California Department of Education
Assessment and Accountability Division

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Technical Report
Spring 2010 Administration

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Educational Testing Service

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Acronyms and Initialisms Used in the *CMA Technical Report*

ADA	Americans with Disabilities Act
AERA	American Educational Research Association
ARP	Assessment Review Panel
APA	American Psychological Association
API	Academic Performance Index
ASL	American Sign Language
AYP	adequate yearly progress
CAHSEE	California High School Exit Examination
CAPA	California Alternate Performance Assessment
CDE	California Department of Education
CDS	county/district/school
CI	confidence interval
CMA	California Modified Assessment
CR	constructed response
CSTs	California Standards Tests
CSEMs	conditional standard errors of measurement
DFA	*Directions for Administration*
DIF	differential item functioning
DOK	depth of knowledge
DPLT	designated primary language test
DQS	Data Quality Services
d-study	decision study
EC	Education Code
EL	English learner
ELA	English–language arts
EM	expectation maximization
EOC	end-of-course
ePEN™	Electronic Performance Evaluation Network
ESEA	Elementary and Secondary Education Act
ETS	Educational Testing Service
FIA	final item analysis
g-study	generalizability study
GENASYS	Generalized Analysis System
ICC	item characteristic curve
IEP	individualized education program
I-FEP	initially fluent English proficient
IRT	item response theory
IT	Information Technology
LEA	local education agency
MC	multiple choice
MCE	Manually Coded English
MH DIF	Mantel-Haenszel DIF
NCME	National Council on Measurement in Education
NPS	nonpublic, nonsectarian school
NSLP	National School Lunch Program
OIB	ordered item booklet
OTI	Office of Testing Integrity
p-value	item proportion correct
PSAA	Public School Accountability Act
Pt-Bis	point-biserial correlations
RACF	Random Access Control Facility
R-FEP	reclassified fluent English proficient
SBE	State Board of Education
SD	standard deviation
SEMs	standard errors of measurement
SFTP	secure file transfer protocol
SGID	School and Grade Identification sheet
SKM	score key management
SPAR	Statewide Pupil Assessment Review
STAR	Standardized Testing and Reporting
STAR TAC	STAR Technical Assistance Center
STS	Standards-based Tests in Spanish
WRMSD	Weighted root-mean-square difference

Chapter 1: Introduction

Background

In 1997 and 1998, the California State Board of Education (SBE) adopted rigorous content standards in four major content areas: English–language arts (ELA), mathematics, history–social science, and science. These standards are designed to provide state-level input into instruction curricula and serve as a foundation for the state's school accountability programs.

In order to measure and evaluate student achievement of the content standards, the state instituted the Standardized Testing and Reporting (STAR) Program. This Program, administered annually, was authorized in 1997 by state law (Senate Bill 376). Senate Bill 1448, approved by the Legislature and the Governor in August 2004, reauthorized the STAR Program through January 1, 2011, in grades three through eleven. STAR Program testing in grade two has also been extended to the 2011 school year (spring 2011 administration) after Senate Bill 80 was passed in September 2007.

During its 2010 administration, the STAR Program had four components:

- California Standards Tests (CSTs), produced for California public schools to assess the California content standards for ELA, mathematics, history-social science and science in grades two through eleven
- California Modified Assessment (CMA), an assessment of students' achievement of California's content standards for ELA, mathematics, and science, developed for students with an individualized education program (IEP) who meet the CMA eligibility criteria approved by the SBE[1]
- California Alternate Performance Assessment (CAPA), produced for students with an IEP and who have significant cognitive disabilities and are not able to take the CSTs with accommodations and/or modifications or the CMA with accommodations
- Standards-based Tests in Spanish (STS), an assessment of students' achievement of California's content standards for Spanish-speaking English learners that is administered as the STAR Program's designated primary language test (DPLT)[2]

Test Purpose

The CMA is a grade-level assessment for students who have an IEP; are receiving grade-level instruction; and whose progress to date, in response to appropriate grade-level instruction, including special education and related services designed to address the student's individual needs, is such that, even if significant growth occurs, the IEP team is reasonably certain that the student will not achieve grade-level proficiency within the year covered by the student's IEP plan.

The purposes of the CMA tests are to allow eligible students greater access to an assessment that helps measure how well they are achieving California's content standards

[1] In 2010, the CMA was administered in ELA in grades three through nine, in grade-level mathematics in grades three through seven, in end-of-course (EOC) Algebra I in grades seven through eleven, and in science in grades five, eight, and ten.

[2] In 2010, the STS was administered in reading/language arts (RLA) in grades two through eleven, in grade-level mathematics in grades two through seven, and in EOC Algebra I in grades seven through eleven and EOC Geometry in grades eight through eleven.

and to provide information about how well schools and school districts are meeting state and federal accountability requirements in ELA, mathematics, and science. Eligible students in grade seven also complete a writing assessment—the CMA for Writing—as a part of the CMA for ELA.

CMA results for grades three through eight are used for in calculating school and district Academic Performance Index (API) and adequate yearly progress (AYP), which applies toward meeting the requirement of the federal Elementary and Secondary Education Act (ESEA) that all students score proficient or above by 2014.

In November 2009, the SBE approved performance levels for the CMA in grades six through eight. CMA results for these grade levels are included in the API beginning with the 2010 Base API. As with CAPA results in API reporting, the performance level the student receives on the CMA (far below basic, below basic, basic, proficient, or advanced) was the level that was included in the API calculations.

In the spring of 2010, the CMA was expanded to include ELA in grade nine, EOC mathematics in Algebra I, and life science in grade ten. The SBE is scheduled to adopt performance levels for these grade levels in January 2011. Accordingly, CMA results were not available in time for reporting the 2010 Growth API in September 2010.

Test Content

The CMA are administered in three content areas: ELA, mathematics, and science. Students in grades three through nine were tested in ELA; students in grades three through seven were tested in grade-level mathematics; students in grades seven[3] through eleven were tested in EOC Algebra I; and students in grades five, eight, and ten were tested in grade-level science. Students who took the CMA for ELA in grade seven also took a writing test.

Intended Population

All students enrolled in grades two through eleven in California public schools on the day testing begins are required to take the CSTs, the CMA (available for students in grades three through eleven), or the CAPA. This requirement includes English learners regardless of the length of time they have been in U.S. schools or their fluency in English, as well as students with disabilities who receive special education services.

The CMA tests are designed for students with an IEP who cannot achieve grade-level proficiency on the CSTs with or without accommodations and/or modifications and who meet eligibility criteria adopted by the SBE. The decision to administer the CMA is made by a student's IEP team. In addition, to be eligible to take the CMA, the student must have scored at the below basic or far below basic performance level on a previously administered CST.

Parents may submit a written request to have their child exempted from taking any or all parts of the tests within the STAR Program. For the grade seven ELA test, parents can submit a written request to have their child exempted from taking the essay portion of the ELA test. Only students whose parents submit a written request may be exempted from taking the tests (California *Education Code [EC]* Section 60615).

[3] Students in grade seven who meet the criteria for the CMA for Algebra I take the Algebra I test instead of the grade-level test.

Intended Use and Purpose of Test Scores

The results for tests within the STAR Program are used for three primary purposes, described as follows (excerpted from the California *EC* Section 60602 Web page at http://www.leginfo.ca.gov/cgi-bin/displaycode?section=edc&group=60001-61000&file=60600-60603) (outside source):

"60602. (a) (1) First and foremost, provide information on the academic status and progress of individual pupils to those pupils, their parents, and their teachers. This information should be designed to assist in the improvement of teaching and learning in California public classrooms. The Legislature recognizes that, in addition to statewide assessments that will occur as specified in this chapter, school districts will conduct additional ongoing pupil diagnostic assessment and provide information regarding pupil performance based on those assessments on a regular basis to parents or guardians and schools. The legislature further recognizes that local diagnostic assessment is a primary mechanism through which academic strengths and weaknesses are identified."

"60602. (a) (4) Provide information to pupils, parents or guardians, teachers, schools, and school districts on a timely basis so that the information can be used to further the development of the pupil and to improve the educational program."

"60602. (c) It is the intent of the Legislature that parents, classroom teachers, other educators, governing board members of school districts, and the public be involved, in an active and ongoing basis, in the design and implementation of the statewide pupil assessment program and the development of assessment instruments."

"60602. (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 Standardized Testing and Reporting Program become open and transparent to teachers, parents, and pupils, to assist all the 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."

In addition, STAR Program assessments are used to provide data for school, state, and federal accountability purposes.

Testing Window

The CMA tests are administered at different times, depending on the progression of the school year within each particular school district. Specifically, schools must administer the CMA within a 21-day window which begins 10 days before and ends 10 days after the day on which 85 percent of the instructional year is completed. School districts may use all or any part of the 21 days for testing but are encouraged to schedule testing over no more than a 10- to 15-day period. (California *Code of Regulations [CCR], Title 5,* Education, Division 1, Chapter 2, Subchapter 3.75, Article 2, § 855; in the California Department of Education (CDE) Web document at http://www.cde.ca.gov/ta/tg/sr/starregs0207cln.doc).

Significant Developments in 2010

New Cut Scores and Score Scales

A standard setting was held in the fall of 2009 to establish new cut scores for the below basic, basic, proficient, and advanced performance levels for the ELA tests in grades six through eight, for the mathematics tests in grades six and seven, and for the science test in grade eight. A new scale for reporting CMA test results was developed and used to report scores after the spring 2010 administration.

Testing in Grades Nine through Eleven

The first operational tests for grade nine ELA, EOC Algebra I, and grade ten Life Science were administered in spring 2010. Scores on these tests were reported as a percent correct of the content area of the total test. Cut scores for differentiating performance levels will be determined during the standard-setting workshop scheduled for fall 2010. Once adopted, the cut scores will be used to establish the score scale to be used for spring 2011 reporting purposes.

