9% |
| Native Hawaiian or Other Pacific Islander | 31 | 536 | 24 | 61% | 32% | 6% |
| Filipino | 147 | 535 | 21 | 61% | 32% | 7% |
| Hispanic or Latino | 3,257 | 539 | 22 | 52% | 33% | 15% |
| Black or African American | 439 | 536 | 23 | 55% | 34% | 11% |
| White | 1,009 | 538 | 23 | 56% | 30% | 15% |
| Two or more races | 186 | 537 | 23 | 55% | 32% | 13% |
| English only | 3,157 | 538 | 23 | 55% | 32% | 14% |
| Initial fluent English proficient | 53 | 529 | 21 | 75% | 21% | 4% |
| English learner | 2,040 | 539 | 22 | 53% | 33% | 14% |
| Reclassified fluent English proficient | 277 | 540 | 22 | 50% | 34% | 16% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,690 | 540 | 22 | 50% | 34% | 16% |
| Not economically disadvantaged | 1,843 | 534 | 23 | 62% | 29% | 9% |
| Migrant | 50 | 549 | 21 | 42% | 28% | 30% |
| Nonmigrant | 5,483 | 538 | 23 | 54% | 32% | 14% |
| Intellectual disability | 1,932 | 536 | 20 | 61% | 31% | 8% |
| Hearing impairment | 48 | 544 | 17 | 42% | 46% | 13% |
| Speech or language impairment | 156 | 552 | 15 | 26% | 49% | 24% |
| Visual impairment | 28 | 525 | 23 | 71% | 21% | 7% |
| Emotional disturbance | 36 | 549 | 26 | 42% | 22% | 36% |
| Orthopedic impairment | 261 | 525 | 26 | 69% | 21% | 9% |
| Other health impairment | 274 | 545 | 21 | 34% | 43% | 23% |
| Specific learning disability | 524 | 560 | 15 | 10% | 42% | 48% |
| Deaf–blindness | 7 | NA | NA | NA | NA | NA |
| Multiple disabilities | 311 | 517 | 21 | 86% | 12% | 3% |
| Autism | 1,916 | 537 | 22 | 57% | 33% | 11% |
| Traumatic brain injury | 34 | 535 | 26 | 50% | 38% | 12% |
| Not classified | 6 | NA | NA | NA | NA | NA |
| Using designated supports | 2,072 | 541 | 21 | 49% | 35% | 16% |
| No designated supports | 3,461 | 536 | 23 | 57% | 30% | 13% |
| Using accommodations | 1,674 | 539 | 22 | 54% | 33% | 13% |
| No accommodations | 3,859 | 538 | 23 | 54% | 32% | 14% |

**Table 10.A.25 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for ELA, Grade Five**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,330 | 539 | 23 | 51% | 30% | 19% |
| Male | 3,643 | 539 | 23 | 51% | 30% | 19% |
| Female | 1,687 | 538 | 22 | 53% | 30% | 17% |
| American Indian or Alaska Native | 32 | 549 | 21 | 31% | 38% | 31% |
| Asian | 412 | 535 | 22 | 60% | 28% | 12% |
| Native Hawaiian or Other Pacific Islander | 27 | 532 | 24 | 56% | 37% | 7% |
| Filipino | 130 | 535 | 22 | 59% | 32% | 9% |
| Hispanic or Latino | 3,098 | 540 | 23 | 49% | 31% | 20% |
| Black or African American | 397 | 540 | 22 | 52% | 31% | 17% |
| White | 1,035 | 538 | 24 | 53% | 27% | 20% |
| Two or more races | 199 | 536 | 24 | 56% | 28% | 16% |
| English only | 3,095 | 538 | 23 | 52% | 29% | 19% |
| Initial fluent English proficient | 40 | 534 | 21 | 68% | 23% | 10% |
| English learner | 1,844 | 539 | 22 | 51% | 31% | 18% |
| Reclassified fluent English proficient | 342 | 543 | 22 | 41% | 37% | 23% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,548 | 541 | 22 | 47% | 32% | 21% |
| Not economically disadvantaged | 1,782 | 535 | 23 | 59% | 27% | 14% |
| Migrant | 30 | 547 | 20 | 37% | 30% | 33% |
| Nonmigrant | 5,300 | 539 | 23 | 51% | 30% | 18% |
| Intellectual disability | 1,893 | 537 | 21 | 56% | 31% | 13% |
| Hearing impairment | 41 | 545 | 21 | 32% | 49% | 20% |
| Speech or language impairment | 168 | 555 | 12 | 14% | 50% | 36% |
| Visual impairment | 24 | 522 | 26 | 71% | 17% | 13% |
| Emotional disturbance | 34 | 554 | 16 | 26% | 35% | 38% |
| Orthopedic impairment | 242 | 525 | 25 | 71% | 18% | 11% |
| Other health impairment | 273 | 547 | 22 | 38% | 33% | 30% |
| Specific learning disability | 397 | 560 | 13 | 10% | 35% | 55% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 293 | 520 | 22 | 82% | 15% | 3% |
| Autism | 1,944 | 538 | 22 | 54% | 30% | 16% |
| Traumatic brain injury | 21 | 543 | 26 | 38% | 29% | 33% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,372 | 541 | 22 | 48% | 30% | 22% |
| No designated supports | 2,958 | 537 | 23 | 54% | 30% | 16% |
| Using accommodations | 1,950 | 539 | 22 | 53% | 28% | 19% |
| No accommodations | 3,380 | 539 | 23 | 51% | 31% | 18% |

**Table 10.A.26 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for ELA, Grade Six**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,116 | 637 | 20 | 54% | 38% | 8% |
| Male | 3,436 | 638 | 20 | 53% | 39% | 8% |
| Female | 1,680 | 637 | 20 | 56% | 37% | 7% |
| American Indian or Alaska Native | 38 | 642 | 19 | 39% | 47% | 13% |
| Asian | 392 | 635 | 20 | 60% | 34% | 5% |
| Native Hawaiian or Other Pacific Islander | 21 | 628 | 22 | 67% | 33% | 0% |
| Filipino | 149 | 637 | 20 | 55% | 38% | 7% |
| Hispanic or Latino | 2,952 | 638 | 20 | 53% | 39% | 8% |
| Black or African American | 400 | 637 | 19 | 57% | 39% | 5% |
| White | 1,031 | 637 | 21 | 54% | 37% | 9% |
| Two or more races | 133 | 635 | 21 | 62% | 34% | 5% |
| English only | 2,982 | 637 | 20 | 55% | 37% | 8% |
| Initial fluent English proficient | 83 | 634 | 22 | 63% | 30% | 7% |
| English learner | 1,779 | 637 | 20 | 54% | 39% | 7% |
| Reclassified fluent English proficient | 262 | 641 | 18 | 48% | 43% | 10% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 8 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,413 | 639 | 19 | 50% | 41% | 9% |
| Not economically disadvantaged | 1,703 | 633 | 21 | 62% | 32% | 6% |
| Migrant | 36 | 650 | 14 | 33% | 44% | 22% |
| Nonmigrant | 5,080 | 637 | 20 | 54% | 38% | 8% |
| Intellectual disability | 1,960 | 637 | 18 | 58% | 37% | 5% |
| Hearing impairment | 57 | 641 | 17 | 40% | 58% | 2% |
| Speech or language impairment | 139 | 651 | 9 | 14% | 68% | 17% |
| Visual impairment | 34 | 618 | 24 | 74% | 21% | 6% |
| Emotional disturbance | 32 | 650 | 16 | 16% | 59% | 25% |
| Orthopedic impairment | 258 | 625 | 23 | 73% | 22% | 5% |
| Other health impairment | 261 | 645 | 17 | 37% | 51% | 12% |
| Specific learning disability | 342 | 655 | 10 | 11% | 61% | 28% |
| Deaf–blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 256 | 619 | 22 | 84% | 13% | 3% |
| Autism | 1,700 | 636 | 20 | 59% | 35% | 6% |
| Traumatic brain injury | 22 | 645 | 20 | 36% | 41% | 23% |
| Not classified | 50 | 637 | 19 | 52% | 48% | 0% |
| Using designated supports | 1,306 | 640 | 20 | 50% | 39% | 11% |
| No designated supports | 3,810 | 637 | 20 | 56% | 38% | 7% |
| Using accommodations | 1,048 | 638 | 21 | 54% | 36% | 10% |
| No accommodations | 4,068 | 637 | 20 | 55% | 38% | 7% |

**Table 10.A.27 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for ELA, Grade Six**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,336 | 638 | 20 | 54% | 37% | 9% |
| Male | 3,618 | 638 | 20 | 54% | 38% | 9% |
| Female | 1,718 | 638 | 20 | 55% | 37% | 8% |
| American Indian or Alaska Native | 29 | 645 | 20 | 31% | 55% | 14% |
| Asian | 387 | 633 | 20 | 65% | 32% | 4% |
| Native Hawaiian or Other Pacific Islander | 26 | 635 | 22 | 50% | 46% | 4% |
| Filipino | 145 | 635 | 18 | 68% | 30% | 3% |
| Hispanic or Latino | 3,096 | 638 | 20 | 53% | 39% | 9% |
| Black or African American | 457 | 639 | 18 | 55% | 36% | 8% |
| White | 1,015 | 639 | 20 | 53% | 36% | 11% |
| Two or more races | 181 | 637 | 20 | 58% | 33% | 9% |
| English only | 3,054 | 638 | 20 | 54% | 37% | 9% |
| Initial fluent English proficient | 80 | 633 | 19 | 73% | 24% | 4% |
| English learner | 1,915 | 638 | 19 | 54% | 38% | 8% |
| Reclassified fluent English proficient | 283 | 640 | 19 | 51% | 41% | 8% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,441 | 640 | 19 | 50% | 40% | 10% |
| Not economically disadvantaged | 1,895 | 634 | 20 | 62% | 32% | 6% |
| Migrant | 34 | 642 | 20 | 41% | 47% | 12% |
| Nonmigrant | 5,302 | 638 | 20 | 54% | 37% | 9% |
| Intellectual disability | 2,030 | 637 | 18 | 60% | 35% | 5% |
| Hearing impairment | 52 | 638 | 16 | 60% | 40% | 0% |
| Speech or language impairment | 136 | 651 | 10 | 20% | 61% | 19% |
| Visual impairment | 20 | 629 | 22 | 75% | 20% | 5% |
| Emotional disturbance | 41 | 649 | 16 | 27% | 46% | 27% |
| Orthopedic impairment | 264 | 627 | 23 | 69% | 27% | 4% |
| Other health impairment | 274 | 647 | 17 | 29% | 55% | 15% |
| Specific learning disability | 440 | 656 | 9 | 8% | 60% | 32% |
| Deaf–blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 258 | 620 | 22 | 81% | 17% | 2% |
| Autism | 1,794 | 637 | 19 | 59% | 35% | 6% |
| Traumatic brain injury | 23 | 628 | 24 | 61% | 30% | 9% |
| Not classified | 3 | NA | NA | NA | NA | NA |
| Using designated supports | 1,985 | 641 | 19 | 48% | 41% | 11% |
| No designated supports | 3,351 | 637 | 20 | 58% | 35% | 7% |
| Using accommodations | 1,564 | 638 | 20 | 53% | 37% | 9% |
| No accommodations | 3,772 | 638 | 20 | 55% | 37% | 8% |

**Table 10.A.28 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for ELA, Grade Six**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,386 | 639 | 20 | 54% | 35% | 11% |
| Male | 3,606 | 640 | 20 | 52% | 36% | 12% |
| Female | 1,780 | 637 | 21 | 59% | 31% | 10% |
| American Indian or Alaska Native | 29 | 639 | 23 | 52% | 24% | 24% |
| Asian | 415 | 635 | 20 | 65% | 29% | 6% |
| Native Hawaiian or Other Pacific Islander | 25 | 634 | 24 | 64% | 20% | 16% |
| Filipino | 139 | 636 | 19 | 69% | 23% | 8% |
| Hispanic or Latino | 3,188 | 639 | 20 | 52% | 37% | 11% |
| Black or African American | 433 | 639 | 20 | 56% | 35% | 10% |
| White | 970 | 639 | 21 | 53% | 33% | 14% |
| Two or more races | 187 | 636 | 21 | 59% | 33% | 9% |
| English only | 3,071 | 639 | 20 | 53% | 35% | 12% |
| Initial fluent English proficient | 57 | 634 | 20 | 65% | 32% | 4% |
| English learner | 1,801 | 638 | 20 | 56% | 33% | 10% |
| Reclassified fluent English proficient | 450 | 639 | 19 | 51% | 41% | 9% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,643 | 640 | 20 | 51% | 37% | 12% |
| Not economically disadvantaged | 1,743 | 636 | 21 | 61% | 30% | 9% |
| Migrant | 33 | 646 | 18 | 45% | 39% | 15% |
| Nonmigrant | 5,353 | 639 | 20 | 54% | 35% | 11% |
| Intellectual disability | 1,997 | 638 | 18 | 59% | 34% | 7% |
| Hearing impairment | 63 | 643 | 15 | 49% | 41% | 10% |
| Speech or language impairment | 118 | 652 | 11 | 23% | 53% | 24% |
| Visual impairment | 23 | 629 | 20 | 78% | 17% | 4% |
| Emotional disturbance | 34 | 653 | 16 | 26% | 32% | 41% |
| Orthopedic impairment | 243 | 627 | 24 | 71% | 19% | 9% |
| Other health impairment | 263 | 646 | 20 | 36% | 42% | 22% |
| Specific learning disability | 384 | 656 | 11 | 14% | 49% | 38% |
| Deaf–blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 320 | 619 | 21 | 86% | 12% | 3% |
| Autism | 1,901 | 639 | 19 | 55% | 36% | 9% |
| Traumatic brain injury | 35 | 635 | 25 | 54% | 34% | 11% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,262 | 641 | 19 | 51% | 36% | 13% |
| No designated supports | 3,124 | 637 | 21 | 57% | 34% | 10% |
| Using accommodations | 1,851 | 639 | 19 | 55% | 34% | 10% |
| No accommodations | 3,535 | 639 | 20 | 54% | 35% | 11% |

**Table 10.A.29 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for ELA, Grade Seven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,123 | 736 | 21 | 57% | 35% | 8% |
| Male | 3,401 | 736 | 21 | 57% | 34% | 9% |
| Female | 1,722 | 735 | 22 | 57% | 36% | 7% |
| American Indian or Alaska Native | 32 | 743 | 24 | 41% | 41% | 19% |
| Asian | 400 | 733 | 21 | 64% | 30% | 6% |
| Native Hawaiian or Other Pacific Islander | 25 | 734 | 23 | 52% | 40% | 8% |
| Filipino | 178 | 734 | 20 | 61% | 36% | 3% |
| Hispanic or Latino | 2,794 | 736 | 21 | 56% | 36% | 8% |
| Black or African American | 429 | 734 | 22 | 59% | 34% | 7% |
| White | 1,101 | 737 | 22 | 56% | 34% | 10% |
| Two or more races | 164 | 736 | 23 | 53% | 35% | 12% |
| English only | 3,018 | 736 | 22 | 57% | 35% | 9% |
| Initial fluent English proficient | 73 | 729 | 22 | 71% | 26% | 3% |
| English learner | 1,701 | 735 | 21 | 57% | 36% | 7% |
| Reclassified fluent English proficient | 323 | 739 | 21 | 52% | 36% | 12% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,342 | 738 | 21 | 53% | 37% | 10% |
| Not economically disadvantaged | 1,781 | 732 | 22 | 63% | 31% | 6% |
| Migrant | 34 | 747 | 15 | 29% | 56% | 15% |
| Nonmigrant | 5,089 | 736 | 21 | 57% | 35% | 8% |
| Intellectual disability | 2,008 | 736 | 20 | 58% | 36% | 6% |
| Hearing impairment | 38 | 739 | 19 | 47% | 50% | 3% |
| Speech or language impairment | 122 | 750 | 11 | 25% | 61% | 13% |
| Visual impairment | 45 | 722 | 24 | 76% | 20% | 4% |
| Emotional disturbance | 32 | 750 | 21 | 25% | 53% | 22% |
| Orthopedic impairment | 255 | 721 | 24 | 75% | 20% | 5% |
| Other health impairment | 233 | 743 | 20 | 36% | 49% | 14% |
| Specific learning disability | 318 | 753 | 13 | 20% | 55% | 25% |
| Deaf–blindness | 6 | NA | NA | NA | NA | NA |
| Multiple disabilities | 301 | 720 | 23 | 80% | 17% | 3% |
| Autism | 1,709 | 735 | 21 | 60% | 32% | 8% |
| Traumatic brain injury | 24 | 739 | 25 | 46% | 38% | 17% |
| Not classified | 32 | 728 | 24 | 69% | 22% | 9% |
| Using designated supports | 1,327 | 739 | 21 | 52% | 38% | 10% |
| No designated supports | 3,796 | 735 | 22 | 58% | 34% | 8% |
| Using accommodations | 1,035 | 736 | 21 | 56% | 35% | 9% |
| No accommodations | 4,088 | 736 | 21 | 57% | 35% | 8% |

**Table 10.A.30 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for ELA, Grade Seven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,288 | 736 | 22 | 59% | 28% | 13% |
| Male | 3,557 | 737 | 22 | 58% | 29% | 13% |
| Female | 1,731 | 736 | 22 | 61% | 26% | 13% |
| American Indian or Alaska Native | 32 | 743 | 23 | 47% | 31% | 22% |
| Asian | 425 | 733 | 21 | 68% | 24% | 8% |
| Native Hawaiian or Other Pacific Islander | 18 | 726 | 25 | 78% | 11% | 11% |
| Filipino | 151 | 737 | 23 | 57% | 30% | 13% |
| Hispanic or Latino | 3,029 | 737 | 22 | 57% | 29% | 13% |
| Black or African American | 414 | 736 | 22 | 60% | 28% | 12% |
| White | 1,070 | 737 | 23 | 58% | 27% | 15% |
| Two or more races | 149 | 734 | 22 | 64% | 24% | 12% |
| English only | 3,043 | 737 | 22 | 58% | 28% | 14% |
| Initial fluent English proficient | 83 | 732 | 23 | 64% | 27% | 10% |
| English learner | 1,808 | 736 | 22 | 60% | 28% | 12% |
| Reclassified fluent English proficient | 347 | 739 | 21 | 59% | 27% | 15% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,416 | 738 | 22 | 55% | 31% | 14% |
| Not economically disadvantaged | 1,872 | 734 | 23 | 65% | 24% | 11% |
| Migrant | 30 | 747 | 14 | 33% | 53% | 13% |
| Nonmigrant | 5,258 | 736 | 22 | 59% | 28% | 13% |
| Intellectual disability | 2,103 | 736 | 20 | 61% | 29% | 10% |
| Hearing impairment | 51 | 739 | 16 | 57% | 37% | 6% |
| Speech or language impairment | 111 | 750 | 16 | 32% | 39% | 29% |
| Visual impairment | 29 | 721 | 26 | 79% | 7% | 14% |
| Emotional disturbance | 25 | 749 | 13 | 32% | 52% | 16% |
| Orthopedic impairment | 241 | 726 | 25 | 72% | 20% | 8% |
| Other health impairment | 278 | 745 | 21 | 42% | 34% | 24% |
| Specific learning disability | 385 | 756 | 16 | 20% | 39% | 41% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 269 | 717 | 21 | 86% | 12% | 2% |
| Autism | 1,764 | 735 | 21 | 63% | 27% | 11% |
| Traumatic brain injury | 20 | 740 | 19 | 50% | 40% | 10% |
| Not classified | 9 | NA | NA | NA | NA | NA |
| Using designated supports | 1,799 | 740 | 22 | 52% | 31% | 17% |
| No designated supports | 3,489 | 735 | 22 | 62% | 27% | 11% |
| Using accommodations | 1,468 | 737 | 22 | 59% | 29% | 12% |
| No accommodations | 3,820 | 736 | 22 | 59% | 28% | 13% |

**Table 10.A.31 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for ELA, Grade Seven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,383 | 738 | 23 | 55% | 27% | 18% |
| Male | 3,630 | 739 | 23 | 55% | 26% | 19% |
| Female | 1,753 | 738 | 23 | 55% | 29% | 16% |
| American Indian or Alaska Native | 33 | 747 | 22 | 30% | 36% | 33% |
| Asian | 402 | 733 | 22 | 67% | 24% | 9% |
| Native Hawaiian or Other Pacific Islander | 29 | 744 | 23 | 38% | 38% | 24% |
| Filipino | 152 | 737 | 22 | 61% | 24% | 16% |
| Hispanic or Latino | 3,097 | 738 | 23 | 55% | 27% | 17% |
| Black or African American | 464 | 739 | 23 | 55% | 25% | 20% |
| White | 994 | 741 | 23 | 51% | 27% | 22% |
| Two or more races | 212 | 739 | 23 | 53% | 28% | 19% |
| English only | 3,104 | 739 | 23 | 54% | 27% | 19% |
| Initial fluent English proficient | 83 | 729 | 22 | 76% | 18% | 6% |
| English learner | 1,721 | 737 | 22 | 58% | 27% | 15% |
| Reclassified fluent English proficient | 467 | 741 | 22 | 50% | 28% | 21% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,591 | 740 | 22 | 53% | 28% | 20% |
| Not economically disadvantaged | 1,792 | 735 | 23 | 60% | 25% | 15% |
| Migrant | 36 | 742 | 24 | 42% | 33% | 25% |
| Nonmigrant | 5,347 | 738 | 23 | 55% | 27% | 18% |
| Intellectual disability | 2,090 | 736 | 21 | 62% | 25% | 13% |
| Hearing impairment | 47 | 744 | 17 | 43% | 45% | 13% |
| Speech or language impairment | 109 | 752 | 17 | 29% | 39% | 31% |
| Visual impairment | 18 | 727 | 22 | 61% | 33% | 6% |
| Emotional disturbance | 48 | 754 | 18 | 29% | 27% | 44% |
| Orthopedic impairment | 235 | 727 | 25 | 69% | 19% | 11% |
| Other health impairment | 300 | 750 | 21 | 29% | 37% | 34% |
| Specific learning disability | 422 | 757 | 16 | 16% | 35% | 49% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 266 | 720 | 23 | 81% | 14% | 5% |
| Autism | 1,821 | 737 | 22 | 58% | 27% | 15% |
| Traumatic brain injury | 27 | 732 | 23 | 63% | 30% | 7% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,364 | 740 | 22 | 52% | 28% | 19% |
| No designated supports | 3,019 | 737 | 23 | 58% | 26% | 17% |
| Using accommodations | 1,913 | 738 | 22 | 57% | 26% | 17% |
| No accommodations | 3,470 | 739 | 23 | 54% | 27% | 18% |

**Table 10.A.32 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for ELA, Grade Eight**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,755 | 838 | 21 | 47% | 44% | 9% |
| Male | 3,157 | 838 | 21 | 48% | 44% | 9% |
| Female | 1,598 | 838 | 21 | 46% | 44% | 9% |
| American Indian or Alaska Native | 43 | 845 | 22 | 28% | 47% | 26% |
| Asian | 372 | 835 | 21 | 56% | 40% | 4% |
| Native Hawaiian or Other Pacific Islander | 21 | 830 | 22 | 67% | 33% | 0% |
| Filipino | 149 | 834 | 22 | 56% | 38% | 6% |
| Hispanic or Latino | 2,580 | 839 | 21 | 46% | 46% | 9% |
| Black or African American | 416 | 839 | 21 | 47% | 44% | 9% |
| White | 1,060 | 839 | 22 | 46% | 43% | 11% |
| Two or more races | 114 | 838 | 22 | 51% | 38% | 11% |
| English only | 2,774 | 838 | 21 | 47% | 44% | 9% |
| Initial fluent English proficient | 87 | 836 | 21 | 45% | 53% | 2% |
| English learner | 1,564 | 838 | 21 | 47% | 44% | 9% |
| Reclassified fluent English proficient | 325 | 840 | 19 | 48% | 43% | 8% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,118 | 840 | 20 | 44% | 46% | 10% |
| Not economically disadvantaged | 1,637 | 835 | 22 | 53% | 40% | 7% |
| Migrant | 20 | 848 | 7 | 30% | 70% | 0% |
| Nonmigrant | 4,735 | 838 | 21 | 47% | 44% | 9% |
| Intellectual disability | 1,992 | 839 | 19 | 46% | 46% | 8% |
| Hearing impairment | 53 | 841 | 18 | 42% | 51% | 8% |
| Speech or language impairment | 73 | 850 | 16 | 29% | 55% | 16% |
| Visual impairment | 38 | 821 | 24 | 74% | 24% | 3% |
| Emotional disturbance | 29 | 849 | 17 | 28% | 45% | 28% |
| Orthopedic impairment | 283 | 828 | 26 | 63% | 28% | 9% |
| Other health impairment | 210 | 846 | 19 | 32% | 48% | 20% |
| Specific learning disability | 262 | 854 | 11 | 11% | 59% | 30% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 232 | 822 | 23 | 74% | 23% | 3% |
| Autism | 1,516 | 837 | 20 | 50% | 43% | 6% |
| Traumatic brain injury | 25 | 843 | 18 | 36% | 60% | 4% |
| Not classified | 42 | 831 | 22 | 62% | 38% | 0% |
| Using designated supports | 1,190 | 841 | 20 | 40% | 48% | 12% |
| No designated supports | 3,565 | 837 | 21 | 49% | 42% | 8% |
| Using accommodations | 954 | 839 | 21 | 43% | 47% | 10% |
| No accommodations | 3,801 | 838 | 21 | 48% | 43% | 9% |

**Table 10.A.33 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for ELA, Grade Eight**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,247 | 840 | 21 | 38% | 50% | 11% |
| Male | 3,494 | 840 | 21 | 38% | 50% | 12% |
| Female | 1,753 | 839 | 22 | 40% | 50% | 10% |
| American Indian or Alaska Native | 39 | 847 | 17 | 21% | 64% | 15% |
| Asian | 410 | 836 | 23 | 44% | 48% | 8% |
| Native Hawaiian or Other Pacific Islander | 21 | 843 | 20 | 38% | 52% | 10% |
| Filipino | 179 | 838 | 21 | 41% | 50% | 9% |
| Hispanic or Latino | 2,849 | 840 | 21 | 37% | 52% | 11% |
| Black or African American | 456 | 839 | 22 | 40% | 49% | 11% |
| White | 1,114 | 840 | 22 | 41% | 46% | 13% |
| Two or more races | 179 | 841 | 21 | 35% | 52% | 13% |
| English only | 3,083 | 840 | 22 | 39% | 49% | 12% |
| Initial fluent English proficient | 83 | 834 | 21 | 55% | 40% | 5% |
| English learner | 1,690 | 840 | 21 | 37% | 53% | 10% |
| Reclassified fluent English proficient | 384 | 841 | 21 | 35% | 53% | 12% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,301 | 842 | 20 | 34% | 53% | 12% |
| Not economically disadvantaged | 1,946 | 836 | 23 | 46% | 45% | 9% |
| Migrant | 34 | 849 | 16 | 24% | 59% | 18% |
| Nonmigrant | 5,213 | 840 | 21 | 39% | 50% | 11% |
| Intellectual disability | 2,075 | 840 | 20 | 38% | 54% | 8% |
| Hearing impairment | 50 | 846 | 14 | 30% | 58% | 12% |
| Speech or language impairment | 95 | 853 | 11 | 18% | 57% | 25% |
| Visual impairment | 38 | 828 | 26 | 55% | 34% | 11% |
| Emotional disturbance | 33 | 850 | 19 | 18% | 55% | 27% |
| Orthopedic impairment | 237 | 826 | 24 | 65% | 29% | 5% |
| Other health impairment | 240 | 845 | 19 | 28% | 53% | 19% |
| Specific learning disability | 358 | 856 | 11 | 8% | 60% | 32% |
| Deaf–blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 316 | 821 | 24 | 69% | 27% | 3% |
| Autism | 1,775 | 840 | 21 | 39% | 51% | 10% |
| Traumatic brain injury | 24 | 844 | 22 | 29% | 50% | 21% |
| Not classified | 1 | NA | NA | NA | NA | NA |
| Using designated supports | 1,814 | 843 | 21 | 32% | 54% | 14% |
| No designated supports | 3,433 | 838 | 22 | 42% | 49% | 10% |
| Using accommodations | 1,490 | 841 | 21 | 35% | 53% | 12% |
| No accommodations | 3,757 | 839 | 22 | 40% | 49% | 11% |

**Table 10.A.34 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for ELA, Grade Eight**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,238 | 840 | 21 | 48% | 39% | 13% |
| Male | 3,531 | 840 | 21 | 48% | 38% | 14% |
| Female | 1,707 | 839 | 21 | 49% | 40% | 11% |
| American Indian or Alaska Native | 31 | 843 | 24 | 35% | 39% | 26% |
| Asian | 437 | 837 | 20 | 57% | 36% | 7% |
| Native Hawaiian or Other Pacific Islander | 24 | 835 | 22 | 54% | 42% | 4% |
| Filipino | 164 | 839 | 21 | 52% | 38% | 10% |
| Hispanic or Latino | 2,968 | 840 | 21 | 47% | 40% | 13% |
| Black or African American | 429 | 841 | 20 | 46% | 41% | 13% |
| White | 1,028 | 840 | 22 | 48% | 36% | 16% |
| Two or more races | 157 | 843 | 19 | 45% | 44% | 11% |
| English only | 2,978 | 840 | 21 | 48% | 38% | 14% |
| Initial fluent English proficient | 93 | 833 | 22 | 61% | 34% | 4% |
| English learner | 1,644 | 839 | 21 | 49% | 40% | 11% |
| Reclassified fluent English proficient | 516 | 843 | 19 | 41% | 44% | 15% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,421 | 841 | 20 | 45% | 41% | 13% |
| Not economically disadvantaged | 1,817 | 837 | 22 | 54% | 34% | 12% |
| Migrant | 34 | 847 | 17 | 29% | 50% | 21% |
| Nonmigrant | 5,204 | 840 | 21 | 48% | 39% | 13% |
| Intellectual disability | 2,075 | 840 | 19 | 50% | 41% | 9% |
| Hearing impairment | 51 | 841 | 18 | 51% | 45% | 4% |
| Speech or language impairment | 104 | 854 | 14 | 19% | 44% | 37% |
| Visual impairment | 31 | 826 | 24 | 65% | 32% | 3% |
| Emotional disturbance | 35 | 854 | 13 | 20% | 46% | 34% |
| Orthopedic impairment | 213 | 829 | 25 | 62% | 31% | 7% |
| Other health impairment | 279 | 848 | 18 | 30% | 45% | 25% |
| Specific learning disability | 343 | 857 | 11 | 10% | 49% | 41% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 280 | 820 | 23 | 79% | 19% | 3% |
| Autism | 1,801 | 839 | 20 | 52% | 37% | 11% |
| Traumatic brain injury | 23 | 846 | 23 | 26% | 52% | 22% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,166 | 842 | 20 | 43% | 41% | 16% |
| No designated supports | 3,072 | 838 | 21 | 52% | 38% | 11% |
| Using accommodations | 1,754 | 841 | 20 | 48% | 39% | 13% |
| No accommodations | 3,484 | 840 | 21 | 48% | 39% | 13% |

**Table 10.A.35 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for ELA, Grade Eleven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,273 | 940 | 20 | 43% | 49% | 8% |
| Male | 2,799 | 941 | 19 | 41% | 50% | 9% |
| Female | 1,474 | 939 | 20 | 45% | 49% | 6% |
| American Indian or Alaska Native | 30 | 946 | 16 | 27% | 57% | 17% |
| Asian | 332 | 936 | 20 | 49% | 46% | 4% |
| Native Hawaiian or Other Pacific Islander | 19 | 941 | 21 | 42% | 47% | 11% |
| Filipino | 139 | 937 | 20 | 53% | 42% | 4% |
| Hispanic or Latino | 2,259 | 940 | 20 | 43% | 50% | 7% |
| Black or African American | 404 | 942 | 19 | 38% | 53% | 9% |
| White | 984 | 941 | 19 | 42% | 48% | 10% |
| Two or more races | 106 | 941 | 20 | 40% | 46% | 14% |
| English only | 2,601 | 941 | 19 | 41% | 50% | 9% |
| Initial fluent English proficient | 70 | 936 | 24 | 49% | 39% | 13% |
| English learner | 1,281 | 938 | 19 | 46% | 49% | 5% |
| Reclassified fluent English proficient | 316 | 942 | 19 | 40% | 50% | 11% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 2,750 | 941 | 19 | 41% | 52% | 8% |
| Not economically disadvantaged | 1,523 | 938 | 20 | 47% | 46% | 8% |
| Migrant | 17 | 938 | 19 | 35% | 65% | 0% |
| Nonmigrant | 4,256 | 940 | 20 | 43% | 49% | 8% |
| Intellectual disability | 1,923 | 940 | 18 | 44% | 51% | 4% |
| Hearing impairment | 48 | 939 | 18 | 46% | 48% | 6% |
| Speech or language impairment | 48 | 952 | 10 | 13% | 73% | 15% |
| Visual impairment | 30 | 935 | 23 | 57% | 33% | 10% |
| Emotional disturbance | 48 | 952 | 13 | 23% | 52% | 25% |
| Orthopedic impairment | 266 | 931 | 24 | 56% | 38% | 6% |
| Other health impairment | 150 | 947 | 16 | 26% | 59% | 15% |
| Specific learning disability | 295 | 953 | 11 | 13% | 62% | 25% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 219 | 925 | 24 | 66% | 29% | 5% |
| Autism | 1,186 | 940 | 19 | 43% | 48% | 8% |
| Traumatic brain injury | 29 | 941 | 22 | 38% | 52% | 10% |
| Not classified | 28 | 917 | 22 | 79% | 21% | 0% |
| Using designated supports | 810 | 940 | 19 | 42% | 51% | 7% |
| No designated supports | 3,463 | 940 | 20 | 43% | 49% | 8% |
| Using accommodations | 634 | 938 | 20 | 46% | 48% | 6% |
| No accommodations | 3,639 | 940 | 19 | 42% | 50% | 8% |

**Table 10.A.36 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for ELA, Grade Eleven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,505 | 941 | 22 | 43% | 39% | 18% |
| Male | 2,879 | 942 | 21 | 42% | 38% | 19% |
| Female | 1,626 | 940 | 22 | 44% | 40% | 16% |
| American Indian or Alaska Native | 39 | 939 | 21 | 46% | 44% | 10% |
| Asian | 338 | 936 | 22 | 53% | 37% | 10% |
| Native Hawaiian or Other Pacific Islander | 31 | 941 | 20 | 42% | 35% | 23% |
| Filipino | 148 | 939 | 22 | 43% | 45% | 11% |
| Hispanic or Latino | 2,423 | 942 | 21 | 42% | 40% | 18% |
| Black or African American | 402 | 941 | 21 | 45% | 38% | 17% |
| White | 1,003 | 943 | 22 | 41% | 36% | 24% |
| Two or more races | 121 | 938 | 23 | 49% | 34% | 17% |
| English only | 2,646 | 941 | 22 | 43% | 37% | 20% |
| Initial fluent English proficient | 83 | 930 | 24 | 61% | 28% | 11% |
| English learner | 1,350 | 940 | 21 | 43% | 42% | 15% |
| Reclassified fluent English proficient | 421 | 945 | 19 | 36% | 42% | 22% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 2,859 | 943 | 21 | 41% | 40% | 19% |
| Not economically disadvantaged | 1,646 | 939 | 23 | 47% | 36% | 17% |
| Migrant | 19 | 948 | 14 | 26% | 58% | 16% |
| Nonmigrant | 4,486 | 941 | 22 | 43% | 39% | 18% |
| Intellectual disability | 1,939 | 941 | 20 | 45% | 41% | 14% |
| Hearing impairment | 64 | 943 | 20 | 30% | 55% | 16% |
| Speech or language impairment | 43 | 956 | 11 | 9% | 42% | 49% |
| Visual impairment | 39 | 929 | 27 | 59% | 26% | 15% |
| Emotional disturbance | 30 | 957 | 13 | 13% | 30% | 57% |
| Orthopedic impairment | 293 | 930 | 26 | 62% | 23% | 15% |
| Other health impairment | 203 | 952 | 19 | 19% | 43% | 37% |
| Specific learning disability | 302 | 958 | 13 | 10% | 38% | 52% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 229 | 924 | 24 | 68% | 27% | 5% |
| Autism | 1,328 | 941 | 21 | 45% | 40% | 15% |
| Traumatic brain injury | 30 | 947 | 22 | 30% | 37% | 33% |
| Not classified | 5 | NA | NA | NA | NA | NA |
| Using designated supports | 934 | 943 | 21 | 40% | 39% | 21% |
| No designated supports | 3,571 | 941 | 22 | 44% | 39% | 18% |
| Using accommodations | 790 | 941 | 21 | 46% | 39% | 16% |
| No accommodations | 3,715 | 941 | 22 | 42% | 39% | 19% |

**Table 10.A.37 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for ELA, Grade Eleven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,457 | 943 | 22 | 44% | 35% | 21% |
| Male | 2,924 | 943 | 22 | 44% | 34% | 22% |
| Female | 1,533 | 942 | 21 | 44% | 37% | 19% |
| American Indian or Alaska Native | 35 | 952 | 21 | 23% | 46% | 31% |
| Asian | 351 | 939 | 22 | 54% | 28% | 17% |
| Native Hawaiian or Other Pacific Islander | 18 | 933 | 23 | 56% | 39% | 6% |
| Filipino | 128 | 942 | 21 | 44% | 41% | 15% |
| Hispanic or Latino | 2,432 | 943 | 22 | 43% | 35% | 22% |
| Black or African American | 420 | 942 | 22 | 44% | 36% | 20% |
| White | 934 | 944 | 23 | 42% | 35% | 23% |
| Two or more races | 139 | 943 | 23 | 42% | 37% | 21% |
| English only | 2,619 | 943 | 22 | 44% | 34% | 22% |
| Initial fluent English proficient | 71 | 944 | 23 | 38% | 39% | 23% |
| English learner | 1,237 | 942 | 22 | 45% | 37% | 19% |
| Reclassified fluent English proficient | 519 | 945 | 21 | 43% | 34% | 24% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 10 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 2,863 | 944 | 21 | 41% | 36% | 23% |
| Not economically disadvantaged | 1,594 | 940 | 23 | 49% | 33% | 18% |
| Migrant | 17 | 946 | 20 | 41% | 35% | 24% |
| Nonmigrant | 4,440 | 943 | 22 | 44% | 35% | 21% |
| Intellectual disability | 1,892 | 943 | 20 | 44% | 39% | 17% |
| Hearing impairment | 50 | 945 | 21 | 38% | 32% | 30% |
| Speech or language impairment | 47 | 958 | 11 | 11% | 45% | 45% |
| Visual impairment | 30 | 931 | 27 | 63% | 23% | 13% |
| Emotional disturbance | 39 | 956 | 24 | 23% | 18% | 59% |
| Orthopedic impairment | 231 | 932 | 27 | 58% | 24% | 18% |
| Other health impairment | 192 | 953 | 20 | 25% | 34% | 41% |
| Specific learning disability | 276 | 961 | 13 | 8% | 37% | 55% |
| Deaf–blindness | 2 | NA | NA | NA | NA | NA |
| Multiple disabilities | 227 | 923 | 24 | 76% | 16% | 7% |
| Autism | 1,434 | 942 | 21 | 46% | 35% | 18% |
| Traumatic brain injury | 37 | 930 | 26 | 65% | 24% | 11% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 1,176 | 944 | 22 | 41% | 35% | 24% |
| No designated supports | 3,281 | 942 | 22 | 45% | 35% | 20% |
| Using accommodations | 837 | 943 | 22 | 45% | 35% | 21% |
| No accommodations | 3,620 | 943 | 22 | 44% | 35% | 21% |

