

**California Department of Education Assessment Development & Administration Division**



# California Assessment of Student Performance and Progress California Alternate Assessments for English Language Arts/Literacy and Mathematics 2022–‍23 Technical Report

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**By ETS**



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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-IRT | one-parameter logistic item response theory |
| AERA | American Educational Research Association |
| AIS | average item score |
| ALD | achievement level descriptor |
| ALTD | Assessment & Learning Technology Development |
| APA | American Psychological Association |
| ATA | automated test assembly |
| CAA | California Alternate Assessment |
| CAASPP | California Assessment of Student Performance and Progress |
| CAI | Cambium Assessment, Inc. |
| CALPADS | California Longitudinal Pupil Achievement Data System |
| CalTAC | California Technical Assistance Center |
| CARS | Crisis Alert Response System |
| *CCR* | *California Code of Regulations* |
| CCSS | Common Core State Standards |
| CDE | California Department of Education |
| CDS | county/district/school |
| CERS | California Educator Reporting System |
| CORR | correlation |
| CR | constructed response |
| CSEM | conditional standard error of measurement |
| *DFA* | *Directions for Administration* |
| DIF | differential item functioning |
| DRM | data review meeting |
| *EC* | *Education Code* |
| EL | English learner |
| ELA | English language arts/literacy |
| ELD | English Language Development |
| ELPAC | English Language Proficiency Assessments for California |
| eSKM | Enterprise Score Key Management |
| EU | essential understanding |
| GPCM | general partial credit model |
| HOSS | highest obtainable scale score |
| IDEA | Individuals with Disabilities Education Act |
| IEP | individualized education program |
| IRM | item review meeting |
| IRT | item response theory |
| ISAAP | Individual Student Assessment Accessibility Profile |
| LEA | local educational agency |
| LOSS | lowest obtainable scale score |
| LPF | Learning Progression Framework |
| MC | multiple choice |
| MH | Mantel-Haenszel |
| MST | multistage test |
| NCME | National Council on Measurement in Education |
| NCSC | National Center and State Collaborative |
| OTI | Office of Testing Integrity |
| *PFA* | *Preparing for Administration* |
| PLD | performance level descriptor |
| QA | quality assurance |
| RSD | ratio of standard deviations |
| SBE | State Board of Education |
| SCOE | Sacramento County Office of Education |
| SD | standard deviation |
| SEM | standard error of measurement |
| SFTP | secure file transfer protocol |
| SMD | standardized mean difference |
| SR | selected response |
| SRC | Student Response Check |
| SSC | Survey of Student Characteristics |
| SSID | Statewide Student Identifier |
| SSR | Student Score Report |
| 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 |
| UAT | user acceptance testing |
| UDL | Universal Design for Learning |
| *USC* | *United States Code* |

## Introduction

This chapter provides an overview of the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics program, including background information, the purpose of the assessment, the intended population, and organizations and systems involved.

### 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 assessments provide the foundation for the state’s school accountability system.

The computer-based CAAs for ELA and mathematics were administered during the 2022–‍23 CAASPP administration. The CAA is for students whose individualized education program (IEP) teams have determined that a student should take the CAA (California Department of Education [CDE], 2023a). (Refer to the test-taking criteria in subsection *[8.1.3 Test-Taking Rates](#_Test-Taking_Rates)* 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 2022–23 administration, the CAASPP System comprised the following assessments:

* Smarter Balanced assessments and tools
* Summative Assessments—Computer-based 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
* Tools for Teachers—Professional development materials and instructional resources designed to help teachers use formative assessment processes for improved teaching and learning in all grade levels
* CAAs for ELA and mathematics in grades three through eight and grade eleven for students with significant cognitive disabilities
* Science assessments in grades five and eight and the high school grade band (i.e., grade ten, eleven, or twelve, if the student is not repeating grade twelve; these are the California Science Test and the CAA for Science)
* The California Spanish Assessment, optional for eligible students in grades three through eight and high school and designed to measure a student’s literacy in Spanish language arts inclusive of reading, writing mechanics, and listening, as well as to serve as a high school measure suitable to be used in part for the California Seal of Biliteracy

More background information about the CAASPP System can be found on the CAASPP Description – *CalEdFacts* web page on the CDE website.

### Assessment Purpose

The purpose of the CAAs is to measure what eligible students know and can do. These measures help identify and address gaps in knowledge or skills (CDE, 2023b). 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 the CAAs is learning content, linked to (and derived from) the CCSS, that appropriately breaks the standards into smaller steps.

### 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 computer-based and delivered 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 the student’s performance on the previous set of test items. The primary advantage of the MST over the conventional fixed-form assessments is its efficiency—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 assessment, MST also encourages a student’s engagement during testing, particularly for students with the most 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 assessments.

### Intended Population

At each grade level, the CAAs for ELA and mathematics were expected to be administered to approximately 5,000 students during the 2022–23 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 2, Section 851.5[c]).

For students with the most 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 assessments (*Education Code [EC]* Section 60615). Additionally, students who were not tested because of a medical emergency are also exempt.

English learner (EL) students identified with the most significant cognitive disabilities and who are in their first 12 months of attending school in the United States are exempt from taking the ELA portion of the assessment. EL students 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 (grades kindergarten through 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.0F[[1]](#footnote-2)

EL students within their first 12 months of enrollment in a US school may take the ELA assessment if their parents/guardians elect for them to do so. These test takers are included in the calculation of the percentage of students tested, but their scores are excluded from all aggregated calculations.

### Intended Use and Purpose of Test Scores

The results of assessments within the CAASPP System 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.)

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 and 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.

Therefore, the two primary purposes of an assessment within the CAASPP System are the following:

1. To communicate students’ progress in achieving the state’s academic standards to students, parents/guardians, and teachers
2. To inform decisions that teachers and administrators make about improving the educational program

Sections 60602.5(c) and (d) provide additional information regarding use and purpose of test scores 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.

### Testing Window

The CAAs for ELA and mathematics for grades three through eight and grade eleven are administered in computer-based format within a testing window selected by the local educational agency (LEA) pursuant to 5 *CCR,* sections 855(a)(1), 855(a)(2), 855(b), and 855(c). For the 2022–23 CAASPP administration, the state testing window opened on January 10 and ended on July 17, 2023.

Like other CAASPP assessments, the CAAs for ELA and mathematics were untimed for students. This assessment was administered individually, and testing time varied from one student to another, on the basis of factors such as the student’s response time and attention span. A student might 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]).

### Significant Developments for the CAAs for ELA and Mathematics 2022–23 Administration

#### Crisis Alert Response System Process

The Crisis Alert Response System (CARS) was introduced as an automatic process to notify a primary LEA CAASPP coordinator and superintendent when a student’s actions or response during testing caused concern. CARS incidents were tracked and maintained in the Test Operations Management System (TOMS).

#### *Preparing for Administration* Documents

ETS removed most of the nonsecure common front matter from all versions of grade-level *Directions for Administration (DFAs)* and used it to create a *Preparing for Administration (PFA)* document. Test examiners were directed to use the *PFA* to prepare for test administration and the appropriate *DFA* with the remaining common front matter and item-level content during test administration.

#### Use of Automated Test Assembly Methods

Automated test assembly (ATA) methods were used to assemble the first version of the operational form for each grade-level assessment used during the 2022–23 test administration. ETS’ Assessment & Learning Technology Development staff reviewed the items selected by the ATA methods and adjusted each operational test form as needed before the ETS’ psychometrics team reviewed the operational forms. Refer to section [*10.6 Automated Test Assembly*](#_Automated___1) for more information about ATA.

#### Change in the Number of Forms

The number of test forms available per grade-level assessment of the CAAs for ELA and mathematics was reduced from five to two test forms.

#### Second Scoring Assignment

ETS overhauled the procedure used to select schools required to participate in second scoring for either the CAA for ELA or the Summative Alternate English Language Proficiency Assessments for California. For the CAA for ELA second scoring group, schools were selected on an individual school basis among all schools assigned to Form 2. This selection method is new to the 2022–23 test administration. Previously, most schools were automatically assigned second scoring if their LEA was selected.

For CAA for ELA second scoring, schools were targeted such that approximately 20 percent of the testing population would receive second scores at each grade level. This overage ensures the target requirement of 10 percent at each grade level could be met.

Refer to subsection [*7.1.2.1 Sampling Process*](#_Sampling_Process) for more information regarding the updated sampling procedure.

#### Additional Student Score Report Language

Korean was a new language available for Student Score Reports in the 2022–23 CAAs for ELA and mathematics test administration in addition to the other languages (English, Filipino, Spanish, Traditional Chinese, and Vietnamese).

#### Accessibility Resources

The following accessibility resource–related update was made:

* The following additional options were added to the color contrast designated support:
* Yellow font on a black background
* Red font on a white background
* White font on a red background

### Groups and Organizations Involved with the CAAs for ELA and Mathematics

#### California State Board of Education

The California State Board of Education (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 is also the state educational agency responsible for overseeing California’s compliance with programs that meet the requirements of the federal Every Student Succeeds Act as well as the state’s Public School Accountability Act that measures the academic performance and progress of schools on a variety of academic metrics (CDE, 2023d).

#### California Department of Education

The CDE oversees California’s public school system, which is responsible for the education of more than 5,800,000 children and young adults in more than 10,010 schools.[[2]](#footnote-3) 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, prepare students to live, work, and thrive in a highly connected world.

Within the CDE, it is the Instruction, Measurement, & Administration Branch that oversees programs promoting improved student achievement. Programs include oversight of statewide assessments and the collection and reporting of educational data (CDE, 2023c).

#### California Educators

A variety of California educators and content experts, including teachers with experience teaching students with the most significant cognitive disabilities and school administrators—who were selected on the basis of their qualifications, experience, demographics, and geographic locations—were invited to participate in various aspects of the assessment process prior to the current administration. This included defining the purpose and scope of the assessment, assessment design, item development, standard setting, score reporting, and scoring of the rubric-scored items.

#### Contractors

A number of organizations contribute to the success of the CAAs for ELA and mathematics.

##### Primary Testing Contractor—ETS

The CDE and the SBE contract with ETS to develop, administer, and report the CAAs for ELA and mathematics. As the primary testing contractor, ETS has overall responsibility for working with the CDE to implement and maintain an effective assessment system and coordinating ETS’ work with its subcontractors.

Activities conducted directly by ETS include, but are not limited to, the following:

* Providing management of the program activities
* Supporting and training county offices of education, LEAs, and direct funded charter schools
* Constructing, producing, and controlling the quality of CAAs for ELA and mathematics test forms and related test materials, including grade- and content-specific *DFAs*
* Hosting and maintaining a website with resources for LEA CAASPP coordinators
* Developing, hosting, and providing support for TOMS
* Supporting the California Educator Reporting System (CERS)
* Processing student test assignments
* Processing orders and shipment of test materials
* Producing and distributing score reports electronically
* Developing a summary score reporting website that can be viewed by the public
* Completing all psychometric procedures
* Providing a tiered help desk support system for LEAs

##### Subcontractor—Cambium Assessment, Inc.

ETS also monitors and manages the work of Cambium Assessment, Inc. (CAI), subcontractor to ETS for the CAASPP System of computer-based assessments. Activities conducted by CAI include

* providing the CAI 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, a component of the overall CAASPP Assessment Delivery System;
* hosting and providing support for the Data Entry Interface, the web browser–based application that, for the operational administration of the CAAs for ELA and mathematics, allows test examiners to enter second scores for the CAA for ELA;
* scoring machine-scorable items; and
* providing high-level technology help desk support to LEAs for technology issues directly related to the TDS.

##### Subcontractor—Sacramento County Office of Education

ETS contracted with the Sacramento County Office of Education to manage all activities associated with educator recruitment, training, and outreach, including the following:

* Supporting and training county offices of education, LEAs, and charter schools
* Developing informational materials
* Recruiting and providing logistics for educator meetings
* Producing *DFA*s

### Systems Overview and Functionality

#### Test Operations Management System

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

* Managing test administration windows
* Assigning and managing CAASPP online user roles
* Managing student test assignments and accessibility resources
* Ordering test materials
* Viewing and downloading reports
* Reporting security incidents
* Providing a platform for authorized user access to secure materials, such as CAASPP *DFAs,* student data and results, CAASPP user information, and access to the CAASPP Security and Test Administration Incident Reporting System/Appeals process

TOMS receives student enrollment data and LEA and school hierarchy data from the California Longitudinal Pupil Achievement Data System (CALPADS) via 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]](#footnote-4)

LEA staff involved in the administration of the CAASPP—such as LEA CAASPP coordinators, CAASPP test site coordinators, test administrators, and test examiners—are assigned varying levels of access to TOMS. For example, only an LEA CAASPP coordinator is given permission to assign and manage user roles; a test administrator or test examiner cannot download student reports. A description of user roles is explained more extensively in the *2022–23 CAASPP Online Test Administration Manual* (CDE, 2023a).

#### Test Delivery System

The TDS is the means by which the statewide computer-based 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 assessments and monitor student testing;
* the Student Testing Interface, on which students take the assessment using the secure browser; and
* the secure browser, the computer-based application through which the Student Testing Interface may be accessed. (The secure browser prevents students from accessing other applications during testing.)

#### Practice and Training Tests

All California testing programs have practice and training tests to inform educators, parents/‌guardians, and students about the individual assessments. The practice and training tests were provided to LEAs to prepare students and LEA staff for administration of the CAAs for ELA and mathematics. These tests simulated the experience of the CAAs for ELA and mathematics computer-based assessments. Unlike the summative assessments, the practice and training tests did not gauge student success on the operational assessment, or produce scores. Students, teachers, and the public could access them using a web browser, although accessing them through the secure browser permitted students to take the tests using the text-to-speech embedded accommodation and to test assistive technology.

The purpose of the training tests is to allow students and test examiners to quickly become familiar with the user interface and components of the TDS as well as with the process of starting and completing a testing session.

The purpose of the practice tests is to allow students and test examiners to experience a grade-level assessment, grade-specific items and difficulty levels, and the format and structure of an operational assessment.

A purpose of both the practice and training tests is to provide an opportunity for educators to assign embedded designated supports and accommodations and determine how they worked for their students prior to using the resources in an operational test setting.

#### California Educator Reporting System

CERS is the system used by LEAs to view preliminary student results from CAASPP testing. The primary purpose of CERS is to provide educators and administrators with access to timely assessment results for individual students and groups of students.

CERS allows educators to view their students’ test results at the individual student level and at the aggregated level using grouping and other features. For example, educators can create customized groups from assigned student groups based on demographic information or other characteristics of their choosing. The student results sent to CERS are appropriate for analysis of assessment results for use in informing instruction.

#### Test Results for California’s Assessments Website

The Test Results for California’s Assessments website is used by educators, families, researchers, and interested members of the public to view aggregated results from the CAAs for ELA and mathematics. The primary purpose of the Test Results for California’s Assessments website is to provide users with access to results data for groups of students and to allow comparison of test result data for various student groups. Test scores for a given grade level are aggregated at the school, LEA or direct funded charter school, county, and state levels. The aggregated scores are generated for selected student groups of interest (e.g., gender, ethnicity, economic status, migrant status, and disability status) and for the total population.

### Overview of the Technical Report

This technical report addresses the characteristics of the CAAs for ELA and mathematics administered in spring 2023. The technical report contains nine additional chapters as follows:

* [Chapter 2](#_Toc151036242) presents an overview of the processes involved in a testing cycle for the CAAs for ELA and mathematics. This includes item development, test assembly, test administration, fairness and accessibility, generation of test scores, and psychometric analyses.
* [Chapter 3](#_Item_Development_and) describes the procedures followed during item development, various reviews (e.g., item content and bias and sensitivity reviews), and the process of item review.
* [Chapter 4](#_Test_Assembly_1) describes the process of test assembly, including the content being measured, the two-stage MST assessment design, and 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 computer-based multistage delivery.
* [Chapter 5](#_Test_Administration_1) details the processes involved in the actual 2022–23 administration, with emphasis on efforts made to ensure the standardization of CAA computer-based testing. It also describes the procedures followed to maintain test security throughout the test administration process.
* [Chapter 6](#_Standard_Setting) summarizes the standard setting process that established the base year achievement level scores. This standard setting process was based on student testing results from the 2015–16 administration.
* [Chapter 7](#_Scoring_and_Reporting_2) provides information on the scoring processes and summarizes the types of scores and score reports.

* [Chapter 8](#_Psychometric_Analyses) summarizes the statistical procedures performed for the 2022–23 CAA administration. These analyses include

classical item analyses,

differential item functioning analyses,

item response theory calibration and linking of field test items,

reliability analyses, and

analyses of the consistency and accuracy of the achievement-level classifications.

[Chapter 8](#_Psychometric_Analyses) concludes with a discussion of the procedures designed to ensure the validity of score uses and interpretations.

* [Chapter 9](#_Quality_Control_Procedures) highlights the quality-control processes used at various stages of the 2022–23 CAA administration, including item development, test form development, test assignment, test administration, scoring procedures, psychometric analysis processes, and score reporting.
* [Chapter 10](#_Continuous_and_Systematic) describes analysis and administration processes and features targeted for improvement during future test administrations.

### References

*California* *Code of Regulations,* Title 5, Education, Division 1, Chapter 2, Subchapter 3.75, Article 2, Section 851.5. (n.d.).

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## Overview of CAAs for ELA and Mathematics Processes

This chapter provides an overview of the processes implemented by ETS during a typical, full testing cycle for the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics, including item development, test design, test administration, and scoring. The details on each step in the process will be presented in the subsequent chapters.

### Item Development

The 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. All items developed and used in the 2022–23 CAA administration were appropriate for the grade level, were aligned with the Core Content Connectors (Connectors) and their essential understandings (EUs), corresponded to the Common Core State Standards (CCSS), and were 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 throughout the item development process. Detailed information about CAAs for ELA and mathematics item development is described in [*Chapter 3: Item Development and Review*](#_Item_Development_and).

#### Item Format

The CAAs for ELA and mathematics include the following primary computer-based 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. The student’s test examiner used a rubric to score a student’s item responses during the one-on-one administration.
* **Technology-enhanced items—**Technology beyond simple option selection is incorporated in some items.

Table 3.1 in [*Chapter 3: Item Development and Review*](#_Item_Development_and) lists the item types. The first column contains the types of responses that can be made to test items; 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.

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 also are worth either one or two points. Scoring rubrics specific to each CR item are included in the secure *Directions for Administration (DFAs)* and are used by the test examiner to rate a student’s responses. All rubric-based human scoring or rating was done by the test examiner during the test administration.

#### Item Specifications

The CAAs for ELA and mathematics item specifications describe the 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 were provided with CAAs for ELA and mathematics item specifications and a CAA style guide that contained detailed information about the consistency in item development and item review processes. Refer to subsection [*3.1.1 Item Specifications*](#_Item_Specifications) in [chapter 3](#_Item_Development_and) for detailed information about item specifications.

### Test Assembly

The CAAs for ELA and mathematics use a multistage testing (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 assessment. Continuing students are routed to one of two 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 two Stage-2 modules (easy 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 [*4.3.2 English Language Arts/Literacy and Mathematics Test Design*](#_ELA_and_Mathematics) in [*Chapter 4: Test Assembly*](#_Test_Assembly_1) for more details about the MST design.

The routing rules that determine whether and how a student transitions from the first stage to the second stage of the assessment are based on a simulation study in which student ability distributions were estimated for each grade level and content area based on the data collected from the 2021–22 administration. Refer to subsection [*4.3.3 Routing Rules for the 2022–23 Administration*](#_Routing_Rules_for)in [*Chapter 4: Test Assembly*](#_Test_Assembly_1) for detailed information about the routing rules.

#### Test Blueprints

Test blueprints specify the total number of items on each assessment and the number of items in each content category according to standards. The standards upon which CAAs 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 California State Board of Education in July 2015.

The CAAs 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

* the specific ratio of each content category or domain on the overall assessment,
* 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, 2015b).

#### Assessment Length

The number of items in each of the CAAs for ELA and mathematics is the same across grade levels and content areas—there are 10 operational items followed by four embedded field test items in each form at Stage 1 and then 15 items per module at Stage 2. Each student answers 29 items for a complete assessment. The unique core router at Stage 1 is administered to all students along with one of the two embedded field test forms that are randomly assigned at the school level.

At Stage 2, each of the two modules—easy and hard—is tailored to a particular student ability level with appropriate items. Each Stage 2 module consists of 15 items with prior item statistics. All items in Stage 1 and Stage 2 are potentially used as anchor items in postequating to link item response theory (IRT) statistics based on student data from the 2022–23 test administration to the baseline scale. As a result, this test design allows the calibration of approximately eight new items in each grade-level assessment that can be potentially entered into the item bank and will support the future operational test administrations.

Refer to [*Chapter 4: Test Assembly*](#_Test_Assembly_1) for more details on test form assembly.

### Test Administration

The CAAs for ELA and mathematics were administered using the secure browser and test delivery system, ensuring a secure, confidential, standardized, consistent, and appropriate administration for students. Additional information about the administration of the CAAs for ELA and mathematics can be found in [*Chapter 5: Test Administration*](#_Test_Administration).

#### Test Security and Confidentiality

All operational assessments within the California Assessment of Student Performance and Progress (CAASPP) System are secure. For the CAAs for ELA and mathematics administration, every person having access to test materials maintained the security and confidentiality of the assessments. ETS’ internal Code of Ethics requires that all assessment information, including tangible materials (such as test items and test results), confidential files, processes, and activities were kept secure. To ensure security for all assessments 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[*5.6.1 ETS’ Office of Testing Integrity*](#_ETS’_Office_of_2) in [*Chapter 5: Test Administration*](#_Test_Administration_1).

In the pursuit of enforcing secure practices, ETS strives to safeguard the various processes involved in an assessment development and administration cycle. Those processes are listed next. The practices related to each of the following security processes are discussed in detail in section [*5.6 Test Security and Confidentiality*](#_Test_Security_and):

* Procedures to maintain standardization of test security
* Test security monitoring
* Security of electronic files using a firewall
* Transfer of scores via secure data exchange
* Data management in the secure database
* Statistical analysis on secure servers
* Student confidentiality
* Student test results

#### Procedures to Maintain Standardization

ETS takes all necessary measures to ensure the standardization of administration of the CAAs for ELA and mathematics.

The CAAs for ELA and mathematics are administered in conjunction with the other assessments that compose the CAASPP System. ETS employs processes to ensure the standardization of an administration cycle; these processes are discussed in more detail in section [*5.2 User Roles and Standardization*](#_User_Roles_and).

Staff at local educational agencies (LEAs) involved in the CAASPP administration include LEA CAASPP coordinators, CAASPP test site coordinators, and test examiners. The responsibilities of each of the staff members are described in the *CAASPP Online Test Administration Manual* (CDE, 2023b).

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

* ***CAASPP Online Test Administration Manual*—**This web-based manual provides test administration procedures and guidelines for LEA CAASPP coordinators and CAASPP test site coordinators, as well as the script and *DFA* to be followed exactly by test administrators during a testing session (CDE, 2023b). (Refer to [*5.2.4.3 CAASPP Online Test Administration Manual*](#_CAASPP_Online_Test) in [chapter 5](#_Test_Administration_1) for more information.)
* ***CAASPP and English Language Proficiency Assessments for California (ELPAC) Test Operations Management System (TOMS) User Guide*—**This web-based manual provides instructions for TOMS, allowing LEA staff, including LEA CAASPP coordinators and CAASPP test site coordinators, to perform several tasks, including setting up test administrations, adding and managing users, assigning assessments, and configuring computer-based student test settings (CDE, 2023a). (Refer to [*5.2.4.4 CAASPP and ELPAC Test Operations Management System User Guide*](#_CAASPP_and_English) in [chapter 5](#_Test_Administration_1) for more information.)
* ***Preparing for Administration—***This document includes planning and preparation content to assist test examiners with test preparation (CDE, 2022a). (Refer to [*5.2.4.1 Preparing for Administration*](#_Preparing_for_Administration) in [chapter 5](#_Test_Administration_1) for more information.)
* ***DFA*s—**These directions include test examiner directions and scripts for administering the assessments. They contain grade-specific and form-specific information needed by the test examiners during test sessions. (Refer to [*5.2.4.2 Directions for Administration*](#_Directions_for_Administration) in [chapter 5](#_Test_Administration_1) for more information.)

### Fairness and Accessibility

Several procedures are in place to ensure that the CAAs for ELA and mathematics are fair and accessible to all students. This section provides information on the available accessibility resources.

#### Overview

All eligible students enrolled in a California public school participate in the CAASPP System of assessments, including students with disabilities and English learner (EL) students. Additional resources are sometimes needed for these students. The CDE provides a full range of assessment resources for all students, including those who are EL students and students with disabilities.

#### Student Accessibility Resources

There are four different categories of student accessibility resources in the California assessment accessibility system, including universal tools, designated supports, accommodations, and unlisted resources that are permitted for use in CAASPP computer-based assessments. These are listed in the CDE California Assessment Accessibility Resources Matrix (Accessibility Matrix) (CDE, 2022b).

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

**Designated supports** are available to all 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 individualized education program (IEP) or Section 504 plan.

**Accommodations** must be permitted on the CAASPP for all eligible students when specified in the student’s IEP or Section 504 plan.

**Unlisted resources** are non-embedded and made available if specified in the eligible student’s IEP or Section 504 plan and do not jeopardize test security, and only on approval by the CDE. An unlisted resource may change the construct being measured.

While most of the resources presented for the CAASPP computer-based assessments are available for the CAAs for ELA and mathematics, there are a few resources that are not applicable because the CAAs for ELA and mathematics are designed to be given one-on-one in the student’s language of instruction, using the student’s identified instructional resources. For example, the speech-to-text accommodation is not available for an alternate assessment.

[Appendix 5.A](#_Alternative_Text_for_20) presents counts and percentages of students assigned designated supports, accommodations, and unlisted resources for the 2022–23 CAAs for ELA and mathematics administration. The tables in [appendix 5.A](#_Alternative_Text_for_20) were created using student demographic data in version 2 of the production data file (“P2”) updated on September 11, 2023.

The majority of students did not use any designated supports, accommodations, or unlisted resources.

#### Description of Differential Item Functioning

Differential item functioning (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 used to recognize whether performance varies across different groups of students (e.g., male versus female or White versus Black or African American). If an item performed differentially across student groups, even when students were 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 reviewed these DIF-flagged items to determine the potential sources and meanings of performance differences. Refer to section [*8.3 Differential Item Functioning Analyses*](#_Toc121145136) for additional information about DIF.

### Scores

Individual student scores were reported for the 2022–23 CAAs for ELA and mathematics administration. Student performance on the reporting scale was designated into one of the three achievement levels described in subsection [*7.1.5 Achievement Levels*](#_Achievement_Levels). For information regarding score specifications and score reports, refer to [*Chapter 7: Scoring and Reporting*](#_Scoring_and_Reporting_2).

#### Estimating Ability Scores

The IRT inverse test characteristic curve 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 levels:

1. Level 1—Limited Understanding
2. Level 2—Foundational Understanding
3. Level 3—Understanding

For information regarding score specifications and the establishment of score-reporting scales, refer to [*Chapter 7: Scoring and Reporting*](#_Scoring_and_Reporting_2)*.* For information regarding CAA levels, refer to [*Chapter 6: Standard Setting*](#_Standard_Setting) for a description of the process used to set achievement-level standards.

#### Score Reporting

TOMS is a secure website hosted by ETS that permits LEA users to manage aspects of CAASPP test administration such as test assignment and the assignment of test settings. TOMS also provides a secure means for LEA CAASPP coordinators to download Student Score Reports as PDF files.

CAAs for ELA and mathematics scores can also be viewed through the California Educator Reporting System (CERS), a secure website that provides authorized users with interactive and cumulative online reports for content area at the student, school, and LEA levels. CERS also provides individual score reports. Refer to subsection [*7.3.1 Online Reporting*](#_Online_Reporting_2) for details about TOMS and CERS and subsection [*7.3.3 Types of Score Reports*](#_Toc121145105) for the content of each type of score report.

#### Aggregation Procedures

To provide meaningful results to interested educators, CAAs for ELA and mathematics scores for a given grade-level assessment were aggregated at the school, LEA or direct funded charter school, county, and state levels. State-level results are available on the Test Results for California’s Assessments website. The aggregated scores were presented for all students or selected demographic student groups.

Aggregated scores were generated by combining student scores at the state, LEA or direct funded charter school, or school level; combining student scores for all students; or by combining student scores for students who represent selected demographic student groups.

The aggregation procedures used to present CAAs for ELA and mathematics results are described in section [*7.2 Overview of Score Aggregation Procedures*](#_Overview_of_Score). Aggregated results by demographic variables are presented in [appendix 7.D](#_Appendix_7.D:_Demographic). In table 7.D.1 through table 7.D.14, students are grouped by demographic groups, including gender, ethnicity, English language fluency, special education service status, and economic status, as well as crosstab analysis for ethnicity and economic status. The tables show the numbers of students with valid scores in each group, scale score means and standard deviations, and the percentage of students in each achievement level. To protect student privacy, statistics are presented in the tables as “N/A” when the number of students in the sample is 10 or fewer. Definitions for the demographic student groups included in these tables are provided in table 7.7.

### Psychometric Analyses

Psychometric analyses were conducted on the data from the CAAs for ELA and mathematics, including classical item analyses, DIF analyses, IRT calibration and linking, response time analyses, and reliability analyses. The results of these analyses support understanding of item performance and internal structure of the assessment and provide validity evidence for both response processes and scoring. Detailed descriptions of these analyses are presented in [*Chapter 8: Psychometric Analyses*](#_Psychometric_Analyses).

#### Description of the Classical Item Analyses

The psychometric analyses for the CAAs for ELA and mathematics data included classical item analyses and DIF analyses to evaluate the performance of the operational items and the embedded field test items. The classical item analyses included the computation of item difficulty indices, the item-total correlation indices, the omission rate of each item, and the proportion of test takers obtaining each score point for polytomous items. CDE-approved flagging rules based on these statistics identified items that were not performing as expected. A description of the classical item analyses procedure is provided in section [*8.2 Classical Item Analyses*](#_Classical_Item_Analyses)*.* A description of the DIF analyses procedure is provided in section [*8.3 Differential Item Functioning Analyses*](#_Toc121145136)*.*

#### Description of Item Response Theory Analyses

IRT is used to calibrate items, link item parameter estimates, scale or equate test scores across different forms or test administrations, evaluate item performance, build an item bank, and assemble test forms. Detailed information on the models and the procedures for the calibration and linking analyses are included in section [*8.4 Item Response Theory Analyses*](#_Item_Response_Theory).

### References

California Department of Education. (2015a). *California Alternate Assessments blueprint for English language arts.* California Department of Education website.

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## Item Development and Review

This chapter provides a brief overview of each process implemented by ETS and the relevant associated specifications used 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), Cambium Assessment, Inc., or both.

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.

### Guidelines

Each item in the CAAs for ELA and mathematics was 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 helped item developers and reviewers ensure consistency across the item development process.

#### Item Specifications

ETS maintains item development specifications for the CAAs for 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 the CAAs measure the content standards consistently. Item writing emphasis was 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 variables in some standards);
* 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 maximum place values of numbers);
* a description of appropriate text complexity, if applicable; and
* for ELA, guidelines for passages used to assess reading comprehension, including
* a list of topics to be avoided,
* text complexity guidelines and suggested reading levels,
* the acceptable ranges for the number of words in a passage, and
* expected use of artwork.

#### Item Format

CAA items were designed to engage the target population. ELA and mathematics items were developed with the understanding that a test examiner delivers each item individually to a tested student and assists the student in navigating through the assessment 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.

A student who was able could select responses using a mouse, touch screen, or other supported input device. In some cases, a student needed to use other modes of communication, such as eye gaze or gesture, to indicate responses to the test examiner. The test examiner entered these responses into the testing device for the student.

The majority of items were 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 was usually a passage. For mathematics items, the stimulus was item-specific information or general mathematical knowledge. A selected number of items had a multimedia stimulus, either a short audio file, a video, an animation, or, for students with visual impairments, alternative text read by the test examiner.

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

#### Item Types

Each Connector or EU could be assessed through one or more of the available item types presented in table 3.1. Note that, in this table, an asterisk (\*) indicates technology-enhanced items.

Table 3.1 CAA Item Types

|  |  |  |
| --- | --- | --- |
| Item Type | Response Type | Description |
| Multiple choice (MC) single select | MC | The item generally consists of a stem and list of choices; the student can select only one choice to respond. This may also include a stimulus. |
| MC multiple select | MC | The item generally consists of a stem and list of choices; the student can select two or more choices to respond. This may also include a stimulus. |
| MC multiple attempt | MC | The item generally consists of a stem and list of choices; the student can select only one choice to respond on the first attempt. If the student’s first attempt is incorrect, the student can select one of the remaining choices to respond on the second attempt. This may also include a stimulus. |
| Inline choice list single select | MC | The stem contains a single blank; the student 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; the student must fill in each blank by selecting a choice from the corresponding choice lists. |
| Numeric | Short constructed response (CR) | The student responds by filling in a single entry box with a numeric value. The entry box may be stand-alone, in-line with text, or displayed on top of an image. |
| Grid single select\* | MC | The student responds by marking a single cell in a table grid. |
| Zone single select\* | Hot spot | This is an item where the answer choices are predefined “hot spots” 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. |
| Zone multiple select\* | Hot spot | This is an item where the answer choices are predefined “hot spots” 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. |
| Match single select\* | Drag & drop | The student responds by dragging and dropping a single choice (“source”) into the appropriate location (“target”).  There are four main varieties of this item type:   1. Target table—text-based sources with targets arranged in table structure 2. Target passage—text-based sources with targets arranged in paragraphs of text 3. Target positions—text-based sources with targets arranged on top of an image 4. Image map—image-based sources with both sources and targets arranged on top of an image |
| Match multiple select\* | Drag & drop | The student responds by dragging and dropping two or more choices (“sources”) into the appropriate locations (“targets”).  There are four main varieties of this item type:   1. Target table—text-based sources with targets arranged in table structure 2. Target passage—text-based sources with targets arranged in paragraphs of text 3. Target positions—text-based sources with targets arranged on top of an image 4. Image map—image-based sources with both sources and targets arranged on top of an image   These varieties allow for the following scenarios:   * Exact matching (i.e., ordering) * Sources correctly placed in multiple different targets * Reuse sources * Reuse targets * Partial scoring |
| Bar graph single select\* | Short CR | The student 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. |
| Bar graph multiple select\* | Short CR | The student 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. |

#### Item Banking

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

When enough students tested to support the psychometric analyses in a test administration, initial item analyses were implemented. The results were reviewed by ETS’ psychometric and Assessment & Learning Technology Development staff, who provided recommendations to the CDE on whether the field test items should be included or excluded from the calibrations. Decisions were made in consultation with the CDE; details of this process are in section[*8.2 Classical Item Analyses*](#_Classical_Item_Analyses).

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

With the CDE’s approval, the 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 future administrations. Over time, the item bank will expand gradually to continue to support the multistage test design.

#### Recruitment and Selection of Item Writers

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

All item writers met the following minimum qualifications:

* Possession of a bachelor’s degree
* At least two year’s related teaching experience

Desirable qualifications included the following:

* Experience teaching students with the most significant cognitive disabilities (except those in a content specialist role)
* An advanced degree in the relevant content
* 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 grade levels, content areas, or both
* Familiarity with, and understanding and support of, the Connectors

#### Item Writer Training

Item writer training is a vital part of establishing the validity chain for item and task development. In addition to relying on internal item writing experts for the CAAs for ELA and mathematics, ETS recruited and trained educators in the Connectors.

The three primary goals for the training were to

1. provide teachers with knowledge, via professional development on writing items and *Directions for Administration (DFA)* scripts, that they can use to help develop or refine their own classroom teaching and assessments;
2. ensure that teachers who successfully completed the training were ready to develop high-quality items for the CAAs for ELA and mathematics; and
3. leverage the experiences, perspectives, and expertise of the teachers in writing items for the CAAs for ELA and mathematics.

ETS held item writer training workshops to provide prospective item writers with professional development in several areas. A review of the general assessment development process gave trainees a sense of the total life cycle of an item.

Participants learned best practices in item writing to provide clarity within the item and avoid bias or sensitivity concerns, learned how to review a passage for item opportunities, and were introduced to how the new, innovative item types work.

Given that the trainees were California educators and educational leaders, ETS also emphasized incorporation of current effective teaching practices and instructional activities. Small-group and individual work generated sample items that the ETS facilitators then used in a large-group discussion to analyze and ascertain overall item quality. The ETS team also provided post hoc feedback via email and phone calls to trained item writers on further item samples and ideas submitted ahead of contractual item submissions.

### ETS Item Review Process

After items were drafted, ETS placed items and *DFA* scripts developed for the CAAs for ELA and mathematics through an extensive internal item review process designed to provide the best standards-based assessments possible. This section summarizes the item review process that confirmed the quality of CAAs for ELA and mathematics items.

#### Overview

Once an item was accepted for authoring, ETS employed a series of internal reviews. These reviews used established criteria to judge the quality of item content and to ensure that each item measured what it was intended to measure. These internal reviews also examined the overall quality of the items ahead of their being reviewed by the CDE and by educators at item review meetings (IRMs), which are described in more detail in section [*3.4 California Educator Review*](#_California_Educator_Review_1).

All items were entered into the Item Banking Information System (IBIS) with corresponding artwork and metadata. Within IBIS, items received content reviews by ETS’ assessment specialists and fairness and editorial reviews by ETS’ editors and fairness reviewers.

The CDE reviewed proposed changes to items in response to reviews by the participants of the IRMs to ensure the quality of the item pool. The CDE then gained access to CAAs for ELA and mathematics items and conducted reviews in IBIS. ETS revised items in response to comments from the CDE prior to using them in the assessment forms.

The ETS review process for the CAAs for ELA and mathematics includes the following; these tasks are described in the next subsections:

1. Content review
2. Accessibility review
3. Editorial review
4. Sensitivity and fairness review

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

#### ETS Content Review

On all items ETS developed, content-area assessment specialists conducted three reviews on items and stimuli. These assessment specialists verified thatthe items, *DFA* scripts, and stimuli were in compliance with ETS’ written guidelines for clarity, style, accuracy, and appropriateness for California students and were also in compliance with the approved item specifications, the *California Assessment of Student Performance and Progress (CAASPP) and English Language Proficiency Assessments for California (ELPAC) Item Review Acceptance Criteria* (ETS, 2019), and other ETS-produced procedures such as the ETS guidelines for fair tests and communications (2016). Assessment specialists reviewed each item in terms of the following characteristics:

* Relevance to the purpose of the assessment
* 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

Assessment specialists verified the classification of each item, both to evaluate the correctness of the classification and to confirm that the task posed by the item was relevant to the outcome it was intended to measure. The reviewers could accept the item and classification as written, suggest revisions, or recommend that the item be discarded. These steps occurred prior to the CDE’s review.

#### ETS Accessibility Review

The ETS Accessible Content & Inclusive Solutions team advised on accessibility of items and item types during the ETS content review. These experts on alternate test formats reviewed all items, with a focus on accessibility for all student populations, and provided potential refinement solutions to improve the accessibility in items and assessments.

#### ETS Editorial Review

After assessment specialists and researchers reviewed each item, a group of specially trained editors also reviewed each item in preparation for consideration by the CDE and the item review panelists. The editors checked 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.

#### ETS Sensitivity and Fairness Review

ETS assessment specialists who were specially trained to identify and edit or eliminate items that contained content or wording that could be construed to be offensive to, or biased against, members of specific student groups (e.g., ethnicity, race, or gender) conducted the next level of review (ETS, 2014, 2016). These trained staff members reviewed every item before the CDE and IRMs. Newly developed items were then submitted to the CDE for review prior to educator reviews.

The review process promoted a general responsiveness to the following:

* Cultural diversity
* Diversity of background, cultural tradition, and viewpoints to be found in the test-taking populations
* Changing roles and attitudes toward various groups
* Role of language in setting and changing attitudes toward various groups
* Topics that may be unsettling or otherwise distract the student from the content being measured, such as natural disasters, disease, or family discord
* 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 language learners of diverse backgrounds

### California Department of Education Review

After ETS reviews of items were completed, the items were reviewed by the CDE content teams. CDE content experts reviewed the items using the same criteria used in the ETS reviews. After CDE reviews occurred, ETS made edits to the items based on the CDE feedback, and the items were then finalized for IRMs with California educators.

### California Educator Review

IRMs with California educators were held at the end of the item review process as the final content expert review that items must undergo before being placed in an operational assessment.

#### California Educators as Content Experts

California educators filled an advisory role to the CDE and ETS and provided guidance on matters related to item development for the CAAs for ELA and mathematics. Both meetings in 2022–23—one each for ELA and mathematics—took place virtually from March 21 through March 23, 2023, and were facilitated by ETS’ content experts. Twelve educators who had not written the items attended each meeting.

In the meetings, the item content, test examiner directions, and alternative text were presented, and ETS facilitated a discussion with the educators for each item using the *CAASPP and ELPAC Item Review Acceptance Criteria* (ETS, 2019). The educators were responsible for reviewing all newly developed items for alignment to the California content standards. Meeting participants also reviewed the items for content accuracy, language clarity, and item quality. In their examination of test items, participants could raise concerns about the appropriateness of the items as related to the grade level, age, and cognitive level of the test taker. Additionally, items were evaluated for any potential bias or sensitivity concerns associated with disability, gender, race, ethnicity, religion, or socioeconomic status. ETS recorded educator feedback for each item and adjusted item content based on approval from the CDE.

#### Composition of Item Review Panels

For the last IRM, the group of participating California educators consisted of current and former teachers (some of whom had taught students eligible to take the CAAs and others who were subject-matter experts), resource specialists, administrators, curriculum and content experts, and other education professionals. Minimum qualifications to be invited to participate were

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

Preferred qualifications included

* a special education credential,
* experience teaching students with more than one type of disability,
* experience administering the CAAs for ELA and mathematics, and
* two to five years of experience as a special education teacher or school administrator with a special education credential.

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

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

Every effort was made to ensure that groups of item reviewers included a wide representation of gender, geographic regions, and ethnic groups in California. Efforts also were made to ensure representation by members with experience serving California’s diverse special education population.

Table 3.2 shows the educational qualifications, present occupation, and credentials of the individuals who participated in CAA item review.

Table 3.2 CAA Item Reviewer Qualifications by Content Area and Total

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Qualification Type | Qualification | ELA | Math | Total |
| **Occupation** | Special Education Teacher | 10 | 9 | 19 |
| **Occupation** | Teacher on Special Assignment | 0 | 2 | 2 |
| **Occupation** | General Education/Classroom Teacher | 2 | 1 | 3 |
| **Highest Degree Earned** | Bachelor’s Degree | 5 | 5 | 10 |
| **Highest Degree Earned** | Master’s Degree | 6 | 7 | 13 |
| **Highest Degree Earned** | Doctorate | 1 | 0 | 1 |
| **K–12 Teaching Credential** | Elementary Teaching (multiple subjects) | 4 | 4 | 8 |
| **K–12 Teaching Credential** | Secondary Teaching (single subject) | 1 | 1 | 2 |
| **K–12 Teaching Credential** | Education Specialist/Special Education | 11 | 10 | 21 |
| **K–12 Teaching Credential** | English Learner (Crosscultural, Language and Academic Development; Bilingual, Crosscultural, Language and Academic Development) | 6 | 3 | 9 |
| **K–12 Teaching Credential** | Other | 1 | 0 | 1 |

**Note:** Numbers may not match the totals because item reviewers may have multiple occupations or teaching credentials or are currently working toward earning their highest degree. The information is self-reported and may not reflect all the experience and earned credentials.

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

#### Meetings for Review of CAAs for ELA and Mathematics Items

ETS’ content-area assessment specialists facilitated the CAAs for ELA and mathematics IRMs. Each meeting began with a brief training session on how to review items. ETS provided this training, which consisted 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 included 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
* Verification that distractors cannot be considered additional correct answers
* Bias and sensitivity factors

Criteria also encompassed 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 item—and, for ELA, the appropriateness, difficulty, and readability of reading passages. Meeting participants were also trained on how to make recommendations for revising items.

Guidelines for reviewing items were 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 to answer the item?
* likely to be interesting to students?
* clearly and correctly labeled?
* providing all the information needed to answer the item?

### Data Review Meeting

The DRM conducted virtually after the 2022–23 CAAs administration occurred from June 27 to June 28, 2023; the DRM reconciliation meetings—one each for ELA and mathematics—were held virtually on June 29 and June 30, 2023. After the field test items were administered to students, ETS prepared the field test items containing statistical flags and the items’ associated statistics for review by the CDE and California educators. For the CAAs for ELA and mathematics DRM, review materials included field test items with their statistical data and statistical flags based on the respective administration’s item analyses, related *DFAs,* and comment sheets for use by reviewers.

Educators who were part of the data review panel were assigned a training video in Upskill—a centralized, online location for training materials—to give them an overview of what is involved in a DRM as well as an understanding of the statistical measures used to review the field test items. This was followed by ETS conducting an introductory training at the beginning of the meeting to highlight any new issues and to serve as a statistical refresher. Reviewers then made decisions about which field test items should be included in the item bank for future assembly. If a field test item was considered problematic and not to be included in the item bank, it could be revised, field-tested once again, and put through another round of item analysis, or the field test item could be deactivated and removed from the item bank. ETS’ psychometric and content staff were available to reviewers throughout this process.

ETS’ content staff facilitated the meeting, confirming that all educators weighed in on each flagged field test item to confirm whether there were any concerns, from a content perspective, as it pertained to the flag. ETS’ content staff and psychometricians provided training on the item statistics and responded to questions about the item statistics during the item discussion. The DRM participants reviewed the content and statistics of each field test item and then made a recommendation to accept or reject a field test item.

Content staff recorded the participants’ recommendations and comments regarding the flagged field test items. The feedback was referenced when working with the CDE to reconcile educator feedback and to make a final decision on whether to include the field test item in the operational pool.

Table 3.3 displays the item data review results of the field test items presented at the DRM. Most of the field test items did not have statistical flags and were not presented to the DRM panel. All 6 presented field test items for ELA were accepted as is, whereas only 8 of the 13 presented field test items for mathematics were accepted as is.

Table 3.3 Item Data Review Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Content Area and Grade Level | Accept As Is | Reject | Total Items | Rejection Rate |
| ELA 3 | 2 | 0 | 2 | 0.00% |
| ELA 4 | 1 | 0 | 1 | 0.00% |
| ELA 5 | 1 | 0 | 1 | 0.00% |
| ELA 6 | 1 | 0 | 1 | 0.00% |
| ELA 7 | 1 | 0 | 1 | 0.00% |
| ELA 8 | 0 | 0 | 0 | N/A |
| ELA 11 | 0 | 0 | 0 | N/A |
| Mathematics 3 | 3 | 2 | 5 | 40.00% |
| Mathematics 4 | 1 | 1 | 2 | 50.00% |
| Mathematics 5 | 2 | 1 | 3 | 33.33% |
| Mathematics 6 | 2 | 0 | 2 | 0.00% |
| Mathematics 7 | 3 | 0 | 3 | 0.00% |
| Mathematics 8 | 1 | 1 | 2 | 50.00% |
| Mathematics 11 | 1 | 0 | 1 | 0.00% |

### References

Educational Testing Service. (2014). *ETS standards for quality and fairness*. Princeton, NJ: Educational Testing Service.

Educational Testing Service. (2016). *ETS guidelines for fair tests and communications*. Princeton, NJ: Educational Testing Service.

Educational Testing Service. (2019). *CAASPP and ELPAC item acceptance criteria* [Unpublished manuscript]. Princeton, NJ: Educational Testing Service.

## 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 computer-based test delivery) also are included.

### Overview

The 2022–23 California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics were administered to eligible students in grades three through eight and grade eleven. The 2022–23 CAAs were computer-based and delivered through two-stage adaptive MST. After students completed the 10 operational items and four field test items in Stage 1, each student then was routed to one of two alternative modules at Stage 2 based on the student’s performance in Stage 1. Both Stage 2 modules have 15 operational items; therefore, each operational form has a maximum of 25 operational items.

### Test Blueprints and Other Content Specifications

The CAAs for 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], 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).

#### Test Blueprints

The CAA test blueprints are unique to each grade level and content area (California Department of Education [CDE], 2015a [ELA], 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 level and content area includes the

* specific ratio of each content category and domain on the overall assessment,
* specific Connectors to be assessed,
* specific EUs to be assessed, and
* maximum number of items on an assessment.

A summary of blueprint alignment for the 2022–23 forms is presented in table 4.1, which shows the absolute percentage differences of items per content domain for each assessment between the 2022–23 form and the test blueprint.

Table 4.1 Absolute Percentage Differences of Items per Content or Domain for the 2022–‍23 Administration

|  |  |  |
| --- | --- | --- |
| 2022–23 | Router + Easy | Router + Hard |
| ELA 3 | 1%–2% | 1%–5% |
| ELA 4 | 1%–2% | 1%–2% |
| ELA 5 | 2%–2% | 2%–2% |
| ELA 6 | 0%–2% | 0%–2% |
| ELA 7 | 0%–2% | 0%–2% |
| ELA 8 | 0%–2% | 0%–2% |
| ELA 11 | 2%–5% | 1%–5% |
| Mathematics 3 | 0%–2% | 0%–2% |
| Mathematics 4 | 1%–2% | 1%–2% |
| Mathematics 5 | 0%–2% | 0%–2% |
| Mathematics 6 | 0%–2% | 0%–2% |
| Mathematics 7 | 0%–5% | 0%–3% |
| Mathematics 8 | 1%–2% | 1%–2% |
| Mathematics 11 | 0%–2% | 0%–5% |

More information regarding the alignment of each CAA with the test blueprints is provided in table 4.A.1 through table 4.A.14 in [appendix 4.A](#_Appendix_4.A:_Test). Similar information for the 2015–16, 2016–‍17, and 2017–18 forms is provided in table 4.A.15 through table 4.A.17. Information for the 2018–19, 2019–20, 2020–‍21, and 2021–22 forms is shown in table 4.A.18, as the four sets of forms share the same operational items.

Overall, the percentages 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 6 percent—for all grade levels in the 2022–23 administration and stand as an improvement over the 2017–18 administration, where one difference was approximately 10 percent.

#### Other Content Specifications

The CAAs for ELA and mathematics assess 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 (CCSS Initiative, 2019) and the Learning Progression Frameworks (LPFs) (NCSC, 2015) and illustrate the necessary knowledge and skills required 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, the Connectors provide a foundation that permits teachers, parents/‌guardians, and the students themselves to help students with the most significant cognitive disabilities achieve increasingly higher academic outcomes and leave high school ready for postsecondary 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 section [*4.3 Test Design*](#_Test_Design).

### Test Design

#### Multistage Test 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 [*3.1.1 Item Specifications*](#_Item_Specifications) for additional information about the item specifications.

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 two 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 assessments. It allows assessment 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 assessments, 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 described in the following subsections.

##### 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. Typically,

* a Tier 1 item, considered the most accessible level, would rely heavily on graphics and provide images with dichotomous answer choices;
* a Tier 2 item, considered the middle level, would use a mix of graphics and text and provide three answer choices with fewer images; and
* a Tier 3 item, considered the most challenging level (with increased rigor and difficulty), would rely more on text and less on graphics than the lower tiers and provide three or more answer choices with more complicated text and the fewest images.

As the text complexity increases for higher tier levels, the lengths of passages in an ELA assessment also increase. 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 ensure that complexity was 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 eliminating high-vocabulary words.

##### Modules

Items and passages from each tier were carefully assembled into modules for both stages of CAAs for ELA and mathematics delivery. The Stage 1 module consisted of a total of 14 items, of which 10 were operational items and four were embedded field test items. The operational portion of the Stage 1 module was the router with four Tier 1 items appearing first, followed by a combination of either two or three Tier 1 items and either three or four Tier 2 items. Two 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 two versions of the Stage 1 modules were, for the majority of local educational agencies (LEAs), randomly assigned at the LEA level for the computer-based administration. However, within the four largest LEAs—Long Beach Unified School District, Los Angeles Unified School District, San Diego Unified School District, and San Francisco Unified School District—the two versions were randomly assigned at the school level prior to the start of testing.

In addition, the Stage 1 router was divided into two sections, Stage 1A and Stage 1B, where Stage 1A consisted of the first four operational items, all at Tier 1. Stage 1A was the Student Response Check (SRC), whereby a student’s testing experience could end if the student could not orient successfully or provide a consistent response to any of the easiest items administered. Stage 1B consisted of the remaining six operational items, which included either two or three Tier 1 items and either three or four Tier 2 items.

At Stage 2, each of the two modules—easy and hard—was tailored to a particular student ability level with appropriate item sets. Each Stage 2 module consisted of 15 items. Items at Stage 1 or Stage 2 were eligible for use as anchor items in postequating to link all operational items and embedded field test items on the baseline scale.

##### 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 2022–23 CAAs for ELA and mathematics administration, four field test items were embedded at Stage 1. Scores from these items were not included in routing decisions from Stage 1 to Stage 2.

For the CAA Stage 1 router, one core module was administered with 10 operational items that were common across two versions that supported two different embedded field test sets of four items each. The two versions of Stage 1 modules were distributed by random assignment at the LEA level—with the exception of the four largest LEAs, for which the versions were distributed by random assignment at the school level—so that a large representative sample of students responded to the field test items embedded in these versions. The random assignment of specific versions ensured that a diverse sample of students took each field test set. The students did not know which items were being field-tested and which items were operational; therefore, their motivation was not expected to differ over the two types of items (Patrick & Way, 2008).

##### 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 two modules at Stage 2 generated three possible pathways, including an early exit pathway, defined by a student’s exit from the assessment after Stage 1.

The three possible pathways can be regarded as multiple forms of a linear assessment. Each MST pathway combination of the Stage 1 and Stage 2 modules is shown in table 4.2.5F[[4]](#footnote-5)

Table 4.2 Three Effective Unique Forms for Each Grade Level and Test Configuration

|  |  |  |
| --- | --- | --- |
| Pathway | Effective Unique Form | Configuration |
| 1 | ABO | Stage 1 items and end the assessment |
| 2 | ABE | Stage 1 items and Stage 2 easy items |
| 3 | ABH | Stage 1 items and Stage 2 hard items |

#### English Language Arts/Literacy and Mathematics Test Design

For the 2022–23 CAA administration in ELA and mathematics, most students were required to complete a full-length assessment: the routing test in Stage 1A and Stage 1B, as well as one of the two modules in Stage 2.

The CAAs for ELA and mathematics are designed as follows:

1. Stage 1
2. SRC with the four easiest Tier 1 operational items; router Stage 1A
3. Two or three Tier 1 operational items, three or four Tier 2 operational items, and four embedded field test items; router Stage 1B
4. Stage 2
5. Module 1—Easy

15 operational items

* Seven or eight Tier 1 items
* Four or five Tier 2 items
* Three Tier 3 items

1. Module 2—Hard

15 operational items

* Three Tier 1 items
* Four or five Tier 2 items
* Seven or eight Tier 3 items

##### Stage 1 Design

Stage 1A comprised the SRC, which consisted of the four easiest Tier 1 operational items based on the item response theory (IRT) *b*-parameter values. For students who did not provide observable and reasonable responses to the items, test examiners were directed to end the assessment using the [**End Test**] button. These checks occurred at the first operational item and the fourth operational item. The responsibilities of test examiners regarding these checks can be found in section[*5.1 Overview*](#_Overview_2).

Stage 1B consisted of six additional operational items. After the last item of Stage 1, the results from the router were used to identify students for whom meaningful measurement was unlikely to occur. These students were exited from the assessment instead of proceeding to Stage 2. Continuing students were routed to one of the two Stage 2 modules. Refer to subsection [*7.1.1 Scoring of Incomplete Cases*](#_Scoring_of_Incomplete)for the scoring of each situation described previously.

##### Stage 2 Design

At Stage 2, the two modules were defined as Module 1 (Easy) or Module 2 (Hard). Module 1 consisted of approximately seven or eight Tier 1 operational items, four or five Tier 2 operational items, and three Tier 3 operational items. Module 2 consisted of approximately three Tier 1 operational items, four or five Tier 2 operational items, and seven or eight Tier 3 operational items. Students were routed to one of the two modules of Stage 2 based on their performance on the Stage 1 router.

#### Routing Rules for the 2022–23 Administration

Given that the CAA-eligible population consists of students with a wide range of significant 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 the student’s ability level.

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, *t1*, based on the student’s performance on the router portion of Stage 1, determines whether a student will end the assessment early or continue to one of the two Stage 2 modules. The intent is to end the assessment 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 threshold (*t2*) determines which of the available pathways will be taken.

The routing rules for the 2022–23 CAAs for ELA and mathematics administration described in the previous paragraph are presented in table 4.3.

Table 4.3 Routing Rule Summary for the 2022–23 Administration

|  |  |
| --- | --- |
| Condition | Decision |
| Router score is less than *t1*. | End the assessment after Stage 1. |
| Router score is greater than or equal to *t1*and less than *t2*. | Continue the assessment with Module 1 in Stage 2. |
| Router score is greater than or equal to *t2*. | Continue the assessment with Module 2 in Stage 2. |

The routing thresholds were determined through a simulation using the 2021–22 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 previous CAA administrations. If statistics for more than one administration 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 both of the two Stage 2 modules. Following the simulation of each assessment, 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 40 items). For the current assessment, an ideal set of threshold values was chosen to maximize the test reliability, proportion of productive assessments, and test information function (TIF) by ensuring that each student was routed to the most informative Stage 2 module. The final thresholds of routing were determined in consultation with the CDE.

The raw score point values in the router portion of Stage 1 were used by the routing engine in the test delivery system (TDS) to determine routing pathways for students. The router included both 1-point and 2-point items, and the router score was 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 was 15. If a student earned fewer than 3 score points, the student’s testing experience ended. If a student earned at least 3 but fewer than 11 score points, the student was routed to the easy Stage 2 module. When a student earned 11 or more score points, the student was routed to the hard Stage 2 module. A summary of the routing thresholds is presented in table 4.C.1 (ELA) and table 4.C.2 (mathematics) in [appendix 4.C](#_Appendix_4.C:_Routing_1).

### Test Production Process

The final steps in production of the CAAs for ELA and mathematics are to identify, select, and review items. These are discussed in the following subsections.

#### Identification of Eligible Items

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

* All items must be operationally ready with item statistics.
* All items can be shared across the Stage 2 modules.
* Each test pathway with 25 items should conform to the specifications in the test blueprint.

#### Selection of Items

Automated test assembly (ATA) methods were used to assemble the first version of the operational form for each grade-level assessment. Assessment developers reviewed the selected items to verify that the form with selected items

* met the coverage specifications of the test blueprint,
* met the form-building guidelines developed by the ETS psychometrics team,
* represented a wide variety of item types, and
* provided a wide variety of item context.

When necessary to meet these four requirements, the assessment developers replaced some of the items selected by the ATA methods with other items in the item pool.

#### Psychometric Review

Psychometric criteria are specified for the test form review before the test administration. The statistical guidelines of item selection and form building were developed during the preliminary review of the assembled test forms for an administration. Refer to [appendix 4.B](#_Appendix_4.B:_Statistical) for a description of the statistical specifications used during development of the CAAs for ELA and mathematics.

The full psychometric review of the 2022–‍23 test forms occurred prior to the 2022–23 test administration, when ETS’ assessment developers sent the proposed assessment to the ETS psychometrics team for approval. The proposed assessment was reviewed to ensure that all statistical guidelines were met for both individual items and the assessment as a whole by using the acceptable psychometric criteria to verify item statistics in the assessment. The following psychometric criteria were applied in the form assembly:

* **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 in differentiating test takers’ abilities. The acceptable AISrange is generally between 0.10 and 0.95 for 1-point items and between 0.20 and 1.90 for 2-point items. Refer to subsection [*8.2.1 Classical Item Difficulty Indices (p-value and Average Item Score)*](#_Classical_Item_Difficulty_2) for additional information about this criterion.
* **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 0.20. However, given the limited number of CAA items in the item bank, for the spring 2022–23 administration, items with a polyserial correlation value between 0.10 and 0.20 could be included on the CAA forms to ensure complete test content coverage. Refer to subsection [*8.2.2 Item-Total Correlation*](#_Item-Total_Correlation_2) for additional information about this criterion.
* **Differential Item Functioning (DIF):** An item classified into Category C (large) 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 an assessment 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 appear on the assembled assessment. However, the inclusion of no C-DIF items is preferred because their inclusion in an assembled assessment 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+. Refer to section [*8.3 Differential Item Functioning Analyses*](#_Differential_Item_Functioning) for additional information about this criterion.

To pass this psychometric review, every item must not have been flagged. In addition, all fields related to scoring, such as the maximum scoring point, sequence of items in the form, domain ID, and item ID, were included in the psychometric review. ETS’ content and psychometric staff also review the assembled forms thoroughly in regard to the coverage of blueprints, the overall test design, and the number and position of anchor items. This review was designed to ensure that the forms were free from errors, particularly from all problematic items that were identified prior to finalizing the forms. Any flagged items would be discussed with ETS’ Assessment & Learning Technology Development for the final decision.

After the test forms were assembled, routing thresholds for each of the CAAs for ELA and mathematics were established to determine which test form a student should take. In other words, routing thresholds determine which Stage 2 module a student is routed to or whether the assessment should be ended after Stage 1. The threshold values were determined through a simulation study to maximize test reliability and TIF.

Psychometric review results, including number of forms and number of items, are presented in table 4.4. There are 10 forms total per assessment because both field test versions are associated with five forms: (1) a form consisting of only the first item of Stage 1A, (2) a form consisting of only the four items in Stage 1A, (3) the ABO form, (4) the ABE form, and (5) the ABH form. Additionally, due to the CAAs’ MST design, no test form will consist of all unique items for the assessment.

Table 4.4 Number of Forms and Items Reviewed Psychometrically

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Content Area and Grade Level | Number of Forms | Number of Operational Items | Number of Field Test Items | Total Items |
| ELA 3 | 10 | 40 | 8 | 48 |
| ELA 4 | 10 | 37 | 8 | 45 |
| ELA 5 | 10 | 38 | 8 | 46 |
| ELA 6 | 10 | 38 | 8 | 46 |
| ELA 7 | 10 | 40 | 8 | 48 |
| ELA 8 | 10 | 39 | 8 | 47 |
| ELA 11 | 10 | 38 | 8 | 46 |
| Mathematics 3 | 10 | 36 | 8 | 44 |
| Mathematics 4 | 10 | 38 | 8 | 46 |
| Mathematics 5 | 10 | 37 | 8 | 45 |
| Mathematics 6 | 10 | 37 | 8 | 45 |
| Mathematics 7 | 10 | 37 | 8 | 45 |
| Mathematics 8 | 10 | 38 | 8 | 46 |
| Mathematics 11 | 10 | 40 | 8 | 48 |
| **Overall:** | 140 | 533 | 112 | 645 |

#### Content Review of Forms

After psychometric approval, the proposed assessment underwent two additional content reviews and one editorial review. The content reviewers were assessment developers who had not previously worked on the development of the test forms they were reviewing. These reviewers brought a fresh perspective to the review. They were given the appropriate materials and documentation to complete the following tasks:

* Verification of item keys
* Identification of possible clueing across the items
* Verification that individual items aligned with the Connector or EU
* Verification of coverage of the Connector or EU
* Identification of any possible grammatical or production errors

#### California Department of Education Forms Review

The CDE used a gatekeeper process to review all test materials. Test materials for review and approval by the CDE included form planners, *Directions for Administration (DFAs),* and student-facing items in the TDS. All test materials were approved before they were made available for use.

For the reviews of form planners and the *DFAs,* ETS initiated the review by submitting materials to the CDE via the gatekeeper system, along with the criteria for the review. CDE consultants performed the initial review and returned comments and requests for revisions to ETS. ETS’ staff then revised the materials as requested and returned them to the CDE consultants, who reviewed the updated materials. If the test materials needed additional revisions, they were returned to ETS for further modifications.

Once CDE consultants found that the test materials met the review criteria, the CDE consultants submitted the test materials to the CDE administrator for approval. Test materials that were approved with revisions were revised by ETS and resubmitted for approval. Test materials that were not approved needed significant revisions and had to be submitted to the consultants again before they could be resubmitted to the CDE administrator for approval.

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

* Access to items in the item banking system
* *DFAs* for the items
* Modified form planners
* Comment sheets

Comments from the CDE were resolved during a virtual meeting with the ETS assessment development team.

#### Configuration of the Test Delivery System

Once all the test reviews were completed and concerns, if any, had been resolved, the official ordered item sequence of the proposed forms was sent to Cambium Assessment, Inc. (CAI) for configuration of the TDS. Unlike other stages of the test production process, this stage must occur prior to every administration of the CAAs for ELA and mathematics, even in the case of a form reuse.

Each item underwent an extensive platform review on different operating systems, such as Windows, Linux, and iOS, to ensure that the item’s appearance was consistent across all platforms.

The platform review was conducted by a team at CAI consisting of a team leader and several team members. The team leader presented the item as it was approved in ETS and CAI’s item banks. Each team member was assigned a different platform—hardware device and operating system—and reviewed the item to see that it rendered as expected. This platform review meeting ensured that all items were 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 were deployed to a staging server where they were subject to user acceptance testing (UAT) by both ETS and CAI’s staff. The TDS UAT served as both a software evaluation and a content approval.

Following the UAT by ETS and CAI’s staff, separate UAT cycles were conducted by the CDE. The UAT review provided the CDE with an opportunity to interact with the exact assessment that would be administered to the students. The CDE had to approve the CAAs for ELA and mathematics UAT before the assessment could be released for administration to students.

#### Test Form Delivery

A student was administered the SRC first, followed by the rest of Stage 1. Based on the student’s performance in Stage 1, each student either exited the assessment after Stage 1, was administered the easy Stage 2 module, or was administered the hard Stage 2 module.

The test examiner began a session in the Test Administrator Interface on one device and in the secure TDS on another device. After establishing the test session, the test examiner referred to the *DFA* for step-by-step instructions for the assessment, which would be completed within the TDS.

### References

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### Appendix 4.A: Test Blueprints Alignment by CAA Form

**Notes:**

1. ABO refers to Stage 1 items only.
2. ABE refers to Stage 1 + Stage 2 Easy module.
3. ABH refers to Stage 1 + Stage 2 Hard module.

Table 4.A.1 Test Blueprints Alignment by Form—ELA, Grade Three

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Content Category | % of the Blueprint | ABO N | ABO Pct | ABE N | ABE Pct | ABH N | ABH Pct |
| Reading: Literary | 30% | 3 | 30% | 7 | 28% | 8 | 32% |
| Reading: Informational | 25% | 2 | 20% | 6 | 24% | 5 | 20% |
| Reading: Vocabulary | 9% | 1 | 10% | 2 | 8% | 2 | 8% |
| Reading: Foundation | 6% | 1 | 10% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Reading: Literary | 30% | 3 | 30% | 7 | 28% | 7 | 28% |
| Reading: Informational | 25% | 2 | 20% | 6 | 24% | 6 | 24% |
| Reading: Vocabulary | 9% | 1 | 10% | 2 | 8% | 2 | 8% |
| Reading: Foundation | 6% | 1 | 10% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Reading: Literary | 30% | 3 | 30% | 8 | 32% | 7 | 28% |
| Reading: Informational | 30% | 3 | 30% | 7 | 28% | 7 | 28% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 3 | 12% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Reading: Literary | 20% | 2 | 20% | 5 | 20% | 5 | 20% |
| Reading: Informational | 40% | 4 | 40% | 10 | 40% | 10 | 40% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Reading: Literary | 20% | 2 | 20% | 5 | 20% | 5 | 20% |
| Reading: Informational | 40% | 4 | 40% | 10 | 40% | 10 | 40% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Reading: Literary | 20% | 2 | 20% | 5 | 20% | 5 | 20% |
| Reading: Informational | 40% | 4 | 40% | 10 | 40% | 10 | 40% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 2 | 8% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Reading: Literary | 15% | 2 | 20% | 5 | 20% | 4 | 16% |
| Reading: Informational | 45% | 4 | 40% | 10 | 40% | 10 | 40% |
| Reading: Vocabulary | 10% | 1 | 10% | 2 | 8% | 3 | 12% |
| Writing | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Operational & Algebraic Thinking | 30% | 3 | 30% | 8 | 32% | 8 | 32% |
| Numbers & Operations in Base Ten and Fractions | 40% | 4 | 40% | 10 | 40% | 10 | 40% |
| Measurement & Data and Geometry | 30% | 3 | 30% | 7 | 28% | 7 | 28% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Operational & Algebraic Thinking | 35% | 3 | 30% | 9 | 36% | 9 | 36% |
| Numbers & Operations in Base Ten and Fractions | 30% | 3 | 30% | 7 | 28% | 7 | 28% |
| Measurement & Data and Geometry | 35% | 4 | 40% | 9 | 36% | 9 | 36% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Operational & Algebraic Thinking | 10% | 1 | 10% | 3 | 12% | 2 | 8% |
| Numbers & Operations in Base Ten and Fractions | 60% | 6 | 60% | 15 | 60% | 15 | 60% |
| Measurement & Data and Geometry | 30% | 3 | 30% | 7 | 28% | 8 | 32% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Ratios and Proportional Relationships | 30% | 3 | 30% | 7 | 28% | 7 | 28% |
| The Number System | 30% | 3 | 30% | 8 | 32% | 7 | 28% |
| Expressions & Equations | 20% | 2 | 20% | 5 | 20% | 5 | 20% |
| Geometry | 10% | 1 | 10% | 3 | 12% | 3 | 12% |
| Statistics & Probability | 10% | 1 | 10% | 2 | 8% | 3 | 12% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Ratios and Proportional Relationships | 40% | 4 | 40% | 10 | 40% | 10 | 40% |
| The Number System | 15% | 1 | 10% | 3 | 12% | 3 | 12% |
| Expressions & Equations | 15% | 2 | 20% | 5 | 20% | 4 | 16% |
| Geometry | 15% | 1 | 10% | 3 | 12% | 4 | 16% |
| Statistics & Probability | 15% | 2 | 20% | 4 | 16% | 4 | 16% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| The Number System | 10% | 1 | 10% | 2 | 8% | 3 | 12% |
| Expressions & Equations and Functions | 35% | 4 | 40% | 9 | 36% | 9 | 36% |
| Geometry | 30% | 3 | 30% | 8 | 32% | 7 | 28% |
| Statistics & Probability | 25% | 2 | 20% | 6 | 24% | 6 | 24% |
| **Total:** | **100%** | 10 | 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 | ABH N | ABH Pct |
| Number and Quantity: The Real Number System and Quantities | 25% | 3 | 30% | 6 | 24% | 7 | 28% |
| Algebra: Creating Equations, and Functions: Interpreting Functions | 40% | 4 | 40% | 10 | 40% | 10 | 40% |
| Geometry: Similarity, Right Triangles, and Trigonometry | 10% | 1 | 10% | 3 | 12% | 3 | 12% |
| Statistics and Probability: Interpreting Categorical and Quantitative Data | 25% | 2 | 20% | 6 | 24% | 5 | 20% |
| **Total:** | **100%** | 10 | 100% | 25 | 100% | 25 | 100% |

Table 4.A.15 Absolute Percentage Differences of Items per Domain Between the 2015–‍16 Forms and the 2015–16 Test Blueprint

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 Between the 2016–‍17 Forms and the 2016–17 Test Blueprint

|  |  |  |  |
| --- | --- | --- | --- |
| 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% |

Table 4.A.17 Absolute Percentage Differences of Items per Domain Between the 2017–‍18 Forms and the 2017–18 Test Blueprint

|  |  |  |  |
| --- | --- | --- | --- |
| 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% |

Table 4.A.18 Absolute Percentage Differences of Items per Domain Between the 2018–‍19 Forms and the 2018–19 Test Blueprint

|  |  |  |
| --- | --- | --- |
| 2018–19 | Router + Easy | Router + Hard |
| ELA 3 | 1%–2% | 1%–2% |
| ELA 4 | 1%–3% | 1%–3% |
| ELA 5 | 2%–2% | 2%–2% |
| ELA 6 | 0%–2% | 0%–2% |
| ELA 7 | 0%–2% | 0%–2% |
| ELA 8 | 0%–2% | 0%–2% |
| ELA 11 | 1%–2% | 1%–2% |
| Mathematics 3 | 0%–2% | 0%–2% |
| Mathematics 4 | 1%–3% | 1%–3% |
| Mathematics 5 | 0%–2% | 0%–2% |
| Mathematics 6 | 0%–2% | 0%–2% |
| Mathematics 7 | 0%–3% | 0%–3% |
| Mathematics 8 | 2%–3% | 1%–2% |
| Mathematics 11 | 0%–2% | 0%–3% |

### Appendix 4.B: Statistical Specifications for 2022–23 Assessment 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 the statistical properties of items, modules, and the entire multistage assessment.

The purpose of this specification is to summarize the specific *statistical* properties that were met when selecting items for the 2022–23 CAAs.

#### Statistical Properties of Individual Items

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

* + - 1. **Item Difficulty (*p*-values)**

Items that are too difficult or too easy, indicated by a low or high *p*-value, should not be used, as they serve little purpose of differentiating test takers’ abilities. The acceptable range for *p*-values is generally between 0.10 and 0.95. For anchor items, the acceptable range for *p*-values is between 0.20 and 0.95.

* + - 1. **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 0.20. However, given the limited number of CAA items in the item bank, for the spring 2022–‍23 administration, items with a polyserial correlation value between 0.10 and 0.20 could be included on the CAA forms to ensure complete test content coverage.

* + - 1. **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 an assessment 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 appear on the assembled assessment. However, the inclusion of no C-DIF items is preferred because their inclusion in an assembled assessment 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

**Note:** In table 4.C.1 and table 4.C.2, RS indicates the raw score of 10 operational items in the router portion of Stage 1.

Table 4.C.1 CAA for ELA Routing Thresholds

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment | Stage 1—Early Exit | Stage 2—Easy | Stage 2—Hard |
| ELA 3 | RS < 3 | 3 < = RS < 10 | RS > = 10 |
| ELA 4 | RS < 3 | 3 < = RS < 9 | RS > = 9 |
| ELA 5 | RS < 5 | 5 < = RS < 11 | RS > = 11 |
| ELA 6 | RS < 5 | 5 < = RS < 11 | RS > = 11 |
| ELA 7 | RS < 4 | 4 < = RS < 9 | RS > = 9 |
| ELA 8 | RS < 5 | 5 < = RS < 12 | RS > = 12 |
| ELA 11 | RS < 5 | 5 < = RS < 10 | RS > = 10 |

Table 4.C.2 CAA for Mathematics Routing Thresholds

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment | Stage 1—Early Exit | Stage 2—Easy | Stage 2—Hard |
| Mathematics 3 | RS < 2 | 2 < = RS < 8 | RS > = 8 |
| Mathematics 4 | RS < 3 | 3 < = RS < 8 | RS > = 8 |
| Mathematics 5 | RS < 2 | 2 < = RS < 9 | RS > = 9 |
| Mathematics 6 | RS < 2 | 2 < = RS < 8 | RS > = 8 |
| Mathematics 7 | RS < 2 | 2 < = RS < 11 | RS > = 11 |
| Mathematics 8 | RS < 3 | 3 < = RS < 10 | RS > = 10 |
| Mathematics 11 | RS < 2 | 2 < = RS < 8 | RS > = 8 |

## Test Administration

This chapter details the processes involved in the administration of the 2022–23 California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics. It also describes the procedures followed by ETS to maintain test security throughout the test administration process.

### Overview

The CAAs for ELA and mathematics were administered to students in grades three through eight and grade eleven in 2022–23 in conjunction with the other assessments that compose the California Assessment of Student Performance and Progress (CAASPP) System.

In accordance with the procedures for the computer-based CAASPP, local educational agencies (LEAs) identified test examiners and entered the test examiners as users into the Test Operations Management System (TOMS). ETS provided LEA staff with the appropriate training materials, such as test administration manuals, videos, and webinars, to ensure that the LEA staff and test examiners understood how to administer the computer-based CAAs for ELA and mathematics content-area assessments.

The testing window for the 2022–23 administration of the CAAs for ELA and mathematics was planned for January 10 through July 17, 2023. Specific test administration schedules within that window were determined locally pursuant to *California Code of Regulations,* Title 5 (5*CCR*), Section 855(a).

#### Item Routing

The 2022–23 CAAs for ELA and mathematics were a two-stage multistage test (MST). Refer to [*Chapter 4: Test Assembly*](#_Test_Assembly_1) for the details of the MST design.

The first four test questions in Stage 1 consisted of the Student Response Check (SRC). The [**End Test**] button was available on question 1 or question 4 should the student not pass the SRC. Some students stopped testing after Stage 1 based on their performance in Stage 1.

In Stage 2, the student was routed to either the 15 easy items in the Easy module or the 15 hard items in the Hard module. If the student did not pass the SRC, the test examiner could use the [**End Test**] button to end the assessment, and the student stopped testing in Stage 1.

Figure 5.1 displays how the CAA items were routed, with details on the SRC, Stage 1, and Stage 2.



Figure 5.1 Test components and administration process

##### Administration of the Student Response Check

Test examiners responded to the SRC during the first stage of test administration for both the ELA and mathematics assessments to ensure that these CAAs were accessible and students were able to take the assessment.

The SRC is composed of four questions. The instructions that were provided in the CAA *Directions for Administration (DFAs)* included information on specific behaviors that a test examiner should observe. There were three possible outcomes from administering the first test item:

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

If the SRC outcome was 1, the test examiner administered the entire assessment, including the remaining items in Stage 1A and all items in Stage 1B. The student was then administered all items in Stage 2 if the student’s test administration did not end after Stage 1.

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

If the outcome was 3, the test examiner was instructed not to administer the assessment and to end the assessment. If, during testing, the student ceased to provide any observable response, the test examiner was instructed to end the assessment.

##### Administration of the Assessment

If the decision was made to continue with the test administration as a result of the SRC, students were given the following opportunities for continuing to the end of the full assessment 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) compared the student’s performance against the routing thresholds as shown in table 4.C.1 (ELA) or table 4.C.2 (mathematics) and determined whether to direct the student to Stage 2 or end testing.
* After the completion of the full Stage 1, if a minimum score threshold was met to continue with testing, the TDS routed the student to one of the two modules of Stage 2, as shown in figure 5.1.

### User Roles and Standardization

The test administration procedures were designed so that the assessments are administered in a standardized manner. ETS took all necessary measures to ensure the standardization of test administration, as described in this section.

#### Local Educational Agency CAASPP Coordinator

An LEA CAASPP coordinator was designated by the district superintendent or charter school administrator at the beginning of the 2022–23 school year. LEAs include public school districts, California State Board of Education–authorized charter schools, county office of education programs, and direct funded charter schools.

LEA CAASPP coordinators were responsible for ensuring the proper and consistent administration of the CAASPP. In addition to the responsibilities set forth in 5*CCR* Section 857, their responsibilities included

* adding CAASPP test site coordinators and test examiners into TOMS;
* training CAASPP test site coordinators and test examiners regarding the state requirements and CAASPP administration as well as security policies and procedures;
* providing checklists for CAASPP test site coordinators and test examiners to review in preparation for administering the summative assessments;
* overseeing test administration activities;
* reporting test security incidents (including testing irregularities) to the California Department of Education (CDE) using the online Security and Test Administration Incident Reporting System (STAIRS)/Appeals process; and
* requesting an Appeal (if indicated by TOMS prompts while reporting an incident using the STAIRS/Appeals process).

#### 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 CAASPP 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 was responsible for identifying test examiners and ensuring that they have signed CAASPP *Test Security Affidavits* (5 *CCR* Section 859[d]). A CAASPP test site coordinator’s duties may have included

* 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 take the CAAs for ELA and mathematics, 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 test security incidents (including testing irregularities) to the CDE using the online STAIRS/Appeals process;
* overseeing administration activities at a school site; and
* requesting an Appeal (if indicated by TOMS prompts while reporting an incident using the STAIRS/Appeals process).

#### Test Examiners

Test examiners were identified by CAASPP test site coordinators as individuals who would administer the CAAs for ELA and mathematics.

A test examiner must have signed a security affidavit (5 *CCR* Section 859[d]) and be a certificated or licensed school staff member (5 *CCR* Section 850[ag]).

A test examiner’s duties may have included

* ensuring the physical conditions of the testing room meet the criteria for a secure test environment;
* administering the CAASPP, including the CAAs for ELA and mathematics;
* reporting all test security incidents to the CAASPP 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 assessment with appropriate resources and reporting potential data errors to CAASPP test site coordinators and LEA CAASPP coordinators;
* monitoring student progress throughout the test session using the Test Administrator Interface; and
* fully complying with all directions provided in the *DFAs* for the CAAs for ELA and mathematics (CDE, 2023e).

#### Instructions for Test Administration

##### *Preparing for Administration*

The nonsecure *Preparing for Administration (PFA)* documents (CDE, 2022a) contained the planning and preparation content from the *DFAs* and were posted on the Manuals and Instructions web page on the CAASPP website. The *PFA* was used by test examiners to prepare for the test administration and to become familiar with testing guidelines.

The *PFA* included the following:

* Administration notes
* Linked resources
* Information about student engagement

##### *Directions for Administration*

Test examiners used a grade-level edition of the secure *DFAs* for the CAAs, located in TOMS, to administer the CAAs for ELA and mathematics to students. Test examiners followed 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 included scoring rubrics where warranted.

Sample *DFAs* for the CAAs to be used in conjunction with the CAA practice and training tests were provided to LEAs as well (CDE, 2022c, 2022d).

##### *CAASPP Online Test Administration Manual*

The *CAASPP Online Test Administration Manual* (CDE, 2023e) contained information and instructions on overall procedures and guidelines for all LEA and test site staff involved in the administration of computer-based assessments. Sections included the following topics:

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

Appendices included definitions of common terms and descriptions of different aspects of the assessment and systems associated with the assessment.

##### *CAASPP and ELPAC Test Operations Management System User Guide*

TOMS is a web-based application that allows LEA CAASPP coordinators to set up test administrations, add and manage users, and submit computer-based student test settings.

TOMS modules described in the *TOMS User Guide* included the following (CDE, 2023d):

* **Test Administration Setup—**This module allowed LEAs to determine and calculate dates for the LEA’s 2022–23 administration of the CAASPP, including the CAAs for ELA and mathematics.
* **Adding and Managing Users—**This module allowed LEA CAASPP coordinators to add CAASPP test site coordinators and test examiners to TOMS so that the designated user could administer, monitor, and manage the CAASPP computer-based assessments.
* **Reports—**This module allowed LEA CAASPP coordinators and CAASPP test site coordinators access to the various reports in TOMS.
* **STAIRS/Appeals—**This module allowed LEA CAASPP coordinators and CAASPP test site coordinators access to create new STAIRS cases or search for STAIRS/Appeals cases.
* **Student Profile—**This module allowed LEA CAASPP coordinators, CAASPP test site coordinators, and test administrators and test examiners to view and manage student’s test assignments and test settings.

##### 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.

* ***CAASPP and English Language Proficiency Assessments for California (ELPAC) Technical Specifications and Configuration Guide for Online Testing*—**This manual provided information, tools, and recommended configuration details to help technology staff prepare computers and install the secure browser to be used for the computer-based CAASPP (CDE, 2023c).
* ***CAASPP and ELPAC Security Incidents and Appeals Procedure Guide*—**This manual provided information on how to report a testing incident and submit an Appeal to reset, reopen, invalidate, or restore individual computer-based student assessments (CDE, 2023b).
* ***CAASPP and ELPAC Accessibility Guide*—**This manual provided descriptions of the accessibility features for computer-based assessments as well as information about supported hardware and software requirements for administering assessments to students using accessibility resources, including those with a braille accommodation using Job Access With Speech® (software) or a braille embosser (hardware) (CDE, 2023a).

#### Resources for Administration

To ensure the 2022–23 test administration was a successful experience for CAA test examiners and students, ETS provided an online, self-guided training tutorial for CAA test examiners (CDE, 2023f) in August 2022, as well as the Pretest Virtual Training Series, which is a series of virtual test administration workshops facilitated throughout the year for California educators. The virtual workshops included a section dedicated exclusively to the topic of the CAA test administration procedures.

ETS also produced a self-guided training with detailed videos and information on CAASPP test administration procedures. In addition, ETS developed and posted a number of test administration resources for schools and LEAs on both the public CAASPP website and on the secure TOMS website. These resources included detailed information on topics such as technology readiness, test administration, test security, accessibility resources, using the TDS, and general testing rules.

Given that the CAAs are administered to students who have the most significant cognitive disabilities, a test examiner—usually the student’s teacher, who is familiar to the student—administers the CAA to the student one-on-one.

### Local Educational Agency Training

Each year, ETS, in collaboration with the CDE and its Assessment Validity and Outreach contractor, the Sacramento County Office of Education (SCOE), establishes and implements a comprehensive training plan for LEA assessment staff and educators on all aspects of the assessment program. The ETS and SCOE annual training plans specify the audience, topics, frequency, and mode (synchronous or asynchronous) of the training, including such elements as format, participants, and organization.

Knowing that educators were confronted with challenges daily that put additional demands on their time, ETS and SCOE made every effort to make the information available in a variety of ways that allowed educators access to training at a time that was responsive to their varying circumstances. This included offering training events on multiple days and times, livestreaming events, recording and archiving training, and converting training to self-paced modules that could be taken any time, at the learner’s convenience.

All training opportunities were posted in one centralized location on the CAASPP website. LEA staff were able to register for training opportunities in one place, on the Upcoming Training Opportunities web page. Archived training was made available on the Past Training Opportunities web page, making it easier for educators to find a training they missed, and providing easier access to recorded training. ETS also employed a new strategy for providing access to training materials. Participants could register to receive a copy of the training materials without registering to attend a live training. Training materials were developed in such a way that educators could consume the information independently by reading through materials.

#### Synchronous and Asynchronous Training

All synchronous training was offered on Zoom, recorded, and made available for on-demand viewing. Zoom provides an opportunity for educators to ask questions and get answers in real time. Coffee Sessions were livestreamed on YouTube.

In response to an environment where educators had competing priorities to juggle, ETS and SCOE used various strategies to increase engagement during synchronous trainings. Live polls were presented to get real-time feedback about attendees’ knowledge of a particular topic, allowing presenters to tailor presentations to the audience’s level of understanding. The chat functionality was enabled to give participants an opportunity to interact with each other or to provide open-ended feedback, or it was disabled to minimize distraction and drive attendees’ focus to the information being presented. Breakout groups were used in smaller group trainings, as appropriate. Breaks and processing time were incorporated into presentations to give attendees opportunities to attend to other responsibilities that might result as part of their work environment.

Working closely with the CDE, ETS and SCOE continued to provide informal support to educators by offering monthly Coffee Sessions. Coffee Sessions included CDE and ETS’ staff who could answer questions about all aspects of testing. ETS also offered several Office Hours for coordinators where support staff were generally available from 9 a.m. to 3 p.m., allowing coordinators to join as needed and get customized support. SCOE continued to offer Assessment and Accountability Information Meetings intended to provide LEA coordinators with regular updates about California’s assessment and accountability systems. All trainings and meetings were recorded and archived for on-demand viewing on the Past Training Opportunities web page on the CAASPP website.

#### Videos and Guides

ETS produced videos on various aspects of administering the CAASPP, including how to perform functions within TOMS, such as setting up a test administration window, adding users, assigning assessments to students, and uploading test settings. SCOE produced the accompanying quick reference guides, providing multiple avenues of support for educators administering the assessments.

In addition to the standard administration videos, ETS produced additional videos to support administration. Some videos were geared toward parents/guardians to help them understand the assessment’s purpose. Other videos were intended to help coordinators or other users complete a process, such as administering a practice or training test, starting and stopping a test session, how to monitor student completion, and how to complete second scoring that is required for some of the assessments. This list is a sampling of the available videos intended to capture the major areas of support for various interest holders. The comprehensive suite of training videos can be found on the CAASPP Videos and Quick Reference Guides web page.

#### Training for Proper Identification and Assignment of Designated Supports and Accommodations

ETS developed a video with LEA staff to help California educators learn more about the importance of implementing CAASPP accessibility resources and best practices used by educators in the field. The “Importance of Implementing CAASPP and ELPAC Accessibility Resources: Voices from Educators” video was available on the Videos and Quick Reference Guides web page on the CAASPP website.

ETS also produced short demonstration videos for every embedded accessibility resource, demonstrating how to use the resource for educators, students, and parents/guardians. The videos were available in both English and Spanish on the Accessibility Resources Demonstration Videos web page on the CAASPP website. Demonstration videos were also created for the most frequently used non-embedded accessibility resources. These videos were linked within the Individual Student Assessment Accessibility Profile (ISAAP) Tool, increasing access to the demonstration videos. Educators using the ISAAP Tool to determine the student’s needs could view the corresponding demonstration video without having to navigate away from the tool.

A video on how to use the ISAAP Tool was also available to support educators in the process of creating an individual student profile and matching accessibility resources to student needs to ensure a fair and valid testing experience for all students.

For the 2022–23 CAASPP administration, ETS produced a two-part asynchronous training module. Module A, Matching Accessibility Resources to Students’ Needs, focused on providing participants with an understanding of the importance of accessibility resources, the categories of accessibility resources, and the process for matching students with appropriate accessibility resources for daily instruction and on assessments. Module B, Using Accessibility Resources in Daily Instruction, focused on the importance of removing barriers to student learning and using accessibility resources in daily instruction. Educators could complete the training independently or had the option to attend one of two live sessions held by ETS to extend and deepen the learning experience.

At the California Assessment Conference, SCOE offered two sessions on accessibility. “Leveraging UDL and Accessibility Resources to Improve Teaching and Learning” explored Universal Design for Learning (UDL) principles to help remove barriers to student learning and provided data collection tools to participants. The session on “Introduction to Accessibility and the ISAAP Tool” provided participants with the most up-to-date information regarding accessibility resources and offered a live practical approach to identifying and matching accessibility resources to students using the ISAAP Tool. The conference also included some shared practices sessions focused on accessibility.

#### Feedback for Continuous Improvement Survey

The CAASPP program solicits feedback annually from various interest holder groups, including LEA CAASPP coordinators, CAASPP test site coordinators, test administrators, and test examiners, through the CAASPP and ELPAC Feedback for Continuous Improvement Survey. Feedback was collected via a post-test survey sent to more than 275,000 California educators and through focus groups. Educators provided valuable feedback for potential improvements to the future administration of CAASPP and the ELPAC—one or both—by reporting some lessons they learned in 2022–23.

Improvements made in response to survey results are detailed in [chapter 10](#_Toc126226082). The CDE and ETS used key recommendations from educators to implement positive changes in the next test administration year.

Among the 133 CAA test examiner respondents, 82 percent used the *PFA* and 97 percent used the *DFA* before or during the administration of the CAAs. Nearly all CAA test examiners who had used either the *PFA* or *DFA* found that the respective document was helpful.

According to the CAA test examiners, the most commonly reported challenges to the test administration experience were dealing with student absences and technology issues.

##### Overview

LEA and CAASPP test site coordinators, as well as test administrators and test examiners, were invited to participate in the survey. The California educators who responded provided specific, actionable insights about their test administration experience. This survey gathered information and data from educators who were part of the administration of CAASPP, the ELPAC, or both programs. Its goal was to highlight successes and identify areas for improvement, both immediate and long term.

Overall, California educators continue to express positive experiences in their preparations for administering CAASPP and the ELPAC.

##### Communication

During the 2022–23 test administration year, the CDE and ETS continued to streamline communications and provide LEAs with relevant information throughout the year. CAASPP and ELPAC monthly communications were sent throughout the administration with timely reminders and training announcements. In addition, proactive communications were sent to help remind LEA CAASPP coordinators of important actions needed for a successful administration, such as reminders to set up a test administration window, order materials, or enter scores into the Data Entry Interface, if needed.

### Accessibility Resources

The Every Student Succeeds Act reaffirms the importance of ensuring that assessments are accessible to special populations, and the Individuals with Disabilities Education Act lays out monitoring requirements for students with disabilities. This section describes the accessibility resources used to support students in the CAAs for ELA and mathematics, as well as the procedures to identify and assign students with accommodations and designated supports. Finally, the number of students who were assigned accessibility resources was reported on the basis of available data.

The 2022–23 CAAs for ELA and mathematics offered commonly used accessibility resources available through the CAASPP computer-based testing platform, where applicable for the tested construct.

#### Accessibility Resource Categories

The purpose of universal tools, designated supports, and accommodations in testing is to provide *all* students with the opportunity to demonstrate what they know and what they are able to do. Universal tools, designated supports, and accommodations minimize or remove barriers that could otherwise prevent students from demonstrating their knowledge, skills, and achievement in a specific content area.

The CDE’s *California Assessment Accessibility Resources Matrix* (Accessibility Matrix) (CDE, 2022b) is intended for school-level personnel and individualized education program (IEP) and Section 504 plan teams to select and administer the appropriate universal tools, designated supports, and accommodations as deemed necessary for individual students.

Table 5.A.1 through table 5.A.4 in [appendix 5.A](#_Appendix_5.A:_Accessibility) present the numbers and percentages of students assigned designated supports, accommodations, and unlisted resources for the 2022–23 CAAs for ELA and mathematics administration. The use of universal tools is not tracked because they are available to all students in the TDS.

##### Universal Tools

Universal tools were available to all students by default, although they could be disabled if a student found them distracting. Each universal tool fell into one of two categories: embedded and non-embedded. Embedded universal tools were provided through the TDS (through the CAASPP secure browser), although they could be turned off by a test examiner.

The universal tools in the following subsections were available in the 2022–23 CAAs for ELA and mathematics administration.

###### Embedded

The following embedded universal tools were available to students testing in the secure browser:

* Breaks
* Digital notepad
* Expandable items
* Expandable passages
* Highlighter
* Keyboard navigation
* Line reader
* Mark for review
* Math tools (mathematics only)
* Strikethrough
* Zoom (in or out)

###### Non-Embedded

The following non-embedded universal tools were available to students testing in the secure browser:

* Breaks
* Scratch paper

##### Designated Supports

Designated supports were available to all students when determined for use by an educator or team of educators (with parent/guardian and student input, as appropriate) or specified in the student’s IEP or Section 504 plan. These are assigned through the test settings in TOMS. The designated supports each fell into one of two categories: embedded and non-embedded. Embedded designated supports were provided through the Student Testing Interface (through the CAASPP secure browser).

The designated supports in the following subsections were available in the 2022–23 CAAs for ELA and mathematics administration.

###### Embedded

The following embedded designated supports were available to students testing in the secure browser:

* Color contrast
* Masking
* Mouse pointer (size and color)
* Permissive mode
* Print (font) size
* Streamline
* Turn off any universal tool(s)

###### Non-Embedded

The following non-embedded designated supports were available to students testing in the secure browser:

* Amplification
* Color contrast
* Color overlay
* Magnification
* Medical supports
* Noise buffers
* Read aloud (items)
* Scribe (nonwriting items)
* Separate setting (special lighting or acoustics, adaptive furniture, time of day)

##### Accommodations

Accommodations are changes in procedures or materials that increased equitable access during CAASPP administration and are permitted to all eligible students if specified in the student’s IEP or Section 504 plan. Assessment accommodations for students who needed them generated valid assessment results; they allowed these students to show what they know and can do. Accommodations did not compromise the learning expectations, construct, grade-level standard, or intended outcome of the assessments.

The accommodations in the following subsections were available in the 2022–23 CAAs for ELA and mathematics administration.

###### Embedded

There were no embedded accommodations available to students.

###### Non-Embedded

The following non-embedded accommodations were available to students testing in the secure browser:

* 100s numbers table (mathematics only)
* Abacus (mathematics only)
* Additional instructional supports and resources for alternate assessments
* Alternate response options
* Multiplication table (mathematics only)
* Print-on-demand
* Read aloud (ELA reading passages)
* Scribe (ELA writing items)

##### 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. The Accessibility Matrix included an inventory of unlisted resources that were already identified and were preapproved (CDE, 2022b). During the 2022–23 CAASPP administration, an LEA CAASPP coordinator or a CAASPP test site coordinator would use TOMS to submit a request for use of an unlisted resource. A preidentified, preapproved unlisted resource request was automatically approved. A request for an unlisted resource that was not preidentified was sent to the CDE for review and adjudication.

Unlisted resources are non-embedded resources that are made available if specified in the eligible student’s IEP or Section 504 plan and only upon approval by the CDE. Unlisted resources that changed the construct of an assessment and were approved were flagged as causing a change in construct. Test results for a student using an unlisted resource that was approved but that changed the construct of what was being tested were considered invalid for reporting purposes. The student’s score status would remain valid, and the student’s scale score would be reported but appear on the Student Score Report (SSR) with an asterisk and a footnote that the assessment was administered under conditions that resulted in a score that may not be an accurate representation of the student’s achievement.

Preidentified unlisted resources applicable to the CAAs for ELA and mathematics are as follows:

* Bilingual dictionary
* Calculator (mathematics only)
* English dictionary
* Math tools (mathematics only)
* Signed exact English
* Thesaurus
* Translated word lists
* Translations (not provided by Smarter Balanced)

The LEA CAASPP coordinator or CAASPP test site coordinator was required to submit a request for the use of an unlisted resource to the CDE a minimum of 10 business days before the student’s first day of testing.

#### Identification and Selection

All eligible students enrolled in a California public school participate in the CAASPP System, including students with disabilities and English learner students. The Smarter Balanced Assessment Consortium’s *Usability, Accessibility, and Accommodations Guidelines* (Smarter Balanced, 2022) and the CDE Accessibility Matrix (CDE, 2022b) are intended for school-level personnel and IEP and Section 504 plan teams to select and administer the appropriate universal tools, designated supports, and accommodations as deemed necessary for individual students.[[5]](#footnote-6) The CAAs for ELA and mathematics follows the Smarter Balanced recommendations for use (Smarter Balanced, 2018).

The *Guidelines* apply to all participating students and promote an individualized approach to the implementation of assessment practices. Another web page, the Smarter Balanced Accessibility Strategies web page on the Tools for Teachers website (Smarter Balanced, 2023), connects the assessment resources described in the *Guidelines* with associated classroom practices.

The full list of the universal tools, designated supports, and accommodations used in CAASPP computer-based assessments, including the CAAs for ELA and mathematics, is documented in the Accessibility Matrix. Most embedded and non-embedded universal tools, designated supports, and accommodations listed in parts 1, 2, and 3 of the Accessibility Matrix are available for the CAAs for ELA and mathematics through the computer-based testing interface or, in the case of non-embedded resources, from the school or LEA. Part 5 of the Accessibility Matrix includes approved unlisted resources. School-level personnel, IEP teams, and Section 504 teams used the Accessibility Matrix when deciding how best to support the student’s test-taking experience. Another manual, the *Smarter Balanced Usability, Accessibility, and Accommodations Implementation Guide* (Smarter Balanced, 2014),provides suggestions for implementation of these resources.

Test administrators and test examiners are given the opportunity to administer the CAASPP practice and training tests so that students have the opportunity to familiarize themselves with a designated support or accommodation prior to testing.

#### Assignment

Designated supports and accommodations are assigned to individual students on the basis of identified student need. Such assignments are implemented in TOMS by the LEA CAASPP coordinator or CAASPP test site coordinator, either through individual assignment through the student’s profile in TOMS or in a batch upload for multiple students. When the batch upload process was used, settings were uploaded into TOMS using a spreadsheet with data that had either been entered into a template downloaded from TOMS; or created by selecting and entering information into the web-based ISAAP Tool. The ISAAP Tool could be used by LEAs in conjunction with the *Guidelines* and the *2022–23* CAASPP and ELPAC Accessibility Guide (CDE, 2023a), as well as with state regulations and policies (such as the Accessibility Matrix) related to assessment accessibility*.*

The embedded designated supports and accommodations were delivered to the student through the TDS at the time of testing; the non-embedded designated supports and accommodations were provided at the time of testing to the student by the LEA. Refer to section [*1.9 Systems Overview and Functionality*](#_Systems_Overview_and_2) in [*Chapter 1: Introduction*](#_Introduction) for more details regarding the TDS.

Once a student’s IEP or Section 504 plan team decided which accessibility resource(s) the student should use, LEA CAASPP coordinators and CAASPP test site coordinators used TOMS to assign designated supports and accommodations to students prior to the start of a test session.

There were three ways a student’s accessibility resource(s) could be assigned:

1. Using the ISAAP Tool to identify the accessibility resource(s) and then uploading the spreadsheet it creates into TOMS (This process is discussed in more detail in subsection [*5.4.2 Identification and Selection*](#_Identification_and_Selection_1).)
2. Using the Online Student Test Settings template to enter students’ assignments and then uploading the spreadsheet into TOMS
3. Entering assignments for each student individually in TOMS

If a student’s IEP or Section 504 plan team identified and designated a resource not identified in the CDE Accessibility Matrix, the LEA CAASPP coordinator or CAASPP test site coordinator needed to submit a request for an unlisted resource to be approved by the CDE. The CDE then determined whether the requested unlisted resource changed the construct being measured before the student started testing.

[Appendix 5.A](#_Alternative_Text_for_20) provides information on the number of students who were assigned accommodations and designated supports.

#### Delivery

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 CAAs for ELA and mathematics testing. Examples of embedded resources include the expandable items, color contrast, and masking.

Non-embedded resources are available, when provided by the LEA, for both computer-based assessments and paper–pencil tests. These resources are not part of the technology platform for the computer-administered CAAs for ELA and mathematics. Examples of non-embedded resources include magnification, noise buffers, and the use of a scribe.

Refer to subsection [*5.4.1 Accessibility Resource Categories*](#_Accessibility_Resource_Categories_2) for a detailed description of the accessibility resources available to students taking the CAAs for ELA and mathematics.

#### Usage of Designated Supports and Accommodations

LEA CAASPP coordinators and CAASPP test site coordinators were responsible for assigning their students’ test settings in TOMS before testing occurred and providing the necessary resources during testing. If a test setting was not applied before testing, then a STAIRS incident was to be submitted to reset the assessment so the student could be retested with the correct accommodation or designated support. If a test setting was accidentally assigned to a student, then a STAIRS incident was also to be submitted to reset the assessment so the student could be retested without the accommodation or designated support.

After schools and LEAs assigned eligible students to accommodations or designated supports, Cambium Assessment, Inc.’s (CAI’s) TDS provided and captured whether a certain accommodation or designated support (or multiple accommodations or designated supports) was used by a student as the student progressed through the assessment.

Table 5.1 and table 5.2 report the number of students who, based on the availability of data, were assigned to a certain accommodation or designated support and who used this accommodation or designated support during test administration. However, because the TDS does not capture the usage of all embedded resources and cannot capture the usage of any non-embedded resources, these tables report only on a limited subset of the embedded resources.

Types of accommodations and designated supports—labeled “ACC” and “DS” in the *Resource Type* column—included in table 5.1 and table 5.2 are as follows:

* **Print-on-Demand:** Paper copies of passages and stimuli, items, or all of these are printed for students.
* **Masking:** This resource involves blocking off content that is not of immediate need or that may be distracting to the student.

Table 5.1 Summary of Accommodations and Designated Supports Used by Students—‍ELA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Grade Level | Accessibility Resource | Resource Type | Students Assigned | Students Used |
| All | Any Tracked Resource | All | 2,183 | 38 |
| All | Non-Embedded Print-on-Demand | ACC | 79 | 18 |
| All | Embedded Masking | DS | 2,120 | 20 |
| 3 | Any Tracked Resource | All | 284 | 7 |
| 3 | Non-Embedded Print-on-Demand | ACC | 14 | 4 |
| 3 | Embedded Masking | DS | 273 | 3 |
| 4 | Any Tracked Resource | All | 364 | 10 |
| 4 | Non-Embedded Print-on-Demand | ACC | 22 | 5 |
| 4 | Embedded Masking | DS | 343 | 5 |
| 5 | Any Tracked Resource | All | 375 | 6 |
| 5 | Non-Embedded Print-on-Demand | ACC | 11 | 2 |
| 5 | Embedded Masking | DS | 367 | 4 |
| 6 | Any Tracked Resource | All | 365 | 4 |
| 6 | Non-Embedded Print-on-Demand | ACC | 10 | 1 |
| 6 | Embedded Masking | DS | 359 | 3 |
| 7 | Any Tracked Resource | All | 293 | 4 |
| 7 | Non-Embedded Print-on-Demand | ACC | 10 | 2 |
| 7 | Embedded Masking | DS | 285 | 2 |
| 8 | Any Tracked Resource | All | 310 | 6 |
| 8 | Non-Embedded Print-on-Demand | ACC | 10 | 4 |
| 8 | Embedded Masking | DS | 303 | 2 |
| 11 | Any Tracked Resource | All | 192 | 1 |
| 11 | Non-Embedded Print-on-Demand | ACC | 2 | 0 |
| 11 | Embedded Masking | DS | 190 | 1 |

Table 5.2 Summary of Accommodations and Designated Supports Used by Students—Mathematics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Grade Level | Accessibility Resource | Resource Type | Students Assigned | Students Used |
| All | Any Tracked Resource | All | 2,203 | 23 |
| All | Non-Embedded Print-on-Demand | ACC | 79 | 15 |
| All | Embedded Masking | DS | 2,140 | 8 |
| 3 | Any Tracked Resource | All | 287 | 3 |
| 3 | Non-Embedded Print-on-Demand | ACC | 13 | 2 |
| 3 | Embedded Masking | DS | 277 | 1 |
| 4 | Any Tracked Resource | All | 372 | 8 |
| 4 | Non-Embedded Print-on-Demand | ACC | 23 | 5 |
| 4 | Embedded Masking | DS | 350 | 3 |
| 5 | Any Tracked Resource | All | 383 | 4 |
| 5 | Non-Embedded Print-on-Demand | ACC | 12 | 4 |
| 5 | Embedded Masking | DS | 374 | 0 |
| 6 | Any Tracked Resource | All | 360 | 2 |
| 6 | Non-Embedded Print-on-Demand | ACC | 10 | 0 |
| 6 | Embedded Masking | DS | 354 | 2 |
| 7 | Any Tracked Resource | All | 297 | 3 |
| 7 | Non-Embedded Print-on-Demand | ACC | 10 | 2 |
| 7 | Embedded Masking | DS | 289 | 1 |
| 8 | Any Tracked Resource | All | 314 | 3 |
| 8 | Non-Embedded Print-on-Demand | ACC | 9 | 2 |
| 8 | Embedded Masking | DS | 308 | 1 |
| 11 | Any Tracked Resource | All | 190 | 0 |
| 11 | Non-Embedded Print-on-Demand | ACC | 2 | 0 |
| 11 | Embedded Masking | DS | 188 | 0 |

### Practice and Training Tests

Practice and training tests are available publicly to LEA staff, students, parent/guardians, and any other individual for the CAAs for ELA and mathematics. These tests simulate the experience of the computer-based CAAs for ELA and mathematics to allow anyone to experience the assessment.

Students can access practice and training tests using a web browser. They allow students and administrators to familiarize themselves with the user interface and components of the TDS and help maintain the standardization of test administration. Practice and training tests are available through the Practice and Training Test website linked on the Online Practice and Training Tests Portal web page on the CAASPP website.

The practice tests, offered at each grade level, were released to prepare students for the CAAs for ELA and mathematics. These tests more closely simulate the CAAs for ELA and mathematics’ length and complexity and align with the CAAs for ELA and mathematics blueprint.

For the CAAs for ELA and mathematics, there is one training test for each content area with sample items across all the tested grade levels. The training tests give students an opportunity to interact with many of the item types available on the operational assessments.

### Test Security and Confidentiality

For the operational CAAs for ELA and mathematics, every person who worked with the assessments, communicated test results, or received testing information was responsible for maintaining the security and confidentiality of the assessments, including 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 required that all test information, including tangible materials (e.g., test items), confidential files (e.g., those containing personally identifiable student information), and processes related to test administration (e.g., the configurations of secure servers), were kept secure. ETS had systems in place that maintained tight security for test items and test results, as well as for student data. To ensure security for all assessments that ETS develops or handles, ETS maintains an Office of Testing Integrity (OTI), which is described in the next subsection.

All assessments 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* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 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 *CAAs 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 STAIRS process.

#### ETS’ Office of Testing Integrity

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

* prevent test security violations;
* 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 equitable way that reflects the laws and professional standards governing the integrity of testing. The OTI also implements policies designed to detect and block technologies used to gain an unfair advantage.

In its pursuit of enforcing secure testing practices, the OTI strives to safeguard the various processes involved in an assessment development and administration cycle. For the CAAs for ELA and mathematics, those processes included the following:

* Assessment development
* Item and data review
* Item banking
* Transfer of forms and items to the CDE and CAI
* Security of electronic files using a firewall
* Test administration
* Test delivery
* Processing and scoring
* Data management
* Statistical analysis
* Student confidentiality

#### Procedures to Maintain Standardization of Test Security

Test security requires the accounting of all secure materials—including computer-based 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, 2023b).

The following measures ensured the security of the CAASPP:

* LEA CAASPP coordinators and CAASPP test site coordinators must have electronically signed and submitted a “CAASPP Test Security Agreement for LEA CAASPP coordinators and CAASPP test site coordinators” form in TOMS before ETS can grant the coordinators access to TOMS (5 *CCR* Section 859[d]).
* Anyone having access to the testing materials must have electronically 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 in TOMS before receiving access to any testing materials (5 *CCR* Section 859[c]).
* Anyone having access to the testing materials but not having access to TOMS must have signed the CAASPP *Test Security Affidavit for Non-TOMS Users*, which was available as a web-based form, before receiving access to any testing materials.

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 test examiner reported to the CAASPP test site coordinator or LEA CAASPP coordinator, who then submitted the incident using the STAIRS/Appeals process. Breach incidents were to be reported by the LEA CAASPP coordinator to the California Technical Assistance Center (CalTAC) and entered into STAIRS within 24 hours of the incident (5 *CCR* Section 859[e]).

#### Test Security Monitoring

The LEA and school testing staff were responsible for maintaining the security and confidentiality of testing materials and devices during the testing window and reporting any irregularities or breaches that occurred. ETS performed site visits and testing procedure audits at randomly selected LEAs and test sites throughout California during the test administration of CAASPP and the ELPAC operational assessments. Audits were performed before, during, and after test administrations to observe adherence to published procedures regarding the handling of testing materials and test administration guidelines.

To provide this service, ETS used its OTI and subcontractor staff as auditors. All auditors had a minimum of a high school diploma, a valid driver’s license, and experience in security auditing or a related field. All had passed a background check conducted by the subcontracted vendor as part of the employment process.

ETS provided a final summary report of audit findings to the CDE at the end of the test administration. In addition, the OTI reported findings and recommendations to ETS’ program management on a weekly basis as audits were completed. ETS’ program management reported a summary of these findings to the CDE after a site visit. The OTI also provided individual audit reports directly to the LEA at the completion of the testing year.

#### Security of Electronic Files Using a Firewall

A firewall is software that prevents 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 Sacramento, California.

All electronic applications that are included in TOMS remain protected by the ETS firewall software at all times. Because of 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 section [*1.9 Systems Overview and Functionality*](#_Systems_Overview_and_2) in[*Chapter 1: Introduction*](#_Introduction) for more information on TOMS.

#### Transfer of Scores via Secure Data Exchange

Because of the confidential nature of test results, ETS 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 stored only temporarily 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.

For the 2022–23 CAAs for ELA and mathematics, ETS entered information about the deliverable into a web form on a SharePoint website when a file was posted. A CDE staff member monitored this log throughout the day for updates to the status of deliverables and downloaded and deleted the file from the SFTP server when its status showed that it had been posted.

#### Data Management in the Secure Database

ETS 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 the data is collected during 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. Industry-standard secure protocols are used to transfer test content and student data from the ETS internal data center to any external systems. 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 (CDE, 2023d).

#### Statistical Analysis on Secure Servers

During CAASPP testing, ETS’ information technology staff members retrieve data files from CAI and load those files into a database. The ETS Data Quality Services staff extract the data from the database and perform 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.

#### Student Confidentiality

To meet the 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.

#### Student Test Results

##### Types of Results

The following deliverables are produced for reporting of the CAAs for ELA and mathematics:

* Individual student results for computer-based assessments in the California Educator Reporting System
* Individual SSRs (electronic)
* Internet reports—available on the CDE Test Results for California’s Assessments website—aggregated by content area and state, county, LEA, or test site

##### Security of Results Files

ETS takes measures to protect files and reports that show students’ scores and reporting 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. 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 both the ISO 27001 standard for information security and the ISO 22301 standard for business continuity, and conducts disaster recovery exercises annually.

Access to the ETS Computer Processing Center is controlled by employee and visitor identification badges. The Center is secured by doors that can be unlocked only 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.

##### Security of Individual Results

ETS protects individual students’ results during the following conditions:

* Scoring
* Transfer of scores by means of secure data exchange
* Reporting
* Posting of aggregated 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 an assessment developed by ETS. 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.

#### Security and Test Administration Incident Reporting System 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 assessments, which, in turn, compromise the reliability and validity of test results (CDE, 2023b). Whether intentional or unintentional, failure by staff or students to comply with security rules constitutes a test security incident. Test security incidents impact scoring and affect students’ performance on the assessment.

LEA CAASPP coordinators and CAASPP test site coordinators ensured that all test security and summative administration incidents were documented by following the prompts in TOMS that guided coordinators in their submittal. An Appeal is a request to reset, restore, reopen, invalidate, or grant a grace period extension to a student’s assessment. If an Appeal to a student’s assessment was warranted, TOMS provided additional prompts to file the Appeal.

After a case was submitted, an email containing a case number and next steps was sent to the submitter (and to the LEA CAASPP coordinator, if the case was submitted by the CAASPP test site coordinator). The STAIRScase in TOMS provided the LEA CAASPP coordinator, the CDE, and the LEA Outreach Administrator with the opportunity to interact and communicate regarding the STAIRS process (CDE, 2023b).

Prior to the assessment administration, ETS and the CDE agreed that the following types of STAIRS cases would also be forwarded to the CDE:

* Student cheating or accessing unauthorized devices
* Security breach (where a student exposed secure materials)
* Student unable to review previous answers (i.e., 20-minute pause rule)

Appeals requests were reviewed by the CDE or an ETS LEA Outreach Administrator. When a request to submit an Appeal was approved, the coordinator received a system-generated email with the Appeal type that was approved (CDE, 2023b).

Types of Appeals available during the 2022–23 CAASPP administration are described in table 5.3.

Table 5.3 Types of Appeals

|  |  |
| --- | --- |
| Type of Appeal | Description |
| Reset | Resetting a student’s assessment removed that assessment from the system and enabled the student to start a new assessment from the beginning. |
| Invalidate | Invalidated assessments were scored, and scores were provided on the SSR with a note that an irregularity occurred. The student(s) was counted as participating in the calculation of the school’s participation rate for accountability purposes. |
| Re-open | Reopening an assessment allowed a student to access an assessment that had already been submitted or had expired. |
| Restore | Restoring an assessment returned an assessment from the Reset status to its prior status. This action could be performed only on assessments that were reset previously. |
| Grace Period Extension | Permitting a grace period extension allowed the student to review previously answered items upon logging back on to the assessment after expiration of the pause rule.  A grace period extension was granted only in cases where there was a disruption to a test session, such as a technical difficulty, fire drill, schoolwide power outage, earthquake, or other act beyond the control of the test examiner. |

##### 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 assessment, test security, or test validity. An example of an impropriety could be if students were making distracting gestures or sounds or talking during the test session that creates a disruption in the test session for other students, or a student left the test room without authorization.

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 must report the incident within 24 hours, using the STAIRS/Appeals process in TOMS.

##### 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 assessment or impact test security or test validity. An example of an irregularity could be that students were assigned an incorrect designated support or accommodation, or students cheated or provided answers to each other.

These circumstances can be corrected and contained at the local level and submitted using the STAIRS/Appeals process in TOMS. An irregularity must be reported to the LEA CAASPP coordinator and CAASPP test site coordinator immediately. The coordinator must report the irregularity within 24 hours, using the online STAIRS/Appeals process in TOMS.

##### Breach

A testing breach is an event that poses a threat to the validity of the assessment. 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.

Breaches require immediate attention; a breach that was due to social media exposure on the part of a student or adult or due to media coverage of an administration was to be escalated to CalTAC via a telephone call from the LEA CAASPP coordinator. Following the call, the CAASPP test site coordinator or LEA CAASPP coordinator must report the incident using the online STAIRS/Appeals process in TOMS within 24 hours. All other breaches were to be entered into STAIRS directly.

#### Appeals

For test security incidents reported in STAIRS that resulted in a need to invalidate or restore individual computer-based student assessments, the request had to be approved by the CDE. Requests to reset and reopen assessments were processed by an LEA Outreach Administrator.

In most instances, an Appeal was submitted to address a test security breach or irregularity. The LEA CAASPP coordinator or CAASPP test site coordinator submitted Appeals in TOMS. All submitted Appeals were available for retrieval and reviewed by LEA and site coordinators within a given organization. An Appeal could be requested only by the LEA CAASPP coordinator or CAASPP test site coordinator if prompted while filing a STAIRS case in TOMS (CDE, 2023a). Types of Appeals available during the 2022–23 CAASPP administration are described in table 5.3.

Table 5.4 and table 5.5 show the number and types of incidents submitted to STAIRS in the 2022–23 administration for ELA and mathematics, respectively, as well as the number of Statewide Student Identifiers (SSIDs) submitted and approved. The number in the *Appeals SSID(s) Approved* column is the number of accepted cases that resulted in an Appeal, which may differ from the number in the *Number of Incidents* column because of incorrect entry or other factors.

Table 5.4 Number and Types of Incidents Submitted in STAIRS—ELA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Appeal Type | Number of Incidents | Total Number of SSID(s) Submitted | Appeals SSID(s) Approved |
| Accessibility Issue | Reset | 6 | 6 | 5 |
| Administered Incorrect Assessment | Reset, Re-open, or No Appeal | 23 | 26 | 20 |
| Administration Error | No Appeal | 0 | 0 | 0 |
| Data Entry Issue | Reset, Re-open, Invalidate, or No Appeal | 0 | 0 | 0 |
| Expired or Accidentally Submitted Test | Re-open | 42 | 57 | 57 |
| Exposing Secure Materials | Invalidate or No Appeal | 0 | 0 | 0 |
| Incorrect SSID Used | Reset or No Appeal | 3 | 4 | 2 |
| Restore from Reset | Restore | 3 | 3 | 2 |
| Student Cheating or Accessing Unauthorized Devices | Invalidate | 0 | 0 | 0 |
| Student Disruption | No Appeal | 0 | 0 | 0 |
| Validity Issue | Invalidate or Reset | 6 | 8 | 2 |
| **Totals:** | **N/A** | **83** | **104** | **88** |

Table 5.5 Number and Types of Incidents Submitted in STAIRS—Mathematics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Appeal Type | Number of Incidents | Total Number of SSID(s) Submitted | Appeals SSID(s) Approved |
| Accessibility Issue | Reset | 2 | 4 | 1 |
| Administered Incorrect Assessment | Reset, Re-open, or No Appeal | 10 | 11 | 11 |
| Administration Error | No Appeal | 0 | 0 | 0 |
| Data Entry Issue | Reset, Re-open, Invalidate, or No Appeal | 0 | 0 | 0 |
| Expired or Accidentally Submitted Test | Re-open | 17 | 19 | 19 |
| Exposing Secure Materials | Invalidate or No Appeal | 0 | 0 | 0 |
| Incorrect SSID Used | Reset or No Appeal | 0 | 0 | 0 |
| Restore from Reset | Restore | 2 | 2 | 2 |
| Student Cheating or Accessing Unauthorized Devices | Invalidate | 0 | 0 | 0 |
| Student Disruption | No Appeal | 0 | 0 | 0 |
| Validity Issue | Invalidate or Reset | 1 | 1 | 1 |
| **Totals:** | **N/A** | **32** | **37** | **34** |

Table 5.6 and table 5.7 present the number of Appeals approved and rejected, respectively, by Appeal type in ELA and mathematics.

Table 5.6 Number of Appeals Approved in STAIRS

|  |  |  |
| --- | --- | --- |
| Appeal Type | ELA | Mathematics |
| Reset | 27 | 12 |
| Re-open | 57 | 19 |
| Invalidate | 2 | 1 |
| Restore | 2 | 2 |
| **Totals:** | **88** | **34** |

Table 5.7 Number of Appeals Rejected in STAIRS

|  |  |  |
| --- | --- | --- |
| Appeal Type | ELA | Mathematics |
| Reset | 6 | 3 |
| Re-open | 0 | 0 |
| Invalidate | 5 | 0 |
| Restore | 1 | 0 |
| **Totals:** | **12** | **3** |

### Processing and Scoring

The CAAs for ELA and mathematics were administered as computer-based assessments only and required two internet-connected devices: a student testing device and a separate device the test examiner used to start a test session through the Test Administrator Interface. Test examiners also used their device to open or print a *DFA* document, which was used by the test examiner to guide the student through the assessment. The CAAs for ELA and mathematics required the installation of CAASPP secure browsers on student testing devices. These are the same secure browsers that were used for the other computer-based CAASPP assessments.

All item types were designed to be machine-scorable, with the exception of a small subset of rubric-scored items. For rubric-scored items, item-specific rubrics were included in the *DFAs* to be used by the test examiner for rating a student’s response. All rubric-based scoring was conducted and entered into the TDS by the test examiner during test administration.

### References

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Smarter Balanced Assessment Consortium. (2023). *Accessibility strategies* (web page). Los Angeles: Smarter Balanced Assessment Consortium.

### Appendix 5.A: Accessibility Resource Assignment

**Note:** Some students are eligible for multiple designated supports and accommodations. As a result, the number of students tested per grade level in table 5.A.1 through table 5.A.4 may not equal the sum of the number of students eligible per accessibility resource across all accessibility resources.

Table 5.A.1 Accessibility Resource Assignment—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 |
| Non-Embedded Accommodation—Print on Demand | 14 | 0% | 22 | 0% | 11 | 0% | 10 | 0% |
| Non-Embedded Accommodation—Alternate Response Options | 519 | 10% | 649 | 12% | 772 | 15% | 696 | 14% |
| Non-Embedded Accommodation—Read Aloud Passages | 1,028 | 19% | 1,305 | 25% | 1,439 | 28% | 1,380 | 27% |
| Non-Embedded Accommodation—Unlisted Resources | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Non-Embedded Accommodation—Scribe | 462 | 9% | 569 | 11% | 518 | 10% | 590 | 12% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 703 | 13% | 957 | 18% | 1,100 | 21% | 950 | 19% |
| Embedded Designated Support—Color Contrast | 29 | 1% | 23 | 0% | 31 | 1% | 18 | 0% |
| Embedded Designated Support—Masking | 273 | 5% | 343 | 7% | 367 | 7% | 359 | 7% |
| Embedded Designated Support—Mouse Pointer | 90 | 2% | 80 | 2% | 134 | 3% | 98 | 2% |
| Embedded Designated Support—Print Size | 74 | 1% | 76 | 1% | 107 | 2% | 98 | 2% |
| Embedded Designated Support—Permissive Mode | 25 | 0% | 36 | 1% | 35 | 1% | 37 | 1% |
| Embedded Designated Support—Streamline | 111 | 2% | 148 | 3% | 201 | 4% | 178 | 4% |
| Embedded Designated Support—Turn Off Any Universal Tools | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Non-Embedded Designated Support—Amplification | 54 | 1% | 43 | 1% | 73 | 1% | 73 | 1% |
| Non-Embedded Designated Support—Color Contrast | 37 | 1% | 23 | 0% | 35 | 1% | 37 | 1% |
| Non-Embedded Designated Support—Magnification | 97 | 2% | 110 | 2% | 147 | 3% | 136 | 3% |
| Non-Embedded Designated Support—Medical Device | 8 | 0% | 20 | 0% | 16 | 0% | 16 | 0% |
| Non-Embedded Designated Support—Noise Buffers | 443 | 8% | 549 | 10% | 799 | 15% | 673 | 13% |
| Non-Embedded Designated Support—Read Aloud Items | 1,097 | 20% | 1,429 | 27% | 1,688 | 33% | 1,523 | 30% |
| Non-Embedded Designated Support—Scribe Items | 522 | 10% | 664 | 13% | 727 | 14% | 716 | 14% |
| Non-Embedded Designated Support—Separate Setting | 1,322 | 25% | 1,695 | 32% | 1,967 | 38% | 1,832 | 36% |
| Non-Embedded Designated Support—Simplified Test Directions | 1,152 | 21% | 1,484 | 28% | 1,746 | 34% | 1,597 | 32% |
| **Total Students Tested:** | **5,359** | **N/A** | **5,229** | **N/A** | **5,180** | **N/A** | **5,030** | **N/A** |

Table 5.A.2 Accessibility Resource Assignment—ELA, Grades Seven, Eight, and 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 |
| Non-Embedded Accommodation—Print on Demand | 10 | 0% | 10 | 0% | 2 | 0% |
| Non-Embedded Accommodation—Alternate Response Options | 619 | 12% | 547 | 11% | 359 | 8% |
| Non-Embedded Accommodation—Read Aloud Passages | 1,336 | 26% | 1,252 | 26% | 708 | 15% |
| Non-Embedded Accommodation—Unlisted Resources | 0 | 0% | 0 | 0% | 0 | 0% |
| Non-Embedded Accommodation—Scribe | 516 | 10% | 508 | 10% | 249 | 5% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 895 | 17% | 891 | 18% | 503 | 11% |
| Embedded Designated Support—Color Contrast | 29 | 1% | 27 | 1% | 16 | 0% |
| Embedded Designated Support—Masking | 285 | 5% | 303 | 6% | 190 | 4% |
| Embedded Designated Support—Mouse Pointer | 115 | 2% | 89 | 2% | 64 | 1% |
| Embedded Designated Support—Print Size | 114 | 2% | 122 | 2% | 61 | 1% |
| Embedded Designated Support—Permissive Mode | 37 | 1% | 27 | 1% | 33 | 1% |
| Embedded Designated Support—Streamline | 153 | 3% | 174 | 4% | 96 | 2% |
| Embedded Designated Support—Turn Off Any Universal Tools | 1 | 0% | 1 | 0% | 0 | 0% |
| Non-Embedded Designated Support—Amplification | 64 | 1% | 58 | 1% | 44 | 1% |
| Non-Embedded Designated Support—Color Contrast | 28 | 1% | 33 | 1% | 28 | 1% |
| Non-Embedded Designated Support—Magnification | 137 | 3% | 132 | 3% | 108 | 2% |
| Non-Embedded Designated Support—Medical Device | 13 | 0% | 5 | 0% | 9 | 0% |
| Non-Embedded Designated Support—Noise Buffers | 600 | 12% | 595 | 12% | 292 | 6% |
| Non-Embedded Designated Support—Read Aloud Items | 1,492 | 29% | 1,413 | 29% | 908 | 20% |
| Non-Embedded Designated Support—Scribe Items | 627 | 12% | 609 | 12% | 368 | 8% |
| Non-Embedded Designated Support—Separate Setting | 1,771 | 34% | 1,661 | 34% | 1,084 | 23% |
| Non-Embedded Designated Support—Simplified Test Directions | 1,511 | 29% | 1,451 | 30% | 887 | 19% |
| **Total Students Tested:** | **5,185** | **N/A** | **4,895** | **N/A** | **4,615** | **N/A** |

Table 5.A.3 Accessibility Resource Assignment—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 |
| Non-Embedded Accommodation—Print on Demand | 13 | 0% | 23 | 0% | 12 | 0% | 10 | 0% |
| Non-Embedded Accommodation—Alternate Response Options | 529 | 10% | 658 | 13% | 775 | 15% | 699 | 14% |
| Non-Embedded Accommodation—Unlisted Resources | 0 | 0% | 1 | 0% | 1 | 0% | 2 | 0% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 708 | 13% | 958 | 18% | 1,110 | 21% | 941 | 19% |
| Non-Embedded Accommodation—Abacus | 67 | 1% | 81 | 2% | 128 | 2% | 83 | 2% |
| Non-Embedded Accommodation—Multiplication Table | 0 | 0% | 465 | 9% | 595 | 11% | 603 | 12% |
| Non-Embedded Accommodation—100s Number Table | 568 | 11% | 797 | 15% | 837 | 16% | 710 | 14% |
| Embedded Designated Support—Color Contrast | 29 | 1% | 23 | 0% | 30 | 1% | 18 | 0% |
| Embedded Designated Support—Masking | 277 | 5% | 350 | 7% | 374 | 7% | 354 | 7% |
| Embedded Designated Support—Mouse Pointer | 92 | 2% | 80 | 2% | 134 | 3% | 98 | 2% |
| Embedded Designated Support—Print Size | 75 | 1% | 74 | 1% | 108 | 2% | 100 | 2% |
| Embedded Designated Support—Permissive Mode | 25 | 0% | 36 | 1% | 39 | 1% | 38 | 1% |
| Embedded Designated Support—Streamline | 113 | 2% | 149 | 3% | 203 | 4% | 175 | 3% |
| Embedded Designated Support—Turn Off Any Universal Tools | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Non-Embedded Designated Support—Amplification | 56 | 1% | 45 | 1% | 73 | 1% | 73 | 1% |
| Non-Embedded Designated Support—Color Contrast | 37 | 1% | 23 | 0% | 35 | 1% | 36 | 1% |
| Non-Embedded Designated Support—Magnification | 97 | 2% | 111 | 2% | 150 | 3% | 136 | 3% |
| Non-Embedded Designated Support—Medical Device | 9 | 0% | 20 | 0% | 17 | 0% | 16 | 0% |
| Non-Embedded Designated Support—Noise Buffers | 440 | 8% | 550 | 11% | 799 | 15% | 670 | 13% |
| Non-Embedded Designated Support—Read Aloud Items | 1,102 | 21% | 1,435 | 27% | 1,694 | 33% | 1,522 | 30% |
| Non-Embedded Designated Support—Scribe Items | 523 | 10% | 672 | 13% | 727 | 14% | 713 | 14% |
| Non-Embedded Designated Support—Separate Setting | 1,331 | 25% | 1,704 | 33% | 1,970 | 38% | 1,829 | 36% |
| Non-Embedded Designated Support—Simplified Test Directions | 1,156 | 22% | 1,494 | 29% | 1,751 | 34% | 1,589 | 32% |
| **Total Students Tested:** | **5,359** | **N/A** | **5,237** | **N/A** | **5,189** | **N/A** | **5,033** | **N/A** |

Table 5.A.4 Accessibility Resource Assignment—Mathematics, Grades Seven, Eight, and 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 |
| Non-Embedded Accommodation—Print on Demand | 10 | 0% | 9 | 0% | 2 | 0% |
| Non-Embedded Accommodation—Alternate Response Options | 615 | 12% | 550 | 11% | 357 | 8% |
| Non-Embedded Accommodation—Unlisted Resources | 0 | 0% | 0 | 0% | 0 | 0% |
| Non-Embedded Accommodation—Additional Instructional Supports for Alternate Assessments | 883 | 17% | 884 | 18% | 503 | 11% |
| Non-Embedded Accommodation—Abacus | 58 | 1% | 56 | 1% | 57 | 1% |
| Non-Embedded Accommodation—Multiplication Table | 723 | 14% | 701 | 14% | 428 | 9% |
| Non-Embedded Accommodation—100s Number Table | 737 | 14% | 742 | 15% | 348 | 8% |
| Embedded Designated Support—Color Contrast | 29 | 1% | 27 | 1% | 16 | 0% |
| Embedded Designated Support—Masking | 289 | 6% | 308 | 6% | 188 | 4% |
| Embedded Designated Support—Mouse Pointer | 117 | 2% | 87 | 2% | 64 | 1% |
| Embedded Designated Support—Print Size | 115 | 2% | 120 | 2% | 60 | 1% |
| Embedded Designated Support—Permissive Mode | 37 | 1% | 26 | 1% | 33 | 1% |
| Embedded Designated Support—Streamline | 156 | 3% | 175 | 4% | 97 | 2% |
| Embedded Designated Support—Turn Off Any Universal Tools | 0 | 0% | 0 | 0% | 0 | 0% |
| Non-Embedded Designated Support—Amplification | 65 | 1% | 61 | 1% | 43 | 1% |
| Non-Embedded Designated Support—Color Contrast | 30 | 1% | 33 | 1% | 28 | 1% |
| Non-Embedded Designated Support—Magnification | 141 | 3% | 134 | 3% | 107 | 2% |
| Non-Embedded Designated Support—Medical Device | 13 | 0% | 5 | 0% | 9 | 0% |
| Non-Embedded Designated Support—Noise Buffers | 601 | 12% | 593 | 12% | 290 | 6% |
| Non-Embedded Designated Support—Read Aloud Items | 1,491 | 29% | 1,413 | 29% | 912 | 20% |
| Non-Embedded Designated Support—Scribe Items | 624 | 12% | 606 | 12% | 367 | 8% |
| Non-Embedded Designated Support—Separate Setting | 1,769 | 34% | 1,668 | 34% | 1,083 | 23% |
| Non-Embedded Designated Support—Simplified Test Directions | 1,511 | 29% | 1,462 | 30% | 884 | 19% |
| **Total Students Tested:** | **5,168** | **N/A** | **4,874** | **N/A** | **4,615** | **N/A** |

## Standard Setting

### Description

Standard setting, which also is referred to as achievement level setting, refers to a class of methodologies by which one or more thresholds are used to determine achievement levels. The California Department of Education (CDE) set three achievement levels—*Level 1—Limited Understanding, Level 2—Foundational Understanding,* and *Level 3—Understanding*—with two threshold cuts for each grade level and content area.