Changes to the STAR Contract as Required by Legislated Budget Expenditure Activities

In September 2009, the SBE and the CDE approved amendments to the STAR contract in order to meet legislative budgetary requirements under the Assembly Bill 1 of the 2009–10 Fourth Extraordinary Session (ABx4 1) (Chapter 1, Statutes of 2009) and Bill 1 of the 2009–10 Third Extraordinary Session (SBX3 1) (Chapter 1, Statutes of 2009), Section (SEC) 12.42 to maximize contract savings during the California budget crisis. As part of the contract amendments, the following changes were made for the 2010 test administration that impacted the CMA:

- **Reduction in the number of reviews by Assessment Review Panels—**As part of the contract amendment, formal Assessment Review Panel (ARP) meetings for data reviews, differential item function (DIF) reviews, and forms reviews were eliminated. The ARP meetings for new item reviews continued to be held.
- **Suspension of the CMA for Writing test in grade four—**The writing portion of the grade four ELA tests for the CSTs and the CMA was not administered due to the suspension. However, the reporting scale of the grade four ELA tests have not been changed and the results remain comparable to previous years.
- **Elimination of updates and the distribution of the administration videos and DVDs—**The annual updates to the test administration and CAPA training videos were eliminated. The production and distribution of the DVDs containing these videos were also eliminated. The training videos produced for the 2009 administration were made available to district STAR coordinators and test administrators on the STAR Web site at http://www.startest.org. Documents listing test administration updates for the 2010 administration were also made available on that Web site. District STAR coordinators and test administrators had the option to view the videos directly from the Web site or download the videos to their local computers.
- **Elimination of the audio CDs—**As an accommodation for students with disabilities, audio CDs had been used in lieu of teacher read-aloud since 2007. For the 2010 administration, test administrators read aloud the test questions to the students that needed the read-aloud accommodation. This is similar to the administration of read-aloud accommodations conducted in STAR administrations prior to 2007.

- **Reduction in the number of Pre-Test and Post-Test Training Workshops—**The overall number of Pre-Test Training Workshops was reduced from 11 workshops in 2009 to 3 workshops in 2010. One Pre-Test Workshop was held in Northern California (Sacramento County), another in Southern California (Ventura County), and a third workshop was conducted via Webcast. The archive of the Webcast was made available for later viewing on the San Diego County Office of Education's Web site. The number of Post-Test Workshops was reduced from five in-person workshops to one Webcast. There appeared to be no significant negative impact from the reduction of the workshops on the test administration process.
- **Reduction in the weight of paper used to print test materials—**The weight of the paper used to print the nonscannable test booklets, manuals, and *Directions for Administration (DFAs)* were reduced to a lighter weight, which reduced paper and shipping costs. There appeared to be no impact to the test administration process.
- **Elimination of the security audits—**The activities to train auditors and conduct site visits before, during, and after testing to randomly selected school districts were eliminated. Reviews of testing irregularities were conducted by the CDE. ETS continued to conduct investigations of security breaches at the CDE's direction.
- **Elimination of the mark discrimination analysis—**The mark discrimination analysis was eliminated beginning with the 2009 administration.
- **Elimination of the language translations for the Student Report Interpretation Guides—**The translation of the CST, CMA, and CAPA student report interpretation guides into other languages was subsumed by the CDE Clearinghouse for Multilingual Documents. Translations of the guides are available on the California Department of Education Web site, at http://www.cde.ca.gov/ta/tg/sr/resources.asp.

Limitations of the Assessment

Score Interpretation

A school district may use CMA 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 test can provide only limited information. Other relevant information should be considered as well. It is advisable for parents to evaluate their child's strengths and weaknesses in the relevant topics by reviewing classroom work and progress reports in addition to the child's CMA results (CDE, 2009). It is also important to note that student scores in a content area contain measurement error and could vary if students were retested.

Out-of-Level Testing

Testing below a student's grade is not allowed for the CMA or any test in the STAR Program; all students are required to take the test for the grade in which they are enrolled. Districts are advised to review all IEPs to ensure that any provision for testing below a student's grade level has been removed. The student's IEP team makes the decision annually by evaluating the student's progress on multiple measures. The IEP team must specify annually the CMA content area(s) the student is assigned to take

Score Comparisons

When comparing results for the CMA, the reviewer is limited to comparing results only within the same content area and grade. For example, it is appropriate to compare scores obtained by students and/or schools on the 2010 grade three mathematics test; it would not

be appropriate to compare scores obtained on the grade three mathematics test with those obtained on the grade four mathematics test. The reviewer may compare results for the same content area and grade, within a school, between schools, or between a school and its district, its county, or the state within the same year, and if based on the same score scale, across years. Comparisons between scores obtained in different grades or content areas should be avoided.

In 2010, the results for the CMA for grade nine ELA, EOC Algebra I, and grade ten Life Science are reported as the percent correct scores, which are number correct scores divided by the total number of items on the test. When comparing these results the reviewer is limited to making comparisons within the same content area, grade, and year. No direct comparisons should be made between grades, between content areas, or across the years.

Groups and Organizations involved with the STAR Program

State Board of Education

The SBE is the state education agency that sets education 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*.

The SBE is responsible for assuring the compliance with programs that meet the requirement of the federal ESEA and for reporting results in terms of the API, which measures the academic performance and growth of schools on a variety of academic measures. In order to provide information on student progress in public schools, as essential for those programs, the SBE supervises the administration and progress of the STAR Program.

California Department of Education

The CDE oversees California's public school system, which is responsible for the education of more than 7,000,000 children and young adults in more than 9,000 schools. The CDE's mission is to provide leadership, assistance, oversight, and resources so that every child in California has access to a competent and effective educational system. As part of its mission to promote district and school accountability for improving student achievement as defined by the SBE, the CDE oversees the development and administration of the STAR Program.

Contractors

Educational Testing Service

The CDE and the SBE contract with Educational Testing Service (ETS) to develop and administer the STAR Program. As the prime contractor, ETS has overall responsibility for working with the CDE to implement and maintain an effective assessment system and to coordinate the work of ETS and its subcontractor Pearson. Activities directly conducted by ETS include the following:

- Overall management of the program activities;
- Development of all test items;
- Construction and production of test booklets and related test materials;
- Support and training provided to counties, school districts, and independently testing charter schools;

- Implementation and maintenance of the STAR Management System for orders of materials and pre-identification services; and
- Completion of all psychometric activities.

Pearson

ETS also monitors and manages the work of Pearson, subcontractor to ETS for the STAR Program. Activities conducted by Pearson include the following:

- Production of all scannable test materials;
- Packaging, distribution, and collection of testing materials to school districts and independently testing charter schools;
- Scanning and scoring of all responses, including performance scoring of the writing responses; and
- Production of all score reports and data files of test results.

Overview of the Technical Report

This technical report addresses the characteristics of the CMA administered in spring 2010. The technical report contains nine additional chapters as follows:

- Chapter 2 presents a conceptual overview of processes involved in a testing cycle for a CMA. This includes test construction, test administration, generation of test scores, and dissemination of score reports. Information about the distributions of scores aggregated by subgroups based on demographics and the use of special services is also included in this chapter. Also included are references to various chapters that detail the processes briefly discussed in this chapter.
- Chapter 3 describes the procedures followed during the development of valid CMA items; the chapter explains the process of field-testing new items and the review of items by contractors and content experts.
- Chapter 4 details the content and psychometric criteria applicable to the construction of CMA tests for 2010.
- Chapter 5 presents the processes involved in the actual administration of the 2010 CMA tests with an emphasis on efforts made to ensure standardization of the tests. It also includes a detailed section that describes the procedures that were followed by ETS to ensure test security.
- Chapter 6 describes the standard setting process previously conducted for newly introduced CMA tests.
- Chapter 7 details the types of scores and score reports that are produced at the end of each administration of the CMA.
- Chapter 8 summarizes the results of the test and item-level analyses performed during the spring 2010 administration of the tests. These include the classical item analyses, the reliability analyses that include assessments of test reliability and the consistency and accuracy of the CMA proficiency-level classifications, and the procedures designed to ensure the validity of CMA score uses and interpretations. Also discussed in this chapter are the item response theory (IRT) and model-fit analyses, as well as documentation of the equating, along with CMA conversion tables. Finally, the chapter summarizes the results of analyses investigating the DIF for each CMA.

- Chapter 9 highlights the importance of controlling and maintaining the quality of the CMA.
- Chapter 10 presents historical comparisons of various item- and test-level results for the spring 2010 administration and for the 2009 base year.

Each chapter contains summary tables in the body of the text. However, extended appendixes that give more detailed information are provided at the end of the relevant chapters.

Reference

California Department of Education. (2009). *Interpreting 2009 STAR program test results*. Sacramento, CA. http://www.cde.ca.gov/ta/tg/sr/documents/star09intrprslt.pdf.

Chapter 2: An Overview of CMA Processes

This chapter provides an overview of the processes involved in a typical test development and administration cycle for a CMA test. Also described are the specifications maintained by ETS to carry out each of those processes. The chapter is organized to provide a brief description of each process followed by a summary of the associated specifications. More details about the specifications and the analyses associated with each process are described in other chapters that are referenced in the sections that follow.

Item Development

Item Formats

All tests of the CMA contain three-option multiple-choice items. The CMA for ELA in grade seven also includes a CMA writing test, which contains one writing task.

Item Development Specifications

The CMA items are developed to measure California content standards and designed to conform to principles of item writing defined by ETS (ETS, 2002). ETS maintains item development specifications for each CMA test and has developed an item utilization plan to guide the development of the items for each content area. Item writing emphasis is determined in consultation with the CDE.

The item specifications describe the characteristics of the items that should be written to measure each content standard. The item specifications help ensure that the items in the CMA measure the content standards in the same way. To do this, the item specifications provide detailed information to item writers that are developing items for the CMA.

The items selected for the CMA undergo an extensive item review process that is designed to provide the best standards-based tests possible. Details about the item development specifications, the item review process, the item utilization plan, and the rules for arranging items on the forms are presented in Chapter 3, starting on page 74.

Item Banking

The newly developed items are placed in the item bank along with the corresponding information obtained at the review sessions. Items that are accepted by the content experts are updated to a “field-test ready” status; items that are rejected are updated to a “rejected before use” status. ETS then delivers the items to the CDE by means of a delivery of the California electronic item bank.

Items are field-tested to obtain information about item performance and to obtain statistics that can be used to assemble operational forms. ETS then prepares the items and the associated statistics for another round of review by content experts and various external review organizations such as the Assessment Review Panels (ARPs), which are described starting on page 78; and the Statewide Pupil Assessment Review (SPAR) panel, described starting on page 81. Subsequent updates to item content and statistics are based on the operational use of the items. However, only the latest content of the item is retained in the bank at any time, along with the administration data from every administration that has included the item.

Further details on item banking are presented on page 83 in Chapter 3.

Item Refresh Rate

The item utilization plan assumes that each year, 35 percent of items on an operational form are refreshed (replaced); these items remain in the item bank for future use.

Test Assembly

Test Length

The number of items in each CMA and the estimated time to complete a test is presented in Appendix 2.A on page 21. There are 57 items on the CMA tests for ELA in grades three through five, for mathematics in grades three through five, and for science in grade five. There are 63 items on the CMA tests for ELA in grades six through eight, for mathematics in grades six and seven, and for science in grade eight. There are 70 items on the CMA for ELA in grade nine and Algebra I, and 66 items on the CMA for Life Science in grade ten. The considerations in deciding upon the test length are described on page 86 in Chapter 4.