**Table 10.A.38 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for Mathematics, Grade Three**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,978 | 331 | 21 | 72% | 23% | 5% |
| Male | 3,397 | 332 | 21 | 70% | 24% | 6% |
| Female | 1,581 | 330 | 20 | 77% | 21% | 3% |
| American Indian or Alaska Native | 34 | 333 | 18 | 71% | 26% | 3% |
| Asian | 415 | 330 | 22 | 73% | 20% | 7% |
| Native Hawaiian or Other Pacific Islander | 17 | 327 | 20 | 76% | 24% | 0% |
| Filipino | 117 | 328 | 22 | 75% | 23% | 2% |
| Hispanic or Latino | 2,877 | 332 | 21 | 72% | 24% | 5% |
| Black or African American | 360 | 330 | 20 | 75% | 21% | 4% |
| White | 974 | 331 | 21 | 73% | 23% | 4% |
| Two or more races | 184 | 333 | 19 | 71% | 25% | 4% |
| English only | 2,956 | 331 | 21 | 73% | 22% | 4% |
| Initial fluent English proficient | 34 | 329 | 21 | 71% | 29% | 0% |
| English learner | 1,873 | 332 | 20 | 71% | 24% | 5% |
| Reclassified fluent English proficient | 105 | 332 | 20 | 68% | 24% | 9% |
| To be determined | 6 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,328 | 333 | 20 | 70% | 25% | 5% |
| Not economically disadvantaged | 1,650 | 328 | 21 | 78% | 19% | 3% |
| Migrant | 27 | 344 | 19 | 48% | 41% | 11% |
| Nonmigrant | 4,951 | 331 | 21 | 72% | 23% | 5% |
| Intellectual disability | 1,615 | 329 | 19 | 82% | 16% | 2% |
| Hearing impairment | 51 | 339 | 20 | 65% | 18% | 18% |
| Speech or language impairment | 228 | 342 | 15 | 52% | 42% | 6% |
| Visual impairment | 30 | 313 | 19 | 93% | 7% | 0% |
| Emotional disturbance | 20 | 349 | 10 | 25% | 70% | 5% |
| Orthopedic impairment | 239 | 321 | 21 | 87% | 10% | 3% |
| Other health impairment | 282 | 334 | 20 | 69% | 27% | 4% |
| Specific learning disability | 309 | 350 | 14 | 29% | 53% | 18% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 265 | 314 | 18 | 93% | 6% | 1% |
| Autism | 1,867 | 332 | 21 | 69% | 25% | 6% |
| Traumatic brain injury | 17 | 337 | 18 | 65% | 35% | 0% |
| Not classified | 55 | 327 | 19 | 78% | 22% | 0% |
| Using designated supports | 1,315 | 335 | 21 | 66% | 27% | 7% |
| No designated supports | 3,663 | 330 | 21 | 75% | 22% | 4% |
| Using accommodations | 759 | 332 | 22 | 71% | 23% | 6% |
| No accommodations | 4,219 | 331 | 20 | 72% | 23% | 4% |

**Table 10.A.39 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for Mathematics, Grade Three**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,989 | 333 | 21 | 67% | 28% | 6% |
| Male | 3,392 | 333 | 21 | 66% | 28% | 6% |
| Female | 1,597 | 332 | 21 | 68% | 27% | 5% |
| American Indian or Alaska Native | 26 | 339 | 18 | 54% | 46% | 0% |
| Asian | 391 | 329 | 21 | 79% | 16% | 5% |
| Native Hawaiian or Other Pacific Islander | 24 | 333 | 21 | 71% | 25% | 4% |
| Filipino | 119 | 328 | 22 | 70% | 29% | 2% |
| Hispanic or Latino | 2,891 | 334 | 21 | 64% | 30% | 6% |
| Black or African American | 360 | 333 | 21 | 67% | 28% | 5% |
| White | 956 | 332 | 21 | 68% | 26% | 6% |
| Two or more races | 222 | 331 | 22 | 71% | 21% | 8% |
| English only | 3,000 | 333 | 21 | 67% | 28% | 6% |
| Initial fluent English proficient | 47 | 329 | 20 | 77% | 21% | 2% |
| English learner | 1,794 | 333 | 21 | 66% | 28% | 6% |
| Reclassified fluent English proficient | 138 | 332 | 19 | 70% | 25% | 4% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,263 | 335 | 20 | 64% | 30% | 6% |
| Not economically disadvantaged | 1,726 | 329 | 22 | 72% | 23% | 5% |
| Migrant | 45 | 343 | 18 | 42% | 44% | 13% |
| Nonmigrant | 4,944 | 333 | 21 | 67% | 27% | 6% |
| Intellectual disability | 1,641 | 330 | 20 | 74% | 23% | 3% |
| Hearing impairment | 44 | 342 | 18 | 50% | 36% | 14% |
| Speech or language impairment | 219 | 344 | 16 | 46% | 41% | 13% |
| Visual impairment | 21 | 322 | 24 | 76% | 14% | 10% |
| Emotional disturbance | 29 | 343 | 20 | 41% | 48% | 10% |
| Orthopedic impairment | 224 | 324 | 23 | 76% | 18% | 6% |
| Other health impairment | 282 | 340 | 19 | 55% | 37% | 9% |
| Specific learning disability | 358 | 351 | 12 | 28% | 54% | 18% |
| Deaf–blindness | 2 | NA | NA | NA | NA | NA |
| Multiple disabilities | 249 | 316 | 20 | 86% | 13% | 1% |
| Autism | 1,900 | 332 | 21 | 69% | 26% | 5% |
| Traumatic brain injury | 18 | 331 | 21 | 56% | 39% | 6% |
| Not classified | 2 | NA | NA | NA | NA | NA |
| Using designated supports | 1,612 | 335 | 21 | 62% | 31% | 7% |
| No designated supports | 3,377 | 332 | 21 | 69% | 26% | 5% |
| Using accommodations | 1,047 | 332 | 22 | 67% | 26% | 7% |
| No accommodations | 3,942 | 333 | 21 | 66% | 28% | 6% |

**Table 10.A.40 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for Mathematics, Grade Three**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,101 | 335 | 21 | 62% | 30% | 8% |
| Male | 3,536 | 335 | 22 | 62% | 30% | 9% |
| Female | 1,565 | 334 | 21 | 64% | 29% | 6% |
| American Indian or Alaska Native | 34 | 334 | 22 | 47% | 50% | 3% |
| Asian | 401 | 333 | 22 | 67% | 24% | 9% |
| Native Hawaiian or Other Pacific Islander | 23 | 330 | 22 | 61% | 35% | 4% |
| Filipino | 130 | 333 | 21 | 65% | 28% | 7% |
| Hispanic or Latino | 2,911 | 335 | 21 | 62% | 30% | 7% |
| Black or African American | 391 | 335 | 22 | 59% | 31% | 10% |
| White | 959 | 335 | 23 | 61% | 29% | 10% |
| Two or more races | 252 | 334 | 21 | 63% | 30% | 6% |
| English only | 3,116 | 334 | 22 | 62% | 30% | 8% |
| Initial fluent English proficient | 35 | 329 | 24 | 69% | 26% | 6% |
| English learner | 1,770 | 335 | 21 | 62% | 31% | 8% |
| Reclassified fluent English proficient | 169 | 333 | 22 | 68% | 25% | 7% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 7 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,434 | 336 | 21 | 60% | 32% | 8% |
| Not economically disadvantaged | 1,667 | 332 | 22 | 68% | 25% | 8% |
| Migrant | 22 | 333 | 19 | 73% | 27% | 0% |
| Nonmigrant | 5,079 | 335 | 22 | 62% | 30% | 8% |
| Intellectual disability | 1,599 | 333 | 20 | 67% | 29% | 4% |
| Hearing impairment | 48 | 337 | 21 | 46% | 50% | 4% |
| Speech or language impairment | 206 | 346 | 15 | 40% | 44% | 16% |
| Visual impairment | 17 | 333 | 33 | 59% | 18% | 24% |
| Emotional disturbance | 23 | 354 | 18 | 17% | 52% | 30% |
| Orthopedic impairment | 174 | 321 | 23 | 82% | 15% | 3% |
| Other health impairment | 307 | 341 | 19 | 52% | 35% | 13% |
| Specific learning disability | 292 | 354 | 14 | 24% | 47% | 29% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 258 | 316 | 19 | 88% | 11% | 0% |
| Autism | 2,148 | 334 | 21 | 63% | 29% | 8% |
| Traumatic brain injury | 26 | 328 | 22 | 77% | 19% | 4% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 1,823 | 337 | 20 | 58% | 33% | 9% |
| No designated supports | 3,278 | 333 | 22 | 65% | 28% | 7% |
| Using accommodations | 1,050 | 332 | 22 | 66% | 28% | 6% |
| No accommodations | 4,051 | 335 | 21 | 61% | 30% | 8% |

**Table 10.A.41 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for Mathematics, Grade Four**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,283 | 432 | 20 | 70% | 26% | 4% |
| Male | 3,569 | 433 | 20 | 68% | 27% | 5% |
| Female | 1,714 | 430 | 20 | 74% | 23% | 4% |
| American Indian or Alaska Native | 38 | 432 | 23 | 68% | 21% | 11% |
| Asian | 390 | 428 | 21 | 76% | 22% | 3% |
| Native Hawaiian or Other Pacific Islander | 26 | 438 | 17 | 62% | 31% | 8% |
| Filipino | 148 | 430 | 19 | 74% | 23% | 3% |
| Hispanic or Latino | 3,103 | 433 | 20 | 68% | 28% | 4% |
| Black or African American | 415 | 430 | 21 | 73% | 22% | 5% |
| White | 972 | 432 | 20 | 71% | 24% | 5% |
| Two or more races | 191 | 432 | 22 | 71% | 23% | 6% |
| English only | 3,026 | 432 | 20 | 71% | 25% | 4% |
| Initial fluent English proficient | 59 | 426 | 20 | 76% | 24% | 0% |
| English learner | 2,034 | 433 | 20 | 69% | 27% | 4% |
| Reclassified fluent English proficient | 154 | 434 | 20 | 62% | 31% | 6% |
| To be determined | 6 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,588 | 434 | 19 | 68% | 28% | 5% |
| Not economically disadvantaged | 1,695 | 428 | 21 | 75% | 22% | 3% |
| Migrant | 55 | 443 | 19 | 53% | 35% | 13% |
| Nonmigrant | 5,228 | 432 | 20 | 70% | 26% | 4% |
| Intellectual disability | 1,808 | 431 | 18 | 76% | 22% | 2% |
| Hearing impairment | 47 | 442 | 17 | 47% | 43% | 11% |
| Speech or language impairment | 194 | 444 | 15 | 48% | 42% | 10% |
| Visual impairment | 30 | 423 | 27 | 70% | 20% | 10% |
| Emotional disturbance | 24 | 446 | 18 | 46% | 38% | 17% |
| Orthopedic impairment | 270 | 420 | 22 | 81% | 16% | 2% |
| Other health impairment | 280 | 438 | 19 | 59% | 35% | 7% |
| Specific learning disability | 408 | 449 | 13 | 34% | 50% | 16% |
| Deaf–blindness | 6 | NA | NA | NA | NA | NA |
| Multiple disabilities | 288 | 415 | 19 | 92% | 7% | 1% |
| Autism | 1,840 | 432 | 20 | 71% | 25% | 4% |
| Traumatic brain injury | 33 | 429 | 25 | 73% | 24% | 3% |
| Not classified | 55 | 432 | 18 | 73% | 27% | 0% |
| Using designated supports | 1,307 | 435 | 20 | 66% | 28% | 6% |
| No designated supports | 3,976 | 431 | 20 | 71% | 25% | 4% |
| Using accommodations | 747 | 431 | 22 | 72% | 22% | 6% |
| No accommodations | 4,536 | 432 | 20 | 70% | 27% | 4% |

**Table 10.A.42 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for Mathematics, Grade Four**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,396 | 433 | 21 | 68% | 25% | 7% |
| Male | 3,685 | 433 | 21 | 67% | 25% | 7% |
| Female | 1,711 | 433 | 21 | 69% | 25% | 6% |
| American Indian or Alaska Native | 37 | 443 | 16 | 57% | 30% | 14% |
| Asian | 413 | 430 | 22 | 73% | 19% | 7% |
| Native Hawaiian or Other Pacific Islander | 25 | 424 | 22 | 72% | 28% | 0% |
| Filipino | 117 | 428 | 21 | 74% | 23% | 3% |
| Hispanic or Latino | 3,202 | 434 | 21 | 67% | 26% | 7% |
| Black or African American | 401 | 433 | 21 | 70% | 24% | 6% |
| White | 1,006 | 433 | 21 | 68% | 25% | 7% |
| Two or more races | 195 | 432 | 22 | 70% | 24% | 6% |
| English only | 3,153 | 432 | 22 | 69% | 24% | 7% |
| Initial fluent English proficient | 37 | 425 | 21 | 89% | 5% | 5% |
| English learner | 1,980 | 435 | 21 | 65% | 27% | 7% |
| Reclassified fluent English proficient | 214 | 436 | 21 | 67% | 24% | 9% |
| To be determined | 6 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,562 | 435 | 21 | 64% | 28% | 8% |
| Not economically disadvantaged | 1,834 | 429 | 21 | 76% | 20% | 5% |
| Migrant | 36 | 447 | 24 | 53% | 22% | 25% |
| Nonmigrant | 5,360 | 433 | 21 | 68% | 25% | 7% |
| Intellectual disability | 1,825 | 431 | 19 | 75% | 22% | 3% |
| Hearing impairment | 48 | 439 | 18 | 54% | 38% | 8% |
| Speech or language impairment | 201 | 443 | 17 | 54% | 35% | 11% |
| Visual impairment | 31 | 418 | 22 | 87% | 13% | 0% |
| Emotional disturbance | 32 | 445 | 13 | 47% | 41% | 13% |
| Orthopedic impairment | 238 | 423 | 23 | 80% | 16% | 5% |
| Other health impairment | 311 | 440 | 20 | 57% | 32% | 12% |
| Specific learning disability | 451 | 452 | 14 | 26% | 48% | 26% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 278 | 416 | 19 | 91% | 8% | 1% |
| Autism | 1,954 | 432 | 21 | 70% | 24% | 6% |
| Traumatic brain injury | 24 | 437 | 18 | 58% | 38% | 4% |
| Not classified | 3 | NA | NA | NA | NA | NA |
| Using designated supports | 1,932 | 436 | 21 | 63% | 27% | 10% |
| No designated supports | 3,464 | 432 | 21 | 70% | 24% | 5% |
| Using accommodations | 1,191 | 435 | 22 | 66% | 25% | 9% |
| No accommodations | 4,205 | 433 | 21 | 68% | 25% | 6% |

**Table 10.A.43 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for Mathematics, Grade Four**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,309 | 434 | 21 | 65% | 26% | 8% |
| Male | 3,587 | 434 | 21 | 65% | 26% | 9% |
| Female | 1,722 | 433 | 20 | 67% | 27% | 6% |
| American Indian or Alaska Native | 30 | 442 | 22 | 47% | 30% | 23% |
| Asian | 417 | 431 | 21 | 71% | 23% | 6% |
| Native Hawaiian or Other Pacific Islander | 29 | 432 | 20 | 66% | 28% | 7% |
| Filipino | 125 | 428 | 21 | 74% | 18% | 8% |
| Hispanic or Latino | 3,044 | 434 | 20 | 65% | 27% | 8% |
| Black or African American | 417 | 433 | 20 | 69% | 23% | 8% |
| White | 1,014 | 435 | 21 | 63% | 29% | 9% |
| Two or more races | 233 | 431 | 22 | 67% | 23% | 10% |
| English only | 3,201 | 434 | 20 | 65% | 27% | 8% |
| Initial fluent English proficient | 47 | 433 | 19 | 77% | 15% | 9% |
| English learner | 1,796 | 433 | 21 | 65% | 26% | 9% |
| Reclassified fluent English proficient | 257 | 435 | 20 | 65% | 28% | 7% |
| To be determined | 5 | NA | NA | NA | NA | NA |
| English proficiency unknown | 3 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,595 | 435 | 20 | 63% | 28% | 9% |
| Not economically disadvantaged | 1,714 | 431 | 21 | 70% | 23% | 7% |
| Migrant | 43 | 443 | 20 | 42% | 47% | 12% |
| Nonmigrant | 5,266 | 434 | 21 | 66% | 26% | 8% |
| Intellectual disability | 1,784 | 432 | 19 | 72% | 23% | 5% |
| Hearing impairment | 53 | 442 | 17 | 55% | 30% | 15% |
| Speech or language impairment | 187 | 447 | 14 | 34% | 49% | 17% |
| Visual impairment | 22 | 424 | 22 | 77% | 18% | 5% |
| Emotional disturbance | 29 | 448 | 17 | 31% | 48% | 21% |
| Orthopedic impairment | 216 | 425 | 23 | 72% | 22% | 6% |
| Other health impairment | 309 | 439 | 19 | 59% | 28% | 13% |
| Specific learning disability | 393 | 451 | 14 | 25% | 47% | 28% |
| Deaf–blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 277 | 417 | 20 | 87% | 12% | 1% |
| Autism | 2,017 | 433 | 21 | 68% | 25% | 7% |
| Traumatic brain injury | 21 | 434 | 18 | 67% | 33% | 0% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,170 | 437 | 20 | 59% | 30% | 11% |
| No designated supports | 3,139 | 432 | 21 | 69% | 24% | 6% |
| Using accommodations | 1,696 | 435 | 21 | 62% | 28% | 10% |
| No accommodations | 3,613 | 433 | 21 | 67% | 25% | 8% |

**Table 10.A.44 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for Mathematics, Grade Five**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,098 | 532 | 20 | 70% | 25% | 5% |
| Male | 3,437 | 533 | 21 | 70% | 25% | 5% |
| Female | 1,661 | 531 | 19 | 72% | 25% | 3% |
| American Indian or Alaska Native | 44 | 539 | 19 | 57% | 30% | 14% |
| Asian | 361 | 528 | 21 | 78% | 17% | 5% |
| Native Hawaiian or Other Pacific Islander | 30 | 527 | 21 | 77% | 20% | 3% |
| Filipino | 139 | 530 | 20 | 75% | 24% | 1% |
| Hispanic or Latino | 2,948 | 533 | 20 | 70% | 26% | 4% |
| Black or African American | 405 | 533 | 19 | 71% | 25% | 4% |
| White | 1,006 | 532 | 21 | 70% | 24% | 5% |
| Two or more races | 165 | 532 | 21 | 70% | 24% | 6% |
| English only | 2,967 | 532 | 20 | 71% | 24% | 5% |
| Initial fluent English proficient | 76 | 523 | 20 | 83% | 14% | 3% |
| English learner | 1,865 | 533 | 20 | 69% | 27% | 4% |
| Reclassified fluent English proficient | 177 | 533 | 21 | 71% | 23% | 6% |
| To be determined | 5 | NA | NA | NA | NA | NA |
| English proficiency unknown | 8 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,405 | 534 | 19 | 67% | 28% | 5% |
| Not economically disadvantaged | 1,693 | 528 | 21 | 77% | 20% | 4% |
| Migrant | 26 | 542 | 24 | 50% | 35% | 15% |
| Nonmigrant | 5,072 | 532 | 20 | 71% | 25% | 5% |
| Intellectual disability | 1,892 | 531 | 18 | 75% | 23% | 2% |
| Hearing impairment | 49 | 536 | 21 | 63% | 27% | 10% |
| Speech or language impairment | 178 | 544 | 12 | 46% | 46% | 8% |
| Visual impairment | 31 | 522 | 22 | 77% | 19% | 3% |
| Emotional disturbance | 26 | 551 | 21 | 38% | 31% | 31% |
| Orthopedic impairment | 272 | 521 | 22 | 82% | 14% | 4% |
| Other health impairment | 256 | 539 | 18 | 60% | 32% | 8% |
| Specific learning disability | 370 | 548 | 13 | 35% | 51% | 14% |
| Deaf–blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 219 | 515 | 20 | 90% | 9% | 1% |
| Autism | 1,727 | 531 | 21 | 73% | 22% | 5% |
| Traumatic brain injury | 31 | 529 | 23 | 77% | 16% | 6% |
| Not classified | 46 | 533 | 18 | 72% | 26% | 2% |
| Using designated supports | 1,430 | 536 | 19 | 65% | 29% | 6% |
| No designated supports | 3,668 | 531 | 20 | 73% | 23% | 4% |
| Using accommodations | 806 | 531 | 21 | 73% | 22% | 5% |
| No accommodations | 4,292 | 532 | 20 | 70% | 26% | 4% |

**Table 10.A.45 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for Mathematics, Grade Five**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,543 | 533 | 21 | 64% | 30% | 6% |
| Male | 3,739 | 534 | 21 | 62% | 31% | 7% |
| Female | 1,804 | 531 | 21 | 68% | 28% | 4% |
| American Indian or Alaska Native | 33 | 537 | 19 | 52% | 42% | 6% |
| Asian | 435 | 530 | 21 | 69% | 27% | 4% |
| Native Hawaiian or Other Pacific Islander | 31 | 530 | 21 | 68% | 32% | 0% |
| Filipino | 149 | 533 | 21 | 68% | 26% | 5% |
| Hispanic or Latino | 3,263 | 534 | 21 | 63% | 32% | 6% |
| Black or African American | 437 | 532 | 21 | 68% | 27% | 6% |
| White | 1,009 | 533 | 22 | 64% | 29% | 7% |
| Two or more races | 186 | 532 | 22 | 71% | 23% | 6% |
| English only | 3,151 | 533 | 21 | 65% | 28% | 6% |
| Initial fluent English proficient | 54 | 526 | 19 | 78% | 20% | 2% |
| English learner | 2,054 | 533 | 21 | 63% | 32% | 5% |
| Reclassified fluent English proficient | 276 | 534 | 20 | 60% | 36% | 4% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,700 | 535 | 21 | 62% | 32% | 6% |
| Not economically disadvantaged | 1,843 | 530 | 22 | 69% | 26% | 5% |
| Migrant | 50 | 542 | 20 | 50% | 36% | 14% |
| Nonmigrant | 5,493 | 533 | 21 | 64% | 30% | 6% |
| Intellectual disability | 1,935 | 532 | 19 | 68% | 29% | 3% |
| Hearing impairment | 49 | 544 | 15 | 45% | 49% | 6% |
| Speech or language impairment | 157 | 543 | 15 | 43% | 50% | 7% |
| Visual impairment | 29 | 526 | 25 | 66% | 24% | 10% |
| Emotional disturbance | 35 | 551 | 25 | 37% | 37% | 26% |
| Orthopedic impairment | 265 | 521 | 23 | 78% | 19% | 3% |
| Other health impairment | 280 | 539 | 20 | 53% | 40% | 7% |
| Specific learning disability | 521 | 550 | 14 | 32% | 49% | 18% |
| Deaf–blindness | 7 | NA | NA | NA | NA | NA |
| Multiple disabilities | 308 | 516 | 21 | 85% | 14% | 1% |
| Autism | 1,917 | 532 | 21 | 68% | 26% | 5% |
| Traumatic brain injury | 34 | 531 | 24 | 62% | 29% | 9% |
| Not classified | 6 | NA | NA | NA | NA | NA |
| Using designated supports | 2,077 | 536 | 20 | 61% | 32% | 7% |
| No designated supports | 3,466 | 532 | 22 | 66% | 29% | 5% |
| Using accommodations | 1,216 | 532 | 21 | 67% | 28% | 6% |
| No accommodations | 4,327 | 533 | 21 | 64% | 31% | 6% |

**Table 10.A.46 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for Mathematics, Grade Five**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,319 | 535 | 21 | 63% | 29% | 9% |
| Male | 3,632 | 535 | 21 | 62% | 29% | 9% |
| Female | 1,687 | 534 | 20 | 66% | 27% | 7% |
| American Indian or Alaska Native | 32 | 542 | 18 | 53% | 34% | 13% |
| Asian | 408 | 533 | 22 | 64% | 29% | 7% |
| Native Hawaiian or Other Pacific Islander | 27 | 529 | 24 | 59% | 37% | 4% |
| Filipino | 130 | 534 | 20 | 63% | 30% | 7% |
| Hispanic or Latino | 3,100 | 535 | 21 | 63% | 29% | 9% |
| Black or African American | 394 | 535 | 20 | 65% | 26% | 9% |
| White | 1,031 | 535 | 22 | 62% | 29% | 10% |
| Two or more races | 197 | 531 | 22 | 68% | 26% | 6% |
| English only | 3,088 | 534 | 21 | 64% | 28% | 8% |
| Initial fluent English proficient | 40 | 530 | 24 | 68% | 23% | 10% |
| English learner | 1,841 | 535 | 21 | 63% | 29% | 8% |
| Reclassified fluent English proficient | 341 | 538 | 20 | 56% | 33% | 10% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,542 | 536 | 21 | 60% | 30% | 9% |
| Not economically disadvantaged | 1,777 | 531 | 21 | 69% | 25% | 7% |
| Migrant | 30 | 539 | 18 | 60% | 33% | 7% |
| Nonmigrant | 5,289 | 535 | 21 | 63% | 29% | 9% |
| Intellectual disability | 1,892 | 533 | 19 | 70% | 25% | 5% |
| Hearing impairment | 41 | 539 | 20 | 51% | 37% | 12% |
| Speech or language impairment | 166 | 548 | 12 | 35% | 47% | 18% |
| Visual impairment | 25 | 518 | 22 | 80% | 20% | 0% |
| Emotional disturbance | 34 | 545 | 18 | 41% | 41% | 18% |
| Orthopedic impairment | 242 | 522 | 23 | 80% | 16% | 4% |
| Other health impairment | 271 | 542 | 19 | 48% | 38% | 14% |
| Specific learning disability | 396 | 553 | 13 | 24% | 48% | 27% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 295 | 518 | 20 | 87% | 12% | 2% |
| Autism | 1,937 | 534 | 21 | 63% | 29% | 8% |
| Traumatic brain injury | 20 | 536 | 22 | 55% | 35% | 10% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,366 | 538 | 20 | 58% | 32% | 10% |
| No designated supports | 2,953 | 532 | 21 | 67% | 26% | 7% |
| Using accommodations | 1,746 | 537 | 21 | 60% | 30% | 10% |
| No accommodations | 3,573 | 534 | 21 | 64% | 28% | 8% |

**Table 10.A.47 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for Mathematics, Grade Six**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,123 | 631 | 20 | 73% | 23% | 4% |
| Male | 3,445 | 632 | 20 | 72% | 23% | 5% |
| Female | 1,678 | 630 | 20 | 74% | 23% | 3% |
| American Indian or Alaska Native | 37 | 635 | 23 | 59% | 27% | 14% |
| Asian | 395 | 629 | 20 | 72% | 25% | 3% |
| Native Hawaiian or Other Pacific Islander | 21 | 620 | 22 | 81% | 19% | 0% |
| Filipino | 148 | 632 | 20 | 72% | 24% | 5% |
| Hispanic or Latino | 2,956 | 632 | 20 | 72% | 24% | 4% |
| Black or African American | 403 | 630 | 19 | 76% | 21% | 4% |
| White | 1,033 | 630 | 20 | 74% | 22% | 4% |
| Two or more races | 130 | 631 | 21 | 75% | 19% | 5% |
| English only | 2,990 | 631 | 20 | 74% | 23% | 4% |
| Initial fluent English proficient | 81 | 629 | 21 | 75% | 20% | 5% |
| English learner | 1,782 | 632 | 20 | 71% | 24% | 5% |
| Reclassified fluent English proficient | 260 | 634 | 19 | 68% | 29% | 3% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 7 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,411 | 633 | 20 | 71% | 25% | 5% |
| Not economically disadvantaged | 1,712 | 628 | 21 | 76% | 21% | 3% |
| Migrant | 36 | 643 | 19 | 56% | 25% | 19% |
| Nonmigrant | 5,087 | 631 | 20 | 73% | 23% | 4% |
| Intellectual disability | 1,962 | 631 | 18 | 76% | 22% | 2% |
| Hearing impairment | 56 | 639 | 18 | 54% | 43% | 4% |
| Speech or language impairment | 139 | 642 | 14 | 55% | 36% | 9% |
| Visual impairment | 32 | 617 | 23 | 91% | 9% | 0% |
| Emotional disturbance | 31 | 640 | 19 | 58% | 29% | 13% |
| Orthopedic impairment | 260 | 621 | 22 | 80% | 18% | 2% |
| Other health impairment | 261 | 637 | 18 | 66% | 28% | 7% |
| Specific learning disability | 342 | 647 | 17 | 42% | 43% | 15% |
| Deaf–blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 257 | 616 | 20 | 88% | 11% | 1% |
| Autism | 1,704 | 630 | 20 | 74% | 21% | 4% |
| Traumatic brain injury | 21 | 635 | 20 | 57% | 43% | 0% |
| Not classified | 53 | 631 | 18 | 72% | 26% | 2% |
| Using designated supports | 1,307 | 634 | 21 | 66% | 27% | 7% |
| No designated supports | 3,816 | 630 | 20 | 75% | 22% | 3% |
| Using accommodations | 697 | 631 | 23 | 72% | 21% | 7% |
| No accommodations | 4,426 | 631 | 20 | 73% | 24% | 4% |

**Table 10.A.48 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for Mathematics, Grade Six**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,321 | 634 | 20 | 67% | 30% | 4% |
| Male | 3,602 | 634 | 20 | 66% | 30% | 4% |
| Female | 1,719 | 632 | 20 | 69% | 28% | 2% |
| American Indian or Alaska Native | 30 | 639 | 18 | 63% | 30% | 7% |
| Asian | 388 | 631 | 22 | 71% | 26% | 4% |
| Native Hawaiian or Other Pacific Islander | 24 | 629 | 21 | 71% | 29% | 0% |
| Filipino | 144 | 630 | 19 | 75% | 24% | 1% |
| Hispanic or Latino | 3,084 | 634 | 20 | 67% | 29% | 4% |
| Black or African American | 458 | 634 | 20 | 66% | 30% | 4% |
| White | 1,011 | 635 | 20 | 64% | 31% | 4% |
| Two or more races | 182 | 633 | 20 | 63% | 34% | 3% |
| English only | 3,042 | 633 | 20 | 67% | 29% | 4% |
| Initial fluent English proficient | 80 | 629 | 21 | 73% | 26% | 1% |
| English learner | 1,910 | 633 | 20 | 67% | 29% | 4% |
| Reclassified fluent English proficient | 284 | 637 | 20 | 62% | 34% | 4% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,434 | 635 | 19 | 64% | 32% | 4% |
| Not economically disadvantaged | 1,887 | 630 | 21 | 72% | 24% | 4% |
| Migrant | 34 | 640 | 18 | 53% | 44% | 3% |
| Nonmigrant | 5,287 | 633 | 20 | 67% | 29% | 4% |
| Intellectual disability | 2,021 | 633 | 19 | 70% | 29% | 2% |
| Hearing impairment | 53 | 638 | 19 | 45% | 45% | 9% |
| Speech or language impairment | 139 | 642 | 14 | 58% | 37% | 4% |
| Visual impairment | 19 | 625 | 22 | 74% | 26% | 0% |
| Emotional disturbance | 41 | 645 | 16 | 39% | 49% | 12% |
| Orthopedic impairment | 263 | 622 | 22 | 79% | 18% | 3% |
| Other health impairment | 270 | 640 | 18 | 61% | 33% | 6% |
| Specific learning disability | 443 | 648 | 14 | 39% | 48% | 13% |
| Deaf–blindness | 1 | NA | NA | NA | NA | NA |
| Multiple disabilities | 252 | 617 | 21 | 87% | 12% | 0% |
| Autism | 1,793 | 633 | 20 | 68% | 28% | 3% |
| Traumatic brain injury | 23 | 620 | 20 | 78% | 22% | 0% |
| Not classified | 3 | NA | NA | NA | NA | NA |
| Using designated supports | 1,991 | 636 | 20 | 62% | 33% | 4% |
| No designated supports | 3,330 | 632 | 20 | 69% | 27% | 3% |
| Using accommodations | 1,047 | 633 | 21 | 67% | 30% | 4% |
| No accommodations | 4,274 | 634 | 20 | 67% | 29% | 4% |

**Table 10.A.49 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for Mathematics, Grade Six**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,366 | 635 | 20 | 67% | 26% | 7% |
| Male | 3,592 | 636 | 20 | 64% | 27% | 8% |
| Female | 1,774 | 632 | 20 | 72% | 23% | 5% |
| American Indian or Alaska Native | 29 | 636 | 23 | 62% | 24% | 14% |
| Asian | 415 | 634 | 21 | 70% | 21% | 9% |
| Native Hawaiian or Other Pacific Islander | 25 | 626 | 19 | 88% | 12% | 0% |
| Filipino | 139 | 633 | 22 | 73% | 20% | 6% |
| Hispanic or Latino | 3,171 | 635 | 20 | 66% | 28% | 6% |
| Black or African American | 432 | 635 | 20 | 71% | 22% | 7% |
| White | 969 | 635 | 21 | 65% | 25% | 10% |
| Two or more races | 186 | 631 | 21 | 68% | 27% | 4% |
| English only | 3,054 | 635 | 21 | 66% | 26% | 8% |
| Initial fluent English proficient | 57 | 628 | 20 | 82% | 12% | 5% |
| English learner | 1,797 | 635 | 20 | 68% | 25% | 6% |
| Reclassified fluent English proficient | 451 | 636 | 19 | 65% | 29% | 6% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,632 | 636 | 20 | 65% | 27% | 7% |
| Not economically disadvantaged | 1,734 | 632 | 22 | 70% | 23% | 7% |
| Migrant | 33 | 641 | 18 | 52% | 39% | 9% |
| Nonmigrant | 5,333 | 635 | 20 | 67% | 26% | 7% |
| Intellectual disability | 1,986 | 634 | 18 | 72% | 24% | 4% |
| Hearing impairment | 62 | 640 | 16 | 66% | 24% | 10% |
| Speech or language impairment | 116 | 646 | 14 | 52% | 35% | 13% |
| Visual impairment | 23 | 627 | 22 | 87% | 4% | 9% |
| Emotional disturbance | 33 | 651 | 17 | 39% | 27% | 33% |
| Orthopedic impairment | 244 | 623 | 23 | 80% | 16% | 5% |
| Other health impairment | 263 | 639 | 20 | 57% | 33% | 10% |
| Specific learning disability | 380 | 651 | 15 | 31% | 46% | 24% |
| Deaf–blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 320 | 617 | 20 | 86% | 13% | 1% |
| Autism | 1,899 | 635 | 20 | 66% | 26% | 7% |
| Traumatic brain injury | 35 | 633 | 26 | 60% | 23% | 17% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,256 | 637 | 20 | 64% | 27% | 9% |
| No designated supports | 3,110 | 633 | 21 | 69% | 25% | 6% |
| Using accommodations | 1,826 | 637 | 20 | 64% | 28% | 9% |
| No accommodations | 3,540 | 634 | 20 | 69% | 25% | 6% |

**Table 10.A.50 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for Mathematics, Grade Seven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,117 | 732 | 21 | 70% | 24% | 5% |
| Male | 3,392 | 733 | 21 | 69% | 25% | 6% |
| Female | 1,725 | 730 | 21 | 73% | 23% | 4% |
| American Indian or Alaska Native | 32 | 735 | 21 | 66% | 25% | 9% |
| Asian | 397 | 732 | 22 | 70% | 22% | 8% |
| Native Hawaiian or Other Pacific Islander | 25 | 734 | 25 | 64% | 20% | 16% |
| Filipino | 179 | 730 | 20 | 75% | 22% | 3% |
| Hispanic or Latino | 2,793 | 733 | 21 | 69% | 26% | 5% |
| Black or African American | 424 | 730 | 21 | 75% | 21% | 4% |
| White | 1,102 | 731 | 21 | 72% | 23% | 5% |
| Two or more races | 165 | 731 | 21 | 70% | 27% | 4% |
| English only | 3,011 | 732 | 21 | 72% | 23% | 5% |
| Initial fluent English proficient | 73 | 726 | 20 | 79% | 21% | 0% |
| English learner | 1,705 | 733 | 22 | 68% | 26% | 6% |
| Reclassified fluent English proficient | 318 | 734 | 21 | 64% | 30% | 6% |
| To be determined | 3 | NA | NA | NA | NA | NA |
| English proficiency unknown | 7 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,339 | 734 | 21 | 67% | 27% | 6% |
| Not economically disadvantaged | 1,778 | 729 | 21 | 76% | 19% | 4% |
| Migrant | 34 | 745 | 17 | 29% | 65% | 6% |
| Nonmigrant | 5,083 | 732 | 21 | 71% | 24% | 5% |
| Intellectual disability | 2,001 | 731 | 19 | 75% | 22% | 3% |
| Hearing impairment | 40 | 740 | 20 | 45% | 43% | 13% |
| Speech or language impairment | 119 | 747 | 15 | 36% | 51% | 13% |
| Visual impairment | 45 | 718 | 21 | 89% | 11% | 0% |
| Emotional disturbance | 35 | 742 | 19 | 51% | 43% | 6% |
| Orthopedic impairment | 255 | 718 | 22 | 87% | 9% | 3% |
| Other health impairment | 232 | 737 | 20 | 65% | 28% | 7% |
| Specific learning disability | 317 | 749 | 14 | 36% | 49% | 15% |
| Deaf–blindness | 6 | NA | NA | NA | NA | NA |
| Multiple disabilities | 303 | 715 | 19 | 90% | 8% | 1% |
| Autism | 1,708 | 733 | 21 | 69% | 24% | 7% |
| Traumatic brain injury | 24 | 732 | 23 | 75% | 17% | 8% |
| Not classified | 32 | 727 | 23 | 75% | 22% | 3% |
| Using designated supports | 1,324 | 735 | 20 | 66% | 27% | 6% |
| No designated supports | 3,793 | 731 | 21 | 72% | 23% | 5% |
| Using accommodations | 670 | 729 | 21 | 75% | 22% | 4% |
| No accommodations | 4,447 | 732 | 21 | 70% | 25% | 6% |

**Table 10.A.51 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for Mathematics, Grade Seven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,275 | 733 | 22 | 69% | 24% | 8% |
| Male | 3,546 | 733 | 22 | 68% | 24% | 8% |
| Female | 1,729 | 731 | 21 | 71% | 23% | 6% |
| American Indian or Alaska Native | 32 | 736 | 22 | 66% | 22% | 13% |
| Asian | 427 | 730 | 22 | 72% | 22% | 6% |
| Native Hawaiian or Other Pacific Islander | 18 | 726 | 24 | 78% | 11% | 11% |
| Filipino | 149 | 734 | 22 | 66% | 22% | 12% |
| Hispanic or Latino | 3,024 | 733 | 22 | 68% | 24% | 8% |
| Black or African American | 412 | 732 | 22 | 71% | 21% | 8% |
| White | 1,065 | 732 | 22 | 70% | 23% | 7% |
| Two or more races | 148 | 730 | 22 | 71% | 21% | 8% |
| English only | 3,028 | 733 | 22 | 69% | 24% | 7% |
| Initial fluent English proficient | 84 | 728 | 22 | 76% | 20% | 4% |
| English learner | 1,810 | 732 | 22 | 68% | 24% | 8% |
| Reclassified fluent English proficient | 345 | 735 | 22 | 67% | 23% | 10% |
| To be determined | 4 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,413 | 734 | 21 | 67% | 25% | 8% |
| Not economically disadvantaged | 1,862 | 730 | 22 | 73% | 21% | 6% |
| Migrant | 29 | 741 | 18 | 48% | 45% | 7% |
| Nonmigrant | 5,246 | 732 | 22 | 69% | 23% | 8% |
| Intellectual disability | 2,087 | 731 | 20 | 75% | 21% | 4% |
| Hearing impairment | 52 | 747 | 16 | 35% | 42% | 23% |
| Speech or language impairment | 113 | 745 | 18 | 42% | 42% | 16% |
| Visual impairment | 29 | 715 | 21 | 86% | 14% | 0% |
| Emotional disturbance | 26 | 739 | 14 | 73% | 19% | 8% |
| Orthopedic impairment | 243 | 721 | 23 | 82% | 14% | 4% |
| Other health impairment | 277 | 739 | 20 | 58% | 31% | 10% |
| Specific learning disability | 382 | 752 | 18 | 32% | 39% | 29% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 269 | 714 | 20 | 91% | 8% | 1% |
| Autism | 1,766 | 732 | 22 | 69% | 24% | 8% |
| Traumatic brain injury | 20 | 732 | 24 | 65% | 25% | 10% |
| Not classified | 8 | NA | NA | NA | NA | NA |
| Using designated supports | 1,797 | 735 | 22 | 63% | 27% | 10% |
| No designated supports | 3,478 | 731 | 22 | 72% | 22% | 6% |
| Using accommodations | 1,014 | 731 | 22 | 71% | 22% | 6% |
| No accommodations | 4,261 | 733 | 22 | 68% | 24% | 8% |