The CDE and ETS implemented an extensive achievement level–setting process involving software development, item mapping, review panels, committees, workshops, and extensive validity research to set the final thresholds and achievement level descriptors. For detailed information regarding this process, refer to the *Standard-Setting Technical Report for the California Alternate Assessments: English Language Arts/Literacy and Mathematics Grades Three Through Eight and Grade Eleven* (CDE, 2016).

### Reference

California Department of Education. (2016). *Standard-setting technical report for the California Alternate Assessments: English language arts/literacy and mathematics grades three through eight and grade eleven.* California Department of Education website.

## Scoring and Reporting

To determine individual students’ scores for the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics, student item responses were scored, and individual student scores were calculated on the basis of the item responses. In addition, student test scores were aggregated to produce information for schools and local educational agencies (LEAs).

This chapter describes how various types of student responses were scored, as well as the various types of scores and score reports that were produced at the end of administration of the CAAs for ELA and mathematics.

### Student Test Scores

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

Prior to the test administration, ETS’ Assessment & Learning Technology Development staff reviewed each item and determined the keys and scoring rubrics. The keys were provided to Cambium Assessment, Inc. (CAI) for implementation in the test delivery system (TDS). A few items on the assessment were scored by the test examiner using rubrics provided in the *Directions for Administration (DFA).* On the day of testing, the test examiner observed and scored the student’s response using the rubric, and then entered the score for the item into the TDS. After CAI finished machine-scoring item responses, rubric scores and responses were delivered to ETS. ETS processed all results, which included enacting procedures to ensure the completeness and accuracy of the student score records, before reporting student scores to the California Department of Education (CDE), LEAs, and parents/guardians.

ETS used two parallel scoring systems to produce and verify students’ scores. The Enterprise Score Key Management scoring system received individual students’ item scores and item responses from CAI and computed individual student scores for the ETS reporting system. ETS’ Psychometric Analysis & Research team also computed individual student scores based on the same data files using statistical analysis system software. The scores from the two systems were then compared for the purpose of internal quality control. Inconsistency in the total raw scores was investigated and resolved. The parallel scoring process ensured the quality and accuracy of scoring and supported the transfer of scores into the database of the student records scoring system, the Test Operations Management System (TOMS).

#### Scoring of Incomplete Cases

Whether an assessment should be scored or reported depended on the “complete” status of the assessment and how much of the assessment was submitted for scoring. Depending on the nature of the missing data, different actions were taken.

As defined in the CAA scoring and reporting specifications, a student’s assessment was considered “complete” if the student responded to a minimum of four items; “partially complete” if the student responded to one to three items; and “noncomplete” if the student logged on but did not respond to any item.

ETS, in consultation with the CDE, implemented several rules to identify an incomplete assessment; these rules are presented in table 7.1, which includes rules for determining

* whether a student’s assessment is considered attempted or taken,
* whether a student’s assessment is scored,
* whether a student’s assessment is considered complete, and
* whether a student’s score is reported.

Table 7.1 Rules for Incomplete Assessments

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| If the student | Classify the student as taking the assessment? | Score the student’s responses? | Classify the student as attempting the assessment? | Test Completion Status | Report a score for the student? |
| Logged on to the assessment but answered no items | Yes | Yes, lowest obtainable scale score (LOSS) for the assessment | Yes | Noncompletion (or INC0) | Yes |
| Logged on to the assessment and answered at least one item but not more than three items | Yes | Yes, next lowest obtainable scale score for the assessment (LOSS+1) | Yes | Partial completion (or INC1) | Yes |
| Logged on to the assessment and answered at least four items | Yes | Yes | Yes | Completion | Yes |
| Did not log on to the assessment | No | N/A | No | Not Tested | No |
| Logged on and answered at least one item with a special condition code (refer to subsection [*7.3.2 Special Cases*](#_Special_Cases_2)) | No | N/A | No | Not Tested | No |

#### Scoring of Rubric-Scored Items

For each grade-level CAA for ELA, between one to three items were rubric-scored items requiring rubric-based scoring. For rubric-scored items, item-specific rubrics were included in the *DFAs* to be used by the test examiner for rating a student’s response. The student’s test examiner conducted the rubric-based scoring and entered the student’s score into the TDS during the test administration.

In addition, a random selection of schools assigned Form 2, amounting to approximately 20 percent of the student population per grade level statewide, were required to have a second test examiner score each student’s response for each rubric-scored item prompt and enter the student’s second score into the Data Entry Interface during or after the test administration. Double-scoring provides a measure of interrater reliability for quality control of the rubric-scored item scoring.

Table 7.2 shows that the participation rate in second scoring among students assigned for second scoring was reasonable for all grade levels but grade eleven. Table 7.2 first summarizes by item and grade level the number of students with at least one item score and who were assigned for second scoring. The next column identifies the number of students assigned for second scoring who received two scores. Finally, the last column presents the percentage of students with two scores among the students with at least one item score and assigned for second scoring. Among the students assigned for second scoring, the percentage of students with at least one item score that had also received a second score ranged from as high as 73.63 percent for one grade three rubric-scored item and as low as 58.75 percent for the grade eleven rubric-scored item. Within each grade level, the percentage of students with a second score among students assigned for second scoring varied little across items.

Table 7.2 Percentage of Assigned Students Receiving a Second Rubric-based Score

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Grade Level | Number of Students Assigned for Second Scoring | Number of Students Assigned and Second Scored | Percent of Students Assigned and Second Scored |
| VH547894 | 3 | 443 | 276 | 62.30 |
| VH617954 | 3 | 443 | 276 | 62.30 |
| VH730094 | 3 | 182 | 134 | 73.63 |
| VH547071 | 4 | 374 | 230 | 61.50 |
| VH548069 | 4 | 702 | 452 | 64.39 |
| VH615339 | 5 | 479 | 321 | 67.01 |
| VH545347 | 6 | 526 | 362 | 68.82 |
| VH551959 | 6 | 712 | 488 | 68.54 |
| VH547514 | 7 | 440 | 290 | 65.91 |
| VH548715 | 7 | 440 | 290 | 65.91 |
| VH549395 | 7 | 440 | 290 | 65.91 |
| VH711656 | 8 | 349 | 226 | 64.76 |
| VR031099 | 11 | 417 | 245 | 58.75 |

##### Sampling Process

Prior to the administration, ETS used stratified sampling methods to assign all schools one of two form numbers corresponding to the CAAs form each student at each respective school received. To ensure each CAA form had an adequate representation of each demographic student group, ETS used student data from the 2021–22 CAAs administration.

Schools were clustered by their LEA to ensure that each school within the same LEA received the same form number except for schools in Long Beach Unified School District, Los Angeles Unified School District, San Diego Unified School District, and San Francisco Unified School District.

Each of the two CAA forms must have fulfilled the following requirements:

1. Each CAA form must have approximately the same number of students.
2. The mean scale score by demographic student group must be approximately equal across CAA forms.
3. Each CAA form must have an adequate representation of each demographic student group.

To improve ETS’ ability to find a sample fulfilling these requirements, schools within the four previously identified LEAs were randomly assigned form numbers such that schools within the same LEA may have different form numbers.

The selection of schools for second scoring adhered to the following:

* Schools were selected to participate in no more than one of the following activities in the same test administration year:
* Second scoring for the CAA for ELA
* Second scoring for the Summative Alternate English Language Proficiency Assessments for California (ELPAC)
* Rotating Score Validation Process for the Initial ELPAC
* ETS selected schools out of the schools assigned for Form 2 for second scoring for the CAA for ELA.
* For schools with fewer than 20 students tested in 2021–22, selected schools were required to second-score all students taking the CAA for ELA. Participation for these schools was incorporated in a four-year cycle where the schools will participate in one activity in three of the four years and, in the other year, will not participate in any of the three activities listed previously. For each of the three activities, schools will participate in no more than one during a test administration year within the four-year cycle.
* For schools with at least 20 students tested during the 2021–22 administration of either the CAA for ELA or the Summative Alternate ELPAC (large schools), selected schools were required to second score all students within one to three grade levels taking the CAA for ELA. These schools may participate in the same activity in more than one test administration year during the four-year cycle.

##### Interrater Reliability for Rubric-Scored Items

A few hundred responses for each rubric-scored prompt were double-scored by the two test examiners. The statistics included the percentage agreement between the two raters, kappa, and the quadratic-weighted kappa (QWK). For detailed descriptions of these statistics, refer to subsection [*8.6.7 Interrater Agreement*](#_Interrater_Agreement) in [*Chapter 8: Psychometric Analyses*](#_Psychometric_Analyses).

The interrater reliability statistics are shown in table 8.G.82 through table 8.G.88 in [appendix 8.G](#_Appendix_8.G:_Reliability). These tables show that the two test examiners were in exact agreement for at least 71 percent of students across all rubric-scored items. These tables also show that the QWK ranged from 0.59 to 0.86.

#### Theta Scores

The CAAs for ELA and mathematics use a two-stage multistage test (MST) design; refer to section [*4.3 Test Design*](#_Test_Design) in [*Chapter 4: Test Assembly*](#_Test_Assembly_1)for details about the MST design. Based on this design, there were two 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 4.2.

A student’s raw score is the sum of scores on the individual items presented to the student. The assessment for each grade level and content area has its own theta scale. If all the items presented to the student were calibrated onto that theta scale, the student’s raw score could be transformed into an ability (theta) estimate by using the item response theory (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 [*8.4.6.1 Inverse Test Characteristic Curve Procedure*](#_Inverse_Test_Characteristic_2) for the IRT inverse TCC method.

When a conversion table from the raw score to theta score was created for each pathway (i.e., each combination of Stage 1 and Stage 2 modules), the estimated ability (theta) score of each individual student could be obtained from the conversion table. The theta score could later be transformed into a scale score through a linear transformation. Refer to [appendix 7.B](#_Appendix_7.B:_Raw) for the raw-to-scale-score conversion tables.

The distributions of estimated theta scores for all students tested in each grade level and content area are presented in table 7.A.1 and table 7.A.2 in [appendix 7.A](#_Appendix_7.A:_Theta). To compare the ability distributions across pathways, the estimated theta score distributions for each grade level, 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.

#### 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 leading digit is indicative of the grade level being reported. The leading digit is defined by the grade level 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 subsection.
2. Score ranges are grade-level-specific. For example, the possible scale scores would be 300 to 399 for grade three with the 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 grade levels. 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—Foundational Understanding and Level 3—Understanding threshold scores are the same (refer to subsection [*7.1.5 Achievement Levels*](#_Achievement_Levels_1)for a brief description of alternate achievement levels).
4. Students with incomplete assessments, as shown in table 7.1, have two possible scale scores. If a student logged on to the TDS but did not answer any items (INC0), this student would be assigned a scale score of LOSS (e.g., 300 for a grade three student and 400 for a grade four student). If a student logged on to the TDS and answered at least one but fewer than four items (INC1), the student would be assigned a scale score of LOSS+1 (i.e., 301 for a grade three student and 401 for a grade four 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 8.13. 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 grade levels follow the same pattern.

In addition to the special requirements of the CAA reporting scale, an equating procedure was implemented to place scores from different forms or administrations onto the reference scales to make scores comparable. Refer to subsection [*8.4.3 Equating*](#_Equating_2) for equating procedures.

First, to express the students’ ability estimates on the scale score metric of CAAs, the inverse TCC procedure was used to convert each possible raw score to an ability estimate (theta score). Refer to subsection [*8.4.6.1 Inverse Test Characteristic Curve Procedure*](#_Inverse_Test_Characteristic_2) for details of this procedure.

Second, theta scores were transformed linearly to the appropriate score scale. Refer to subsection [*8.4.6.2 Transformation from Theta Scores to Scale Scores*](#_Transformation_from_Theta_2) for details of the transformation. The slopes and intercepts for such linear transformations are presented in table 8.13. Once the theta scores were transformed, the theta-to-scale-score relationship could be mapped to the raw scores.

Finally, the raw-to-scale-score conversion tables were 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](#_Appendix_7.B:_Raw). The raw scores and transformed scale scores at each raw score are listed in those tables. Refer to table 4.A.1 through table 4.A.14 in [*Appendix 4.A: Test Blueprints Alignment by CAA Form*](#_Appendix_4.A:_Test) for pathways of each assessment.

#### Achievement Levels

CAA reporting scales classify each student’s performance into one of the three achievement levels,8F[[6]](#footnote-7) with Level 1—Limited Understanding indicating the lowest level of performance and Level 3—Understanding 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—Limited Understanding:** The student demonstrates a limited understanding of core concepts in ELA and mathematics.
* **Level 2—Foundational Understanding:** The student demonstrates a foundational understanding of core concepts in ELA and mathematics.
* **Level 3—Understanding:** The student demonstrates an understanding of core concepts in ELA and mathematics.

The scale score ranges defining the various achievement levels and grade levels are presented in table 7.3.

Table 7.3 CAAs for ELA and Mathematics Reporting Scale Score Ranges for Each Achievement Level and Grade Level

|  |  |  |  |
| --- | --- | --- | --- |
| Grade Level | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding |
| 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 |

### Overview of Score Aggregation Procedures

To provide meaningful results to the interest holders, test scores for a given grade level and content area are aggregated at the school, LEA or direct funded charter school, county, and state levels. The aggregated scores are generated both for selected groups and for the population. The next subsection contains a description of the types of aggregation performed on California Assessment of Student Performance and Progress (CAASPP) computer-based assessment scores. Score aggregation includes only students with valid scores; refer to subsection [*7.3.2 Special Cases*](#_Special_Cases_2) for more information.

#### Student Score Distributions and Summary Statistics

Summary statistics that describe student performance on each assessment are presented in table 7.4table 7.3. Included in the table are the number of students taking each assessment and the means and standard deviations (SDs) of student scores expressed in terms of scale scores. Approximately 5,800 students per grade level and content area were enrolled to take the CAAs for ELA and mathematics during the 2022–23 administration. Refer to table 8.A.1 through table 8.A.4 in [appendix 8.A](#_Appendix_8.A:_Test-Taking_3) for the number of students enrolled per grade level.

Table 7.4 Mean and SD of Scale and Theta Scores

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Number of Students Tested | Scale Score Mean | Scale Score SD | Theta Score Mean | Theta Score SD |
| ELA 3 | 5,359 | 340 | 25 | −1.00 | 2.49 |
| ELA 4 | 5,229 | 437 | 22 | −0.95 | 2.33 |
| ELA 5 | 5,180 | 538 | 23 | −0.90 | 2.38 |
| ELA 6 | 5,030 | 640 | 20 | −0.66 | 2.14 |
| ELA 7 | 5,185 | 740 | 22 | −0.68 | 2.22 |
| ELA 8 | 4,895 | 842 | 20 | −0.71 | 2.16 |
| ELA 11 | 4,615 | 943 | 19 | −0.57 | 2.10 |
| Mathematics 3 | 5,359 | 333 | 22 | −1.15 | 2.39 |
| Mathematics 4 | 5,237 | 432 | 20 | −1.09 | 2.18 |
| Mathematics 5 | 5,189 | 534 | 20 | −1.00 | 2.25 |
| Mathematics 6 | 5,033 | 635 | 21 | −0.88 | 2.23 |
| Mathematics 7 | 5,168 | 738 | 21 | −0.67 | 2.18 |
| Mathematics 8 | 4,874 | 836 | 21 | −0.77 | 2.21 |
| Mathematics 11 | 4,615 | 936 | 20 | −0.75 | 2.11 |

The number and percentage of students at each achievement level for the CAA for ELA are presented in table 7.5.

Table 7.5 Numbers and Percentages of Students in Each CAA for ELA Achievement Level

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Level 1 N | Level 1 % | Level 2 N | Level 2 % | Level 3 N | Level 3 % |
| ELA 3 | 2,802 | 52% | 1,397 | 26% | 1,160 | 22% |
| ELA 4 | 3,063 | 59% | 1,362 | 26% | 804 | 15% |
| ELA 5 | 2,847 | 55% | 1,525 | 29% | 808 | 16% |
| ELA 6 | 2,481 | 49% | 1,918 | 38% | 631 | 13% |
| ELA 7 | 2,690 | 52% | 1,552 | 30% | 943 | 18% |
| ELA 8 | 2,200 | 45% | 2,074 | 42% | 621 | 13% |
| ELA 11 | 1,958 | 42% | 2,030 | 44% | 627 | 14% |

Figure 7.1, which is derived from the data in table 7.5, presents the percentage of students at each achievement level by grade level for ELA. For grade three through grade eight, more students are at Level 1 than Level 2 or Level 3 for ELA, and Level 3 has the smallest number of students for all grade levels. Between ELA and mathematics, the ELA assessments have a larger percentage of students at Level 3 and a smaller percentage of students at Level 1 than the mathematics assessments.

Figure 7.1 Percentage of students at each achievement level in ELA

The number and percentage of students at each achievement level for the CAA for Mathematics are presented in table 7.6.9

Table 7.6 Numbers and Percentages of Students in Each CAA for Mathematics Achievement Level

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Level 1 N | Level 1 % | Level 2 N | Level 2 % | Level 3 N | Level 3 % |
| Mathematics 3 | 3,771 | 70% | 1,103 | 21% | 485 | 9% |
| Mathematics 4 | 3,907 | 75% | 1,085 | 21% | 245 | 5% |
| Mathematics 5 | 3,636 | 70% | 1,277 | 25% | 276 | 5% |
| Mathematics 6 | 3,565 | 71% | 937 | 19% | 531 | 11% |
| Mathematics 7 | 3,117 | 60% | 1,396 | 27% | 655 | 13% |
| Mathematics 8 | 3,303 | 68% | 1,064 | 22% | 507 | 10% |
| Mathematics 11 | 3,072 | 67% | 1,100 | 24% | 443 | 10% |

Figure 7.2, which is derived from the data in table 7.6, presents the percentage of students at each achievement level by grade level for mathematics. More students are at Level 1 than Level 2 or Level 3 for mathematics, and Level 3 has the smallest number of students.

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](#_Appendix_7.C:_Scale). CAA reporting scale score distribution information for each grade level and content area is available in table 7.C.3 through table 7.C.16.

#### Demographic Student Group Summaries

Statistics summarizing student performance by content area and grade level for selected groups of students are reported in table 7.D.1 through table 7.D.14 of [appendix 7.D](#_Appendix_7.D:_Demographic). The students are grouped by demographic characteristics, including (but not limited to) gender, race and ethnicity, English language fluency, economic status, primary disability type, migrant status, foster youth status, and ethnicity by economic status. For each demographic student group, the number of students with a valid scale score, scale score means and SDs, and the percentage of students in each achievement level are included in the tables.

Table 7.7 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 “N/A.”

Table 7.7 Demographic Student Groups to Be Reported

|  |  |
| --- | --- |
| Category | Student Groups |
| **Economic Status** | * Not economically disadvantaged * Economically disadvantaged |
| **English Language Fluency** | * English only * Initial fluent English proficient (IFEP) * English learner (EL) * Reclassified fluent English proficient (RFEP) * Adult English learner (ADEL) * To be determined * English proficiency unknown |
| **Ethnicity** | * American Indian or Alaska Native * Asian * Native Hawaiian or Other Pacific Islander * Filipino * Hispanic or Latino * Black or African American * White * Two or more races |
| **Gender** | * Male * Female * Nonbinary |
| **Migrant Status** | * Eligible for the Title I Part C Migrant Program (Migrant education) * Not eligible for the Title I Part C Migrant Program (Not migrant education) |
| **Foster Youth Status** | * Not foster youth * Foster youth |
| **Primary Disability Type** | * Intellectual disability * Hearing impairment * Speech or language impairment * Visual impairment * Emotional disturbance * Orthopedic impairment * Other health impairment * Specific learning disability * Deaf-blindness * Multiple disabilities * Autism * Traumatic brain injury |

### Reports Produced and Scores for Each Report

The assessments that make up the CAASPP computer-based assessments provide results or score summaries that are reported for different purposes. 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 LEAs identify strengths and areas that need improvement in their educational programs, and
4. provide the public and policymakers with information about student achievement.

This section provides detailed descriptions of the uses and applications of CAASPP reporting for students.

#### Online Reporting

TOMS is a secure website hosted by ETS that permits LEA users to manage the CAASPP computer-based 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 to TOMS, another California online reporting system was used during the 2022–‍23 administration: the California Educator Reporting System (CERS).

TOMS communicated with CERS, which provided authorized users with interactive and cumulative online reports for ELA and mathematics at the student, school, group, and LEA levels. CERS provided preliminary score data for each administered assessment available in the reporting system.

Based on the CAASPP reporting requirements, CERS provided the preliminary summative reports containing information outlining student knowledge and skills. CERS also permitted access to individual score reports, which provided preliminary score data for each administered assessment available in the reporting system. The online aggregated reports were available to be downloaded in PDF, Excel, and comma-separated value formats.

CERS was the primary source for LEA staff to analyze CAASPP results at the LEA, school, grade, classroom, or customized group level. CERS provided these reports, which can be downloaded and used to inform instruction. LEA staff with TOMS logon credentials could enter CERS through the CAASPP website to access student assessment results.

#### Special Cases

Student scores were not reported for the following cases:

* The student had a medical emergency during testing.
* The student’s parent/guardian requested exemption from testing.
* The student did not log on to test systems.
* The student score was invalidated in the system (not reported in aggregated reporting).

#### Types of Score Reports

There are two categories of CAASPP reports. The specific reports within each category are presented in this subsection.

1. **Student Score Report (SSR)—**The SSR was the official score report for parents/‌guardians. An SSR described the student’s results and was made available only to students who met the program’s participation requirement.
2. **LEA student data files and aggregations—**LEA student data files were available for download on demand by the LEA in TOMS to coincide with availability of the SSRs. Aggregated data was available to view in CERS and the Test Results for California’s Assessments website.

##### Student Score Report

The CAA SSR is the official score report for parents/guardians and includes the following metrics:

* Reported scale scores (The ranges of scale scores are provided in table 7.3.)
* Reported achievement levels for both ELA and mathematics (CAA achievement levels are “Level 1—Limited Understanding,” “Level 2—Foundational Understanding,” and “Level 3—Understanding.”)

Scores for students who were assigned accommodations or designated supports are reported in the same way as for students who were not assigned accommodations or designated supports. Detailed information about accessibility resources is presented in section [*5.4 Accessibility Resources*](#_Accessibility_Resources_1) in [chapter 5](#_Test_Administration_1).

LEAs had four options for accessing and distributing SSRs to parents/guardians:

1. Accessing electronic SSR PDFs using a locally provided parent/guardian or student portal
2. Downloading SSR PDFs from TOMS and making them available electronically using a secure local method
3. Downloading SSR PDFs from TOMS, printing them, and making them available locally
4. Purchasing paper SSRs from ETS

The LEA CAASPP coordinator could forward the appropriate reports to test sites. In the case of a locally printed CAAs for ELA and mathematics SSR, the LEA sent the printed report(s) to the child’s parent/guardian. CAAs for ELA and mathematics SSRs that included individual student results were not distributed beyond the student’s school.

Scores for students who were assigned accommodations or designated supports are reported in the same way as for students who were not assigned accommodations or designated supports. Detailed information about accessibility resources is described in subsection [*5.4.1 Accessibility Resource Categories*](#_Accessibility_Resource_Categories_2).

For the 2022–23 test administration, SSRs were made available to the LEAs in English, Spanish, Filipino, Chinese (Traditional), Vietnamese, and Korean. An SSR in a supported language was created if the student’s primary language as reported in the California Longitudinal Pupil Achievement Data System was one of these supported languages. The LEAs that received SSRs in supported languages received one SSR in English and another in the supported language. These reports were available as PDFs for the LEA to download from TOMS.

Further information about the SSR and its interpretation is provided on the CAASPP Starting Smarter website for California assessments.

###### Access via Student or Parent Portal

LEAs had the option to provide SSRs electronically using a locally provided parent or student portal.

Amazon Web Services—with the Amazon Simple Storage Service and the Amazon Key Management Service—ensured encrypted access for parents/guardians to view a child’s electronic SSR, which was available as a PDF.

###### Access via the Test Operations Management System

The LEA CAASPP coordinator downloaded the electronic PDFs directly from TOMS and could forward the appropriate reports to test sites. Optionally, the LEA could download and then print the SSR PDF and then send the printed report(s) to the child’s parent/‌guardian.

##### Local Educational Agency Student Data Files and Aggregations

The CAASPP student data files for the LEA were available for the LEA CAASPP coordinator and CAASPP test site coordinator to download from TOMS.

Preliminary student scores and aggregations were also available to LEAs prior to the release of final reports via electronic reporting, using CERS. This website permitted LEAs to view preliminary results data for all assessments taken.

Current and historical aggregated results are accessible to the public on the CDE Test Results for California’s Assessments website.

#### Score Report Applications

CAAs for ELA and mathematics test results provided parents/guardians with information about their child’s progress. The results were one tool for increasing communication and collaboration between parents/guardians and teachers about how to identify priorities to help the student progress in ELA and mathematics. They provided limited information about one measure of a student’s academic performance. Like any important measure of student performance, the test results should be viewed with other available information such as progress on individualized education program goals, assignments, and teacher conferences.

Schools could 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 helped 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 in relation to the alternate achievement standards,
* instructional areas that can be improved, and
* teaching strategies that can be developed to address the needs of students.

#### Criteria for Interpreting Test Scores

An LEA may use CAASPP computer-based summative assessment results to help make decisions about student placement, promotion, retention, or other considerations related to student achievement. However, it is important to remember that a single assessment can provide only limited information. Other relevant information should be considered as well. It is advisable for parents/guardians to evaluate their child’s strengths and weaknesses in the relevant topics by reviewing classroom work and progress reports in addition to the child’s CAASPP computer-based summative assessment results. It is also important to note that a student’s score in a content area could vary somewhat if the student were retested.

#### Criteria for Interpreting Score Reports

The information presented in various reports must be interpreted with caution when making performance comparisons. When comparing scale score and achievement-level results, the user is limited to comparisons within a content area. The score scales for ELA and mathematics are not comparable to each other. The user may compare scale scores for the same content area and grade level, within a school, between schools, or between a school and its LEA, its county, or the state.

For more details on the criteria for interpreting information provided on the score reports, refer to the CAASPP Starting Smarter website for California assessments or the *2022–23 CAASPP Scoring and Reporting Guide* (CDE, 2023), which was applicable for the 2022–23 CAASPP administration.

### References

California Department of Education. (2016). *Standard-setting technical report for the California Alternate Assessments: English language arts/literacy and mathematics grades three through eight and grade eleven.* California Department of Education website.

California Department of Education. (2023). *CAASPP scoring and reporting guide.* Sacramento, CA: California Department of Education.

Stocking, M. L. (1996). An alternative method for scoring adaptive tests. *Journal of Educational and Behavioral Statistics, 21,* 365–89.

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

**Note:** 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 7.A.1 Frequency Distribution of Theta for Overall Scores—ELA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Theta Score | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | Grade 11 |
| Incomplete | 900 | 792 | 759 | 628 | 626 | 579 | 497 |
| [−6.0, −6.0] | 10 | 9 | 5 | 2 | 4 | 1 | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | 11 | N/A | N/A | 11 | N/A |
| (−5.0, −4.5] | 24 | 29 | 21 | 8 | 22 | 13 | 4 |
| (−4.5, −4.0] | 41 | N/A | 38 | 19 | 41 | 21 | 16 |
| (−4.0, −3.5] | 26 | 57 | 71 | 36 | 67 | 62 | 38 |
| (−3.5, −3.0] | 39 | 47 | 26 | 48 | 13 | 26 | 40 |
| (−3.0, −2.5] | 49 | 34 | 43 | 47 | 20 | 29 | 13 |
| (−2.5, −2.0] | 115 | 32 | 68 | 41 | 44 | 39 | 68 |
| (−2.0, −1.5] | 153 | 200 | 162 | 75 | 125 | 77 | 51 |
| (−1.5, −1.0] | 399 | 390 | 289 | 358 | 328 | 247 | 290 |
| (−1.0, −0.5] | 632 | 760 | 626 | 583 | 800 | 668 | 551 |
| (−0.5, 0.0] | 789 | 713 | 760 | 910 | 754 | 879 | 607 |
| (0.0, 0.5] | 645 | 769 | 863 | 767 | 685 | 981 | 981 |
| (0.5, 1.0] | 734 | 593 | 630 | 679 | 714 | 641 | 835 |
| (1.0, 1.5] | 300 | 467 | 356 | 543 | 541 | 371 | 389 |
| (1.5, 2.0] | 227 | 198 | 276 | 199 | 201 | 129 | 137 |
| (2.0, 2.5] | 167 | 75 | 89 | 51 | 145 | 88 | 45 |
| (2.5, 3.0] | 44 | 41 | 43 | 23 | 31 | 23 | 28 |
| (3.0, 3.5] | 51 | 14 | 33 | 9 | 16 | 6 | 16 |
| (3.5, 4.0] | N/A | N/A | N/A | N/A | 7 | 3 | 4 |
| (4.0, 4.5] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (5.5, 6.0] | 14 | 9 | 11 | 4 | 1 | 1 | 5 |

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 | 996 | 844 | 841 | 746 | 700 | 694 | 570 |
| [−6.0, −6.0] | 16 | 5 | 17 | 16 | 14 | 9 | 13 |
| (−6.0, −5.5] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (−4.5, −4.0] | N/A | 8 | N/A | N/A | N/A | 17 | N/A |
| (−4.0, −3.5] | 43 | 64 | 41 | 37 | 19 | N/A | 48 |
| (−3.5, −3.0] | 24 | 25 | 29 | N/A | 20 | 30 | 10 |
| (−3.0, −2.5] | 31 | 37 | 31 | 51 | 30 | 29 | 7 |
| (−2.5, −2.0] | 44 | 66 | 28 | 22 | 52 | 33 | 33 |
| (−2.0, −1.5] | 138 | 64 | 76 | 41 | 58 | 47 | 80 |
| (−1.5, −1.0] | 250 | 394 | 126 | 130 | 85 | 115 | 199 |
| (−1.0, −0.5] | 831 | 614 | 605 | 760 | 400 | 605 | 676 |
| (−0.5, 0.0] | 1,077 | 1,399 | 1,332 | 1,300 | 1,400 | 1,172 | 1,078 |
| (0.0, 0.5] | 971 | 1,024 | 1,217 | 958 | 1,162 | 1,029 | 974 |
| (0.5, 1.0] | 453 | 448 | 570 | 556 | 573 | 587 | 484 |
| (1.0, 1.5] | 270 | 139 | 178 | 234 | 415 | 287 | 251 |
| (1.5, 2.0] | 144 | 65 | 46 | 88 | 109 | 135 | 115 |
| (2.0, 2.5] | 38 | 21 | 37 | 59 | 71 | 21 | 42 |
| (2.5, 3.0] | 18 | 11 | 8 | 21 | 41 | 39 | 17 |
| (3.0, 3.5] | 9 | 4 | 5 | 10 | 13 | 16 | 10 |
| (3.5, 4.0] | 4 | 4 | 1 | 3 | 2 | N/A | 3 |
| (4.0, 4.5] | N/A | N/A | N/A | N/A | 4 | 7 | N/A |
| (4.5, 5.0] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| (5.5, 6.0] | 2 | 1 | 1 | 1 | N/A | 2 | 5 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 895 | 5 | N/A |
| [−6.0, −6.0] | 10 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | 24 | N/A | N/A |
| (−4.5, −4.0] | 41 | N/A | N/A |
| (−4.0, −3.5] | 12 | 14 | N/A |
| (−3.5, −3.0] | 11 | 28 | N/A |
| (−3.0, −2.5] | 6 | 43 | N/A |
| (−2.5, −2.0] | 10 | 105 | N/A |
| (−2.0, −1.5] | 6 | 141 | 6 |
| (−1.5, −1.0] | 1 | 369 | 29 |
| (−1.0, −0.5] | N/A | 435 | 197 |
| (−0.5, 0.0] | N/A | 123 | 666 |
| (0.0, 0.5] | N/A | 25 | 620 |
| (0.5, 1.0] | N/A | 1 | 733 |
| (1.0, 1.5] | N/A | N/A | 300 |
| (1.5, 2.0] | N/A | N/A | 227 |
| (2.0, 2.5] | N/A | N/A | 167 |
| (2.5, 3.0] | N/A | N/A | 44 |
| (3.0, 3.5] | N/A | N/A | 51 |
| (3.5, 4.0] | N/A | N/A | N/A |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 14 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 791 | 1 | N/A |
| [−6.0, −6.0] | 9 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | 29 | N/A | N/A |
| (−4.5, −4.0] | N/A | N/A | N/A |
| (−4.0, −3.5] | 57 | N/A | N/A |
| (−3.5, −3.0] | 20 | 27 | N/A |
| (−3.0, −2.5] | 9 | 25 | N/A |
| (−2.5, −2.0] | 3 | 29 | N/A |
| (−2.0, −1.5] | 3 | 197 | N/A |
| (−1.5, −1.0] | 1 | 380 | 9 |
| (−1.0, −0.5] | N/A | 721 | 39 |
| (−0.5, 0.0] | N/A | 392 | 321 |
| (0.0, 0.5] | N/A | 70 | 699 |
| (0.5, 1.0] | N/A | N/A | 593 |
| (1.0, 1.5] | N/A | N/A | 467 |
| (1.5, 2.0] | N/A | N/A | 198 |
| (2.0, 2.5] | N/A | N/A | 75 |
| (2.5, 3.0] | N/A | N/A | 41 |
| (3.0, 3.5] | N/A | N/A | 14 |
| (3.5, 4.0] | N/A | N/A | N/A |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 9 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 759 | N/A | N/A |
| [−6.0, −6.0] | 5 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | 11 | N/A | N/A |
| (−5.0, −4.5] | 21 | N/A | N/A |
| (−4.5, −4.0] | 38 | N/A | N/A |
| (−4.0, −3.5] | 71 | N/A | N/A |
| (−3.5, −3.0] | 13 | 13 | N/A |
| (−3.0, −2.5] | 6 | 37 | N/A |
| (−2.5, −2.0] | 6 | 62 | N/A |
| (−2.0, −1.5] | 3 | 153 | 6 |
| (−1.5, −1.0] | N/A | 269 | 20 |
| (−1.0, −0.5] | N/A | 492 | 134 |
| (−0.5, 0.0] | N/A | 220 | 540 |
| (0.0, 0.5] | N/A | 28 | 835 |
| (0.5, 1.0] | N/A | 1 | 629 |
| (1.0, 1.5] | N/A | N/A | 356 |
| (1.5, 2.0] | N/A | N/A | 276 |
| (2.0, 2.5] | N/A | N/A | 89 |
| (2.5, 3.0] | N/A | N/A | 43 |
| (3.0, 3.5] | N/A | N/A | 33 |
| (3.5, 4.0] | N/A | N/A | N/A |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 11 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 626 | 2 | N/A |
| [−6.0, −6.0] | 2 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | 8 | N/A | N/A |
| (−4.5, −4.0] | 19 | N/A | N/A |
| (−4.0, −3.5] | 36 | N/A | N/A |
| (−3.5, −3.0] | 48 | N/A | N/A |
| (−3.0, −2.5] | 23 | 24 | N/A |
| (−2.5, −2.0] | 12 | 29 | N/A |
| (−2.0, −1.5] | 13 | 62 | N/A |
| (−1.5, −1.0] | 3 | 334 | 21 |
| (−1.0, −0.5] | N/A | 398 | 185 |
| (−0.5, 0.0] | N/A | 196 | 714 |
| (0.0, 0.5] | N/A | 22 | 745 |
| (0.5, 1.0] | N/A | N/A | 679 |
| (1.0, 1.5] | N/A | N/A | 543 |
| (1.5, 2.0] | N/A | N/A | 199 |
| (2.0, 2.5] | N/A | N/A | 51 |
| (2.5, 3.0] | N/A | N/A | 23 |
| (3.0, 3.5] | N/A | N/A | 9 |
| (3.5, 4.0] | N/A | N/A | N/A |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 4 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 625 | 1 | N/A |
| [−6.0, −6.0] | 4 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | 22 | N/A | N/A |
| (−4.5, −4.0] | 41 | N/A | N/A |
| (−4.0, −3.5] | 67 | N/A | N/A |
| (−3.5, −3.0] | 9 | 4 | N/A |
| (−3.0, −2.5] | 8 | 12 | N/A |
| (−2.5, −2.0] | 7 | 37 | N/A |
| (−2.0, −1.5] | 6 | 119 | N/A |
| (−1.5, −1.0] | N/A | 317 | 11 |
| (−1.0, −0.5] | N/A | 695 | 105 |
| (−0.5, 0.0] | N/A | 266 | 488 |
| (0.0, 0.5] | N/A | 64 | 621 |
| (0.5, 1.0] | N/A | 3 | 711 |
| (1.0, 1.5] | N/A | N/A | 541 |
| (1.5, 2.0] | N/A | N/A | 201 |
| (2.0, 2.5] | N/A | N/A | 145 |
| (2.5, 3.0] | N/A | N/A | 31 |
| (3.0, 3.5] | N/A | N/A | 16 |
| (3.5, 4.0] | N/A | N/A | 7 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 1 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 579 | N/A | N/A |
| [−6.0, −6.0] | 1 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | 11 | N/A | N/A |
| (−5.0, −4.5] | 13 | N/A | N/A |
| (−4.5, −4.0] | 21 | N/A | N/A |
| (−4.0, −3.5] | 56 | 6 | N/A |
| (−3.5, −3.0] | 8 | 18 | N/A |
| (−3.0, −2.5] | 5 | 24 | N/A |
| (−2.5, −2.0] | 2 | 37 | N/A |
| (−2.0, −1.5] | 1 | 76 | N/A |
| (−1.5, −1.0] | N/A | 242 | 5 |
| (−1.0, −0.5] | N/A | 645 | 23 |
| (−0.5, 0.0] | N/A | 705 | 174 |
| (0.0, 0.5] | N/A | 196 | 785 |
| (0.5, 1.0] | N/A | 31 | 610 |
| (1.0, 1.5] | N/A | 1 | 370 |
| (1.5, 2.0] | N/A | N/A | 129 |
| (2.0, 2.5] | N/A | N/A | 88 |
| (2.5, 3.0] | N/A | N/A | 23 |
| (3.0, 3.5] | N/A | N/A | 6 |
| (3.5, 4.0] | N/A | N/A | 3 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 1 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 497 | N/A | N/A |
| [−6.0, −6.0] | N/A | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | 4 | N/A | N/A |
| (−4.5, −4.0] | 16 | N/A | N/A |
| (−4.0, −3.5] | 38 | N/A | N/A |
| (−3.5, −3.0] | 40 | N/A | N/A |
| (−3.0, −2.5] | 2 | 11 | N/A |
| (−2.5, −2.0] | 7 | 61 | N/A |
| (−2.0, −1.5] | 3 | 48 | N/A |
| (−1.5, −1.0] | 1 | 280 | 9 |
| (−1.0, −0.5] | N/A | 474 | 77 |
| (−0.5, 0.0] | N/A | 306 | 301 |
| (0.0, 0.5] | N/A | 137 | 844 |
| (0.5, 1.0] | N/A | 19 | 816 |
| (1.0, 1.5] | N/A | 1 | 388 |
| (1.5, 2.0] | N/A | N/A | 137 |
| (2.0, 2.5] | N/A | N/A | 45 |
| (2.5, 3.0] | N/A | N/A | 28 |
| (3.0, 3.5] | N/A | N/A | 16 |
| (3.5, 4.0] | N/A | N/A | 4 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 5 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 990 | 6 | N/A |
| [−6.0, −6.0] | 16 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A |
| (−4.5, −4.0] | N/A | N/A | N/A |
| (−4.0, −3.5] | 43 | N/A | N/A |
| (−3.5, −3.0] | 12 | 12 | N/A |
| (−3.0, −2.5] | 10 | 21 | N/A |
| (−2.5, −2.0] | 9 | 35 | N/A |
| (−2.0, −1.5] | 12 | 126 | N/A |
| (−1.5, −1.0] | 10 | 234 | 6 |
| (−1.0, −0.5] | 2 | 756 | 73 |
| (−0.5, 0.0] | N/A | 535 | 542 |
| (0.0, 0.5] | N/A | 168 | 803 |
| (0.5, 1.0] | N/A | 4 | 449 |
| (1.0, 1.5] | N/A | N/A | 270 |
| (1.5, 2.0] | N/A | N/A | 144 |
| (2.0, 2.5] | N/A | N/A | 38 |
| (2.5, 3.0] | N/A | N/A | 18 |
| (3.0, 3.5] | N/A | N/A | 9 |
| (3.5, 4.0] | N/A | N/A | 4 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 2 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 836 | 8 | N/A |
| [−6.0, −6.0] | 5 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A |
| (−4.5, −4.0] | 8 | N/A | N/A |
| (−4.0, −3.5] | 64 | N/A | N/A |
| (−3.5, −3.0] | 15 | 10 | N/A |
| (−3.0, −2.5] | 20 | 17 | N/A |
| (−2.5, −2.0] | 16 | 50 | N/A |
| (−2.0, −1.5] | 10 | 54 | N/A |
| (−1.5, −1.0] | 17 | 371 | 6 |
| (−1.0, −0.5] | N/A | 510 | 104 |
| (−0.5, 0.0] | N/A | 643 | 756 |
| (0.0, 0.5] | N/A | 157 | 867 |
| (0.5, 1.0] | N/A | 9 | 439 |
| (1.0, 1.5] | N/A | N/A | 139 |
| (1.5, 2.0] | N/A | N/A | 65 |
| (2.0, 2.5] | N/A | N/A | 21 |
| (2.5, 3.0] | N/A | N/A | 11 |
| (3.0, 3.5] | N/A | N/A | 4 |
| (3.5, 4.0] | N/A | N/A | 4 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 1 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 829 | 12 | N/A |
| [−6.0, −6.0] | 17 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A |
| (−4.5, −4.0] | N/A | N/A | N/A |
| (−4.0, −3.5] | 41 | N/A | N/A |
| (−3.5, −3.0] | 13 | 16 | N/A |
| (−3.0, −2.5] | 11 | 20 | N/A |
| (−2.5, −2.0] | 7 | 21 | N/A |
| (−2.0, −1.5] | 3 | 73 | N/A |
| (−1.5, −1.0] | 7 | 119 | N/A |
| (−1.0, −0.5] | 1 | 598 | 6 |
| (−0.5, 0.0] | N/A | 1,209 | 123 |
| (0.0, 0.5] | N/A | 627 | 590 |
| (0.5, 1.0] | N/A | 89 | 481 |
| (1.0, 1.5] | N/A | 3 | 175 |
| (1.5, 2.0] | N/A | N/A | 46 |
| (2.0, 2.5] | N/A | N/A | 37 |
| (2.5, 3.0] | N/A | N/A | 8 |
| (3.0, 3.5] | N/A | N/A | 5 |
| (3.5, 4.0] | N/A | N/A | 1 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 1 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 742 | 4 | N/A |
| [−6.0, −6.0] | 16 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A |
| (−4.5, −4.0] | N/A | N/A | N/A |
| (−4.0, −3.5] | 37 | N/A | N/A |
| (−3.5, −3.0] | N/A | N/A | N/A |
| (−3.0, −2.5] | 25 | 26 | N/A |
| (−2.5, −2.0] | 5 | 17 | N/A |
| (−2.0, −1.5] | 5 | 36 | N/A |
| (−1.5, −1.0] | 2 | 122 | 6 |
| (−1.0, −0.5] | 3 | 736 | 21 |
| (−0.5, 0.0] | N/A | 1,058 | 242 |
| (0.0, 0.5] | N/A | 271 | 687 |
| (0.5, 1.0] | N/A | 27 | 529 |
| (1.0, 1.5] | N/A | 1 | 233 |
| (1.5, 2.0] | N/A | N/A | 88 |
| (2.0, 2.5] | N/A | N/A | 59 |
| (2.5, 3.0] | N/A | N/A | 21 |
| (3.0, 3.5] | N/A | N/A | 10 |
| (3.5, 4.0] | N/A | N/A | 3 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 1 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 693 | 7 | N/A |
| [−6.0, −6.0] | 14 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A |
| (−4.5, −4.0] | N/A | N/A | N/A |
| (−4.0, −3.5] | 19 | N/A | N/A |
| (−3.5, −3.0] | 13 | 7 | N/A |
| (−3.0, −2.5] | 21 | 9 | N/A |
| (−2.5, −2.0] | 17 | 35 | N/A |
| (−2.0, −1.5] | 10 | 48 | N/A |
| (−1.5, −1.0] | 9 | 76 | N/A |
| (−1.0, −0.5] | 4 | 396 | N/A |
| (−0.5, 0.0] | N/A | 1,389 | 11 |
| (0.0, 0.5] | N/A | 900 | 262 |
| (0.5, 1.0] | N/A | 242 | 331 |
| (1.0, 1.5] | N/A | 19 | 396 |
| (1.5, 2.0] | N/A | 1 | 108 |
| (2.0, 2.5] | N/A | N/A | 71 |
| (2.5, 3.0] | N/A | N/A | 41 |
| (3.0, 3.5] | N/A | N/A | 13 |
| (3.5, 4.0] | N/A | N/A | 2 |
| (4.0, 4.5] | N/A | N/A | 4 |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | N/A |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 692 | 2 | N/A |
| [−6.0, −6.0] | 9 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A |
| (−4.5, −4.0] | 17 | N/A | N/A |
| (−4.0, −3.5] | N/A | N/A | N/A |
| (−3.5, −3.0] | 30 | N/A | N/A |
| (−3.0, −2.5] | 17 | 12 | N/A |
| (−2.5, −2.0] | 16 | 17 | N/A |
| (−2.0, −1.5] | 8 | 39 | N/A |
| (−1.5, −1.0] | 4 | 111 | N/A |
| (−1.0, −0.5] | 3 | 594 | 8 |
| (−0.5, 0.0] | N/A | 943 | 229 |
| (0.0, 0.5] | N/A | 348 | 681 |
| (0.5, 1.0] | N/A | 27 | 560 |
| (1.0, 1.5] | N/A | N/A | 287 |
| (1.5, 2.0] | N/A | N/A | 135 |
| (2.0, 2.5] | N/A | N/A | 21 |
| (2.5, 3.0] | N/A | N/A | 39 |
| (3.0, 3.5] | N/A | N/A | 16 |
| (3.5, 4.0] | N/A | N/A | N/A |
| (4.0, 4.5] | N/A | N/A | 7 |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 2 |

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

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Score | Early Exit | Easy Pathway | Hard Pathway |
| Incomplete | 567 | 3 | N/A |
| [−6.0, −6.0] | 13 | N/A | N/A |
| (−6.0, −5.5] | N/A | N/A | N/A |
| (−5.5, −5.0] | N/A | N/A | N/A |
| (−5.0, −4.5] | N/A | N/A | N/A |
| (−4.5, −4.0] | N/A | N/A | N/A |
| (−4.0, −3.5] | 48 | N/A | N/A |
| (−3.5, −3.0] | 5 | 5 | N/A |
| (−3.0, −2.5] | 1 | 6 | N/A |
| (−2.5, −2.0] | 4 | 29 | N/A |
| (−2.0, −1.5] | 5 | 75 | N/A |
| (−1.5, −1.0] | 2 | 197 | N/A |
| (−1.0, −0.5] | 2 | 648 | 26 |
| (−0.5, 0.0] | N/A | 774 | 304 |
| (0.0, 0.5] | N/A | 261 | 713 |
| (0.5, 1.0] | N/A | 14 | 470 |
| (1.0, 1.5] | N/A | N/A | 251 |
| (1.5, 2.0] | N/A | N/A | 115 |
| (2.0, 2.5] | N/A | N/A | 42 |
| (2.5, 3.0] | N/A | N/A | 17 |
| (3.0, 3.5] | N/A | N/A | 10 |
| (3.5, 4.0] | N/A | N/A | 3 |
| (4.0, 4.5] | N/A | N/A | N/A |
| (4.5, 5.0] | N/A | N/A | N/A |
| (5.0, 5.5] | N/A | N/A | N/A |
| (5.5, 6.0] | N/A | N/A | 5 |

### Appendix 7.B: Raw Score and Scale Score Distributions

Note the following about table 7.B.1 through table 7.B.14:

* An incomplete assessment was assigned either the LOSS or LOSS+1.
* The *Raw Score* column includes values LOSS, LOSS + 1, and each respective raw score point within the range of raw score points between 0 and the maximum raw score possible for the respective assessment.
* When a student was logged on to the TDS but did not answer any item, LOSS was assigned as 300 for grade three, 400 for grade four, ... , 900 for grade eleven.
* 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.
* Percentages for some pathways may not sum up to exactly 100 because of rounding.
* Raw-score-to-scale-score distribution is shown only for values within the raw score range for the respective pathway.
* The pathway indicates the set of modules a given student received:

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

Table 7.B.1 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 300 | 606 | 60% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 301 | 289 | 28% | N/A | 301 | 5 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 303 | 10 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −4.868 | 303 | 24 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −4.112 | 303 | 41 | 4% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −3.644 | 303 | 12 | 1% | −3.644 | 303 | 14 | 1% | N/A | N/A | N/A | N/A |
| 4 | −3.294 | 303 | 5 | 0% | −3.294 | 303 | 11 | 1% | N/A | N/A | N/A | N/A |
| 5 | −3.009 | 303 | 6 | 1% | −3.009 | 303 | 17 | 1% | N/A | N/A | N/A | N/A |
| 6 | −2.766 | 307 | 2 | 0% | −2.766 | 307 | 15 | 1% | N/A | N/A | N/A | N/A |
| 7 | −2.552 | 310 | 4 | 0% | −2.552 | 310 | 28 | 2% | N/A | N/A | N/A | N/A |
| 8 | −2.359 | 313 | 4 | 0% | −2.359 | 313 | 30 | 2% | N/A | N/A | N/A | N/A |
| 9 | −2.182 | 315 | 3 | 0% | −2.182 | 315 | 28 | 2% | N/A | N/A | N/A | N/A |
| 10 | −2.017 | 318 | 3 | 0% | −2.017 | 318 | 47 | 4% | −1.536 | 325 | 6 | 0% |
| 11 | −1.863 | 320 | 4 | 0% | −1.863 | 320 | 34 | 3% | −1.367 | 327 | 11 | 0% |
| 12 | −1.716 | 322 | 1 | 0% | −1.716 | 322 | 46 | 4% | −1.206 | 330 | 9 | 0% |
| 13 | −1.576 | 324 | 1 | 0% | −1.576 | 324 | 61 | 5% | −1.051 | 332 | 9 | 0% |
| 14 | −1.440 | 326 | 1 | 0% | −1.440 | 326 | 63 | 5% | −0.900 | 334 | 34 | 1% |
| 15 | −1.308 | 328 | N/A | N/A | −1.308 | 328 | 96 | 7% | −0.754 | 337 | 56 | 2% |
| 16 | −1.179 | 330 | N/A | N/A | −1.179 | 330 | 93 | 7% | −0.609 | 339 | 107 | 4% |
| 17 | N/A | N/A | N/A | N/A | −1.051 | 332 | 117 | 9% | −0.467 | 341 | 150 | 5% |
| 18 | N/A | N/A | N/A | N/A | −0.924 | 334 | 112 | 9% | −0.326 | 343 | 162 | 5% |
| 19 | N/A | N/A | N/A | N/A | −0.798 | 336 | 118 | 9% | −0.186 | 345 | 155 | 5% |
| 20 | N/A | N/A | N/A | N/A | −0.670 | 338 | 114 | 9% | −0.046 | 347 | 199 | 7% |
| 21 | N/A | N/A | N/A | N/A | −0.541 | 340 | 91 | 7% | 0.094 | 349 | 212 | 7% |
| 22 | N/A | N/A | N/A | N/A | −0.410 | 342 | 68 | 5% | 0.236 | 352 | 201 | 7% |
| 23 | N/A | N/A | N/A | N/A | −0.275 | 344 | 34 | 3% | 0.379 | 354 | 207 | 7% |
| 24 | N/A | N/A | N/A | N/A | −0.136 | 346 | 21 | 2% | 0.524 | 356 | 197 | 6% |
| 25 | N/A | N/A | N/A | N/A | 0.008 | 348 | 18 | 1% | 0.673 | 358 | 179 | 6% |
| 26 | N/A | N/A | N/A | N/A | 0.160 | 350 | 4 | 0% | 0.826 | 360 | 175 | 6% |
| 27 | N/A | N/A | N/A | N/A | 0.321 | 353 | 3 | 0% | 0.985 | 363 | 182 | 6% |
| 28 | N/A | N/A | N/A | N/A | 0.493 | 355 | N/A | N/A | 1.153 | 365 | 150 | 5% |
| 29 | N/A | N/A | N/A | N/A | 0.680 | 358 | 1 | 0% | 1.332 | 368 | 150 | 5% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.527 | 371 | 119 | 4% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.746 | 374 | 108 | 4% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.001 | 378 | 98 | 3% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.316 | 383 | 69 | 2% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.745 | 389 | 44 | 1% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.458 | 399 | 51 | 2% |
| 36 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 399 | 14 | 0% |

Table 7.B.2 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 400 | 553 | 60% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 401 | 238 | 26% | N/A | 401 | 1 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 403 | 9 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −4.604 | 403 | 29 | 3% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −3.857 | 403 | 57 | 6% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −3.397 | 403 | 11 | 1% | −3.397 | 403 | 13 | 1% | N/A | N/A | N/A | N/A |
| 4 | −3.054 | 403 | 9 | 1% | −3.054 | 403 | 14 | 1% | N/A | N/A | N/A | N/A |
| 5 | −2.776 | 403 | 8 | 1% | −2.776 | 403 | 11 | 1% | N/A | N/A | N/A | N/A |
| 6 | −2.538 | 407 | 1 | 0% | −2.538 | 407 | 14 | 1% | N/A | N/A | N/A | N/A |
| 7 | −2.328 | 410 | 1 | 0% | −2.328 | 410 | 13 | 1% | N/A | N/A | N/A | N/A |
| 8 | −2.139 | 413 | 2 | 0% | −2.139 | 413 | 16 | 1% | N/A | N/A | N/A | N/A |
| 9 | −1.965 | 416 | N/A | N/A | −1.965 | 416 | 28 | 2% | −1.361 | 425 | 3 | 0% |
| 10 | −1.803 | 418 | 2 | 0% | −1.803 | 418 | 42 | 2% | −1.197 | 427 | 2 | 0% |
| 11 | −1.650 | 420 | 1 | 0% | −1.650 | 420 | 58 | 3% | −1.044 | 429 | 4 | 0% |
| 12 | −1.506 | 422 | N/A | N/A | −1.506 | 422 | 69 | 4% | −0.898 | 432 | 9 | 0% |
| 13 | −1.367 | 424 | N/A | N/A | −1.367 | 424 | 93 | 5% | −0.758 | 434 | 10 | 0% |
| 14 | −1.234 | 426 | 1 | 0% | −1.234 | 426 | 128 | 7% | −0.622 | 436 | 20 | 1% |
| 15 | N/A | N/A | N/A | N/A | −1.105 | 428 | 159 | 9% | −0.490 | 438 | 34 | 1% |
| 16 | N/A | N/A | N/A | N/A | −0.979 | 430 | 151 | 8% | −0.361 | 440 | 59 | 2% |
| 17 | N/A | N/A | N/A | N/A | −0.855 | 432 | 218 | 12% | −0.232 | 442 | 103 | 4% |
| 18 | N/A | N/A | N/A | N/A | −0.733 | 434 | 183 | 10% | −0.104 | 443 | 125 | 5% |
| 19 | N/A | N/A | N/A | N/A | −0.611 | 436 | 169 | 9% | 0.025 | 445 | 132 | 5% |
| 20 | N/A | N/A | N/A | N/A | −0.489 | 438 | 147 | 8% | 0.155 | 447 | 186 | 8% |
| 21 | N/A | N/A | N/A | N/A | −0.366 | 440 | 113 | 6% | 0.288 | 449 | 190 | 8% |
| 22 | N/A | N/A | N/A | N/A | −0.240 | 441 | 71 | 4% | 0.424 | 451 | 191 | 8% |
| 23 | N/A | N/A | N/A | N/A | −0.112 | 443 | 61 | 3% | 0.565 | 453 | 213 | 9% |
| 24 | N/A | N/A | N/A | N/A | 0.022 | 445 | 37 | 2% | 0.712 | 456 | 204 | 8% |
| 25 | N/A | N/A | N/A | N/A | 0.161 | 447 | 20 | 1% | 0.867 | 458 | 176 | 7% |
| 26 | N/A | N/A | N/A | N/A | 0.309 | 450 | 10 | 1% | 1.033 | 460 | 183 | 7% |
| 27 | N/A | N/A | N/A | N/A | 0.468 | 452 | 3 | 0% | 1.212 | 463 | 145 | 6% |
| 28 | N/A | N/A | N/A | N/A | 0.641 | 455 | N/A | N/A | 1.411 | 466 | 139 | 6% |
| 29 | N/A | N/A | N/A | N/A | 0.834 | 458 | N/A | N/A | 1.636 | 470 | 116 | 5% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.901 | 474 | 82 | 3% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.230 | 478 | 75 | 3% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.675 | 485 | 41 | 2% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.408 | 496 | 14 | 1% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 499 | 9 | 0% |

Table 7.B.3 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 500 | 573 | 61% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 501 | 186 | 20% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 503 | 5 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −5.329 | 503 | 11 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −4.575 | 503 | 21 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −4.107 | 503 | 38 | 4% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | −3.755 | 503 | 71 | 8% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 | −3.467 | 503 | 9 | 1% | −3.467 | 503 | 8 | 1% | N/A | N/A | N/A | N/A |
| 6 | −3.219 | 503 | 4 | 0% | −3.219 | 503 | 5 | 0% | N/A | N/A | N/A | N/A |
| 7 | −2.998 | 503 | 2 | 0% | −2.998 | 503 | 10 | 1% | N/A | N/A | N/A | N/A |
| 8 | −2.797 | 503 | 2 | 0% | −2.797 | 503 | 10 | 1% | N/A | N/A | N/A | N/A |
| 9 | −2.610 | 506 | 2 | 0% | −2.610 | 506 | 17 | 1% | N/A | N/A | N/A | N/A |
| 10 | −2.435 | 508 | 2 | 0% | −2.435 | 508 | 19 | 1% | N/A | N/A | N/A | N/A |
| 11 | −2.269 | 511 | 2 | 0% | −2.269 | 511 | 16 | 1% | −1.505 | 522 | 6 | 0% |
| 12 | −2.110 | 513 | 2 | 0% | −2.110 | 513 | 27 | 2% | −1.341 | 525 | 2 | 0% |
| 13 | −1.957 | 516 | N/A | N/A | −1.957 | 516 | 27 | 2% | −1.186 | 527 | 8 | 0% |
| 14 | −1.809 | 518 | 1 | 0% | −1.809 | 518 | 20 | 2% | −1.037 | 529 | 10 | 0% |
| 15 | −1.665 | 520 | 1 | 0% | −1.665 | 520 | 47 | 4% | −0.895 | 532 | 28 | 1% |
| 16 | −1.525 | 522 | 1 | 0% | −1.525 | 522 | 59 | 5% | −0.757 | 534 | 37 | 1% |
| 17 | N/A | N/A | N/A | N/A | −1.387 | 524 | 71 | 6% | −0.623 | 536 | 69 | 2% |
| 18 | N/A | N/A | N/A | N/A | −1.251 | 526 | 90 | 7% | −0.492 | 538 | 95 | 3% |
| 19 | N/A | N/A | N/A | N/A | −1.117 | 528 | 108 | 8% | −0.362 | 540 | 137 | 5% |
| 20 | N/A | N/A | N/A | N/A | −0.983 | 530 | 126 | 10% | −0.233 | 542 | 139 | 5% |
| 21 | N/A | N/A | N/A | N/A | −0.850 | 532 | 140 | 11% | −0.104 | 543 | 169 | 6% |
| 22 | N/A | N/A | N/A | N/A | −0.717 | 534 | 133 | 10% | 0.026 | 545 | 189 | 6% |
| 23 | N/A | N/A | N/A | N/A | −0.582 | 536 | 93 | 7% | 0.158 | 547 | 199 | 7% |
| 24 | N/A | N/A | N/A | N/A | −0.446 | 538 | 84 | 7% | 0.294 | 549 | 222 | 7% |
| 25 | N/A | N/A | N/A | N/A | −0.307 | 540 | 66 | 5% | 0.435 | 552 | 225 | 8% |
| 26 | N/A | N/A | N/A | N/A | −0.165 | 543 | 38 | 3% | 0.582 | 554 | 221 | 7% |
| 27 | N/A | N/A | N/A | N/A | −0.017 | 545 | 32 | 3% | 0.739 | 556 | 207 | 7% |
| 28 | N/A | N/A | N/A | N/A | 0.136 | 547 | 13 | 1% | 0.907 | 559 | 201 | 7% |
| 29 | N/A | N/A | N/A | N/A | 0.298 | 549 | 10 | 1% | 1.090 | 561 | 200 | 7% |
| 30 | N/A | N/A | N/A | N/A | 0.470 | 552 | 5 | 0% | 1.295 | 564 | 156 | 5% |
| 31 | N/A | N/A | N/A | N/A | 0.656 | 555 | 1 | 0% | 1.529 | 568 | 146 | 5% |
| 32 | N/A | N/A | N/A | N/A | 0.862 | 558 | N/A | N/A | 1.804 | 572 | 130 | 4% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.146 | 577 | 89 | 3% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.607 | 584 | 43 | 1% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.358 | 595 | 33 | 1% |
| 36 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 599 | 11 | 0% |

Table 7.B.4 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 600 | 424 | 54% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 601 | 202 | 26% | N/A | 601 | 2 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 603 | 2 | 0% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −4.779 | 603 | 8 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −4.032 | 603 | 19 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −3.572 | 603 | 36 | 5% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | −3.232 | 605 | 48 | 6% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 | −2.957 | 608 | 6 | 1% | −2.957 | 608 | 2 | 0% | N/A | N/A | N/A | N/A |
| 6 | −2.724 | 611 | 12 | 2% | −2.724 | 611 | 8 | 1% | N/A | N/A | N/A | N/A |
| 7 | −2.521 | 613 | 5 | 1% | −2.521 | 613 | 14 | 1% | N/A | N/A | N/A | N/A |
| 8 | −2.338 | 616 | 6 | 1% | −2.338 | 616 | 13 | 1% | N/A | N/A | N/A | N/A |
| 9 | −2.173 | 618 | 6 | 1% | −2.173 | 618 | 8 | 1% | N/A | N/A | N/A | N/A |
| 10 | −2.019 | 620 | N/A | N/A | −2.019 | 620 | 8 | 1% | N/A | N/A | N/A | N/A |
| 11 | −1.876 | 622 | 5 | 1% | −1.876 | 622 | 21 | 2% | −1.491 | 626 | 1 | 0% |
| 12 | −1.740 | 623 | 3 | 0% | −1.740 | 623 | 16 | 2% | −1.350 | 628 | 5 | 0% |
| 13 | −1.611 | 625 | 5 | 1% | −1.611 | 625 | 25 | 2% | −1.213 | 630 | 5 | 0% |
| 14 | −1.486 | 626 | N/A | N/A | −1.486 | 626 | 35 | 3% | −1.079 | 632 | 10 | 0% |
| 15 | −1.364 | 628 | 2 | 0% | −1.364 | 628 | 49 | 5% | −0.948 | 633 | 14 | 0% |
| 16 | −1.246 | 629 | N/A | N/A | −1.246 | 629 | 63 | 6% | −0.818 | 635 | 33 | 1% |
| 17 | −1.128 | 631 | 1 | 0% | −1.128 | 631 | 85 | 8% | −0.689 | 636 | 47 | 1% |
| 18 | N/A | N/A | N/A | N/A | −1.012 | 632 | 102 | 10% | −0.560 | 638 | 91 | 3% |
| 19 | N/A | N/A | N/A | N/A | −0.896 | 634 | 100 | 9% | −0.431 | 640 | 119 | 4% |
| 20 | N/A | N/A | N/A | N/A | −0.779 | 635 | 116 | 11% | −0.300 | 641 | 148 | 5% |
| 21 | N/A | N/A | N/A | N/A | −0.661 | 637 | 96 | 9% | −0.168 | 643 | 199 | 6% |
| 22 | N/A | N/A | N/A | N/A | −0.541 | 638 | 86 | 8% | −0.033 | 645 | 248 | 8% |
| 23 | N/A | N/A | N/A | N/A | −0.418 | 640 | 75 | 7% | 0.105 | 646 | 262 | 8% |
| 24 | N/A | N/A | N/A | N/A | −0.292 | 641 | 64 | 6% | 0.246 | 648 | 255 | 8% |
| 25 | N/A | N/A | N/A | N/A | −0.161 | 643 | 31 | 3% | 0.391 | 650 | 228 | 7% |
| 26 | N/A | N/A | N/A | N/A | −0.025 | 645 | 26 | 2% | 0.543 | 652 | 245 | 8% |
| 27 | N/A | N/A | N/A | N/A | 0.118 | 646 | 14 | 1% | 0.700 | 654 | 235 | 7% |
| 28 | N/A | N/A | N/A | N/A | 0.268 | 648 | 6 | 1% | 0.866 | 656 | 199 | 6% |
| 29 | N/A | N/A | N/A | N/A | 0.428 | 650 | 2 | 0% | 1.043 | 658 | 198 | 6% |
| 30 | N/A | N/A | N/A | N/A | 0.600 | 653 | N/A | N/A | 1.234 | 660 | 181 | 6% |
| 31 | N/A | N/A | N/A | N/A | 0.787 | 655 | N/A | N/A | 1.444 | 663 | 164 | 5% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.680 | 666 | 119 | 4% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.955 | 669 | 80 | 3% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.293 | 674 | 51 | 2% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.748 | 679 | 23 | 1% |
| 36 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.489 | 689 | 9 | 0% |
| 37 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 699 | 4 | 0% |

Table 7.B.5 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 700 | 434 | 55% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 701 | 191 | 24% | N/A | 701 | 1 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 703 | 4 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −4.862 | 703 | 22 | 3% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −4.095 | 703 | 41 | 5% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −3.615 | 703 | 67 | 8% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | −3.251 | 703 | 9 | 1% | −3.251 | 703 | 4 | 0% | N/A | N/A | N/A | N/A |
| 5 | −2.951 | 703 | 5 | 1% | −2.951 | 703 | 4 | 0% | N/A | N/A | N/A | N/A |
| 6 | −2.692 | 705 | 3 | 0% | −2.692 | 705 | 8 | 1% | N/A | N/A | N/A | N/A |
| 7 | −2.460 | 708 | 3 | 0% | −2.460 | 708 | 15 | 1% | N/A | N/A | N/A | N/A |
| 8 | −2.248 | 711 | 3 | 0% | −2.248 | 711 | 8 | 1% | N/A | N/A | N/A | N/A |
| 9 | −2.052 | 714 | 1 | 0% | −2.052 | 714 | 14 | 1% | −1.344 | 725 | 3 | 0% |
| 10 | −1.869 | 717 | 5 | 1% | −1.869 | 717 | 29 | 2% | −1.144 | 728 | 8 | 0% |
| 11 | −1.695 | 720 | 1 | 0% | −1.695 | 720 | 39 | 3% | −0.957 | 731 | 14 | 0% |
| 12 | −1.530 | 722 | N/A | N/A | −1.530 | 722 | 51 | 3% | −0.781 | 733 | 37 | 1% |
| 13 | −1.371 | 724 | N/A | N/A | −1.371 | 724 | 75 | 5% | −0.613 | 736 | 54 | 2% |
| 14 | −1.218 | 727 | N/A | N/A | −1.218 | 727 | 118 | 8% | −0.452 | 738 | 74 | 3% |
| 15 | N/A | N/A | N/A | N/A | −1.070 | 729 | 124 | 8% | −0.298 | 741 | 107 | 4% |
| 16 | N/A | N/A | N/A | N/A | −0.925 | 731 | 146 | 10% | −0.148 | 743 | 153 | 5% |
| 17 | N/A | N/A | N/A | N/A | −0.783 | 733 | 196 | 13% | −0.002 | 745 | 154 | 5% |
| 18 | N/A | N/A | N/A | N/A | −0.642 | 735 | 172 | 11% | 0.142 | 747 | 204 | 7% |
| 19 | N/A | N/A | N/A | N/A | −0.502 | 737 | 181 | 12% | 0.285 | 749 | 215 | 7% |
| 20 | N/A | N/A | N/A | N/A | −0.361 | 740 | 104 | 7% | 0.427 | 751 | 202 | 7% |
| 21 | N/A | N/A | N/A | N/A | −0.218 | 742 | 103 | 7% | 0.571 | 754 | 241 | 8% |
| 22 | N/A | N/A | N/A | N/A | −0.072 | 744 | 59 | 4% | 0.717 | 756 | 260 | 9% |
| 23 | N/A | N/A | N/A | N/A | 0.079 | 746 | 37 | 2% | 0.867 | 758 | 210 | 7% |
| 24 | N/A | N/A | N/A | N/A | 0.236 | 749 | 23 | 2% | 1.023 | 760 | 205 | 7% |
| 25 | N/A | N/A | N/A | N/A | 0.401 | 751 | 4 | 0% | 1.187 | 763 | 179 | 6% |
| 26 | N/A | N/A | N/A | N/A | 0.577 | 754 | 1 | 0% | 1.362 | 765 | 157 | 5% |
| 27 | N/A | N/A | N/A | N/A | 0.768 | 757 | 1 | 0% | 1.553 | 768 | 107 | 4% |
| 28 | N/A | N/A | N/A | N/A | 0.978 | 760 | 1 | 0% | 1.765 | 771 | 94 | 3% |
| 29 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.007 | 775 | 89 | 3% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.293 | 779 | 56 | 2% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.649 | 785 | 31 | 1% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.131 | 792 | 16 | 1% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.914 | 799 | 7 | 0% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 799 | 1 | 0% |

Table 7.B.6 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 800 | 438 | 63% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 801 | 141 | 20% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 803 | 1 | 0% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −5.403 | 803 | 11 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −4.657 | 803 | 13 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −4.197 | 803 | 21 | 3% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | −3.853 | 803 | 52 | 7% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 | −3.571 | 803 | 4 | 1% | −3.571 | 803 | 6 | 0% | N/A | N/A | N/A | N/A |
| 6 | −3.328 | 806 | 5 | 1% | −3.328 | 806 | 8 | 0% | N/A | N/A | N/A | N/A |
| 7 | −3.110 | 809 | 3 | 0% | −3.110 | 809 | 10 | 1% | N/A | N/A | N/A | N/A |
| 8 | −2.912 | 811 | 1 | 0% | −2.912 | 811 | 5 | 0% | N/A | N/A | N/A | N/A |
| 9 | −2.726 | 813 | 3 | 0% | −2.726 | 813 | 11 | 1% | N/A | N/A | N/A | N/A |
| 10 | −2.552 | 816 | 1 | 0% | −2.552 | 816 | 8 | 0% | N/A | N/A | N/A | N/A |
| 11 | −2.385 | 818 | 1 | 0% | −2.385 | 818 | 13 | 1% | N/A | N/A | N/A | N/A |
| 12 | −2.224 | 820 | N/A | N/A | −2.224 | 820 | 8 | 0% | −1.334 | 831 | 1 | 0% |
| 13 | −2.069 | 822 | 1 | 0% | −2.069 | 822 | 16 | 1% | −1.156 | 833 | 4 | 0% |
| 14 | −1.917 | 824 | 1 | 0% | −1.917 | 824 | 19 | 1% | −0.986 | 835 | 7 | 0% |
| 15 | −1.769 | 825 | N/A | N/A | −1.769 | 825 | 21 | 1% | −0.824 | 837 | 2 | 0% |
| 16 | −1.625 | 827 | N/A | N/A | −1.625 | 827 | 36 | 2% | −0.668 | 839 | 8 | 0% |
| 17 | −1.483 | 829 | N/A | N/A | −1.483 | 829 | 35 | 2% | −0.518 | 841 | 6 | 0% |
| 18 | N/A | N/A | N/A | N/A | −1.343 | 831 | 55 | 3% | −0.371 | 843 | 25 | 1% |
| 19 | N/A | N/A | N/A | N/A | −1.205 | 832 | 60 | 3% | −0.229 | 845 | 60 | 3% |
| 20 | N/A | N/A | N/A | N/A | −1.070 | 834 | 92 | 5% | −0.089 | 846 | 89 | 4% |
| 21 | N/A | N/A | N/A | N/A | −0.936 | 836 | 103 | 5% | 0.050 | 848 | 132 | 6% |
| 22 | N/A | N/A | N/A | N/A | −0.803 | 837 | 136 | 7% | 0.188 | 850 | 198 | 9% |
| 23 | N/A | N/A | N/A | N/A | −0.672 | 839 | 196 | 10% | 0.326 | 852 | 229 | 10% |
| 24 | N/A | N/A | N/A | N/A | −0.541 | 841 | 210 | 11% | 0.465 | 853 | 226 | 10% |
| 25 | N/A | N/A | N/A | N/A | −0.411 | 842 | 202 | 10% | 0.607 | 855 | 239 | 11% |
| 26 | N/A | N/A | N/A | N/A | −0.280 | 844 | 200 | 10% | 0.752 | 857 | 209 | 9% |
| 27 | N/A | N/A | N/A | N/A | −0.148 | 846 | 176 | 9% | 0.903 | 859 | 162 | 7% |
| 28 | N/A | N/A | N/A | N/A | −0.014 | 847 | 127 | 6% | 1.060 | 861 | 152 | 7% |
| 29 | N/A | N/A | N/A | N/A | 0.123 | 849 | 98 | 5% | 1.226 | 863 | 121 | 5% |
| 30 | N/A | N/A | N/A | N/A | 0.264 | 851 | 63 | 3% | 1.403 | 865 | 97 | 4% |
| 31 | N/A | N/A | N/A | N/A | 0.409 | 853 | 35 | 2% | 1.596 | 867 | 71 | 3% |
| 32 | N/A | N/A | N/A | N/A | 0.562 | 855 | 17 | 1% | 1.809 | 870 | 58 | 3% |
| 33 | N/A | N/A | N/A | N/A | 0.723 | 857 | 11 | 1% | 2.049 | 873 | 52 | 2% |
| 34 | N/A | N/A | N/A | N/A | 0.896 | 859 | 3 | 0% | 2.329 | 877 | 36 | 2% |
| 35 | N/A | N/A | N/A | N/A | 1.084 | 861 | 1 | 0% | 2.674 | 881 | 23 | 1% |
| 36 | N/A | N/A | N/A | N/A | 1.292 | 864 | N/A | N/A | 3.136 | 887 | 6 | 0% |
| 37 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.885 | 896 | 3 | 0% |
| 38 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 899 | 1 | 0% |

Table 7.B.7 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 900 | 414 | 68% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 901 | 83 | 14% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 903 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −4.786 | 903 | 4 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −4.018 | 903 | 16 | 3% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −3.538 | 903 | 38 | 6% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 | −3.177 | 908 | 40 | 7% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 | −2.880 | 912 | N/A | N/A | −2.880 | 912 | 2 | 0% | N/A | N/A | N/A | N/A |
| 6 | −2.625 | 915 | 2 | 0% | −2.625 | 915 | 9 | 1% | N/A | N/A | N/A | N/A |
| 7 | −2.398 | 918 | 3 | 0% | −2.398 | 918 | 12 | 1% | N/A | N/A | N/A | N/A |
| 8 | −2.192 | 920 | 1 | 0% | −2.192 | 920 | 26 | 2% | N/A | N/A | N/A | N/A |
| 9 | −2.002 | 922 | 3 | 0% | −2.002 | 922 | 23 | 2% | N/A | N/A | N/A | N/A |
| 10 | −1.824 | 925 | 2 | 0% | −1.824 | 925 | 25 | 2% | −1.471 | 929 | N/A | N/A |
| 11 | −1.657 | 927 | 1 | 0% | −1.657 | 927 | 23 | 2% | −1.294 | 931 | 3 | 0% |
| 12 | −1.498 | 929 | 1 | 0% | −1.498 | 929 | 42 | 3% | −1.126 | 933 | 6 | 0% |
| 13 | −1.345 | 931 | N/A | N/A | −1.345 | 931 | 60 | 4% | −0.967 | 935 | 1 | 0% |
| 14 | −1.199 | 933 | N/A | N/A | −1.199 | 933 | 66 | 5% | −0.814 | 937 | 12 | 0% |
| 15 | −1.057 | 934 | N/A | N/A | −1.057 | 934 | 112 | 8% | −0.667 | 939 | 19 | 1% |
| 16 | N/A | N/A | N/A | N/A | −0.919 | 936 | 120 | 9% | −0.525 | 941 | 45 | 2% |
| 17 | N/A | N/A | N/A | N/A | −0.784 | 938 | 121 | 9% | −0.388 | 943 | 61 | 2% |
| 18 | N/A | N/A | N/A | N/A | −0.651 | 939 | 114 | 9% | −0.254 | 944 | 103 | 4% |
| 19 | N/A | N/A | N/A | N/A | −0.519 | 941 | 119 | 9% | −0.123 | 946 | 137 | 5% |
| 20 | N/A | N/A | N/A | N/A | −0.387 | 943 | 128 | 10% | 0.006 | 948 | 182 | 7% |
| 21 | N/A | N/A | N/A | N/A | −0.255 | 944 | 98 | 7% | 0.133 | 949 | 209 | 8% |
| 22 | N/A | N/A | N/A | N/A | −0.122 | 946 | 80 | 6% | 0.261 | 951 | 241 | 9% |
| 23 | N/A | N/A | N/A | N/A | 0.014 | 948 | 59 | 4% | 0.390 | 952 | 212 | 8% |
| 24 | N/A | N/A | N/A | N/A | 0.153 | 949 | 34 | 3% | 0.521 | 954 | 216 | 8% |
| 25 | N/A | N/A | N/A | N/A | 0.297 | 951 | 28 | 2% | 0.655 | 956 | 219 | 8% |
| 26 | N/A | N/A | N/A | N/A | 0.448 | 953 | 16 | 1% | 0.795 | 957 | 205 | 8% |
| 27 | N/A | N/A | N/A | N/A | 0.607 | 955 | 13 | 1% | 0.942 | 959 | 176 | 7% |
| 28 | N/A | N/A | N/A | N/A | 0.778 | 957 | 3 | 0% | 1.099 | 961 | 141 | 5% |
| 29 | N/A | N/A | N/A | N/A | 0.962 | 960 | 3 | 0% | 1.268 | 963 | 146 | 5% |
| 30 | N/A | N/A | N/A | N/A | 1.167 | 962 | 1 | 0% | 1.454 | 966 | 101 | 4% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.662 | 968 | 84 | 3% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.900 | 971 | 53 | 2% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.182 | 975 | 45 | 2% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.531 | 979 | 28 | 1% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.001 | 985 | 16 | 1% |
| 36 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.762 | 995 | 4 | 0% |
| 37 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 999 | 5 | 0% |

Table 7.B.8 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 300 | 764 | 69% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 301 | 226 | 20% | N/A | 301 | 6 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 303 | 16 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −3.764 | 303 | 43 | 4% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −3.033 | 303 | 12 | 1% | −3.033 | 303 | 12 | 1% | N/A | N/A | N/A | N/A |
| 3 | −2.589 | 303 | 10 | 1% | −2.589 | 303 | 21 | 1% | N/A | N/A | N/A | N/A |
| 4 | −2.261 | 303 | 9 | 1% | −2.261 | 303 | 35 | 2% | N/A | N/A | N/A | N/A |
| 5 | −1.996 | 304 | 4 | 0% | −1.996 | 304 | 34 | 2% | N/A | N/A | N/A | N/A |
| 6 | −1.771 | 308 | 7 | 1% | −1.771 | 308 | 51 | 3% | N/A | N/A | N/A | N/A |
| 7 | −1.572 | 312 | 1 | 0% | −1.572 | 312 | 41 | 2% | N/A | N/A | N/A | N/A |
| 8 | −1.393 | 315 | 1 | 0% | −1.393 | 315 | 56 | 3% | −1.067 | 321 | 6 | 0% |
| 9 | −1.227 | 318 | 7 | 1% | −1.227 | 318 | 54 | 3% | −0.899 | 324 | 7 | 0% |
| 10 | −1.071 | 321 | 2 | 0% | −1.071 | 321 | 124 | 7% | −0.741 | 327 | 23 | 1% |
| 11 | −0.923 | 324 | N/A | N/A | −0.923 | 324 | 147 | 8% | −0.592 | 330 | 43 | 2% |
| 12 | −0.782 | 327 | N/A | N/A | −0.782 | 327 | 171 | 9% | −0.448 | 333 | 67 | 3% |
| 13 | −0.644 | 329 | 2 | 0% | −0.644 | 329 | 198 | 10% | −0.309 | 336 | 121 | 5% |
| 14 | −0.510 | 332 | N/A | N/A | −0.510 | 332 | 240 | 13% | −0.173 | 338 | 164 | 7% |
| 15 | N/A | N/A | N/A | N/A | −0.377 | 334 | 226 | 12% | −0.039 | 341 | 190 | 8% |
| 16 | N/A | N/A | N/A | N/A | −0.245 | 337 | 183 | 10% | 0.093 | 343 | 196 | 8% |
| 17 | N/A | N/A | N/A | N/A | −0.113 | 339 | 126 | 7% | 0.225 | 346 | 193 | 8% |
| 18 | N/A | N/A | N/A | N/A | 0.019 | 342 | 88 | 5% | 0.358 | 348 | 213 | 9% |
| 19 | N/A | N/A | N/A | N/A | 0.154 | 344 | 37 | 2% | 0.492 | 351 | 201 | 9% |
| 20 | N/A | N/A | N/A | N/A | 0.292 | 347 | 29 | 2% | 0.627 | 353 | 167 | 7% |
| 21 | N/A | N/A | N/A | N/A | 0.434 | 349 | 14 | 1% | 0.766 | 356 | 140 | 6% |
| 22 | N/A | N/A | N/A | N/A | 0.581 | 352 | 3 | 0% | 0.909 | 358 | 142 | 6% |
| 23 | N/A | N/A | N/A | N/A | 0.735 | 355 | 1 | 0% | 1.057 | 361 | 97 | 4% |
| 24 | N/A | N/A | N/A | N/A | 0.897 | 358 | N/A | N/A | 1.211 | 364 | 96 | 4% |
| 25 | N/A | N/A | N/A | N/A | 1.071 | 361 | N/A | N/A | 1.374 | 367 | 77 | 3% |
| 26 | N/A | N/A | N/A | N/A | 1.260 | 365 | N/A | N/A | 1.547 | 370 | 58 | 2% |
| 27 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.735 | 374 | 48 | 2% |
| 28 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.941 | 378 | 38 | 2% |
| 29 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.175 | 382 | 20 | 1% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.447 | 387 | 18 | 1% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.783 | 393 | 18 | 1% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.235 | 399 | 9 | 0% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.974 | 399 | 4 | 0% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 399 | 2 | 0% |

Table 7.B.9 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 400 | 656 | 66% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 401 | 180 | 18% | N/A | 401 | 8 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 403 | 5 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −4.295 | 403 | 8 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −3.520 | 403 | 64 | 6% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −3.034 | 403 | 15 | 2% | −3.034 | 403 | 10 | 1% | N/A | N/A | N/A | N/A |
| 4 | −2.668 | 403 | 20 | 2% | −2.668 | 403 | 17 | 1% | N/A | N/A | N/A | N/A |
| 5 | −2.368 | 403 | 7 | 1% | −2.368 | 403 | 22 | 1% | N/A | N/A | N/A | N/A |
| 6 | −2.111 | 403 | 9 | 1% | −2.111 | 403 | 28 | 2% | N/A | N/A | N/A | N/A |
| 7 | −1.885 | 406 | 7 | 1% | −1.885 | 406 | 25 | 1% | N/A | N/A | N/A | N/A |
| 8 | −1.681 | 410 | 3 | 0% | −1.681 | 410 | 29 | 2% | −1.168 | 419 | 6 | 0% |
| 9 | −1.494 | 413 | 7 | 1% | −1.494 | 413 | 48 | 3% | −0.990 | 423 | 9 | 0% |
| 10 | −1.322 | 417 | 4 | 0% | −1.322 | 417 | 85 | 5% | −0.827 | 426 | 10 | 0% |
| 11 | −1.160 | 420 | 4 | 0% | −1.160 | 420 | 108 | 6% | −0.676 | 429 | 23 | 1% |
| 12 | −1.008 | 422 | 2 | 0% | −1.008 | 422 | 130 | 7% | −0.534 | 431 | 62 | 3% |
| 13 | −0.863 | 425 | N/A | N/A | −0.863 | 425 | 149 | 8% | −0.399 | 434 | 114 | 5% |
| 14 | −0.724 | 428 | N/A | N/A | −0.724 | 428 | 188 | 10% | −0.270 | 436 | 149 | 6% |
| 15 | −0.591 | 430 | N/A | N/A | −0.591 | 430 | 173 | 9% | −0.146 | 439 | 243 | 10% |
| 16 | N/A | N/A | N/A | N/A | −0.461 | 433 | 208 | 11% | −0.025 | 441 | 250 | 10% |
| 17 | N/A | N/A | N/A | N/A | −0.334 | 435 | 175 | 10% | 0.093 | 443 | 265 | 11% |
| 18 | N/A | N/A | N/A | N/A | −0.210 | 437 | 153 | 8% | 0.209 | 445 | 227 | 9% |
| 19 | N/A | N/A | N/A | N/A | −0.087 | 440 | 107 | 6% | 0.325 | 447 | 228 | 9% |
| 20 | N/A | N/A | N/A | N/A | 0.035 | 442 | 80 | 4% | 0.441 | 450 | 147 | 6% |
| 21 | N/A | N/A | N/A | N/A | 0.158 | 444 | 42 | 2% | 0.558 | 452 | 127 | 5% |
| 22 | N/A | N/A | N/A | N/A | 0.282 | 447 | 13 | 1% | 0.678 | 454 | 127 | 5% |
| 23 | N/A | N/A | N/A | N/A | 0.408 | 449 | 22 | 1% | 0.801 | 456 | 101 | 4% |
| 24 | N/A | N/A | N/A | N/A | 0.537 | 451 | 6 | 0% | 0.928 | 459 | 84 | 3% |
| 25 | N/A | N/A | N/A | N/A | 0.672 | 454 | 2 | 0% | 1.061 | 461 | 47 | 2% |
| 26 | N/A | N/A | N/A | N/A | 0.813 | 457 | 1 | 0% | 1.203 | 464 | 52 | 2% |
| 27 | N/A | N/A | N/A | N/A | 0.963 | 459 | N/A | N/A | 1.354 | 467 | 40 | 2% |
| 28 | N/A | N/A | N/A | N/A | 1.124 | 462 | N/A | N/A | 1.519 | 470 | 29 | 1% |
| 29 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.701 | 473 | 21 | 1% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.905 | 477 | 15 | 1% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.139 | 481 | 15 | 1% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.418 | 487 | 6 | 0% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.764 | 493 | 11 | 0% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.232 | 499 | 4 | 0% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.992 | 499 | 4 | 0% |
| 36 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 499 | 1 | 0% |

Table 7.B.10 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 500 | 634 | 68% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 501 | 195 | 21% | N/A | 501 | 12 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 503 | 17 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −3.765 | 503 | 41 | 4% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −3.030 | 503 | 13 | 1% | −3.030 | 503 | 16 | 1% | N/A | N/A | N/A | N/A |
| 3 | −2.583 | 503 | 11 | 1% | −2.583 | 503 | 20 | 1% | N/A | N/A | N/A | N/A |
| 4 | −2.254 | 503 | 7 | 1% | −2.254 | 503 | 21 | 1% | N/A | N/A | N/A | N/A |
| 5 | −1.988 | 504 | 2 | 0% | −1.988 | 504 | 25 | 1% | N/A | N/A | N/A | N/A |
| 6 | −1.763 | 508 | N/A | N/A | −1.763 | 508 | 20 | 1% | N/A | N/A | N/A | N/A |
| 7 | −1.566 | 512 | 1 | 0% | −1.566 | 512 | 28 | 1% | N/A | N/A | N/A | N/A |
| 8 | −1.388 | 515 | 3 | 0% | −1.388 | 515 | 28 | 1% | N/A | N/A | N/A | N/A |
| 9 | −1.226 | 518 | 2 | 0% | −1.226 | 518 | 37 | 1% | −0.794 | 526 | 2 | 0% |
| 10 | −1.075 | 521 | 2 | 0% | −1.075 | 521 | 54 | 2% | −0.633 | 529 | 4 | 0% |
| 11 | −0.933 | 524 | 1 | 0% | −0.933 | 524 | 80 | 3% | −0.481 | 532 | 10 | 1% |
| 12 | −0.798 | 526 | N/A | N/A | −0.798 | 526 | 115 | 4% | −0.338 | 535 | 17 | 1% |
| 13 | −0.668 | 529 | N/A | N/A | −0.668 | 529 | 175 | 6% | −0.201 | 538 | 34 | 2% |
| 14 | −0.543 | 531 | N/A | N/A | −0.543 | 531 | 228 | 8% | −0.069 | 540 | 62 | 4% |
| 15 | N/A | N/A | N/A | N/A | −0.421 | 533 | 291 | 10% | 0.059 | 542 | 103 | 7% |
| 16 | N/A | N/A | N/A | N/A | −0.301 | 536 | 318 | 11% | 0.185 | 545 | 156 | 11% |
| 17 | N/A | N/A | N/A | N/A | −0.183 | 538 | 311 | 11% | 0.308 | 547 | 149 | 10% |
| 18 | N/A | N/A | N/A | N/A | −0.066 | 540 | 289 | 10% | 0.430 | 549 | 182 | 12% |
| 19 | N/A | N/A | N/A | N/A | 0.051 | 542 | 219 | 8% | 0.552 | 552 | 177 | 12% |
| 20 | N/A | N/A | N/A | N/A | 0.169 | 544 | 188 | 7% | 0.674 | 554 | 127 | 9% |
| 21 | N/A | N/A | N/A | N/A | 0.288 | 547 | 127 | 5% | 0.798 | 556 | 114 | 8% |
| 22 | N/A | N/A | N/A | N/A | 0.410 | 549 | 93 | 3% | 0.924 | 559 | 63 | 4% |
| 23 | N/A | N/A | N/A | N/A | 0.534 | 551 | 52 | 2% | 1.053 | 561 | 64 | 4% |
| 24 | N/A | N/A | N/A | N/A | 0.663 | 554 | 18 | 1% | 1.187 | 564 | 42 | 3% |
| 25 | N/A | N/A | N/A | N/A | 0.797 | 556 | 15 | 1% | 1.327 | 566 | 31 | 2% |
| 26 | N/A | N/A | N/A | N/A | 0.939 | 559 | 4 | 0% | 1.475 | 569 | 38 | 3% |
| 27 | N/A | N/A | N/A | N/A | 1.089 | 562 | 2 | 0% | 1.635 | 572 | 23 | 2% |
| 28 | N/A | N/A | N/A | N/A | 1.250 | 565 | 1 | 0% | 1.809 | 575 | 23 | 2% |
| 29 | N/A | N/A | N/A | N/A | 1.427 | 568 | N/A | N/A | 2.002 | 579 | 17 | 1% |
| 30 | N/A | N/A | N/A | N/A | 1.623 | 572 | N/A | N/A | 2.222 | 583 | 9 | 1% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.483 | 588 | 11 | 1% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.807 | 594 | 8 | 1% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.249 | 599 | 5 | 0% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.977 | 599 | 1 | 0% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 599 | 1 | 0% |

Table 7.B.11 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 600 | 600 | 72% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 601 | 142 | 17% | N/A | 601 | 4 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 603 | 16 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −3.722 | 603 | 37 | 4% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −2.984 | 603 | 12 | 1% | −2.984 | 603 | 9 | 0% | N/A | N/A | N/A | N/A |
| 3 | −2.533 | 603 | 13 | 2% | −2.533 | 603 | 17 | 1% | N/A | N/A | N/A | N/A |
| 4 | −2.199 | 603 | 5 | 1% | −2.199 | 603 | 17 | 1% | N/A | N/A | N/A | N/A |
| 5 | −1.929 | 605 | 1 | 0% | −1.929 | 605 | 16 | 1% | N/A | N/A | N/A | N/A |
| 6 | −1.699 | 609 | 4 | 0% | −1.699 | 609 | 20 | 1% | N/A | N/A | N/A | N/A |
| 7 | −1.495 | 613 | 1 | 0% | −1.495 | 613 | 30 | 1% | N/A | N/A | N/A | N/A |
| 8 | −1.311 | 617 | 1 | 0% | −1.311 | 617 | 34 | 1% | −1.040 | 622 | 6 | 0% |
| 9 | −1.142 | 620 | N/A | N/A | −1.142 | 620 | 58 | 3% | −0.869 | 625 | N/A | N/A |
| 10 | −0.983 | 623 | 1 | 0% | −0.983 | 623 | 116 | 5% | −0.709 | 628 | 5 | 0% |
| 11 | −0.832 | 626 | N/A | N/A | −0.832 | 626 | 144 | 6% | −0.557 | 631 | 16 | 1% |
| 12 | −0.688 | 628 | 1 | 0% | −0.688 | 628 | 205 | 9% | −0.411 | 634 | 40 | 2% |
| 13 | −0.548 | 631 | 1 | 0% | −0.548 | 631 | 271 | 12% | −0.270 | 636 | 70 | 4% |
| 14 | N/A | N/A | N/A | N/A | −0.411 | 634 | 314 | 14% | −0.132 | 639 | 132 | 7% |
| 15 | N/A | N/A | N/A | N/A | −0.276 | 636 | 273 | 12% | 0.004 | 641 | 155 | 8% |
| 16 | N/A | N/A | N/A | N/A | −0.141 | 639 | 256 | 11% | 0.139 | 644 | 165 | 9% |
| 17 | N/A | N/A | N/A | N/A | −0.007 | 641 | 215 | 9% | 0.274 | 646 | 181 | 10% |
| 18 | N/A | N/A | N/A | N/A | 0.129 | 644 | 142 | 6% | 0.410 | 649 | 186 | 10% |
| 19 | N/A | N/A | N/A | N/A | 0.267 | 646 | 79 | 3% | 0.547 | 652 | 163 | 9% |
| 20 | N/A | N/A | N/A | N/A | 0.408 | 649 | 50 | 2% | 0.688 | 654 | 126 | 7% |
| 21 | N/A | N/A | N/A | N/A | 0.554 | 652 | 12 | 1% | 0.832 | 657 | 125 | 7% |
| 22 | N/A | N/A | N/A | N/A | 0.706 | 655 | 10 | 0% | 0.982 | 660 | 115 | 6% |
| 23 | N/A | N/A | N/A | N/A | 0.865 | 658 | 5 | 0% | 1.139 | 663 | 94 | 5% |
| 24 | N/A | N/A | N/A | N/A | 1.034 | 661 | N/A | N/A | 1.306 | 666 | 79 | 4% |
| 25 | N/A | N/A | N/A | N/A | 1.215 | 664 | 1 | 0% | 1.484 | 669 | 60 | 3% |
| 26 | N/A | N/A | N/A | N/A | 1.413 | 668 | N/A | N/A | 1.677 | 673 | 53 | 3% |
| 27 | N/A | N/A | N/A | N/A | 1.631 | 672 | N/A | N/A | 1.892 | 677 | 35 | 2% |
| 28 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.134 | 681 | 35 | 2% |
| 29 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.419 | 687 | 24 | 1% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.769 | 693 | 21 | 1% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.238 | 699 | 10 | 1% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.997 | 699 | 3 | 0% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 699 | 1 | 0% |

Table 7.B.12 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 700 | 521 | 65% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 701 | 172 | 22% | N/A | 701 | 7 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 703 | 14 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −3.967 | 703 | 19 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −3.222 | 703 | 13 | 2% | −3.222 | 703 | 7 | 0% | N/A | N/A | N/A | N/A |
| 3 | −2.766 | 703 | 21 | 3% | −2.766 | 703 | 9 | 0% | N/A | N/A | N/A | N/A |
| 4 | −2.429 | 703 | 10 | 1% | −2.429 | 703 | 14 | 0% | N/A | N/A | N/A | N/A |
| 5 | −2.158 | 703 | 7 | 1% | −2.158 | 703 | 21 | 1% | N/A | N/A | N/A | N/A |
| 6 | −1.928 | 705 | 1 | 0% | −1.928 | 705 | 19 | 1% | N/A | N/A | N/A | N/A |
| 7 | −1.728 | 709 | 3 | 0% | −1.728 | 709 | 21 | 1% | N/A | N/A | N/A | N/A |
| 8 | −1.548 | 712 | 6 | 1% | −1.548 | 712 | 8 | 0% | N/A | N/A | N/A | N/A |
| 9 | −1.385 | 715 | 3 | 0% | −1.385 | 715 | 21 | 1% | N/A | N/A | N/A | N/A |
| 10 | −1.234 | 718 | 4 | 1% | −1.234 | 718 | 27 | 1% | N/A | N/A | N/A | N/A |
| 11 | −1.093 | 721 | 2 | 0% | −1.093 | 721 | 28 | 1% | −0.638 | 729 | N/A | N/A |
| 12 | −0.961 | 723 | N/A | N/A | −0.961 | 723 | 44 | 1% | −0.501 | 732 | N/A | N/A |
| 13 | −0.835 | 726 | 2 | 0% | −0.835 | 726 | 80 | 3% | −0.369 | 734 | 2 | 0% |
| 14 | −0.714 | 728 | N/A | N/A | −0.714 | 728 | 102 | 3% | −0.242 | 737 | 5 | 0% |
| 15 | −0.597 | 730 | 2 | 0% | −0.597 | 730 | 170 | 5% | −0.117 | 739 | 4 | 0% |
| 16 | −0.483 | 732 | N/A | N/A | −0.483 | 732 | 203 | 6% | 0.006 | 741 | 14 | 1% |
| 17 | N/A | N/A | N/A | N/A | −0.371 | 734 | 241 | 8% | 0.127 | 744 | 24 | 2% |
| 18 | N/A | N/A | N/A | N/A | −0.261 | 736 | 282 | 9% | 0.249 | 746 | 53 | 4% |
| 19 | N/A | N/A | N/A | N/A | −0.152 | 738 | 320 | 10% | 0.371 | 748 | 77 | 6% |
| 20 | N/A | N/A | N/A | N/A | −0.043 | 740 | 343 | 11% | 0.495 | 751 | 94 | 8% |
| 21 | N/A | N/A | N/A | N/A | 0.067 | 743 | 301 | 10% | 0.621 | 753 | 114 | 9% |
| 22 | N/A | N/A | N/A | N/A | 0.178 | 745 | 249 | 8% | 0.750 | 755 | 111 | 9% |
| 23 | N/A | N/A | N/A | N/A | 0.291 | 747 | 200 | 6% | 0.884 | 758 | 106 | 9% |
| 24 | N/A | N/A | N/A | N/A | 0.407 | 749 | 150 | 5% | 1.023 | 760 | 126 | 10% |
| 25 | N/A | N/A | N/A | N/A | 0.526 | 751 | 106 | 3% | 1.169 | 763 | 94 | 8% |
| 26 | N/A | N/A | N/A | N/A | 0.650 | 753 | 63 | 2% | 1.322 | 766 | 99 | 8% |
| 27 | N/A | N/A | N/A | N/A | 0.780 | 756 | 43 | 1% | 1.485 | 769 | 77 | 6% |
| 28 | N/A | N/A | N/A | N/A | 0.916 | 758 | 30 | 1% | 1.660 | 772 | 62 | 5% |
| 29 | N/A | N/A | N/A | N/A | 1.061 | 761 | 10 | 0% | 1.849 | 776 | 46 | 4% |
| 30 | N/A | N/A | N/A | N/A | 1.217 | 764 | 9 | 0% | 2.055 | 780 | 45 | 4% |
| 31 | N/A | N/A | N/A | N/A | 1.385 | 767 | N/A | N/A | 2.285 | 784 | 26 | 2% |
| 32 | N/A | N/A | N/A | N/A | 1.570 | 771 | 1 | 0% | 2.545 | 789 | 25 | 2% |
| 33 | N/A | N/A | N/A | N/A | 1.777 | 775 | N/A | N/A | 2.847 | 795 | 16 | 1% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.217 | 799 | 13 | 1% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.705 | 799 | 2 | 0% |
| 36 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 4.481 | 799 | 4 | 0% |
| 37 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 799 | N/A | N/A |

Table 7.B.13 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 800 | 538 | 68% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 801 | 154 | 19% | N/A | 801 | 2 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 803 | 9 | 1% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −4.146 | 803 | 17 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −3.404 | 803 | 30 | 4% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 | −2.950 | 803 | 9 | 1% | −2.950 | 803 | 1 | 0% | N/A | N/A | N/A | N/A |
| 4 | −2.613 | 803 | 8 | 1% | −2.613 | 803 | 11 | 1% | N/A | N/A | N/A | N/A |
| 5 | −2.340 | 803 | 10 | 1% | −2.340 | 803 | 9 | 0% | N/A | N/A | N/A | N/A |
| 6 | −2.107 | 803 | 6 | 1% | −2.107 | 803 | 8 | 0% | N/A | N/A | N/A | N/A |
| 7 | −1.903 | 806 | 3 | 0% | −1.903 | 806 | 10 | 0% | N/A | N/A | N/A | N/A |
| 8 | −1.718 | 809 | 3 | 0% | −1.718 | 809 | 13 | 1% | N/A | N/A | N/A | N/A |
| 9 | −1.548 | 812 | 2 | 0% | −1.548 | 812 | 16 | 1% | N/A | N/A | N/A | N/A |
| 10 | −1.390 | 815 | 3 | 0% | −1.390 | 815 | 26 | 1% | −0.916 | 824 | 2 | 0% |
| 11 | −1.241 | 818 | 1 | 0% | −1.241 | 818 | 39 | 2% | −0.765 | 827 | N/A | N/A |
| 12 | −1.099 | 821 | N/A | N/A | −1.099 | 821 | 46 | 2% | −0.620 | 830 | 6 | 0% |
| 13 | −0.963 | 823 | 1 | 0% | −0.963 | 823 | 94 | 4% | −0.481 | 832 | 19 | 1% |
| 14 | −0.831 | 826 | 2 | 0% | −0.831 | 826 | 124 | 6% | −0.346 | 835 | 32 | 2% |
| 15 | −0.703 | 828 | N/A | N/A | −0.703 | 828 | 174 | 8% | −0.215 | 837 | 78 | 4% |
| 16 | −0.577 | 830 | N/A | N/A | −0.577 | 830 | 202 | 10% | −0.085 | 840 | 100 | 5% |
| 17 | −0.453 | 833 | N/A | N/A | −0.453 | 833 | 255 | 12% | 0.043 | 842 | 139 | 7% |
| 18 | N/A | N/A | N/A | N/A | −0.329 | 835 | 257 | 12% | 0.170 | 844 | 166 | 8% |
| 19 | N/A | N/A | N/A | N/A | −0.207 | 837 | 248 | 12% | 0.297 | 847 | 189 | 10% |
| 20 | N/A | N/A | N/A | N/A | −0.083 | 840 | 183 | 9% | 0.425 | 849 | 187 | 9% |
| 21 | N/A | N/A | N/A | N/A | 0.041 | 842 | 149 | 7% | 0.555 | 852 | 171 | 9% |
| 22 | N/A | N/A | N/A | N/A | 0.168 | 844 | 98 | 5% | 0.687 | 854 | 138 | 7% |
| 23 | N/A | N/A | N/A | N/A | 0.297 | 847 | 68 | 3% | 0.823 | 857 | 126 | 6% |
| 24 | N/A | N/A | N/A | N/A | 0.430 | 849 | 33 | 2% | 0.963 | 859 | 125 | 6% |
| 25 | N/A | N/A | N/A | N/A | 0.568 | 852 | 19 | 1% | 1.109 | 862 | 108 | 5% |
| 26 | N/A | N/A | N/A | N/A | 0.713 | 855 | 6 | 0% | 1.262 | 865 | 93 | 5% |
| 27 | N/A | N/A | N/A | N/A | 0.866 | 858 | 2 | 0% | 1.424 | 868 | 86 | 4% |
| 28 | N/A | N/A | N/A | N/A | 1.030 | 861 | N/A | N/A | 1.598 | 871 | 52 | 3% |
| 29 | N/A | N/A | N/A | N/A | 1.208 | 864 | N/A | N/A | 1.788 | 875 | 48 | 2% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.997 | 879 | 35 | 2% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.235 | 883 | 21 | 1% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.513 | 888 | 29 | 1% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.856 | 895 | 10 | 1% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.317 | 899 | 16 | 1% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 4.066 | 899 | 7 | 0% |
| 36 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 899 | 2 | 0% |

Table 7.B.14 Raw-Score-to-Scale-Score Distribution—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 | Hard Pathway Theta | Hard Pathway Scale Score | Hard Pathway N | Hard Pathway Percent |
| LOSS | N/A | 900 | 433 | 67% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| LOSS+1 | N/A | 901 | 134 | 21% | N/A | 901 | 3 | 0% | N/A | N/A | N/A | N/A |
| 0 | −6.000 | 903 | 13 | 2% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 | −3.901 | 903 | 48 | 7% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 | −3.163 | 903 | 5 | 1% | −3.163 | 903 | 5 | 0% | N/A | N/A | N/A | N/A |
| 3 | −2.714 | 903 | 1 | 0% | −2.714 | 903 | 6 | 0% | N/A | N/A | N/A | N/A |
| 4 | −2.382 | 903 | 1 | 0% | −2.382 | 903 | 14 | 1% | N/A | N/A | N/A | N/A |
| 5 | −2.115 | 903 | 3 | 0% | −2.115 | 903 | 15 | 1% | N/A | N/A | N/A | N/A |
| 6 | −1.889 | 906 | N/A | N/A | −1.889 | 906 | 24 | 1% | N/A | N/A | N/A | N/A |
| 7 | −1.691 | 910 | 2 | 0% | −1.691 | 910 | 24 | 1% | N/A | N/A | N/A | N/A |
| 8 | −1.513 | 913 | 3 | 0% | −1.513 | 913 | 27 | 1% | −1.101 | 921 | N/A | N/A |
| 9 | −1.350 | 916 | 1 | 0% | −1.350 | 916 | 52 | 3% | −0.939 | 924 | 1 | 0% |
| 10 | −1.199 | 919 | 1 | 0% | −1.199 | 919 | 54 | 3% | −0.790 | 926 | 4 | 0% |
| 11 | −1.058 | 921 | N/A | N/A | −1.058 | 921 | 91 | 5% | −0.650 | 929 | 5 | 0% |
| 12 | −0.923 | 924 | N/A | N/A | −0.923 | 924 | 112 | 6% | −0.517 | 932 | 16 | 1% |
| 13 | −0.795 | 926 | 2 | 0% | −0.795 | 926 | 158 | 8% | −0.389 | 934 | 27 | 1% |
| 14 | −0.671 | 929 | N/A | N/A | −0.671 | 929 | 188 | 9% | −0.265 | 936 | 51 | 3% |
| 15 | N/A | N/A | N/A | N/A | −0.549 | 931 | 190 | 9% | −0.144 | 939 | 87 | 4% |
| 16 | N/A | N/A | N/A | N/A | −0.430 | 933 | 249 | 12% | −0.023 | 941 | 139 | 7% |
| 17 | N/A | N/A | N/A | N/A | −0.313 | 935 | 207 | 10% | 0.097 | 943 | 165 | 8% |
| 18 | N/A | N/A | N/A | N/A | −0.195 | 938 | 180 | 9% | 0.219 | 945 | 162 | 8% |
| 19 | N/A | N/A | N/A | N/A | −0.076 | 940 | 138 | 7% | 0.342 | 948 | 179 | 9% |
| 20 | N/A | N/A | N/A | N/A | 0.045 | 942 | 108 | 5% | 0.468 | 950 | 207 | 11% |
| 21 | N/A | N/A | N/A | N/A | 0.168 | 944 | 85 | 4% | 0.599 | 953 | 180 | 9% |
| 22 | N/A | N/A | N/A | N/A | 0.295 | 947 | 43 | 2% | 0.734 | 955 | 151 | 8% |
| 23 | N/A | N/A | N/A | N/A | 0.428 | 949 | 25 | 1% | 0.874 | 958 | 139 | 7% |
| 24 | N/A | N/A | N/A | N/A | 0.568 | 952 | 9 | 0% | 1.022 | 960 | 94 | 5% |
| 25 | N/A | N/A | N/A | N/A | 0.717 | 955 | 5 | 0% | 1.178 | 963 | 98 | 5% |
| 26 | N/A | N/A | N/A | N/A | 0.878 | 958 | N/A | N/A | 1.343 | 966 | 59 | 3% |
| 27 | N/A | N/A | N/A | N/A | 1.053 | 961 | N/A | N/A | 1.519 | 970 | 52 | 3% |
| 28 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.710 | 973 | 34 | 2% |
| 29 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1.918 | 977 | 29 | 1% |
| 30 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.152 | 982 | 18 | 1% |
| 31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.422 | 987 | 24 | 1% |
| 32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.752 | 993 | 17 | 1% |
| 33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.194 | 999 | 10 | 1% |
| 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.920 | 999 | 3 | 0% |
| 35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.000 | 999 | 5 | 0% |

### Appendix 7.C: Scale Scores of Assessments

Table 7.C.1 Percentiles of Scale Scores in 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 | 601 | 701 | 801 | 901 |
| p20 | 310 | 418 | 513 | 629 | 725 | 832 | 934 |
| p30 | 330 | 428 | 530 | 635 | 733 | 839 | 939 |
| p40 | 338 | 434 | 536 | 640 | 737 | 842 | 944 |
| p50 | 343 | 440 | 542 | 645 | 743 | 846 | 948 |
| p60 | 349 | 445 | 547 | 646 | 749 | 850 | 951 |
| p70 | 354 | 451 | 552 | 650 | 754 | 853 | 954 |
| p80 | 360 | 456 | 556 | 656 | 758 | 857 | 957 |
| p90 | 368 | 463 | 564 | 660 | 765 | 861 | 963 |
| p99 | 399 | 485 | 584 | 674 | 785 | 877 | 979 |

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 | 901 |
| p20 | 303 | 403 | 512 | 620 | 726 | 823 | 921 |
| p30 | 324 | 425 | 529 | 628 | 732 | 830 | 929 |
| p40 | 332 | 431 | 533 | 634 | 736 | 835 | 933 |
| p50 | 336 | 436 | 538 | 639 | 740 | 837 | 938 |
| p60 | 339 | 439 | 540 | 641 | 744 | 842 | 942 |
| p70 | 344 | 443 | 544 | 644 | 747 | 847 | 945 |
| p80 | 351 | 447 | 549 | 649 | 753 | 852 | 952 |
| p90 | 358 | 454 | 554 | 660 | 763 | 862 | 958 |
| p99 | 382 | 477 | 579 | 687 | 789 | 888 | 987 |

**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] | 900 | 900 | 17% | 17% |
| [303, 305] | 140 | 1,040 | 3% | 19% |
| [306, 308] | 17 | 1,057 | 0% | 20% |
| [309, 311] | 32 | 1,089 | 1% | 20% |
| [312, 314] | 34 | 1,123 | 1% | 21% |
| [315, 317] | 31 | 1,154 | 1% | 22% |
| [318, 320] | 88 | 1,242 | 2% | 23% |
| [321, 323] | 47 | 1,289 | 1% | 24% |
| [324, 326] | 132 | 1,421 | 2% | 27% |
| [327, 329] | 107 | 1,528 | 2% | 29% |
| [330, 332] | 228 | 1,756 | 4% | 33% |
| [333, 335] | 146 | 1,902 | 3% | 35% |
| [336, 338] | 288 | 2,190 | 5% | 41% |
| [339, 341] | 348 | 2,538 | 6% | 47% |
| [342, 344] | 264 | 2,802 | 5% | 52% |
| [345, 347] | 375 | 3,177 | 7% | 59% |
| [348, 350] | 234 | 3,411 | 4% | 64% |
| [351, 353] | 204 | 3,615 | 4% | 67% |
| [354, 356] | 404 | 4,019 | 8% | 75% |
| [357, 359] | 180 | 4,199 | 3% | 78% |
| [360, 362] | 175 | 4,374 | 3% | 82% |
| [363, 365] | 332 | 4,706 | 6% | 88% |
| [366, 368] | 150 | 4,856 | 3% | 91% |
| [369, 371] | 119 | 4,975 | 2% | 93% |
| [372, 374] | 108 | 5,083 | 2% | 95% |
| [375, 377] | 0 | 5,083 | 0% | 95% |
| [378, 380] | 98 | 5,181 | 2% | 97% |
| [381, 383] | 69 | 5,250 | 1% | 98% |
| [384, 386] | 0 | 5,250 | 0% | 98% |
| [387, 389] | 44 | 5,294 | 1% | 99% |
| [390, 392] | 0 | 5,294 | 0% | 99% |
| [393, 395] | 0 | 5,294 | 0% | 99% |
| [396, 398] | 0 | 5,294 | 0% | 99% |
| [399, 399] | 65 | 5,359 | 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] | 792 | 792 | 15% | 15% |
| [403, 405] | 161 | 953 | 3% | 18% |
| [406, 408] | 15 | 968 | 0% | 19% |
| [409, 411] | 14 | 982 | 0% | 19% |
| [412, 414] | 18 | 1,000 | 0% | 19% |
| [415, 417] | 28 | 1,028 | 1% | 20% |
| [418, 420] | 103 | 1,131 | 2% | 22% |
| [421, 423] | 69 | 1,200 | 1% | 23% |
| [424, 426] | 225 | 1,425 | 4% | 27% |
| [427, 429] | 165 | 1,590 | 3% | 30% |
| [430, 432] | 378 | 1,968 | 7% | 38% |
| [433, 435] | 193 | 2,161 | 4% | 41% |
| [436, 438] | 370 | 2,531 | 7% | 48% |
| [439, 441] | 243 | 2,774 | 5% | 53% |
| [442, 444] | 289 | 3,063 | 6% | 59% |
| [445, 447] | 375 | 3,438 | 7% | 66% |
| [448, 450] | 200 | 3,638 | 4% | 70% |
| [451, 453] | 407 | 4,045 | 8% | 77% |
| [454, 456] | 204 | 4,249 | 4% | 81% |
| [457, 459] | 176 | 4,425 | 3% | 85% |
| [460, 462] | 183 | 4,608 | 3% | 88% |
| [463, 465] | 145 | 4,753 | 3% | 91% |
| [466, 468] | 139 | 4,892 | 3% | 94% |
| [469, 471] | 116 | 5,008 | 2% | 96% |
| [472, 474] | 82 | 5,090 | 2% | 97% |
| [475, 477] | 0 | 5,090 | 0% | 97% |
| [478, 480] | 75 | 5,165 | 1% | 99% |
| [481, 483] | 0 | 5,165 | 0% | 99% |
| [484, 486] | 41 | 5,206 | 1% | 100% |
| [487, 489] | 0 | 5,206 | 0% | 100% |
| [490, 492] | 0 | 5,206 | 0% | 100% |
| [493, 495] | 0 | 5,206 | 0% | 100% |
| [496, 498] | 14 | 5,220 | 0% | 100% |
| [499, 499] | 9 | 5,229 | 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] | 759 | 759 | 15% | 15% |
| [503, 505] | 196 | 955 | 4% | 18% |
| [506, 508] | 40 | 995 | 1% | 19% |
| [509, 511] | 18 | 1,013 | 0% | 20% |
| [512, 514] | 29 | 1,042 | 1% | 20% |
| [515, 517] | 27 | 1,069 | 1% | 21% |
| [518, 520] | 69 | 1,138 | 1% | 22% |
| [521, 523] | 66 | 1,204 | 1% | 23% |
| [524, 526] | 163 | 1,367 | 3% | 26% |
| [527, 529] | 126 | 1,493 | 2% | 29% |
| [530, 532] | 294 | 1,787 | 6% | 34% |
| [533, 535] | 170 | 1,957 | 3% | 38% |
| [536, 538] | 341 | 2,298 | 7% | 44% |
| [539, 541] | 203 | 2,501 | 4% | 48% |
| [542, 544] | 346 | 2,847 | 7% | 55% |
| [545, 547] | 433 | 3,280 | 8% | 63% |
| [548, 550] | 232 | 3,512 | 4% | 68% |
| [551, 553] | 230 | 3,742 | 4% | 72% |
| [554, 556] | 429 | 4,171 | 8% | 81% |
| [557, 559] | 201 | 4,372 | 4% | 84% |
| [560, 562] | 200 | 4,572 | 4% | 88% |
| [563, 565] | 156 | 4,728 | 3% | 91% |
| [566, 568] | 146 | 4,874 | 3% | 94% |
| [569, 571] | 0 | 4,874 | 0% | 94% |
| [572, 574] | 130 | 5,004 | 3% | 97% |
| [575, 577] | 89 | 5,093 | 2% | 98% |
| [578, 580] | 0 | 5,093 | 0% | 98% |
| [581, 583] | 0 | 5,093 | 0% | 98% |
| [584, 586] | 43 | 5,136 | 1% | 99% |
| [587, 589] | 0 | 5,136 | 0% | 99% |
| [590, 592] | 0 | 5,136 | 0% | 99% |
| [593, 595] | 33 | 5,169 | 1% | 100% |
| [596, 598] | 0 | 5,169 | 0% | 100% |
| [599, 599] | 11 | 5,180 | 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] | 628 | 628 | 12% | 12% |
| [603, 605] | 113 | 741 | 2% | 15% |
| [606, 608] | 8 | 749 | 0% | 15% |
| [609, 611] | 20 | 769 | 0% | 15% |
| [612, 614] | 19 | 788 | 0% | 16% |
| [615, 617] | 19 | 807 | 0% | 16% |
| [618, 620] | 22 | 829 | 0% | 16% |
| [621, 623] | 45 | 874 | 1% | 17% |
| [624, 626] | 66 | 940 | 1% | 19% |
| [627, 629] | 119 | 1,059 | 2% | 21% |
| [630, 632] | 203 | 1,262 | 4% | 25% |
| [633, 635] | 263 | 1,525 | 5% | 30% |
| [636, 638] | 320 | 1,845 | 6% | 37% |
| [639, 641] | 406 | 2,251 | 8% | 45% |
| [642, 644] | 230 | 2,481 | 5% | 49% |
| [645, 647] | 550 | 3,031 | 11% | 60% |
| [648, 650] | 491 | 3,522 | 10% | 70% |
| [651, 653] | 245 | 3,767 | 5% | 75% |
| [654, 656] | 434 | 4,201 | 9% | 84% |
| [657, 659] | 198 | 4,399 | 4% | 87% |
| [660, 662] | 181 | 4,580 | 4% | 91% |
| [663, 665] | 164 | 4,744 | 3% | 94% |
| [666, 668] | 119 | 4,863 | 2% | 97% |
| [669, 671] | 80 | 4,943 | 2% | 98% |
| [672, 674] | 51 | 4,994 | 1% | 99% |
| [675, 677] | 0 | 4,994 | 0% | 99% |
| [678, 680] | 23 | 5,017 | 0% | 100% |
| [681, 683] | 0 | 5,017 | 0% | 100% |
| [684, 686] | 0 | 5,017 | 0% | 100% |
| [687, 689] | 9 | 5,026 | 0% | 100% |
| [690, 692] | 0 | 5,026 | 0% | 100% |
| [693, 695] | 0 | 5,026 | 0% | 100% |
| [696, 698] | 0 | 5,026 | 0% | 100% |
| [699, 699] | 4 | 5,030 | 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] | 626 | 626 | 12% | 12% |
| [703, 705] | 167 | 793 | 3% | 15% |
| [706, 708] | 18 | 811 | 0% | 16% |
| [709, 711] | 11 | 822 | 0% | 16% |
| [712, 714] | 15 | 837 | 0% | 16% |
| [715, 717] | 34 | 871 | 1% | 17% |
| [718, 720] | 40 | 911 | 1% | 18% |
| [721, 723] | 51 | 962 | 1% | 19% |
| [724, 726] | 78 | 1,040 | 2% | 20% |
| [727, 729] | 250 | 1,290 | 5% | 25% |
| [730, 732] | 160 | 1,450 | 3% | 28% |
| [733, 735] | 405 | 1,855 | 8% | 36% |
| [736, 738] | 309 | 2,164 | 6% | 42% |
| [739, 741] | 211 | 2,375 | 4% | 46% |
| [742, 744] | 315 | 2,690 | 6% | 52% |
| [745, 747] | 395 | 3,085 | 8% | 59% |
| [748, 750] | 238 | 3,323 | 5% | 64% |
| [751, 753] | 206 | 3,529 | 4% | 68% |
| [754, 756] | 502 | 4,031 | 10% | 78% |
| [757, 759] | 211 | 4,242 | 4% | 82% |
| [760, 762] | 206 | 4,448 | 4% | 86% |
| [763, 765] | 336 | 4,784 | 6% | 92% |
| [766, 768] | 107 | 4,891 | 2% | 94% |
| [769, 771] | 94 | 4,985 | 2% | 96% |
| [772, 774] | 0 | 4,985 | 0% | 96% |
| [775, 777] | 89 | 5,074 | 2% | 98% |
| [778, 780] | 56 | 5,130 | 1% | 99% |
| [781, 783] | 0 | 5,130 | 0% | 99% |
| [784, 786] | 31 | 5,161 | 1% | 100% |
| [787, 789] | 0 | 5,161 | 0% | 100% |
| [790, 792] | 16 | 5,177 | 0% | 100% |
| [793, 795] | 0 | 5,177 | 0% | 100% |
| [796, 798] | 0 | 5,177 | 0% | 100% |
| [799, 799] | 8 | 5,185 | 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] | 579 | 579 | 12% | 12% |
| [803, 805] | 108 | 687 | 2% | 14% |
| [806, 808] | 13 | 700 | 0% | 14% |
| [809, 811] | 19 | 719 | 0% | 15% |
| [812, 814] | 14 | 733 | 0% | 15% |
| [815, 817] | 9 | 742 | 0% | 15% |
| [818, 820] | 22 | 764 | 0% | 16% |
| [821, 823] | 17 | 781 | 0% | 16% |
| [824, 826] | 41 | 822 | 1% | 17% |
| [827, 829] | 71 | 893 | 1% | 18% |
| [830, 832] | 116 | 1,009 | 2% | 21% |
| [833, 835] | 103 | 1,112 | 2% | 23% |
| [836, 838] | 241 | 1,353 | 5% | 28% |
| [839, 841] | 420 | 1,773 | 9% | 36% |
| [842, 844] | 427 | 2,200 | 9% | 45% |
| [845, 847] | 452 | 2,652 | 9% | 54% |
| [848, 850] | 428 | 3,080 | 9% | 63% |
| [851, 853] | 553 | 3,633 | 11% | 74% |
| [854, 856] | 256 | 3,889 | 5% | 79% |
| [857, 859] | 385 | 4,274 | 8% | 87% |
| [860, 862] | 153 | 4,427 | 3% | 90% |
| [863, 865] | 218 | 4,645 | 4% | 95% |
| [866, 868] | 71 | 4,716 | 1% | 96% |
| [869, 871] | 58 | 4,774 | 1% | 98% |
| [872, 874] | 52 | 4,826 | 1% | 99% |
| [875, 877] | 36 | 4,862 | 1% | 99% |
| [878, 880] | 0 | 4,862 | 0% | 99% |
| [881, 883] | 23 | 4,885 | 0% | 100% |
| [884, 886] | 0 | 4,885 | 0% | 100% |
| [887, 889] | 6 | 4,891 | 0% | 100% |
| [890, 892] | 0 | 4,891 | 0% | 100% |
| [893, 895] | 0 | 4,891 | 0% | 100% |
| [896, 898] | 3 | 4,894 | 0% | 100% |
| [899, 899] | 1 | 4,895 | 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] | 497 | 497 | 11% | 11% |
| [903, 905] | 58 | 555 | 1% | 12% |
| [906, 908] | 40 | 595 | 1% | 13% |
| [909, 911] | 0 | 595 | 0% | 13% |
| [912, 914] | 2 | 597 | 0% | 13% |
| [915, 917] | 11 | 608 | 0% | 13% |
| [918, 920] | 42 | 650 | 1% | 14% |
| [921, 923] | 26 | 676 | 1% | 15% |
| [924, 926] | 27 | 703 | 1% | 15% |
| [927, 929] | 67 | 770 | 1% | 17% |
| [930, 932] | 63 | 833 | 1% | 18% |
| [933, 935] | 185 | 1,018 | 4% | 22% |
| [936, 938] | 253 | 1,271 | 5% | 28% |
| [939, 941] | 297 | 1,568 | 6% | 34% |
| [942, 944] | 390 | 1,958 | 8% | 42% |
| [945, 947] | 217 | 2,175 | 5% | 47% |
| [948, 950] | 484 | 2,659 | 10% | 58% |
| [951, 953] | 497 | 3,156 | 11% | 68% |
| [954, 956] | 448 | 3,604 | 10% | 78% |
| [957, 959] | 384 | 3,988 | 8% | 86% |
| [960, 962] | 145 | 4,133 | 3% | 90% |
| [963, 965] | 146 | 4,279 | 3% | 93% |
| [966, 968] | 185 | 4,464 | 4% | 97% |
| [969, 971] | 53 | 4,517 | 1% | 98% |
| [972, 974] | 0 | 4,517 | 0% | 98% |
| [975, 977] | 45 | 4,562 | 1% | 99% |
| [978, 980] | 28 | 4,590 | 1% | 99% |
| [981, 983] | 0 | 4,590 | 0% | 99% |
| [984, 986] | 16 | 4,606 | 0% | 100% |
| [987, 989] | 0 | 4,606 | 0% | 100% |
| [990, 992] | 0 | 4,606 | 0% | 100% |
| [993, 995] | 4 | 4,610 | 0% | 100% |
| [996, 998] | 0 | 4,610 | 0% | 100% |
| [999, 999] | 5 | 4,615 | 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] | 996 | 996 | 19% | 19% |
| [303, 305] | 196 | 1,192 | 4% | 22% |
| [306, 308] | 58 | 1,250 | 1% | 23% |
| [309, 311] | 0 | 1,250 | 0% | 23% |
| [312, 314] | 42 | 1,292 | 1% | 24% |
| [315, 317] | 57 | 1,349 | 1% | 25% |
| [318, 320] | 61 | 1,410 | 1% | 26% |
| [321, 323] | 132 | 1,542 | 2% | 29% |
| [324, 326] | 154 | 1,696 | 3% | 32% |
| [327, 329] | 394 | 2,090 | 7% | 39% |
| [330, 332] | 283 | 2,373 | 5% | 44% |
| [333, 335] | 293 | 2,666 | 5% | 50% |
| [336, 338] | 468 | 3,134 | 9% | 58% |
| [339, 341] | 316 | 3,450 | 6% | 64% |
| [342, 344] | 321 | 3,771 | 6% | 70% |
| [345, 347] | 222 | 3,993 | 4% | 75% |
| [348, 350] | 227 | 4,220 | 4% | 79% |
| [351, 353] | 371 | 4,591 | 7% | 86% |
| [354, 356] | 141 | 4,732 | 3% | 88% |
| [357, 359] | 142 | 4,874 | 3% | 91% |
| [360, 362] | 97 | 4,971 | 2% | 93% |
| [363, 365] | 96 | 5,067 | 2% | 95% |
| [366, 368] | 77 | 5,144 | 1% | 96% |
| [369, 371] | 58 | 5,202 | 1% | 97% |
| [372, 374] | 48 | 5,250 | 1% | 98% |
| [375, 377] | 0 | 5,250 | 0% | 98% |
| [378, 380] | 38 | 5,288 | 1% | 99% |
| [381, 383] | 20 | 5,308 | 0% | 99% |
| [384, 386] | 0 | 5,308 | 0% | 99% |
| [387, 389] | 18 | 5,326 | 0% | 99% |
| [390, 392] | 0 | 5,326 | 0% | 99% |
| [393, 395] | 18 | 5,344 | 0% | 100% |
| [396, 398] | 0 | 5,344 | 0% | 100% |
| [399, 399] | 15 | 5,359 | 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] | 844 | 844 | 16% | 16% |
| [403, 405] | 205 | 1,049 | 4% | 20% |
| [406, 408] | 32 | 1,081 | 1% | 21% |
| [409, 411] | 32 | 1,113 | 1% | 21% |
| [412, 414] | 55 | 1,168 | 1% | 22% |
| [415, 417] | 89 | 1,257 | 2% | 24% |
| [418, 420] | 118 | 1,375 | 2% | 26% |
| [421, 423] | 141 | 1,516 | 3% | 29% |
| [424, 426] | 159 | 1,675 | 3% | 32% |
| [427, 429] | 211 | 1,886 | 4% | 36% |
| [430, 432] | 235 | 2,121 | 4% | 41% |
| [433, 435] | 497 | 2,618 | 9% | 50% |
| [436, 438] | 302 | 2,920 | 6% | 56% |
| [439, 441] | 600 | 3,520 | 11% | 67% |
| [442, 444] | 387 | 3,907 | 7% | 75% |
| [445, 447] | 468 | 4,375 | 9% | 84% |
| [448, 450] | 169 | 4,544 | 3% | 87% |
| [451, 453] | 133 | 4,677 | 3% | 89% |
| [454, 456] | 230 | 4,907 | 4% | 94% |
| [457, 459] | 85 | 4,992 | 2% | 95% |
| [460, 462] | 47 | 5,039 | 1% | 96% |
| [463, 465] | 52 | 5,091 | 1% | 97% |
| [466, 468] | 40 | 5,131 | 1% | 98% |
| [469, 471] | 29 | 5,160 | 1% | 99% |
| [472, 474] | 21 | 5,181 | 0% | 99% |
| [475, 477] | 15 | 5,196 | 0% | 99% |
| [478, 480] | 0 | 5,196 | 0% | 99% |
| [481, 483] | 15 | 5,211 | 0% | 100% |
| [484, 486] | 0 | 5,211 | 0% | 100% |
| [487, 489] | 6 | 5,217 | 0% | 100% |
| [490, 492] | 0 | 5,217 | 0% | 100% |
| [493, 495] | 11 | 5,228 | 0% | 100% |
| [496, 498] | 0 | 5,228 | 0% | 100% |
| [499, 499] | 9 | 5,237 | 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] | 841 | 841 | 16% | 16% |
| [503, 505] | 173 | 1,014 | 3% | 20% |
| [506, 508] | 20 | 1,034 | 0% | 20% |
| [509, 511] | 0 | 1,034 | 0% | 20% |
| [512, 514] | 29 | 1,063 | 1% | 20% |
| [515, 517] | 31 | 1,094 | 1% | 21% |
| [518, 520] | 39 | 1,133 | 1% | 22% |
| [521, 523] | 56 | 1,189 | 1% | 23% |
| [524, 526] | 198 | 1,387 | 4% | 27% |
| [527, 529] | 179 | 1,566 | 3% | 30% |
| [530, 532] | 238 | 1,804 | 5% | 35% |
| [533, 535] | 308 | 2,112 | 6% | 41% |
| [536, 538] | 663 | 2,775 | 13% | 53% |
| [539, 541] | 351 | 3,126 | 7% | 60% |
| [542, 544] | 510 | 3,636 | 10% | 70% |
| [545, 547] | 432 | 4,068 | 8% | 78% |
| [548, 550] | 275 | 4,343 | 5% | 84% |
| [551, 553] | 229 | 4,572 | 4% | 88% |
| [554, 556] | 274 | 4,846 | 5% | 93% |
| [557, 559] | 67 | 4,913 | 1% | 95% |
| [560, 562] | 66 | 4,979 | 1% | 96% |
| [563, 565] | 43 | 5,022 | 1% | 97% |
| [566, 568] | 31 | 5,053 | 1% | 97% |
| [569, 571] | 38 | 5,091 | 1% | 98% |
| [572, 574] | 23 | 5,114 | 0% | 99% |
| [575, 577] | 23 | 5,137 | 0% | 99% |
| [578, 580] | 17 | 5,154 | 0% | 99% |
| [581, 583] | 9 | 5,163 | 0% | 99% |
| [584, 586] | 0 | 5,163 | 0% | 99% |
| [587, 589] | 11 | 5,174 | 0% | 100% |
| [590, 592] | 0 | 5,174 | 0% | 100% |
| [593, 595] | 8 | 5,182 | 0% | 100% |
| [596, 598] | 0 | 5,182 | 0% | 100% |
| [599, 599] | 7 | 5,189 | 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] | 746 | 746 | 15% | 15% |
| [603, 605] | 143 | 889 | 3% | 18% |
| [606, 608] | 0 | 889 | 0% | 18% |
| [609, 611] | 24 | 913 | 0% | 18% |
| [612, 614] | 31 | 944 | 1% | 19% |
| [615, 617] | 35 | 979 | 1% | 19% |
| [618, 620] | 58 | 1,037 | 1% | 21% |
| [621, 623] | 123 | 1,160 | 2% | 23% |
| [624, 626] | 144 | 1,304 | 3% | 26% |
| [627, 629] | 211 | 1,515 | 4% | 30% |
| [630, 632] | 288 | 1,803 | 6% | 36% |
| [633, 635] | 354 | 2,157 | 7% | 43% |
| [636, 638] | 343 | 2,500 | 7% | 50% |
| [639, 641] | 758 | 3,258 | 15% | 65% |
| [642, 644] | 307 | 3,565 | 6% | 71% |
| [645, 647] | 260 | 3,825 | 5% | 76% |
| [648, 650] | 236 | 4,061 | 5% | 81% |
| [651, 653] | 175 | 4,236 | 3% | 84% |
| [654, 656] | 136 | 4,372 | 3% | 87% |
| [657, 659] | 130 | 4,502 | 3% | 89% |
| [660, 662] | 115 | 4,617 | 2% | 92% |
| [663, 665] | 95 | 4,712 | 2% | 94% |
| [666, 668] | 79 | 4,791 | 2% | 95% |
| [669, 671] | 60 | 4,851 | 1% | 96% |
| [672, 674] | 53 | 4,904 | 1% | 97% |
| [675, 677] | 35 | 4,939 | 1% | 98% |
| [678, 680] | 0 | 4,939 | 0% | 98% |
| [681, 683] | 35 | 4,974 | 1% | 99% |
| [684, 686] | 0 | 4,974 | 0% | 99% |
| [687, 689] | 24 | 4,998 | 0% | 99% |
| [690, 692] | 0 | 4,998 | 0% | 99% |
| [693, 695] | 21 | 5,019 | 0% | 100% |
| [696, 698] | 0 | 5,019 | 0% | 100% |
| [699, 699] | 14 | 5,033 | 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] | 700 | 700 | 14% | 14% |
| [703, 705] | 155 | 855 | 3% | 17% |
| [706, 708] | 0 | 855 | 0% | 17% |
| [709, 711] | 24 | 879 | 0% | 17% |
| [712, 714] | 14 | 893 | 0% | 17% |
| [715, 717] | 24 | 917 | 0% | 18% |
| [718, 720] | 31 | 948 | 1% | 18% |
| [721, 723] | 74 | 1,022 | 1% | 20% |
| [724, 726] | 82 | 1,104 | 2% | 21% |
| [727, 729] | 102 | 1,206 | 2% | 23% |
| [730, 732] | 375 | 1,581 | 7% | 31% |
| [733, 735] | 243 | 1,824 | 5% | 35% |
| [736, 738] | 607 | 2,431 | 12% | 47% |
| [739, 741] | 361 | 2,792 | 7% | 54% |
| [742, 744] | 325 | 3,117 | 6% | 60% |
| [745, 747] | 502 | 3,619 | 10% | 70% |
| [748, 750] | 227 | 3,846 | 4% | 74% |
| [751, 753] | 377 | 4,223 | 7% | 82% |
| [754, 756] | 154 | 4,377 | 3% | 85% |
| [757, 759] | 136 | 4,513 | 3% | 87% |
| [760, 762] | 136 | 4,649 | 3% | 90% |
| [763, 765] | 103 | 4,752 | 2% | 92% |
| [766, 768] | 99 | 4,851 | 2% | 94% |
| [769, 771] | 78 | 4,929 | 2% | 95% |
| [772, 774] | 62 | 4,991 | 1% | 97% |
| [775, 777] | 46 | 5,037 | 1% | 97% |
| [778, 780] | 45 | 5,082 | 1% | 98% |
| [781, 783] | 0 | 5,082 | 0% | 98% |
| [784, 786] | 26 | 5,108 | 1% | 99% |
| [787, 789] | 25 | 5,133 | 0% | 99% |
| [790, 792] | 0 | 5,133 | 0% | 99% |
| [793, 795] | 16 | 5,149 | 0% | 100% |
| [796, 798] | 0 | 5,149 | 0% | 100% |
| [799, 799] | 19 | 5,168 | 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] | 694 | 694 | 14% | 14% |
| [803, 805] | 118 | 812 | 2% | 17% |
| [806, 808] | 13 | 825 | 0% | 17% |
| [809, 811] | 16 | 841 | 0% | 17% |
| [812, 814] | 18 | 859 | 0% | 18% |
| [815, 817] | 29 | 888 | 1% | 18% |
| [818, 820] | 40 | 928 | 1% | 19% |
| [821, 823] | 141 | 1,069 | 3% | 22% |
| [824, 826] | 128 | 1,197 | 3% | 25% |
| [827, 829] | 174 | 1,371 | 4% | 28% |
| [830, 832] | 227 | 1,598 | 5% | 33% |
| [833, 835] | 544 | 2,142 | 11% | 44% |
| [836, 838] | 326 | 2,468 | 7% | 51% |
| [839, 841] | 283 | 2,751 | 6% | 56% |
| [842, 844] | 552 | 3,303 | 11% | 68% |
| [845, 847] | 257 | 3,560 | 5% | 73% |
| [848, 850] | 220 | 3,780 | 5% | 78% |
| [851, 853] | 190 | 3,970 | 4% | 81% |
| [854, 856] | 144 | 4,114 | 3% | 84% |
| [857, 859] | 253 | 4,367 | 5% | 90% |
| [860, 862] | 108 | 4,475 | 2% | 92% |
| [863, 865] | 93 | 4,568 | 2% | 94% |
| [866, 868] | 86 | 4,654 | 2% | 95% |
| [869, 871] | 52 | 4,706 | 1% | 97% |
| [872, 874] | 0 | 4,706 | 0% | 97% |
| [875, 877] | 48 | 4,754 | 1% | 98% |
| [878, 880] | 35 | 4,789 | 1% | 98% |
| [881, 883] | 21 | 4,810 | 0% | 99% |
| [884, 886] | 0 | 4,810 | 0% | 99% |
| [887, 889] | 29 | 4,839 | 1% | 99% |
| [890, 892] | 0 | 4,839 | 0% | 99% |
| [893, 895] | 10 | 4,849 | 0% | 99% |
| [896, 898] | 0 | 4,849 | 0% | 99% |
| [899, 899] | 25 | 4,874 | 1% | 100% |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | N | Cumulative Frequency | Percent | Cumulative Percent |
| [900, 902] | 570 | 570 | 12% | 12% |
| [903, 905] | 111 | 681 | 2% | 15% |
| [906, 908] | 24 | 705 | 1% | 15% |
| [909, 911] | 26 | 731 | 1% | 16% |
| [912, 914] | 30 | 761 | 1% | 16% |
| [915, 917] | 53 | 814 | 1% | 18% |
| [918, 920] | 55 | 869 | 1% | 19% |
| [921, 923] | 91 | 960 | 2% | 21% |
| [924, 926] | 277 | 1,237 | 6% | 27% |
| [927, 929] | 193 | 1,430 | 4% | 31% |
| [930, 932] | 206 | 1,636 | 4% | 35% |
| [933, 935] | 483 | 2,119 | 10% | 46% |
| [936, 938] | 231 | 2,350 | 5% | 51% |
| [939, 941] | 364 | 2,714 | 8% | 59% |
| [942, 944] | 358 | 3,072 | 8% | 67% |
| [945, 947] | 205 | 3,277 | 4% | 71% |
| [948, 950] | 411 | 3,688 | 9% | 80% |
| [951, 953] | 189 | 3,877 | 4% | 84% |
| [954, 956] | 156 | 4,033 | 3% | 87% |
| [957, 959] | 139 | 4,172 | 3% | 90% |
| [960, 962] | 94 | 4,266 | 2% | 92% |
| [963, 965] | 98 | 4,364 | 2% | 95% |
| [966, 968] | 59 | 4,423 | 1% | 96% |
| [969, 971] | 52 | 4,475 | 1% | 97% |
| [972, 974] | 34 | 4,509 | 1% | 98% |
| [975, 977] | 29 | 4,538 | 1% | 98% |
| [978, 980] | 0 | 4,538 | 0% | 98% |
| [981, 983] | 18 | 4,556 | 0% | 99% |
| [984, 986] | 0 | 4,556 | 0% | 99% |
| [987, 989] | 24 | 4,580 | 1% | 99% |
| [990, 992] | 0 | 4,580 | 0% | 99% |
| [993, 995] | 17 | 4,597 | 0% | 100% |
| [996, 998] | 0 | 4,597 | 0% | 100% |
| [999, 999] | 18 | 4,615 | 0% | 100% |

### Appendix 7.D: Demographic Student Group Summaries

**Notes:**

* To protect privacy when the number of students in a student group is 10 or fewer, the summary statistics at the assessment and reporting levels are not reported and are presented as “N/A” in the tables in appendix 7.D.
* Percentages in these tables may not sum up to 100 because of rounding.