Test Blueprint

ETS selects all CMA test items to conform to the SBE-approved California content standards and test blueprints. The test blueprints for the CMA can be found on the CDE STAR CMA Blueprints Web page at http://www.cde.ca.gov/ta/tg/sr/cmablueprints.asp.

Although the test blueprints specify the number of items at the individual standard level, scores for the CMA items in grades three through eight are grouped into subcontent areas referred to as “reporting clusters.”

For each CMA reporting cluster, the percentage of questions correctly answered is reported on a student’s score report. A description of the reporting clusters for grades three through eight and the standards that comprise each cluster are provided in Appendix 2.B, which starts on page 22.

Content Rules and Item Selection

When developing a new test form for a given grade and content area, test developers follow a number of rules. First and foremost, they select items that meet the blueprint for that grade and content area. Using an electronic item bank, assessment specialists begin by identifying a number of linking items. These are items that appeared in the previous year’s operational administration and they are used to equate the test forms administered each year. After the linking items are approved, assessment specialists populate the rest of the test form.

Another consideration is the difficulty of each item. Test developers strive to ensure that there are some easy and some hard items and that there are a number of items in the middle range of difficulty. The detailed rules are presented in Chapter 4, which begins on page 86.

Note: In 2010, for all grade-level CMA tests administered in grades six through eight, the previous year’s test forms were re-used.[1]

Psychometric Criteria

For the CMA, the test developers and psychometricians strive to accomplish three goals while developing a test:

[1] For these CMA tests, a new score scale was developed based on the current year’s data; therefore, no equating was needed.

1. The test must have desired precision of measurement at all ability levels.
2. The test score must be valid and reliable for the intended population and for the various subgroups of test-takers.
3. The test forms must be comparable across years of administration to ensure the generalizability of scores over time.

In order to achieve these goals, a set of rules is developed that outlines the desired psychometric properties of each CMA. Such rules are referred to as statistical targets.

Three types of assembly targets are developed for each CMA: the total test target, the linking block target, and reporting cluster targets. These targets are provided to test developers before a test construction cycle begins. The test developers and psychometricians work together to design the tests to these targets.

The staff also assesses the projected test characteristics during the preliminary review of the assembled forms. The test targets used for the 2010 test development and the projected characteristics of the assembled forms are presented on page 87 in Chapter 4.

The items in test forms are organized and sequenced differently according to the requirements of the content area. Further details on the arrangement of items during test assembly are also described on page 89 in Chapter 4.

Test Administration

It is of the utmost priority to ETS to administer the CMA in an appropriate, consistent, confidential, and standardized manner.

Test Security and Confidentiality

All tests within the STAR Program are secure documents. For the CMA administration, every person having access to test materials maintains the security and confidentiality of the tests. ETS's Code of Ethics requires that all test information, including tangible materials (such as test booklets, test questions, test results), confidential files, processes, and activities are kept secure. To ensure security for all tests that ETS develops or handles, ETS maintains an Office of Testing Integrity (OTI). A detailed description of the OTI and its mission is presented in Chapter 5, on page 101.

In its pursuit of enforcing secure practices, ETS and the OTI strive to safeguard the various processes involved in a test development and administration cycle. Those processes are listed below. The practices related to each process are discussed in detail in Chapter 5, starting on page 101.

- Test development
- Item and data review
- Item banking
- Transfer of forms and Items to the CDE
- Security of electronic files using a firewall
- Printing and publishing
- Test administration
- Test delivery
- Processing and scoring
- Data management

- Transfer of scores via secure data exchange
- Statistical analysis
- Reporting and posting results
- Student confidentiality
- Student test results

Procedures to Maintain Standardization

The CMA processes are designed so that the tests are administered and scored in a standardized manner. ETS takes all necessary measures to ensure the standardization of the CMA tests, as described in this section.

Test Administrators

The CMA tests are administered in conjunction with the other tests that comprise the STAR Program. ETS employs personnel who facilitate various processes involved in the standardization of an administration cycle.

Staff at school districts that are central to the processes include district STAR coordinators, test examiners, proctors, and scribes. The responsibilities of each of the staff members are included in the *STAR District and Test Site Coordinator Manua*l (CDE, 2010); see page 107 in Chapter 5 for more information.

Test Directions

ETS maintains a series of instructions compiled in detailed manuals that are available to the test administrators. Such documents include, but are not limited to, the following:

***Directions for Administration* (*DFA*s)—**Manuals used by test examiners to administer the CMA to students to be followed exactly so that all students have an equal opportunity to demonstrate their academic achievement (See page 107 for more information.)

***District and Test Site Coordinator Manual*—**Test administration procedures for district STAR coordinators and test site coordinators (See page 107 for more information.)

STAR Management System manuals—Instructions for the Web-based modules that allow district STAR coordinators to set up test administrations, order materials, and submit and correct student Pre-ID data; every module has its own user manual with detailed instructions on how to use the STAR Management System (See page 107 for more information.)

Test Variations and Accommodations

All public school students participate in the STAR Program, including students with disabilities and English learners. Most students with IEPs and most English learners take the CMA under standard conditions. However, some students with IEPs and some English learners may need assistance when taking the CMA. This assistance takes the form of test variations or accommodations. All students in these categories may have test administration directions simplified or clarified. In addition, all eligible students may have test variations, if these variations are regularly used in the classroom. They also must be allowed to use the accommodations that are specified in each student's individualized education program (IEP) or Section 504 plan. These accommodations must match the one(s) used for classroom work throughout the year.

Accommodations change the way the test is given but do not change what is tested. The purpose of test variations and accommodations is to enable the students to take the CMA,

not to give them an advantage over other students or to artificially inflate their scores. Test administration variations and accommodations do not result in changes to the students' scores for API or AYP calculations.

Test variations, and accommodations for the statewide assessments, including the STAR Program, are defined as follows:

Category 1: Test Variations—Eligible students may have test variations if regularly used in the classroom. For example, students may take a test in a group smaller than the regular testing group or take the test individually. They also may use special lighting, adaptive furniture, or magnifying equipment.

Category 2: Accommodations—Eligible students are permitted to take the CMA with accommodations if specified in their IEP or Section 504 plan for use on the CMA or for use during classroom instruction and assessment. Examples of accommodations are large-print or braille versions of the CMA or providing more than one day for a test designed for a single sitting.

Appendix 2.C on page 24 presents a complete list of test variations and accommodations that were allowed for the CMA program in 2010.

Accommodation Summaries

The percentage of students using various testing accommodations during the 2010 administration of the CMA is presented in Appendix 2.D, which starts on page 26. The data are organized into two sections within each table. The first section presents the percentages of students using each accommodation in the total testing population. The second section presents the results for students in various categories based on the following levels of English-language fluency:

- **English only (EO)—**A student for whom there is a report of English as the primary language (i.e., language first learned, most frequently used at home, or most frequently spoken by the parents or adults in the home) on the "Home Language Survey"
- **Initially fluent English proficient (I-FEP)—**A student whose primary language is a language other than English who initially met the district criteria for determining proficiency in English
- **English learner (EL)—**A student who first learned or has a home language other than English who was determined to lack sufficient fluency in English on the basis of state oral language (K–12) and literacy (3–12) assessments to succeed in the school's regular instructional program (For students tested for initial classification prior to May 2001, this determination is made on the basis of the state-approved instrument the district was using. For students tested after May 2001, use the CELDT results.)
- **Reclassified fluent English proficient (R-FEP)—**A student whose primary language is a language other than English who was reclassified from English learner to fluent-English proficient

The information within each section is presented for the relevant grades. Most accommodations are common across CMA tests, although the CMA for grade seven ELA also includes accommodations related to the writing task. Additional accommodations are included for CMA tests for mathematics that involved the use of calculators and arithmetic tables, and for science and mathematics that involved manipulatives.

Scores

The CMA total test raw scores equal the sum of examinees' scores on the multiple-choice test items. In grade seven, the total ELA raw score equals the sum of examinees' scores on both the multiple-choice items and the writing task. The writing score is reported on a scale with possible scores of 0, 1, 2, 3 and 4. Details about CMA writing scores and scoring rubrics are described on page 119 in Chapter 7.

Total test raw scores on each grade-level CMA in grades three through eight are converted to three-digit scale scores using the equating process described starting on page 16. CMA results are reported through the use of these scale scores; the scores range from 150 to 600 for each test. Also reported are performance levels obtained by categorizing the scale score into one of the following levels: far below basic, below basic, basic, proficient, or advanced. Scale scores of 300 and 350 correspond to the cut scores for the basic and proficient performance levels, respectively. The state's target is for all students to score at the proficient or advanced level.

In addition to scale scores for the total content-area test, CMA performance on various reporting clusters is reported for grades three through eight on grade-level tests. The subscore or reporting cluster score is obtained by summing an examinee's scores on the items in each reporting cluster. That information is reported in terms of a percent correct score.

Detailed descriptions of CMA scores are described in Chapter 7, which starts on page 117.

Aggregation Procedures

In order to provide meaningful results to the stakeholders, CMA scores for a given grade and content area are aggregated at the school, independently testing charter school, district, county, and state levels. The aggregated scores are generated both for individual scores and group scores. The following section presents the types of aggregation performed on individual and group CMA scores.

Individual Scores

Table 7.1 and Table 7.2 starting on page 123 in Chapter 7 provide summary statistics for individual scores, describing overall student performance on each CMA. Included in the tables are the means and standard deviations of student scores expressed in terms of both raw scores and scale scores; the raw score means and standard deviations expressed as percentages of the total raw score points in each test; and the percentages of students in each performance level.

Group Scores

Statistics summarizing CMA student performance by content area and grade level are provided in Table 7.B.1 through Table 7.B.6 starting on page 133 in Appendix 7.B. In Table 7.C.1 through Table 7.C.13 starting on page 136, students in grades three through eight are grouped by demographic characteristics including gender, ethnicity, English-language fluency, economic status, and primary disability. For the CMA tests with established reporting scales and proficiency levels, the tables show the numbers of students with valid

scores[2] in each group, scale score means and standard deviations, and percent in a performance level, as well as percent correct for each reporting cluster for each demographic group. Table 7.3 on page 125 provides definitions for the demographic groups included in the tables.