**Table 10.A.52 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for Mathematics, Grade Seven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,375 | 735 | 20 | 65% | 27% | 7% |
| Male | 3,632 | 736 | 21 | 64% | 28% | 8% |
| Female | 1,743 | 734 | 20 | 68% | 26% | 6% |
| American Indian or Alaska Native | 34 | 740 | 24 | 62% | 21% | 18% |
| Asian | 402 | 732 | 21 | 72% | 20% | 7% |
| Native Hawaiian or Other Pacific Islander | 28 | 737 | 20 | 68% | 29% | 4% |
| Filipino | 152 | 733 | 18 | 75% | 22% | 3% |
| Hispanic or Latino | 3,096 | 735 | 20 | 65% | 28% | 7% |
| Black or African American | 465 | 736 | 20 | 66% | 26% | 8% |
| White | 984 | 736 | 20 | 62% | 30% | 8% |
| Two or more races | 214 | 735 | 21 | 66% | 23% | 10% |
| English only | 3,090 | 735 | 21 | 65% | 28% | 7% |
| Initial fluent English proficient | 84 | 728 | 20 | 85% | 13% | 2% |
| English learner | 1,729 | 735 | 20 | 67% | 26% | 7% |
| Reclassified fluent English proficient | 464 | 738 | 19 | 60% | 32% | 8% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,594 | 737 | 20 | 62% | 30% | 8% |
| Not economically disadvantaged | 1,781 | 732 | 21 | 71% | 22% | 6% |
| Migrant | 36 | 738 | 20 | 67% | 19% | 14% |
| Nonmigrant | 5,339 | 735 | 20 | 65% | 27% | 7% |
| Intellectual disability | 2,093 | 733 | 19 | 72% | 24% | 4% |
| Hearing impairment | 47 | 743 | 16 | 47% | 51% | 2% |
| Speech or language impairment | 109 | 746 | 13 | 48% | 44% | 8% |
| Visual impairment | 18 | 719 | 20 | 89% | 11% | 0% |
| Emotional disturbance | 48 | 747 | 14 | 44% | 44% | 13% |
| Orthopedic impairment | 231 | 722 | 22 | 81% | 16% | 3% |
| Other health impairment | 299 | 743 | 19 | 46% | 43% | 11% |
| Specific learning disability | 423 | 753 | 14 | 28% | 49% | 24% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 263 | 717 | 20 | 88% | 10% | 2% |
| Autism | 1,817 | 735 | 20 | 66% | 26% | 8% |
| Traumatic brain injury | 27 | 731 | 23 | 70% | 22% | 7% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,351 | 737 | 20 | 62% | 30% | 9% |
| No designated supports | 3,024 | 734 | 21 | 68% | 26% | 6% |
| Using accommodations | 1,853 | 736 | 20 | 63% | 30% | 8% |
| No accommodations | 3,522 | 735 | 21 | 67% | 26% | 7% |

**Table 10.A.53 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for Mathematics, Grade Eight**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,757 | 831 | 20 | 71% | 25% | 4% |
| Male | 3,162 | 831 | 21 | 70% | 25% | 5% |
| Female | 1,595 | 831 | 20 | 73% | 24% | 3% |
| American Indian or Alaska Native | 42 | 834 | 20 | 62% | 33% | 5% |
| Asian | 375 | 829 | 21 | 75% | 21% | 4% |
| Native Hawaiian or Other Pacific Islander | 21 | 823 | 21 | 81% | 19% | 0% |
| Filipino | 150 | 827 | 21 | 76% | 22% | 2% |
| Hispanic or Latino | 2,570 | 832 | 20 | 71% | 25% | 4% |
| Black or African American | 420 | 831 | 20 | 72% | 23% | 5% |
| White | 1,065 | 831 | 21 | 69% | 25% | 5% |
| Two or more races | 114 | 832 | 21 | 65% | 29% | 6% |
| English only | 2,778 | 831 | 21 | 71% | 24% | 5% |
| Initial fluent English proficient | 86 | 830 | 21 | 67% | 30% | 2% |
| English learner | 1,565 | 831 | 20 | 71% | 25% | 4% |
| Reclassified fluent English proficient | 321 | 832 | 20 | 71% | 25% | 4% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,111 | 833 | 20 | 69% | 26% | 5% |
| Not economically disadvantaged | 1,646 | 828 | 21 | 74% | 22% | 4% |
| Migrant | 21 | 840 | 16 | 76% | 10% | 14% |
| Nonmigrant | 4,736 | 831 | 20 | 71% | 25% | 4% |
| Intellectual disability | 1,976 | 832 | 19 | 73% | 24% | 3% |
| Hearing impairment | 54 | 840 | 19 | 56% | 35% | 9% |
| Speech or language impairment | 73 | 841 | 17 | 53% | 37% | 10% |
| Visual impairment | 39 | 816 | 21 | 87% | 13% | 0% |
| Emotional disturbance | 30 | 843 | 19 | 50% | 37% | 13% |
| Orthopedic impairment | 285 | 822 | 22 | 80% | 17% | 3% |
| Other health impairment | 206 | 838 | 19 | 55% | 38% | 7% |
| Specific learning disability | 261 | 846 | 14 | 41% | 48% | 11% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 238 | 816 | 20 | 88% | 11% | 1% |
| Autism | 1,528 | 831 | 20 | 73% | 23% | 5% |
| Traumatic brain injury | 25 | 833 | 17 | 72% | 28% | 0% |
| Not classified | 42 | 822 | 17 | 93% | 7% | 0% |
| Using designated supports | 1,189 | 834 | 20 | 65% | 29% | 6% |
| No designated supports | 3,568 | 830 | 20 | 73% | 23% | 4% |
| Using accommodations | 600 | 830 | 21 | 69% | 27% | 4% |
| No accommodations | 4,157 | 831 | 20 | 71% | 24% | 4% |

**Table 10.A.54 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for Mathematics, Grade Eight**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,232 | 834 | 21 | 66% | 27% | 7% |
| Male | 3,471 | 834 | 21 | 65% | 27% | 8% |
| Female | 1,761 | 833 | 21 | 66% | 27% | 6% |
| American Indian or Alaska Native | 39 | 837 | 21 | 56% | 33% | 10% |
| Asian | 408 | 832 | 22 | 70% | 22% | 8% |
| Native Hawaiian or Other Pacific Islander | 21 | 836 | 19 | 57% | 43% | 0% |
| Filipino | 179 | 831 | 21 | 72% | 23% | 4% |
| Hispanic or Latino | 2,840 | 834 | 21 | 64% | 29% | 7% |
| Black or African American | 452 | 833 | 22 | 66% | 26% | 8% |
| White | 1,116 | 833 | 21 | 68% | 24% | 8% |
| Two or more races | 177 | 834 | 22 | 63% | 28% | 10% |
| English only | 3,073 | 833 | 21 | 66% | 26% | 7% |
| Initial fluent English proficient | 82 | 828 | 21 | 77% | 18% | 5% |
| English learner | 1,692 | 834 | 21 | 65% | 28% | 7% |
| Reclassified fluent English proficient | 377 | 836 | 21 | 60% | 31% | 9% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,284 | 836 | 20 | 63% | 30% | 8% |
| Not economically disadvantaged | 1,948 | 830 | 22 | 71% | 22% | 6% |
| Migrant | 33 | 845 | 18 | 39% | 42% | 18% |
| Nonmigrant | 5,199 | 834 | 21 | 66% | 27% | 7% |
| Intellectual disability | 2,070 | 833 | 19 | 70% | 26% | 4% |
| Hearing impairment | 51 | 844 | 19 | 43% | 41% | 16% |
| Speech or language impairment | 95 | 849 | 13 | 34% | 51% | 16% |
| Visual impairment | 39 | 821 | 24 | 79% | 13% | 8% |
| Emotional disturbance | 33 | 842 | 19 | 58% | 33% | 9% |
| Orthopedic impairment | 237 | 820 | 21 | 83% | 16% | 1% |
| Other health impairment | 241 | 840 | 19 | 53% | 38% | 9% |
| Specific learning disability | 357 | 852 | 14 | 28% | 47% | 24% |
| Deaf–blindness | 5 | NA | NA | NA | NA | NA |
| Multiple disabilities | 315 | 817 | 22 | 85% | 13% | 2% |
| Autism | 1,764 | 834 | 21 | 67% | 25% | 8% |
| Traumatic brain injury | 24 | 843 | 24 | 46% | 38% | 17% |
| Not classified | 1 | NA | NA | NA | NA | NA |
| Using designated supports | 1,803 | 837 | 21 | 60% | 31% | 9% |
| No designated supports | 3,429 | 832 | 21 | 69% | 25% | 6% |
| Using accommodations | 972 | 832 | 21 | 68% | 26% | 6% |
| No accommodations | 4,260 | 834 | 21 | 65% | 27% | 8% |

**Table 10.A.55 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for Mathematics, Grade Eight**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 5,229 | 834 | 20 | 64% | 29% | 7% |
| Male | 3,532 | 835 | 20 | 63% | 30% | 7% |
| Female | 1,697 | 833 | 20 | 66% | 28% | 6% |
| American Indian or Alaska Native | 31 | 838 | 21 | 52% | 32% | 16% |
| Asian | 435 | 833 | 21 | 65% | 29% | 7% |
| Native Hawaiian or Other Pacific Islander | 24 | 828 | 20 | 83% | 13% | 4% |
| Filipino | 163 | 836 | 21 | 60% | 32% | 8% |
| Hispanic or Latino | 2,968 | 835 | 20 | 63% | 30% | 7% |
| Black or African American | 430 | 835 | 18 | 66% | 30% | 4% |
| White | 1,023 | 834 | 21 | 66% | 27% | 7% |
| Two or more races | 155 | 836 | 20 | 66% | 26% | 8% |
| English only | 2,965 | 835 | 20 | 65% | 29% | 6% |
| Initial fluent English proficient | 93 | 829 | 21 | 73% | 23% | 4% |
| English learner | 1,648 | 834 | 21 | 63% | 30% | 7% |
| Reclassified fluent English proficient | 515 | 837 | 19 | 60% | 33% | 8% |
| To be determined | 2 | NA | NA | NA | NA | NA |
| English proficiency unknown | 6 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 3,409 | 836 | 20 | 62% | 32% | 7% |
| Not economically disadvantaged | 1,820 | 832 | 21 | 69% | 25% | 7% |
| Migrant | 34 | 841 | 18 | 44% | 47% | 9% |
| Nonmigrant | 5,195 | 834 | 20 | 64% | 29% | 7% |
| Intellectual disability | 2,084 | 834 | 19 | 69% | 27% | 4% |
| Hearing impairment | 50 | 842 | 21 | 50% | 34% | 16% |
| Speech or language impairment | 104 | 848 | 14 | 38% | 48% | 14% |
| Visual impairment | 31 | 818 | 20 | 87% | 10% | 3% |
| Emotional disturbance | 36 | 845 | 16 | 33% | 56% | 11% |
| Orthopedic impairment | 214 | 822 | 22 | 79% | 17% | 4% |
| Other health impairment | 280 | 842 | 18 | 49% | 40% | 12% |
| Specific learning disability | 341 | 851 | 13 | 28% | 51% | 21% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 278 | 817 | 21 | 84% | 14% | 2% |
| Autism | 1,785 | 834 | 20 | 65% | 28% | 6% |
| Traumatic brain injury | 23 | 836 | 20 | 57% | 39% | 4% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 2,158 | 836 | 20 | 60% | 32% | 8% |
| No designated supports | 3,071 | 833 | 21 | 67% | 27% | 6% |
| Using accommodations | 1,696 | 837 | 19 | 60% | 32% | 7% |
| No accommodations | 3,533 | 833 | 20 | 66% | 28% | 6% |

**Table 10.A.56 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2015–16 for Mathematics, Grade Eleven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,268 | 933 | 20 | 66% | 29% | 6% |
| Male | 2,800 | 934 | 21 | 64% | 29% | 7% |
| Female | 1,468 | 931 | 20 | 69% | 27% | 3% |
| American Indian or Alaska Native | 30 | 941 | 17 | 60% | 30% | 10% |
| Asian | 332 | 931 | 22 | 70% | 23% | 7% |
| Native Hawaiian or Other Pacific Islander | 17 | 936 | 19 | 71% | 24% | 6% |
| Filipino | 142 | 931 | 20 | 68% | 26% | 6% |
| Hispanic or Latino | 2,257 | 933 | 20 | 67% | 28% | 5% |
| Black or African American | 402 | 936 | 21 | 60% | 34% | 6% |
| White | 982 | 934 | 20 | 64% | 30% | 6% |
| Two or more races | 106 | 934 | 19 | 61% | 34% | 5% |
| English only | 2,598 | 934 | 20 | 65% | 29% | 6% |
| Initial fluent English proficient | 69 | 932 | 23 | 61% | 32% | 7% |
| English learner | 1,278 | 932 | 20 | 70% | 26% | 4% |
| Reclassified fluent English proficient | 318 | 936 | 21 | 62% | 29% | 9% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 4 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 2,749 | 935 | 20 | 64% | 30% | 6% |
| Not economically disadvantaged | 1,519 | 931 | 21 | 70% | 25% | 5% |
| Migrant | 17 | 938 | 18 | 59% | 41% | 0% |
| Nonmigrant | 4,251 | 933 | 20 | 66% | 28% | 6% |
| Intellectual disability | 1,923 | 932 | 19 | 70% | 27% | 3% |
| Hearing impairment | 47 | 934 | 19 | 68% | 28% | 4% |
| Speech or language impairment | 46 | 946 | 12 | 46% | 43% | 11% |
| Visual impairment | 29 | 927 | 25 | 66% | 28% | 7% |
| Emotional disturbance | 48 | 950 | 17 | 29% | 48% | 23% |
| Orthopedic impairment | 263 | 924 | 21 | 83% | 15% | 2% |
| Other health impairment | 149 | 942 | 19 | 50% | 38% | 11% |
| Specific learning disability | 298 | 948 | 14 | 34% | 48% | 18% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 218 | 919 | 21 | 82% | 16% | 2% |
| Autism | 1,187 | 934 | 21 | 64% | 29% | 7% |
| Traumatic brain injury | 29 | 933 | 21 | 66% | 31% | 3% |
| Not classified | 28 | 906 | 14 | 96% | 4% | 0% |
| Using designated supports | 805 | 934 | 20 | 64% | 30% | 5% |
| No designated supports | 3,463 | 933 | 20 | 66% | 28% | 6% |
| Using accommodations | 337 | 928 | 21 | 75% | 21% | 4% |
| No accommodations | 3,931 | 934 | 20 | 65% | 29% | 6% |

**Table 10.A.57 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2016–17 for Mathematics, Grade Eleven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,496 | 934 | 20 | 66% | 28% | 6% |
| Male | 2,878 | 934 | 20 | 64% | 30% | 6% |
| Female | 1,618 | 932 | 20 | 69% | 26% | 5% |
| American Indian or Alaska Native | 38 | 932 | 20 | 68% | 29% | 3% |
| Asian | 340 | 930 | 21 | 71% | 22% | 6% |
| Native Hawaiian or Other Pacific Islander | 29 | 936 | 18 | 55% | 45% | 0% |
| Filipino | 150 | 933 | 22 | 65% | 28% | 7% |
| Hispanic or Latino | 2,417 | 934 | 20 | 66% | 29% | 5% |
| Black or African American | 402 | 934 | 21 | 67% | 26% | 7% |
| White | 1,000 | 934 | 20 | 63% | 30% | 7% |
| Two or more races | 120 | 932 | 21 | 68% | 27% | 5% |
| English only | 2,638 | 933 | 20 | 66% | 28% | 6% |
| Initial fluent English proficient | 82 | 927 | 23 | 76% | 22% | 2% |
| English learner | 1,346 | 933 | 20 | 67% | 28% | 5% |
| Reclassified fluent English proficient | 424 | 938 | 19 | 58% | 34% | 8% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 5 | NA | NA | NA | NA | NA |
| Economically disadvantaged | 2,861 | 935 | 20 | 65% | 29% | 6% |
| Not economically disadvantaged | 1,635 | 932 | 21 | 68% | 27% | 5% |
| Migrant | 19 | 943 | 10 | 53% | 47% | 0% |
| Nonmigrant | 4,477 | 934 | 20 | 66% | 28% | 6% |
| Intellectual disability | 1,937 | 933 | 19 | 70% | 26% | 4% |
| Hearing impairment | 63 | 938 | 20 | 62% | 27% | 11% |
| Speech or language impairment | 41 | 949 | 12 | 32% | 59% | 10% |
| Visual impairment | 39 | 921 | 23 | 79% | 18% | 3% |
| Emotional disturbance | 31 | 946 | 11 | 52% | 39% | 10% |
| Orthopedic impairment | 291 | 923 | 22 | 80% | 16% | 3% |
| Other health impairment | 202 | 943 | 18 | 42% | 46% | 12% |
| Specific learning disability | 298 | 949 | 13 | 33% | 51% | 16% |
| Deaf–blindness | 0 | NA | NA | NA | NA | NA |
| Multiple disabilities | 231 | 918 | 21 | 84% | 15% | 1% |
| Autism | 1,328 | 935 | 20 | 65% | 29% | 6% |
| Traumatic brain injury | 30 | 939 | 22 | 73% | 17% | 10% |
| Not classified | 5 | NA | NA | NA | NA | NA |
| Using designated supports | 934 | 936 | 20 | 62% | 30% | 9% |
| No designated supports | 3,562 | 933 | 20 | 67% | 28% | 5% |
| Using accommodations | 529 | 932 | 20 | 69% | 26% | 4% |
| No accommodations | 3,967 | 934 | 20 | 65% | 29% | 6% |

**Table 10.A.58 Student Groups Comparisons of Scale Score Mean, Standard Deviation and Achievement Levels: 2017–18 for Mathematics, Grade Eleven**

| Student Group | N | SS Mean | SS SD | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|---|---|
| All Students | 4,437 | 935 | 21 | 65% | 26% | 9% |
| Male | 2,916 | 936 | 21 | 62% | 27% | 11% |
| Female | 1,521 | 934 | 20 | 70% | 23% | 7% |
| American Indian or Alaska Native | 34 | 946 | 18 | 38% | 44% | 18% |
| Asian | 346 | 934 | 21 | 70% | 22% | 8% |
| Native Hawaiian or Other Pacific Islander | 18 | 932 | 24 | 56% | 33% | 11% |
| Filipino | 128 | 936 | 21 | 68% | 22% | 10% |
| Hispanic or Latino | 2,430 | 935 | 20 | 66% | 25% | 9% |
| Black or African American | 416 | 936 | 21 | 64% | 26% | 10% |
| White | 931 | 936 | 21 | 62% | 28% | 11% |
| Two or more races | 134 | 935 | 23 | 64% | 25% | 10% |
| English only | 2,599 | 936 | 21 | 64% | 26% | 10% |
| Initial fluent English proficient | 70 | 936 | 22 | 63% | 29% | 9% |
| English learner | 1,239 | 934 | 21 | 68% | 24% | 8% |
| Reclassified fluent English proficient | 517 | 938 | 20 | 63% | 26% | 11% |
| To be determined | 1 | NA | NA | NA | NA | NA |
| English proficiency unknown | 11 | 923 | 19 | 91% | 9% | 0% |
| Economically disadvantaged | 2,857 | 937 | 20 | 63% | 27% | 10% |
| Not economically disadvantaged | 1,580 | 933 | 22 | 68% | 23% | 9% |
| Migrant | 16 | 940 | 18 | 63% | 31% | 6% |
| Nonmigrant | 4,421 | 935 | 21 | 65% | 26% | 9% |
| Intellectual disability | 1,876 | 934 | 18 | 71% | 24% | 5% |
| Hearing impairment | 50 | 939 | 21 | 58% | 28% | 14% |
| Speech or language impairment | 46 | 951 | 14 | 41% | 30% | 28% |
| Visual impairment | 29 | 922 | 24 | 86% | 10% | 3% |
| Emotional disturbance | 39 | 949 | 22 | 36% | 36% | 28% |
| Orthopedic impairment | 230 | 925 | 22 | 75% | 20% | 5% |
| Other health impairment | 190 | 943 | 20 | 49% | 35% | 15% |
| Specific learning disability | 275 | 954 | 14 | 21% | 48% | 31% |
| Deaf–blindness | 3 | NA | NA | NA | NA | NA |
| Multiple disabilities | 230 | 918 | 21 | 87% | 11% | 3% |
| Autism | 1,431 | 937 | 21 | 63% | 26% | 11% |
| Traumatic brain injury | 38 | 927 | 23 | 82% | 16% | 3% |
| Not classified | 0 | NA | NA | NA | NA | NA |
| Using designated supports | 1,176 | 937 | 22 | 61% | 26% | 13% |
| No designated supports | 3,261 | 935 | 20 | 67% | 25% | 8% |
| Using accommodations | 753 | 937 | 21 | 61% | 27% | 12% |
| No accommodations | 3,684 | 935 | 21 | 66% | 25% | 9% |

# Appendix 10.B: Comparisons of Test Characteristics

**Table 10.B.1 Marginal Reliability and Standard Error of the Measurement (SEM) Across 2015–16, 2016–17, and 2017–18**

| Content Area and Grade | 2015–16 Reliability | 2016–17 Reliability | 2017–18 Reliability | 2015–16 Theta Score Mean | 2015–16 Theta Score SD | 2015–16 Theta Score SEM | 2016–17 Theta Score Mean | 2016–17 Theta Score SD | 2016–17 Theta Score SEM | 2017–18 Theta Score Mean | 2017–18 Theta Score SD | 2017–18 Theta Score SEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ELA 3 | 0.89 | 0.89 | 0.88 | -0.03 | 1.29 | 0.43 | 0.09 | 1.54 | 0.52 | 0.07 | 1.26 | 0.44 |
| ELA 4 | 0.85 | 0.87 | 0.88 | -0.03 | 1.03 | 0.39 | 0.04 | 1.33 | 0.48 | 0.03 | 1.21 | 0.42 |
| ELA 5 | 0.83 | 0.88 | 0.88 | -0.04 | 0.92 | 0.38 | 0.01 | 1.23 | 0.42 | 0.07 | 1.19 | 0.41 |
| ELA 6 | 0.85 | 0.86 | 0.86 | 0.00 | 0.99 | 0.39 | -0.05 | 1.08 | 0.41 | 0.03 | 1.06 | 0.40 |
| ELA 7 | 0.84 | 0.89 | 0.89 | -0.08 | 0.99 | 0.39 | -0.15 | 1.28 | 0.42 | -0.02 | 1.29 | 0.43 |
| ELA 8 | 0.86 | 0.87 | 0.85 | -0.05 | 0.94 | 0.36 | 0.02 | 1.07 | 0.39 | 0.03 | 1.00 | 0.39 |
| ELA 11 | 0.84 | 0.85 | 0.89 | -0.07 | 0.94 | 0.38 | 0.11 | 1.07 | 0.41 | 0.16 | 1.24 | 0.41 |
| Mathematics 3 | 0.74 | 0.81 | 0.80 | -0.08 | 0.83 | 0.43 | -0.12 | 1.02 | 0.44 | 0.04 | 0.93 | 0.41 |
| Mathematics 4 | 0.78 | 0.84 | 0.82 | -0.12 | 0.88 | 0.41 | -0.07 | 1.03 | 0.41 | -0.04 | 0.88 | 0.38 |
| Mathematics 5 | 0.78 | 0.84 | 0.82 | -0.06 | 0.80 | 0.37 | -0.11 | 1.05 | 0.42 | 0.02 | 0.93 | 0.40 |
| Mathematics 6 | 0.76 | 0.73 | 0.75 | -0.15 | 0.86 | 0.42 | -0.04 | 0.85 | 0.44 | 0.04 | 0.83 | 0.42 |
| Mathematics 7 | 0.81 | 0.84 | 0.82 | -0.08 | 0.90 | 0.40 | -0.10 | 1.05 | 0.42 | -0.01 | 0.93 | 0.39 |
| Mathematics 8 | 0.76 | 0.81 | 0.80 | -0.15 | 0.89 | 0.43 | -0.02 | 0.92 | 0.40 | 0.03 | 0.77 | 0.35 |
| Mathematics 11 | 0.77 | 0.80 | 0.83 | -0.11 | 0.96 | 0.46 | -0.10 | 0.96 | 0.43 | -0.04 | 1.01 | 0.41 |

# Chapter 11: Continuous Improvement

The third operational administration of the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics was offered during the 2017–18 school year. Over the past three years, continuous efforts have been made to improve the assessments in various ways. This chapter summarizes the completed and ongoing improvements for the CAAs for ELA and mathematics in the areas of test design, item development and item bank refreshing, test delivery and administration, psychometric analyses, and accessibility.

## 11.1 Test Design

Educational Testing Service works in collaboration with the California Department of Education (CDE) in planning, proposing, evaluating, and improving CAA test design.

The CAAs for ELA and mathematics have been administered using a multistage testing (MST) design since they were first administered operationally, during the 2015–16 California Assessment of Student Performance and Progress (CAASPP) administration. 2015–16 was also the starting point for establishing the item pool required for multistage tests (MSTs).

### 11.1.1 2015–16 Design

The assessments each have two stages, with two spiraled routers in Stage 1 and three modules in Stage 2. Although the original plan was to have one router and three modules, two router versions were administrated in 2015–16 to collect more items for the item pool. The test was composed of 21 items in each router version and 6 items in each of the three Stage 2 modules. This test design facilitated the collection of item information for up to 50 unique items in each test. Prior to the start of the student's testing, the test examiner administered a survey of student characteristics (SSC) to collect students' background information.

### 11.1.2 2016–17 Design

Only one router was administered during the 2016–17 administration; this configuration took into consideration that there were already items with statistics obtained from the 2015–16 administration. The test was composed of 10 selected operational items in the router, three embedded field test items (five versions), and 15 operational items in each of the three Stage 2 modules, which allowed sufficient estimates of student ability in Stage 2. Finally, to reduce the amount of work done by the test examiner, the SSC was reduced to three short questions asked at the end of each test.

### 11.1.3 2017–18 Design

For the 2017–18 administration, a similar design to that of the 2016–17 administration was used but with one more field test item added to expand the item pool. The assessment included 10 operational items in the router, four embedded field test items, and fifteen operational items in each of the easy, moderate, and hard modules. The same three-question survey used during the 2016–17 administration was presented to test examiners at the end of the assessment.

This design supported successful testing experiences and accurate student ability estimation for most students. However, the analysis of the estimated test information functions revealed a lack of differentiation across the three MST pathways for some grades and content areas. Instead, two second-stage modules would be sufficient to separate students with different abilities across all grade levels and content areas. Refer to

Figure 11.A.1 to Figure 11.A.27 for test information curves[12] based on the spring 2018 observed data.

### 11.1.4 2018–19 Design

After the 2017–18 administration, Educational Testing Service (ETS) conducted an evaluation and refresh of the existing item bank based on three years' data. After the item bank was refreshed and the language complexity of CAAs for ELA and mathematics items was lowered (described in the next subsection, 11.2), analysis showed very little separation in the average difficulties between the moderate Stage 2 module and hard Stage 2 module for some grade-specific tests in the refreshed item bank. This finding, along with findings based on test information curves, led to a test design change for the 2018–19 forms that CDE and ETS jointly proposed and agreed to implement. In the new test design, the moderate Stage 2 module was removed, leaving the easy and hard modules in Stage 2. The number of items at each tier level for the revised test design with one router and two Stage 2 modules is listed in Table 11.1.

**Table 11.1 Number of Items at Each Tier Level for Stage 2 Modules in the 2018–19 Administration**

| Tier | Router | Stage 2 Easy | Stage 2 Hard |
|---|---|---|---|
| 1 | 6–7 items | 7–8 items | 3 items |
| 2 | 3–4 items | 4–5 items | 4–5 items |
| 3 | 0 items | 3 items | 7–8 items |
| **Total:** | **10 operational items** | **15 operational items** | **15 operational items** |

In addition, to further reduce test examiners' burden and considering the limited use of the survey information, the three-question survey at the end of the CAAs for ELA and mathematics will be removed for the 2018–19 forms.

## 11.2 Item Development and Item Bank Refreshing

For the 2017–18 item development cycle, the ETS content teams used revised item specifications and lowered the language complexity of CAAs in the development of new items and for the refresh of existing ELA and mathematics items. Items developed and refreshed for this cycle, when compared to those items developed previously, featured significantly shorter reading passages, fewer sentences with complex structures, and reduced multisyllabic words. When these items were shared with teacher panelists prior to field-test administration, the feedback received was positive and enthusiastic.

This item bank refreshing work will continue through subsequent development cycles, with the goal of phasing out higher complexity items by the 2021–22 administration.

[12] The test information functions were calculated by the inverse of estimated conditional standard errors of measurement (CSEMs) of theta (estimated ability) values for the spring 2018 sample.

## 11.3 Test Delivery and Administration

### 11.3.1. Stakeholder Feedback

The CAASPP program solicits feedback annually from various stakeholder groups, including local educational agency CAASPP coordinators, CAASPP test site coordinators, test administrators, and test examiners, through the CAASPP Post-Test Survey. This year, more than 10,000 California educators provided specific, actionable insights as to how to improve the testing experience, mostly through improving the resources required for test preparation and training.

### 11.3.2. Commitment to Preparation and Training Resources

When asked about preparation and training resources for the CAAs, survey respondents found them helpful overall. When asked if the online, self-guided Test Examiner Tutorial provided all the training necessary for CAA test examiners, 82 percent of all respondents agreed it did. Of the sample of 200 respondents who indicated there is room for improvement to the Test Examiner Tutorial, many indicated a need for additional and more specific training that demonstrates the administration of the CAAs. Respondents also suggested including supplemental materials, in the form of a PowerPoint presentation, a checklist, or some other guide, to help them retain key information.

In response to this feedback, the following supplemental resources will be developed for the 2018–19 administration:

- How to Start a Test Session for CAAs for ELA/Mathematics Quick Start Guide
- How to Start a Practice Test for CAAs for ELA/Mathematics Quick Reference Guide
- How to Start a Training Test for CAAs for ELA/Mathematics Quick Reference Guide
- How to View CAA Assessment Results Quick Reference Guide

Additionally, efforts have been made to better communicate the availability of the Test Examiner Checklist, a resource that is created and posted annually. Finally, a PowerPoint version of the Test Examiner Tutorial will be made available on caaspp.org so LEA CAASPP coordinators can customize training for their test examiners.

## 11.4 Psychometric Analyses

### 11.4.1 Levels of Item Analyses

Since the 2016–17 administration of the CAAs for ELA and mathematics, composite items in grades three, five, six, and eight for ELA and all grades for mathematics assessments were included in the administration and item analyses.

Each composite item has two parts. In the 2016-17 administration year, the overall performance of the composite items was analyzed and reported. To better understand how composite items performed—not only in terms of overall performance, but also with regard to each composite part—ETS conducted item analyses for both the composite whole and composite parts after test administration in 2017–18. Additionally, the in-house tools ETS used brought about improved analysis. The composite part item analyses were very informative to help assessment developers and teacher reviewers better understand those composite items.

### 11.4.2 Types of Item Analyses

ETS has been analyzing CAA items from the first year the CAAs for ELA and mathematics were administered, including the following types of analysis:

- Item difficulty
- Item discrimination
- Item score distributions
- differential item functioning

However, distractor analyses were conducted only for multiple-choice single select items in the previous administrations, due to the complexity of the structures of other item types and effectiveness of analysis tools. For the 2018–19 CAAs for ELA and mathematics administration, ETS plans to add distractor analyses for all item types except multiple-choice, multiple-attempt items, which are scheduled to be phased out gradually at the CDE's request.

## 11.5 Equating

### 11.5.1 Presenting All Equating Results

In the postequating procedure that ETS currently uses, robust-z (Huynh & Meyer, 2010) removes unstable linking items, a process that usually requires several rounds of iterations to remove several unstable items sequentially and revealing a set of stable linking items. Prior to the 2017–18 administration, only the final results of applying robust-z were presented to the CDE. Starting with the results of the 2017–18 administration, results from each iteration of applying robust-z were recorded and presented to the CDE.

As mentioned previously, prior analyses found that the test information function for the moderate and hard modules overlapped considerably, and that there was little separation between the average difficulty of the moderate and hard modules. This analysis supported the decision to modify the 2018–19 test design by reducing the number of Stage 2 modules from three to two.

### 11.5.2 Transitioning from Postequating to Preequating in the 2019–20 Administration

The 2017–18 administration is the third operational administration for the CAAs for ELA and mathematics. To accumulate sufficient items that meet both statistical and content requirements, the CAAs for ELA and mathematics have postequated to obtain statistics for new items. However, based on item bank, as well as the reduction in the number of Stage 2 modules from three to two, there is a sufficient number of items to preequate for the 2019–20 administration and subsequent years.

To gather evidence supporting the implementation of preequating for the 2019–20 administration, both pre- and postequating will be conducted for the 2018–19 administration. Conversion tables will be created and compared for an investigation of the differences between pre- and postequated procedures. ETS plans to preequate for the 2019–20 administration pending satisfactory results from such comparison analysis in 2018–19 and approval from CDE.

## 11.6 Accessibility

Like all CAASPP assessments, the CAAs are administered using the test delivery system created by the American Institutes for Research for the Smarter Balanced assessments. As such, implementation of new online universal tools, designated supports, and accommodations are aligned with the test delivery system.

The following changes will be implemented during the 2018–19 CAAs for ELA and mathematics administrations:

- Streamline will be reassigned as an embedded designated support.
- “Medical device” will be a new non-embedded designated support for all assessments.
- The Highlighter universal tool will be available in four colors.

# Reference

Huynh, H., & Meyer, P. (2010). Use of robust z in detecting unstable items in item response theory models. *Practical Assessment, Research & Evaluation, 15*(2), 1–8.

# Appendix 11.A: Test Information Curves for 2017–18 Forms

Test information function (TIF) is a measure of the amount of information provided by a test at a given score level. Figure 11.A.1 through Figure 11.A.28 present test information functions (TIFs) by theta level and scale score for English language arts/literacy (ELA) and mathematics at each grade level. Data used to generate these figures is presented in Table 11.A.1 through Table 11.A.28.

## TIF for ELA, Grade Three

Figure 11.A.1 plots TIF by theta level for grade three ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.1.

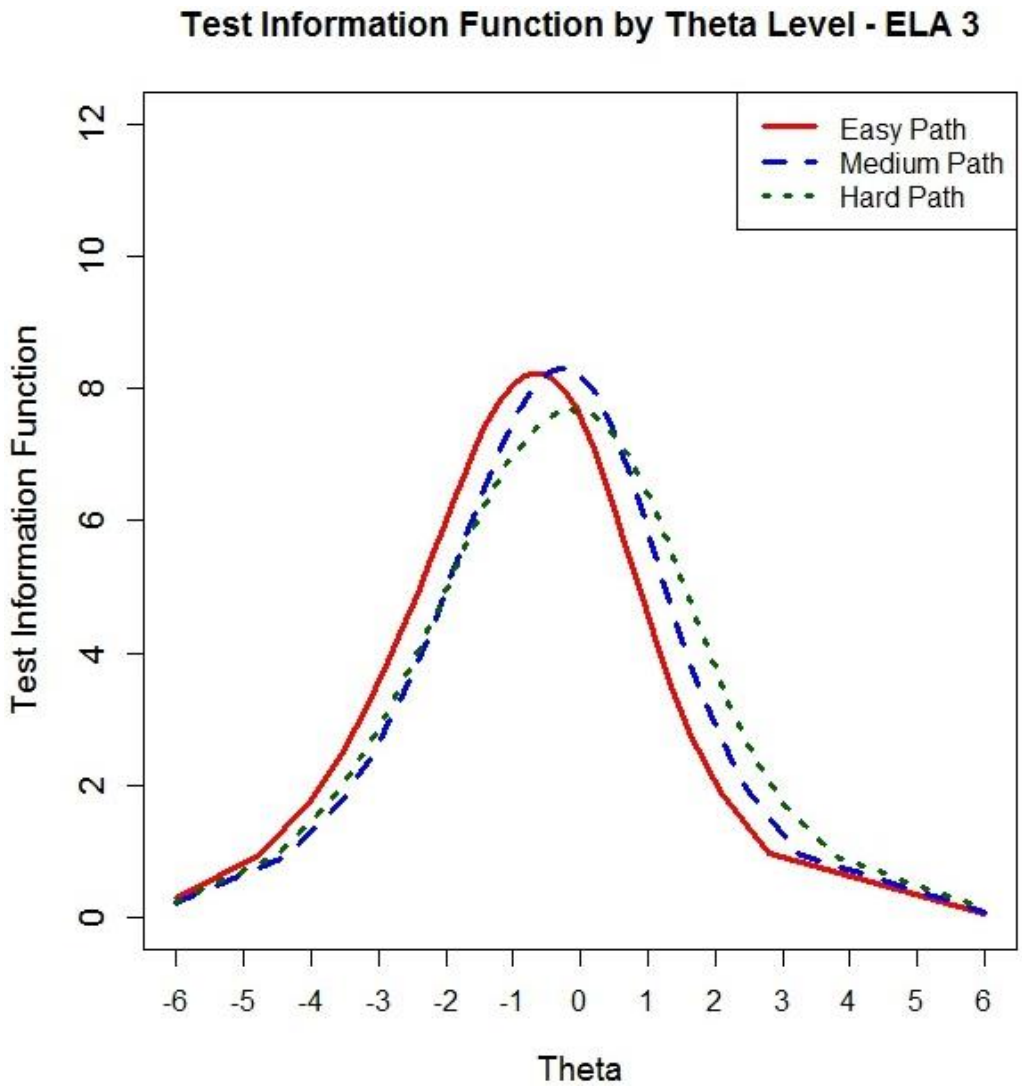


**Figure 11.A.1 TIF by Theta—ELA, Grade Three**

**Table 11.A.1 ELA, Grade Three Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.2953 | -6.0000 | 0.2042 | -6.0000 | 0.2347 |
| -4.7534 | 0.9398 | -4.3610 | 0.9239 | -4.5076 | 0.9265 |
| -3.9952 | 1.7712 | -3.5866 | 1.7279 | -3.7345 | 1.7265 |
| -3.5249 | 2.5146 | -3.1042 | 2.4536 | -3.2500 | 2.4311 |
| -3.1729 | 3.1874 | -2.7443 | 3.1282 | -2.8849 | 3.0652 |
| -2.8862 | 3.8038 | -2.4534 | 3.7668 | -2.5863 | 3.6476 |
| -2.6413 | 4.3746 | -2.2073 | 4.3741 | -2.3307 | 4.1897 |
| -2.4255 | 4.9073 | -1.9924 | 4.9489 | -2.1053 | 4.6966 |
| -2.2314 | 5.4057 | -1.8006 | 5.4848 | -1.9024 | 5.1672 |
| -2.0539 | 5.8707 | -1.6259 | 5.9766 | -1.7165 | 5.5980 |
| -1.8894 | 6.3010 | -1.4645 | 6.4189 | -1.5437 | 5.9844 |
| -1.7354 | 6.6931 | -1.3133 | 6.8101 | -1.3812 | 6.3234 |
| -1.5898 | 7.0436 | -1.1699 | 7.1512 | -1.2265 | 6.6154 |
| -1.4508 | 7.3497 | -1.0329 | 7.4438 | -1.0781 | 6.8628 |
| -1.3170 | 7.6094 | -0.9007 | 7.6918 | -0.9345 | 7.0708 |
| -1.1874 | 7.8220 | -0.7723 | 7.8978 | -0.7947 | 7.2444 |
| -1.0608 | 7.9883 | -0.6470 | 8.0632 | -0.6580 | 7.3877 |
| -0.9366 | 8.1096 | -0.5239 | 8.1882 | -0.5236 | 7.5031 |
| -0.8138 | 8.1876 | -0.4023 | 8.2713 | -0.3910 | 7.5908 |
| -0.6919 | 8.2231 | -0.2817 | 8.3095 | -0.2597 | 7.6490 |
| -0.5702 | 8.2157 | -0.1612 | 8.2993 | -0.1292 | 7.6753 |
| -0.4480 | 8.1638 | -0.0402 | 8.2369 | 0.0012 | 7.6670 |
| -0.3247 | 8.0638 | 0.0821 | 8.1189 | 0.1321 | 7.6215 |
| -0.1995 | 7.9114 | 0.2066 | 7.9425 | 0.2641 | 7.5372 |
| -0.0714 | 7.7012 | 0.3345 | 7.7053 | 0.3979 | 7.4127 |
| 0.0608 | 7.4278 | 0.4668 | 7.4064 | 0.5344 | 7.2467 |
| 0.1986 | 7.0865 | 0.6053 | 7.0442 | 0.6744 | 7.0371 |
| 0.3440 | 6.6739 | 0.7517 | 6.6190 | 0.8192 | 6.7806 |
| 0.4996 | 6.1883 | 0.9086 | 6.1303 | 0.9702 | 6.4726 |
| 0.6689 | 5.6305 | 1.0796 | 5.5775 | 1.1292 | 6.1077 |
| 0.8571 | 5.0030 | 1.2695 | 4.9613 | 1.2989 | 5.6794 |
| 1.0722 | 4.3097 | 1.4862 | 4.2816 | 1.4831 | 5.1824 |
| 1.3271 | 3.5561 | 1.7426 | 3.5398 | 1.6874 | 4.6137 |
| 1.6460 | 2.7466 | 2.0626 | 2.7386 | 1.9206 | 3.9741 |
| 2.0825 | 1.8847 | 2.5001 | 1.8810 | 2.1974 | 3.2702 |
| 2.8066 | 0.9707 | 3.2255 | 0.9692 | 2.5450 | 2.5145 |
| 6.0000 | 0.0422 | 6.0000 | 0.0642 | 3.0223 | 1.7236 |
| NA | NA | NA | NA | 3.8086 | 0.9036 |
| NA | NA | NA | NA | 6.0000 | 0.1224 |

Figure 11.A.2 plots TIF by scale score for grade three ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.2.