Table 7.D.1 Demographic Summary—ELA, Grade Three

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,359 | 340 | 25 | 52% | 26% | 22% |
| Male | 3,804 | 340 | 25 | 52% | 26% | 22% |
| Female | 1,554 | 340 | 25 | 52% | 27% | 20% |
| Nonbinary | 1 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 31 | 337 | 27 | 58% | 23% | 19% |
| Asian | 478 | 334 | 23 | 63% | 23% | 14% |
| Native Hawaiian or Other Pacific Islander | 28 | 342 | 27 | 50% | 21% | 29% |
| Filipino | 171 | 335 | 22 | 63% | 26% | 11% |
| Hispanic or Latino | 3,114 | 341 | 24 | 51% | 27% | 22% |
| Black or African American | 372 | 339 | 26 | 52% | 26% | 22% |
| White | 868 | 340 | 26 | 50% | 25% | 25% |
| Two or more races | 297 | 338 | 25 | 53% | 25% | 22% |
| English only | 3,567 | 340 | 25 | 52% | 25% | 22% |
| IFEP | 55 | 336 | 20 | 60% | 27% | 13% |
| EL | 1,464 | 341 | 23 | 52% | 28% | 20% |
| RFEP | 273 | 338 | 26 | 53% | 25% | 22% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,432 | 340 | 22 | 54% | 28% | 18% |
| Hearing impairment | 37 | 349 | 18 | 32% | 35% | 32% |
| Speech or language impairment | 77 | 359 | 18 | 16% | 29% | 56% |
| Visual impairment | 6 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 6 | N/A | N/A | N/A | N/A | N/A |
| Orthopedic impairment | 83 | 337 | 27 | 55% | 20% | 24% |
| Other health impairment | 286 | 350 | 24 | 34% | 24% | 42% |
| Specific learning disability | 95 | 371 | 16 | 2% | 20% | 78% |
| Deaf-blindness | 3 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 362 | 317 | 22 | 83% | 13% | 5% |
| Autism | 2,961 | 340 | 24 | 52% | 27% | 20% |
| Traumatic brain injury | 11 | 339 | 32 | 36% | 36% | 27% |
| Not economically disadvantaged | 1,734 | 337 | 24 | 58% | 25% | 18% |
| Economically disadvantaged | 3,625 | 341 | 25 | 50% | 27% | 24% |
| Migrant education | 19 | 355 | 24 | 26% | 26% | 47% |
| Not migrant education | 5,340 | 340 | 25 | 52% | 26% | 22% |
| Foster youth | 56 | 336 | 27 | 52% | 23% | 25% |
| Not foster youth | 5,303 | 340 | 25 | 52% | 26% | 22% |
| American Indian or Alaska Native—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 25 | 336 | 29 | 56% | 24% | 20% |
| Asian—Not economically disadvantaged | 264 | 335 | 23 | 64% | 22% | 14% |
| Asian—Economically disadvantaged | 214 | 334 | 24 | 62% | 24% | 14% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 11 | 341 | 26 | 55% | 18% | 27% |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 17 | 343 | 28 | 47% | 24% | 29% |
| Filipino—Not economically disadvantaged | 98 | 335 | 23 | 65% | 23% | 11% |
| Filipino—Economically disadvantaged | 73 | 336 | 22 | 60% | 29% | 11% |
| Hispanic or Latino—Not economically disadvantaged | 697 | 337 | 24 | 58% | 25% | 17% |
| Hispanic or Latino—Economically disadvantaged | 2,417 | 342 | 24 | 49% | 28% | 24% |
| Black or African American—Not economically disadvantaged | 84 | 334 | 25 | 62% | 24% | 14% |
| Black or African American—Economically disadvantaged | 288 | 341 | 26 | 50% | 26% | 24% |
| White—Not economically disadvantaged | 432 | 339 | 25 | 52% | 26% | 22% |
| White—Economically disadvantaged | 436 | 342 | 26 | 48% | 24% | 28% |
| Two or more races—Not economically disadvantaged | 142 | 336 | 25 | 57% | 25% | 18% |
| Two or more races—Economically disadvantaged | 155 | 341 | 25 | 50% | 25% | 26% |

Table 7.D.2 Demographic Summary—ELA, Grade Four

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,229 | 437 | 22 | 59% | 26% | 15% |
| Male | 3,712 | 437 | 22 | 59% | 26% | 15% |
| Female | 1,517 | 437 | 22 | 58% | 25% | 16% |
| Nonbinary | 0 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 28 | 438 | 24 | 50% | 25% | 25% |
| Asian | 515 | 435 | 22 | 63% | 25% | 12% |
| Native Hawaiian or Other Pacific Islander | 27 | 431 | 26 | 70% | 19% | 11% |
| Filipino | 145 | 433 | 24 | 65% | 25% | 10% |
| Hispanic or Latino | 3,026 | 438 | 22 | 57% | 27% | 16% |
| Black or African American | 386 | 438 | 23 | 55% | 26% | 18% |
| White | 824 | 436 | 23 | 61% | 23% | 15% |
| Two or more races | 278 | 436 | 23 | 59% | 24% | 17% |
| English only | 3,342 | 437 | 22 | 59% | 26% | 15% |
| IFEP | 31 | 436 | 24 | 58% | 23% | 19% |
| EL | 1,431 | 437 | 21 | 60% | 27% | 13% |
| RFEP | 423 | 442 | 24 | 51% | 24% | 25% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 1 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 1 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,527 | 438 | 20 | 58% | 29% | 13% |
| Hearing impairment | 33 | 445 | 19 | 24% | 58% | 18% |
| Speech or language impairment | 60 | 457 | 12 | 10% | 45% | 45% |
| Visual impairment | 5 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 14 | 458 | 13 | 14% | 50% | 36% |
| Orthopedic impairment | 87 | 438 | 24 | 60% | 20% | 21% |
| Other health impairment | 285 | 447 | 22 | 35% | 33% | 32% |
| Specific learning disability | 137 | 463 | 14 | 10% | 28% | 61% |
| Deaf-blindness | 0 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 342 | 419 | 20 | 85% | 12% | 3% |
| Autism | 2,729 | 436 | 22 | 62% | 25% | 13% |
| Traumatic brain injury | 10 | N/A | N/A | N/A | N/A | N/A |
| Not economically disadvantaged | 1,705 | 435 | 23 | 63% | 24% | 13% |
| Economically disadvantaged | 3,524 | 438 | 22 | 56% | 27% | 16% |
| Migrant education | 27 | 441 | 23 | 44% | 37% | 19% |
| Not migrant education | 5,202 | 437 | 22 | 59% | 26% | 15% |
| Foster youth | 49 | 439 | 25 | 53% | 22% | 24% |
| Not foster youth | 5,180 | 437 | 22 | 59% | 26% | 15% |
| American Indian or Alaska Native—Not economically disadvantaged | 11 | 429 | 20 | 64% | 36% | 0% |
| American Indian or Alaska Native—Economically disadvantaged | 17 | 443 | 25 | 41% | 18% | 41% |
| Asian—Not economically disadvantaged | 279 | 435 | 22 | 65% | 23% | 11% |
| Asian—Economically disadvantaged | 236 | 435 | 22 | 61% | 27% | 12% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 9 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 18 | 433 | 27 | 67% | 17% | 17% |
| Filipino—Not economically disadvantaged | 92 | 431 | 24 | 68% | 23% | 9% |
| Filipino—Economically disadvantaged | 53 | 438 | 22 | 58% | 28% | 13% |
| Hispanic or Latino—Not economically disadvantaged | 673 | 436 | 22 | 60% | 25% | 14% |
| Hispanic or Latino—Economically disadvantaged | 2,353 | 439 | 21 | 56% | 28% | 16% |
| Black or African American—Not economically disadvantaged | 93 | 437 | 25 | 59% | 23% | 18% |
| Black or African American—Economically disadvantaged | 293 | 439 | 22 | 54% | 27% | 18% |
| White—Not economically disadvantaged | 410 | 434 | 23 | 66% | 21% | 13% |
| White—Economically disadvantaged | 414 | 438 | 23 | 57% | 26% | 17% |
| Two or more races—Not economically disadvantaged | 138 | 435 | 22 | 62% | 24% | 14% |
| Two or more races—Economically disadvantaged | 140 | 437 | 23 | 57% | 24% | 19% |

Table 7.D.3 Demographic Summary—ELA, Grade Five

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,180 | 538 | 23 | 55% | 29% | 16% |
| Male | 3,561 | 538 | 23 | 55% | 29% | 16% |
| Female | 1,619 | 538 | 22 | 54% | 31% | 15% |
| Nonbinary | 0 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 31 | 541 | 28 | 48% | 29% | 23% |
| Asian | 489 | 533 | 22 | 65% | 26% | 9% |
| Native Hawaiian or Other Pacific Islander | 15 | 539 | 18 | 60% | 33% | 7% |
| Filipino | 159 | 534 | 22 | 62% | 29% | 9% |
| Hispanic or Latino | 3,000 | 539 | 22 | 53% | 31% | 17% |
| Black or African American | 389 | 538 | 22 | 57% | 30% | 14% |
| White | 842 | 539 | 24 | 53% | 29% | 18% |
| Two or more races | 255 | 538 | 23 | 56% | 27% | 17% |
| English only | 3,196 | 538 | 23 | 55% | 28% | 16% |
| IFEP | 48 | 532 | 20 | 67% | 27% | 6% |
| EL | 1,346 | 537 | 22 | 58% | 30% | 12% |
| RFEP | 589 | 542 | 23 | 46% | 35% | 20% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 1 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,706 | 539 | 21 | 55% | 32% | 13% |
| Hearing impairment | 31 | 541 | 23 | 48% | 29% | 23% |
| Speech or language impairment | 77 | 551 | 18 | 30% | 34% | 36% |
| Visual impairment | 10 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 18 | 557 | 15 | 22% | 39% | 39% |
| Orthopedic impairment | 80 | 529 | 26 | 61% | 29% | 10% |
| Other health impairment | 269 | 549 | 21 | 31% | 40% | 29% |
| Specific learning disability | 165 | 562 | 15 | 9% | 30% | 61% |
| Deaf-blindness | 2 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 327 | 517 | 21 | 84% | 13% | 3% |
| Autism | 2,480 | 538 | 22 | 57% | 29% | 14% |
| Traumatic brain injury | 15 | 538 | 27 | 53% | 27% | 20% |
| Not economically disadvantaged | 1,774 | 535 | 23 | 62% | 26% | 13% |
| Economically disadvantaged | 3,406 | 540 | 23 | 51% | 31% | 17% |
| Migrant education | 33 | 542 | 21 | 48% | 33% | 18% |
| Not migrant education | 5,147 | 538 | 23 | 55% | 29% | 16% |
| Foster youth | 56 | 532 | 24 | 57% | 29% | 14% |
| Not foster youth | 5,124 | 538 | 23 | 55% | 29% | 16% |
| American Indian or Alaska Native—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 25 | 540 | 27 | 48% | 28% | 24% |
| Asian—Not economically disadvantaged | 265 | 532 | 20 | 70% | 25% | 6% |
| Asian—Economically disadvantaged | 224 | 535 | 23 | 60% | 27% | 13% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 3 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 12 | 536 | 18 | 67% | 25% | 8% |
| Filipino—Not economically disadvantaged | 99 | 533 | 20 | 66% | 27% | 7% |
| Filipino—Economically disadvantaged | 60 | 535 | 25 | 57% | 32% | 12% |
| Hispanic or Latino—Not economically disadvantaged | 733 | 536 | 23 | 61% | 25% | 14% |
| Hispanic or Latino—Economically disadvantaged | 2,267 | 540 | 22 | 51% | 32% | 17% |
| Black or African American—Not economically disadvantaged | 106 | 532 | 23 | 66% | 23% | 11% |
| Black or African American—Economically disadvantaged | 283 | 539 | 21 | 53% | 32% | 14% |
| White—Not economically disadvantaged | 421 | 537 | 25 | 57% | 27% | 16% |
| White—Economically disadvantaged | 421 | 540 | 24 | 50% | 30% | 20% |
| Two or more races—Not economically disadvantaged | 141 | 536 | 23 | 61% | 26% | 13% |
| Two or more races—Economically disadvantaged | 114 | 540 | 24 | 51% | 28% | 21% |

Table 7.D.4 Demographic Summary—ELA, Grade Six

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,030 | 640 | 20 | 49% | 38% | 13% |
| Male | 3,469 | 640 | 20 | 49% | 39% | 13% |
| Female | 1,560 | 639 | 20 | 51% | 36% | 13% |
| Nonbinary | 1 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 25 | 646 | 15 | 36% | 48% | 16% |
| Asian | 442 | 638 | 19 | 55% | 37% | 8% |
| Native Hawaiian or Other Pacific Islander | 23 | 629 | 24 | 52% | 48% | 0% |
| Filipino | 164 | 637 | 19 | 60% | 32% | 8% |
| Hispanic or Latino | 2,955 | 641 | 19 | 47% | 40% | 14% |
| Black or African American | 340 | 641 | 19 | 48% | 41% | 12% |
| White | 853 | 638 | 21 | 53% | 34% | 13% |
| Two or more races | 228 | 637 | 21 | 54% | 36% | 10% |
| English only | 3,059 | 639 | 20 | 50% | 37% | 12% |
| IFEP | 47 | 633 | 22 | 55% | 45% | 0% |
| EL | 1,198 | 639 | 19 | 52% | 37% | 11% |
| RFEP | 726 | 644 | 19 | 40% | 44% | 17% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,751 | 640 | 18 | 49% | 40% | 11% |
| Hearing impairment | 38 | 650 | 14 | 21% | 61% | 18% |
| Speech or language impairment | 44 | 657 | 12 | 11% | 45% | 43% |
| Visual impairment | 14 | 642 | 24 | 29% | 57% | 14% |
| Emotional disturbance | 12 | 653 | 10 | 17% | 58% | 25% |
| Orthopedic impairment | 79 | 639 | 23 | 42% | 42% | 16% |
| Other health impairment | 243 | 648 | 17 | 30% | 46% | 24% |
| Specific learning disability | 162 | 659 | 13 | 8% | 36% | 56% |
| Deaf-blindness | 0 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 308 | 619 | 21 | 83% | 14% | 3% |
| Autism | 2,364 | 639 | 19 | 52% | 38% | 10% |
| Traumatic brain injury | 15 | 651 | 10 | 20% | 53% | 27% |
| Not economically disadvantaged | 1,649 | 638 | 20 | 55% | 35% | 10% |
| Economically disadvantaged | 3,381 | 641 | 19 | 47% | 40% | 14% |
| Migrant education | 24 | 648 | 18 | 29% | 46% | 25% |
| Not migrant education | 5,006 | 640 | 20 | 49% | 38% | 12% |
| Foster youth | 38 | 641 | 21 | 47% | 26% | 26% |
| Not foster youth | 4,992 | 640 | 20 | 49% | 38% | 12% |
| American Indian or Alaska Native—Not economically disadvantaged | 3 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 22 | 647 | 16 | 32% | 50% | 18% |
| Asian—Not economically disadvantaged | 238 | 639 | 20 | 52% | 38% | 10% |
| Asian—Economically disadvantaged | 204 | 638 | 18 | 59% | 36% | 5% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 17 | 628 | 25 | 47% | 53% | 0% |
| Filipino—Not economically disadvantaged | 91 | 637 | 18 | 66% | 27% | 7% |
| Filipino—Economically disadvantaged | 73 | 637 | 20 | 53% | 37% | 10% |
| Hispanic or Latino—Not economically disadvantaged | 671 | 638 | 20 | 54% | 36% | 10% |
| Hispanic or Latino—Economically disadvantaged | 2,284 | 642 | 19 | 45% | 40% | 15% |
| Black or African American—Not economically disadvantaged | 83 | 638 | 22 | 49% | 41% | 10% |
| Black or African American—Economically disadvantaged | 257 | 641 | 18 | 47% | 40% | 12% |
| White—Not economically disadvantaged | 450 | 637 | 21 | 56% | 32% | 12% |
| White—Economically disadvantaged | 403 | 639 | 21 | 51% | 36% | 13% |
| Two or more races—Not economically disadvantaged | 107 | 636 | 21 | 56% | 34% | 10% |
| Two or more races—Economically disadvantaged | 121 | 638 | 21 | 51% | 39% | 10% |

Table 7.D.5 Demographic Summary—ELA, Grade Seven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,185 | 740 | 22 | 52% | 30% | 18% |
| Male | 3,519 | 741 | 22 | 51% | 30% | 19% |
| Female | 1,665 | 740 | 21 | 54% | 30% | 16% |
| Nonbinary | 1 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 34 | 743 | 24 | 47% | 29% | 24% |
| Asian | 423 | 737 | 20 | 60% | 28% | 13% |
| Native Hawaiian or Other Pacific Islander | 18 | 738 | 24 | 61% | 17% | 22% |
| Filipino | 153 | 739 | 20 | 53% | 36% | 11% |
| Hispanic or Latino | 2,982 | 741 | 21 | 50% | 31% | 18% |
| Black or African American | 438 | 739 | 22 | 54% | 29% | 18% |
| White | 910 | 740 | 23 | 52% | 27% | 20% |
| Two or more races | 227 | 741 | 22 | 52% | 27% | 22% |
| English only | 3,116 | 740 | 22 | 52% | 30% | 18% |
| IFEP | 48 | 734 | 18 | 69% | 27% | 4% |
| EL | 1,115 | 740 | 21 | 52% | 30% | 17% |
| RFEP | 906 | 742 | 21 | 49% | 31% | 20% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,940 | 741 | 20 | 53% | 32% | 16% |
| Hearing impairment | 37 | 743 | 15 | 38% | 54% | 8% |
| Speech or language impairment | 37 | 757 | 12 | 16% | 43% | 41% |
| Visual impairment | 7 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 11 | 760 | 9 | 9% | 27% | 64% |
| Orthopedic impairment | 86 | 738 | 23 | 50% | 29% | 21% |
| Other health impairment | 234 | 749 | 19 | 35% | 37% | 28% |
| Specific learning disability | 212 | 761 | 14 | 9% | 31% | 60% |
| Deaf-blindness | 2 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 345 | 720 | 23 | 80% | 13% | 7% |
| Autism | 2,249 | 740 | 21 | 54% | 30% | 16% |
| Traumatic brain injury | 25 | 743 | 22 | 52% | 20% | 28% |
| Not economically disadvantaged | 1,650 | 738 | 22 | 57% | 27% | 16% |
| Economically disadvantaged | 3,535 | 741 | 21 | 50% | 31% | 19% |
| Migrant education | 34 | 749 | 20 | 26% | 50% | 24% |
| Not migrant education | 5,151 | 740 | 22 | 52% | 30% | 18% |
| Foster youth | 57 | 739 | 25 | 53% | 25% | 23% |
| Not foster youth | 5,128 | 740 | 22 | 52% | 30% | 18% |
| American Indian or Alaska Native—Not economically disadvantaged | 7 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 27 | 742 | 25 | 56% | 19% | 26% |
| Asian—Not economically disadvantaged | 214 | 736 | 21 | 62% | 27% | 11% |
| Asian—Economically disadvantaged | 209 | 739 | 20 | 58% | 28% | 14% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 5 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 13 | 740 | 22 | 62% | 15% | 23% |
| Filipino—Not economically disadvantaged | 88 | 738 | 20 | 55% | 36% | 9% |
| Filipino—Economically disadvantaged | 65 | 740 | 19 | 51% | 35% | 14% |
| Hispanic or Latino—Not economically disadvantaged | 659 | 738 | 22 | 57% | 28% | 16% |
| Hispanic or Latino—Economically disadvantaged | 2,323 | 742 | 21 | 49% | 32% | 19% |
| Black or African American—Not economically disadvantaged | 122 | 736 | 23 | 59% | 25% | 16% |
| Black or African American—Economically disadvantaged | 316 | 740 | 22 | 52% | 30% | 18% |
| White—Not economically disadvantaged | 453 | 738 | 24 | 57% | 25% | 18% |
| White—Economically disadvantaged | 457 | 742 | 22 | 48% | 30% | 22% |
| Two or more races—Not economically disadvantaged | 102 | 739 | 22 | 53% | 23% | 25% |
| Two or more races—Economically disadvantaged | 125 | 743 | 22 | 50% | 30% | 19% |

Table 7.D.6 Demographic Summary—ELA, Grade Eight

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 4,895 | 842 | 20 | 45% | 42% | 13% |
| Male | 3,338 | 842 | 20 | 45% | 42% | 13% |
| Female | 1,557 | 841 | 20 | 45% | 43% | 12% |
| Nonbinary | 0 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 30 | 840 | 22 | 43% | 43% | 13% |
| Asian | 391 | 839 | 19 | 52% | 40% | 8% |
| Native Hawaiian or Other Pacific Islander | 21 | 837 | 23 | 57% | 33% | 10% |
| Filipino | 131 | 838 | 18 | 58% | 37% | 5% |
| Hispanic or Latino | 2,909 | 842 | 20 | 45% | 43% | 13% |
| Black or African American | 386 | 842 | 20 | 45% | 43% | 12% |
| White | 826 | 843 | 21 | 41% | 43% | 16% |
| Two or more races | 201 | 842 | 19 | 44% | 44% | 12% |
| English only | 2,798 | 842 | 20 | 45% | 42% | 13% |
| IFEP | 39 | 839 | 18 | 56% | 41% | 3% |
| EL | 1,064 | 840 | 20 | 49% | 40% | 11% |
| RFEP | 993 | 843 | 19 | 41% | 46% | 13% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 1 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,830 | 842 | 18 | 45% | 46% | 10% |
| Hearing impairment | 40 | 848 | 12 | 40% | 50% | 10% |
| Speech or language impairment | 27 | 856 | 10 | 15% | 44% | 41% |
| Visual impairment | 9 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 17 | 852 | 19 | 12% | 59% | 29% |
| Orthopedic impairment | 83 | 837 | 22 | 47% | 47% | 6% |
| Other health impairment | 248 | 850 | 16 | 25% | 51% | 24% |
| Specific learning disability | 217 | 858 | 12 | 8% | 48% | 44% |
| Deaf-blindness | 3 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 343 | 823 | 23 | 75% | 20% | 4% |
| Autism | 2,054 | 842 | 19 | 47% | 41% | 12% |
| Traumatic brain injury | 24 | 846 | 25 | 42% | 29% | 29% |
| Not economically disadvantaged | 1,577 | 840 | 21 | 50% | 38% | 12% |
| Economically disadvantaged | 3,318 | 843 | 19 | 42% | 44% | 13% |
| Migrant education | 22 | 843 | 20 | 41% | 50% | 9% |
| Not migrant education | 4,873 | 842 | 20 | 45% | 42% | 13% |
| Foster youth | 51 | 840 | 22 | 47% | 41% | 12% |
| Not foster youth | 4,844 | 842 | 20 | 45% | 42% | 13% |
| American Indian or Alaska Native—Not economically disadvantaged | 9 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 21 | 842 | 21 | 38% | 48% | 14% |
| Asian—Not economically disadvantaged | 185 | 837 | 20 | 60% | 34% | 6% |
| Asian—Economically disadvantaged | 206 | 841 | 19 | 46% | 46% | 9% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 15 | 842 | 19 | 53% | 33% | 13% |
| Filipino—Not economically disadvantaged | 81 | 836 | 19 | 64% | 28% | 7% |
| Filipino—Economically disadvantaged | 50 | 842 | 14 | 48% | 50% | 2% |
| Hispanic or Latino—Not economically disadvantaged | 642 | 840 | 20 | 53% | 37% | 10% |
| Hispanic or Latino—Economically disadvantaged | 2,267 | 843 | 20 | 42% | 44% | 13% |
| Black or African American—Not economically disadvantaged | 109 | 838 | 23 | 47% | 40% | 13% |
| Black or African American—Economically disadvantaged | 277 | 843 | 18 | 45% | 44% | 11% |
| White—Not economically disadvantaged | 440 | 843 | 21 | 40% | 44% | 16% |
| White—Economically disadvantaged | 386 | 842 | 21 | 41% | 42% | 17% |
| Two or more races—Not economically disadvantaged | 105 | 841 | 20 | 49% | 38% | 13% |
| Two or more races—Economically disadvantaged | 96 | 843 | 19 | 39% | 50% | 11% |

Table 7.D.7 Demographic Summary—ELA, Grade Eleven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 4,615 | 943 | 19 | 42% | 44% | 14% |
| Male | 3,057 | 944 | 19 | 41% | 45% | 14% |
| Female | 1,556 | 942 | 20 | 46% | 43% | 12% |
| Nonbinary | 2 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 25 | 943 | 27 | 48% | 28% | 24% |
| Asian | 370 | 940 | 20 | 53% | 38% | 9% |
| Native Hawaiian or Other Pacific Islander | 18 | 948 | 14 | 33% | 50% | 17% |
| Filipino | 133 | 939 | 20 | 53% | 41% | 7% |
| Hispanic or Latino | 2,765 | 944 | 19 | 41% | 45% | 14% |
| Black or African American | 360 | 943 | 20 | 38% | 50% | 12% |
| White | 791 | 943 | 20 | 42% | 43% | 15% |
| Two or more races | 153 | 941 | 21 | 44% | 44% | 12% |
| English only | 2,512 | 943 | 20 | 41% | 45% | 14% |
| IFEP | 47 | 943 | 18 | 49% | 36% | 15% |
| EL | 842 | 941 | 20 | 49% | 40% | 11% |
| RFEP | 1,214 | 944 | 19 | 40% | 46% | 14% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,968 | 944 | 17 | 42% | 47% | 11% |
| Hearing impairment | 45 | 951 | 12 | 18% | 64% | 18% |
| Speech or language impairment | 17 | 957 | 10 | 18% | 35% | 47% |
| Visual impairment | 7 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 17 | 957 | 12 | 29% | 29% | 41% |
| Orthopedic impairment | 93 | 940 | 22 | 48% | 40% | 12% |
| Other health impairment | 181 | 949 | 18 | 25% | 57% | 18% |
| Specific learning disability | 195 | 958 | 12 | 11% | 44% | 45% |
| Deaf-blindness | 3 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 385 | 924 | 22 | 77% | 21% | 2% |
| Autism | 1,671 | 944 | 19 | 41% | 44% | 14% |
| Traumatic brain injury | 33 | 932 | 28 | 52% | 36% | 12% |
| Not economically disadvantaged | 1,461 | 941 | 20 | 47% | 41% | 12% |
| Economically disadvantaged | 3,154 | 944 | 19 | 40% | 45% | 15% |
| Migrant education | 24 | 946 | 17 | 42% | 46% | 13% |
| Not migrant education | 4,591 | 943 | 20 | 42% | 44% | 14% |
| Foster youth | 53 | 943 | 22 | 40% | 38% | 23% |
| Not foster youth | 4,562 | 943 | 19 | 42% | 44% | 13% |
| American Indian or Alaska Native—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 19 | 942 | 27 | 53% | 26% | 21% |
| Asian—Not economically disadvantaged | 196 | 940 | 20 | 55% | 36% | 10% |
| Asian—Economically disadvantaged | 174 | 939 | 20 | 51% | 40% | 9% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 7 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 11 | 947 | 16 | 27% | 64% | 9% |
| Filipino—Not economically disadvantaged | 77 | 939 | 20 | 53% | 40% | 6% |
| Filipino—Economically disadvantaged | 56 | 939 | 20 | 52% | 41% | 7% |
| Hispanic or Latino—Not economically disadvantaged | 567 | 942 | 20 | 46% | 41% | 13% |
| Hispanic or Latino—Economically disadvantaged | 2,198 | 944 | 19 | 40% | 46% | 15% |
| Black or African American—Not economically disadvantaged | 111 | 940 | 21 | 42% | 49% | 9% |
| Black or African American—Economically disadvantaged | 249 | 944 | 19 | 37% | 50% | 13% |
| White—Not economically disadvantaged | 418 | 941 | 20 | 46% | 42% | 12% |
| White—Economically disadvantaged | 373 | 946 | 20 | 37% | 44% | 18% |
| Two or more races—Not economically disadvantaged | 79 | 940 | 21 | 46% | 46% | 9% |
| Two or more races—Economically disadvantaged | 74 | 943 | 21 | 43% | 42% | 15% |

Table 7.D.8 Demographic Summary—Mathematics, Grade Three

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,359 | 333 | 22 | 70% | 21% | 9% |
| Male | 3,803 | 333 | 22 | 69% | 21% | 10% |
| Female | 1,555 | 331 | 21 | 73% | 20% | 6% |
| Nonbinary | 1 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 31 | 330 | 22 | 71% | 23% | 6% |
| Asian | 479 | 331 | 22 | 73% | 18% | 10% |
| Native Hawaiian or Other Pacific Islander | 28 | 335 | 23 | 71% | 18% | 11% |
| Filipino | 171 | 331 | 22 | 74% | 18% | 9% |
| Hispanic or Latino | 3,115 | 333 | 21 | 70% | 21% | 9% |
| Black or African American | 372 | 331 | 22 | 72% | 20% | 8% |
| White | 865 | 333 | 23 | 69% | 20% | 10% |
| Two or more races | 298 | 331 | 23 | 69% | 22% | 9% |
| English only | 3,557 | 332 | 22 | 70% | 20% | 9% |
| IFEP | 55 | 327 | 21 | 80% | 13% | 7% |
| EL | 1,476 | 333 | 21 | 71% | 21% | 8% |
| RFEP | 271 | 332 | 22 | 68% | 21% | 11% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,435 | 331 | 19 | 78% | 18% | 4% |
| Hearing impairment | 38 | 340 | 17 | 61% | 29% | 11% |
| Speech or language impairment | 76 | 350 | 17 | 30% | 43% | 26% |
| Visual impairment | 6 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 6 | N/A | N/A | N/A | N/A | N/A |
| Orthopedic impairment | 83 | 328 | 22 | 76% | 16% | 8% |
| Other health impairment | 288 | 339 | 21 | 53% | 32% | 15% |
| Specific learning disability | 95 | 357 | 17 | 21% | 41% | 38% |
| Deaf-blindness | 3 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 361 | 314 | 18 | 94% | 5% | 1% |
| Autism | 2,957 | 334 | 22 | 68% | 22% | 10% |
| Traumatic brain injury | 11 | 325 | 23 | 82% | 18% | 0% |
| Not economically disadvantaged | 1,733 | 330 | 22 | 74% | 18% | 8% |
| Economically disadvantaged | 3,626 | 334 | 22 | 69% | 22% | 9% |
| Migrant education | 19 | 346 | 16 | 42% | 37% | 21% |
| Not migrant education | 5,340 | 333 | 22 | 70% | 21% | 9% |
| Foster youth | 56 | 328 | 23 | 71% | 20% | 9% |
| Not foster youth | 5,303 | 333 | 22 | 70% | 21% | 9% |
| American Indian or Alaska Native—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 25 | 330 | 24 | 72% | 20% | 8% |
| Asian—Not economically disadvantaged | 265 | 332 | 22 | 68% | 20% | 12% |
| Asian—Economically disadvantaged | 214 | 330 | 22 | 78% | 14% | 7% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 11 | 334 | 21 | 73% | 9% | 18% |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 17 | 336 | 25 | 71% | 24% | 6% |
| Filipino—Not economically disadvantaged | 98 | 330 | 23 | 77% | 13% | 10% |
| Filipino—Economically disadvantaged | 73 | 332 | 21 | 70% | 23% | 7% |
| Hispanic or Latino—Not economically disadvantaged | 695 | 330 | 22 | 76% | 17% | 7% |
| Hispanic or Latino—Economically disadvantaged | 2,420 | 334 | 21 | 68% | 22% | 9% |
| Black or African American—Not economically disadvantaged | 84 | 329 | 23 | 76% | 15% | 8% |
| Black or African American—Economically disadvantaged | 288 | 331 | 21 | 71% | 22% | 8% |
| White—Not economically disadvantaged | 431 | 332 | 22 | 71% | 19% | 10% |
| White—Economically disadvantaged | 434 | 333 | 23 | 68% | 21% | 11% |
| Two or more races—Not economically disadvantaged | 143 | 327 | 22 | 78% | 16% | 6% |
| Two or more races—Economically disadvantaged | 155 | 334 | 23 | 61% | 27% | 12% |

Table 7.D.9 Demographic Summary—Mathematics, Grade Four

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,237 | 432 | 20 | 75% | 21% | 5% |
| Male | 3,723 | 432 | 20 | 74% | 21% | 5% |
| Female | 1,514 | 431 | 19 | 76% | 20% | 4% |
| Nonbinary | 0 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 25 | 438 | 19 | 72% | 20% | 8% |
| Asian | 517 | 431 | 20 | 74% | 20% | 6% |
| Native Hawaiian or Other Pacific Islander | 27 | 426 | 22 | 81% | 11% | 7% |
| Filipino | 146 | 429 | 21 | 77% | 19% | 3% |
| Hispanic or Latino | 3,036 | 433 | 19 | 74% | 22% | 4% |
| Black or African American | 385 | 432 | 20 | 74% | 21% | 5% |
| White | 823 | 430 | 20 | 77% | 18% | 5% |
| Two or more races | 278 | 431 | 20 | 75% | 20% | 5% |
| English only | 3,330 | 431 | 20 | 75% | 20% | 5% |
| IFEP | 30 | 434 | 19 | 70% | 23% | 7% |
| EL | 1,451 | 432 | 19 | 77% | 20% | 4% |
| RFEP | 424 | 436 | 20 | 63% | 29% | 7% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 1 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 1 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,532 | 432 | 17 | 78% | 20% | 2% |
| Hearing impairment | 32 | 438 | 19 | 53% | 38% | 9% |
| Speech or language impairment | 60 | 445 | 12 | 52% | 37% | 12% |
| Visual impairment | 5 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 14 | 448 | 13 | 36% | 57% | 7% |
| Orthopedic impairment | 90 | 431 | 21 | 72% | 21% | 7% |
| Other health impairment | 282 | 437 | 18 | 66% | 28% | 6% |
| Specific learning disability | 137 | 451 | 15 | 37% | 44% | 19% |
| Deaf-blindness | 0 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 341 | 416 | 18 | 92% | 7% | 1% |
| Autism | 2,733 | 432 | 20 | 74% | 20% | 6% |
| Traumatic brain injury | 11 | 424 | 24 | 73% | 27% | 0% |
| Not economically disadvantaged | 1,708 | 430 | 20 | 77% | 18% | 5% |
| Economically disadvantaged | 3,529 | 433 | 19 | 73% | 22% | 5% |
| Migrant education | 27 | 437 | 20 | 63% | 30% | 7% |
| Not migrant education | 5,210 | 432 | 20 | 75% | 21% | 5% |
| Foster youth | 47 | 434 | 21 | 70% | 23% | 6% |
| Not foster youth | 5,190 | 432 | 20 | 75% | 21% | 5% |
| American Indian or Alaska Native—Not economically disadvantaged | 9 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 16 | 440 | 21 | 69% | 19% | 13% |
| Asian—Not economically disadvantaged | 279 | 431 | 21 | 73% | 20% | 7% |
| Asian—Economically disadvantaged | 238 | 431 | 19 | 76% | 21% | 4% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 9 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 18 | 428 | 23 | 78% | 11% | 11% |
| Filipino—Not economically disadvantaged | 94 | 426 | 21 | 82% | 15% | 3% |
| Filipino—Economically disadvantaged | 52 | 433 | 20 | 69% | 27% | 4% |
| Hispanic or Latino—Not economically disadvantaged | 678 | 430 | 20 | 76% | 19% | 5% |
| Hispanic or Latino—Economically disadvantaged | 2,358 | 433 | 19 | 73% | 23% | 4% |
| Black or African American—Not economically disadvantaged | 94 | 431 | 20 | 76% | 20% | 4% |
| Black or African American—Economically disadvantaged | 291 | 433 | 20 | 74% | 21% | 5% |
| White—Not economically disadvantaged | 408 | 429 | 20 | 81% | 15% | 4% |
| White—Economically disadvantaged | 415 | 431 | 20 | 74% | 20% | 6% |
| Two or more races—Not economically disadvantaged | 137 | 430 | 19 | 76% | 20% | 4% |
| Two or more races—Economically disadvantaged | 141 | 431 | 21 | 74% | 20% | 6% |

Table 7.D.10 Demographic Summary—Mathematics, Grade Five

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,189 | 534 | 20 | 70% | 25% | 5% |
| Male | 3,569 | 534 | 20 | 68% | 26% | 6% |
| Female | 1,620 | 533 | 19 | 74% | 22% | 3% |
| Nonbinary | 0 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 31 | 533 | 24 | 65% | 26% | 10% |
| Asian | 497 | 531 | 20 | 74% | 22% | 5% |
| Native Hawaiian or Other Pacific Islander | 14 | 535 | 17 | 86% | 7% | 7% |
| Filipino | 161 | 532 | 20 | 76% | 19% | 6% |
| Hispanic or Latino | 2,990 | 534 | 19 | 71% | 24% | 5% |
| Black or African American | 390 | 534 | 20 | 68% | 28% | 4% |
| White | 848 | 534 | 21 | 66% | 26% | 8% |
| Two or more races | 258 | 534 | 20 | 66% | 29% | 5% |
| English only | 3,201 | 534 | 20 | 70% | 25% | 6% |
| IFEP | 48 | 531 | 23 | 60% | 35% | 4% |
| EL | 1,350 | 533 | 19 | 73% | 23% | 4% |
| RFEP | 589 | 536 | 20 | 65% | 28% | 7% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 1 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,705 | 534 | 18 | 72% | 26% | 3% |
| Hearing impairment | 31 | 535 | 20 | 68% | 29% | 3% |
| Speech or language impairment | 76 | 546 | 17 | 54% | 25% | 21% |
| Visual impairment | 10 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 18 | 552 | 14 | 22% | 56% | 22% |
| Orthopedic impairment | 81 | 526 | 23 | 73% | 23% | 4% |
| Other health impairment | 270 | 541 | 17 | 58% | 33% | 9% |
| Specific learning disability | 166 | 550 | 15 | 41% | 40% | 19% |
| Deaf-blindness | 2 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 327 | 516 | 20 | 90% | 9% | 1% |
| Autism | 2,487 | 534 | 20 | 70% | 24% | 6% |
| Traumatic brain injury | 16 | 533 | 24 | 69% | 19% | 13% |
| Not economically disadvantaged | 1,777 | 532 | 20 | 72% | 22% | 5% |
| Economically disadvantaged | 3,412 | 535 | 19 | 69% | 26% | 5% |
| Migrant education | 33 | 537 | 16 | 67% | 33% | 0% |
| Not migrant education | 5,156 | 534 | 20 | 70% | 25% | 5% |
| Foster youth | 56 | 529 | 21 | 71% | 27% | 2% |
| Not foster youth | 5,133 | 534 | 20 | 70% | 25% | 5% |
| American Indian or Alaska Native—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 25 | 531 | 24 | 64% | 28% | 8% |
| Asian—Not economically disadvantaged | 268 | 531 | 20 | 75% | 20% | 4% |
| Asian—Economically disadvantaged | 229 | 531 | 21 | 72% | 24% | 5% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 3 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 11 | 535 | 19 | 82% | 9% | 9% |
| Filipino—Not economically disadvantaged | 100 | 533 | 20 | 74% | 20% | 6% |
| Filipino—Economically disadvantaged | 61 | 531 | 22 | 79% | 16% | 5% |
| Hispanic or Latino—Not economically disadvantaged | 726 | 532 | 20 | 73% | 21% | 5% |
| Hispanic or Latino—Economically disadvantaged | 2,264 | 535 | 19 | 70% | 25% | 5% |
| Black or African American—Not economically disadvantaged | 106 | 528 | 20 | 77% | 22% | 1% |
| Black or African American—Economically disadvantaged | 284 | 536 | 20 | 64% | 30% | 6% |
| White—Not economically disadvantaged | 425 | 533 | 21 | 69% | 24% | 8% |
| White—Economically disadvantaged | 423 | 536 | 20 | 64% | 29% | 8% |
| Two or more races—Not economically disadvantaged | 143 | 533 | 20 | 69% | 27% | 4% |
| Two or more races—Economically disadvantaged | 115 | 536 | 20 | 63% | 31% | 6% |

Table 7.D.11 Demographic Summary—Mathematics, Grade Six

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,033 | 635 | 21 | 71% | 19% | 11% |
| Male | 3,469 | 636 | 21 | 70% | 19% | 11% |
| Female | 1,563 | 634 | 20 | 73% | 18% | 9% |
| Nonbinary | 1 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 24 | 643 | 23 | 54% | 21% | 25% |
| Asian | 443 | 635 | 21 | 71% | 19% | 10% |
| Native Hawaiian or Other Pacific Islander | 24 | 622 | 20 | 83% | 17% | 0% |
| Filipino | 163 | 634 | 20 | 76% | 15% | 9% |
| Hispanic or Latino | 2,957 | 636 | 20 | 70% | 19% | 11% |
| Black or African American | 340 | 635 | 19 | 72% | 20% | 8% |
| White | 852 | 634 | 22 | 71% | 17% | 12% |
| Two or more races | 230 | 632 | 21 | 75% | 17% | 8% |
| English only | 3,058 | 635 | 20 | 72% | 18% | 10% |
| IFEP | 46 | 629 | 21 | 76% | 20% | 4% |
| EL | 1,203 | 635 | 21 | 71% | 20% | 10% |
| RFEP | 726 | 639 | 21 | 66% | 20% | 13% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,751 | 634 | 19 | 75% | 17% | 8% |
| Hearing impairment | 38 | 646 | 16 | 53% | 26% | 21% |
| Speech or language impairment | 44 | 653 | 16 | 32% | 34% | 34% |
| Visual impairment | 12 | 641 | 22 | 42% | 33% | 25% |
| Emotional disturbance | 12 | 647 | 11 | 67% | 25% | 8% |
| Orthopedic impairment | 79 | 633 | 22 | 70% | 20% | 10% |
| Other health impairment | 243 | 643 | 18 | 56% | 27% | 17% |
| Specific learning disability | 163 | 655 | 17 | 24% | 39% | 37% |
| Deaf-blindness | 0 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 306 | 617 | 20 | 90% | 7% | 3% |
| Autism | 2,370 | 636 | 20 | 71% | 18% | 11% |
| Traumatic brain injury | 15 | 644 | 9 | 53% | 40% | 7% |
| Not economically disadvantaged | 1,651 | 633 | 21 | 74% | 16% | 10% |
| Economically disadvantaged | 3,382 | 636 | 20 | 69% | 20% | 11% |
| Migrant education | 25 | 642 | 23 | 64% | 8% | 28% |
| Not migrant education | 5,008 | 635 | 21 | 71% | 19% | 10% |
| Foster youth | 36 | 636 | 22 | 58% | 31% | 11% |
| Not foster youth | 4,997 | 635 | 21 | 71% | 19% | 11% |
| American Indian or Alaska Native—Not economically disadvantaged | 3 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 21 | 642 | 23 | 57% | 24% | 19% |
| Asian—Not economically disadvantaged | 239 | 636 | 21 | 70% | 18% | 12% |
| Asian—Economically disadvantaged | 204 | 635 | 20 | 72% | 20% | 8% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 7 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 17 | 621 | 21 | 82% | 18% | 0% |
| Filipino—Not economically disadvantaged | 89 | 635 | 18 | 73% | 19% | 8% |
| Filipino—Economically disadvantaged | 74 | 632 | 21 | 80% | 11% | 9% |
| Hispanic or Latino—Not economically disadvantaged | 672 | 632 | 21 | 76% | 15% | 9% |
| Hispanic or Latino—Economically disadvantaged | 2,285 | 637 | 20 | 68% | 20% | 11% |
| Black or African American—Not economically disadvantaged | 83 | 633 | 19 | 77% | 17% | 6% |
| Black or African American—Economically disadvantaged | 257 | 636 | 19 | 70% | 21% | 9% |
| White—Not economically disadvantaged | 450 | 634 | 22 | 72% | 16% | 12% |
| White—Economically disadvantaged | 402 | 634 | 21 | 70% | 19% | 11% |
| Two or more races—Not economically disadvantaged | 108 | 631 | 20 | 80% | 15% | 6% |
| Two or more races—Economically disadvantaged | 122 | 633 | 22 | 71% | 18% | 11% |

Table 7.D.12 Demographic Summary—Mathematics, Grade Seven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 5,168 | 738 | 21 | 60% | 27% | 13% |
| Male | 3,511 | 738 | 21 | 59% | 27% | 14% |
| Female | 1,656 | 736 | 20 | 64% | 26% | 10% |
| Nonbinary | 1 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 34 | 739 | 20 | 56% | 26% | 18% |
| Asian | 424 | 737 | 21 | 61% | 30% | 9% |
| Native Hawaiian or Other Pacific Islander | 18 | 736 | 20 | 56% | 39% | 6% |
| Filipino | 152 | 737 | 21 | 61% | 26% | 13% |
| Hispanic or Latino | 2,976 | 739 | 21 | 60% | 27% | 13% |
| Black or African American | 437 | 736 | 22 | 61% | 27% | 12% |
| White | 901 | 737 | 22 | 62% | 25% | 13% |
| Two or more races | 226 | 738 | 21 | 57% | 31% | 12% |
| English only | 3,107 | 737 | 21 | 61% | 27% | 12% |
| IFEP | 48 | 731 | 20 | 71% | 25% | 4% |
| EL | 1,110 | 738 | 21 | 60% | 27% | 13% |
| RFEP | 903 | 740 | 21 | 58% | 28% | 14% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,923 | 737 | 19 | 65% | 26% | 9% |
| Hearing impairment | 38 | 746 | 15 | 50% | 29% | 21% |
| Speech or language impairment | 38 | 754 | 14 | 21% | 50% | 29% |
| Visual impairment | 7 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 11 | 758 | 15 | 9% | 45% | 45% |
| Orthopedic impairment | 86 | 733 | 21 | 67% | 24% | 8% |
| Other health impairment | 235 | 744 | 19 | 53% | 27% | 20% |
| Specific learning disability | 213 | 756 | 15 | 20% | 38% | 42% |
| Deaf-blindness | 2 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 341 | 718 | 22 | 85% | 12% | 3% |
| Autism | 2,249 | 739 | 21 | 58% | 29% | 13% |
| Traumatic brain injury | 25 | 736 | 22 | 60% | 32% | 8% |
| Not economically disadvantaged | 1,641 | 736 | 22 | 64% | 25% | 11% |
| Economically disadvantaged | 3,527 | 739 | 21 | 59% | 28% | 13% |
| Migrant education | 34 | 744 | 19 | 50% | 38% | 12% |
| Not migrant education | 5,134 | 738 | 21 | 60% | 27% | 13% |
| Foster youth | 55 | 737 | 22 | 58% | 29% | 13% |
| Not foster youth | 5,113 | 738 | 21 | 60% | 27% | 13% |
| American Indian or Alaska Native—Not economically disadvantaged | 7 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 27 | 738 | 21 | 56% | 26% | 19% |
| Asian—Not economically disadvantaged | 213 | 736 | 21 | 62% | 28% | 9% |
| Asian—Economically disadvantaged | 211 | 737 | 21 | 59% | 32% | 9% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 5 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 13 | 738 | 18 | 54% | 38% | 8% |
| Filipino—Not economically disadvantaged | 87 | 736 | 20 | 63% | 28% | 9% |
| Filipino—Economically disadvantaged | 65 | 738 | 22 | 58% | 25% | 17% |
| Hispanic or Latino—Not economically disadvantaged | 657 | 737 | 21 | 63% | 26% | 11% |
| Hispanic or Latino—Economically disadvantaged | 2,319 | 739 | 21 | 59% | 27% | 14% |
| Black or African American—Not economically disadvantaged | 121 | 734 | 24 | 65% | 21% | 13% |
| Black or African American—Economically disadvantaged | 316 | 737 | 21 | 59% | 29% | 11% |
| White—Not economically disadvantaged | 450 | 735 | 22 | 66% | 22% | 12% |
| White—Economically disadvantaged | 451 | 738 | 21 | 58% | 28% | 14% |
| Two or more races—Not economically disadvantaged | 101 | 737 | 21 | 55% | 34% | 11% |
| Two or more races—Economically disadvantaged | 125 | 739 | 20 | 58% | 30% | 13% |

Table 7.D.13 Demographic Summary—Mathematics, Grade Eight

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 4,874 | 836 | 21 | 68% | 22% | 10% |
| Male | 3,327 | 837 | 21 | 66% | 22% | 11% |
| Female | 1,547 | 835 | 20 | 71% | 20% | 8% |
| Nonbinary | 0 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 30 | 835 | 21 | 73% | 20% | 7% |
| Asian | 389 | 835 | 21 | 70% | 20% | 10% |
| Native Hawaiian or Other Pacific Islander | 22 | 833 | 21 | 68% | 27% | 5% |
| Filipino | 131 | 834 | 19 | 77% | 18% | 5% |
| Hispanic or Latino | 2,894 | 836 | 21 | 69% | 21% | 10% |
| Black or African American | 384 | 836 | 19 | 67% | 24% | 8% |
| White | 826 | 838 | 23 | 62% | 25% | 13% |
| Two or more races | 198 | 836 | 21 | 69% | 22% | 9% |
| English only | 2,786 | 837 | 21 | 67% | 23% | 10% |
| IFEP | 37 | 829 | 19 | 81% | 16% | 3% |
| EL | 1,067 | 835 | 21 | 72% | 19% | 9% |
| RFEP | 983 | 838 | 21 | 65% | 22% | 12% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 1 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,825 | 836 | 20 | 70% | 22% | 8% |
| Hearing impairment | 38 | 848 | 17 | 55% | 26% | 18% |
| Speech or language impairment | 27 | 853 | 15 | 41% | 30% | 30% |
| Visual impairment | 9 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 17 | 848 | 24 | 41% | 35% | 24% |
| Orthopedic impairment | 84 | 830 | 21 | 73% | 25% | 2% |
| Other health impairment | 244 | 844 | 18 | 50% | 34% | 16% |
| Specific learning disability | 217 | 855 | 15 | 24% | 42% | 34% |
| Deaf-blindness | 3 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 341 | 818 | 21 | 92% | 5% | 3% |
| Autism | 2,045 | 837 | 21 | 69% | 21% | 10% |
| Traumatic brain injury | 24 | 839 | 24 | 58% | 33% | 8% |
| Not economically disadvantaged | 1,573 | 835 | 22 | 71% | 20% | 9% |
| Economically disadvantaged | 3,301 | 837 | 21 | 66% | 23% | 11% |
| Migrant education | 23 | 836 | 18 | 65% | 30% | 4% |
| Not migrant education | 4,851 | 836 | 21 | 68% | 22% | 10% |
| Foster youth | 52 | 835 | 22 | 67% | 23% | 10% |
| Not foster youth | 4,822 | 836 | 21 | 68% | 22% | 10% |
| American Indian or Alaska Native—Not economically disadvantaged | 9 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 21 | 837 | 21 | 67% | 29% | 5% |
| Asian—Not economically disadvantaged | 184 | 834 | 21 | 71% | 20% | 10% |
| Asian—Economically disadvantaged | 205 | 836 | 21 | 70% | 20% | 11% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 16 | 840 | 18 | 56% | 38% | 6% |
| Filipino—Not economically disadvantaged | 81 | 832 | 19 | 78% | 17% | 5% |
| Filipino—Economically disadvantaged | 50 | 836 | 18 | 76% | 20% | 4% |
| Hispanic or Latino—Not economically disadvantaged | 639 | 833 | 21 | 75% | 18% | 7% |
| Hispanic or Latino—Economically disadvantaged | 2,255 | 837 | 21 | 67% | 22% | 11% |
| Black or African American—Not economically disadvantaged | 109 | 833 | 22 | 72% | 21% | 7% |
| Black or African American—Economically disadvantaged | 275 | 837 | 18 | 66% | 26% | 8% |
| White—Not economically disadvantaged | 440 | 838 | 23 | 63% | 25% | 13% |
| White—Economically disadvantaged | 386 | 838 | 23 | 61% | 25% | 14% |
| Two or more races—Not economically disadvantaged | 105 | 836 | 23 | 68% | 21% | 11% |
| Two or more races—Economically disadvantaged | 93 | 836 | 17 | 71% | 24% | 5% |

Table 7.D.14 Demographic Summary—Mathematics, Grade Eleven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Student Group | Number Valid Scores | Mean Scale Score | SD of Scale Scores | Percent in Achievement Level 1 | Percent in Achievement Level 2 | Percent in Achievement Level 3 |
| All Valid Scores | 4,615 | 936 | 20 | 67% | 24% | 10% |
| Male | 3,053 | 937 | 20 | 64% | 25% | 11% |
| Female | 1,560 | 934 | 19 | 71% | 22% | 7% |
| Nonbinary | 2 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native | 24 | 936 | 26 | 58% | 25% | 17% |
| Asian | 370 | 933 | 20 | 73% | 18% | 9% |
| Native Hawaiian or Other Pacific Islander | 17 | 943 | 12 | 53% | 41% | 6% |
| Filipino | 133 | 933 | 23 | 68% | 22% | 11% |
| Hispanic or Latino | 2,770 | 936 | 20 | 66% | 24% | 9% |
| Black or African American | 358 | 937 | 19 | 65% | 26% | 8% |
| White | 790 | 936 | 21 | 65% | 24% | 12% |
| Two or more races | 153 | 935 | 22 | 68% | 25% | 7% |
| English only | 2,514 | 936 | 20 | 65% | 25% | 10% |
| IFEP | 48 | 936 | 20 | 63% | 25% | 13% |
| EL | 837 | 933 | 21 | 72% | 20% | 8% |
| RFEP | 1,216 | 937 | 20 | 66% | 24% | 10% |
| ADEL | 0 | N/A | N/A | N/A | N/A | N/A |
| To be determined | 0 | N/A | N/A | N/A | N/A | N/A |
| English proficiency unknown | 0 | N/A | N/A | N/A | N/A | N/A |
| Intellectual disability | 1,969 | 935 | 17 | 73% | 21% | 6% |
| Hearing impairment | 47 | 951 | 16 | 36% | 49% | 15% |
| Speech or language impairment | 18 | 956 | 18 | 28% | 33% | 39% |
| Visual impairment | 7 | N/A | N/A | N/A | N/A | N/A |
| Emotional disturbance | 18 | 949 | 14 | 33% | 39% | 28% |
| Orthopedic impairment | 93 | 933 | 21 | 69% | 22% | 10% |
| Other health impairment | 181 | 942 | 19 | 51% | 36% | 13% |
| Specific learning disability | 195 | 955 | 15 | 24% | 45% | 31% |
| Deaf-blindness | 3 | N/A | N/A | N/A | N/A | N/A |
| Multiple disabilities | 388 | 918 | 19 | 90% | 7% | 2% |
| Autism | 1,662 | 938 | 21 | 61% | 26% | 12% |
| Traumatic brain injury | 34 | 929 | 26 | 74% | 15% | 12% |
| Not economically disadvantaged | 1,462 | 934 | 21 | 69% | 21% | 10% |
| Economically disadvantaged | 3,153 | 937 | 20 | 65% | 25% | 10% |
| Migrant education | 25 | 936 | 22 | 64% | 28% | 8% |
| Not migrant education | 4,590 | 936 | 20 | 67% | 24% | 10% |
| Foster youth | 51 | 936 | 20 | 65% | 29% | 6% |
| Not foster youth | 4,564 | 936 | 20 | 67% | 24% | 10% |
| American Indian or Alaska Native—Not economically disadvantaged | 6 | N/A | N/A | N/A | N/A | N/A |
| American Indian or Alaska Native—Economically disadvantaged | 18 | 937 | 27 | 56% | 28% | 17% |
| Asian—Not economically disadvantaged | 195 | 933 | 20 | 74% | 16% | 10% |
| Asian—Economically disadvantaged | 175 | 934 | 20 | 72% | 19% | 9% |
| Native Hawaiian or Other Pacific Islander—Not economically disadvantaged | 7 | N/A | N/A | N/A | N/A | N/A |
| Native Hawaiian or Other Pacific Islander—Economically disadvantaged | 10 | N/A | N/A | N/A | N/A | N/A |
| Filipino—Not economically disadvantaged | 77 | 934 | 23 | 70% | 21% | 9% |
| Filipino—Economically disadvantaged | 56 | 933 | 23 | 64% | 23% | 13% |
| Hispanic or Latino—Not economically disadvantaged | 568 | 935 | 20 | 69% | 21% | 9% |
| Hispanic or Latino—Economically disadvantaged | 2,202 | 937 | 20 | 66% | 25% | 9% |
| Black or African American—Not economically disadvantaged | 111 | 935 | 22 | 64% | 25% | 11% |
| Black or African American—Economically disadvantaged | 247 | 937 | 18 | 66% | 27% | 7% |
| White—Not economically disadvantaged | 420 | 935 | 22 | 67% | 22% | 11% |
| White—Economically disadvantaged | 370 | 938 | 20 | 62% | 25% | 12% |
| Two or more races—Not economically disadvantaged | 78 | 934 | 22 | 72% | 23% | 5% |
| Two or more races—Economically disadvantaged | 75 | 936 | 22 | 64% | 28% | 8% |

## Psychometric 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 California Assessment of Student Performance and Progress (CAASPP) administration.

### Overview

This chapter describes the psychometric analyses conducted by ETS for the CAAs for ELA and mathematics, including classical item analyses, differential item functioning (DIF) analyses, item response theory (IRT) analyses, and response time analyses, as well as analyses to support reliability and validity evidence.

#### Summary of the Analyses

The following list presents the analyses conducted for the CAAs for ELA and mathematics. Each analysis is described in the text subsequently.

* + - 1. **Classical Item Analyses—**Classical item analyses for the CAAs for ELA and mathematics are discussed in section [*8.2 Classical Item Analyses*](#_Classical_Item_Analyses).
      2. **Omission and Completion Analyses—**The omit rate and item difficulty information for the CAAs for ELA and mathematics are presented in subsection [*8.2.4 Omit Rates*](#_Omit_Rates_2), and the completion rate information for the CAAs is described in subsection [*8.2.5 Completion Rates*](#_Completion_Rates_2).
      3. **DIF Analyses—**DIF analysis for the CAAs for ELA and mathematics is described in section [*8.3 Differential Item Functioning Analyses*](#_Toc121145136).
      4. **IRT Analyses—**IRT analyses, including calibration, equating, and scaling for the CAAs for ELA and mathematics are elaborated in section [*8.4 Item Response Theory Analyses*](#_Item_Response_Theory).
      5. **Response Time Analyses—**Response time analyses for the CAAs for ELA and mathematics are described in section [*8.5 Response Time Analyses*](#_Testing_Time_Analyses_2).
      6. **Reliability Analyses—**Reliability estimation for the CAAs for ELA and mathematics is illustrated in section [*8.6 Reliability Analyses*](#_Reliability_Analyses).
      7. **Validity Evidence—**Validity evidence related to the CAAs for ELA and mathematics is discussed in section [*8.7 Validity Evidence*](#_Validity_Evidence).

#### Samples Used for the Analyses

In general, analyses included in the technical report are based on all students in the tested population with valid scores available at the time of analysis. The actual data sample used depends on when that data source becomes available as well as when the sample size is adequate to meet the analysis timeline.

The classical item analyses ([appendix 8.B](#_Appendix_8.B:_Classical)) and item-level DIF analyses ([appendix 8.D](#_Appendix_8.D:_Differential)) were based on the data file available in July 2023. The IRT analyses ([appendix 8.E](#_Appendix_8.E:_Item_1)) were based on the data file available in June 2023. All other analyses, such as the reliability analyses, used the final version of the production data file for student reports, which became available on September 11, 2023 (version 2 of the production data file, or “P2”). All 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 (noncompletion) 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 Scoring of Incomplete Cases*](#_Scoring_of_Incomplete) for a list of cases where the assessments are considered as “incomplete” and subsection [*7.3.2 Special Cases*](#_Special_Cases_2)for a list of cases where the scores are not reported.

Table 8.1 shows small differences in student counts between the item analyses sample, the IRT analyses sample, and the final production data file. Even though the IRT analyses sample was based on a data file available a month earlier than the final production data file, nearly all students had already completed testing by the time the IRT analyses were conducted. Therefore, the final production data file contained only a few more students compared to the IRT analyses sample’s data file.

Table 8.1 presents the CAAs 2022–23 analyses data sources.

Table 8.1 CAAs 2022–23 Analyses Data Sources

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | IRT Analyses Sample, Completed Assessments | Item Analyses Sample, Completed Assessments | Final Data, Completed Assessments | Final Data, Partially Completed Assessments | Final Data, Noncompleted Assessments | Final Data, Total Number Tested |
| ELA 3 | 4,431 | 4,463 | 4,459 | 294 | 606 | 5,359 |
| ELA 4 | 4,420 | 4,438 | 4,437 | 239 | 553 | 5,229 |
| ELA 5 | 4,414 | 4,424 | 4,421 | 186 | 573 | 5,180 |
| ELA 6 | 4,395 | 4,405 | 4,402 | 204 | 424 | 5,030 |
| ELA 7 | 4,555 | 4,565 | 4,559 | 192 | 434 | 5,185 |
| ELA 8 | 4,294 | 4,318 | 4,316 | 141 | 438 | 4,895 |
| ELA 11 | 4,117 | 4,121 | 4,118 | 83 | 414 | 4,615 |
| Mathematics 3 | 4,344 | 4,363 | 4,363 | 232 | 764 | 5,359 |
| Mathematics 4 | 4,380 | 4,392 | 4,393 | 188 | 656 | 5,237 |
| Mathematics 5 | 4,339 | 4,350 | 4,348 | 207 | 634 | 5,189 |
| Mathematics 6 | 4,277 | 4,287 | 4,287 | 146 | 600 | 5,033 |
| Mathematics 7 | 4,452 | 4,470 | 4,468 | 179 | 521 | 5,168 |
| Mathematics 8 | 4,161 | 4,182 | 4,180 | 156 | 538 | 4,874 |
| Mathematics 11 | 4,042 | 4,046 | 4,045 | 137 | 433 | 4,615 |

#### Test-Taking Rates

The decision to assign a student to take a CAA is determined by the student’s individualized education program (IEP) team using the information in the California Department of Education (CDE) optional Alternate Assessment Decision-Making Tool for California web document. This web document describes the criteria for taking alternate assessments and the students who should be identified to take alternate assessments (CDE, 2023a).

All students who are identified by an IEP team to take the CAAs are required to take alternate assessments for all state standardized assessments. All students who are logged on and presented with at least the first test item are counted as having taken the assessment. Students who do not provide a consistent, observable response to the first item are not required to be administered the entire assessment but are counted as having taken the assessment (CDE, 2023a).

Refer to table 8.A.1 through table 8.A.4 in [appendix 8.A](#_Appendix_8.A:_Test-Taking_3) for the number of students enrolled, the number of students tested, and the percentage of enrolled students tested for selected demographic student groups for each assessment during the 2022–23 administration. The tables were created using student demographic data that was in the P2 file received in September 2023. Note that the data in the *Number Tested* columns includes students whose attemptedness codes indicate completion, partial completion, and noncompletion; these are discussed in subsection [*7.1.1 Scoring of Incomplete Cases*](#_Scoring_of_Incomplete).

### Classical Item Analyses

Classical item analyses are conducted to evaluate the performance of all test items with respect to item difficulty, item-total correlation, and distractor analysis. The associated flagging rules of these statistics are used to identify items that are not performing as expected.

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

Items scored as one (correct) or zero (incorrect) are referred to as dichotomous items. Items scored from zero to some number of points greater than one are called polytomous items.

For dichotomous items, item difficulty is indicated by its *p*-value, which is the proportion of students who answer the item correctly. The range of *p*-values is from 0.00 to 1.00. Items with high *p*-values are easier items; those with low *p*-values are more difficult. Dichotomous items are flagged for review if their *p*-values are above 0.95 (i.e., too easy). Two-choice dichotomous single-select items, three-choice dichotomous single-select items, and all other dichotomous items are flagged as too difficult if their *p*-values are below 0.50, 0.30, and 0.20, respectively.

The formula for the *p*-value for a dichotomous item is presented in equation 8.1. *Refer to the* [*Alternative Text for Equation 8.1*](#_Alternative_Text_for) *for a description of this equation.*

 (8.1)

where,

*Xij* is the score (0 or 1) received for a given dichotomous item *i* for student *j*, and

*Ji* is the total number of students who were presented with item *i*.

For polytomous items, the difficulty is indicated by either the average item score (AIS) or *p*-‍value. 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 20 percent to 80 percent of the maximum obtainable item score; items with values outside this range are flagged for review. To facilitate the interpretation, the AIS values for polytomous items are often expressed as the proportion of the maximum possible score, which are equivalent to the *p-*values for dichotomous items.

For polytomous items, the *p-*value is defined as presented in equation 8.2. *Refer to the* [*Alternative Text for Equation 8.2*](#_Alternative_Text_for_1) *for a description of this equation.*

 (8.2)

where,

*Xij* is the score assigned for a given polytomous item *i* and student *j*,

*Ji* is the total number of students who were presented with item *i*, and

*Mi* is the maximum possible score for item *i*.

#### Item-Total Correlation

An important indicator of item discrimination is the item-total correlation, defined as the correlation between student scores on an individual item and student “total” scores on the assessment.

The item-total correlation statistic describes the relationship between students’ performance on a specific item and students’ performance on the total assessment. It is calculated as the correlation coefficient between the item score and total score—specifically, the polyserial correlation is used as the index of item-total correlation for both polytomous and dichotomous items. Statistically, it is calculated as the correlation between an observed continuous variable and an unobserved continuous variable hypothesized to underlie the variable with ordered categories (Olsson, Drasgow, & Dorans, 1982). The total scale score or the raw score is used as the criterion score for this analysis.

Theoretically, the polyserial correlation ranges from −1.0 (for a perfect negative relationship) to 1.0 (for a perfect positive relationship) and is estimated as presented in equation 8.3. *Refer to the* [*Alternative Text for Equation 8.3*](#_Alternative_Text_for_36) *for a description of this equation.*

 (8.3)

where,

*β* is the item parameter to be estimated from the data, with the estimate denoted as , using maximum likelihood estimation; it is a regression coefficient (slope) for predicting the continuous version of an item score onto the continuous version of the total score;

*s2tot* is the variance of the criterion (for example, the students’ total score); and

*stot* is the standard deviation (SD) of the criterion.

For a polytomous item, there is a regression for each boundary between item scores, with all regressions for the same item sharing a common slope, *β*. For a polytomous item with *m* possible score values, there are *m−*1 regressions.

Acceptable values for this correlation coefficient are positive and greater than 0.20. A relatively high item-total correlation coefficient value is preferred, as it indicates that higher-performing students tend to perform better on the item than lower-performing students. An item with a negative item-total correlation typically signifies a problem with the item, as that indicates that

* the higher-performing students on the overall assessment tend to respond incorrectly to the item if dichotomous, or are assigned a low score for the item if polytomous; or
* the lower-performing students on the overall assessment are responding correctly to the item if dichotomous, or are assigned a high score for that item if polytomous.

#### Distribution of Item Scores

For polytomous items, examination of the distribution of scores assists in showing how well items performed. If no students were given the highest possible score, the item may not be functioning as expected because 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. If the rubric for an item allowed for partial credit but nearly all students received either full credit or partial credit, the rubric should be reviewed for whether the rubric for the partial credit score category should be revised.

Items with a low percentage (i.e., less than 3 percent) of students obtaining any score point were flagged for review. Such items may pose problems during IRT calibration. They need to be carefully reviewed and may need to be excluded from the item calibration analyses.

#### Omit Rates

If a student views an item, leaves it unanswered, and then goes on to view and answer another item, the missing response is classified as an “omit.” If the student omits an item—that is, leaves the item unanswered—and does not view additional items, the responses for the successive items are classified as “not seen.”

##### Rates for Dichotomous and Polytomous Items

For both dichotomous and polytomous items, examining the omit rate is useful for identifying potential problems with test features such as testing time and item or test layout. Items with high omit rates are flagged for further investigation by content specialists to ensure that no issues are found with these items. Omit rates for polytomous items tend to be higher than for dichotomous items.

#### Completion Rates

Completion rates indicate the proportion of students who complete a certain number of items on the assessment. A student’s record for the assessment is not considered complete unless the student answered at least four items.

#### Distractor Analyses

Distractor analyses were conducted on selected-response (SR) items (i.e., items that were not constructed response [CR]). The statistics for each item included the proportion of students selecting each distractor (incorrect response), computed for the group of all students in the analysis sample, and were also computed separately for the highest-performing 20 percent of students. Items were flagged for review if more high-performing students chose any distractor rather than the key. Such a result indicated that the item may have multiple correct answers or have the wrong key (i.e., the item was miskeyed).

For SR items, the distractor-total correlation describes the relationship between selecting a distractor for a specific item and performance on the total assessment. The polyserial correlation was calculated for the distractors, like the item-total correlation previously described, except that the regressions were implemented on the distractors rather than the keys. Items with distractor-total correlations not significantly below zero were flagged for review, as these items may have multiple correct answers, be miskeyed, or have other content issues.

#### Summary of Typical Classical Item Analyses Flagging Criteria

An item was flagged for review if the item analysis yielded any of the following results. One item could have multiple flags if the statistics met the flagging criteria:

* **Difficulty flags** indicated extreme values of the proportion-correct (for dichotomous items) or the proportion of the possible maximum points earned (for polytomous items):
* A-flag: A *p-*value below 0.50 for two-choice dichotomous single-select items, below 0.30 for three-choice dichotomous single-select items, or below 0.20 for all other items
* H-flag: A *p*-value above 0.95 for dichotomous items or above 0.80 for polytomous items
* A **discrimination flag** (R-flag) indicated that the item did not discriminate effectively between high- and low-ability students. Items with a polyserial correlation less than 0.20 were flagged.
* An **omit flag** (O-flag) indicated an omission rate above 5 percent for dichotomous multiple-choice, single-select items or above 15 percent for all other items.
* A **distractor flag** (P-flag) was used for an item with any distractors having a correlation with the criterion score that is either positive, zero, or negative but not significantly below zero.
* A **miskey flag** (D-flag) was used for multiple-choice items when more of the high-ability examinee group—the top 20 percent of examinees on the total assessment—choose any distractor rather than the response keyed as correct.
* An **underrepresented score point flag** (L-flag) was used for any item that had less than 3 percent of the students at any score level.

ETS’ Psychometric Analysis & Research staff and Assessment and Learning Technology Research & Development staff carefully reviewed each of the flagged items during and at the end of the item analyses. All flagged items were also reviewed by California educators at the data review meeting and then summarized for the CDE with recommendations for subsequent analyses.

#### Classical Item Analyses Results

This subsection presents tables of the classical item analyses results for the 2022–23 test items. These analyses include evaluations of the classical item difficulties and the item-total correlations; an analysis of the omit rate by item; and an analysis of the student completion rates.

##### Summary of Classical Item Difficulty Indices and Item-Total Correlations

Detailed results of the item analyses for each item by grade level and content area are presented in table 8.B.1 through table 8.B.14 in [appendix 8.B](#_Appendix_8.B:_Classical). 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 of each polytomous item is presented in table 8.B.15 through table 8.B.28.

Table 8.2 presents the item difficulty distributions of the operational items by content area and grade level. Across grade levels and content areas, most items had a *p*-value between 0.4 and 0.8. Some assessments, such as grade seven mathematics, had at least one difficult item with a *p*-value less than 0.2. All ELA assessments had at least one easy item with a *p*-value of at least 0.8.

Table 8.2 presents the item difficulty distributions of the operational items by content area and grade level.

Table 8.2 Item Difficulty Distributions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | 0 ≤ *p* < 0.2 | 0.2 ≤ *p* < 0.4 | 0.4 ≤ *p* < 0.6 | 0.6 ≤ *p* < 0.8 | 0.8 ≤ *p* ≤ 1.0 | Total Number of Operational Items |
| ELA 3 | 0 | 7 | 16 | 15 | 2 | 40 |
| ELA 4 | 0 | 4 | 18 | 14 | 1 | 37 |
| ELA 5 | 0 | 5 | 17 | 15 | 1 | 38 |
| ELA 6 | 1 | 7 | 13 | 14 | 3 | 38 |
| ELA 7 | 1 | 9 | 16 | 11 | 3 | 40 |
| ELA 8 | 0 | 5 | 14 | 19 | 1 | 39 |
| ELA 11 | 0 | 5 | 20 | 10 | 3 | 38 |
| Mathematics 3 | 0 | 13 | 15 | 8 | 0 | 36 |
| Mathematics 4 | 0 | 13 | 20 | 5 | 0 | 38 |
| Mathematics 5 | 0 | 12 | 21 | 3 | 1 | 37 |
| Mathematics 6 | 0 | 8 | 23 | 6 | 0 | 37 |
| Mathematics 7 | 1 | 5 | 22 | 9 | 0 | 37 |
| Mathematics 8 | 1 | 7 | 20 | 10 | 0 | 38 |
| Mathematics 11 | 1 | 5 | 24 | 9 | 1 | 40 |

Overall item-total correlation distributions of the operational items are presented in table 8.3 by content area and grade level. Most items effectively discriminated the high- and low-ability students, as most items had an item-total correlation of at least 0.3, and few items had an item-total correlation below 0.2. No item-total correlations were negative. The item-total correlation for each item, including the field test items, are also shown in table 8.B.1 through table 8.B.14 in [appendix 8.B](#_Appendix_8.B:_Classical).

Table 8.3 Item-Total Correlation Distributions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | r < 0 | 0 ≤ r < 0.2 | 0.2 ≤ r < 0.3 | 0.3 ≤ r < 0.4 | 0.4 ≤ r < 0.5 | r ≥ 0.5 | Total Number of Items |
| ELA 3 | 0 | 0 | 0 | 4 | 5 | 31 | 40 |
| ELA 4 | 0 | 1 | 3 | 4 | 9 | 20 | 37 |
| ELA 5 | 0 | 0 | 2 | 5 | 4 | 27 | 38 |
| ELA 6 | 0 | 0 | 2 | 4 | 7 | 25 | 38 |
| ELA 7 | 0 | 3 | 3 | 7 | 8 | 19 | 40 |
| ELA 8 | 0 | 2 | 3 | 7 | 6 | 21 | 39 |
| ELA 11 | 0 | 1 | 3 | 2 | 10 | 22 | 38 |
| Mathematics 3 | 0 | 1 | 2 | 12 | 4 | 17 | 36 |
| Mathematics 4 | 0 | 2 | 5 | 8 | 6 | 17 | 38 |
| Mathematics 5 | 0 | 1 | 6 | 9 | 8 | 13 | 37 |
| Mathematics 6 | 0 | 2 | 5 | 5 | 12 | 13 | 37 |
| Mathematics 7 | 0 | 0 | 2 | 6 | 15 | 14 | 37 |
| Mathematics 8 | 0 | 1 | 2 | 8 | 13 | 14 | 38 |
| Mathematics 11 | 0 | 1 | 3 | 9 | 10 | 17 | 40 |

Table 8.4 and table 8.5 present the classical item statistics for each module for ELA and mathematics, respectively. The mean *p*-value for the Stage 1 router is larger than the mean *p*-value of both the Stage 2 easy module and the Stage 2 hard module across all grade levels and content areas. Overall, the ELA assessments have a larger mean *p*-value for each grade level and a larger mean item-total correlation for most grade levels. Across grade levels, the mean *p*-value and the mean item-total correlation do not vary significantly overall with each content area.

Table 8.4 Classical Item Statistics for Each Module for ELA

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Module | No. of Unique Items | No. of Students | Mean *p-*value | Minimum *p-*value | Maximum *p-*value | Mean Item-Total Polyserial Correlation | Minimum Item-Total Polyserial Correlation | Maximum Item-Total Polyserial Correlation |
| **Grade 3 Total:** | **40** | **4,463** | **0.55** | **0.26** | **0.85** | **0.57** | **0.36** | **0.73** |
| Grade 3 Stage 1 router | 10 | 4,463 | 0.69 | 0.51 | 0.81 | 0.63 | 0.57 | 0.71 |
| Grade 3 Stage 2 easy | 15 | 1,283 | 0.46 | 0.26 | 0.74 | 0.54 | 0.36 | 0.67 |
| Grade 3 Stage 2 hard | 15 | 3,053 | 0.55 | 0.30 | 0.85 | 0.57 | 0.38 | 0.73 |
| **Grade 4 Total:** | **37** | **4,438** | **0.56** | **0.29** | **0.87** | **0.50** | **0.18** | **0.73** |
| Grade 4 Stage 1 router | 10 | 4,438 | 0.65 | 0.51 | 0.87 | 0.64 | 0.55 | 0.73 |
| Grade 4 Stage 2 easy | 15 | 1,838 | 0.52 | 0.29 | 0.76 | 0.47 | 0.18 | 0.72 |
| Grade 4 Stage 2 hard | 15 | 2,465 | 0.55 | 0.43 | 0.76 | 0.46 | 0.25 | 0.72 |
| **Grade 5 Total:** | **38** | **4,424** | **0.58** | **0.29** | **0.80** | **0.53** | **0.27** | **0.69** |
| Grade 5 Stage 1 router | 10 | 4,424 | 0.72 | 0.59 | 0.80 | 0.59 | 0.29 | 0.69 |
| Grade 5 Stage 2 easy | 15 | 1,274 | 0.51 | 0.31 | 0.65 | 0.52 | 0.34 | 0.67 |
| Grade 5 Stage 2 hard | 15 | 2,967 | 0.56 | 0.29 | 0.78 | 0.51 | 0.27 | 0.67 |
| **Grade 6 Total:** | **38** | **4,404** | **0.58** | **0.19** | **0.88** | **0.51** | **0.22** | **0.73** |
| Grade 6 Stage 1 router | 10 | 4,404 | 0.71 | 0.42 | 0.88 | 0.58 | 0.42 | 0.73 |
| Grade 6 Stage 2 easy | 15 | 1,064 | 0.50 | 0.19 | 0.68 | 0.49 | 0.24 | 0.65 |
| Grade 6 Stage 2 hard | 15 | 3,170 | 0.56 | 0.34 | 0.86 | 0.48 | 0.22 | 0.73 |
| **Grade 7 Total:** | **40** | **4,565** | **0.53** | **0.11** | **0.87** | **0.47** | **0.17** | **0.75** |
| Grade 7 Stage 1 router | 10 | 4,565 | 0.64 | 0.35 | 0.87 | 0.58 | 0.38 | 0.75 |
| Grade 7 Stage 2 easy | 15 | 1,516 | 0.48 | 0.26 | 0.65 | 0.41 | 0.18 | 0.57 |
| Grade 7 Stage 2 hard | 15 | 2,878 | 0.52 | 0.11 | 0.79 | 0.46 | 0.17 | 0.68 |
| **Grade 8 Total:** | **39** | **4,318** | **0.58** | **0.30** | **0.81** | **0.49** | **0.19** | **0.74** |
| Grade 8 Stage 1 router | 10 | 4,318 | 0.67 | 0.32 | 0.81 | 0.50 | 0.19 | 0.70 |
| Grade 8 Stage 2 easy | 15 | 1,979 | 0.59 | 0.30 | 0.77 | 0.52 | 0.25 | 0.74 |
| Grade 8 Stage 2 hard | 15 | 2,211 | 0.54 | 0.31 | 0.76 | 0.46 | 0.19 | 0.74 |
| **Grade 11 Total:** | **38** | **4,121** | **0.56** | **0.29** | **0.85** | **0.51** | **0.20** | **0.70** |
| Grade 11 Stage 1 router | 10 | 4,121 | 0.67 | 0.47 | 0.85 | 0.51 | 0.22 | 0.70 |
| Grade 11 Stage 2 easy | 15 | 1,337 | 0.48 | 0.29 | 0.75 | 0.53 | 0.20 | 0.66 |
| Grade 11 Stage 2 hard | 15 | 2,668 | 0.55 | 0.30 | 0.79 | 0.51 | 0.22 | 0.66 |

Table 8.5 Classical Item Statistics for Each Module for Mathematics

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Module | No. of Unique Items | No. of Students | Mean *p-*value | Minimum *p-*value | Maximum *p-*value | Mean Item-Total Polyserial Correlation | Minimum Item-Total Polyserial Correlation | Maximum Item-Total Polyserial Correlation |
| **Grade 3 Total:** | **36** | **4,363** | **0.47** | **0.21** | **0.69** | **0.47** | **0.08** | **0.75** |
| Grade 3 Stage 1 router | 10 | 4,363 | 0.58 | 0.42 | 0.69 | 0.52 | 0.37 | 0.66 |
| Grade 3 Stage 2 easy | 15 | 1,888 | 0.42 | 0.21 | 0.59 | 0.43 | 0.08 | 0.64 |
| Grade 3 Stage 2 hard | 15 | 2,355 | 0.41 | 0.21 | 0.67 | 0.46 | 0.08 | 0.75 |
| **Grade 4 Total:** | **38** | **4,392** | **0.46** | **0.27** | **0.76** | **0.45** | **0.13** | **0.72** |
| Grade 4 Stage 1 router | 10 | 4,392 | 0.53 | 0.29 | 0.76 | 0.42 | 0.13 | 0.71 |
| Grade 4 Stage 2 easy | 15 | 1,821 | 0.44 | 0.27 | 0.60 | 0.49 | 0.17 | 0.59 |
| Grade 4 Stage 2 hard | 15 | 2,413 | 0.41 | 0.27 | 0.68 | 0.43 | 0.24 | 0.72 |
| **Grade 5 Total:** | **37** | **4,350** | **0.46** | **0.30** | **0.81** | **0.43** | **0.20** | **0.67** |
| Grade 5 Stage 1 router | 10 | 4,350 | 0.54 | 0.38 | 0.74 | 0.45 | 0.24 | 0.60 |
| Grade 5 Stage 2 easy | 15 | 2,773 | 0.45 | 0.30 | 0.57 | 0.41 | 0.22 | 0.54 |
| Grade 5 Stage 2 hard | 15 | 1,474 | 0.42 | 0.31 | 0.81 | 0.43 | 0.20 | 0.67 |
| **Grade 6 Total:** | **37** | **4,287** | **0.48** | **0.21** | **0.66** | **0.44** | **0.19** | **0.69** |
| Grade 6 Stage 1 router | 10 | 4,287 | 0.55 | 0.25 | 0.66 | 0.46 | 0.28 | 0.66 |
| Grade 6 Stage 2 easy | 15 | 2,291 | 0.44 | 0.28 | 0.61 | 0.41 | 0.19 | 0.54 |
| Grade 6 Stage 2 hard | 15 | 1,899 | 0.47 | 0.21 | 0.65 | 0.47 | 0.19 | 0.69 |
| **Grade 7 Total:** | **37** | **4,470** | **0.51** | **0.20** | **0.73** | **0.47** | **0.27** | **0.64** |
| Grade 7 Stage 1 router | 10 | 4,470 | 0.56 | 0.46 | 0.68 | 0.50 | 0.37 | 0.64 |
| Grade 7 Stage 2 easy | 15 | 3,120 | 0.51 | 0.28 | 0.69 | 0.45 | 0.27 | 0.57 |
| Grade 7 Stage 2 hard | 15 | 1,238 | 0.50 | 0.20 | 0.73 | 0.46 | 0.27 | 0.63 |
| **Grade 8 Total:** | **38** | **4,182** | **0.51** | **0.01** | **0.79** | **0.46** | **0.15** | **0.65** |
| Grade 8 Stage 1 router | 10 | 4,182 | 0.57 | 0.38 | 0.75 | 0.51 | 0.35 | 0.63 |
| Grade 8 Stage 2 easy | 15 | 2,087 | 0.51 | 0.01 | 0.79 | 0.42 | 0.24 | 0.63 |
| Grade 8 Stage 2 hard | 15 | 1,985 | 0.47 | 0.27 | 0.73 | 0.48 | 0.15 | 0.65 |
| **Grade 11 Total:** | **40** | **4,046** | **0.52** | **0.13** | **0.83** | **0.47** | **0.17** | **0.76** |
| Grade 11 Stage 1 router | 10 | 4,046 | 0.56 | 0.37 | 0.70 | 0.52 | 0.38 | 0.69 |
| Grade 11 Stage 2 easy | 15 | 2,008 | 0.50 | 0.35 | 0.67 | 0.43 | 0.17 | 0.62 |
| Grade 11 Stage 2 hard | 15 | 1,957 | 0.51 | 0.13 | 0.83 | 0.46 | 0.23 | 0.76 |

##### Summary of Omit Rate Analyses

Table 8.C.1 through table 8.C.14 in [appendix 8.C](#_Appendix_8.C:_Omission) provide the omit rate and IRT item difficulty for each item. Most items have low omit rates—lower than 5 percent—and only a few items had omit rates exceeding 10 percent. Notably, grade three ELA and grade three mathematics had more items with omit rates exceeding 10 percent than the other grade-level assessments.

The items with high omit rates were flagged. Omit rates for polytomous items tended to be higher than for dichotomous 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.C.15 and table 8.C.16 present the average number of omitted items in each module of each content-area form. Students in the easy pathway—those who tended to perform less well on the router and so were assigned to the easy pathway—tended to omit more items than students in the hard pathway. This pattern suggests that students identified with the most significant cognitive disabilities experienced the greatest challenges completing a version of the CAA containing the easy Stage 2 module, which consisted primarily of the most accessible content.

##### Summary of Completion Rate Analyses

Table 8.C.17 through table 8.C.24 in [appendix 8.C](#_Appendix_8.C:_Omission) present the distribution of the total number of answered items by achievement level among students who completed the assessment. Most students answered all 29 items, including the four embedded field test items, across all grade levels and content areas.

### Differential Item Functioning Analyses

DIF is used to evaluate the consistency of individual item performance for students in different demographic student groups who have the same level of domain performance. For example, DIF evaluates whether female and male students matched to have the same test score perform similarly on each item in the assessment.

In examining the DIF between groups, the reference group is often designated as the group that is assumed to have an advantage, while the focal group refers to the group anticipated to possibly be disadvantaged by the assessment.

DIF analyses were conducted for field test items that met the sample size requirements. The sample size requirements for the 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. These sample size requirements are based on standard operating procedures with respect to DIF analyses at ETS.

If an item performs differentially across identifiable student groups—for example, 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.

There are many possible reasons for DIF. The wording of an item, for example, may be such that one group interprets the question differently than the other, or the reading demands of an item are such that, although reading is not being measured (e.g., in a mathematics assessment), reading differences between the groups lead to differential outcomes on the item.

DIF analyses were conducted on each assessment for designated comparison groups. Groups are defined on the basis of demographic variables, such as gender, race or ethnicity, and primary disabilities, if the number of students in the group meets the sample size requirements. These comparison groups are specified in table 8.8.

#### Differential Item Functioning Procedure for Dichotomous Items

The Mantel-Haenszel (MH) DIF (MH-DIF) statistic was calculated for dichotomous items (Mantel & Haenszel, 1959; Holland & Thayer, 1985). For this method, students are classified into relevant student groups of interest (e.g., gender or ethnicity). Students at each total score level in the focal group (e.g., females) are compared with students at each total score level in the reference group (e.g., males). The common odds ratio—that is, the proportion of correct response over the proportion of incorrect response—is estimated across all levels of matched student ability using the formula in equation 8.4 (Dorans & Holland, 1993). The resulting estimate is interpreted as the relative probability of success on a particular item for members of two groups when matched on ability. *Refer to the* [*Alternative Text for Equation 8.4*](#_Alternative_Text_for_2) *for a description of this equation.*

 (8.4)

where,

*M* is the highest score category of the criterion score (total raw score),

*m* indexes the score categories,

*Rrm* is the number of students in the reference group at score level *m* who answer the item correctly,

*Wfm* is the number of students in the focal group at score level *m* who answer the item incorrectly,

*Ntm* is the total number of students at score level *m*,

*Rfm* is the number of students in the focal group at score level *m* who answer the item correctly, and

*Wrm* is the number of students in the reference group at score level *m* who answer the item incorrectly.

To facilitate the interpretation of MH results, the common odds ratio is frequently transformed onto the delta scale using equation 8.5 (Holland & Thayer, 1985). *Refer to the [Alternative Text for Equation 8.5](#_Alternative_Text_for_3) for a description of this equation.*

 (8.5)

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).

#### Differential Item Functioning Procedure for Polytomous Items

The standardization DIF (Dorans & Schmitt, 1993; Zwick, Thayer, & Mazzeo, 1997; Dorans, 2013) in conjunction with the Mantel chi-square statistic (Mantel, 1963; Mantel & Haenszel, 1959) is calculated for polytomous items. The standardized mean difference (SMD) compares the item means of the two groups after adjusting for differences in the distribution of students across all items and is calculated using equation 8.6. *Refer to the* [*Alternative Text for Equation 8.6*](#_Alternative_Text_for_35) *for a description of this equation.*

 (8.6)

where,

*M* is the highest score category of the criterion score (total raw score),

*Nfm* is the number of students in the focal group at score level *m*,

*Erm* is the expected item score for the reference group at score level *m*,

*Efm* is the expected item score for the focal group at score level *m*, and

*Dm* is the difference in the distribution of students at score level *m*.

These statistics are indicators of the degree to which members of one group perform better or worse than expected on each polytomous item.

A positive SMDvalue means that, conditional on the criterion score, the focal group has a higher mean item score than the reference group (i.e., the item is differentially easier for the focal 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 (i.e., the item is differentially harder for the focal group).

#### 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 8.6; the flagging criteria for polytomous items are provided in table 8.7. The determination of all significant differences is based on *p*-value < 0.05.

Table 8.6 DIF Categories for Dichotomous Items

|  |  |
| --- | --- |
| DIF Category | Criteria |
| A (negligible) | * Absolute value of MH D-DIF is less than one or is not significantly different from zero. * 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* absolute value of MH D-DIF is significantly different from one but is less than 1.5. * Positive values are classified as “B+” and negative values as “B−.” |
| C (large) | * Absolute value of MH D-DIF is at least 1.5 and is significantly different from one. * Positive values are classified as “C+” and negative values as “C−.” |

Table 8.7 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 and 0.17 < |SMD/SD| ≤ 0.25 |
| C (large) | Mantel chi-square *p-*value *<* 0.05 and |SMD*/*SD| > 0.25 |

**Note:** SMD = standardized mean difference; SD = total group standard deviation of item score

DIF analyses were conducted on each assessment for designated comparison groups on the basis of demographic variables, including gender, race or ethnicity, and primary disability type, if the number of students in the group was sufficient. These comparison groups are specified in table 8.8.

Table 8.8 Student Groups for DIF Comparison

|  |  |  |
| --- | --- | --- |
| DIF Type | Reference Group | Focal Group |
| **Gender** | Male | * Female |
| **Race or Ethnicity** | White | * American Indian or Alaska Native * Asian * Black or African American * Filipino * Hispanic or Latino * Native Hawaiian or Other Pacific Islander * Two or more races |
| **Primary Disability Type** | Intellectual Disability | * Autism * Deaf-blindness * Emotional disturbance * Hearing impairment * Multiple disabilities * Orthopedic impairment * Other health impairment * Specific learning disability * Speech or language impairment * Traumatic brain injury * Visual impairment |

#### Differential Item Functioning Analysis Results

The DIF results can be found in [appendix 8.D](#_Appendix_8.D:_Differential). Table 8.D.1 through table 8.D.14 show the number of operational items classified into each DIF category, and table 8.D.15 through table 8.D.28 show the number of field test items classified into each DIF category. Overall, most items are in Category A, with a small percentage of items in Category B and very few items in Category C. In addition, “N/A” indicates the number of items for which the DIF analysis was not performed because of an insufficient sample size.

### Item Response Theory Analyses

IRT is a family of mathematical models that characterizes the probability of a given response as a function of a test taker’s true ability and one or more features of the items, such as its difficulty or discrimination. IRT can be used to calibrate items, link item parameter estimates, scale or equate 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 were used to calibrate and equate operational forms onto the base IRT scale established during the 2015–16 administration as well as to link the field test items onto the base scale. Items that were rejected by both the data review committees and the CDE were typically not included in the calibration process. Exceptions may be made when such items are needed to meet the test blueprint and the item has the correct key but was rejected for other reasons.

#### Item Response Theory Model

The one-parameter logistic item response theory (1PL-IRT) model was used for the 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 (Masters, 1982), was applied to both dichotomous and polytomous items.

The mathematical form of the GPCM is presented in equation 8.7. *Refer to the* [*Alternative Text for Equation 8.7*](#_Alternative_Text_for_5) *for a description of this equation.*

 (8.7)

where,

 is the probability of student with proficiency  obtaining score *h* on item *i*,

*Mi* is the maximum number of score points for item *i*,

*ai* is the discrimination parameter, which is fixed to 0.588 for every item,

*bi* is the location parameter for item *i*,

*div* is the category parameter for item *i* on item score *v*,

*D* is a scaling constant of 1.7,

*c* indexes the item score, and

*v* indexes the non-zero item score.

When *Mi* = 1, equation 8.7 becomes an expression of the one-parameter logistic model for dichotomous items.

#### 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 also were reviewed by ETS’ content experts and the CDE. The decision whether to remove items from calibration was made in consultation with the CDE.

For IRT calibration, scored item response data was used to create the IRT analysis input data files for each grade level. The IRT analysis input data file was a full matrix containing item-level scores for students who answered at least four items.

Similar to the classical item analyses, “omit” items were treated as incorrect and “not presented” items were treated as blank.

#### Equating

Equating is a procedure where test scores, from different test forms assembled on the basis of the same specifications, are placed onto a reference scale so that scores from different test administrations are comparable. There are two approaches to equate the test forms: preequating and postequating.

A preequating design allows for conversion tables that describe the relationship between raw scores and scale scores, or theta scores and scale scores, to be established prior to the current test administration using data from prior administrations. Preequating relies on having a well-calibrated item bank, robust embedded field-testing processes, and stability in item performance over time.

A postequating design uses the data from the current administration to establish the raw-to-scale-score relationship for the current administration’s form.

Both preequating and postequating involve a common‑item nonequivalent groups design (Kolen & Brennan, 2004).

For all assessments, regardless of whether they are preequated or postequated, IRT calibration and linking were conducted to put the field test item parameters onto the base IRT scale.

The CAAs for ELA and mathematics were postequated to the baseline scale established in the 2015–16 administration using the data from the 2022–23 administration.

##### Calibration

After the 2022–23 CAAs for ELA and mathematics administration, all operational items within each assessment (grade level and content area) were calibrated using all available data.

FlexMIRT (Cai, 2017), a multilevel and multiple-group IRT software package for item analysis and test scoring, was used for 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 was chosen for its superior flexibility among IRT software programs.

The evaluation of the calibration results includes the following steps:

1. Reviewing the item parameter estimates to examine whether these estimates were reasonable
   1. At the form level, the summary statistics for the *b*-parameter estimates (location difficulty) and *d*-parameter estimates (step parameter) were examined, including the mean, SD, median, minimum, maximum, and goodness-of-fit.
   2. At the item level, statistics of individual items were examined, including item difficulty estimates, model-fit statistics, and the IRT-based item parameters.
2. Flagging items that did not perform as expected (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.)

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 section [*9.6 Quality Control of Psychometric Processes*](#_Quality_Control_of_1) for more details of this procedure.

##### Equating of the Operational Form

The new items in the assessments for each grade level were linked to a calibrated item pool using a common-item nonequivalent groups design (Kolen & Brennan, 2004). The base scales for the CAAs for ELA and mathematics were established on the basis of data from the 2015–16 administration. The linking of the new operational form onto the 2015–16 base scale is done through a set of linking items (i.e., anchor set) selected from the calibrated item pool and readministered in the current test administration for each grade level.

After IRT calibration was performed with the 2022–23 test administration’s items, the complete set of anchor items was used to calculate the linking constants to place the 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 2022–23 item estimates and base 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 subsection [*8.4.3.2.2 Robust-Z Procedure*](#_Robust-Z_Procedure_1).

###### Mean-to-Mean Transformation

The item difficulty estimates from a new form of calibration may not be comparable to those from the 2015–16 calibration. The difficulty estimates based on a typical year’s data need to be transformed onto the base scale to make them comparable to the item bank parameters.

The mean-to-mean transformation assumes that the item bank and the new form difficulty values differ by a constant; that is, the item bank and the new form 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 anchor items from the item bank and the new form difficulty values for the anchor items.

An iterative procedure was implemented to calculate the linking constants using common items in the item bank and the typical year’s administration. For each iteration of linking constants computation, the procedure described in subsection [*8.4.3.2.2* *Robust-Z Procedure*](#_Robust-Z_Procedure_1)is intended to inspect the differences between the transformed new (current administration) and base (2015–16) estimates for the anchor items and remove anchor items for which the item difficulty estimates changed significantly.

There were eight steps involved in making mean-to-mean transformation:

1. Identify the anchor items in both the item bank (2015–16 administration) and the current administration.
2. Obtain the item difficulty parameters (*b*-values) of these anchor items that are on the base scale from the item bank.
3. Obtain the item difficulty parameters (*b*-values) of these anchor items from the calibration of the new form.
4. Calculate the average item difficulty for the anchor set on the base scale.
5. Calculate the average item difficulty for the anchor set from the calibration of the new form.
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 base scale and subtracting the average item difficulty for the anchor set from the calibration of the new form.
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 new form.
8. Remove anchor items by following the procedure as described in subsection [*8.4.3.2.2* *Robust-Z Procedure*](#_Robust-Z_Procedure_1). The iteration process continues by removing one unstable anchor in each round until no additional items are identified with significant differences between the item difficulty estimates for adjusted new and base items.

###### Robust-Z Procedure

To identify any unstable anchor items, ETS used an outlier detection procedure based on the robust-z statistic (Huynh, 2000; Huynh & Rawls, 2009). In this application, robust-z, as described in equation 8.8, was calculated on the basis of the distribution of the difficulty difference for the anchor items between the item bank and the new form in a typical-year administration. *Refer to the* [*Alternative Text for Equation 8.8*](#_Alternative_Text_for_6) *for a description of this equation.*

 (8.8)

where,

*D* is the difference between the base and transformed new item difficulty of an anchor item;

*MdD* 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 reference item difficulty parameter and the new form item 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 reference item difficulty estimates and new form item difficulty estimates for the anchor sets should be no less than 0.95.
* The ratio of standard deviations (RSD) of the reference item difficulty estimates and the new form item difficulty estimates for the anchor items should be between 0.90 and 1.1.

After each iteration, the mean difference of the anchor sets between the base item-difficulty estimates and the new form item difficulty estimates was recomputed on the basis of the remaining anchor items. Once the final anchor item set was obtained and the linking constant was calculated, ETS will evaluate the percentage of the final anchor items in the form. It is desired that the final anchor set is at least 40 percent of all items in the form. When the equating work was completed, ETS discussed the equating results 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 for deriving raw-to-theta conversions.

After equating, the item parameters were linked to the base IRT scale. The raw-to-scale-score conversion table can be established using these parameter estimates. For detailed information on the method to establish the raw-to-scale-score conversion table, refer to subsection [*8.4.6 Scaling the Scores*](#_Scaling_the_Scores)*.*

#### Calibration and Linking for the Field Test Items

After each administration, the field test items will be calibrated and linked to the base scale.

##### Calibration

The calibration will be conducted using a sparse matrix combining all operational items and field test items from all versions within a grade level. Refer to subsection [*8.4.1 Item Response Theory Model*](#_Item_Response_Theory_1) for the IRT models and the software used in the calibration, subsection [*8.4.2 Data Preparation*](#_Data_Preparation_1) for the creation of the sparse matrix.

##### Linking

The item parameters obtained through the calibration are on a different scale and will be linked to the baseline scale using all operational items as anchors. The mean-to-mean linking procedures were used to link the item parameters to the baseline scale, and the robust-z method was used to check the stability of the anchors. Refer to subsection [*8.4.3.2.1 Mean-to-Mean Transformation*](#_Mean-to-Mean_Transformation) and subsection [*8.4.3.2.2* *Robust-Z Procedure*](#_Robust-Z_Procedure_1) for more details on these methods.

#### Parameter Estimates

Table 8.9 shows a summary of the procedure described in subsection [*8.4.3.2 Equating of the Operational Form*](#_Equating_of_the)*,* which includes the number of all anchor items to the anchor stability check—both the number of anchor items that were removed and the number of anchor items remaining after the anchor stability check—and the linking constants of the final iteration of each assessment.

Table 8.9 Final Linking Summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Content Area and Grade Level | 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 | 40 | 11 | 29 | 0.0042 |
| ELA 4 | 37 | 3 | 34 | −0.0498 |
| ELA 5 | 38 | 4 | 34 | −0.0017 |
| ELA 6 | 38 | 8 | 30 | 0.0819 |
| ELA 7 | 40 | 11 | 29 | 0.0916 |
| ELA 8 | 39 | 1 | 38 | 0.0419 |
| ELA 11 | 38 | 3 | 35 | 0.1046 |
| Mathematics 3 | 36 | 10 | 26 | −0.0528 |
| Mathematics 4 | 38 | 10 | 28 | −0.1500 |
| Mathematics 5 | 37 | 4 | 33 | −0.0231 |
| Mathematics 6 | 37 | 5 | 32 | 0.0169 |
| Mathematics 7 | 37 | 2 | 35 | 0.1594 |
| Mathematics 8 | 38 | 6 | 32 | 0.0827 |
| Mathematics 11 | 40 | 5 | 35 | −0.0048 |

Once the 2022–23 IRT *b*-parameters for the operational items were placed on the 2015–16 baseline scale for the CAAs at all grade levels for ELA and mathematics, analyses were performed to assess the overall test difficulty and the distribution of item difficulty. For the polytomous items, the difference between the item’s *b*-parameter estimate and each of the item’s *d*-step parameter estimates was treated as a separate *b*-parameter estimate for these analyses. Given that each polytomous item on the CAA for ELA and mathematics test forms has two *d*-*‍*step parameters, these analyses consider each polytomous item as having two *b*-‍parameter estimates.

Table 8.10 presents the summary statistics of the final equating and linking results after items with unstable parameters were detected and removed from the anchor set. The statistics provide the number of remaining items in the final anchor set; the average item difficulty of the anchor set both in the item bank and from the 2022–23 test administration, along with their differences; as well as the criteria for evaluating the differences. The absolute difference of average *b*-parameters for each of the 14 assessments is all less than the criterion value of 0.1; thus, all meet the criteria. The relationship between the item bank IRT *b-*parameters (calibrated prior to 2022–23) and the equated IRT *b*-‍parameters from 2022–23 is shown in table 8.E.1 through table 8.E.14 of [appendix 8.E](#_Appendix_8.E:_Item).

Table 8.10 Linked Item Parameter Results

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | N Anchor Items | Item Bank Baseline Scale Average *b*-‍parameter | Linked 2022–23 Average *b*-Parameter | Difference of Average *b*-‍parameters | Criteria for the Acceptable Absolute Difference |
| ELA 3 | 29 | −0.61 | −0.55 | −0.06 | <0.1 |
| ELA 4 | 34 | −0.45 | −0.44 | −0.01 | <0.1 |
| ELA 5 | 34 | −0.81 | −0.75 | −0.06 | <0.1 |
| ELA 6 | 30 | −0.60 | −0.60 | 0.00 | <0.1 |
| ELA 7 | 29 | −0.31 | −0.34 | 0.03 | <0.1 |
| ELA 8 | 38 | −0.58 | −0.58 | 0.00 | <0.1 |
| ELA 11 | 35 | −0.37 | −0.37 | 0.00 | <0.1 |
| Mathematics 3 | 26 | 0.09 | 0.09 | 0.00 | <0.1 |
| Mathematics 4 | 28 | 0.03 | −0.01 | 0.04 | <0.1 |
| Mathematics 5 | 33 | 0.21 | 0.20 | 0.01 | <0.1 |
| Mathematics 6 | 32 | 0.14 | 0.18 | −0.04 | <0.1 |
| Mathematics 7 | 35 | 0.21 | 0.22 | −0.01 | <0.1 |
| Mathematics 8 | 32 | 0.01 | 0.05 | −0.04 | <0.1 |
| Mathematics 11 | 35 | −0.07 | −0.03 | −0.04 | <0.1 |

The overall summary of the 2022–23 linked IRT *b*-parameter estimates for 2022–23 field test items is shown in table 8.11. The mean, SD, minimum, and maximum values are presented, in addition to the number of unique operational items for each assessment. Given that each polytomous item has two *b*-parameter estimates, the number of unique operational embedded PT items will be less than the number of *b*-parameter estimates for each grade level. The means of the *b*-‍parameter estimates for mathematics were greater than the means of the *b*-parameter estimates for ELA across all grade levels. Two assessments—mathematics in grade eight and mathematics in grade eleven—had one item consisting of a *b*-parameter estimate outside of the acceptable range of −4 to +4.

Table 8.11 IRT Linked Parameter Estimates for All ELA and Mathematics Operational Items

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Number of Items | Average of *b-*value | SD *b*-‍value | Minimum *b-*value | Maximum *b*-value |
| ELA 3 | 48 | −0.5541 | 1.1824 | −3.0497 | 1.5819 |
| ELA 4 | 45 | −0.5340 | 1.0226 | −2.6061 | 1.4380 |
| ELA 5 | 46 | −0.7957 | 1.1816 | −3.2888 | 1.5277 |
| ELA 6 | 46 | −0.6560 | 1.1343 | −2.8290 | 1.1393 |
| ELA 7 | 48 | −0.4628 | 1.2253 | −3.1978 | 2.8610 |
| ELA 8 | 47 | −0.6280 | 1.4232 | −3.1279 | 1.7001 |
| ELA 11 | 46 | −0.4543 | 1.1868 | −3.0848 | 2.2501 |
| Mathematics 3 | 42 | 0.0952 | 0.8460 | −1.4032 | 1.9943 |
| Mathematics 4 | 45 | −0.0055 | 1.0133 | −2.8202 | 2.4454 |
| Mathematics 5 | 44 | 0.2147 | 0.8373 | −1.6523 | 1.9615 |
| Mathematics 6 | 45 | 0.1567 | 0.8924 | −1.5595 | 2.3997 |
| Mathematics 7 | 45 | 0.2097 | 1.0477 | −2.1987 | 2.7696 |
| Mathematics 8 | 45 | 0.0234 | 1.1245 | −2.1174 | 4.0901 |
| Mathematics 11 | 48 | 0.0004 | 1.2182 | −4.1476 | 3.6086 |

The summaries of *b*-parameter estimates are shown in [appendix 8.E](#_Appendix_8.E:_Item_1). Table 8.E.15 through table 8.E.28 list the *b*-parameter estimate for each item. Table 8.E.29 and table 8.E.30 summarize the *b*~~-~~parameter estimates by content complexity (or tier) for the operational items, and table 8.E.31 and table 8.E.32 summarize the *b*-parameter estimates by content complexity (or tier) for the field test items. The distribution of the *b-*parameter estimates of the operational items is summarized by stage and content complexity in table 8.E.33 through table 8.E.46.

##### Evaluation of Equating

As described in subsection [*8.4.3 Equating*](#_Equating_2)*,* calibrations for the 2022–23 CAAs for ELA and mathematics were linked to the reference scale of 2015–16 through a mean-to-mean transformation. As mentioned previously in subsection[*8.4.3.2.2 Robust-Z Procedure*](#_Robust-Z_Procedure_1)*,* two indices were used for the CAAs for ELA and mathematics to evaluate the quality of such linking procedures: the RSD of the two sets of item difficulty estimates for the anchor items (i.e., the 2015–16 and 2022–23 estimates), and the correlation (CORR) between the two sets of item difficulty estimates for the anchor items (Huynh & Rawls, 2009). If the 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.

Anchor items account for at least 70 percent of the total number of items across all 14 assessments, which is well above the minimum requirement of 20 percent (Kolen & Brennan, 2004). The two sets of item parameters for anchor items are highly correlated, with the lowest correlation exceeding 0.95. RSD values range from approximately 0.93 to 1.09. As both CORR and RSD values meet the criteria proposed by Huynh and Rawls (2009), it is concluded that the linking results are acceptable.

Table 8.12 presents the following information:

* Total number of operational items
* Number of remaining anchor items after robust-z evaluation
* Percentage of remaining anchor items out of all the operational items
* Correlation between the final set of the transformed new (2022–23) and reference (2015–16) difficulty estimates for the anchor items
* RSD between the final set of the transformed new (2022–23) and reference (2015–‍16) item parameters for anchor items

Table 8.12 Evaluation of Anchor Set (Common Items) Between Item Bank and 2022–‍23

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Number of Unique Operational Items | Anchor Items Remaining After Deletions | Remaining Anchor Items as Percentage of All Operational Items | Correlation Between Item Bank Item Parameters and 2022–‍23 Item Parameters | RSD of Item Parameters Between Item Bank and 2022–‍23 Administration |
| ELA 3 | 40 | 29 | 73% | 0.9739 | 0.9358 |
| ELA 4 | 37 | 34 | 92% | 0.9726 | 0.9952 |
| ELA 5 | 38 | 34 | 89% | 0.9874 | 1.0359 |
| ELA 6 | 38 | 30 | 79% | 0.9713 | 1.0173 |
| ELA 7 | 40 | 29 | 73% | 0.9849 | 0.9062 |
| ELA 8 | 39 | 38 | 97% | 0.9856 | 0.9342 |
| ELA 11 | 38 | 35 | 92% | 0.9840 | 1.0458 |
| Mathematics 3 | 36 | 26 | 72% | 0.9551 | 0.9494 |
| Mathematics 4 | 38 | 28 | 74% | 0.9664 | 1.0869 |
| Mathematics 5 | 37 | 33 | 89% | 0.9753 | 1.0710 |
| Mathematics 6 | 37 | 32 | 86% | 0.9686 | 1.0203 |
| Mathematics 7 | 37 | 35 | 95% | 0.9883 | 0.9734 |
| Mathematics 8 | 38 | 32 | 84% | 0.9753 | 0.9196 |
| Mathematics 11 | 40 | 35 | 88% | 0.9793 | 0.9987 |

#### Scaling the Scores

The raw scores on each new form were transformed to scale scores on the reference scale using a two-step procedure. First, the number-correct scores (raw scores) were transformed to ability (theta) scores on the reference scale by the inverse test characteristic curve (TCC) procedure described in the next subsection. Then, these ability (theta) scores were transformed to scale scores through the linear transformation described in subsection [*8.4.6.2 Transformation from Theta Scores to Scale Scores*](#_Transformation_from_Theta_2).

##### Inverse Test Characteristic Curve Procedure

After all the item difficulty estimates are transformed to the reference scale, students’ overall ability estimates can be derived from the input data file that was described in subsection [*8.4.2 Data Preparation*](#_Data_Preparation_1)*,* 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 ability 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 8.9. *Refer to the* [*Alternative Text for Equation 8.9*](#_Alternative_Text_for_8) *for a description of this equation.*

 (8.9)

where,

*i* indexes dichotomous items,

*j* indexes polytomous items,

*ndich* is the number of dichotomous items in the assessment,

*pi(θ)* is the probability of a correct response to item *i* at ability *θ* on the dichotomous item in equation 8.7,

*npoly* is the number of polytomous items in the assessment,

*m* is the number of score categories for each polytomous item,

*sxj* is the value for score category x for the polytomous item *j*,

*pxj(θ)* is the probability that an examinee with ability *θ* obtains score sx on the polytomous item *j* in equation 8.7, and

*ξ(θ)* is the corresponding expected total score.

##### Transformation from Theta Scores to Scale Scores

Students’ ability estimates (theta scores) were transformed to the scale score metric by applying a linear transformation based on threshold theta values. Those threshold values were determined after standard setting and approved by the California State Board of Education (SBE). There were two threshold theta values (for Level 2 and Level 3), for each content area (ELA or mathematics) at each grade level. The scaling transformation was the linear transformation that transformed the Level 2 threshold to scale score 45 and the Level 3 threshold to scale score 60 (refer to equations 8.10, 8.11, and 8.12). *Refer to the* [*Alternative Text for Equation 8.10*](#_Alternative_Text_for_9) *for a description of this equation.*

 (8.10)

where,

 denotes the scale score for student *j*,

 represents student ability estimate for student *j*,

*A* is the slope parameter (scaling factor) needed to transform theta to the scale score metric, and

*B* is the intercept parameter needed to transform theta to the scale score metric.

The slope and intercept parameters are derived by mapping the equated Level 2 and Level 3 threshold scores from the standard setting to the prespecified scale score threshold scores.

Specifically, if the IRT calibration is used, the slope and intercept in equation 8.10 are derived using the threshold scores from standard setting approved by the SBE ( and  in equations 8.11 and 8.12) and the desired threshold scale scores (two-digit scale score) ( and  in equations 8.11 and 8.12) using the following two formulas:

*Refer to the* [*Alternative Text for Equation 8.11*](#_Alternative_Text_for_10) *for a description of this equation.*

 (8.11)

*Refer to the* [*Alternative Text for Equation 8.12*](#_Alternative_Text_for_11) *for a description of this equation.*

 (8.12)

where,

 represents the threshold score for Level 3—Understanding on the reporting scale, which is set to be 60;

 represents the threshold score for Level 2—Foundational Understanding on the reporting scale, which is set to be 45;

 represents the threshold score for Level 3—Understanding on the theta scale; and

 represents the threshold score for Level 2—Foundational Understanding on the theta scale. (For more information on  and , refer to [*Chapter 6: Standard Setting*](#_Standard_Setting).)

The slopes and intercepts for each grade level and content area are shown in table 8.13. Also, refer to subsection [*7.1.4 Scale Scores for the Total Assessment*](#_Scale_Scores_for)for the special requirements for the CAAs for ELA and mathematics reporting scale.

Table 8.13 Slopes and Intercepts That Convert Theta Scores to Reporting Scale Scores

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Threshold Theta Score for Level 2 | Threshold Theta Score for Level 3 | Reporting Scale Score for Level 2 | Reporting Scale Score for Level 3 | 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 |
| 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 2022–23 student ability estimates that were derived from the IRT models using the linked item parameters were 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](#_Appendix_7.B:_Raw).

### Response Time Analyses

Response times for alternate assessments—the Summative Alternate English Language Proficiency Assessments for California and the CAAs for ELA, mathematics, and science—should be interpreted with caution. These assessments are administered as a one-on-one interaction between test examiner and test taker. The test examiner reads the items to the student, following the *Directions for Administration;* then the student takes time to respond to the item; and finally, the test examiner records the responses or scores into the test delivery system (TDS). Some individualized instruction may also be used to provide support for students to respond to the items. The response times captured by the TDS may depend on how a test examiner administered the assessment and how the time was recorded by the TDS, which, given the one-on-one nature for these assessments, could have very different meanings for different students. Therefore, the response time information provided in this report is for information only and may not provide accurate indicators of how long it takes for the students to complete the assessments.

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 an assessment is collected and analyzed to build a profile describing what a typical testing event looks like for each content area and grade level. 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 assessments.

The students with no item response and students who did not answer at least four items were removed from these analyses. Descriptive statistics of the time required to complete the total assessment among the remaining testing population are computed for each grade level and pathway in table 8.F.1 and table 8.F.2 of [appendix 8.F](#_Appendix_8.F:_Testing). Additionally, the remaining testing population was 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 assessment are computed for each of the four quartile groups by content area and grade level and reported in table 8.F.3 and table 8.F.4 of [appendix 8.F](#_Appendix_8.F:_Testing).

Some cases of extremely long testing time may be attributed to students with special needs taking longer to complete the assessments or the assessment not being closed down properly. With that being said, the results should be interpreted with caution. The medians (fiftieth percentile) are more meaningful in the interpretation of the time comparisons because medians are less impacted by extreme values than means.

### Reliability Analyses

The reliability for a particular group of students’ test scores is the extent to which the scores would remain consistent if those same students were retested with a parallel version of the same assessment. There are many definitions of reliability (Haertel, 2006) that have their genesis in classical test theory and a variety of methods that can be used to estimate reliability.

The general concept of reliability concerns the extent to which the test scores measure *a particular construct* consistently. The variance in the distribution of test scores—essentially, the observed differences among individuals—is partly due to differences that are consistent and partly due to differences that are not consistent. The measure of variation associated with the first kind of differences—consistent differences—is called “true variance”; this would include actual differences in students’ knowledge. The measure of variation associated with the remaining differences—those that operate essentially at random—is called “error variance.” Error variance includes a variety of underlying differences such as selections of test content, which may cause a student’s test score to be slightly higher in one evaluation and slightly lower in another. Reliability is the proportion of total variance that is due to true variance. The standard error of measurement (SEM) is a statistic that characterizes the error variance.

Reliability coefficients range from zero to one. The higher the reliability coefficient for a set of scores, the more likely individuals are to obtain very similar scores upon repeated testing occasions, if the students do not change in their level of the knowledge or skills measured by the assessment.

#### Sample for Reliability Analyses

The reliability analyses performed for the CAAs require that the sample be screened on the basis of the requirement listed in subsection [*8.1.2* *Samples Used for the Analyses*](#_Samples_Used_for), that students must have responded to at least four operational items.

#### Reliability Measures

In a specified population of students, the reliability of test scores, *X*, is defined as the proportion of the test score variance that is attributable to true differences in student abilities and is sometimes operationalized as the correlation between scores on two replications of the same testing procedure, .

Reliability coefficients may range from 0 to 1. The higher the reliability coefficient for a set of scores, the more likely students would be to obtain very similar scores if they were retested. 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.

An IRT-based approach called marginal reliability (Green et al., 1984) can be used to estimate the reliability of the scores. The estimates of reliability coefficients reported here are for IRT-based ability estimates.

This reliability coefficient for theta estimates, , is defined on the basis of a single test administration, as shown in equation 8.13. *Refer to the* [*Alternative Text for Equation 8.13*](#_Alternative_Text_for_34) *for a description of this equation.*

 (8.13)

where,

*J* is the number of students who took the assessment,

 is the measure of variance in ability estimates, and

 is the squared conditional standard error of measurement (CSEM) (i.e., error variances) for student *j* with ability estimate .

#### Standard Error of Measurement

The SEM is a measure of how much students’ scores would vary from the scores they would earn on a perfectly reliable assessment. If it were possible to compute the error of measurement for each student’s score in a large group of students, these errors of measurement would have a mean of zero. These SEMs are an indication of how much the errors of measurement affect the students’ scores. The SEM is expressed in the same units as the test score, whether the units are in raw score or scale score metric.

The SEM is the square root of the error variance in the scores (i.e., the SD of the distribution of the differences between students’ observed scores and their true scores). The SEM is calculated using equation 8.14. *Refer to the* [*Alternative Text for Equation 8.14*](#_Alternative_Text_for_14) *for a description of this equation.*

 (8.14)

where,

 is the reliability estimated in equation 8.13,

 is the SD of the total test theta score, and

*A* is the slope of the scaling transformation of theta scoresto the reporting scale.

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 assessment. Across those administrations, approximately 95 percent of the time the interval ranging from the student’s observed score minus 1.96 SEMs to the student’s observed score plus 1.96 SEMs would contain that student’s true score (Crocker & Algina, 1986). Therefore, this interval is called a 95 percent CI for the student’s true score. For example, if a student’s observed score on a given assessment 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).

#### Reliability and Standard Error of Measurement Results

Table 8.14 gives marginal reliability as well as the mean, SD, and SEM of both thetas and scale scores for each of the 14 assessments, along with the number of student results upon which those analyses were performed. Note that in the case of the total test reliability, the reliability is for the whole assessment on the theta score scale; it is calculated using the total test theta score of individual students. The marginal reliability is greater than or equal to 0.79 across all content areas and grade levels.

Table 8.14 Summary Statistics for Scale Scores, Theta Scores, and Marginal Reliability

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | No. of 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 | 40 | 4,459 | 0.88 | 348 | 18.80 | 6.50 | −0.04 | 1.38 | 0.48 |
| ELA 4 | 37 | 4,437 | 0.87 | 444 | 17.17 | 6.11 | −0.10 | 1.27 | 0.45 |
| ELA 5 | 38 | 4,421 | 0.88 | 545 | 17.88 | 6.15 | −0.06 | 1.35 | 0.46 |
| ELA 6 | 38 | 4,402 | 0.86 | 645 | 13.79 | 5.11 | 0.03 | 1.14 | 0.42 |
| ELA 7 | 40 | 4,559 | 0.88 | 746 | 16.72 | 5.74 | 0.02 | 1.23 | 0.42 |
| ELA 8 | 39 | 4,316 | 0.88 | 847 | 13.63 | 4.74 | −0.03 | 1.15 | 0.40 |
| ELA 11 | 38 | 4,118 | 0.86 | 948 | 13.27 | 5.00 | 0.07 | 1.09 | 0.41 |
| Mathematics 3 | 36 | 4,363 | 0.82 | 340 | 16.98 | 7.18 | −0.11 | 1.05 | 0.44 |
| Mathematics 4 | 38 | 4,393 | 0.83 | 438 | 15.12 | 6.28 | −0.23 | 0.95 | 0.39 |
| Mathematics 5 | 37 | 4,348 | 0.79 | 540 | 14.21 | 6.52 | −0.09 | 0.92 | 0.42 |
| Mathematics 6 | 37 | 4,287 | 0.79 | 641 | 15.72 | 7.14 | −0.04 | 0.98 | 0.44 |
| Mathematics 7 | 37 | 4,468 | 0.83 | 744 | 16.01 | 6.54 | 0.10 | 0.98 | 0.40 |
| Mathematics 8 | 38 | 4,180 | 0.83 | 842 | 16.18 | 6.62 | 0.03 | 0.99 | 0.41 |
| Mathematics 11 | 40 | 4,045 | 0.82 | 941 | 15.98 | 6.77 | −0.05 | 1.01 | 0.43 |

##### Student Group Reliabilities and Standard Errors of Measurement

The reliabilities of the total test scores were also examined for various student groups within the student population. The student groups included in these analyses were defined by gender, economic status, English language fluency, primary ethnicity, migrant status, foster youth status, primary disability type, and assignment of accommodation or designated support.