Equating

The 2010 CMA tests in grades three through five are equated to a reference form using a common-item nonequivalent groups design and methods based on item response theory. The “base” or “reference” calibrations for the CMA were established by calibrating samples of data from the 2009 administration. Doing so established a scale to which subsequent item calibrations could be linked. The 2010 items were placed on the reference 2009 scale using a set of linking items selected from the 2009 forms and re-administrated in 2010. For grade-level tests in grades six through eight, CMA test forms were re-used in 2010 and a new scale was developed for those tests using 2010 student data. Therefore, equating of those CMA tests to previously established scales was not required.

Calibration

To obtain item calibrations, a proprietary version of PARSCALE program is used. The estimation process is constrained by setting a common discrimination value for all items equal to 1.0 / 1.7 (or 0.588) and by setting the lower asymptote for all multiple-choice items to zero. The resulting estimation is equivalent to the Rasch model for multiple-choice items and the Rasch partial credit model for polytomously scored items, which was used to obtain calibrations for the writing prompt in the CMA for ELA (Grade 7). For the purpose of equating, only the operational items are calibrated for each test.

The PARSCALE calibrations are run in two stages, following procedures used with other ETS testing programs. In the first stage, estimation imposed normal constraints on the updated prior ability distribution. The estimates resulting from this first stage are used as starting values for a second PARSCALE run, in which the content area prior distribution is updated after each expectation maximization (EM) cycle with no constraints. For both stages, the metric of the scale is controlled by the constant discrimination parameter.

Scaling

Calibrations of the 2010 items for grades three through five were linked to the previously obtained reference scale estimates using linking items and the Stocking and Lord (1983) procedure. In the case of the one-parameter model calibrations, this procedure is equivalent to setting the mean of the new item parameter estimates for the linking set equal to the mean of the previously scaled estimates. The linking set is a collection of items in a current test form that also appeared in last year’s form and was scaled at that time.

The linking process is carried out iteratively by inspecting differences between the transformed new and old (reference) estimates for the linking items and removing items for which the item difficulty estimates changed significantly. Items with large weighted root-mean-square differences (WRMSDs) between item characteristic curves (ICCs) based on

[2] Valid scores are based on cases where examinees met one or more of the following criteria:

1. Met attemptedness criteria.
2. Did not have a parental exemption.
3. Did not miss any part of the test due to illness or medical emergency.
4. Identified, in the case of the end-of-course Algebra I test, the particular test taken.

the old and new difficulty estimates were removed from the linking set. The differences are calculated using the following formula:

$$WRMSD = \sqrt{\sum_{j=1}^{n_g} w_j \left[P_n\left(\theta_j\right) - P_r\left(\theta_j\right) \right]^2} \tag{2.1}$$

where,

abilities are grouped into intervals of 0.005 ranging from -3.0 to 3.0,

n_g is the number of intervals/groups,

θ_j is the mean of the ability estimates that fall in interval j,

w_j is a weight equal to the proportion of estimated abilities from the transformed new form in interval j,

$P_n(\theta_j)$ is the probability of correct response for the transformed new form item at ability θ_j, and

$P_r(\theta_j)$ is the probability of correct response for the old (reference) form item at ability θ_j.

Based on established procedures, any linking items for which the WRMSD was greater than 0.125 were eliminated. This criterion has produced reasonable results over time in similar equating work done with other testing programs at ETS.

Scoring Table Production

Once the new item calibrations for each test are transformed to the base scale, IRT procedures are used to transform the new form number-correct scores to their corresponding ability (theta). The ability estimates can then be transformed to scale scores through linear transformation.

The procedure is based on the relationship between raw scores and ability (theta). For the CMA test consisting entirely of *n* multiple-choice items, this is the well-known relationship defined in Lord (1980; equations 4–5):

$$\xi(\theta) = \sum_{i=1}^{n} P_i(\theta) \tag{2.2}$$

where,

$P_i(\theta)$ is the probability of a correct response to item *i* at ability θ, and

$\xi(\theta)$ is the corresponding true score.

For grade seven ELA, $\xi(\theta)$ is based on a sum of multiple-choice and constructed response essay items; the relationship can be defined as:

$$\xi(\theta) = \sum_{i=1}^{nmc} P_i(\theta) + \sum_{j=1}^{ncr} \sum_{x=1}^{m} s_x P_{xj}(\theta) \tag{2.3}$$

where,

s_x is the value for score category x,

nmc is the number of multiple-choice items in the test,

ncr is the number of constructed response items in the test,

m is the number of score categories for each constructed response item, and

$P_{xj}(\theta)$ is the probability that an examinee with ability θ obtains score s_x on the constructed response item.

For each integer score ξ_n on the scaled new form, the procedure first solves for the corresponding ability estimate using equation (2.2), except in the case of the grade seven ELA test, where equation (2.3) is used. The ability estimates are then expressed in the reporting scale metric by applying linear transformation with the appropriate slope and intercept, using the equation below:

$$ScaleScore = Intercept + Slope \times \hat{\theta} \tag{2.4}$$

The slope and intercept for each CMA were developed from the base forms, since the basic and proficiency cut scores were required to be equal to 300 and 350, respectively.

$$\text{Slope} = \frac{350 - 300}{\hat{\theta}_{proficient} - \hat{\theta}_{basis}} \tag{2.5}$$

$$\text{Intercept} = 350 - \hat{\theta}_{proficient} \times \left(\frac{350 - 300}{\hat{\theta}_{proficient} - \hat{\theta}_{basic}} \right) \tag{2.6}$$

where,

$\hat{\theta}$ represents student ability

$\hat{\theta}_{pro}$ represents theta cut-score for proficient on the base scale

$\hat{\theta}_{bas}$ represents theta cut-score for basic on the base scale

For all of the CMA tests, scale scores were adjusted at both ends of the scale so that the minimum reported scale score was 150 and the maximum reported scale score was 600. Raw scores of zero and perfect raw scores were assigned scale scores of 150 and 600 respectively

Complete raw-to-scale score conversion tables for the 2010 CMA are presented in Table 8.D.26 through Table 8.D.40, starting on page 248. The raw scores and corresponding rounded converted scale scores are listed in those tables.

The scale score ranges defining the various performance levels for grades three to eight CMA are presented in Table 2.1, below.

Table 2.1 Scale Scores Ranges for Performance Levels

Content Area	CMA	Far Below Basic	Below Basic	Basic	Proficient	Advanced
English–Language Arts	3	150 – 227	228 – 299	300 – 349	350 – 396	397 – 600
	4	150 – 240	241 – 299	300 – 349	350 – 406	407 – 600
	5	150 – 218	219 – 299	300 – 349	350 – 399	400 – 600
	6	150 – 220	221 – 299	300 – 349	350 – 404	405 – 600
	7	150 – 227	228 – 299	300 – 349	350 – 408	409 – 600
	8	150 – 234	235 – 299	300 – 349	350 – 406	407 – 600
Mathematics	3	150 – 228	229 – 299	300 – 349	350 – 422	423 – 600
	4	150 – 218	219 – 299	300 – 349	350 – 429	430 – 600
	5	150 – 225	226 – 299	300 – 349	350 – 421	422 – 600
	6	150 – 229	230 – 299	300 – 349	350 – 427	428 – 600
	7	150 – 236	237 – 299	300 – 349	350 – 442	443 – 600

Content Area	CMA	Far Below Basic	Below Basic	Basic	Proficient	Advanced
Science	5	150 – 242	243 – 299	300 – 349	350 – 400	401 – 600
	8	150 – 263	264 – 299	300 – 349	350 – 405	406 – 600

* Numbers indicate grade-level tests.

Equating the Braille Versions of the CMA

In some cases, it is not possible to translate all of the items contained in a CMA into braille. This situation requires that a new conversion table be developed for the shortened test. To obtain this table, the shortened test is equated to the full-length test using the IRT equating methods described previously. This process ensures that the scaled cut scores established for the full-length test are used to classify students who take the shorter test.

In 2010, this process was applied to the CMA for ELA (Grade 3). One item in this test could not be translated into braille.

References

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Educational Testing Service. (2002). *ETS standards for quality and fairness*. Office of Testing Integrity, Princeton, NJ: Educational Testing Service.

Lord, F. M. (1980). *Applications of item response theory to practical testing problems.* New Jersey: Lawrence Erlbaum.

Stocking, M. L., and Lord, F. M. (1983). Developing a common metric in item response theory. *Applied Psychological Measurement, Vol. 7*, pp. 201–10.

Appendix 2.A—CMA Item and Estimated Time Chart

California Modified Assessment	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Grade 8		Grade 9		Grade 10		Grade 11	
	Total No. of Items	Time	Total No. of Items	Time	Total No. of Items	Time	Total No. of Items	Time	Total No. of Items	Time	Total No. of Items	Time	Total No. of Items	Time	Total No. of Items	Time	Total No. of Items	Time
English–Language Arts		**180**		**135**		**135**		**165**		**165**		**165**		**150**		**--**		**--**
Part 1		45		45		45		55		55		55		50		--		--
Part 2	57	45	57	45	57	45	63	55	63	55	63	55	70	50	N/A	--	N/A	--
Part 3		45		45		45		55		55		55		50		--		--
Part 4–only grade 3		45	--	--	--	--	--	--	--	--	--	--	--	--		--		--
Writing Application	--	--	--	--	--	--	--	--	1	70[1]	--	--	--	--		--		--
Mathematics		**140**		**105**		**105**		**120**		**120**		**150**		**150**		**150**		**150**
Part 1		35		35		35		40		40		50		50		50		50
Part 2	57	35	57	35	57	35	63	40	63[2]	40	70[3]	50	70[3]	50	70[3]	50	70[3]	50
Part 3		35		35		35		40		40		50		50		50		50
Part 4–only grade 3		35	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Science		--		--		**120**		--		--		**135**		**--**		**150**		**--**
Part 1	--	--	--	--	57	40	--	--	--	--	63	45	--	--	66	50	N/A	--
Part 2		--		--		40		--		--		45		--		50		--
Part 3		--		--		40		--		--		45		--		50		--

1 The writing test in grade seven is given on a separate date from the multiple-choice tests. Writing test times are not included in the estimated time for ELA multiple-choice tests.

2 Students in grade seven taking a mathematics CMA will take either the CMA for Mathematics (Grade 7) or the CMA for Algebra I. Items and times are for the CMA for Mathematics (Grade 7). Items and estimated times for the CMA for Algebra I are listed under grades eight through eleven mathematics.