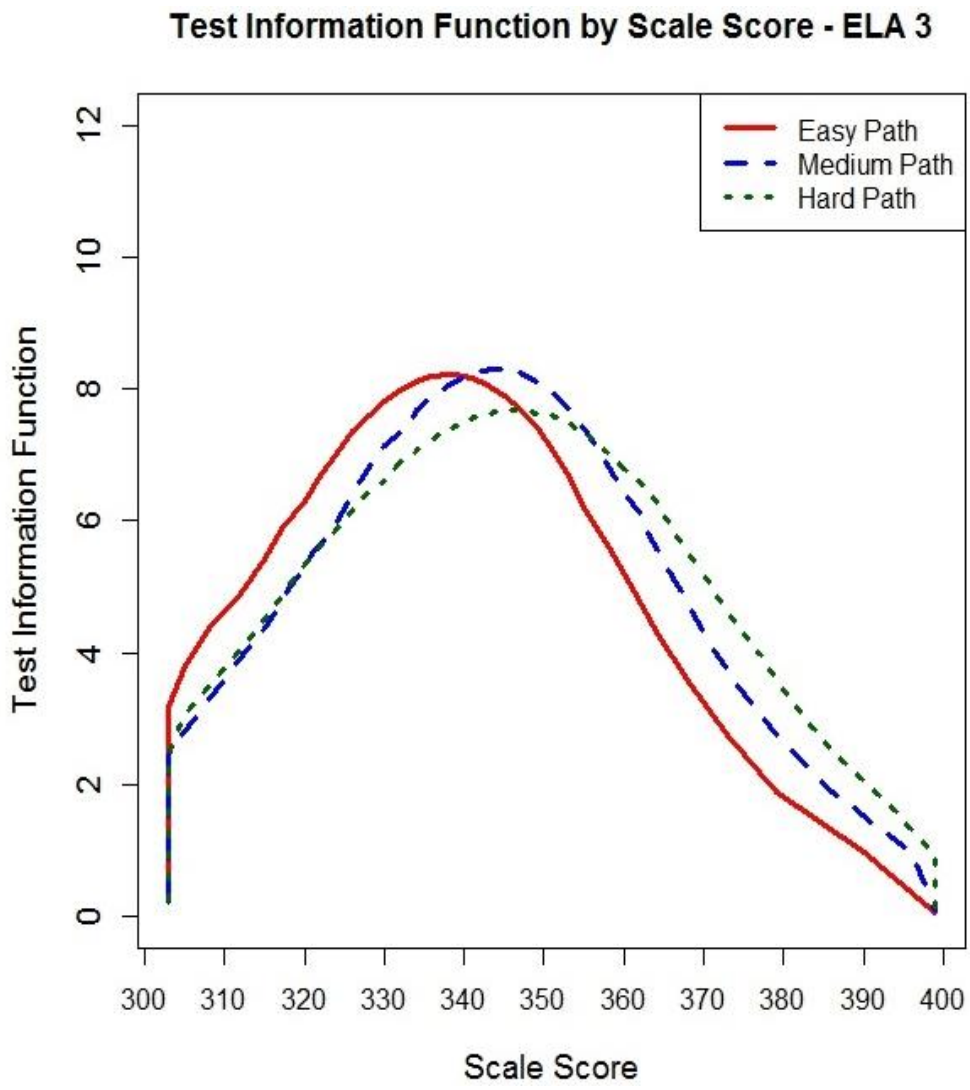


**Figure 11.A.2 TIF by Scale Score—ELA, Grade Three**

**Table 11.A.2 ELA, Grade Three Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 303 | 0.2953 | 303 | 0.2042 | 303 | 0.2347 |
| 303 | 0.9398 | 303 | 0.9239 | 303 | 0.9265 |
| 303 | 1.7712 | 303 | 1.7279 | 303 | 1.7265 |
| 303 | 2.5146 | 303 | 2.4536 | 303 | 2.4311 |
| 303 | 3.1874 | 307 | 3.1282 | 305 | 3.0652 |
| 305 | 3.8038 | 311 | 3.7668 | 309 | 3.6476 |
| 308 | 4.3746 | 315 | 4.3741 | 313 | 4.1897 |
| 312 | 4.9073 | 318 | 4.9489 | 316 | 4.6966 |
| 315 | 5.4057 | 321 | 5.4848 | 319 | 5.1672 |
| 317 | 5.8707 | 324 | 5.9766 | 322 | 5.5980 |
| 320 | 6.3010 | 326 | 6.4189 | 325 | 5.9844 |
| 322 | 6.6931 | 328 | 6.8101 | 327 | 6.3234 |
| 324 | 7.0436 | 330 | 7.1512 | 330 | 6.6154 |
| 326 | 7.3497 | 333 | 7.4438 | 332 | 6.8628 |
| 328 | 7.6094 | 334 | 7.6918 | 334 | 7.0708 |
| 330 | 7.8220 | 336 | 7.8978 | 336 | 7.2444 |
| 332 | 7.9883 | 338 | 8.0632 | 338 | 7.3877 |
| 334 | 8.1096 | 340 | 8.1882 | 340 | 7.5031 |
| 336 | 8.1876 | 342 | 8.2713 | 342 | 7.5908 |
| 338 | 8.2231 | 344 | 8.3095 | 344 | 7.6490 |
| 339 | 8.2157 | 346 | 8.2993 | 346 | 7.6753 |
| 341 | 8.1638 | 347 | 8.2369 | 348 | 7.6670 |
| 343 | 8.0638 | 349 | 8.1189 | 350 | 7.6215 |
| 345 | 7.9114 | 351 | 7.9425 | 352 | 7.5372 |
| 347 | 7.7012 | 353 | 7.7053 | 354 | 7.4127 |
| 349 | 7.4278 | 355 | 7.4064 | 356 | 7.2467 |
| 351 | 7.0865 | 357 | 7.0442 | 358 | 7.0371 |
| 353 | 6.6739 | 359 | 6.6190 | 360 | 6.7806 |
| 355 | 6.1883 | 362 | 6.1303 | 363 | 6.4726 |
| 358 | 5.6305 | 364 | 5.5775 | 365 | 6.1077 |
| 361 | 5.0030 | 367 | 4.9613 | 367 | 5.6794 |
| 364 | 4.3097 | 370 | 4.2816 | 370 | 5.1824 |
| 368 | 3.5561 | 374 | 3.5398 | 373 | 4.6137 |
| 373 | 2.7466 | 379 | 2.7386 | 377 | 3.9741 |
| 379 | 1.8847 | 386 | 1.8810 | 381 | 3.2702 |
| 390 | 0.9707 | 396 | 0.9692 | 386 | 2.5145 |
| 399 | 0.0422 | 399 | 0.0642 | 393 | 1.7236 |
| NA | NA | NA | NA | 399 | 0.9036 |
| NA | NA | NA | NA | 399 | 0.1224 |

## TIF for ELA, Grade Four

Figure 11.A.3 plots TIF by theta level for grade four ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.3.

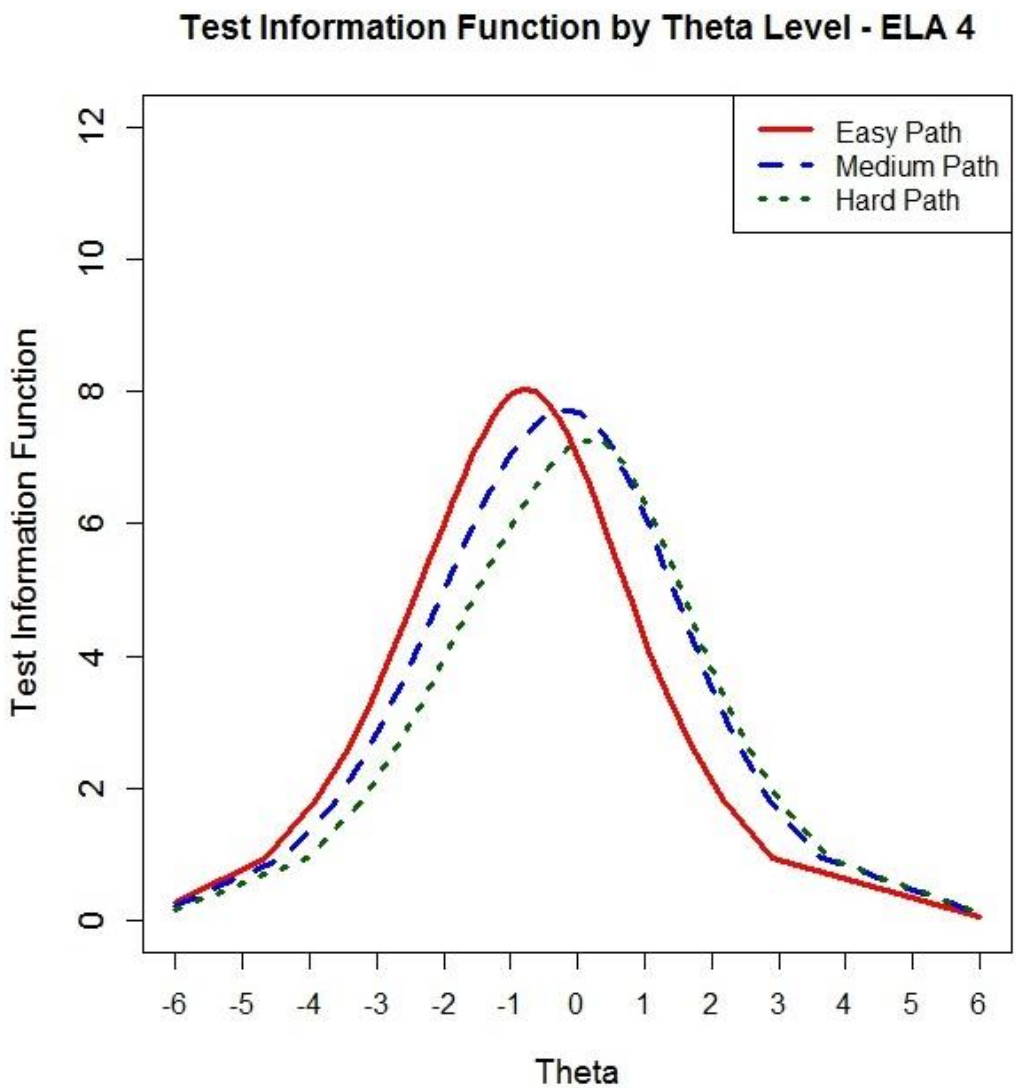


**Figure 11.A.3 TIF by Theta—ELA, Grade Four**

**Table 11.A.3 ELA, Grade Four Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.2701 | -6.0000 | 0.2077 | -6.0000 | 0.1454 |
| -4.6653 | 0.9488 | -4.3899 | 0.9400 | -4.0188 | 0.9321 |
| -3.9169 | 1.8010 | -3.6322 | 1.7731 | -3.2523 | 1.7470 |
| -3.4555 | 2.5695 | -3.1625 | 2.5193 | -2.7745 | 2.4697 |
| -3.1115 | 3.2651 | -2.8112 | 3.1925 | -2.4154 | 3.1171 |
| -2.8317 | 3.8977 | -2.5247 | 3.8032 | -2.1215 | 3.7001 |
| -2.5925 | 4.4757 | -2.2794 | 4.3580 | -1.8689 | 4.2253 |
| -2.3814 | 5.0056 | -2.0623 | 4.8619 | -1.6446 | 4.6972 |
| -2.1907 | 5.4930 | -1.8657 | 5.3183 | -1.4407 | 5.1198 |
| -2.0157 | 5.9409 | -1.6845 | 5.7296 | -1.2522 | 5.4964 |
| -1.8528 | 6.3514 | -1.5153 | 6.0974 | -1.0756 | 5.8306 |
| -1.6998 | 6.7235 | -1.3555 | 6.4236 | -0.9082 | 6.1266 |
| -1.5546 | 7.0560 | -1.2032 | 6.7098 | -0.7483 | 6.3875 |
| -1.4157 | 7.3458 | -1.0568 | 6.9579 | -0.5944 | 6.6160 |
| -1.2817 | 7.5896 | -0.9152 | 7.1693 | -0.4455 | 6.8135 |
| -1.1516 | 7.7835 | -0.7773 | 7.3454 | -0.3004 | 6.9799 |
| -1.0242 | 7.9244 | -0.6424 | 7.4872 | -0.1584 | 7.1128 |
| -0.8987 | 8.0097 | -0.5098 | 7.5950 | -0.0187 | 7.2083 |
| -0.7740 | 8.0380 | -0.3787 | 7.6686 | 0.1195 | 7.2612 |
| -0.6494 | 8.0087 | -0.2485 | 7.7069 | 0.2572 | 7.2657 |
| -0.5238 | 7.9217 | -0.1188 | 7.7083 | 0.3954 | 7.2158 |
| -0.3964 | 7.7778 | 0.0113 | 7.6707 | 0.5350 | 7.1066 |
| -0.2661 | 7.5776 | 0.1424 | 7.5917 | 0.6775 | 6.9341 |
| -0.1318 | 7.3217 | 0.2753 | 7.4690 | 0.8242 | 6.6966 |
| 0.0078 | 7.0107 | 0.4107 | 7.3003 | 0.9770 | 6.3937 |
| 0.1543 | 6.6454 | 0.5498 | 7.0833 | 1.1381 | 6.0265 |
| 0.3097 | 6.2261 | 0.6937 | 6.8159 | 1.3102 | 5.5976 |
| 0.4767 | 5.7537 | 0.8440 | 6.4960 | 1.4971 | 5.1096 |
| 0.6590 | 5.2287 | 1.0026 | 6.1216 | 1.7040 | 4.5650 |
| 0.8616 | 4.6525 | 1.1720 | 5.6908 | 1.9388 | 3.9649 |
| 1.0924 | 4.0252 | 1.3557 | 5.2019 | 2.2143 | 3.3086 |
| 1.3644 | 3.3459 | 1.5588 | 4.6531 | 2.5546 | 2.5923 |
| 1.7016 | 2.6117 | 1.7890 | 4.0433 | 3.0130 | 1.8096 |
| 2.1574 | 1.8170 | 2.0593 | 3.3711 | 3.7592 | 0.9503 |
| 2.9017 | 0.9517 | 2.3937 | 2.6347 | 6.0000 | 0.1109 |
| 6.0000 | 0.0473 | 2.8456 | 1.8317 | NA | NA |
| NA | NA | 3.5851 | 0.9565 | NA | NA |
| NA | NA | 6.0000 | 0.0929 | NA | NA |

Figure 11.A.4 plots TIF by scale score for grade four ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.4.

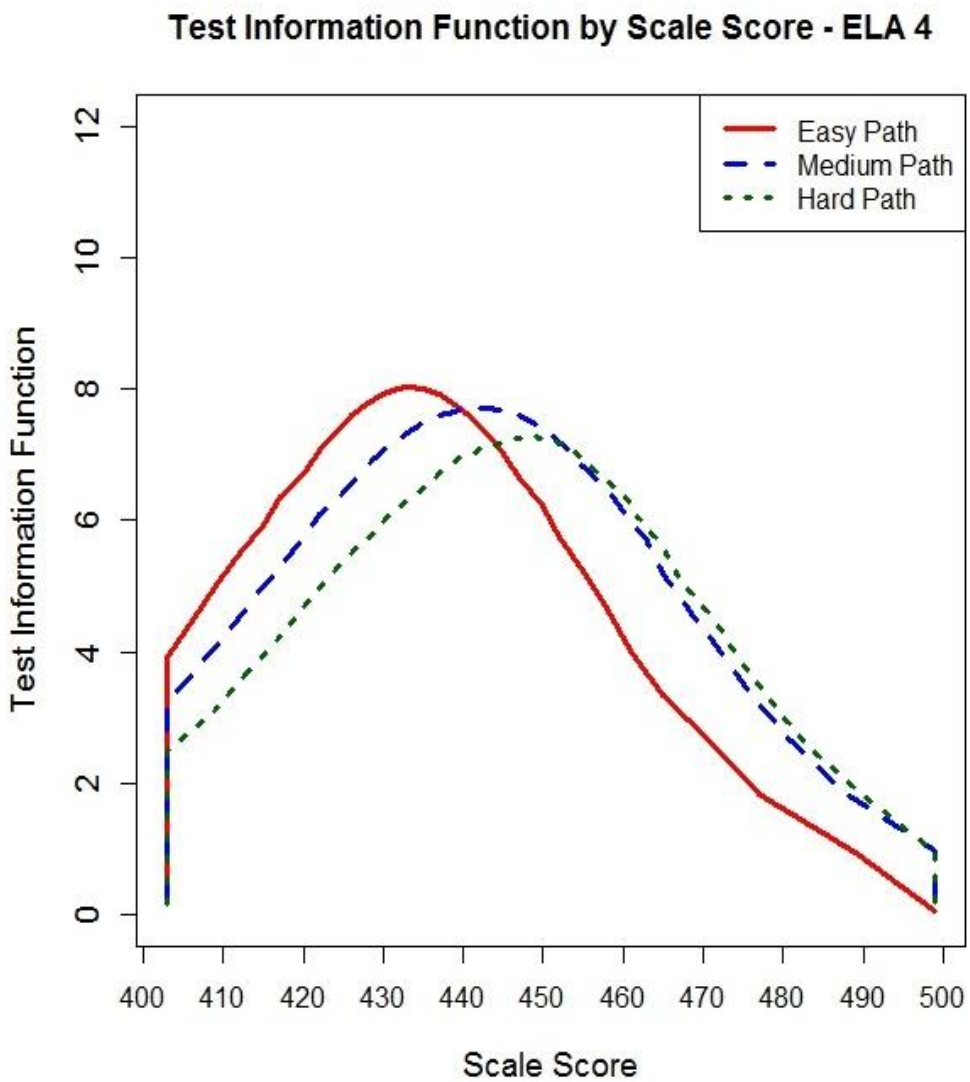


**Figure 11.A.4 TIF by Scale Score—ELA, Grade Four**

**Table 11.A.4 ELA, Grade Four Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 403 | 0.2701 | 403 | 0.2077 | 403 | 0.1454 |
| 403 | 0.9488 | 403 | 0.9400 | 403 | 0.9321 |
| 403 | 1.8010 | 403 | 1.7731 | 403 | 1.7470 |
| 403 | 2.5695 | 403 | 2.5193 | 403 | 2.4697 |
| 403 | 3.2651 | 403 | 3.1925 | 409 | 3.1171 |
| 403 | 3.8977 | 407 | 3.8032 | 413 | 3.7001 |
| 406 | 4.4757 | 411 | 4.3580 | 417 | 4.2253 |
| 409 | 5.0056 | 414 | 4.8619 | 420 | 4.6972 |
| 412 | 5.4930 | 417 | 5.3183 | 423 | 5.1198 |
| 415 | 5.9409 | 420 | 5.7296 | 426 | 5.4964 |
| 417 | 6.3514 | 422 | 6.0974 | 429 | 5.8306 |
| 420 | 6.7235 | 425 | 6.4236 | 431 | 6.1266 |
| 422 | 7.0560 | 427 | 6.7098 | 434 | 6.3875 |
| 424 | 7.3458 | 429 | 6.9579 | 436 | 6.6160 |
| 426 | 7.5896 | 431 | 7.1693 | 438 | 6.8135 |
| 428 | 7.7835 | 433 | 7.3454 | 440 | 6.9799 |
| 430 | 7.9244 | 435 | 7.4872 | 443 | 7.1128 |
| 432 | 8.0097 | 437 | 7.5950 | 445 | 7.2083 |
| 433 | 8.0380 | 439 | 7.6686 | 447 | 7.2612 |
| 435 | 8.0087 | 441 | 7.7069 | 449 | 7.2657 |
| 437 | 7.9217 | 443 | 7.7083 | 451 | 7.2158 |
| 439 | 7.7778 | 445 | 7.6707 | 453 | 7.1066 |
| 441 | 7.5776 | 447 | 7.5917 | 455 | 6.9341 |
| 443 | 7.3217 | 449 | 7.4690 | 457 | 6.6966 |
| 445 | 7.0107 | 451 | 7.3003 | 460 | 6.3937 |
| 447 | 6.6454 | 453 | 7.0833 | 462 | 6.0265 |
| 450 | 6.2261 | 455 | 6.8159 | 465 | 5.5976 |
| 452 | 5.7537 | 458 | 6.4960 | 467 | 5.1096 |
| 455 | 5.2287 | 460 | 6.1216 | 471 | 4.5650 |
| 458 | 4.6525 | 463 | 5.6908 | 474 | 3.9649 |
| 461 | 4.0252 | 465 | 5.2019 | 478 | 3.3086 |
| 465 | 3.3459 | 468 | 4.6531 | 483 | 2.5923 |
| 471 | 2.6117 | 472 | 4.0433 | 490 | 1.8096 |
| 477 | 1.8170 | 476 | 3.3711 | 499 | 0.9503 |
| 489 | 0.9517 | 481 | 2.6347 | 499 | 0.1109 |
| 499 | 0.0473 | 488 | 1.8317 | NA | NA |
| NA | NA | 499 | 0.9565 | NA | NA |
| NA | NA | 499 | 0.0929 | NA | NA |

## TIF for ELA, Grade Five

Figure 11.A.5 plots TIF by theta level for grade five ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.5.

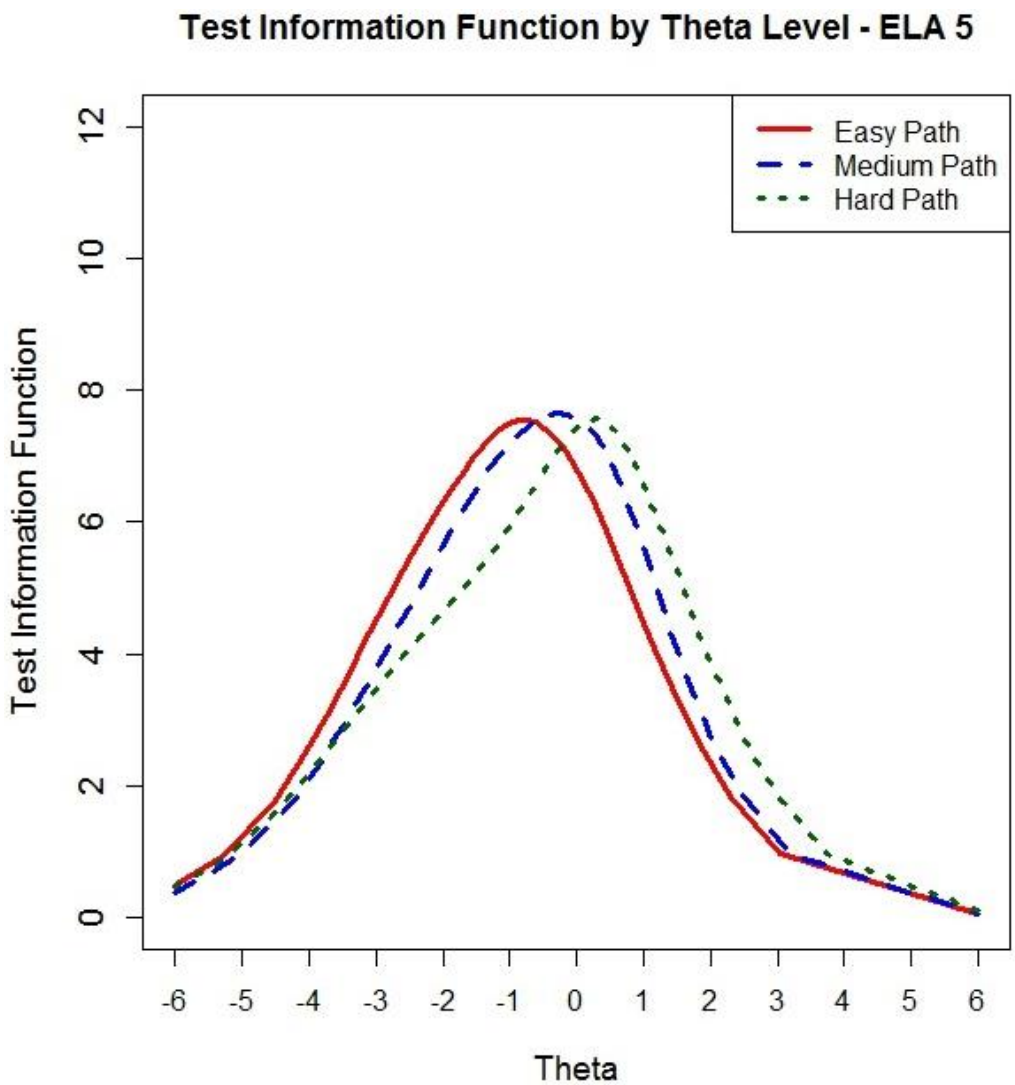


**Figure 11.A.5 TIF by Theta—ELA, Grade Five**

**Table 11.A.5 ELA, Grade Five Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.4824 | -6.0000 | 0.3847 | -6.0000 | 0.4594 |
| -5.2690 | 0.9424 | -5.0274 | 0.9305 | -5.2161 | 0.9072 |
| -4.5128 | 1.7747 | -4.2579 | 1.7342 | -4.4192 | 1.6560 |
| -4.0426 | 2.5082 | -3.7748 | 2.4323 | -3.9088 | 2.2796 |
| -3.6884 | 3.1541 | -3.4086 | 3.0434 | -3.5146 | 2.8012 |
| -3.3972 | 3.7224 | -3.1064 | 3.5835 | -3.1834 | 3.2392 |
| -3.1453 | 4.2233 | -2.8447 | 4.0665 | -2.8913 | 3.6104 |
| -2.9201 | 4.6662 | -2.6111 | 4.5037 | -2.6260 | 3.9301 |

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -2.7144 | 5.0594 | -2.3984 | 4.9033 | -2.3802 | 4.2128 |
| -2.5233 | 5.4113 | -2.2017 | 5.2718 | -2.1497 | 4.4710 |
| -2.3436 | 5.7291 | -2.0178 | 5.6128 | -1.9318 | 4.7156 |
| -2.1733 | 6.0183 | -1.8444 | 5.9281 | -1.7248 | 4.9553 |
| -2.0106 | 6.2835 | -1.6796 | 6.2180 | -1.5276 | 5.1961 |
| -1.8544 | 6.5274 | -1.5220 | 6.4821 | -1.3394 | 5.4423 |
| -1.7037 | 6.7511 | -1.3705 | 6.7192 | -1.1597 | 5.6951 |
| -1.5577 | 6.9538 | -1.2238 | 6.9292 | -0.9878 | 5.9542 |
| -1.4156 | 7.1336 | -1.0813 | 7.1113 | -0.8233 | 6.2165 |
| -1.2769 | 7.2867 | -0.9422 | 7.2659 | -0.6656 | 6.4771 |
| -1.1407 | 7.4092 | -0.8057 | 7.3937 | -0.5141 | 6.7290 |
| -1.0065 | 7.4967 | -0.6713 | 7.4955 | -0.3679 | 6.9644 |
| -0.8735 | 7.5451 | -0.5385 | 7.5717 | -0.2264 | 7.1737 |
| -0.7410 | 7.5510 | -0.4068 | 7.6217 | -0.0886 | 7.3473 |
| -0.6081 | 7.5119 | -0.2757 | 7.6438 | 0.0464 | 7.4758 |
| -0.4742 | 7.4265 | -0.1447 | 7.6342 | 0.1795 | 7.5501 |
| -0.3383 | 7.2942 | -0.0133 | 7.5874 | 0.3118 | 7.5626 |
| -0.1995 | 7.1151 | 0.1193 | 7.4960 | 0.4445 | 7.5073 |
| -0.0566 | 6.8893 | 0.2541 | 7.3511 | 0.5789 | 7.3801 |
| 0.0915 | 6.6175 | 0.3921 | 7.1438 | 0.7162 | 7.1794 |
| 0.2464 | 6.2992 | 0.5348 | 6.8655 | 0.8582 | 6.9059 |
| 0.4100 | 5.9337 | 0.6844 | 6.5089 | 1.0068 | 6.5624 |
| 0.5847 | 5.5195 | 0.8434 | 6.0702 | 1.1641 | 6.1543 |
| 0.7739 | 5.0543 | 1.0156 | 5.5482 | 1.3331 | 5.6871 |
| 0.9827 | 4.5343 | 1.2063 | 4.9458 | 1.5175 | 5.1664 |
| 1.2185 | 3.9560 | 1.4236 | 4.2688 | 1.7226 | 4.5960 |
| 1.4941 | 3.3145 | 1.6808 | 3.5255 | 1.9562 | 3.9775 |
| 1.8332 | 2.6045 | 2.0024 | 2.7241 | 2.2314 | 3.3088 |
| 2.2891 | 1.8200 | 2.4423 | 1.8708 | 2.5721 | 2.5859 |
| 3.0315 | 0.9544 | 3.1711 | 0.9657 | 3.0320 | 1.8019 |
| 6.0000 | 0.0536 | 6.0000 | 0.0611 | 3.7817 | 0.9462 |
| NA | NA | NA | NA | 6.0000 | 0.1139 |

Figure 11.A.6 plots TIF by scale score for grade five ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.6.

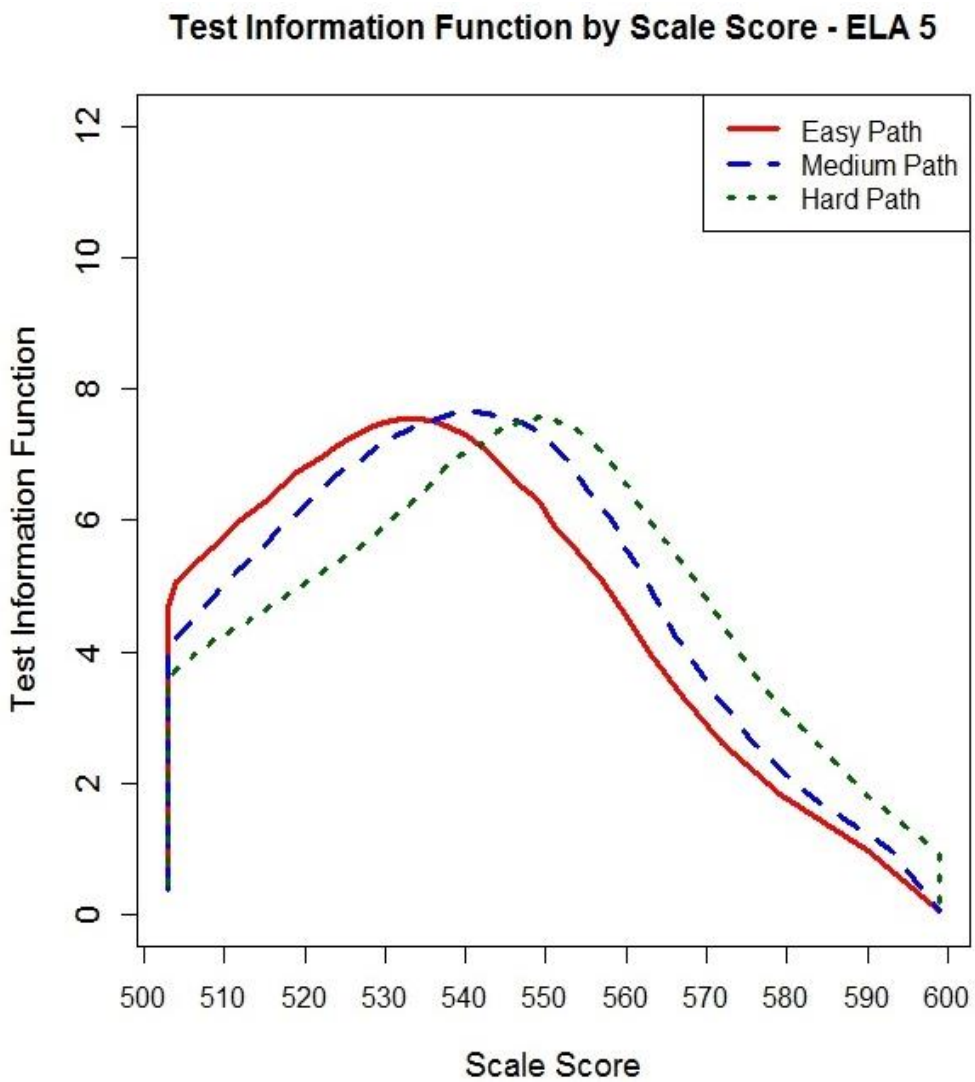


**Figure 11.A.6 TIF by Scale Score—ELA, Grade Five**

**Table 11.A.6 ELA, Grade Five Scale Score TIF Data**

| Scale Score Easy | TIF-Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 503 | 0.4824 | 503 | 0.3847 | 503 | 0.4594 |
| 503 | 0.9424 | 503 | 0.9305 | 503 | 0.9072 |
| 503 | 1.7747 | 503 | 1.7342 | 503 | 1.6560 |
| 503 | 2.5082 | 503 | 2.4323 | 503 | 2.2796 |
| 503 | 3.1541 | 503 | 3.0434 | 503 | 2.8012 |
| 503 | 3.7224 | 503 | 3.5835 | 503 | 3.2392 |
| 503 | 4.2233 | 503 | 4.0665 | 503 | 3.6104 |
| 503 | 4.6662 | 506 | 4.5037 | 506 | 3.9301 |
| 504 | 5.0594 | 509 | 4.9033 | 509 | 4.2128 |

| Scale Score Easy | TIF-Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 507 | 5.4113 | 512 | 5.2718 | 513 | 4.4710 |
| 510 | 5.7291 | 515 | 5.6128 | 516 | 4.7156 |
| 512 | 6.0183 | 517 | 5.9281 | 519 | 4.9553 |
| 515 | 6.2835 | 520 | 6.2180 | 522 | 5.1961 |
| 517 | 6.5274 | 522 | 6.4821 | 525 | 5.4423 |
| 519 | 6.7511 | 524 | 6.7192 | 528 | 5.6951 |
| 522 | 6.9538 | 527 | 6.9292 | 530 | 5.9542 |
| 524 | 7.1336 | 529 | 7.1113 | 533 | 6.2165 |
| 526 | 7.2867 | 531 | 7.2659 | 535 | 6.4771 |
| 528 | 7.4092 | 533 | 7.3937 | 537 | 6.7290 |
| 530 | 7.4967 | 535 | 7.4955 | 539 | 6.9644 |
| 532 | 7.5451 | 537 | 7.5717 | 542 | 7.1737 |
| 534 | 7.5510 | 539 | 7.6217 | 544 | 7.3473 |
| 536 | 7.5119 | 541 | 7.6438 | 546 | 7.4758 |
| 538 | 7.4265 | 543 | 7.6342 | 548 | 7.5501 |
| 540 | 7.2942 | 545 | 7.5874 | 550 | 7.5626 |
| 542 | 7.1151 | 547 | 7.4960 | 552 | 7.5073 |
| 544 | 6.8893 | 549 | 7.3511 | 554 | 7.3801 |
| 546 | 6.6175 | 551 | 7.1438 | 556 | 7.1794 |
| 549 | 6.2992 | 553 | 6.8655 | 558 | 6.9059 |
| 551 | 5.9337 | 555 | 6.5089 | 560 | 6.5624 |
| 554 | 5.5195 | 558 | 6.0702 | 562 | 6.1543 |
| 557 | 5.0543 | 560 | 5.5482 | 565 | 5.6871 |
| 560 | 4.5343 | 563 | 4.9458 | 568 | 5.1664 |
| 563 | 3.9560 | 566 | 4.2688 | 571 | 4.5960 |
| 567 | 3.3145 | 570 | 3.5255 | 574 | 3.9775 |
| 572 | 2.6045 | 575 | 2.7241 | 578 | 3.3088 |
| 579 | 1.8200 | 582 | 1.8708 | 584 | 2.5859 |
| 590 | 0.9544 | 593 | 0.9657 | 590 | 1.8019 |
| 599 | 0.0536 | 599 | 0.0611 | 599 | 0.9462 |
| NA | NA | NA | NA | 599 | 0.1139 |

### TIF for ELA, Grade Six

Figure 11.A.7 plots TIF by theta level for grade six ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.7.