Table 8.G.1 through table 8.G.9 in [appendix 8.G](#_Appendix_8.G:_Reliability) provide reliabilities, scale-score-based SEMs, and scale score variances for the total test scores for each student group for each grade level and content area. Most student groups have reliability greater than 0.80 across all assessments, with the exception of student groups such as Native Hawaiian or Other Pacific Islander, initial fluent English proficient, foster youth, migrant education, and some disability groups containing a small number of students. Among student groups with at least 100 students per grade level, most student groups with reliability less than 0.80 are among the student groups based on primary disability type. For example, the students with a specific learning disability have reliability less than 0.80 for nearly all grade levels across both content areas. It should be noted that in this case, the low reliability was likely due to the lack of variation in student performance in relation to the homogeneous groups and small group size.

Note that reliabilities are reported only for samples that comprise 11 or more students. Also, in some cases, score reliabilities are not estimable and are presented in the tables as “N/A.” The reliability estimates for some of the student groups can be negative because of small variation in scale scores and large CSEMs for extreme score values.

Table 8.G.10 and table 8.G.11 show the reliability and SEM for each of the two forms of the grade-level assessments for ELA and mathematics, respectively. All forms have reliability of at least 0.79, indicating desirable reliability across all forms for the testing population.

#### Conditional Standard Errors of Measurement

Classical test theory assumes that the standard error of a test score is constant throughout the score range. While the assumption is probably reasonable in the mid-score ranges, it is less reasonable at the extremes of the score distribution. IRT expands the concept by providing estimates of the standard error at each score point on the distribution.

##### Methodology

CSEMs are estimated as part of the IRT-based scoring procedure. CSEMs for scale scores are based on IRT and are estimated as a function of measured ability. The CSEMs of theta scores (or of linearly transformed theta scores) are smaller at points of the scale in the test metric where more items are located. A student’s CSEM under the IRT framework is equal to the reciprocal of the square root of the test information function (TIF) based on the items taken by each student. The CSEM for a student with proficiency  is calculated using equation 8.15. *Refer to the* [*Alternative Text for Equation 8.15*](#_Alternative_Text_for_23) *for a description of this equation.*

 (8.15)

where,

 is the test information for student *j* and is calculated using equation 8.16. *Refer to the* [*Alternative Text for Equation 8.16*](#_Alternative_Text_for_24) *for a description of this equation.*

 (8.16)

where,

*I* is the number of items on the test form, and

 is the item information of item *i* for student *j*.

Item information is calculated as presented in equation 8.17. *Refer to the* [*Alternative Text for Equation 8.17*](#_Alternative_Text_for_25) *for a description of this equation.*

 (8.17)

where,

 and  are the first and second order moments of the item score for item *i* for a student with theta score .

The expected score of item *i* for student *j* is calculated as presented in equation 8.18. *Refer to the* [*Alternative Text for Equation 8.18*](#_Alternative_Text_for_26) *for a description of this equation.*

 (8.18)

The expected squared score of item *i* for student *j* is calculated as presented in equation 8.19. *Refer to the* [*Alternative Text for Equation 8.19*](#_Alternative_Text_for_27) *for a description of this equation.*

 (8.19)

where,

is the probability of a student with proficiency  obtaining score *h* on item *i*, the computation of which is shown in equation 8.7; and

*Mi* is the maximum number of score points for item *i*.

CSEMs for scale scores are computed by transforming CSEMs of theta scores onto the reporting scale. Refer to subsection [*8.4.6.2* *Transformation from Theta Scores to Scale Scores*](#_Transformation_from_Theta_2)for scaling procedures. A student’s CSEM for scale scores under the IRT framework is equal to the CSEM for the theta score multiplied by the scaling factor *A*, as presented in equation 8.20. *Refer to the* [*Alternative Text for Equation 8.20*](#_Alternative_Text_for_28) *for a description of this equation.*

 (8.20)

where,

 is the CSEM on the scale score metric for student *j*;

 is the CSEM on the theta score metric for student *j* estimated in equation 8.15;

 is the  test information for student *j* as calculated in equation 8.16; and

*A* is the scaling factor (the slope) needed to transform theta to the scale score metric calculated in equation 8.11.

Refer to the slope values in table 8.13 for the value of *A* by grade level and content area.

##### Results

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 they are larger at the extreme ends of the scale. When an assessment has threshold scores, it is important to provide CSEMs at the threshold scores.

Table 8.15 presents the scale score CSEMs at the lowest score required for a student to be classified in the Level 2—Foundational Understanding and Level 3—Understanding achievement levels for each CAA for the 2022–23 administration.

Table 8.15 Scale Score CSEM at Achievement-Level Threshold

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Level 2 Scale Score Threshold | Easy Pathway Level 2 CSEM | Hard Pathway Level 2 CSEM | Level 3 Scale Score Threshold | Easy Pathway Level 3 CSEM | Hard Pathway Level 3 CSEM |
| ELA 3 | 345 | 6 | 6 | 360 | 7 | 6 |
| ELA 4 | 445 | 6 | 5 | 460 | 7 | 6 |
| ELA 5 | 545 | 6 | 5 | 560 | 7 | 7 |
| ELA 6 | 645 | 5 | 5 | 660 | 6 | 6 |
| ELA 7 | 745 | 6 | 6 | 760 | 7 | 6 |
| ELA 8 | 845 | 5 | 5 | 860 | 6 | 5 |
| ELA 11 | 945 | 5 | 5 | 960 | 5 | 5 |
| Mathematics 3 | 345 | 7 | 7 | 360 | 8 | 7 |
| Mathematics 4 | 445 | 7 | 6 | 460 | 8 | 7 |
| Mathematics 5 | 545 | 6 | 7 | 560 | 7 | 7 |
| Mathematics 6 | 645 | 7 | 7 | 660 | 8 | 7 |
| Mathematics 7 | 745 | 6 | 7 | 760 | 7 | 7 |
| Mathematics 8 | 845 | 7 | 7 | 860 | 8 | 7 |
| Mathematics 11 | 945 | 7 | 7 | 960 | 8 | 7 |

Table 8.G.12 through table 8.G.25 in [appendix 8.G](#_Appendix_8.G:_Reliability) present the raw-score-to-scale-score conversion tables with the theta score CSEM and scale score CSEM listed for each respective theta score and scale score.

Lastly, refer to figure 8.G.1 through figure 8.G.28 for TIF curves by theta level and by scale score level for each grade level by content area based on the spring 2023 observed data. The TIFs were calculated by the inverse of the estimated CSEMs of theta values for the spring 2023 sample. Table 8.G.26 through table 8.G.53 present the TIF values by theta level and by scale score level for each grade level by content area.

#### 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 of the quality of the assessment.

##### Methodology

The reliabilities of achievement-level classifications, which are criterion referenced, are related to the reliabilities of the test scores on which they are based; however, they are not exactly the same. Glaser (1963) was among the first to draw attention to this distinction, and Feldt and Brennan (1989) reviewed the topic extensively. While test reliability evaluates the consistency of test scores, decision classification reliability evaluates the consistency of classification.

Decision accuracy is the extent to which students are classified in the same way as they would be if each student’s score were the average over all possible forms of the assessment (the student’s true score). Decision accuracy answers the following question: How closely does the actual classification of test takers, based on their single-form scores, agree with the classification that would be made on the basis of their true scores, if their true scores could somehow be known?

Decision consistency is the extent to which students are classified in the same way as they would be on the basis of a single form of an assessment other than the one for which data is available. Decision consistency answers the following question: What is the agreement between the classifications based on two nonoverlapping, equally difficult forms of the assessment?

The methodology used for estimating the reliability of classification decisions is described in Livingston and Lewis (1995). The necessary input information includes only the maximum and minimum possible scores on the assessment and the observed score distribution and the reliability coefficient for the group of students referenced by the estimates. The method was implemented by the ETS proprietary computer program RELCLASS-COMP (Version 4.14).

Reliability of classification at a threshold is estimated by combining the achievement levels above a particular threshold and combining the achievement levels below that threshold. The result is a two-by-two table indicating whether the students are above or below the threshold. The sum of the entries in the main diagonal is the number of students accurately (or consistently) classified as above or below that threshold.

Table 8.16 and table 8.17 illustrate these two-by-two contingency tables. The proportion of students being accurately classified is determined by summing across the diagonals of the upper tables. The proportion of consistently classified students is determined by summing the diagonals of the lower tables.

Table 8.16 Decision Accuracy for Reaching an Achievement Level

|  |  |  |
| --- | --- | --- |
| Achievement Level Status | Does Not Reach an Achievement Level Based on True Score | Reaches an Achievement Level Based on True Score |
| Does not reach an achievement level | Correct classification | Incorrect classification |
| Reaches an achievement level | Incorrect classification | Correct classification |

Table 8.17 Decision Consistency for Reaching an Achievement Level

|  |  |  |
| --- | --- | --- |
| Achievement Level Status | Does Not Reach an Achievement Level Based on an Alternate Form | Reaches an Achievement Level Based on an Alternate Form |
| Does not reach an achievement level | Consistent classification | Inconsistent classification |
| Reaches an achievement level | Inconsistent classification | Consistent classification |

##### Results

The results of these analyses are presented in table 8.G.54 through table 8.G.81 in [appendix 8.G](#_Appendix_8.G:_Reliability). Included are the contingency tables for both accuracy and consistency of the various achievement-level classifications. The overall decision accuracy is greater than 0.75 for all 14 assessments, with the highest accuracy of 0.82 occurring for mathematics grade four and the lowest level of accuracy of 0.77 occurring in ELA grade six and ELA grade eleven. The overall decision consistency is lower, with the lowest consistency of 0.68 occurring for ELA grade eleven and the highest consistency of 0.76 occurring in mathematics grade four.

#### Interrater Agreement

The interrater reliability analyses are performed on approximately 10 percent of the overall testing population, randomly selected from the total population; those students’ responses are scored by two raters. The two sets of ratings are used to compute statistics describing the consistency (or reliability) of the ratings. This interrater consistency is described in three ways:

1. Percentage agreement between two raters
2. Cohen’s Kappa
3. Quadratic-weighted kappa (QWK) coefficient

In some scoring rubrics, zero is a valid score for the responses but is not provided by a rater. Instead, a score of zero is assigned when the student attempted the writing task but did not provide a response. Responses with zero scores should not be included in the calculation of the agreement statistics for these items.

##### Percentage Agreement

Percentage agreement between two raters is frequently defined as the percentage of exact score agreement and adjacent score agreement. Exact score agreement means two raters give exact same scores. Adjacent score agreement means agreement between scores that differ by just one point. The percentage of exact score agreement is a stringent criterion, which tends to decrease with an increasing number of item score points. The fewer the item score points, the fewer degrees of freedom on which two raters can vary, and the higher the percentage of agreement.

##### Kappa

Interrater reliability or consistency is an indicator of homogeneity and is most frequently measured using Cohen’s Kappa statistic (1960), which takes chance agreement into account. For a human-scored item with *m+1* categories, one can construct an *(m+1)* × *(m+1)* rating table with scores provided by two raters, *X* and *Y*, as shown in table 8.18. Let n sub s t denote the number of responses for which rater *X’s* score = *s* and rater *Y’s* score = *t,* n sub s plus is the number of responses for which rater *X’s* score = *s*, n sub plus t is the number of responses for which rater *Y’s* score = *t*, and n sub plus plus is the number of all responses.

Table 8.18 Frequencies of Ratings

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Rating | Y = 0 | Y = 1 | Y = 2 | …\*\* | Y = m\* |
| X = 0 | n00 | n01 | n02 | … | n0m |
| X = 1 | N10 | n11 | n12 | … | n1m |
| X = 2 | n20 | n21 | n22 | … | n2m |
| … | … | … | … | … | … |
| X = m | nm0 | nm1 | nm2 | … | nmm |

\* m is the number of score categories of an item.

\*\* An ellipsis (…) signifies that there might be more rows (or columns) in the table.

*Refer to the* [*Alternative Text for Equation 8.21*](#_Alternative_Text_for_29) *for a description of this equation.* The kappa statistic is defined as

 (8.21)

*Refer to the* [*Alternative Text for Equation 8.22*](#_Alternative_Text_for_38) *for a description of this equation.*

 (8.22)

*Refer to the* [*Alternative Text for Equation 8.23*](#_Alternative_Text_for_31) *for a description of this equation.*

 (8.23)

where,

*pobs* is the observed agreement, and

*pexp* is the expected agreement between *X* and *Y*.

When *pobs* and *pexp* agree only at the chance level, the value of kappa is 0. When the two measurements agree perfectly, the value of kappa is 1.0.

##### Quadratic-Weighted Kappa

QWK is used because kappa does not take into account the degree of disagreement between raters. It is a generalization of the simple kappa coefficient using weights to quantify the relative difference between categories. The range of the QWK is from 0.0 to 1.0, with perfect agreement being equal to 1.0.

For a human-scored item with *m+1* categories, one can construct an *(m+1)* × *(m+1)* rating table with scores provided by two raters, *X* and *Y,* as described in table 8.18. The weighted kappa coefficient is defined as presented in equation 8.24. *Refer to the* [*Alternative Text for Equation 8.24*](#_Alternative_Text_for_32) *for a description of this equation.*

 (8.24)

For QWK, the weights are calculated using equation 8.25. *Refer to the* [*Alternative Text for Equation 8.25*](#_Alternative_Text_for_33) *for a description of this equation.*

 (8.25)

##### Results of the Interrater Reliabilities

Table 8.G.82 through table 8.G.88 in [appendix 8.G](#_Appendix_8.G:_Reliability) present the results of the interrater analyses and descriptive statistics of the ratings by the two raters on short-answer items, including the following:

* Number of score points in each item
* Number of raters for each round of rating
* Kappa
* QWK
* Percent of exact agreement
* Percent of adjacent agreement
* Mean of the item score
* SD of the item score

These tables show that the two test examiners were in exact agreement for at least 71 percent of students across all CR items. These tables also show that the QWK ranged from 0.59 to 0.86. The QWK of one ELA grade eight item and one ELA grade eleven item violates the flagging criteria such that QWK is below 0.70.

### 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). Concerns about validity drive the development, administration, and scoring of an assessment. Validity evidence also determines the appropriateness of test score interpretations and uses.

Validation is the process of accumulating evidence to support each proposed score interpretation or use. This 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, standard setting, test scaling and linking, scoring, reporting, and score usage.

In this section, the evidence gathered is presented to support the intended uses and interpretations of scores for the CAAs for ELA and mathematics. This section discusses some of 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 assessment, 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 for ELA and mathematics, followed by a description and discussion of different kinds of validity evidence that have been gathered.

#### Design of the CAAs for ELA and Mathematics

The CAAs are designed to assess students with the most significant cognitive disabilities whose IEP teams have designated the use of an alternate assessment on the statewide summative assessments. The goal of the CAAs is to measure what students know and can do. These measures help identify and address gaps in knowledge or skills (CDE, 2023a).

##### 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 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 students’ mastery of 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:

* Content area 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) to minimize construct-irrelevant score variance (Messick, 1989).

ETS developed all CAAs for ELA and mathematics test items to conform to the SBE-approved Connectors and test blueprints (CDE, 2015a [ELA], 2015b [mathematics]).

##### Interpretations and Uses of the Scores

Overall student performance is expressed as scale scores that 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 level.

The grade level– and content-specific achievement level descriptors (ALDs) describe what students at each achievement level know and can do, by grade level and content area. The ALDs 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 level– and content-specific ALDs using the general performance level descriptors (PLDs), which provided the number of reporting levels and the general definition of each reporting level. The importance of the grade level– 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 CAAs for ELA and mathematics results is presented in [*Chapter 7: Scoring and Reporting*](#_Scoring_and_Reporting_2). Additional information can be found in the *CAASPP Scoring and Reporting Guide* (CDE, 2023b).

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 on the California Legislative Information website.

##### Intended Test Population

Only eligible students may take the administration of the CAAs. Any student identified for alternate testing takes the CAAs. IEP teams “shall determine when a child with a significant cognitive disability shall take an alternate assessment aligned with the alternate academic achievement standards.”10F[[7]](#footnote-8)

#### 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 et al., 1989; Sireci, 1998), as well as alignment methods for educational assessments that evaluate the interactions between curriculum frameworks, testing, and instruction (Rothman et al., 2002; Bhola et al., 2003; Martone & Sireci, 2009).

With multistage test (MST) 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 2022–23 meet the blueprints is provided in [*Chapter 4: Test Assembly*](#_Test_Assembly_1) and in table 4.A.1 through table 4.A.14 in [appendix 4.A](#_Appendix_4.A:_Test).

##### 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 level. 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], 2014c [mathematics]).

##### 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*](#_Item_Development_and).

##### 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*](#_Test_Assembly_1)) 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)

##### Assessment Blueprints

The CAA test blueprints describe the content of the ELA and mathematics assessments for all grade levels tested and how that content is assessed. The test blueprints address the basic core content domains, the CCSS, the Connectors, and the EU for each standard. Each assessment is described by a single blueprint. The degree to which test forms administered in 2022–23 meet the blueprint is provided in [*Chapter 4: Test Assembly*](#_Test_Assembly_1) and in table 4.A.1 through table 4.A.14 in [appendix 4.A](#_Appendix_4.A:_Test).

##### 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*](#_Test_Assembly_1) for information on the test assembly process.

#### 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, APA, & NCME, 2014, p. 12). This type of evidence generally includes documentation of activities such as

* systematic observations of test response behavior;
* showing of 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 section [*5.1 Overview*](#_Overview_2) in[*Chapter 5: Test Administration*](#_Test_Administration_1). Also, use of the SSC is planned as part of a research agenda, and the goal is to improve routing during future administrations.

##### Response Time Analysis

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 an assessment is collected and analyzed to build a profile describing what a typical testing event looks like for each content area and grade level. In addition, variability in testing time is investigated to determine whether a student’s testing time should be viewed as unusual or irregular. Refer to section [*8.5 Response Time Analyses*](#_Testing_Time_Analyses_2) for more information regarding the response time analyses conducted following the 2022–23 CAAs for ELA and mathematics administration.

#### 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 analyses, test reliability, decision accuracy and consistency, generalizability coefficients, conditional and unconditional SEMs, and TIFs.

##### Dimensionality

A dimensionality study was conducted for all 14 CAAs for ELA and mathematics using data from the 2017–18 test administration. The results indicated that practical unidimensionality holds for all 14 assessments and supported the unidimensional interpretation and reporting of CAAs for ELA and mathematics scores that are currently used (ETS, 2019).

##### Differential Item Functioning

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, sometimes a few items were identified as having significant levels of DIF. A description and the results of the DIF analyses are presented in section [*8.3 Differential Item Functioning Analyses*](#_Toc121145136).

##### Overall Reliability Estimates

The results of reliability analyses on the theta scores and scale score for each assessment are presented in subsection [*8.6.4 Reliability and Standard Error of Measurement Results*](#_Reliability_and_Standard_2).

##### Student Groups Reliability Estimates

The reliabilities were also examined for various student groups. The student groups considered are based on gender, ethnicity, economic status, primary disability type, migrant status, and English language fluency (refer to table 7.7 for the demographic student groups reported). Table 8.G.1 through table 8.G.9 in [appendix 8.G](#_Appendix_8.G:_Reliability) present the reliability and SEM by student group for each grade level and content area.

##### Reliability of Performance Classifications

The methodology used for estimating the reliability of classification decisions is described with the decision classification analyses in subsection [*8.6.6 Decision Classification Analyses*](#_Decision_Classification_Analyses).

##### Correlations Between Content Area Test Scores

The degree to which students’ content area test scores correlate as expected provides evidence that those scores measured the intended constructs. Table 8.19 provides the correlations between scores on the ELA and mathematics assessments and the number of students on which these correlations are based. The table presents, by grade level, the sample size for each content area and the correlation sample size, which is based on all students with valid scale scores for both assessments. The ELA and mathematics scores are strongly correlated across all seven grade levels, with correlations by grade level ranging from 0.60 to 0.70, with large effect sizes (Cohen, 1988).

Table 8.19 Correlations for All Students Between CAA for ELA and CAA for Mathematics Scale Scores

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Grade Level | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| 3 | 4,459 | 4,363 | 4,246 | 0.70 |
| 4 | 4,437 | 4,393 | 4,265 | 0.62 |
| 5 | 4,421 | 4,348 | 4,231 | 0.60 |
| 6 | 4,402 | 4,287 | 4,203 | 0.63 |
| 7 | 4,559 | 4,468 | 4,378 | 0.64 |
| 8 | 4,316 | 4,180 | 4,111 | 0.65 |
| 11 | 4,118 | 4,045 | 3,977 | 0.64 |

Table 8.H.1 to table 8.H.7 in [appendix 8.H](#_Appendix_8.H:_Validity) present the relationship between the CAA for ELA scale scores and the CAA for Mathematics scale scores summarized by the student groups that differ in their demographic characteristics within the student population. The characteristics considered are gender, ethnicity, economic status, migrant status, foster youth status, English language fluency, and disability group (refer to table 7.7 for the demographic student groups reported). For most student groups with at least 100 students per grade level, the correlation between the CAA for ELA scale scores and the CAA for Mathematics scale scores ranges from 0.50 to 0.80.

#### Relations to Other Variables

Evidence based on *relations to other variables* can be evaluated using the correlation between the CAAs for ELA and mathematics scores and the CAA for Science scores, as both target the same student population and a large enough number of students take both annually. (Note that the CAAs for ELA and mathematics are administered to students in grades three through eight and grade eleven; and the CAA for Science is administered to students in grades five and eight and once in high school.) This type of evidence is essential for supporting the validity of certain inferences based on scores from the CAAs for ELA and mathematics.

Table 8.20 and table 8.21 present the correlations for all students between CAA for Science and CAAs for ELA and mathematics scale scores, respectively.

For the 2022–23 CAAs for ELA and mathematics administration, the correlations between CAAs for ELA and mathematics scale scores and CAA for Science scale scores for students in grades five, eight, and eleven range from 0.68 to 0.75 for the three ELA grade-level assessments and from 0.59 to 0.68 for the three mathematics grade-level assessments, all with large effect sizes (Cohen, 1988). All correlations are significant, with p < 0.01.

Results in table 8.20 and table 8.21 show a strong correlation between CAAs for ELA and mathematics scale scores and CAA for Science scale scores.

Table 8.20 Correlations for All Students Between CAA for ELA and CAA for Science Scale Scores

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Grade Level | ELA Mean Scale Score | Science Mean Scale Score | Correlation Sample Size | Correlation |
| 5 | 545 | 551 | 4,188 | 0.75 |
| 8 | 848 | 854 | 4,080 | 0.69 |
| 11 | 949 | 952 | 2,665 | 0.68 |

Table 8.21 Correlations for All Students Between CAA for Mathematics and CAA for Science Scale Scores

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Grade Level | Mathematics Mean Scale Score | Science Mean Scale Score | Correlation Sample Size | Correlation |
| 5 | 541 | 551 | 4,119 | 0.59 |
| 8 | 843 | 854 | 3,982 | 0.67 |
| 11 | 941 | 952 | 2,638 | 0.68 |

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### Accessibility Information

#### Alternative Text for Equation 8.1

p value sub dich equals the fraction with the numerator the sum from j equals 1 to J sub i of X sub ij and the denominator J sub i end fraction. *(Return to* [*equation 8.1*](#EQ8_1)*.)*

#### Alternative Text for Equation 8.2

p value sub poly equals the fraction with the numerator the sum from j equals 1 to J sub i of X sub ij and the denominator J sub i times M sub i end fraction. *(Return to* [*equation 8.2*](#EQ8_2)*.)*

#### Alternative Text for Equation 8.3

r sub polyreg equals the fraction beta-hat times s sub tot divided by the square root of beta-hat squared times s squared sub tot plus 1. *(Return to* [*equation 8.3*](#EQ8_3)*.)*

#### Alternative Text for Equation 8.4

alpha sub MH equals the numerator open parenthesis the sum from m equals 1 to M of R sub rm times W sub fm divided by N sub tm close parenthesis divided by the denominator open parenthesis the sum from m equals 1 to M of R sub fm times W sub rm divided by N sub tm closed parenthesis. *(Return to* [*equation 8.4*](#EQ8_4)*.)*

#### Alternative Text for Equation 8.5

MH D-DIF equals negative 2.35 times the natural logarithm open bracket alpha sub MH close bracket. *(Return to* [*equation 8.5*](#EQ8_5)*.)*

#### Alternative Text for Equation 8.6

SMD equals the fraction with numerator the sum from m equals 1 to M of N sub fm times E sub fm and denominator the sum from m equals 1 to M of N sub fm end fraction minus the fraction with numerator the sum from m equals 1 to M of N sub fm times E sub rm and denominator the sum from m equals 1 to M of N sub fm end fraction equals the fraction with the numerator the sum from m equals 1 to M of D sub fm and the denominator m equals1 to M of N sub fm end fraction. *(Return to* [*equation 8.6*](#EQ8_6)*.)*

#### Alternative Text for Equation 8.7

p sub ih of theta-hat sub j equals the numerator exp open parenthesis the sum from v equals 1 to h of D times a sub i open parenthesis theta-hat sub j minus b sub i plus d sub iv close parenthesis close parenthesis divided by the denominator open parenthesis 1 plus the sum from c equals 1 to m sub i exp open parenthesis the sum from v equals 1 to c of D times a sub i open parenthesis theta-hat sub j minus b sub i plus d sub iv close parenthesis close parenthesis close parenthesis, if score h equals 1, 2, …, n sub i.

p sub ih of theta-hat sub j equals 1 divided by the denominator open parenthesis 1 plus the sum from c equals 1 to m sub i exp open parenthesis the sum from v equals 1 to c of D times a sub i open parenthesis theta-hat sub j minus b sub i plus d sub iv close parenthesis close parenthesis close parenthesis, if score h equals 0. *(Return to* [*equation 8.7*](#EQ8_7)*.)*

#### Alternative Text for Equation 8.8

z equals the numerator open absolute symbol, D subtracts Md sub D, close absolute symbol, divided by the denominator of 0.74 times IQR. *(Return to* [*equation 8.8*](#EQ8_8)*.)*

#### Alternative Text for Equation 8.9

epsilon of theta equals the sum from i equals 1 to n sub dich of P sub i of theta plus the sum from j equals 1 to n sub poly over each sum of x equals 1 to m of s sub xj times P sub xj of theta. *(Return to* [*equation 8.9*](#EQ8_9)*.)*

#### Alternative Text for Equation 8.10

SS sub j equals A times theta-hat plus B. *(Return to* [*equation 8.10*](#EQ8_10)*.)*

#### Alternative Text for Equation 8.11

A equals the numerator SS sub Level 3 minus SS sub Level 2 divided by the denominator theta-hat sub Level 3 minus theta-hat sub Level 2. *(Return to* [*equation 8.11*](#EQ8_11)*.)*

#### Alternative Text for Equation 8.12

B equals scale score sub Level 3 minus theta-hat sub Level 3 multiplied by the numerator open parentheses scale score sub Level 3 minus scale score sub Level 2 divided by the denominator theta-hat sub Level 3 minus theta-hat sub Level 2 close parentheses. *(Return to* [*equation 8.12*](#EQ8_12)*.)*

#### Alternative Text for Equation 8.13

rho sub theta-hat prime equals 1 minus the fraction with the numerator sum from j equals 1 to J of CSEM squared sub theta-hat sub j divided by the denominator J times s squared sub theta-hat. *(Return to* [*equation 8.13*](#EQ8_13)*.)*

#### Alternative Text for Equation 8.14

SEM sub scaled equals A times s sub theta-hat times the square root of 1 minus rho sub theta-hat prime. *(Return to* [*equation 8.14*](#EQ8_14)*.)*

#### Alternative Text for Equation 8.15

CSEM of theta-hat sub j equals 1 divided by the square root of I of theta sub j. *(Return to* [*equation 8.15*](#EQ8_15)*.)*

#### Alternative Text for Equation 8.16

I of theta-hat sub j equals the sum from i equals 1 to I of I sub i of theta-hat sub j. *(Return to* [*equation 8.16*](#EQ8_16)*.)*

#### Alternative Text for Equation 8.17

I sub i of theta-hat sub j equals open bracket s sub i2 of theta-hat sub j minus s sub i squared of theta-hat sub j. *(Return to* [*equation 8.17*](#EQ8_17)*.)*

#### Alternative Text for Equation 8.18

s sub i of theta-hat sub j equals the sum from h equals 0 to M sub i of h times p sub ih of theta-hat sub j. *(Return to* [*equation 8.18*](#EQ8_18)*.)*

#### Alternative Text for Equation 8.19

s sub i2 of theta-hat sub j equals the sum from h equals 0 to M sub I of h squared times p sub ih of theta-hat sub j. *(Return to* [*equation 8.19*](#EQ8_19)*.)*

#### Alternative Text for Equation 8.20

CSEM of SS sub j equals A times CSEM of theta-hat sub j. *(Return to* [*equation 8.20*](#EQ8_20)*.)*

#### Alternative Text for Equation 8.21

kappa equals the fraction with the numerator p sub obs minus p sub exp the denominator 1 minus p sub exp. *(Return to* [*equation 8.21*](#EQ8_21)*.)*

#### Alternative Text for Equation 8.22

P sub obs equals 1 divided by n times the sum from s equals 0 to m n sub ss. *(Return to* [*equation 8.22*](#EQ8_22)*.)*

#### Alternative Text for Equation 8.23

P sub exp equals 1 divided by n square times the sum from s equals 0 to m n sub s plus times n sub plus s. *(Return to* [*equation 8.23*](#EQ8_23)*.)*

#### Alternative Text for Equation 8.24

K sub ij equals open parenthesis the sum from i equals zero to m the sum from j equals zero to m of w sub ij times n sub ij divided by n sub plus plus close parenthesis minus open parenthesis the sum from i equals zero to m the sum from j equals zero to m of w sub ij times n sub I plus times n sub plus j divided by n squared sub plus plus close parenthesis divided open parenthesis 1 minus open parenthesis the sum from i equals zero to m the sum from j equals zero to m of w sub ij times n sub i plus times n sub plus j divided by n squared sub plus plus close parenthesis close parenthesis, K sub ij equals open parenthesis the sum from i equals zero to m the sum from j equals zero to m of w sub ij times n sub ij divided by n sub plus plus close parenthesis minus open parenthesis the sum from i equals zero to m the sum from j equals zero to m of w sub ij times n sub i plus times n sub plus j divided by n squared sub plus plus close parenthesis divided open parenthesis 1 minus open parenthesis the sum from i equals zero to m the sum from j equals zero to m of w sub ij times n sub i plus times n sub plus j divided by n squared sub plus plus close parenthesis close parenthesis. *(Return to* [*equation 8.24*](#EQ8_24)*.)*

#### Alternative Text for Equation 8.25

W sub ij equals 1 minus open parenthesis I minus j close parenthesis squared divided by m squared. *(Return to* [*equation 8.25*](#EQ8_25)*.)*

### Appendix 8.A: Test-Taking Rates

Table 8.A.1 CAA 2022–23 Test-Taking Rates—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 | 5,885 | 5,359 | 91% | 5,762 | 5,229 | 91% | 5,784 | 5,181 | 90% | 5,678 | 5,030 | 89% |
| Male | 4,160 | 3,804 | 91% | 4,079 | 3,712 | 91% | 3,969 | 3,562 | 90% | 3,903 | 3,469 | 89% |
| Female | 1,724 | 1,554 | 90% | 1,683 | 1,517 | 90% | 1,815 | 1,619 | 89% | 1,774 | 1,560 | 88% |
| Nonbinary | 1 | 1 | 100% | 0 | 0 | N/A | 0 | 0 | N/A | 1 | 1 | 100% |
| American Indian or Alaska Native | 34 | 31 | 91% | 31 | 28 | 90% | 33 | 31 | 94% | 29 | 25 | 86% |
| Asian | 544 | 478 | 88% | 567 | 515 | 91% | 545 | 489 | 90% | 515 | 442 | 86% |
| Native Hawaiian or Other Pacific Islander | 28 | 28 | 100% | 28 | 27 | 96% | 18 | 15 | 83% | 29 | 23 | 79% |
| Filipino | 190 | 171 | 90% | 171 | 145 | 85% | 178 | 159 | 89% | 180 | 164 | 91% |
| Hispanic or Latino | 3,372 | 3,114 | 92% | 3,279 | 3,026 | 92% | 3,283 | 3,001 | 91% | 3,277 | 2,955 | 90% |
| Black or African American | 403 | 372 | 92% | 427 | 386 | 90% | 442 | 389 | 88% | 398 | 340 | 85% |
| White | 988 | 868 | 88% | 948 | 824 | 87% | 989 | 842 | 85% | 978 | 853 | 87% |
| Two or more races | 326 | 297 | 91% | 311 | 278 | 89% | 296 | 255 | 86% | 272 | 228 | 84% |
| English only | 3,924 | 3,567 | 91% | 3,700 | 3,342 | 90% | 3,632 | 3,197 | 88% | 3,489 | 3,059 | 88% |
| Initial fluent English proficient (IFEP) | 58 | 55 | 95% | 35 | 31 | 89% | 49 | 48 | 98% | 51 | 47 | 92% |
| English learner (EL) | 1,612 | 1,464 | 91% | 1,569 | 1,431 | 91% | 1,482 | 1,346 | 91% | 1,344 | 1,198 | 89% |
| Reclassified fluent English proficient (RFEP) | 290 | 273 | 94% | 456 | 423 | 93% | 618 | 589 | 95% | 793 | 726 | 92% |
| Adult English learner (ADEL) | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A |
| To be determined | 1 | 0 | 0% | 1 | 1 | 100% | 2 | 0 | 0% | 1 | 0 | 0% |
| English proficiency unknown | 0 | 0 | N/A | 1 | 1 | 100% | 1 | 1 | 100% | 0 | 0 | N/A |
| Not economically disadvantaged | 1,953 | 1,734 | 89% | 1,966 | 1,705 | 87% | 2,071 | 1,774 | 86% | 1,960 | 1,649 | 84% |
| Economically disadvantaged | 3,932 | 3,625 | 92% | 3,796 | 3,524 | 93% | 3,713 | 3,407 | 92% | 3,718 | 3,381 | 91% |
| Migrant education | 20 | 19 | 95% | 28 | 27 | 96% | 34 | 33 | 97% | 26 | 24 | 92% |
| Not migrant education | 5,865 | 5,340 | 91% | 5,734 | 5,202 | 91% | 5,750 | 5,148 | 90% | 5,652 | 5,006 | 89% |
| Foster youth | 57 | 56 | 98% | 50 | 49 | 98% | 57 | 56 | 98% | 40 | 38 | 95% |
| Not foster youth | 5,828 | 5,303 | 91% | 5,712 | 5,180 | 91% | 5,727 | 5,125 | 89% | 5,638 | 4,992 | 89% |
| Intellectual disability | 1,543 | 1,432 | 93% | 1,659 | 1,527 | 92% | 1,842 | 1,706 | 93% | 1,923 | 1,751 | 91% |
| Hearing impairment | 38 | 37 | 97% | 34 | 33 | 97% | 35 | 31 | 89% | 41 | 38 | 93% |
| Speech or language impairment | 79 | 77 | 97% | 66 | 60 | 91% | 85 | 77 | 91% | 45 | 44 | 98% |
| Visual impairment | 9 | 6 | 67% | 5 | 5 | 100% | 16 | 10 | 63% | 19 | 14 | 74% |
| Emotional disturbance | 9 | 6 | 67% | 17 | 14 | 82% | 21 | 18 | 86% | 15 | 12 | 80% |
| Orthopedic impairment | 94 | 83 | 88% | 106 | 87 | 82% | 94 | 80 | 85% | 104 | 79 | 76% |
| Other health impairment | 318 | 286 | 90% | 316 | 285 | 90% | 310 | 269 | 87% | 282 | 243 | 86% |
| Specific learning disability | 104 | 95 | 91% | 142 | 137 | 96% | 176 | 165 | 94% | 172 | 162 | 94% |
| Deaf–blindness | 4 | 3 | 75% | 1 | 0 | 0% | 2 | 2 | 100% | 0 | 0 | N/A |
| Multiple disabilities | 448 | 362 | 81% | 415 | 342 | 82% | 426 | 327 | 77% | 407 | 308 | 76% |
| Autism | 3,227 | 2,961 | 92% | 2,990 | 2,729 | 91% | 2,756 | 2,481 | 90% | 2,649 | 2,364 | 89% |
| Traumatic brain injury | 12 | 11 | 92% | 11 | 10 | 91% | 21 | 15 | 71% | 21 | 15 | 71% |

Table 8.A.2 CAA 2022–23 Test-Taking Rates—ELA, Grades Seven, Eight, and 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 | 5,929 | 5,186 | 87% | 5,625 | 4,895 | 87% | 5,648 | 4,615 | 82% |
| Male | 4,004 | 3,520 | 88% | 3,827 | 3,338 | 87% | 3,750 | 3,057 | 82% |
| Female | 1,924 | 1,665 | 87% | 1,798 | 1,557 | 87% | 1,895 | 1,556 | 82% |
| Nonbinary | 1 | 1 | 100% | 0 | 0 | N/A | 3 | 2 | 67% |
| American Indian or Alaska Native | 41 | 34 | 83% | 33 | 30 | 91% | 33 | 25 | 76% |
| Asian | 493 | 424 | 86% | 474 | 391 | 82% | 460 | 370 | 80% |
| Native Hawaiian or Other Pacific Islander | 21 | 18 | 86% | 27 | 21 | 78% | 25 | 18 | 72% |
| Filipino | 165 | 153 | 93% | 152 | 131 | 86% | 172 | 133 | 77% |
| Hispanic or Latino | 3,364 | 2,982 | 89% | 3,226 | 2,909 | 90% | 3,258 | 2,765 | 85% |
| Black or African American | 505 | 438 | 87% | 447 | 386 | 86% | 462 | 360 | 78% |
| White | 1,073 | 910 | 85% | 1,008 | 826 | 82% | 1,027 | 791 | 77% |
| Two or more races | 267 | 227 | 85% | 258 | 201 | 78% | 211 | 153 | 73% |
| English only | 3,622 | 3,117 | 86% | 3,296 | 2,798 | 85% | 3,154 | 2,512 | 80% |
| IFEP | 55 | 48 | 87% | 44 | 39 | 89% | 63 | 47 | 75% |
| EL | 1,265 | 1,115 | 88% | 1,213 | 1,064 | 88% | 1,053 | 842 | 80% |
| RFEP | 987 | 906 | 92% | 1,071 | 993 | 93% | 1,378 | 1,214 | 88% |
| ADEL | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A |
| To be determined | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A |
| English proficiency unknown | 0 | 0 | N/A | 1 | 1 | 100% | 0 | 0 | N/A |
| Not economically disadvantaged | 2,006 | 1,650 | 82% | 1,937 | 1,577 | 81% | 1,911 | 1,461 | 76% |
| Economically disadvantaged | 3,923 | 3,536 | 90% | 3,688 | 3,318 | 90% | 3,737 | 3,154 | 84% |
| Migrant education | 35 | 34 | 97% | 23 | 22 | 96% | 30 | 24 | 80% |
| Not migrant education | 5,894 | 5,152 | 87% | 5,602 | 4,873 | 87% | 5,618 | 4,591 | 82% |
| Foster youth | 65 | 57 | 88% | 62 | 51 | 82% | 65 | 53 | 82% |
| Not foster youth | 5,864 | 5,129 | 87% | 5,563 | 4,844 | 87% | 5,583 | 4,562 | 82% |
| Intellectual disability | 2,141 | 1,940 | 91% | 2,041 | 1,830 | 90% | 2,307 | 1,968 | 85% |
| Hearing impairment | 41 | 37 | 90% | 44 | 40 | 91% | 57 | 45 | 79% |
| Speech or language impairment | 41 | 37 | 90% | 32 | 27 | 84% | 22 | 17 | 77% |
| Visual impairment | 9 | 7 | 78% | 14 | 9 | 64% | 13 | 7 | 54% |
| Emotional disturbance | 17 | 11 | 65% | 22 | 17 | 77% | 30 | 17 | 57% |
| Orthopedic impairment | 119 | 86 | 72% | 104 | 83 | 80% | 125 | 93 | 74% |
| Other health impairment | 282 | 234 | 83% | 289 | 248 | 86% | 233 | 181 | 78% |
| Specific learning disability | 234 | 212 | 91% | 231 | 217 | 94% | 251 | 195 | 78% |
| Deaf–blindness | 2 | 2 | 100% | 6 | 3 | 50% | 3 | 3 | 100% |
| Multiple disabilities | 468 | 345 | 74% | 474 | 343 | 72% | 519 | 385 | 74% |
| Autism | 2,543 | 2,250 | 88% | 2,338 | 2,054 | 88% | 2,048 | 1,671 | 82% |
| Traumatic brain injury | 32 | 25 | 78% | 30 | 24 | 80% | 39 | 33 | 85% |

Table 8.A.3 CAA 2022–23 Test-Taking Rates—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 | 5,885 | 5,359 | 91% | 5,762 | 5,237 | 91% | 5,784 | 5,190 | 90% | 5,678 | 5,033 | 89% |
| Male | 4,160 | 3,803 | 91% | 4,079 | 3,723 | 91% | 3,969 | 3,570 | 90% | 3,903 | 3,469 | 89% |
| Female | 1,724 | 1,555 | 90% | 1,683 | 1,514 | 90% | 1,815 | 1,620 | 89% | 1,774 | 1,563 | 88% |
| Nonbinary | 1 | 1 | 100% | 0 | 0 | N/A | 0 | 0 | N/A | 1 | 1 | 100% |
| American Indian or Alaska Native | 34 | 31 | 91% | 31 | 25 | 81% | 33 | 31 | 94% | 29 | 24 | 83% |
| Asian | 544 | 479 | 88% | 567 | 517 | 91% | 545 | 497 | 91% | 515 | 443 | 86% |
| Native Hawaiian or Other Pacific Islander | 28 | 28 | 100% | 28 | 27 | 96% | 18 | 14 | 78% | 29 | 24 | 83% |
| Filipino | 190 | 171 | 90% | 171 | 146 | 85% | 178 | 161 | 90% | 180 | 163 | 91% |
| Hispanic or Latino | 3,372 | 3,115 | 92% | 3,279 | 3,036 | 93% | 3,283 | 2,990 | 91% | 3,277 | 2,957 | 90% |
| Black or African American | 403 | 372 | 92% | 427 | 385 | 90% | 442 | 391 | 88% | 398 | 340 | 85% |
| White | 988 | 865 | 88% | 948 | 823 | 87% | 989 | 848 | 86% | 978 | 852 | 87% |
| Two or more races | 326 | 298 | 91% | 311 | 278 | 89% | 296 | 258 | 87% | 272 | 230 | 85% |
| English only | 3,924 | 3,557 | 91% | 3,700 | 3,330 | 90% | 3,632 | 3,202 | 88% | 3,489 | 3,058 | 88% |
| IFEP | 58 | 55 | 95% | 35 | 30 | 86% | 49 | 48 | 98% | 51 | 46 | 90% |
| EL | 1,612 | 1,476 | 92% | 1,569 | 1,451 | 92% | 1,482 | 1,350 | 91% | 1,344 | 1,203 | 90% |
| RFEP | 290 | 271 | 93% | 456 | 424 | 93% | 618 | 589 | 95% | 793 | 726 | 92% |
| ADEL | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A |
| To be determined | 1 | 0 | 0% | 1 | 1 | 100% | 2 | 0 | 0% | 1 | 0 | 0% |
| English proficiency unknown | 0 | 0 | N/A | 1 | 1 | 100% | 1 | 1 | 100% | 0 | 0 | N/A |
| Not economically disadvantaged | 1,953 | 1,733 | 89% | 1,966 | 1,708 | 87% | 2,071 | 1,778 | 86% | 1,960 | 1,651 | 84% |
| Economically disadvantaged | 3,932 | 3,626 | 92% | 3,796 | 3,529 | 93% | 3,713 | 3,412 | 92% | 3,718 | 3,382 | 91% |
| Migrant education | 20 | 19 | 95% | 28 | 27 | 96% | 34 | 33 | 97% | 26 | 25 | 96% |
| Not migrant education | 5,865 | 5,340 | 91% | 5,734 | 5,210 | 91% | 5,750 | 5,157 | 90% | 5,652 | 5,008 | 89% |
| Foster youth | 57 | 56 | 98% | 50 | 47 | 94% | 57 | 56 | 98% | 40 | 36 | 90% |
| Not foster youth | 5,828 | 5,303 | 91% | 5,712 | 5,190 | 91% | 5,727 | 5,134 | 90% | 5,638 | 4,997 | 89% |
| Intellectual disability | 1,543 | 1,435 | 93% | 1,659 | 1,532 | 92% | 1,842 | 1,705 | 93% | 1,923 | 1,751 | 91% |
| Hearing impairment | 38 | 38 | 100% | 34 | 32 | 94% | 35 | 31 | 89% | 41 | 38 | 93% |
| Speech or language impairment | 79 | 76 | 96% | 66 | 60 | 91% | 85 | 76 | 89% | 45 | 44 | 98% |
| Visual impairment | 9 | 6 | 67% | 5 | 5 | 100% | 16 | 10 | 63% | 19 | 12 | 63% |
| Emotional disturbance | 9 | 6 | 67% | 17 | 14 | 82% | 21 | 18 | 86% | 15 | 12 | 80% |
| Orthopedic impairment | 94 | 83 | 88% | 106 | 90 | 85% | 94 | 81 | 86% | 104 | 79 | 76% |
| Other health impairment | 318 | 288 | 91% | 316 | 282 | 89% | 310 | 270 | 87% | 282 | 243 | 86% |
| Specific learning disability | 104 | 95 | 91% | 142 | 137 | 96% | 176 | 166 | 94% | 172 | 163 | 95% |
| Deaf–blindness | 4 | 3 | 75% | 1 | 0 | 0% | 2 | 2 | 100% | 0 | 0 | N/A |
| Multiple disabilities | 448 | 361 | 81% | 415 | 341 | 82% | 426 | 327 | 77% | 407 | 306 | 75% |
| Autism | 3,227 | 2,957 | 92% | 2,990 | 2,733 | 91% | 2,756 | 2,488 | 90% | 2,649 | 2,370 | 89% |
| Traumatic brain injury | 12 | 11 | 92% | 11 | 11 | 100% | 21 | 16 | 76% | 21 | 15 | 71% |

Table 8.A.4 CAA 2022–23 Test-Taking Rates—Mathematics, Grades Seven, Eight, and 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 | 5,929 | 5,168 | 87% | 5,625 | 4,874 | 87% | 5,648 | 4,615 | 82% |
| Male | 4,004 | 3,511 | 88% | 3,827 | 3,327 | 87% | 3,750 | 3,053 | 81% |
| Female | 1,924 | 1,656 | 86% | 1,798 | 1,547 | 86% | 1,895 | 1,560 | 82% |
| Nonbinary | 1 | 1 | 100% | 0 | 0 | N/A | 3 | 2 | 67% |
| American Indian or Alaska Native | 41 | 34 | 83% | 33 | 30 | 91% | 33 | 24 | 73% |
| Asian | 493 | 424 | 86% | 474 | 389 | 82% | 460 | 370 | 80% |
| Native Hawaiian or Other Pacific Islander | 21 | 18 | 86% | 27 | 22 | 81% | 25 | 17 | 68% |
| Filipino | 165 | 152 | 92% | 152 | 131 | 86% | 172 | 133 | 77% |
| Hispanic or Latino | 3,364 | 2,976 | 88% | 3,226 | 2,894 | 90% | 3,258 | 2,770 | 85% |
| Black or African American | 505 | 437 | 87% | 447 | 384 | 86% | 462 | 358 | 77% |
| White | 1,073 | 901 | 84% | 1,008 | 826 | 82% | 1,027 | 790 | 77% |
| Two or more races | 267 | 226 | 85% | 258 | 198 | 77% | 211 | 153 | 73% |
| English only | 3,622 | 3,107 | 86% | 3,296 | 2,786 | 85% | 3,154 | 2,514 | 80% |
| IFEP | 55 | 48 | 87% | 44 | 37 | 84% | 63 | 48 | 76% |
| EL | 1,265 | 1,110 | 88% | 1,213 | 1,067 | 88% | 1,053 | 837 | 79% |
| RFEP | 987 | 903 | 91% | 1,071 | 983 | 92% | 1,378 | 1,216 | 88% |
| ADEL | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A |
| To be determined | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A |
| English proficiency unknown | 0 | 0 | N/A | 1 | 1 | 100% | 0 | 0 | N/A |
| Not economically disadvantaged | 2,006 | 1,641 | 82% | 1,937 | 1,573 | 81% | 1,911 | 1,462 | 77% |
| Economically disadvantaged | 3,923 | 3,527 | 90% | 3,688 | 3,301 | 90% | 3,737 | 3,153 | 84% |
| Migrant education | 35 | 34 | 97% | 23 | 23 | 100% | 30 | 25 | 83% |
| Not migrant education | 5,894 | 5,134 | 87% | 5,602 | 4,851 | 87% | 5,618 | 4,590 | 82% |
| Foster youth | 65 | 55 | 85% | 62 | 52 | 84% | 65 | 51 | 78% |
| Not foster youth | 5,864 | 5,113 | 87% | 5,563 | 4,822 | 87% | 5,583 | 4,564 | 82% |
| Intellectual disability | 2,141 | 1,923 | 90% | 2,041 | 1,825 | 89% | 2,307 | 1,969 | 85% |
| Hearing impairment | 41 | 38 | 93% | 44 | 38 | 86% | 57 | 47 | 82% |
| Speech or language impairment | 41 | 38 | 93% | 32 | 27 | 84% | 22 | 18 | 82% |
| Visual impairment | 9 | 7 | 78% | 14 | 9 | 64% | 13 | 7 | 54% |
| Emotional disturbance | 17 | 11 | 65% | 22 | 17 | 77% | 30 | 18 | 60% |
| Orthopedic impairment | 119 | 86 | 72% | 104 | 84 | 81% | 125 | 93 | 74% |
| Other health impairment | 282 | 235 | 83% | 289 | 244 | 84% | 233 | 181 | 78% |
| Specific learning disability | 234 | 213 | 91% | 231 | 217 | 94% | 251 | 195 | 78% |
| Deaf–blindness | 2 | 2 | 100% | 6 | 3 | 50% | 3 | 3 | 100% |
| Multiple disabilities | 468 | 341 | 73% | 474 | 341 | 72% | 519 | 388 | 75% |
| Autism | 2,543 | 2,249 | 88% | 2,338 | 2,045 | 87% | 2,048 | 1,662 | 81% |
| Traumatic brain injury | 32 | 25 | 78% | 30 | 24 | 80% | 39 | 34 | 87% |

### Appendix 8.B: Classical Item Analyses

**Note 1:** In table 8.B.1 through table 8.B.28, the value in the *Item Use* column indicates the item use for analysis. Refer to table A.1 for descriptions of these values.

Table A.1 Item Use Value Descriptions

|  |  |
| --- | --- |
| Item Use | Description |
| E | Operational items with the prior statistics (Items are used for linking.) |
| 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.B.1 through table 8.B.14. These are described in table A.2.

Table A.2 Item Analyses Flag and Possible Value Descriptions

|  |  |  |
| --- | --- | --- |
| Flag | Description | Criteria |
| A | Measured by a *p*-value, which is the proportion correct for dichotomous items and proportion of the possible maximum points earned for polytomous items (Items that are too difficult are flagged.) | * *p*-value < 0.5 for two-choice dichotomous single-select items * *p*-value < 0.3 for three-choice dichotomous single-select items * *p*-value < 0.2 for other items |
| H | Measured by a *p*-value, which is the proportion correct for dichotomous items and proportion of the possible maximum points earned for polytomous items (Items that are too easy are flagged.) | * *p*-value > 0.95 for dichotomous items * *p*-value > 0.8 for polytomous items |
| Rpoly | Measured by item-total correlation, which indicates whether the item discriminates effectively between high- and low-ability students | Polyserial correlation < 0.20 |
| P | Measured by the distractor-total score correlation (, which indicates how well the distractor effectively discriminates the high- and low-ability students | * Distractor-total score correlation > 0 * Distractor-total score correlation ≤ 0 but not significantly different from 0 |
| O | Omit or nonresponse rate that is not by design | * Omit or nonresponse rate > 5% for dichotomous multiple-choice, single-select items * Omit or nonresponse rate > 15% for other items |
| L | Percentage of students receiving a score category for polytomous items | Percentage of students receiving a score category < 3% |
| D | Measured by comparing the proportion of the high-ability student group (i.e., the top 20 percent of students) selecting a distractor or the key | A higher proportion of the high-ability student group selecting a distractor instead of selecting the key |

**Note 3:** Items that are not flagged are indicated with “[no flag]” in the *Flag* column in table 8.B.1 through table 8.B.14.

**Note 4:** The item types for items on the CAAs for ELA and mathematics include the following:

* Multiple choice single select (MCSS),
* Multiple choice multiple select (MCMS)
* Multiple choice multiple attempt (MCMA)
* Inline choice list single select (InLineChoicelistSS)
* Inline choice list multiple select (InLineChoicelistMS)
* Numeric, zone single select (ZoneSS)
* Zone multiple select (ZoneMS)
* Match single select (MatchSS)
* Match multiple select (MatchMS)
* Bar graph multiple select (BarPicturegraphMS)
* Composite

Table 8.B.1 AIS and Polyserial—ELA, Grade Three

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTW3020107T1 | E | 0.81 | 0.57 | [no flag] | 1 | MCSS Discrete |
| CLTR3020057T1-M | E | 1.38 | 0.64 | [no flag] | 2 | ZoneMS Member |
| CLTR3020058T1-M | E | 0.75 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTR3020059T1-O | E | 1.56 | 0.58 | [no flag] | 2 | MCMA–Member |
| CLTR3030112T2 | E | 0.69 | 0.60 | [no flag] | 1 | MCSS Discrete |
| CLTR3020170T1 | E | 1.02 | 0.57 | [no flag] | 2 | MCMA–Member |
| CLTR3020169T1 | E | 1.34 | 0.67 | [no flag] | 2 | ZoneMS Member |
| CLTW3020171T1-R | E | 0.51 | 0.66 | [no flag] | 1 | ZoneMS Member |
| CLTW3190076T2 | E | 1.42 | 0.71 | [no flag] | 2 | MatchMS Member |
| CLTR3030110T2 | E | 1.54 | 0.65 | L | 2 | ZoneMS Member |
| CLTR3040231T1 | E | 0.74 | 0.49 | O | 1 | ZoneSS Member |
| CLTR3190053T1 | E | 0.43 | 0.50 | O | 1 | MCSS Member |
| CLTR3190054T1 | E | 0.58 | 0.59 | D O | 2 | Composite–Member |
| CLTW3190055T1 | E | 0.27 | 0.57 | [no flag] | 1 | MCMS Member |
| CLTW3040022T1 | E | 0.51 | 0.49 | O | 1 | MCSS Member |
| CLTR3040232T1 | E | 1.12 | 0.58 | [no flag] | 2 | ZoneMS Discrete |
| CLTW3190177T1 | E | 0.68 | 0.52 | O | 1 | ZoneSS Member |
| CLTR3040179T2 | E | 0.41 | 0.53 | O | 1 | MCSS Member |
| CLTR3200248T2 | E | 0.41 | 0.41 | O | 1 | MCSS Member |
| CLTR3030135T1 | E | 0.41 | 0.36 | O | 1 | MCSS Member |
| CLTW3020145T2-M | E | 0.88 | 0.67 | O | 2 | MatchMS Member |
| CLTW3020146T2 | E | 1.00 | 0.67 | [no flag] | 2 | ZoneMS Discrete |
| CLTR3040194T3 | E | 0.26 | 0.38 | A D O | 1 | MCSS Member |
| CLTR3030166T3 | E | 0.98 | 0.66 | O | 2 | ZoneMS Member |
| CLTR3020172T3 | E | 0.54 | 0.65 | O | 1 | MatchSS Discrete |
| CLTR3200117T3 | E | 1.46 | 0.61 | L | 2 | MCMS Member |
| CLTR3190031T2 | E | 0.69 | 0.73 | [no flag] | 1 | MCSS Member |
| CLTW3020403T3 | E | 0.62 | 0.61 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR3040191T3 | E | 0.38 | 0.44 | [no flag] | 1 | MCSS Member |
| CLTR3040180T2 | E | 0.50 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTW3030030T1 | E | 1.18 | 0.63 | [no flag] | 2 | MatchMS Discrete |
| CLTR3030028T1 | E | 0.61 | 0.66 | [no flag] | 1 | MCSS Discrete |
| CLTR3020094T1 | E | 0.44 | 0.55 | A | 1 | MCSS Discrete |
| CLTW3040227T2 | E | 0.30 | 0.39 | A | 1 | MatchSS Member |
| CLTR3040190T3 | E | 1.54 | 0.64 | L | 2 | ZoneMS Member |
| CLTR3030158T3-R | E | 0.85 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTR3030159T3 | E | 0.40 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTW3030160T3 | E | 0.64 | 0.61 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR3190030T2 | E | 0.70 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTW3190032T2 | E | 0.68 | 0.48 | [no flag] | 1 | MCSS Member |
| CLTR3200245T2 | P | 0.70 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTR3200244T2 | P | 1.14 | 0.42 | D L P | 2 | MatchMS Member |
| CLTW3200246T2 | P | 0.60 | 0.58 | [no flag] | 1 | MCMS Member |
| CLTR3220022T1 | P | 0.34 | 0.43 | A | 1 | MCSS Member |
| CLTR3200034T1 | P | 0.72 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTW3210106T2 | P | 1.36 | 0.69 | [no flag] | 2 | Composite–Member |
| CLTR3200037T1 | P | 0.74 | 0.57 | [no flag] | 1 | MCSS Member |
| CLTR3200115T3 | P | 0.46 | 0.60 | O | 1 | MCSS Member |

Table 8.B.2 AIS and Polyserial—ELA, Grade Four

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTR4020237T1 | E | 0.87 | 0.58 | [no flag] | 1 | MCSS Discrete |
| CLTR4040006T1 | E | 0.63 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTR4040007T1 | E | 1.42 | 0.68 | [no flag] | 2 | ZoneMS Member |
| CLTW4040008T1-O | E | 1.22 | 0.59 | [no flag] | 2 | ZoneMS Member |
| CLTW4020086T2 | E | 1.02 | 0.71 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW4020240T1-M | E | 1.42 | 0.73 | [no flag] | 2 | MatchMS Member |
| CLTR4020308T1 | E | 0.66 | 0.55 | [no flag] | 1 | MCSS Discrete |
| CLTR4040071T2 | E | 0.64 | 0.60 | [no flag] | 1 | MCSS Member |
| CLTR4040005T2 | E | 0.65 | 0.63 | [no flag] | 1 | MatchSS Discrete |
| CLTR4200072T1 | E | 0.56 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR4040100T1 | E | 0.75 | 0.48 | [no flag] | 1 | MCSS Member |
| CLTW4020131T3 | E | 0.34 | 0.18 | D O P Rpoly | 1 | MCSS Discrete |
| CLTW4020134T3 | E | 0.38 | 0.49 | O | 1 | MCSS Discrete |
| CLTR4040199T1 | E | 0.60 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTW4190212T2 | E | 0.96 | 0.57 | [no flag] | 2 | MatchMS Member |
| CLTR4030062T2 | E | 0.94 | 0.55 | [no flag] | 2 | MatchMS Member |
| CLTR4190102T3 | E | 0.59 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTR4040101T1 | E | 1.18 | 0.48 | [no flag] | 2 | ZoneMS Member |
| CLTW4040102T1 | E | 0.29 | 0.31 | A O | 1 | MCSS Member |
| CLTR4020116T2 | E | 0.40 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR4020117T2 | E | 1.20 | 0.44 | [no flag] | 2 | ZoneMS Member |
| CLTW4020118T2 | E | 0.30 | 0.33 | O | 1 | MCSS Member |
| CLTR4020256T1-M | E | 0.62 | 0.58 | [no flag] | 1 | MCSS Member |
| CLTR4020257T1-M | E | 1.52 | 0.72 | [no flag] | 2 | ZoneMS Member |
| CLTR4020258T1-M | E | 1.30 | 0.47 | [no flag] | 2 | MCMA–Member |
| CLTR4020298T3 | E | 0.49 | 0.25 | [no flag] | 1 | MCSS Member |
| CLTR4020299T3 | E | 1.22 | 0.58 | [no flag] | 2 | MatchMS Member |
| CLTW4020300T3 | E | 0.46 | 0.28 | [no flag] | 1 | MCSS Member |
| CLTR4030014T2-R | E | 0.75 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTW4030132T3-R | E | 0.43 | 0.53 | [no flag] | 1 | MatchMS Member |
| CLTR4020132T3 | E | 0.43 | 0.44 | [no flag] | 1 | ZoneMS Member |
| CLTW4040073T2 | E | 0.43 | 0.33 | [no flag] | 1 | MCSS Member |
| CLTR4020137T2 | E | 0.64 | 0.45 | [no flag] | 1 | MCSS Discrete |
| CLTW4040074T2 | E | 0.52 | 0.26 | [no flag] | 1 | MCSS Member |
| CLTR4020245T3 | E | 0.57 | 0.54 | [no flag] | 1 | MCSS Member |
| CLTR4020244T3-M | E | 0.90 | 0.60 | [no flag] | 2 | MatchMS Member |
| CLTW4020246T3 | E | 0.94 | 0.55 | D | 2 | MCSS Partial Credit Member |
| CLTR4200170T1 | P | 0.73 | 0.67 | [no flag] | 1 | MCSS Member |
| CLTR4200171T1 | P | 1.56 | 0.66 | L | 2 | ZoneMS Member |
| CLTW4200172T1 | P | 1.46 | 0.66 | [no flag] | 2 | MatchMS Member |
| CLTR4200223T2 | P | 1.32 | 0.46 | [no flag] | 2 | ZoneMS Member |
| CLTR4220095T3 | P | 0.64 | 0.57 | [no flag] | 1 | MCSS Member |
| CLTR4220096T3 | P | 0.47 | 0.65 | [no flag] | 1 | MCSS Member |
| CLTW4220097T3 | P | 0.59 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTR4220075T2 | P | 0.57 | 0.61 | [no flag] | 1 | MCSS Member |

Table 8.B.3 AIS and Polyserial—ELA, Grade Five

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTW5020317T1 | E | 1.60 | 0.63 | H L | 2 | ZoneMS Discrete |
| CLTR5030154T1 | E | 1.50 | 0.67 | [no flag] | 2 | ZoneMS Member |
| CLTW5030157T1 | E | 0.78 | 0.29 | [no flag] | 1 | MCSS Member |
| CLTR5020315T1 | E | 1.40 | 0.69 | L | 2 | ZoneMS Discrete |
| CLTW5200188T2 | E | 0.59 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR5020334T1 | E | 1.58 | 0.62 | L | 2 | ZoneMS Discrete |
| CLTR5020314T1 | E | 0.60 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTR5200179T2 | E | 0.78 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTR5200181T2 | E | 1.36 | 0.68 | [no flag] | 2 | ZoneMS Member |
| CLTR5200180T2 | E | 1.38 | 0.58 | [no flag] | 2 | ZoneMS Member |
| CLTR5040014T1 | E | 0.54 | 0.35 | [no flag] | 1 | MCSS Member |
| CLTR5040171T3 | E | 0.45 | 0.41 | O | 1 | MatchSS Member |
| CLTW5020343T2 | E | 1.16 | 0.59 | [no flag] | 2 | ZoneMS Discrete |
| CLTR5030145T1 | E | 0.42 | 0.48 | O | 1 | MCSS Member |
| CLTR5040118T2 | E | 1.22 | 0.65 | [no flag] | 2 | ZoneMS Member |
| CLTR5190185T1 | E | 1.14 | 0.61 | [no flag] | 2 | ZoneMS Discrete |
| CLTR5040041T1 | E | 0.63 | 0.55 | [no flag] | 1 | MCSS Member |
| CLTR5040013T1 | E | 1.30 | 0.58 | [no flag] | 2 | ZoneMS Member |
| CLTW5040015T1 | E | 1.08 | 0.57 | [no flag] | 2 | MatchMS Member |
| CLTR5030155T1 | E | 1.14 | 0.56 | P | 2 | ZoneMS Member |
| CLTR5030184T2 | E | 0.42 | 0.34 | O | 1 | MCSS Member |
| CLTW5030187T2-R | E | 0.57 | 0.67 | [no flag] | 1 | MatchSS Member |
| CLTR5030183T2 | E | 1.02 | 0.58 | [no flag] | 2 | ZoneMS Member |
| CLTW5040174T3 | E | 0.31 | 0.42 | D | 1 | MatchMS Discrete |
| CLTW5030139T3 | E | 0.31 | 0.50 | [no flag] | 1 | MatchMS Member |
| CLTR5020316T1 | E | 1.54 | 0.57 | [no flag] | 2 | MCMA–Discrete |
| CLTR5020039T3-M | E | 0.34 | 0.35 | [no flag] | 1 | MCSS Member |
| CLTW5190119T2 | E | 0.68 | 0.66 | [no flag] | 1 | MatchSS Member |
| CLTR5200092T3 | E | 1.40 | 0.48 | [no flag] | 2 | ZoneMS Member |
| CLTR5020340T2 | E | 0.53 | 0.50 | [no flag] | 1 | MCSS Discrete |
| CLTR5030144T1 | E | 0.52 | 0.27 | [no flag] | 1 | MCSS Member |
| CLTW5040120T2 | E | 0.48 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTR5020074T3-R | E | 1.20 | 0.62 | [no flag] | 2 | MCMA–Discrete |
| CLTR5030043T3 | E | 0.52 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTR5030044T3 | E | 1.56 | 0.65 | [no flag] | 2 | MatchMS Member |
| CLTW5030045T3 | E | 1.20 | 0.59 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTW5020347T2 | E | 0.36 | 0.35 | [no flag] | 1 | MCSS Discrete |
| CLTR5020038T3-M | E | 0.29 | 0.35 | P | 1 | MCMS Member |
| CLTW5210144T3 | P | 0.51 | 0.68 | [no flag] | 1 | MatchSS Member |
| CLTR5210061T1 | P | 0.77 | 0.54 | [no flag] | 1 | ZoneSS Discrete |
| CLTW5210148T3 | P | 0.67 | 0.48 | [no flag] | 1 | MatchSS Member |
| CLTR5210123T2 | P | 1.30 | 0.53 | [no flag] | 2 | ZoneMS Member |
| CLTR5220126T2 | P | 0.68 | 0.59 | [no flag] | 1 | MCSS Member |
| CLTR5220127T2 | P | 1.52 | 0.72 | [no flag] | 2 | MCMS Member |
| CLTR5220128T2 | P | 0.64 | 0.69 | [no flag] | 1 | MCSS Member |
| CLTR5220115T1 | P | 0.82 | 0.61 | [no flag] | 1 | MCSS Member |

Table 8.B.4 AIS and Polyserial—ELA, Grade Six

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTR6020097T1 | E | 1.76 | 0.57 | H | 2 | MCMA–Discrete |
| CLTR6030030T1 | E | 1.54 | 0.53 | [no flag] | 2 | MCMA–Member |
| CLTR6030031T1 | E | 0.80 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTW6030032T1-O | E | 1.26 | 0.61 | [no flag] | 2 | ZoneMS Member |
| CLTR6200132T1 | E | 1.64 | 0.72 | H L | 2 | ZoneMS Member |
| CLTR6020204T2 | E | 1.50 | 0.55 | L | 2 | ZoneMS Discrete |
| CLTW6020208T2 | E | 0.58 | 0.54 | [no flag] | 1 | MCSS Discrete |
| CLTR6020202T2 | E | 1.46 | 0.58 | [no flag] | 2 | ZoneMS Discrete |
| CLTR6020101T1-R | E | 0.77 | 0.73 | [no flag] | 1 | MCSS Discrete |
| CLTW6020209T2 | E | 0.84 | 0.55 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR6020099T1 | E | 1.10 | 0.51 | [no flag] | 2 | MCMA–Discrete |
| CLTR6020422T3 | E | 0.39 | 0.24 | [no flag] | 1 | MCSS Discrete |
| CLTR6040124T1 | E | 0.53 | 0.54 | O | 1 | MCSS Member |
| CLTW6040123T1 | E | 1.20 | 0.59 | [no flag] | 2 | ZoneMS Member |
| CLTR6040236T1 | E | 1.06 | 0.53 | [no flag] | 2 | ZoneMS Discrete |
| CLTR6190217T1 | E | 0.68 | 0.56 | O | 1 | MCSS Member |
| CLTR6200053T2 | E | 0.39 | 0.43 | O | 1 | MCSS Member |
| CLTW6030202T1 | E | 0.57 | 0.44 | [no flag] | 1 | MatchMS Member |
| CLTR6040122T1 | E | 0.53 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTR6040176T2 | E | 1.26 | 0.60 | [no flag] | 2 | ZoneMS Member |
| CLTW6040177T2 | E | 0.39 | 0.45 | [no flag] | 1 | MatchMS Member |
| CLTR6040178T2 | E | 0.33 | 0.33 | O | 1 | MCSS Member |
| CLTW6030228T3 | E | 0.19 | 0.47 | A | 1 | MatchMS Member |
| CLTW6020104T1 | E | 1.14 | 0.53 | [no flag] | 2 | ZoneMS Discrete |
| CLTR6040030T3 | E | 1.22 | 0.65 | [no flag] | 2 | ZoneMS Member |
| CLTR6190014T2 | E | 1.32 | 0.47 | [no flag] | 2 | ZoneMS Member |
| CLTR6020420T3 | E | 1.24 | 0.62 | [no flag] | 2 | ZoneMS Discrete |
| CLTW6040138T1 | E | 0.51 | 0.52 | [no flag] | 1 | MatchMS Member |
| CLTR6040121T1 | E | 1.58 | 0.54 | [no flag] | 2 | MCMA–Member |
| CLTW6020102T1 | E | 0.78 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTR6040163T2 | E | 0.40 | 0.39 | [no flag] | 1 | MCMS Member |
| CLTW6030198T2 | E | 0.44 | 0.44 | [no flag] | 1 | MatchSS Discrete |
| CLTR6020398T3 | E | 0.48 | 0.22 | [no flag] | 1 | MCSS Member |
| CLTW6020399T3 | E | 0.84 | 0.51 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR6020397T3 | E | 0.36 | 0.33 | [no flag] | 1 | MCSS Member |
| CLTW6020424T3 | E | 0.34 | 0.31 | [no flag] | 1 | MCSS Discrete |
| CLTR6190012T2 | E | 0.86 | 0.73 | [no flag] | 1 | MCSS Member |
| CLTR6190013T2 | E | 0.74 | 0.65 | [no flag] | 1 | MCSS Member |
| CLTW6220057T2 | P | 0.71 | 0.57 | [no flag] | 1 | MCSS Member |
| CLTR6200002T2 | P | 0.61 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR6220060T2 | P | 1.24 | 0.64 | [no flag] | 2 | MCMS Member |
| CLTR6220056T2 | P | 0.64 | 0.58 | [no flag] | 1 | MatchSS Member |
| CLTR6200189T1 | P | 0.77 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTR6200190T1 | P | 0.85 | 0.55 | [no flag] | 1 | MCSS Member |
| CLTW6200191T1 | P | 1.56 | 0.64 | L | 2 | ZoneMS Member |
| CLTR6220093T3 | P | 0.59 | 0.59 | [no flag] | 1 | MCSS Member |

Table 8.B.5 AIS and Polyserial—ELA, Grade Seven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTW7020385T1 | E | 0.80 | 0.58 | [no flag] | 1 | MCSS Discrete |
| CLTR7020382T1 | E | 1.40 | 0.65 | [no flag] | 2 | ZoneMS Discrete |
| CLTR7200049T1 | E | 1.48 | 0.69 | [no flag] | 2 | ZoneMS Member |
| CLTR7020381T1 | E | 0.54 | 0.56 | [no flag] | 1 | MCSS Discrete |
| CLTR7200273T2 | E | 1.74 | 0.75 | H L | 2 | MatchMS Member |
| CLTR7200057T1 | E | 0.35 | 0.47 | A | 1 | MCSS Member |
| CLTW7200058T1 | E | 0.82 | 0.67 | [no flag] | 1 | MCSS Member |
| CLTR7200056T1 | E | 1.30 | 0.54 | [no flag] | 2 | ZoneMS Member |
| CLTR7020370T2 | E | 0.43 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTR7030241T2 | E | 0.49 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTR7030257T1 | E | 1.30 | 0.56 | [no flag] | 2 | ZoneMS Member |
| CLTW7040044T2 | E | 1.22 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTW7030251T3 | E | 0.49 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTR7040062T3 | E | 1.12 | 0.52 | [no flag] | 2 | ZoneMS Member |
| CLTW7020384T1 | E | 0.26 | 0.24 | A O | 1 | MCSS Discrete |
| CLTR7040126T1 | E | 0.54 | 0.44 | O | 1 | MatchSS Member |
| CLTR7030255T1 | E | 0.34 | 0.33 | O | 1 | ZoneSS Member |
| CLTR7030258T1 | E | 0.38 | 0.27 | [no flag] | 1 | MCSS Member |
| CLTW7030259T1 | E | 0.58 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTR7190068T1 | E | 1.24 | 0.52 | [no flag] | 2 | ZoneMS Member |
| CLTR7020365T3 | E | 0.88 | 0.44 | P | 2 | MCMA–Discrete |
| CLTR7040064T2 | E | 0.36 | 0.18 | Rpoly | 1 | MCSS Member |
| CLTW7190257T2 | E | 0.36 | 0.34 | [no flag] | 1 | MCSS Member |
| CLTR7040042T2 | E | 0.55 | 0.39 | [no flag] | 1 | MCSS Member |
| CLTR7040043T2 | E | 0.45 | 0.36 | O | 1 | MCSS Member |
| CLTR7020408T1 | E | 0.79 | 0.17 | Rpoly | 1 | MCSS Member |
| CLTW7020350T3 | E | 0.96 | 0.62 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR7020348T3 | E | 0.37 | 0.32 | [no flag] | 1 | MCSS Member |
| CLTR7020349T3 | E | 0.11 | 0.26 | A P | 1 | MCMS Member |
| CLTR7020369T2 | E | 0.53 | 0.44 | [no flag] | 1 | MCSS Discrete |
| CLTR7040061T3 | E | 0.94 | 0.54 | [no flag] | 2 | MCMA–Member |
| CLTW7030134T3 | E | 0.64 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTW7020407T1 | E | 1.32 | 0.66 | [no flag] | 2 | ZoneMS Member |
| CLTR7020409T1-R | E | 0.75 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTR7020158T2 | E | 1.12 | 0.62 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR7020156T2 | E | 0.56 | 0.19 | Rpoly | 1 | MCSS Member |
| CLTR7020157T2 | E | 0.38 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTR7190270T2 | E | 0.66 | 0.45 | [no flag] | 1 | MCSS Member |
| CLTW7020361T3 | E | 1.00 | 0.61 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTR7020362T3 | E | 0.31 | 0.46 | [no flag] | 1 | MCMS Discrete |
| CLTW7210082T2 | P | 0.77 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTR7200231T3 | P | 0.45 | 0.62 | [no flag] | 1 | MCMS Member |
| CLTW7200232T3 | P | 0.69 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTR7210163T3 | P | 1.38 | 0.67 | [no flag] | 2 | ZoneMS Member |
| CLTW7220026T1 | P | 0.78 | 0.57 | [no flag] | 1 | MCSS Member |
| CLTR7210022T1 | P | 0.88 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR7220046T3 | P | 1.48 | 0.72 | [no flag] | 2 | ZoneMS Member |
| CLTR7220051T2 | P | 0.73 | 0.62 | [no flag] | 1 | MCSS Member |

Table 8.B.6 AIS and Polyserial—ELA, Grade Eight

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTW8020389T1 | E | 1.34 | 0.49 | [no flag] | 2 | ZoneMS Discrete |
| CLTR8020394T1-M | E | 1.18 | 0.41 | [no flag] | 2 | ZoneMS Member |
| CLTR8020395T1-M | E | 0.81 | 0.19 | Rpoly | 1 | MCSS Member |
| CLTW8020396T1-O | E | 1.26 | 0.48 | [no flag] | 2 | ZoneMS Member |
| CLTR8020323T2-M | E | 1.26 | 0.56 | [no flag] | 2 | MCMA–Member |
| CLTR8200263T1 | E | 0.70 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTR8200265T1 | E | 1.50 | 0.67 | [no flag] | 2 | ZoneMS Member |
| CLTR8200264T1 | E | 1.58 | 0.64 | L | 2 | ZoneMS Member |
| CLTR8020321T2-M | E | 1.50 | 0.70 | [no flag] | 2 | ZoneMS Member |
| CLTR8020322T2-M | E | 0.32 | 0.34 | [no flag] | 1 | MCSS Member |
| CLTR8040090T1 | E | 0.69 | 0.25 | [no flag] | 1 | MCSS Member |
| CLTW8040216T3 | E | 0.60 | 0.31 | D P | 2 | MCSS Partial Credit Member |
| CLTW8020261T2 | E | 1.32 | 0.50 | L | 2 | ZoneMS Discrete |
| CLTR8040148T2 | E | 1.14 | 0.55 | P | 2 | ZoneMS Member |
| CLTW8040037T1 | E | 0.77 | 0.54 | [no flag] | 1 | MCSS Member |
| CLTR8200258T1 | E | 0.76 | 0.74 | [no flag] | 1 | MCSS Member |
| CLTW8190007T1 | E | 1.28 | 0.62 | [no flag] | 2 | ZoneMS Member |
| CLTR8040091T1 | E | 1.34 | 0.65 | [no flag] | 2 | ZoneMS Member |
| CLTW8040092T1 | E | 1.26 | 0.61 | [no flag] | 2 | ZoneMS Member |
| CLTR8030210T1-R | E | 0.44 | 0.49 | [no flag] | 1 | MCSS Member |
| CLTR8030218T2 | E | 1.08 | 0.45 | P | 2 | ZoneMS Member |
| CLTR8030216T2 | E | 1.14 | 0.60 | [no flag] | 2 | ZoneMS Member |
| CLTR8030217T2 | E | 0.46 | 0.39 | [no flag] | 1 | MCSS Member |
| CLTR8040214T3 | E | 1.08 | 0.58 | P | 2 | ZoneMS Member |
| CLTR8040215T3 | E | 1.08 | 0.56 | [no flag] | 2 | ZoneMS Member |
| CLTW8190154T2 | E | 0.50 | 0.57 | [no flag] | 1 | MCSS Member |
| CLTR8020440T3 | E | 1.12 | 0.56 | [no flag] | 2 | ZoneMS Discrete |
| CLTW8020069T3 | E | 0.48 | 0.19 | Rpoly | 1 | MCSS Discrete |
| CLTR8040219T3 | E | 1.26 | 0.52 | [no flag] | 2 | MCMA–Member |
| CLTW8020262T2 | E | 0.31 | 0.33 | [no flag] | 1 | MCSS Discrete |
| CLTR8020447T1 | E | 1.20 | 0.23 | D | 2 | ZoneMS Discrete |
| CLTW8020388T1 | E | 1.46 | 0.30 | L | 2 | ZoneMS Discrete |
| CLTR8020285T2-M | E | 0.44 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTR8020286T2-M | E | 0.53 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTW8020287T2-M | E | 0.32 | 0.29 | [no flag] | 1 | MatchMS Member |
| CLTR8020437T3 | E | 1.22 | 0.60 | [no flag] | 2 | ZoneMS Discrete |
| CLTR8020438T3 | E | 0.37 | 0.40 | [no flag] | 1 | MCSS Discrete |
| CLTR8190249T3 | E | 0.69 | 0.62 | [no flag] | 1 | MCSS Member |
| CLTR8200226T3 | E | 1.00 | 0.64 | [no flag] | 2 | MatchMS Member |
| CLTR8210027T1 | P | 0.82 | 0.40 | [no flag] | 1 | MCSS Member |
| CLTR8210026T1 | P | 0.80 | 0.54 | [no flag] | 1 | MCSS Member |
| CLTW8210028T1 | P | 0.81 | 0.28 | [no flag] | 1 | MCSS Member |
| CLTR8200173T2 | P | 0.50 | 0.54 | [no flag] | 1 | MCSS Member |
| CLTW8200085T2 | P | 0.60 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTR8220161T2 | P | 0.66 | 0.59 | [no flag] | 1 | MCSS Member |
| CLTR8220156T3 | P | 1.46 | 0.62 | [no flag] | 2 | MCMS Member |
| CLTW8210124T3 | P | 0.51 | 0.36 | [no flag] | 1 | MCSS Member |

Table 8.B.7 AIS and Polyserial—ELA, Grade Eleven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTWH020236T1 | E | 1.58 | 0.61 | L | 2 | ZoneMS Discrete |
| CLTRH200144T1 | E | 1.66 | 0.66 | H L | 2 | ZoneMS Member |
| CLTRH200145T1 | E | 0.82 | 0.58 | [no flag] | 1 | MCSS Member |
| CLTRH200146T1-O | E | 0.51 | 0.60 | [no flag] | 1 | MCSS Member |
| CLTRH200313T2 | E | 1.22 | 0.51 | [no flag] | 2 | Composite–Member |
| CLTRH020033T1 | E | 1.24 | 0.45 | [no flag] | 2 | ZoneMS Discrete |
| CLTWH030151T1 | E | 0.47 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTRH020213T2 | E | 0.50 | 0.28 | [no flag] | 1 | MCSS Discrete |
| CLTRH200241T1 | E | 0.85 | 0.22 | [no flag] | 1 | MCSS Discrete |
| CLTRH190228T2 | E | 1.46 | 0.70 | L | 2 | ZoneMS Member |
| CLTWH190161T1 | E | 1.22 | 0.65 | [no flag] | 2 | ZoneMS Member |
| CLTRH030229T3-R | E | 0.50 | 0.56 | [no flag] | 1 | MCSS Member |
| CLTRH040206T2 | E | 1.08 | 0.64 | [no flag] | 2 | ZoneMS Member |
| CLTRH020032T1-M | E | 0.88 | 0.38 | P | 2 | MatchMS Member |
| CLTRH030117T1 | E | 0.48 | 0.48 | [no flag] | 1 | MCSS Member |
| CLTRH030118T1 | E | 0.29 | 0.51 | A O | 1 | MCSS Member |
| CLTWH030119T1 | E | 0.96 | 0.60 | [no flag] | 2 | MatchMS Member |
| CLTWH200242T1 | E | 0.56 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTRH200243T1 | E | 0.55 | 0.59 | [no flag] | 1 | MCSS Member |
| CLTRH020034T1 | E | 0.75 | 0.20 | P Rpoly | 1 | MCSS Discrete |
| CLTRH020220T2 | E | 0.40 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTRH020221T2 | E | 0.29 | 0.61 | A O | 1 | MCSS Member |
| CLTWH020222T2 | E | 1.14 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTRH040056T3-R | E | 0.86 | 0.55 | [no flag] | 2 | MCMA–Member |
| CLTWH030231T3 | E | 0.31 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTRH020273T3 | E | 1.18 | 0.48 | [no flag] | 2 | ZoneMS Member |
| CLTWH020274T3 | E | 0.40 | 0.58 | [no flag] | 1 | MatchMS Member |
| CLTWH030230T3 | E | 0.35 | 0.22 | P | 1 | MCMS Member |
| CLTRH020224T2 | E | 1.10 | 0.50 | [no flag] | 2 | MCMA–Discrete |
| CLTRH030150T1 | E | 0.68 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTWH030052T1-R | E | 0.79 | 0.66 | [no flag] | 1 | MCSS Member |
| CLTWH200316T2 | E | 1.12 | 0.48 | [no flag] | 2 | MCSS Partial Credit Member |
| CLTRH200315T2 | E | 0.71 | 0.63 | [no flag] | 1 | MCSS Member |
| CLTRH200314T2 | E | 1.36 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTRH030227T3 | E | 1.08 | 0.42 | [no flag] | 2 | MCMA–Member |
| CLTRH030225T3 | E | 0.30 | 0.44 | [no flag] | 1 | MCMS Member |
| CLTRH030226T3 | E | 1.18 | 0.39 | [no flag] | 2 | ZoneMS Member |
| CLTRH020272T3 | E | 0.90 | 0.44 | [no flag] | 2 | ZoneMS Member |
| CLTRH210029T1 | P | 0.82 | 0.54 | [no flag] | 1 | MCSS Member |
| CLTRH210031T1 | P | 0.78 | 0.64 | [no flag] | 1 | MCSS Member |
| CLTRH210030T1 | P | 0.79 | 0.60 | [no flag] | 1 | MCSS Member |
| CLTWH210092T2 | P | 1.36 | 0.56 | [no flag] | 2 | Composite–Member |
| CLTRH210096T2 | P | 0.62 | 0.68 | [no flag] | 1 | MCSS Member |
| CLTRH210097T2 | P | 1.38 | 0.67 | [no flag] | 2 | MCMS Member |
| CLTWH210098T2 | P | 0.48 | 0.33 | O | 1 | MatchSS Member |
| CLTRH220168T3 | P | 0.68 | 0.47 | [no flag] | 1 | MCSS Member |

Table 8.B.8 AIS and Polyserial—Mathematics, Grade Three

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTM3201433T1 | E | 0.67 | 0.51 | [no flag] | 1 | ZoneSS Discrete |
| CLTM3020004T1 | E | 0.67 | 0.43 | [no flag] | 1 | MCSS Discrete |
| CLTM3201670T1 | E | 1.32 | 0.56 | [no flag] | 2 | Composite–Discrete |
| CLTM3020186T1 | E | 0.69 | 0.37 | [no flag] | 1 | MCSS Discrete |
| CLTM3020202T2 | E | 0.50 | 0.40 | O | 1 | MCSS Discrete |
| CLTM3201430T2 | E | 0.96 | 0.61 | [no flag] | 2 | Composite–Discrete |
| CLTM3030591T1 | E | 1.14 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTM3201675T2 | E | 0.84 | 0.66 | [no flag] | 2 | Composite–Member |
| CLTM3030566T1 | E | 0.64 | 0.57 | [no flag] | 1 | MCSS Discrete |
| CLTM3030567T2 | E | 0.51 | 0.53 | [no flag] | 1 | MCSS Member |
| CLTM3180887T1 | E | 0.49 | 0.39 | A O | 1 | ZoneSS Discrete |
| CLTM3180961T2 | E | 0.44 | 0.64 | O | 1 | MCSS Member |
| CLTM3030565T3 | E | 0.33 | 0.27 | O | 1 | MCSS Member |
| CLTM3180886T2 | E | 0.42 | 0.59 | [no flag] | 2 | Composite–Member |
| CLTM3180884T1 | E | 0.86 | 0.60 | [no flag] | 2 | Composite–Member |
| CLTM3201425T3 | E | 0.34 | 0.36 | O | 1 | MCSS Member |
| CLTM3030569T1 | E | 0.96 | 0.59 | [no flag] | 2 | Composite–Member |
| CLTM3191233T3 | E | 0.36 | 0.32 | O | 1 | MCSS Member |
| CLTM3181024T1 | E | 0.49 | 0.32 | A O | 1 | MCSS Member |
| CLTM3180957T1 | E | 0.54 | 0.38 | O | 1 | MCSS Discrete |
| CLTM3201599T2 | E | 0.29 | 0.37 | A O | 1 | MCSS Discrete |
| CLTM3030506T1 | E | 0.43 | 0.37 | A O | 1 | ZoneSS Member |
| CLTM3180963T1 | E | 0.92 | 0.56 | [no flag] | 2 | Composite–Member |
| CLTM3180960T2 | E | 0.59 | 0.61 | [no flag] | 1 | MCSS Member |
| CLTM3020007T1 | E | 0.38 | 0.08 | A D O P Rpoly | 1 | ZoneSS Discrete |
| CLTM3191292T3 | E | 0.80 | 0.49 | [no flag] | 2 | Composite–Discrete |
| CLTM3201432T2 | E | 0.28 | 0.46 | A | 1 | MCSS Member |
| CLTM3201517T3 | E | 1.34 | 0.75 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM3201423T1 | E | 1.28 | 0.61 | [no flag] | 2 | Composite–Member |
| CLTM3020203T3 | E | 0.29 | 0.47 | A | 1 | MCSS Discrete |
| CLTM3020009T3 | E | 0.36 | 0.27 | [no flag] | 1 | MCSS Discrete |
| CLTM3020005T2 | E | 0.30 | 0.35 | A | 1 | MCSS Discrete |
| CLTM3180889T3 | E | 0.49 | 0.58 | O | 1 | ZoneSS Discrete |
| CLTM3020204T2 | E | 0.29 | 0.38 | A | 1 | MCSS Discrete |
| CLTM3180958T1 | E | 0.61 | 0.38 | [no flag] | 1 | MCSS Discrete |
| CLTM3180962T3 | E | 0.76 | 0.57 | [no flag] | 2 | Composite–Member |
| CLTM3211748T1 | P | 0.61 | 0.41 | [no flag] | 1 | MCSS Member |
| CLTM3221875T2 | P | 0.68 | 0.63 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM3211761T3 | P | 0.30 | 0.33 | A | 1 | MCSS Discrete |
| CLTM3221878T3 | P | 0.25 | 0.17 | A D O P Rpoly | 1 | MCSS Discrete |
| CLTM3211811T1 | P | 1.38 | 0.64 | [no flag] | 2 | Composite–Discrete |
| CLTM3211812T3 | P | 0.30 | 0.40 | A | 1 | MCSS Discrete |
| CLTM3221862T1 | P | 0.38 | 0.39 | A | 1 | MCSS Discrete |
| CLTM3221876T3 | P | 0.38 | 0.18 | D P Rpoly | 1 | MCSS Discrete |

Table 8.B.9 AIS and Polyserial—Mathematics, Grade Four

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTM4030475T1 | E | 1.52 | 0.52 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4030612T1 | E | 1.46 | 0.59 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4020246T1 | E | 0.70 | 0.38 | [no flag] | 1 | MCSS Discrete |
| CLTM4181031T1 | E | 1.06 | 0.53 | [no flag] | 2 | Composite–Discrete |
| CLTM4201688T1 | E | 0.53 | 0.47 | [no flag] | 1 | MCSS Member |
| CLTM4201492T2 | E | 0.70 | 0.71 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM4020252T1 | E | 0.60 | 0.27 | [no flag] | 1 | MCSS Discrete |
| CLTM4020219T1 | E | 0.53 | 0.28 | [no flag] | 1 | MCSS Discrete |
| CLTM4201686T2 | E | 0.29 | 0.13 | A D P Rpoly | 1 | MCSS Member |
| CLTM4201495T2 | E | 0.58 | 0.37 | D | 2 | Composite–Member |
| CLTM4020189T1 | E | 0.46 | 0.48 | A | 1 | MCSS Discrete |
| CLTM4020231T1 | E | 0.98 | 0.56 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4181000T1 | E | 0.36 | 0.42 | A O | 1 | ZoneSS Member |
| CLTM4180853T2 | E | 0.27 | 0.42 | A | 1 | MCSS Member |
| CLTM4030486T3 | E | 0.68 | 0.53 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM4181002T1 | E | 1.02 | 0.59 | [no flag] | 2 | ZoneMS Discrete |
| CLTM4020218T3 | E | 0.84 | 0.53 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM4181027T2 | E | 0.54 | 0.59 | O | 2 | BarPicturegraphMS Member |
| CLTM4180849T2 | E | 0.40 | 0.50 | O | 1 | MCSS Member |
| CLTM4201500T1 | E | 0.60 | 0.57 | O | 1 | MCSS Member |
| CLTM4191128T2 | E | 0.98 | 0.58 | [no flag] | 2 | MCMS Discrete |
| CLTM4180852T1 | E | 0.50 | 0.53 | A O | 1 | ZoneSS Member |
| CLTM4020240T1 | E | 0.52 | 0.17 | O P Rpoly | 1 | MCSS Discrete |
| CLTM4201692T3 | E | 0.47 | 0.49 | O | 1 | ZoneSS Discrete |
| CLTM4180848T1 | E | 0.49 | 0.43 | A O | 1 | MCSS Member |
| CLTM4030484T1 | E | 0.94 | 0.24 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM4030492T3-R | E | 0.38 | 0.38 | [no flag] | 1 | MCSS Discrete |
| CLTM4181004T3 | E | 0.54 | 0.36 | D | 2 | Composite–Discrete |
| CLTM4020245T3 | E | 0.42 | 0.36 | [no flag] | 1 | MCSS Discrete |
| CLTM4020220T2 | E | 0.41 | 0.34 | [no flag] | 1 | MCSS Discrete |
| CLTM4020244T2 | E | 0.30 | 0.34 | [no flag] | 1 | MCSS Discrete |
| CLTM4201539T1 | E | 0.53 | 0.53 | O | 1 | ZoneSS Discrete |
| CLTM4020190T2 | E | 0.36 | 0.39 | [no flag] | 1 | MCSS Discrete |
| CLTM4181035T3 | E | 0.53 | 0.64 | [no flag] | 1 | MCSS Discrete |
| CLTM4201491T1 | E | 1.36 | 0.65 | [no flag] | 2 | Composite–Member |
| CLTM4201497T3 | E | 0.70 | 0.26 | [no flag] | 2 | MCMS Discrete |
| CLTM4020191T3 | E | 0.44 | 0.26 | [no flag] | 1 | MCSS Discrete |
| CLTM4030480T3 | E | 0.74 | 0.72 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM4221859T2 | P | 0.29 | 0.02 | A D P Rpoly | 1 | MCSS Discrete |
| CLTM4221851T1 | P | 1.04 | 0.18 | D Rpoly | 2 | Composite–Discrete |
| CLTM4201502T3 | P | 0.40 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTM4211765T1 | P | 0.62 | 0.28 | [no flag] | 1 | ZoneSS Discrete |
| CLTM4201494T3 | P | 0.80 | 0.65 | [no flag] | 2 | BarPicturegraphMS Member |
| CLTM4221846T1 | P | 1.28 | 0.42 | [no flag] | 2 | Composite–Discrete |
| CLTM4201501T2 | P | 0.44 | 0.53 | [no flag] | 1 | MCSS Member |
| CLTM4221860T3 | P | 0.35 | 0.22 | [no flag] | 1 | MCSS Discrete |

Table 8.B.10 AIS and Polyserial—Mathematics, Grade Five

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTM5201408T1 | E | 0.45 | 0.38 | A | 1 | ZoneSS Member |
| CLTM5201412T1 | E | 0.57 | 0.46 | [no flag] | 1 | MCSS Member |
| CLTM5020180T1 | E | 0.74 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTM5020338T1 | E | 1.30 | 0.60 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5201646T2 | E | 0.92 | 0.53 | [no flag] | 2 | Composite–Member |
| CLTM5180904T1 | E | 0.46 | 0.24 | A | 1 | MCSS Member |
| CLTM5201407T2 | E | 0.76 | 0.31 | D | 2 | Composite–Member |
| CLTM5030610T2 | E | 0.59 | 0.53 | [no flag] | 1 | MCSS Member |
| CLTM5020166T2 | E | 0.47 | 0.38 | [no flag] | 1 | MCSS Discrete |
| CLTM5030458T1 | E | 1.24 | 0.51 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5030461T1 | E | 0.84 | 0.49 | [no flag] | 2 | MCMS Member |
| CLTM5020359T3 | E | 1.02 | 0.49 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5180971T1 | E | 0.94 | 0.50 | [no flag] | 2 | Composite–Discrete |
| CLTM5020261T1 | E | 0.51 | 0.43 | O | 1 | MCSS Discrete |
| CLTM5180907T2 | E | 0.37 | 0.34 | O | 1 | MCSS Member |
| CLTM5180819T2 | E | 0.60 | 0.47 | [no flag] | 2 | Composite–Member |
| CLTM5201388T1 | E | 1.02 | 0.51 | [no flag] | 2 | ZoneMS Member |
| CLTM5201396T2 | E | 0.90 | 0.53 | [no flag] | 2 | Composite–Member |
| CLTM5180970T1 | E | 0.49 | 0.40 | A O | 1 | ZoneSS Member |
| CLTM5020265T2 | E | 0.42 | 0.36 | O | 1 | MCSS Discrete |
| CLTM5020350T3 | E | 0.39 | 0.26 | [no flag] | 1 | MCSS Discrete |
| CLTM5020404T1 | E | 0.50 | 0.29 | A | 1 | MCSS Discrete |
| CLTM5181014T3 | E | 0.37 | 0.23 | [no flag] | 1 | MCSS Member |
| CLTM5020196T2 | E | 1.14 | 0.54 | [no flag] | 2 | ZoneMS Discrete |
| CLTM5180905T1 | E | 0.46 | 0.22 | A O | 1 | MCSS Member |
| CLTM5020345T1 | E | 0.81 | 0.67 | [no flag] | 1 | MCSS Discrete |
| CLTM5201406T3 | E | 1.00 | 0.55 | [no flag] | 2 | Composite–Member |
| CLTM5180821T2 | E | 0.84 | 0.60 | [no flag] | 2 | Composite–Member |
| CLTM5181016T3 | E | 0.74 | 0.39 | [no flag] | 2 | Composite–Member |
| CLTM5020362T3 | E | 0.31 | 0.36 | [no flag] | 1 | MCSS Discrete |
| CLTM5180906T2 | E | 0.43 | 0.25 | [no flag] | 1 | MCSS Member |
| CLTM5020344T3 | E | 0.37 | 0.45 | [no flag] | 1 | MCSS Discrete |
| CLTM5180909T2 | E | 0.72 | 0.54 | [no flag] | 2 | Composite–Member |
| CLTM5180824T3 | E | 0.45 | 0.32 | [no flag] | 1 | InLineChoicelistSS Member |
| CLTM5020181T2 | E | 0.34 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTM5180972T3 | E | 0.74 | 0.50 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM5020343T2 | E | 0.31 | 0.20 | D Rpoly | 1 | InLineChoicelistSS Discrete |
| CLTM5211771T2 | P | 0.44 | 0.23 | [no flag] | 1 | MCSS Member |
| CLTM5201593T1 | P | 0.63 | 0.33 | [no flag] | 1 | MCSS Discrete |
| CLTM5201581T2 | P | 1.04 | 0.52 | [no flag] | 2 | Composite–Member |
| CLTM5221904T3 | P | 0.14 | 0.40 | A | 1 | Numeric Discrete |
| CLTM5211828T2 | P | 0.68 | 0.38 | D | 2 | Composite–Member |
| CLTM5201729T1 | P | 0.61 | 0.40 | [no flag] | 1 | MCSS Discrete |
| CLTM5211832T3 | P | 0.66 | 0.37 | D | 2 | Composite–Member |
| CLTM5221906T3 | P | 0.38 | 0.24 | [no flag] | 1 | MCSS Discrete |

Table 8.B.11 AIS and Polyserial—Mathematics, Grade Six

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTM6030685T1 | E | 0.66 | 0.49 | [no flag] | 1 | MCSS Member |
| CLTM6020284T1 | E | 0.63 | 0.43 | [no flag] | 1 | MCSS Discrete |
| CLTM6030472T1 | E | 0.53 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTM6020427T1 | E | 0.62 | 0.29 | [no flag] | 1 | MCSS Discrete |
| CLTM6201652T2 | E | 1.24 | 0.66 | [no flag] | 2 | ZoneMS Discrete |
| CLTM6201648T2 | E | 0.25 | 0.28 | A | 1 | MCSS Discrete |
| CLTM6020293T1 | E | 0.59 | 0.48 | [no flag] | 1 | ZoneSS Discrete |
| CLTM6030469T1 | E | 1.18 | 0.56 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM6020041T2 | E | 0.41 | 0.44 | [no flag] | 1 | MCSS Discrete |
| CLTM6201453T1 | E | 1.16 | 0.55 | [no flag] | 2 | ZoneMS Member |
| CLTM6201661T2 | E | 0.61 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTM6180981T1 | E | 0.78 | 0.54 | D | 2 | Composite–Discrete |
| CLTM6020320T1 | E | 0.43 | 0.41 | A O | 1 | MCSS Discrete |
| CLTM6020367T2 | E | 0.56 | 0.38 | D | 2 | ZoneMS Discrete |
| CLTM6180896T1 | E | 0.59 | 0.45 | [no flag] | 1 | MCSS Discrete |
| CLTM6180984T1 | E | 0.53 | 0.44 | [no flag] | 1 | MCSS Member |
| CLTM6030468T3 | E | 0.82 | 0.31 | D | 2 | ZoneMS Member |
| CLTM6030598T1 | E | 0.46 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTM6180898T1 | E | 0.54 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTM6020200T3 | E | 0.44 | 0.43 | O | 1 | ZoneSS Discrete |
| CLTM6180987T1 | E | 1.02 | 0.51 | D | 2 | Composite–Discrete |
| CLTM6020294T2 | E | 0.28 | 0.26 | A D O | 1 | ZoneSS Discrete |
| CLTM6020437T3 | E | 0.96 | 0.43 | D | 2 | ZoneMS Discrete |
| CLTM6030595T1 | E | 0.44 | 0.19 | A Rpoly | 1 | MCSS Member |
| CLTM6180985T2 | E | 0.28 | 0.43 | A O | 1 | MatchSS Discrete |
| CLTM6030621T1 | E | 0.65 | 0.36 | [no flag] | 1 | MCSS Member |
| CLTM6020042T3 | E | 0.42 | 0.59 | [no flag] | 1 | MCSS Discrete |
| CLTM6201446T3 | E | 0.54 | 0.69 | [no flag] | 1 | MCSS Member |
| CLTM6020099T3 | E | 0.21 | 0.19 | A D O Rpoly | 1 | ZoneSS Discrete |
| CLTM6180979T2 | E | 0.82 | 0.61 | [no flag] | 2 | Composite–Member |
| CLTM6030603T3 | E | 0.92 | 0.57 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM6020322T3 | E | 0.26 | 0.25 | A | 1 | MCSS Discrete |
| CLTM6201452T2 | E | 1.00 | 0.68 | [no flag] | 2 | Composite–Member |
| CLTM6030635T1 | E | 0.59 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTM6030687T3 | E | 0.40 | 0.27 | [no flag] | 1 | ZoneSS Member |
| CLTM6180978T3 | E | 0.56 | 0.54 | [no flag] | 1 | ZoneSS Discrete |
| CLTM6201566T2 | E | 0.51 | 0.38 | [no flag] | 1 | MCSS Member |
| CLTM6211804T1 | P | 0.70 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTM6211833T1 | P | 0.71 | 0.46 | [no flag] | 1 | MCSS Discrete |
| CLTM6201454T3 | P | 0.58 | 0.17 | D Rpoly | 2 | Composite–Member |
| CLTM6211834T3 | P | 0.34 | 0.39 | [no flag] | 1 | MCSS Discrete |
| CLTM6201733T2 | P | 0.43 | 0.45 | [no flag] | 1 | MCSS Discrete |
| CLTM6201565T3 | P | 0.42 | 0.24 | [no flag] | 1 | MCSS Discrete |
| CLTM6201455T3 | P | 0.86 | 0.26 | [no flag] | 2 | Composite–Discrete |
| CLTM6221917T1 | P | 0.77 | 0.53 | [no flag] | 1 | MCSS Discrete |

Table 8.B.12 AIS and Polyserial—Mathematics, Grade Seven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTM7030688T1 | E | 0.68 | 0.51 | [no flag] | 1 | MCSS Member |
| CLTM7191072T1 | E | 0.65 | 0.43 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM7180937T1 | E | 1.00 | 0.39 | [no flag] | 2 | Composite–Discrete |
| CLTM7191205T1 | E | 1.16 | 0.51 | [no flag] | 2 | Composite–Discrete |
| CLTM7030585T2 | E | 0.92 | 0.37 | [no flag] | 2 | ZoneMS Member |
| CLTM7030653T1 | E | 0.60 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTM7020297T2 | E | 0.50 | 0.55 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM7030515T1 | E | 1.22 | 0.48 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM7191202T2 | E | 1.14 | 0.62 | [no flag] | 2 | ZoneMS Member |
| CLTM7030510T2 | E | 0.98 | 0.64 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM7030704T1-R | E | 0.58 | 0.27 | [no flag] | 1 | MCSS Member |
| CLTM7180996T2 | E | 0.38 | 0.42 | [no flag] | 1 | MCSS Member |
| CLTM7180952T2 | E | 1.04 | 0.49 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7201529T1 | E | 1.06 | 0.42 | [no flag] | 2 | Composite–Member |
| CLTM7020033T3 | E | 0.30 | 0.42 | A O | 1 | MCSS Discrete |
| CLTM7020035T2 | E | 0.28 | 0.51 | A O | 1 | MCSS Discrete |
| CLTM7180993T1 | E | 0.98 | 0.53 | [no flag] | 2 | Composite–Member |
| CLTM7191363T1 | E | 1.04 | 0.44 | [no flag] | 2 | Composite–Discrete |
| CLTM7030587T1-R | E | 0.69 | 0.55 | [no flag] | 1 | MCSS Discrete |
| CLTM7030511T3-R | E | 0.92 | 0.44 | [no flag] | 2 | ZoneMS Member |
| CLTM7020089T2 | E | 1.00 | 0.38 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7020369T1 | E | 0.66 | 0.55 | [no flag] | 1 | MCSS Discrete |
| CLTM7180846T3 | E | 1.18 | 0.57 | [no flag] | 2 | ZoneMS Member |
| CLTM7180928T1 | E | 0.68 | 0.40 | [no flag] | 1 | MCSS Member |
| CLTM7180951T1 | E | 0.90 | 0.42 | [no flag] | 2 | Composite–Discrete |
| CLTM7020423T3 | E | 0.45 | 0.45 | [no flag] | 1 | MCSS Discrete |
| CLTM7180927T1 | E | 1.46 | 0.62 | [no flag] | 2 | Composite–Member |
| CLTM7030696T3-R | E | 0.20 | 0.52 | A | 1 | Numeric Member |
| CLTM7191365T3 | E | 0.98 | 0.27 | D P | 2 | ZoneMS Member |
| CLTM7020324T2 | E | 0.52 | 0.35 | [no flag] | 1 | MCSS Discrete |
| CLTM7020036T3 | E | 0.20 | 0.63 | [no flag] | 1 | Numeric Discrete |
| CLTM7030705T2 | E | 0.45 | 0.44 | [no flag] | 1 | MCSS Member |
| CLTM7201418T2 | E | 0.35 | 0.47 | [no flag] | 1 | MCSS Member |
| CLTM7030693T3 | E | 0.65 | 0.44 | [no flag] | 1 | MCSS Member |
| CLTM7020049T3 | E | 0.96 | 0.44 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM7180995T3 | E | 1.32 | 0.62 | [no flag] | 2 | Composite–Member |
| CLTM7180953T2 | E | 0.96 | 0.38 | [no flag] | 2 | ZoneMS Discrete |
| CLTM7221950T3 | P | 0.58 | 0.42 | [no flag] | 1 | MatchSS Discrete |
| CLTM7201403T2 | P | 1.02 | 0.42 | [no flag] | 2 | Composite–Member |
| CLTM7221938T2 | P | 0.86 | 0.48 | D | 2 | Composite–Member |
| CLTM7221960T3 | P | 1.18 | 0.49 | [no flag] | 2 | MatchMS Discrete |
| CLTM7201419T2 | P | 0.39 | 0.16 | Rpoly | 1 | MCSS Member |
| CLTM7221955T1 | P | 0.61 | 0.37 | [no flag] | 1 | MCSS Member |
| CLTM7221939T2 | P | 1.12 | 0.50 | [no flag] | 2 | Composite–Member |
| CLTM7221961T3 | P | 0.78 | 0.31 | [no flag] | 2 | Composite–Discrete |

Table 8.B.13 AIS and Polyserial—Mathematics, Grade Eight

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTM8201615T1 | E | 1.34 | 0.56 | [no flag] | 2 | Composite–Member |
| CLTM8020028T1 | E | 1.38 | 0.63 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8201677T1 | E | 1.06 | 0.49 | [no flag] | 2 | MCMS Member |
| CLTM8030638T1 | E | 0.75 | 0.48 | [no flag] | 1 | MCSS Discrete |
| CLTM8201616T2 | E | 0.47 | 0.47 | [no flag] | 1 | MCSS Discrete |
| CLTM8020276T2 | E | 0.76 | 0.55 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8180862T1 | E | 1.14 | 0.59 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTM8020160T1 | E | 0.86 | 0.40 | [no flag] | 2 | ZoneMS Discrete |
| CLTM8020079T1 | E | 0.69 | 0.56 | [no flag] | 1 | MCSS Discrete |
| CLTM8030539T2 | E | 1.06 | 0.35 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8020387T1 | E | 0.44 | 0.45 | [no flag] | 1 | ZoneSS Discrete |
| CLTM8180802T1 | E | 1.24 | 0.63 | [no flag] | 2 | Composite–Member |
| CLTM8180866T1 | E | 1.06 | 0.52 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTM8030661T3-R | E | 0.48 | 0.24 | [no flag] | 1 | ZoneMS Discrete |
| CLTM8030699T3 | E | 0.01 | 0.44 | A D L | 1 | Numeric Member |
| CLTM8030697T1 | E | 0.55 | 0.25 | [no flag] | 1 | MCSS Discrete |
| CLTM8030525T2 | E | 0.50 | 0.31 | O | 1 | InLineChoicelistSS Member |
| CLTM8191152T1 | E | 0.53 | 0.32 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM8201614T1 | E | 0.79 | 0.49 | [no flag] | 1 | ZoneSS Member |
| CLTM8180814T1 | E | 0.75 | 0.35 | [no flag] | 1 | MCSS Member |
| CLTM8180804T3 | E | 1.04 | 0.47 | [no flag] | 2 | MCMS Member |
| CLTM8191247T1 | E | 1.02 | 0.52 | [no flag] | 2 | Composite–Member |
| CLTM8030663T2 | E | 0.31 | 0.35 | [no flag] | 1 | MCSS Member |
| CLTM8191354T2 | E | 0.96 | 0.54 | [no flag] | 2 | MCMS Member |
| CLTM8180815T2 | E | 0.63 | 0.45 | [no flag] | 1 | MatchSS Member |
| CLTM8020390T3 | E | 0.28 | 0.58 | [no flag] | 1 | Numeric Discrete |
| CLTM8201439T2 | E | 0.48 | 0.38 | [no flag] | 1 | MatchSS Member |
| CLTM8201438T3 | E | 0.60 | 0.60 | [no flag] | 1 | MCSS Discrete |
| CLTM8020084T3 | E | 0.47 | 0.43 | [no flag] | 1 | InLineChoicelistSS Discrete |
| CLTM8201435T1 | E | 1.46 | 0.65 | [no flag] | 2 | Composite–Member |
| CLTM8180881T3 | E | 0.49 | 0.44 | O | 1 | ZoneSS Member |
| CLTM8201521T3 | E | 1.08 | 0.47 | [no flag] | 2 | MCMS Member |
| CLTM8180877T2 | E | 0.55 | 0.45 | [no flag] | 1 | MCSS Member |
| CLTM8020380T3 | E | 0.54 | 0.31 | D | 2 | ZoneMS Discrete |
| CLTM8020453T3 | E | 0.37 | 0.46 | [no flag] | 1 | ZoneSS Discrete |
| CLTM8030657T2 | E | 0.34 | 0.15 | Rpoly | 1 | MCSS Discrete |
| CLTM8191144T3 | E | 0.30 | 0.62 | [no flag] | 1 | Numeric Discrete |
| CLTM8030660T2-R | E | 0.58 | 0.55 | [no flag] | 1 | MCSS Discrete |
| CLTM8221983T1 | P | 0.59 | 0.22 | [no flag] | 1 | MCSS Discrete |
| CLTM8201622T2 | P | 0.42 | −0.05 | D Rpoly | 2 | Composite–Discrete |
| CLTM8221967T1 | P | 0.60 | 0.30 | [no flag] | 1 | MCSS Discrete |
| CLTM8211787T2 | P | 0.60 | 0.51 | [no flag] | 1 | MatchSS Discrete |
| CLTM8211789T1 | P | 0.54 | 0.36 | [no flag] | 1 | ZoneSS Discrete |
| CLTM8221982T3 | P | 0.34 | 0.34 | [no flag] | 1 | ZoneSS Discrete |
| CLTM8221969T2 | P | 0.98 | 0.42 | [no flag] | 2 | Composite–Member |
| CLTM8221985T1 | P | 0.71 | 0.40 | [no flag] | 1 | MCSS Discrete |

Table 8.B.14 AIS and Polyserial—Mathematics, Grade Eleven

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | AIS | Polyserial | Flag | Maximum Score Points | Item Type |
| CLTMH020022T1 | E | 0.64 | 0.49 | [no flag] | 1 | MCSS Discrete |
| CLTMH030549T1 | E | 0.63 | 0.53 | [no flag] | 1 | MCSS Member |
| CLTMH030665T1 | E | 1.18 | 0.64 | L | 2 | MatchMS Member |
| CLTMH020447T1 | E | 0.62 | 0.69 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH201546T2 | E | 0.74 | 0.38 | [no flag] | 2 | Composite–Member |
| CLTMH201472T1 | E | 0.70 | 0.57 | [no flag] | 1 | MCSS Member |
| CLTMH201478T2 | E | 0.82 | 0.58 | [no flag] | 2 | Composite–Member |
| CLTMH020020T2 | E | 0.62 | 0.51 | [no flag] | 1 | MCSS Discrete |
| CLTMH201542T1 | E | 0.52 | 0.41 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH030642T2 | E | 1.06 | 0.43 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTMH180813T1 | E | 0.48 | 0.17 | A Rpoly | 1 | MCSS Discrete |
| CLTMH180830T2 | E | 0.43 | 0.58 | O | 1 | InLineChoicelistSS Member |
| CLTMH191189T1 | E | 1.04 | 0.50 | [no flag] | 2 | ZoneMS Member |
| CLTMH191304T1 | E | 0.67 | 0.57 | O | 1 | ZoneSS Discrete |
| CLTMH180926T1 | E | 0.53 | 0.33 | [no flag] | 1 | MCSS Member |
| CLTMH030556T3 | E | 1.00 | 0.44 | P | 2 | InLineChoicelistMS Member |
| CLTMH020076T1 | E | 0.35 | 0.41 | O | 1 | ZoneSS Discrete |
| CLTMH180826T1 | E | 0.59 | 0.24 | [no flag] | 1 | MCSS Member |
| CLTMH180976T2 | E | 0.44 | 0.52 | [no flag] | 1 | MCSS Member |
| CLTMH180827T2 | E | 0.46 | 0.31 | [no flag] | 1 | MCSS Member |
| CLTMH191349T3 | E | 1.02 | 0.45 | P | 2 | MCMS Member |
| CLTMH030541T1 | E | 0.50 | 0.31 | [no flag] | 1 | MCSS Discrete |
| CLTMH030552T3 | E | 0.92 | 0.56 | [no flag] | 2 | InLineChoicelistMS Member |
| CLTMH020074T2 | E | 1.20 | 0.62 | [no flag] | 2 | MatchMS Discrete |
| CLTMH030630T1 | E | 0.41 | 0.47 | O | 1 | ZoneSS Discrete |
| CLTMH020023T2 | E | 0.51 | 0.54 | [no flag] | 1 | MCSS Discrete |
| CLTMH020078T3 | E | 0.29 | 0.27 | A D O | 1 | ZoneSS Discrete |
| CLTMH030632T3 | E | 0.53 | 0.42 | [no flag] | 1 | MCSS Discrete |
| CLTMH030546T2 | E | 1.02 | 0.35 | [no flag] | 2 | ZoneMS Member |
| CLTMH020402T2 | E | 1.02 | 0.59 | [no flag] | 2 | InLineChoicelistMS Discrete |
| CLTMH180921T1 | E | 1.42 | 0.76 | [no flag] | 2 | MatchMS Member |
| CLTMH201476T3 | E | 0.68 | 0.64 | [no flag] | 1 | MCSS Discrete |
| CLTMH020335T1 | E | 0.52 | 0.23 | [no flag] | 1 | MCSS Discrete |
| CLTMH180917T3 | E | 0.26 | 0.70 | A | 2 | Composite–Member |
| CLTMH201465T1 | E | 0.83 | 0.36 | [no flag] | 1 | MCSS Member |
| CLTMH201468T3 | E | 0.35 | 0.40 | [no flag] | 1 | MCSS Member |
| CLTMH030633T2-R | E | 0.56 | 0.50 | [no flag] | 1 | MCSS Member |
| CLTMH030714T3 | E | 0.29 | 0.33 | A | 1 | MCSS Discrete |
| CLTMH201464T2 | E | 1.44 | 0.50 | [no flag] | 2 | ZoneMS Member |
| CLTMH020383T3 | E | 0.92 | 0.38 | [no flag] | 2 | ZoneMS Discrete |
| CLTMH201550T1 | P | 0.74 | 0.56 | [no flag] | 1 | MCSS Discrete |
| CLTMH211794T2 | P | 0.36 | 0.43 | [no flag] | 1 | MCSS Discrete |
| CLTMH211795T3 | P | 0.51 | 0.56 | [no flag] | 1 | MCSS Discrete |
| CLTMH201637T3 | P | 0.52 | 0.49 | [no flag] | 1 | MCSS Discrete |
| CLTMH201632T3 | P | 0.40 | 0.23 | [no flag] | 1 | MCSS Discrete |
| CLTM11222003T1 | P | 0.71 | 0.33 | [no flag] | 1 | MCSS Discrete |
| CLTMH201635T2 | P | 0.36 | 0.23 | [no flag] | 1 | ZoneSS Discrete |
| CLTMH201639T3 | P | 0.09 | 0.61 | A | 1 | Numeric Discrete |

**Note:** In table 8.B.15 through table 8.B.28, the columns *Score 0, Score 1,* and *Score 2* indicate the possible scores for the item.