3 Students in grades eight through eleven will take the CMA for Algebra I or the appropriate mathematics CST.

Appendix 2.B—Reporting Clusters

English–Language Arts

English–Language Arts Modified Standards Assessment (Grade Three)

Multiple Choice	
Vocabulary	14 items
Reading for Understanding	17 items
Language	17 items

English–Language Arts Modified Standards Assessment (Grade Four)

Multiple Choice	
Vocabulary	11 items
Reading for Understanding	16 items
Language	21 items

English–Language Arts Modified Standards Assessment (Grade Five)

Multiple Choice	
Vocabulary	8 items
Reading for Understanding	18 items
Language	22 items

English–Language Arts Modified Standards Assessment (Grade Six)

Multiple Choice	
Vocabulary	9 items
Reading for Understanding	22 items
Language	23 items

English–Language Arts Modified Standards Assessment (Grade Seven)

Multiple Choice	
Vocabulary	8 items
Reading for Understanding	22 items
Language	24 items
Writing	
Writing Applications	1 (4 points)

English–Language Arts Modified Standards Assessment (Grade Eight)

Multiple Choice	
Vocabulary	6 items
Reading for Understanding	24 items
Language	24 items

Mathematics

Mathematics Modified Standards Assessment (Grade Three)

Multiple Choice	
Number Sense	24 items
Algebra and Data Analysis	13 items
Measurement and Geometry	11 items

Mathematics Modified Standards Assessment (Grade Four)

Multiple Choice	
Number Sense	23 items
Algebra and Data Analysis	15 items
Measurement and Geometry	10 items

Mathematics Modified Standards Assessment (Grade Five)

Multiple Choice	
Number Sense	21 items
Algebra and Data Analysis	17 items
Measurement and Geometry	10 items

Mathematics Modified Standards Assessment (Grade Six)

Multiple Choice	
Number Sense	21
Algebra and Data Analysis	25
Measurement and Geometry	8

Mathematics Modified Standards Assessment (Grade Seven)

Multiple Choice	
Number Sense	18 items
Algebra and Data Analysis	25 items
Measurement and Geometry	11 items

Science

Science Modified Standards Assessment (Grade Five)

Multiple Choice	
Physical Sciences	16 items
Life Sciences	16 items
Earth Sciences	16 items

Science Modified Standards Assessment (Grade Eight)

Multiple Choice	
Motion	19 items
Matter	23 items
Earth Science	7 items
Investigation and Experimentation	5 items

Appendix 2.C—2010 Test Variations and Accommodations

Appropriate testing variations and accommodations for the 2010 administration of the California Modified Assessment[1] are based on the study of item format and delivery mode from the California Modified Assessment Pilot Test.

Allowable Variations

- Test administration directions that are simplified or clarified (does not apply to test questions)
- Student marks in test booklet (other than responses) including highlighting
- Test students in a small group setting
- Extra time on a test within a testing day
- Test individual student separately, provided that a test examiner directly supervises the student
- Visual magnifying equipment
- Audio amplification equipment
- Noise buffers (e.g., individual carrel or study enclosure)
- Special lighting or acoustics; special or adaptive furniture
- Colored overlay, mask, or other means to maintain visual attention
- Manually Coded English or American Sign Language to present directions for administration (does not apply to test questions)

Allowable Accommodations

- Student marks responses in test booklet and responses are transferred to a scorable answer document by an employee of the school, district, or nonpublic school
- Responses dictated (orally, or in Manually Coded English [MCE] or American Sign Language [ASL] to a scribe for selected-response items (multiple-choice questions)
- Word processing software with spell and grammar check tools turned off for the essay responses (writing portion of the test)
- Essay responses dictated orally or in MCE to a scribe, audio recorder, or speech-to-text converter and the student provides all spelling and language conventions
- Assistive device that does not interfere with the independent work of the student on the multiple-choice and/or essay responses (writing portion of the test)
- Braille transcriptions provided by the test contractor
- Large-print versions
- Test items enlarged if font larger than required on large-print versions
- Test over more than one day for a test or test part to be administered in a single sitting
- Supervised breaks within a section of the test
- Administration of the test at the most beneficial time of day to the student
- Test administered at home or in hospital by a test examiner

[1] The California Modified Assessment is a new assessment in the Standardized Testing and Reporting Program. Regulations are in the development process and will be publicly heard at a future State Board of Education meeting.

- MCE or ASL to present test questions
- Answer options read aloud to student
- Test questions read aloud to student or used audio CD presentation
- Calculator on the grade five mathematics test
- Math manipulatives on the mathematics tests
- Math manipulatives on the science tests
- Unlisted Accommodation

Allowable English Learner Variations

- Hear the test directions printed in the test administration manual translated into the student's primary language. Ask clarifying questions about the test directions in the student's primary language.
- Additional supervised breaks within a testing day or within a test part provided that the test part is completed within the day of testing. The end of a test part is identified by a "STOP" sign.
- English learners (ELs) may have the opportunity to be tested separately with other ELs provided that the student is directly supervised by an employee of the school who has signed the test security affidavit and the student has been provided such a flexible setting as part of his/her regular instruction or assessment.

CMA for Math and Science ONLY

- Access to translation glossaries/word lists (English-to-primary language). Glossaries/word lists shall not include definitions or formulas.

Appendix 2.D—Accommodation Summary Tables

Note: To improve clarity of tables presented in this section, the columns with total number of students using each service are labeled with the particular grade or test name for which the services were utilized. For example, the column with a heading of "Grade 3" in Table 2.D.1 presents the number of students using various special services on the CMA for ELA at grade two. The column with the heading of "Pct. Of Total" in the same table represents the percentage of students using a service, out of the total number of test-takers. The total number of test-takers is the total of students listed under "*Any* Accommodation or EL Variation" and those listed under "*No* Accommodation or EL Variation."

Table 2.D.1 Accommodation Summary for ELA, Grade Three

Accommodation Summary for ELA, Grade Three		
All Tested	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	192	1.19%
C: Dictated responses to a scribe	29	0.18%
F: Used non-interfering assistive device	36	0.22%
G: Used braille test	6	0.04%
H: Used large-print test	82	0.51%
J: Tested over more than one day	823	5.08%
K: Had supervised breaks	2,779	17.17%
L: Most beneficial time of day	1,415	8.74%
M: Administered at home or in a hospital	9	0.06%
O: Examiner presented with MCE or ASL	35	0.22%
X: Used an unlisted accommodation	683	4.22%
Y: Leave blank	131	0.81%
Z: Examiner read test questions aloud	2,930	18.10%
Accommodation is in Section 504 plan	2	0.01%
Accommodation is in IEP	4,840	29.90%
English Learner Test Variation A	52	0.32%
English Learner Test Variation B	45	0.28%
English Learner Test Variation C	58	0.36%
Any Accommodation or EL Variation	6,047	37.36%
No Accommodation or EL Variation	10,140	62.64%
English-Only Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	107	1.22%
C: Dictated responses to a scribe	24	0.27%
F: Used non-interfering assistive device	22	0.25%
G: Used braille test	6	0.07%
H: Used large-print test	49	0.56%
J: Tested over more than one day	448	5.11%
K: Had supervised breaks	1,481	16.89%
L: Most beneficial time of day	746	8.51%
M: Administered at home or in a hospital	5	0.06%
O: Examiner presented with MCE or ASL	21	0.24%
X: Used an unlisted accommodation	356	4.06%
Y: Leave blank	67	0.76%
Z: Examiner read test questions aloud	1,565	17.85%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	2,593	29.58%
English Learner Test Variation A	5	0.06%
English Learner Test Variation B	4	0.05%
English Learner Test Variation C	5	0.06%

Accommodation Summary for ELA, Grade Three		
Any Accommodation or EL Variation	3,238	36.93%
No Accommodation or EL Variation	5,529	63.07%
Initially Fluent English Proficient (I-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	3	1.90%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	2	1.27%
J: Tested over more than one day	7	4.43%
K: Had supervised breaks	27	17.09%
L: Most beneficial time of day	9	5.70%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	1.27%
X: Used an unlisted accommodation	9	5.70%
Y: Leave blank	1	0.63%
Z: Examiner read test questions aloud	28	17.72%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	51	32.28%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	64	40.51%
No Accommodation or EL Variation	94	59.49%
English Learner (EL) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	75	1.09%
C: Dictated responses to a scribe	3	0.04%
F: Used non-interfering assistive device	13	0.19%
G: Used braille test	0	0.00%
H: Used large-print test	26	0.38%
J: Tested over more than one day	348	5.06%
K: Had supervised breaks	1,204	17.50%
L: Most beneficial time of day	635	9.23%
M: Administered at home or in a hospital	4	0.06%
O: Examiner presented with MCE or ASL	10	0.15%
X: Used an unlisted accommodation	307	4.46%
Y: Leave blank	53	0.77%
Z: Examiner read test questions aloud	1,272	18.49%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	2,077	30.18%
English Learner Test Variation A	46	0.67%
English Learner Test Variation B	41	0.60%
English Learner Test Variation C	52	0.76%
Any Accommodation or EL Variation	2,602	37.81%
No Accommodation or EL Variation	4,279	62.19%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	2	5.26%
C: Dictated responses to a scribe	1	2.63%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	2	5.26%

Accommodation Summary for ELA, Grade Three		
J: Tested over more than one day	1	2.63%
K: Had supervised breaks	8	21.05%
L: Most beneficial time of day	5	13.16%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	2.63%
X: Used an unlisted accommodation	0	0.00%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	6	15.79%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	9	23.68%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	12	31.58%
No Accommodation or EL Variation	26	68.42%

Table 2.D.2 Accommodation Summary for ELA, Grade Four

Accommodation Summary for ELA, Grade Four		
All Tested	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	763	3.28%
C: Dictated responses to a scribe	44	0.19%
F: Used non-interfering assistive device	68	0.29%
G: Used braille test	12	0.05%
H: Used large-print test	84	0.36%
J: Tested over more than one day	1,264	5.44%
K: Had supervised breaks	3,882	16.69%
L: Most beneficial time of day	1,847	7.94%
M: Administered at home or in a hospital	9	0.04%
O: Examiner presented with MCE or ASL	51	0.22%
X: Used an unlisted accommodation	922	3.96%
Y: Leave blank	200	0.86%
Z: Examiner read test questions aloud	4,098	17.62%
Accommodation is in Section 504 plan	4	0.02%
Accommodation is in IEP	7,940	34.14%
English Learner Test Variation A	30	0.13%
English Learner Test Variation B	40	0.17%
English Learner Test Variation C	69	0.30%
Any Accommodation or EL Variation	8,399	36.12%
No Accommodation or EL Variation	14,857	63.88%
English-Only Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	471	3.68%
C: Dictated responses to a scribe	24	0.19%
F: Used non-interfering assistive device	37	0.29%
G: Used braille test	5	0.04%
H: Used large-print test	52	0.41%
J: Tested over more than one day	697	5.44%
K: Had supervised breaks	2,093	16.35%
L: Most beneficial time of day	1,014	7.92%
M: Administered at home or in a hospital	3	0.02%
O: Examiner presented with MCE or ASL	34	0.27%
X: Used an unlisted accommodation	504	3.94%
Y: Leave blank	108	0.84%
Z: Examiner read test questions aloud	2,151	16.80%
Accommodation is in Section 504 plan	4	0.03%
Accommodation is in IEP	4,312	33.68%
English Learner Test Variation A	2	0.02%
English Learner Test Variation B	3	0.02%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	4,521	35.31%
No Accommodation or EL Variation	8,283	64.69%
Initially Fluent English Proficient (I-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	9	2.16%
C: Dictated responses to a scribe	3	0.72%
F: Used non-interfering assistive device	3	0.72%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%