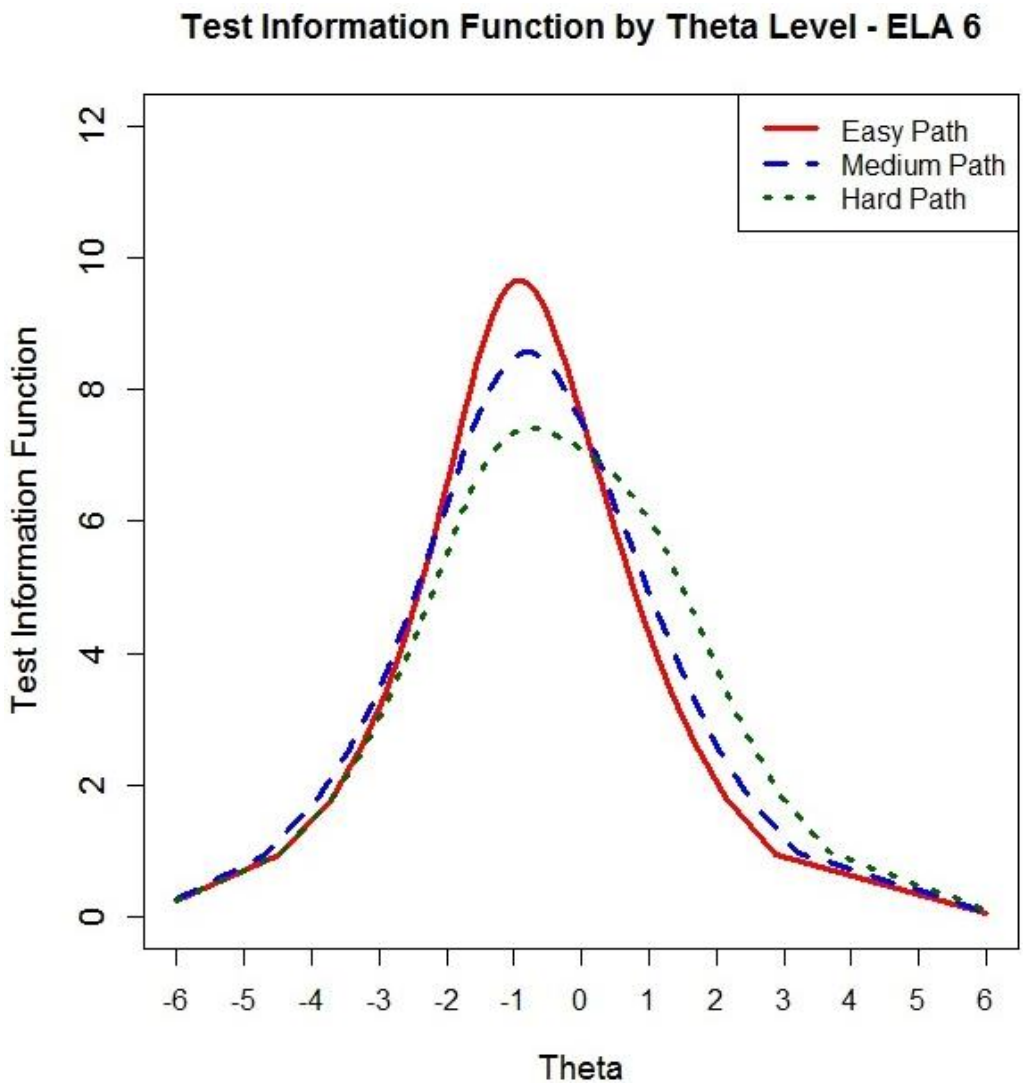


**Figure 11.A.7 TIF by Theta—ELA, Grade Six**

**Table 11.A.7 ELA, Grade Six Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.2267 | -6.0000 | 0.2771 | -6.0000 | 0.2253 |
| -4.4782 | 0.9382 | -4.6862 | 0.9376 | -4.4689 | 0.9334 |
| -3.7215 | 1.7861 | -3.9266 | 1.7700 | -3.7055 | 1.7618 |
| -3.2590 | 2.5856 | -3.4570 | 2.5257 | -3.2342 | 2.5197 |
| -2.9207 | 3.3603 | -3.1078 | 3.2269 | -2.8846 | 3.2280 |
| -2.6522 | 4.1204 | -2.8259 | 3.8879 | -2.6030 | 3.8949 |
| -2.4290 | 4.8638 | -2.5874 | 4.5165 | -2.3649 | 4.5194 |
| -2.2372 | 5.5830 | -2.3794 | 5.1137 | -2.1567 | 5.0952 |
| -2.0682 | 6.2678 | -2.1939 | 5.6765 | -1.9698 | 5.6140 |
| -1.9163 | 6.9073 | -2.0253 | 6.2001 | -1.7986 | 6.0679 |
| -1.7773 | 7.4926 | -1.8699 | 6.6781 | -1.6388 | 6.4526 |
| -1.6483 | 8.0159 | -1.7248 | 7.1057 | -1.4875 | 6.7663 |
| -1.5269 | 8.4719 | -1.5876 | 7.4798 | -1.3423 | 7.0115 |
| -1.4115 | 8.8560 | -1.4566 | 7.7987 | -1.2015 | 7.1923 |
| -1.3005 | 9.1661 | -1.3305 | 8.0617 | -1.0636 | 7.3152 |
| -1.1928 | 9.4006 | -1.2080 | 8.2697 | -0.9275 | 7.3874 |
| -1.0873 | 9.5595 | -1.0882 | 8.4232 | -0.7924 | 7.4162 |
| -0.9831 | 9.6433 | -0.9701 | 8.5232 | -0.6574 | 7.4094 |
| -0.8794 | 9.6538 | -0.8531 | 8.5703 | -0.5221 | 7.3743 |
| -0.7755 | 9.5934 | -0.7363 | 8.5653 | -0.3859 | 7.3179 |
| -0.6705 | 9.4654 | -0.6192 | 8.5089 | -0.2485 | 7.2459 |
| -0.5638 | 9.2739 | -0.5009 | 8.4023 | -0.1096 | 7.1627 |
| -0.4545 | 9.0234 | -0.3807 | 8.2472 | 0.0310 | 7.0707 |
| -0.3417 | 8.7182 | -0.2579 | 8.0460 | 0.1736 | 6.9696 |
| -0.2245 | 8.3631 | -0.1316 | 7.8015 | 0.3183 | 6.8572 |
| -0.1020 | 7.9630 | -0.0010 | 7.5170 | 0.4656 | 6.7279 |
| 0.0273 | 7.5207 | 0.1350 | 7.1953 | 0.6160 | 6.5743 |
| 0.1647 | 7.0398 | 0.2776 | 6.8388 | 0.7704 | 6.3870 |
| 0.3123 | 6.5214 | 0.4282 | 6.4490 | 0.9299 | 6.1555 |
| 0.4726 | 5.9664 | 0.5886 | 6.0259 | 1.0962 | 5.8694 |
| 0.6492 | 5.3743 | 0.7613 | 5.5677 | 1.2719 | 5.5187 |
| 0.8472 | 4.7442 | 0.9494 | 5.0717 | 1.4603 | 5.0963 |
| 1.0744 | 4.0750 | 1.1579 | 4.5327 | 1.6667 | 4.5968 |
| 1.3440 | 3.3646 | 1.3941 | 3.9451 | 1.8990 | 4.0188 |
| 1.6803 | 2.6105 | 1.6707 | 3.3014 | 2.1704 | 3.3633 |
| 2.1375 | 1.8077 | 2.0112 | 2.5939 | 2.5052 | 2.6332 |
| 2.8866 | 0.9455 | 2.4687 | 1.8141 | 2.9573 | 1.8310 |
| 6.0000 | 0.0470 | 3.2130 | 0.9526 | 3.6971 | 0.9560 |
| NA | NA | 6.0000 | 0.0644 | 6.0000 | 0.1038 |

Figure 11.A.8 plots TIF by scale score for grade six ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.8.

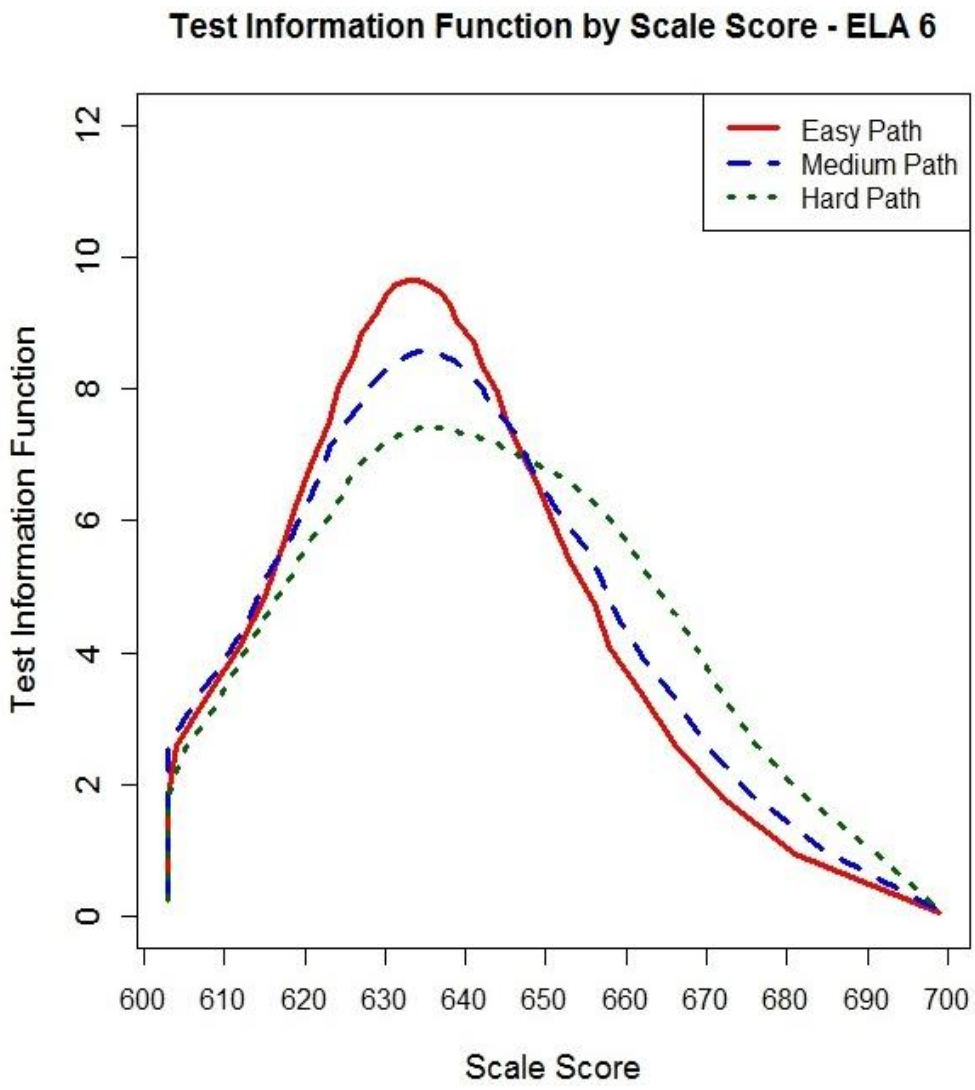


**Figure 11.A.8 TIF by Scale Score—ELA, Grade Six**

**Table 11.A.8 ELA, Grade Six Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 603 | 0.2267 | 603 | 0.2771 | 603 | 0.2253 |
| 603 | 0.9382 | 603 | 0.9376 | 603 | 0.9334 |
| 603 | 1.7861 | 603 | 1.7700 | 603 | 1.7618 |
| 604 | 2.5856 | 603 | 2.5257 | 605 | 2.5197 |
| 608 | 3.3603 | 606 | 3.2269 | 609 | 3.2280 |
| 612 | 4.1204 | 610 | 3.8879 | 612 | 3.8949 |
| 615 | 4.8638 | 613 | 4.5165 | 615 | 4.5194 |
| 617 | 5.5830 | 615 | 5.1137 | 618 | 5.0952 |
| 619 | 6.2678 | 618 | 5.6765 | 620 | 5.6140 |
| 621 | 6.9073 | 620 | 6.2001 | 623 | 6.0679 |
| 623 | 7.4926 | 622 | 6.6781 | 625 | 6.4526 |
| 624 | 8.0159 | 623 | 7.1057 | 626 | 6.7663 |
| 626 | 8.4719 | 625 | 7.4798 | 628 | 7.0115 |
| 627 | 8.8560 | 627 | 7.7987 | 630 | 7.1923 |
| 629 | 9.1661 | 628 | 8.0617 | 632 | 7.3152 |
| 630 | 9.4006 | 630 | 8.2697 | 633 | 7.3874 |
| 631 | 9.5595 | 631 | 8.4232 | 635 | 7.4162 |
| 633 | 9.6433 | 633 | 8.5232 | 637 | 7.4094 |
| 634 | 9.6538 | 634 | 8.5703 | 638 | 7.3743 |
| 635 | 9.5934 | 636 | 8.5653 | 640 | 7.3179 |
| 637 | 9.4654 | 637 | 8.5089 | 642 | 7.2459 |
| 638 | 9.2739 | 639 | 8.4023 | 644 | 7.1627 |
| 639 | 9.0234 | 640 | 8.2472 | 645 | 7.0707 |
| 641 | 8.7182 | 642 | 8.0460 | 647 | 6.9696 |
| 642 | 8.3631 | 643 | 7.8015 | 649 | 6.8572 |
| 644 | 7.9630 | 645 | 7.5170 | 651 | 6.7279 |
| 645 | 7.5207 | 647 | 7.1953 | 653 | 6.5743 |
| 647 | 7.0398 | 648 | 6.8388 | 655 | 6.3870 |
| 649 | 6.5214 | 650 | 6.4490 | 657 | 6.1555 |
| 651 | 5.9664 | 652 | 6.0259 | 659 | 5.8694 |
| 653 | 5.3743 | 655 | 5.5677 | 661 | 5.5187 |
| 656 | 4.7442 | 657 | 5.0717 | 663 | 5.0963 |
| 658 | 4.0750 | 659 | 4.5327 | 666 | 4.5968 |
| 662 | 3.3646 | 662 | 3.9451 | 669 | 4.0188 |
| 666 | 2.6105 | 666 | 3.3014 | 672 | 3.3633 |
| 672 | 1.8077 | 670 | 2.5939 | 676 | 2.6332 |
| 681 | 0.9455 | 676 | 1.8141 | 682 | 1.8310 |
| 699 | 0.0470 | 685 | 0.9526 | 691 | 0.9560 |
| NA | NA | 699 | 0.0644 | 699 | 0.1038 |

## TIF for ELA, Grade Seven

Figure 11.A.9 plots TIF by theta level for grade seven ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.9.

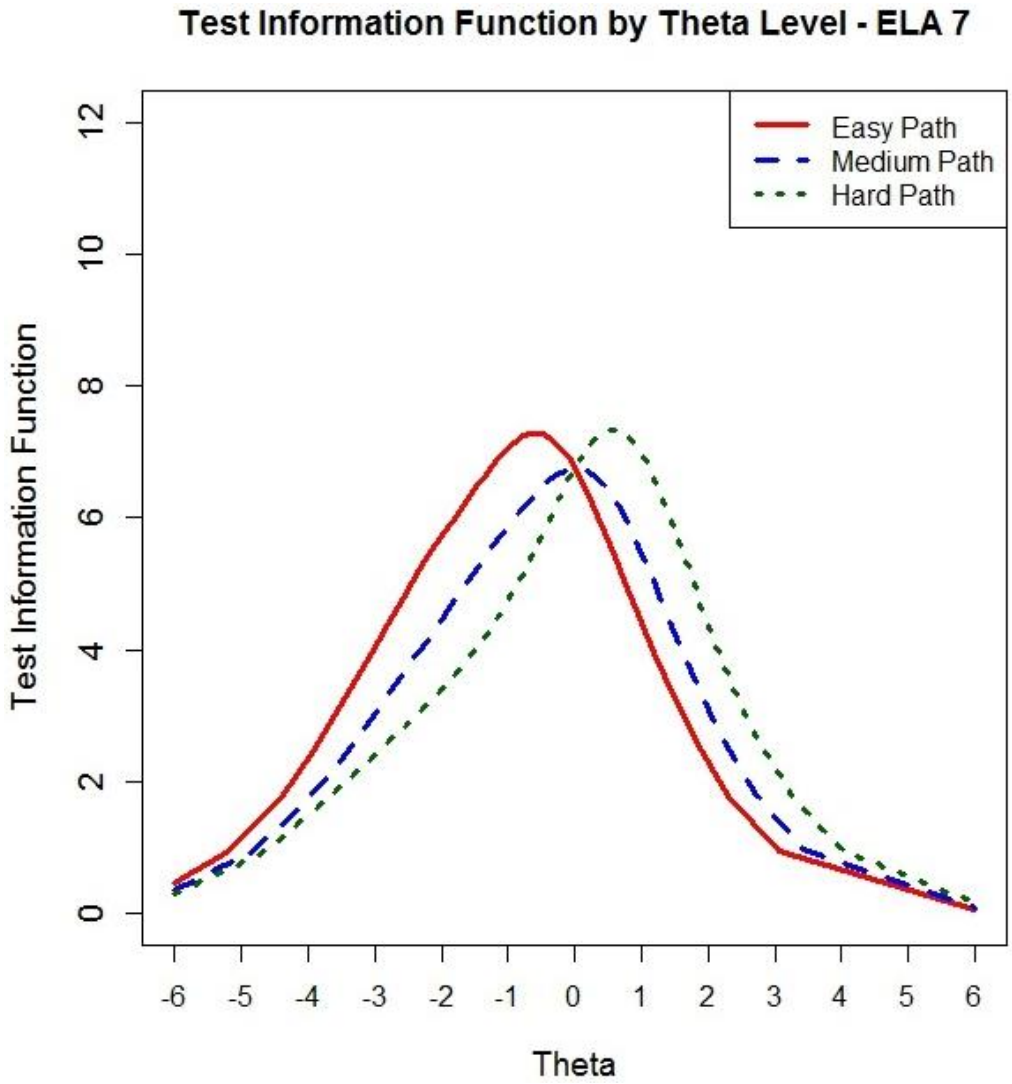


**Figure 11.A.9 TIF by Theta—ELA, Grade Seven**

**Table 11.A.9 ELA, Grade Seven Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.4470 | -6.0000 | 0.3354 | -6.0000 | 0.2949 |
| -5.1874 | 0.9297 | -4.8725 | 0.9020 | -4.7227 | 0.8766 |
| -4.4173 | 1.7333 | -4.0698 | 1.6422 | -3.8857 | 1.5497 |
| -3.9341 | 2.4322 | -3.5552 | 2.2638 | -3.3329 | 2.0760 |
| -3.5679 | 3.0425 | -3.1593 | 2.7971 | -2.8956 | 2.5011 |
| -3.2654 | 3.5772 | -2.8289 | 3.2638 | -2.5224 | 2.8619 |
| -3.0029 | 4.0472 | -2.5406 | 3.6791 | -2.1915 | 3.1886 |
| -2.7677 | 4.4624 | -2.2818 | 4.0541 | -1.8922 | 3.5043 |
| -2.5524 | 4.8312 | -2.0449 | 4.3971 | -1.6189 | 3.8247 |
| -2.3521 | 5.1620 | -1.8252 | 4.7138 | -1.3679 | 4.1592 |
| -2.1638 | 5.4617 | -1.6194 | 5.0084 | -1.1369 | 4.5104 |
| -1.9850 | 5.7371 | -1.4249 | 5.2840 | -0.9235 | 4.8770 |
| -1.8144 | 5.9930 | -1.2400 | 5.5421 | -0.7258 | 5.2530 |
| -1.6507 | 6.2331 | -1.0633 | 5.7833 | -0.5418 | 5.6300 |
| -1.4930 | 6.4585 | -0.8936 | 6.0066 | -0.3697 | 5.9967 |
| -1.3406 | 6.6679 | -0.7298 | 6.2099 | -0.2075 | 6.3414 |
| -1.1926 | 6.8579 | -0.5710 | 6.3895 | -0.0535 | 6.6515 |
| -1.0485 | 7.0222 | -0.4162 | 6.5404 | 0.0940 | 6.9151 |
| -0.9073 | 7.1537 | -0.2646 | 6.6559 | 0.2365 | 7.1218 |
| -0.7684 | 7.2441 | -0.1152 | 6.7287 | 0.3755 | 7.2634 |
| -0.6307 | 7.2859 | 0.0332 | 6.7509 | 0.5125 | 7.3336 |
| -0.4933 | 7.2728 | 0.1818 | 6.7152 | 0.6489 | 7.3283 |
| -0.3551 | 7.2001 | 0.3318 | 6.6150 | 0.7862 | 7.2452 |
| -0.2149 | 7.0651 | 0.4849 | 6.4458 | 0.9257 | 7.0835 |
| -0.0713 | 6.8671 | 0.6430 | 6.2050 | 1.0693 | 6.8434 |
| 0.0771 | 6.6073 | 0.8083 | 5.8923 | 1.2189 | 6.5262 |
| 0.2323 | 6.2872 | 0.9838 | 5.5088 | 1.3769 | 6.1347 |
| 0.3963 | 5.9103 | 1.1731 | 5.0574 | 1.5463 | 5.6731 |
| 0.5720 | 5.4793 | 1.3816 | 4.5403 | 1.7313 | 5.1464 |
| 0.7630 | 4.9970 | 1.6172 | 3.9590 | 1.9375 | 4.5616 |
| 0.9746 | 4.4645 | 1.8927 | 3.3135 | 2.1736 | 3.9255 |
| 1.2145 | 3.8818 | 2.2321 | 2.6011 | 2.4533 | 3.2446 |
| 1.4957 | 3.2459 | 2.6887 | 1.8168 | 2.8018 | 2.5222 |
| 1.8420 | 2.5512 | 3.4324 | 0.9530 | 3.2740 | 1.7551 |
| 2.3068 | 1.7882 | 6.0000 | 0.0800 | 4.0414 | 0.9278 |
| 3.0599 | 0.9440 | NA | NA | 6.0000 | 0.1495 |
| 6.0000 | 0.0558 | NA | NA | NA | NA |

Figure 11.A.10 plots TIF by scale score for grade seven ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.10.

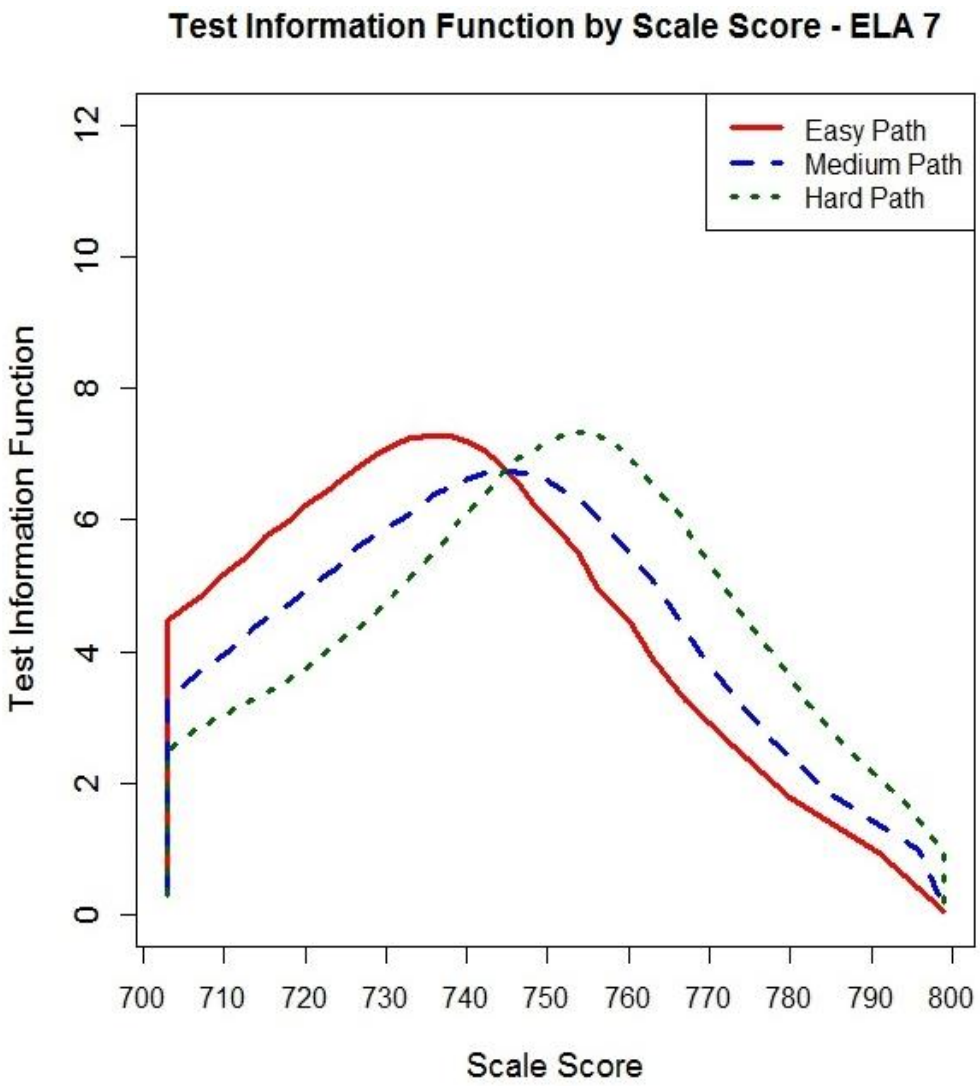


**Figure 11.A.10 TIF by Scale Score—ELA, Grade Seven**

**Table 11.A.10 ELA, Grade Seven Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 703 | 0.4470 | 703 | 0.3354 | 703 | 0.2949 |
| 703 | 0.9297 | 703 | 0.9020 | 703 | 0.8766 |
| 703 | 1.7333 | 703 | 1.6422 | 703 | 1.5497 |
| 703 | 2.4322 | 703 | 2.2638 | 703 | 2.0760 |
| 703 | 3.0425 | 703 | 2.7971 | 703 | 2.5011 |
| 703 | 3.5772 | 703 | 3.2638 | 707 | 2.8619 |
| 703 | 4.0472 | 707 | 3.6791 | 712 | 3.1886 |
| 703 | 4.4624 | 711 | 4.0541 | 717 | 3.5043 |
| 707 | 4.8312 | 714 | 4.3971 | 721 | 3.8247 |
| 710 | 5.1620 | 718 | 4.7138 | 724 | 4.1592 |
| 713 | 5.4617 | 721 | 5.0084 | 728 | 4.5104 |
| 715 | 5.7371 | 724 | 5.2840 | 731 | 4.8770 |
| 718 | 5.9930 | 726 | 5.5421 | 734 | 5.2530 |
| 720 | 6.2331 | 729 | 5.7833 | 737 | 5.6300 |
| 723 | 6.4585 | 732 | 6.0066 | 739 | 5.9967 |
| 725 | 6.6679 | 734 | 6.2099 | 742 | 6.3414 |
| 727 | 6.8579 | 736 | 6.3895 | 744 | 6.6515 |
| 729 | 7.0222 | 739 | 6.5404 | 746 | 6.9151 |
| 731 | 7.1537 | 741 | 6.6559 | 749 | 7.1218 |
| 733 | 7.2441 | 743 | 6.7287 | 751 | 7.2634 |
| 736 | 7.2859 | 745 | 6.7509 | 753 | 7.3336 |
| 738 | 7.2728 | 748 | 6.7152 | 755 | 7.3283 |
| 740 | 7.2001 | 750 | 6.6150 | 757 | 7.2452 |
| 742 | 7.0651 | 752 | 6.4458 | 759 | 7.0835 |
| 744 | 6.8671 | 755 | 6.2050 | 761 | 6.8434 |
| 746 | 6.6073 | 757 | 5.8923 | 763 | 6.5262 |
| 748 | 6.2872 | 760 | 5.5088 | 766 | 6.1347 |
| 751 | 5.9103 | 763 | 5.0574 | 768 | 5.6731 |
| 754 | 5.4793 | 766 | 4.5403 | 771 | 5.1464 |
| 756 | 4.9970 | 769 | 3.9590 | 774 | 4.5616 |
| 760 | 4.4645 | 773 | 3.3135 | 778 | 3.9255 |
| 763 | 3.8818 | 778 | 2.6011 | 782 | 3.2446 |
| 767 | 3.2459 | 785 | 1.8168 | 787 | 2.5222 |
| 773 | 2.5512 | 796 | 0.9530 | 794 | 1.7551 |
| 780 | 1.7882 | 799 | 0.0800 | 799 | 0.9278 |
| 791 | 0.9440 | NA | NA | 799 | 0.1495 |
| 799 | 0.0558 | NA | NA | NA | NA |

## TIF for ELA, Grade Eight

Figure 11.A.11 plots TIF by theta level for grade eight ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.11.

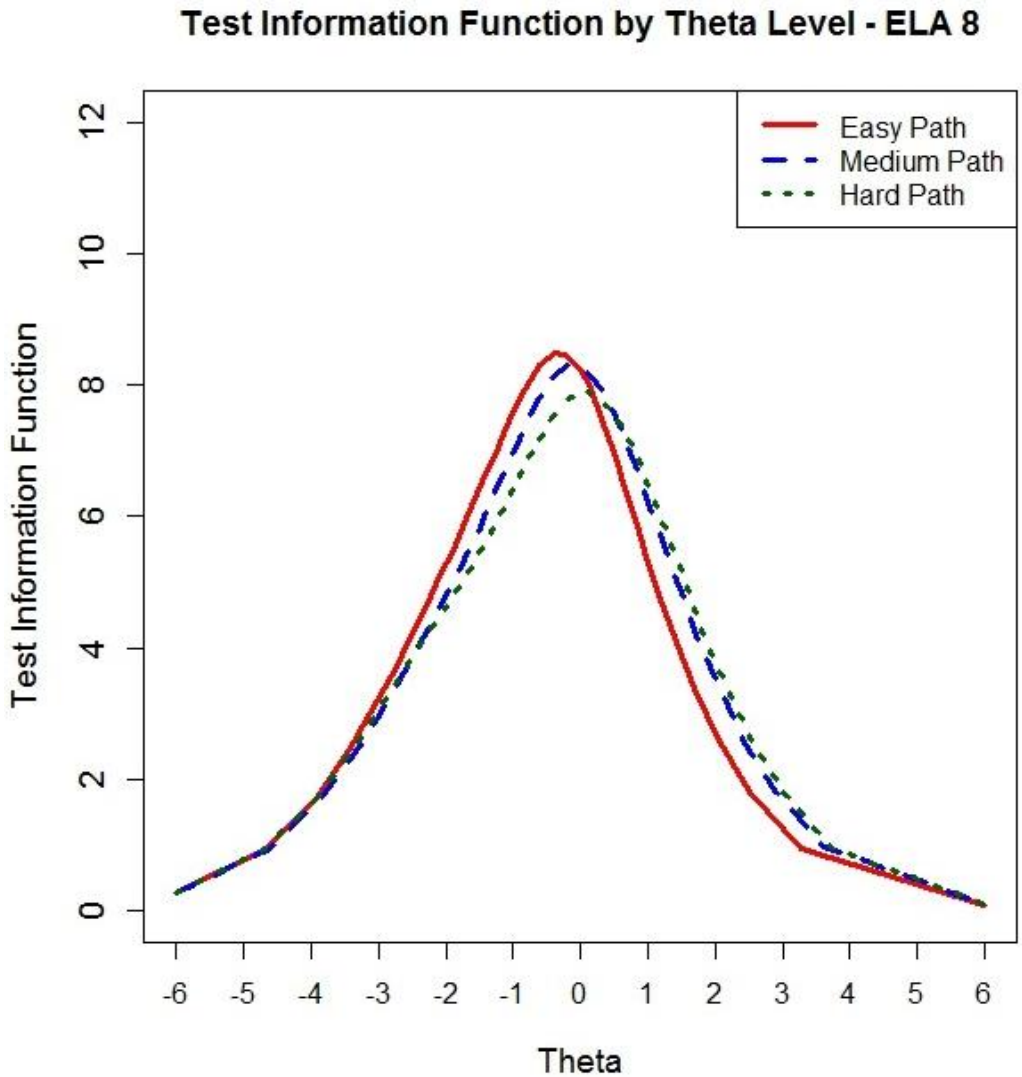


**Figure 11.A.11 TIF by Theta—ELA, Grade Eight**

**Table 11.A.11 ELA, Grade Eight Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.2716 | -6.0000 | 0.2565 | -6.0000 | 0.2761 |
| -4.6641 | 0.9354 | -4.6008 | 0.9278 | -4.6778 | 0.9284 |
| -3.9004 | 1.7525 | -3.8280 | 1.7239 | -3.9050 | 1.7221 |
| -3.4235 | 2.4704 | -3.3414 | 2.4112 | -3.4170 | 2.3983 |
| -3.0638 | 3.1059 | -2.9716 | 3.0103 | -3.0441 | 2.9742 |
| -2.7683 | 3.6739 | -2.6658 | 3.5405 | -2.7333 | 3.4672 |
| -2.5136 | 4.1874 | -2.4009 | 4.0189 | -2.4615 | 3.8949 |
| -2.2873 | 4.6581 | -2.1648 | 4.4605 | -2.2165 | 4.2750 |
| -2.0820 | 5.0961 | -1.9504 | 4.8778 | -1.9916 | 4.6241 |
| -1.8933 | 5.5089 | -1.7533 | 5.2797 | -1.7826 | 4.9571 |
| -1.7178 | 5.9030 | -1.5705 | 5.6716 | -1.5871 | 5.2846 |
| -1.5536 | 6.2812 | -1.3998 | 6.0554 | -1.4034 | 5.6131 |
| -1.3987 | 6.6451 | -1.2394 | 6.4292 | -1.2302 | 5.9438 |
| -1.2519 | 6.9928 | -1.0880 | 6.7883 | -1.0663 | 6.2733 |
| -1.1121 | 7.3203 | -0.9441 | 7.1263 | -0.9107 | 6.5942 |
| -0.9782 | 7.6220 | -0.8067 | 7.4350 | -0.7624 | 6.8972 |
| -0.8492 | 7.8910 | -0.6746 | 7.7067 | -0.6202 | 7.1727 |
| -0.7242 | 8.1192 | -0.5467 | 7.9339 | -0.4830 | 7.4119 |
| -0.6024 | 8.2985 | -0.4220 | 8.1102 | -0.3498 | 7.6075 |
| -0.4827 | 8.4217 | -0.2996 | 8.2304 | -0.2196 | 7.7543 |
| -0.3644 | 8.4817 | -0.1785 | 8.2912 | -0.0914 | 7.8486 |
| -0.2464 | 8.4733 | -0.0578 | 8.2905 | 0.0358 | 7.8881 |
| -0.1278 | 8.3926 | 0.0633 | 8.2278 | 0.1627 | 7.8712 |
| -0.0076 | 8.2378 | 0.1857 | 8.1039 | 0.2904 | 7.7970 |
| 0.1155 | 8.0085 | 0.3106 | 7.9201 | 0.4197 | 7.6647 |
| 0.2428 | 7.7065 | 0.4388 | 7.6791 | 0.5519 | 7.4736 |
| 0.3758 | 7.3356 | 0.5716 | 7.3834 | 0.6880 | 7.2239 |
| 0.5164 | 6.9008 | 0.7104 | 7.0359 | 0.8295 | 6.9161 |
| 0.6667 | 6.4093 | 0.8567 | 6.6400 | 0.9780 | 6.5522 |
| 0.8297 | 5.8678 | 1.0126 | 6.1982 | 1.1357 | 6.1342 |
| 1.0093 | 5.2831 | 1.1806 | 5.7128 | 1.3053 | 5.6652 |
| 1.2107 | 4.6613 | 1.3643 | 5.1847 | 1.4904 | 5.1478 |
| 1.4420 | 4.0052 | 1.5687 | 4.6133 | 1.6962 | 4.5835 |
| 1.7160 | 3.3145 | 1.8013 | 3.9967 | 1.9303 | 3.9722 |
| 2.0567 | 2.5831 | 2.0750 | 3.3298 | 2.2056 | 3.3107 |
| 2.5173 | 1.7995 | 2.4132 | 2.6067 | 2.5457 | 2.5931 |
| 3.2674 | 0.9462 | 2.8693 | 1.8178 | 3.0039 | 1.8103 |
| 6.0000 | 0.0684 | 3.6128 | 0.9530 | 3.7498 | 0.9507 |
| NA | NA | 6.0000 | 0.0957 | 6.0000 | 0.1099 |

Figure 11.A.12 plots TIF by scale score for grade eight ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.12.

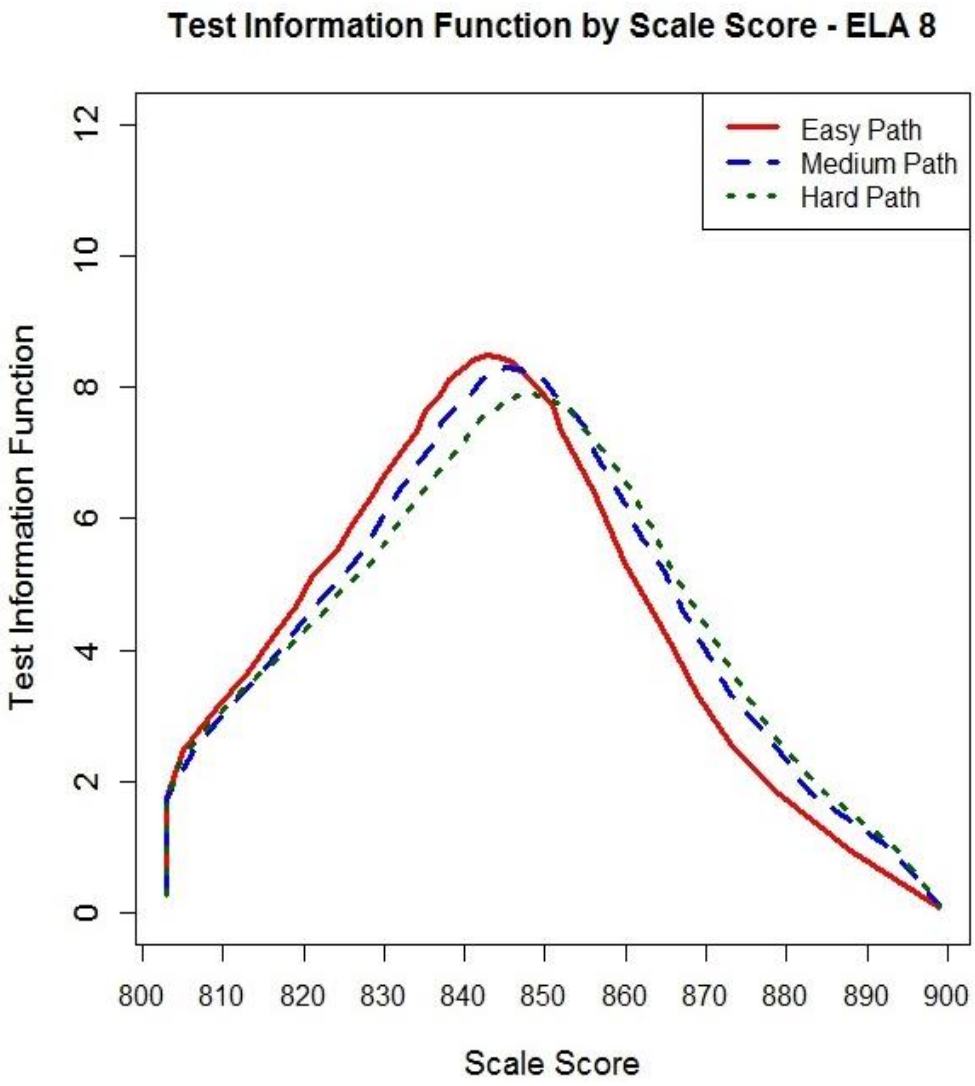


**Figure 11.A.12 TIF by Scale Score—ELA, Grade Eight**

**Table 11.A.12 ELA, Grade Eight Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 803 | 0.2716 | 803 | 0.2565 | 803 | 0.2761 |
| 803 | 0.9354 | 803 | 0.9278 | 803 | 0.9284 |
| 803 | 1.7525 | 803 | 1.7239 | 803 | 1.7221 |
| 805 | 2.4704 | 806 | 2.4112 | 805 | 2.3983 |
| 809 | 3.1059 | 810 | 3.0103 | 809 | 2.9742 |
| 813 | 3.6739 | 814 | 3.5405 | 813 | 3.4672 |
| 816 | 4.1874 | 817 | 4.0189 | 817 | 3.8949 |
| 819 | 4.6581 | 820 | 4.4605 | 820 | 4.2750 |
| 821 | 5.0961 | 823 | 4.8778 | 823 | 4.6241 |
| 824 | 5.5089 | 826 | 5.2797 | 825 | 4.9571 |
| 826 | 5.9030 | 828 | 5.6716 | 828 | 5.2846 |
| 828 | 6.2812 | 830 | 6.0554 | 830 | 5.6131 |
| 830 | 6.6451 | 832 | 6.4292 | 832 | 5.9438 |
| 832 | 6.9928 | 834 | 6.7883 | 834 | 6.2733 |
| 834 | 7.3203 | 836 | 7.1263 | 836 | 6.5942 |
| 835 | 7.6220 | 837 | 7.4350 | 838 | 6.8972 |
| 837 | 7.8910 | 839 | 7.7067 | 840 | 7.1727 |
| 838 | 8.1192 | 841 | 7.9339 | 841 | 7.4119 |
| 840 | 8.2985 | 842 | 8.1102 | 843 | 7.6075 |
| 841 | 8.4217 | 844 | 8.2304 | 845 | 7.7543 |
| 843 | 8.4817 | 845 | 8.2912 | 846 | 7.8486 |
| 844 | 8.4733 | 847 | 8.2905 | 848 | 7.8881 |
| 846 | 8.3926 | 848 | 8.2278 | 850 | 7.8712 |
| 847 | 8.2378 | 850 | 8.1039 | 851 | 7.7970 |
| 849 | 8.0085 | 851 | 7.9201 | 853 | 7.6647 |
| 851 | 7.7065 | 853 | 7.6791 | 854 | 7.4736 |
| 852 | 7.3356 | 855 | 7.3834 | 856 | 7.2239 |
| 854 | 6.9008 | 856 | 7.0359 | 858 | 6.9161 |
| 856 | 6.4093 | 858 | 6.6400 | 860 | 6.5522 |
| 858 | 5.8678 | 860 | 6.1982 | 862 | 6.1342 |
| 860 | 5.2831 | 862 | 5.7128 | 864 | 5.6652 |
| 863 | 4.6613 | 865 | 5.1847 | 866 | 5.1478 |
| 866 | 4.0052 | 867 | 4.6133 | 869 | 4.5835 |
| 869 | 3.3145 | 870 | 3.9967 | 872 | 3.9722 |
| 873 | 2.5831 | 873 | 3.3298 | 875 | 3.3107 |
| 879 | 1.7995 | 878 | 2.6067 | 879 | 2.5931 |
| 888 | 0.9462 | 883 | 1.8178 | 885 | 1.8103 |
| 899 | 0.0684 | 893 | 0.9530 | 894 | 0.9507 |
| NA | NA | 899 | 0.0957 | 899 | 0.1099 |

## TIF for ELA, Grade Eleven

Figure 11.A.13 plots TIF by theta level for grade eleven ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.13.