Table 8.B.15 Distribution of Item Scores—ELA, Grade Three

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTR3020057T1-M | E | 2 | 3% | 49% | 44% | 3% | 4,463 |
| CLTR3020059T1-O | E | 2 | 14% | 12% | 72% | 2% | 4,463 |
| CLTR3020170T1 | E | 2 | 31% | 28% | 37% | 4% | 4,446 |
| CLTR3020169T1 | E | 2 | 5% | 48% | 42% | 4% | 4,445 |
| CLTW3190076T2 | E | 2 | 7% | 30% | 56% | 7% | 4,423 |
| CLTR3030110T2 | E | 2 | 2% | 37% | 58% | 3% | 4,420 |
| CLTR3190054T1 | E | 2 | 30% | 47% | 5% | 18% | 1,280 |
| CLTR3040232T1 | E | 2 | 7% | 53% | 29% | 10% | 1,210 |
| CLTW3020145T2-M | E | 2 | 13% | 45% | 22% | 20% | 1,283 |
| CLTW3020146T2 | E | 2 | 6% | 63% | 18% | 12% | 1,283 |
| CLTR3030166T3 | E | 2 | 8% | 49% | 25% | 18% | 1,280 |
| CLTR3200117T3 | E | 2 | 2% | 45% | 50% | 2% | 3,051 |
| CLTW3020403T3 | E | 2 | 54% | 19% | 22% | 5% | 3,051 |
| CLTW3030030T1 | E | 2 | 23% | 30% | 44% | 3% | 2,989 |
| CLTR3040190T3 | E | 2 | 1% | 39% | 58% | 2% | 3,053 |
| CLTW3030160T3 | E | 2 | 53% | 21% | 22% | 4% | 3,052 |
| CLTR3200244T2 | P | 2 | 1% | 66% | 24% | 9% | 2,240 |
| CLTW3210106T2 | P | 2 | 11% | 33% | 51% | 4% | 2,174 |

Table 8.B.16 Distribution of Item Scores—ELA, Grade Four

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTR4040007T1 | E | 2 | 8% | 37% | 53% | 3% | 4,438 |
| CLTW4040008T1-O | E | 2 | 9% | 57% | 32% | 2% | 4,438 |
| CLTW4020086T2 | E | 2 | 35% | 19% | 42% | 4% | 4,397 |
| CLTW4020240T1-M | E | 2 | 9% | 32% | 55% | 4% | 4,405 |
| CLTW4190212T2 | E | 2 | 16% | 51% | 23% | 10% | 1,814 |
| CLTR4030062T2 | E | 2 | 18% | 49% | 22% | 11% | 1,783 |
| CLTR4040101T1 | E | 2 | 6% | 56% | 31% | 7% | 1,838 |
| CLTR4020117T2 | E | 2 | 8% | 53% | 33% | 6% | 1,838 |
| CLTR4020257T1-M | E | 2 | 3% | 33% | 59% | 5% | 4,299 |
| CLTR4020258T1-M | E | 2 | 24% | 13% | 58% | 4% | 4,299 |
| CLTR4020299T3 | E | 2 | 16% | 39% | 42% | 3% | 2,463 |
| CLTR4020244T3-M | E | 2 | 41% | 23% | 34% | 2% | 2,464 |
| CLTW4020246T3 | E | 2 | 27% | 45% | 24% | 4% | 2,462 |
| CLTR4200171T1 | P | 2 | 2% | 30% | 63% | 5% | 2,211 |
| CLTW4200172T1 | P | 2 | 6% | 32% | 57% | 6% | 2,211 |
| CLTR4200223T2 | P | 2 | 5% | 51% | 41% | 3% | 2,211 |

Table 8.B.17 Distribution of Item Scores—ELA, Grade Five

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTW5020317T1 | E | 2 | 3% | 32% | 65% | 1% | 4,424 |
| CLTR5030154T1 | E | 2 | 5% | 37% | 56% | 2% | 4,424 |
| CLTR5020315T1 | E | 2 | 3% | 50% | 45% | 1% | 4,424 |
| CLTR5020334T1 | E | 2 | 2% | 35% | 61% | 2% | 4,398 |
| CLTR5200181T2 | E | 2 | 6% | 43% | 46% | 5% | 4,385 |
| CLTR5200180T2 | E | 2 | 4% | 44% | 47% | 5% | 4,385 |
| CLTW5020343T2 | E | 2 | 6% | 56% | 30% | 8% | 1,273 |
| CLTR5040118T2 | E | 2 | 6% | 50% | 36% | 8% | 1,261 |
| CLTR5190185T1 | E | 2 | 5% | 60% | 27% | 8% | 1,232 |
| CLTR5040013T1 | E | 2 | 6% | 48% | 41% | 6% | 1,271 |
| CLTW5040015T1 | E | 2 | 14% | 48% | 30% | 8% | 1,271 |
| CLTR5030155T1 | E | 2 | 7% | 58% | 27% | 7% | 1,274 |
| CLTR5030183T2 | E | 2 | 6% | 68% | 17% | 9% | 1,274 |
| CLTR5020316T1 | E | 2 | 13% | 18% | 68% | 1% | 2,962 |
| CLTR5200092T3 | E | 2 | 4% | 44% | 48% | 4% | 2,960 |
| CLTR5020074T3-R | E | 2 | 33% | 14% | 53% | 1% | 2,967 |
| CLTR5030044T3 | E | 2 | 6% | 29% | 64% | 2% | 2,966 |
| CLTW5030045T3 | E | 2 | 22% | 29% | 46% | 3% | 2,966 |
| CLTR5210123T2 | P | 2 | 8% | 48% | 40% | 3% | 2,230 |
| CLTR5220127T2 | P | 2 | 6% | 32% | 60% | 3% | 2,148 |

Table 8.B.18 Distribution of Item Scores—ELA, Grade Six

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTR6020097T1 | E | 2 | 8% | 6% | 85% | 1% | 4,403 |
| CLTR6030030T1 | E | 2 | 12% | 20% | 67% | 1% | 4,404 |
| CLTW6030032T1-O | E | 2 | 12% | 45% | 41% | 3% | 4,403 |
| CLTR6200132T1 | E | 2 | 3% | 27% | 69% | 2% | 4,352 |
| CLTR6020204T2 | E | 2 | 2% | 42% | 54% | 2% | 4,375 |
| CLTR6020202T2 | E | 2 | 4% | 42% | 52% | 2% | 4,359 |
| CLTW6020209T2 | E | 2 | 35% | 38% | 23% | 3% | 4,356 |
| CLTR6020099T1 | E | 2 | 36% | 12% | 49% | 4% | 1,064 |
| CLTW6040123T1 | E | 2 | 6% | 52% | 34% | 8% | 1,062 |
| CLTR6040236T1 | E | 2 | 6% | 67% | 20% | 8% | 1,062 |
| CLTR6040176T2 | E | 2 | 3% | 53% | 37% | 7% | 1,063 |
| CLTW6020104T1 | E | 2 | 9% | 54% | 30% | 7% | 1,063 |
| CLTR6040030T3 | E | 2 | 11% | 50% | 36% | 3% | 4,229 |
| CLTR6190014T2 | E | 2 | 5% | 51% | 40% | 3% | 3,166 |
| CLTR6020420T3 | E | 2 | 8% | 58% | 33% | 1% | 3,165 |
| CLTR6040121T1 | E | 2 | 14% | 12% | 73% | 2% | 3,131 |
| CLTW6020399T3 | E | 2 | 36% | 34% | 25% | 4% | 3,170 |
| CLTR6220060T2 | P | 2 | 8% | 52% | 35% | 4% | 2,142 |
| CLTW6200191T1 | P | 2 | 2% | 33% | 61% | 3% | 2,209 |

Table 8.B.19 Distribution of Item Scores—ELA, Grade Seven

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTR7020382T1 | E | 2 | 4% | 50% | 45% | 1% | 4,565 |
| CLTR7200049T1 | E | 2 | 3% | 42% | 53% | 2% | 4,565 |
| CLTR7200273T2 | E | 2 | 0% | 21% | 77% | 2% | 4,498 |
| CLTR7200056T1 | E | 2 | 6% | 50% | 39% | 4% | 4,516 |
| CLTR7030257T1 | E | 2 | 6% | 48% | 41% | 4% | 1,516 |
| CLTW7040044T2 | E | 2 | 5% | 49% | 37% | 9% | 1,515 |
| CLTR7040062T3 | E | 2 | 8% | 61% | 25% | 5% | 1,514 |
| CLTR7190068T1 | E | 2 | 7% | 53% | 36% | 4% | 1,515 |
| CLTR7020365T3 | E | 2 | 44% | 17% | 36% | 3% | 1,514 |
| CLTW7020350T3 | E | 2 | 29% | 37% | 29% | 4% | 2,870 |
| CLTR7040061T3 | E | 2 | 40% | 23% | 36% | 1% | 2,813 |
| CLTW7020407T1 | E | 2 | 12% | 41% | 45% | 2% | 2,871 |
| CLTR7020158T2 | E | 2 | 21% | 40% | 35% | 3% | 2,878 |
| CLTW7020361T3 | E | 2 | 20% | 42% | 29% | 9% | 2,875 |
| CLTR7210163T3 | P | 2 | 6% | 44% | 47% | 3% | 2,300 |
| CLTR7220046T3 | P | 2 | 5% | 38% | 55% | 2% | 2,195 |

Table 8.B.20 Distribution of Item Scores—ELA, Grade Eight

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTW8020389T1 | E | 2 | 4% | 53% | 41% | 2% | 4,318 |
| CLTR8020394T1-M | E | 2 | 4% | 70% | 24% | 2% | 4,317 |
| CLTW8020396T1-O | E | 2 | 5% | 61% | 33% | 1% | 4,317 |
| CLTR8020323T2-M | E | 2 | 24% | 21% | 53% | 2% | 4,287 |
| CLTR8200265T1 | E | 2 | 3% | 39% | 56% | 2% | 4,299 |
| CLTR8200264T1 | E | 2 | 1% | 33% | 63% | 3% | 4,299 |
| CLTR8020321T2-M | E | 2 | 3% | 39% | 56% | 2% | 4,287 |
| CLTW8040216T3 | E | 2 | 52% | 19% | 21% | 8% | 1,973 |
| CLTW8020261T2 | E | 2 | 3% | 55% | 39% | 4% | 1,970 |
| CLTR8040148T2 | E | 2 | 6% | 66% | 24% | 4% | 1,970 |
| CLTW8190007T1 | E | 2 | 5% | 54% | 37% | 4% | 1,911 |
| CLTR8040091T1 | E | 2 | 3% | 51% | 41% | 4% | 1,979 |
| CLTW8040092T1 | E | 2 | 5% | 55% | 35% | 5% | 1,979 |
| CLTR8030218T2 | E | 2 | 14% | 55% | 27% | 5% | 1,974 |
| CLTR8030216T2 | E | 2 | 5% | 66% | 23% | 5% | 1,974 |
| CLTR8040214T3 | E | 2 | 8% | 66% | 21% | 4% | 1,973 |
| CLTR8040215T3 | E | 2 | 4% | 71% | 18% | 7% | 1,973 |
| CLTR8020440T3 | E | 2 | 12% | 61% | 26% | 1% | 2,207 |
| CLTR8040219T3 | E | 2 | 27% | 18% | 54% | 1% | 2,183 |
| CLTR8020447T1 | E | 2 | 4% | 69% | 26% | 1% | 2,169 |
| CLTW8020388T1 | E | 2 | 1% | 51% | 47% | 1% | 2,211 |
| CLTR8020437T3 | E | 2 | 8% | 60% | 31% | 1% | 2,209 |
| CLTR8200226T3 | E | 2 | 37% | 24% | 38% | 1% | 2,208 |
| CLTR8220156T3 | P | 2 | 5% | 39% | 54% | 2% | 2,084 |

Table 8.B.21 Distribution of Item Scores—ELA, Grade Eleven

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTWH020236T1 | E | 2 | 2% | 35% | 61% | 2% | 4,119 |
| CLTRH200144T1 | E | 2 | 2% | 23% | 71% | 3% | 4,121 |
| CLTRH200313T2 | E | 2 | 15% | 46% | 38% | 1% | 4,115 |
| CLTRH020033T1 | E | 2 | 4% | 64% | 30% | 1% | 4,121 |
| CLTRH190228T2 | E | 2 | 2% | 47% | 49% | 2% | 4,116 |
| CLTWH190161T1 | E | 2 | 8% | 54% | 34% | 4% | 1,336 |
| CLTRH040206T2 | E | 2 | 12% | 58% | 25% | 5% | 1,323 |
| CLTRH020032T1-M | E | 2 | 25% | 45% | 22% | 8% | 1,303 |
| CLTWH030119T1 | E | 2 | 19% | 49% | 23% | 8% | 1,283 |
| CLTWH020222T2 | E | 2 | 9% | 57% | 29% | 5% | 1,337 |
| CLTRH040056T3-R | E | 2 | 44% | 18% | 34% | 4% | 1,336 |
| CLTRH020273T3 | E | 2 | 9% | 57% | 31% | 3% | 2,668 |
| CLTRH020224T2 | E | 2 | 35% | 16% | 47% | 2% | 2,635 |
| CLTWH200316T2 | E | 2 | 24% | 31% | 41% | 4% | 2,668 |
| CLTRH200314T2 | E | 2 | 4% | 43% | 46% | 6% | 2,668 |
| CLTRH030227T3 | E | 2 | 39% | 13% | 47% | 1% | 2,668 |
| CLTRH030226T3 | E | 2 | 5% | 68% | 25% | 3% | 2,668 |
| CLTRH020272T3 | E | 2 | 23% | 62% | 14% | 1% | 2,668 |
| CLTWH210092T2 | P | 2 | 10% | 42% | 47% | 2% | 1,934 |
| CLTRH210097T2 | P | 2 | 4% | 47% | 45% | 3% | 2,180 |

Table 8.B.22 Distribution of Item Scores—Mathematics, Grade Three

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTM3201670T1 | E | 2 | 15% | 34% | 50% | 1% | 4,363 |
| CLTM3201430T2 | E | 2 | 25% | 49% | 23% | 3% | 4,338 |
| CLTM3030591T1 | E | 2 | 15% | 51% | 31% | 3% | 4,329 |
| CLTM3201675T2 | E | 2 | 29% | 50% | 18% | 4% | 4,328 |
| CLTM3180886T2 | E | 2 | 56% | 29% | 7% | 8% | 4,242 |
| CLTM3180884T1 | E | 2 | 26% | 43% | 21% | 10% | 1,883 |
| CLTM3030569T1 | E | 2 | 21% | 41% | 27% | 10% | 1,787 |
| CLTM3180963T1 | E | 2 | 19% | 51% | 21% | 9% | 1,887 |
| CLTM3191292T3 | E | 2 | 37% | 44% | 18% | 2% | 2,353 |
| CLTM3201517T3 | E | 2 | 15% | 28% | 53% | 3% | 2,355 |
| CLTM3201423T1 | E | 2 | 18% | 33% | 47% | 2% | 2,311 |
| CLTM3180962T3 | E | 2 | 41% | 38% | 19% | 2% | 2,355 |
| CLTM3221875T2 | P | 2 | 46% | 18% | 25% | 11% | 2,178 |
| CLTM3211811T1 | P | 2 | 11% | 34% | 53% | 3% | 2,140 |

Table 8.B.23 Distribution of Item Scores—Mathematics, Grade Four

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTM4030475T1 | E | 2 | 3% | 37% | 58% | 2% | 4,392 |
| CLTM4030612T1 | E | 2 | 3% | 44% | 51% | 1% | 4,392 |
| CLTM4181031T1 | E | 2 | 28% | 37% | 35% | 1% | 4,392 |
| CLTM4201492T2 | E | 2 | 47% | 21% | 25% | 8% | 4,366 |
| CLTM4201495T2 | E | 2 | 45% | 44% | 7% | 3% | 4,347 |
| CLTM4020231T1 | E | 2 | 11% | 66% | 16% | 7% | 1,820 |
| CLTM4030486T3 | E | 2 | 43% | 31% | 19% | 8% | 4,194 |
| CLTM4181002T1 | E | 2 | 7% | 67% | 17% | 9% | 1,762 |
| CLTM4020218T3 | E | 2 | 25% | 39% | 23% | 13% | 1,733 |
| CLTM4181027T2 | E | 2 | 47% | 22% | 16% | 15% | 1,821 |
| CLTM4191128T2 | E | 2 | 10% | 69% | 14% | 7% | 1,821 |
| CLTM4030484T1 | E | 2 | 39% | 25% | 35% | 2% | 2,412 |
| CLTM4181004T3 | E | 2 | 52% | 40% | 6% | 1% | 2,412 |
| CLTM4201491T1 | E | 2 | 11% | 40% | 48% | 1% | 2,412 |
| CLTM4201497T3 | E | 2 | 36% | 55% | 7% | 2% | 2,412 |
| CLTM4030480T3 | E | 2 | 51% | 17% | 29% | 3% | 2,412 |
| CLTM4221851T1 | P | 2 | 24% | 44% | 30% | 2% | 2,173 |
| CLTM4201494T3 | P | 2 | 41% | 21% | 30% | 8% | 2,172 |
| CLTM4221846T1 | P | 2 | 14% | 38% | 45% | 3% | 2,172 |

Table 8.B.24 Distribution of Item Scores—Mathematics, Grade Five

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTM5020338T1 | E | 2 | 10% | 46% | 42% | 1% | 4,350 |
| CLTM5201646T2 | E | 2 | 34% | 35% | 29% | 3% | 4,304 |
| CLTM5201407T2 | E | 2 | 35% | 48% | 14% | 3% | 4,312 |
| CLTM5030458T1 | E | 2 | 12% | 49% | 37% | 2% | 4,304 |
| CLTM5030461T1 | E | 2 | 27% | 55% | 15% | 3% | 4,245 |
| CLTM5020359T3 | E | 2 | 19% | 47% | 28% | 6% | 2,767 |
| CLTM5180971T1 | E | 2 | 24% | 47% | 24% | 5% | 2,767 |
| CLTM5180819T2 | E | 2 | 43% | 40% | 10% | 7% | 2,699 |
| CLTM5201388T1 | E | 2 | 13% | 60% | 21% | 5% | 2,661 |
| CLTM5201396T2 | E | 2 | 31% | 39% | 26% | 4% | 2,773 |
| CLTM5020196T2 | E | 2 | 16% | 41% | 36% | 6% | 2,769 |
| CLTM5201406T3 | E | 2 | 26% | 45% | 28% | 1% | 1,473 |
| CLTM5180821T2 | E | 2 | 37% | 37% | 24% | 2% | 1,460 |
| CLTM5181016T3 | E | 2 | 39% | 45% | 14% | 2% | 1,454 |
| CLTM5180909T2 | E | 2 | 43% | 40% | 16% | 1% | 1,472 |
| CLTM5180972T3 | E | 2 | 52% | 21% | 27% | 1% | 1,473 |
| CLTM5201581T2 | P | 2 | 24% | 44% | 29% | 2% | 2,187 |
| CLTM5211828T2 | P | 2 | 41% | 44% | 12% | 4% | 2,117 |
| CLTM5211832T3 | P | 2 | 44% | 39% | 13% | 4% | 2,116 |

Table 8.B.25 Distribution of Item Scores—Mathematics, Grade Six

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTM6201652T2 | E | 2 | 15% | 41% | 42% | 2% | 4,234 |
| CLTM6030469T1 | E | 2 | 25% | 26% | 46% | 3% | 4,238 |
| CLTM6201453T1 | E | 2 | 13% | 55% | 30% | 2% | 4,234 |
| CLTM6180981T1 | E | 2 | 30% | 47% | 15% | 8% | 2,291 |
| CLTM6020367T2 | E | 2 | 46% | 42% | 7% | 6% | 2,290 |
| CLTM6030468T3 | E | 2 | 22% | 65% | 8% | 4% | 4,126 |
| CLTM6180987T1 | E | 2 | 18% | 57% | 22% | 2% | 4,188 |
| CLTM6020437T3 | E | 2 | 16% | 60% | 18% | 6% | 2,291 |
| CLTM6180979T2 | E | 2 | 39% | 38% | 21% | 1% | 1,899 |
| CLTM6030603T3 | E | 2 | 29% | 49% | 21% | 1% | 1,899 |
| CLTM6201452T2 | E | 2 | 33% | 33% | 33% | 1% | 1,899 |
| CLTM6201454T3 | P | 2 | 53% | 30% | 14% | 2% | 2,075 |
| CLTM6201455T3 | P | 2 | 28% | 53% | 17% | 3% | 2,157 |

Table 8.B.26 Distribution of Item Scores—Mathematics, Grade Seven

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTM7180937T1 | E | 2 | 25% | 49% | 25% | 1% | 4,470 |
| CLTM7191205T1 | E | 2 | 25% | 32% | 42% | 1% | 4,470 |
| CLTM7030585T2 | E | 2 | 17% | 68% | 12% | 3% | 4,411 |
| CLTM7030515T1 | E | 2 | 24% | 26% | 48% | 2% | 4,414 |
| CLTM7191202T2 | E | 2 | 12% | 57% | 29% | 3% | 4,415 |
| CLTM7030510T2 | E | 2 | 27% | 42% | 28% | 3% | 4,414 |
| CLTM7180952T2 | E | 2 | 11% | 64% | 20% | 5% | 3,120 |
| CLTM7201529T1 | E | 2 | 26% | 30% | 38% | 5% | 3,120 |
| CLTM7180993T1 | E | 2 | 30% | 36% | 31% | 2% | 2,997 |
| CLTM7191363T1 | E | 2 | 29% | 29% | 38% | 5% | 3,119 |
| CLTM7030511T3-R | E | 2 | 17% | 65% | 14% | 4% | 3,120 |
| CLTM7020089T2 | E | 2 | 14% | 64% | 18% | 4% | 4,357 |
| CLTM7180846T3 | E | 2 | 5% | 63% | 28% | 5% | 3,120 |
| CLTM7180951T1 | E | 2 | 26% | 50% | 20% | 4% | 3,119 |
| CLTM7180927T1 | E | 2 | 19% | 15% | 65% | 0% | 1,237 |
| CLTM7191365T3 | E | 2 | 13% | 73% | 13% | 2% | 1,220 |
| CLTM7020049T3 | E | 2 | 36% | 31% | 33% | 1% | 1,238 |
| CLTM7180995T3 | E | 2 | 15% | 35% | 49% | 1% | 1,237 |
| CLTM7180953T2 | E | 2 | 16% | 69% | 14% | 2% | 1,237 |
| CLTM7201403T2 | P | 2 | 28% | 38% | 31% | 3% | 2,272 |
| CLTM7221938T2 | P | 2 | 27% | 55% | 16% | 3% | 2,271 |
| CLTM7221960T3 | P | 2 | 18% | 38% | 40% | 4% | 2,270 |
| CLTM7221939T2 | P | 2 | 21% | 42% | 35% | 1% | 2,139 |
| CLTM7221961T3 | P | 2 | 38% | 40% | 19% | 3% | 2,139 |

Table 8.B.27 Distribution of Item Scores—Mathematics, Grade Eight

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTM8201615T1 | E | 2 | 12% | 40% | 47% | 1% | 4,180 |
| CLTM8020028T1 | E | 2 | 11% | 36% | 51% | 1% | 4,182 |
| CLTM8201677T1 | E | 2 | 15% | 61% | 23% | 1% | 4,182 |
| CLTM8020276T2 | E | 2 | 41% | 38% | 19% | 2% | 4,157 |
| CLTM8180862T1 | E | 2 | 20% | 42% | 36% | 2% | 4,148 |
| CLTM8020160T1 | E | 2 | 32% | 29% | 29% | 10% | 4,147 |
| CLTM8030539T2 | E | 2 | 22% | 45% | 30% | 2% | 4,144 |
| CLTM8180802T1 | E | 2 | 15% | 41% | 42% | 2% | 4,065 |
| CLTM8180866T1 | E | 2 | 22% | 40% | 33% | 4% | 2,085 |
| CLTM8180804T3 | E | 2 | 11% | 69% | 18% | 2% | 2,087 |
| CLTM8191247T1 | E | 2 | 20% | 50% | 26% | 4% | 2,087 |
| CLTM8191354T2 | E | 2 | 14% | 67% | 15% | 3% | 2,086 |
| CLTM8201435T1 | E | 2 | 6% | 40% | 53% | 1% | 1,957 |
| CLTM8201521T3 | E | 2 | 14% | 63% | 22% | 1% | 1,984 |
| CLTM8020380T3 | E | 2 | 50% | 39% | 8% | 4% | 1,984 |
| CLTM8201622T2 | P | 2 | 66% | 22% | 10% | 2% | 2,116 |
| CLTM8221969T2 | P | 2 | 25% | 47% | 26% | 2% | 2,025 |

Table 8.B.28 Distribution of Item Scores—Mathematics, Grade Eleven

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item ID | Item Use | Max Points | Score 0 | Score 1 | Score 2 | Blank | N Total |
| CLTMH030665T1 | E | 2 | 37% | 1% | 59% | 3% | 4,046 |
| CLTMH201546T2 | E | 2 | 42% | 38% | 18% | 2% | 4,032 |
| CLTMH201478T2 | E | 2 | 38% | 39% | 22% | 1% | 4,036 |
| CLTMH030642T2 | E | 2 | 19% | 51% | 27% | 3% | 4,031 |
| CLTMH191189T1 | E | 2 | 10% | 66% | 18% | 5% | 2,006 |
| CLTMH030556T3 | E | 2 | 21% | 43% | 29% | 7% | 1,987 |
| CLTMH191349T3 | E | 2 | 16% | 56% | 23% | 5% | 2,007 |
| CLTMH030552T3 | E | 2 | 23% | 47% | 23% | 7% | 2,007 |
| CLTMH020074T2 | E | 2 | 17% | 37% | 41% | 5% | 2,007 |
| CLTMH030546T2 | E | 2 | 16% | 63% | 20% | 2% | 1,956 |
| CLTMH020402T2 | E | 2 | 31% | 33% | 35% | 2% | 1,956 |
| CLTMH180921T1 | E | 2 | 23% | 8% | 67% | 2% | 1,945 |
| CLTMH180917T3 | E | 2 | 78% | 14% | 7% | 1% | 1,957 |
| CLTMH201464T2 | E | 2 | 5% | 44% | 49% | 1% | 1,957 |
| CLTMH020383T3 | E | 2 | 21% | 64% | 14% | 1% | 1,956 |

### Appendix 8.C: Omission and Completion Rates

Table 8.C.1 Item Difficulties and Omit Rate—ELA, Grade Three

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTR3020058T1-M | MCSS Member | 0.75 | −1.34 | 2% |
| CLTR3020170T1 | MCMA - Member | 0.51 | −0.05 | 4% |
| CLTR3020169T1 | ZoneMS Member | 0.67 | −1.06 | 4% |
| CLTR3020172T3 | MatchSS Discrete | 0.54 | −1.20 | 18% |
| CLTR3020094T1 | MCSS Discrete | 0.44 | 0.76 | 1% |
| CLTW3020107T1 | MCSS Discrete | 0.81 | −1.80 | 1% |
| CLTW3020146T2 | ZoneMS Discrete | 0.50 | −1.03 | 12% |
| CLTW3020403T3 | MCSS Partial Credit Member | 0.31 | 1.19 | 5% |
| CLTR3030028T1 | MCSS Discrete | 0.61 | 0.00 | 2% |
| CLTW3030030T1 | MatchMS Discrete | 0.59 | 0.14 | 3% |
| CLTR3030110T2 | ZoneMS Member | 0.77 | −1.76 | 3% |
| CLTR3030112T2 | MCSS Discrete | 0.69 | −0.98 | 4% |
| CLTR3030135T1 | MCSS Member | 0.41 | −0.64 | 8% |
| CLTR3030158T3-R | MCSS Member | 0.85 | −1.47 | 2% |
| CLTR3030159T3 | MCSS Member | 0.40 | 0.97 | 3% |
| CLTW3030160T3 | MCSS Partial Credit Member | 0.32 | 1.17 | 4% |
| CLTW3020145T2-M | MatchMS Member | 0.44 | −0.77 | 20% |
| CLTR3020057T1-M | ZoneMS Member | 0.69 | −1.35 | 3% |
| CLTW3040022T1 | MCSS Member | 0.51 | −1.08 | 9% |
| CLTR3040179T2 | MCSS Member | 0.41 | −0.65 | 9% |
| CLTR3040180T2 | MCSS Member | 0.50 | 0.51 | 3% |
| CLTW3040227T2 | MatchSS Member | 0.30 | 1.50 | 3% |
| CLTR3040190T3 | ZoneMS Member | 0.77 | −1.23 | 2% |
| CLTR3040191T3 | MCSS Member | 0.38 | 1.07 | 2% |
| CLTR3040231T1 | ZoneSS Member | 0.74 | −2.21 | 22% |
| CLTR3040232T1 | ZoneMS Discrete | 0.56 | −1.29 | 10% |
| CLTR3040194T3 | MCSS Member | 0.26 | 0.10 | 14% |
| CLTW3020171T1-R | ZoneMS Member | 0.51 | −0.06 | 4% |
| CLTR3030166T3 | ZoneMS Member | 0.49 | −1.01 | 18% |
| CLTR3020059T1-O | MCMA - Member | 0.78 | −1.21 | 2% |
| CLTR3190030T2 | MCSS Member | 0.70 | −0.45 | 2% |
| CLTW3190032T2 | MCSS Member | 0.68 | −0.36 | 3% |
| CLTR3190031T2 | MCSS Member | 0.69 | −0.39 | 3% |
| CLTW3190076T2 | MatchMS Member | 0.71 | −1.05 | 7% |
| CLTW3190177T1 | ZoneSS Member | 0.68 | −1.81 | 13% |
| CLTR3190053T1 | MCSS Member | 0.43 | −0.75 | 9% |
| CLTR3190054T1 | Composite - Member | 0.29 | 0.26 | 18% |
| CLTW3190055T1 | MCMS Member | 0.27 | 0.08 | 13% |
| CLTR3200037T1 | MCSS Member | 0.74 | −1.24 | 3% |
| CLTR3200034T1 | MCSS Member | 0.72 | −1.11 | 2% |
| CLTR3200115T3 | MCSS Member | 0.46 | 0.23 | 5% |
| CLTR3200117T3 | MCMS Member | 0.73 | −0.94 | 2% |
| CLTR3200244T2 | MatchMS Member | 0.57 | −0.57 | 9% |
| CLTR3200245T2 | MCSS Member | 0.70 | −1.08 | 3% |
| CLTW3200246T2 | MCMS Member | 0.60 | −0.49 | 4% |
| CLTR3200248T2 | MCSS Member | 0.41 | −0.65 | 7% |
| CLTW3210106T2 | Composite - Member | 0.68 | −0.85 | 4% |
| CLTR3220022T1 | MCSS Member | 0.34 | 0.80 | 4% |

Table 8.C.2 Item Difficulties and Omit Rate—ELA, Grade Four

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTR4020256T1-M | MCSS Member | 0.62 | −0.60 | 3% |
| CLTR4020257T1-M | ZoneMS Member | 0.76 | −1.37 | 5% |
| CLTR4020258T1-M | MCMA - Member | 0.65 | −0.57 | 4% |
| CLTR4020116T2 | MCSS Member | 0.40 | −0.38 | 4% |
| CLTR4020117T2 | ZoneMS Member | 0.60 | −1.30 | 6% |
| CLTW4020118T2 | MCSS Member | 0.30 | 0.09 | 6% |
| CLTR4020245T3 | MCSS Member | 0.57 | 0.26 | 1% |
| CLTW4020246T3 | MCSS Partial Credit Member | 0.47 | 0.74 | 4% |
| CLTR4020298T3 | MCSS Member | 0.49 | 0.62 | 2% |
| CLTR4020299T3 | MatchMS Member | 0.61 | 0.12 | 3% |
| CLTW4020300T3 | MCSS Member | 0.46 | 0.76 | 4% |
| CLTR4020237T1 | MCSS Discrete | 0.87 | −2.28 | 1% |
| CLTR4020308T1 | MCSS Discrete | 0.66 | −0.83 | 2% |
| CLTW4020131T3 | MCSS Discrete | 0.34 | −0.08 | 7% |
| CLTR4020137T2 | MCSS Discrete | 0.64 | −0.05 | 1% |
| CLTW4020134T3 | MCSS Discrete | 0.38 | −0.26 | 7% |
| CLTW4020086T2 | MCSS Partial Credit Member | 0.51 | −0.10 | 4% |
| CLTR4030014T2-R | MCSS Member | 0.75 | −0.62 | 1% |
| CLTR4030062T2 | MatchMS Member | 0.47 | −0.64 | 11% |
| CLTR4020244T3-M | MatchMS Member | 0.45 | 0.75 | 2% |
| CLTW4020240T1-M | MatchMS Member | 0.71 | −1.08 | 4% |
| CLTR4040071T2 | MCSS Member | 0.64 | −0.73 | 2% |
| CLTW4040073T2 | MCSS Member | 0.43 | 0.91 | 1% |
| CLTW4040074T2 | MCSS Member | 0.52 | 0.52 | 2% |
| CLTR4040005T2 | MatchSS Discrete | 0.65 | −0.78 | 3% |
| CLTR4040006T1 | MCSS Member | 0.63 | −0.68 | 1% |
| CLTR4040007T1 | ZoneMS Member | 0.71 | −1.19 | 3% |
| CLTR4040100T1 | MCSS Member | 0.75 | −2.01 | 3% |
| CLTR4040101T1 | ZoneMS Member | 0.59 | −1.32 | 7% |
| CLTW4040102T1 | MCSS Member | 0.29 | 0.15 | 5% |
| CLTR4040199T1 | MCSS Member | 0.60 | −1.23 | 5% |
| CLTW4030132T3-R | MatchMS Member | 0.43 | 0.91 | 2% |
| CLTR4190102T3 | MCSS Member | 0.59 | −1.18 | 4% |
| CLTW4190212T2 | MatchMS Member | 0.48 | −0.73 | 10% |
| CLTR4200072T1 | MCSS Member | 0.56 | −0.34 | 2% |
| CLTR4200170T1 | MCSS Member | 0.73 | −1.28 | 2% |
| CLTR4200171T1 | ZoneMS Member | 0.78 | −1.66 | 5% |
| CLTW4200172T1 | MatchMS Member | 0.73 | −1.24 | 6% |
| CLTR4200223T2 | ZoneMS Member | 0.66 | −1.16 | 3% |
| CLTR4020132T3 | ZoneMS Member | 0.43 | 0.90 | 3% |
| CLTR4220075T2 | MCSS Member | 0.57 | −0.33 | 3% |
| CLTR4220095T3 | MCSS Member | 0.64 | −0.70 | 4% |
| CLTR4220096T3 | MCSS Member | 0.47 | 0.15 | 4% |
| CLTW4220097T3 | MCSS Member | 0.59 | −0.45 | 4% |
| CLTW4040008T1-O | ZoneMS Member | 0.61 | −0.76 | 2% |

Table 8.C.3 Item Difficulties and Omit Rate—ELA, Grade Five

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTR5020038T3-M | MCMS Member | 0.29 | 1.53 | 2% |
| CLTR5020039T3-M | MCSS Member | 0.34 | 1.27 | 3% |
| CLTR5020314T1 | MCSS Discrete | 0.60 | −0.47 | 2% |
| CLTR5020340T2 | MCSS Discrete | 0.53 | 0.34 | 2% |
| CLTR5020315T1 | ZoneMS Discrete | 0.70 | −1.54 | 1% |
| CLTR5020334T1 | ZoneMS Discrete | 0.79 | −1.89 | 2% |
| CLTR5020316T1 | MCMA - Discrete | 0.77 | −0.55 | 1% |
| CLTW5020347T2 | MCSS Discrete | 0.36 | 1.12 | 1% |
| CLTW5020317T1 | ZoneMS Discrete | 0.80 | −2.00 | 1% |
| CLTW5020343T2 | ZoneMS Discrete | 0.58 | −1.36 | 8% |
| CLTR5020074T3-R | MCMA - Discrete | 0.60 | 0.16 | 1% |
| CLTR5030043T3 | MCSS Member | 0.52 | 0.42 | 1% |
| CLTR5030044T3 | MatchMS Member | 0.78 | −0.86 | 2% |
| CLTW5030045T3 | MCSS Partial Credit Member | 0.60 | 0.10 | 3% |
| CLTR5030145T1 | MCSS Member | 0.42 | −0.56 | 6% |
| CLTR5030144T1 | MCSS Member | 0.52 | 0.41 | 2% |
| CLTR5030154T1 | ZoneMS Member | 0.75 | −1.48 | 2% |
| CLTR5030155T1 | ZoneMS Member | 0.57 | −1.28 | 7% |
| CLTW5030157T1 | MCSS Member | 0.78 | −1.56 | 1% |
| CLTR5030183T2 | ZoneMS Member | 0.51 | −0.99 | 9% |
| CLTR5030184T2 | MCSS Member | 0.42 | −0.54 | 6% |
| CLTR5040013T1 | ZoneMS Member | 0.65 | −1.65 | 6% |
| CLTR5040014T1 | MCSS Member | 0.54 | −1.10 | 4% |
| CLTW5040015T1 | MatchMS Member | 0.54 | −1.08 | 8% |
| CLTR5040041T1 | MCSS Member | 0.63 | −0.56 | 2% |
| CLTR5040118T2 | ZoneMS Member | 0.61 | −1.47 | 8% |
| CLTW5040120T2 | MCSS Member | 0.48 | 0.59 | 0% |
| CLTR5040171T3 | MatchSS Member | 0.45 | −0.69 | 11% |
| CLTW5040174T3 | MatchMS Discrete | 0.31 | −0.01 | 9% |
| CLTW5030187T2-R | MatchSS Member | 0.57 | −0.25 | 4% |
| CLTW5030139T3 | MatchMS Member | 0.31 | −0.02 | 9% |
| CLTW5190119T2 | MatchSS Member | 0.68 | −0.37 | 2% |
| CLTR5190185T1 | ZoneMS Discrete | 0.57 | −1.29 | 8% |
| CLTR5200092T3 | ZoneMS Member | 0.70 | −0.58 | 4% |
| CLTR5200179T2 | MCSS Member | 0.78 | −1.49 | 2% |
| CLTR5200180T2 | ZoneMS Member | 0.69 | −1.16 | 5% |
| CLTR5200181T2 | ZoneMS Member | 0.68 | −1.00 | 5% |
| CLTW5200188T2 | MCSS Member | 0.59 | −0.44 | 2% |
| CLTR5210061T1 | ZoneSS Discrete | 0.77 | −1.45 | 4% |
| CLTR5210123T2 | ZoneMS Member | 0.65 | −0.89 | 3% |
| CLTW5210144T3 | MatchSS Member | 0.51 | −0.06 | 4% |
| CLTW5210148T3 | MatchSS Member | 0.67 | −0.87 | 4% |
| CLTR5220115T1 | MCSS Member | 0.82 | −1.80 | 2% |
| CLTR5220126T2 | MCSS Member | 0.68 | −0.88 | 4% |
| CLTR5220127T2 | MCMS Member | 0.76 | −1.42 | 3% |
| CLTR5220128T2 | MCSS Member | 0.64 | −0.62 | 4% |

Table 8.C.4 Item Difficulties and Omit Rate—ELA, Grade Six

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTW6020104T1 | ZoneMS Discrete | 0.57 | −1.13 | 7% |
| CLTW6020208T2 | MCSS Discrete | 0.58 | −0.26 | 3% |
| CLTW6020424T3 | MCSS Discrete | 0.34 | 1.14 | 1% |
| CLTR6020101T1-R | MCSS Discrete | 0.77 | −1.27 | 2% |
| CLTR6020422T3 | MCSS Discrete | 0.39 | 0.65 | 3% |
| CLTR6020398T3 | MCSS Member | 0.48 | 0.52 | 2% |
| CLTW6020399T3 | MCSS Partial Credit Member | 0.42 | 0.72 | 4% |
| CLTR6020397T3 | MCSS Member | 0.36 | 1.08 | 4% |
| CLTR6020202T2 | ZoneMS Discrete | 0.73 | −1.26 | 2% |
| CLTR6020420T3 | ZoneMS Discrete | 0.62 | −0.31 | 1% |
| CLTR6020099T1 | MCMA - Discrete | 0.55 | −0.88 | 4% |
| CLTR6020204T2 | ZoneMS Discrete | 0.75 | −1.50 | 2% |
| CLTR6020097T1 | MCMA - Discrete | 0.88 | −1.53 | 1% |
| CLTW6020209T2 | MCSS Partial Credit Member | 0.42 | 0.44 | 3% |
| CLTR6030030T1 | MCMA - Member | 0.77 | −1.08 | 1% |
| CLTR6030031T1 | MCSS Member | 0.80 | −1.48 | 2% |
| CLTW6030202T1 | MatchMS Member | 0.57 | −1.07 | 6% |
| CLTW6030198T2 | MatchSS Discrete | 0.44 | 0.70 | 3% |
| CLTR6040030T3 | ZoneMS Member | 0.61 | −0.46 | 3% |
| CLTR6040121T1 | MCMA - Member | 0.79 | −0.57 | 2% |
| CLTR6040122T1 | MCSS Member | 0.53 | −0.88 | 4% |
| CLTW6040123T1 | ZoneMS Member | 0.60 | −1.24 | 8% |
| CLTR6040124T1 | MCSS Member | 0.53 | −0.89 | 6% |
| CLTW6040138T1 | MatchMS Member | 0.51 | 0.40 | 1% |
| CLTR6040176T2 | ZoneMS Member | 0.63 | −1.49 | 7% |
| CLTW6040177T2 | MatchMS Member | 0.39 | −0.27 | 10% |
| CLTR6040178T2 | MCSS Member | 0.33 | −0.03 | 9% |
| CLTR6040163T2 | MCMS Member | 0.40 | 0.89 | 1% |
| CLTR6040236T1 | ZoneMS Discrete | 0.53 | −1.00 | 8% |
| CLTW6030228T3 | MatchMS Member | 0.19 | 0.76 | 11% |
| CLTW6020102T1 | MCSS Member | 0.78 | −0.97 | 1% |
| CLTW6030032T1-O | ZoneMS Member | 0.63 | −0.59 | 3% |
| CLTR6190217T1 | MCSS Member | 0.68 | −1.55 | 5% |
| CLTR6200053T2 | MCSS Member | 0.39 | −0.26 | 6% |
| CLTR6190012T2 | MCSS Member | 0.86 | −1.50 | 2% |
| CLTR6190013T2 | MCSS Member | 0.74 | −0.73 | 3% |
| CLTR6190014T2 | ZoneMS Member | 0.66 | −0.45 | 3% |
| CLTR6200002T2 | MCSS Member | 0.61 | −0.41 | 2% |
| CLTR6200189T1 | MCSS Member | 0.77 | −1.26 | 2% |
| CLTR6200190T1 | MCSS Member | 0.85 | −1.88 | 3% |
| CLTW6200191T1 | ZoneMS Member | 0.78 | −1.52 | 3% |
| CLTR6200132T1 | ZoneMS Member | 0.82 | −1.66 | 2% |
| CLTR6220056T2 | MatchSS Member | 0.64 | −0.56 | 5% |
| CLTR6220060T2 | MCMS Member | 0.62 | −0.59 | 4% |
| CLTW6220057T2 | MCSS Member | 0.71 | −0.94 | 3% |
| CLTR6220093T3 | MCSS Member | 0.59 | −0.29 | 3% |

Table 8.C.5 Item Difficulties and Omit Rate—ELA, Grade Seven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTR7020408T1 | MCSS Member | 0.79 | −0.89 | 1% |
| CLTW7020407T1 | ZoneMS Member | 0.66 | −0.13 | 2% |
| CLTR7020409T1-R | MCSS Member | 0.75 | −0.64 | 2% |
| CLTR7020158T2 | MCSS Partial Credit Member | 0.56 | 0.34 | 3% |
| CLTR7020369T2 | MCSS Discrete | 0.53 | 0.45 | 2% |
| CLTR7020362T3 | MCMS Discrete | 0.31 | 1.47 | 2% |
| CLTR7020381T1 | MCSS Discrete | 0.54 | −0.09 | 1% |
| CLTR7020370T2 | MCSS Discrete | 0.43 | 0.42 | 2% |
| CLTR7020382T1 | ZoneMS Discrete | 0.70 | −1.31 | 1% |
| CLTR7020365T3 | MCMA - Discrete | 0.44 | −0.51 | 3% |
| CLTW7020384T1 | MCSS Discrete | 0.26 | 0.45 | 5% |
| CLTW7020385T1 | MCSS Discrete | 0.80 | −1.55 | 1% |
| CLTW7020361T3 | MCSS Partial Credit Member | 0.50 | 0.57 | 9% |
| CLTW7020350T3 | MCSS Partial Credit Member | 0.48 | 0.68 | 4% |
| CLTR7020348T3 | MCSS Member | 0.37 | 1.17 | 3% |
| CLTR7020349T3 | MCMS Member | 0.11 | 2.86 | 3% |
| CLTR7020156T2 | MCSS Member | 0.56 | 0.33 | 2% |
| CLTR7020157T2 | MCSS Member | 0.38 | 1.15 | 2% |
| CLTR7030257T1 | ZoneMS Member | 0.65 | −1.47 | 4% |
| CLTR7030258T1 | MCSS Member | 0.38 | −0.16 | 4% |
| CLTW7030259T1 | MCSS Member | 0.58 | −1.03 | 4% |
| CLTW7030134T3 | MCSS Member | 0.64 | −0.04 | 1% |
| CLTR7030241T2 | MCSS Member | 0.49 | 0.13 | 2% |
| CLTW7030251T3 | MCSS Member | 0.49 | −0.64 | 4% |
| CLTR7030255T1 | ZoneSS Member | 0.34 | 0.02 | 7% |
| CLTR7040064T2 | MCSS Member | 0.36 | −0.07 | 3% |
| CLTR7040042T2 | MCSS Member | 0.55 | −0.91 | 3% |
| CLTR7040043T2 | MCSS Member | 0.45 | −0.47 | 5% |
| CLTW7040044T2 | ZoneMS Member | 0.61 | −1.23 | 9% |
| CLTR7040061T3 | MCMA - Member | 0.47 | 0.68 | 1% |
| CLTR7040062T3 | ZoneMS Member | 0.56 | −1.04 | 5% |
| CLTR7040126T1 | MatchSS Member | 0.54 | −0.86 | 8% |
| CLTR7190068T1 | ZoneMS Member | 0.62 | −1.35 | 4% |
| CLTW7190257T2 | MCSS Member | 0.36 | −0.05 | 3% |
| CLTR7190270T2 | MCSS Member | 0.66 | −0.18 | 1% |
| CLTR7200056T1 | ZoneMS Member | 0.65 | −0.78 | 4% |
| CLTR7200057T1 | MCSS Member | 0.35 | 0.87 | 1% |
| CLTW7200058T1 | MCSS Member | 0.82 | −1.70 | 2% |
| CLTR7200049T1 | ZoneMS Member | 0.74 | −1.44 | 2% |
| CLTR7200231T3 | MCMS Member | 0.45 | 0.42 | 3% |
| CLTW7200232T3 | MCSS Member | 0.69 | −0.82 | 2% |
| CLTR7200273T2 | MatchMS Member | 0.87 | −2.29 | 2% |
| CLTR7210022T1 | MCSS Member | 0.88 | −2.31 | 1% |
| CLTW7210082T2 | MCSS Member | 0.77 | −1.29 | 1% |
| CLTR7210163T3 | ZoneMS Member | 0.69 | −0.94 | 3% |
| CLTW7220026T1 | MCSS Member | 0.78 | −1.46 | 1% |
| CLTR7220046T3 | ZoneMS Member | 0.74 | −1.30 | 2% |
| CLTR7220051T2 | MCSS Member | 0.73 | −1.10 | 2% |

Table 8.C.6 Item Difficulties and Omit Rate—ELA, Grade Eight

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTR8020394T1-M | ZoneMS Member | 0.59 | −0.77 | 2% |
| CLTR8020395T1-M | MCSS Member | 0.81 | −1.59 | 1% |
| CLTR8020321T2-M | ZoneMS Member | 0.75 | −1.47 | 2% |
| CLTR8020322T2-M | MCSS Member | 0.32 | 0.90 | 2% |
| CLTR8020323T2-M | MCMA - Member | 0.63 | −0.42 | 2% |
| CLTR8020285T2-M | MCSS Member | 0.44 | 0.86 | 1% |
| CLTR8020286T2-M | MCSS Member | 0.53 | 0.45 | 1% |
| CLTW8020069T3 | MCSS Discrete | 0.48 | 0.69 | 1% |
| CLTW8020388T1 | ZoneMS Discrete | 0.73 | −1.21 | 1% |
| CLTW8020261T2 | ZoneMS Discrete | 0.66 | −1.52 | 4% |
| CLTW8020262T2 | MCSS Discrete | 0.31 | 1.47 | 1% |
| CLTR8020447T1 | ZoneMS Discrete | 0.60 | −0.30 | 1% |
| CLTR8020437T3 | ZoneMS Discrete | 0.61 | −0.07 | 1% |
| CLTR8020438T3 | MCSS Discrete | 0.37 | 1.15 | 3% |
| CLTR8020440T3 | ZoneMS Discrete | 0.56 | 0.23 | 1% |
| CLTW8020389T1 | ZoneMS Discrete | 0.67 | −1.15 | 2% |
| CLTR8030218T2 | ZoneMS Member | 0.54 | −0.69 | 5% |
| CLTR8030216T2 | ZoneMS Member | 0.57 | −0.97 | 5% |
| CLTR8030217T2 | MCSS Member | 0.46 | −0.32 | 4% |
| CLTR8030210T1-R | MCSS Member | 0.44 | −0.23 | 2% |
| CLTW8020287T2-M | MatchMS Member | 0.32 | 1.41 | 2% |
| CLTW8040037T1 | MCSS Member | 0.77 | −1.82 | 4% |
| CLTR8040090T1 | MCSS Member | 0.69 | −1.34 | 3% |
| CLTR8040091T1 | ZoneMS Member | 0.67 | −1.49 | 4% |
| CLTW8040092T1 | ZoneMS Member | 0.63 | −1.23 | 5% |
| CLTR8040148T2 | ZoneMS Member | 0.57 | −0.96 | 4% |
| CLTR8040214T3 | ZoneMS Member | 0.54 | −0.76 | 4% |
| CLTR8040215T3 | ZoneMS Member | 0.54 | −0.79 | 7% |
| CLTW8040216T3 | MCSS Partial Credit Member | 0.30 | 0.18 | 8% |
| CLTR8040219T3 | MCMA - Member | 0.63 | 0.20 | 1% |
| CLTW8020396T1-O | ZoneMS Member | 0.63 | −0.94 | 1% |
| CLTW8190007T1 | ZoneMS Member | 0.64 | −1.30 | 4% |
| CLTW8190154T2 | MCSS Member | 0.50 | 0.58 | 1% |
| CLTR8190249T3 | MCSS Member | 0.69 | −0.25 | 1% |
| CLTW8200085T2 | MCSS Member | 0.60 | −0.42 | 2% |
| CLTR8200173T2 | MCSS Member | 0.50 | 0.06 | 2% |
| CLTR8200226T3 | MatchMS Member | 0.50 | 0.60 | 1% |
| CLTR8200258T1 | MCSS Member | 0.76 | −1.24 | 2% |
| CLTR8200263T1 | MCSS Member | 0.70 | −0.91 | 1% |
| CLTR8200264T1 | ZoneMS Member | 0.79 | −1.68 | 3% |
| CLTR8200265T1 | ZoneMS Member | 0.75 | −1.48 | 2% |
| CLTR8210026T1 | MCSS Member | 0.80 | −1.57 | 1% |
| CLTR8210027T1 | MCSS Member | 0.82 | −1.74 | 1% |
| CLTW8210028T1 | MCSS Member | 0.81 | −1.64 | 1% |
| CLTW8210124T3 | MCSS Member | 0.51 | 0.05 | 2% |
| CLTR8220156T3 | MCMS Member | 0.73 | −1.22 | 2% |
| CLTR8220161T2 | MCSS Member | 0.66 | −0.69 | 2% |

Table 8.C.7 Item Difficulties and Omit Rate—ELA, Grade Eleven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTRH020220T2 | MCSS Member | 0.40 | −0.14 | 4% |
| CLTRH020221T2 | MCSS Member | 0.29 | 0.39 | 6% |
| CLTWH020222T2 | ZoneMS Member | 0.57 | −0.98 | 5% |
| CLTRH020272T3 | ZoneMS Member | 0.45 | 0.84 | 1% |
| CLTRH020273T3 | ZoneMS Member | 0.59 | −0.03 | 3% |
| CLTWH020274T3 | MatchMS Member | 0.40 | 0.94 | 2% |
| CLTRH020213T2 | MCSS Discrete | 0.50 | 0.13 | 1% |
| CLTRH020033T1 | ZoneMS Discrete | 0.62 | −0.89 | 1% |
| CLTRH020034T1 | MCSS Discrete | 0.75 | −1.79 | 4% |
| CLTRH020224T2 | MCMA - Discrete | 0.55 | 0.35 | 2% |
| CLTWH020236T1 | ZoneMS Discrete | 0.79 | −1.66 | 2% |
| CLTRH030117T1 | MCSS Member | 0.48 | −0.50 | 5% |
| CLTRH030118T1 | MCSS Member | 0.29 | 0.38 | 6% |
| CLTWH030119T1 | MatchMS Member | 0.48 | −0.46 | 8% |
| CLTWH030052T1-R | MCSS Member | 0.79 | −0.92 | 0% |
| CLTRH030150T1 | MCSS Member | 0.68 | −0.30 | 1% |
| CLTWH030151T1 | MCSS Member | 0.47 | 0.27 | 1% |
| CLTRH030227T3 | MCMA - Member | 0.54 | 0.39 | 1% |
| CLTRH030225T3 | MCMS Member | 0.30 | 1.41 | 2% |
| CLTRH030226T3 | ZoneMS Member | 0.59 | −0.14 | 3% |
| CLTWH030230T3 | MCMS Member | 0.35 | 1.18 | 1% |
| CLTWH030231T3 | MCSS Member | 0.31 | 0.27 | 5% |
| CLTRH020032T1-M | MatchMS Member | 0.44 | −0.33 | 8% |
| CLTRH040056T3-R | MCMA - Member | 0.43 | −0.36 | 4% |
| CLTRH040206T2 | ZoneMS Member | 0.54 | −0.82 | 5% |
| CLTRH030229T3-R | MCSS Member | 0.50 | 0.16 | 2% |
| CLTWH190161T1 | ZoneMS Member | 0.61 | −1.15 | 4% |
| CLTRH190228T2 | ZoneMS Member | 0.73 | −1.49 | 2% |
| CLTWH200242T1 | MCSS Member | 0.56 | −0.12 | 1% |
| CLTRH200243T1 | MCSS Member | 0.55 | −0.82 | 3% |
| CLTRH200241T1 | MCSS Discrete | 0.85 | −1.83 | 1% |
| CLTRH200144T1 | ZoneMS Member | 0.83 | −1.58 | 3% |
| CLTRH200145T1 | MCSS Member | 0.82 | −1.63 | 2% |
| CLTWH200316T2 | MCSS Partial Credit Member | 0.56 | 0.28 | 4% |
| CLTRH200315T2 | MCSS Member | 0.71 | −0.48 | 1% |
| CLTRH200314T2 | ZoneMS Member | 0.68 | −0.34 | 6% |
| CLTRH200313T2 | Composite - Member | 0.61 | −0.42 | 1% |
| CLTRH210029T1 | MCSS Member | 0.82 | −1.63 | 2% |
| CLTRH210030T1 | MCSS Member | 0.79 | −1.41 | 2% |
| CLTRH210031T1 | MCSS Member | 0.78 | −1.35 | 2% |
| CLTRH210096T2 | MCSS Member | 0.62 | −0.44 | 2% |
| CLTRH210097T2 | MCMS Member | 0.69 | −1.05 | 3% |
| CLTWH210098T2 | MatchSS Member | 0.48 | 0.21 | 6% |
| CLTRH220168T3 | MCSS Member | 0.68 | −0.75 | 2% |
| CLTWH210092T2 | Composite - Member | 0.68 | −0.80 | 2% |
| CLTRH200146T1-O | MCSS Member | 0.51 | 0.05 | 1% |

Table 8.C.8 Item Difficulties and Omit Rate—Mathematics, Grade Three

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTM3020004T1 | MCSS Discrete | 0.67 | −0.86 | 2% |
| CLTM3020005T2 | MCSS Discrete | 0.30 | 1.33 | 2% |
| CLTM3020204T2 | MCSS Discrete | 0.29 | 1.38 | 1% |
| CLTM3020186T1 | MCSS Discrete | 0.69 | −0.98 | 2% |
| CLTM3020202T2 | MCSS Discrete | 0.50 | −0.06 | 5% |
| CLTM3020203T3 | MCSS Discrete | 0.29 | 1.38 | 2% |
| CLTM3020009T3 | MCSS Discrete | 0.36 | 1.04 | 2% |
| CLTM3020007T1 | ZoneSS Discrete | 0.38 | 0.54 | 6% |
| CLTM3030565T3 | MCSS Member | 0.33 | 0.78 | 7% |
| CLTM3030566T1 | MCSS Discrete | 0.64 | −0.70 | 3% |
| CLTM3030567T2 | MCSS Member | 0.51 | −0.09 | 4% |
| CLTM3030506T1 | ZoneSS Member | 0.43 | −0.25 | 13% |
| CLTM3030591T1 | ZoneMS Member | 0.57 | −0.40 | 3% |
| CLTM3030569T1 | Composite - Member | 0.48 | −0.44 | 10% |
| CLTM3180884T1 | Composite - Member | 0.43 | −0.24 | 10% |
| CLTM3180886T2 | Composite - Member | 0.21 | 1.39 | 8% |
| CLTM3180889T3 | ZoneSS Discrete | 0.49 | 0.42 | 12% |
| CLTM3180957T1 | MCSS Discrete | 0.54 | −0.72 | 7% |
| CLTM3180958T1 | MCSS Discrete | 0.61 | −0.09 | 1% |
| CLTM3180960T2 | MCSS Member | 0.59 | −0.43 | 5% |
| CLTM3180961T2 | MCSS Member | 0.44 | −0.27 | 10% |
| CLTM3180962T3 | Composite - Member | 0.38 | 0.86 | 2% |
| CLTM3180963T1 | Composite - Member | 0.46 | −0.37 | 9% |
| CLTM3180887T1 | ZoneSS Discrete | 0.49 | −0.52 | 10% |
| CLTM3181024T1 | MCSS Member | 0.49 | −0.52 | 7% |
| CLTM3191233T3 | MCSS Member | 0.36 | 0.06 | 9% |
| CLTM3191292T3 | Composite - Discrete | 0.40 | 0.84 | 2% |
| CLTM3201423T1 | Composite - Member | 0.64 | −0.13 | 2% |
| CLTM3201425T3 | MCSS Member | 0.34 | 0.16 | 12% |
| CLTM3201430T2 | Composite - Discrete | 0.48 | 0.05 | 3% |
| CLTM3201432T2 | MCSS Member | 0.28 | 1.44 | 2% |
| CLTM3201433T1 | ZoneSS Discrete | 0.67 | −0.83 | 4% |
| CLTM3201517T3 | BarPicturegraphMS Member | 0.67 | −0.24 | 3% |
| CLTM3201599T2 | MCSS Discrete | 0.29 | 0.41 | 7% |
| CLTM3201670T1 | Composite - Discrete | 0.66 | −0.76 | 1% |
| CLTM3201675T2 | Composite - Member | 0.42 | 0.33 | 4% |
| CLTM3211748T1 | MCSS Member | 0.61 | −0.58 | 4% |
| CLTM3211761T3 | MCSS Discrete | 0.30 | 0.91 | 4% |
| CLTM3211811T1 | Composite - Discrete | 0.69 | −0.91 | 3% |
| CLTM3211812T3 | MCSS Discrete | 0.30 | 0.94 | 4% |
| CLTM3221875T2 | BarPicturegraphMS Member | 0.34 | 0.51 | 11% |
| CLTM3221862T1 | MCSS Discrete | 0.38 | 0.52 | 4% |

Table 8.C.9 Item Difficulties and Omit Rate—Mathematics, Grade Four

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTM4020218T3 | InLineChoicelistMS Discrete | 0.42 | −0.21 | 13% |
| CLTM4020244T2 | MCSS Discrete | 0.30 | 1.08 | 2% |
| CLTM4020245T3 | MCSS Discrete | 0.42 | 0.54 | 2% |
| CLTM4020246T1 | MCSS Discrete | 0.70 | −1.07 | 1% |
| CLTM4020189T1 | MCSS Discrete | 0.46 | −0.37 | 5% |
| CLTM4020240T1 | MCSS Discrete | 0.52 | −0.61 | 6% |
| CLTM4020190T2 | MCSS Discrete | 0.36 | 0.80 | 1% |
| CLTM4020191T3 | MCSS Discrete | 0.44 | 0.45 | 1% |
| CLTM4020219T1 | MCSS Discrete | 0.53 | −0.29 | 2% |
| CLTM4020220T2 | MCSS Discrete | 0.41 | 0.59 | 2% |
| CLTM4020252T1 | MCSS Discrete | 0.60 | −0.58 | 2% |
| CLTM4020231T1 | ZoneMS Discrete | 0.49 | −0.47 | 7% |
| CLTM4030480T3 | BarPicturegraphMS Member | 0.37 | 0.55 | 3% |
| CLTM4030484T1 | InLineChoicelistMS Member | 0.47 | 0.27 | 2% |
| CLTM4030612T1 | ZoneMS Discrete | 0.73 | −1.56 | 1% |
| CLTM4030486T3 | InLineChoicelistMS Member | 0.34 | 0.48 | 8% |
| CLTM4030475T1 | ZoneMS Discrete | 0.76 | −1.55 | 2% |
| CLTM4180848T1 | MCSS Member | 0.49 | −0.51 | 5% |
| CLTM4180849T2 | MCSS Member | 0.40 | −0.12 | 6% |
| CLTM4180852T1 | ZoneSS Member | 0.50 | −0.54 | 10% |
| CLTM4180853T2 | MCSS Member | 0.27 | 0.95 | 4% |
| CLTM4181000T1 | ZoneSS Member | 0.36 | 0.06 | 10% |
| CLTM4181004T3 | Composite - Discrete | 0.27 | 1.37 | 1% |
| CLTM4181031T1 | Composite - Discrete | 0.53 | −0.27 | 1% |
| CLTM4181027T2 | BarPicturegraphMS Member | 0.27 | 0.25 | 15% |
| CLTM4181002T1 | ZoneMS Discrete | 0.51 | −0.59 | 9% |
| CLTM4181035T3 | MCSS Discrete | 0.53 | 0.07 | 1% |
| CLTM4030492T3-R | MCSS Discrete | 0.38 | 0.69 | 2% |
| CLTM4191128T2 | MCMS Discrete | 0.49 | −0.46 | 7% |
| CLTM4201491T1 | Composite - Member | 0.68 | −0.60 | 1% |
| CLTM4201492T2 | BarPicturegraphMS Member | 0.35 | 0.35 | 8% |
| CLTM4201495T2 | Composite - Member | 0.29 | 0.95 | 3% |
| CLTM4201497T3 | MCMS Discrete | 0.35 | 1.10 | 2% |
| CLTM4201500T1 | MCSS Member | 0.60 | −0.99 | 5% |
| CLTM4201501T2 | MCSS Member | 0.44 | 0.16 | 3% |
| CLTM4201502T3 | MCSS Discrete | 0.40 | 0.26 | 2% |
| CLTM4201692T3 | ZoneSS Discrete | 0.47 | −0.41 | 8% |
| CLTM4201686T2 | MCSS Member | 0.29 | 0.84 | 3% |
| CLTM4201688T1 | MCSS Member | 0.53 | −0.26 | 2% |
| CLTM4201539T1 | ZoneSS Discrete | 0.53 | 0.08 | 6% |
| CLTM4201494T3 | BarPicturegraphMS Member | 0.40 | 0.22 | 8% |
| CLTM4211765T1 | ZoneSS Discrete | 0.62 | −0.69 | 4% |
| CLTM4221846T1 | Composite - Discrete | 0.64 | −0.71 | 3% |
| CLTM4221859T2 | MCSS Discrete | 0.29 | 0.77 | 4% |
| CLTM4221860T3 | MCSS Discrete | 0.35 | 0.58 | 3% |

Table 8.C.10 Item Difficulties and Omit Rate—Mathematics, Grade Five

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTM5020350T3 | MCSS Discrete | 0.39 | 0.24 | 4% |
| CLTM5020344T3 | MCSS Discrete | 0.37 | 0.99 | 1% |
| CLTM5020343T2 | InLineChoicelistSS Discrete | 0.31 | 1.29 | 2% |
| CLTM5020404T1 | MCSS Discrete | 0.50 | −0.22 | 5% |
| CLTM5020180T1 | MCSS Discrete | 0.74 | −1.17 | 2% |
| CLTM5020181T2 | MCSS Discrete | 0.34 | 1.14 | 1% |
| CLTM5020362T3 | MCSS Discrete | 0.31 | 1.27 | 1% |
| CLTM5020261T1 | MCSS Discrete | 0.51 | −0.28 | 5% |
| CLTM5020166T2 | MCSS Discrete | 0.47 | 0.11 | 2% |
| CLTM5020265T2 | MCSS Discrete | 0.42 | 0.11 | 5% |
| CLTM5020345T1 | MCSS Discrete | 0.81 | −1.07 | 1% |
| CLTM5020196T2 | ZoneMS Discrete | 0.57 | −0.51 | 6% |
| CLTM5020359T3 | ZoneMS Discrete | 0.51 | −0.28 | 6% |
| CLTM5020338T1 | ZoneMS Discrete | 0.65 | −0.77 | 1% |
| CLTM5030458T1 | ZoneMS Discrete | 0.62 | −0.58 | 2% |
| CLTM5030461T1 | MCMS Member | 0.42 | 0.40 | 3% |
| CLTM5030610T2 | MCSS Member | 0.59 | −0.41 | 3% |
| CLTM5180819T2 | Composite - Member | 0.30 | 0.67 | 7% |
| CLTM5180821T2 | Composite - Member | 0.42 | 0.72 | 2% |
| CLTM5180824T3 | InLineChoicelistSS Member | 0.45 | 0.62 | 1% |
| CLTM5180904T1 | MCSS Member | 0.46 | 0.16 | 2% |
| CLTM5180905T1 | MCSS Member | 0.46 | −0.08 | 5% |
| CLTM5180906T2 | MCSS Member | 0.43 | 0.72 | 1% |
| CLTM5180907T2 | MCSS Member | 0.37 | 0.31 | 5% |
| CLTM5180909T2 | Composite - Member | 0.36 | 1.01 | 1% |
| CLTM5180970T1 | ZoneSS Member | 0.49 | 0.04 | 5% |
| CLTM5180972T3 | InLineChoicelistMS Member | 0.37 | 0.82 | 1% |
| CLTM5180971T1 | Composite - Discrete | 0.47 | −0.13 | 5% |
| CLTM5181014T3 | MCSS Member | 0.37 | 0.58 | 4% |
| CLTM5181016T3 | Composite - Member | 0.37 | 1.02 | 2% |
| CLTM5201388T1 | ZoneMS Member | 0.51 | −0.30 | 5% |
| CLTM5201406T3 | Composite - Member | 0.50 | 0.41 | 1% |
| CLTM5201396T2 | Composite - Member | 0.45 | −0.06 | 4% |
| CLTM5201407T2 | Composite - Member | 0.38 | 0.57 | 3% |
| CLTM5201408T1 | ZoneSS Member | 0.45 | 0.19 | 3% |
| CLTM5201412T1 | MCSS Member | 0.57 | −0.33 | 2% |
| CLTM5201581T2 | Composite - Member | 0.52 | −0.10 | 2% |
| CLTM5201646T2 | Composite - Member | 0.46 | 0.13 | 3% |
| CLTM5211771T2 | MCSS Member | 0.44 | 0.22 | 2% |
| CLTM5211832T3 | Composite - Member | 0.33 | 0.74 | 4% |
| CLTM5201593T1 | MCSS Discrete | 0.63 | −0.58 | 3% |
| CLTM5201729T1 | MCSS Discrete | 0.61 | −0.51 | 3% |
| CLTM5221904T3 | Numeric Discrete | 0.14 | 1.96 | 8% |
| CLTM5221906T3 | MCSS Discrete | 0.38 | 0.51 | 4% |

Table 8.C.11 Item Difficulties and Omit Rate—Mathematics, Grade Six

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTM6020041T2 | MCSS Discrete | 0.41 | 0.41 | 2% |
| CLTM6020042T3 | MCSS Discrete | 0.42 | 0.81 | 1% |
| CLTM6020099T3 | ZoneSS Discrete | 0.21 | 1.89 | 6% |
| CLTM6020284T1 | MCSS Discrete | 0.63 | −0.56 | 1% |
| CLTM6020320T1 | MCSS Discrete | 0.43 | −0.02 | 7% |
| CLTM6020322T3 | MCSS Discrete | 0.26 | 1.60 | 1% |
| CLTM6020293T1 | ZoneSS Discrete | 0.59 | −0.37 | 2% |
| CLTM6020294T2 | ZoneSS Discrete | 0.28 | 0.67 | 5% |
| CLTM6020200T3 | ZoneSS Discrete | 0.44 | −0.05 | 10% |
| CLTM6020367T2 | ZoneMS Discrete | 0.28 | 0.79 | 6% |
| CLTM6020427T1 | MCSS Discrete | 0.62 | −0.53 | 1% |
| CLTM6020437T3 | ZoneMS Discrete | 0.48 | −0.21 | 6% |
| CLTM6030468T3 | ZoneMS Member | 0.41 | 0.71 | 4% |
| CLTM6030469T1 | InLineChoicelistMS Member | 0.59 | −0.31 | 3% |
| CLTM6030472T1 | MCSS Member | 0.53 | −0.11 | 1% |
| CLTM6030595T1 | MCSS Member | 0.44 | −0.05 | 4% |
| CLTM6030598T1 | MCSS Member | 0.46 | −0.14 | 3% |
| CLTM6030603T3 | InLineChoicelistMS Member | 0.46 | 0.64 | 1% |
| CLTM6030635T1 | MCSS Member | 0.59 | 0.05 | 1% |
| CLTM6030621T1 | MCSS Member | 0.65 | −0.21 | 1% |
| CLTM6030685T1 | MCSS Member | 0.66 | −0.73 | 1% |
| CLTM6030687T3 | ZoneSS Member | 0.40 | 0.89 | 3% |
| CLTM6180898T1 | MCSS Member | 0.54 | −0.50 | 3% |
| CLTM6180979T2 | Composite - Member | 0.41 | 0.82 | 1% |
| CLTM6180981T1 | Composite - Discrete | 0.39 | 0.19 | 8% |
| CLTM6180984T1 | MCSS Member | 0.53 | −0.45 | 4% |
| CLTM6180896T1 | MCSS Discrete | 0.59 | −0.72 | 5% |
| CLTM6180987T1 | Composite - Discrete | 0.51 | −0.03 | 2% |
| CLTM6180985T2 | MatchSS Discrete | 0.28 | 0.66 | 9% |
| CLTM6180978T3 | ZoneSS Discrete | 0.56 | 0.18 | 3% |
| CLTM6201446T3 | MCSS Member | 0.54 | 0.26 | 1% |
| CLTM6201452T2 | Composite - Member | 0.50 | 0.46 | 1% |
| CLTM6201453T1 | ZoneMS Member | 0.58 | −0.41 | 2% |
| CLTM6201454T3 | Composite - Member | 0.29 | 0.84 | 2% |
| CLTM6201648T2 | MCSS Discrete | 0.25 | 1.22 | 2% |
| CLTM6201661T2 | MCSS Discrete | 0.61 | −0.45 | 2% |
| CLTM6201566T2 | MCSS Member | 0.51 | 0.42 | 1% |
| CLTM6201652T2 | ZoneMS Discrete | 0.62 | −0.53 | 2% |
| CLTM6201455T3 | Composite - Discrete | 0.43 | 0.39 | 3% |
| CLTM6211804T1 | MCSS Discrete | 0.70 | −0.92 | 1% |
| CLTM6201565T3 | MCSS Discrete | 0.42 | 0.38 | 2% |
| CLTM6201733T2 | MCSS Discrete | 0.43 | 0.33 | 1% |
| CLTM6211833T1 | MCSS Discrete | 0.71 | −1.00 | 1% |
| CLTM6211834T3 | MCSS Discrete | 0.34 | 0.71 | 3% |
| CLTM6221917T1 | MCSS Discrete | 0.77 | −1.29 | 1% |

Table 8.C.12 Item Difficulties and Omit Rate—Mathematics, Grade Seven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTM7020033T3 | MCSS Discrete | 0.30 | 0.81 | 5% |
| CLTM7020035T2 | MCSS Discrete | 0.28 | 0.89 | 5% |
| CLTM7020369T1 | MCSS Discrete | 0.66 | −0.57 | 2% |
| CLTM7020423T3 | MCSS Discrete | 0.45 | 1.07 | 2% |
| CLTM7020324T2 | MCSS Discrete | 0.52 | 0.77 | 1% |
| CLTM7020036T3 | Numeric Discrete | 0.20 | 2.31 | 1% |
| CLTM7020049T3 | InLineChoicelistMS Discrete | 0.48 | 0.91 | 1% |
| CLTM7020297T2 | InLineChoicelistSS Discrete | 0.50 | 0.14 | 3% |
| CLTM7020089T2 | ZoneMS Discrete | 0.50 | 0.18 | 4% |
| CLTM7030510T2 | InLineChoicelistMS Member | 0.49 | 0.19 | 3% |
| CLTM7030515T1 | InLineChoicelistMS Member | 0.61 | −0.22 | 2% |
| CLTM7030585T2 | ZoneMS Member | 0.46 | 0.48 | 3% |
| CLTM7030653T1 | MCSS Discrete | 0.60 | −0.28 | 2% |
| CLTM7030688T1 | MCSS Member | 0.68 | −0.68 | 1% |
| CLTM7030693T3 | MCSS Member | 0.65 | 0.21 | 1% |
| CLTM7030705T2 | MCSS Member | 0.45 | 1.05 | 0% |
| CLTM7180927T1 | Composite - Member | 0.73 | 0.13 | 0% |
| CLTM7180928T1 | MCSS Member | 0.68 | −0.65 | 3% |
| CLTM7180951T1 | Composite - Discrete | 0.45 | 0.12 | 4% |
| CLTM7180952T2 | ZoneMS Discrete | 0.52 | −0.21 | 5% |
| CLTM7180953T2 | ZoneMS Discrete | 0.48 | 0.97 | 2% |
| CLTM7180993T1 | Composite - Member | 0.49 | −0.05 | 2% |
| CLTM7180995T3 | Composite - Member | 0.66 | 0.21 | 1% |
| CLTM7180996T2 | MCSS Member | 0.38 | 0.41 | 4% |
| CLTM7180937T1 | Composite - Discrete | 0.50 | 0.16 | 1% |
| CLTM7180846T3 | ZoneMS Member | 0.59 | −0.70 | 5% |
| CLTM7030511T3-R | ZoneMS Member | 0.46 | 0.13 | 4% |
| CLTM7030587T1-R | MCSS Discrete | 0.69 | −0.93 | 3% |
| CLTM7030696T3-R | Numeric Member | 0.20 | 2.35 | 3% |
| CLTM7030704T1-R | MCSS Member | 0.58 | −0.44 | 3% |
| CLTM7191072T1 | InLineChoicelistSS Discrete | 0.65 | −0.54 | 1% |
| CLTM7191202T2 | ZoneMS Member | 0.57 | −0.23 | 3% |
| CLTM7191205T1 | Composite - Discrete | 0.58 | −0.14 | 1% |
| CLTM7191365T3 | ZoneMS Member | 0.49 | 0.95 | 2% |
| CLTM7191363T1 | Composite - Discrete | 0.52 | −0.17 | 5% |
| CLTM7201403T2 | Composite - Member | 0.51 | 0.13 | 3% |
| CLTM7201418T2 | MCSS Member | 0.35 | 1.52 | 0% |
| CLTM7201419T2 | MCSS Member | 0.39 | 0.65 | 2% |
| CLTM7201529T1 | Composite - Member | 0.53 | −0.20 | 5% |
| CLTM7221938T2 | Composite - Member | 0.43 | 0.53 | 3% |
| CLTM7221939T2 | Composite - Member | 0.56 | −0.11 | 1% |
| CLTM7221960T3 | MatchMS Discrete | 0.59 | −0.22 | 4% |
| CLTM7221950T3 | MatchSS Discrete | 0.58 | −0.18 | 3% |
| CLTM7221955T1 | MCSS Member | 0.61 | −0.34 | 2% |
| CLTM7221961T3 | Composite - Discrete | 0.39 | 0.62 | 3% |

Table 8.C.13 Item Difficulties and Omit Rate—Mathematics, Grade Eight

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTM8020079T1 | MCSS Discrete | 0.69 | −0.81 | 1% |
| CLTM8020390T3 | Numeric Discrete | 0.28 | 1.59 | 3% |
| CLTM8020028T1 | InLineChoicelistMS Discrete | 0.69 | −0.79 | 1% |
| CLTM8020276T2 | InLineChoicelistMS Discrete | 0.38 | 0.59 | 2% |
| CLTM8020084T3 | InLineChoicelistSS Discrete | 0.47 | 0.69 | 3% |
| CLTM8020160T1 | ZoneMS Discrete | 0.43 | 0.31 | 10% |
| CLTM8020387T1 | ZoneSS Discrete | 0.44 | 0.36 | 3% |
| CLTM8020453T3 | ZoneSS Discrete | 0.37 | 1.13 | 2% |
| CLTM8020380T3 | ZoneMS Discrete | 0.27 | 1.65 | 4% |
| CLTM8030638T1 | MCSS Discrete | 0.75 | −1.13 | 1% |
| CLTM8030525T2 | InLineChoicelistSS Member | 0.50 | −0.31 | 5% |
| CLTM8030539T2 | InLineChoicelistMS Member | 0.53 | −0.04 | 2% |
| CLTM8030657T2 | MCSS Discrete | 0.34 | 1.26 | 2% |
| CLTM8030663T2 | MCSS Member | 0.31 | 0.54 | 4% |
| CLTM8030697T1 | MCSS Discrete | 0.55 | −0.52 | 4% |
| CLTM8030699T3 | Numeric Member | 0.01 | 4.09 | 11% |
| CLTM8180804T3 | MCMS Member | 0.52 | −0.49 | 2% |
| CLTM8180814T1 | MCSS Member | 0.75 | −1.48 | 2% |
| CLTM8180815T2 | MatchSS Member | 0.63 | −0.85 | 5% |
| CLTM8180866T1 | InLineChoicelistMS Member | 0.53 | −0.44 | 4% |
| CLTM8180877T2 | MCSS Member | 0.55 | 0.31 | 1% |
| CLTM8180881T3 | ZoneSS Member | 0.49 | 0.56 | 6% |
| CLTM8180862T1 | InLineChoicelistMS Discrete | 0.57 | −0.24 | 2% |
| CLTM8180802T1 | Composite - Member | 0.62 | −0.44 | 2% |
| CLTM8030660T2-R | MCSS Discrete | 0.58 | 0.19 | 1% |
| CLTM8030661T3-R | ZoneMS Discrete | 0.48 | −0.22 | 3% |
| CLTM8191144T3 | Numeric Discrete | 0.30 | 1.46 | 4% |
| CLTM8191152T1 | InLineChoicelistSS Discrete | 0.53 | −0.46 | 4% |
| CLTM8191354T2 | MCMS Member | 0.48 | −0.22 | 3% |
| CLTM8191247T1 | Composite - Member | 0.51 | −0.36 | 4% |
| CLTM8201435T1 | Composite - Member | 0.73 | −0.61 | 1% |
| CLTM8201438T3 | MCSS Discrete | 0.60 | 0.10 | 1% |
| CLTM8201439T2 | MatchSS Member | 0.48 | 0.64 | 3% |
| CLTM8201521T3 | MCMS Member | 0.54 | 0.32 | 1% |
| CLTM8201614T1 | ZoneSS Member | 0.79 | −1.68 | 4% |
| CLTM8201615T1 | Composite - Member | 0.67 | −0.73 | 1% |
| CLTM8201677T1 | MCMS Member | 0.53 | −0.11 | 1% |
| CLTM8201616T2 | MCSS Discrete | 0.47 | 0.21 | 1% |
| CLTM8211789T1 | ZoneSS Discrete | 0.54 | −0.13 | 5% |
| CLTM8211787T2 | MatchSS Discrete | 0.60 | −0.39 | 4% |
| CLTM8221985T1 | MCSS Discrete | 0.71 | −0.91 | 1% |
| CLTM8221983T1 | MCSS Discrete | 0.59 | −0.31 | 3% |
| CLTM8221982T3 | ZoneSS Discrete | 0.34 | 0.82 | 4% |
| CLTM8221967T1 | MCSS Discrete | 0.60 | −0.36 | 2% |
| CLTM8221969T2 | Composite - Member | 0.49 | 0.11 | 2% |

Table 8.C.14 Item Difficulties and Omit Rate—Mathematics, Grade Eleven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item ID | Item Type | *p*-value | IRT *b*-value | Omit Rate |
| CLTMH020447T1 | ZoneSS Discrete | 0.62 | −0.55 | 5% |
| CLTMH020402T2 | InLineChoicelistMS Discrete | 0.51 | 0.41 | 2% |
| CLTMH020074T2 | MatchMS Discrete | 0.60 | −0.78 | 5% |
| CLTMH020020T2 | MCSS Discrete | 0.62 | −0.55 | 2% |
| CLTMH020076T1 | ZoneSS Discrete | 0.35 | 0.23 | 6% |
| CLTMH020078T3 | ZoneSS Discrete | 0.29 | 1.40 | 7% |
| CLTMH020335T1 | MCSS Discrete | 0.52 | 0.36 | 0% |
| CLTMH020383T3 | ZoneMS Discrete | 0.46 | 0.71 | 1% |
| CLTMH020022T1 | MCSS Discrete | 0.64 | −0.65 | 1% |
| CLTMH020023T2 | MCSS Discrete | 0.51 | 0.40 | 1% |
| CLTMH030556T3 | InLineChoicelistMS Member | 0.50 | −0.43 | 7% |
| CLTMH030541T1 | MCSS Discrete | 0.50 | −0.43 | 4% |
| CLTMH030546T2 | ZoneMS Member | 0.51 | 0.42 | 2% |
| CLTMH030552T3 | InLineChoicelistMS Member | 0.46 | −0.26 | 7% |
| CLTMH030630T1 | ZoneSS Discrete | 0.41 | −0.02 | 11% |
| CLTMH030632T3 | MCSS Discrete | 0.53 | 0.35 | 1% |
| CLTMH030642T2 | InLineChoicelistMS Member | 0.53 | −0.13 | 3% |
| CLTMH030549T1 | MCSS Member | 0.63 | −0.60 | 1% |
| CLTMH030665T1 | MatchMS Member | 0.59 | −0.27 | 3% |
| CLTMH030714T3 | MCSS Discrete | 0.29 | 1.41 | 2% |
| CLTMH180826T1 | MCSS Member | 0.59 | −0.79 | 2% |
| CLTMH180827T2 | MCSS Member | 0.46 | −0.24 | 3% |
| CLTMH180830T2 | InLineChoicelistSS Member | 0.43 | −0.12 | 5% |
| CLTMH180917T3 | Composite - Member | 0.13 | 1.96 | 1% |
| CLTMH180921T1 | MatchMS Member | 0.71 | −0.14 | 2% |
| CLTMH180926T1 | MCSS Member | 0.53 | −0.54 | 4% |
| CLTMH180976T2 | MCSS Member | 0.44 | −0.18 | 2% |
| CLTMH180813T1 | MCSS Discrete | 0.48 | −0.32 | 2% |
| CLTMH030633T2-R | MCSS Member | 0.56 | 0.19 | 1% |
| CLTMH191189T1 | ZoneMS Member | 0.52 | −0.53 | 5% |
| CLTMH191304T1 | ZoneSS Discrete | 0.67 | −1.17 | 10% |
| CLTMH191349T3 | MCMS Member | 0.51 | −0.47 | 5% |
| CLTMH201464T2 | ZoneMS Member | 0.72 | −0.68 | 1% |
| CLTMH201465T1 | MCSS Member | 0.83 | −1.19 | 0% |
| CLTMH201472T1 | MCSS Member | 0.70 | −0.94 | 1% |
| CLTMH201478T2 | Composite - Member | 0.41 | 0.37 | 1% |
| CLTMH201468T3 | MCSS Member | 0.35 | 1.13 | 1% |
| CLTMH201542T1 | ZoneSS Discrete | 0.52 | −0.10 | 2% |
| CLTMH201546T2 | Composite - Member | 0.37 | 0.57 | 2% |
| CLTMH201550T1 | MCSS Discrete | 0.74 | −1.16 | 1% |
| CLTMH201632T3 | MCSS Discrete | 0.40 | 0.42 | 3% |
| CLTMH201635T2 | ZoneSS Discrete | 0.36 | 0.62 | 3% |
| CLTMH201637T3 | MCSS Discrete | 0.52 | −0.11 | 2% |
| CLTMH201639T3 | Numeric Discrete | 0.09 | 2.50 | 7% |
| CLTMH201476T3 | MCSS Discrete | 0.68 | −0.33 | 1% |
| CLTMH211794T2 | MCSS Discrete | 0.36 | 0.64 | 2% |
| CLTMH211795T3 | MCSS Discrete | 0.51 | −0.07 | 2% |
| CLTM11222003T1 | MCSS Discrete | 0.71 | −1.02 | 2% |

Table 8.C.15 Average Number of Item Omits for Each Assessment Stage—ELA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Assessment | Form ID | Stage 1A (Items 1 Through 4) | Stage 1B (Items 5 Through 14) | Stage 2 (15 items) |
| Grade 3 | Early Exit | 0.59 | 3.38 | N/A |
| Grade 3 | Easy Pathway | 0.19 | 0.98 | 1.96 |
| Grade 3 | Hard Pathway | 0.01 | 0.08 | 0.41 |
| Grade 4 | Early Exit | 0.50 | 2.63 | N/A |
| Grade 4 | Easy Pathway | 0.10 | 0.48 | 0.94 |
| Grade 4 | Hard Pathway | 0.02 | 0.06 | 0.32 |
| Grade 5 | Early Exit | 0.70 | 2.94 | N/A |
| Grade 5 | Easy Pathway | 0.08 | 0.55 | 1.10 |
| Grade 5 | Hard Pathway | 0.00 | 0.04 | 0.24 |
| Grade 6 | Early Exit | 0.51 | 3.03 | N/A |
| Grade 6 | Easy Pathway | 0.11 | 0.51 | 1.10 |
| Grade 6 | Hard Pathway | 0.01 | 0.04 | 0.28 |
| Grade 7 | Early Exit | 0.50 | 2.52 | N/A |
| Grade 7 | Easy Pathway | 0.05 | 0.26 | 0.71 |
| Grade 7 | Hard Pathway | 0.01 | 0.03 | 0.38 |
| Grade 8 | Early Exit | 0.59 | 2.80 | N/A |
| Grade 8 | Easy Pathway | 0.07 | 0.23 | 0.67 |
| Grade 8 | Hard Pathway | 0.01 | 0.02 | 0.17 |
| Grade 11 | Early Exit | 1.03 | 3.04 | N/A |
| Grade 11 | Easy Pathway | 0.11 | 0.29 | 0.73 |
| Grade 11 | Hard Pathway | 0.01 | 0.02 | 0.30 |

Table 8.C.16 Average Number of Item Omits for Each Assessment Stage—Mathematics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Assessment | Form ID | Stage 1A (Items 1 Through 4) | Stage 1B (Items 5 Through 14) | Stage 2 (15 items) |
| Grade 3 | Early Exit | 0.47 | 2.08 | N/A |
| Grade 3 | Easy Pathway | 0.14 | 0.78 | 1.49 |
| Grade 3 | Hard Pathway | 0.02 | 0.05 | 0.39 |
| Grade 4 | Early Exit | 0.34 | 2.09 | N/A |
| Grade 4 | Easy Pathway | 0.08 | 0.59 | 1.26 |
| Grade 4 | Hard Pathway | 0.01 | 0.07 | 0.30 |
| Grade 5 | Early Exit | 0.51 | 2.03 | N/A |
| Grade 5 | Easy Pathway | 0.09 | 0.37 | 0.78 |
| Grade 5 | Hard Pathway | 0.01 | 0.03 | 0.21 |
| Grade 6 | Early Exit | 0.35 | 1.67 | N/A |
| Grade 6 | Easy Pathway | 0.05 | 0.29 | 0.82 |
| Grade 6 | Hard Pathway | 0.00 | 0.02 | 0.26 |
| Grade 7 | Early Exit | 0.26 | 1.61 | N/A |
| Grade 7 | Easy Pathway | 0.05 | 0.30 | 0.62 |
| Grade 7 | Hard Pathway | 0.00 | 0.01 | 0.16 |
| Grade 8 | Early Exit | 0.62 | 2.56 | N/A |
| Grade 8 | Easy Pathway | 0.05 | 0.39 | 0.62 |
| Grade 8 | Hard Pathway | 0.00 | 0.06 | 0.33 |
| Grade 11 | Early Exit | 0.86 | 2.48 | N/A |
| Grade 11 | Easy Pathway | 0.14 | 0.32 | 0.79 |
| Grade 11 | Hard Pathway | 0.01 | 0.04 | 0.23 |

**Note:** In table 8.C.17 through table 8.C.24, “Level 1” refers to Level 1—Limited Understanding, “Level 2” refers to Level 2—Foundational Understanding, and “Level 3” refers to Level 3—Understanding.

Table 8.C.17 Total Number of Items Answered by Student Achievement Level—ELA, Grades Three and Four

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total Number Answered | Grade Three Level 1 | Grade Three Level 2 | Grade Three Level 3 | Grade Four Level 1 | Grade Four Level 2 | Grade Four Level 3 |
| 29 | 903 | 1,105 | 994 | 1,403 | 1,065 | 725 |
| 28 | 254 | 151 | 122 | 258 | 183 | 61 |
| 27 | 116 | 65 | 26 | 96 | 55 | 12 |
| 26 | 104 | 50 | 16 | 105 | 43 | 5 |
| 25 | 47 | 13 | 1 | 43 | 6 | 1 |
| 24 | 42 | 4 | 1 | 37 | 2 | 0 |
| 23 | 27 | 5 | 0 | 24 | 3 | 0 |
| 22 | 30 | 3 | 0 | 31 | 3 | 0 |
| 21 | 37 | 0 | 0 | 15 | 1 | 0 |
| 20 | 29 | 0 | 0 | 18 | 1 | 0 |
| 19 | 22 | 0 | 0 | 13 | 0 | 0 |
| 18 | 15 | 1 | 0 | 14 | 0 | 0 |
| 17 | 14 | 0 | 0 | 5 | 0 | 0 |
| 16 | 21 | 0 | 0 | 5 | 0 | 0 |
| 15 | 12 | 0 | 0 | 9 | 0 | 0 |
| 14 | 25 | 0 | 0 | 31 | 0 | 0 |
| 13 | 14 | 0 | 0 | 12 | 0 | 0 |
| 12 | 18 | 0 | 0 | 10 | 0 | 0 |
| 11 | 17 | 0 | 0 | 10 | 0 | 0 |
| 10 | 11 | 0 | 0 | 14 | 0 | 0 |
| 9 | 17 | 0 | 0 | 13 | 0 | 0 |
| 8 | 17 | 0 | 0 | 10 | 0 | 0 |
| 7 | 17 | 0 | 0 | 16 | 0 | 0 |
| 6 | 14 | 0 | 0 | 11 | 0 | 0 |
| 5 | 22 | 0 | 0 | 13 | 0 | 0 |
| 4 | 57 | 0 | 0 | 55 | 0 | 0 |

Table 8.C.18 Total Number of Items Answered by Student Achievement Level—ELA, Grades Five and Six

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total Number Answered | Grade Five Level 1 | Grade Five Level 2 | Grade Five Level 3 | Grade Six Level 1 | Grade Six Level 2 | Grade Six Level 3 |
| 29 | 1,245 | 1,279 | 737 | 1,099 | 1,622 | 563 |
| 28 | 252 | 174 | 60 | 240 | 213 | 58 |
| 27 | 112 | 41 | 8 | 86 | 46 | 9 |
| 26 | 77 | 21 | 2 | 74 | 22 | 1 |
| 25 | 41 | 6 | 1 | 28 | 10 | 0 |
| 24 | 25 | 3 | 0 | 27 | 2 | 0 |
| 23 | 19 | 1 | 0 | 11 | 1 | 0 |
| 22 | 25 | 0 | 0 | 9 | 2 | 0 |
| 21 | 8 | 0 | 0 | 17 | 0 | 0 |
| 20 | 10 | 0 | 0 | 13 | 0 | 0 |
| 19 | 11 | 0 | 0 | 6 | 0 | 0 |
| 18 | 10 | 0 | 0 | 8 | 0 | 0 |
| 17 | 9 | 0 | 0 | 5 | 0 | 0 |
| 16 | 13 | 0 | 0 | 9 | 0 | 0 |
| 15 | 5 | 0 | 0 | 6 | 0 | 0 |
| 14 | 40 | 0 | 0 | 37 | 0 | 0 |
| 13 | 14 | 0 | 0 | 15 | 0 | 0 |
| 12 | 14 | 0 | 0 | 18 | 0 | 0 |
| 11 | 17 | 0 | 0 | 3 | 0 | 0 |
| 10 | 17 | 0 | 0 | 10 | 0 | 0 |
| 9 | 15 | 0 | 0 | 11 | 0 | 0 |
| 8 | 13 | 0 | 0 | 3 | 0 | 0 |
| 7 | 10 | 0 | 0 | 14 | 0 | 0 |
| 6 | 15 | 0 | 0 | 16 | 0 | 0 |
| 5 | 16 | 0 | 0 | 22 | 0 | 0 |
| 4 | 55 | 0 | 0 | 66 | 0 | 0 |

Table 8.C.19 Total Number of Items Answered by Student Achievement Level—ELA, Grades Seven and Eight

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total Number Answered | Grade Seven Level 1 | Grade Seven Level 2 | Grade Seven Level 3 | Grade Eight Level 1 | Grade Eight Level 2 | Grade Eight Level 3 |
| 29 | 1,254 | 1,176 | 830 | 990 | 1,818 | 579 |
| 28 | 295 | 230 | 76 | 212 | 163 | 40 |
| 27 | 102 | 62 | 21 | 84 | 38 | 1 |
| 26 | 83 | 55 | 13 | 52 | 40 | 1 |
| 25 | 32 | 11 | 2 | 25 | 4 | 0 |
| 24 | 16 | 6 | 1 | 15 | 6 | 0 |
| 23 | 20 | 5 | 0 | 12 | 0 | 0 |
| 22 | 21 | 2 | 0 | 9 | 3 | 0 |
| 21 | 10 | 1 | 0 | 9 | 0 | 0 |
| 20 | 4 | 4 | 0 | 8 | 0 | 0 |
| 19 | 7 | 0 | 0 | 11 | 2 | 0 |
| 18 | 4 | 0 | 0 | 10 | 0 | 0 |
| 17 | 7 | 0 | 0 | 5 | 0 | 0 |
| 16 | 6 | 0 | 0 | 4 | 0 | 0 |
| 15 | 5 | 0 | 0 | 5 | 0 | 0 |
| 14 | 26 | 0 | 0 | 36 | 0 | 0 |
| 13 | 12 | 0 | 0 | 19 | 0 | 0 |
| 12 | 15 | 0 | 0 | 11 | 0 | 0 |
| 11 | 9 | 0 | 0 | 6 | 0 | 0 |
| 10 | 8 | 0 | 0 | 15 | 0 | 0 |
| 9 | 13 | 0 | 0 | 5 | 0 | 0 |
| 8 | 11 | 0 | 0 | 3 | 0 | 0 |
| 7 | 11 | 0 | 0 | 13 | 0 | 0 |
| 6 | 16 | 0 | 0 | 9 | 0 | 0 |
| 5 | 11 | 0 | 0 | 12 | 0 | 0 |
| 4 | 66 | 0 | 0 | 41 | 0 | 0 |

Table 8.C.20 Total Number of Items Answered by Student Achievement Level—ELA, Grade Eleven

|  |  |  |  |
| --- | --- | --- | --- |
| Total Number Answered | Grade Eleven Level 1 | Grade Eleven Level 2 | Grade Eleven Level 3 |
| 29 | 824 | 1,611 | 572 |
| 28 | 214 | 293 | 45 |
| 27 | 83 | 72 | 9 |
| 26 | 43 | 36 | 1 |
| 25 | 34 | 10 | 0 |
| 24 | 45 | 3 | 0 |
| 23 | 18 | 4 | 0 |
| 22 | 16 | 1 | 0 |
| 21 | 11 | 0 | 0 |
| 20 | 9 | 0 | 0 |
| 19 | 6 | 0 | 0 |
| 18 | 4 | 0 | 0 |
| 17 | 11 | 0 | 0 |
| 16 | 4 | 0 | 0 |
| 15 | 1 | 0 | 0 |
| 14 | 30 | 0 | 0 |
| 13 | 17 | 0 | 0 |
| 12 | 8 | 0 | 0 |
| 11 | 14 | 0 | 0 |
| 10 | 8 | 0 | 0 |
| 9 | 12 | 0 | 0 |
| 8 | 5 | 0 | 0 |
| 7 | 8 | 0 | 0 |
| 6 | 8 | 0 | 0 |
| 5 | 15 | 0 | 0 |
| 4 | 13 | 0 | 0 |

Table 8.C.21 Total Number of Items Answered by Student Achievement Level—Mathematics, Grades Three and Four

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total Number Answered | Grade Three Level 1 | Grade Three Level 2 | Grade Three Level 3 | Grade Four Level 1 | Grade Four Level 2 | Grade Four Level 3 |
| 29 | 1,616 | 889 | 412 | 1,891 | 946 | 228 |
| 28 | 409 | 161 | 59 | 393 | 108 | 14 |
| 27 | 169 | 31 | 7 | 165 | 17 | 2 |
| 26 | 84 | 10 | 7 | 131 | 9 | 1 |
| 25 | 61 | 7 | 0 | 57 | 4 | 0 |
| 24 | 32 | 1 | 0 | 45 | 0 | 0 |
| 23 | 29 | 1 | 0 | 31 | 0 | 0 |
| 22 | 14 | 2 | 0 | 29 | 0 | 0 |
| 21 | 14 | 1 | 0 | 14 | 1 | 0 |
| 20 | 18 | 0 | 0 | 11 | 0 | 0 |
| 19 | 18 | 0 | 0 | 7 | 0 | 0 |
| 18 | 9 | 0 | 0 | 8 | 0 | 0 |
| 17 | 19 | 0 | 0 | 16 | 0 | 0 |
| 16 | 12 | 0 | 0 | 11 | 0 | 0 |
| 15 | 10 | 0 | 0 | 8 | 0 | 0 |
| 14 | 48 | 0 | 0 | 64 | 0 | 0 |
| 13 | 17 | 0 | 0 | 16 | 0 | 0 |
| 12 | 19 | 0 | 0 | 6 | 0 | 0 |
| 11 | 16 | 0 | 0 | 12 | 0 | 0 |
| 10 | 18 | 0 | 0 | 18 | 0 | 0 |
| 9 | 12 | 0 | 0 | 13 | 0 | 0 |
| 8 | 15 | 0 | 0 | 14 | 0 | 0 |
| 7 | 18 | 0 | 0 | 8 | 0 | 0 |
| 6 | 28 | 0 | 0 | 16 | 0 | 0 |
| 5 | 17 | 0 | 0 | 18 | 0 | 0 |
| 4 | 53 | 0 | 0 | 61 | 0 | 0 |

Table 8.C.22 Total Number of Items Answered by Student Achievement Level—Mathematics, Grades Five and Six

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total Number Answered | Grade Five Level 1 | Grade Five Level 2 | Grade Five Level 3 | Grade Six Level 1 | Grade Six Level 2 | Grade Six Level 3 |
| 29 | 1,914 | 1,145 | 250 | 1,949 | 818 | 483 |
| 28 | 340 | 98 | 21 | 375 | 99 | 41 |
| 27 | 108 | 15 | 3 | 129 | 15 | 6 |
| 26 | 88 | 13 | 2 | 69 | 3 | 1 |
| 25 | 28 | 3 | 0 | 19 | 1 | 0 |
| 24 | 23 | 1 | 0 | 25 | 0 | 0 |
| 23 | 12 | 1 | 0 | 11 | 1 | 0 |
| 22 | 11 | 1 | 0 | 15 | 0 | 0 |
| 21 | 7 | 0 | 0 | 12 | 0 | 0 |
| 20 | 9 | 0 | 0 | 12 | 0 | 0 |
| 19 | 12 | 0 | 0 | 9 | 0 | 0 |
| 18 | 11 | 0 | 0 | 3 | 0 | 0 |
| 17 | 10 | 0 | 0 | 7 | 0 | 0 |
| 16 | 15 | 0 | 0 | 8 | 0 | 0 |
| 15 | 11 | 0 | 0 | 10 | 0 | 0 |
| 14 | 26 | 0 | 0 | 39 | 0 | 0 |
| 13 | 23 | 0 | 0 | 11 | 0 | 0 |
| 12 | 9 | 0 | 0 | 2 | 0 | 0 |
| 11 | 11 | 0 | 0 | 7 | 0 | 0 |
| 10 | 9 | 0 | 0 | 8 | 0 | 0 |
| 9 | 9 | 0 | 0 | 9 | 0 | 0 |
| 8 | 6 | 0 | 0 | 7 | 0 | 0 |
| 7 | 7 | 0 | 0 | 5 | 0 | 0 |
| 6 | 15 | 0 | 0 | 13 | 0 | 0 |
| 5 | 15 | 0 | 0 | 8 | 0 | 0 |
| 4 | 66 | 0 | 0 | 57 | 0 | 0 |

Table 8.C.23 Total Number of Items Answered by Student Achievement Level—Mathematics, Grades Seven and Eight

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total Number Answered | Grade Seven Level 1 | Grade Seven Level 2 | Grade Seven Level 3 | Grade Eight Level 1 | Grade Eight Level 2 | Grade Eight Level 3 |
| 29 | 1,742 | 1,257 | 608 | 1,749 | 867 | 441 |
| 28 | 214 | 94 | 38 | 370 | 130 | 53 |
| 27 | 98 | 20 | 5 | 119 | 45 | 12 |
| 26 | 49 | 18 | 3 | 75 | 11 | 0 |
| 25 | 18 | 1 | 1 | 34 | 3 | 0 |
| 24 | 15 | 3 | 0 | 21 | 3 | 0 |
| 23 | 12 | 2 | 0 | 18 | 1 | 1 |
| 22 | 15 | 1 | 0 | 13 | 2 | 0 |
| 21 | 9 | 0 | 0 | 8 | 1 | 0 |
| 20 | 11 | 0 | 0 | 11 | 0 | 0 |
| 19 | 5 | 0 | 0 | 7 | 1 | 0 |
| 18 | 10 | 0 | 0 | 6 | 0 | 0 |
| 17 | 11 | 0 | 0 | 5 | 0 | 0 |
| 16 | 7 | 0 | 0 | 10 | 0 | 0 |
| 15 | 5 | 0 | 0 | 10 | 0 | 0 |
| 14 | 33 | 0 | 0 | 24 | 0 | 0 |
| 13 | 14 | 0 | 0 | 10 | 0 | 0 |
| 12 | 6 | 0 | 0 | 7 | 0 | 0 |
| 11 | 8 | 0 | 0 | 9 | 0 | 0 |
| 10 | 6 | 0 | 0 | 8 | 0 | 0 |
| 9 | 6 | 0 | 0 | 7 | 0 | 0 |
| 8 | 13 | 0 | 0 | 7 | 0 | 0 |
| 7 | 17 | 0 | 0 | 4 | 0 | 0 |
| 6 | 9 | 0 | 0 | 13 | 0 | 0 |
| 5 | 19 | 0 | 0 | 15 | 0 | 0 |
| 4 | 65 | 0 | 0 | 49 | 0 | 0 |

Table 8.C.24 Total Number of Items Answered by Student Achievement Level—Mathematics, Grade Eleven

|  |  |  |  |
| --- | --- | --- | --- |
| Total Number Answered | Grade Eleven Level 1 | Grade Eleven Level 2 | Grade Eleven Level 3 |
| 29 | 1,630 | 958 | 411 |
| 28 | 373 | 115 | 29 |
| 27 | 150 | 17 | 2 |
| 26 | 59 | 7 | 1 |
| 25 | 36 | 0 | 0 |
| 24 | 27 | 1 | 0 |
| 23 | 20 | 2 | 0 |
| 22 | 20 | 0 | 0 |
| 21 | 5 | 0 | 0 |
| 20 | 10 | 0 | 0 |
| 19 | 11 | 0 | 0 |
| 18 | 6 | 0 | 0 |
| 17 | 8 | 0 | 0 |
| 16 | 9 | 0 | 0 |
| 15 | 5 | 0 | 0 |
| 14 | 37 | 0 | 0 |
| 13 | 12 | 0 | 0 |
| 12 | 9 | 0 | 0 |
| 11 | 5 | 0 | 0 |
| 10 | 8 | 0 | 0 |
| 9 | 7 | 0 | 0 |
| 8 | 6 | 0 | 0 |
| 7 | 12 | 0 | 0 |
| 6 | 6 | 0 | 0 |
| 5 | 11 | 0 | 0 |
| 4 | 20 | 0 | 0 |

### Appendix 8.D: Differential Item Functioning Analyses

**Note:** The sample size requirements for the 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.D.1 DIF for Operational Items—ELA, Grade Three

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 40 |
| Male–Female Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 11 | 14 | 0 | 0 | 15 | 40 |
| White–African American Pct | 0% | 0% | 28% | 35% | 0% | 0% | 38% | 100% |
| White–Asian N | 0 | 0 | 13 | 12 | 0 | 0 | 15 | 40 |
| White–Asian Pct | 0% | 0% | 33% | 30% | 0% | 0% | 38% | 100% |
| White–Filipino N | 0 | 1 | 4 | 4 | 1 | 0 | 30 | 40 |
| White–Filipino Pct | 0% | 3% | 10% | 10% | 3% | 0% | 75% | 100% |
| White–Hispanic N | 0 | 0 | 23 | 15 | 2 | 0 | 0 | 40 |
| White–Hispanic Pct | 0% | 0% | 58% | 38% | 5% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 15 | 10 | 0 | 0 | 15 | 40 |
| White–Two or More Pct | 0% | 0% | 38% | 25% | 0% | 0% | 38% | 100% |
| Intellectual Disability–Autism N | 0 | 2 | 20 | 17 | 1 | 0 | 0 | 40 |
| Intellectual Disability–Autism Pct | 0% | 5% | 50% | 43% | 3% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 5 | 5 | 0 | 0 | 30 | 40 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 13% | 13% | 0% | 0% | 75% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 13 | 12 | 0 | 0 | 15 | 40 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 33% | 30% | 0% | 0% | 38% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.2 DIF for Operational Items—ELA, Grade Four

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 21 | 15 | 1 | 0 | 0 | 37 |
| Male–Female Pct | 0% | 0% | 57% | 41% | 3% | 0% | 0% | 100% |
| White–African American N | 0 | 2 | 14 | 18 | 1 | 0 | 2 | 37 |
| White–African American Pct | 0% | 5% | 38% | 49% | 3% | 0% | 5% | 100% |
| White–Asian N | 0 | 4 | 14 | 19 | 0 | 0 | 0 | 37 |
| White–Asian Pct | 0% | 11% | 38% | 51% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 7 | 6 | 0 | 0 | 24 | 37 |
| White–Filipino Pct | 0% | 0% | 19% | 16% | 0% | 0% | 65% | 100% |
| White–Hispanic N | 0 | 0 | 18 | 19 | 0 | 0 | 0 | 37 |
| White–Hispanic Pct | 0% | 0% | 49% | 51% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 1 | 11 | 12 | 1 | 0 | 12 | 37 |
| White–Two or More Pct | 0% | 3% | 30% | 32% | 3% | 0% | 32% | 100% |
| Intellectual Disability–Autism N | 1 | 2 | 19 | 15 | 0 | 0 | 0 | 37 |
| Intellectual Disability–Autism Pct | 3% | 5% | 51% | 41% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 11 | 13 | 1 | 0 | 12 | 37 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 30% | 35% | 3% | 0% | 32% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 12 | 13 | 0 | 0 | 12 | 37 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 32% | 35% | 0% | 0% | 32% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 1 | 14 | 10 | 0 | 0 | 12 | 37 |
| Intellectual Disability–Specific Learning Pct | 0% | 3% | 38% | 27% | 0% | 0% | 32% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.3 DIF for Operational Items—ELA, Grade Five

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 15 | 23 | 0 | 0 | 0 | 38 |
| Male–Female Pct | 0% | 0% | 39% | 61% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 15 | 10 | 0 | 0 | 13 | 38 |
| White–African American Pct | 0% | 0% | 39% | 26% | 0% | 0% | 34% | 100% |
| White–Asian N | 0 | 1 | 12 | 12 | 0 | 0 | 13 | 38 |
| White–Asian Pct | 0% | 3% | 32% | 32% | 0% | 0% | 34% | 100% |
| White–Filipino N | 0 | 1 | 3 | 7 | 1 | 0 | 26 | 38 |
| White–Filipino Pct | 0% | 3% | 8% | 18% | 3% | 0% | 68% | 100% |
| White–Hispanic N | 0 | 0 | 23 | 14 | 1 | 0 | 0 | 38 |
| White–Hispanic Pct | 0% | 0% | 61% | 37% | 3% | 0% | 0% | 100% |
| White–Two or More N | 0 | 1 | 12 | 12 | 0 | 0 | 13 | 38 |
| White–Two or More Pct | 0% | 3% | 32% | 32% | 0% | 0% | 34% | 100% |
| Intellectual Disability–Autism N | 0 | 1 | 17 | 20 | 0 | 0 | 0 | 38 |
| Intellectual Disability–Autism Pct | 0% | 3% | 45% | 53% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 3 | 9 | 0 | 0 | 26 | 38 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 8% | 24% | 0% | 0% | 68% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 12 | 12 | 0 | 0 | 13 | 38 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 3% | 32% | 32% | 0% | 0% | 34% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 1 | 12 | 12 | 0 | 0 | 13 | 38 |
| Intellectual Disability–Specific Learning Pct | 0% | 3% | 32% | 32% | 0% | 0% | 34% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.4 DIF for Operational Items—ELA, Grade Six

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 1 | 16 | 21 | 0 | 0 | 0 | 38 |
| Male–Female Pct | 0% | 3% | 42% | 55% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 10 | 15 | 0 | 0 | 13 | 38 |
| White–African American Pct | 0% | 0% | 26% | 39% | 0% | 0% | 34% | 100% |
| White–Asian N | 0 | 1 | 13 | 11 | 0 | 0 | 13 | 38 |
| White–Asian Pct | 0% | 3% | 34% | 29% | 0% | 0% | 34% | 100% |
| White–Filipino N | 0 | 0 | 6 | 6 | 0 | 0 | 26 | 38 |
| White–Filipino Pct | 0% | 0% | 16% | 16% | 0% | 0% | 68% | 100% |
| White–Hispanic N | 0 | 0 | 23 | 15 | 0 | 0 | 0 | 38 |
| White–Hispanic Pct | 0% | 0% | 61% | 39% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 11 | 14 | 0 | 0 | 13 | 38 |
| White–Two or More Pct | 0% | 0% | 29% | 37% | 0% | 0% | 34% | 100% |
| Intellectual Disability–Autism N | 0 | 1 | 19 | 17 | 1 | 0 | 0 | 38 |
| Intellectual Disability–Autism Pct | 0% | 3% | 50% | 45% | 3% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 8 | 4 | 0 | 0 | 26 | 38 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 21% | 11% | 0% | 0% | 68% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 13 | 10 | 1 | 0 | 13 | 38 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 3% | 34% | 26% | 3% | 0% | 34% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 3 | 9 | 13 | 0 | 0 | 13 | 38 |
| Intellectual Disability–Specific Learning Pct | 0% | 8% | 24% | 34% | 0% | 0% | 34% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.5 DIF for Operational Items—ELA, Grade Seven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 22 | 18 | 0 | 0 | 0 | 40 |
| Male–Female Pct | 0% | 0% | 55% | 45% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 10 | 15 | 0 | 0 | 15 | 40 |
| White–African American Pct | 0% | 0% | 25% | 38% | 0% | 0% | 38% | 100% |
| White–Asian N | 0 | 1 | 8 | 15 | 1 | 0 | 15 | 40 |
| White–Asian Pct | 0% | 3% | 20% | 38% | 3% | 0% | 38% | 100% |
| White–Filipino N | 0 | 0 | 5 | 5 | 0 | 0 | 30 | 40 |
| White–Filipino Pct | 0% | 0% | 13% | 13% | 0% | 0% | 75% | 100% |
| White–Hispanic N | 0 | 0 | 23 | 17 | 0 | 0 | 0 | 40 |
| White–Hispanic Pct | 0% | 0% | 58% | 43% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 4 | 5 | 1 | 0 | 30 | 40 |
| White–Two or More Pct | 0% | 0% | 10% | 13% | 3% | 0% | 75% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 17 | 22 | 1 | 0 | 0 | 40 |
| Intellectual Disability–Autism Pct | 0% | 0% | 43% | 55% | 3% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 1 | 6 | 2 | 0 | 1 | 30 | 40 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 3% | 15% | 5% | 0% | 3% | 75% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 12 | 12 | 1 | 0 | 15 | 40 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 30% | 30% | 3% | 0% | 38% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 2 | 9 | 12 | 2 | 0 | 15 | 40 |
| Intellectual Disability–Specific Learning Pct | 0% | 5% | 23% | 30% | 5% | 0% | 38% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.6 DIF for Operational Items—ELA, Grade Eight

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 19 | 20 | 0 | 0 | 0 | 39 |
| Male–Female Pct | 0% | 0% | 49% | 51% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 22 | 16 | 1 | 0 | 0 | 39 |
| White–African American Pct | 0% | 0% | 56% | 41% | 3% | 0% | 0% | 100% |
| White–Asian N | 1 | 0 | 17 | 20 | 1 | 0 | 0 | 39 |
| White–Asian Pct | 3% | 0% | 44% | 51% | 3% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 4 | 6 | 0 | 1 | 28 | 39 |
| White–Filipino Pct | 0% | 0% | 10% | 15% | 0% | 3% | 72% | 100% |
| White–Hispanic N | 0 | 0 | 22 | 17 | 0 | 0 | 0 | 39 |
| White–Hispanic Pct | 0% | 0% | 56% | 44% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 4 | 7 | 0 | 0 | 28 | 39 |
| White–Two or More Pct | 0% | 0% | 10% | 18% | 0% | 0% | 72% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 20 | 19 | 0 | 0 | 0 | 39 |
| Intellectual Disability–Autism Pct | 0% | 0% | 51% | 49% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 12 | 12 | 1 | 0 | 14 | 39 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 31% | 31% | 3% | 0% | 36% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 39 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 10 | 15 | 0 | 0 | 14 | 39 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 26% | 38% | 0% | 0% | 36% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 3 | 10 | 12 | 0 | 0 | 14 | 39 |
| Intellectual Disability–Specific Learning Pct | 0% | 8% | 26% | 31% | 0% | 0% | 36% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 39 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.7 DIF for Operational Items—ELA, Grade Eleven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 20 | 18 | 0 | 0 | 0 | 38 |
| Male–Female Pct | 0% | 0% | 53% | 47% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 13 | 11 | 1 | 0 | 13 | 38 |
| White–African American Pct | 0% | 0% | 34% | 29% | 3% | 0% | 34% | 100% |
| White–Asian N | 0 | 0 | 11 | 13 | 1 | 0 | 13 | 38 |
| White–Asian Pct | 0% | 0% | 29% | 34% | 3% | 0% | 34% | 100% |
| White–Filipino N | 0 | 0 | 5 | 6 | 0 | 1 | 26 | 38 |
| White–Filipino Pct | 0% | 0% | 13% | 16% | 0% | 3% | 68% | 100% |
| White–Hispanic N | 0 | 0 | 20 | 17 | 1 | 0 | 0 | 38 |
| White–Hispanic Pct | 0% | 0% | 53% | 45% | 3% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 6 | 5 | 1 | 0 | 26 | 38 |
| White–Two or More Pct | 0% | 0% | 16% | 13% | 3% | 0% | 68% | 100% |
| Intellectual Disability–Autism N | 0 | 1 | 17 | 20 | 0 | 0 | 0 | 38 |
| Intellectual Disability–Autism Pct | 0% | 3% | 45% | 53% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 1 | 0 | 14 | 7 | 3 | 0 | 13 | 38 |
| Intellectual Disability–Multiple Disabilities Pct | 3% | 0% | 37% | 18% | 8% | 0% | 34% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 13 | 12 | 0 | 0 | 13 | 38 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 34% | 32% | 0% | 0% | 34% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 1 | 13 | 9 | 1 | 1 | 13 | 38 |
| Intellectual Disability–Specific Learning Pct | 0% | 3% | 34% | 24% | 3% | 3% | 34% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.8 DIF for Operational Items—Mathematics, Grade Three

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 16 | 20 | 0 | 0 | 0 | 36 |
| Male–Female Pct | 0% | 0% | 44% | 56% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 2 | 17 | 17 | 0 | 0 | 0 | 36 |
| White–African American Pct | 0% | 6% | 47% | 47% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 2 | 14 | 19 | 1 | 0 | 0 | 36 |
| White–Asian Pct | 0% | 6% | 39% | 53% | 3% | 0% | 0% | 100% |
| White–Filipino N | 0 | 1 | 6 | 4 | 3 | 0 | 22 | 36 |
| White–Filipino Pct | 0% | 3% | 17% | 11% | 8% | 0% | 61% | 100% |
| White–Hispanic N | 0 | 1 | 17 | 18 | 0 | 0 | 0 | 36 |
| White–Hispanic Pct | 0% | 3% | 47% | 50% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 7 | 6 | 1 | 0 | 22 | 36 |
| White–Two or More Pct | 0% | 0% | 19% | 17% | 3% | 0% | 61% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 20 | 16 | 0 | 0 | 0 | 36 |
| Intellectual Disability–Autism Pct | 0% | 0% | 56% | 44% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 1 | 8 | 12 | 2 | 0 | 13 | 36 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 3% | 22% | 33% | 6% | 0% | 36% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 13 | 12 | 0 | 0 | 11 | 36 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 36% | 33% | 0% | 0% | 31% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.9 DIF for Operational Items—Mathematics, Grade Four

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 22 | 16 | 0 | 0 | 0 | 38 |
| Male–Female Pct | 0% | 0% | 58% | 42% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 20 | 16 | 2 | 0 | 0 | 38 |
| White–African American Pct | 0% | 0% | 53% | 42% | 5% | 0% | 0% | 100% |
| White–Asian N | 0 | 1 | 16 | 19 | 2 | 0 | 0 | 38 |
| White–Asian Pct | 0% | 3% | 42% | 50% | 5% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 5 | 7 | 0 | 0 | 26 | 38 |
| White–Filipino Pct | 0% | 0% | 13% | 18% | 0% | 0% | 68% | 100% |
| White–Hispanic N | 0 | 0 | 13 | 25 | 0 | 0 | 0 | 38 |
| White–Hispanic Pct | 0% | 0% | 34% | 66% | 0% | 0% | 0% | 100% |
| White–Two or More N | 1 | 1 | 11 | 10 | 1 | 1 | 13 | 38 |
| White–Two or More Pct | 3% | 3% | 29% | 26% | 3% | 3% | 34% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 21 | 16 | 1 | 0 | 0 | 38 |
| Intellectual Disability–Autism Pct | 0% | 0% | 55% | 42% | 3% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 14 | 10 | 1 | 0 | 13 | 38 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 37% | 26% | 3% | 0% | 34% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 2 | 10 | 12 | 1 | 0 | 13 | 38 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 5% | 26% | 32% | 3% | 0% | 34% | 100% |
| Intellectual Disability–Specific Learning N | 3 | 0 | 12 | 4 | 3 | 3 | 13 | 38 |
| Intellectual Disability–Specific Learning Pct | 8% | 0% | 32% | 11% | 8% | 8% | 34% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.10 DIF for Operational Items—Mathematics, Grade Five

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 16 | 21 | 0 | 0 | 0 | 37 |
| Male–Female Pct | 0% | 0% | 43% | 57% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 14 | 10 | 1 | 0 | 12 | 37 |
| White–African American Pct | 0% | 0% | 38% | 27% | 3% | 0% | 32% | 100% |
| White–Asian N | 0 | 0 | 16 | 9 | 0 | 0 | 12 | 37 |
| White–Asian Pct | 0% | 0% | 43% | 24% | 0% | 0% | 32% | 100% |
| White–Filipino N | 0 | 1 | 5 | 7 | 0 | 0 | 24 | 37 |
| White–Filipino Pct | 0% | 3% | 14% | 19% | 0% | 0% | 65% | 100% |
| White–Hispanic N | 0 | 0 | 20 | 17 | 0 | 0 | 0 | 37 |
| White–Hispanic Pct | 0% | 0% | 54% | 46% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 15 | 10 | 0 | 0 | 12 | 37 |
| White–Two or More Pct | 0% | 0% | 41% | 27% | 0% | 0% | 32% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 21 | 16 | 0 | 0 | 0 | 37 |
| Intellectual Disability–Autism Pct | 0% | 0% | 57% | 43% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 1 | 12 | 11 | 1 | 0 | 12 | 37 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 3% | 32% | 30% | 3% | 0% | 32% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 15 | 17 | 0 | 0 | 4 | 37 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 3% | 41% | 46% | 0% | 0% | 11% | 100% |
| Intellectual Disability–Specific Learning N | 1 | 1 | 6 | 1 | 3 | 1 | 24 | 37 |
| Intellectual Disability–Specific Learning Pct | 3% | 3% | 16% | 3% | 8% | 3% | 65% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.11 DIF for Operational Items—Mathematics, Grade Six

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 19 | 18 | 0 | 0 | 0 | 37 |
| Male–Female Pct | 0% | 0% | 51% | 49% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 21 | 14 | 2 | 0 | 0 | 37 |
| White–African American Pct | 0% | 0% | 57% | 38% | 5% | 0% | 0% | 100% |
| White–Asian N | 0 | 1 | 18 | 17 | 1 | 0 | 0 | 37 |
| White–Asian Pct | 0% | 3% | 49% | 46% | 3% | 0% | 0% | 100% |
| White–Filipino N | 1 | 0 | 5 | 7 | 0 | 0 | 24 | 37 |
| White–Filipino Pct | 3% | 0% | 14% | 19% | 0% | 0% | 65% | 100% |
| White–Hispanic N | 0 | 0 | 20 | 17 | 0 | 0 | 0 | 37 |
| White–Hispanic Pct | 0% | 0% | 54% | 46% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 5 | 8 | 0 | 0 | 24 | 37 |
| White–Two or More Pct | 0% | 0% | 14% | 22% | 0% | 0% | 65% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 22 | 14 | 1 | 0 | 0 | 37 |
| Intellectual Disability–Autism Pct | 0% | 0% | 59% | 38% | 3% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 1 | 11 | 11 | 1 | 0 | 13 | 37 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 3% | 30% | 30% | 3% | 0% | 35% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 10 | 15 | 0 | 0 | 12 | 37 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 27% | 41% | 0% | 0% | 32% | 100% |
| Intellectual Disability–Specific Learning N | 1 | 2 | 11 | 7 | 4 | 0 | 12 | 37 |
| Intellectual Disability–Specific Learning Pct | 3% | 5% | 30% | 19% | 11% | 0% | 32% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.12 DIF for Operational Items—Mathematics, Grade Seven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 16 | 21 | 0 | 0 | 0 | 37 |
| Male–Female Pct | 0% | 0% | 43% | 57% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 12 | 13 | 0 | 0 | 12 | 37 |
| White–African American Pct | 0% | 0% | 32% | 35% | 0% | 0% | 32% | 100% |
| White–Asian N | 0 | 0 | 14 | 9 | 2 | 0 | 12 | 37 |
| White–Asian Pct | 0% | 0% | 38% | 24% | 5% | 0% | 32% | 100% |
| White–Filipino N | 0 | 1 | 7 | 5 | 0 | 0 | 24 | 37 |
| White–Filipino Pct | 0% | 3% | 19% | 14% | 0% | 0% | 65% | 100% |
| White–Hispanic N | 0 | 0 | 19 | 18 | 0 | 0 | 0 | 37 |
| White–Hispanic Pct | 0% | 0% | 51% | 49% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 14 | 10 | 1 | 0 | 12 | 37 |
| White–Two or More Pct | 0% | 0% | 38% | 27% | 3% | 0% | 32% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 18 | 19 | 0 | 0 | 0 | 37 |
| Intellectual Disability–Autism Pct | 0% | 0% | 49% | 51% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 1 | 9 | 15 | 0 | 0 | 12 | 37 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 3% | 24% | 41% | 0% | 0% | 32% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 15 | 9 | 1 | 0 | 12 | 37 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 41% | 24% | 3% | 0% | 32% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 3 | 12 | 6 | 4 | 0 | 12 | 37 |
| Intellectual Disability–Specific Learning Pct | 0% | 8% | 32% | 16% | 11% | 0% | 32% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.13 DIF for Operational Items—Mathematics, Grade Eight

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 23 | 15 | 0 | 0 | 0 | 38 |
| Male–Female Pct | 0% | 0% | 61% | 39% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 2 | 12 | 24 | 0 | 0 | 0 | 38 |
| White–African American Pct | 0% | 5% | 32% | 63% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 20 | 18 | 0 | 0 | 0 | 38 |
| White–Asian Pct | 0% | 0% | 53% | 47% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 4 | 7 | 1 | 0 | 26 | 38 |
| White–Filipino Pct | 0% | 0% | 11% | 18% | 3% | 0% | 68% | 100% |
| White–Hispanic N | 0 | 0 | 17 | 21 | 0 | 0 | 0 | 38 |
| White–Hispanic Pct | 0% | 0% | 45% | 55% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 1 | 5 | 5 | 1 | 0 | 26 | 38 |
| White–Two or More Pct | 0% | 3% | 13% | 13% | 3% | 0% | 68% | 100% |
| Intellectual Disability–Autism N | 1 | 2 | 13 | 22 | 0 | 0 | 0 | 38 |
| Intellectual Disability–Autism Pct | 3% | 5% | 34% | 58% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 12 | 12 | 1 | 0 | 13 | 38 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 32% | 32% | 3% | 0% | 34% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 13 | 9 | 2 | 0 | 13 | 38 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 3% | 34% | 24% | 5% | 0% | 34% | 100% |
| Intellectual Disability–Specific Learning N | 1 | 1 | 11 | 9 | 3 | 0 | 13 | 38 |
| Intellectual Disability–Specific Learning Pct | 3% | 3% | 29% | 24% | 8% | 0% | 34% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.14 DIF for Operational Items—Mathematics, Grade Eleven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Operational Items Total |
| Male–Female N | 0 | 0 | 25 | 15 | 0 | 0 | 0 | 40 |
| Male–Female Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 2 | 17 | 20 | 1 | 0 | 0 | 40 |
| White–African American Pct | 0% | 5% | 43% | 50% | 3% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 21 | 17 | 2 | 0 | 0 | 40 |
| White–Asian Pct | 0% | 0% | 53% | 43% | 5% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 3 | 7 | 0 | 0 | 30 | 40 |
| White–Filipino Pct | 0% | 0% | 8% | 18% | 0% | 0% | 75% | 100% |
| White–Hispanic N | 0 | 1 | 18 | 21 | 0 | 0 | 0 | 40 |
| White–Hispanic Pct | 0% | 3% | 45% | 53% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 1 | 5 | 4 | 0 | 0 | 30 | 40 |
| White–Two or More Pct | 0% | 3% | 13% | 10% | 0% | 0% | 75% | 100% |
| Intellectual Disability–Autism N | 0 | 1 | 18 | 21 | 0 | 0 | 0 | 40 |
| Intellectual Disability–Autism Pct | 0% | 3% | 45% | 53% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 1 | 1 | 9 | 12 | 2 | 0 | 15 | 40 |
| Intellectual Disability–Multiple Disabilities Pct | 3% | 3% | 23% | 30% | 5% | 0% | 38% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 13 | 10 | 1 | 0 | 15 | 40 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 3% | 33% | 25% | 3% | 0% | 38% | 100% |
| Intellectual Disability–Specific Learning N | 2 | 1 | 11 | 8 | 3 | 0 | 15 | 40 |
| Intellectual Disability–Specific Learning Pct | 5% | 3% | 28% | 20% | 8% | 0% | 38% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.15 DIF for Field Test Items—ELA, Grade Three

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 2 | 5 | 1 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 25% | 63% | 13% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 1 | 3 | 0 | 0 | 4 | 8 |
| White–Two or More Pct | 0% | 0% | 13% | 38% | 0% | 0% | 50% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 6 | 1 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 75% | 13% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.16 DIF for Field Test Items—ELA, Grade Four

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 13% | 88% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 5 | 2 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 63% | 25% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.17 DIF for Field Test Items—ELA, Grade Five

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 1 | 4 | 3 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 13% | 50% | 38% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 1 | 1 | 5 | 1 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 13% | 13% | 63% | 13% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.18 DIF for Field Test Items—ELA, Grade Six

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 0% | 100% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 3 | 4 | 1 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 38% | 50% | 13% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 5 | 2 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 63% | 25% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.19 DIF for Field Test Items—ELA, Grade Seven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 4 | 3 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 50% | 38% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 1 | 0 | 2 | 1 | 0 | 0 | 4 | 8 |
| Intellectual Disability–Specific Learning Pct | 13% | 0% | 25% | 13% | 0% | 0% | 50% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.20 DIF for Field Test Items—ELA, Grade Eight

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 4 | 3 | 1 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 50% | 38% | 13% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 2 | 1 | 0 | 1 | 4 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 25% | 13% | 0% | 13% | 50% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 6 | 1 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 75% | 13% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 1 | 1 | 4 | 2 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Specific Learning Pct | 13% | 13% | 50% | 25% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.21 DIF for Field Test Items—ELA, Grade Eleven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 3 | 4 | 1 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 38% | 50% | 13% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 3 | 4 | 1 | 0 | 0 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 38% | 50% | 13% | 0% | 0% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.22 DIF for Field Test Items—Mathematics, Grade Three

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.23 DIF for Field Test Items—Mathematics, Grade Four

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 2 | 3 | 3 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 25% | 38% | 38% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.24 DIF for Field Test Items—Mathematics, Grade Five

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 6 | 1 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 75% | 13% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.25 DIF for Field Test Items—Mathematics, Grade Six

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 1 | 4 | 3 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 13% | 50% | 38% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 5 | 2 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 63% | 25% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.26 DIF for Field Test Items—Mathematics, Grade Seven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 50% | 50% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 1 | 2 | 4 | 0 | 1 | 0 | 8 |
| White–Asian Pct | 0% | 13% | 25% | 50% | 0% | 13% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 1 | 2 | 4 | 1 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 13% | 25% | 50% | 13% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 88% | 0% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 1 | 2 | 1 | 0 | 0 | 0 | 4 | 8 |
| Intellectual Disability–Specific Learning Pct | 13% | 25% | 13% | 0% | 0% | 0% | 50% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.27 DIF for Field Test Items—Mathematics, Grade Eight

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 1 | 4 | 3 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 13% | 50% | 38% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 75% | 25% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 1 | 0 | 3 | 3 | 1 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 13% | 0% | 38% | 38% | 13% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 1 | 5 | 2 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 13% | 63% | 25% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Specific Learning N | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Specific Learning Pct | 25% | 25% | 25% | 25% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

Table 8.D.28 DIF for Field Test Items—Mathematics, Grade Eleven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DIF Comparison | C+ | B+ | A+ | A− | B− | C− | N/A | Field Test Items Total |
| Male–Female N | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 |
| Male–Female Pct | 0% | 0% | 63% | 38% | 0% | 0% | 0% | 100% |
| White–African American N | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 8 |
| White–African American Pct | 0% | 0% | 38% | 63% | 0% | 0% | 0% | 100% |
| White–Asian N | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 8 |
| White–Asian Pct | 0% | 0% | 13% | 88% | 0% | 0% | 0% | 100% |
| White–Filipino N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Filipino Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| White–Hispanic N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| White–Hispanic Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| White–Two or More N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| White–Two or More Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Autism N | 0 | 0 | 2 | 5 | 1 | 0 | 0 | 8 |
| Intellectual Disability–Autism Pct | 0% | 0% | 25% | 63% | 13% | 0% | 0% | 100% |
| Intellectual Disability–Multiple Disabilities N | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 8 |
| Intellectual Disability–Multiple Disabilities Pct | 0% | 0% | 25% | 75% | 0% | 0% | 0% | 100% |
| Intellectual Disability–Orthopedic Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Orthopedic Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Other Health Impairment N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Other Health Impairment Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Specific Learning N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Specific Learning Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |
| Intellectual Disability–Speech or Language N | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 |
| Intellectual Disability–Speech or Language Pct | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 100% |

### Appendix 8.E: Item Response Theory Analyses Results

For figure 8.E.1 through figure 8.E.14, the x-axis presents IRT *b*-parameters from the 2015–‍16 base scale of the item bank. The item bank *b*-parameters were either calibrated before 2022–23 and linked to the 2015–16 base scale. The y-axis presents the IRT *b*-‍parameters from the 2022–23 calibration that were linked back to the base scale. A black square indicates that an item was dropped from the anchor set by robust-z statistics.

Data for these graphs is presented in table 8.E.1 through table 8.E.14. Each table follows its associated graph.

#### ELA, Grade Three Graph and Table

Figure 8.E.1 indicates, in the grade three ELA assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–23, the fifth iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.1, which immediately follows the graph.

Figure 8.E.1 *b*-parameters from item bank and 2022–23 for the equating set of ELA, grade three

Table 8.E.1 *b*-parameters from Item Bank and 2022–23 for the Equating Set of ELA Grade Three

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTR3020057T1-M | −1.195 | −1.3464 |
| CLTR3020058T1-M\* | −1.616 | −1.3405 |
| CLTR3020059T1-O | −1.204 | −1.2128 |
| CLTR3020094T1\* | 0.410 | 0.7555 |
| CLTR3020169T1 | −1.006 | −1.0577 |
| CLTR3020170T1\* | 0.211 | −0.0536 |
| CLTR3020172T3 | −1.116 | −1.2001 |
| CLTR3030028T1 | −0.159 | −0.0007 |
| CLTR3030110T2 | −1.736 | −1.7600 |
| CLTR3030112T2 | −0.937 | −0.9841 |
| CLTR3030135T1 | −0.738 | −0.6426 |
| CLTR3030158T3-R | −1.574 | −1.4697 |
| CLTR3030159T3\* | 0.555 | 0.9691 |
| CLTR3030166T3 | −0.927 | −1.0144 |
| CLTR3040179T2 | −0.772 | −0.6490 |
| CLTR3040180T2 | 0.616 | 0.5082 |
| CLTR3040190T3 | −1.374 | −1.2268 |
| CLTR3040191T3 | 1.160 | 1.0712 |
| CLTR3040194T3\* | −0.266 | 0.1043 |
| CLTR3040231T1 | −2.131 | −2.2094 |
| CLTR3040232T1 | −1.278 | −1.2882 |
| CLTR3190030T2 | −0.446 | −0.4503 |
| CLTR3190031T2 | −0.246 | −0.3947 |
| CLTR3190053T1\* | −1.171 | −0.7466 |
| CLTR3200117T3 | −0.809 | −0.9390 |
| CLTR3200248T2 | −0.836 | −0.6538 |
| CLTW3020107T1 | −1.845 | −1.8040 |
| CLTW3020145T2-M | −0.769 | −0.7663 |
| CLTW3020146T2 | −1.136 | −1.0347 |
| CLTW3020171T1-R | −0.076 | −0.0635 |
| CLTW3020403T3\* | 0.792 | 1.1931 |
| CLTW3030030T1 | 0.008 | 0.1373 |
| CLTW3030160T3\* | 0.746 | 1.1699 |
| CLTW3040022T1 | −1.103 | −1.0774 |
| CLTW3040227T2 | 1.497 | 1.4992 |
| CLTW3190032T2\* | −0.783 | −0.3604 |
| CLTW3190055T1 | −0.058 | 0.0818 |
| CLTW3190076T2\* | −0.768 | −1.0469 |
| CLTW3190177T1 | −1.745 | −1.8066 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### ELA, Grade Four Graph and Table

Figure 8.E.2 indicates, in the grade four ELA assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–‍23, the third iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.2, which immediately follows the graph.

Figure 8.E.2 *b*-parameters from item bank and 2022–23 for the equating set of ELA, grade four

Table 8.E.2 *b*-parameters from Item Bank and 2022–23 for the Equating Set of ELA Grade Four

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTR4020116T2 | −0.461 | −0.3842 |
| CLTR4020117T2 | −1.125 | −1.3019 |
| CLTR4020132T3 | 0.777 | 0.8981 |
| CLTR4020137T2 | 0.092 | −0.0464 |
| CLTR4020237T1 | −2.366 | −2.2817 |
| CLTR4020244T3-M | 0.734 | 0.7473 |
| CLTR4020245T3 | 0.097 | 0.2595 |
| CLTR4020256T1-M | −0.717 | −0.5974 |
| CLTR4020257T1-M | −1.375 | −1.3668 |
| CLTR4020258T1-M | −0.621 | −0.5666 |
| CLTR4020298T3 | 0.901 | 0.6210 |
| CLTR4020299T3 | 0.085 | 0.1179 |
| CLTR4020308T1 | −0.695 | −0.8326 |
| CLTR4030014T2-R | −0.520 | −0.6163 |
| CLTR4030062T2 | −0.670 | −0.6432 |
| CLTR4040005T2 | −0.822 | −0.7810 |
| CLTR4040006T1 | −0.912 | −0.6817 |
| CLTR4040007T1 | −1.047 | −1.1941 |
| CLTR4040071T2 | −0.795 | −0.7327 |
| CLTR4040100T1 | −1.964 | −2.0100 |
| CLTR4040101T1 | −1.239 | −1.3168 |
| CLTR4040199T1\* | −1.766 | −1.2309 |
| CLTR4190102T3 | −1.402 | −1.1815 |
| CLTR4200072T1 | −0.248 | −0.3407 |
| CLTW4020086T2 | −0.147 | −0.0968 |
| CLTW4020118T2 | 0.168 | 0.0929 |
| CLTW4020131T3 | −0.254 | −0.0790 |
| CLTW4020134T3 | −0.466 | −0.2580 |
| CLTW4020240T1-M | −1.119 | −1.0787 |
| CLTW4020246T3 | 0.691 | 0.7449 |
| CLTW4020300T3 | 1.011 | 0.7609 |
| CLTW4030132T3-R | 0.882 | 0.9145 |
| CLTW4040008T1-O | −0.639 | −0.7622 |
| CLTW4040073T2 | 0.608 | 0.9071 |
| CLTW4040074T2 | 0.744 | 0.5185 |
| CLTW4040102T1\* | 0.683 | 0.1521 |
| CLTW4190212T2\* | −1.162 | −0.7295 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### ELA, Grade Five Graph and Table

Figure 8.E.3 indicates, in the grade five ELA assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–‍23, the fourth iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.3, which immediately follows the graph.

Figure 8.E.3  *b*-parameters from item bank and 2022–23 for the equating set of ELA, grade five

Table 8.E.3 *b*-parameters from Item Bank and 2022–23 for the Equating Set of ELA Grade Five

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTR5020038T3-M | 1.593 | 1.5277 |
| CLTR5020039T3-M | 1.409 | 1.2658 |
| CLTR5020074T3-R | 0.188 | 0.1615 |
| CLTR5020314T1 | −0.729 | −0.4722 |
| CLTR5020315T1 | −1.295 | −1.5441 |
| CLTR5020316T1 | −0.525 | −0.5537 |
| CLTR5020334T1 | −2.007 | −1.8860 |
| CLTR5020340T2 | 0.495 | 0.3394 |
| CLTR5030043T3 | 0.347 | 0.4167 |
| CLTR5030044T3 | −0.875 | −0.8619 |
| CLTR5030144T1 | 0.457 | 0.4097 |
| CLTR5030145T1\* | −1.108 | −0.5560 |
| CLTR5030154T1 | −1.547 | −1.4847 |
| CLTR5030155T1 | −1.286 | −1.2813 |
| CLTR5030183T2 | −1.165 | −0.9936 |
| CLTR5030184T2 | −0.580 | −0.5395 |
| CLTR5040013T1 | −1.562 | −1.6524 |
| CLTR5040014T1 | −1.266 | −1.0995 |
| CLTR5040041T1 | −0.483 | −0.5614 |
| CLTR5040118T2\* | −1.785 | −1.4703 |
| CLTR5040171T3 | −0.523 | −0.6938 |
| CLTR5190185T1\* | −1.712 | −1.2857 |
| CLTR5200092T3\* | −1.001 | −0.5751 |
| CLTR5200179T2 | −1.470 | −1.4940 |
| CLTR5200180T2 | −1.194 | −1.1585 |
| CLTR5200181T2 | −1.065 | −0.9964 |
| CLTW5020317T1 | −2.041 | −1.9999 |
| CLTW5020343T2 | −1.314 | −1.3567 |
| CLTW5020347T2 | 1.017 | 1.1198 |
| CLTW5030045T3 | 0.114 | 0.0951 |
| CLTW5030139T3 | 0.015 | −0.0158 |
| CLTW5030157T1 | −1.414 | −1.5570 |
| CLTW5030187T2-R | −0.245 | −0.2479 |
| CLTW5040015T1 | −1.061 | −1.0780 |
| CLTW5040120T2 | 0.688 | 0.5944 |
| CLTW5040174T3 | −0.153 | −0.0078 |
| CLTW5190119T2 | −0.559 | −0.3749 |
| CLTW5200188T2 | −0.335 | −0.4357 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### ELA, Grade Six Graph and Table

Figure 8.E.4 indicates, in the grade six ELA assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–‍23. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-‍parameters of items removed from the linking set. Each polytomous item has two IRT *b*-‍parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.4, which immediately follows the graph.

Figure 8.E.4 *b*-parameters from item bank and 2022–23 for the equating set of ELA, grade six

Table 8.E.4 *b*-parameters from Item Bank and 2022–23 for the Equating Set of ELA Grade Six

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTR6020097T1 | −1.506 | −1.5332 |
| CLTR6020099T1 | −0.864 | −0.8845 |
| CLTR6020101T1-R\* | −0.682 | −1.2746 |
| CLTR6020202T2 | −1.298 | −1.2568 |
| CLTR6020204T2 | −1.494 | −1.4968 |
| CLTR6020397T3 | 1.080 | 1.0809 |
| CLTR6020398T3 | 0.647 | 0.5165 |
| CLTR6020420T3 | −0.346 | −0.3147 |
| CLTR6020422T3\* | 1.165 | 0.6457 |
| CLTR6030030T1 | −0.853 | −1.0768 |
| CLTR6030031T1 | −1.364 | −1.4836 |
| CLTR6040030T3 | −0.515 | −0.4649 |
| CLTR6040121T1 | −0.522 | −0.5727 |
| CLTR6040122T1 | −0.682 | −0.8752 |
| CLTR6040124T1\* | −1.206 | −0.8939 |
| CLTR6040163T2 | 0.889 | 0.8902 |
| CLTR6040176T2 | −1.359 | −1.4888 |
| CLTR6040178T2 | −0.123 | −0.0284 |
| CLTR6040236T1 | −1.134 | −0.9966 |
| CLTR6190012T2\* | −1.147 | −1.4995 |
| CLTR6190013T2 | −0.766 | −0.7344 |
| CLTR6190014T2\* | −0.761 | −0.4540 |
| CLTR6190217T1\* | −2.143 | −1.5472 |
| CLTR6200053T2 | −0.225 | −0.2620 |
| CLTR6200132T1 | −1.503 | −1.6636 |
| CLTW6020102T1\* | −0.716 | −0.9712 |
| CLTW6020104T1 | −1.310 | −1.1321 |
| CLTW6020208T2 | −0.364 | −0.2617 |
| CLTW6020209T2 | 0.472 | 0.4358 |
| CLTW6020399T3 | 0.734 | 0.7197 |
| CLTW6020424T3 | 1.102 | 1.1393 |
| CLTW6030032T1-O | −0.675 | −0.5928 |
| CLTW6030198T2 | 0.643 | 0.6971 |
| CLTW6030202T1 | −1.075 | −1.0724 |
| CLTW6030228T3\* | 0.346 | 0.7557 |
| CLTW6040123T1 | −1.270 | −1.2417 |
| CLTW6040138T1 | 0.300 | 0.3960 |
| CLTW6040177T2 | −0.353 | −0.2690 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### ELA, Grade Seven Graph and Table

Figure 8.E.5 indicates, in the grade seven ELA assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–23, the eleventh iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.5, which immediately follows the graph.