Accommodation Summary for ELA, Grade Four		
J: Tested over more than one day	22	5.28%
K: Had supervised breaks	70	16.79%
L: Most beneficial time of day	26	6.24%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.48%
X: Used an unlisted accommodation	11	2.64%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	58	13.91%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	124	29.74%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.24%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	134	32.13%
No Accommodation or EL Variation	283	67.87%
English Learner (EL) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	277	2.81%
C: Dictated responses to a scribe	16	0.16%
F: Used non-interfering assistive device	27	0.27%
G: Used braille test	7	0.07%
H: Used large-print test	30	0.30%
J: Tested over more than one day	538	5.45%
K: Had supervised breaks	1,695	17.17%
L: Most beneficial time of day	791	8.01%
M: Administered at home or in a hospital	6	0.06%
O: Examiner presented with MCE or ASL	14	0.14%
X: Used an unlisted accommodation	397	4.02%
Y: Leave blank	91	0.92%
Z: Examiner read test questions aloud	1,862	18.87%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,455	35.01%
English Learner Test Variation A	28	0.28%
English Learner Test Variation B	36	0.36%
English Learner Test Variation C	68	0.69%
Any Accommodation or EL Variation	3,690	37.39%
No Accommodation or EL Variation	6,180	62.61%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	6	4.80%
C: Dictated responses to a scribe	1	0.80%
F: Used non-interfering assistive device	1	0.80%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.80%
J: Tested over more than one day	6	4.80%
K: Had supervised breaks	17	13.60%
L: Most beneficial time of day	11	8.80%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.80%
X: Used an unlisted accommodation	6	4.80%
Y: Leave blank	1	0.80%
Z: Examiner read test questions aloud	22	17.60%

Accommodation Summary for ELA, Grade Four		
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	35	28.00%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	1	0.80%
Any Accommodation or EL Variation	38	30.40%
No Accommodation or EL Variation	87	69.60%

Table 2.D.3 Accommodation Summary for ELA, Grade Five

Accommodation Summary for ELA, Grade Five		
All Tested	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	741	3.06%
C: Dictated responses to a scribe	33	0.14%
F: Used non-interfering assistive device	62	0.26%
G: Used braille test	15	0.06%
H: Used large-print test	77	0.32%
J: Tested over more than one day	1,319	5.44%
K: Had supervised breaks	4,077	16.81%
L: Most beneficial time of day	1,912	7.88%
M: Administered at home or in a hospital	24	0.10%
O: Examiner presented with MCE or ASL	36	0.15%
X: Used an unlisted accommodation	940	3.88%
Y: Leave blank	211	0.87%
Z: Examiner read test questions aloud	4,176	17.22%
Accommodation is in Section 504 plan	3	0.01%
Accommodation is in IEP	8,216	33.88%
English Learner Test Variation A	24	0.10%
English Learner Test Variation B	67	0.28%
English Learner Test Variation C	52	0.21%
Any Accommodation or EL Variation	8,714	35.93%
No Accommodation or EL Variation	15,536	64.07%
English-Only Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	442	3.37%
C: Dictated responses to a scribe	23	0.18%
F: Used non-interfering assistive device	35	0.27%
G: Used braille test	6	0.05%
H: Used large-print test	55	0.42%
J: Tested over more than one day	769	5.87%
K: Had supervised breaks	2,198	16.78%
L: Most beneficial time of day	1,023	7.81%
M: Administered at home or in a hospital	14	0.11%
O: Examiner presented with MCE or ASL	24	0.18%
X: Used an unlisted accommodation	461	3.52%
Y: Leave blank	107	0.82%
Z: Examiner read test questions aloud	2,114	16.13%
Accommodation is in Section 504 plan	3	0.02%
Accommodation is in IEP	4,384	33.46%
English Learner Test Variation A	5	0.04%
English Learner Test Variation B	8	0.06%
English Learner Test Variation C	7	0.05%
Any Accommodation or EL Variation	4,662	35.58%
No Accommodation or EL Variation	8,440	64.42%
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	15	3.04%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	1	0.20%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%

Accommodation Summary for ELA, Grade Five		
J: Tested over more than one day	29	5.88%
K: Had supervised breaks	86	17.44%
L: Most beneficial time of day	50	10.14%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	3	0.61%
X: Used an unlisted accommodation	28	5.68%
Y: Leave blank	2	0.41%
Z: Examiner read test questions aloud	78	15.82%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	160	32.45%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	2	0.41%
English Learner Test Variation C	1	0.20%
Any Accommodation or EL Variation	167	33.87%
No Accommodation or EL Variation	326	66.13%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	268	2.59%
C: Dictated responses to a scribe	9	0.09%
F: Used non-interfering assistive device	26	0.25%
G: Used braille test	8	0.08%
H: Used large-print test	20	0.19%
J: Tested over more than one day	513	4.95%
K: Had supervised breaks	1,751	16.89%
L: Most beneficial time of day	816	7.87%
M: Administered at home or in a hospital	9	0.09%
O: Examiner presented with MCE or ASL	6	0.06%
X: Used an unlisted accommodation	439	4.23%
Y: Leave blank	97	0.94%
Z: Examiner read test questions aloud	1,937	18.68%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,579	34.52%
English Learner Test Variation A	19	0.18%
English Learner Test Variation B	57	0.55%
English Learner Test Variation C	44	0.42%
Any Accommodation or EL Variation	3,783	36.49%
No Accommodation or EL Variation	6,584	63.51%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	14	5.79%
C: Dictated responses to a scribe	1	0.41%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	1	0.41%
H: Used large-print test	2	0.83%
J: Tested over more than one day	5	2.07%
K: Had supervised breaks	33	13.64%
L: Most beneficial time of day	19	7.85%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.83%
X: Used an unlisted accommodation	9	3.72%
Y: Leave blank	3	1.24%
Z: Examiner read test questions aloud	41	16.94%

Accommodation Summary for ELA, Grade Five		
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	76	31.40%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	82	33.88%
No Accommodation or EL Variation	160	66.12%

Table 2.D.4 Accommodation Summary for ELA, Grade Six

Accommodation Summary for ELA, Grade Six		
All Tested	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	450	1.96%
C: Dictated responses to a scribe	26	0.11%
F: Used non-interfering assistive device	17	0.07%
G: Used braille test	6	0.03%
H: Used large-print test	62	0.27%
J: Tested over more than one day	847	3.69%
K: Had supervised breaks	3,055	13.31%
L: Most beneficial time of day	1,415	6.17%
M: Administered at home or in a hospital	11	0.05%
O: Examiner presented with MCE or ASL	25	0.11%
X: Used an unlisted accommodation	803	3.50%
Y: Leave blank	187	0.81%
Z: Examiner read test questions aloud	2,940	12.81%
Accommodation is in Section 504 plan	6	0.03%
Accommodation is in IEP	5,954	25.95%
English Learner Test Variation A	14	0.06%
English Learner Test Variation B	21	0.09%
English Learner Test Variation C	17	0.07%
Any Accommodation or EL Variation	6,350	27.67%
No Accommodation or EL Variation	16,598	72.33%
English-Only Students	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	301	2.38%
C: Dictated responses to a scribe	18	0.14%
F: Used non-interfering assistive device	5	0.04%
G: Used braille test	1	0.01%
H: Used large-print test	43	0.34%
J: Tested over more than one day	494	3.91%
K: Had supervised breaks	1,707	13.51%
L: Most beneficial time of day	785	6.21%
M: Administered at home or in a hospital	11	0.09%
O: Examiner presented with MCE or ASL	17	0.13%
X: Used an unlisted accommodation	406	3.21%
Y: Leave blank	123	0.97%
Z: Examiner read test questions aloud	1,509	11.94%
Accommodation is in Section 504 plan	5	0.04%
Accommodation is in IEP	3,261	25.81%
English Learner Test Variation A	2	0.02%
English Learner Test Variation B	3	0.02%
English Learner Test Variation C	1	0.01%
Any Accommodation or EL Variation	3,477	27.52%
No Accommodation or EL Variation	9,159	72.48%
Initially Fluent English Proficient (I-FEP) Students	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	7	1.38%
C: Dictated responses to a scribe	1	0.20%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	1	0.20%
H: Used large-print test	1	0.20%

Accommodation Summary for ELA, Grade Six		
J: Tested over more than one day	22	4.34%
K: Had supervised breaks	72	14.20%
L: Most beneficial time of day	36	7.10%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
X: Used an unlisted accommodation	22	4.34%
Y: Leave blank	2	0.39%
Z: Examiner read test questions aloud	68	13.41%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	133	26.23%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	145	28.60%
No Accommodation or EL Variation	362	71.40%
English Learner (EL) Students	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	133	1.42%
C: Dictated responses to a scribe	7	0.07%
F: Used non-interfering assistive device	11	0.12%
G: Used braille test	3	0.03%
H: Used large-print test	18	0.19%
J: Tested over more than one day	321	3.42%
K: Had supervised breaks	1,226	13.07%
L: Most beneficial time of day	568	6.05%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	5	0.05%
X: Used an unlisted accommodation	362	3.86%
Y: Leave blank	61	0.65%
Z: Examiner read test questions aloud	1,318	14.05%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	2,471	26.33%
English Learner Test Variation A	12	0.13%
English Learner Test Variation B	18	0.19%
English Learner Test Variation C	16	0.17%
Any Accommodation or EL Variation	2,629	28.02%
No Accommodation or EL Variation	6,754	71.98%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	9	2.33%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	1	0.26%
G: Used braille test	1	0.26%
H: Used large-print test	0	0.00%
J: Tested over more than one day	9	2.33%
K: Had supervised breaks	44	11.40%
L: Most beneficial time of day	23	5.96%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	3	0.78%
X: Used an unlisted accommodation	11	2.85%
Y: Leave blank	1	0.26%
Z: Examiner read test questions aloud	41	10.62%