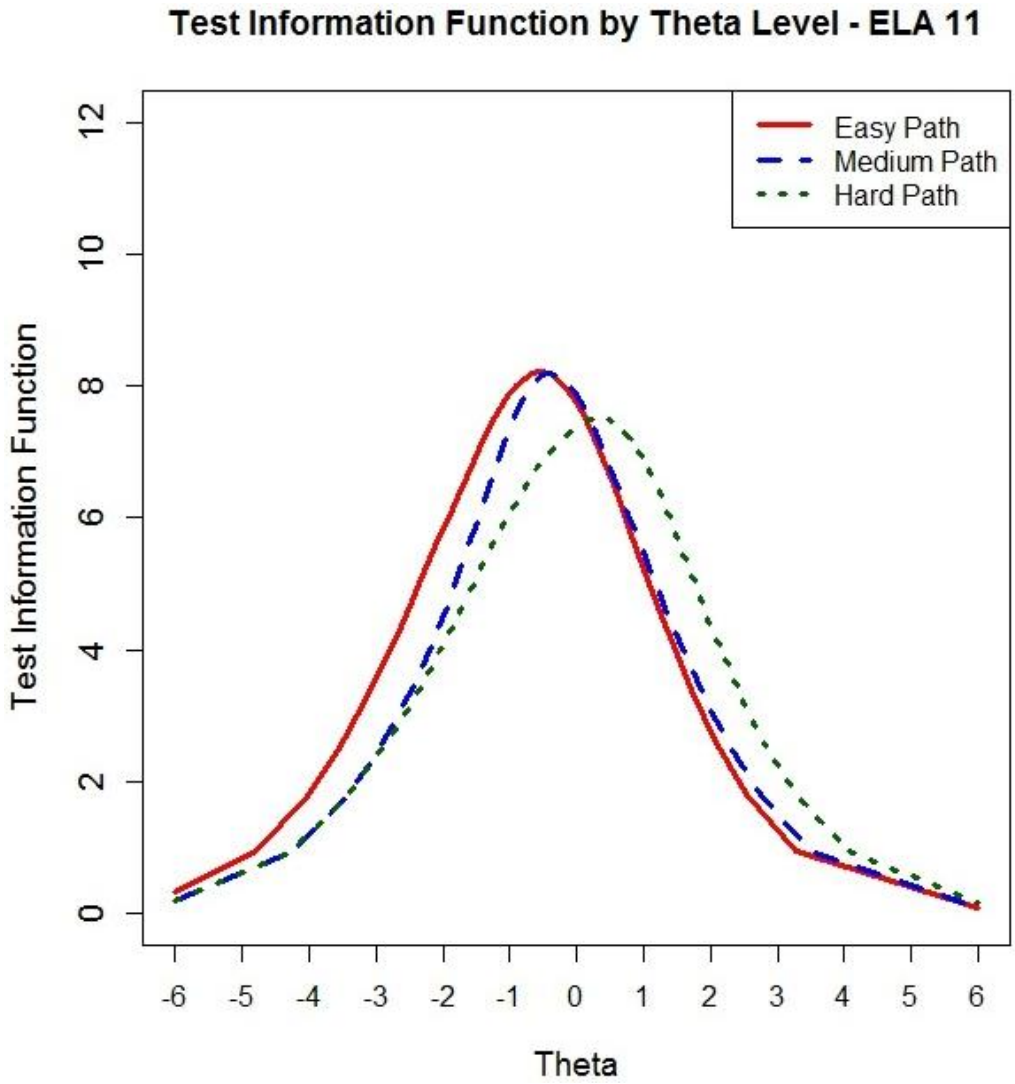


**Figure 11.A.13 TIF by Theta—ELA, Grade Eleven**

**Table 11.A.13 ELA, Grade Eleven Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.3047 | -6.0000 | 0.1854 | -6.0000 | 0.1923 |
| -4.7857 | 0.9395 | -4.2587 | 0.9202 | -4.2935 | 0.9156 |
| -4.0268 | 1.7678 | -3.4796 | 1.7133 | -3.5073 | 1.6880 |
| -3.5550 | 2.5024 | -2.9922 | 2.4225 | -3.0095 | 2.3549 |
| -3.2006 | 3.1591 | -2.6270 | 3.0786 | -2.6311 | 2.9460 |
| -2.9106 | 3.7513 | -2.3312 | 3.7005 | -2.3194 | 3.4840 |
| -2.6616 | 4.2904 | -2.0806 | 4.2989 | -2.0512 | 3.9832 |
| -2.4410 | 4.7861 | -1.8622 | 4.8763 | -1.8138 | 4.4516 |
| -2.2415 | 5.2455 | -1.6679 | 5.4300 | -1.5995 | 4.8905 |
| -2.0582 | 5.6738 | -1.4921 | 5.9540 | -1.4030 | 5.2974 |
| -1.8878 | 6.0742 | -1.3306 | 6.4407 | -1.2205 | 5.6684 |
| -1.7280 | 6.4472 | -1.1804 | 6.8816 | -1.0491 | 6.0003 |
| -1.5768 | 6.7923 | -1.0390 | 7.2687 | -0.8863 | 6.2929 |
| -1.4328 | 7.1071 | -0.9044 | 7.5951 | -0.7305 | 6.5477 |
| -1.2948 | 7.3885 | -0.7749 | 7.8550 | -0.5802 | 6.7684 |
| -1.1616 | 7.6335 | -0.6491 | 8.0444 | -0.4344 | 6.9591 |
| -1.0323 | 7.8386 | -0.5257 | 8.1609 | -0.2924 | 7.1230 |
| -0.9060 | 8.0011 | -0.4035 | 8.2040 | -0.1532 | 7.2620 |
| -0.7819 | 8.1187 | -0.2814 | 8.1750 | -0.0165 | 7.3748 |
| -0.6592 | 8.1894 | -0.1583 | 8.0769 | 0.1184 | 7.4583 |
| -0.5372 | 8.2118 | -0.0332 | 7.9144 | 0.2520 | 7.5071 |
| -0.4152 | 8.1849 | 0.0949 | 7.6935 | 0.3852 | 7.5147 |
| -0.2924 | 8.1077 | 0.2273 | 7.4206 | 0.5187 | 7.4741 |
| -0.1681 | 7.9797 | 0.3651 | 7.1023 | 0.6534 | 7.3789 |
| -0.0413 | 7.8002 | 0.5096 | 6.7450 | 0.7903 | 7.2244 |
| 0.0889 | 7.5691 | 0.6624 | 6.3529 | 0.9309 | 7.0072 |
| 0.2236 | 7.2870 | 0.8254 | 5.9287 | 1.0765 | 6.7269 |
| 0.3641 | 6.9546 | 1.0009 | 5.4731 | 1.2291 | 6.3848 |
| 0.5120 | 6.5735 | 1.1924 | 4.9831 | 1.3908 | 5.9845 |
| 0.6693 | 6.1451 | 1.4045 | 4.4548 | 1.5646 | 5.5298 |
| 0.8387 | 5.6709 | 1.6448 | 3.8810 | 1.7543 | 5.0251 |
| 1.0236 | 5.1519 | 1.9257 | 3.2536 | 1.9651 | 4.4738 |
| 1.2292 | 4.5876 | 2.2707 | 2.5631 | 2.2049 | 3.8772 |
| 1.4631 | 3.9764 | 2.7330 | 1.7984 | 2.4869 | 3.2331 |
| 1.7380 | 3.3146 | 3.4821 | 0.9482 | 2.8349 | 2.5366 |
| 2.0778 | 2.5958 | 6.0000 | 0.0844 | 3.3024 | 1.7776 |
| 2.5356 | 1.8116 | NA | NA | 4.0595 | 0.9399 |
| 3.2811 | 0.9511 | NA | NA | 6.0000 | 0.1504 |
| 6.0000 | 0.0690 | NA | NA | NA | NA |

Figure 11.A.14 plots TIF by scale score for grade eleven ELA. The data used to create this graph is found in the table that immediately follows, Table 11.A.14.

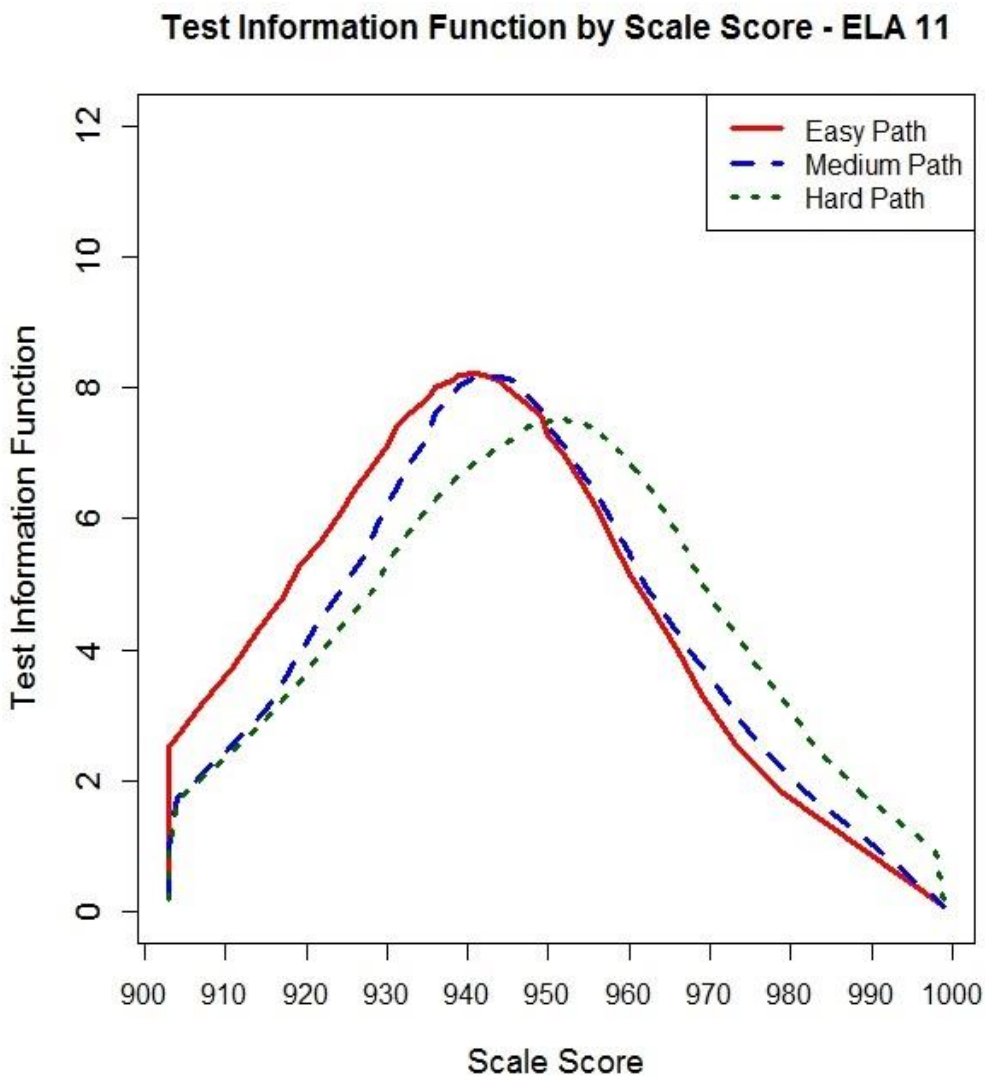


**Figure 11.A.14 TIF by Scale Score—ELA, Grade Eleven**

**Table 11.A.14 ELA, Grade Eleven Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 903 | 0.3047 | 903 | 0.1854 | 903 | 0.1923 |
| 903 | 0.9395 | 903 | 0.9202 | 903 | 0.9156 |
| 903 | 1.7678 | 904 | 1.7133 | 904 | 1.6880 |
| 903 | 2.5024 | 910 | 2.4225 | 910 | 2.3549 |
| 907 | 3.1591 | 915 | 3.0786 | 915 | 2.9460 |
| 911 | 3.7513 | 918 | 3.7005 | 919 | 3.4840 |
| 914 | 4.2904 | 921 | 4.2989 | 922 | 3.9832 |
| 917 | 4.7861 | 924 | 4.8763 | 925 | 4.4516 |
| 919 | 5.2455 | 927 | 5.4300 | 928 | 4.8905 |
| 922 | 5.6738 | 929 | 5.9540 | 930 | 5.2974 |
| 924 | 6.0742 | 931 | 6.4407 | 932 | 5.6684 |
| 926 | 6.4472 | 933 | 6.8816 | 934 | 6.0003 |
| 928 | 6.7923 | 935 | 7.2687 | 936 | 6.2929 |
| 930 | 7.1071 | 936 | 7.5951 | 938 | 6.5477 |
| 931 | 7.3885 | 938 | 7.8550 | 940 | 6.7684 |
| 933 | 7.6335 | 939 | 8.0444 | 942 | 6.9591 |
| 935 | 7.8386 | 941 | 8.1609 | 944 | 7.1230 |
| 936 | 8.0011 | 942 | 8.2040 | 946 | 7.2620 |
| 938 | 8.1187 | 944 | 8.1750 | 947 | 7.3748 |
| 939 | 8.1894 | 946 | 8.0769 | 949 | 7.4583 |
| 941 | 8.2118 | 947 | 7.9144 | 951 | 7.5071 |
| 942 | 8.1849 | 949 | 7.6935 | 952 | 7.5147 |
| 944 | 8.1077 | 950 | 7.4206 | 954 | 7.4741 |
| 945 | 7.9797 | 952 | 7.1023 | 956 | 7.3789 |
| 947 | 7.8002 | 954 | 6.7450 | 957 | 7.2244 |
| 949 | 7.5691 | 956 | 6.3529 | 959 | 7.0072 |
| 950 | 7.2870 | 958 | 5.9287 | 961 | 6.7269 |
| 952 | 6.9546 | 960 | 5.4731 | 963 | 6.3848 |
| 954 | 6.5735 | 962 | 4.9831 | 965 | 5.9845 |
| 956 | 6.1451 | 965 | 4.4548 | 967 | 5.5298 |
| 958 | 5.6709 | 968 | 3.8810 | 969 | 5.0251 |
| 960 | 5.1519 | 972 | 3.2536 | 972 | 4.4738 |
| 963 | 4.5876 | 976 | 2.5631 | 975 | 3.8772 |
| 966 | 3.9764 | 982 | 1.7984 | 979 | 3.2331 |
| 969 | 3.3146 | 991 | 0.9482 | 983 | 2.5366 |
| 973 | 2.5958 | 999 | 0.0844 | 989 | 1.7776 |
| 979 | 1.8116 | NA | NA | 998 | 0.9399 |
| 989 | 0.9511 | NA | NA | 999 | 0.1504 |
| 999 | 0.0690 | NA | NA | NA | NA |

## TIF for Mathematics, Grade Three

Figure 11.A.15 plots TIF by theta level for grade three mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.15.

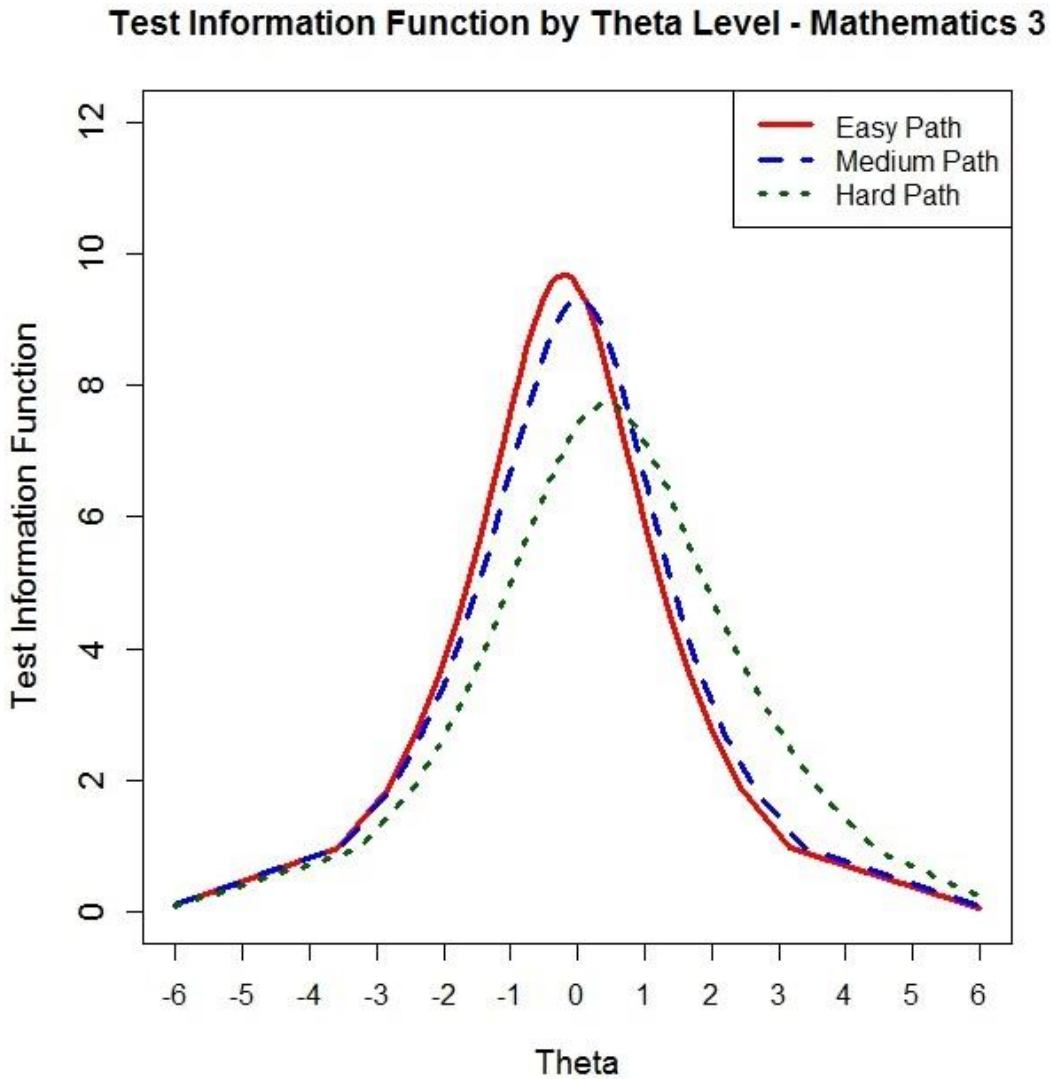


**Figure 11.A.15 TIF by Theta—Mathematics, Grade Three**

**Table 11.A.15 Mathematics, Grade Three Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.0918 | -6.0000 | 0.0889 | -6.0000 | 0.0701 |
| -3.5793 | 0.9635 | -3.5404 | 0.9558 | -3.2852 | 0.9397 |
| -2.8481 | 1.8628 | -2.8005 | 1.8317 | -2.5273 | 1.7736 |
| -2.4062 | 2.7129 | -2.3492 | 2.6440 | -2.0583 | 2.5269 |
| -2.0838 | 3.5247 | -2.0170 | 3.4058 | -1.7089 | 3.2201 |
| -1.8275 | 4.3047 | -1.7507 | 4.1273 | -1.4260 | 3.8674 |
| -1.6133 | 5.0549 | -1.5266 | 4.8146 | -1.1858 | 4.4753 |
| -1.4283 | 5.7729 | -1.3318 | 5.4707 | -0.9754 | 5.0436 |
| -1.2645 | 6.4537 | -1.1587 | 6.0938 | -0.7868 | 5.5678 |
| -1.1167 | 7.0897 | -1.0019 | 6.6812 | -0.6144 | 6.0424 |
| -0.9811 | 7.6731 | -0.8580 | 7.2263 | -0.4544 | 6.4616 |
| -0.8550 | 8.1951 | -0.7242 | 7.7224 | -0.3038 | 6.8220 |
| -0.7362 | 8.6483 | -0.5982 | 8.1631 | -0.1604 | 7.1219 |
| -0.6231 | 9.0255 | -0.4784 | 8.5414 | -0.0222 | 7.3614 |
| -0.5140 | 9.3221 | -0.3634 | 8.8511 | 0.1120 | 7.5405 |
| -0.4080 | 9.5334 | -0.2519 | 9.0873 | 0.2436 | 7.6596 |
| -0.3037 | 9.6574 | -0.1428 | 9.2460 | 0.3737 | 7.7182 |
| -0.2004 | 9.6929 | -0.0351 | 9.3242 | 0.5033 | 7.7154 |
| -0.0969 | 9.6404 | 0.0722 | 9.3198 | 0.6334 | 7.6502 |
| 0.0076 | 9.5016 | 0.1800 | 9.2319 | 0.7653 | 7.5217 |
| 0.1141 | 9.2795 | 0.2893 | 9.0605 | 0.8999 | 7.3307 |
| 0.2236 | 8.9781 | 0.4013 | 8.8062 | 1.0388 | 7.0789 |
| 0.3374 | 8.6019 | 0.5170 | 8.4715 | 1.1832 | 6.7709 |
| 0.4568 | 8.1564 | 0.6380 | 8.0591 | 1.3350 | 6.4124 |
| 0.5834 | 7.6473 | 0.7660 | 7.5731 | 1.4961 | 6.0111 |
| 0.7193 | 7.0805 | 0.9032 | 7.0192 | 1.6688 | 5.5751 |
| 0.8671 | 6.4617 | 1.0523 | 6.4046 | 1.8562 | 5.1109 |
| 1.0305 | 5.7960 | 1.2172 | 5.7371 | 2.0619 | 4.6238 |
| 1.2145 | 5.0884 | 1.4033 | 5.0250 | 2.2911 | 4.1146 |
| 1.4271 | 4.3413 | 1.6188 | 4.2761 | 2.5515 | 3.5799 |
| 1.6811 | 3.5572 | 1.8771 | 3.4959 | 2.8556 | 3.0110 |
| 2.0007 | 2.7354 | 2.2024 | 2.6871 | 3.2269 | 2.3933 |
| 2.4394 | 1.8737 | 2.6486 | 1.8449 | 3.7182 | 1.7057 |
| 3.1677 | 0.9659 | 3.3860 | 0.9568 | 4.4987 | 0.9201 |
| 6.0000 | 0.0609 | 6.0000 | 0.0763 | 6.0000 | 0.2336 |

Figure 11.A.16 plots TIF by scale score for grade three mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.16.

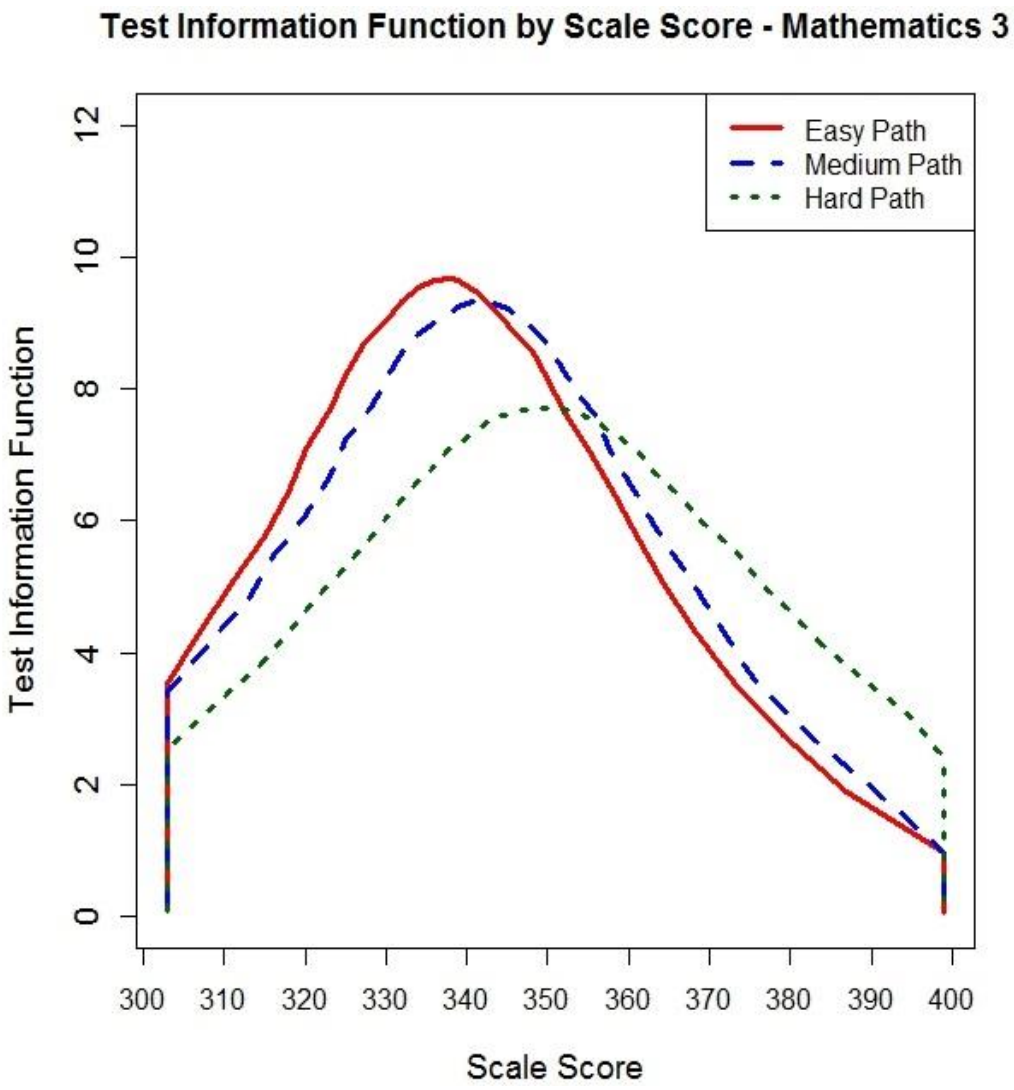


**Figure 11.A.16 TIF by Scale Score—Mathematics, Grade Three**

**Table 11.A.16 Mathematics, Grade Three Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 303 | 0.0918 | 303 | 0.0889 | 303 | 0.0701 |
| 303 | 0.9635 | 303 | 0.9558 | 303 | 0.9397 |
| 303 | 1.8628 | 303 | 1.8317 | 303 | 1.7736 |
| 303 | 2.7129 | 303 | 2.6440 | 303 | 2.5269 |
| 303 | 3.5247 | 303 | 3.4058 | 309 | 3.2201 |
| 307 | 4.3047 | 308 | 4.1273 | 315 | 3.8674 |
| 311 | 5.0549 | 313 | 4.8146 | 319 | 4.4753 |
| 315 | 5.7729 | 316 | 5.4707 | 323 | 5.0436 |
| 318 | 6.4537 | 320 | 6.0938 | 327 | 5.5678 |
| 320 | 7.0897 | 323 | 6.6812 | 330 | 6.0424 |
| 323 | 7.6731 | 325 | 7.2263 | 333 | 6.4616 |
| 325 | 8.1951 | 328 | 7.7224 | 336 | 6.8220 |
| 327 | 8.6483 | 330 | 8.1631 | 338 | 7.1219 |
| 330 | 9.0255 | 332 | 8.5414 | 341 | 7.3614 |
| 332 | 9.3221 | 334 | 8.8511 | 343 | 7.5405 |
| 334 | 9.5334 | 337 | 9.0873 | 346 | 7.6596 |
| 336 | 9.6574 | 339 | 9.2460 | 348 | 7.7182 |
| 338 | 9.6929 | 341 | 9.3242 | 351 | 7.7154 |
| 339 | 9.6404 | 343 | 9.3198 | 353 | 7.6502 |
| 341 | 9.5016 | 345 | 9.2319 | 356 | 7.5217 |
| 343 | 9.2795 | 347 | 9.0605 | 358 | 7.3307 |
| 345 | 8.9781 | 349 | 8.8062 | 361 | 7.0789 |
| 348 | 8.6019 | 351 | 8.4715 | 363 | 6.7709 |
| 350 | 8.1564 | 353 | 8.0591 | 366 | 6.4124 |
| 352 | 7.6473 | 356 | 7.5731 | 369 | 6.0111 |
| 355 | 7.0805 | 358 | 7.0192 | 373 | 5.5751 |
| 358 | 6.4617 | 361 | 6.4046 | 376 | 5.1109 |
| 361 | 5.7960 | 364 | 5.7371 | 380 | 4.6238 |
| 364 | 5.0884 | 368 | 5.0250 | 384 | 4.1146 |
| 368 | 4.3413 | 372 | 4.2761 | 389 | 3.5799 |
| 373 | 3.5572 | 376 | 3.4959 | 395 | 3.0110 |
| 379 | 2.7354 | 383 | 2.6871 | 399 | 2.3933 |
| 387 | 1.8737 | 391 | 1.8449 | 399 | 1.7057 |
| 399 | 0.9659 | 399 | 0.9568 | 399 | 0.9201 |
| 399 | 0.0609 | 399 | 0.0763 | 399 | 0.2336 |

### TIF for Mathematics, Grade Four

Figure 11.A.17 plots TIF by theta level for grade four mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.17.

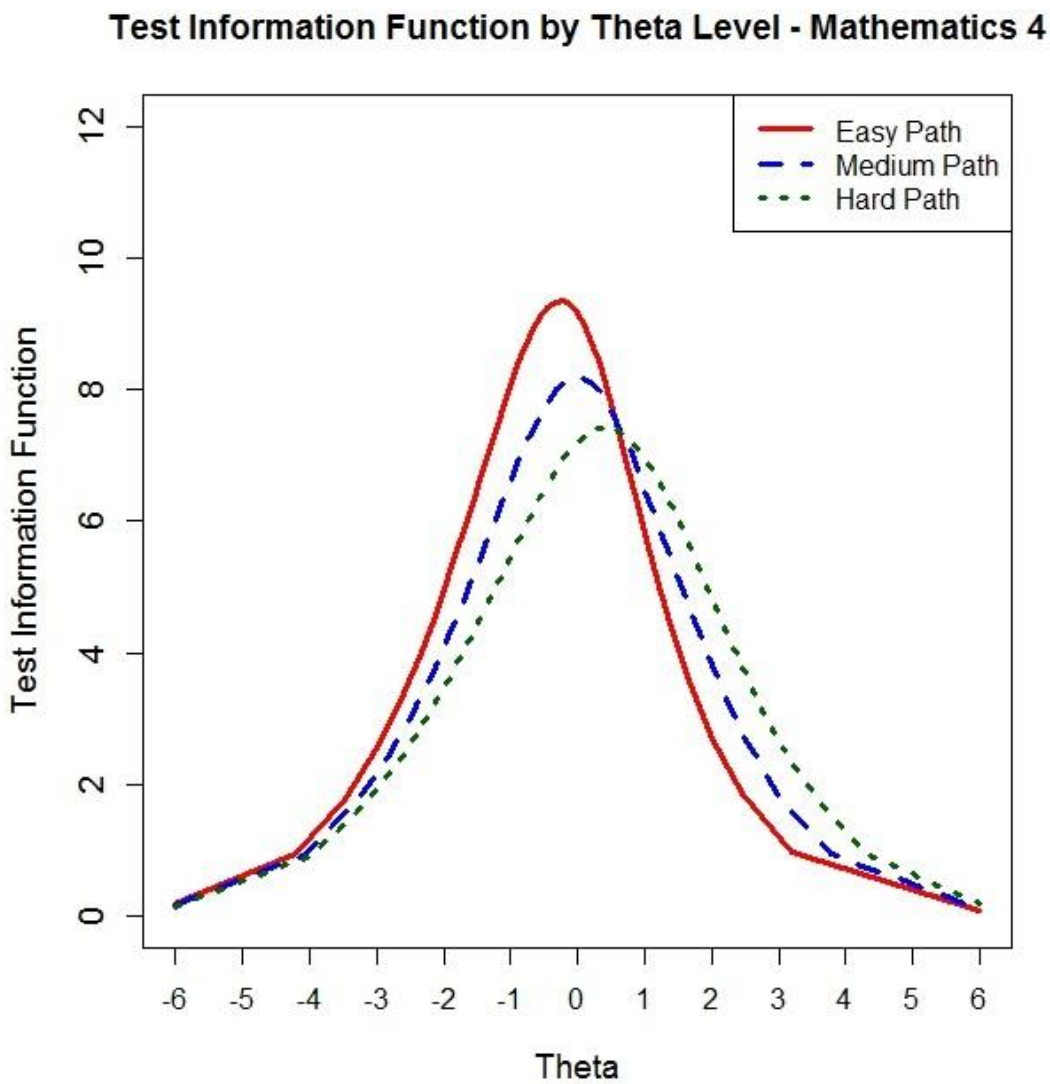


**Figure 11.A.17 TIF by Theta—Mathematics, Grade Four**

**Table 11.A.17 Mathematics, Grade Four Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.1753 | -6.0000 | 0.1518 | -6.0000 | 0.1410 |
| -4.2167 | 0.9412 | -4.0587 | 0.9271 | -3.9712 | 0.9133 |
| -3.4612 | 1.7829 | -3.2873 | 1.7350 | -3.1829 | 1.6835 |
| -2.9955 | 2.5504 | -2.8065 | 2.4572 | -2.6840 | 2.3507 |
| -2.6499 | 3.2606 | -2.4463 | 3.1169 | -2.3051 | 2.9437 |
| -2.3708 | 3.9259 | -2.1534 | 3.7285 | -1.9933 | 3.4828 |
| -2.1345 | 4.5531 | -1.9039 | 4.3005 | -1.7249 | 3.9813 |
| -1.9280 | 5.1468 | -1.6848 | 4.8376 | -1.4874 | 4.4473 |
| -1.7435 | 5.7093 | -1.4881 | 5.3418 | -1.2728 | 4.8856 |
| -1.5760 | 6.2405 | -1.3086 | 5.8131 | -1.0762 | 5.2970 |
| -1.4218 | 6.7399 | -1.1427 | 6.2500 | -0.8939 | 5.6805 |
| -1.2783 | 7.2057 | -0.9876 | 6.6504 | -0.7231 | 6.0339 |
| -1.1434 | 7.6355 | -0.8411 | 7.0119 | -0.5615 | 6.3541 |
| -1.0157 | 8.0257 | -0.7016 | 7.3311 | -0.4075 | 6.6372 |
| -0.8936 | 8.3737 | -0.5677 | 7.6045 | -0.2595 | 6.8801 |
| -0.7763 | 8.6749 | -0.4380 | 7.8292 | -0.1162 | 7.0800 |
| -0.6626 | 8.9260 | -0.3117 | 8.0015 | 0.0235 | 7.2347 |
| -0.5518 | 9.1227 | -0.1876 | 8.1188 | 0.1608 | 7.3427 |
| -0.4430 | 9.2615 | -0.0648 | 8.1788 | 0.2964 | 7.4029 |
| -0.3354 | 9.3387 | 0.0575 | 8.1796 | 0.4315 | 7.4149 |
| -0.2284 | 9.3512 | 0.1802 | 8.1206 | 0.5667 | 7.3785 |
| -0.1211 | 9.2963 | 0.3042 | 8.0017 | 0.7030 | 7.2936 |
| -0.0128 | 9.1720 | 0.4306 | 7.8238 | 0.8414 | 7.1601 |
| 0.0974 | 8.9771 | 0.5604 | 7.5885 | 0.9829 | 6.9780 |
| 0.2105 | 8.7110 | 0.6948 | 7.2981 | 1.1287 | 6.7475 |
| 0.3276 | 8.3744 | 0.8352 | 6.9555 | 1.2801 | 6.4688 |
| 0.4500 | 7.9687 | 0.9832 | 6.5638 | 1.4387 | 6.1425 |
| 0.5794 | 7.4963 | 1.1409 | 6.1259 | 1.6067 | 5.7688 |
| 0.7178 | 6.9608 | 1.3110 | 5.6442 | 1.7867 | 5.3482 |
| 0.8680 | 6.3664 | 1.4969 | 5.1206 | 1.9824 | 4.8806 |
| 1.0336 | 5.7186 | 1.7039 | 4.5547 | 2.1989 | 4.3654 |
| 1.2201 | 5.0225 | 1.9395 | 3.9455 | 2.4441 | 3.8008 |
| 1.4355 | 4.2839 | 2.2167 | 3.2884 | 2.7311 | 3.1832 |
| 1.6930 | 3.5081 | 2.5590 | 2.5771 | 3.0838 | 2.5071 |
| 2.0172 | 2.6971 | 3.0198 | 1.8013 | 3.5560 | 1.7629 |
| 2.4619 | 1.8500 | 3.7687 | 0.9479 | 4.3179 | 0.9355 |
| 3.1979 | 0.9578 | 6.0000 | 0.1122 | 6.0000 | 0.1943 |

Figure 11.A.18 plots TIF by scale score for grade four mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.18.