Figure 8.E.5  *b*-parameters from item bank and 2022–23 for the equating set of ELA, grade seven

Table 8.E.5 *b*-parameters from Item Bank and 2022–23 for the Equating Set of ELA Grade Seven

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTR7020156T2 | 0.406 | 0.3267 |
| CLTR7020157T2\* | 0.939 | 1.1470 |
| CLTR7020158T2 | 0.277 | 0.3412 |
| CLTR7020348T3\* | 0.857 | 1.1674 |
| CLTR7020349T3\* | 2.408 | 2.8610 |
| CLTR7020362T3\* | 1.191 | 1.4720 |
| CLTR7020365T3 | −0.393 | −0.5128 |
| CLTR7020369T2\* | 0.161 | 0.4480 |
| CLTR7020370T2 | 0.304 | 0.4238 |
| CLTR7020381T1 | −0.074 | −0.0932 |
| CLTR7020382T1 | −1.182 | −1.3107 |
| CLTR7020408T1 | −0.862 | −0.8933 |
| CLTR7020409T1-R | −0.623 | −0.6450 |
| CLTR7030241T2 | 0.310 | 0.1331 |
| CLTR7030255T1 | 0.205 | 0.0250 |
| CLTR7030257T1 | −1.324 | −1.4710 |
| CLTR7030258T1 | −0.141 | −0.1634 |
| CLTR7040042T2\* | −0.595 | −0.9140 |
| CLTR7040043T2 | −0.531 | −0.4706 |
| CLTR7040061T3 | 0.735 | 0.6802 |
| CLTR7040062T3\* | −0.698 | −1.0390 |
| CLTR7040064T2 | 0.008 | −0.0719 |
| CLTR7040126T1\* | −0.581 | −0.8603 |
| CLTR7190068T1 | −1.471 | −1.3535 |
| CLTR7190270T2 | −0.366 | −0.1766 |
| CLTR7200049T1\* | −1.127 | −1.4390 |
| CLTR7200056T1 | −0.838 | −0.7846 |
| CLTR7200057T1 | 1.015 | 0.8702 |
| CLTR7200273T2\* | −2.005 | −2.2903 |
| CLTW7020350T3 | 0.514 | 0.6762 |
| CLTW7020361T3 | 0.442 | 0.5683 |
| CLTW7020384T1 | 0.581 | 0.4477 |
| CLTW7020385T1 | −1.598 | −1.5533 |
| CLTW7020407T1 | −0.215 | −0.1341 |
| CLTW7030134T3 | −0.075 | −0.0437 |
| CLTW7030251T3 | −0.805 | −0.6408 |
| CLTW7030259T1 | −0.999 | −1.0257 |
| CLTW7040044T2\* | −0.906 | −1.2345 |
| CLTW7190257T2 | −0.060 | −0.0473 |
| CLTW7200058T1 | −1.680 | −1.6959 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### ELA, Grade Eight Graph and Table

Figure 8.E.6 indicates, in the grade eight ELA assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–23, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.6, which immediately follows the graph.

Figure 8.E.6  *b*-parameters from item bank and 2022–23 for the equating set of ELA, grade eight

Table 8.E.6 *b*-parameters from Item Bank and 2022–23 for the Equating Set of ELA Grade Eight

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTR8020285T2-M | 0.758 | 0.8552 |
| CLTR8020286T2-M | 0.312 | 0.4493 |
| CLTR8020321T2-M | −1.266 | −1.4723 |
| CLTR8020322T2-M | 0.617 | 0.9018 |
| CLTR8020323T2-M | −0.242 | −0.4241 |
| CLTR8020394T1-M | −0.631 | −0.7680 |
| CLTR8020395T1-M | −1.457 | −1.5934 |
| CLTR8020437T3 | −0.238 | −0.0681 |
| CLTR8020438T3 | 0.995 | 1.1541 |
| CLTR8020440T3 | 0.110 | 0.2309 |
| CLTR8020447T1 | −0.481 | −0.3010 |
| CLTR8030210T1-R | −0.569 | −0.2288 |
| CLTR8030216T2 | −0.783 | −0.9667 |
| CLTR8030217T2 | −0.424 | −0.3181 |
| CLTR8030218T2 | −0.493 | −0.6909 |
| CLTR8040090T1 | −1.146 | −1.3436 |
| CLTR8040091T1 | −1.414 | −1.4912 |
| CLTR8040148T2 | −0.949 | −0.9601 |
| CLTR8040214T3 | −0.650 | −0.7586 |
| CLTR8040215T3 | −0.505 | −0.7903 |
| CLTR8040219T3 | 0.149 | 0.1978 |
| CLTR8190249T3 | −0.415 | −0.2471 |
| CLTR8200226T3 | 0.370 | 0.5994 |
| CLTR8200258T1 | −1.403 | −1.2402 |
| CLTR8200263T1 | −0.819 | −0.9079 |
| CLTR8200264T1 | −1.649 | −1.6836 |
| CLTR8200265T1 | −1.496 | −1.4767 |
| CLTW8020069T3\* | 1.077 | 0.6857 |
| CLTW8020261T2 | −1.427 | −1.5153 |
| CLTW8020262T2 | 1.424 | 1.4738 |
| CLTW8020287T2-M | 1.210 | 1.4100 |
| CLTW8020388T1 | −1.283 | −1.2146 |
| CLTW8020389T1 | −1.160 | −1.1539 |
| CLTW8020396T1-O | −0.867 | −0.9444 |
| CLTW8040037T1 | −2.072 | −1.8199 |
| CLTW8040092T1 | −1.087 | −1.2298 |
| CLTW8040216T3 | 0.256 | 0.1797 |
| CLTW8190007T1 | −1.357 | −1.2950 |
| CLTW8190154T2 | 0.303 | 0.5785 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### ELA, Grade Eleven Graph and Table

Figure 8.E.7 indicates, in the grade eleven ELA assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–23, the third iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.7, which immediately follows the graph.

Figure 8.E.7  *b*-parameters from item bank and 2022–23 for the equating set of ELA, grade eleven

Table 8.E.7 *b*-parameters from Item Bank and 2022–23 for the Equating Set of ELA Grade Eleven

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTRH020032T1-M\* | 0.061 | −0.3325 |
| CLTRH020033T1 | −0.914 | −0.8936 |
| CLTRH020034T1 | −1.707 | −1.7874 |
| CLTRH020213T2 | 0.329 | 0.1343 |
| CLTRH020220T2\* | −0.475 | −0.1435 |
| CLTRH020221T2 | 0.109 | 0.3882 |
| CLTRH020224T2 | 0.439 | 0.3480 |
| CLTRH020272T3 | 0.818 | 0.8396 |
| CLTRH020273T3 | 0.004 | −0.0294 |
| CLTRH030117T1 | −0.490 | −0.4989 |
| CLTRH030118T1 | 0.171 | 0.3812 |
| CLTRH030150T1 | −0.341 | −0.2955 |
| CLTRH030225T3 | 1.499 | 1.4145 |
| CLTRH030226T3 | −0.263 | −0.1382 |
| CLTRH030227T3 | 0.518 | 0.3936 |
| CLTRH030229T3-R | 0.088 | 0.1612 |
| CLTRH040056T3-R | −0.452 | −0.3589 |
| CLTRH040206T2 | −1.010 | −0.8213 |
| CLTRH190228T2 | −1.203 | −1.4883 |
| CLTRH200144T1 | −1.371 | −1.5802 |
| CLTRH200145T1 | −1.815 | −1.6343 |
| CLTRH200146T1-O | 0.098 | 0.0469 |
| CLTRH200241T1 | −1.864 | −1.8329 |
| CLTRH200243T1\* | −1.329 | −0.8165 |
| CLTRH200313T2 | −0.709 | −0.4224 |
| CLTRH200314T2 | −0.384 | −0.3354 |
| CLTRH200315T2 | −0.453 | −0.4763 |
| CLTWH020222T2 | −0.930 | −0.9796 |
| CLTWH020236T1 | −1.526 | −1.6630 |
| CLTWH020274T3 | 0.934 | 0.9375 |
| CLTWH030052T1-R | −1.080 | −0.9190 |
| CLTWH030119T1 | −0.413 | −0.4597 |
| CLTWH030151T1 | 0.214 | 0.2725 |
| CLTWH030230T3 | 1.363 | 1.1793 |
| CLTWH030231T3 | 0.259 | 0.2653 |
| CLTWH190161T1 | −1.249 | −1.1497 |
| CLTWH200242T1 | −0.084 | −0.1243 |
| CLTWH200316T2 | 0.380 | 0.2827 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### Mathematics, Grade Three Graph and Table

Figure 8.E.8 indicates, in the grade three mathematics assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-‍parameters from 2022–23, the second iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-‍parameters of items removed from the linking set. Each polytomous item has two IRT *b*-‍parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.8, which immediately follows the graph.

Figure 8.E.8  *b*-parameters from item bank and 2022–23 for the equating set of mathematics, grade three

Table 8.E.8 *b*-parameters from Item Bank and 2022–23 for the Equating Set of Mathematics Grade Three

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTM3020004T1 | −1.023 | −0.8611 |
| CLTM3020005T2 | 1.204 | 1.3273 |
| CLTM3020007T1 | 0.517 | 0.5393 |
| CLTM3020009T3\* | 1.530 | 1.0395 |
| CLTM3020186T1 | −1.031 | −0.9833 |
| CLTM3020202T2 | 0.014 | −0.0592 |
| CLTM3020203T3 | 1.315 | 1.3799 |
| CLTM3020204T2\* | 0.994 | 1.3815 |
| CLTM3030506T1 | −0.162 | −0.2516 |
| CLTM3030565T3 | 0.688 | 0.7754 |
| CLTM3030566T1 | −0.776 | −0.6986 |
| CLTM3030567T2 | −0.086 | −0.0901 |
| CLTM3030569T1 | −0.422 | −0.4447 |
| CLTM3030591T1 | −0.484 | −0.3978 |
| CLTM3180887T1\* | −0.895 | −0.5245 |
| CLTM3180889T3\* | 0.096 | 0.4183 |
| CLTM3180957T1 | −0.660 | −0.7185 |
| CLTM3180958T1 | −0.078 | −0.0857 |
| CLTM3180960T2 | −0.392 | −0.4287 |
| CLTM3180961T2 | −0.521 | −0.2747 |
| CLTM3180962T3 | 0.794 | 0.8594 |
| CLTM3180963T1 | −0.287 | −0.3742 |
| CLTM3181024T1\* | −0.207 | −0.5235 |
| CLTM3191233T3\* | 0.908 | 0.0583 |
| CLTM3191292T3 | 1.009 | 0.8387 |
| CLTM3201423T1 | −0.223 | −0.1323 |
| CLTM3201425T3\* | 0.514 | 0.1639 |
| CLTM3201430T2 | 0.093 | 0.0530 |
| CLTM3201432T2 | 1.298 | 1.4363 |
| CLTM3201433T1\* | −0.511 | −0.8338 |
| CLTM3201517T3 | −0.039 | −0.2444 |
| CLTM3201599T2 | 0.340 | 0.4072 |
| CLTM3201670T1 | −0.583 | −0.7594 |
| CLTM3201675T2 | 0.301 | 0.3316 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### Mathematics, Grade Four Graph and Table

Figure 8.E.9 indicates, in the grade four mathematics assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–23, the tenth iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.9, which immediately follows the graph.

Figure 8.E.9 *b*-parameters from item bank and 2022–23 for the equating set of mathematics, grade four

Table 8.E.9 *b*-parameters from Item Bank and 2022–23 for the Equating Set of Mathematics Grade Four

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTM4020189T1 | −0.654 | −0.3671 |
| CLTM4020190T2 | 0.767 | 0.8010 |
| CLTM4020191T3\* | 0.866 | 0.4517 |
| CLTM4020218T3 | −0.130 | −0.2117 |
| CLTM4020219T1 | −0.105 | −0.2913 |
| CLTM4020220T2 | 0.830 | 0.5918 |
| CLTM4020231T1 | −0.507 | −0.4699 |
| CLTM4020240T1\* | −0.299 | −0.6125 |
| CLTM4020244T2\* | 1.531 | 1.0774 |
| CLTM4020245T3 | 0.787 | 0.5386 |
| CLTM4020246T1 | −0.995 | −1.0740 |
| CLTM4020252T1 | −0.340 | −0.5846 |
| CLTM4030475T1 | −1.673 | −1.5548 |
| CLTM4030480T3 | 0.416 | 0.5514 |
| CLTM4030484T1\* | 0.590 | 0.2729 |
| CLTM4030486T3 | 0.381 | 0.4757 |
| CLTM4030492T3-R\* | 1.030 | 0.6898 |
| CLTM4030612T1 | −1.673 | −1.5557 |
| CLTM4180848T1 | −0.537 | −0.5140 |
| CLTM4180849T2 | −0.201 | −0.1199 |
| CLTM4180852T1 | −0.650 | −0.5397 |
| CLTM4180853T2 | 1.064 | 0.9501 |
| CLTM4181000T1 | 0.134 | 0.0581 |
| CLTM4181002T1\* | −0.916 | −0.5924 |
| CLTM4181004T3 | 1.606 | 1.3654 |
| CLTM4181027T2\* | −0.084 | 0.2469 |
| CLTM4181031T1\* | 0.230 | −0.2652 |
| CLTM4181035T3 | 0.077 | 0.0697 |
| CLTM4191128T2 | −0.331 | −0.4631 |
| CLTM4201491T1 | −0.714 | −0.6030 |
| CLTM4201492T2 | 0.275 | 0.3514 |
| CLTM4201495T2 | 0.918 | 0.9469 |
| CLTM4201497T3 | 1.209 | 1.0969 |
| CLTM4201500T1 | −1.249 | −0.9896 |
| CLTM4201539T1 | −0.048 | 0.0761 |
| CLTM4201686T2\* | 1.397 | 0.8405 |
| CLTM4201688T1 | −0.226 | −0.2576 |
| CLTM4201692T3\* | −0.942 | −0.4083 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### Mathematics, Grade Five Graph and Table

Figure 8.E.10 indicates, in the grade five mathematics assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-‍parameters from 2022–23, the fourth iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-‍parameters of items removed from the linking set. Each polytomous item has two IRT *b*-‍parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.10, which immediately follows the graph.

Figure 8.E.10  *b*-parameters from item bank and 2022–23 for the equating set of mathematics, grade five

Table 8.E.10 *b*-parameters from Item Bank and 2022–23 for the Equating Set of Mathematics Grade Five

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTM5020166T2 | 0.095 | 0.1112 |
| CLTM5020180T1 | −1.209 | −1.1745 |
| CLTM5020181T2 | 1.125 | 1.1383 |
| CLTM5020196T2 | −0.546 | −0.5055 |
| CLTM5020261T1 | −0.343 | −0.2833 |
| CLTM5020265T2 | 0.352 | 0.1102 |
| CLTM5020338T1 | −0.954 | −0.7673 |
| CLTM5020343T2\* | 1.662 | 1.2859 |
| CLTM5020344T3 | 0.965 | 0.9948 |
| CLTM5020345T1\* | −0.322 | −1.0716 |
| CLTM5020350T3 | 0.308 | 0.2428 |
| CLTM5020359T3 | −0.172 | −0.2832 |
| CLTM5020362T3\* | 1.717 | 1.2735 |
| CLTM5020404T1 | −0.262 | −0.2206 |
| CLTM5030458T1 | −0.547 | −0.5846 |
| CLTM5030461T1 | 0.155 | 0.3997 |
| CLTM5030610T2 | −0.492 | −0.4080 |
| CLTM5180819T2 | 0.591 | 0.6659 |
| CLTM5180821T2 | 0.792 | 0.7151 |
| CLTM5180824T3 | 0.890 | 0.6234 |
| CLTM5180904T1 | 0.081 | 0.1644 |
| CLTM5180905T1 | −0.140 | −0.0750 |
| CLTM5180906T2 | 0.613 | 0.7220 |
| CLTM5180907T2 | 0.369 | 0.3097 |
| CLTM5180909T2 | 1.131 | 1.0105 |
| CLTM5180970T1 | 0.027 | 0.0372 |
| CLTM5180971T1 | −0.190 | −0.1290 |
| CLTM5180972T3 | 0.830 | 0.8165 |
| CLTM5181014T3 | 0.738 | 0.5763 |
| CLTM5181016T3 | 1.175 | 1.0207 |
| CLTM5201388T1\* | −0.672 | −0.3025 |
| CLTM5201396T2 | −0.185 | −0.0603 |
| CLTM5201406T3 | 0.374 | 0.4115 |
| CLTM5201407T2 | 0.649 | 0.5710 |
| CLTM5201408T1 | 0.232 | 0.1852 |
| CLTM5201412T1 | −0.343 | −0.3335 |
| CLTM5201646T2 | 0.167 | 0.1323 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### Mathematics, Grade Six Graph and Table

Figure 8.E.11 indicates, in the grade six mathematics assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-parameters from 2022–23, the third iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-parameters of items removed from the linking set. Each polytomous item has two IRT *b*-parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.11, which immediately follows the graph.

Figure 8.E.11 *b*-parameters from item bank and 2022–23 for the equating set of mathematics, grade six

Table 8.E.11 *b*-parameters from Item Bank and 2022–23 for the Equating Set of Mathematics Grade Six

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTM6020041T2 | 0.440 | 0.4085 |
| CLTM6020042T3 | 0.826 | 0.8096 |
| CLTM6020099T3\* | 2.207 | 1.8850 |
| CLTM6020200T3 | 0.085 | −0.0530 |
| CLTM6020284T1 | −0.628 | −0.5566 |
| CLTM6020293T1 | −0.549 | −0.3714 |
| CLTM6020294T2 | 0.670 | 0.6678 |
| CLTM6020320T1 | −0.051 | −0.0247 |
| CLTM6020322T3 | 1.748 | 1.6020 |
| CLTM6020367T2 | 0.773 | 0.7919 |
| CLTM6020427T1 | −0.445 | −0.5315 |
| CLTM6020437T3 | −0.176 | −0.2073 |
| CLTM6030468T3 | 0.891 | 0.7138 |
| CLTM6030469T1 | −0.316 | −0.3093 |
| CLTM6030472T1 | −0.162 | −0.1063 |
| CLTM6030595T1 | 0.108 | −0.0454 |
| CLTM6030598T1\* | 0.246 | −0.1429 |
| CLTM6030603T3 | 0.443 | 0.6431 |
| CLTM6030621T1 | −0.234 | −0.2117 |
| CLTM6030635T1 | 0.188 | 0.0497 |
| CLTM6030685T1 | −0.759 | −0.7336 |
| CLTM6030687T3 | 0.723 | 0.8917 |
| CLTM6180896T1 | −0.752 | −0.7214 |
| CLTM6180898T1\* | −0.832 | −0.5042 |
| CLTM6180978T3 | 0.096 | 0.1800 |
| CLTM6180979T2 | 0.781 | 0.8187 |
| CLTM6180984T1 | −0.523 | −0.4471 |
| CLTM6180985T2 | 0.781 | 0.6588 |
| CLTM6201446T3 | 0.283 | 0.2580 |
| CLTM6201452T2 | 0.594 | 0.4597 |
| CLTM6201453T1 | −0.414 | −0.4129 |
| CLTM6201566T2 | 0.290 | 0.4168 |
| CLTM6201648T2 | 1.077 | 1.2202 |
| CLTM6201652T2 | −0.555 | −0.5258 |
| CLTM6201661T2 | −0.396 | −0.4478 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### Mathematics, Grade Seven Graph and Table

Figure 8.E.12 indicates, in the grade seven mathematics assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-‍parameters from 2022–23, the first iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-‍parameters of items removed from the linking set. Each polytomous item has two IRT *b*-‍parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.12, which immediately follows the graph.

Figure 8.E.12  *b*-parameters from item bank and 2022–23 for the equating set of mathematics, grade seven

Table 8.E.12 *b*-parameters from Item Bank and 2022–23 for the Equating Set of Mathematics Grade Seven

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTM7020033T3 | 0.783 | 0.8079 |
| CLTM7020035T2 | 0.868 | 0.8907 |
| CLTM7020036T3 | 2.227 | 2.3113 |
| CLTM7020049T3 | 0.800 | 0.9089 |
| CLTM7020089T2 | 0.205 | 0.1751 |
| CLTM7020297T2 | 0.169 | 0.1356 |
| CLTM7020324T2 | 0.737 | 0.7744 |
| CLTM7020369T1 | −0.655 | −0.5721 |
| CLTM7020423T3 | 1.156 | 1.0655 |
| CLTM7030510T2 | 0.058 | 0.1874 |
| CLTM7030511T3-R | 0.122 | 0.1251 |
| CLTM7030515T1 | −0.113 | −0.2233 |
| CLTM7030585T2 | 0.501 | 0.4806 |
| CLTM7030587T1-R | −0.709 | −0.9316 |
| CLTM7030653T1 | −0.403 | −0.2786 |
| CLTM7030688T1 | −0.694 | −0.6792 |
| CLTM7030693T3 | 0.304 | 0.2102 |
| CLTM7030696T3-R | 2.439 | 2.3484 |
| CLTM7030704T1-R | −0.442 | −0.4386 |
| CLTM7030705T2 | 0.946 | 1.0530 |
| CLTM7180846T3 | −0.625 | −0.7019 |
| CLTM7180927T1 | 0.110 | 0.1342 |
| CLTM7180928T1 | −0.533 | −0.6535 |
| CLTM7180937T1 | −0.017 | 0.1639 |
| CLTM7180952T2 | −0.142 | −0.2145 |
| CLTM7180953T2 | 0.866 | 0.9735 |
| CLTM7180993T1 | −0.111 | −0.0521 |
| CLTM7180995T3 | 0.135 | 0.2070 |
| CLTM7180996T2 | 0.277 | 0.4075 |
| CLTM7191072T1 | −0.410 | −0.5386 |
| CLTM7191202T2 | −0.104 | −0.2300 |
| CLTM7191205T1 | −0.085 | −0.1410 |
| CLTM7191363T1 | −0.054 | −0.1659 |
| CLTM7191365T3 | 0.872 | 0.9504 |
| CLTM7201418T2\* | 1.193 | 1.5229 |
| CLTM7201529T1 | −0.119 | −0.2044 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### Mathematics, Grade Eight Graph and Table

Figure 8.E.13 indicates, in the grade eight mathematics assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-‍parameters from 2022–23, the fifth iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-‍parameters of items removed from the linking set. Each polytomous item has two IRT *b*-‍parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.13, which immediately follows the graph.

Figure 8.E.13 *b*-parameters from item bank and 2022–23 for the equating set of mathematics, grade eight

Table 8.E.13 *b*-parameters from Item Bank and 2022–23 for the Equating Set of Mathematics Grade Eight

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTM8020028T1 | −0.910 | −0.7874 |
| CLTM8020079T1 | −0.876 | −0.8055 |
| CLTM8020084T3\* | 0.308 | 0.6855 |
| CLTM8020160T1 | 0.426 | 0.3134 |
| CLTM8020276T2 | 0.408 | 0.5862 |
| CLTM8020380T3 | 1.669 | 1.6548 |
| CLTM8020387T1 | 0.303 | 0.3601 |
| CLTM8020390T3 | 1.369 | 1.5859 |
| CLTM8020453T3\* | 0.754 | 1.1293 |
| CLTM8030525T2\* | 0.035 | −0.3063 |
| CLTM8030539T2 | 0.033 | −0.0380 |
| CLTM8030638T1 | −1.335 | −1.1271 |
| CLTM8030657T2 | 1.375 | 1.2592 |
| CLTM8030660T2-R | 0.204 | 0.1920 |
| CLTM8030661T3-R | −0.116 | −0.2177 |
| CLTM8030663T2 | 0.472 | 0.5402 |
| CLTM8030697T1 | −0.458 | −0.5169 |
| CLTM8180802T1 | −0.410 | −0.4393 |
| CLTM8180804T3 | −0.502 | −0.4932 |
| CLTM8180814T1 | −1.328 | −1.4808 |
| CLTM8180815T2 | −0.858 | −0.8542 |
| CLTM8180862T1 | −0.199 | −0.2369 |
| CLTM8180866T1 | −0.473 | −0.4371 |
| CLTM8180877T2 | 0.112 | 0.3071 |
| CLTM8180881T3 | 0.498 | 0.5625 |
| CLTM8191144T3 | 1.447 | 1.4599 |
| CLTM8191152T1\* | −0.027 | −0.4612 |
| CLTM8191247T1 | −0.180 | −0.3556 |
| CLTM8191354T2 | −0.203 | −0.2199 |
| CLTM8201435T1 | −0.575 | −0.6124 |
| CLTM8201438T3 | −0.127 | 0.0964 |
| CLTM8201439T2 | 0.477 | 0.6423 |
| CLTM8201521T3 | 0.168 | 0.3188 |
| CLTM8201614T1\* | −2.119 | −1.6839 |
| CLTM8201615T1 | −0.670 | −0.7305 |
| CLTM8201616T2 | 0.452 | 0.2120 |
| CLTM8201677T1 | 0.135 | −0.1083 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

#### Mathematics, Grade Eleven Graph and Table

Figure 8.E.14 indicates, in the grade eleven mathematics assessment, the relationship between the item bank *b*-parameters (calibrated before 2022–23) and the equated *b*-‍parameters from 2022–23, the fourth iteration of the robust-z evaluation for the anchor items. The x-axis is the item bank *b*-parameter, and the y-axis is the 2022–23 spring equated *b*-parameters. Points shaped as circles represent IRT *b*-parameters of items remaining in the final linking set, and points shaped as squares represents IRT *b*-‍parameters of items removed from the linking set. Each polytomous item has two IRT *b*-‍parameters and therefore is depicted twice in the graph. Data used to create this graph is found in table 8.E.14, which immediately follows the graph.

Figure 8.E.14  *b*-parameters from item bank and 2022–23 for the equating set of mathematics, grade eleven

Table 8.E.14 *b*-parameters from Item Bank and 2022–23 for the Equating Set of Mathematics Grade Eleven

|  |  |  |
| --- | --- | --- |
| Item ID | *b*-parameter from Item Bank | *b*-parameter from 2022–23 |
| CLTMH020020T2 | −0.577 | −0.5530 |
| CLTMH020022T1 | −0.735 | −0.6513 |
| CLTMH020023T2 | 0.268 | 0.4019 |
| CLTMH020074T2 | −1.042 | −0.7827 |
| CLTMH020076T1 | 0.248 | 0.2323 |
| CLTMH020078T3 | 1.543 | 1.4036 |
| CLTMH020335T1 | 0.600 | 0.3635 |
| CLTMH020383T3 | 0.604 | 0.7088 |
| CLTMH020402T2 | 0.420 | 0.4055 |
| CLTMH020447T1 | −0.613 | −0.5503 |
| CLTMH030541T1 | −0.219 | −0.4304 |
| CLTMH030546T2 | 0.407 | 0.4202 |
| CLTMH030549T1 | −0.592 | −0.5994 |
| CLTMH030552T3 | −0.175 | −0.2645 |
| CLTMH030556T3 | −0.307 | −0.4281 |
| CLTMH030630T1 | −0.144 | −0.0233 |
| CLTMH030632T3 | 0.521 | 0.3536 |
| CLTMH030633T2-R | 0.346 | 0.1863 |
| CLTMH030642T2 | −0.048 | −0.1303 |
| CLTMH030714T3 | 1.608 | 1.4068 |
| CLTMH180813T1 | −0.204 | −0.3193 |
| CLTMH180826T1 | −0.785 | −0.7934 |
| CLTMH180827T2 | −0.301 | −0.2415 |
| CLTMH180830T2 | −0.158 | −0.1224 |
| CLTMH180917T3 | 2.047 | 1.9603 |
| CLTMH180921T1 | −0.127 | −0.1389 |
| CLTMH180926T1 | −0.505 | −0.5450 |
| CLTMH180976T2 | −0.271 | −0.1829 |
| CLTMH191189T1\* | −1.036 | −0.5345 |
| CLTMH191304T1\* | −1.545 | −1.1694 |
| CLTMH191349T3 | −0.676 | −0.4730 |
| CLTMH201464T2\* | −1.142 | −0.6823 |
| CLTMH201465T1 | −1.417 | −1.1880 |
| CLTMH201468T3 | 0.868 | 1.1338 |
| CLTMH201472T1 | −0.878 | −0.9403 |
| CLTMH201476T3\* | 0.042 | −0.3276 |
| CLTMH201478T2 | 0.383 | 0.3668 |
| CLTMH201542T1 | −0.172 | −0.0961 |
| CLTMH201546T2 | 0.638 | 0.5720 |

**Note:** An asterisk (\*) indicates that the item was dropped from the anchor set by robust-z statistics.

**Note:** For table 8.E.15 through table 8.E.28, “N/A” 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.E.15 IRT Item Difficulty—ELA, Grade Three

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTR3020057T1-M | 4,431 | −1.3464 | 0.04 | 1.5624 : −1.5624 | 0.0416 : 0.0416 |
| CLTR3020058T1-M | 4,431 | −1.3405 | 0.04 | N/A | N/A |
| CLTR3020059T1-O | 4,431 | −1.2128 | 0.03 | −0.6415 : 0.6415 | 0.0494 : 0.0494 |
| CLTR3020094T1 | 3,039 | 0.7555 | 0.04 | N/A | N/A |
| CLTR3020169T1 | 4,414 | −1.0577 | 0.04 | 1.3403 : −1.3403 | 0.0378 : 0.0378 |
| CLTR3020170T1 | 4,414 | −0.0536 | 0.03 | 0.1343 : −0.1343 | 0.0345 : 0.0345 |
| CLTR3020172T3 | 1,266 | −1.2001 | 0.07 | N/A | N/A |
| CLTR3030028T1 | 2,960 | −0.0007 | 0.05 | N/A | N/A |
| CLTR3030110T2 | 4,393 | −1.7600 | 0.05 | 1.2897 : −1.2897 | 0.0503 : 0.0503 |
| CLTR3030112T2 | 4,392 | −0.9841 | 0.04 | N/A | N/A |
| CLTR3030135T1 | 1,269 | −0.6426 | 0.06 | N/A | N/A |
| CLTR3030158T3-R | 3,042 | −1.4697 | 0.06 | N/A | N/A |
| CLTR3030159T3 | 3,042 | 0.9691 | 0.04 | N/A | N/A |
| CLTR3030166T3 | 1,266 | −1.0144 | 0.05 | 0.8390 : −0.8390 | 0.0606 : 0.0606 |
| CLTR3040179T2 | 1,269 | −0.6490 | 0.07 | N/A | N/A |
| CLTR3040180T2 | 3,003 | 0.5082 | 0.04 | N/A | N/A |
| CLTR3040190T3 | 3,043 | −1.2268 | 0.06 | 1.2925 : −1.2925 | 0.0622 : 0.0622 |
| CLTR3040191T3 | 3,040 | 1.0712 | 0.04 | N/A | N/A |
| CLTR3040194T3 | 1,267 | 0.1043 | 0.07 | N/A | N/A |
| CLTR3040231T1 | 1,269 | −2.2094 | 0.07 | N/A | N/A |
| CLTR3040232T1 | 1,197 | −1.2882 | 0.06 | 1.0593 : −1.0593 | 0.0630 : 0.0630 |
| CLTR3190030T2 | 3,041 | −0.4503 | 0.05 | N/A | N/A |
| CLTR3190031T2 | 3,041 | −0.3947 | 0.05 | N/A | N/A |
| CLTR3190053T1 | 1,266 | −0.7466 | 0.07 | N/A | N/A |
| CLTR3190054T1 | 1,266 | 0.2620 | 0.07 | 1.3199 : −1.3199 | 0.0813 : 0.0813 |
| CLTR3200034T1 | 2,168 | −1.1060 | 0.06 | N/A | N/A |
| CLTR3200037T1 | 2,168 | −1.2431 | 0.06 | N/A | N/A |
| CLTR3200115T3 | 2,167 | 0.2347 | 0.05 | N/A | N/A |
| CLTR3200117T3 | 3,041 | −0.9390 | 0.05 | 1.3541 : −1.3541 | 0.0542 : 0.0542 |
| CLTR3200244T2 | 2,222 | −0.5735 | 0.06 | 1.9533 : −1.9533 | 0.0572 : 0.0572 |
| CLTR3200245T2 | 2,222 | −1.0787 | 0.06 | N/A | N/A |
| CLTR3200248T2 | 1,268 | −0.6538 | 0.07 | N/A | N/A |
| CLTR3220022T1 | 2,220 | 0.8033 | 0.05 | N/A | N/A |
| CLTW3020107T1 | 4,431 | −1.8040 | 0.05 | N/A | N/A |
| CLTW3020145T2-M | 1,269 | −0.7663 | 0.05 | 0.7228 : −0.7228 | 0.0602 : 0.0602 |
| CLTW3020146T2 | 1,269 | −1.0347 | 0.06 | 1.4554 : −1.4554 | 0.0640 : 0.0640 |
| CLTW3020171T1-R | 4,413 | −0.0635 | 0.04 | N/A | N/A |
| CLTW3020403T3 | 3,041 | 1.1931 | 0.03 | −0.3637 : 0.3637 | 0.0483 : 0.0483 |
| CLTW3030030T1 | 2,979 | 0.1373 | 0.03 | 0.1162 : −0.1162 | 0.0414 : 0.0414 |
| CLTW3030160T3 | 3,042 | 1.1699 | 0.03 | −0.2584 : 0.2584 | 0.0470 : 0.0470 |
| CLTW3040022T1 | 1,258 | −1.0774 | 0.06 | N/A | N/A |
| CLTW3040227T2 | 3,039 | 1.4992 | 0.05 | N/A | N/A |
| CLTW3190032T2 | 3,041 | −0.3604 | 0.05 | N/A | N/A |
| CLTW3190055T1 | 1,266 | 0.0818 | 0.07 | N/A | N/A |
| CLTW3190076T2 | 4,395 | −1.0469 | 0.03 | 0.4828 : −0.4828 | 0.0384 : 0.0384 |
| CLTW3190177T1 | 1,179 | −1.8066 | 0.07 | N/A | N/A |
| CLTW3200246T2 | 2,222 | −0.4881 | 0.05 | N/A | N/A |
| CLTW3210106T2 | 2,167 | −0.8539 | 0.04 | 0.5904 : −0.5904 | 0.0518 : 0.0518 |

Table 8.E.16 IRT Item Difficulty—ELA, Grade Four

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTR4020116T2 | 1,830 | −0.3842 | 0.06 | N/A | N/A |
| CLTR4020117T2 | 1,830 | −1.3019 | 0.05 | 1.0713 : −1.0713 | 0.0520 : 0.0520 |
| CLTR4020132T3 | 2,401 | 0.8981 | 0.05 | N/A | N/A |
| CLTR4020137T2 | 2,458 | −0.0464 | 0.05 | N/A | N/A |
| CLTR4020237T1 | 4,420 | −2.2817 | 0.05 | N/A | N/A |
| CLTR4020244T3-M | 2,458 | 0.7473 | 0.03 | −0.3023 : 0.3023 | 0.0487 : 0.0487 |
| CLTR4020245T3 | 2,458 | 0.2595 | 0.05 | N/A | N/A |
| CLTR4020256T1-M | 4,285 | −0.5974 | 0.04 | N/A | N/A |
| CLTR4020257T1-M | 4,285 | −1.3668 | 0.04 | 0.7527 : −0.7527 | 0.0431 : 0.0431 |
| CLTR4020258T1-M | 4,285 | −0.5666 | 0.03 | −0.8171 : 0.8171 | 0.0461 : 0.0461 |
| CLTR4020298T3 | 2,457 | 0.6210 | 0.05 | N/A | N/A |
| CLTR4020299T3 | 2,457 | 0.1179 | 0.04 | 0.5102 : −0.5102 | 0.0438 : 0.0438 |
| CLTR4020308T1 | 4,381 | −0.8326 | 0.04 | N/A | N/A |
| CLTR4030014T2-R | 2,434 | −0.6163 | 0.05 | N/A | N/A |
| CLTR4030062T2 | 1,777 | −0.6432 | 0.04 | 0.8289 : −0.8289 | 0.0495 : 0.0495 |
| CLTR4040005T2 | 4,380 | −0.7810 | 0.04 | N/A | N/A |
| CLTR4040006T1 | 4,420 | −0.6817 | 0.04 | N/A | N/A |
| CLTR4040007T1 | 4,420 | −1.1941 | 0.03 | 0.8164 : −0.8164 | 0.0376 : 0.0376 |
| CLTR4040071T2 | 4,379 | −0.7327 | 0.04 | N/A | N/A |
| CLTR4040100T1 | 1,830 | −2.0100 | 0.06 | N/A | N/A |
| CLTR4040101T1 | 1,830 | −1.3168 | 0.05 | 1.1961 : −1.1961 | 0.0528 : 0.0528 |
| CLTR4040199T1 | 1,829 | −1.2309 | 0.06 | N/A | N/A |
| CLTR4190102T3 | 1,752 | −1.1815 | 0.06 | N/A | N/A |
| CLTR4200072T1 | 4,380 | −0.3407 | 0.04 | N/A | N/A |
| CLTR4200170T1 | 2,202 | −1.2839 | 0.06 | N/A | N/A |
| CLTR4200171T1 | 2,202 | −1.6631 | 0.06 | 0.7964 : −0.7964 | 0.0660 : 0.0660 |
| CLTR4200223T2 | 2,202 | −1.1619 | 0.05 | 1.4442 : −1.4442 | 0.0549 : 0.0549 |
| CLTR4220075T2 | 2,177 | −0.3322 | 0.05 | N/A | N/A |
| CLTR4220095T3 | 2,175 | −0.6985 | 0.06 | N/A | N/A |
| CLTR4220096T3 | 2,175 | 0.1509 | 0.05 | N/A | N/A |
| CLTW4020086T2 | 4,380 | −0.0968 | 0.03 | −0.4529 : 0.4529 | 0.0396 : 0.0396 |
| CLTW4020118T2 | 1,830 | 0.0929 | 0.06 | N/A | N/A |
| CLTW4020131T3 | 1,830 | −0.0790 | 0.06 | N/A | N/A |
| CLTW4020134T3 | 1,830 | −0.2580 | 0.06 | N/A | N/A |
| CLTW4020240T1-M | 4,387 | −1.0787 | 0.03 | 0.5185 : −0.5185 | 0.0379 : 0.0379 |
| CLTW4020246T3 | 2,456 | 0.7449 | 0.04 | 0.6931 : −0.6931 | 0.0419 : 0.0419 |
| CLTW4020300T3 | 2,457 | 0.7609 | 0.05 | N/A | N/A |
| CLTW4030132T3-R | 2,415 | 0.9145 | 0.05 | N/A | N/A |
| CLTW4040008T1-O | 4,420 | −0.7622 | 0.03 | 1.5012 : −1.5012 | 0.0348 : 0.0348 |
| CLTW4040073T2 | 2,459 | 0.9071 | 0.05 | N/A | N/A |
| CLTW4040074T2 | 2,458 | 0.5185 | 0.05 | N/A | N/A |
| CLTW4040102T1 | 1,830 | 0.1521 | 0.06 | N/A | N/A |
| CLTW4190212T2 | 1,808 | −0.7295 | 0.04 | 0.8924 : −0.8924 | 0.0489 : 0.0489 |
| CLTW4200172T1 | 2,202 | −1.2434 | 0.05 | 0.6246 : −0.6246 | 0.0564 : 0.0564 |
| CLTW4220097T3 | 2,175 | −0.4502 | 0.05 | N/A | N/A |

Table 8.E.17 IRT Item Difficulty—ELA, Grade Five

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTR5020038T3-M | 2,961 | 1.5277 | 0.05 | N/A | N/A |
| CLTR5020039T3-M | 2,961 | 1.2658 | 0.05 | N/A | N/A |
| CLTR5020074T3-R | 2,963 | 0.1615 | 0.03 | −0.8910 : 0.8910 | 0.0538 : 0.0538 |
| CLTR5020314T1 | 4,377 | −0.4722 | 0.04 | N/A | N/A |
| CLTR5020315T1 | 4,414 | −1.5441 | 0.05 | 1.7447 : −1.7447 | 0.0482 : 0.0482 |
| CLTR5020316T1 | 2,957 | −0.5537 | 0.04 | −0.3050 : 0.3050 | 0.0517 : 0.0517 |
| CLTR5020334T1 | 4,388 | −1.8860 | 0.05 | 1.2767 : −1.2767 | 0.0513 : 0.0513 |
| CLTR5020340T2 | 2,958 | 0.3394 | 0.04 | N/A | N/A |
| CLTR5030043T3 | 2,962 | 0.4167 | 0.04 | N/A | N/A |
| CLTR5030044T3 | 2,962 | −0.8619 | 0.04 | 0.5095 : −0.5095 | 0.0506 : 0.0506 |
| CLTR5030144T1 | 2,931 | 0.4097 | 0.04 | N/A | N/A |
| CLTR5030145T1 | 1,269 | −0.5560 | 0.07 | N/A | N/A |
| CLTR5030154T1 | 4,414 | −1.4847 | 0.04 | 1.0899 : −1.0899 | 0.0424 : 0.0424 |
| CLTR5030155T1 | 1,270 | −1.2813 | 0.06 | 1.2879 : −1.2879 | 0.0637 : 0.0637 |
| CLTR5030183T2 | 1,270 | −0.9936 | 0.06 | 1.6670 : −1.6670 | 0.0656 : 0.0656 |
| CLTR5030184T2 | 1,269 | −0.5395 | 0.06 | N/A | N/A |
| CLTR5040013T1 | 1,267 | −1.6524 | 0.06 | 1.0066 : −1.0066 | 0.0663 : 0.0663 |
| CLTR5040014T1 | 1,267 | −1.0995 | 0.07 | N/A | N/A |
| CLTR5040041T1 | 4,127 | −0.5614 | 0.04 | N/A | N/A |
| CLTR5040118T2 | 1,257 | −1.4703 | 0.06 | 1.0154 : −1.0154 | 0.0655 : 0.0655 |
| CLTR5040171T3 | 1,269 | −0.6938 | 0.06 | N/A | N/A |
| CLTR5190185T1 | 1,228 | −1.2857 | 0.06 | 1.3412 : −1.3412 | 0.0648 : 0.0648 |
| CLTR5200092T3 | 2,956 | −0.5751 | 0.04 | 1.0391 : −1.0391 | 0.0452 : 0.0452 |
| CLTR5200179T2 | 4,375 | −1.4940 | 0.05 | N/A | N/A |
| CLTR5200180T2 | 4,375 | −1.1585 | 0.04 | 1.2077 : −1.2077 | 0.0407 : 0.0407 |
| CLTR5200181T2 | 4,375 | −0.9964 | 0.04 | 1.0639 : −1.0639 | 0.0385 : 0.0385 |
| CLTR5210061T1 | 2,227 | −1.4523 | 0.06 | N/A | N/A |
| CLTR5210123T2 | 2,226 | −0.8865 | 0.05 | 1.2516 : −1.2516 | 0.0500 : 0.0500 |
| CLTR5220115T1 | 2,143 | −1.8000 | 0.07 | N/A | N/A |
| CLTR5220126T2 | 2,143 | −0.8762 | 0.06 | N/A | N/A |
| CLTR5220127T2 | 2,143 | −1.4180 | 0.05 | 0.8526 : −0.8526 | 0.0608 : 0.0608 |
| CLTR5220128T2 | 2,143 | −0.6237 | 0.06 | N/A | N/A |
| CLTW5020317T1 | 4,414 | −1.9999 | 0.05 | 1.2084 : −1.2084 | 0.0514 : 0.0514 |
| CLTW5020343T2 | 1,269 | −1.3567 | 0.06 | 1.1989 : −1.1989 | 0.0644 : 0.0644 |
| CLTW5020347T2 | 2,962 | 1.1198 | 0.05 | N/A | N/A |
| CLTW5030045T3 | 2,962 | 0.0951 | 0.03 | 0.0548 : −0.0548 | 0.0418 : 0.0418 |
| CLTW5030139T3 | 1,269 | −0.0158 | 0.07 | N/A | N/A |
| CLTW5030157T1 | 4,414 | −1.5570 | 0.04 | N/A | N/A |
| CLTW5030187T2-R | 4,231 | −0.2479 | 0.04 | N/A | N/A |
| CLTW5040015T1 | 1,267 | −1.0780 | 0.05 | 0.8220 : −0.8220 | 0.0594 : 0.0594 |
| CLTW5040120T2 | 2,962 | 0.5944 | 0.04 | N/A | N/A |
| CLTW5040174T3 | 1,269 | −0.0078 | 0.07 | N/A | N/A |
| CLTW5190119T2 | 2,958 | −0.3749 | 0.05 | N/A | N/A |
| CLTW5200188T2 | 4,373 | −0.4357 | 0.04 | N/A | N/A |
| CLTW5210144T3 | 2,227 | −0.0584 | 0.05 | N/A | N/A |
| CLTW5210148T3 | 2,228 | −0.8739 | 0.05 | N/A | N/A |

Table 8.E.18 IRT Item Difficulty—ELA, Grade Six

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTR6020097T1 | 4,393 | −1.5332 | 0.04 | −1.1218 : 1.1218 | 0.0664 : 0.0664 |
| CLTR6020099T1 | 1,059 | −0.8845 | 0.04 | −1.1734 : 1.1734 | 0.0969 : 0.0969 |
| CLTR6020101T1-R | 4,346 | −1.2746 | 0.04 | N/A | N/A |
| CLTR6020202T2 | 4,349 | −1.2568 | 0.04 | 1.1764 : −1.1764 | 0.0430 : 0.0430 |
| CLTR6020204T2 | 4,365 | −1.4968 | 0.05 | 1.3322 : −1.3322 | 0.0489 : 0.0489 |
| CLTR6020397T3 | 3,167 | 1.0809 | 0.04 | N/A | N/A |
| CLTR6020398T3 | 3,167 | 0.5165 | 0.04 | N/A | N/A |
| CLTR6020420T3 | 3,162 | −0.3147 | 0.04 | 1.4203 : −1.4203 | 0.0422 : 0.0422 |
| CLTR6020422T3 | 4,224 | 0.6457 | 0.04 | N/A | N/A |
| CLTR6030030T1 | 4,394 | −1.0768 | 0.03 | −0.0914 : 0.0914 | 0.0422 : 0.0422 |
| CLTR6030031T1 | 4,394 | −1.4836 | 0.04 | N/A | N/A |
| CLTR6040030T3 | 4,222 | −0.4649 | 0.03 | 1.0834 : −1.0834 | 0.0353 : 0.0353 |
| CLTR6040121T1 | 3,128 | −0.5727 | 0.03 | −0.8183 : 0.8183 | 0.0574 : 0.0574 |
| CLTR6040122T1 | 1,058 | −0.8752 | 0.07 | N/A | N/A |
| CLTR6040124T1 | 1,059 | −0.8939 | 0.07 | N/A | N/A |
| CLTR6040163T2 | 3,167 | 0.8902 | 0.04 | N/A | N/A |
| CLTR6040176T2 | 1,059 | −1.4888 | 0.07 | 1.1506 : −1.1506 | 0.0748 : 0.0748 |
| CLTR6040178T2 | 1,059 | −0.0284 | 0.07 | N/A | N/A |
| CLTR6040236T1 | 1,059 | −0.9966 | 0.07 | 1.5578 : −1.5578 | 0.0710 : 0.0710 |
| CLTR6190012T2 | 3,163 | −1.4995 | 0.06 | N/A | N/A |
| CLTR6190013T2 | 3,163 | −0.7344 | 0.05 | N/A | N/A |
| CLTR6190014T2 | 3,163 | −0.4540 | 0.04 | 1.2060 : −1.2060 | 0.0422 : 0.0422 |
| CLTR6190217T1 | 1,045 | −1.5472 | 0.08 | N/A | N/A |
| CLTR6200002T2 | 2,137 | −0.4139 | 0.05 | N/A | N/A |
| CLTR6200053T2 | 1,030 | −0.2620 | 0.07 | N/A | N/A |
| CLTR6200132T1 | 4,342 | −1.6636 | 0.05 | 0.7161 : −0.7161 | 0.0503 : 0.0503 |
| CLTR6200189T1 | 2,204 | −1.2552 | 0.06 | N/A | N/A |
| CLTR6200190T1 | 2,204 | −1.8829 | 0.07 | N/A | N/A |
| CLTR6220056T2 | 2,137 | −0.5602 | 0.05 | N/A | N/A |
| CLTR6220060T2 | 2,137 | −0.5856 | 0.05 | 1.2738 : −1.2738 | 0.0511 : 0.0511 |
| CLTR6220093T3 | 2,206 | −0.2929 | 0.05 | N/A | N/A |
| CLTW6020102T1 | 3,118 | −0.9712 | 0.05 | N/A | N/A |
| CLTW6020104T1 | 1,059 | −1.1321 | 0.06 | 1.0721 : −1.0721 | 0.0680 : 0.0680 |
| CLTW6020208T2 | 4,353 | −0.2617 | 0.04 | N/A | N/A |
| CLTW6020209T2 | 4,346 | 0.4358 | 0.03 | 0.5170 : −0.5170 | 0.0334 : 0.0334 |
| CLTW6020399T3 | 3,167 | 0.7197 | 0.03 | 0.2732 : −0.2732 | 0.0391 : 0.0391 |
| CLTW6020424T3 | 3,164 | 1.1393 | 0.04 | N/A | N/A |
| CLTW6030032T1-O | 4,393 | −0.5928 | 0.03 | 0.9229 : −0.9229 | 0.0336 : 0.0336 |
| CLTW6030198T2 | 3,167 | 0.6971 | 0.04 | N/A | N/A |
| CLTW6030202T1 | 1,058 | −1.0724 | 0.07 | N/A | N/A |
| CLTW6030228T3 | 1,059 | 0.7557 | 0.08 | N/A | N/A |
| CLTW6040123T1 | 1,059 | −1.2417 | 0.06 | 1.0045 : −1.0045 | 0.0685 : 0.0685 |
| CLTW6040138T1 | 3,161 | 0.3960 | 0.04 | N/A | N/A |
| CLTW6040177T2 | 1,059 | −0.2690 | 0.07 | N/A | N/A |
| CLTW6200191T1 | 2,204 | −1.5193 | 0.06 | 1.0107 : −1.0107 | 0.0689 : 0.0689 |
| CLTW6220057T2 | 2,137 | −0.9421 | 0.06 | N/A | N/A |

Table 8.E.19 IRT Item Difficulty—ELA, Grade Seven

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTR7020156T2 | 2,870 | 0.3267 | 0.04 | N/A | N/A |
| CLTR7020157T2 | 2,870 | 1.1470 | 0.05 | N/A | N/A |
| CLTR7020158T2 | 2,871 | 0.3412 | 0.03 | 0.5290 : −0.5290 | 0.0412 : 0.0412 |
| CLTR7020348T3 | 2,865 | 1.1674 | 0.04 | N/A | N/A |
| CLTR7020349T3 | 2,865 | 2.8610 | 0.06 | N/A | N/A |
| CLTR7020362T3 | 2,869 | 1.4720 | 0.05 | N/A | N/A |
| CLTR7020365T3 | 1,513 | −0.5128 | 0.04 | −0.7726 : 0.7726 | 0.0702 : 0.0702 |
| CLTR7020369T2 | 2,837 | 0.4480 | 0.04 | N/A | N/A |
| CLTR7020370T2 | 4,495 | 0.4238 | 0.04 | N/A | N/A |
| CLTR7020381T1 | 4,554 | −0.0932 | 0.04 | N/A | N/A |
| CLTR7020382T1 | 4,555 | −1.3107 | 0.04 | 1.5681 : −1.5681 | 0.0438 : 0.0438 |
| CLTR7020408T1 | 2,864 | −0.8933 | 0.05 | N/A | N/A |
| CLTR7020409T1-R | 2,864 | −0.6450 | 0.05 | N/A | N/A |
| CLTR7030241T2 | 4,492 | 0.1331 | 0.04 | N/A | N/A |
| CLTR7030255T1 | 1,466 | 0.0250 | 0.06 | N/A | N/A |
| CLTR7030257T1 | 1,515 | −1.4710 | 0.05 | 1.0093 : −1.0093 | 0.0596 : 0.0596 |
| CLTR7030258T1 | 1,515 | −0.1634 | 0.06 | N/A | N/A |
| CLTR7040042T2 | 1,514 | −0.9140 | 0.06 | N/A | N/A |
| CLTR7040043T2 | 1,514 | −0.4706 | 0.06 | N/A | N/A |
| CLTR7040061T3 | 2,808 | 0.6802 | 0.03 | −0.2889 : 0.2889 | 0.0451 : 0.0451 |
| CLTR7040062T3 | 1,513 | −1.0390 | 0.06 | 1.3569 : −1.3569 | 0.0581 : 0.0581 |
| CLTR7040064T2 | 1,514 | −0.0719 | 0.06 | N/A | N/A |
| CLTR7040126T1 | 1,492 | −0.8603 | 0.06 | N/A | N/A |
| CLTR7190068T1 | 1,514 | −1.3535 | 0.06 | 1.1314 : −1.1314 | 0.0599 : 0.0599 |
| CLTR7190270T2 | 2,870 | −0.1766 | 0.05 | N/A | N/A |
| CLTR7200049T1 | 4,555 | −1.4390 | 0.04 | 1.3029 : −1.3029 | 0.0453 : 0.0453 |
| CLTR7200056T1 | 4,506 | −0.7846 | 0.03 | 1.2794 : −1.2794 | 0.0359 : 0.0359 |
| CLTR7200057T1 | 4,506 | 0.8702 | 0.04 | N/A | N/A |
| CLTR7200231T3 | 2,297 | 0.4168 | 0.05 | N/A | N/A |
| CLTR7200273T2 | 4,488 | −2.2903 | 0.07 | 0.9075 : −0.9075 | 0.0701 : 0.0701 |
| CLTR7210022T1 | 2,189 | −2.3107 | 0.08 | N/A | N/A |
| CLTR7210163T3 | 2,296 | −0.9443 | 0.05 | 1.1529 : −1.1529 | 0.0532 : 0.0532 |
| CLTR7220046T3 | 2,189 | −1.2955 | 0.05 | 1.0431 : −1.0431 | 0.0587 : 0.0587 |
| CLTR7220051T2 | 2,188 | −1.0993 | 0.06 | N/A | N/A |
| CLTW7020350T3 | 2,864 | 0.6762 | 0.03 | 0.3825 : −0.3825 | 0.0418 : 0.0418 |
| CLTW7020361T3 | 2,869 | 0.5683 | 0.03 | 0.5685 : −0.5685 | 0.0406 : 0.0406 |
| CLTW7020384T1 | 1,509 | 0.4477 | 0.06 | N/A | N/A |
| CLTW7020385T1 | 4,554 | −1.5533 | 0.04 | N/A | N/A |
| CLTW7020407T1 | 2,864 | −0.1341 | 0.04 | 0.6824 : −0.6824 | 0.0422 : 0.0422 |
| CLTW7030134T3 | 2,799 | −0.0437 | 0.05 | N/A | N/A |
| CLTW7030251T3 | 1,513 | −0.6408 | 0.06 | N/A | N/A |
| CLTW7030259T1 | 1,514 | −1.0257 | 0.06 | N/A | N/A |
| CLTW7040044T2 | 1,514 | −1.2345 | 0.05 | 0.9295 : −0.9295 | 0.0573 : 0.0573 |
| CLTW7190257T2 | 1,514 | −0.0473 | 0.06 | N/A | N/A |
| CLTW7200058T1 | 4,506 | −1.6959 | 0.05 | N/A | N/A |
| CLTW7200232T3 | 2,297 | −0.8223 | 0.06 | N/A | N/A |
| CLTW7210082T2 | 2,297 | −1.2876 | 0.06 | N/A | N/A |
| CLTW7220026T1 | 2,189 | −1.4599 | 0.06 | N/A | N/A |

Table 8.E.20 IRT Item Difficulty—ELA, Grade Eight

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTR8020285T2-M | 2,204 | 0.8552 | 0.05 | N/A | N/A |
| CLTR8020286T2-M | 2,204 | 0.4493 | 0.05 | N/A | N/A |
| CLTR8020321T2-M | 4,263 | −1.4723 | 0.04 | 1.1737 : −1.1737 | 0.0484 : 0.0484 |
| CLTR8020322T2-M | 4,263 | 0.9018 | 0.04 | N/A | N/A |
| CLTR8020323T2-M | 4,263 | −0.4241 | 0.03 | −0.3030 : 0.3030 | 0.0391 : 0.0391 |
| CLTR8020394T1-M | 4,293 | −0.7680 | 0.04 | 2.0712 : −2.0712 | 0.0420 : 0.0420 |
| CLTR8020395T1-M | 4,293 | −1.5934 | 0.05 | N/A | N/A |
| CLTR8020437T3 | 2,204 | −0.0681 | 0.05 | 1.4135 : −1.4135 | 0.0500 : 0.0500 |
| CLTR8020438T3 | 2,204 | 1.1541 | 0.05 | N/A | N/A |
| CLTR8020440T3 | 2,203 | 0.2309 | 0.04 | 1.3444 : −1.3444 | 0.0467 : 0.0467 |
| CLTR8020447T1 | 2,165 | −0.3010 | 0.06 | 2.0011 : −2.0011 | 0.0604 : 0.0604 |
| CLTR8030210T1-R | 1,964 | −0.2288 | 0.05 | N/A | N/A |
| CLTR8030216T2 | 1,964 | −0.9667 | 0.05 | 1.6541 : −1.6541 | 0.0565 : 0.0565 |
| CLTR8030217T2 | 1,964 | −0.3181 | 0.05 | N/A | N/A |
| CLTR8030218T2 | 1,964 | −0.6909 | 0.04 | 1.0628 : −1.0628 | 0.0485 : 0.0485 |
| CLTR8040090T1 | 1,965 | −1.3436 | 0.05 | N/A | N/A |
| CLTR8040091T1 | 1,965 | −1.4912 | 0.06 | 1.2924 : −1.2924 | 0.0616 : 0.0616 |
| CLTR8040148T2 | 1,962 | −0.9601 | 0.06 | 1.6245 : −1.6245 | 0.0585 : 0.0585 |
| CLTR8040214T3 | 1,964 | −0.7586 | 0.05 | 1.5949 : −1.5949 | 0.0550 : 0.0550 |
| CLTR8040215T3 | 1,964 | −0.7903 | 0.05 | 1.8251 : −1.8251 | 0.0566 : 0.0566 |
| CLTR8040219T3 | 2,179 | 0.1978 | 0.03 | −0.6095 : 0.6095 | 0.0568 : 0.0568 |
| CLTR8190249T3 | 2,204 | −0.2471 | 0.05 | N/A | N/A |
| CLTR8200173T2 | 2,188 | 0.0586 | 0.05 | N/A | N/A |
| CLTR8200226T3 | 2,204 | 0.5994 | 0.03 | −0.2978 : 0.2978 | 0.0507 : 0.0507 |
| CLTR8200258T1 | 4,136 | −1.2402 | 0.05 | N/A | N/A |
| CLTR8200263T1 | 4,275 | −0.9079 | 0.04 | N/A | N/A |
| CLTR8200264T1 | 4,275 | −1.6836 | 0.05 | 1.0536 : −1.0536 | 0.0529 : 0.0529 |
| CLTR8200265T1 | 4,275 | −1.4767 | 0.05 | 1.1751 : −1.1751 | 0.0495 : 0.0495 |
| CLTR8210026T1 | 2,188 | −1.5695 | 0.06 | N/A | N/A |
| CLTR8210027T1 | 2,188 | −1.7406 | 0.06 | N/A | N/A |
| CLTR8220156T3 | 2,071 | −1.2241 | 0.05 | 1.0050 : −1.0050 | 0.0606 : 0.0606 |
| CLTR8220161T2 | 2,071 | −0.6948 | 0.06 | N/A | N/A |
| CLTW8020069T3 | 2,201 | 0.6857 | 0.05 | N/A | N/A |
| CLTW8020261T2 | 1,962 | −1.5153 | 0.06 | 1.4590 : −1.4590 | 0.0651 : 0.0651 |
| CLTW8020262T2 | 2,172 | 1.4738 | 0.05 | N/A | N/A |
| CLTW8020287T2-M | 2,203 | 1.4100 | 0.05 | N/A | N/A |
| CLTW8020388T1 | 2,206 | −1.2146 | 0.09 | 1.9133 : −1.9133 | 0.0899 : 0.0899 |
| CLTW8020389T1 | 4,294 | −1.1539 | 0.04 | 1.5745 : −1.5745 | 0.0422 : 0.0422 |
| CLTW8020396T1-O | 4,293 | −0.9444 | 0.04 | 1.7495 : −1.7495 | 0.0405 : 0.0405 |
| CLTW8040037T1 | 1,959 | −1.8199 | 0.06 | N/A | N/A |
| CLTW8040092T1 | 1,965 | −1.2298 | 0.05 | 1.2710 : −1.2710 | 0.0574 : 0.0574 |
| CLTW8040216T3 | 1,964 | 0.1797 | 0.04 | −0.4810 : 0.4810 | 0.0601 : 0.0601 |
| CLTW8190007T1 | 1,903 | −1.2950 | 0.06 | 1.2668 : −1.2668 | 0.0584 : 0.0584 |
| CLTW8190154T2 | 2,203 | 0.5785 | 0.05 | N/A | N/A |
| CLTW8200085T2 | 2,073 | −0.4155 | 0.05 | N/A | N/A |
| CLTW8210028T1 | 2,188 | −1.6395 | 0.06 | N/A | N/A |
| CLTW8210124T3 | 2,071 | 0.0492 | 0.05 | N/A | N/A |

Table 8.E.21 IRT Item Difficulty—ELA, Grade Eleven

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTRH210031T1 | 1,935 | −1.3461 | 0.07 | N/A | N/A |
| CLTRH210029T1 | 1,935 | −1.6320 | 0.07 | N/A | N/A |
| CLTRH210030T1 | 1,935 | −1.4059 | 0.07 | N/A | N/A |
| CLTRH020032T1-M | 1,302 | −0.3325 | 0.05 | 0.6640 : −0.6640 | 0.0572 : 0.0572 |
| CLTRH020033T1 | 4,117 | −0.8936 | 0.05 | 1.9269 : −1.9269 | 0.0457 : 0.0457 |
| CLTRH020034T1 | 1,336 | −1.7874 | 0.07 | N/A | N/A |
| CLTRH020213T2 | 4,113 | 0.1343 | 0.04 | N/A | N/A |
| CLTRH020220T2 | 1,336 | −0.1435 | 0.07 | N/A | N/A |
| CLTRH020221T2 | 1,336 | 0.3882 | 0.07 | N/A | N/A |
| CLTRH020224T2 | 2,632 | 0.3480 | 0.03 | −0.7967 : 0.7967 | 0.0540 : 0.0540 |
| CLTRH020272T3 | 2,665 | 0.8396 | 0.04 | 1.4105 : −1.4105 | 0.0424 : 0.0424 |
| CLTRH020273T3 | 2,665 | −0.0294 | 0.04 | 1.2769 : −1.2769 | 0.0430 : 0.0430 |
| CLTRH030117T1 | 1,282 | −0.4989 | 0.06 | N/A | N/A |
| CLTRH030118T1 | 1,282 | 0.3812 | 0.07 | N/A | N/A |
| CLTRH030150T1 | 2,626 | −0.2955 | 0.05 | N/A | N/A |
| CLTRH030225T3 | 2,665 | 1.4145 | 0.05 | N/A | N/A |
| CLTRH030226T3 | 2,665 | −0.1382 | 0.05 | 1.7735 : −1.7735 | 0.0479 : 0.0479 |
| CLTRH030227T3 | 2,665 | 0.3936 | 0.03 | −1.0719 : 1.0719 | 0.0591 : 0.0591 |
| CLTRH030229T3-R | 3,998 | 0.1612 | 0.04 | N/A | N/A |
| CLTRH040056T3-R | 1,335 | −0.3589 | 0.04 | −0.6464 : 0.6464 | 0.0724 : 0.0724 |
| CLTRH040206T2 | 1,322 | −0.8213 | 0.06 | 1.2149 : −1.2149 | 0.0608 : 0.0608 |
| CLTRH190228T2 | 4,112 | −1.4883 | 0.05 | 1.5965 : −1.5965 | 0.0537 : 0.0537 |
| CLTRH200144T1 | 4,117 | −1.5802 | 0.04 | 0.4916 : −0.4916 | 0.0498 : 0.0498 |
| CLTRH200145T1 | 4,117 | −1.6343 | 0.05 | N/A | N/A |
| CLTRH200146T1-O | 4,117 | 0.0469 | 0.04 | N/A | N/A |
| CLTRH200241T1 | 4,112 | −1.8329 | 0.05 | N/A | N/A |
| CLTRH200243T1 | 1,336 | −0.8165 | 0.06 | N/A | N/A |
| CLTRH200313T2 | 4,111 | −0.4224 | 0.03 | 0.8912 : −0.8912 | 0.0340 : 0.0340 |
| CLTRH200314T2 | 2,665 | −0.3354 | 0.04 | 0.8133 : −0.8133 | 0.0458 : 0.0458 |
| CLTRH200315T2 | 2,665 | −0.4763 | 0.05 | N/A | N/A |
| CLTRH210096T2 | 2,176 | −0.4405 | 0.06 | N/A | N/A |
| CLTRH210097T2 | 2,176 | −1.0483 | 0.05 | 1.3048 : −1.3048 | 0.0579 : 0.0579 |
| CLTRH220168T3 | 2,174 | −0.7482 | 0.05 | N/A | N/A |
| CLTWH020222T2 | 1,336 | −0.9796 | 0.06 | 1.1852 : −1.1852 | 0.0603 : 0.0603 |
| CLTWH020236T1 | 4,115 | −1.6630 | 0.05 | 1.1596 : −1.1596 | 0.0521 : 0.0521 |
| CLTWH020274T3 | 2,665 | 0.9375 | 0.05 | N/A | N/A |
| CLTWH030052T1-R | 2,665 | −0.9190 | 0.06 | N/A | N/A |
| CLTWH030119T1 | 1,282 | −0.4597 | 0.05 | 0.8307 : −0.8307 | 0.0575 : 0.0575 |
| CLTWH030151T1 | 4,115 | 0.2725 | 0.04 | N/A | N/A |
| CLTWH030230T3 | 2,650 | 1.1793 | 0.05 | N/A | N/A |
| CLTWH030231T3 | 1,335 | 0.2653 | 0.07 | N/A | N/A |
| CLTWH190161T1 | 1,335 | −1.1497 | 0.06 | 1.1316 : −1.1316 | 0.0636 : 0.0636 |
| CLTWH200242T1 | 3,997 | −0.1243 | 0.04 | N/A | N/A |
| CLTWH200316T2 | 2,665 | 0.2827 | 0.03 | 0.0697 : −0.0697 | 0.0429 : 0.0429 |
| CLTWH210092T2 | 1,934 | −0.7974 | 0.05 | 0.9245 : −0.9245 | 0.0543 : 0.0543 |
| CLTWH210098T2 | 2,176 | 0.2085 | 0.05 | N/A | N/A |

Table 8.E.22 IRT Item Difficulty—Mathematics, Grade Three

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTM3020004T1 | 4,344 | −0.8611 | 0.04 | N/A | N/A |
| CLTM3020005T2 | 2,350 | 1.3273 | 0.05 | N/A | N/A |
| CLTM3020007T1 | 4,233 | 0.5393 | 0.04 | N/A | N/A |
| CLTM3020009T3 | 2,350 | 1.0395 | 0.05 | N/A | N/A |
| CLTM3020186T1 | 4,343 | −0.9833 | 0.04 | N/A | N/A |
| CLTM3020202T2 | 4,303 | −0.0592 | 0.04 | N/A | N/A |
| CLTM3020203T3 | 2,291 | 1.3799 | 0.05 | N/A | N/A |
| CLTM3020204T2 | 2,351 | 1.3815 | 0.05 | N/A | N/A |
| CLTM3030506T1 | 1,882 | −0.2516 | 0.05 | N/A | N/A |
| CLTM3030565T3 | 4,230 | 0.7754 | 0.04 | N/A | N/A |
| CLTM3030566T1 | 4,308 | −0.6986 | 0.04 | N/A | N/A |
| CLTM3030567T2 | 4,308 | −0.0901 | 0.04 | N/A | N/A |
| CLTM3030569T1 | 1,783 | −0.4447 | 0.04 | 0.4809 : −0.4809 | 0.0493 : 0.0493 |
| CLTM3030591T1 | 4,310 | −0.3978 | 0.03 | 1.0054 : −1.0054 | 0.0323 : 0.0323 |
| CLTM3180884T1 | 1,878 | −0.2424 | 0.04 | 0.5762 : −0.5762 | 0.0482 : 0.0482 |
| CLTM3180886T2 | 4,233 | 1.3902 | 0.04 | 0.6041 : −0.6041 | 0.0440 : 0.0440 |
| CLTM3180887T1 | 1,882 | −0.5245 | 0.05 | N/A | N/A |
| CLTM3180889T3 | 2,351 | 0.4183 | 0.05 | N/A | N/A |
| CLTM3180957T1 | 1,882 | −0.7185 | 0.05 | N/A | N/A |
| CLTM3180958T1 | 2,351 | −0.0857 | 0.05 | N/A | N/A |
| CLTM3180960T2 | 4,233 | −0.4287 | 0.04 | N/A | N/A |
| CLTM3180961T2 | 1,882 | −0.2747 | 0.05 | N/A | N/A |
| CLTM3180962T3 | 2,351 | 0.8594 | 0.04 | 0.4695 : −0.4695 | 0.0446 : 0.0446 |
| CLTM3180963T1 | 1,882 | −0.3742 | 0.04 | 0.8891 : −0.8891 | 0.0477 : 0.0477 |
| CLTM3181024T1 | 1,881 | −0.5235 | 0.05 | N/A | N/A |
| CLTM3191233T3 | 1,881 | 0.0583 | 0.05 | N/A | N/A |
| CLTM3191292T3 | 2,349 | 0.8387 | 0.04 | 0.6771 : −0.6771 | 0.0438 : 0.0438 |
| CLTM3201423T1 | 2,307 | −0.1323 | 0.03 | 0.2261 : −0.2261 | 0.0464 : 0.0464 |
| CLTM3201425T3 | 1,822 | 0.1639 | 0.06 | N/A | N/A |
| CLTM3201430T2 | 4,319 | 0.0530 | 0.03 | 0.9122 : −0.9122 | 0.0323 : 0.0323 |
| CLTM3201432T2 | 2,351 | 1.4363 | 0.05 | N/A | N/A |
| CLTM3201433T1 | 4,343 | −0.8338 | 0.04 | N/A | N/A |
| CLTM3201517T3 | 2,351 | −0.2444 | 0.04 | 0.0273 : −0.0273 | 0.0495 : 0.0495 |
| CLTM3201599T2 | 1,882 | 0.4072 | 0.06 | N/A | N/A |
| CLTM3201670T1 | 4,344 | −0.7594 | 0.03 | 0.3909 : −0.3909 | 0.0347 : 0.0347 |
| CLTM3201675T2 | 4,310 | 0.3316 | 0.03 | 0.9693 : −0.9693 | 0.0333 : 0.0333 |
| CLTM3211748T1 | 2,167 | −0.5802 | 0.05 | N/A | N/A |
| CLTM3211761T3 | 2,167 | 0.9064 | 0.05 | N/A | N/A |
| CLTM3211811T1 | 2,135 | −0.9139 | 0.04 | 0.4682 : −0.4682 | 0.0520 : 0.0520 |
| CLTM3211812T3 | 2,135 | 0.9410 | 0.05 | N/A | N/A |
| CLTM3221862T1 | 2,135 | 0.5166 | 0.05 | N/A | N/A |
| CLTM3221875T2 | 2,167 | 0.5134 | 0.04 | −0.4930 : 0.4930 | 0.0586 : 0.0586 |

Table 8.E.23 IRT Item Difficulty—Mathematics, Grade Four

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTM4020189T1 | 1,813 | −0.3671 | 0.05 | N/A | N/A |
| CLTM4020190T2 | 2,407 | 0.8010 | 0.05 | N/A | N/A |
| CLTM4020191T3 | 2,408 | 0.4517 | 0.05 | N/A | N/A |
| CLTM4020218T3 | 1,727 | −0.2117 | 0.04 | 0.3872 : −0.3872 | 0.0510 : 0.0510 |
| CLTM4020219T1 | 4,338 | −0.2913 | 0.04 | N/A | N/A |
| CLTM4020220T2 | 2,363 | 0.5918 | 0.05 | N/A | N/A |
| CLTM4020231T1 | 1,814 | −0.4699 | 0.05 | 1.4701 : −1.4701 | 0.0525 : 0.0525 |
| CLTM4020240T1 | 1,814 | −0.6125 | 0.05 | N/A | N/A |
| CLTM4020244T2 | 2,348 | 1.0774 | 0.05 | N/A | N/A |
| CLTM4020245T3 | 2,408 | 0.5386 | 0.05 | N/A | N/A |
| CLTM4020246T1 | 4,380 | −1.0740 | 0.04 | N/A | N/A |
| CLTM4020252T1 | 4,344 | −0.5846 | 0.04 | N/A | N/A |
| CLTM4030475T1 | 4,380 | −1.5548 | 0.04 | 0.9418 : −0.9418 | 0.0436 : 0.0436 |
| CLTM4030480T3 | 2,408 | 0.5514 | 0.03 | −0.7426 : 0.7426 | 0.0560 : 0.0560 |
| CLTM4030484T1 | 2,408 | 0.2729 | 0.03 | −0.2914 : 0.2914 | 0.0479 : 0.0479 |
| CLTM4030486T3 | 4,184 | 0.4757 | 0.03 | 0.1686 : −0.1686 | 0.0364 : 0.0364 |
| CLTM4030492T3-R | 2,408 | 0.6898 | 0.05 | N/A | N/A |
| CLTM4030612T1 | 4,380 | −1.5557 | 0.04 | 1.2645 : −1.2645 | 0.0451 : 0.0451 |
| CLTM4180848T1 | 1,814 | −0.5140 | 0.05 | N/A | N/A |
| CLTM4180849T2 | 1,814 | −0.1199 | 0.05 | N/A | N/A |
| CLTM4180852T1 | 1,814 | −0.5397 | 0.05 | N/A | N/A |
| CLTM4180853T2 | 4,222 | 0.9501 | 0.04 | N/A | N/A |
| CLTM4181000T1 | 1,814 | 0.0581 | 0.05 | N/A | N/A |
| CLTM4181002T1 | 1,756 | −0.5924 | 0.05 | 1.5363 : −1.5363 | 0.0544 : 0.0544 |
| CLTM4181004T3 | 2,408 | 1.3654 | 0.05 | 0.9151 : −0.9151 | 0.0546 : 0.0546 |
| CLTM4181027T2 | 1,814 | 0.2469 | 0.04 | −0.2732 : 0.2732 | 0.0617 : 0.0617 |
| CLTM4181031T1 | 4,380 | −0.2652 | 0.03 | 0.3226 : −0.3226 | 0.0321 : 0.0321 |
| CLTM4181035T3 | 2,408 | 0.0697 | 0.05 | N/A | N/A |
| CLTM4191128T2 | 1,814 | −0.4631 | 0.05 | 1.6274 : −1.6274 | 0.0538 : 0.0538 |
| CLTM4201491T1 | 2,408 | −0.6030 | 0.04 | 0.6380 : −0.6380 | 0.0472 : 0.0472 |
| CLTM4201492T2 | 4,354 | 0.3514 | 0.03 | −0.4075 : 0.4075 | 0.0390 : 0.0390 |
| CLTM4201494T3 | 2,165 | 0.2166 | 0.04 | −0.4334 : 0.4334 | 0.0551 : 0.0551 |
| CLTM4201495T2 | 4,335 | 0.9469 | 0.03 | 1.0270 : −1.0270 | 0.0385 : 0.0385 |
| CLTM4201497T3 | 2,408 | 1.0969 | 0.05 | 1.3485 : −1.3485 | 0.0518 : 0.0518 |
| CLTM4201500T1 | 1,814 | −0.9896 | 0.06 | N/A | N/A |
| CLTM4201501T2 | 2,164 | 0.1594 | 0.05 | N/A | N/A |
| CLTM4201502T3 | 2,169 | 0.2625 | 0.05 | N/A | N/A |
| CLTM4201539T1 | 2,409 | 0.0761 | 0.05 | N/A | N/A |
| CLTM4201686T2 | 4,337 | 0.8405 | 0.04 | N/A | N/A |
| CLTM4201688T1 | 4,334 | −0.2576 | 0.04 | N/A | N/A |
| CLTM4201692T3 | 1,814 | −0.4083 | 0.05 | N/A | N/A |
| CLTM4211765T1 | 2,169 | −0.6922 | 0.05 | N/A | N/A |
| CLTM4221846T1 | 2,165 | −0.7109 | 0.04 | 0.4998 : −0.4998 | 0.0486 : 0.0486 |
| CLTM4221859T2 | 2,169 | 0.7666 | 0.05 | N/A | N/A |
| CLTM4221860T3 | 2,164 | 0.5758 | 0.05 | N/A | N/A |

Table 8.E.24 IRT Item Difficulty—Mathematics, Grade Five

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTM5020166T2 | 4,294 | 0.1112 | 0.03 | N/A | N/A |
| CLTM5020180T1 | 4,339 | −1.1745 | 0.04 | N/A | N/A |
| CLTM5020181T2 | 1,472 | 1.1383 | 0.06 | N/A | N/A |
| CLTM5020196T2 | 2,759 | −0.5055 | 0.03 | 0.4834 : −0.4834 | 0.0404 : 0.0404 |
| CLTM5020261T1 | 2,759 | −0.2833 | 0.04 | N/A | N/A |
| CLTM5020265T2 | 2,760 | 0.1102 | 0.04 | N/A | N/A |
| CLTM5020338T1 | 4,339 | −0.7673 | 0.03 | 0.8850 : −0.8850 | 0.0354 : 0.0354 |
| CLTM5020343T2 | 1,472 | 1.2859 | 0.06 | N/A | N/A |
| CLTM5020344T3 | 1,473 | 0.9948 | 0.06 | N/A | N/A |
| CLTM5020345T1 | 1,472 | −1.0716 | 0.07 | N/A | N/A |
| CLTM5020350T3 | 2,759 | 0.2428 | 0.04 | N/A | N/A |
| CLTM5020359T3 | 2,758 | −0.2832 | 0.03 | 0.6893 : −0.6893 | 0.0397 : 0.0397 |
| CLTM5020362T3 | 1,473 | 1.2735 | 0.06 | N/A | N/A |
| CLTM5020404T1 | 2,759 | −0.2206 | 0.04 | N/A | N/A |
| CLTM5030458T1 | 4,293 | −0.5846 | 0.03 | 0.9098 : −0.9098 | 0.0338 : 0.0338 |
| CLTM5030461T1 | 4,234 | 0.3997 | 0.03 | 1.0947 : −1.0947 | 0.0329 : 0.0329 |
| CLTM5030610T2 | 4,296 | −0.4080 | 0.03 | N/A | N/A |
| CLTM5180819T2 | 2,690 | 0.6659 | 0.04 | 0.6769 : −0.6769 | 0.0460 : 0.0460 |
| CLTM5180821T2 | 1,459 | 0.7151 | 0.04 | 0.3160 : −0.3160 | 0.0578 : 0.0578 |
| CLTM5180824T3 | 1,471 | 0.6234 | 0.06 | N/A | N/A |
| CLTM5180904T1 | 4,309 | 0.1644 | 0.03 | N/A | N/A |
| CLTM5180905T1 | 2,759 | −0.0750 | 0.04 | N/A | N/A |
| CLTM5180906T2 | 1,473 | 0.7220 | 0.06 | N/A | N/A |
| CLTM5180907T2 | 2,731 | 0.3097 | 0.04 | N/A | N/A |
| CLTM5180909T2 | 1,471 | 1.0105 | 0.04 | 0.5364 : −0.5364 | 0.0574 : 0.0574 |
| CLTM5180970T1 | 4,233 | 0.0372 | 0.03 | N/A | N/A |
| CLTM5180971T1 | 2,758 | −0.1290 | 0.03 | 0.6832 : −0.6832 | 0.0393 : 0.0393 |
| CLTM5180972T3 | 1,472 | 0.8165 | 0.04 | −0.4919 : 0.4919 | 0.0663 : 0.0663 |
| CLTM5181014T3 | 4,208 | 0.5763 | 0.04 | N/A | N/A |
| CLTM5181016T3 | 1,453 | 1.0207 | 0.05 | 0.7298 : −0.7298 | 0.0582 : 0.0582 |
| CLTM5201388T1 | 2,652 | −0.3025 | 0.04 | 1.1971 : −1.1971 | 0.0412 : 0.0412 |
| CLTM5201396T2 | 2,763 | −0.0603 | 0.03 | 0.3715 : −0.3715 | 0.0401 : 0.0401 |
| CLTM5201406T3 | 1,472 | 0.4115 | 0.04 | 0.5898 : −0.5898 | 0.0540 : 0.0540 |
| CLTM5201407T2 | 4,301 | 0.5710 | 0.03 | 0.9134 : −0.9134 | 0.0334 : 0.0334 |
| CLTM5201408T1 | 4,339 | 0.1852 | 0.03 | N/A | N/A |
| CLTM5201412T1 | 4,339 | −0.3335 | 0.03 | N/A | N/A |
| CLTM5201581T2 | 2,181 | −0.0978 | 0.04 | 0.6231 : −0.6231 | 0.0451 : 0.0451 |
| CLTM5201593T1 | 2,181 | −0.5819 | 0.05 | N/A | N/A |
| CLTM5201646T2 | 4,293 | 0.1323 | 0.02 | 0.2076 : −0.2076 | 0.0331 : 0.0331 |
| CLTM5201729T1 | 2,112 | −0.5149 | 0.05 | N/A | N/A |
| CLTM5211771T2 | 2,181 | 0.2233 | 0.05 | N/A | N/A |
| CLTM5211832T3 | 2,111 | 0.7377 | 0.04 | 0.6004 : −0.6004 | 0.0499 : 0.0499 |
| CLTM5221904T3 | 2,181 | 1.9615 | 0.07 | N/A | N/A |
| CLTM5221906T3 | 2,111 | 0.5127 | 0.05 | N/A | N/A |

Table 8.E.25 IRT Item Difficulty—Mathematics, Grade Six

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTM6020041T2 | 4,227 | 0.4085 | 0.04 | N/A | N/A |
| CLTM6020042T3 | 1,895 | 0.8096 | 0.05 | N/A | N/A |
| CLTM6020099T3 | 1,875 | 1.8850 | 0.06 | N/A | N/A |
| CLTM6020200T3 | 2,284 | −0.0530 | 0.05 | N/A | N/A |
| CLTM6020284T1 | 4,277 | −0.5566 | 0.04 | N/A | N/A |
| CLTM6020293T1 | 4,230 | −0.3714 | 0.04 | N/A | N/A |
| CLTM6020294T2 | 2,284 | 0.6678 | 0.05 | N/A | N/A |
| CLTM6020320T1 | 2,284 | −0.0247 | 0.05 | N/A | N/A |
| CLTM6020322T3 | 1,897 | 1.6020 | 0.06 | N/A | N/A |
| CLTM6020367T2 | 2,284 | 0.7919 | 0.05 | 0.9138 : −0.9138 | 0.0541 : 0.0541 |
| CLTM6020427T1 | 4,277 | −0.5315 | 0.04 | N/A | N/A |
| CLTM6020437T3 | 2,284 | −0.2073 | 0.04 | 1.2264 : −1.2264 | 0.0437 : 0.0437 |
| CLTM6030468T3 | 4,118 | 0.7138 | 0.04 | 1.6859 : −1.6859 | 0.0375 : 0.0375 |
| CLTM6030469T1 | 4,228 | −0.3093 | 0.02 | −0.1681 : 0.1681 | 0.0370 : 0.0370 |
| CLTM6030472T1 | 4,277 | −0.1063 | 0.04 | N/A | N/A |
| CLTM6030595T1 | 2,284 | −0.0454 | 0.05 | N/A | N/A |
| CLTM6030598T1 | 2,284 | −0.1429 | 0.05 | N/A | N/A |
| CLTM6030603T3 | 1,897 | 0.6431 | 0.04 | 0.8133 : −0.8133 | 0.0479 : 0.0479 |
| CLTM6030621T1 | 1,896 | −0.2117 | 0.05 | N/A | N/A |
| CLTM6030635T1 | 1,897 | 0.0497 | 0.05 | N/A | N/A |
| CLTM6030685T1 | 4,276 | −0.7336 | 0.04 | N/A | N/A |
| CLTM6030687T3 | 1,897 | 0.8917 | 0.05 | N/A | N/A |
| CLTM6180896T1 | 2,283 | −0.7214 | 0.05 | N/A | N/A |
| CLTM6180898T1 | 2,283 | −0.5042 | 0.05 | N/A | N/A |
| CLTM6180978T3 | 1,897 | 0.1800 | 0.05 | N/A | N/A |
| CLTM6180979T2 | 1,897 | 0.8187 | 0.04 | 0.4191 : −0.4191 | 0.0494 : 0.0494 |
| CLTM6180981T1 | 2,284 | 0.1916 | 0.04 | 0.7920 : −0.7920 | 0.0448 : 0.0448 |
| CLTM6180984T1 | 2,257 | −0.4471 | 0.05 | N/A | N/A |
| CLTM6180985T2 | 2,284 | 0.6588 | 0.05 | N/A | N/A |
| CLTM6180987T1 | 4,179 | −0.0289 | 0.03 | 1.1791 : −1.1791 | 0.0323 : 0.0323 |
| CLTM6201446T3 | 1,895 | 0.2580 | 0.05 | N/A | N/A |
| CLTM6201452T2 | 1,897 | 0.4597 | 0.04 | 0.1448 : −0.1448 | 0.0499 : 0.0499 |
| CLTM6201453T1 | 4,224 | −0.4129 | 0.03 | 1.1466 : −1.1466 | 0.0337 : 0.0337 |
| CLTM6201454T3 | 2,070 | 0.8406 | 0.04 | 0.2699 : −0.2699 | 0.0523 : 0.0523 |
| CLTM6201455T3 | 2,152 | 0.3933 | 0.04 | 1.0256 : −1.0256 | 0.0457 : 0.0457 |
| CLTM6201565T3 | 2,153 | 0.3792 | 0.05 | N/A | N/A |
| CLTM6201566T2 | 1,896 | 0.4168 | 0.05 | N/A | N/A |
| CLTM6201648T2 | 4,244 | 1.2202 | 0.04 | N/A | N/A |
| CLTM6201652T2 | 4,224 | −0.5258 | 0.03 | 0.6081 : −0.6081 | 0.0350 : 0.0350 |
| CLTM6201661T2 | 4,163 | −0.4478 | 0.04 | N/A | N/A |
| CLTM6201733T2 | 2,153 | 0.3271 | 0.05 | N/A | N/A |
| CLTM6211804T1 | 2,070 | −0.9225 | 0.05 | N/A | N/A |
| CLTM6211833T1 | 2,070 | −1.0033 | 0.05 | N/A | N/A |
| CLTM6211834T3 | 2,070 | 0.7133 | 0.05 | N/A | N/A |
| CLTM6221917T1 | 2,151 | −1.2933 | 0.06 | N/A | N/A |

Table 8.E.26 IRT Item Difficulty—Mathematics, Grade Seven

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTM7020033T3 | 3,109 | 0.8079 | 0.04 | N/A | N/A |
| CLTM7020035T2 | 3,048 | 0.8907 | 0.04 | N/A | N/A |
| CLTM7020036T3 | 1,233 | 2.3113 | 0.08 | N/A | N/A |
| CLTM7020049T3 | 1,233 | 0.9089 | 0.04 | 0.0427 : −0.0427 | 0.0630 : 0.0630 |
| CLTM7020089T2 | 4,345 | 0.1751 | 0.03 | 1.4782 : −1.4782 | 0.0332 : 0.0332 |
| CLTM7020297T2 | 4,398 | 0.1356 | 0.03 | N/A | N/A |
| CLTM7020324T2 | 1,212 | 0.7744 | 0.06 | N/A | N/A |
| CLTM7020369T1 | 4,347 | −0.5721 | 0.04 | N/A | N/A |
| CLTM7020423T3 | 1,232 | 1.0655 | 0.06 | N/A | N/A |
| CLTM7030510T2 | 4,397 | 0.1874 | 0.03 | 0.5559 : −0.5559 | 0.0319 : 0.0319 |
| CLTM7030511T3-R | 3,113 | 0.1251 | 0.04 | 1.4744 : −1.4744 | 0.0399 : 0.0399 |
| CLTM7030515T1 | 4,397 | −0.2233 | 0.02 | −0.1093 : 0.1093 | 0.0366 : 0.0366 |
| CLTM7030585T2 | 4,394 | 0.4806 | 0.03 | 1.6762 : −1.6762 | 0.0344 : 0.0344 |
| CLTM7030587T1-R | 3,111 | −0.9316 | 0.04 | N/A | N/A |
| CLTM7030653T1 | 4,410 | −0.2786 | 0.04 | N/A | N/A |
| CLTM7030688T1 | 4,452 | −0.6792 | 0.04 | N/A | N/A |
| CLTM7030693T3 | 1,233 | 0.2102 | 0.06 | N/A | N/A |
| CLTM7030696T3-R | 1,221 | 2.3484 | 0.08 | N/A | N/A |
| CLTM7030704T1-R | 3,111 | −0.4386 | 0.04 | N/A | N/A |
| CLTM7030705T2 | 1,233 | 1.0530 | 0.06 | N/A | N/A |
| CLTM7180846T3 | 3,113 | −0.7019 | 0.04 | 1.4968 : −1.4968 | 0.0464 : 0.0464 |
| CLTM7180927T1 | 1,232 | 0.1342 | 0.04 | −0.7536 : 0.7536 | 0.0836 : 0.0836 |
| CLTM7180928T1 | 4,346 | −0.6535 | 0.04 | N/A | N/A |
| CLTM7180937T1 | 4,452 | 0.1639 | 0.03 | 0.8518 : −0.8518 | 0.0309 : 0.0309 |
| CLTM7180951T1 | 3,112 | 0.1195 | 0.03 | 0.8151 : −0.8151 | 0.0371 : 0.0371 |
| CLTM7180952T2 | 3,113 | −0.2145 | 0.04 | 1.4091 : −1.4091 | 0.0396 : 0.0396 |
| CLTM7180953T2 | 1,232 | 0.9735 | 0.06 | 1.6534 : −1.6534 | 0.0633 : 0.0633 |
| CLTM7180993T1 | 2,990 | −0.0521 | 0.03 | 0.2365 : −0.2365 | 0.0390 : 0.0390 |
| CLTM7180995T3 | 1,232 | 0.2070 | 0.05 | 0.3656 : −0.3656 | 0.0645 : 0.0645 |
| CLTM7180996T2 | 3,113 | 0.4075 | 0.04 | N/A | N/A |
| CLTM7191072T1 | 4,452 | −0.5386 | 0.04 | N/A | N/A |
| CLTM7191202T2 | 4,398 | −0.2300 | 0.03 | 1.2202 : −1.2202 | 0.0336 : 0.0336 |
| CLTM7191205T1 | 4,452 | −0.1410 | 0.02 | 0.1601 : −0.1601 | 0.0348 : 0.0348 |
| CLTM7191363T1 | 3,112 | −0.1659 | 0.03 | −0.0820 : 0.0820 | 0.0440 : 0.0440 |
| CLTM7191365T3 | 1,215 | 0.9504 | 0.06 | 1.8192 : −1.8192 | 0.0652 : 0.0652 |
| CLTM7201403T2 | 2,268 | 0.1345 | 0.03 | 0.4087 : −0.4087 | 0.0444 : 0.0444 |
| CLTM7201418T2 | 1,233 | 1.5229 | 0.07 | N/A | N/A |
| CLTM7201419T2 | 2,124 | 0.6499 | 0.05 | N/A | N/A |
| CLTM7201529T1 | 3,113 | −0.2044 | 0.03 | −0.0282 : 0.0282 | 0.0427 : 0.0427 |
| CLTM7221938T2 | 2,267 | 0.5334 | 0.04 | 1.1479 : −1.1479 | 0.0454 : 0.0454 |
| CLTM7221939T2 | 2,126 | −0.1098 | 0.04 | 0.6050 : −0.6050 | 0.0455 : 0.0455 |
| CLTM7221950T3 | 2,269 | −0.1843 | 0.05 | N/A | N/A |
| CLTM7221955T1 | 2,124 | −0.3367 | 0.05 | N/A | N/A |
| CLTM7221960T3 | 2,266 | −0.2200 | 0.03 | 0.4613 : −0.4613 | 0.0456 : 0.0456 |
| CLTM7221961T3 | 2,126 | 0.6221 | 0.04 | 0.5660 : −0.5660 | 0.0470 : 0.0470 |

Table 8.E.27 IRT Item Difficulty—Mathematics, Grade Eight

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTM8020028T1 | 4,161 | −0.7874 | 0.03 | 0.5599 : −0.5599 | 0.0368 : 0.0368 |
| CLTM8020079T1 | 4,125 | −0.8055 | 0.04 | N/A | N/A |
| CLTM8020084T3 | 1,962 | 0.6855 | 0.05 | N/A | N/A |
| CLTM8020160T1 | 4,127 | 0.3134 | 0.03 | 0.0289 : −0.0289 | 0.0359 : 0.0359 |
| CLTM8020276T2 | 4,136 | 0.5862 | 0.03 | 0.5106 : −0.5106 | 0.0350 : 0.0350 |
| CLTM8020380T3 | 1,977 | 1.6548 | 0.05 | 0.8209 : −0.8209 | 0.0566 : 0.0566 |
| CLTM8020387T1 | 4,058 | 0.3601 | 0.04 | N/A | N/A |
| CLTM8020390T3 | 1,976 | 1.5859 | 0.07 | N/A | N/A |
| CLTM8020453T3 | 1,978 | 1.1293 | 0.05 | N/A | N/A |
| CLTM8030525T2 | 2,031 | −0.3063 | 0.05 | N/A | N/A |
| CLTM8030539T2 | 4,125 | −0.0380 | 0.03 | 0.7145 : −0.7145 | 0.0321 : 0.0321 |
| CLTM8030638T1 | 4,160 | −1.1271 | 0.04 | N/A | N/A |
| CLTM8030657T2 | 1,976 | 1.2592 | 0.05 | N/A | N/A |
| CLTM8030660T2-R | 1,975 | 0.1920 | 0.05 | N/A | N/A |
| CLTM8030661T3-R | 2,080 | −0.2177 | 0.05 | N/A | N/A |
| CLTM8030663T2 | 2,082 | 0.5402 | 0.05 | N/A | N/A |
| CLTM8030697T1 | 2,045 | −0.5169 | 0.05 | N/A | N/A |
| CLTM8030699T3 | 2,079 | 4.0901 | 0.19 | N/A | N/A |
| CLTM8180802T1 | 4,054 | −0.4393 | 0.03 | 0.6136 : −0.6136 | 0.0348 : 0.0348 |
| CLTM8180804T3 | 2,082 | −0.4932 | 0.04 | 1.6242 : −1.6242 | 0.0491 : 0.0491 |
| CLTM8180814T1 | 2,082 | −1.4808 | 0.06 | N/A | N/A |
| CLTM8180815T2 | 2,079 | −0.8542 | 0.05 | N/A | N/A |
| CLTM8180862T1 | 4,128 | −0.2369 | 0.03 | 0.5958 : −0.5958 | 0.0332 : 0.0332 |
| CLTM8180866T1 | 2,080 | −0.4371 | 0.04 | 0.4066 : −0.4066 | 0.0457 : 0.0457 |
| CLTM8180877T2 | 1,976 | 0.3071 | 0.05 | N/A | N/A |
| CLTM8180881T3 | 1,978 | 0.5625 | 0.05 | N/A | N/A |
| CLTM8191144T3 | 1,975 | 1.4599 | 0.07 | N/A | N/A |
| CLTM8191152T1 | 2,081 | −0.4612 | 0.05 | N/A | N/A |
| CLTM8191247T1 | 2,082 | −0.3556 | 0.04 | 0.8142 : −0.8142 | 0.0448 : 0.0448 |
| CLTM8191354T2 | 2,081 | −0.2199 | 0.04 | 1.5373 : −1.5373 | 0.0491 : 0.0491 |
| CLTM8201435T1 | 1,951 | −0.6124 | 0.05 | 0.8948 : −0.8948 | 0.0597 : 0.0597 |
| CLTM8201438T3 | 1,973 | 0.0964 | 0.05 | N/A | N/A |
| CLTM8201439T2 | 1,975 | 0.6423 | 0.05 | N/A | N/A |
| CLTM8201521T3 | 1,977 | 0.3188 | 0.04 | 1.4212 : −1.4212 | 0.0486 : 0.0486 |
| CLTM8201614T1 | 2,081 | −1.6839 | 0.06 | N/A | N/A |
| CLTM8201615T1 | 4,159 | −0.7305 | 0.03 | 0.7113 : −0.7113 | 0.0359 : 0.0359 |
| CLTM8201616T2 | 4,125 | 0.2120 | 0.04 | N/A | N/A |
| CLTM8201677T1 | 4,161 | −0.1083 | 0.03 | 1.3779 : −1.3779 | 0.0344 : 0.0344 |
| CLTM8211787T2 | 2,110 | −0.3929 | 0.05 | N/A | N/A |
| CLTM8211789T1 | 2,013 | −0.1278 | 0.05 | N/A | N/A |
| CLTM8221967T1 | 2,110 | −0.3644 | 0.05 | N/A | N/A |
| CLTM8221969T2 | 2,012 | 0.1065 | 0.04 | 0.7737 : −0.7737 | 0.0458 : 0.0458 |
| CLTM8221982T3 | 2,013 | 0.8181 | 0.05 | N/A | N/A |
| CLTM8221983T1 | 2,110 | −0.3121 | 0.05 | N/A | N/A |
| CLTM8221985T1 | 2,011 | −0.9081 | 0.05 | N/A | N/A |

Table 8.E.28 IRT Item Difficulty—Mathematics, Grade Eleven

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item ID | Sample Size | *b-*value | *b-*value SE | *d-*values | *d-*values SE |
| CLTM11222003T1 | 2,145 | −1.0244 | 0.05 | N/A | N/A |
| CLTMH020020T2 | 4,029 | −0.5530 | 0.04 | N/A | N/A |
| CLTMH020022T1 | 4,041 | −0.6513 | 0.04 | N/A | N/A |
| CLTMH020023T2 | 1,954 | 0.4019 | 0.05 | N/A | N/A |
| CLTMH020074T2 | 2,005 | −0.7827 | 0.04 | 0.3268 : −0.3268 | 0.0485 : 0.0485 |
| CLTMH020076T1 | 1,967 | 0.2323 | 0.05 | N/A | N/A |
| CLTMH020078T3 | 1,954 | 1.4036 | 0.05 | N/A | N/A |
| CLTMH020335T1 | 1,955 | 0.3635 | 0.05 | N/A | N/A |
| CLTMH020383T3 | 1,954 | 0.7088 | 0.04 | 1.4481 : −1.4481 | 0.0491 : 0.0491 |
| CLTMH020402T2 | 1,954 | 0.4055 | 0.03 | 0.1017 : −0.1017 | 0.0504 : 0.0504 |
| CLTMH020447T1 | 4,042 | −0.5503 | 0.04 | N/A | N/A |
| CLTMH030541T1 | 2,005 | −0.4304 | 0.05 | N/A | N/A |
| CLTMH030546T2 | 1,954 | 0.4202 | 0.04 | 1.3526 : −1.3526 | 0.0475 : 0.0475 |
| CLTMH030549T1 | 4,042 | −0.5994 | 0.04 | N/A | N/A |
| CLTMH030552T3 | 2,005 | −0.2645 | 0.04 | 0.7169 : −0.7169 | 0.0467 : 0.0467 |
| CLTMH030556T3 | 1,985 | −0.4281 | 0.04 | 0.5264 : −0.5264 | 0.0471 : 0.0471 |
| CLTMH030630T1 | 2,003 | −0.0233 | 0.05 | N/A | N/A |
| CLTMH030632T3 | 1,954 | 0.3536 | 0.05 | N/A | N/A |
| CLTMH030633T2-R | 1,955 | 0.1863 | 0.05 | N/A | N/A |
| CLTMH030642T2 | 4,027 | −0.1303 | 0.03 | 0.9631 : −0.9631 | 0.0326 : 0.0326 |
| CLTMH030665T1 | 4,042 | −0.2695 | 0.02 | −3.8781 : 3.8781 | 0.1736 : 0.1736 |
| CLTMH030714T3 | 1,955 | 1.4068 | 0.05 | N/A | N/A |
| CLTMH180813T1 | 2,004 | −0.3193 | 0.05 | N/A | N/A |
| CLTMH180826T1 | 2,006 | −0.7934 | 0.05 | N/A | N/A |
| CLTMH180827T2 | 2,005 | −0.2415 | 0.05 | N/A | N/A |
| CLTMH180830T2 | 2,004 | −0.1224 | 0.05 | N/A | N/A |
| CLTMH180917T3 | 1,955 | 1.9603 | 0.06 | −0.3212 : 0.3212 | 0.0800 : 0.0800 |
| CLTMH180921T1 | 1,943 | −0.1389 | 0.03 | −1.4588 : 1.4588 | 0.0841 : 0.0841 |
| CLTMH180926T1 | 2,003 | −0.5450 | 0.05 | N/A | N/A |
| CLTMH180976T2 | 2,006 | −0.1829 | 0.05 | N/A | N/A |
| CLTMH191189T1 | 2,004 | −0.5345 | 0.04 | 1.4995 : −1.4995 | 0.0494 : 0.0494 |
| CLTMH191304T1 | 2,005 | −1.1694 | 0.05 | N/A | N/A |
| CLTMH191349T3 | 2,005 | −0.4730 | 0.04 | 1.0377 : −1.0377 | 0.0462 : 0.0462 |
| CLTMH201464T2 | 1,955 | −0.6823 | 0.05 | 1.0505 : −1.0505 | 0.0592 : 0.0592 |
| CLTMH201465T1 | 1,955 | −1.1880 | 0.06 | N/A | N/A |
| CLTMH201468T3 | 1,955 | 1.1338 | 0.05 | N/A | N/A |
| CLTMH201472T1 | 4,037 | −0.9403 | 0.04 | N/A | N/A |
| CLTMH201476T3 | 1,933 | −0.3276 | 0.06 | N/A | N/A |
| CLTMH201478T2 | 4,032 | 0.3668 | 0.03 | 0.5038 : −0.5038 | 0.0341 : 0.0341 |
| CLTMH201542T1 | 4,027 | −0.0961 | 0.04 | N/A | N/A |
| CLTMH201546T2 | 4,028 | 0.5720 | 0.03 | 0.5162 : −0.5162 | 0.0347 : 0.0347 |
| CLTMH201550T1 | 1,883 | −1.1594 | 0.06 | N/A | N/A |
| CLTMH201632T3 | 2,145 | 0.4232 | 0.05 | N/A | N/A |
| CLTMH201635T2 | 2,145 | 0.6191 | 0.05 | N/A | N/A |
| CLTMH201637T3 | 1,883 | −0.1079 | 0.05 | N/A | N/A |
| CLTMH201639T3 | 2,144 | 2.4981 | 0.09 | N/A | N/A |
| CLTMH211794T2 | 1,883 | 0.6356 | 0.05 | N/A | N/A |
| CLTMH211795T3 | 1,883 | −0.0671 | 0.06 | N/A | N/A |

Table 8.E.29 IRT Item Difficulty Summary for Operational Items by the Content Complexity (Tier) for ELA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Grade Level | Tier Set | Number of Items | Mean b-value | SD b-value | Minimum b-value | Maximum b-value | Median b-value |
| 3 | Tier 1-Op | 18 | −0.7190 | 1.1251 | −2.9088 | 1.5819 | −0.5713 |
| 3 | Tier 2-Op | 12 | −0.6688 | 1.1085 | −3.0497 | 1.4992 | −0.5172 |
| 3 | Tier 3-Op | 10 | −0.1440 | 1.3788 | −2.5193 | 1.5568 | 0.1043 |
| 3 | All Operational Items | 40 | −0.5506 | 1.1973 | −3.0497 | 1.5819 | −0.4225 |
| 4 | Tier 1-Op | 14 | −1.0197 | 0.9601 | −2.5129 | 0.7390 | −0.7572 |
| 4 | Tier 2-Op | 12 | −0.4116 | 0.8579 | −2.3732 | 0.9071 | −0.3074 |
| 4 | Tier 3-Op | 11 | 0.3682 | 0.6886 | −1.1815 | 1.4380 | 0.5330 |
| 4 | All Operational Items | 37 | −0.4365 | 1.0162 | −2.5129 | 1.4380 | −0.3592 |
| 5 | Tier 1-Op | 15 | −1.2236 | 1.1999 | −3.2888 | 0.4097 | −0.7186 |
| 5 | Tier 2-Op | 13 | −0.7216 | 1.2268 | −2.6606 | 1.1198 | −0.4053 |
| 5 | Tier 3-Op | 10 | 0.0094 | 0.9232 | −1.6142 | 1.5277 | 0.0163 |
| 5 | All Operational Items | 38 | −0.7540 | 1.2303 | −3.2888 | 1.5277 | −0.4635 |
| 6 | Tier 1-Op | 17 | −1.0427 | 0.9676 | −2.6550 | 0.5612 | −1.0289 |
| 6 | Tier 2-Op | 13 | −0.5550 | 1.1883 | −2.8290 | 0.9528 | −0.2619 |
| 6 | Tier 3-Op | 8 | 0.3653 | 1.0223 | −1.7350 | 1.1393 | 0.6457 |
| 6 | All Operational Items | 38 | −0.6015 | 1.1646 | −2.8290 | 1.1393 | −0.3382 |
| 7 | Tier 1-Op | 17 | −0.8075 | 1.1330 | −2.8788 | 0.8702 | −0.6450 |
| 7 | Tier 2-Op | 13 | −0.3481 | 1.1160 | −3.1978 | 1.1470 | −0.1242 |
| 7 | Tier 3-Op | 10 | 0.3708 | 1.2311 | −2.3959 | 2.8610 | 0.3180 |
| 7 | All Operational Items | 40 | −0.3441 | 1.2343 | −3.1978 | 2.8610 | −0.1146 |
| 8 | Tier 1-Op | 16 | −1.1635 | 1.4730 | −3.1279 | 1.7001 | −1.2919 |
| 8 | Tier 2-Op | 13 | −0.3531 | 1.4555 | −2.9743 | 1.4738 | −0.0563 |
| 8 | Tier 3-Op | 10 | 0.0455 | 1.2735 | −2.6154 | 1.5753 | 0.6607 |
| 8 | All Operational Items | 39 | −0.5837 | 1.4866 | −3.1279 | 1.7001 | −0.2729 |
| 11 | Tier 1-Op | 17 | −0.8420 | 1.0837 | −2.8226 | 1.0333 | −0.8165 |
| 11 | Tier 2-Op | 11 | −0.3850 | 1.1241 | −3.0848 | 1.1447 | 0.1212 |
| 11 | Tier 3-Op | 10 | 0.3581 | 1.2284 | −1.9117 | 2.2501 | 0.2875 |
| 11 | All Operational Items | 38 | −0.3737 | 1.2174 | −3.0848 | 2.2501 | −0.1339 |

Table 8.E.30 IRT Item Difficulty Summary for Operational Items by the Content Complexity (Tier) for Mathematics

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Grade Level | Tier Set | Number of Items | Mean b-value | SD b-value | Minimum b-value | Maximum b-value | Median b-value |
| 3 | Tier 1-Op | 16 | −0.4383 | 0.5987 | −1.4032 | 0.6077 | −0.5240 |
| 3 | Tier 2-Op | 11 | 0.5178 | 0.9106 | −0.8593 | 1.9943 | 0.5966 |
| 3 | Tier 3-Op | 9 | 0.5619 | 0.6299 | −0.2717 | 1.5158 | 0.4041 |
| 3 | All Operational Items | 36 | 0.0906 | 0.8511 | −1.4032 | 1.9943 | −0.0115 |
| 4 | Tier 1-Op | 18 | −0.5853 | 0.9613 | −2.8202 | 1.0002 | −0.5140 |
| 4 | Tier 2-Op | 10 | 0.4504 | 0.9371 | −2.0905 | 1.9739 | 0.6754 |
| 4 | Tier 3-Op | 10 | 0.5265 | 0.8880 | −0.5989 | 2.4454 | 0.4503 |
| 4 | All Operational Items | 38 | −0.0079 | 1.0657 | −2.8202 | 2.4454 | 0.0083 |
| 5 | Tier 1-Op | 14 | −0.2916 | 0.8510 | −1.6523 | 1.4944 | −0.2206 |
| 5 | Tier 2-Op | 14 | 0.3965 | 0.7001 | −0.9889 | 1.5469 | 0.3112 |
| 5 | Tier 3-Op | 9 | 0.5878 | 0.7077 | −0.9725 | 1.7505 | 0.5763 |
| 5 | All Operational Items | 37 | 0.1968 | 0.8344 | −1.6523 | 1.7505 | 0.2428 |
| 6 | Tier 1-Op | 17 | −0.2603 | 0.6415 | −1.5595 | 1.1502 | −0.3714 |
| 6 | Tier 2-Op | 10 | 0.4296 | 0.7179 | −1.1339 | 1.7057 | 0.4127 |
| 6 | Tier 3-Op | 10 | 0.6056 | 1.1125 | −1.4337 | 2.3997 | 0.8096 |
| 6 | All Operational Items | 37 | 0.1755 | 0.8882 | −1.5595 | 2.3997 | 0.0125 |
| 7 | Tier 1-Op | 15 | −0.2100 | 0.5287 | −0.9316 | 1.0157 | −0.2886 |
| 7 | Tier 2-Op | 12 | 0.4182 | 1.2734 | −1.6236 | 2.6269 | 0.7588 |
| 7 | Tier 3-Op | 10 | 0.6481 | 1.3801 | −2.1987 | 2.7696 | 0.8079 |
| 7 | All Operational Items | 37 | 0.2218 | 1.1127 | −2.1987 | 2.7696 | −0.0324 |
| 8 | Tier 1-Op | 16 | −0.5001 | 0.8132 | −1.6839 | 1.2697 | −0.5169 |
| 8 | Tier 2-Op | 11 | 0.1892 | 0.8702 | −1.7572 | 1.3175 | 0.2595 |
| 8 | Tier 3-Op | 11 | 0.8823 | 1.5044 | −2.1174 | 4.0901 | 0.9816 |
| 8 | All Operational Items | 38 | 0.0471 | 1.1822 | −2.1174 | 4.0901 | 0.1744 |
| 11 | Tier 1-Op | 17 | −0.4298 | 1.4877 | −4.1476 | 3.6086 | −0.5476 |
| 11 | Tier 2-Op | 13 | −0.0086 | 0.8398 | −1.7328 | 1.7728 | −0.0333 |
| 11 | Tier 3-Op | 10 | 0.4652 | 1.1953 | −1.5107 | 2.2815 | 0.4524 |
| 11 | All Operational Items | 40 | −0.0326 | 1.2348 | −4.1476 | 3.6086 | −0.1224 |

Table 8.E.31 IRT Item Difficulty Summary for Field Test Items by the Content Complexity (Tier) for ELA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Grade Level | Tier Set | Number of Items | Mean b-value | SD b-value | Minimum b-value | Maximum b-value | Median b-value |
| 3 | Tier 1-FT | 3 | −0.5153 | 1.1440 | −1.2431 | 0.8033 | −1.1060 |
| 3 | Tier 2-FT | 4 | −0.7369 | 1.3105 | −2.5268 | 1.3798 | −0.7834 |
| 3 | Tier 3-FT | 1 | 0.2347 | N/A | 0.2347 | 0.2347 | 0.2347 |
| 3 | All Field Test Items | 8 | −0.5733 | 1.1561 | −2.5268 | 1.3798 | −0.7834 |
| 4 | Tier 1-FT | 3 | −1.4194 | 0.7496 | −2.4595 | −0.6188 | −1.2839 |
| 4 | Tier 2-FT | 2 | −0.8853 | 1.5216 | −2.6061 | 0.2823 | −0.3322 |
| 4 | Tier 3-FT | 3 | −0.3326 | 0.4367 | −0.6985 | 0.1509 | −0.4502 |
| 4 | All Field Test Items | 8 | −0.9773 | 0.9751 | −2.6061 | 0.2823 | −0.6985 |
| 5 | Tier 1-FT | 2 | −1.6261 | 0.2459 | −1.8000 | −1.4523 | −1.6261 |
| 5 | Tier 2-FT | 4 | −1.0181 | 1.0116 | −2.2706 | 0.3652 | −0.7499 |
| 5 | Tier 3-FT | 2 | −0.4661 | 0.5766 | −0.8739 | −0.0584 | −0.4661 |
| 5 | All Field Test Items | 8 | −1.0293 | 0.8729 | −2.2706 | 0.3652 | −0.8750 |
| 6 | Tier 1-FT | 3 | −1.5442 | 0.8646 | −2.5300 | −0.5086 | −1.5691 |
| 6 | Tier 2-FT | 4 | −0.6175 | 0.9216 | −1.8594 | 0.6882 | −0.5602 |
| 6 | Tier 3-FT | 1 | −0.2929 | N/A | −0.2929 | −0.2929 | −0.2929 |
| 6 | All Field Test Items | 8 | −0.9557 | 0.9449 | −2.5300 | 0.6882 | −0.7512 |
| 7 | Tier 1-FT | 2 | −1.8853 | 0.6016 | −2.3107 | −1.4599 | −1.8853 |
| 7 | Tier 2-FT | 2 | −1.1934 | 0.1331 | −1.2876 | −1.0993 | −1.1934 |
| 7 | Tier 3-FT | 4 | −0.8142 | 1.1702 | −2.3386 | 0.4168 | −0.5373 |
| 7 | All Field Test Items | 8 | −1.1042 | 0.9982 | −2.3386 | 0.4168 | −1.1934 |
| 8 | Tier 1-FT | 3 | −1.6499 | 0.0860 | −1.7406 | −1.5695 | −1.6395 |
| 8 | Tier 2-FT | 3 | −0.3506 | 0.3809 | −0.6948 | 0.0586 | −0.4155 |
| 8 | Tier 3-FT | 2 | −0.7997 | 1.2452 | −2.2291 | 0.0492 | −0.2191 |
| 8 | All Field Test Items | 8 | −0.9334 | 0.8674 | −2.2291 | 0.0586 | −0.6948 |
| 11 | Tier 1-FT | 3 | −1.4613 | 0.1508 | −1.6320 | −1.3461 | −1.4059 |
| 11 | Tier 2-FT | 4 | −0.6539 | 1.1186 | −2.3531 | 0.2565 | −0.1567 |
| 11 | Tier 3-FT | 1 | −0.7482 | N/A | −0.7482 | −0.7482 | −0.7482 |
| 11 | All Field Test Items | 8 | −0.9056 | 0.9209 | −2.3531 | 0.2565 | −1.0471 |

Table 8.E.32 IRT Item Difficulty Summary for Field Test Items by the Content Complexity (Tier) for Mathematics

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Grade Level | Tier Set | Number of Items | Mean b-value | SD b-value | Minimum b-value | Maximum b-value | Median b-value |
| 3 | Tier 1-FT | 3 | −0.4729 | 0.7785 | −1.3821 | 0.5166 | −0.5130 |
| 3 | Tier 2-FT | 1 | 0.5134 | 0.6972 | 0.0204 | 1.0064 | 0.5134 |
| 3 | Tier 3-FT | 2 | 0.9237 | 0.0245 | 0.9064 | 0.9410 | 0.9237 |
| 3 | All Field Test Items | 6 | 0.1229 | 0.8711 | −1.3821 | 1.0064 | 0.2685 |
| 4 | Tier 1-FT | 2 | −0.7047 | 0.4999 | −1.2107 | −0.2111 | −0.6922 |
| 4 | Tier 2-FT | 2 | 0.4630 | 0.4294 | 0.1594 | 0.7666 | 0.4630 |
| 4 | Tier 3-FT | 3 | 0.3178 | 0.3940 | −0.2168 | 0.6500 | 0.4191 |
| 4 | All Field Test Items | 7 | 0.0092 | 0.6588 | −1.2107 | 0.7666 | 0.1594 |
| 5 | Tier 1-FT | 2 | −0.5484 | 0.0474 | −0.5819 | −0.5149 | −0.5484 |
| 5 | Tier 2-FT | 2 | 0.0093 | 0.6501 | −0.7209 | 0.5253 | 0.2233 |
| 5 | Tier 3-FT | 3 | 0.9874 | 0.8205 | 0.1373 | 1.9615 | 0.9254 |
| 5 | All Field Test Items | 7 | 0.3201 | 0.8977 | −0.7209 | 1.9615 | 0.2233 |
| 6 | Tier 1-FT | 3 | −1.0730 | 0.1950 | −1.2933 | −0.9225 | −1.0033 |
| 6 | Tier 2-FT | 1 | 0.3271 | N/A | 0.3271 | 0.3271 | 0.3271 |
| 6 | Tier 3-FT | 4 | 0.5934 | 0.7088 | −0.6323 | 1.4189 | 0.6420 |
| 6 | All Field Test Items | 8 | 0.0668 | 0.9555 | −1.2933 | 1.4189 | 0.3532 |
| 7 | Tier 1-FT | 1 | −0.3367 | N/A | −0.3367 | −0.3367 | −0.3367 |
| 7 | Tier 2-FT | 4 | 0.2523 | 0.8473 | −0.7148 | 1.6813 | 0.4952 |
| 7 | Tier 3-FT | 3 | 0.1240 | 0.6882 | −0.6813 | 1.1881 | 0.0561 |
| 7 | All Field Test Items | 8 | 0.1576 | 0.7368 | −0.7148 | 1.6813 | 0.0561 |
| 8 | Tier 1-FT | 4 | −0.4281 | 0.3357 | −0.9081 | −0.1278 | −0.3383 |
| 8 | Tier 2-FT | 2 | −0.0600 | 0.8257 | −0.6672 | 0.8802 | −0.3929 |
| 8 | Tier 3-FT | 1 | 0.8181 | N/A | 0.8181 | 0.8181 | 0.8181 |
| 8 | All Field Test Items | 7 | −0.1343 | 0.6514 | −0.9081 | 0.8802 | −0.3383 |
| 11 | Tier 1-FT | 2 | −1.0919 | 0.0955 | −1.1594 | −1.0244 | −1.0919 |
| 11 | Tier 2-FT | 2 | 0.6273 | 0.0117 | 0.6191 | 0.6356 | 0.6273 |
| 11 | Tier 3-FT | 4 | 0.6866 | 1.2315 | −0.1079 | 2.4981 | 0.1781 |
| 11 | All Field Test Items | 8 | 0.2272 | 1.1466 | −1.1594 | 2.4981 | 0.1781 |

**Note:** In table 8.E.33 through table 8.E.46, 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.E.33 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | 1 | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | 1 | 1 | 1 |
| (−2.4, −2.2] | 1 | N/A | 2 | N/A | 1 | N/A |
| (−2.2, −2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.0, −1.8] | 2 | N/A | 1 | N/A | 1 | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.6, −1.4] | N/A | 1 | N/A | 1 | 1 | 1 |
| (−1.4, −1.2] | 1 | N/A | N/A | N/A | 1 | 1 |
| (−1.2, −1.0] | N/A | N/A | 2 | N/A | N/A | 2 |
| (−1.0, −0.8] | N/A | 1 | N/A | N/A | N/A | N/A |
| (−0.8, −0.6] | N/A | N/A | 2 | 2 | N/A | N/A |
| (−0.6, −0.4] | 1 | 2 | N/A | 1 | N/A | 1 |
| (−0.4, −0.2] | N/A | N/A | 1 | 2 | N/A | 1 |
| (−0.2, 0.0] | 2 | N/A | 1 | 1 | 1 | N/A |
| (0.0, 0.2] | 1 | N/A | 2 | N/A | 2 | N/A |
| (0.2, 0.4] | 2 | N/A | 1 | N/A | N/A | 1 |
| (0.4, 0.6] | N/A | N/A | N/A | 2 | 1 | N/A |
| (0.6, 0.8] | N/A | N/A | 1 | N/A | N/A | N/A |
| (0.8, 1.0] | N/A | N/A | N/A | N/A | 3 | 1 |
| (1.0, 1.2] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | N/A | 1 |
| (1.4, 1.6] | N/A | N/A | 1 | 1 | 2 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.34 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | 1 |
| (−2.6, −2.4] | N/A | N/A | 1 | N/A | N/A | 1 |
| (−2.4, −2.2] | 2 | N/A | N/A | 1 | N/A | N/A |
| (−2.2, −2.0] | 1 | N/A | 2 | N/A | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | 1 |
| (−1.8, −1.6] | N/A | N/A | N/A | 1 | N/A | N/A |
| (−1.6, −1.4] | 1 | N/A | N/A | 1 | N/A | N/A |
| (−1.4, −1.2] | N/A | N/A | 2 | N/A | N/A | 1 |
| (−1.2, −1.0] | N/A | N/A | N/A | N/A | 1 | N/A |
| (−1.0, −0.8] | 1 | N/A | N/A | N/A | N/A | 1 |
| (−0.8, −0.6] | 1 | 2 | 1 | 1 | N/A | 2 |
| (−0.6, −0.4] | 1 | 1 | 1 | N/A | N/A | 1 |
| (−0.4, −0.2] | 2 | N/A | N/A | 2 | 2 | 1 |
| (−0.2, 0.0] | N/A | N/A | 1 | 1 | 1 | N/A |
| (0.0, 0.2] | N/A | N/A | 1 | 3 | 1 | 1 |
| (0.2, 0.4] | N/A | 1 | 1 | N/A | 1 | 1 |
| (0.4, 0.6] | N/A | N/A | N/A | 1 | 1 | N/A |
| (0.6, 0.8] | 1 | N/A | N/A | N/A | 3 | N/A |
| (0.8, 1.0] | N/A | N/A | N/A | 1 | 2 | N/A |
| (1.0, 1.2] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.35 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | 2 | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | 2 | 1 | N/A | N/A |
| (−2.6, −2.4] | 1 | N/A | 1 | 2 | N/A | N/A |
| (−2.4, −2.2] | N/A | 1 | N/A | N/A | N/A | 1 |
| (−2.2, −2.0] | N/A | 1 | N/A | N/A | N/A | 1 |
| (−2.0, −1.8] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | N/A | 1 | 1 |
| (−1.6, −1.4] | 1 | 1 | N/A | N/A | N/A | 1 |
| (−1.4, −1.2] | N/A | N/A | N/A | N/A | 1 | N/A |
| (−1.2, −1.0] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−1.0, −0.8] | N/A | N/A | 1 | N/A | N/A | 2 |
| (−0.8, −0.6] | 2 | N/A | 1 | N/A | 2 | 1 |
| (−0.6, −0.4] | 1 | 1 | 2 | 2 | N/A | 1 |
| (−0.4, −0.2] | 1 | N/A | 2 | 2 | 1 | N/A |
| (−0.2, 0.0] | N/A | N/A | N/A | 1 | 2 | 1 |
| (0.0, 0.2] | N/A | 2 | 2 | N/A | 2 | N/A |
| (0.2, 0.4] | 1 | N/A | N/A | 1 | N/A | 1 |
| (0.4, 0.6] | N/A | N/A | 1 | 1 | 2 | N/A |
| (0.6, 0.8] | N/A | N/A | N/A | 1 | N/A | N/A |
| (0.8, 1.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.0, 1.2] | N/A | N/A | N/A | 1 | 1 | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.36 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | 1 | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | 1 | N/A | N/A | 1 | N/A | N/A |
| (−2.6, −2.4] | N/A | 1 | 1 | N/A | N/A | 1 |
| (−2.4, −2.2] | 1 | N/A | 2 | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | 2 |
| (−1.8, −1.6] | N/A | N/A | N/A | 1 | 1 | N/A |
| (−1.6, −1.4] | 2 | N/A | 1 | 1 | 1 | N/A |
| (−1.4, −1.2] | 1 | N/A | 1 | N/A | N/A | 1 |
| (−1.2, −1.0] | 1 | N/A | 1 | N/A | N/A | N/A |
| (−1.0, −0.8] | 2 | N/A | 3 | N/A | N/A | 1 |
| (−0.8, −0.6] | N/A | N/A | N/A | 1 | N/A | N/A |
| (−0.6, −0.4] | 1 | N/A | N/A | N/A | N/A | 3 |
| (−0.4, −0.2] | N/A | 1 | 1 | 3 | N/A | 1 |
| (−0.2, 0.0] | N/A | 3 | 1 | 1 | N/A | N/A |
| (0.0, 0.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (0.2, 0.4] | 1 | N/A | 3 | N/A | N/A | N/A |
| (0.4, 0.6] | N/A | N/A | 1 | N/A | 2 | N/A |
| (0.6, 0.8] | N/A | N/A | N/A | 2 | 3 | 1 |
| (0.8, 1.0] | N/A | 1 | N/A | 1 | 1 | N/A |
| (1.0, 1.2] | N/A | N/A | N/A | N/A | 3 | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.37 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | 1 | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | 2 | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | 1 | 2 |
| (−2.2, −2.0] | 1 | N/A | N/A | 1 | N/A | 1 |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.8, −1.6] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−1.6, −1.4] | 1 | N/A | N/A | N/A | N/A | 1 |
| (−1.4, −1.2] | N/A | 1 | N/A | N/A | 1 | 1 |
| (−1.2, −1.0] | N/A | N/A | 1 | N/A | N/A | 1 |
| (−1.0, −0.8] | N/A | N/A | 3 | 1 | N/A | 1 |
| (−0.8, −0.6] | N/A | N/A | 1 | N/A | 1 | N/A |
| (−0.6, −0.4] | N/A | N/A | 1 | 1 | N/A | N/A |
| (−0.4, −0.2] | N/A | N/A | 1 | 1 | N/A | 1 |
| (−0.2, 0.0] | 2 | N/A | 1 | 4 | 2 | N/A |
| (0.0, 0.2] | N/A | 1 | 1 | N/A | N/A | N/A |
| (0.2, 0.4] | 1 | N/A | N/A | 1 | 4 | 1 |
| (0.4, 0.6] | 1 | 1 | 2 | 1 | N/A | 1 |
| (0.6, 0.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (0.8, 1.0] | 1 | N/A | N/A | 1 | 1 | N/A |
| (1.0, 1.2] | N/A | N/A | N/A | 1 | 3 | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | 1 | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.38 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−3.0, −2.8] | 1 | N/A | N/A | 1 | N/A | N/A |
| (−2.8, −2.6] | 4 | 1 | 1 | 1 | 1 | N/A |
| (−2.6, −2.4] | N/A | N/A | 2 | 1 | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | 1 | N/A | 1 | 1 |
| (−2.2, −2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | 1 | N/A | 2 |
| (−1.6, −1.4] | 1 | N/A | N/A | N/A | 1 | 1 |
| (−1.4, −1.2] | N/A | N/A | 2 | N/A | N/A | N/A |
| (−1.2, −1.0] | N/A | N/A | N/A | N/A | 1 | N/A |
| (−1.0, −0.8] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−0.8, −0.6] | 1 | 1 | N/A | N/A | N/A | 1 |
| (−0.6, −0.4] | N/A | N/A | N/A | N/A | 1 | 1 |
| (−0.4, −0.2] | 1 | 1 | 1 | 1 | 2 | 1 |
| (−0.2, 0.0] | N/A | 1 | 2 | 1 | N/A | N/A |
| (0.0, 0.2] | N/A | N/A | 1 | N/A | N/A | 2 |
| (0.2, 0.4] | N/A | N/A | N/A | 1 | 1 | N/A |
| (0.4, 0.6] | 1 | N/A | N/A | 2 | N/A | N/A |
| (0.6, 0.8] | N/A | N/A | 1 | 2 | 2 | N/A |
| (0.8, 1.0] | 1 | 1 | N/A | 1 | 3 | N/A |
| (1.0, 1.2] | N/A | N/A | N/A | N/A | 2 | N/A |
| (1.2, 1.4] | 1 | N/A | N/A | N/A | 1 | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | 2 | 1 | N/A |
| (1.6, 1.8] | N/A | N/A | 1 | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.39 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | 1 | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | 2 | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | 1 | N/A | N/A | 1 |
| (−2.2, −2.0] | 1 | N/A | N/A | 2 | N/A | N/A |
| (−2.0, −1.8] | 1 | N/A | N/A | N/A | 1 | N/A |
| (−1.8, −1.6] | 1 | N/A | 1 | N/A | N/A | 2 |
| (−1.6, −1.4] | N/A | N/A | N/A | N/A | N/A | 1 |
| (−1.4, −1.2] | N/A | 1 | 1 | N/A | 1 | 1 |
| (−1.2, −1.0] | 1 | N/A | N/A | 1 | 1 | N/A |
| (−1.0, −0.8] | N/A | N/A | 3 | N/A | N/A | N/A |
| (−0.8, −0.6] | N/A | N/A | N/A | N/A | 1 | 1 |
| (−0.6, −0.4] | 1 | N/A | 1 | 2 | 1 | 1 |
| (−0.4, −0.2] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−0.2, 0.0] | N/A | N/A | 2 | 1 | N/A | N/A |
| (0.0, 0.2] | 1 | 2 | N/A | N/A | 1 | 1 |
| (0.2, 0.4] | 1 | N/A | 3 | 5 | 2 | 2 |
| (0.4, 0.6] | N/A | 1 | N/A | 1 | N/A | N/A |
| (0.6, 0.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (0.8, 1.0] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.0, 1.2] | 1 | N/A | N/A | 1 | 1 | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | 2 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.40 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.6, −1.4] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−1.4, −1.2] | N/A | N/A | 1 | N/A | N/A | 1 |
| (−1.2, −1.0] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−1.0, −0.8] | 3 | 1 | 2 | N/A | N/A | N/A |
| (−0.8, −0.6] | 1 | 1 | 1 | N/A | N/A | N/A |
| (−0.6, −0.4] | N/A | N/A | 2 | 1 | N/A | 2 |
| (−0.4, −0.2] | 1 | N/A | 2 | 1 | 2 | N/A |
| (−0.2, 0.0] | N/A | 2 | 1 | N/A | N/A | N/A |
| (0.0, 0.2] | N/A | N/A | 2 | N/A | 3 | 1 |
| (0.2, 0.4] | N/A | N/A | 1 | N/A | 1 | N/A |
| (0.4, 0.6] | N/A | N/A | 2 | 1 | 1 | 1 |
| (0.6, 0.8] | 1 | N/A | N/A | 1 | 1 | N/A |
| (0.8, 1.0] | N/A | 1 | N/A | N/A | N/A | 2 |
| (1.0, 1.2] | N/A | N/A | N/A | N/A | 1 | 1 |
| (1.2, 1.4] | N/A | 1 | N/A | 2 | 2 | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | 1 | 1 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | 1 | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.41 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | 1 | 1 | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.6, −1.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.4, −1.2] | N/A | N/A | 1 | N/A | N/A | 1 |
| (−1.2, −1.0] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−1.0, −0.8] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−0.8, −0.6] | 1 | N/A | 1 | N/A | N/A | 1 |
| (−0.6, −0.4] | 2 | N/A | 2 | N/A | 2 | N/A |
| (−0.4, −0.2] | 3 | N/A | 1 | N/A | 1 | 2 |
| (−0.2, 0.0] | N/A | 2 | 1 | 2 | 1 | N/A |
| (0.0, 0.2] | 1 | N/A | 3 | N/A | 2 | 1 |
| (0.2, 0.4] | N/A | N/A | N/A | N/A | 1 | 1 |
| (0.4, 0.6] | N/A | N/A | 1 | 2 | 3 | 1 |
| (0.6, 0.8] | N/A | 1 | N/A | N/A | 2 | 2 |
| (0.8, 1.0] | N/A | 1 | 1 | 2 | N/A | N/A |
| (1.0, 1.2] | N/A | N/A | 1 | 2 | N/A | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.8, 2.0] | N/A | 1 | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.42 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.8, −1.6] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−1.6, −1.4] | 1 | N/A | 1 | N/A | N/A | N/A |
| (−1.4, −1.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.2, −1.0] | 1 | N/A | 1 | N/A | N/A | N/A |
| (−1.0, −0.8] | N/A | N/A | 1 | 1 | 1 | N/A |
| (−0.8, −0.6] | N/A | N/A | 1 | N/A | N/A | 1 |
| (−0.6, −0.4] | N/A | 1 | N/A | 1 | N/A | 2 |
| (−0.4, −0.2] | 1 | 1 | 2 | N/A | N/A | N/A |
| (−0.2, 0.0] | N/A | 1 | 1 | 2 | 1 | N/A |
| (0.0, 0.2] | 3 | 1 | 1 | 1 | N/A | 1 |
| (0.2, 0.4] | 1 | 1 | N/A | 3 | 3 | 1 |
| (0.4, 0.6] | N/A | N/A | 1 | 1 | 2 | 2 |
| (0.6, 0.8] | N/A | N/A | N/A | 1 | 1 | N/A |
| (0.8, 1.0] | N/A | N/A | 1 | N/A | 1 | N/A |
| (1.0, 1.2] | N/A | N/A | N/A | 2 | 1 | N/A |
| (1.2, 1.4] | N/A | N/A | N/A | 2 | 2 | 1 |
| (1.4, 1.6] | N/A | 1 | 1 | 1 | N/A | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | 1 |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.43 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.6, −1.4] | 1 | N/A | N/A | N/A | 1 | N/A |
| (−1.4, −1.2] | N/A | N/A | 1 | N/A | N/A | 1 |
| (−1.2, −1.0] | N/A | 1 | N/A | N/A | N/A | 1 |
| (−1.0, −0.8] | N/A | N/A | N/A | N/A | 1 | 1 |
| (−0.8, −0.6] | 1 | N/A | 2 | N/A | N/A | 1 |
| (−0.6, −0.4] | 3 | N/A | 2 | 1 | N/A | N/A |
| (−0.4, −0.2] | 1 | N/A | 1 | N/A | N/A | N/A |
| (−0.2, 0.0] | 2 | N/A | 3 | 1 | 2 | N/A |
| (0.0, 0.2] | N/A | 1 | 1 | N/A | 1 | N/A |
| (0.2, 0.4] | N/A | N/A | N/A | 2 | 1 | 2 |
| (0.4, 0.6] | N/A | 1 | N/A | 1 | N/A | 1 |
| (0.6, 0.8] | 1 | N/A | N/A | 3 | N/A | 1 |
| (0.8, 1.0] | N/A | N/A | 1 | N/A | 2 | N/A |
| (1.0, 1.2] | N/A | N/A | 1 | N/A | 1 | 1 |
| (1.2, 1.4] | N/A | 1 | N/A | 1 | N/A | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | 1 | 1 |
| (1.6, 1.8] | N/A | N/A | N/A | 1 | 1 | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.44 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | N/A | N/A | 1 | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | 1 | N/A | N/A |
| (−1.6, −1.4] | N/A | 1 | N/A | N/A | N/A | N/A |
| (−1.4, −1.2] | N/A | N/A | N/A | 1 | 1 | N/A |
| (−1.2, −1.0] | N/A | 1 | N/A | N/A | N/A | N/A |
| (−1.0, −0.8] | N/A | N/A | 1 | N/A | 1 | N/A |
| (−0.8, −0.6] | 2 | N/A | 3 | 1 | N/A | 3 |
| (−0.6, −0.4] | 1 | N/A | 2 | N/A | N/A | N/A |
| (−0.4, −0.2] | 3 | 1 | 3 | N/A | N/A | 2 |
| (−0.2, 0.0] | 1 | N/A | 2 | N/A | 1 | 1 |
| (0.0, 0.2] | 1 | 1 | 1 | N/A | N/A | 1 |
| (0.2, 0.4] | N/A | N/A | N/A | N/A | 1 | 1 |
| (0.4, 0.6] | N/A | N/A | N/A | 1 | 1 | 2 |
| (0.6, 0.8] | N/A | 1 | N/A | 1 | 1 | 1 |
| (0.8, 1.0] | N/A | 1 | 2 | 1 | 3 | N/A |
| (1.0, 1.2] | 1 | N/A | N/A | 2 | 1 | 1 |
| (1.2, 1.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | 1 | 1 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | 1 | N/A | 1 |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | 1 | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | 2 | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | 1 | 1 | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | N/A | N/A |

Table 8.E.45 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 |
| (−6.0, −3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | N/A | N/A | 1 | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | 1 | 1 | N/A | N/A |
| (−1.6, −1.4] | 2 | N/A | 2 | N/A | N/A | N/A |
| (−1.4, −1.2] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−1.2, −1.0] | 1 | N/A | 2 | N/A | 1 | N/A |
| (−1.0, −0.8] | 2 | N/A | 1 | 1 | N/A | 1 |
| (−0.8, −0.6] | N/A | 1 | N/A | N/A | N/A | 1 |
| (−0.6, −0.4] | N/A | N/A | 2 | N/A | N/A | N/A |
| (−0.4, −0.2] | 1 | N/A | N/A | 1 | 1 | 3 |
| (−0.2, 0.0] | 1 | N/A | 1 | N/A | N/A | 1 |
| (0.0, 0.2] | N/A | 1 | 1 | 1 | 1 | N/A |
| (0.2, 0.4] | 3 | 1 | 2 | 1 | N/A | N/A |
| (0.4, 0.6] | N/A | N/A | 1 | 1 | 1 | N/A |
| (0.6, 0.8] | N/A | 1 | N/A | 1 | 1 | N/A |
| (0.8, 1.0] | N/A | N/A | N/A | N/A | 1 | 2 |
| (1.0, 1.2] | N/A | 1 | N/A | N/A | 2 | N/A |
| (1.2, 1.4] | 1 | N/A | N/A | 2 | N/A | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | 2 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | N/A | 1 | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | N/A | N/A | N/A | N/A | 1 | N/A |

Table 8.E.46 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 |
| (−6.0, −3.4] | 1 | N/A | N/A | N/A | N/A | N/A |
| (−3.4, −3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.2, −3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−3.0, −2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.8, −2.6] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.6, −2.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.4, −2.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−2.2, −2.0] | N/A | N/A | 1 | N/A | N/A | N/A |
| (−2.0, −1.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.8, −1.6] | N/A | N/A | N/A | 1 | N/A | N/A |
| (−1.6, −1.4] | N/A | N/A | 1 | N/A | 1 | N/A |
| (−1.4, −1.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (−1.2, −1.0] | N/A | 1 | 2 | 1 | N/A | 2 |
| (−1.0, −0.8] | 1 | N/A | N/A | 1 | 2 | N/A |
| (−0.8, −0.6] | 1 | N/A | 1 | N/A | 1 | N/A |
| (−0.6, −0.4] | 2 | 1 | 2 | 1 | N/A | N/A |
| (−0.4, −0.2] | N/A | N/A | 1 | 1 | 1 | N/A |
| (−0.2, 0.0] | 1 | 1 | 1 | 2 | N/A | 2 |
| (0.0, 0.2] | N/A | 1 | N/A | 1 | 1 | N/A |
| (0.2, 0.4] | N/A | N/A | 2 | 2 | 1 | N/A |
| (0.4, 0.6] | N/A | N/A | N/A | 2 | 2 | 1 |
| (0.6, 0.8] | N/A | N/A | N/A | N/A | N/A | 2 |
| (0.8, 1.0] | N/A | 2 | 1 | N/A | N/A | N/A |
| (1.0, 1.2] | N/A | 1 | N/A | N/A | 1 | N/A |
| (1.2, 1.4] | N/A | N/A | 1 | N/A | N/A | N/A |
| (1.4, 1.6] | N/A | N/A | N/A | N/A | 2 | N/A |
| (1.6, 1.8] | N/A | N/A | N/A | 1 | 1 | N/A |
| (1.8, 2.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.0, 2.2] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.2, 2.4] | N/A | N/A | N/A | N/A | 1 | N/A |
| (2.4, 2.6] | N/A | N/A | N/A | N/A | N/A | 1 |
| (2.6, 2.8] | N/A | N/A | N/A | N/A | N/A | N/A |
| (2.8, 3.0] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.0, 3.2] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.2, 3.4] | N/A | N/A | N/A | N/A | N/A | N/A |
| (3.4, 6.0] | 1 | N/A | N/A | N/A | N/A | N/A |

### Appendix 8.F: Response Time Analyses

**Notes:**

* Pathway Easy includes the router and Stage 2 easy module.
* Pathway Hard includes the router and Stage 2 hard module.