Accommodation Summary for ELA, Grade Six		
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	79	20.47%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	88	22.80%
No Accommodation or EL Variation	298	77.20%

Table 2.D.5 Accommodation Summary for ELA, Grade Seven

Accommodation Summary for ELA, Grade Seven		
All Tested	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	280	1.31%
C: Dictated responses to a scribe	11	0.05%
F: Used non-interfering assistive device	22	0.10%
G: Used braille test	7	0.03%
H: Used large-print test	63	0.30%
J: Tested over more than one day	490	2.30%
K: Had supervised breaks	2,054	9.63%
L: Most beneficial time of day	724	3.39%
M: Administered at home or in a hospital	16	0.08%
O: Examiner presented with MCE or ASL	28	0.13%
X: Used an unlisted accommodation	721	3.38%
Y: Leave blank	191	0.90%
Z: Examiner read test questions aloud	1,386	6.50%
Accommodation is in Section 504 plan	2	0.01%
Accommodation is in IEP	3,979	18.65%
English Learner Test Variation A	10	0.05%
English Learner Test Variation B	19	0.09%
English Learner Test Variation C	10	0.05%
Any Accommodation or EL Variation	4,318	20.24%
No Accommodation or EL Variation	17,013	79.76%
English-Only Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	155	1.34%
C: Dictated responses to a scribe	9	0.08%
F: Used non-interfering assistive device	16	0.14%
G: Used braille test	4	0.03%
H: Used large-print test	36	0.31%
J: Tested over more than one day	268	2.32%
K: Had supervised breaks	1,170	10.13%
L: Most beneficial time of day	415	3.59%
M: Administered at home or in a hospital	9	0.08%
O: Examiner presented with MCE or ASL	20	0.17%
X: Used an unlisted accommodation	379	3.28%
Y: Leave blank	102	0.88%
Z: Examiner read test questions aloud	701	6.07%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	2,209	19.13%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	2	0.02%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	2,392	20.72%
No Accommodation or EL Variation	9,153	79.28%
Initially Fluent English Proficient (I-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	10	2.57%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	1	0.26%
G: Used braille test	0	0.00%
H: Used large-print test	4	1.03%

Accommodation Summary for ELA, Grade Seven		
J: Tested over more than one day	14	3.60%
K: Had supervised breaks	42	10.80%
L: Most beneficial time of day	17	4.37%
M: Administered at home or in a hospital	1	0.26%
O: Examiner presented with MCE or ASL	4	1.03%
X: Used an unlisted accommodation	15	3.86%
Y: Leave blank	1	0.26%
Z: Examiner read test questions aloud	22	5.66%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	73	18.77%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	81	20.82%
No Accommodation or EL Variation	308	79.18%
English Learner (EL) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	103	1.16%
C: Dictated responses to a scribe	2	0.02%
F: Used non-interfering assistive device	5	0.06%
G: Used braille test	3	0.03%
H: Used large-print test	21	0.24%
J: Tested over more than one day	197	2.22%
K: Had supervised breaks	799	9.01%
L: Most beneficial time of day	280	3.16%
M: Administered at home or in a hospital	6	0.07%
O: Examiner presented with MCE or ASL	4	0.05%
X: Used an unlisted accommodation	305	3.44%
Y: Leave blank	85	0.96%
Z: Examiner read test questions aloud	626	7.06%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	1,591	17.93%
English Learner Test Variation A	9	0.10%
English Learner Test Variation B	17	0.19%
English Learner Test Variation C	10	0.11%
Any Accommodation or EL Variation	1,735	19.56%
No Accommodation or EL Variation	7,137	80.44%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	9	1.94%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.43%
J: Tested over more than one day	10	2.16%
K: Had supervised breaks	38	8.21%
L: Most beneficial time of day	12	2.59%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
X: Used an unlisted accommodation	13	2.81%
Y: Leave blank	3	0.65%
Z: Examiner read test questions aloud	28	6.05%

Accommodation Summary for ELA, Grade Seven		
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	83	17.93%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	87	18.79%
No Accommodation or EL Variation	376	81.21%

Table 2.D.6 Accommodation Summary for ELA, Grade Eight

Accommodation Summary for ELA, Grade Eight		
All Tested	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	195	1.01%
C: Dictated responses to a scribe	12	0.06%
F: Used non-interfering assistive device	12	0.06%
G: Used braille test	6	0.03%
H: Used large-print test	45	0.23%
J: Tested over more than one day	398	2.05%
K: Had supervised breaks	1,914	9.88%
L: Most beneficial time of day	687	3.54%
M: Administered at home or in a hospital	20	0.10%
O: Examiner presented with MCE or ASL	24	0.12%
X: Used an unlisted accommodation	481	2.48%
Y: Leave blank	145	0.75%
Z: Examiner read test questions aloud	1,108	5.72%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,102	16.00%
English Learner Test Variation A	7	0.04%
English Learner Test Variation B	26	0.13%
English Learner Test Variation C	23	0.12%
Any Accommodation or EL Variation	3,677	18.97%
No Accommodation or EL Variation	15,705	81.03%
English-Only Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	115	1.08%
C: Dictated responses to a scribe	6	0.06%
F: Used non-interfering assistive device	7	0.07%
G: Used braille test	3	0.03%
H: Used large-print test	21	0.20%
J: Tested over more than one day	215	2.02%
K: Had supervised breaks	1,066	10.03%
L: Most beneficial time of day	383	3.61%
M: Administered at home or in a hospital	13	0.12%
O: Examiner presented with MCE or ASL	19	0.18%
X: Used an unlisted accommodation	253	2.38%
Y: Leave blank	66	0.62%
Z: Examiner read test questions aloud	549	5.17%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	1,699	15.99%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	7	0.07%
English Learner Test Variation C	9	0.08%
Any Accommodation or EL Variation	1,992	18.75%
No Accommodation or EL Variation	8,631	81.25%
Initially Fluent English Proficient (I-FEP) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	4	1.05%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.26%

Accommodation Summary for ELA, Grade Eight		
J: Tested over more than one day	12	3.16%
K: Had supervised breaks	40	10.53%
L: Most beneficial time of day	16	4.21%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.26%
X: Used an unlisted accommodation	10	2.63%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	20	5.26%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	58	15.26%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	72	18.95%
No Accommodation or EL Variation	308	81.05%
English Learner (EL) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	68	0.89%
C: Dictated responses to a scribe	4	0.05%
F: Used non-interfering assistive device	4	0.05%
G: Used braille test	3	0.04%
H: Used large-print test	20	0.26%
J: Tested over more than one day	151	1.99%
K: Had supervised breaks	728	9.57%
L: Most beneficial time of day	258	3.39%
M: Administered at home or in a hospital	5	0.07%
O: Examiner presented with MCE or ASL	4	0.05%
X: Used an unlisted accommodation	199	2.62%
Y: Leave blank	79	1.04%
Z: Examiner read test questions aloud	493	6.48%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	1,228	16.15%
English Learner Test Variation A	7	0.09%
English Learner Test Variation B	17	0.22%
English Learner Test Variation C	12	0.16%
Any Accommodation or EL Variation	1,470	19.33%
No Accommodation or EL Variation	6,134	80.67%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	3	0.58%
C: Dictated responses to a scribe	2	0.39%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.19%
J: Tested over more than one day	13	2.52%
K: Had supervised breaks	38	7.36%
L: Most beneficial time of day	18	3.49%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
X: Used an unlisted accommodation	6	1.16%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	32	6.20%

Accommodation Summary for ELA, Grade Eight		
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	61	11.82%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	81	15.70%
No Accommodation or EL Variation	435	84.30%

Table 2.D.7 Accommodation Summary for ELA, Grade Nine

Accommodation Summary for ELA, Grade Nine		
All Tested	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	60	0.53%
C: Dictated responses to a scribe	6	0.05%
F: Used non-interfering assistive device	2	0.02%
G: Used braille test	0	0.00%
H: Used large-print test	21	0.18%
J: Tested over more than one day	128	1.12%
K: Had supervised breaks	1,175	10.33%
L: Most beneficial time of day	207	1.82%
M: Administered at home or in a hospital	6	0.05%
O: Examiner presented with MCE or ASL	18	0.16%
X: Used an unlisted accommodation	283	2.49%
Y: Leave blank	26	0.23%
Z: Examiner read test questions aloud	364	3.20%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	1,292	11.35%
English Learner Test Variation A	13	0.11%
English Learner Test Variation B	17	0.15%
English Learner Test Variation C	20	0.18%
Any Accommodation or EL Variation	1,747	15.35%
No Accommodation or EL Variation	9,632	84.65%
English-Only Students	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	46	0.72%
C: Dictated responses to a scribe	4	0.06%
F: Used non-interfering assistive device	1	0.02%
G: Used braille test	0	0.00%
H: Used large-print test	13	0.20%
J: Tested over more than one day	88	1.38%
K: Had supervised breaks	643	10.11%
L: Most beneficial time of day	126	1.98%
M: Administered at home or in a hospital	5	0.08%
O: Examiner presented with MCE or ASL	3	0.05%
X: Used an unlisted accommodation	141	2.22%
Y: Leave blank	20	0.31%
Z: Examiner read test questions aloud	212	3.33%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	751	11.81%
English Learner Test Variation A	1	0.02%
English Learner Test Variation B	3	0.05%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	976	15.35%
No Accommodation or EL Variation	5,384	84.65%
Initially Fluent English Proficient (I-FEP) Students	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	0	0.00%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%

Accommodation Summary for ELA, Grade Nine		
J: Tested over more than one day	3	0.84%
K: Had supervised breaks	31	8.64%
L: Most beneficial time of day	4	1.11%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.56%
X: Used an unlisted accommodation	8	2.23%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	7	1.95%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	32	8.91%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.28%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	43	11.98%
No Accommodation or EL Variation	316	88.02%
English Learner (EL) Students	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	11	0.26%
C: Dictated responses to a scribe	2	0.05%
F: Used non-interfering assistive device	1	0.02%
G: Used braille test	0	0.00%
H: Used large-print test	6	0.14%
J: Tested over more than one day	30	0.71%
K: Had supervised breaks	460	10.85%
L: Most beneficial time of day	72	1.70%
M: Administered at home or in a hospital	1	0.02%
O: Examiner presented with MCE or ASL	13	0.31%
X: Used an unlisted accommodation	132	3.11%
Y: Leave blank	4	0.09%
Z: Examiner read test questions aloud	136	3.21%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	472	11.14%
English Learner Test Variation A	12	0.28%
English Learner Test Variation B	13	0.31%
English Learner Test Variation C	19	0.45%
Any Accommodation or EL Variation	673	15.88%
No Accommodation or EL Variation	3,565	84.12%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	2	0.58%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.29%
J: Tested over more than one day	2	0.58%
K: Had supervised breaks	31	8.93%
L: Most beneficial time of day	1	0.29%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
X: Used an unlisted accommodation	2	0.58%
Y: Leave blank	2	0.58%
Z: Examiner read test questions aloud	8	2.31%