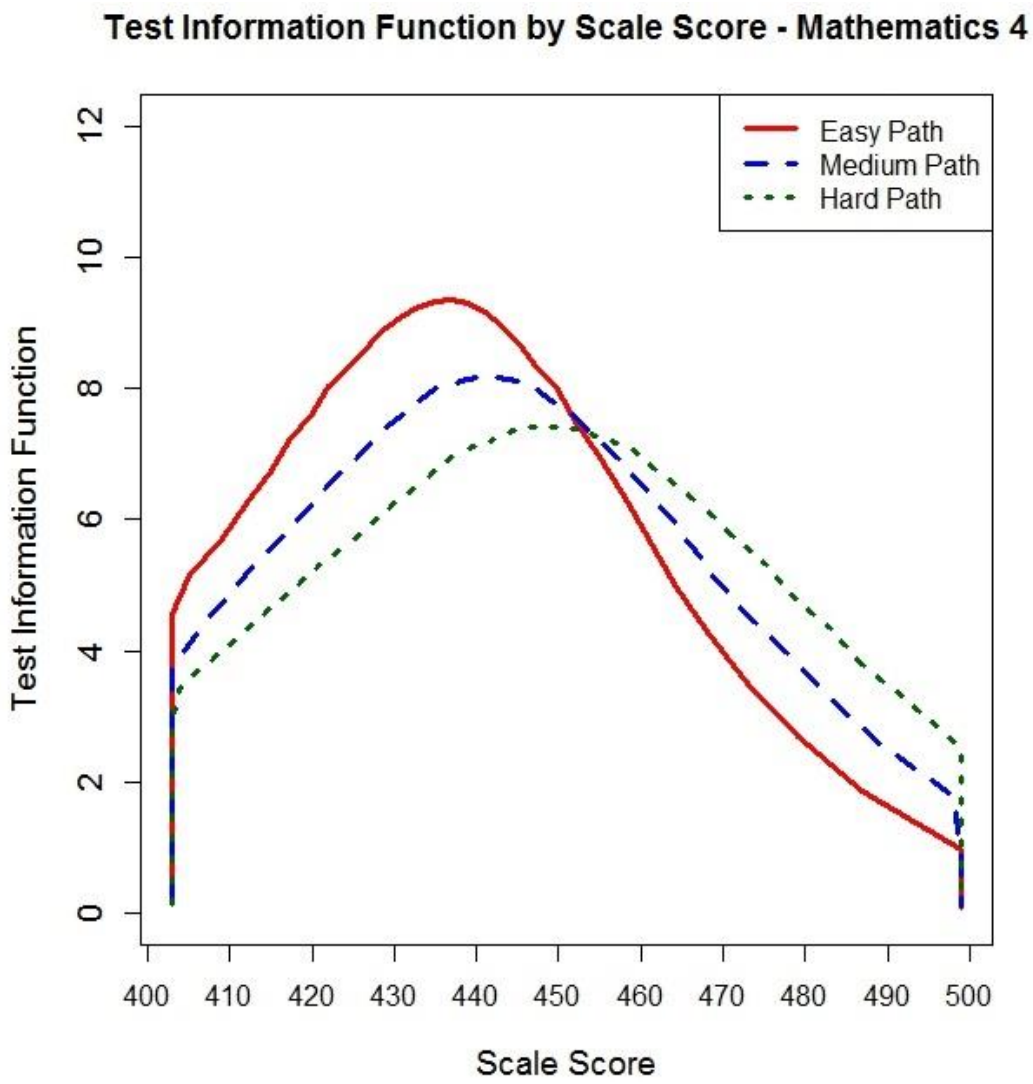


**Figure 11.A.18 TIF by Scale Score—Mathematics, Grade Four**

**Table 11.A.18 Mathematics, Grade Four Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 403 | 0.1753 | 403 | 0.1518 | 403 | 0.1410 |
| 403 | 0.9412 | 403 | 0.9271 | 403 | 0.9133 |
| 403 | 1.7829 | 403 | 1.7350 | 403 | 1.6835 |
| 403 | 2.5504 | 403 | 2.4572 | 403 | 2.3507 |
| 403 | 3.2606 | 403 | 3.1169 | 403 | 2.9437 |
| 403 | 3.9259 | 403 | 3.7285 | 404 | 3.4828 |
| 403 | 4.5531 | 406 | 4.3005 | 409 | 3.9813 |
| 405 | 5.1468 | 410 | 4.8376 | 413 | 4.4473 |
| 409 | 5.7093 | 413 | 5.3418 | 417 | 4.8856 |
| 412 | 6.2405 | 417 | 5.8131 | 421 | 5.2970 |
| 415 | 6.7399 | 420 | 6.2500 | 425 | 5.6805 |
| 417 | 7.2057 | 423 | 6.6504 | 428 | 6.0339 |
| 420 | 7.6355 | 426 | 7.0119 | 431 | 6.3541 |
| 422 | 8.0257 | 428 | 7.3311 | 434 | 6.6372 |
| 425 | 8.3737 | 431 | 7.6045 | 436 | 6.8801 |
| 427 | 8.6749 | 433 | 7.8292 | 439 | 7.0800 |
| 429 | 8.9260 | 435 | 8.0015 | 442 | 7.2347 |
| 431 | 9.1227 | 438 | 8.1188 | 444 | 7.3427 |
| 433 | 9.2615 | 440 | 8.1788 | 447 | 7.4029 |
| 435 | 9.3387 | 442 | 8.1796 | 449 | 7.4149 |
| 437 | 9.3512 | 445 | 8.1206 | 452 | 7.3785 |
| 439 | 9.2963 | 447 | 8.0017 | 454 | 7.2936 |
| 441 | 9.1720 | 449 | 7.8238 | 457 | 7.1601 |
| 443 | 8.9771 | 452 | 7.5885 | 460 | 6.9780 |
| 445 | 8.7110 | 454 | 7.2981 | 462 | 6.7475 |
| 447 | 8.3744 | 457 | 6.9555 | 465 | 6.4688 |
| 450 | 7.9687 | 460 | 6.5638 | 468 | 6.1425 |
| 452 | 7.4963 | 463 | 6.1259 | 471 | 5.7688 |
| 455 | 6.9608 | 466 | 5.6442 | 475 | 5.3482 |
| 458 | 6.3664 | 469 | 5.1206 | 478 | 4.8806 |
| 461 | 5.7186 | 473 | 4.5547 | 483 | 4.3654 |
| 464 | 5.0225 | 478 | 3.9455 | 487 | 3.8008 |
| 468 | 4.2839 | 483 | 3.2884 | 493 | 3.1832 |
| 473 | 3.5081 | 489 | 2.5771 | 499 | 2.5071 |
| 479 | 2.6971 | 498 | 1.8013 | 499 | 1.7629 |
| 487 | 1.8500 | 499 | 0.9479 | 499 | 0.9355 |
| 499 | 0.9578 | 499 | 0.1122 | 499 | 0.1943 |

### TIF for Mathematics, Grade Five

Figure 11.A.19 plots TIF by theta level for grade five mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.19.

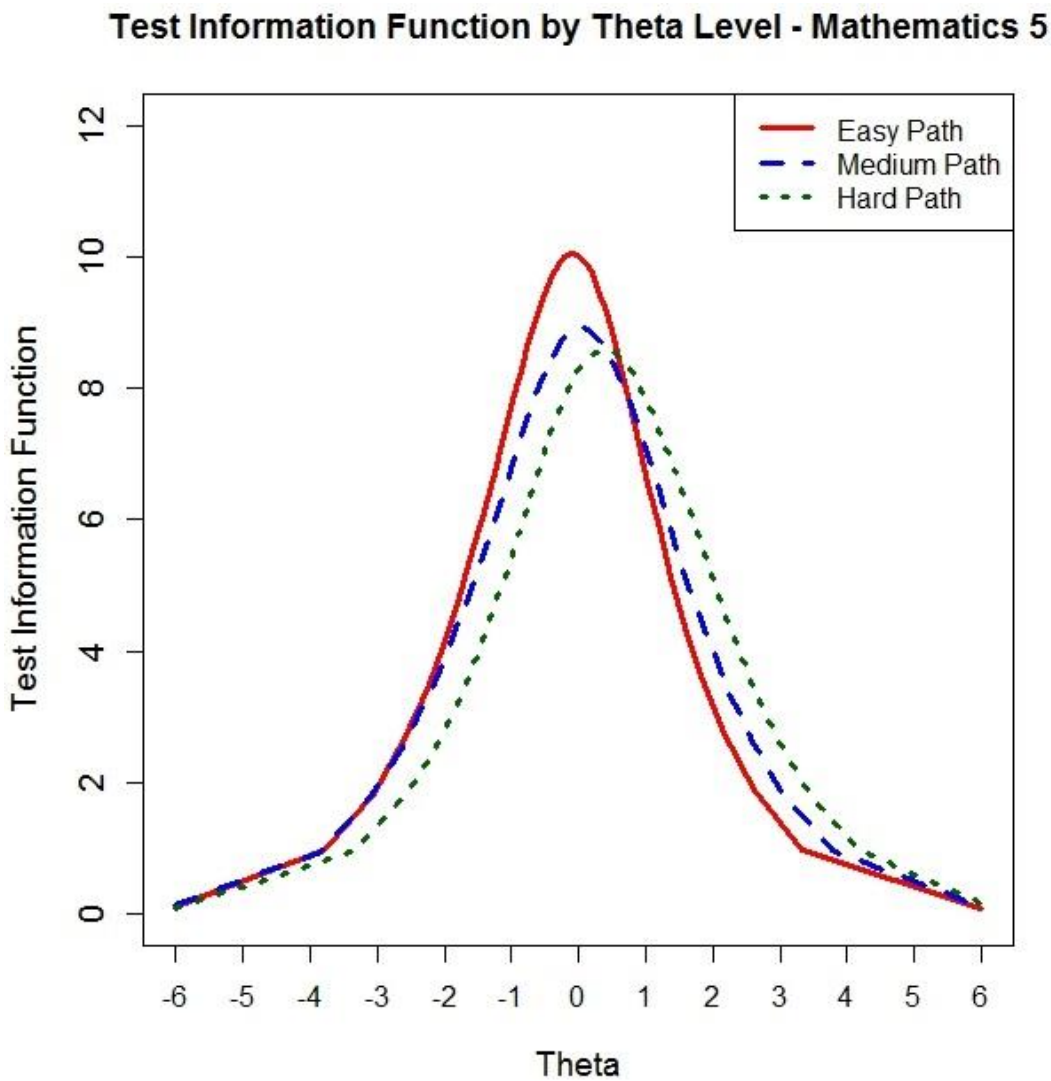


**Figure 11.A.19 TIF by Theta—Mathematics, Grade Five**

**Table 11.A.19 Mathematics, Grade Five Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.1127 | -6.0000 | 0.1220 | -6.0000 | 0.0760 |
| -3.7810 | 0.9574 | -3.8480 | 0.9416 | -3.3625 | 0.9358 |
| -3.0428 | 1.8376 | -3.0926 | 1.7818 | -2.6016 | 1.7685 |
| -2.5932 | 2.6551 | -2.6262 | 2.5436 | -2.1323 | 2.5329 |
| -2.2625 | 3.4214 | -2.2792 | 3.2447 | -1.7849 | 3.2535 |
| -1.9974 | 4.1459 | -1.9985 | 3.8982 | -1.5061 | 3.9429 |
| -1.7742 | 4.8350 | -1.7603 | 4.5138 | -1.2716 | 4.6047 |
| -1.5803 | 5.4921 | -1.5519 | 5.0976 | -1.0680 | 5.2354 |
| -1.4078 | 6.1195 | -1.3656 | 5.6522 | -0.8871 | 5.8269 |
| -1.2518 | 6.7160 | -1.1964 | 6.1774 | -0.7230 | 6.3718 |
| -1.1088 | 7.2792 | -1.0406 | 6.6709 | -0.5718 | 6.8624 |
| -0.9761 | 7.8053 | -0.8956 | 7.1281 | -0.4304 | 7.2937 |
| -0.8517 | 8.2896 | -0.7592 | 7.5442 | -0.2967 | 7.6625 |
| -0.7341 | 8.7261 | -0.6297 | 7.9138 | -0.1687 | 7.9682 |
| -0.6220 | 9.1093 | -0.5058 | 8.2315 | -0.0451 | 8.2112 |
| -0.5141 | 9.4343 | -0.3862 | 8.4933 | 0.0754 | 8.3929 |
| -0.4095 | 9.6959 | -0.2698 | 8.6960 | 0.1937 | 8.5147 |
| -0.3074 | 9.8896 | -0.1557 | 8.8372 | 0.3108 | 8.5782 |
| -0.2068 | 10.0122 | -0.0431 | 8.9155 | 0.4273 | 8.5846 |
| -0.1072 | 10.0606 | 0.0690 | 8.9305 | 0.5442 | 8.5351 |
| -0.0076 | 10.0332 | 0.1813 | 8.8821 | 0.6621 | 8.4308 |
| 0.0926 | 9.9291 | 0.2947 | 8.7708 | 0.7819 | 8.2727 |
| 0.1942 | 9.7485 | 0.4098 | 8.5983 | 0.9043 | 8.0621 |
| 0.2982 | 9.4922 | 0.5278 | 8.3658 | 1.0305 | 7.8002 |
| 0.4054 | 9.1624 | 0.6494 | 8.0763 | 1.1613 | 7.4891 |
| 0.5170 | 8.7619 | 0.7760 | 7.7320 | 1.2982 | 7.1301 |
| 0.6343 | 8.2943 | 0.9088 | 7.3367 | 1.4426 | 6.7252 |
| 0.7589 | 7.7643 | 1.0494 | 6.8939 | 1.5965 | 6.2758 |
| 0.8929 | 7.1766 | 1.1999 | 6.4067 | 1.7625 | 5.7826 |
| 1.0389 | 6.5372 | 1.3628 | 5.8785 | 1.9440 | 5.2459 |
| 1.2005 | 5.8518 | 1.5417 | 5.3107 | 2.1461 | 4.6646 |
| 1.3830 | 5.1253 | 1.7417 | 4.7038 | 2.3763 | 4.0366 |
| 1.5943 | 4.3625 | 1.9704 | 4.0565 | 2.6474 | 3.3581 |
| 1.8474 | 3.5663 | 2.2407 | 3.3648 | 2.9831 | 2.6237 |
| 2.1665 | 2.7374 | 2.5761 | 2.6235 | 3.4368 | 1.8256 |
| 2.6052 | 1.8730 | 3.0301 | 1.8234 | 4.1780 | 0.9550 |
| 3.3338 | 0.9654 | 3.7723 | 0.9538 | 6.0000 | 0.1671 |
| 6.0000 | 0.0718 | 6.0000 | 0.1121 | NA | NA |

Figure 11.A.20 plots TIF by scale score for grade five mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.20.

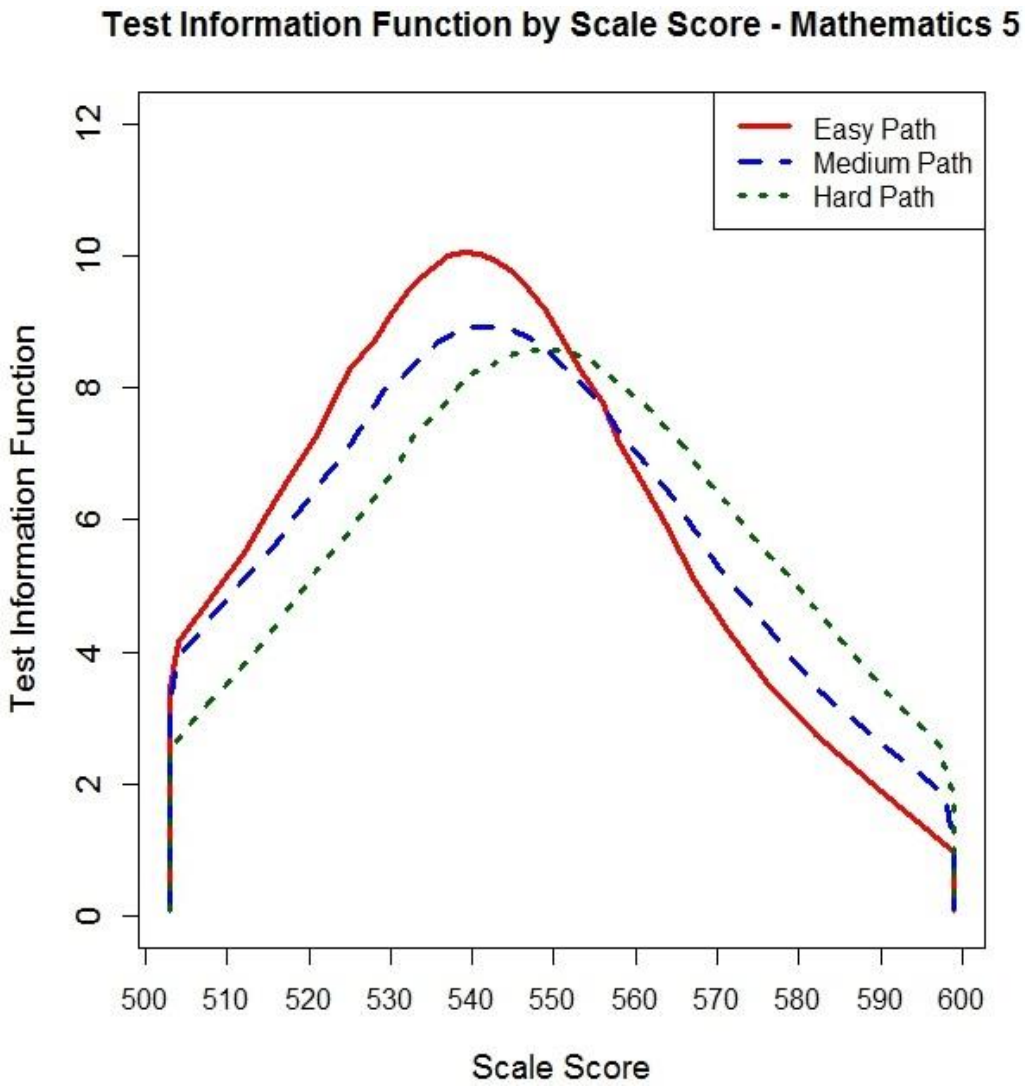


**Figure 11.A.20 TIF by Scale Score—Mathematics, Grade Five**

**Table 11.A.20 Mathematics, Grade Five Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 503 | 0.1127 | 503 | 0.1220 | 503 | 0.0760 |
| 503 | 0.9574 | 503 | 0.9416 | 503 | 0.9358 |
| 503 | 1.8376 | 503 | 1.7818 | 503 | 1.7685 |
| 503 | 2.6551 | 503 | 2.5436 | 503 | 2.5329 |
| 503 | 3.4214 | 503 | 3.2447 | 508 | 3.2535 |
| 504 | 4.1459 | 504 | 3.8982 | 513 | 3.9429 |
| 508 | 4.8350 | 508 | 4.5138 | 517 | 4.6047 |
| 512 | 5.4921 | 512 | 5.0976 | 521 | 5.2354 |
| 515 | 6.1195 | 516 | 5.6522 | 525 | 5.8269 |
| 518 | 6.7160 | 519 | 6.1774 | 528 | 6.3718 |
| 521 | 7.2792 | 522 | 6.6709 | 531 | 6.8624 |
| 523 | 7.8053 | 525 | 7.1281 | 533 | 7.2937 |
| 525 | 8.2896 | 527 | 7.5442 | 536 | 7.6625 |
| 528 | 8.7261 | 529 | 7.9138 | 538 | 7.9682 |
| 530 | 9.1093 | 532 | 8.2315 | 540 | 8.2112 |
| 532 | 9.4343 | 534 | 8.4933 | 543 | 8.3929 |
| 534 | 9.6959 | 536 | 8.6960 | 545 | 8.5147 |
| 536 | 9.8896 | 538 | 8.8372 | 547 | 8.5782 |
| 537 | 10.0122 | 540 | 8.9155 | 549 | 8.5846 |
| 539 | 10.0606 | 543 | 8.9305 | 552 | 8.5351 |
| 541 | 10.0332 | 545 | 8.8821 | 554 | 8.4308 |
| 543 | 9.9291 | 547 | 8.7708 | 556 | 8.2727 |
| 545 | 9.7485 | 549 | 8.5983 | 558 | 8.0621 |
| 547 | 9.4922 | 551 | 8.3658 | 561 | 7.8002 |
| 549 | 9.1624 | 553 | 8.0763 | 563 | 7.4891 |
| 551 | 8.7619 | 556 | 7.7320 | 566 | 7.1301 |
| 553 | 8.2943 | 558 | 7.3367 | 568 | 6.7252 |
| 556 | 7.7643 | 561 | 6.8939 | 571 | 6.2758 |
| 558 | 7.1766 | 564 | 6.4067 | 574 | 5.7826 |
| 561 | 6.5372 | 567 | 5.8785 | 578 | 5.2459 |
| 564 | 5.8518 | 570 | 5.3107 | 582 | 4.6646 |
| 567 | 5.1253 | 574 | 4.7038 | 586 | 4.0366 |
| 571 | 4.3625 | 578 | 4.0565 | 591 | 3.3581 |
| 576 | 3.5663 | 583 | 3.3648 | 597 | 2.6237 |
| 582 | 2.7374 | 590 | 2.6235 | 599 | 1.8256 |
| 590 | 1.8730 | 598 | 1.8234 | 599 | 0.9550 |
| 599 | 0.9654 | 599 | 0.9538 | 599 | 0.1671 |
| 599 | 0.0718 | 599 | 0.1121 | NA | NA |

### TIF for Mathematics, Grade Six

Figure 11.A.21 plots TIF by theta level for grade six mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.21.

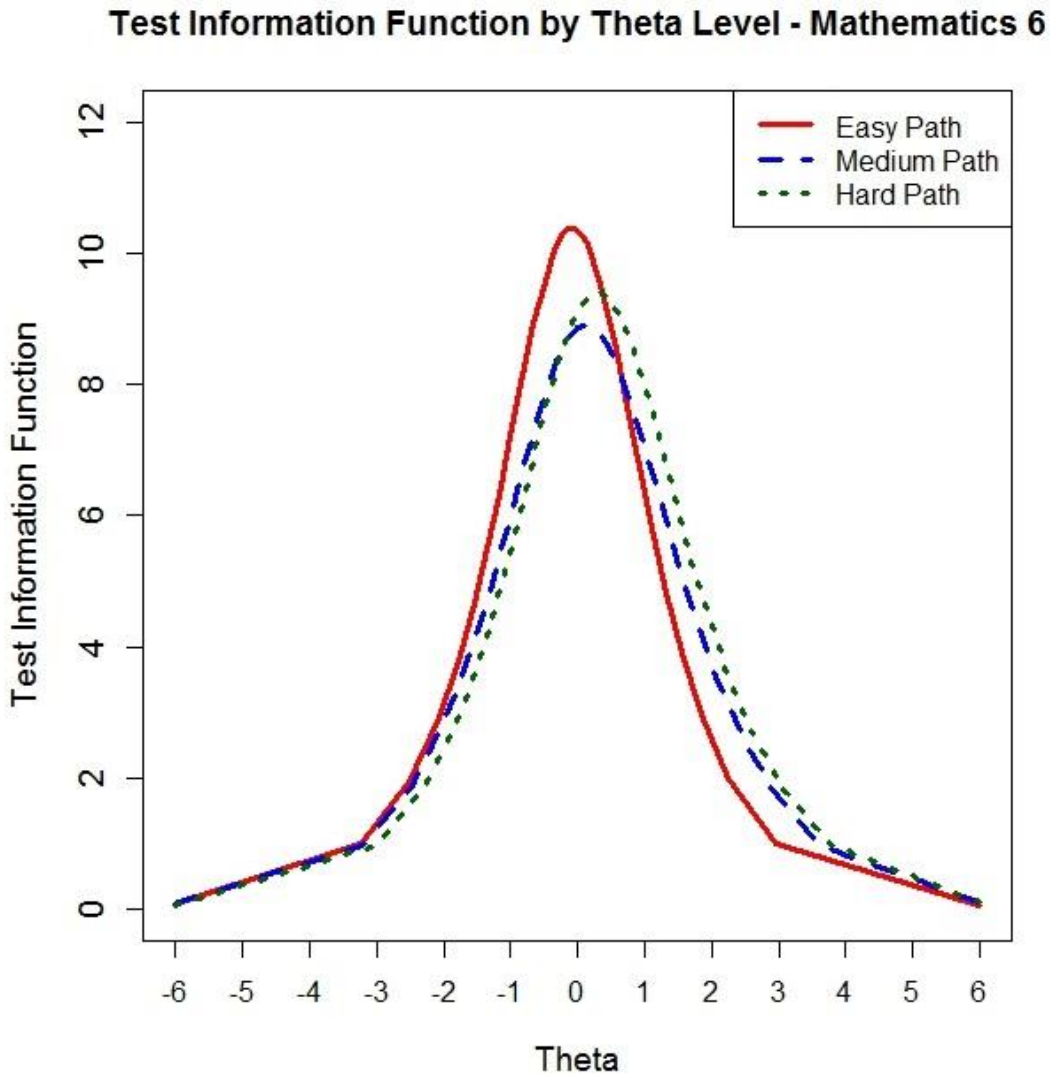


**Figure 11.A.21 TIF by Theta—Mathematics, Grade Six**

**Table 11.A.21 Mathematics, Grade Six Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.0632 | -6.0000 | 0.0624 | -6.0000 | 0.0508 |
| -3.2213 | 0.9824 | -3.1971 | 0.9686 | -2.9906 | 0.9703 |
| -2.5102 | 1.9350 | -2.4710 | 1.8794 | -2.2672 | 1.8918 |
| -2.0882 | 2.8648 | -2.0334 | 2.7415 | -1.8338 | 2.7767 |
| -1.7849 | 3.7727 | -1.7144 | 3.5597 | -1.5197 | 3.6295 |
| -1.5466 | 4.6542 | -1.4603 | 4.3359 | -1.2712 | 4.4467 |
| -1.3492 | 5.5017 | -1.2472 | 5.0679 | -1.0639 | 5.2219 |
| -1.1796 | 6.3063 | -1.0621 | 5.7513 | -0.8846 | 5.9472 |
| -1.0298 | 7.0594 | -0.8971 | 6.3806 | -0.7253 | 6.6148 |
| -0.8946 | 7.7521 | -0.7470 | 6.9498 | -0.5806 | 7.2189 |
| -0.7705 | 8.3760 | -0.6080 | 7.4540 | -0.4470 | 7.7539 |
| -0.6549 | 8.9241 | -0.4776 | 7.8877 | -0.3217 | 8.2169 |
| -0.5457 | 9.3912 | -0.3537 | 8.2471 | -0.2028 | 8.6051 |
| -0.4413 | 9.7728 | -0.2345 | 8.5302 | -0.0886 | 8.9176 |
| -0.3405 | 10.0653 | -0.1186 | 8.7350 | 0.0221 | 9.1533 |
| -0.2421 | 10.2663 | -0.0049 | 8.8607 | 0.1304 | 9.3122 |
| -0.1452 | 10.3743 | 0.1076 | 8.9075 | 0.2373 | 9.3946 |
| -0.0489 | 10.3884 | 0.2201 | 8.8764 | 0.3437 | 9.4011 |
| 0.0478 | 10.3087 | 0.3335 | 8.7690 | 0.4505 | 9.3324 |
| 0.1456 | 10.1358 | 0.4487 | 8.5880 | 0.5585 | 9.1897 |
| 0.2456 | 9.8710 | 0.5669 | 8.3362 | 0.6686 | 8.9743 |
| 0.3487 | 9.5165 | 0.6892 | 8.0171 | 0.7819 | 8.6879 |
| 0.4563 | 9.0744 | 0.8170 | 7.6345 | 0.8994 | 8.3330 |
| 0.5699 | 8.5478 | 0.9520 | 7.1920 | 1.0226 | 7.9119 |
| 0.6912 | 7.9416 | 1.0961 | 6.6939 | 1.1530 | 7.4284 |
| 0.8229 | 7.2596 | 1.2520 | 6.1437 | 1.2928 | 6.8863 |
| 0.9683 | 6.5083 | 1.4233 | 5.5444 | 1.4447 | 6.2901 |
| 1.1324 | 5.6945 | 1.6151 | 4.8984 | 1.6125 | 5.6448 |
| 1.3229 | 4.8260 | 1.8351 | 4.2073 | 1.8014 | 4.9561 |
| 1.5527 | 3.9115 | 2.0963 | 3.4708 | 2.0196 | 4.2286 |
| 1.8455 | 2.9620 | 2.4227 | 2.6874 | 2.2804 | 3.4659 |
| 2.2550 | 1.9874 | 2.8677 | 1.8532 | 2.6082 | 2.6694 |
| 2.9514 | 0.9979 | 3.6014 | 0.9613 | 3.0570 | 1.8356 |
| 6.0000 | 0.0475 | 6.0000 | 0.0940 | 3.7975 | 0.9536 |
| NA | NA | NA | NA | 6.0000 | 0.1151 |

Figure 11.A.22 plots TIF by scale score for grade six mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.22.

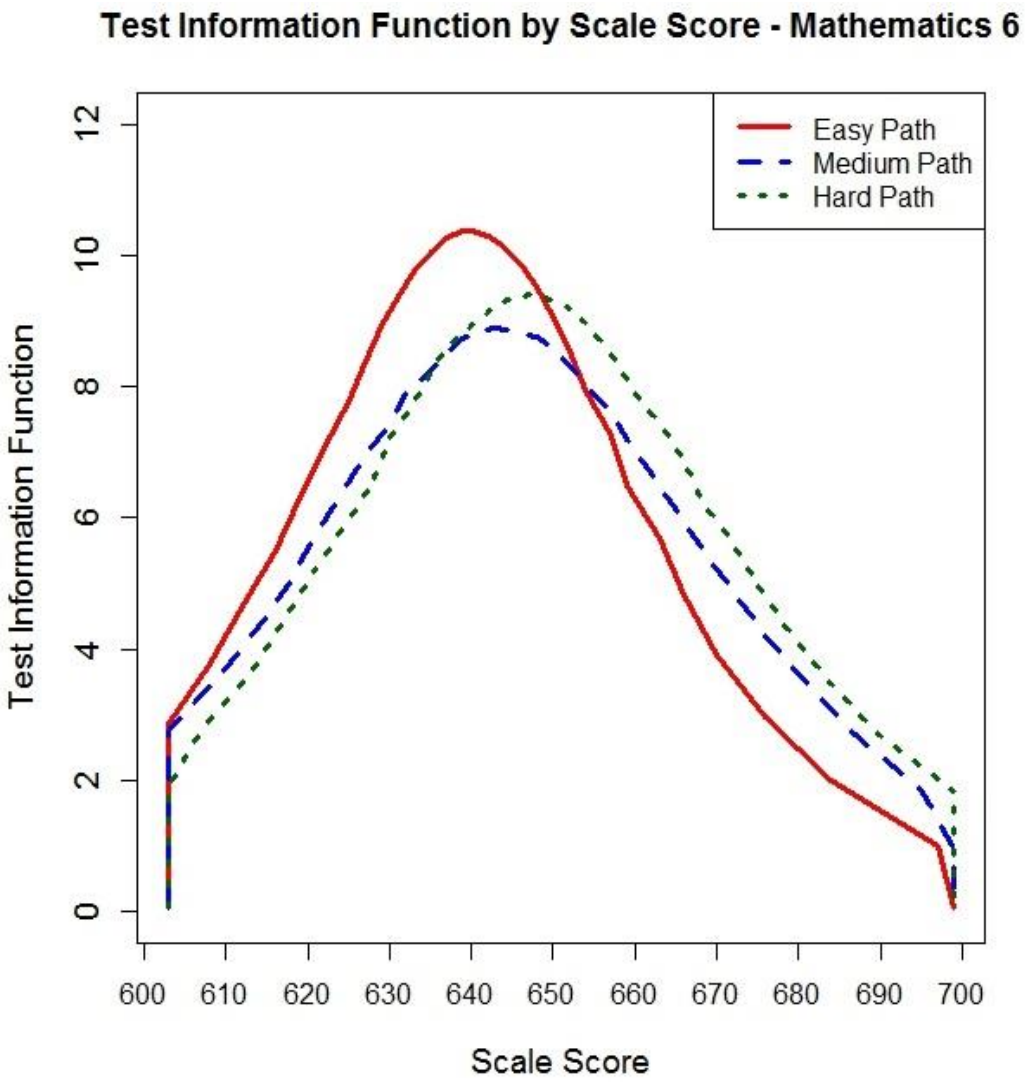


**Figure 11.A.22 TIF by Scale Score—Mathematics, Grade Six**

**Table 11.A.22 Mathematics, Grade Six Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 603 | 0.0632 | 603 | 0.0624 | 603 | 0.0508 |
| 603 | 0.9824 | 603 | 0.9686 | 603 | 0.9703 |
| 603 | 1.9350 | 603 | 1.8794 | 603 | 1.8918 |
| 603 | 2.8648 | 603 | 2.7415 | 607 | 2.7767 |
| 608 | 3.7727 | 609 | 3.5597 | 613 | 3.6295 |
| 612 | 4.6542 | 614 | 4.3359 | 617 | 4.4467 |
| 616 | 5.5017 | 618 | 5.0679 | 621 | 5.2219 |
| 619 | 6.3063 | 621 | 5.7513 | 625 | 5.9472 |
| 622 | 7.0594 | 624 | 6.3806 | 628 | 6.6148 |
| 625 | 7.7521 | 627 | 6.9498 | 630 | 7.2189 |
| 627 | 8.3760 | 630 | 7.4540 | 633 | 7.7539 |
| 629 | 8.9241 | 632 | 7.8877 | 635 | 8.2169 |
| 631 | 9.3912 | 635 | 8.2471 | 637 | 8.6051 |
| 633 | 9.7728 | 637 | 8.5302 | 640 | 8.9176 |
| 635 | 10.0653 | 639 | 8.7350 | 642 | 9.1533 |
| 637 | 10.2663 | 641 | 8.8607 | 644 | 9.3122 |
| 639 | 10.3743 | 643 | 8.9075 | 646 | 9.3946 |
| 640 | 10.3884 | 645 | 8.8764 | 648 | 9.4011 |
| 642 | 10.3087 | 648 | 8.7690 | 650 | 9.3324 |
| 644 | 10.1358 | 650 | 8.5880 | 652 | 9.1897 |
| 646 | 9.8710 | 652 | 8.3362 | 654 | 8.9743 |
| 648 | 9.5165 | 654 | 8.0171 | 656 | 8.6879 |
| 650 | 9.0744 | 657 | 7.6345 | 658 | 8.3330 |
| 652 | 8.5478 | 659 | 7.1920 | 660 | 7.9119 |
| 654 | 7.9416 | 662 | 6.6939 | 663 | 7.4284 |
| 657 | 7.2596 | 665 | 6.1437 | 666 | 6.8863 |
| 659 | 6.5083 | 668 | 5.5444 | 668 | 6.2901 |
| 663 | 5.6945 | 672 | 4.8984 | 672 | 5.6448 |
| 666 | 4.8260 | 676 | 4.2073 | 675 | 4.9561 |
| 670 | 3.9115 | 681 | 3.4708 | 679 | 4.2286 |
| 676 | 2.9620 | 687 | 2.6874 | 684 | 3.4659 |
| 684 | 1.9874 | 695 | 1.8532 | 690 | 2.6694 |
| 697 | 0.9979 | 699 | 0.9613 | 699 | 1.8356 |
| 699 | 0.0475 | 699 | 0.0940 | 699 | 0.9536 |
| NA | NA | NA | NA | 699 | 0.1151 |

## TIF for Mathematics, Grade Seven

Figure 11.A.23 plots TIF by theta level for grade seven mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.23.

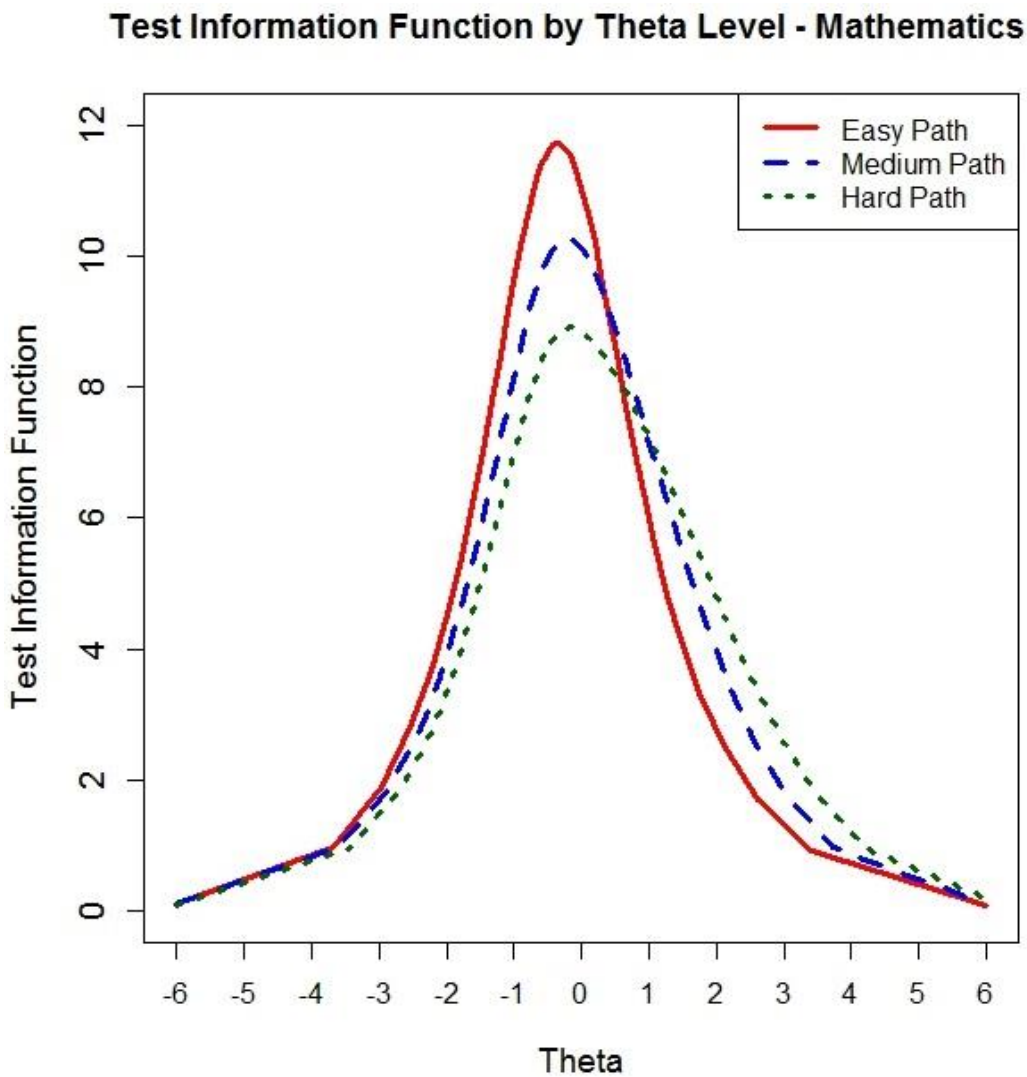


**Figure 11.A.23 TIF by Theta—Mathematics, Grade Seven**

**Table 11.A.23 Mathematics, Grade Seven Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.1025 | -6.0000 | 0.0934 | -6.0000 | 0.0792 |
| -3.6952 | 0.9696 | -3.5930 | 0.9604 | -3.4216 | 0.9557 |
| -2.9715 | 1.8924 | -2.8598 | 1.8603 | -2.6841 | 1.8484 |
| -2.5388 | 2.7878 | -2.4184 | 2.7248 | -2.2399 | 2.7078 |
| -2.2269 | 3.6668 | -2.0986 | 3.5676 | -1.9181 | 3.5471 |
| -1.9820 | 4.5332 | -1.8463 | 4.3935 | -1.6644 | 4.3642 |

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -1.7797 | 5.3853 | -1.6373 | 5.1980 | -1.4536 | 5.1490 |
| -1.6070 | 6.2160 | -1.4579 | 5.9736 | -1.2721 | 5.8861 |
| -1.4556 | 7.0178 | -1.3000 | 6.7091 | -1.1113 | 6.5605 |
| -1.3203 | 7.7807 | -1.1581 | 7.3934 | -0.9655 | 7.1592 |
| -1.1973 | 8.4959 | -1.0282 | 8.0172 | -0.8306 | 7.6733 |
| -1.0839 | 9.1545 | -0.9076 | 8.5718 | -0.7038 | 8.0967 |
| -0.9781 | 9.7487 | -0.7941 | 9.0513 | -0.5827 | 8.4285 |
| -0.8781 | 10.2729 | -0.6860 | 9.4521 | -0.4658 | 8.6699 |
| -0.7828 | 10.7211 | -0.5819 | 9.7725 | -0.3515 | 8.8266 |
| -0.6911 | 11.0895 | -0.4808 | 10.0125 | -0.2387 | 8.9059 |
| -0.6021 | 11.3753 | -0.3817 | 10.1739 | -0.1264 | 8.9171 |
| -0.5149 | 11.5771 | -0.2838 | 10.2600 | -0.0140 | 8.8702 |
| -0.4290 | 11.6936 | -0.1864 | 10.2750 | 0.0994 | 8.7752 |
| -0.3435 | 11.7251 | -0.0888 | 10.2236 | 0.2143 | 8.6414 |
| -0.2580 | 11.6723 | 0.0096 | 10.1111 | 0.3312 | 8.4765 |
| -0.1719 | 11.5369 | 0.1093 | 9.9429 | 0.4506 | 8.2861 |
| -0.0843 | 11.3206 | 0.2111 | 9.7236 | 0.5729 | 8.0739 |
| 0.0052 | 11.0265 | 0.3154 | 9.4582 | 0.6987 | 7.8411 |
| 0.0974 | 10.6581 | 0.4229 | 9.1506 | 0.8284 | 7.5873 |
| 0.1933 | 10.2184 | 0.5344 | 8.8037 | 0.9627 | 7.3102 |
| 0.2937 | 9.7125 | 0.6506 | 8.4204 | 1.1025 | 7.0069 |
| 0.3998 | 9.1452 | 0.7724 | 8.0024 | 1.2488 | 6.6739 |
| 0.5131 | 8.5220 | 0.9011 | 7.5503 | 1.4029 | 6.3078 |
| 0.6353 | 7.8498 | 1.0381 | 7.0643 | 1.5668 | 5.9050 |
| 0.7690 | 7.1346 | 1.1851 | 6.5449 | 1.7428 | 5.4627 |
| 0.9171 | 6.3861 | 1.3448 | 5.9904 | 1.9346 | 4.9777 |
| 1.0841 | 5.6127 | 1.5206 | 5.4001 | 2.1470 | 4.4475 |
| 1.2762 | 4.8249 | 1.7175 | 4.7723 | 2.3878 | 3.8686 |
| 1.5027 | 4.0338 | 1.9432 | 4.1051 | 2.6699 | 3.2365 |
| 1.7787 | 3.2489 | 2.2106 | 3.3955 | 3.0171 | 2.5450 |
| 2.1306 | 2.4758 | 2.5436 | 2.6390 | 3.4828 | 1.7849 |
| 2.6145 | 1.7071 | 2.9957 | 1.8287 | 4.2371 | 0.9429 |
| 3.4020 | 0.9079 | 3.7367 | 0.9545 | 6.0000 | 0.1786 |
| 6.0000 | 0.0815 | 6.0000 | 0.1081 | NA | NA |

Figure 11.A.24 plots TIF by scale score for grade seven mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.24.