Table 8.F.1 Total Testing Time (in Minutes) at Each Pathway—ELA

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Grade Level and Pathway | Number of Students Tested | 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 | 1,405 | 20.87 | 15.15 | 0.35 | 135.18 | 1.54 | 5.32 | 11.46 | 17.89 | 26.63 | 39.00 | 73.31 |
| Grade 3 Hard | 3,054 | 26.53 | 14.32 | 2.31 | 215.76 | 5.07 | 13.03 | 17.74 | 23.65 | 31.94 | 42.62 | 74.58 |
| Grade 4 Easy | 1,972 | 21.60 | 13.48 | 1.16 | 116.84 | 1.77 | 7.57 | 12.86 | 19.37 | 27.33 | 37.44 | 68.52 |
| Grade 4 Hard | 2,465 | 28.25 | 14.71 | 1.46 | 147.11 | 4.76 | 13.52 | 19.08 | 25.70 | 33.89 | 45.47 | 82.22 |
| Grade 5 Easy | 1,449 | 20.67 | 16.80 | 0.40 | 298.05 | 1.31 | 5.76 | 10.84 | 17.69 | 26.07 | 37.59 | 71.35 |
| Grade 5 Hard | 2,972 | 28.23 | 13.72 | 2.11 | 209.50 | 6.12 | 14.85 | 19.62 | 25.64 | 34.07 | 44.05 | 75.46 |
| Grade 6 Easy | 1,229 | 21.15 | 15.22 | 0.45 | 140.62 | 1.37 | 4.94 | 9.95 | 19.16 | 27.71 | 38.76 | 72.86 |
| Grade 6 Hard | 3,173 | 28.22 | 14.22 | 1.09 | 135.84 | 4.20 | 13.20 | 19.38 | 25.69 | 34.13 | 45.63 | 79.66 |
| Grade 7 Easy | 1,681 | 20.99 | 13.73 | 0.41 | 114.42 | 1.36 | 5.47 | 11.21 | 19.45 | 27.70 | 36.81 | 68.92 |
| Grade 7 Hard | 2,878 | 32.97 | 16.43 | 1.88 | 147.13 | 5.46 | 16.26 | 22.73 | 30.29 | 39.95 | 50.73 | 92.45 |
| Grade 8 Easy | 2,099 | 22.19 | 14.68 | 0.17 | 181.91 | 2.01 | 5.89 | 12.46 | 20.41 | 28.73 | 38.85 | 70.19 |
| Grade 8 Hard | 2,217 | 28.55 | 13.00 | 1.92 | 113.00 | 4.83 | 14.69 | 20.64 | 26.84 | 34.30 | 43.13 | 73.04 |
| Grade 11 Easy | 1,448 | 18.46 | 13.43 | 0.31 | 97.32 | 1.23 | 3.86 | 8.30 | 16.58 | 24.48 | 34.29 | 67.24 |
| Grade 11 Hard | 2,670 | 27.03 | 13.45 | 1.38 | 164.90 | 3.86 | 12.84 | 18.81 | 24.99 | 32.83 | 42.53 | 73.87 |

Table 8.F.2 Total Testing Time (in Minutes) at Each Pathway—Mathematics

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Grade Level and Pathway | Number of Students Tested | 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 | 2,005 | 14.98 | 11.26 | 0.46 | 126.04 | 1.42 | 4.92 | 8.55 | 12.64 | 18.07 | 26.37 | 59.01 |
| Grade 3 Hard | 2,358 | 18.75 | 10.52 | 0.91 | 134.10 | 4.51 | 9.26 | 12.41 | 16.69 | 22.11 | 30.63 | 60.50 |
| Grade 4 Easy | 1,976 | 13.50 | 9.11 | 0.30 | 89.78 | 1.73 | 4.93 | 8.07 | 11.72 | 16.71 | 23.32 | 47.69 |
| Grade 4 Hard | 2,417 | 18.91 | 10.64 | 1.46 | 132.04 | 4.06 | 9.58 | 12.44 | 16.67 | 22.50 | 30.15 | 61.77 |
| Grade 5 Easy | 2,875 | 15.66 | 11.96 | 0.33 | 292.08 | 1.47 | 5.99 | 9.40 | 13.50 | 18.75 | 26.51 | 56.62 |
| Grade 5 Hard | 1,473 | 20.35 | 12.19 | 2.08 | 173.86 | 4.46 | 10.23 | 13.23 | 17.23 | 24.07 | 33.37 | 66.07 |
| Grade 6 Easy | 2,387 | 15.98 | 10.39 | 0.38 | 99.56 | 1.20 | 5.56 | 9.28 | 13.79 | 19.87 | 28.23 | 55.22 |
| Grade 6 Hard | 1,900 | 21.25 | 12.09 | 1.15 | 125.73 | 4.67 | 10.41 | 13.63 | 18.72 | 25.15 | 34.94 | 66.12 |
| Grade 7 Easy | 3,229 | 18.21 | 11.29 | 0.38 | 125.31 | 2.14 | 6.62 | 10.84 | 16.51 | 22.65 | 31.03 | 61.15 |
| Grade 7 Hard | 1,239 | 29.65 | 15.23 | 4.08 | 154.63 | 7.10 | 14.84 | 20.16 | 26.66 | 35.38 | 47.16 | 89.92 |
| Grade 8 Easy | 2,195 | 16.21 | 11.55 | 0.72 | 117.54 | 2.08 | 5.32 | 8.87 | 14.01 | 20.02 | 28.75 | 59.16 |
| Grade 8 Hard | 1,985 | 24.48 | 13.67 | 1.96 | 230.51 | 5.22 | 11.56 | 16.09 | 21.79 | 29.77 | 39.22 | 71.10 |
| Grade 11 Easy | 2,089 | 15.11 | 10.12 | 0.47 | 106.01 | 1.85 | 5.09 | 8.69 | 13.38 | 18.91 | 26.32 | 52.42 |
| Grade 11 Hard | 1,956 | 22.93 | 13.25 | 1.47 | 221.92 | 4.10 | 10.34 | 14.83 | 20.27 | 27.59 | 38.58 | 72.51 |

Table 8.F.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 | 303–335 | 1,002 | 19.00 | 14.86 | 0.35 | 129.18 | 1.16 | 4.07 | 9.18 | 15.72 | 24.71 | 36.96 | 73.43 |
| Grade 3 Q 2 | 336–346 | 1,076 | 26.02 | 15.53 | 2.79 | 215.76 | 4.51 | 12.24 | 16.27 | 22.71 | 31.99 | 43.18 | 74.63 |
| Grade 3 Q 3 | 347–359 | 1,221 | 26.47 | 14.83 | 2.31 | 146.93 | 4.85 | 12.14 | 17.34 | 23.43 | 31.92 | 42.85 | 80.95 |
| Grade 3 Q 4 | 360–399 | 1,160 | 26.72 | 12.72 | 2.86 | 133.16 | 7.29 | 14.84 | 18.70 | 23.75 | 31.71 | 41.46 | 73.28 |
| Grade 4 Q 1 | 403–431 | 949 | 19.88 | 13.53 | 1.16 | 106.61 | 1.62 | 5.28 | 10.74 | 17.64 | 25.95 | 35.19 | 66.42 |
| Grade 4 Q 2 | 432–442 | 1,136 | 23.31 | 13.39 | 1.59 | 116.84 | 3.08 | 9.78 | 14.64 | 20.92 | 28.89 | 39.53 | 69.04 |
| Grade 4 Q 3 | 443–455 | 1,168 | 27.94 | 16.03 | 1.46 | 147.11 | 3.84 | 12.16 | 18.27 | 25.12 | 33.88 | 45.74 | 91.23 |
| Grade 4 Q 4 | 456–499 | 1,184 | 28.92 | 13.24 | 3.00 | 100.99 | 7.43 | 15.71 | 20.13 | 26.67 | 34.17 | 45.76 | 76.15 |
| Grade 5 Q 1 | 503–533 | 1,028 | 19.50 | 17.63 | 0.40 | 298.05 | 1.01 | 4.79 | 9.62 | 16.14 | 25.12 | 35.79 | 72.07 |
| Grade 5 Q 2 | 534–544 | 1,060 | 25.44 | 15.17 | 2.07 | 209.50 | 4.23 | 10.43 | 15.82 | 22.73 | 31.51 | 42.88 | 72.14 |
| Grade 5 Q 3 | 545–555 | 1,117 | 27.97 | 13.93 | 3.37 | 123.42 | 6.60 | 14.41 | 18.82 | 25.40 | 33.99 | 44.20 | 77.99 |
| Grade 5 Q 4 | 556–599 | 1,216 | 29.28 | 12.28 | 2.43 | 126.84 | 10.78 | 17.52 | 21.23 | 26.45 | 34.28 | 44.05 | 71.50 |
| Grade 6 Q 1 | 603–637 | 1,040 | 20.50 | 15.83 | 0.45 | 140.62 | 1.09 | 4.43 | 8.90 | 17.67 | 27.45 | 39.45 | 76.83 |
| Grade 6 Q 2 | 638–645 | 1,087 | 25.47 | 15.18 | 1.69 | 135.84 | 3.14 | 9.70 | 15.87 | 23.11 | 31.16 | 43.65 | 83.87 |
| Grade 6 Q 3 | 646–653 | 1,012 | 27.49 | 13.40 | 2.73 | 108.61 | 5.35 | 13.41 | 19.05 | 24.83 | 33.09 | 44.80 | 67.80 |
| Grade 6 Q 4 | 654–699 | 1,263 | 30.65 | 13.10 | 2.30 | 103.74 | 8.50 | 17.65 | 21.96 | 28.07 | 36.22 | 47.02 | 77.99 |
| Grade 7 Q 1 | 703–734 | 1,057 | 19.06 | 13.38 | 0.41 | 107.30 | 1.08 | 4.23 | 8.71 | 17.10 | 26.27 | 35.79 | 62.09 |
| Grade 7 Q 2 | 735–746 | 1,198 | 26.82 | 14.90 | 1.23 | 123.82 | 3.69 | 10.86 | 17.36 | 24.47 | 33.33 | 44.76 | 83.76 |
| Grade 7 Q 3 | 747–757 | 1,151 | 32.10 | 16.64 | 2.96 | 147.13 | 5.46 | 15.60 | 21.64 | 29.29 | 38.54 | 50.05 | 94.98 |
| Grade 7 Q 4 | 758–799 | 1,153 | 35.51 | 16.21 | 3.39 | 139.78 | 10.04 | 19.60 | 25.39 | 32.26 | 41.94 | 54.54 | 91.70 |
| Grade 8 Q 1 | 803–840 | 978 | 18.76 | 14.96 | 0.17 | 160.60 | 1.55 | 4.20 | 8.17 | 15.89 | 24.35 | 35.07 | 75.02 |
| Grade 8 Q 2 | 841–847 | 1,095 | 24.71 | 14.29 | 1.42 | 181.91 | 3.21 | 9.34 | 15.66 | 22.80 | 31.12 | 40.41 | 74.97 |
| Grade 8 Q 3 | 848–854 | 981 | 27.19 | 13.15 | 2.14 | 108.49 | 4.81 | 13.16 | 19.26 | 25.24 | 33.05 | 41.70 | 75.87 |
| Grade 8 Q 4 | 855–899 | 1,262 | 29.94 | 12.15 | 1.92 | 108.20 | 7.39 | 17.85 | 22.09 | 28.19 | 35.07 | 44.48 | 70.65 |
| Grade 11 Q 1 | 903–940 | 907 | 16.21 | 14.13 | 0.31 | 97.32 | 1.02 | 3.08 | 6.16 | 13.07 | 21.99 | 32.03 | 72.57 |
| Grade 11 Q 2 | 941–948 | 1,012 | 22.66 | 12.59 | 1.38 | 98.95 | 2.35 | 8.10 | 14.72 | 21.06 | 28.74 | 38.18 | 65.55 |
| Grade 11 Q 3 | 949–955 | 969 | 26.10 | 12.91 | 2.55 | 110.35 | 4.35 | 12.29 | 18.16 | 23.93 | 31.67 | 41.72 | 72.35 |
| Grade 11 Q 4 | 956–999 | 1,230 | 29.24 | 13.26 | 2.37 | 164.90 | 8.08 | 16.53 | 20.71 | 27.23 | 34.63 | 43.49 | 79.77 |

Table 8.F.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 | 303–328 | 894 | 13.54 | 12.40 | 0.46 | 134.10 | 0.98 | 3.34 | 6.60 | 10.69 | 16.25 | 24.22 | 69.64 |
| Grade 3 Q 2 | 329–338 | 1,244 | 16.45 | 11.31 | 0.74 | 130.85 | 2.80 | 7.14 | 10.02 | 13.89 | 19.48 | 27.74 | 61.25 |
| Grade 3 Q 3 | 339–350 | 1,086 | 17.51 | 9.87 | 0.91 | 85.26 | 4.71 | 8.68 | 11.45 | 15.47 | 20.53 | 27.86 | 60.82 |
| Grade 3 Q 4 | 351–399 | 1,139 | 19.89 | 9.70 | 1.31 | 84.99 | 5.51 | 10.53 | 13.58 | 17.50 | 23.82 | 32.46 | 56.29 |
| Grade 4 Q 1 | 403–429 | 1,042 | 11.66 | 8.35 | 0.30 | 86.99 | 1.36 | 3.50 | 6.23 | 9.91 | 14.64 | 21.75 | 39.00 |
| Grade 4 Q 2 | 430–438 | 1,034 | 15.47 | 9.77 | 1.84 | 92.57 | 3.44 | 7.34 | 9.98 | 13.19 | 18.00 | 25.35 | 52.90 |
| Grade 4 Q 3 | 439–446 | 1,214 | 17.59 | 10.22 | 1.46 | 132.04 | 3.91 | 8.96 | 11.73 | 15.45 | 20.71 | 27.29 | 58.26 |
| Grade 4 Q 4 | 447–499 | 1,103 | 20.75 | 10.63 | 2.89 | 93.92 | 6.57 | 10.97 | 13.90 | 18.29 | 24.91 | 32.24 | 64.42 |
| Grade 5 Q 1 | 503–532 | 963 | 13.58 | 14.02 | 0.33 | 292.08 | 0.94 | 3.53 | 6.62 | 10.84 | 16.65 | 24.73 | 56.62 |
| Grade 5 Q 2 | 533–539 | 971 | 15.95 | 10.23 | 1.01 | 106.21 | 2.93 | 7.29 | 10.09 | 13.68 | 18.75 | 26.27 | 55.69 |
| Grade 5 Q 3 | 540–548 | 1,293 | 17.56 | 10.67 | 2.78 | 194.43 | 3.92 | 8.90 | 11.68 | 15.17 | 20.75 | 28.28 | 56.99 |
| Grade 5 Q 4 | 549–599 | 1,121 | 21.17 | 12.74 | 3.04 | 173.86 | 5.40 | 10.36 | 13.35 | 17.93 | 25.35 | 35.48 | 66.07 |
| Grade 6 Q 1 | 603–633 | 1,057 | 13.73 | 9.92 | 0.38 | 99.56 | 0.93 | 3.75 | 7.15 | 11.97 | 17.70 | 25.99 | 48.74 |
| Grade 6 Q 2 | 634–640 | 1,085 | 17.15 | 10.32 | 1.98 | 88.58 | 3.45 | 7.59 | 10.77 | 14.86 | 20.69 | 28.34 | 58.63 |
| Grade 6 Q 3 | 641–648 | 937 | 19.72 | 12.05 | 2.26 | 119.62 | 4.93 | 8.86 | 12.26 | 16.71 | 23.26 | 34.27 | 68.35 |
| Grade 6 Q 4 | 649–699 | 1,208 | 22.28 | 11.69 | 1.50 | 125.73 | 5.11 | 11.86 | 14.87 | 20.05 | 26.32 | 35.23 | 63.30 |
| Grade 7 Q 1 | 703–733 | 881 | 14.07 | 10.41 | 0.38 | 125.31 | 1.16 | 3.74 | 6.82 | 12.05 | 18.57 | 26.13 | 47.28 |
| Grade 7 Q 2 | 734–742 | 1,211 | 18.80 | 10.99 | 1.33 | 79.72 | 3.47 | 7.85 | 11.65 | 17.06 | 22.67 | 31.04 | 62.64 |
| Grade 7 Q 3 | 743–752 | 1,254 | 21.32 | 11.26 | 1.24 | 94.31 | 4.85 | 10.19 | 14.08 | 19.35 | 25.42 | 34.19 | 66.17 |
| Grade 7 Q 4 | 753–799 | 1,122 | 29.97 | 15.73 | 3.94 | 154.63 | 7.83 | 15.02 | 20.15 | 26.84 | 35.49 | 47.40 | 90.61 |
| Grade 8 Q 1 | 803–832 | 904 | 13.90 | 11.68 | 0.72 | 117.54 | 1.46 | 3.48 | 6.51 | 11.38 | 17.54 | 27.06 | 55.18 |
| Grade 8 Q 2 | 833–841 | 1,153 | 17.43 | 11.38 | 2.30 | 109.32 | 3.73 | 7.18 | 10.39 | 15.18 | 20.70 | 29.33 | 61.96 |
| Grade 8 Q 3 | 842–851 | 1,029 | 21.11 | 12.32 | 1.96 | 230.51 | 4.65 | 10.69 | 13.92 | 18.54 | 25.48 | 33.81 | 57.10 |
| Grade 8 Q 4 | 852–899 | 1,094 | 27.24 | 13.75 | 2.88 | 112.16 | 6.17 | 14.18 | 18.57 | 24.51 | 32.30 | 41.94 | 84.13 |
| Grade 11 Q 1 | 903–930 | 860 | 13.27 | 9.74 | 0.47 | 89.06 | 1.51 | 3.67 | 6.63 | 11.16 | 17.21 | 23.90 | 49.53 |
| Grade 11 Q 2 | 931–940 | 1,145 | 16.09 | 10.10 | 1.44 | 89.34 | 2.43 | 6.32 | 9.91 | 13.87 | 19.80 | 26.91 | 52.60 |
| Grade 11 Q 3 | 941–949 | 906 | 19.64 | 10.81 | 1.47 | 106.01 | 3.77 | 9.38 | 12.92 | 17.60 | 23.54 | 31.85 | 60.07 |
| Grade 11 Q 4 | 950–999 | 1,134 | 25.38 | 14.26 | 2.81 | 221.92 | 4.86 | 12.21 | 16.80 | 22.46 | 29.99 | 41.92 | 74.60 |

### Appendix 8.G: Reliability Analyses

#### Reliability and Standard Errors of Measurement by Student Group

**Notes:**

* The reliabilities and SEMs are reported only for samples that comprise 11 or more examinees.
* In some cases in appendix 8.G, score reliabilities were not estimable and are presented in the tables as “N/A.”
* Results based on samples that contain 50 or fewer examinees should be interpreted with caution because of small sample sizes.

Table 8.G.1 Reliabilities and SEMs by Gender

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Male N | Male Reliability | Male Scale Score SEM | Female N | Female Reliability | Female Scale Score SEM |
| ELA 3 | 3,164 | 0.89 | 6.34 | 1,294 | 0.86 | 6.88 |
| ELA 4 | 3,162 | 0.87 | 6.08 | 1,275 | 0.87 | 6.21 |
| ELA 5 | 3,037 | 0.89 | 6.14 | 1,384 | 0.87 | 6.19 |
| ELA 6 | 3,044 | 0.86 | 5.08 | 1,357 | 0.86 | 5.17 |
| ELA 7 | 3,096 | 0.88 | 5.76 | 1,462 | 0.88 | 5.69 |
| ELA 8 | 2,955 | 0.88 | 4.77 | 1,361 | 0.88 | 4.68 |
| ELA 11 | 2,751 | 0.85 | 5.02 | 1,365 | 0.87 | 4.98 |
| Mathematics 3 | 3,101 | 0.82 | 7.26 | 1,261 | 0.81 | 6.98 |
| Mathematics 4 | 3,135 | 0.83 | 6.29 | 1,258 | 0.82 | 6.25 |
| Mathematics 5 | 2,982 | 0.80 | 6.56 | 1,366 | 0.76 | 6.44 |
| Mathematics 6 | 2,973 | 0.79 | 7.26 | 1,313 | 0.80 | 6.87 |
| Mathematics 7 | 3,047 | 0.84 | 6.61 | 1,420 | 0.82 | 6.34 |
| Mathematics 8 | 2,861 | 0.84 | 6.64 | 1,319 | 0.82 | 6.55 |
| Mathematics 11 | 2,704 | 0.82 | 6.91 | 1,339 | 0.81 | 6.45 |

Table 8.G.2 Reliabilities and SEMs by Ethnicity

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | American Indian or Alaska Native N | American Indian or Alaska Native Reliability | American Indian or Alaska Native Scale Score SEM | Asian N | Asian Reliability | Asian Scale Score SEM | Native Hawaiian or Other Pacific Islander N | Native Hawaiian or Other Pacific Islander Reliability | Native Hawaiian or Other Pacific Islander Scale Score SEM |
| ELA 3 | 26 | 0.93 | 6.59 | 382 | 0.90 | 5.69 | 23 | 0.90 | 6.39 |
| ELA 4 | 25 | 0.92 | 6.07 | 430 | 0.89 | 5.78 | 19 | 0.90 | 6.11 |
| ELA 5 | 25 | 0.77 | 10.26 | 407 | 0.90 | 5.51 | 15 | 0.91 | 5.42 |
| ELA 6 | 25 | 0.89 | 5.21 | 385 | 0.84 | 5.15 | 15 | 0.87 | 4.79 |
| ELA 7 | 29 | 0.86 | 6.31 | 369 | 0.87 | 5.51 | 15 | 0.91 | 5.37 |
| ELA 8 | 24 | 0.81 | 4.75 | 340 | 0.87 | 4.67 | 17 | 0.92 | 4.40 |
| ELA 11 | 21 | 0.91 | 5.96 | 326 | 0.87 | 5.24 | 18 | 0.87 | 4.92 |
| Mathematics 3 | 25 | 0.85 | 7.36 | 379 | 0.84 | 6.89 | 24 | 0.85 | 7.39 |
| Mathematics 4 | 23 | 0.86 | 5.84 | 431 | 0.84 | 6.39 | 19 | 0.81 | 6.86 |
| Mathematics 5 | 23 | 0.81 | 6.68 | 399 | 0.83 | 6.35 | 12 | 0.42 | 6.61 |
| Mathematics 6 | 23 | 0.89 | 7.12 | 378 | 0.81 | 6.93 | 16 | 0.78 | 7.31 |
| Mathematics 7 | 30 | 0.78 | 6.60 | 358 | 0.82 | 6.34 | 14 | 0.15 | 6.42 |
| Mathematics 8 | 25 | 0.86 | 5.76 | 330 | 0.84 | 6.71 | 18 | 0.78 | 6.89 |
| Mathematics 11 | 21 | 0.90 | 7.49 | 317 | 0.83 | 6.70 | 17 | 0.70 | 6.79 |

Table 8.G.2 Reliabilities and SEMs by Ethnicity (Continued One)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Filipino N | Filipino Reliability | Filipino Scale Score SEM | Hispanic or Latino N | Hispanic or Latino Reliability | Hispanic or Latino Scale Score SEM | Black or African American N | Black or African American Reliability | Black or African American Scale Score SEM |
| ELA 3 | 140 | 0.85 | 6.25 | 2,639 | 0.87 | 6.62 | 300 | 0.90 | 6.18 |
| ELA 4 | 112 | 0.89 | 5.88 | 2,614 | 0.87 | 6.17 | 325 | 0.88 | 5.96 |
| ELA 5 | 135 | 0.88 | 6.23 | 2,590 | 0.89 | 5.92 | 333 | 0.89 | 5.51 |
| ELA 6 | 144 | 0.88 | 4.83 | 2,621 | 0.86 | 5.17 | 299 | 0.85 | 4.90 |
| ELA 7 | 137 | 0.88 | 5.63 | 2,644 | 0.88 | 5.74 | 381 | 0.90 | 5.67 |
| ELA 8 | 116 | 0.84 | 4.70 | 2,580 | 0.88 | 4.71 | 339 | 0.86 | 4.73 |
| ELA 11 | 112 | 0.82 | 4.76 | 2,486 | 0.85 | 4.94 | 318 | 0.86 | 4.80 |
| Mathematics 3 | 132 | 0.83 | 6.92 | 2,581 | 0.82 | 7.10 | 294 | 0.80 | 7.64 |
| Mathematics 4 | 110 | 0.83 | 6.17 | 2,581 | 0.82 | 6.28 | 324 | 0.83 | 6.23 |
| Mathematics 5 | 130 | 0.77 | 6.99 | 2,539 | 0.78 | 6.50 | 330 | 0.83 | 6.27 |
| Mathematics 6 | 140 | 0.79 | 6.97 | 2,551 | 0.79 | 7.15 | 292 | 0.76 | 7.01 |
| Mathematics 7 | 129 | 0.82 | 6.53 | 2,608 | 0.83 | 6.52 | 375 | 0.85 | 6.65 |
| Mathematics 8 | 115 | 0.81 | 6.44 | 2,494 | 0.83 | 6.58 | 335 | 0.79 | 6.68 |
| Mathematics 11 | 106 | 0.83 | 7.25 | 2,448 | 0.82 | 6.63 | 315 | 0.79 | 6.88 |

Table 8.G.2 Reliabilities and SEMs by Ethnicity (Continued Two)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | White N | White Reliability | White Scale Score SEM | Two or More Races N | Two or More Races Reliability | Two or More Races Scale Score SEM |
| ELA 3 | 710 | 0.88 | 6.76 | 239 | 0.89 | 5.96 |
| ELA 4 | 680 | 0.88 | 6.29 | 232 | 0.89 | 5.85 |
| ELA 5 | 701 | 0.86 | 7.11 | 215 | 0.87 | 6.67 |
| ELA 6 | 724 | 0.88 | 5.01 | 189 | 0.87 | 5.02 |
| ELA 7 | 781 | 0.89 | 5.90 | 203 | 0.90 | 5.74 |
| ELA 8 | 723 | 0.89 | 4.87 | 177 | 0.85 | 4.82 |
| ELA 11 | 704 | 0.86 | 5.24 | 133 | 0.87 | 4.91 |
| Mathematics 3 | 697 | 0.84 | 7.29 | 231 | 0.81 | 7.46 |
| Mathematics 4 | 673 | 0.84 | 6.24 | 232 | 0.85 | 6.33 |
| Mathematics 5 | 698 | 0.80 | 6.64 | 217 | 0.80 | 6.39 |
| Mathematics 6 | 701 | 0.81 | 7.12 | 186 | 0.76 | 7.59 |
| Mathematics 7 | 756 | 0.83 | 6.62 | 198 | 0.83 | 6.74 |
| Mathematics 8 | 696 | 0.85 | 6.74 | 167 | 0.81 | 6.51 |
| Mathematics 11 | 689 | 0.83 | 7.08 | 132 | 0.86 | 6.55 |

Table 8.G.3 Reliabilities and SEMs by English Proficiency

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | English Only N | English Only Reliability | English Only Scale Score SEM | Initial Fluent English Proficient N | Initial Fluent English Proficient Reliability | Initial Fluent English Proficient Scale Score SEM |
| ELA 3 | 2,926 | 0.88 | 6.50 | 48 | 0.87 | 5.82 |
| ELA 4 | 2,796 | 0.88 | 6.07 | 25 | 0.88 | 6.04 |
| ELA 5 | 2,712 | 0.88 | 6.26 | 40 | 0.89 | 5.23 |
| ELA 6 | 2,660 | 0.86 | 5.14 | 36 | 0.87 | 4.87 |
| ELA 7 | 2,725 | 0.89 | 5.74 | 41 | 0.79 | 5.90 |
| ELA 8 | 2,454 | 0.88 | 4.76 | 34 | 0.81 | 4.71 |
| ELA 11 | 2,246 | 0.86 | 5.02 | 44 | 0.89 | 4.92 |
| Mathematics 3 | 2,862 | 0.82 | 7.27 | 44 | 0.86 | 6.72 |
| Mathematics 4 | 2,757 | 0.83 | 6.29 | 25 | 0.70 | 6.73 |
| Mathematics 5 | 2,672 | 0.79 | 6.52 | 34 | 0.75 | 7.21 |
| Mathematics 6 | 2,593 | 0.79 | 7.12 | 32 | 0.54 | 7.06 |
| Mathematics 7 | 2,669 | 0.83 | 6.59 | 39 | 0.84 | 5.92 |
| Mathematics 8 | 2,385 | 0.83 | 6.59 | 31 | 0.79 | 6.72 |
| Mathematics 11 | 2,217 | 0.82 | 6.76 | 44 | 0.83 | 6.98 |

Table 8.G.3 Reliabilities and SEMs by English Proficiency (Continued One)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | English Learner N | English Learner Reliability | English Learner Scale Score SEM | Reclassified Fluent English Proficient N | Reclassified Fluent English Proficient Reliability | Reclassified Fluent English Proficient Scale Score SEM |
| ELA 3 | 1,264 | 0.87 | 6.59 | 221 | 0.91 | 6.17 |
| ELA 4 | 1,250 | 0.88 | 5.81 | 365 | 0.84 | 7.37 |
| ELA 5 | 1,156 | 0.89 | 5.72 | 512 | 0.86 | 6.58 |
| ELA 6 | 1,050 | 0.86 | 5.06 | 656 | 0.84 | 5.06 |
| ELA 7 | 982 | 0.88 | 5.71 | 811 | 0.87 | 5.81 |
| ELA 8 | 936 | 0.88 | 4.74 | 891 | 0.88 | 4.68 |
| ELA 11 | 736 | 0.86 | 5.08 | 1,092 | 0.84 | 4.92 |
| Mathematics 3 | 1,245 | 0.83 | 7.10 | 212 | 0.84 | 6.69 |
| Mathematics 4 | 1,239 | 0.81 | 6.19 | 371 | 0.85 | 6.41 |
| Mathematics 5 | 1,140 | 0.78 | 6.44 | 501 | 0.78 | 6.62 |
| Mathematics 6 | 1,017 | 0.79 | 7.09 | 645 | 0.80 | 7.34 |
| Mathematics 7 | 957 | 0.83 | 6.37 | 803 | 0.83 | 6.57 |
| Mathematics 8 | 905 | 0.83 | 6.56 | 858 | 0.83 | 6.75 |
| Mathematics 11 | 704 | 0.82 | 6.78 | 1,080 | 0.82 | 6.75 |

Table 8.G.3 Reliabilities and SEMs by English Proficiency (Continued Two)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | To Be Determined N | To Be Determined Reliability | To Be Determined Scale Score SEM | English Proficiency Unknown N | English Proficiency Unknown Reliability | English Proficiency Unknown Scale Score SEM |
| ELA 3 | 0 | N/A | N/A | 0 | N/A | N/A |
| ELA 4 | 0 | N/A | N/A | 1 | N/A | N/A |
| ELA 5 | 0 | N/A | N/A | 1 | N/A | N/A |
| ELA 6 | 0 | N/A | N/A | 0 | N/A | N/A |
| ELA 7 | 0 | N/A | N/A | 0 | N/A | N/A |
| ELA 8 | 0 | N/A | N/A | 1 | N/A | N/A |
| ELA 11 | 0 | N/A | N/A | 0 | N/A | N/A |
| Mathematics 3 | 0 | N/A | N/A | 0 | N/A | N/A |
| Mathematics 4 | 0 | N/A | N/A | 1 | N/A | N/A |
| Mathematics 5 | 0 | N/A | N/A | 1 | N/A | N/A |
| Mathematics 6 | 0 | N/A | N/A | 0 | N/A | N/A |
| Mathematics 7 | 0 | N/A | N/A | 0 | N/A | N/A |
| Mathematics 8 | 0 | N/A | N/A | 1 | N/A | N/A |
| Mathematics 11 | 0 | N/A | N/A | 0 | N/A | N/A |

Table 8.G.4 Reliabilities and SEMs by Economic Status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Not Economically Disadvantaged N | Not Economically Disadvantaged Reliability | Not Economically Disadvantaged Scale Score SEM | Economically Disadvantaged N | Economically Disadvantaged Reliability | Economically Disadvantaged Scale Score SEM |
| ELA 3 | 1,391 | 0.89 | 6.14 | 3,068 | 0.88 | 6.66 |
| ELA 4 | 1,395 | 0.88 | 6.06 | 3,042 | 0.87 | 6.14 |
| ELA 5 | 1,465 | 0.89 | 5.98 | 2,956 | 0.88 | 6.24 |
| ELA 6 | 1,407 | 0.86 | 5.24 | 2,995 | 0.86 | 5.04 |
| ELA 7 | 1,403 | 0.89 | 5.73 | 3,156 | 0.88 | 5.75 |
| ELA 8 | 1,354 | 0.88 | 4.75 | 2,962 | 0.88 | 4.73 |
| ELA 11 | 1,276 | 0.87 | 4.90 | 2,842 | 0.85 | 5.05 |
| Mathematics 3 | 1,365 | 0.83 | 7.31 | 2,998 | 0.82 | 7.13 |
| Mathematics 4 | 1,382 | 0.83 | 6.31 | 3,011 | 0.82 | 6.27 |
| Mathematics 5 | 1,431 | 0.81 | 6.37 | 2,917 | 0.78 | 6.58 |
| Mathematics 6 | 1,357 | 0.79 | 7.12 | 2,930 | 0.79 | 7.15 |
| Mathematics 7 | 1,372 | 0.83 | 6.60 | 3,096 | 0.84 | 6.50 |
| Mathematics 8 | 1,302 | 0.84 | 6.63 | 2,878 | 0.83 | 6.61 |
| Mathematics 11 | 1,250 | 0.82 | 6.99 | 2,795 | 0.82 | 6.66 |

Table 8.G.5 Reliabilities and SEMs by Migrant Education Status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Migrant Education N | Migrant Education Reliability | Migrant Education Scale Score SEM | Not Migrant Education N | Not Migrant Education Reliability | Not Migrant Education Scale Score SEM |
| ELA 3 | 17 | 0.82 | 6.71 | 4,442 | 0.88 | 6.50 |
| ELA 4 | 22 | 0.80 | 6.01 | 4,415 | 0.87 | 6.12 |
| ELA 5 | 31 | 0.92 | 5.49 | 4,390 | 0.88 | 6.16 |
| ELA 6 | 22 | 0.78 | 5.18 | 4,380 | 0.86 | 5.11 |
| ELA 7 | 32 | 0.88 | 5.57 | 4,527 | 0.88 | 5.74 |
| ELA 8 | 19 | 0.79 | 4.81 | 4,297 | 0.88 | 4.74 |
| ELA 11 | 22 | 0.76 | 4.72 | 4,096 | 0.86 | 5.01 |
| Mathematics 3 | 18 | 0.68 | 7.03 | 4,345 | 0.82 | 7.19 |
| Mathematics 4 | 24 | 0.87 | 5.96 | 4,369 | 0.83 | 6.28 |
| Mathematics 5 | 30 | 0.77 | 5.24 | 4,318 | 0.79 | 6.53 |
| Mathematics 6 | 23 | 0.80 | 9.30 | 4,264 | 0.79 | 7.13 |
| Mathematics 7 | 31 | 0.78 | 6.76 | 4,437 | 0.83 | 6.54 |
| Mathematics 8 | 20 | 0.67 | 6.80 | 4,160 | 0.83 | 6.62 |
| Mathematics 11 | 21 | 0.85 | 6.70 | 4,024 | 0.82 | 6.77 |

Table 8.G.6 Reliabilities and SEMs by Foster Youth Status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Foster Youth N | Foster Youth Reliability | Foster Youth Scale Score SEM | Not Foster Youth N | Not Foster Youth Reliability | Not Foster Youth Scale Score SEM |
| ELA 3 | 40 | 0.91 | 5.58 | 4,419 | 0.88 | 6.51 |
| ELA 4 | 40 | 0.89 | 6.25 | 4,397 | 0.87 | 6.11 |
| ELA 5 | 42 | 0.88 | 5.88 | 4,379 | 0.88 | 6.15 |
| ELA 6 | 34 | 0.90 | 5.10 | 4,368 | 0.86 | 5.11 |
| ELA 7 | 49 | 0.91 | 5.98 | 4,510 | 0.88 | 5.74 |
| ELA 8 | 42 | 0.88 | 4.68 | 4,274 | 0.88 | 4.74 |
| ELA 11 | 46 | 0.89 | 5.06 | 4,072 | 0.86 | 5.00 |
| Mathematics 3 | 37 | 0.78 | 7.00 | 4,326 | 0.82 | 7.19 |
| Mathematics 4 | 40 | 0.85 | 6.35 | 4,353 | 0.83 | 6.28 |
| Mathematics 5 | 44 | 0.85 | 6.20 | 4,304 | 0.79 | 6.52 |
| Mathematics 6 | 30 | 0.84 | 6.69 | 4,257 | 0.79 | 7.15 |
| Mathematics 7 | 46 | 0.84 | 6.52 | 4,422 | 0.83 | 6.54 |
| Mathematics 8 | 42 | 0.86 | 5.57 | 4,138 | 0.83 | 6.63 |
| Mathematics 11 | 43 | 0.72 | 6.81 | 4,002 | 0.82 | 6.77 |

Table 8.G.7 Reliabilities and SEMs by Primary Disability Type

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Intellectual Disability N | Intellectual Disability Reliability | Intellectual Disability Scale Score SEM | Hearing Impairment N | Hearing Impairment Reliability | Hearing Impairment Scale Score SEM | Speech or Language Impairment N | Speech or Language Impairment Reliability | Speech or Language Impairment Scale Score SEM |
| ELA 3 | 1,258 | 0.88 | 6.03 | 37 | 0.91 | 5.62 | 75 | 0.81 | 6.79 |
| ELA 4 | 1,358 | 0.86 | 6.08 | 30 | 0.81 | 5.39 | 60 | 0.68 | 6.55 |
| ELA 5 | 1,508 | 0.88 | 5.80 | 27 | 0.89 | 5.95 | 73 | 0.78 | 6.54 |
| ELA 6 | 1,572 | 0.86 | 4.88 | 37 | 0.78 | 5.24 | 44 | 0.76 | 5.77 |
| ELA 7 | 1,755 | 0.87 | 5.59 | 36 | 0.80 | 5.88 | 37 | 0.74 | 6.26 |
| ELA 8 | 1,661 | 0.88 | 4.65 | 39 | 0.68 | 4.82 | 27 | 0.75 | 5.09 |
| ELA 11 | 1,827 | 0.84 | 4.84 | 45 | 0.83 | 4.85 | 17 | 0.76 | 5.09 |
| Mathematics 3 | 1,227 | 0.78 | 6.96 | 37 | 0.84 | 6.33 | 74 | 0.77 | 7.14 |
| Mathematics 4 | 1,340 | 0.79 | 6.03 | 29 | 0.87 | 5.73 | 60 | 0.70 | 6.77 |
| Mathematics 5 | 1,476 | 0.73 | 6.43 | 25 | 0.64 | 6.71 | 74 | 0.82 | 6.77 |
| Mathematics 6 | 1,516 | 0.77 | 6.84 | 37 | 0.74 | 7.35 | 44 | 0.79 | 7.50 |
| Mathematics 7 | 1,709 | 0.81 | 6.24 | 37 | 0.75 | 6.71 | 38 | 0.75 | 7.01 |
| Mathematics 8 | 1,602 | 0.82 | 6.51 | 37 | 0.78 | 7.16 | 27 | 0.77 | 7.30 |
| Mathematics 11 | 1,797 | 0.79 | 6.44 | 47 | 0.81 | 6.97 | 18 | 0.82 | 7.56 |

Table 8.G.7 Reliabilities and SEMs by Primary Disability Type (Continued One)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Visual Impairment N | Visual Impairment Reliability | Visual Impairment Scale Score SEM | Emotional Disturbance N | Emotional Disturbance Reliability | Emotional Disturbance Scale Score SEM | Orthopedic Impairment N | Orthopedic Impairment Reliability | Orthopedic Impairment Scale Score SEM |
| ELA 3 | 3 | N/A | N/A | 6 | N/A | N/A | 64 | 0.91 | 6.36 |
| ELA 4 | 4 | N/A | N/A | 14 | 0.73 | 6.67 | 72 | 0.89 | 5.82 |
| ELA 5 | 9 | N/A | N/A | 18 | 0.79 | 7.05 | 51 | 0.89 | 5.53 |
| ELA 6 | 11 | 0.67 | 5.14 | 12 | 0.73 | 5.19 | 64 | 0.87 | 5.34 |
| ELA 7 | 4 | N/A | N/A | 11 | 0.50 | 6.07 | 71 | 0.90 | 5.58 |
| ELA 8 | 9 | N/A | N/A | 17 | 0.92 | 5.26 | 67 | 0.89 | 4.74 |
| ELA 11 | 4 | N/A | N/A | 17 | 0.80 | 5.16 | 77 | 0.88 | 4.93 |
| Mathematics 3 | 3 | N/A | N/A | 6 | N/A | N/A | 61 | 0.86 | 6.60 |
| Mathematics 4 | 4 | N/A | N/A | 14 | 0.71 | 6.72 | 75 | 0.85 | 6.78 |
| Mathematics 5 | 9 | N/A | N/A | 18 | 0.76 | 6.93 | 51 | 0.81 | 6.47 |
| Mathematics 6 | 10 | N/A | N/A | 12 | 0.54 | 7.19 | 61 | 0.75 | 7.27 |
| Mathematics 7 | 4 | N/A | N/A | 11 | 0.78 | 7.13 | 66 | 0.77 | 6.43 |
| Mathematics 8 | 8 | N/A | N/A | 16 | 0.87 | 7.45 | 63 | 0.82 | 6.10 |
| Mathematics 11 | 4 | N/A | N/A | 18 | 0.75 | 7.00 | 77 | 0.85 | 6.38 |

Table 8.G.7 Reliabilities and SEMs by Primary Disability Type (Continued Two)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Other Health Impairment N | Other Health Impairment Reliability | Other Health Impairment Scale Score SEM | Specific Learning Disability N | Specific Learning Disability Reliability | Specific Learning Disability Scale Score SEM | Deaf-Blindness N | Deaf-Blindness Reliability | Deaf-Blindness Scale Score SEM |
| ELA 3 | 264 | 0.87 | 6.92 | 95 | 0.57 | 10.73 | 2 | N/A | N/A |
| ELA 4 | 257 | 0.86 | 6.13 | 137 | 0.64 | 8.68 | 0 | N/A | N/A |
| ELA 5 | 252 | 0.81 | 7.62 | 165 | 0.66 | 8.91 | 1 | N/A | N/A |
| ELA 6 | 230 | 0.83 | 5.15 | 160 | 0.65 | 6.50 | 0 | N/A | N/A |
| ELA 7 | 221 | 0.84 | 6.07 | 211 | 0.78 | 6.35 | 0 | N/A | N/A |
| ELA 8 | 237 | 0.83 | 4.97 | 216 | 0.78 | 5.25 | 2 | N/A | N/A |
| ELA 11 | 166 | 0.81 | 4.98 | 195 | 0.76 | 5.65 | 1 | N/A | N/A |
| Mathematics 3 | 256 | 0.82 | 7.24 | 94 | 0.74 | 7.88 | 2 | N/A | N/A |
| Mathematics 4 | 254 | 0.78 | 6.30 | 137 | 0.80 | 6.88 | 0 | N/A | N/A |
| Mathematics 5 | 249 | 0.72 | 6.52 | 166 | 0.78 | 6.92 | 1 | N/A | N/A |
| Mathematics 6 | 228 | 0.75 | 7.38 | 163 | 0.81 | 7.19 | 0 | N/A | N/A |
| Mathematics 7 | 219 | 0.82 | 6.70 | 211 | 0.79 | 6.72 | 0 | N/A | N/A |
| Mathematics 8 | 231 | 0.80 | 6.80 | 217 | 0.77 | 7.25 | 1 | N/A | N/A |
| Mathematics 11 | 165 | 0.78 | 6.90 | 195 | 0.77 | 7.34 | 1 | N/A | N/A |

Table 8.G.7 Reliabilities and SEMs by Primary Disability Type (Continued Three)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Multiple Disabilities N | Multiple Disabilities Reliability | Multiple Disabilities Scale Score SEM | Autism N | Autism Reliability | Autism Scale Score SEM | Traumatic Brain Injury N | Traumatic Brain Injury Reliability | Traumatic Brain Injury Scale Score SEM |
| ELA 3 | 170 | 0.91 | 5.79 | 2,478 | 0.88 | 6.44 | 7 | N/A | N/A |
| ELA 4 | 185 | 0.88 | 5.47 | 2,314 | 0.88 | 5.95 | 6 | N/A | N/A |
| ELA 5 | 157 | 0.92 | 5.07 | 2,149 | 0.89 | 6.01 | 11 | 0.84 | 6.71 |
| ELA 6 | 161 | 0.90 | 5.06 | 2,096 | 0.86 | 5.13 | 15 | 0.76 | 5.10 |
| ELA 7 | 185 | 0.90 | 5.68 | 2,005 | 0.89 | 5.75 | 23 | 0.91 | 5.88 |
| ELA 8 | 190 | 0.91 | 4.48 | 1,831 | 0.88 | 4.76 | 20 | 0.85 | 5.41 |
| ELA 11 | 234 | 0.89 | 4.92 | 1,514 | 0.86 | 5.13 | 21 | 0.91 | 5.46 |
| Mathematics 3 | 163 | 0.81 | 7.02 | 2,433 | 0.83 | 7.20 | 7 | N/A | N/A |
| Mathematics 4 | 184 | 0.83 | 5.99 | 2,290 | 0.83 | 6.36 | 6 | N/A | N/A |
| Mathematics 5 | 147 | 0.80 | 7.23 | 2,119 | 0.81 | 6.43 | 13 | 0.89 | 6.33 |
| Mathematics 6 | 154 | 0.78 | 7.51 | 2,047 | 0.80 | 7.19 | 15 | 0.42 | 6.97 |
| Mathematics 7 | 169 | 0.84 | 6.82 | 1,982 | 0.84 | 6.68 | 22 | 0.89 | 6.12 |
| Mathematics 8 | 176 | 0.84 | 6.56 | 1,782 | 0.83 | 6.58 | 20 | 0.83 | 7.10 |
| Mathematics 11 | 224 | 0.80 | 6.76 | 1,478 | 0.82 | 6.98 | 21 | 0.79 | 6.97 |

Table 8.G.8 Reliabilities and SEMs by Accommodation

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Using Accommodations N | Using Accommodations Reliability | Using Accommodations Scale Score SEM | Not Using Accommodations N | Not Using Accommodations Reliability | Not Using Accommodations Scale Score SEM |
| ELA 3 | 1,129 | 0.88 | 6.51 | 3,330 | 0.88 | 6.50 |
| ELA 4 | 1,478 | 0.87 | 6.20 | 2,959 | 0.87 | 6.07 |
| ELA 5 | 1,630 | 0.88 | 5.87 | 2,791 | 0.88 | 6.31 |
| ELA 6 | 1,572 | 0.86 | 5.23 | 2,830 | 0.86 | 5.04 |
| ELA 7 | 1,515 | 0.88 | 5.60 | 3,044 | 0.88 | 5.80 |
| ELA 8 | 1,446 | 0.87 | 4.78 | 2,870 | 0.88 | 4.72 |
| ELA 11 | 831 | 0.85 | 4.94 | 3,287 | 0.86 | 5.02 |
| Mathematics 3 | 967 | 0.82 | 7.29 | 3,396 | 0.82 | 7.15 |
| Mathematics 4 | 1,377 | 0.84 | 6.19 | 3,016 | 0.82 | 6.32 |
| Mathematics 5 | 1,495 | 0.80 | 6.52 | 2,853 | 0.78 | 6.51 |
| Mathematics 6 | 1,441 | 0.79 | 7.26 | 2,846 | 0.80 | 7.08 |
| Mathematics 7 | 1,401 | 0.82 | 6.42 | 3,067 | 0.84 | 6.60 |
| Mathematics 8 | 1,355 | 0.82 | 6.56 | 2,825 | 0.84 | 6.64 |
| Mathematics 11 | 791 | 0.82 | 6.63 | 3,254 | 0.82 | 6.80 |

Table 8.G.9 Reliabilities and SEMs by Designated Support

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Content Area and Grade Level | Using Designated Supports N | Using Designated Supports Reliability | Using Designated Supports Scale Score SEM | Not Using Designated Supports N | Not Using Designated Supports Reliability | Not Using Designated Supports Scale Score SEM |
| ELA 3 | 1,344 | 0.88 | 6.50 | 3,115 | 0.88 | 6.50 |
| ELA 4 | 1,747 | 0.87 | 6.19 | 2,690 | 0.87 | 6.07 |
| ELA 5 | 1,991 | 0.88 | 6.06 | 2,430 | 0.88 | 6.23 |
| ELA 6 | 1,947 | 0.86 | 5.21 | 2,455 | 0.86 | 5.03 |
| ELA 7 | 1,915 | 0.88 | 5.64 | 2,644 | 0.89 | 5.81 |
| ELA 8 | 1,791 | 0.86 | 4.79 | 2,525 | 0.89 | 4.71 |
| ELA 11 | 1,224 | 0.85 | 4.96 | 2,894 | 0.86 | 5.03 |
| Mathematics 3 | 1,334 | 0.82 | 7.23 | 3,029 | 0.82 | 7.16 |
| Mathematics 4 | 1,759 | 0.84 | 6.26 | 2,634 | 0.82 | 6.30 |
| Mathematics 5 | 1,972 | 0.79 | 6.53 | 2,376 | 0.79 | 6.51 |
| Mathematics 6 | 1,892 | 0.80 | 7.17 | 2,395 | 0.79 | 7.12 |
| Mathematics 7 | 1,868 | 0.82 | 6.41 | 2,600 | 0.84 | 6.64 |
| Mathematics 8 | 1,755 | 0.82 | 6.56 | 2,425 | 0.84 | 6.66 |
| Mathematics 11 | 1,190 | 0.82 | 6.65 | 2,855 | 0.82 | 6.82 |

Table 8.G.10 Reliabilities and SEMs by Form—ELA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Content Area and Grade Level | Form | N | Reliability | Scale Score SEM |
| ELA 3 | 1 | 2,266 | 0.88 | 6.44 |
| ELA 3 | 2 | 2,193 | 0.88 | 6.57 |
| ELA 4 | 1 | 2,231 | 0.88 | 5.98 |
| ELA 4 | 2 | 2,206 | 0.87 | 6.24 |
| ELA 5 | 1 | 2,250 | 0.88 | 6.21 |
| ELA 5 | 2 | 2,171 | 0.89 | 6.08 |
| ELA 6 | 1 | 2,170 | 0.87 | 5.10 |
| ELA 6 | 2 | 2,232 | 0.86 | 5.12 |
| ELA 7 | 1 | 2,328 | 0.88 | 5.74 |
| ELA 7 | 2 | 2,231 | 0.88 | 5.74 |
| ELA 8 | 1 | 2,211 | 0.88 | 4.75 |
| ELA 8 | 2 | 2,105 | 0.88 | 4.73 |
| ELA 11 | 1 | 1,937 | 0.86 | 5.02 |
| ELA 11 | 2 | 2,181 | 0.86 | 4.99 |

Table 8.G.11 Reliabilities and SEMs by Form—Mathematics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Content Area and Grade Level | Form | N | Reliability | Scale Score SEM |
| Mathematics 3 | 1 | 2,203 | 0.82 | 7.17 |
| Mathematics 3 | 2 | 2,160 | 0.82 | 7.20 |
| Mathematics 4 | 1 | 2,192 | 0.81 | 6.24 |
| Mathematics 4 | 2 | 2,201 | 0.84 | 6.30 |
| Mathematics 5 | 1 | 2,207 | 0.79 | 6.50 |
| Mathematics 5 | 2 | 2,141 | 0.79 | 6.54 |
| Mathematics 6 | 1 | 2,099 | 0.79 | 7.13 |
| Mathematics 6 | 2 | 2,188 | 0.79 | 7.16 |
| Mathematics 7 | 1 | 2,295 | 0.83 | 6.48 |
| Mathematics 7 | 2 | 2,173 | 0.84 | 6.60 |
| Mathematics 8 | 1 | 2,127 | 0.83 | 6.62 |
| Mathematics 8 | 2 | 2,053 | 0.83 | 6.62 |
| Mathematics 11 | 1 | 1,892 | 0.82 | 6.89 |
| Mathematics 11 | 2 | 2,153 | 0.82 | 6.65 |

Table 8.G.12 Scale Score Conversion Tables with CSEMs—ELA, Grade Three

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 1.7420 | 303 | 26 | N/A | N/A | N/A | N/A |
| 1 | −4.8680 | 1.0307 | 303 | 15 | N/A | N/A | N/A | N/A |
| 2 | −4.1117 | 0.7500 | 303 | 11 | N/A | N/A | N/A | N/A |
| 3 | −3.6435 | 0.6289 | 303 | 9 | N/A | N/A | N/A | N/A |
| 4 | −3.2937 | 0.5581 | 303 | 8 | N/A | N/A | N/A | N/A |
| 5 | −3.0092 | 0.5108 | 303 | 8 | N/A | N/A | N/A | N/A |
| 6 | −2.7661 | 0.4764 | 307 | 7 | N/A | N/A | N/A | N/A |
| 7 | −2.5518 | 0.4500 | 310 | 7 | N/A | N/A | N/A | N/A |
| 8 | −2.3587 | 0.4293 | 313 | 6 | N/A | N/A | N/A | N/A |
| 9 | −2.1816 | 0.4125 | 315 | 6 | N/A | N/A | N/A | N/A |
| 10 | −2.0172 | 0.3988 | 318 | 6 | −1.5359 | 0.4168 | 325 | 6 |
| 11 | −1.8626 | 0.3875 | 320 | 6 | −1.3668 | 0.4058 | 327 | 6 |
| 12 | −1.7159 | 0.3784 | 322 | 6 | −1.2056 | 0.3971 | 330 | 6 |
| 13 | −1.5755 | 0.3711 | 324 | 6 | −1.0506 | 0.3903 | 332 | 6 |
| 14 | −1.4399 | 0.3653 | 326 | 5 | −0.9003 | 0.3851 | 334 | 6 |
| 15 | −1.3080 | 0.3610 | 328 | 5 | −0.7535 | 0.3810 | 337 | 6 |
| 16 | −1.1787 | 0.3581 | 330 | 5 | −0.6094 | 0.3780 | 339 | 6 |
| 17 | −1.0511 | 0.3563 | 332 | 5 | −0.4672 | 0.3759 | 341 | 6 |
| 18 | −0.9243 | 0.3557 | 334 | 5 | −0.3264 | 0.3746 | 343 | 6 |
| 19 | −0.7976 | 0.3562 | 336 | 5 | −0.1862 | 0.3740 | 345 | 6 |
| 20 | −0.6701 | 0.3578 | 338 | 5 | −0.0463 | 0.3741 | 347 | 6 |
| 21 | −0.5411 | 0.3605 | 340 | 5 | 0.0941 | 0.3750 | 349 | 6 |
| 22 | −0.4097 | 0.3644 | 342 | 5 | 0.2355 | 0.3768 | 352 | 6 |
| 23 | −0.2750 | 0.3695 | 344 | 6 | 0.3785 | 0.3795 | 354 | 6 |
| 24 | −0.1361 | 0.3760 | 346 | 6 | 0.5239 | 0.3832 | 356 | 6 |
| 25 | 0.0084 | 0.3842 | 348 | 6 | 0.6727 | 0.3882 | 358 | 6 |
| 26 | 0.1600 | 0.3944 | 350 | 6 | 0.8260 | 0.3948 | 360 | 6 |
| 27 | 0.3206 | 0.4072 | 353 | 6 | 0.9854 | 0.4037 | 363 | 6 |
| 28 | 0.4928 | 0.4231 | 355 | 6 | 1.1530 | 0.4154 | 365 | 6 |
| 29 | 0.6803 | 0.4434 | 358 | 7 | 1.3320 | 0.4313 | 368 | 6 |
| 30 | N/A | N/A | N/A | N/A | 1.5272 | 0.4530 | 371 | 7 |
| 31 | N/A | N/A | N/A | N/A | 1.7459 | 0.4837 | 374 | 7 |
| 32 | N/A | N/A | N/A | N/A | 2.0010 | 0.5286 | 378 | 8 |
| 33 | N/A | N/A | N/A | N/A | 2.3162 | 0.5987 | 383 | 9 |
| 34 | N/A | N/A | N/A | N/A | 2.7451 | 0.7220 | 389 | 11 |
| 35 | N/A | N/A | N/A | N/A | 3.4584 | 1.0089 | 399 | 15 |
| 36 | N/A | N/A | N/A | N/A | 6.0000 | 3.5361 | 399 | 53 |

Table 8.G.13 Scale Score Conversion Tables with CSEMs—ELA, Grade Four

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 1.9831 | 403 | 30 | N/A | N/A | N/A | N/A |
| 1 | −4.6038 | 1.0260 | 403 | 15 | N/A | N/A | N/A | N/A |
| 2 | −3.8567 | 0.7442 | 403 | 11 | N/A | N/A | N/A | N/A |
| 3 | −3.3968 | 0.6227 | 403 | 9 | N/A | N/A | N/A | N/A |
| 4 | −3.0542 | 0.5521 | 403 | 8 | N/A | N/A | N/A | N/A |
| 5 | −2.7759 | 0.5051 | 403 | 8 | N/A | N/A | N/A | N/A |
| 6 | −2.5381 | 0.4712 | 407 | 7 | N/A | N/A | N/A | N/A |
| 7 | −2.3283 | 0.4456 | 410 | 7 | N/A | N/A | N/A | N/A |
| 8 | −2.1387 | 0.4254 | 413 | 6 | N/A | N/A | N/A | N/A |
| 9 | −1.9647 | 0.4092 | 416 | 6 | −1.3614 | 0.4119 | 425 | 6 |
| 10 | −1.8027 | 0.3959 | 418 | 6 | −1.1975 | 0.3980 | 427 | 6 |
| 11 | −1.6503 | 0.3848 | 420 | 6 | −1.0436 | 0.3867 | 429 | 6 |
| 12 | −1.5057 | 0.3757 | 422 | 6 | −0.8975 | 0.3777 | 432 | 6 |
| 13 | −1.3674 | 0.3681 | 424 | 6 | −0.7576 | 0.3706 | 434 | 6 |
| 14 | −1.2342 | 0.3618 | 426 | 5 | −0.6222 | 0.3652 | 436 | 5 |
| 15 | −1.1050 | 0.3569 | 428 | 5 | −0.4902 | 0.3614 | 438 | 5 |
| 16 | −0.9790 | 0.3531 | 430 | 5 | −0.3605 | 0.3590 | 440 | 5 |
| 17 | −0.8552 | 0.3505 | 432 | 5 | −0.2320 | 0.3579 | 442 | 5 |
| 18 | −0.7328 | 0.3491 | 434 | 5 | −0.1038 | 0.3581 | 443 | 5 |
| 19 | −0.6110 | 0.3488 | 436 | 5 | 0.0250 | 0.3596 | 445 | 5 |
| 20 | −0.4889 | 0.3498 | 438 | 5 | 0.1553 | 0.3623 | 447 | 5 |
| 21 | −0.3657 | 0.3522 | 440 | 5 | 0.2880 | 0.3663 | 449 | 5 |
| 22 | −0.2403 | 0.3560 | 441 | 5 | 0.4242 | 0.3718 | 451 | 6 |
| 23 | −0.1117 | 0.3615 | 443 | 5 | 0.5651 | 0.3789 | 453 | 6 |
| 24 | 0.0217 | 0.3688 | 445 | 6 | 0.7122 | 0.3881 | 456 | 6 |
| 25 | 0.1612 | 0.3784 | 447 | 6 | 0.8673 | 0.3997 | 458 | 6 |
| 26 | 0.3091 | 0.3907 | 450 | 6 | 1.0328 | 0.4144 | 460 | 6 |
| 27 | 0.4679 | 0.4064 | 452 | 6 | 1.2124 | 0.4335 | 463 | 7 |
| 28 | 0.6411 | 0.4265 | 455 | 6 | 1.4109 | 0.4584 | 466 | 7 |
| 29 | 0.8341 | 0.4527 | 458 | 7 | 1.6362 | 0.4921 | 470 | 7 |
| 30 | N/A | N/A | N/A | N/A | 1.9011 | 0.5394 | 474 | 8 |
| 31 | N/A | N/A | N/A | N/A | 2.2296 | 0.6111 | 478 | 9 |
| 32 | N/A | N/A | N/A | N/A | 2.6751 | 0.7344 | 485 | 11 |
| 33 | N/A | N/A | N/A | N/A | 3.4078 | 1.0190 | 496 | 15 |
| 34 | N/A | N/A | N/A | N/A | 6.0000 | 3.5944 | 499 | 54 |

Table 8.G.14 Scale Score Conversion Tables with CSEMs—ELA, Grade Five

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 1.3995 | 503 | 21 | N/A | N/A | N/A | N/A |
| 1 | −5.3293 | 1.0295 | 503 | 15 | N/A | N/A | N/A | N/A |
| 2 | −4.5748 | 0.7494 | 503 | 11 | N/A | N/A | N/A | N/A |
| 3 | −4.1067 | 0.6295 | 503 | 9 | N/A | N/A | N/A | N/A |
| 4 | −3.7553 | 0.5604 | 503 | 8 | N/A | N/A | N/A | N/A |
| 5 | −3.4673 | 0.5149 | 503 | 8 | N/A | N/A | N/A | N/A |
| 6 | −3.2191 | 0.4826 | 503 | 7 | N/A | N/A | N/A | N/A |
| 7 | −2.9980 | 0.4584 | 503 | 7 | N/A | N/A | N/A | N/A |
| 8 | −2.7965 | 0.4396 | 503 | 7 | N/A | N/A | N/A | N/A |
| 9 | −2.6098 | 0.4247 | 506 | 6 | N/A | N/A | N/A | N/A |
| 10 | −2.4346 | 0.4126 | 508 | 6 | N/A | N/A | N/A | N/A |
| 11 | −2.2685 | 0.4026 | 511 | 6 | −1.5050 | 0.4108 | 522 | 6 |
| 12 | −2.1097 | 0.3943 | 513 | 6 | −1.3410 | 0.3991 | 525 | 6 |
| 13 | −1.9569 | 0.3873 | 516 | 6 | −1.1856 | 0.3892 | 527 | 6 |
| 14 | −1.8091 | 0.3815 | 518 | 6 | −1.0374 | 0.3808 | 529 | 6 |
| 15 | −1.6653 | 0.3767 | 520 | 6 | −0.8950 | 0.3739 | 532 | 6 |
| 16 | −1.5249 | 0.3727 | 522 | 6 | −0.7572 | 0.3683 | 534 | 6 |
| 17 | −1.3871 | 0.3696 | 524 | 6 | −0.6231 | 0.3640 | 536 | 5 |
| 18 | −1.2513 | 0.3672 | 526 | 6 | −0.4917 | 0.3610 | 538 | 5 |
| 19 | −1.1169 | 0.3657 | 528 | 5 | −0.3620 | 0.3592 | 540 | 5 |
| 20 | −0.9834 | 0.3649 | 530 | 5 | −0.2331 | 0.3587 | 542 | 5 |
| 21 | −0.8503 | 0.3649 | 532 | 5 | −0.1041 | 0.3595 | 543 | 5 |
| 22 | −0.7167 | 0.3658 | 534 | 5 | 0.0260 | 0.3618 | 545 | 5 |
| 23 | −0.5822 | 0.3676 | 536 | 6 | 0.1583 | 0.3657 | 547 | 5 |
| 24 | −0.4459 | 0.3705 | 538 | 6 | 0.2941 | 0.3713 | 549 | 6 |
| 25 | −0.3071 | 0.3746 | 540 | 6 | 0.4348 | 0.3790 | 552 | 6 |
| 26 | −0.1646 | 0.3801 | 543 | 6 | 0.5822 | 0.3890 | 554 | 6 |
| 27 | −0.0174 | 0.3872 | 545 | 6 | 0.7386 | 0.4020 | 556 | 6 |
| 28 | 0.1360 | 0.3963 | 547 | 6 | 0.9067 | 0.4184 | 559 | 6 |
| 29 | 0.2976 | 0.4078 | 549 | 6 | 1.0904 | 0.4393 | 561 | 7 |
| 30 | 0.4698 | 0.4224 | 552 | 6 | 1.2950 | 0.4661 | 564 | 7 |
| 31 | 0.6562 | 0.4413 | 555 | 7 | 1.5286 | 0.5016 | 568 | 8 |
| 32 | 0.8616 | 0.4658 | 558 | 7 | 1.8042 | 0.5504 | 572 | 8 |
| 33 | N/A | N/A | N/A | N/A | 2.1458 | 0.6228 | 577 | 9 |
| 34 | N/A | N/A | N/A | N/A | 2.6071 | 0.7458 | 584 | 11 |
| 35 | N/A | N/A | N/A | N/A | 3.3578 | 1.0284 | 595 | 15 |
| 36 | N/A | N/A | N/A | N/A | 6.0000 | 3.6539 | 599 | 55 |

Table 8.G.15 Scale Score Conversion Tables with CSEMs—ELA, Grade Six

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 1.8205 | 603 | 23 | N/A | N/A | N/A | N/A |
| 1 | −4.7794 | 1.0267 | 603 | 13 | N/A | N/A | N/A | N/A |
| 2 | −4.0315 | 0.7443 | 603 | 9 | N/A | N/A | N/A | N/A |
| 3 | −3.5721 | 0.6216 | 603 | 8 | N/A | N/A | N/A | N/A |
| 4 | −3.2317 | 0.5495 | 605 | 7 | N/A | N/A | N/A | N/A |
| 5 | −2.9569 | 0.5008 | 608 | 6 | N/A | N/A | N/A | N/A |
| 6 | −2.7242 | 0.4652 | 611 | 6 | N/A | N/A | N/A | N/A |
| 7 | −2.5206 | 0.4378 | 613 | 5 | N/A | N/A | N/A | N/A |
| 8 | −2.3384 | 0.4161 | 616 | 5 | N/A | N/A | N/A | N/A |
| 9 | −2.1725 | 0.3987 | 618 | 5 | N/A | N/A | N/A | N/A |
| 10 | −2.0192 | 0.3845 | 620 | 5 | N/A | N/A | N/A | N/A |
| 11 | −1.8758 | 0.3730 | 622 | 5 | −1.4915 | 0.3800 | 626 | 5 |
| 12 | −1.7401 | 0.3637 | 623 | 5 | −1.3498 | 0.3729 | 628 | 5 |
| 13 | −1.6106 | 0.3563 | 625 | 4 | −1.2127 | 0.3675 | 630 | 5 |
| 14 | −1.4857 | 0.3505 | 626 | 4 | −1.0791 | 0.3636 | 632 | 5 |
| 15 | −1.3643 | 0.3461 | 628 | 4 | −0.9478 | 0.3609 | 633 | 5 |
| 16 | −1.2456 | 0.3431 | 629 | 4 | −0.8181 | 0.3594 | 635 | 4 |
| 17 | −1.1284 | 0.3413 | 631 | 4 | −0.6891 | 0.3588 | 636 | 4 |
| 18 | −1.0122 | 0.3406 | 632 | 4 | −0.5602 | 0.3591 | 638 | 4 |
| 19 | −0.8960 | 0.3410 | 634 | 4 | −0.4307 | 0.3603 | 640 | 5 |
| 20 | −0.7793 | 0.3424 | 635 | 4 | −0.3001 | 0.3623 | 641 | 5 |
| 21 | −0.6612 | 0.3448 | 637 | 4 | −0.1678 | 0.3651 | 643 | 5 |
| 22 | −0.5411 | 0.3483 | 638 | 4 | −0.0331 | 0.3687 | 645 | 5 |
| 23 | −0.4182 | 0.3527 | 640 | 4 | 0.1045 | 0.3731 | 646 | 5 |
| 24 | −0.2917 | 0.3583 | 641 | 4 | 0.2457 | 0.3784 | 648 | 5 |
| 25 | −0.1609 | 0.3650 | 643 | 5 | 0.3914 | 0.3848 | 650 | 5 |
| 26 | −0.0247 | 0.3730 | 645 | 5 | 0.5425 | 0.3925 | 652 | 5 |
| 27 | 0.1179 | 0.3823 | 646 | 5 | 0.7003 | 0.4019 | 654 | 5 |
| 28 | 0.2683 | 0.3934 | 648 | 5 | 0.8664 | 0.4134 | 656 | 5 |
| 29 | 0.4284 | 0.4067 | 650 | 5 | 1.0432 | 0.4278 | 658 | 5 |
| 30 | 0.6003 | 0.4227 | 653 | 5 | 1.2340 | 0.4462 | 660 | 6 |
| 31 | 0.7873 | 0.4426 | 655 | 6 | 1.4436 | 0.4702 | 663 | 6 |
| 32 | N/A | N/A | N/A | N/A | 1.6797 | 0.5028 | 666 | 6 |
| 33 | N/A | N/A | N/A | N/A | 1.9550 | 0.5488 | 669 | 7 |
| 34 | N/A | N/A | N/A | N/A | 2.2933 | 0.6188 | 674 | 8 |
| 35 | N/A | N/A | N/A | N/A | 2.7480 | 0.7403 | 679 | 9 |
| 36 | N/A | N/A | N/A | N/A | 3.4888 | 1.0228 | 689 | 13 |
| 37 | N/A | N/A | N/A | N/A | 6.0000 | 3.4423 | 699 | 43 |

Table 8.G.16 Scale Score Conversion Tables with CSEMs—ELA, Grade Seven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 1.7448 | 703 | 26 | N/A | N/A | N/A | N/A |
| 1 | −4.8616 | 1.0354 | 703 | 16 | N/A | N/A | N/A | N/A |
| 2 | −4.0948 | 0.7575 | 703 | 11 | N/A | N/A | N/A | N/A |
| 3 | −3.6145 | 0.6391 | 703 | 10 | N/A | N/A | N/A | N/A |
| 4 | −3.2510 | 0.5710 | 703 | 9 | N/A | N/A | N/A | N/A |
| 5 | −2.9512 | 0.5261 | 703 | 8 | N/A | N/A | N/A | N/A |
| 6 | −2.6917 | 0.4940 | 705 | 7 | N/A | N/A | N/A | N/A |
| 7 | −2.4598 | 0.4697 | 708 | 7 | N/A | N/A | N/A | N/A |
| 8 | −2.2482 | 0.4505 | 711 | 7 | N/A | N/A | N/A | N/A |
| 9 | −2.0523 | 0.4350 | 714 | 7 | −1.3441 | 0.4551 | 725 | 7 |
| 10 | −1.8686 | 0.4221 | 717 | 6 | −1.1442 | 0.4393 | 728 | 7 |
| 11 | −1.6950 | 0.4112 | 720 | 6 | −0.9570 | 0.4258 | 731 | 6 |
| 12 | −1.5297 | 0.4020 | 722 | 6 | −0.7805 | 0.4143 | 733 | 6 |
| 13 | −1.3712 | 0.3942 | 724 | 6 | −0.6128 | 0.4046 | 736 | 6 |
| 14 | −1.2183 | 0.3877 | 727 | 6 | −0.4524 | 0.3964 | 738 | 6 |
| 15 | −1.0700 | 0.3824 | 729 | 6 | −0.2979 | 0.3897 | 741 | 6 |
| 16 | −0.9252 | 0.3785 | 731 | 6 | −0.1480 | 0.3844 | 743 | 6 |
| 17 | −0.7829 | 0.3758 | 733 | 6 | −0.0017 | 0.3806 | 745 | 6 |
| 18 | −0.6422 | 0.3745 | 735 | 6 | 0.1422 | 0.3781 | 747 | 6 |
| 19 | −0.5018 | 0.3747 | 737 | 6 | 0.2848 | 0.3771 | 749 | 6 |
| 20 | −0.3608 | 0.3763 | 740 | 6 | 0.4273 | 0.3777 | 751 | 6 |
| 21 | −0.2179 | 0.3796 | 742 | 6 | 0.5707 | 0.3799 | 754 | 6 |
| 22 | −0.0719 | 0.3846 | 744 | 6 | 0.7167 | 0.3841 | 756 | 6 |
| 23 | 0.0787 | 0.3915 | 746 | 6 | 0.8666 | 0.3904 | 758 | 6 |
| 24 | 0.2355 | 0.4007 | 749 | 6 | 1.0225 | 0.3993 | 760 | 6 |
| 25 | 0.4007 | 0.4124 | 751 | 6 | 1.1866 | 0.4112 | 763 | 6 |
| 26 | 0.5769 | 0.4272 | 754 | 6 | 1.3621 | 0.4269 | 765 | 6 |
| 27 | 0.7675 | 0.4463 | 757 | 7 | 1.5529 | 0.4474 | 768 | 7 |
| 28 | 0.9775 | 0.4710 | 760 | 7 | 1.7650 | 0.4744 | 771 | 7 |
| 29 | N/A | N/A | N/A | N/A | 2.0070 | 0.5107 | 775 | 8 |
| 30 | N/A | N/A | N/A | N/A | 2.2931 | 0.5613 | 779 | 8 |
| 31 | N/A | N/A | N/A | N/A | 2.6491 | 0.6364 | 785 | 10 |
| 32 | N/A | N/A | N/A | N/A | 3.1314 | 0.7628 | 792 | 11 |
| 33 | N/A | N/A | N/A | N/A | 3.9138 | 1.0470 | 799 | 16 |
| 34 | N/A | N/A | N/A | N/A | 6.0000 | 2.7318 | 799 | 41 |

Table 8.G.17 Scale Score Conversion Tables with CSEMs—ELA, Grade Eight

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 1.3510 | 803 | 17 | N/A | N/A | N/A | N/A |
| 1 | −5.4032 | 1.0250 | 803 | 13 | N/A | N/A | N/A | N/A |
| 2 | −4.6574 | 0.7438 | 803 | 9 | N/A | N/A | N/A | N/A |
| 3 | −4.1972 | 0.6235 | 803 | 8 | N/A | N/A | N/A | N/A |
| 4 | −3.8528 | 0.5546 | 803 | 7 | N/A | N/A | N/A | N/A |
| 5 | −3.5708 | 0.5096 | 803 | 6 | N/A | N/A | N/A | N/A |
| 6 | −3.3275 | 0.4780 | 806 | 6 | N/A | N/A | N/A | N/A |
| 7 | −3.1103 | 0.4548 | 809 | 6 | N/A | N/A | N/A | N/A |
| 8 | −2.9116 | 0.4372 | 811 | 5 | N/A | N/A | N/A | N/A |
| 9 | −2.7264 | 0.4236 | 813 | 5 | N/A | N/A | N/A | N/A |
| 10 | −2.5515 | 0.4128 | 816 | 5 | N/A | N/A | N/A | N/A |
| 11 | −2.3846 | 0.4042 | 818 | 5 | N/A | N/A | N/A | N/A |
| 12 | −2.2240 | 0.3972 | 820 | 5 | −1.3336 | 0.4266 | 831 | 5 |
| 13 | −2.0685 | 0.3914 | 822 | 5 | −1.1558 | 0.4163 | 833 | 5 |
| 14 | −1.9171 | 0.3865 | 824 | 5 | −0.9863 | 0.4069 | 835 | 5 |
| 15 | −1.7693 | 0.3822 | 825 | 5 | −0.8241 | 0.3985 | 837 | 5 |
| 16 | −1.6246 | 0.3785 | 827 | 5 | −0.6682 | 0.3911 | 839 | 5 |
| 17 | −1.4825 | 0.3751 | 829 | 5 | −0.5176 | 0.3848 | 841 | 5 |
| 18 | −1.3429 | 0.3720 | 831 | 5 | −0.3714 | 0.3797 | 843 | 5 |
| 19 | −1.2054 | 0.3693 | 832 | 5 | −0.2288 | 0.3757 | 845 | 5 |
| 20 | −1.0699 | 0.3668 | 834 | 5 | −0.0886 | 0.3729 | 846 | 5 |
| 21 | −0.9360 | 0.3647 | 836 | 5 | 0.0499 | 0.3713 | 848 | 5 |
| 22 | −0.8035 | 0.3630 | 837 | 5 | 0.1877 | 0.3710 | 850 | 5 |
| 23 | −0.6721 | 0.3618 | 839 | 5 | 0.3257 | 0.3720 | 852 | 5 |
| 24 | −0.5414 | 0.3613 | 841 | 5 | 0.4650 | 0.3745 | 853 | 5 |
| 25 | −0.4107 | 0.3614 | 842 | 5 | 0.6068 | 0.3784 | 855 | 5 |
| 26 | −0.2797 | 0.3624 | 844 | 5 | 0.7521 | 0.3841 | 857 | 5 |
| 27 | −0.1476 | 0.3644 | 846 | 5 | 0.9026 | 0.3917 | 859 | 5 |
| 28 | −0.0136 | 0.3675 | 847 | 5 | 1.0598 | 0.4014 | 861 | 5 |
| 29 | 0.1231 | 0.3719 | 849 | 5 | 1.2258 | 0.4137 | 863 | 5 |
| 30 | 0.2637 | 0.3779 | 851 | 5 | 1.4033 | 0.4292 | 865 | 5 |
| 31 | 0.4094 | 0.3856 | 853 | 5 | 1.5959 | 0.4488 | 867 | 6 |
| 32 | 0.5619 | 0.3955 | 855 | 5 | 1.8085 | 0.4740 | 870 | 6 |
| 33 | 0.7232 | 0.4080 | 857 | 5 | 2.0487 | 0.5075 | 873 | 6 |
| 34 | 0.8961 | 0.4237 | 859 | 5 | 2.3294 | 0.5541 | 877 | 7 |
| 35 | 1.0840 | 0.4437 | 861 | 6 | 2.6742 | 0.6244 | 881 | 8 |
| 36 | 1.2922 | 0.4695 | 864 | 6 | 3.1362 | 0.7455 | 887 | 9 |
| 37 | N/A | N/A | N/A | N/A | 3.8850 | 1.0268 | 896 | 13 |
| 38 | N/A | N/A | N/A | N/A | 6.0000 | 2.8198 | 899 | 35 |

Table 8.G.18 Scale Score Conversion Tables with CSEMs—ELA, Grade Eleven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 1.8083 | 903 | 23 | N/A | N/A | N/A | N/A |
| 1 | −4.7860 | 1.0363 | 903 | 13 | N/A | N/A | N/A | N/A |
| 2 | −4.0182 | 0.7577 | 903 | 9 | N/A | N/A | N/A | N/A |
| 3 | −3.5383 | 0.6382 | 903 | 8 | N/A | N/A | N/A | N/A |
| 4 | −3.1766 | 0.5688 | 908 | 7 | N/A | N/A | N/A | N/A |
| 5 | −2.8799 | 0.5226 | 912 | 7 | N/A | N/A | N/A | N/A |
| 6 | −2.6245 | 0.4893 | 915 | 6 | N/A | N/A | N/A | N/A |
| 7 | −2.3976 | 0.4640 | 918 | 6 | N/A | N/A | N/A | N/A |
| 8 | −2.1916 | 0.4441 | 920 | 6 | N/A | N/A | N/A | N/A |
| 9 | −2.0015 | 0.4279 | 922 | 5 | N/A | N/A | N/A | N/A |
| 10 | −1.8241 | 0.4146 | 925 | 5 | −1.4706 | 0.4263 | 929 | 5 |
| 11 | −1.6567 | 0.4035 | 927 | 5 | −1.2939 | 0.4144 | 931 | 5 |
| 12 | −1.4977 | 0.3941 | 929 | 5 | −1.1264 | 0.4040 | 933 | 5 |
| 13 | −1.3455 | 0.3861 | 931 | 5 | −0.9668 | 0.3948 | 935 | 5 |
| 14 | −1.1990 | 0.3794 | 933 | 5 | −0.8140 | 0.3867 | 937 | 5 |
| 15 | −1.0571 | 0.3738 | 934 | 5 | −0.6672 | 0.3795 | 939 | 5 |
| 16 | −0.9189 | 0.3694 | 936 | 5 | −0.5254 | 0.3732 | 941 | 5 |
| 17 | −0.7837 | 0.3660 | 938 | 5 | −0.3881 | 0.3679 | 943 | 5 |
| 18 | −0.6506 | 0.3637 | 939 | 5 | −0.2543 | 0.3634 | 944 | 5 |
| 19 | −0.5187 | 0.3625 | 941 | 5 | −0.1234 | 0.3601 | 946 | 5 |
| 20 | −0.3872 | 0.3625 | 943 | 5 | 0.0055 | 0.3580 | 948 | 4 |
| 21 | −0.2553 | 0.3638 | 944 | 5 | 0.1334 | 0.3571 | 949 | 4 |
| 22 | −0.1220 | 0.3664 | 946 | 5 | 0.2611 | 0.3577 | 951 | 4 |
| 23 | 0.0138 | 0.3705 | 948 | 5 | 0.3898 | 0.3599 | 952 | 4 |
| 24 | 0.1531 | 0.3761 | 949 | 5 | 0.5208 | 0.3639 | 954 | 5 |
| 25 | 0.2974 | 0.3835 | 951 | 5 | 0.6554 | 0.3699 | 956 | 5 |
| 26 | 0.4481 | 0.3931 | 953 | 5 | 0.7952 | 0.3781 | 957 | 5 |
| 27 | 0.6074 | 0.4051 | 955 | 5 | 0.9422 | 0.3889 | 959 | 5 |
| 28 | 0.7776 | 0.4204 | 957 | 5 | 1.0989 | 0.4028 | 961 | 5 |
| 29 | 0.9624 | 0.4397 | 960 | 5 | 1.2681 | 0.4203 | 963 | 5 |
| 30 | 1.1667 | 0.4649 | 962 | 6 | 1.4540 | 0.4423 | 966 | 6 |
| 31 | N/A | N/A | N/A | N/A | 1.6619 | 0.4703 | 968 | 6 |
| 32 | N/A | N/A | N/A | N/A | 1.9001 | 0.5068 | 971 | 6 |
| 33 | N/A | N/A | N/A | N/A | 2.1816 | 0.5564 | 975 | 7 |
| 34 | N/A | N/A | N/A | N/A | 2.5307 | 0.6293 | 979 | 8 |
| 35 | N/A | N/A | N/A | N/A | 3.0008 | 0.7522 | 985 | 9 |
| 36 | N/A | N/A | N/A | N/A | 3.7620 | 1.0338 | 995 | 13 |
| 37 | N/A | N/A | N/A | N/A | 6.0000 | 2.9783 | 999 | 37 |

Table 8.G.19 Scale Score Conversion Tables with CSEMs—Mathematics, Grade Three

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 3.0157 | 303 | 57 | N/A | N/A | N/A | N/A |
| 1 | −3.7635 | 1.0179 | 303 | 19 | N/A | N/A | N/A | N/A |
| 2 | −3.0328 | 0.7333 | 303 | 14 | N/A | N/A | N/A | N/A |
| 3 | −2.5885 | 0.6103 | 303 | 11 | N/A | N/A | N/A | N/A |
| 4 | −2.2607 | 0.5390 | 303 | 10 | N/A | N/A | N/A | N/A |
| 5 | −1.9961 | 0.4919 | 304 | 9 | N/A | N/A | N/A | N/A |
| 6 | −1.7709 | 0.4585 | 308 | 9 | N/A | N/A | N/A | N/A |
| 7 | −1.5722 | 0.4336 | 312 | 8 | N/A | N/A | N/A | N/A |
| 8 | −1.3925 | 0.4147 | 315 | 8 | −1.0672 | 0.4178 | 321 | 8 |
| 9 | −1.2266 | 0.4001 | 318 | 8 | −0.8989 | 0.4030 | 324 | 8 |
| 10 | −1.0711 | 0.3887 | 321 | 7 | −0.7412 | 0.3914 | 327 | 7 |
| 11 | −0.9234 | 0.3799 | 324 | 7 | −0.5915 | 0.3824 | 330 | 7 |
| 12 | −0.7816 | 0.3733 | 327 | 7 | −0.4479 | 0.3755 | 333 | 7 |
| 13 | −0.6441 | 0.3684 | 329 | 7 | −0.3088 | 0.3704 | 336 | 7 |
| 14 | −0.5095 | 0.3651 | 332 | 7 | −0.1730 | 0.3667 | 338 | 7 |
| 15 | −0.3769 | 0.3632 | 334 | 7 | −0.0393 | 0.3644 | 341 | 7 |
| 16 | −0.2451 | 0.3627 | 337 | 7 | 0.0932 | 0.3634 | 343 | 7 |
| 17 | −0.1133 | 0.3634 | 339 | 7 | 0.2252 | 0.3634 | 346 | 7 |
| 18 | 0.0195 | 0.3654 | 342 | 7 | 0.3578 | 0.3646 | 348 | 7 |
| 19 | 0.1543 | 0.3687 | 344 | 7 | 0.4916 | 0.3668 | 351 | 7 |
| 20 | 0.2919 | 0.3733 | 347 | 7 | 0.6274 | 0.3702 | 353 | 7 |
| 21 | 0.4336 | 0.3795 | 349 | 7 | 0.7661 | 0.3747 | 356 | 7 |
| 22 | 0.5806 | 0.3873 | 352 | 7 | 0.9088 | 0.3806 | 358 | 7 |
| 23 | 0.7345 | 0.3972 | 355 | 7 | 1.0566 | 0.3881 | 361 | 7 |
| 24 | 0.8971 | 0.4094 | 358 | 8 | 1.2108 | 0.3975 | 364 | 7 |
| 25 | 1.0710 | 0.4248 | 361 | 8 | 1.3735 | 0.4092 | 367 | 8 |
| 26 | 1.2596 | 0.4442 | 365 | 8 | 1.5469 | 0.4239 | 370 | 8 |
| 27 | N/A | N/A | N/A | N/A | 1.7345 | 0.4427 | 374 | 8 |
| 28 | N/A | N/A | N/A | N/A | 1.9411 | 0.4672 | 378 | 9 |
| 29 | N/A | N/A | N/A | N/A | 2.1745 | 0.5001 | 382 | 9 |
| 30 | N/A | N/A | N/A | N/A | 2.4472 | 0.5465 | 387 | 10 |
| 31 | N/A | N/A | N/A | N/A | 2.7830 | 0.6168 | 393 | 12 |
| 32 | N/A | N/A | N/A | N/A | 3.2352 | 0.7386 | 399 | 14 |
| 33 | N/A | N/A | N/A | N/A | 3.9735 | 1.0215 | 399 | 19 |
| 34 | N/A | N/A | N/A | N/A | 6.0000 | 2.7102 | 399 | 51 |

Table 8.G.20 Scale Score Conversion Tables with CSEMs—Mathematics, Grade Four

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 2.2852 | 403 | 43 | N/A | N/A | N/A | N/A |
| 1 | −4.2953 | 1.0402 | 403 | 20 | N/A | N/A | N/A | N/A |
| 2 | −3.5199 | 0.7623 | 403 | 14 | N/A | N/A | N/A | N/A |
| 3 | −3.0339 | 0.6424 | 403 | 12 | N/A | N/A | N/A | N/A |
| 4 | −2.6676 | 0.5721 | 403 | 11 | N/A | N/A | N/A | N/A |
| 5 | −2.3680 | 0.5246 | 403 | 10 | N/A | N/A | N/A | N/A |
| 6 | −2.1113 | 0.4897 | 403 | 9 | N/A | N/A | N/A | N/A |
| 7 | −1.8848 | 0.4626 | 406 | 9 | N/A | N/A | N/A | N/A |
| 8 | −1.6809 | 0.4409 | 410 | 8 | −1.1681 | 0.4315 | 419 | 8 |
| 9 | −1.4943 | 0.4231 | 413 | 8 | −0.9903 | 0.4119 | 423 | 8 |
| 10 | −1.3216 | 0.4082 | 417 | 8 | −0.8273 | 0.3959 | 426 | 7 |
| 11 | −1.1601 | 0.3956 | 420 | 7 | −0.6758 | 0.3826 | 429 | 7 |
| 12 | −1.0078 | 0.3850 | 422 | 7 | −0.5335 | 0.3716 | 431 | 7 |
| 13 | −0.8629 | 0.3761 | 425 | 7 | −0.3987 | 0.3626 | 434 | 7 |
| 14 | −0.7243 | 0.3686 | 428 | 7 | −0.2699 | 0.3553 | 436 | 7 |
| 15 | −0.5907 | 0.3624 | 430 | 7 | −0.1457 | 0.3495 | 439 | 7 |
| 16 | −0.4611 | 0.3575 | 433 | 7 | −0.0251 | 0.3451 | 441 | 6 |
| 17 | −0.3345 | 0.3538 | 435 | 7 | 0.0929 | 0.3421 | 443 | 6 |
| 18 | −0.2103 | 0.3512 | 437 | 7 | 0.2094 | 0.3404 | 445 | 6 |
| 19 | −0.0874 | 0.3498 | 440 | 7 | 0.3252 | 0.3401 | 447 | 6 |
| 20 | 0.0349 | 0.3496 | 442 | 7 | 0.4412 | 0.3411 | 450 | 6 |
| 21 | 0.1576 | 0.3507 | 444 | 7 | 0.5584 | 0.3436 | 452 | 6 |
| 22 | 0.2815 | 0.3532 | 447 | 7 | 0.6779 | 0.3476 | 454 | 7 |
| 23 | 0.4076 | 0.3572 | 449 | 7 | 0.8006 | 0.3532 | 456 | 7 |
| 24 | 0.5372 | 0.3629 | 451 | 7 | 0.9280 | 0.3606 | 459 | 7 |
| 25 | 0.6717 | 0.3706 | 454 | 7 | 1.0614 | 0.3701 | 461 | 7 |
| 26 | 0.8128 | 0.3807 | 457 | 7 | 1.2029 | 0.3821 | 464 | 7 |
| 27 | 0.9626 | 0.3935 | 459 | 7 | 1.3544 | 0.3968 | 467 | 7 |
| 28 | 1.1238 | 0.4099 | 462 | 8 | 1.5191 | 0.4151 | 470 | 8 |
| 29 | N/A | N/A | N/A | N/A | 1.7008 | 0.4377 | 473 | 8 |
| 30 | N/A | N/A | N/A | N/A | 1.9048 | 0.4664 | 477 | 9 |
| 31 | N/A | N/A | N/A | N/A | 2.1394 | 0.5034 | 481 | 9 |
| 32 | N/A | N/A | N/A | N/A | 2.4178 | 0.5537 | 487 | 10 |
| 33 | N/A | N/A | N/A | N/A | 2.7642 | 0.6274 | 493 | 12 |
| 34 | N/A | N/A | N/A | N/A | 3.2322 | 0.7511 | 499 | 14 |
| 35 | N/A | N/A | N/A | N/A | 3.9919 | 1.0333 | 499 | 19 |
| 36 | N/A | N/A | N/A | N/A | 6.0000 | 2.6611 | 499 | 50 |

Table 8.G.21 Scale Score Conversion Tables with CSEMs—Mathematics, Grade Five

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 3.0089 | 503 | 56 | N/A | N/A | N/A | N/A |
| 1 | −3.7645 | 1.0199 | 503 | 19 | N/A | N/A | N/A | N/A |
| 2 | −3.0301 | 0.7355 | 503 | 14 | N/A | N/A | N/A | N/A |
| 3 | −2.5831 | 0.6122 | 503 | 11 | N/A | N/A | N/A | N/A |
| 4 | −2.2535 | 0.5402 | 503 | 10 | N/A | N/A | N/A | N/A |
| 5 | −1.9881 | 0.4922 | 504 | 9 | N/A | N/A | N/A | N/A |
| 6 | −1.7631 | 0.4577 | 508 | 9 | N/A | N/A | N/A | N/A |
| 7 | −1.5657 | 0.4316 | 512 | 8 | N/A | N/A | N/A | N/A |
| 8 | −1.3882 | 0.4113 | 515 | 8 | N/A | N/A | N/A | N/A |
| 9 | −1.2257 | 0.3952 | 518 | 7 | −0.7935 | 0.4079 | 526 | 8 |
| 10 | −1.0747 | 0.3822 | 521 | 7 | −0.6327 | 0.3944 | 529 | 7 |
| 11 | −0.9326 | 0.3717 | 524 | 7 | −0.4815 | 0.3832 | 532 | 7 |
| 12 | −0.7976 | 0.3632 | 526 | 7 | −0.3382 | 0.3741 | 535 | 7 |
| 13 | −0.6681 | 0.3565 | 529 | 7 | −0.2010 | 0.3666 | 538 | 7 |
| 14 | −0.5429 | 0.3511 | 531 | 7 | −0.0688 | 0.3605 | 540 | 7 |
| 15 | −0.4209 | 0.3471 | 533 | 7 | 0.0595 | 0.3558 | 542 | 7 |
| 16 | −0.3014 | 0.3443 | 536 | 6 | 0.1849 | 0.3523 | 545 | 7 |
| 17 | −0.1834 | 0.3426 | 538 | 6 | 0.3082 | 0.3500 | 547 | 7 |
| 18 | −0.0662 | 0.3420 | 540 | 6 | 0.4303 | 0.3488 | 549 | 7 |
| 19 | 0.0510 | 0.3424 | 542 | 6 | 0.5521 | 0.3489 | 552 | 7 |
| 20 | 0.1688 | 0.3440 | 544 | 6 | 0.6742 | 0.3501 | 554 | 7 |
| 21 | 0.2880 | 0.3466 | 547 | 6 | 0.7977 | 0.3527 | 556 | 7 |
| 22 | 0.4095 | 0.3505 | 549 | 7 | 0.9235 | 0.3566 | 559 | 7 |
| 23 | 0.5342 | 0.3556 | 551 | 7 | 1.0527 | 0.3622 | 561 | 7 |
| 24 | 0.6630 | 0.3623 | 554 | 7 | 1.1866 | 0.3697 | 564 | 7 |
| 25 | 0.7973 | 0.3706 | 556 | 7 | 1.3268 | 0.3793 | 566 | 7 |
| 26 | 0.9385 | 0.3810 | 559 | 7 | 1.4753 | 0.3916 | 569 | 7 |
| 27 | 1.0886 | 0.3940 | 562 | 7 | 1.6347 | 0.4072 | 572 | 8 |
| 28 | 1.2502 | 0.4100 | 565 | 8 | 1.8085 | 0.4271 | 575 | 8 |
| 29 | 1.4265 | 0.4303 | 568 | 8 | 2.0018 | 0.4529 | 579 | 8 |
| 30 | 1.6228 | 0.4564 | 572 | 9 | 2.2223 | 0.4874 | 583 | 9 |
| 31 | N/A | N/A | N/A | N/A | 2.4828 | 0.5355 | 588 | 10 |
| 32 | N/A | N/A | N/A | N/A | 2.8071 | 0.6078 | 594 | 11 |
| 33 | N/A | N/A | N/A | N/A | 3.2487 | 0.7317 | 599 | 14 |
| 34 | N/A | N/A | N/A | N/A | 3.9772 | 1.0169 | 599 | 19 |
| 35 | N/A | N/A | N/A | N/A | 6.0000 | 2.7139 | 599 | 51 |

Table 8.G.22 Scale Score Conversion Tables with CSEMs—Mathematics, Grade Six

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 3.0690 | 603 | 58 | N/A | N/A | N/A | N/A |
| 1 | −3.7222 | 1.0215 | 603 | 19 | N/A | N/A | N/A | N/A |
| 2 | −2.9843 | 0.7380 | 603 | 14 | N/A | N/A | N/A | N/A |
| 3 | −2.5334 | 0.6156 | 603 | 12 | N/A | N/A | N/A | N/A |
| 4 | −2.1994 | 0.5445 | 603 | 10 | N/A | N/A | N/A | N/A |
| 5 | −1.9291 | 0.4974 | 605 | 9 | N/A | N/A | N/A | N/A |
| 6 | −1.6987 | 0.4638 | 609 | 9 | N/A | N/A | N/A | N/A |
| 7 | −1.4954 | 0.4387 | 613 | 8 | N/A | N/A | N/A | N/A |
| 8 | −1.3114 | 0.4195 | 617 | 8 | −1.0403 | 0.4214 | 622 | 8 |
| 9 | −1.1418 | 0.4045 | 620 | 8 | −0.8691 | 0.4063 | 625 | 8 |
| 10 | −0.9830 | 0.3928 | 623 | 7 | −0.7088 | 0.3945 | 628 | 7 |
| 11 | −0.8323 | 0.3837 | 626 | 7 | −0.5568 | 0.3854 | 631 | 7 |
| 12 | −0.6877 | 0.3768 | 628 | 7 | −0.4110 | 0.3784 | 634 | 7 |
| 13 | −0.5476 | 0.3718 | 631 | 7 | −0.2698 | 0.3732 | 636 | 7 |
| 14 | −0.4106 | 0.3684 | 634 | 7 | −0.1318 | 0.3697 | 639 | 7 |
| 15 | −0.2755 | 0.3666 | 636 | 7 | 0.0041 | 0.3676 | 641 | 7 |
| 16 | −0.1413 | 0.3662 | 639 | 7 | 0.1390 | 0.3669 | 644 | 7 |
| 17 | −0.0068 | 0.3672 | 641 | 7 | 0.2738 | 0.3674 | 646 | 7 |
| 18 | 0.1289 | 0.3695 | 644 | 7 | 0.4095 | 0.3693 | 649 | 7 |
| 19 | 0.2669 | 0.3733 | 646 | 7 | 0.5471 | 0.3725 | 652 | 7 |
| 20 | 0.4082 | 0.3785 | 649 | 7 | 0.6876 | 0.3771 | 654 | 7 |
| 21 | 0.5541 | 0.3853 | 652 | 7 | 0.8322 | 0.3834 | 657 | 7 |
| 22 | 0.7059 | 0.3939 | 655 | 7 | 0.9823 | 0.3914 | 660 | 7 |
| 23 | 0.8652 | 0.4045 | 658 | 8 | 1.1394 | 0.4015 | 663 | 8 |
| 24 | 1.0342 | 0.4177 | 661 | 8 | 1.3057 | 0.4142 | 666 | 8 |
| 25 | 1.2154 | 0.4340 | 664 | 8 | 1.4838 | 0.4301 | 669 | 8 |
| 26 | 1.4126 | 0.4545 | 668 | 9 | 1.6773 | 0.4502 | 673 | 8 |
| 27 | 1.6309 | 0.4807 | 672 | 9 | 1.8916 | 0.4761 | 677 | 9 |
| 28 | N/A | N/A | N/A | N/A | 2.1344 | 0.5105 | 681 | 10 |
| 29 | N/A | N/A | N/A | N/A | 2.4187 | 0.5581 | 687 | 10 |
| 30 | N/A | N/A | N/A | N/A | 2.7687 | 0.6293 | 693 | 12 |
| 31 | N/A | N/A | N/A | N/A | 3.2380 | 0.7512 | 699 | 14 |
| 32 | N/A | N/A | N/A | N/A | 3.9967 | 1.0323 | 699 | 19 |
| 33 | N/A | N/A | N/A | N/A | 6.0000 | 2.6572 | 699 | 50 |

Table 8.G.23 Scale Score Conversion Tables with CSEMs—Mathematics, Grade Seven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 2.7097 | 703 | 51 | N/A | N/A | N/A | N/A |
| 1 | −3.9672 | 1.0254 | 703 | 19 | N/A | N/A | N/A | N/A |
| 2 | −3.2223 | 0.7422 | 703 | 14 | N/A | N/A | N/A | N/A |
| 3 | −2.7662 | 0.6189 | 703 | 12 | N/A | N/A | N/A | N/A |
| 4 | −2.4292 | 0.5464 | 703 | 10 | N/A | N/A | N/A | N/A |
| 5 | −2.1578 | 0.4976 | 703 | 9 | N/A | N/A | N/A | N/A |
| 6 | −1.9281 | 0.4619 | 705 | 9 | N/A | N/A | N/A | N/A |
| 7 | −1.7275 | 0.4346 | 709 | 8 | N/A | N/A | N/A | N/A |
| 8 | −1.5480 | 0.4130 | 712 | 8 | N/A | N/A | N/A | N/A |
| 9 | −1.3847 | 0.3954 | 715 | 7 | N/A | N/A | N/A | N/A |
| 10 | −1.2341 | 0.3810 | 718 | 7 | N/A | N/A | N/A | N/A |
| 11 | −1.0934 | 0.3691 | 721 | 7 | −0.6384 | 0.3748 | 729 | 7 |
| 12 | −0.9608 | 0.3593 | 723 | 7 | −0.5011 | 0.3664 | 732 | 7 |
| 13 | −0.8346 | 0.3511 | 726 | 7 | −0.3693 | 0.3597 | 734 | 7 |
| 14 | −0.7136 | 0.3446 | 728 | 6 | −0.2417 | 0.3548 | 737 | 7 |
| 15 | −0.5966 | 0.3393 | 730 | 6 | −0.1170 | 0.3513 | 739 | 7 |
| 16 | −0.4828 | 0.3354 | 732 | 6 | 0.0056 | 0.3492 | 741 | 7 |
| 17 | −0.3713 | 0.3325 | 734 | 6 | 0.1273 | 0.3483 | 744 | 7 |
| 18 | −0.2612 | 0.3308 | 736 | 6 | 0.2488 | 0.3488 | 746 | 7 |
| 19 | −0.1520 | 0.3301 | 738 | 6 | 0.3710 | 0.3504 | 748 | 7 |
| 20 | −0.0429 | 0.3305 | 740 | 6 | 0.4948 | 0.3532 | 751 | 7 |
| 21 | 0.0669 | 0.3319 | 743 | 6 | 0.6210 | 0.3572 | 753 | 7 |
| 22 | 0.1779 | 0.3344 | 745 | 6 | 0.7504 | 0.3624 | 755 | 7 |
| 23 | 0.2909 | 0.3379 | 747 | 6 | 0.8842 | 0.3689 | 758 | 7 |
| 24 | 0.4066 | 0.3425 | 749 | 6 | 1.0232 | 0.3767 | 760 | 7 |
| 25 | 0.5260 | 0.3484 | 751 | 7 | 1.1687 | 0.3861 | 763 | 7 |
| 26 | 0.6499 | 0.3556 | 753 | 7 | 1.3221 | 0.3972 | 766 | 7 |
| 27 | 0.7795 | 0.3643 | 756 | 7 | 1.4850 | 0.4102 | 769 | 8 |
| 28 | 0.9160 | 0.3746 | 758 | 7 | 1.6596 | 0.4256 | 772 | 8 |
| 29 | 1.0610 | 0.3870 | 761 | 7 | 1.8485 | 0.4438 | 776 | 8 |
| 30 | 1.2165 | 0.4017 | 764 | 8 | 2.0552 | 0.4658 | 780 | 9 |
| 31 | 1.3850 | 0.4195 | 767 | 8 | 2.2848 | 0.4929 | 784 | 9 |
| 32 | 1.5702 | 0.4414 | 771 | 8 | 2.5447 | 0.5277 | 789 | 10 |
| 33 | 1.7769 | 0.4687 | 775 | 9 | 2.8474 | 0.5747 | 795 | 11 |
| 34 | N/A | N/A | N/A | N/A | 3.2165 | 0.6443 | 799 | 12 |
| 35 | N/A | N/A | N/A | N/A | 3.7045 | 0.7632 | 799 | 14 |
| 36 | N/A | N/A | N/A | N/A | 4.4807 | 1.0403 | 799 | 20 |
| 37 | N/A | N/A | N/A | N/A | 6.0000 | 2.0897 | 799 | 39 |

Table 8.G.24 Scale Score Conversion Tables with CSEMs—Mathematics, Grade Eight

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 2.4849 | 803 | 47 | N/A | N/A | N/A | N/A |
| 1 | −4.1461 | 1.0236 | 803 | 19 | N/A | N/A | N/A | N/A |
| 2 | −3.4041 | 0.7406 | 803 | 14 | N/A | N/A | N/A | N/A |
| 3 | −2.9496 | 0.6183 | 803 | 12 | N/A | N/A | N/A | N/A |
| 4 | −2.6126 | 0.5470 | 803 | 10 | N/A | N/A | N/A | N/A |
| 5 | −2.3398 | 0.4996 | 803 | 9 | N/A | N/A | N/A | N/A |
| 6 | −2.1074 | 0.4656 | 803 | 9 | N/A | N/A | N/A | N/A |
| 7 | −1.9027 | 0.4399 | 806 | 8 | N/A | N/A | N/A | N/A |
| 8 | −1.7181 | 0.4199 | 809 | 8 | N/A | N/A | N/A | N/A |
| 9 | −1.5484 | 0.4041 | 812 | 8 | N/A | N/A | N/A | N/A |
| 10 | −1.3903 | 0.3913 | 815 | 7 | −0.9161 | 0.3939 | 824 | 7 |
| 11 | −1.2413 | 0.3809 | 818 | 7 | −0.7648 | 0.3840 | 827 | 7 |
| 12 | −1.0994 | 0.3725 | 821 | 7 | −0.6204 | 0.3760 | 830 | 7 |
| 13 | −0.9631 | 0.3658 | 823 | 7 | −0.4814 | 0.3697 | 832 | 7 |
| 14 | −0.8312 | 0.3604 | 826 | 7 | −0.3465 | 0.3647 | 835 | 7 |
| 15 | −0.7028 | 0.3563 | 828 | 7 | −0.2148 | 0.3610 | 837 | 7 |
| 16 | −0.5769 | 0.3533 | 830 | 7 | −0.0854 | 0.3584 | 840 | 7 |
| 17 | −0.4527 | 0.3514 | 833 | 7 | 0.0426 | 0.3569 | 842 | 7 |
| 18 | −0.3295 | 0.3505 | 835 | 7 | 0.1699 | 0.3565 | 844 | 7 |
| 19 | −0.2065 | 0.3506 | 837 | 7 | 0.2972 | 0.3571 | 847 | 7 |
| 20 | −0.0832 | 0.3517 | 840 | 7 | 0.4254 | 0.3588 | 849 | 7 |
| 21 | 0.0413 | 0.3539 | 842 | 7 | 0.5551 | 0.3616 | 852 | 7 |
| 22 | 0.1678 | 0.3572 | 844 | 7 | 0.6873 | 0.3656 | 854 | 7 |
| 23 | 0.2971 | 0.3618 | 847 | 7 | 0.8229 | 0.3709 | 857 | 7 |
| 24 | 0.4302 | 0.3679 | 849 | 7 | 0.9630 | 0.3776 | 859 | 7 |
| 25 | 0.5684 | 0.3755 | 852 | 7 | 1.1088 | 0.3861 | 862 | 7 |
| 26 | 0.7130 | 0.3852 | 855 | 7 | 1.2619 | 0.3965 | 865 | 7 |
| 27 | 0.8661 | 0.3973 | 858 | 7 | 1.4242 | 0.4094 | 868 | 8 |
| 28 | 1.0299 | 0.4124 | 861 | 8 | 1.5983 | 0.4253 | 871 | 8 |
| 29 | 1.2077 | 0.4314 | 864 | 8 | 1.7877 | 0.4454 | 875 | 8 |
| 30 | N/A | N/A | N/A | N/A | 1.9973 | 0.4710 | 879 | 9 |
| 31 | N/A | N/A | N/A | N/A | 2.2349 | 0.5050 | 883 | 9 |
| 32 | N/A | N/A | N/A | N/A | 2.5133 | 0.5522 | 888 | 10 |
| 33 | N/A | N/A | N/A | N/A | 2.8562 | 0.6231 | 895 | 12 |
| 34 | N/A | N/A | N/A | N/A | 3.3169 | 0.7449 | 899 | 14 |
| 35 | N/A | N/A | N/A | N/A | 4.0655 | 1.0269 | 899 | 19 |
| 36 | N/A | N/A | N/A | N/A | 6.0000 | 2.5795 | 899 | 48 |

Table 8.G.25 Scale Score Conversion Tables with CSEMs—Mathematics, Grade Eleven

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Raw Score | Easy Pathway Theta | Easy Pathway Theta CSEM | Easy Pathway Scale Score | Easy Pathway SS CSEM | Hard Pathway Theta | Hard Pathway Theta CSEM | Hard Pathway Scale Score | Hard Pathway SS CSEM |
| 0 | −6.0000 | 2.8073 | 903 | 53 | N/A | N/A | N/A | N/A |
| 1 | −3.9013 | 1.0218 | 903 | 19 | N/A | N/A | N/A | N/A |
| 2 | −3.1634 | 0.7376 | 903 | 14 | N/A | N/A | N/A | N/A |
| 3 | −2.7136 | 0.6142 | 903 | 12 | N/A | N/A | N/A | N/A |
| 4 | −2.3819 | 0.5419 | 903 | 10 | N/A | N/A | N/A | N/A |
| 5 | −2.1149 | 0.4936 | 903 | 9 | N/A | N/A | N/A | N/A |
| 6 | −1.8887 | 0.4587 | 906 | 9 | N/A | N/A | N/A | N/A |
| 7 | −1.6906 | 0.4323 | 910 | 8 | N/A | N/A | N/A | N/A |
| 8 | −1.5127 | 0.4116 | 913 | 8 | −1.1014 | 0.4114 | 921 | 8 |
| 9 | −1.3501 | 0.3951 | 916 | 7 | −0.9393 | 0.3939 | 924 | 7 |
| 10 | −1.1993 | 0.3817 | 919 | 7 | −0.7898 | 0.3799 | 926 | 7 |
| 11 | −1.0578 | 0.3709 | 921 | 7 | −0.6497 | 0.3688 | 929 | 7 |
| 12 | −0.9235 | 0.3621 | 924 | 7 | −0.5168 | 0.3603 | 932 | 7 |
| 13 | −0.7949 | 0.3552 | 926 | 7 | −0.3893 | 0.3541 | 934 | 7 |
| 14 | −0.6706 | 0.3499 | 929 | 7 | −0.2654 | 0.3498 | 936 | 7 |
| 15 | −0.5494 | 0.3461 | 931 | 6 | −0.1439 | 0.3474 | 939 | 7 |
| 16 | −0.4304 | 0.3438 | 933 | 6 | −0.0235 | 0.3467 | 941 | 6 |
| 17 | −0.3125 | 0.3429 | 935 | 6 | 0.0970 | 0.3474 | 943 | 7 |
| 18 | −0.1947 | 0.3435 | 938 | 6 | 0.2185 | 0.3496 | 945 | 7 |
| 19 | −0.0761 | 0.3454 | 940 | 6 | 0.3420 | 0.3531 | 948 | 7 |
| 20 | 0.0445 | 0.3489 | 942 | 7 | 0.4684 | 0.3579 | 950 | 7 |
| 21 | 0.1679 | 0.3538 | 944 | 7 | 0.5986 | 0.3638 | 953 | 7 |
| 22 | 0.2954 | 0.3604 | 947 | 7 | 0.7336 | 0.3710 | 955 | 7 |
| 23 | 0.4284 | 0.3689 | 949 | 7 | 0.8744 | 0.3793 | 958 | 7 |
| 24 | 0.5684 | 0.3794 | 952 | 7 | 1.0219 | 0.3889 | 960 | 7 |
| 25 | 0.7173 | 0.3925 | 955 | 7 | 1.1775 | 0.3999 | 963 | 7 |
| 26 | 0.8777 | 0.4087 | 958 | 8 | 1.3426 | 0.4127 | 966 | 8 |
| 27 | 1.0530 | 0.4290 | 961 | 8 | 1.5191 | 0.4276 | 970 | 8 |
| 28 | N/A | N/A | N/A | N/A | 1.7097 | 0.4457 | 973 | 8 |
| 29 | N/A | N/A | N/A | N/A | 1.9184 | 0.4685 | 977 | 9 |
| 30 | N/A | N/A | N/A | N/A | 2.1519 | 0.4990 | 982 | 9 |
| 31 | N/A | N/A | N/A | N/A | 2.4220 | 0.5426 | 987 | 10 |
| 32 | N/A | N/A | N/A | N/A | 2.7518 | 0.6104 | 993 | 11 |
| 33 | N/A | N/A | N/A | N/A | 3.1942 | 0.7308 | 999 | 14 |
| 34 | N/A | N/A | N/A | N/A | 3.9197 | 1.0146 | 999 | 19 |
| 35 | N/A | N/A | N/A | N/A | 6.0000 | 2.7980 | 999 | 52 |

TIF is a measure of the amount of information provided by an assessment at a given score level. Figure 8.G.1 through figure 8.G.28 present TIFs by theta level and scale score for ELA and mathematics at each grade level. Data used to generate these figures is presented in table 8.G.26 through table 8.G.53.

#### TIF for ELA, Grade Three

Figure 8.G.1 plots TIF by theta level for grade three ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.26. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 7.90, where theta is −0.92; or, for the hard pathway, when it reaches its peak at 7.15, where theta is −0.19. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.92; and among students routed to the hard pathway who have theta scores near −0.19. The assessment derives little information for students with theta scores that are either less than −4 or greater than 3.

Figure 8.G.1 TIF by theta—ELA, grade three

Table 8.G.26 Theta TIF Data—ELA, Grade Three

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.3296 | −6.0000 | 0.2531 |
| −4.8680 | 0.9414 | −4.5801 | 0.9163 |
| −4.1117 | 1.7777 | −3.7951 | 1.6929 |
| −3.6435 | 2.5288 | −3.2995 | 2.3692 |
| −3.2937 | 3.2101 | −2.9240 | 2.9754 |
| −3.0092 | 3.8332 | −2.6160 | 3.5319 |
| −2.7661 | 4.4070 | −2.3519 | 4.0502 |
| −2.5518 | 4.9373 | −2.1186 | 4.5346 |
| −2.3587 | 5.4270 | −1.9083 | 4.9831 |
| −2.1816 | 5.8778 | −1.7154 | 5.3915 |
| −2.0172 | 6.2885 | −1.5359 | 5.7554 |
| −1.8626 | 6.6580 | −1.3668 | 6.0718 |
| −1.7159 | 6.9835 | −1.2056 | 6.3405 |
| −1.5755 | 7.2622 | −1.0506 | 6.5634 |
| −1.4399 | 7.4922 | −0.9003 | 6.7443 |
| −1.3080 | 7.6716 | −0.7535 | 6.8877 |
| −1.1787 | 7.7998 | −0.6094 | 6.9974 |
| −1.0511 | 7.8768 | −0.4672 | 7.0767 |
| −0.9243 | 7.9034 | −0.3264 | 7.1273 |
| −0.7976 | 7.8809 | −0.1862 | 7.1499 |
| −0.6701 | 7.8108 | −0.0463 | 7.1442 |
| −0.5411 | 7.6943 | 0.0941 | 7.1093 |
| −0.4097 | 7.5324 | 0.2355 | 7.0437 |
| −0.2750 | 7.3252 | 0.3785 | 6.9453 |
| −0.1361 | 7.0728 | 0.5239 | 6.8110 |
| 0.0084 | 6.7739 | 0.6727 | 6.6362 |
| 0.1600 | 6.4274 | 0.8260 | 6.4145 |
| 0.3206 | 6.0317 | 0.9854 | 6.1376 |
| 0.4928 | 5.5856 | 1.1530 | 5.7955 |
| 0.6803 | 5.0875 | 1.3320 | 5.3772 |
| 0.8884 | 4.5363 | 1.5272 | 4.8725 |
| 1.1249 | 3.9320 | 1.7459 | 4.2742 |
| 1.4031 | 3.2735 | 2.0010 | 3.5786 |
| 1.7474 | 2.5592 | 2.3162 | 2.7898 |
| 2.2120 | 1.7849 | 2.7451 | 1.9186 |
| 2.9678 | 0.9399 | 3.4584 | 0.9825 |
| 6.0000 | 0.0512 | 6.0000 | 0.0800 |

Figure 8.G.2 plots TIF by scale score for grade three ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.27. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding scale score values from 300 to 400 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 303. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 7.90, where the scale score is 334; or, for the hard pathway, when it reaches its peak at 7.15, where the scale score is 345. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 399.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 334; and among students routed to the hard pathway who have scale scores near 345. The assessment derives little information for students with scale scores that are either less than 306 or greater than 380.

Figure 8.G.2 TIF by scale score—ELA, grade three

Table 8.G.27 Scale Score TIF Data—ELA, Grade Three

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 303 | 0.3296 | 303 | 0.2531 |
| 303 | 0.9414 | 303 | 0.9163 |
| 303 | 1.7777 | 303 | 1.6929 |
| 303 | 2.5288 | 303 | 2.3692 |
| 303 | 3.2101 | 304 | 2.9754 |
| 303 | 3.8332 | 309 | 3.5319 |
| 307 | 4.4070 | 313 | 4.0502 |
| 310 | 4.9373 | 316 | 4.5346 |
| 313 | 5.4270 | 319 | 4.9831 |
| 315 | 5.8778 | 322 | 5.3915 |
| 318 | 6.2885 | 325 | 5.7554 |
| 320 | 6.6580 | 327 | 6.0718 |
| 322 | 6.9835 | 330 | 6.3405 |
| 324 | 7.2622 | 332 | 6.5634 |
| 326 | 7.4922 | 334 | 6.7443 |
| 328 | 7.6716 | 337 | 6.8877 |
| 330 | 7.7998 | 339 | 6.9974 |
| 332 | 7.8768 | 341 | 7.0767 |
| 334 | 7.9034 | 343 | 7.1273 |
| 336 | 7.8809 | 345 | 7.1499 |
| 338 | 7.8108 | 347 | 7.1442 |
| 340 | 7.6943 | 349 | 7.1093 |
| 342 | 7.5324 | 352 | 7.0437 |
| 344 | 7.3252 | 354 | 6.9453 |
| 346 | 7.0728 | 356 | 6.8110 |
| 348 | 6.7739 | 358 | 6.6362 |
| 350 | 6.4274 | 360 | 6.4145 |
| 353 | 6.0317 | 363 | 6.1376 |
| 355 | 5.5856 | 365 | 5.7955 |
| 358 | 5.0875 | 368 | 5.3772 |
| 361 | 4.5363 | 371 | 4.8725 |
| 365 | 3.9320 | 374 | 4.2742 |
| 369 | 3.2735 | 378 | 3.5786 |
| 374 | 2.5592 | 383 | 2.7898 |
| 381 | 1.7849 | 389 | 1.9186 |
| 393 | 0.9399 | 399 | 0.9825 |
| 399 | 0.0512 | 399 | 0.0800 |

#### TIF for ELA, Grade Four

Figure 8.G.3 plots TIF by theta level for grade four ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.28. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 8.22, where theta is −0.61; or, for the hard pathway, when it reaches its peak at 7.81, where theta is −0.23. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.61; and among students routed to the hard pathway who have theta scores near −0.23. The assessment derives little information for students with theta scores that are either less than −4 or greater than 3.

Figure 8.G.3 TIF by theta—ELA, grade four

Table 8.G.28 Theta TIF Data—ELA, Grade Four

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.2543 | −6.0000 | 0.1516 |
| −4.6038 | 0.9499 | −4.0644 | 0.9358 |
| −3.8567 | 1.8056 | −3.3025 | 1.7622 |
| −3.3968 | 2.5790 | −2.8300 | 2.5051 |
| −3.0542 | 3.2808 | −2.4771 | 3.1830 |
| −2.7759 | 3.9196 | −2.1904 | 3.8087 |
| −2.5381 | 4.5028 | −1.9460 | 4.3900 |
| −2.3283 | 5.0362 | −1.7312 | 4.9309 |
| −2.1387 | 5.5251 | −1.5381 | 5.4326 |
| −1.9647 | 5.9724 | −1.3614 | 5.8945 |
| −1.8027 | 6.3809 | −1.1975 | 6.3137 |
| −1.6503 | 6.7518 | −1.0436 | 6.6871 |
| −1.5057 | 7.0854 | −0.8975 | 7.0109 |
| −1.3674 | 7.3810 | −0.7576 | 7.2818 |
| −1.2342 | 7.6368 | −0.6222 | 7.4978 |
| −1.1050 | 7.8506 | −0.4902 | 7.6572 |
| −0.9790 | 8.0190 | −0.3605 | 7.7598 |
| −0.8552 | 8.1388 | −0.2320 | 7.8061 |
| −0.7328 | 8.2063 | −0.1038 | 7.7973 |
| −0.6110 | 8.2181 | 0.0250 | 7.7346 |
| −0.4889 | 8.1711 | 0.1553 | 7.6195 |
| −0.3657 | 8.0625 | 0.2880 | 7.4528 |
| −0.2403 | 7.8904 | 0.4242 | 7.2347 |
| −0.1117 | 7.6535 | 0.5651 | 6.9646 |
| 0.0217 | 7.3508 | 0.7122 | 6.6407 |
| 0.1612 | 6.9829 | 0.8673 | 6.2609 |
| 0.3091 | 6.5500 | 1.0328 | 5.8227 |
| 0.4679 | 6.0539 | 1.2124 | 5.3225 |
| 0.6411 | 5.4968 | 1.4109 | 4.7590 |
| 0.8341 | 4.8805 | 1.6362 | 4.1304 |
| 1.0545 | 4.2078 | 1.9011 | 3.4367 |
| 1.3154 | 3.4801 | 2.2296 | 2.6779 |
| 1.6406 | 2.6986 | 2.6751 | 1.8541 |
| 2.0837 | 1.8614 | 3.4078 | 0.9631 |
| 2.8147 | 0.9644 | 6.0000 | 0.0774 |
| 6.0000 | 0.0428 | N/A | N/A |

Figure 8.G.4 plots TIF by scale score for grade four ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.29. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding scale score values from 400 to 500 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 403. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 8.22, where the scale score is 436; or, for the hard pathway, when it reaches its peak at 7.81, where the scale score is 442. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 499.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 436; and among students routed to the hard pathway who have scale scores near 442. The assessment derives little information for students with scale scores that are either less than 406 or greater than 480.

Figure 8.G.4 TIF by scale score—ELA, grade four

Table 8.G.29 Scale Score TIF Data—ELA, Grade Four

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 403 | 0.2543 | 403 | 0.1516 |
| 403 | 0.9499 | 403 | 0.9358 |
| 403 | 1.8056 | 403 | 1.7622 |
| 403 | 2.5790 | 403 | 2.5051 |
| 403 | 3.2808 | 408 | 3.1830 |
| 403 | 3.9196 | 412 | 3.8087 |
| 407 | 4.5028 | 416 | 4.3900 |
| 410 | 5.0362 | 419 | 4.9309 |
| 413 | 5.5251 | 422 | 5.4326 |
| 416 | 5.9724 | 425 | 5.8945 |
| 418 | 6.3809 | 427 | 6.3137 |
| 420 | 6.7518 | 429 | 6.6871 |
| 422 | 7.0854 | 432 | 7.0109 |
| 424 | 7.3810 | 434 | 7.2818 |
| 426 | 7.6368 | 436 | 7.4978 |
| 428 | 7.8506 | 438 | 7.6572 |
| 430 | 8.0190 | 440 | 7.7598 |
| 432 | 8.1388 | 442 | 7.8061 |
| 434 | 8.2063 | 443 | 7.7973 |
| 436 | 8.2181 | 445 | 7.7346 |
| 438 | 8.1711 | 447 | 7.6195 |
| 440 | 8.0625 | 449 | 7.4528 |
| 441 | 7.8904 | 451 | 7.2347 |
| 443 | 7.6535 | 453 | 6.9646 |
| 445 | 7.3508 | 456 | 6.6407 |
| 447 | 6.9829 | 458 | 6.2609 |
| 450 | 6.5500 | 460 | 5.8227 |
| 452 | 6.0539 | 463 | 5.3225 |
| 455 | 5.4968 | 466 | 4.7590 |
| 458 | 4.8805 | 470 | 4.1304 |
| 461 | 4.2078 | 474 | 3.4367 |
| 465 | 3.4801 | 478 | 2.6779 |
| 470 | 2.6986 | 485 | 1.8541 |
| 476 | 1.8614 | 496 | 0.9631 |
| 487 | 0.9644 | 499 | 0.0774 |
| 499 | 0.0428 | N/A | N/A |

#### TIF for ELA, Grade Five

Figure 8.G.5 plots TIF by theta level for grade five ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.30. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 7.51, where theta is −0.98; or, for the hard pathway, when it reaches its peak at 7.77, where theta is −0.23. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.98; and among students routed to the hard pathway who have theta scores near −0.23. The assessment derives little information for students with theta scores that are either less than −4 or greater than 3.

Figure 8.G.5 TIF by theta—ELA, grade five

Table 8.G.30 Theta TIF Data—ELA, Grade Five

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.5106 | −6.0000 | 0.3205 |
| −5.3293 | 0.9436 | −4.8256 | 0.9068 |
| −4.5748 | 1.7805 | −4.0289 | 1.6588 |
| −4.1067 | 2.5237 | −3.5209 | 2.3005 |
| −3.7553 | 3.1840 | −3.1327 | 2.8660 |
| −3.4673 | 3.7712 | −2.8118 | 3.3797 |
| −3.2191 | 4.2937 | −2.5351 | 3.8574 |
| −2.9980 | 4.7592 | −2.2899 | 4.3096 |
| −2.7965 | 5.1743 | −2.0686 | 4.7418 |
| −2.6098 | 5.5446 | −1.8663 | 5.1557 |
| −2.4346 | 5.8752 | −1.6794 | 5.5510 |
| −2.2685 | 6.1702 | −1.5050 | 5.9262 |
| −2.1097 | 6.4329 | −1.3410 | 6.2780 |
| −1.9569 | 6.6659 | −1.1856 | 6.6026 |
| −1.8091 | 6.8705 | −1.0374 | 6.8957 |
| −1.6653 | 7.0479 | −0.8950 | 7.1534 |
| −1.5249 | 7.1981 | −0.7572 | 7.3715 |
| −1.3871 | 7.3207 | −0.6231 | 7.5460 |
| −1.2513 | 7.4148 | −0.4917 | 7.6732 |
| −1.1169 | 7.4791 | −0.3620 | 7.7495 |
| −0.9834 | 7.5116 | −0.2331 | 7.7714 |
| −0.8503 | 7.5105 | −0.1041 | 7.7355 |
| −0.7167 | 7.4736 | 0.0260 | 7.6388 |
| −0.5822 | 7.3986 | 0.1583 | 7.4787 |
| −0.4459 | 7.2831 | 0.2941 | 7.2536 |
| −0.3071 | 7.1247 | 0.4348 | 6.9629 |
| −0.1646 | 6.9208 | 0.5822 | 6.6076 |
| −0.0174 | 6.6692 | 0.7386 | 6.1899 |
| 0.1360 | 6.3675 | 0.9067 | 5.7136 |
| 0.2976 | 6.0130 | 1.0904 | 5.1830 |
| 0.4698 | 5.6034 | 1.2950 | 4.6025 |
| 0.6562 | 5.1357 | 1.5286 | 3.9749 |
| 0.8616 | 4.6079 | 1.8042 | 3.3011 |
| 1.0937 | 4.0172 | 2.1458 | 2.5782 |
| 1.3653 | 3.3603 | 2.6071 | 1.7976 |
| 1.7002 | 2.6340 | 3.3578 | 0.9455 |
| 2.1517 | 1.8348 | 6.0000 | 0.0749 |
| 2.8896 | 0.9585 | N/A | N/A |
| 6.0000 | 0.0464 | N/A | N/A |

Figure 8.G.6 plots TIF by scale score for grade five ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.31. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding scale score values from 500 to 600 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 503. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 7.51, where the scale score is 530; or, for the hard pathway, when it reaches its peak at 7.77, where the scale score is 542. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 599.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 530; and among students routed to the hard pathway who have scale scores near 542. The assessment derives little information for students with scale scores that are either less than 506 or greater than 580.

Figure 8.G.6 TIF by scale score—ELA, grade five

Table 8.G.31 Scale Score TIF Data—ELA, Grade Five

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 503 | 0.5106 | 503 | 0.3205 |
| 503 | 0.9436 | 503 | 0.9068 |
| 503 | 1.7805 | 503 | 1.6588 |
| 503 | 2.5237 | 503 | 2.3005 |
| 503 | 3.1840 | 503 | 2.8660 |
| 503 | 3.7712 | 503 | 3.3797 |
| 503 | 4.2937 | 507 | 3.8574 |
| 503 | 4.7592 | 511 | 4.3096 |
| 503 | 5.1743 | 514 | 4.7418 |
| 506 | 5.5446 | 517 | 5.1557 |
| 508 | 5.8752 | 520 | 5.5510 |
| 511 | 6.1702 | 522 | 5.9262 |
| 513 | 6.4329 | 525 | 6.2780 |
| 516 | 6.6659 | 527 | 6.6026 |
| 518 | 6.8705 | 529 | 6.8957 |
| 520 | 7.0479 | 532 | 7.1534 |
| 522 | 7.1981 | 534 | 7.3715 |
| 524 | 7.3207 | 536 | 7.5460 |
| 526 | 7.4148 | 538 | 7.6732 |
| 528 | 7.4791 | 540 | 7.7495 |
| 530 | 7.5116 | 542 | 7.7714 |
| 532 | 7.5105 | 543 | 7.7355 |
| 534 | 7.4736 | 545 | 7.6388 |
| 536 | 7.3986 | 547 | 7.4787 |
| 538 | 7.2831 | 549 | 7.2536 |
| 540 | 7.1247 | 552 | 6.9629 |
| 543 | 6.9208 | 554 | 6.6076 |
| 545 | 6.6692 | 556 | 6.1899 |
| 547 | 6.3675 | 559 | 5.7136 |
| 549 | 6.0130 | 561 | 5.1830 |
| 552 | 5.6034 | 564 | 4.6025 |
| 555 | 5.1357 | 568 | 3.9749 |
| 558 | 4.6079 | 572 | 3.3011 |
| 561 | 4.0172 | 577 | 2.5782 |
| 565 | 3.3603 | 584 | 1.7976 |
| 571 | 2.6340 | 595 | 0.9455 |
| 577 | 1.8348 | 599 | 0.0749 |
| 588 | 0.9585 | N/A | N/A |
| 599 | 0.0464 | N/A | N/A |

#### TIF for ELA, Grade Six

Figure 8.G.7 plots TIF by theta level for grade six ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.32. The graph’s y-axis shows the TIF values from 0 to 10 in intervals of 1, and its x-axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 8.62, where theta is −1.01; or, for the hard pathway, when it reaches its peak at 7.77, where theta is −0.69. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −1.01; and among students routed to the hard pathway who have theta scores near −0.69. The assessment derives little information for students with theta scores that are either less than −4 or greater than 3.

Figure 8.G.7 TIF by theta—ELA, grade six

Table 8.G.32 Theta TIF Data—ELA, Grade Six

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.3017 | −6.0000 | 0.2115 |
| −4.7794 | 0.9485 | −4.4101 | 0.9433 |
| −4.0315 | 1.8050 | −3.6577 | 1.7947 |
| −3.5721 | 2.5877 | −3.1962 | 2.5802 |
| −3.2317 | 3.3112 | −2.8553 | 3.3136 |
| −2.9569 | 3.9869 | −2.5811 | 3.9994 |
| −2.7242 | 4.6208 | −2.3492 | 4.6356 |
| −2.5206 | 5.2167 | −2.1460 | 5.2178 |
| −2.3384 | 5.7742 | −1.9634 | 5.7403 |
| −2.1725 | 6.2910 | −1.7958 | 6.1994 |
| −2.0192 | 6.7634 | −1.6395 | 6.5932 |
| −1.8758 | 7.1876 | −1.4915 | 6.9233 |
| −1.7401 | 7.5604 | −1.3498 | 7.1923 |
| −1.6106 | 7.8786 | −1.2127 | 7.4046 |
| −1.4857 | 8.1410 | −1.0791 | 7.5643 |
| −1.3643 | 8.3463 | −0.9478 | 7.6758 |
| −1.2456 | 8.4942 | −0.8181 | 7.7424 |
| −1.1284 | 8.5856 | −0.6891 | 7.7675 |
| −1.0122 | 8.6211 | −0.5602 | 7.7535 |
| −0.8960 | 8.6024 | −0.4307 | 7.7030 |
| −0.7793 | 8.5318 | −0.3001 | 7.6185 |
| −0.6612 | 8.4119 | −0.1678 | 7.5027 |
| −0.5411 | 8.2460 | −0.0331 | 7.3574 |
| −0.4182 | 8.0374 | 0.1045 | 7.1842 |
| −0.2917 | 7.7897 | 0.2457 | 6.9832 |
| −0.1609 | 7.5065 | 0.3914 | 6.7531 |
| −0.0247 | 7.1898 | 0.5425 | 6.4910 |
| 0.1179 | 6.8414 | 0.7003 | 6.1925 |
| 0.2683 | 6.4610 | 0.8664 | 5.8525 |
| 0.4284 | 6.0469 | 1.0432 | 5.4648 |
| 0.6003 | 5.5964 | 1.2340 | 5.0233 |
| 0.7873 | 5.1052 | 1.4436 | 4.5224 |
| 0.9943 | 4.5675 | 1.6797 | 3.9565 |
| 1.2287 | 3.9773 | 1.9550 | 3.3210 |
| 1.5030 | 3.3279 | 2.2933 | 2.6118 |
| 1.8409 | 2.6125 | 2.7480 | 1.8248 |
| 2.2956 | 1.8240 | 3.4888 | 0.9560 |
| 3.0367 | 0.9556 | 6.0000 | 0.0844 |
| 6.0000 | 0.0539 | N/A | N/A |

Figure 8.G.8 plots TIF by scale score for grade six ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.33. The graph’s y-axis shows the TIF values from 0 to 10 in intervals of 1, and its x-axis shows corresponding scale score values from 600 to 700 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 603. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 8.62, where the scale score is 632; or, for the hard pathway, when it reaches its peak at 7.77, where the scale score is 636. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 699.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 632; and among students routed to the hard pathway who have scale scores near 636. The assessment derives little information for students with scale scores that are either less than 605 or greater than 680.

Figure 8.G.8 TIF by scale score—ELA, grade six

Table 8.G.33 Scale Score TIF Data—ELA, Grade Six

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 603 | 0.3017 | 603 | 0.2115 |
| 603 | 0.9485 | 603 | 0.9433 |
| 603 | 1.8050 | 603 | 1.7947 |
| 603 | 2.5877 | 605 | 2.5802 |
| 605 | 3.3112 | 609 | 3.3136 |
| 608 | 3.9869 | 613 | 3.9994 |
| 611 | 4.6208 | 616 | 4.6356 |
| 613 | 5.2167 | 618 | 5.2178 |
| 616 | 5.7742 | 620 | 5.7403 |
| 618 | 6.2910 | 623 | 6.1994 |
| 620 | 6.7634 | 625 | 6.5932 |
| 622 | 7.1876 | 626 | 6.9233 |
| 623 | 7.5604 | 628 | 7.1923 |
| 625 | 7.8786 | 630 | 7.4046 |
| 626 | 8.1410 | 632 | 7.5643 |
| 628 | 8.3463 | 633 | 7.6758 |
| 629 | 8.4942 | 635 | 7.7424 |
| 631 | 8.5856 | 636 | 7.7675 |
| 632 | 8.6211 | 638 | 7.7535 |
| 634 | 8.6024 | 640 | 7.7030 |
| 635 | 8.5318 | 641 | 7.6185 |
| 637 | 8.4119 | 643 | 7.5027 |
| 638 | 8.2460 | 645 | 7.3574 |
| 640 | 8.0374 | 646 | 7.1842 |
| 641 | 7.7897 | 648 | 6.9832 |
| 643 | 7.5065 | 650 | 6.7531 |
| 645 | 7.1898 | 652 | 6.4910 |
| 646 | 6.8414 | 654 | 6.1925 |
| 648 | 6.4610 | 656 | 5.8525 |
| 650 | 6.0469 | 658 | 5.4648 |
| 653 | 5.5964 | 660 | 5.0233 |
| 655 | 5.1052 | 663 | 4.5224 |
| 657 | 4.5675 | 666 | 3.9565 |
| 660 | 3.9773 | 669 | 3.3210 |
| 664 | 3.3279 | 674 | 2.6118 |
| 668 | 2.6125 | 679 | 1.8248 |
| 674 | 1.8240 | 689 | 0.9560 |
| 683 | 0.9556 | 699 | 0.0844 |
| 699 | 0.0539 | N/A | N/A |

#### TIF for ELA, Grade Seven

Figure 8.G.9 plots TIF by theta level for grade seven ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.34. The graph’s y-axis shows the TIF values from 0 to 8 in intervals of 1, and its x-‍axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 7.13, where theta is −0.64; or, for the hard pathway, when it reaches its peak at 7.03, where theta is 0.28. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.64; and among students routed to the hard pathway who have theta scores near 0.28. The assessment derives little information for students with theta scores that are either less than −4 or greater than 3.

Figure 8.G.9 TIF by theta—ELA, grade seven

Table 8.G.34 Theta TIF Data—ELA, Grade Seven

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.3286 | −6.0000 | 0.2192 |
| −4.8616 | 0.9330 | −4.4164 | 0.8954 |
| −4.0948 | 1.7428 | −3.6053 | 1.6198 |
| −3.6145 | 2.4488 | −3.0827 | 2.2255 |
| −3.2510 | 3.0675 | −2.6799 | 2.7512 |
| −2.9512 | 3.6134 | −2.3446 | 3.2233 |
| −2.6917 | 4.0984 | −2.0536 | 3.6590 |
| −2.4598 | 4.5333 | −1.7945 | 4.0686 |
| −2.2482 | 4.9265 | −1.5597 | 4.4578 |
| −2.0523 | 5.2845 | −1.3441 | 4.8287 |
| −1.8686 | 5.6126 | −1.1442 | 5.1813 |
| −1.6950 | 5.9135 | −0.9570 | 5.5142 |
| −1.5297 | 6.1882 | −0.7805 | 5.8245 |
| −1.3712 | 6.4357 | −0.6128 | 6.1088 |
| −1.2183 | 6.6534 | −0.4524 | 6.3633 |
| −1.0700 | 6.8367 | −0.2979 | 6.5838 |
| −0.9252 | 6.9805 | −0.1480 | 6.7658 |
| −0.7829 | 7.0795 | −0.0017 | 6.9044 |
| −0.6422 | 7.1284 | 0.1422 | 6.9946 |
| −0.5018 | 7.1230 | 0.2848 | 7.0316 |
| −0.3608 | 7.0605 | 0.4273 | 7.0106 |
| −0.2179 | 6.9395 | 0.5707 | 6.9273 |
| −0.0719 | 6.7600 | 0.7167 | 6.7779 |
| 0.0787 | 6.5228 | 0.8666 | 6.5602 |
| 0.2355 | 6.2295 | 1.0225 | 6.2723 |
| 0.4007 | 5.8812 | 1.1866 | 5.9147 |
| 0.5769 | 5.4785 | 1.3621 | 5.4884 |
| 0.7675 | 5.0213 | 1.5529 | 4.9968 |
| 0.9775 | 4.5080 | 1.7650 | 4.4437 |
| 1.2147 | 3.9353 | 2.0070 | 3.8345 |
| 1.4916 | 3.2995 | 2.2931 | 3.1748 |
| 1.8321 | 2.5950 | 2.6491 | 2.4692 |
| 2.2895 | 1.8152 | 3.1314 | 1.7188 |
| 3.0334 | 0.9531 | 3.9138 | 0.9123 |
| 6.0000 | 0.0538 | 6.0000 | 0.1340 |

Figure 8.G.10 plots TIF by scale score for grade seven ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.35. The graph’s y-axis shows the TIF values from 0 to 8 in intervals of 1, and its x-‍axis shows corresponding scale score values from 700 to 800 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 703. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 7.13, where the scale score is 735; or, for the hard pathway, when it reaches its peak at 7.03, where the scale score is 749. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 799.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 735; and among students routed to the hard pathway who have scale scores near 749. The assessment derives little information for students with scale scores that are either less than 705 or greater than 780.

Figure 8.G.10 TIF by scale score—ELA, grade seven

Table 8.G.35 Scale Score TIF Data—ELA, Grade Seven

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 703 | 0.3286 | 703 | 0.2192 |
| 703 | 0.9330 | 703 | 0.8954 |
| 703 | 1.7428 | 703 | 1.6198 |
| 703 | 2.4488 | 703 | 2.2255 |
| 703 | 3.0675 | 705 | 2.7512 |
| 703 | 3.6134 | 710 | 3.2233 |
| 705 | 4.0984 | 714 | 3.6590 |
| 708 | 4.5333 | 718 | 4.0686 |
| 711 | 4.9265 | 722 | 4.4578 |
| 714 | 5.2845 | 725 | 4.8287 |
| 717 | 5.6126 | 728 | 5.1813 |
| 720 | 5.9135 | 731 | 5.5142 |
| 722 | 6.1882 | 733 | 5.8245 |
| 724 | 6.4357 | 736 | 6.1088 |
| 727 | 6.6534 | 738 | 6.3633 |
| 729 | 6.8367 | 741 | 6.5838 |
| 731 | 6.9805 | 743 | 6.7658 |
| 733 | 7.0795 | 745 | 6.9044 |
| 735 | 7.1284 | 747 | 6.9946 |
| 737 | 7.1230 | 749 | 7.0316 |
| 740 | 7.0605 | 751 | 7.0106 |
| 742 | 6.9395 | 754 | 6.9273 |
| 744 | 6.7600 | 756 | 6.7779 |
| 746 | 6.5228 | 758 | 6.5602 |
| 749 | 6.2295 | 760 | 6.2723 |
| 751 | 5.8812 | 763 | 5.9147 |
| 754 | 5.4785 | 765 | 5.4884 |
| 757 | 5.0213 | 768 | 4.9968 |
| 760 | 4.5080 | 771 | 4.4437 |
| 763 | 3.9353 | 775 | 3.8345 |
| 767 | 3.2995 | 779 | 3.1748 |
| 772 | 2.5950 | 785 | 2.4692 |
| 779 | 1.8152 | 792 | 1.7188 |
| 791 | 0.9531 | 799 | 0.9123 |
| 799 | 0.0538 | 799 | 0.1340 |

#### TIF for ELA, Grade Eight

Figure 8.G.11 plots TIF by theta level for grade eight ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.36. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 7.66, where theta is −0.54; or, for the hard pathway, when it reaches its peak at 7.26, where theta is 0.19. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.54; and among students routed to the hard pathway who have theta scores near 0.19. The assessment derives little information for students with theta scores that are either less than −4 or greater than 3.

Figure 8.G.11 TIF by theta—ELA, grade eight

Table 8.G.36 Theta TIF Data—ELA, Grade Eight

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.5479 | −6.0000 | 0.3464 |
| −5.4032 | 0.9518 | −4.9133 | 0.9205 |
| −4.6574 | 1.8074 | −4.1309 | 1.6932 |
| −4.1972 | 2.5722 | −3.6326 | 2.3390 |
| −3.8528 | 3.2514 | −3.2488 | 2.8786 |
| −3.5708 | 3.8510 | −2.9266 | 3.3323 |
| −3.3275 | 4.3767 | −2.6429 | 3.7198 |
| −3.1103 | 4.8347 | −2.3856 | 4.0595 |
| −2.9116 | 5.2313 | −2.1481 | 4.3675 |
| −2.7264 | 5.5733 | −1.9263 | 4.6571 |
| −2.5515 | 5.8674 | −1.7176 | 4.9383 |
| −2.3846 | 6.1201 | −1.5205 | 5.2165 |
| −2.2240 | 6.3382 | −1.3336 | 5.4942 |
| −2.0685 | 6.5279 | −1.1558 | 5.7699 |
| −1.9171 | 6.6952 | −0.9863 | 6.0395 |
| −1.7693 | 6.8450 | −0.8241 | 6.2973 |
| −1.6246 | 6.9814 | −0.6682 | 6.5370 |
| −1.4825 | 7.1076 | −0.5176 | 6.7521 |
| −1.3429 | 7.2249 | −0.3714 | 6.9365 |
| −1.2054 | 7.3338 | −0.2288 | 7.0845 |
| −1.0699 | 7.4327 | −0.0886 | 7.1914 |
| −0.9360 | 7.5191 | 0.0499 | 7.2528 |
| −0.8035 | 7.5893 | 0.1877 | 7.2649 |
| −0.6721 | 7.6388 | 0.3257 | 7.2250 |
| −0.5414 | 7.6627 | 0.4650 | 7.1311 |
| −0.4107 | 7.6559 | 0.6068 | 6.9819 |
| −0.2797 | 7.6135 | 0.7521 | 6.7777 |
| −0.1476 | 7.5308 | 0.9026 | 6.5189 |
| −0.0136 | 7.4036 | 1.0598 | 6.2069 |
| 0.1231 | 7.2286 | 1.2258 | 5.8433 |
| 0.2637 | 7.0028 | 1.4033 | 5.4293 |
| 0.4094 | 6.7245 | 1.5959 | 4.9652 |
| 0.5619 | 6.3927 | 1.8085 | 4.4506 |
| 0.7232 | 6.0075 | 2.0487 | 3.8828 |
| 0.8961 | 5.5691 | 2.3294 | 3.2566 |
| 1.0840 | 5.0790 | 2.6742 | 2.5651 |
| 1.2922 | 4.5370 | 3.1362 | 1.7993 |
| 1.5284 | 3.9427 | 3.8850 | 0.9485 |
| 1.8053 | 3.2936 | 6.0000 | 0.1258 |
| 2.1469 | 2.5841 | N/A | N/A |
| 2.6063 | 1.8065 | N/A | N/A |
| 3.3533 | 0.9497 | N/A | N/A |
| 6.0000 | 0.0742 | N/A | N/A |

Figure 8.G.12 plots TIF by scale score for grade eight ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.37. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding scale score values from 800 to 900 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 803. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 7.66, where the scale score is 841; or, for the hard pathway, when it reaches its peak at 7.26, where the scale score is 850. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 899.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 841; and among students routed to the hard pathway who have scale scores near 850. The assessment derives little information for students with scale scores that are either less than 806 or greater than 880.

Figure 8.G.12 TIF by scale score—ELA, grade eight

Table 8.G.37 Scale Score TIF Data—ELA, Grade Eight

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 803 | 0.5479 | 803 | 0.3464 |
| 803 | 0.9518 | 803 | 0.9205 |
| 803 | 1.8074 | 803 | 1.6932 |
| 803 | 2.5722 | 803 | 2.3390 |
| 803 | 3.2514 | 807 | 2.8786 |
| 803 | 3.8510 | 811 | 3.3323 |
| 806 | 4.3767 | 814 | 3.7198 |
| 809 | 4.8347 | 818 | 4.0595 |
| 811 | 5.2313 | 821 | 4.3675 |
| 813 | 5.5733 | 823 | 4.6571 |
| 816 | 5.8674 | 826 | 4.9383 |
| 818 | 6.1201 | 828 | 5.2165 |
| 820 | 6.3382 | 831 | 5.4942 |
| 822 | 6.5279 | 833 | 5.7699 |
| 824 | 6.6952 | 835 | 6.0395 |
| 825 | 6.8450 | 837 | 6.2973 |
| 827 | 6.9814 | 839 | 6.5370 |
| 829 | 7.1076 | 841 | 6.7521 |
| 831 | 7.2249 | 843 | 6.9365 |
| 832 | 7.3338 | 845 | 7.0845 |
| 834 | 7.4327 | 846 | 7.1914 |
| 836 | 7.5191 | 848 | 7.2528 |
| 837 | 7.5893 | 850 | 7.2649 |
| 839 | 7.6388 | 852 | 7.2250 |
| 841 | 7.6627 | 853 | 7.1311 |
| 842 | 7.6559 | 855 | 6.9819 |
| 844 | 7.6135 | 857 | 6.7777 |
| 846 | 7.5308 | 859 | 6.5189 |
| 847 | 7.4036 | 861 | 6.2069 |
| 849 | 7.2286 | 863 | 5.8433 |
| 851 | 7.0028 | 865 | 5.4293 |
| 853 | 6.7245 | 867 | 4.9652 |
| 855 | 6.3927 | 870 | 4.4506 |
| 857 | 6.0075 | 873 | 3.8828 |
| 859 | 5.5691 | 877 | 3.2566 |
| 861 | 5.0790 | 881 | 2.5651 |
| 864 | 4.5370 | 887 | 1.7993 |
| 867 | 3.9427 | 896 | 0.9485 |
| 870 | 3.2936 | 899 | 0.1258 |
| 874 | 2.5841 | N/A | N/A |
| 880 | 1.8065 | N/A | N/A |
| 889 | 0.9497 | N/A | N/A |
| 899 | 0.0742 | N/A | N/A |

#### TIF for ELA, Grade Eleven

Figure 8.G.13 plots TIF by theta level for grade eleven ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.38. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 7.61, where theta is −0.52; or, for the hard pathway, when it reaches its peak at 7.84, where theta is 0.13. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.52; and among students routed to the hard pathway who have theta scores near 0.13. The assessment derives little information for students with theta scores that are either less than −4 or greater than 4.

Figure 8.G.13 TIF by theta—ELA, grade eleven

Table 8.G.38 Theta TIF Data—ELA, Grade Eleven

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.3058 | −6.0000 | 0.2502 |
| −4.7860 | 0.9312 | −4.5662 | 0.9134 |
| −4.0182 | 1.7416 | −3.7779 | 1.6839 |
| −3.5383 | 2.4555 | −3.2790 | 2.3511 |
| −3.1766 | 3.0910 | −2.9000 | 2.9411 |
| −2.8799 | 3.6615 | −2.5875 | 3.4708 |
| −2.6245 | 4.1768 | −2.3177 | 3.9508 |
| −2.3976 | 4.6447 | −2.0776 | 4.3884 |
| −2.1916 | 5.0711 | −1.8595 | 4.7894 |
| −2.0015 | 5.4607 | −1.6583 | 5.1592 |
| −1.8241 | 5.8169 | −1.4706 | 5.5025 |
| −1.6567 | 6.1428 | −1.2939 | 5.8239 |
| −1.4977 | 6.4395 | −1.1264 | 6.1271 |
| −1.3455 | 6.7079 | −0.9668 | 6.4143 |
| −1.1990 | 6.9471 | −0.8140 | 6.6864 |
| −1.0571 | 7.1553 | −0.6672 | 6.9420 |
| −0.9189 | 7.3294 | −0.5254 | 7.1784 |
| −0.7837 | 7.4656 | −0.3881 | 7.3899 |
| −0.6506 | 7.5601 | −0.2543 | 7.5703 |
| −0.5187 | 7.6088 | −0.1234 | 7.7112 |
| −0.3872 | 7.6081 | 0.0055 | 7.8045 |
| −0.2553 | 7.5552 | 0.1334 | 7.8417 |
| −0.1220 | 7.4484 | 0.2611 | 7.8156 |
| 0.0138 | 7.2865 | 0.3898 | 7.7202 |
| 0.1531 | 7.0697 | 0.5208 | 7.5518 |
| 0.2974 | 6.7979 | 0.6554 | 7.3092 |
| 0.4481 | 6.4722 | 0.7952 | 6.9940 |
| 0.6074 | 6.0925 | 0.9422 | 6.6099 |
| 0.7776 | 5.6592 | 1.0989 | 6.1628 |
| 0.9624 | 5.1713 | 1.2681 | 5.6606 |
| 1.1667 | 4.6274 | 1.4540 | 5.1105 |
| 1.3981 | 4.0253 | 1.6619 | 4.5200 |
| 1.6694 | 3.3616 | 1.9001 | 3.8929 |
| 2.0044 | 2.6324 | 2.1816 | 3.2298 |
| 2.4563 | 1.8331 | 2.5307 | 2.5251 |
| 3.1950 | 0.9578 | 3.0008 | 1.7671 |
| 6.0000 | 0.0629 | 3.7620 | 0.9356 |
| N/A | N/A | 6.0000 | 0.1127 |

Figure 8.G.14 plots TIF by scale score for grade eleven ELA for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.39. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-‍axis shows corresponding scale score values from 900 to 1000 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 903. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 7.61, where the scale score is 941; or, for the hard pathway, when it reaches its peak at 7.84, where the scale score is 949. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero where the scale score reaches its maximum of 999.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 941; and among students routed to the hard pathway who have scale scores near 949. The assessment derives little information for students with scale scores that are either less than 907 or greater than 980.

Figure 8.G.14 TIF by scale score—ELA, grade eleven

Table 8.G.39 Scale Score TIF Data—ELA, Grade Eleven

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 903 | 0.3058 | 903 | 0.2502 |
| 903 | 0.9312 | 903 | 0.9134 |
| 903 | 1.7416 | 903 | 1.6839 |
| 903 | 2.4555 | 907 | 2.3511 |
| 908 | 3.0910 | 911 | 2.9411 |
| 912 | 3.6615 | 915 | 3.4708 |
| 915 | 4.1768 | 919 | 3.9508 |
| 918 | 4.6447 | 922 | 4.3884 |
| 920 | 5.0711 | 924 | 4.7894 |
| 922 | 5.4607 | 927 | 5.1592 |
| 925 | 5.8169 | 929 | 5.5025 |
| 927 | 6.1428 | 931 | 5.8239 |
| 929 | 6.4395 | 933 | 6.1271 |
| 931 | 6.7079 | 935 | 6.4143 |
| 933 | 6.9471 | 937 | 6.6864 |
| 934 | 7.1553 | 939 | 6.9420 |
| 936 | 7.3294 | 941 | 7.1784 |
| 938 | 7.4656 | 943 | 7.3899 |
| 939 | 7.5601 | 944 | 7.5703 |
| 941 | 7.6088 | 946 | 7.7112 |
| 943 | 7.6081 | 948 | 7.8045 |
| 944 | 7.5552 | 949 | 7.8417 |
| 946 | 7.4484 | 951 | 7.8156 |
| 948 | 7.2865 | 952 | 7.7202 |
| 949 | 7.0697 | 954 | 7.5518 |
| 951 | 6.7979 | 956 | 7.3092 |
| 953 | 6.4722 | 957 | 6.9940 |
| 955 | 6.0925 | 959 | 6.6099 |
| 957 | 5.6592 | 961 | 6.1628 |
| 960 | 5.1713 | 963 | 5.6606 |
| 962 | 4.6274 | 966 | 5.1105 |
| 965 | 4.0253 | 968 | 4.5200 |
| 968 | 3.3616 | 971 | 3.8929 |
| 973 | 2.6324 | 975 | 3.2298 |
| 978 | 1.8331 | 979 | 2.5251 |
| 987 | 0.9578 | 985 | 1.7671 |
| 999 | 0.0629 | 995 | 0.9356 |
| N/A | N/A | 999 | 0.1127 |

#### TIF for Mathematics, Grade Three

Figure 8.G.15 plots TIF by theta level for grade three mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.40. The graph’s y-axis shows the TIF values from 0 to 8 in intervals of 1, and its x-axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 7.60, where theta is −0.25; or, for the hard pathway, when it reaches its peak at 7.57, where theta is 0.09. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.25; and among students routed to the hard pathway who have theta scores near 0.09. The assessment derives little information for students with theta scores that are either less than −4 or greater than 4.

Figure 8.G.15 TIF by theta—mathematics, grade three

Table 8.G.40 Theta TIF Data—Mathematics, Grade Three

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.1100 | −6.0000 | 0.0820 |
| −3.7635 | 0.9653 | −3.4638 | 0.9607 |
| −3.0328 | 1.8596 | −2.7284 | 1.8440 |
| −2.5885 | 2.6847 | −2.2797 | 2.6554 |
| −2.2607 | 3.4421 | −1.9480 | 3.3982 |
| −1.9961 | 4.1329 | −1.6798 | 4.0753 |
| −1.7709 | 4.7578 | −1.4513 | 4.6885 |
| −1.5722 | 5.3181 | −1.2497 | 5.2392 |
| −1.3925 | 5.8141 | −1.0672 | 5.7286 |
| −1.2266 | 6.2471 | −0.8989 | 6.1574 |
| −1.0711 | 6.6178 | −0.7412 | 6.5266 |
| −0.9234 | 6.9274 | −0.5915 | 6.8376 |
| −0.7816 | 7.1769 | −0.4479 | 7.0916 |
| −0.6441 | 7.3677 | −0.3088 | 7.2901 |
| −0.5095 | 7.5012 | −0.1730 | 7.4351 |
| −0.3769 | 7.5786 | −0.0393 | 7.5287 |
| −0.2451 | 7.6015 | 0.0932 | 7.5731 |
| −0.1133 | 7.5712 | 0.2252 | 7.5705 |
| 0.0195 | 7.4891 | 0.3578 | 7.5226 |
| 0.1543 | 7.3564 | 0.4916 | 7.4312 |
| 0.2919 | 7.1744 | 0.6274 | 7.2971 |
| 0.4336 | 6.9438 | 0.7661 | 7.1207 |
| 0.5806 | 6.6652 | 0.9088 | 6.9015 |
| 0.7345 | 6.3389 | 1.0566 | 6.6383 |
| 0.8971 | 5.9647 | 1.2108 | 6.3297 |
| 1.0710 | 5.5418 | 1.3735 | 5.9727 |
| 1.2596 | 5.0686 | 1.5469 | 5.5648 |
| 1.4679 | 4.5424 | 1.7345 | 5.1022 |
| 1.7034 | 3.9600 | 1.9411 | 4.5816 |
| 1.9788 | 3.3165 | 2.1745 | 3.9985 |
| 2.3177 | 2.6060 | 2.4472 | 3.3490 |
| 2.7733 | 1.8214 | 2.7830 | 2.6288 |
| 3.5151 | 0.9553 | 3.2352 | 1.8333 |
| 6.0000 | 0.0867 | 3.9735 | 0.9585 |
| N/A | N/A | 6.0000 | 0.1362 |

Figure 8.G.16 plots TIF by scale score for grade three mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.41. The graph’s y-axis shows the TIF values from 0 to 8 in intervals of 1, and its x-axis shows corresponding scale score values from 300 to 400 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 303. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 7.60, where the scale score is 337; or, for the hard pathway, when it reaches its peak at 7.57, where the scale score is 343. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 399.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 337; and among students routed to the hard pathway who have scale scores near 343. The assessment derives little information for students with scale scores that are either less than 306 or greater than 380.

Figure 8.G.16 TIF by scale score—mathematics, grade three

Table 8.G.41 Scale Score TIF Data—Mathematics, Grade Three

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 303 | 0.1100 | 303 | 0.0820 |
| 303 | 0.9653 | 303 | 0.9607 |
| 303 | 1.8596 | 303 | 1.8440 |
| 303 | 2.6847 | 303 | 2.6554 |
| 303 | 3.4421 | 305 | 3.3982 |
| 304 | 4.1329 | 310 | 4.0753 |
| 308 | 4.7578 | 314 | 4.6885 |
| 312 | 5.3181 | 318 | 5.2392 |
| 315 | 5.8141 | 321 | 5.7286 |
| 318 | 6.2471 | 324 | 6.1574 |
| 321 | 6.6178 | 327 | 6.5266 |
| 324 | 6.9274 | 330 | 6.8376 |
| 327 | 7.1769 | 333 | 7.0916 |
| 329 | 7.3677 | 336 | 7.2901 |
| 332 | 7.5012 | 338 | 7.4351 |
| 334 | 7.5786 | 341 | 7.5287 |
| 337 | 7.6015 | 343 | 7.5731 |
| 339 | 7.5712 | 346 | 7.5705 |
| 342 | 7.4891 | 348 | 7.5226 |
| 344 | 7.3564 | 351 | 7.4312 |
| 347 | 7.1744 | 353 | 7.2971 |
| 349 | 6.9438 | 356 | 7.1207 |
| 352 | 6.6652 | 358 | 6.9015 |
| 355 | 6.3389 | 361 | 6.6383 |
| 358 | 5.9647 | 364 | 6.3297 |
| 361 | 5.5418 | 367 | 5.9727 |
| 365 | 5.0686 | 370 | 5.5648 |
| 369 | 4.5424 | 374 | 5.1022 |
| 373 | 3.9600 | 378 | 4.5816 |
| 378 | 3.3165 | 382 | 3.9985 |
| 385 | 2.6060 | 387 | 3.3490 |
| 393 | 1.8214 | 393 | 2.6288 |
| 399 | 0.9553 | 399 | 1.8333 |
| 399 | 0.0867 | 399 | 0.9585 |
| N/A | N/A | 399 | 0.1362 |

#### TIF for Mathematics, Grade Four

Figure 8.G.17 plots TIF by theta level for grade four mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.42. The graph’s y-axis shows the TIF values from 0 to 10 in intervals of 1, and its x-axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 8.18, where theta is 0.03; or, for the hard pathway when it reaches its peak at 8.65, where theta is 0.33. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near 0.03; and among students routed to the hard pathway who have theta scores near 0.33. The assessment derives little information for students with theta scores that are either less than −4 or greater than 4.

Figure 8.G.17 TIF by theta—mathematics, grade four

Table 8.G.42 Theta TIF Data—Mathematics, Grade Four

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.1915 | −6.0000 | 0.1252 |
| −4.2953 | 0.9242 | −3.8292 | 0.8941 |
| −3.5199 | 1.7210 | −3.0236 | 1.6519 |
| −3.0339 | 2.4234 | −2.5187 | 2.3444 |
| −2.6676 | 3.0552 | −2.1427 | 3.0015 |
| −2.3680 | 3.6335 | −1.8403 | 3.6327 |
| −2.1113 | 4.1699 | −1.5857 | 4.2392 |
| −1.8848 | 4.6718 | −1.3646 | 4.8196 |
| −1.6809 | 5.1432 | −1.1681 | 5.3716 |
| −1.4943 | 5.5868 | −0.9903 | 5.8928 |
| −1.3216 | 6.0024 | −0.8273 | 6.3797 |
| −1.1601 | 6.3894 | −0.6758 | 6.8299 |
| −1.0078 | 6.7462 | −0.5335 | 7.2400 |
| −0.8629 | 7.0711 | −0.3987 | 7.6059 |
| −0.7243 | 7.3608 | −0.2699 | 7.9234 |
| −0.5907 | 7.6127 | −0.1457 | 8.1887 |
| −0.4611 | 7.8235 | −0.0251 | 8.3973 |
| −0.3345 | 7.9897 | 0.0929 | 8.5453 |
| −0.2103 | 8.1071 | 0.2094 | 8.6293 |
| −0.0874 | 8.1723 | 0.3252 | 8.6463 |
| 0.0349 | 8.1812 | 0.4412 | 8.5942 |
| 0.1576 | 8.1304 | 0.5584 | 8.4718 |
| 0.2815 | 8.0169 | 0.6779 | 8.2792 |
| 0.4076 | 7.8383 | 0.8006 | 8.0178 |
| 0.5372 | 7.5930 | 0.9280 | 7.6899 |
| 0.6717 | 7.2806 | 1.0614 | 7.2997 |
| 0.8128 | 6.9016 | 1.2029 | 6.8512 |
| 0.9626 | 6.4581 | 1.3544 | 6.3513 |
| 1.1238 | 5.9530 | 1.5191 | 5.8051 |
| 1.3003 | 5.3899 | 1.7008 | 5.2188 |
| 1.4973 | 4.7733 | 1.9048 | 4.5981 |
| 1.7230 | 4.1066 | 2.1394 | 3.9455 |
| 1.9904 | 3.3932 | 2.4178 | 3.2612 |
| 2.3238 | 2.6333 | 2.7642 | 2.5407 |
| 2.7772 | 1.8226 | 3.2322 | 1.7726 |
| 3.5208 | 0.9515 | 3.9919 | 0.9366 |
| 6.0000 | 0.0876 | 6.0000 | 0.1412 |

Figure 8.G.18 plots TIF by scale score for grade four mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.43. The graph’s y-axis shows the TIF values from 0 to 10 in intervals of 1, and its x-axis shows corresponding scale score values from 400 to 500 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 403. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 8.18, where the scale score is 442; or, for the hard pathway, when it reaches its peak at 8.65, where the scale score is 447. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 499.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 442; and among students routed to the hard pathway who have scale scores near 447. The assessment derives little information for students with scale scores that are either less than 404 or greater than 485.

Figure 8.G.18 TIF by scale score—mathematics, grade four

Table 8.G.43 Scale Score TIF Data—Mathematics, Grade Four

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 403 | 0.1915 | 403 | 0.1252 |
| 403 | 0.9242 | 403 | 0.8941 |
| 403 | 1.7210 | 403 | 1.6519 |
| 403 | 2.4234 | 403 | 2.3444 |
| 403 | 3.0552 | 403 | 3.0015 |
| 403 | 3.6335 | 407 | 3.6327 |
| 403 | 4.1699 | 412 | 4.2392 |
| 406 | 4.6718 | 416 | 4.8196 |
| 410 | 5.1432 | 419 | 5.3716 |
| 413 | 5.5868 | 423 | 5.8928 |
| 417 | 6.0024 | 426 | 6.3797 |
| 420 | 6.3894 | 429 | 6.8299 |
| 422 | 6.7462 | 431 | 7.2400 |
| 425 | 7.0711 | 434 | 7.6059 |
| 428 | 7.3608 | 436 | 7.9234 |
| 430 | 7.6127 | 439 | 8.1887 |
| 433 | 7.8235 | 441 | 8.3973 |
| 435 | 7.9897 | 443 | 8.5453 |
| 437 | 8.1071 | 445 | 8.6293 |
| 440 | 8.1723 | 447 | 8.6463 |
| 442 | 8.1812 | 450 | 8.5942 |
| 444 | 8.1304 | 452 | 8.4718 |
| 447 | 8.0169 | 454 | 8.2792 |
| 449 | 7.8383 | 456 | 8.0178 |
| 451 | 7.5930 | 459 | 7.6899 |
| 454 | 7.2806 | 461 | 7.2997 |
| 457 | 6.9016 | 464 | 6.8512 |
| 459 | 6.4581 | 467 | 6.3513 |
| 462 | 5.9530 | 470 | 5.8051 |
| 466 | 5.3899 | 473 | 5.2188 |
| 469 | 4.7733 | 477 | 4.5981 |
| 474 | 4.1066 | 481 | 3.9455 |
| 479 | 3.3932 | 487 | 3.2612 |
| 485 | 2.6333 | 493 | 2.5407 |
| 493 | 1.8226 | 499 | 1.7726 |
| 499 | 0.9515 | 499 | 0.9366 |
| 499 | 0.0876 | 499 | 0.1412 |

#### TIF for Mathematics, Grade Five

Figure 8.G.19 plots TIF by theta level for grade five mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.44. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x‑axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 8.55, where theta is −0.07; or, for the hard pathway, when it reaches its peak at 8.22, where theta is 0.43. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.07; and among students routed to the hard pathway who have theta scores near 0.43. The assessment derives little information for students with theta scores that are either less than −4 or greater than 4.

Figure 8.G.19 TIF by theta—mathematics, grade five

Table 8.G.44 Theta TIF Data—Mathematics, Grade Five

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.1105 | −6.0000 | 0.0811 |
| −3.7645 | 0.9614 | −3.4394 | 0.9466 |
| −3.0301 | 1.8484 | −2.6892 | 1.7963 |
| −2.5831 | 2.6682 | −2.2268 | 2.5656 |
| −2.2535 | 3.4266 | −1.8826 | 3.2668 |
| −1.9881 | 4.1276 | −1.6034 | 3.9096 |
| −1.7631 | 4.7740 | −1.3652 | 4.5016 |
| −1.5657 | 5.3679 | −1.1556 | 5.0468 |
| −1.3882 | 5.9108 | −0.9667 | 5.5490 |
| −1.2257 | 6.4031 | −0.7935 | 6.0100 |
| −1.0747 | 6.8452 | −0.6327 | 6.4299 |
| −0.9326 | 7.2373 | −0.4815 | 6.8093 |
| −0.7976 | 7.5790 | −0.3382 | 7.1470 |
| −0.6681 | 7.8701 | −0.2010 | 7.4424 |
| −0.5429 | 8.1101 | −0.0688 | 7.6936 |
| −0.4209 | 8.2986 | 0.0595 | 7.8988 |
| −0.3014 | 8.4350 | 0.1849 | 8.0561 |
| −0.1834 | 8.5189 | 0.3082 | 8.1630 |
| −0.0662 | 8.5500 | 0.4303 | 8.2173 |
| 0.0510 | 8.5280 | 0.5521 | 8.2166 |
| 0.1688 | 8.4527 | 0.6742 | 8.1584 |
| 0.2880 | 8.3241 | 0.7977 | 8.0409 |
| 0.4095 | 8.1423 | 0.9235 | 7.8622 |
| 0.5342 | 7.9073 | 1.0527 | 7.6213 |
| 0.6630 | 7.6197 | 1.1866 | 7.3176 |
| 0.7973 | 7.2796 | 1.3268 | 6.9512 |
| 0.9385 | 6.8875 | 1.4753 | 6.5226 |
| 1.0886 | 6.4435 | 1.6347 | 6.0328 |
| 1.2502 | 5.9476 | 1.8085 | 5.4834 |
| 1.4265 | 5.4006 | 2.0018 | 4.8754 |
| 1.6228 | 4.8011 | 2.2223 | 4.2099 |
| 1.8466 | 4.1487 | 2.4828 | 3.4874 |
| 2.1108 | 3.4415 | 2.8071 | 2.7074 |
| 2.4391 | 2.6774 | 3.2487 | 1.8680 |
| 2.8848 | 1.8528 | 3.9772 | 0.9670 |
| 3.6179 | 0.9626 | 6.0000 | 0.1358 |
| 6.0000 | 0.0954 | N/A | N/A |

Figure 8.G.20 plots TIF by scale score for grade five mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.45. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-axis shows corresponding scale score values from 500 to 600 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 503. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 8.55, where the scale score is 540; or, for the hard pathway, when it reaches its peak at 8.22, where the scale score is 549. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 599.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 540; and among students routed to the hard pathway who have scale scores near 549. The assessment derives little information for students with scale scores that are either less than 504 or greater than 588.

Figure 8.G.20 TIF by scale score—mathematics, grade five

Table 8.G.45 Scale Score TIF Data—Mathematics, Grade Five

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 503 | 0.1105 | 503 | 0.0811 |
| 503 | 0.9614 | 503 | 0.9466 |
| 503 | 1.8484 | 503 | 1.7963 |
| 503 | 2.6682 | 503 | 2.5656 |
| 503 | 3.4266 | 506 | 3.2668 |
| 504 | 4.1276 | 511 | 3.9096 |
| 508 | 4.7740 | 516 | 4.5016 |
| 512 | 5.3679 | 520 | 5.0468 |
| 515 | 5.9108 | 523 | 5.5490 |
| 518 | 6.4031 | 526 | 6.0100 |
| 521 | 6.8452 | 529 | 6.4299 |
| 524 | 7.2373 | 532 | 6.8093 |
| 526 | 7.5790 | 535 | 7.1470 |
| 529 | 7.8701 | 538 | 7.4424 |
| 531 | 8.1101 | 540 | 7.6936 |
| 533 | 8.2986 | 542 | 7.8988 |
| 536 | 8.4350 | 545 | 8.0561 |
| 538 | 8.5189 | 547 | 8.1630 |
| 540 | 8.5500 | 549 | 8.2173 |
| 542 | 8.5280 | 552 | 8.2166 |
| 544 | 8.4527 | 554 | 8.1584 |
| 547 | 8.3241 | 556 | 8.0409 |
| 549 | 8.1423 | 559 | 7.8622 |
| 551 | 7.9073 | 561 | 7.6213 |
| 554 | 7.6197 | 564 | 7.3176 |
| 556 | 7.2796 | 566 | 6.9512 |
| 559 | 6.8875 | 569 | 6.5226 |
| 562 | 6.4435 | 572 | 6.0328 |
| 565 | 5.9476 | 575 | 5.4834 |
| 568 | 5.4006 | 579 | 4.8754 |
| 572 | 4.8011 | 583 | 4.2099 |
| 576 | 4.1487 | 588 | 3.4874 |
| 581 | 3.4415 | 594 | 2.7074 |
| 587 | 2.6774 | 599 | 1.8680 |
| 595 | 1.8528 | 599 | 0.9670 |
| 599 | 0.9626 | 599 | 0.1358 |
| 599 | 0.0954 | N/A | N/A |

#### TIF for Mathematics, Grade Six

Figure 8.G.21 plots TIF by theta level for grade six mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.46. The graph’s y-axis shows the TIF values from 0 to 8 in intervals of 1, and its x-‍axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 7.46, where theta is −0.14; or, for the hard pathway, when it reaches its peak at 7.43, where theta is 0.14. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.14; and among students routed to the hard pathway who have theta scores near 0.14. The assessment derives little information for students with theta scores that are either less than −4 or greater than 4.

Figure 8.G.21 TIF by theta—mathematics, grade six

Table 8.G.46 Theta TIF Data—Mathematics, Grade Six

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.1062 | −6.0000 | 0.0830 |
| −3.7222 | 0.9584 | −3.4707 | 0.9542 |
| −2.9843 | 1.8359 | −2.7286 | 1.8226 |
| −2.5334 | 2.6389 | −2.2740 | 2.6157 |
| −2.1994 | 3.3731 | −1.9369 | 3.3407 |
| −1.9291 | 4.0423 | −1.6639 | 4.0027 |
| −1.6987 | 4.6493 | −1.4313 | 4.6040 |
| −1.4954 | 5.1960 | −1.2260 | 5.1467 |
| −1.3114 | 5.6836 | −1.0403 | 5.6311 |
| −1.1418 | 6.1122 | −0.8691 | 6.0571 |
| −0.9830 | 6.4819 | −0.7088 | 6.4249 |
| −0.8323 | 6.7925 | −0.5568 | 6.7343 |
| −0.6877 | 7.0438 | −0.4110 | 6.9857 |
| −0.5476 | 7.2354 | −0.2698 | 7.1800 |
| −0.4106 | 7.3677 | −0.1318 | 7.3182 |
| −0.2755 | 7.4413 | 0.0041 | 7.4013 |
| −0.1413 | 7.4571 | 0.1390 | 7.4306 |
| −0.0068 | 7.4169 | 0.2738 | 7.4074 |
| 0.1289 | 7.3226 | 0.4095 | 7.3325 |
| 0.2669 | 7.1761 | 0.5471 | 7.2066 |
| 0.4082 | 6.9799 | 0.6876 | 7.0305 |
| 0.5541 | 6.7357 | 0.8322 | 6.8044 |
| 0.7059 | 6.4455 | 0.9823 | 6.5286 |
| 0.8652 | 6.1107 | 1.1394 | 6.2035 |
| 1.0342 | 5.7317 | 1.3057 | 5.8291 |
| 1.2154 | 5.3090 | 1.4838 | 5.4057 |
| 1.4126 | 4.8416 | 1.6773 | 4.9332 |
| 1.6309 | 4.3283 | 1.8916 | 4.4107 |
| 1.8783 | 3.7667 | 2.1344 | 3.8374 |
| 2.1679 | 3.1534 | 2.4187 | 3.2105 |
| 2.5240 | 2.4831 | 2.7687 | 2.5249 |
| 3.0007 | 1.7469 | 3.2380 | 1.7723 |
| 3.7686 | 0.9293 | 3.9967 | 0.9384 |
| 6.0000 | 0.1141 | 6.0000 | 0.1416 |

Figure 8.G.22 plots TIF by scale score for grade six mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.47. The graph’s y-axis shows the TIF values from 0 to 8 in intervals of 1, and its x-‍axis shows corresponding scale score values from 600 to 700 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 603. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 7.46, where the scale score is 639; or, for the hard pathway, when it reaches its peak at 7.43, where the scale score is 644. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 699.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 639; and among students routed to the hard pathway who have scale scores near 644. The assessment derives little information for students with scale scores that are either less than 605 or greater than 689.

Figure 8.G.22 TIF by scale score—mathematics, grade six

Table 8.G.47 Scale Score TIF Data—Mathematics, Grade Six

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 603 | 0.1062 | 603 | 0.0830 |
| 603 | 0.9584 | 603 | 0.9542 |
| 603 | 1.8359 | 603 | 1.8226 |
| 603 | 2.6389 | 603 | 2.6157 |
| 603 | 3.3731 | 605 | 3.3407 |
| 605 | 4.0423 | 610 | 4.0027 |
| 609 | 4.6493 | 614 | 4.6040 |
| 613 | 5.1960 | 618 | 5.1467 |
| 617 | 5.6836 | 622 | 5.6311 |
| 620 | 6.1122 | 625 | 6.0571 |
| 623 | 6.4819 | 628 | 6.4249 |
| 626 | 6.7925 | 631 | 6.7343 |
| 628 | 7.0438 | 634 | 6.9857 |
| 631 | 7.2354 | 636 | 7.1800 |
| 634 | 7.3677 | 639 | 7.3182 |
| 636 | 7.4413 | 641 | 7.4013 |
| 639 | 7.4571 | 644 | 7.4306 |
| 641 | 7.4169 | 646 | 7.4074 |
| 644 | 7.3226 | 649 | 7.3325 |
| 646 | 7.1761 | 652 | 7.2066 |
| 649 | 6.9799 | 654 | 7.0305 |
| 652 | 6.7357 | 657 | 6.8044 |
| 655 | 6.4455 | 660 | 6.5286 |
| 658 | 6.1107 | 663 | 6.2035 |
| 661 | 5.7317 | 666 | 5.8291 |
| 664 | 5.3090 | 669 | 5.4057 |
| 668 | 4.8416 | 673 | 4.9332 |
| 672 | 4.3283 | 677 | 4.4107 |
| 677 | 3.7667 | 681 | 3.8374 |
| 682 | 3.1534 | 687 | 3.2105 |
| 689 | 2.4831 | 693 | 2.5249 |
| 698 | 1.7469 | 699 | 1.7723 |
| 699 | 0.9293 | 699 | 0.9384 |
| 699 | 0.1141 | 699 | 0.1416 |

#### TIF for Mathematics, Grade Seven

Figure 8.G.23 plots TIF by theta level for grade seven mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.48. The graph’s y-axis shows the TIF values from 0 to 10 in intervals of 1, and its x-axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 9.18, where theta is −0.15; or, for the hard pathway, when it reaches its peak at 8.24, where theta is 0.13. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.15; and among students routed to the hard pathway who have theta scores near 0.13. The assessment derives little information for students with theta scores that are either less than −4 or greater than 4.

Figure 8.G.23 TIF by theta—mathematics, grade seven

Table 8.G.48 Theta TIF Data—Mathematics, Grade Seven

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.1362 | −6.0000 | 0.0869 |
| −3.9672 | 0.9510 | −3.5168 | 0.9543 |
| −3.2223 | 1.8155 | −2.7750 | 1.8243 |
| −2.7662 | 2.6111 | −2.3211 | 2.6229 |
| −2.4292 | 3.3495 | −1.9854 | 3.3598 |
| −2.1578 | 4.0394 | −1.7145 | 4.0425 |
| −1.9281 | 4.6866 | −1.4848 | 4.6750 |
| −1.7275 | 5.2938 | −1.2832 | 5.2604 |
| −1.5480 | 5.8636 | −1.1022 | 5.7985 |
| −1.3847 | 6.3952 | −0.9366 | 6.2886 |
| −1.2341 | 6.8877 | −0.7829 | 6.7288 |
| −1.0934 | 7.3396 | −0.6384 | 7.1169 |
| −0.9608 | 7.7479 | −0.5011 | 7.4505 |
| −0.8346 | 8.1101 | −0.3693 | 7.7273 |
| −0.7136 | 8.4231 | −0.2417 | 7.9455 |
| −0.5966 | 8.6847 | −0.1170 | 8.1041 |
| −0.4828 | 8.8921 | 0.0056 | 8.2024 |
| −0.3713 | 9.0437 | 0.1273 | 8.2411 |
| −0.2612 | 9.1384 | 0.2488 | 8.2215 |
| −0.1520 | 9.1755 | 0.3710 | 8.1459 |
| −0.0429 | 9.1551 | 0.4948 | 8.0171 |
| 0.0669 | 9.0779 | 0.6210 | 7.8388 |
| 0.1779 | 8.9453 | 0.7504 | 7.6148 |
| 0.2909 | 8.7594 | 0.8842 | 7.3489 |
| 0.4066 | 8.5227 | 1.0232 | 7.0453 |
| 0.5260 | 8.2376 | 1.1687 | 6.7076 |
| 0.6499 | 7.9077 | 1.3221 | 6.3392 |
| 0.7795 | 7.5357 | 1.4850 | 5.9432 |
| 0.9160 | 7.1248 | 1.6596 | 5.5219 |
| 1.0610 | 6.6775 | 1.8485 | 5.0770 |
| 1.2165 | 6.1959 | 2.0552 | 4.6089 |
| 1.3850 | 5.6815 | 2.2848 | 4.1153 |
| 1.5702 | 5.1337 | 2.5447 | 3.5914 |
| 1.7769 | 4.5521 | 2.8474 | 3.0277 |
| 2.0131 | 3.9329 | 3.2165 | 2.4094 |
| 2.2914 | 3.2718 | 3.7045 | 1.7169 |
| 2.6357 | 2.5612 | 4.4807 | 0.9243 |
| 3.0994 | 1.7901 | 6.0000 | 0.2291 |
| 3.8524 | 0.9436 | N/A | N/A |
| 6.0000 | 0.1223 | N/A | N/A |

Figure 8.G.24 plots TIF by scale score for grade seven mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.49. The graph’s y-axis shows the TIF values from 0 to 10 in intervals of 1, and its x-axis shows corresponding scale score values from 700 to 800 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 703. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 9.18, where the scale score is 738; or, for the hard pathway, when it reaches its peak at 8.24 where the scale score is 744. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 799.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 738; and among students routed to the hard pathway who have scale scores near 744. The assessment derives little information for students with scale scores that are either less than 705 or greater than 790.

Figure 8.G.24 TIF by scale score—mathematics, grade seven

Table 8.G.49 Scale Score TIF Data—Mathematics, Grade Seven

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 703 | 0.1362 | 703 | 0.0869 |
| 703 | 0.9510 | 703 | 0.9543 |
| 703 | 1.8155 | 703 | 1.8243 |
| 703 | 2.6111 | 703 | 2.6229 |
| 703 | 3.3495 | 704 | 3.3598 |
| 703 | 4.0394 | 709 | 4.0425 |
| 705 | 4.6866 | 713 | 4.6750 |
| 709 | 5.2938 | 717 | 5.2604 |
| 712 | 5.8636 | 721 | 5.7985 |
| 715 | 6.3952 | 724 | 6.2886 |
| 718 | 6.8877 | 727 | 6.7288 |
| 721 | 7.3396 | 729 | 7.1169 |
| 723 | 7.7479 | 732 | 7.4505 |
| 726 | 8.1101 | 734 | 7.7273 |
| 728 | 8.4231 | 737 | 7.9455 |
| 730 | 8.6847 | 739 | 8.1041 |
| 732 | 8.8921 | 741 | 8.2024 |
| 734 | 9.0437 | 744 | 8.2411 |
| 736 | 9.1384 | 746 | 8.2215 |
| 738 | 9.1755 | 748 | 8.1459 |
| 740 | 9.1551 | 751 | 8.0171 |
| 743 | 9.0779 | 753 | 7.8388 |
| 745 | 8.9453 | 755 | 7.6148 |
| 747 | 8.7594 | 758 | 7.3489 |
| 749 | 8.5227 | 760 | 7.0453 |
| 751 | 8.2376 | 763 | 6.7076 |
| 753 | 7.9077 | 766 | 6.3392 |
| 756 | 7.5357 | 769 | 5.9432 |
| 758 | 7.1248 | 772 | 5.5219 |
| 761 | 6.6775 | 776 | 5.0770 |
| 764 | 6.1959 | 780 | 4.6089 |
| 767 | 5.6815 | 784 | 4.1153 |
| 771 | 5.1337 | 789 | 3.5914 |
| 775 | 4.5521 | 795 | 3.0277 |
| 779 | 3.9329 | 799 | 2.4094 |
| 784 | 3.2718 | 799 | 1.7169 |
| 791 | 2.5612 | 799 | 0.9243 |
| 799 | 1.7901 | 799 | 0.2291 |
| 799 | 0.9436 | N/A | N/A |
| 799 | 0.1223 | N/A | N/A |

#### TIF for Mathematics, Grade Eight

Figure 8.G.25 plots TIF by theta level for grade eight mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.50. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 8.14, where theta is −0.33; or, for the hard pathway, when it reaches its peak at 7.87, where theta is 0.17. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.33; and among students routed to the hard pathway who have theta scores near 0.17. The assessment derives little information for students with theta scores that are either less than −4 or greater than 4.

Figure 8.G.25 TIF by theta—mathematics, grade eight

Table 8.G.50 Theta TIF Data—Mathematics, Grade Eight

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.1620 | −6.0000 | 0.1013 |
| −4.1461 | 0.9545 | −3.6734 | 0.9565 |
| −3.4041 | 1.8231 | −2.9333 | 1.8286 |
| −2.9496 | 2.6161 | −2.4801 | 2.6234 |
| −2.6126 | 3.3417 | −2.1439 | 3.3471 |
| −2.3398 | 4.0059 | −1.8713 | 4.0052 |
| −2.1074 | 4.6134 | −1.6386 | 4.6021 |
| −1.9027 | 5.1676 | −1.4332 | 5.1413 |
| −1.7181 | 5.6707 | −1.2473 | 5.6265 |
| −1.5484 | 6.1252 | −1.0761 | 6.0600 |
| −1.3903 | 6.5320 | −0.9161 | 6.4444 |
| −1.2413 | 6.8921 | −0.7648 | 6.7813 |
| −1.0994 | 7.2064 | −0.6204 | 7.0720 |
| −0.9631 | 7.4752 | −0.4814 | 7.3173 |
| −0.8312 | 7.6987 | −0.3465 | 7.5178 |
| −0.7028 | 7.8770 | −0.2148 | 7.6733 |
| −0.5769 | 8.0100 | −0.0854 | 7.7839 |
| −0.4527 | 8.0976 | 0.0426 | 7.8492 |
| −0.3295 | 8.1394 | 0.1699 | 7.8686 |
| −0.2065 | 8.1348 | 0.2972 | 7.8419 |
| −0.0832 | 8.0833 | 0.4254 | 7.7688 |
| 0.0413 | 7.9840 | 0.5551 | 7.6492 |
| 0.1678 | 7.8359 | 0.6873 | 7.4832 |
| 0.2971 | 7.6382 | 0.8229 | 7.2709 |
| 0.4302 | 7.3901 | 0.9630 | 7.0128 |
| 0.5684 | 7.0905 | 1.1088 | 6.7094 |
| 0.7130 | 6.7393 | 1.2619 | 6.3608 |
| 0.8661 | 6.3356 | 1.4242 | 5.9671 |
| 1.0299 | 5.8801 | 1.5983 | 5.5278 |
| 1.2077 | 5.3732 | 1.7877 | 5.0417 |
| 1.4042 | 4.8157 | 1.9973 | 4.5073 |
| 1.6261 | 4.2094 | 2.2349 | 3.9212 |
| 1.8842 | 3.5569 | 2.5133 | 3.2791 |
| 2.1969 | 2.8638 | 2.8562 | 2.5754 |
| 2.5993 | 2.1420 | 3.3169 | 1.8020 |
| 3.1697 | 1.4202 | 4.0655 | 0.9482 |
| 4.1286 | 0.7492 | 6.0000 | 0.1503 |
| 6.0000 | 0.1921 | N/A | N/A |

Figure 8.G.26 plots TIF by scale score for grade eight mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.51. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-axis shows corresponding scale score values from 800 to 900 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 803. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 8.14, where the scale score is 835; or, for the hard pathway, when it reaches its peak at 7.87, where the scale score is 844. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 899.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 835; and among students routed to the hard pathway who have scale scores near 844. The assessment derives little information for students with scale scores that are either less than 806 or greater than 888.

Figure 8.G.26 TIF by scale score—mathematics, grade eight

Table 8.G.51 Scale Score TIF Data—Mathematics, Grade Eight

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 803 | 0.1620 | 803 | 0.1013 |
| 803 | 0.9545 | 803 | 0.9565 |
| 803 | 1.8231 | 803 | 1.8286 |
| 803 | 2.6161 | 803 | 2.6234 |
| 803 | 3.3417 | 803 | 3.3471 |
| 803 | 4.0059 | 806 | 4.0052 |
| 803 | 4.6134 | 811 | 4.6021 |
| 806 | 5.1676 | 814 | 5.1413 |
| 809 | 5.6707 | 818 | 5.6265 |
| 812 | 6.1252 | 821 | 6.0600 |
| 815 | 6.5320 | 824 | 6.4444 |
| 818 | 6.8921 | 827 | 6.7813 |
| 821 | 7.2064 | 830 | 7.0720 |
| 823 | 7.4752 | 832 | 7.3173 |
| 826 | 7.6987 | 835 | 7.5178 |
| 828 | 7.8770 | 837 | 7.6733 |
| 830 | 8.0100 | 840 | 7.7839 |
| 833 | 8.0976 | 842 | 7.8492 |
| 835 | 8.1394 | 844 | 7.8686 |
| 837 | 8.1348 | 847 | 7.8419 |
| 840 | 8.0833 | 849 | 7.7688 |
| 842 | 7.9840 | 852 | 7.6492 |
| 844 | 7.8359 | 854 | 7.4832 |
| 847 | 7.6382 | 857 | 7.2709 |
| 849 | 7.3901 | 859 | 7.0128 |
| 852 | 7.0905 | 862 | 6.7094 |
| 855 | 6.7393 | 865 | 6.3608 |
| 858 | 6.3356 | 868 | 5.9671 |
| 861 | 5.8801 | 871 | 5.5278 |
| 864 | 5.3732 | 875 | 5.0417 |
| 868 | 4.8157 | 879 | 4.5073 |
| 872 | 4.2094 | 883 | 3.9212 |
| 877 | 3.5569 | 888 | 3.2791 |
| 882 | 2.8638 | 895 | 2.5754 |
| 890 | 2.1420 | 899 | 1.8020 |
| 899 | 1.4202 | 899 | 0.9482 |
| 899 | 0.7492 | 899 | 0.1503 |
| 899 | 0.1921 | N/A | N/A |

#### TIF for Mathematics, Grade Eleven

Figure 8.G.27 plots TIF by theta level for grade eleven mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.52. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-axis shows corresponding theta values from −6 to 6 in intervals of 2.

For both pathways, the TIF value is near zero when theta is −6. The TIF value then increases as theta increases until the TIF value for the easy pathway reaches its peak at 8.50, where theta is −0.31; or, for the hard pathway, when it reaches its peak at 8.32, where theta is −0.02. After the peak TIF value, the TIF value decreases as theta increases until the TIF value is near zero, where theta is 6.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have theta scores near −0.31; and among students routed to the hard pathway who have theta scores near −0.02. The assessment derives little information for students with theta scores that are either less than −3 or greater than 4.

Figure 8.G.27 TIF by theta—mathematics, grade eleven

Table 8.G.52 Theta TIF Data—Mathematics, Grade Eleven

|  |  |  |  |
| --- | --- | --- | --- |
| Theta Easy | TIF Easy | Theta Hard | TIF Hard |
| −6.0000 | 0.1269 | −6.0000 | 0.0875 |
| −3.9013 | 0.9579 | −3.5201 | 0.9505 |
| −3.1634 | 1.8381 | −2.7745 | 1.8132 |
| −2.7136 | 2.6516 | −2.3177 | 2.6068 |
| −2.3819 | 3.4056 | −1.9802 | 3.3460 |
| −2.1149 | 4.1050 | −1.7087 | 4.0420 |
| −1.8887 | 4.7531 | −1.4794 | 4.7010 |
| −1.6906 | 5.3521 | −1.2796 | 5.3240 |
| −1.5127 | 5.9037 | −1.1014 | 5.9078 |
| −1.3501 | 6.4080 | −0.9393 | 6.4466 |
| −1.1993 | 6.8645 | −0.7898 | 6.9309 |
| −1.0578 | 7.2715 | −0.6497 | 7.3526 |
| −0.9235 | 7.6269 | −0.5168 | 7.7034 |
| −0.7949 | 7.9270 | −0.3893 | 7.9773 |
| −0.6706 | 8.1683 | −0.2654 | 8.1713 |
| −0.5494 | 8.3469 | −0.1439 | 8.2850 |
| −0.4304 | 8.4593 | −0.0235 | 8.3210 |
| −0.3125 | 8.5030 | 0.0970 | 8.2840 |
| −0.1947 | 8.4767 | 0.2185 | 8.1809 |
| −0.0761 | 8.3808 | 0.3420 | 8.0194 |
| 0.0445 | 8.2166 | 0.4684 | 7.8079 |
| 0.1679 | 7.9873 | 0.5986 | 7.5546 |
| 0.2954 | 7.6965 | 0.7336 | 7.2668 |
| 0.4284 | 7.3477 | 0.8744 | 6.9508 |
| 0.5684 | 6.9448 | 1.0219 | 6.6116 |
| 0.7173 | 6.4906 | 1.1775 | 6.2518 |
| 0.8777 | 5.9866 | 1.3426 | 5.8718 |
| 1.0530 | 5.4331 | 1.5191 | 5.4683 |
| 1.2480 | 4.8297 | 1.7097 | 5.0337 |
| 1.4705 | 4.1737 | 1.9184 | 4.5552 |
| 1.7330 | 3.4627 | 2.1519 | 4.0158 |
| 2.0593 | 2.6933 | 2.4220 | 3.3970 |
| 2.5025 | 1.8623 | 2.7518 | 2.6841 |
| 3.2325 | 0.9657 | 3.1942 | 1.8724 |
| 6.0000 | 0.0648 | 3.9197 | 0.9713 |
| N/A | N/A | 6.0000 | 0.1277 |

Figure 8.G.28 plots TIF by scale score for grade eleven mathematics for both the easy and hard pathways. The data used to create this graph is found in the table that immediately follows, table 8.G.53. The graph’s y-axis shows the TIF values from 0 to 9 in intervals of 1, and its x-axis shows corresponding scale score values from 900 to 1000 in intervals of 20.

For both pathways, the TIF value is near zero when the scale score is at its minimum of 903. The TIF value then increases as the scale score increases until the TIF value for the easy pathway reaches its peak at 8.50, where the scale score is 935; or, for the hard pathway, when it reaches its peak at 8.32, where the scale score is 941. After the peak TIF value, the TIF value decreases as the scale score increases until the TIF value is near zero, where the scale score reaches its maximum of 999.

The plot indicates that the assessment derives more information among students routed to the easy pathway who have scale scores near 935; and among students routed to the hard pathway who have scale scores near 941. The assessment derives little information for students with scale scores that are either less than 904 or greater than 980.

Figure 8.G.28 TIF by scale score—mathematics, grade eleven

Table 8.G.53 Scale Score TIF Data—Mathematics, Grade Eleven

|  |  |  |  |
| --- | --- | --- | --- |
| Scale Score Easy | TIF Easy | Scale Score Hard | TIF Hard |
| 903 | 0.1269 | 903 | 0.0875 |
| 903 | 0.9579 | 903 | 0.9505 |
| 903 | 1.8381 | 903 | 1.8132 |
| 903 | 2.6516 | 903 | 2.6068 |
| 903 | 3.4056 | 904 | 3.3460 |
| 903 | 4.1050 | 909 | 4.0420 |
| 906 | 4.7531 | 914 | 4.7010 |
| 910 | 5.3521 | 917 | 5.3240 |
| 913 | 5.9037 | 921 | 5.9078 |
| 916 | 6.4080 | 924 | 6.4466 |
| 919 | 6.8645 | 926 | 6.9309 |
| 921 | 7.2715 | 929 | 7.3526 |
| 924 | 7.6269 | 932 | 7.7034 |
| 926 | 7.9270 | 934 | 7.9773 |
| 929 | 8.1683 | 936 | 8.1713 |
| 931 | 8.3469 | 939 | 8.2850 |
| 933 | 8.4593 | 941 | 8.3210 |
| 935 | 8.5030 | 943 | 8.2840 |
| 938 | 8.4767 | 945 | 8.1809 |
| 940 | 8.3808 | 948 | 8.0194 |
| 942 | 8.2166 | 950 | 7.8079 |
| 944 | 7.9873 | 953 | 7.5546 |
| 947 | 7.6965 | 955 | 7.2668 |
| 949 | 7.3477 | 958 | 6.9508 |
| 952 | 6.9448 | 960 | 6.6116 |
| 955 | 6.4906 | 963 | 6.2518 |
| 958 | 5.9866 | 966 | 5.8718 |
| 961 | 5.4331 | 970 | 5.4683 |
| 965 | 4.8297 | 973 | 5.0337 |
| 969 | 4.1737 | 977 | 4.5552 |
| 974 | 3.4627 | 982 | 4.0158 |
| 980 | 2.6933 | 987 | 3.3970 |
| 988 | 1.8623 | 993 | 2.6841 |
| 999 | 0.9657 | 999 | 1.8724 |
| 999 | 0.0648 | 999 | 0.9713 |
| N/A | N/A | 999 | 0.1277 |

Table 8.G.54 Decision Accuracy All-Forms Average—ELA, Grade Three

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 303–344 | 0.37 | 0.05 | 0.00 | 0.43 |
| 345–359 | 0.06 | 0.20 | 0.06 | 0.31 |
| 360–399 | 0.00 | 0.04 | 0.22 | 0.26 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.55 Decision Consistency Alternate Form—ELA, Grade Three

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 303–344 | 0.36 | 0.07 | 0.00 | 0.43 |
| 345–359 | 0.08 | 0.16 | 0.08 | 0.31 |
| 360–399 | 0.00 | 0.05 | 0.21 | 0.26 |

Estimated proportion consistently classified: total = 0.73

Table 8.G.56 Decision Accuracy All-Forms Average—ELA, Grade Four

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 403–444 | 0.45 | 0.06 | 0.00 | 0.51 |
| 445–459 | 0.05 | 0.21 | 0.04 | 0.31 |
| 460–499 | 0.00 | 0.04 | 0.14 | 0.18 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.57 Decision Consistency Alternate Form—ELA, Grade Four

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 403–444 | 0.43 | 0.07 | 0.00 | 0.51 |
| 445–459 | 0.08 | 0.17 | 0.06 | 0.31 |
| 460–499 | 0.00 | 0.05 | 0.13 | 0.18 |

Estimated proportion consistently classified: total = 0.73

Table 8.G.58 Decision Accuracy All-Forms Average—ELA, Grade Five

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 503–544 | 0.42 | 0.06 | 0.00 | 0.47 |
| 545–559 | 0.06 | 0.22 | 0.07 | 0.35 |
| 560–599 | 0.00 | 0.02 | 0.16 | 0.18 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.59 Decision Consistency Alternate Form—ELA, Grade Five

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 503–544 | 0.40 | 0.07 | 0.00 | 0.47 |
| 545–559 | 0.08 | 0.18 | 0.09 | 0.35 |
| 560–599 | 0.00 | 0.04 | 0.15 | 0.18 |

Estimated proportion consistently classified: total = 0.73

Table 8.G.60 Decision Accuracy All-Forms Average—ELA, Grade Six

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 603–644 | 0.36 | 0.06 | 0.00 | 0.42 |
| 645–659 | 0.05 | 0.33 | 0.05 | 0.44 |
| 660–699 | 0.00 | 0.07 | 0.08 | 0.14 |

Estimated proportion correctly classified: total = 0.77

Table 8.G.61 Decision Consistency Alternate Form—ELA, Grade Six

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 603–644 | 0.35 | 0.07 | 0.00 | 0.42 |
| 645–659 | 0.08 | 0.28 | 0.08 | 0.44 |
| 660–699 | 0.00 | 0.07 | 0.07 | 0.14 |

Estimated proportion consistently classified: total = 0.69

Table 8.G.62 Decision Accuracy All-Forms Average—ELA, Grade Seven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 703–744 | 0.39 | 0.06 | 0.00 | 0.45 |
| 745–759 | 0.05 | 0.24 | 0.06 | 0.34 |
| 760–799 | 0.00 | 0.04 | 0.17 | 0.21 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.63 Decision Consistency Alternate Form—ELA, Grade Seven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 703–744 | 0.38 | 0.07 | 0.01 | 0.45 |
| 745–759 | 0.07 | 0.19 | 0.08 | 0.34 |
| 760–799 | 0.00 | 0.05 | 0.15 | 0.21 |

Estimated proportion consistently classified: total = 0.72

Table 8.G.64 Decision Accuracy All-Forms Average—ELA, Grade Eight

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 803–844 | 0.34 | 0.04 | 0.00 | 0.38 |
| 845–859 | 0.08 | 0.34 | 0.06 | 0.48 |
| 860–899 | 0.00 | 0.02 | 0.12 | 0.14 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.65 Decision Consistency Alternate Form—ELA, Grade Eight

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 803–844 | 0.32 | 0.05 | 0.00 | 0.38 |
| 845–859 | 0.11 | 0.29 | 0.08 | 0.48 |
| 860–899 | 0.00 | 0.03 | 0.12 | 0.14 |

Estimated proportion consistently classified: total = 0.73

Table 8.G.66 Decision Accuracy All-Forms Average—ELA, Grade Eleven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 903–944 | 0.29 | 0.06 | 0.00 | 0.35 |
| 945–959 | 0.04 | 0.36 | 0.09 | 0.49 |
| 960–999 | 0.00 | 0.04 | 0.12 | 0.15 |

Estimated proportion correctly classified: total = 0.77

Table 8.G.67 Decision Consistency Alternate Form—ELA, Grade Eleven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 903–944 | 0.28 | 0.07 | 0.01 | 0.35 |
| 945–959 | 0.07 | 0.31 | 0.12 | 0.49 |
| 960–999 | 0.00 | 0.06 | 0.10 | 0.15 |

Estimated proportion consistently classified: total = 0.68

Table 8.G.68 Decision Accuracy All-Forms Average—Mathematics, Grade Three

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 303–344 | 0.55 | 0.07 | 0.01 | 0.64 |
| 345–359 | 0.06 | 0.16 | 0.03 | 0.25 |
| 360–399 | 0.00 | 0.03 | 0.08 | 0.11 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.69 Decision Consistency Alternate Form—Mathematics, Grade Three

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 303–344 | 0.53 | 0.09 | 0.02 | 0.64 |
| 345–359 | 0.08 | 0.12 | 0.05 | 0.25 |
| 360–399 | 0.00 | 0.03 | 0.08 | 0.11 |

Estimated proportion consistently classified: total = 0.73

Table 8.G.70 Decision Accuracy All-Forms Average—Mathematics, Grade Four

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 403–444 | 0.61 | 0.08 | 0.01 | 0.70 |
| 445–459 | 0.05 | 0.19 | 0.02 | 0.25 |
| 460–499 | 0.00 | 0.03 | 0.03 | 0.06 |

Estimated proportion correctly classified: total = 0.82

Table 8.G.71 Decision Consistency Alternate Form—Mathematics, Grade Four

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 403–444 | 0.58 | 0.10 | 0.02 | 0.70 |
| 445–459 | 0.07 | 0.14 | 0.04 | 0.25 |
| 460–499 | 0.00 | 0.03 | 0.03 | 0.06 |

Estimated proportion consistently classified: total = 0.76

Table 8.G.72 Decision Accuracy All-Forms Average—Mathematics, Grade Five

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 503–544 | 0.54 | 0.09 | 0.01 | 0.64 |
| 545–559 | 0.06 | 0.22 | 0.02 | 0.29 |
| 560–599 | 0.00 | 0.04 | 0.02 | 0.06 |

Estimated proportion correctly classified: total = 0.79

Table 8.G.73 Decision Consistency Alternate Form—Mathematics, Grade Five

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 503–544 | 0.51 | 0.11 | 0.02 | 0.64 |
| 545–559 | 0.08 | 0.17 | 0.04 | 0.29 |
| 560–599 | 0.00 | 0.03 | 0.03 | 0.06 |

Estimated proportion consistently classified: total = 0.71

Table 8.G.74 Decision Accuracy All-Forms Average—Mathematics, Grade Six

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 603–644 | 0.56 | 0.08 | 0.01 | 0.66 |
| 645–659 | 0.05 | 0.15 | 0.01 | 0.22 |
| 660–699 | 0.00 | 0.04 | 0.08 | 0.12 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.75 Decision Consistency Alternate Form—Mathematics, Grade Six

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 603–644 | 0.53 | 0.11 | 0.02 | 0.66 |
| 645–659 | 0.07 | 0.11 | 0.03 | 0.22 |
| 660–699 | 0.00 | 0.04 | 0.08 | 0.12 |

Estimated proportion consistently classified: total = 0.73

Table 8.G.76 Decision Accuracy All-Forms Average—Mathematics, Grade Seven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 703–744 | 0.47 | 0.07 | 0.00 | 0.54 |
| 745–759 | 0.07 | 0.21 | 0.04 | 0.31 |
| 760–799 | 0.00 | 0.04 | 0.11 | 0.15 |

Estimated proportion correctly classified: total = 0.79

Table 8.G.77 Decision Consistency Alternate Form—Mathematics, Grade Seven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 703–744 | 0.44 | 0.09 | 0.01 | 0.54 |
| 745–759 | 0.09 | 0.16 | 0.06 | 0.31 |
| 760–799 | 0.00 | 0.04 | 0.11 | 0.15 |

Estimated proportion consistently classified: total = 0.71

Table 8.G.78 Decision Accuracy All-Forms Average—Mathematics, Grade Eight

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 803–844 | 0.53 | 0.08 | 0.01 | 0.62 |
| 845–859 | 0.05 | 0.18 | 0.03 | 0.25 |
| 860–899 | 0.00 | 0.02 | 0.10 | 0.12 |

Estimated proportion correctly classified: total = 0.81

Table 8.G.79 Decision Consistency Alternate Form—Mathematics, Grade Eight

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 803–844 | 0.51 | 0.10 | 0.02 | 0.62 |
| 845–859 | 0.07 | 0.14 | 0.05 | 0.25 |
| 860–899 | 0.00 | 0.03 | 0.09 | 0.12 |

Estimated proportion consistently classified: total = 0.74

Table 8.G.80 Decision Accuracy All-Forms Average—Mathematics, Grade Eleven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 903–944 | 0.54 | 0.07 | 0.01 | 0.62 |
| 945–959 | 0.07 | 0.18 | 0.03 | 0.27 |
| 960–999 | 0.00 | 0.03 | 0.08 | 0.11 |

Estimated proportion correctly classified: total = 0.80

Table 8.G.81 Decision Consistency Alternate Form—Mathematics, Grade Eleven

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scale Score | Level 1—Limited Understanding | Level 2—Foundational Understanding | Level 3—Understanding | Category Total |
| 903–944 | 0.52 | 0.09 | 0.01 | 0.62 |
| 945–959 | 0.08 | 0.14 | 0.05 | 0.27 |
| 960–999 | 0.00 | 0.03 | 0.08 | 0.11 |

Estimated proportion consistently classified: total = 0.73

Table 8.G.82 Interrater Reliability and Descriptive Statistics for the Ratings by Two Raters in Human-Scoring Items—ELA, Grade Three

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prompt | Item ID | Score Points | Rater 1 N | Rater 2 N | Kappa | QWK | Percent Exact | Percent Adjacent | Percent Exact + Adjacent | Rater 1 Item Score Mean | Rater 1 Item Score SD | Rater 2 Item Score Mean | Rater 2 Item Score SD |
| 1 | VH547894 | 2 | 385 | 385 | 0.77 | 0.80 | 87.53 | 8.05 | 95.58 | 0.59 | 0.80 | 0.55 | 0.79 |
| 2 | VH617954 | 2 | 385 | 385 | 0.71 | 0.75 | 84.42 | 10.65 | 95.06 | 0.58 | 0.80 | 0.54 | 0.77 |
| 3 | VH730094 | 1 | 165 | 165 | 0.77 | 0.77 | 92.73 | 7.27 | 100.00 | 0.22 | 0.41 | 0.18 | 0.39 |
| **N/A** | **AVERAGE** | **N/A** | **312** | **312** | **0.75** | **0.77** | **88.23** | **8.66** | **96.88** | **0.46** | **0.67** | **0.42** | **0.65** |

Table 8.G.83 Interrater Reliability and Descriptive Statistics for the Ratings by Two Raters in Human-Scoring Items—ELA, Grade Four

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prompt | Item ID | Score Points | Rater 1 N | Rater 2 N | Kappa | QWK | Percent Exact | Percent Adjacent | Percent Exact + Adjacent | Rater 1 Item Score Mean | Rater 1 Item Score SD | Rater 2 Item Score Mean | Rater 2 Item Score SD |
| 1 | VH547071 | 2 | 305 | 305 | 0.77 | 0.80 | 85.25 | 12.13 | 97.38 | 0.88 | 0.75 | 0.86 | 0.75 |
| 2 | VH548069 | 2 | 583 | 583 | 0.81 | 0.86 | 88.34 | 7.72 | 96.05 | 1.04 | 0.92 | 1.00 | 0.91 |
| **N/A** | **AVERAGE** | **N/A** | **444** | **444** | **0.79** | **0.83** | **86.80** | **9.93** | **96.72** | **0.96** | **0.84** | **0.93** | **0.83** |

Table 8.G.84 Interrater Reliability and Descriptive Statistics for the Ratings by Two Raters in Human-Scoring Items—ELA, Grade Five

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prompt | Item ID | Score Points | Rater 1 N | Rater 2 N | Kappa | QWK | Percent Exact | Percent Adjacent | Percent Exact + Adjacent | Rater 1 Item Score Mean | Rater 1 Item Score SD | Rater 2 Item Score Mean | Rater 2 Item Score SD |
| 1 | VH615339 | 2 | 423 | 423 | 0.77 | 0.80 | 85.11 | 10.40 | 95.51 | 1.19 | 0.84 | 1.18 | 0.85 |
| **N/A** | **AVERAGE** | **N/A** | **423** | **423** | **0.77** | **0.80** | **85.11** | **10.40** | **95.51** | **1.19** | **0.84** | **1.18** | **0.85** |

Table 8.G.85 Interrater Reliability and Descriptive Statistics for the Ratings by Two Raters in Human-Scoring Items—ELA, Grade Six

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prompt | Item ID | Score Points | Rater 1 N | Rater 2 N | Kappa | QWK | Percent Exact | Percent Adjacent | Percent Exact + Adjacent | Rater 1 Item Score Mean | Rater 1 Item Score SD | Rater 2 Item Score Mean | Rater 2 Item Score SD |
| 1 | VH545347 | 2 | 449 | 449 | 0.81 | 0.84 | 87.75 | 9.80 | 97.55 | 0.79 | 0.80 | 0.77 | 0.79 |
| 2 | VH551959 | 2 | 609 | 609 | 0.78 | 0.79 | 86.04 | 11.33 | 97.37 | 0.77 | 0.73 | 0.71 | 0.72 |
| **N/A** | **AVERAGE** | **N/A** | **529** | **529** | **0.80** | **0.82** | **86.90** | **10.57** | **97.46** | **0.78** | **0.77** | **0.74** | **0.76** |

Table 8.G.86 Interrater Reliability and Descriptive Statistics for the Ratings by Two Raters in Human-Scoring Items—ELA, Grade Seven

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prompt | Item ID | Score Points | Rater 1 N | Rater 2 N | Kappa | QWK | Percent Exact | Percent Adjacent | Percent Exact + Adjacent | Rater 1 Item Score Mean | Rater 1 Item Score SD | Rater 2 Item Score Mean | Rater 2 Item Score SD |
| 1 | VH547514 | 2 | 376 | 376 | 0.72 | 0.73 | 82.18 | 14.10 | 96.28 | 1.03 | 0.75 | 1.06 | 0.72 |
| 2 | VH548715 | 2 | 376 | 376 | 0.74 | 0.75 | 83.51 | 13.56 | 97.07 | 0.95 | 0.72 | 0.96 | 0.71 |
| 3 | VH549395 | 2 | 376 | 376 | 0.69 | 0.75 | 79.79 | 17.55 | 97.34 | 0.89 | 0.75 | 0.90 | 0.75 |
| **N/A** | **AVERAGE** | **N/A** | **376** | **376** | **0.72** | **0.74** | **81.83** | **15.07** | **96.90** | **0.96** | **0.74** | **0.97** | **0.73** |

Table 8.G.87 Interrater Reliability and Descriptive Statistics for the Ratings by Two Raters in Human-Scoring Items—ELA, Grade Eight

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prompt | Item ID | Score Points | Rater 1 N | Rater 2 N | Kappa | QWK | Percent Exact | Percent Adjacent | Percent Exact + Adjacent | Rater 1 Item Score Mean | Rater 1 Item Score SD | Rater 2 Item Score Mean | Rater 2 Item Score SD |
| 1 | VH711656 | 2 | 265 | 265 | 0.65 | 0.67 | 85.28 | 9.81 | 95.09 | 0.39 | 0.69 | 0.35 | 0.65 |
| **N/A** | **AVERAGE** | **N/A** | **265** | **265** | **0.65** | **0.67** | **85.28** | **9.81** | **95.09** | **0.39** | **0.69** | **0.35** | **0.65** |

Table 8.G.88 Interrater Reliability and Descriptive Statistics for the Ratings by Two Raters in Human-Scoring Items—ELA, Grade Eleven

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prompt | Item ID | Score Points | Rater 1 N | Rater 2 N | Kappa | QWK | Percent Exact | Percent Adjacent | Percent Exact + Adjacent | Rater 1 Item Score Mean | Rater 1 Item Score SD | Rater 2 Item Score Mean | Rater 2 Item Score SD |
| 1 | VR031099 | 2 | 292 | 292 | 0.57 | 0.59 | 71.58 | 18.15 | 89.73 | 1.02 | 0.84 | 0.96 | 0.85 |
| **N/A** | **AVERAGE** | **N/A** | **292** | **292** | **0.57** | **0.59** | **71.58** | **18.15** | **89.73** | **1.02** | **0.84** | **0.96** | **0.85** |

### Appendix 8.H: Validity Analyses

Table 8.H.1 Correlations by Gender

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level | Demographic Student Group | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| z | Male | 3,164 | 3,101 | 3,015 | 0.70 |
| 3 | Female | 1,294 | 1,261 | 1,230 | 0.70 |
| 4 | Male | 3,162 | 3,135 | 3,040 | 0.63 |
| 4 | Female | 1,275 | 1,258 | 1,225 | 0.61 |
| 5 | Male | 3,037 | 2,982 | 2,903 | 0.61 |
| 5 | Female | 1,384 | 1,366 | 1,328 | 0.57 |
| 6 | Male | 3,044 | 2,973 | 2,914 | 0.63 |
| 6 | Female | 1,357 | 1,313 | 1,288 | 0.63 |
| 7 | Male | 3,096 | 3,047 | 2,976 | 0.66 |
| 7 | Female | 1,462 | 1,420 | 1,401 | 0.61 |
| 8 | Male | 2,955 | 2,861 | 2,816 | 0.67 |
| 8 | Female | 1,361 | 1,319 | 1,295 | 0.61 |
| 11 | Male | 2,751 | 2,704 | 2,665 | 0.65 |
| 11 | Female | 1,365 | 1,339 | 1,310 | 0.62 |

Table 8.H.2 Correlations by Primary Ethnicity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level | Demographic Student Group | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| 3 | American Indian or Alaska Native | 26 | 25 | 25 | 0.80 |
| 3 | Asian | 382 | 379 | 369 | 0.69 |
| 3 | Native Hawaiian or Other Pacific Islander | 23 | 24 | 23 | 0.72 |
| 3 | Filipino | 140 | 132 | 131 | 0.66 |
| 3 | Hispanic or Latino | 2,639 | 2,581 | 2,515 | 0.70 |
| 3 | Black or African American | 300 | 294 | 285 | 0.63 |
| 3 | White | 710 | 697 | 672 | 0.72 |
| 3 | Two or more races | 239 | 231 | 226 | 0.67 |
| 4 | American Indian or Alaska Native | 25 | 23 | 23 | 0.60 |
| 4 | Asian | 430 | 431 | 412 | 0.63 |
| 4 | Native Hawaiian or Other Pacific Islander | 19 | 19 | 16 | 0.70 |
| 4 | Filipino | 112 | 110 | 105 | 0.59 |
| 4 | Hispanic or Latino | 2,614 | 2,581 | 2,521 | 0.62 |
| 4 | Black or African American | 325 | 324 | 314 | 0.58 |
| 4 | White | 680 | 673 | 649 | 0.64 |
| 4 | Two or more races | 232 | 232 | 225 | 0.65 |
| 5 | American Indian or Alaska Native | 25 | 23 | 23 | 0.45 |
| 5 | Asian | 407 | 399 | 386 | 0.60 |
| 5 | Native Hawaiian or Other Pacific Islander | 15 | 12 | 12 | 0.73 |
| 5 | Filipino | 135 | 130 | 124 | 0.66 |
| 5 | Hispanic or Latino | 2,590 | 2,539 | 2,480 | 0.59 |
| 5 | Black or African American | 333 | 330 | 322 | 0.65 |
| 5 | White | 701 | 698 | 674 | 0.59 |
| 5 | Two or more races | 215 | 217 | 210 | 0.62 |
| 6 | American Indian or Alaska Native | 25 | 23 | 23 | 0.83 |
| 6 | Asian | 385 | 378 | 369 | 0.60 |
| 6 | Native Hawaiian or Other Pacific Islander | 15 | 16 | 15 | 0.76 |
| 6 | Filipino | 144 | 140 | 137 | 0.64 |
| 6 | Hispanic or Latino | 2,621 | 2,551 | 2,502 | 0.64 |
| 6 | Black or African American | 299 | 292 | 286 | 0.56 |
| 6 | White | 724 | 701 | 691 | 0.63 |
| 6 | Two or more races | 189 | 186 | 180 | 0.58 |
| 7 | American Indian or Alaska Native | 29 | 30 | 29 | 0.63 |
| 7 | Asian | 369 | 358 | 353 | 0.52 |
| 7 | Native Hawaiian or Other Pacific Islander | 15 | 14 | 14 | 0.71 |
| 7 | Filipino | 137 | 129 | 127 | 0.55 |
| 7 | Hispanic or Latino | 2,644 | 2,608 | 2,557 | 0.65 |
| 7 | Black or African American | 381 | 375 | 367 | 0.66 |
| 7 | White | 781 | 756 | 738 | 0.66 |
| 7 | Two or more races | 203 | 198 | 193 | 0.67 |
| 8 | American Indian or Alaska Native | 24 | 25 | 24 | 0.76 |
| 8 | Asian | 340 | 330 | 322 | 0.66 |
| 8 | Native Hawaiian or Other Pacific Islander | 17 | 18 | 17 | 0.47 |
| 8 | Filipino | 116 | 115 | 113 | 0.50 |
| 8 | Hispanic or Latino | 2,580 | 2,494 | 2,460 | 0.65 |
| 8 | Black or African American | 339 | 335 | 329 | 0.62 |
| 8 | White | 723 | 696 | 681 | 0.67 |
| 8 | Two or more races | 177 | 167 | 165 | 0.62 |
| 11 | American Indian or Alaska Native | 21 | 21 | 20 | 0.64 |
| 11 | Asian | 326 | 317 | 308 | 0.60 |
| 11 | Native Hawaiian or Other Pacific Islander | 18 | 17 | 17 | 0.92 |
| 11 | Filipino | 112 | 106 | 104 | 0.60 |
| 11 | Hispanic or Latino | 2,486 | 2,448 | 2,411 | 0.63 |
| 11 | Black or African American | 318 | 315 | 310 | 0.57 |
| 11 | White | 704 | 689 | 677 | 0.71 |
| 11 | Two or more races | 133 | 132 | 130 | 0.61 |

Table 8.H.3 Correlations by English Language Fluency

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level | Demographic Student Group | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| 3 | EL | 1,264 | 1,245 | 1,212 | 0.70 |
| 3 | English only | 2,926 | 2,862 | 2,785 | 0.70 |
| 3 | RFEP | 221 | 212 | 206 | 0.69 |
| 3 | IFEP | 48 | 44 | 43 | 0.60 |
| 3 | ADEL | 0 | 0 | 0 | N/A |
| 3 | English classification—To be determined | 0 | 0 | 0 | N/A |
| 3 | English classification—No response | 0 | 0 | 0 | N/A |
| 4 | EL | 1,250 | 1,239 | 1,206 | 0.61 |
| 4 | English only | 2,796 | 2,757 | 2,676 | 0.62 |
| 4 | RFEP | 365 | 371 | 358 | 0.66 |
| 4 | IFEP | 25 | 25 | 24 | 0.61 |
| 4 | ADEL | 0 | 0 | 0 | N/A |
| 4 | English classification—To be determined | 0 | 0 | 0 | N/A |
| 4 | English classification—No response | 1 | 1 | 1 | N/A |
| 5 | EL | 1,156 | 1,140 | 1,105 | 0.58 |
| 5 | English only | 2,712 | 2,672 | 2,599 | 0.60 |
| 5 | RFEP | 512 | 501 | 492 | 0.59 |
| 5 | IFEP | 40 | 34 | 34 | 0.55 |
| 5 | ADEL | 0 | 0 | 0 | N/A |
| 5 | English classification—To be determined | 0 | 0 | 0 | N/A |
| 5 | English classification—No response | 1 | 1 | 1 | N/A |
| 6 | EL | 1,050 | 1,017 | 989 | 0.63 |
| 6 | English only | 2,660 | 2,593 | 2,545 | 0.63 |
| 6 | RFEP | 656 | 645 | 637 | 0.64 |
| 6 | IFEP | 36 | 32 | 32 | 0.37 |
| 6 | ADEL | 0 | 0 | 0 | N/A |
| 6 | English classification—To be determined | 0 | 0 | 0 | N/A |
| 6 | English classification—No response | 0 | 0 | 0 | N/A |
| 7 | EL | 982 | 957 | 940 | 0.66 |
| 7 | English only | 2,725 | 2,669 | 2,608 | 0.65 |
| 7 | RFEP | 811 | 803 | 791 | 0.63 |
| 7 | IFEP | 41 | 39 | 39 | 0.51 |
| 7 | ADEL | 0 | 0 | 0 | N/A |
| 7 | English classification—To be determined | 0 | 0 | 0 | N/A |
| 7 | English classification—No response | 0 | 0 | 0 | N/A |
| 8 | EL | 936 | 905 | 888 | 0.64 |
| 8 | English only | 2,454 | 2,385 | 2,342 | 0.66 |
| 8 | RFEP | 891 | 858 | 849 | 0.64 |
| 8 | IFEP | 34 | 31 | 31 | 0.72 |
| 8 | ADEL | 0 | 0 | 0 | N/A |
| 8 | English classification—To be determined | 0 | 0 | 0 | N/A |
| 8 | English classification—No response | 1 | 1 | 1 | N/A |
| 11 | EL | 736 | 704 | 692 | 0.69 |
| 11 | English only | 2,246 | 2,217 | 2,179 | 0.65 |
| 11 | RFEP | 1,092 | 1,080 | 1,063 | 0.57 |
| 11 | IFEP | 44 | 44 | 43 | 0.68 |
| 11 | ADEL | 0 | 0 | 0 | N/A |
| 11 | English classification—To be determined | 0 | 0 | 0 | N/A |
| 11 | English classification—No response | 0 | 0 | 0 | N/A |

Table 8.H.4 Correlations by Economic Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level | Demographic Student Group | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| 3 | Economically disadvantaged | 3,068 | 2,998 | 2,924 | 0.69 |
| 3 | Not economically disadvantaged | 1,391 | 1,365 | 1,322 | 0.71 |
| 4 | Economically disadvantaged | 3,042 | 3,011 | 2,929 | 0.63 |
| 4 | Not economically disadvantaged | 1,395 | 1,382 | 1,336 | 0.60 |
| 5 | Economically disadvantaged | 2,956 | 2,917 | 2,841 | 0.59 |
| 5 | Not economically disadvantaged | 1,465 | 1,431 | 1,390 | 0.60 |
| 6 | Economically disadvantaged | 2,995 | 2,930 | 2,875 | 0.62 |
| 6 | Not economically disadvantaged | 1,407 | 1,357 | 1,328 | 0.64 |
| 7 | Economically disadvantaged | 3,156 | 3,096 | 3,041 | 0.65 |
| 7 | Not economically disadvantaged | 1,403 | 1,372 | 1,337 | 0.64 |
| 8 | Economically disadvantaged | 2,962 | 2,878 | 2,835 | 0.64 |
| 8 | Not economically disadvantaged | 1,354 | 1,302 | 1,276 | 0.66 |
| 11 | Economically disadvantaged | 2,842 | 2,795 | 2,752 | 0.64 |
| 11 | Not economically disadvantaged | 1,276 | 1,250 | 1,225 | 0.64 |

Table 8.H.5 Correlations by Migrant Education Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level | Demographic Student Group | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| 3 | Migrant education | 17 | 18 | 17 | 0.47 |
| 3 | Not migrant education | 4,442 | 4,345 | 4,229 | 0.70 |
| 4 | Migrant education | 22 | 24 | 22 | 0.60 |
| 4 | Not migrant education | 4,415 | 4,369 | 4,243 | 0.62 |
| 5 | Migrant education | 31 | 30 | 30 | 0.69 |
| 5 | Not migrant education | 4,390 | 4,318 | 4,201 | 0.60 |
| 6 | Migrant education | 22 | 23 | 22 | 0.75 |
| 6 | Not migrant education | 4,380 | 4,264 | 4,181 | 0.63 |
| 7 | Migrant education | 32 | 31 | 31 | 0.63 |
| 7 | Not migrant education | 4,527 | 4,437 | 4,347 | 0.64 |
| 8 | Migrant education | 19 | 20 | 19 | 0.54 |
| 8 | Not migrant education | 4,297 | 4,160 | 4,092 | 0.65 |
| 11 | Migrant education | 22 | 21 | 21 | 0.60 |
| 11 | Not migrant education | 4,096 | 4,024 | 3,956 | 0.64 |

Table 8.H.6 Correlations by Foster Youth Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level | Demographic Student Group | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| 3 | Foster youth | 40 | 37 | 36 | 0.48 |
| 3 | Not foster youth | 4,419 | 4,326 | 4,210 | 0.70 |
| 4 | Foster youth | 40 | 40 | 39 | 0.77 |
| 4 | Not foster youth | 4,397 | 4,353 | 4,226 | 0.62 |
| 5 | Foster youth | 42 | 44 | 40 | 0.70 |
| 5 | Not foster youth | 4,379 | 4,304 | 4,191 | 0.60 |
| 6 | Foster youth | 34 | 30 | 30 | 0.82 |
| 6 | Not foster youth | 4,368 | 4,257 | 4,173 | 0.63 |
| 7 | Foster youth | 49 | 46 | 45 | 0.71 |
| 7 | Not foster youth | 4,510 | 4,422 | 4,333 | 0.64 |
| 8 | Foster youth | 42 | 42 | 40 | 0.58 |
| 8 | Not foster youth | 4,274 | 4,138 | 4,071 | 0.65 |
| 11 | Foster youth | 46 | 43 | 43 | 0.59 |
| 11 | Not foster youth | 4,072 | 4,002 | 3,934 | 0.64 |

Table 8.H.7 Correlations by Disability Group

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade Level | Demographic Student Group | ELA Sample Size | Mathematics Sample Size | Correlation Sample Size | Correlation |
| 3 | Intellectual disability | 1,258 | 1,227 | 1,203 | 0.67 |
| 3 | Hearing impairment | 37 | 37 | 36 | 0.63 |
| 3 | Speech or language impairment | 75 | 74 | 74 | 0.50 |
| 3 | Visual impairment | 3 | 3 | 3 | N/A |
| 3 | Emotional impairment | 6 | 6 | 6 | N/A |
| 3 | Orthopedic impairment | 64 | 61 | 60 | 0.78 |
| 3 | Other health impairment | 264 | 256 | 250 | 0.62 |
| 3 | Specific learning disability | 95 | 94 | 94 | 0.66 |
| 3 | Deaf-blindness | 2 | 2 | 2 | N/A |
| 3 | Multiple disabilities | 170 | 163 | 151 | 0.71 |
| 3 | Autism | 2,478 | 2,433 | 2,360 | 0.70 |
| 3 | Traumatic brain injury | 7 | 7 | 7 | N/A |
| 4 | Intellectual disability | 1,358 | 1,340 | 1,318 | 0.55 |
| 4 | Hearing impairment | 30 | 29 | 28 | 0.53 |
| 4 | Speech or language impairment | 60 | 60 | 60 | 0.63 |
| 4 | Visual impairment | 4 | 4 | 4 | N/A |
| 4 | Emotional impairment | 14 | 14 | 14 | 0.50 |
| 4 | Orthopedic impairment | 72 | 75 | 71 | 0.71 |
| 4 | Other health impairment | 257 | 254 | 250 | 0.57 |
| 4 | Specific learning disability | 137 | 137 | 136 | 0.48 |
| 4 | Deaf-blindness | 0 | 0 | 0 | N/A |
| 4 | Multiple disabilities | 185 | 184 | 171 | 0.59 |
| 4 | Autism | 2,314 | 2,290 | 2,207 | 0.64 |
| 4 | Traumatic brain injury | 6 | 6 | 6 | N/A |
| 5 | Intellectual disability | 1,508 | 1,476 | 1,448 | 0.54 |
| 5 | Hearing impairment | 27 | 25 | 25 | 0.56 |
| 5 | Speech or language impairment | 73 | 74 | 70 | 0.56 |
| 5 | Visual impairment | 9 | 9 | 9 | N/A |
| 5 | Emotional impairment | 18 | 18 | 18 | 0.61 |
| 5 | Orthopedic impairment | 51 | 51 | 49 | 0.37 |
| 5 | Other health impairment | 252 | 249 | 245 | 0.61 |
| 5 | Specific learning disability | 165 | 166 | 165 | 0.45 |
| 5 | Deaf-blindness | 1 | 1 | 1 | N/A |
| 5 | Multiple disabilities | 157 | 147 | 142 | 0.70 |
| 5 | Autism | 2,149 | 2,119 | 2,048 | 0.60 |
| 5 | Traumatic brain injury | 11 | 13 | 11 | 0.60 |
| 6 | Intellectual disability | 1,572 | 1,516 | 1,494 | 0.59 |
| 6 | Hearing impairment | 37 | 37 | 37 | 0.62 |
| 6 | Speech or language impairment | 44 | 44 | 44 | 0.71 |
| 6 | Visual impairment | 11 | 10 | 10 | N/A |
| 6 | Emotional impairment | 12 | 12 | 12 | 0.61 |
| 6 | Orthopedic impairment | 64 | 61 | 59 | 0.60 |
| 6 | Other health impairment | 230 | 228 | 227 | 0.62 |
| 6 | Specific learning disability | 160 | 163 | 160 | 0.49 |
| 6 | Deaf-blindness | 0 | 0 | 0 | N/A |
| 6 | Multiple disabilities | 161 | 154 | 144 | 0.64 |
| 6 | Autism | 2,096 | 2,047 | 2,001 | 0.62 |
| 6 | Traumatic brain injury | 15 | 15 | 15 | 0.87 |
| 7 | Intellectual disability | 1,755 | 1,709 | 1,684 | 0.58 |
| 7 | Hearing impairment | 36 | 37 | 36 | 0.63 |
| 7 | Speech or language impairment | 37 | 38 | 37 | 0.52 |
| 7 | Visual impairment | 4 | 4 | 4 | N/A |
| 7 | Emotional impairment | 11 | 11 | 11 | 0.38 |
| 7 | Orthopedic impairment | 71 | 66 | 66 | 0.68 |
| 7 | Other health impairment | 221 | 219 | 217 | 0.60 |
| 7 | Specific learning disability | 211 | 211 | 208 | 0.57 |
| 7 | Deaf-blindness | 0 | 0 | 0 | N/A |
| 7 | Multiple disabilities | 185 | 169 | 167 | 0.60 |
| 7 | Autism | 2,005 | 1,982 | 1,926 | 0.67 |
| 7 | Traumatic brain injury | 23 | 22 | 22 | 0.68 |
| 8 | Intellectual disability | 1,661 | 1,602 | 1,581 | 0.63 |
| 8 | Hearing impairment | 39 | 37 | 37 | 0.69 |
| 8 | Speech or language impairment | 27 | 27 | 27 | 0.72 |
| 8 | Visual impairment | 9 | 8 | 8 | N/A |
| 8 | Emotional impairment | 17 | 16 | 16 | 0.75 |
| 8 | Orthopedic impairment | 67 | 63 | 62 | 0.55 |
| 8 | Other health impairment | 237 | 231 | 230 | 0.56 |
| 8 | Specific learning disability | 216 | 217 | 215 | 0.57 |
| 8 | Deaf-blindness | 2 | 1 | 1 | N/A |
| 8 | Multiple disabilities | 190 | 176 | 168 | 0.57 |
| 8 | Autism | 1,831 | 1,782 | 1,747 | 0.65 |
| 8 | Traumatic brain injury | 20 | 20 | 19 | 0.57 |
| 11 | Intellectual disability | 1,827 | 1,797 | 1,776 | 0.60 |
| 11 | Hearing impairment | 45 | 47 | 45 | 0.54 |
| 11 | Speech or language impairment | 17 | 18 | 17 | 0.61 |
| 11 | Visual impairment | 4 | 4 | 4 | N/A |
| 11 | Emotional impairment | 17 | 18 | 17 | 0.69 |
| 11 | Orthopedic impairment | 77 | 77 | 76 | 0.46 |
| 11 | Other health impairment | 166 | 165 | 163 | 0.62 |
| 11 | Specific learning disability | 195 | 195 | 193 | 0.60 |
| 11 | Deaf-blindness | 1 | 1 | 1 | N/A |
| 11 | Multiple disabilities | 234 | 224 | 212 | 0.62 |
| 11 | Autism | 1,514 | 1,478 | 1,453 | 0.65 |
| 11 | Traumatic brain injury | 21 | 21 | 20 | 0.61 |

## Quality-Control Procedures

The California Department of Education (CDE) and ETS implemented rigorous quality-control procedures throughout the assessment development, administration, scoring, analyses, and reporting processes for the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics. 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 evaluating those products and services. Quality-control procedures are outlined in this chapter.

### Quality Control of Item Development

ETS’ goal is to provide the best standards-based and innovative items for the CAAs for ELA and mathematics. Items developed for the CAAs for ELA and mathematics were subject to an extensive item review process. The item writers responsible for developing CAAs for ELA and mathematics items were trained in California Assessment of Student Performance and Progress (CAASPP) and ETS’ policies on quality control of item content, bias and sensitivity guidelines, as well as guidelines for accessibility, to ensure that the items allow the widest possible range of students to demonstrate their abilities.

Once a draft item was accepted for authoring—that is, once it was entered into ETS’ item bank and formatted for use in an assessment—ETS employed a series of internal reviews and an initial CDE review. These reviews used established criteria and specifications to judge the quality of an item’s content and ensured that each item measured what it was intended to measure. These reviews also examined the overall quality of the test items before presentation to the CDE and item reviewers. To finish the process, a group of California educators reviewed the items for accessibility, bias and sensitivity, and content, and made recommendations for item enhancement. The details on quality control of item development are described in section [*3.2 ETS Item Review Process*](#_ETS_Item_Review_1).

During administrations of the CAAs for ELA and mathematics, when sufficient student response data on each item became available, ETS’ Psychometric Analysis & Research (PAR) staff conducted item analyses and a key check to examine whether the items performed as expected. ETS’ psychometric staff conducted a thorough evaluation of all item statistics using the statistical criteria described in subsection [*8.2.7 Summary of Typical Classical Item Analyses Flagging Criteria*](#_Summary_of_Typical_2) to flag items that were potentially problematic because of poor item performance, content issues, item bias, or accessibility challenges. Flagged items were then reviewed by ETS’ Assessment & Learning Technology Development (ALTD) staff, the CDE, and California educators to determine whether issues existed.

### **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. ETS conducted multiple levels of quality assurance (QA) checks on each assembled CAAs for ELA and mathematics form to ensure it met the form-building specifications. Both ETS’ ALTD and PAR staff reviewed and signed off on the accuracy of forms before the test forms were posted for CDE review. Detailed information related to test assembly can be found in [*Chapter 4: Test Assembly*](#_Test_Assembly_1).

In particular, the assembly of all test forms went through a certification process that involved various checks, including verifying that

* all item answers in the key were correctly identified and documented in the scoring system;
* items were scored correctly in the item bank and incorrect responses were scored as incorrect;
* all items assessed the intended standard;
* all content in the item was correct with the exception of distractors, which are intended to be incorrect;
* all items met the statistical criteria, to the extent possible;
* distractors were plausible;
* multiple-choice (MC) item options were parallel in structure;
* language was grade-level appropriate;
* no more than three MC items in a row had the same key;
* all graphics were correct (copyright, spelling, relevance, etc.);
* there were no unintended mechanical errors in grammar, spelling, punctuation, and the like; and
* items adhered to the approved style guide.

Reviews were also conducted for functionality and sequencing during the user acceptance testing (UAT) process to ensure all items functioned as expected. Three cycles of UAT were conducted: the first by the test delivery system (TDS) vendor, the second by ETS, and the third by the CDE. CDE staff made a final quality check to ensure that all issues identified during UAT were resolved before the release of the operational assessment.

#### Quality Control of Test Assignment

Test assignment for the CAASPP, 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, 2023b). The two systems are kept in sync during the testing window.

Students at eligible grade levels were assigned to the Smarter Balanced assessments by default. For students eligible for the CAAs for ELA and mathematics, local educational agencies (LEAs) logged on to TOMS and assigned students to take the alternate assessment, which automatically unassigned those students from taking Smarter Balanced Summative Assessments. The CDE provided guidance to support LEAs in determining which students were eligible for the CAAs (CDE, 2023a).

The quality of test assignment for the CAAs was monitored and controlled through several strategies. TOMS enforced preconditions for eligibility for the CAAs by permitting assignment only for students with an Individuals with Disabilities Education Act (IDEA)11F[[8]](#footnote-9) indicator of “Yes” as sent by CALPADS.

Additionally, TOMS prevented the prohibited “mixing and matching” of assessments—a student assigned to take an alternate assessment for any content area was automatically prevented from assignment to a general assessment for another content area.

### Quality Control of Test Materials

Brief descriptions of the types of materials used for and during testing appear in the following subsections.

#### Test Administration Manuals

ETS’ staff verified that test instruction manuals accurately matched the test materials and testing processes. Editors reviewed each document for spelling, grammar, accuracy, and adherence to CDE style. Each document was approved by the CDE before being published to the CAASPP website. Only nonsecure documents were posted to this website. Secure materials, such as the *CAASPP Directions for Administration (DFAs)*, were made available to designated LEA staff through TOMS, which required a secure logon.

The manuals used in the administration of the CAASPP are listed in subsection [*5.2.4 Instructions for Test Administration*](#_Instructions_for_Test_2).

#### Collecting Test Materials for Computer-based Assessments

During the 2022–23 CAAs for ELA and mathematics administration, there were no test materials to be collected as a result of computer-based testing.

#### Processing Test Materials for Computer-based Assessments

Computer-based assessments submitted by students were transmitted from Cambium Assessment, Inc. (CAI) to ETS each day. Each system checked for the completeness of the student record and stopped records that were identified as having an error. (For example, the system would identify a test part that was missing a content registration ID, a unique identifier that matches the student’s opportunities.)

### Quality Control of Test Administration

The quality of test administration for the CAAs for ELA and mathematics was monitored and controlled through several strategies.

A fully supported Outreach team that includes California Technical Assistance Center phone support and Success Agents supported all LEAs in the administration of the CAASPP. In addition to providing guidance and answering questions, the Outreach team regularly conducted campaigns on particular administration topics to ensure all LEAs understood correct test administration procedures. Outreach was guided by individuals who managed communications to LEAs; provided regional and web-based trainings; and hosted a website, [the](https://www.caaspp.org/) CAASPP website, that housed a full range of manuals, videos, and other instructional and support materials.

The quality of test administration was further managed through comprehensive rules and guidelines for maintaining the security and standardization of the CAASPP. LEAs received training on these topics and were provided tools for reporting security incidents and resolving testing discrepancies for specific testing sessions.

The ETS Office of Testing Integrity (OTI) reinforced the quality-control procedures for test administration, providing QA services for all testing programs managed by ETS. The detailed procedures the OTI developed and applied in quality control are described in subsection [*5.6.1 ETS’ Office of Testing Integrity*](#_ETS’_Office_of_2).

### Quality Control of Scoring

ETS conforms to high standards of quality and fairness when scoring tests and reporting scores. These standards dictate that ETS provides accurate and understandable assessment results to the intended recipients. It is also ETS’ mission to provide appropriate guidelines for score interpretation and cautions about the limitations in the meaning and use of the test scores. Finally, ETS conducts analyses needed to ensure that the assessments are equitable for various demographic student groups.

#### Rubric-Scored Items

For rubric-based scoring performed by the CAA test examiners on the CAA for ELA, ETS employed multiple quality controls, including

* CAA test examiners having access to item-specific rubrics in the *DFAs;*
* ETS randomly selecting schools having approximately 20 percent of the students who take a particular grade-level CAA, for which the school must assign a second CAA test examiner to score the rubric-scored items;
* ETS reviewing the percentage of students expected to receive a second human score that did receive a second human score; and
* ETS reviewing interrater reliability statistics.

Refer to subsection[*7.1.2 Scoring of Rubric-Scored Items*](#_Scoring_of_Constructed-Response) for more information regarding the scoring of items using rubrics.

#### Machine-Scoring Procedures

To ensure valid item-level scoring for the CAAs for ELA and mathematics, quality-control procedures were employed by CAI, the CAASPP subcontractor responsible for providing the TDS and scoring machine-scorable items. CAI staff independently reviewed all CAAs for ELA and mathematics forms by producing sample results for assessments. The sample results were compared with the answer keys for each form to confirm the accuracy of scoring keys. The scores for all applicable items were recorded. A final comparison of the test map to each computer-based form as configured in the UAT environment ensured that no changes to the form were introduced prior to operational deployment.

A real-time, quality-monitoring component was built into the TDS. After an assessment was administered to a student, the TDS passed the resulting data to the QA system. QA conducted a series of data integrity checks, ensuring, for example, that the record for each assessment contained information for each item, keys for MC items, score points in each item, and the total number of operational items. In addition, QA also checked to ensure that the test record contained no data from items that might have been invalidated.

Data passed directly from the Quality Monitoring System to the database of record, which served as the repository for all test information, and from which all test information was pulled and transmitted to ETS in a predetermined results format.

#### Development of Scoring Specifications

A number of measures were taken to ascertain that the scoring keys were applied to the student responses as intended and the student scores were computed accurately. ETS built and reviewed the scoring system models based on the reporting specifications approved by the CDE. These specifications contain detailed scoring procedures, along with the procedures for determining whether a student has attempted an assessment and whether that student’s response data should be included in the statistical analyses and calculations for computing summary data.

Prior to the test administration, ETS’ ALTD staff reviewed and verified the keys and scoring rubrics for each item. Then, these keys andrubrics were provided to CAI for implementing machine scoring of the selected-response items. In addition, the student’s original response string was stored for data verification and auditing purposes. Standard quality inspections were performed on all data files, including the evaluation of each student data record for correctness and completeness. Student results were kept confidential and secure at all times.

ETS scoring specifications for the CAAs for ELA and mathematics were completed, approved, and checked well in advance of the receipt of student response data. These specifications contained detailed scoring procedures, as well as the procedures for determining whether a student attempted an assessment and whether that student’s response data should be included in the statistical analyses and computing summary data.

### Quality Control of Psychometric Processes

#### Scoring Verification

ETS developed two independent and parallel scoring structures to produce students’ scores: the Enterprise Score Key Management (eSKM) scoring system, which collected, scored, and delivered individual students’ scores to the ETS reporting system; and then the ETS PAR team computed individual student scores based on the same scoring specifications as described in subsection [*9.5.3 Development of Scoring Specifications*](#_Development_of_Scoring_1). The scores from the two sources were then compared for internal quality control. Any differences in the scores were discussed and resolved. All scores complied with the ETS scoring specifications and passed the parallel scoring process. This ensured the quality and accuracy of scoring and supported the transfer of scores into TOMS, the database of the student records scoring.

#### Psychometric Analyses

The psychometric procedures for the CAAs for ELA and mathematics were developed, reviewed, and approved prior to the receipt of student response data. The ETS psychometric team also developed specifications for each of the psychometric analyses performed. These specifications contain detailed descriptions of the analysis steps such as sample inclusion, analyses methods, and special handling of the data.

All psychometric analyses conducted at ETS underwent comprehensive quality checks by a team of psychometricians and data analysts. Detailed checklists and psychometric specifications were developed by members of the team for each of the statistical procedures performed on CAAs for ELA and mathematics results data, including item analyses, differential item functioning analyses, item response theory (IRT) calibration, equating, and scaling.

Detailed checklists were developed by members of the team for each of the statistical procedures. Classical item analyses were performed to evaluate the performance of the operational items. Classical item statistics included item difficulty and correlations between item scores and total scores. Items that were flagged for questionable statistical attributes were sent to ETS’ ALTD staff for review; their comments were then reviewed by the psychometricians before the review by the CDE. The ETS ALTD and PAR teams worked together to evaluate and make recommendations to the CDE about any problematic items that should be removed from IRT calibration.

IRT calibration of field test items included checks to ascertain that the input files were established accurately. Checks were also made on the number of items, number of students with valid scores, IRT item difficulty and discrimination estimates, standard errors for the item difficulty estimates, and the equating and scaling process. Two psychometricians conducted parallel calibration processing and compared the results to check for any inconsistency. Psychometricians also performed detailed reviews of relevant statistics to determine whether the chosen IRT model fits the data. ETS then presented and reviewed the calibration results with the CDE for approval.

Once raw-to-scale-score conversion tables for each form were generated, psychometricians carried out quality-control checks on each scoring table to verify

* all possible raw scores for each form were included in the tables;
* the lowest obtainable scale score and the highest obtainable scale score matched the specifications for each grade level, respectively; and
* the threshold score for the achievement level was correctly identified.

After all quality-control steps were completed and any differences were resolved, one final inspection of scoring tables was conducted prior to uploading the tables to eSKM for score reporting.

### Quality Control of Reporting

To ensure the quality of CAAs for ELA and mathematics results, for both individual student and summary reports, three general areas were 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’ Data Quality Services and Center of Reporting & Scoring Services teams, as well as running of all Student Score Reports (SSRs) through ETS’ patented QC Interrogator software, which compares elements of the SSR to acceptable values to identify errors and is used in conjunction with human review to detect errors on every score report batch as part of quality-control procedures
3. Proofreading of the quality-control and production reports by the CDE and ETS prior to making reports available to the LEA for download in TOMS and the California Educator Reporting System as well as via the LEA’s student information system

All reports were required to include a single, accurate LEA code, an LEA name, and a school name. All elements conformed 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 was used to verify and confirm accurate codes and names. The CDE provided a revised LEA Master File to ETS throughout the year as updates became available.

After the reports were validated in accordance with the CDE’s requirements, a set of reports representing all possible grade levels, content areas, and reporting outcomes was provided to the CDE and ETS for review and approval. Electronic reports were sent on the actual report template to the CDE. The CDE and ETS reviewed and approved the reports after a thorough examination.

Upon the CDE’s approval of the reports generated for the quality-control LEAs, ETS proceeded with the first batch of report production. The reviewed set of reports incorporated CDE-selected LEAs and provided the final check prior to generating all reports and making them available electronically for download in TOMS and for student information systems through an application programming interface.

#### Exclusion of Student Scores from Summary Reports

ETS provided the CDE with reporting specifications that documented when to exclude student scores from summary reports. These specifications included the logic for handling submitted assessments that, for example, indicated the student tested but responded to no items, was absent, was not tested because of parent/guardian request, or did not complete the assessment because of illness. The methods for handling other anomalies were also covered in the specifications. These anomalies are described in more detail in [*7.3.2 Special Cases*](#_Special_Cases_2).

### Quality Control of End-to-End Testing

ETS conducted 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 were ready for the operational administration. Once released from processing, the test results were sent through the system for scoring and reporting. SSRs were created, along with data files for subject-matter experts in the teams to review and verify.

#### Computer-based Assessments

ETS employed a number of strategies to verify ongoing systems performance, including monitoring of system availability and system usage. Time was allotted for UAT to confirm that the systems met requirements and to make identified corrections before final deployment. To accomplish system acceptance and sign-off, ETS deployed systems to a staging area, which mirrors the final production environment, for operational testing and UAT. Final approval by the CDE triggered final deployment of the system.

To begin the quality-control process for end-to-end testing of the administration, the ETS program and resolutions teams prepared by entering responses in computer-based assessments for all grade levels and content areas. These responses were entered for fictitious students in selected schools and across several LEAs. Each student’s assessment was completed with responses that were all correct, all incorrect, and combinations of correct and incorrect. These response combinations were the expected results across achievement levels and score ranges. The responses were sent for processing, including for system quality control of computer-based assessments.

Once released from processing, the test results were sent through the system for scoring and reporting. SSRs were created, along with data files for subject-matter experts in the teams to review and verify. Individual SSRs were generated on the basis of the fictitious students when 100 percent quality control was demonstrated by ETS’ Resolution staff.

### References

California Department of Education. (2023a). *Alternate assessment decision-making tool for California.* Sacramento, CA: California Department of Education.

California Department of Education. (2023b). *CAASPP and ELPAC Test Operations Management System user guide*. Sacramento, CA: California Department of Education.

Educational Testing Service. (2014). *ETS Standards for Quality and Fairness*. Princeton, NJ: Educational Testing Service.

## Continuous and Systematic Improvement

The seventh operational administration of the California Alternate Assessments (CAAs) for English language arts/literacy (ELA) and mathematics was offered during the 2022–23 school year. Over the past six 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, including in the areas of test design, psychometric analyses, equating, and accessibility.

### 2022–23 Feedback for Continuous Improvement Survey

The California Assessment of Student Performance and Progress (CAASPP) program annually solicits feedback from educators through the Feedback for Continuous Improvement Survey. Local educational agency (LEA) and test site staff, as well as test administrators and test examiners, were invited to participate in the 2022–23 Feedback for Continuous Improvement Survey. Its goal was to highlight successes and identify areas for improvement. A total of 3,869 survey respondents participated in this survey for the 2022–‍23 administration, compared to 4,834 respondents for the previous year. The California Department of Education (CDE) and ETS use key recommendations from educators to implement positive changes in the following administration year.

Educators provided valuable feedback for potential improvements to the future administration of CAASPP and the English Language Proficiency Assessments for California (ELPAC) by reporting some lessons they learned in 2022–23. Based on those lessons and suggestions for improvement, the *CAASPP and ELPAC Feedback for Continuous Improvement Survey and Focus Groups Report* (CDE, 2023) presents recommendations for the CDE, with the goal of enhancing the administrative support provided to LEAs and schools for future CAASPP and ELPAC test administrations. Refer also to subsection [*5.3.4 Feedback for Continuous Improvement Survey*](#_Feedback_for_Continuous_2) for assessment-specific results.

### Recommendations for Improvement

In response to the LEA feedback, ETS and the CDE will consider implementing the following improvements in future test administrations:

* Shorten and simplify the *Preparing for Administration* documents and *Directions for Administration*
* Clarify and expand the use of universal tools, designated supports, and accommodations in daily instruction and on assessments to address respondents’ confusion regarding the assignment and use of embedded accessibility resources

### Transitioning from Postequating to Preequating for the 2024–25 Test Administration

The preequating investigation, which sought to determine whether it was psychometrically defensible to transition to a preequating test design, was initially planned to be conducted using student data from the 2022–‍23 test administration. However, the preequating investigation will now be conducted using student data from the 2023–24 test administration. Conversion tables based on preequating and postequating will be created and compared for an investigation of the differences between preequated and postequated results. ETS will use three criteria to evaluate the equating results, including the percentage difference at any achievement level; the differences that mattered (Dorans & Feigenbaum, 1994) on the raw score scale; and whether the scale score differences exceeded more than one conditional standard error of measurement. A decision to transition to preequating or continue with postequating will be made after the 2023–24 test administration based on the results of this investigation.

### Percentage of Students Selected for Second Scoring

Starting with the 2023–24 test administration, ETS will select schools accounting for approximately 15 percent of students taking the CAA for ELA per grade-level assessment for second scoring. To inform this decision, ETS conducted an analysis based on student data from the 2021–‍22 test administration. This analysis showed that drawing a smaller sample will not undermine the psychometric integrity of the second scoring analysis. Before the 2023–24 test administration, ETS selected schools accounting for approximately 20 percent of students taking the CAA for ELA per grade-level assessment for second scoring.

### Student Score Reports Redesign

Redesigned Student Score Reports (SSRs) will be made available; changes will include the following:

* + - 1. SSR formats are PDF and HTML. For an HTML SSR, an LEA or parent or student portal vendor will provide a link to a parent/guardian.
      2. Where applicable, results of a science assessment will be included in the same PDF SSR as the results of the ELA and mathematics assessments.
      3. All SSRs will include score comparison data.

Additionally, SSRs for all CAASPP assessments will be available in Arabic.

### Automated Test Assembly

Beginning with the 2022–23 test administration, automated test assembly (ATA) methods were used to assemble the first version of the operational form for each grade level of the CAAs for ELA and mathematics. ATA is an algorithmic process by which the optimal set of items can be selected subject to a set of constraints. ETS’ assessment developers and psychometrics team work together using the test blueprint and form assembly specifications to define the optimal test assembly parameters and specify the appropriate constraints.

For test assembly purposes, “optimal” is usually defined as providing the highest level of test information at one or more predetermined, theoretically important values of the latent trait variable, theta. As test information is directly related to measurement precision, this means selecting items that provide the best measurement precision.

For the router form, three evenly distributed values of theta were chosen representing below average ability, average ability, and above average ability; for the Stage 2 easy form, three evenly distributed values of theta were chosen below the average ability level of theta = 0; for the Stage 2 hard form, three evenly distributed values of theta were chosen above the average ability value of theta = 0. Thus, measurement precision was optimized according to the ability levels of the students who should be taking each part of the assessment. The constraints are defined by blueprint requirements, psychometric considerations (e.g., average form-level difficulty), and form refresh requirements.

ATA provides a significant improvement in form development because it guarantees that the assessment has the best possible psychometric properties, given the constraints on the assessment and the depth of the item bank.

### Test Delivery

#### Changes to the Test Administrator Interface

The Test Administrator Interface will be updated to a cleaner, more user-friendly appearance. This will include a new functionality that allows the test examiner to pin information for specific students to the top of the screen for monitoring.

#### Changes to Ending the Assessment in the Test Delivery System

The process for ending the assessment will be streamlined. After the last question is presented, students will select [**Next**] (instead of [**End Test**]) to reach the review screen, which will include the [**Submit Test**] button.

### Accessibility Resources

Like all CAASPP assessments, the CAAs for ELA and mathematics are administered using the test delivery system (TDS) created by Cambium Assessment, Inc. for the Smarter Balanced assessments. As such, implementation of new computer-based universal tools, designated supports, and accommodations are aligned with the TDS.

The following changes will be implemented during the 2023–24 CAAs for ELA and mathematics administration:

* The definition of the non-embedded medical supports designated support will be updated to mention “Bluetooth hearing aids.”
* The definition of the non-embedded amplification designated support will be amended to remove noise buffers and white noise machines.

### References

California Department of Education. (2023). *2022–23 CAASPP and ELPAC feedback for continuous improvement survey and focus groups report* [Unpublished manuscript]. Sacramento, CA: California Department of Education.

Dorans, N. J., & Feigenbaum, M. D. (1994). Equating issues engendered by changes to the SAT and PSAT/NMSQT. *Technical issues related to the introduction of the new SAT and PSAT/NMSQT,* 91–122.

1. This definition was retrieved from the Child Care Reporting--Child is English Learner web page on the CDE website. [↑](#footnote-ref-2)
2. Data for 2022–23 was retrieved from the CalEdFacts web page on the CDE website. [↑](#footnote-ref-3)
3. This definition was retrieved from the CDE California Longitudinal Pupil Achievement Data System (CALPADS) web page on the CDE website. [↑](#footnote-ref-4)
4. The test completion status of students who answered fewer than four items at Stage 1 was “partial completion”; the test completion status of students who did not answer any items was “noncompletion.” Students with a test completion status of “partial completion” or “noncompletion” received the lowest possible scale score. Therefore, scores of such students were not included in the analysis. Refer to subsection [*7.1.1 Scoring of Incomplete Cases*](#_Scoring_of_Incomplete) for a list of cases where the tests are considered as “incomplete.” [↑](#footnote-ref-5)
5. This technical report is based on the versions of the Accessibility Matrix and the *Usability, Accessibility, and Accommodations Guidelines* that were available during the 2022–23 CAASPP administration. [↑](#footnote-ref-6)
6. Detailed information regarding the determination of the achievement levels can be found in the *Standard-Setting Technical Report for the CAAs* (CDE, 2016). [↑](#footnote-ref-7)
7. S. 1177—114th Congress: Every Student Succeeds Act. 2015. Title 1, Part A, Subpart 1, Section 1111(b)(2)(D)(ii )(I) [↑](#footnote-ref-8)
8. The IDEA is the primary federal program that authorizes state and local aid for special education and related services for children with disabilities. [↑](#footnote-ref-9)