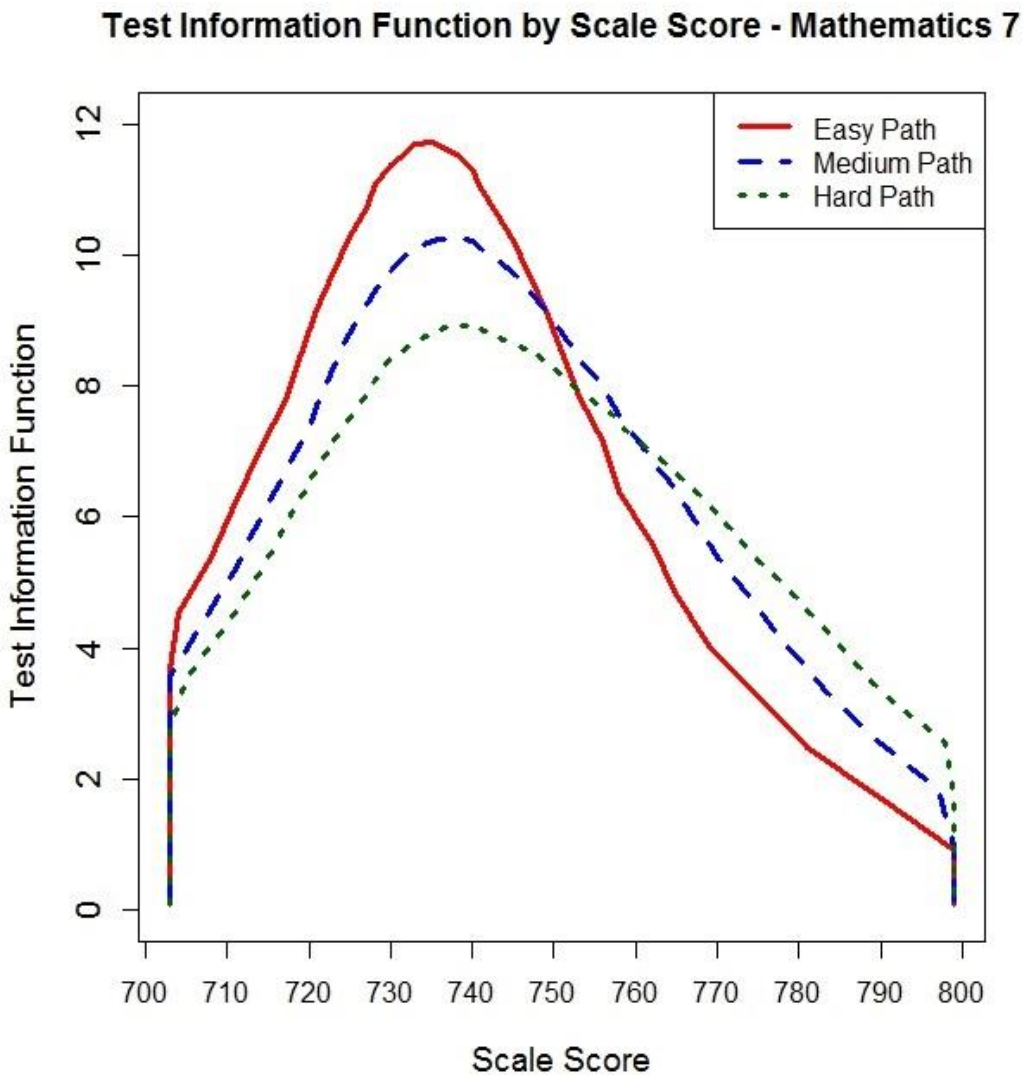


**Figure 11.A.24 TIF by Scale Score—Mathematics, Grade Seven**

**Table 11.A.24 Mathematics, Grade Seven Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 703 | 0.1025 | 703 | 0.0934 | 703 | 0.0792 |
| 703 | 0.9696 | 703 | 0.9604 | 703 | 0.9557 |
| 703 | 1.8924 | 703 | 1.8603 | 703 | 1.8484 |
| 703 | 2.7878 | 703 | 2.7248 | 703 | 2.7078 |
| 703 | 3.6668 | 703 | 3.5676 | 705 | 3.5471 |
| 704 | 4.5332 | 707 | 4.3935 | 710 | 4.3642 |

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 708 | 5.3853 | 711 | 5.1980 | 714 | 5.1490 |
| 711 | 6.2160 | 714 | 5.9736 | 717 | 5.8861 |
| 714 | 7.0178 | 717 | 6.7091 | 720 | 6.5605 |
| 717 | 7.7807 | 720 | 7.3934 | 723 | 7.1592 |
| 719 | 8.4959 | 722 | 8.0172 | 726 | 7.6733 |
| 721 | 9.1545 | 724 | 8.5718 | 728 | 8.0967 |
| 723 | 9.7487 | 726 | 9.0513 | 730 | 8.4285 |
| 725 | 10.2729 | 728 | 9.4521 | 733 | 8.6699 |
| 727 | 10.7211 | 730 | 9.7725 | 735 | 8.8266 |
| 728 | 11.0895 | 732 | 10.0125 | 737 | 8.9059 |
| 730 | 11.3753 | 734 | 10.1739 | 739 | 8.9171 |
| 732 | 11.5771 | 736 | 10.2600 | 741 | 8.8702 |
| 733 | 11.6936 | 738 | 10.2750 | 743 | 8.7752 |
| 735 | 11.7251 | 740 | 10.2236 | 745 | 8.6414 |
| 736 | 11.6723 | 741 | 10.1111 | 748 | 8.4765 |
| 738 | 11.5369 | 743 | 9.9429 | 750 | 8.2861 |
| 740 | 11.3206 | 745 | 9.7236 | 752 | 8.0739 |
| 741 | 11.0265 | 747 | 9.4582 | 754 | 7.8411 |
| 743 | 10.6581 | 749 | 9.1506 | 757 | 7.5873 |
| 745 | 10.2184 | 751 | 8.8037 | 759 | 7.3102 |
| 747 | 9.7125 | 753 | 8.4204 | 762 | 7.0069 |
| 749 | 9.1452 | 756 | 8.0024 | 765 | 6.6739 |
| 751 | 8.5220 | 758 | 7.5503 | 768 | 6.3078 |
| 753 | 7.8498 | 761 | 7.0643 | 771 | 5.9050 |
| 756 | 7.1346 | 764 | 6.5449 | 774 | 5.4627 |
| 758 | 6.3861 | 767 | 5.9904 | 778 | 4.9777 |
| 762 | 5.6127 | 770 | 5.4001 | 782 | 4.4475 |
| 765 | 4.8249 | 774 | 4.7723 | 786 | 3.8686 |
| 769 | 4.0338 | 778 | 4.1051 | 791 | 3.2365 |
| 775 | 3.2489 | 783 | 3.3955 | 798 | 2.5450 |
| 781 | 2.4758 | 789 | 2.6390 | 799 | 1.7849 |
| 790 | 1.7071 | 797 | 1.8287 | 799 | 0.9429 |
| 799 | 0.9079 | 799 | 0.9545 | 799 | 0.1786 |
| 799 | 0.0815 | 799 | 0.1081 | NA | NA |

### TIF for Mathematics, Grade Eight

Figure 11.A.25 plots TIF by theta level for grade eight mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.25.

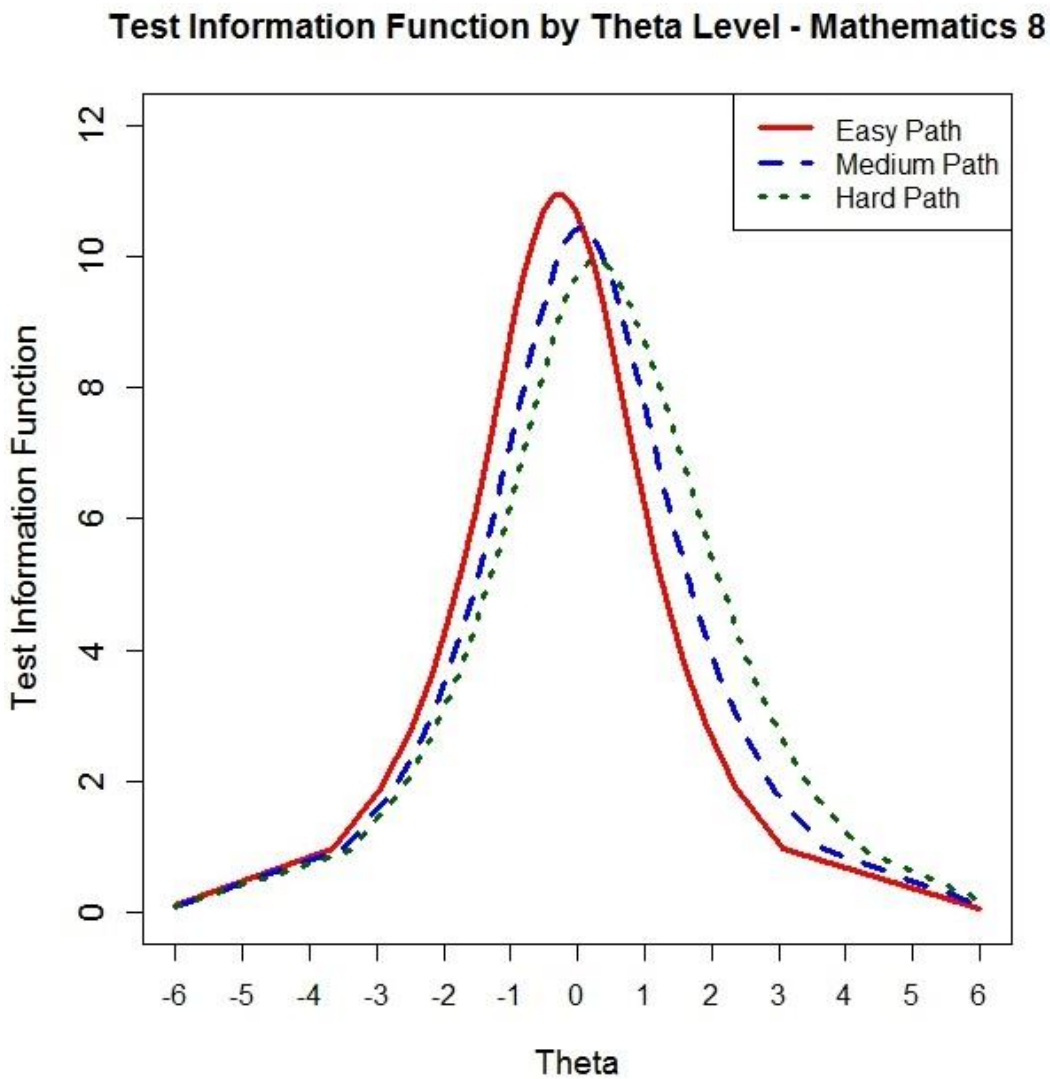


**Figure 11.A.25 TIF by Theta—Mathematics, Grade Eight**

**Table 11.A.25 Mathematics, Grade Eight Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.0986 | -6.0000 | 0.0842 | -6.0000 | 0.0767 |
| -3.6560 | 0.9688 | -3.4885 | 0.9591 | -3.3881 | 0.9520 |
| -2.9310 | 1.8860 | -2.7531 | 1.8497 | -2.6450 | 1.8241 |
| -2.4961 | 2.7672 | -2.3079 | 2.6911 | -2.1923 | 2.6393 |
| -2.1811 | 3.6227 | -1.9828 | 3.4964 | -1.8601 | 3.4131 |
| -1.9326 | 4.4560 | -1.7245 | 4.2724 | -1.5949 | 4.1547 |

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -1.7263 | 5.2668 | -1.5088 | 5.0221 | -1.3727 | 4.8679 |
| -1.5493 | 6.0497 | -1.3227 | 5.7442 | -1.1805 | 5.5522 |
| -1.3934 | 6.7987 | -1.1582 | 6.4356 | -1.0101 | 6.2055 |
| -1.2534 | 7.5056 | -1.0102 | 7.0903 | -0.8564 | 6.8223 |
| -1.1257 | 8.1617 | -0.8749 | 7.7026 | -0.7157 | 7.3968 |
| -1.0074 | 8.7605 | -0.7496 | 8.2662 | -0.5851 | 7.9236 |
| -0.8966 | 9.2948 | -0.6321 | 8.7755 | -0.4625 | 8.3973 |
| -0.7916 | 9.7598 | -0.5210 | 9.2238 | -0.3462 | 8.8130 |
| -0.6911 | 10.1512 | -0.4147 | 9.6074 | -0.2349 | 9.1667 |
| -0.5941 | 10.4662 | -0.3123 | 9.9212 | -0.1275 | 9.4559 |
| -0.4996 | 10.7032 | -0.2127 | 10.1628 | -0.0230 | 9.6790 |
| -0.4068 | 10.8613 | -0.1151 | 10.3297 | 0.0795 | 9.8360 |
| -0.3151 | 10.9403 | -0.0187 | 10.4208 | 0.1808 | 9.9276 |
| -0.2237 | 10.9409 | 0.0772 | 10.4356 | 0.2814 | 9.9553 |
| -0.1319 | 10.8637 | 0.1733 | 10.3749 | 0.3820 | 9.9219 |
| -0.0392 | 10.7102 | 0.2704 | 10.2399 | 0.4833 | 9.8306 |
| 0.0552 | 10.4815 | 0.3691 | 10.0333 | 0.5858 | 9.6852 |
| 0.1520 | 10.1794 | 0.4701 | 9.7583 | 0.6902 | 9.4893 |
| 0.2521 | 9.8053 | 0.5745 | 9.4182 | 0.7970 | 9.2472 |
| 0.3565 | 9.3614 | 0.6830 | 9.0182 | 0.9069 | 8.9624 |
| 0.4664 | 8.8498 | 0.7968 | 8.5629 | 1.0205 | 8.6387 |
| 0.5833 | 8.2735 | 0.9172 | 8.0576 | 1.1388 | 8.2781 |
| 0.7090 | 7.6367 | 1.0458 | 7.5074 | 1.2627 | 7.8828 |
| 0.8464 | 6.9422 | 1.1846 | 6.9174 | 1.3932 | 7.4542 |
| 0.9988 | 6.1966 | 1.3362 | 6.2919 | 1.5317 | 6.9926 |
| 1.1714 | 5.4058 | 1.5041 | 5.6344 | 1.6801 | 6.4970 |
| 1.3723 | 4.5757 | 1.6934 | 4.9465 | 1.8407 | 5.9661 |
| 1.6145 | 3.7137 | 1.9119 | 4.2278 | 2.0169 | 5.3972 |
| 1.9223 | 2.8253 | 2.1724 | 3.4761 | 2.2135 | 4.7874 |
| 2.3497 | 1.9134 | 2.4986 | 2.6867 | 2.4381 | 4.1325 |
| 3.0673 | 0.9755 | 2.9438 | 1.8519 | 2.7033 | 3.4280 |
| 6.0000 | 0.0546 | 3.6779 | 0.9610 | 3.0328 | 2.6687 |
| NA | NA | 6.0000 | 0.1014 | 3.4798 | 1.8487 |
| NA | NA | NA | NA | 4.2140 | 0.9616 |
| NA | NA | NA | NA | 6.0000 | 0.1723 |

Figure 11.A.26 plots TIF by scale score for grade eight mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.26.

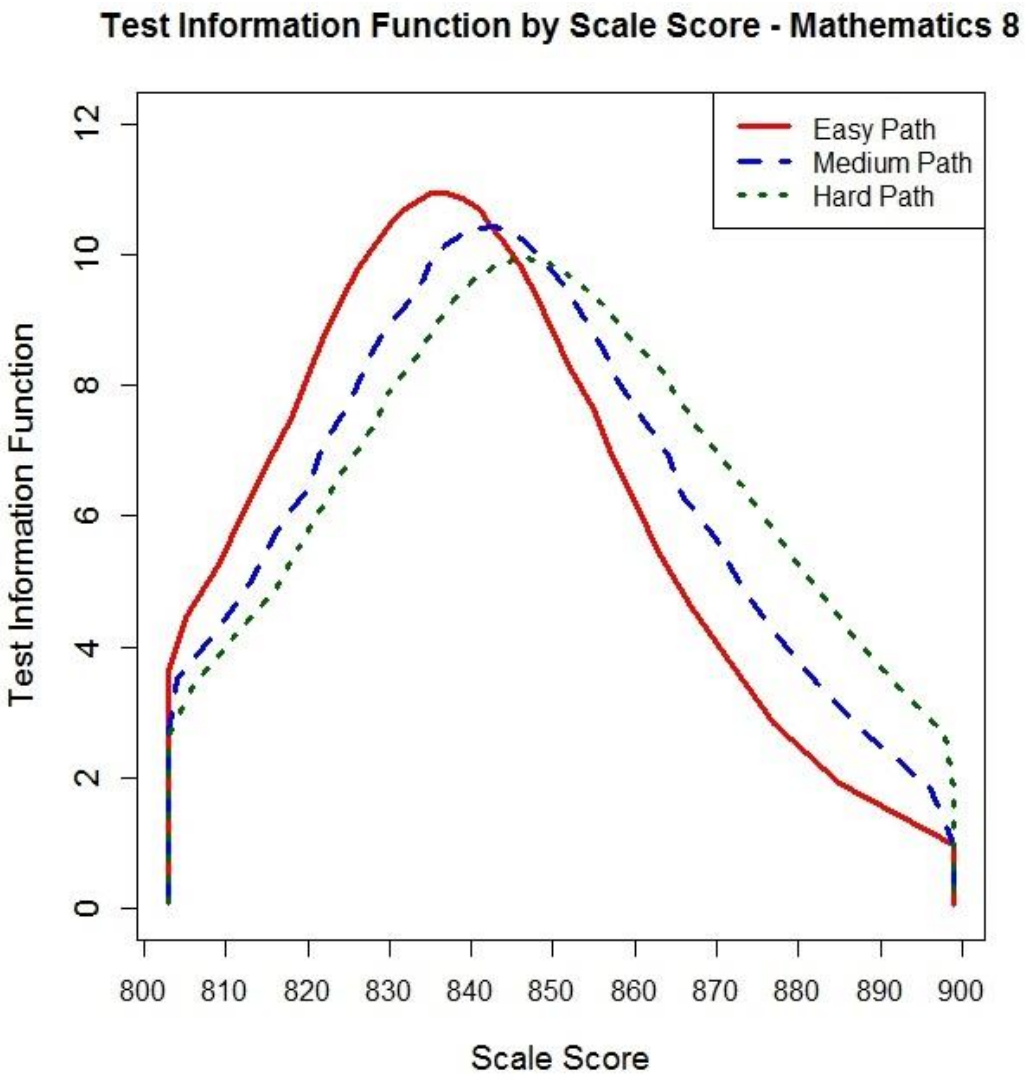


**Figure 11.A.26 TIF by Scale Score—Mathematics, Grade Eight**

**Table 11.A.26 Mathematics, Grade Eight Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 803 | 0.0986 | 803 | 0.0842 | 803 | 0.0767 |
| 803 | 0.9688 | 803 | 0.9591 | 803 | 0.9520 |
| 803 | 1.8860 | 803 | 1.8497 | 803 | 1.8241 |
| 803 | 2.7672 | 803 | 2.6911 | 803 | 2.6393 |
| 803 | 3.6227 | 804 | 3.4964 | 806 | 3.4131 |
| 805 | 4.4560 | 809 | 4.2724 | 811 | 4.1547 |

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 809 | 5.2668 | 813 | 5.0221 | 816 | 4.8679 |
| 812 | 6.0497 | 816 | 5.7442 | 819 | 5.5522 |
| 815 | 6.7987 | 820 | 6.4356 | 822 | 6.2055 |
| 818 | 7.5056 | 822 | 7.0903 | 825 | 6.8223 |
| 820 | 8.1617 | 825 | 7.7026 | 828 | 7.3968 |
| 822 | 8.7605 | 827 | 8.2662 | 830 | 7.9236 |
| 824 | 9.2948 | 829 | 8.7755 | 833 | 8.3973 |
| 826 | 9.7598 | 832 | 9.2238 | 835 | 8.8130 |
| 828 | 10.1512 | 834 | 9.6074 | 837 | 9.1667 |
| 830 | 10.4662 | 835 | 9.9212 | 839 | 9.4559 |
| 832 | 10.7032 | 837 | 10.1628 | 841 | 9.6790 |
| 834 | 10.8613 | 839 | 10.3297 | 843 | 9.8360 |
| 835 | 10.9403 | 841 | 10.4208 | 845 | 9.9276 |
| 837 | 10.9409 | 843 | 10.4356 | 847 | 9.9553 |
| 839 | 10.8637 | 845 | 10.3749 | 848 | 9.9219 |
| 841 | 10.7102 | 846 | 10.2399 | 850 | 9.8306 |
| 842 | 10.4815 | 848 | 10.0333 | 852 | 9.6852 |
| 844 | 10.1794 | 850 | 9.7583 | 854 | 9.4893 |
| 846 | 9.8053 | 852 | 9.4182 | 856 | 9.2472 |
| 848 | 9.3614 | 854 | 9.0182 | 858 | 8.9624 |
| 850 | 8.8498 | 856 | 8.5629 | 860 | 8.6387 |
| 852 | 8.2735 | 858 | 8.0576 | 863 | 8.2781 |
| 855 | 7.6367 | 861 | 7.5074 | 865 | 7.8828 |
| 857 | 6.9422 | 864 | 6.9174 | 867 | 7.4542 |
| 860 | 6.1966 | 866 | 6.2919 | 870 | 6.9926 |
| 863 | 5.4058 | 870 | 5.6344 | 873 | 6.4970 |
| 867 | 4.5757 | 873 | 4.9465 | 876 | 5.9661 |
| 872 | 3.7137 | 877 | 4.2278 | 879 | 5.3972 |
| 877 | 2.8253 | 882 | 3.4761 | 883 | 4.7874 |
| 885 | 1.9134 | 888 | 2.6867 | 887 | 4.1325 |
| 899 | 0.9755 | 896 | 1.8519 | 892 | 3.4280 |
| 899 | 0.0546 | 899 | 0.9610 | 898 | 2.6687 |
| NA | NA | 899 | 0.1014 | 899 | 1.8487 |
| NA | NA | NA | NA | 899 | 0.9616 |
| NA | NA | NA | NA | 899 | 0.1723 |

### TIF for Mathematics, Grade Eleven

Figure 11.A.27 plots TIF by theta level for grade eleven mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.27.

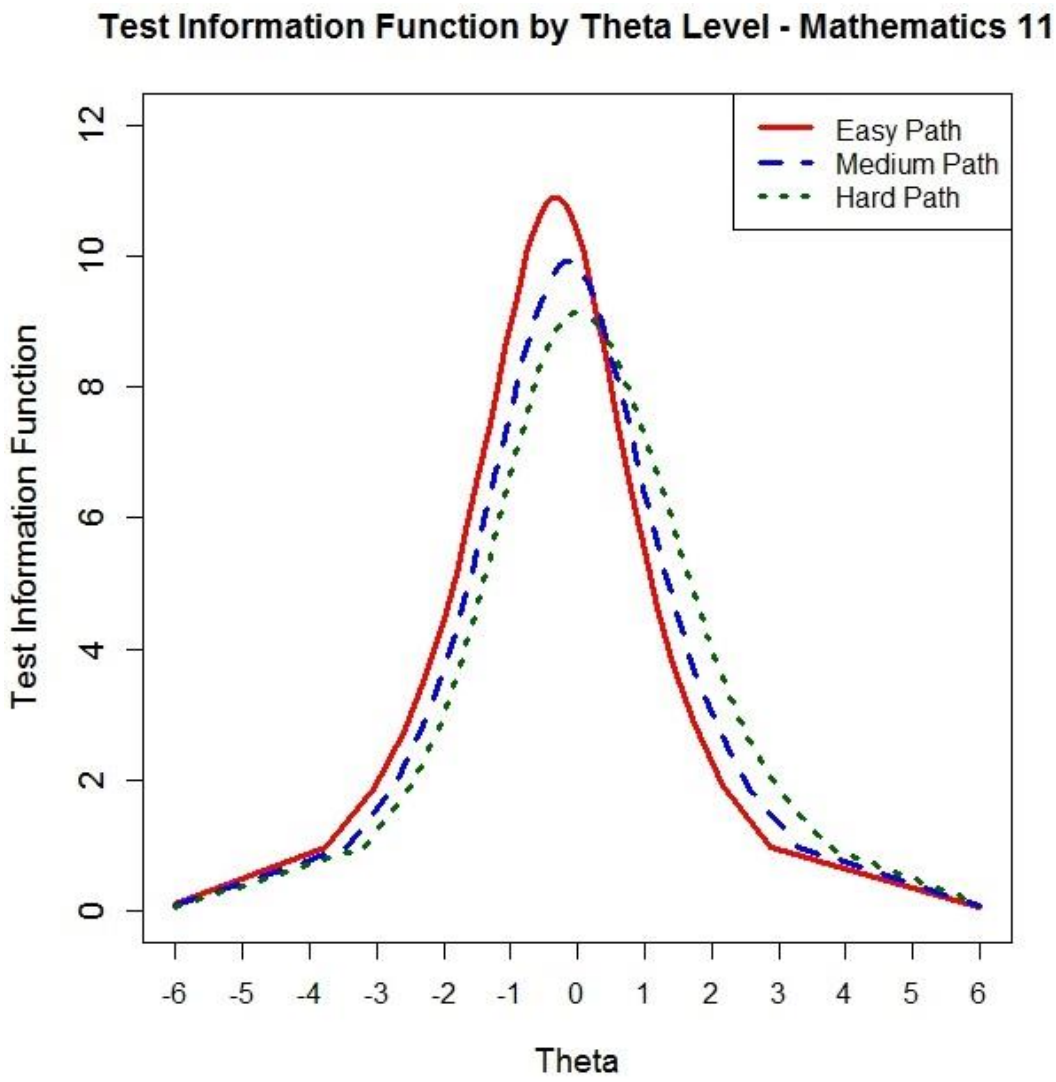


**Figure 11.A.27 TIF by Theta—Mathematics, Grade Eleven**

**Table 11.A.27 Mathematics, Grade Eleven Theta TIF Data**

| Theta Easy | TIF Easy | Theta Medium | TIF Medium | Theta Hard | TIF Hard |
|---|---|---|---|---|---|
| -6.0000 | 0.1115 | -6.0000 | 0.0794 | -6.0000 | 0.0614 |
| -3.7729 | 0.9619 | -3.4456 | 0.9777 | -3.1878 | 0.9788 |
| -3.0409 | 1.8629 | -2.7296 | 1.9167 | -2.4740 | 1.9280 |
| -2.5998 | 2.7242 | -2.3025 | 2.8229 | -2.0505 | 2.8539 |
| -2.2795 | 3.5577 | -1.9939 | 3.6952 | -1.7457 | 3.7488 |
| -2.0262 | 4.3689 | -1.7499 | 4.5289 | -1.5054 | 4.5992 |
| -1.8157 | 5.1575 | -1.5463 | 5.3179 | -1.3049 | 5.3928 |
| -1.6348 | 5.9201 | -1.3702 | 6.0558 | -1.1309 | 6.1198 |
| -1.4755 | 6.6511 | -1.2138 | 6.7375 | -0.9757 | 6.7719 |
| -1.3325 | 7.3441 | -1.0718 | 7.3602 | -0.8340 | 7.3451 |
| -1.2019 | 7.9933 | -0.9408 | 7.9207 | -0.7022 | 7.8373 |
| -1.0813 | 8.5909 | -0.8184 | 8.4162 | -0.5779 | 8.2475 |
| -0.9684 | 9.1318 | -0.7025 | 8.8459 | -0.4590 | 8.5774 |
| -0.8616 | 9.6101 | -0.5917 | 9.2074 | -0.3441 | 8.8290 |
| -0.7597 | 10.0200 | -0.4847 | 9.4991 | -0.2319 | 9.0058 |
| -0.6615 | 10.3571 | -0.3806 | 9.7183 | -0.1215 | 9.1117 |
| -0.5661 | 10.6168 | -0.2785 | 9.8629 | -0.0120 | 9.1513 |
| -0.4727 | 10.7952 | -0.1774 | 9.9310 | 0.0975 | 9.1293 |
| -0.3805 | 10.8893 | -0.0767 | 9.9205 | 0.2075 | 9.0502 |
| -0.2887 | 10.8967 | 0.0246 | 9.8303 | 0.3188 | 8.9182 |
| -0.1965 | 10.8156 | 0.1272 | 9.6600 | 0.4322 | 8.7362 |
| -0.1033 | 10.6453 | 0.2321 | 9.4101 | 0.5482 | 8.5065 |
| -0.0082 | 10.3861 | 0.3403 | 9.0824 | 0.6678 | 8.2295 |
| 0.0897 | 10.0392 | 0.4529 | 8.6805 | 0.7918 | 7.9046 |
| 0.1915 | 9.6068 | 0.5714 | 8.2084 | 0.9214 | 7.5299 |
| 0.2985 | 9.0924 | 0.6974 | 7.6725 | 1.0581 | 7.1029 |
| 0.4123 | 8.5004 | 0.8331 | 7.0794 | 1.2039 | 6.6215 |
| 0.5347 | 7.8382 | 0.9812 | 6.4372 | 1.3615 | 6.0844 |
| 0.6686 | 7.1118 | 1.1455 | 5.7532 | 1.5344 | 5.4929 |
| 0.8176 | 6.3302 | 1.3312 | 5.0346 | 1.7280 | 4.8495 |
| 0.9870 | 5.5029 | 1.5463 | 4.2860 | 1.9504 | 4.1585 |
| 1.1847 | 4.6404 | 1.8037 | 3.5094 | 2.2150 | 3.4241 |
| 1.4239 | 3.7522 | 2.1275 | 2.7021 | 2.5460 | 2.6488 |
| 1.7292 | 2.8445 | 2.5710 | 1.8570 | 2.9973 | 1.8290 |
| 2.1543 | 1.9211 | 3.3039 | 0.9618 | 3.7389 | 0.9533 |
| 2.8698 | 0.9775 | 6.0000 | 0.0699 | 6.0000 | 0.1085 |
| 6.0000 | 0.0447 | NA | NA | NA | NA |

Figure 11.A.28 plots TIF by scale score for grade eleven mathematics. The data used to create this graph is found in the table that immediately follows, Table 11.A.28.

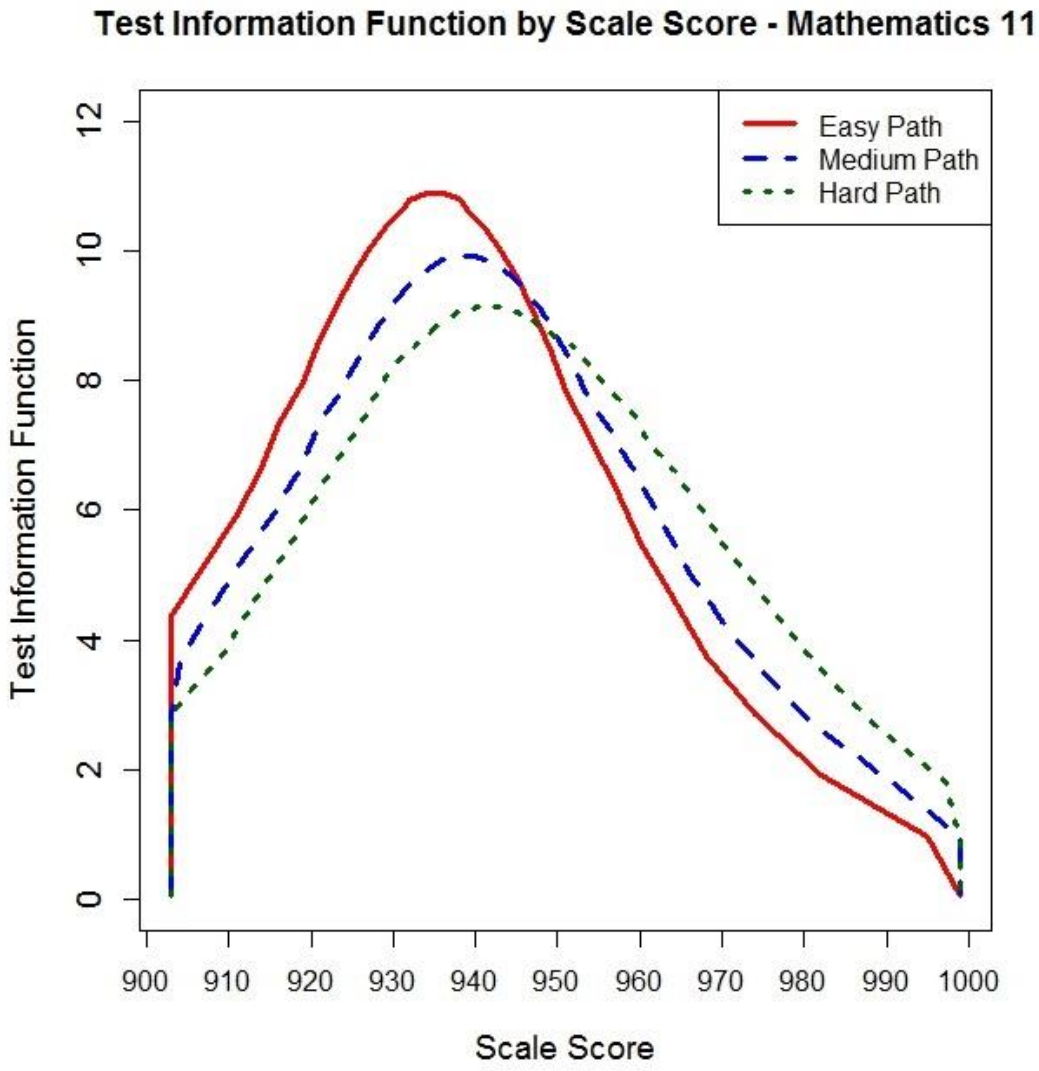


**Figure 11.A.28 TIF by Scale Score—Mathematics, Grade Eleven**

**Table 11.A.28 Mathematics, Grade Eleven Scale Score TIF Data**

| Scale Score Easy | TIF Easy | Scale Score Medium | TIF Medium | Scale Score Hard | TIF Hard |
|---|---|---|---|---|---|
| 903 | 0.1115 | 903 | 0.0794 | 903 | 0.0614 |
| 903 | 0.9619 | 903 | 0.9777 | 903 | 0.9788 |
| 903 | 1.8629 | 903 | 1.9167 | 903 | 1.9280 |
| 903 | 2.7242 | 903 | 2.8229 | 903 | 2.8539 |
| 903 | 3.5577 | 904 | 3.6952 | 909 | 3.7488 |
| 903 | 4.3689 | 908 | 4.5289 | 913 | 4.5992 |
| 907 | 5.1575 | 912 | 5.3179 | 917 | 5.3928 |
| 911 | 5.9201 | 916 | 6.0558 | 920 | 6.1198 |
| 914 | 6.6511 | 919 | 6.7375 | 923 | 6.7719 |
| 916 | 7.3441 | 921 | 7.3602 | 926 | 7.3451 |
| 919 | 7.9933 | 924 | 7.9207 | 928 | 7.8373 |
| 921 | 8.5909 | 926 | 8.4162 | 930 | 8.2475 |
| 923 | 9.1318 | 928 | 8.8459 | 933 | 8.5774 |
| 925 | 9.6101 | 930 | 9.2074 | 935 | 8.8290 |
| 927 | 10.0200 | 932 | 9.4991 | 937 | 9.0058 |
| 929 | 10.3571 | 934 | 9.7183 | 939 | 9.1117 |
| 931 | 10.6168 | 936 | 9.8629 | 941 | 9.1513 |
| 932 | 10.7952 | 938 | 9.9310 | 943 | 9.1293 |
| 934 | 10.8893 | 940 | 9.9205 | 945 | 9.0502 |
| 936 | 10.8967 | 942 | 9.8303 | 947 | 8.9182 |
| 938 | 10.8156 | 944 | 9.6600 | 949 | 8.7362 |
| 939 | 10.6453 | 946 | 9.4101 | 952 | 8.5065 |
| 941 | 10.3861 | 948 | 9.0824 | 954 | 8.2295 |
| 943 | 10.0392 | 950 | 8.6805 | 956 | 7.9046 |
| 945 | 9.6068 | 952 | 8.2084 | 959 | 7.5299 |
| 947 | 9.0924 | 954 | 7.6725 | 961 | 7.1029 |
| 949 | 8.5004 | 957 | 7.0794 | 964 | 6.6215 |
| 951 | 7.8382 | 960 | 6.4372 | 967 | 6.0844 |
| 954 | 7.1118 | 963 | 5.7532 | 970 | 5.4929 |
| 957 | 6.3302 | 966 | 5.0346 | 974 | 4.8495 |
| 960 | 5.5029 | 970 | 4.2860 | 978 | 4.1585 |
| 964 | 4.6404 | 975 | 3.5094 | 983 | 3.4241 |
| 968 | 3.7522 | 981 | 2.7021 | 989 | 2.6488 |
| 974 | 2.8445 | 990 | 1.8570 | 997 | 1.8290 |
| 982 | 1.9211 | 999 | 0.9618 | 999 | 0.9533 |
| 995 | 0.9775 | 999 | 0.0699 | 999 | 0.1085 |
| 999 | 0.0447 | NA | NA | NA | NA |