Accommodation Summary for ELA, Grade Nine		
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	29	8.36%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	1	0.29%
Any Accommodation or EL Variation	42	12.10%
No Accommodation or EL Variation	305	87.90%

Table 2.D.8 Accommodation Summary for Mathematics, Grade Three

Accommodation Summary for Mathematics, Grade Three		
All Tested	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	179	1.30%
C: Dictated responses to a scribe	26	0.19%
F: Used non-interfering assistive device	19	0.14%
G: Used braille test	6	0.04%
H: Used large-print test	70	0.51%
J: Tested over more than one day	697	5.08%
K: Had supervised breaks	2,304	16.79%
L: Most beneficial time of day	1,221	8.90%
M: Administered at home or in a hospital	11	0.08%
O: Examiner presented with MCE or ASL	42	0.31%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	204	1.49%
X: Used an unlisted accommodation	581	4.23%
Y: Leave blank	76	0.55%
Z: Examiner read test questions aloud	4,371	31.85%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	5,055	36.84%
English Learner Test Variation A	41	0.30%
English Learner Test Variation B	39	0.28%
English Learner Test Variation C	54	0.39%
English Learner Test Variation D	5	0.04%
Any Accommodation or EL Variation	6,290	45.84%
No Accommodation or EL Variation	7,433	54.16%
English-Only Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	92	1.23%
C: Dictated responses to a scribe	21	0.28%
F: Used non-interfering assistive device	11	0.15%
G: Used braille test	5	0.07%
H: Used large-print test	42	0.56%
J: Tested over more than one day	376	5.04%
K: Had supervised breaks	1,241	16.62%
L: Most beneficial time of day	638	8.55%
M: Administered at home or in a hospital	7	0.09%
O: Examiner presented with MCE or ASL	27	0.36%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	96	1.29%
X: Used an unlisted accommodation	304	4.07%
Y: Leave blank	40	0.54%
Z: Examiner read test questions aloud	2,309	30.93%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	2,662	35.66%
English Learner Test Variation A	5	0.07%
English Learner Test Variation B	4	0.05%
English Learner Test Variation C	6	0.08%
English Learner Test Variation D	1	0.01%
Any Accommodation or EL Variation	3,351	44.89%
No Accommodation or EL Variation	4,114	55.11%

Accommodation Summary for Mathematics, Grade Three		
Initially Fluent English Proficient (I-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	3	2.50%
C: Dictated responses to a scribe	1	0.83%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	2	1.67%
J: Tested over more than one day	6	5.00%
K: Had supervised breaks	19	15.83%
L: Most beneficial time of day	7	5.83%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	3	2.50%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	1	0.83%
X: Used an unlisted accommodation	8	6.67%
Y: Leave blank	1	0.83%
Z: Examiner read test questions aloud	32	26.67%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	45	37.50%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	56	46.67%
No Accommodation or EL Variation	64	53.33%
English Learner (EL) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	77	1.33%
C: Dictated responses to a scribe	2	0.03%
F: Used non-interfering assistive device	8	0.14%
G: Used braille test	1	0.02%
H: Used large-print test	24	0.41%
J: Tested over more than one day	300	5.16%
K: Had supervised breaks	996	17.14%
L: Most beneficial time of day	560	9.64%
M: Administered at home or in a hospital	4	0.07%
O: Examiner presented with MCE or ASL	10	0.17%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	99	1.70%
X: Used an unlisted accommodation	260	4.47%
Y: Leave blank	25	0.43%
Z: Examiner read test questions aloud	1,929	33.20%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	2,221	38.22%
English Learner Test Variation A	36	0.62%
English Learner Test Variation B	35	0.60%
English Learner Test Variation C	48	0.83%
English Learner Test Variation D	4	0.07%
Any Accommodation or EL Variation	2,732	47.01%
No Accommodation or EL Variation	3,079	52.99%

Accommodation Summary for Mathematics, Grade Three		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	2	6.45%
C: Dictated responses to a scribe	1	3.23%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%
J: Tested over more than one day	2	6.45%
K: Had supervised breaks	7	22.58%
L: Most beneficial time of day	3	9.68%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	3.23%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	1	3.23%
X: Used an unlisted accommodation	0	0.00%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	8	25.81%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	12	38.71%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	13	41.94%
No Accommodation or EL Variation	18	58.06%

Table 2.D.9 Accommodation Summary for Mathematics, Grade Four

Accommodation Summary for Mathematics, Grade Four		
All Tested	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	697	3.57%
C: Dictated responses to a scribe	40	0.20%
F: Used non-interfering assistive device	62	0.32%
G: Used braille test	11	0.06%
H: Used large-print test	77	0.39%
J: Tested over more than one day	1,058	5.42%
K: Had supervised breaks	3,227	16.52%
L: Most beneficial time of day	1,571	8.04%
M: Administered at home or in a hospital	11	0.06%
O: Examiner presented with MCE or ASL	72	0.37%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	298	1.53%
X: Used an unlisted accommodation	813	4.16%
Y: Leave blank	136	0.70%
Z: Examiner read test questions aloud	5,818	29.79%
Accommodation is in Section 504 plan	3	0.02%
Accommodation is in IEP	8,098	41.46%
English Learner Test Variation A	24	0.12%
English Learner Test Variation B	40	0.20%
English Learner Test Variation C	58	0.30%
English Learner Test Variation D	7	0.04%
Any Accommodation or EL Variation	8,613	44.10%
No Accommodation or EL Variation	10,918	55.90%
English-Only Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	421	3.92%
C: Dictated responses to a scribe	23	0.21%
F: Used non-interfering assistive device	36	0.34%
G: Used braille test	5	0.05%
H: Used large-print test	51	0.47%
J: Tested over more than one day	590	5.49%
K: Had supervised breaks	1,740	16.20%
L: Most beneficial time of day	882	8.21%
M: Administered at home or in a hospital	5	0.05%
O: Examiner presented with MCE or ASL	46	0.43%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	154	1.43%
X: Used an unlisted accommodation	456	4.24%
Y: Leave blank	83	0.77%
Z: Examiner read test questions aloud	3,065	28.53%
Accommodation is in Section 504 plan	3	0.03%
Accommodation is in IEP	4,392	40.88%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	2	0.02%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	4,636	43.15%
No Accommodation or EL Variation	6,107	56.85%

Accommodation Summary for Mathematics, Grade Four		
Initially Fluent English Proficient (I-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	7	2.23%
C: Dictated responses to a scribe	3	0.96%
F: Used non-interfering assistive device	2	0.64%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%
J: Tested over more than one day	17	5.41%
K: Had supervised breaks	60	19.11%
L: Most beneficial time of day	16	5.10%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.64%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	6	1.91%
X: Used an unlisted accommodation	11	3.50%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	89	28.34%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	128	40.76%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.32%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	136	43.31%
No Accommodation or EL Variation	178	56.69%
English Learner (EL) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	263	3.16%
C: Dictated responses to a scribe	14	0.17%
F: Used non-interfering assistive device	24	0.29%
G: Used braille test	6	0.07%
H: Used large-print test	25	0.30%
J: Tested over more than one day	448	5.38%
K: Had supervised breaks	1,408	16.90%
L: Most beneficial time of day	662	7.95%
M: Administered at home or in a hospital	6	0.07%
O: Examiner presented with MCE or ASL	23	0.28%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	138	1.66%
X: Used an unlisted accommodation	339	4.07%
Y: Leave blank	52	0.62%
Z: Examiner read test questions aloud	2,627	31.54%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,530	42.38%
English Learner Test Variation A	23	0.28%
English Learner Test Variation B	37	0.44%
English Learner Test Variation C	58	0.70%
English Learner Test Variation D	7	0.08%
Any Accommodation or EL Variation	3,789	45.49%
No Accommodation or EL Variation	4,540	54.51%

Accommodation Summary for Mathematics, Grade Four		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	6	5.50%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%
J: Tested over more than one day	2	1.83%
K: Had supervised breaks	14	12.84%
L: Most beneficial time of day	7	6.42%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.92%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	4	3.67%
Y: Leave blank	1	0.92%
Z: Examiner read test questions aloud	32	29.36%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	38	34.86%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	40	36.70%
No Accommodation or EL Variation	69	63.30%

Table 2.D.10 Accommodation Summary for Mathematics, Grade Five

Accommodation Summary for Mathematics, Grade Five		
All Tested	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	704	3.26%
C: Dictated responses to a scribe	28	0.13%
F: Used non-interfering assistive device	49	0.23%
G: Used braille test	16	0.07%
H: Used large-print test	72	0.33%
J: Tested over more than one day	1,177	5.45%
K: Had supervised breaks	3,550	16.43%
L: Most beneficial time of day	1,732	8.02%
M: Administered at home or in a hospital	25	0.12%
O: Examiner presented with MCE or ASL	55	0.25%
Q: Used a calculator	1,904	8.81%
S: Used math manipulatives	284	1.31%
X: Used an unlisted accommodation	850	3.93%
Y: Leave blank	133	0.62%
Z: Examiner read test questions aloud	6,151	28.47%
Accommodation is in Section 504 plan	4	0.02%
Accommodation is in IEP	9,057	41.92%
English Learner Test Variation A	23	0.11%
English Learner Test Variation B	49	0.23%
English Learner Test Variation C	34	0.16%
English Learner Test Variation D	4	0.02%
Any Accommodation or EL Variation	9,664	44.72%
No Accommodation or EL Variation	11,944	55.28%
English-Only Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	424	3.57%
C: Dictated responses to a scribe	17	0.14%
F: Used non-interfering assistive device	28	0.24%
G: Used braille test	7	0.06%
H: Used large-print test	48	0.40%
J: Tested over more than one day	691	5.82%
K: Had supervised breaks	1,942	16.37%
L: Most beneficial time of day	943	7.95%
M: Administered at home or in a hospital	15	0.13%
O: Examiner presented with MCE or ASL	32	0.27%
Q: Used a calculator	998	8.41%
S: Used math manipulatives	145	1.22%
X: Used an unlisted accommodation	452	3.81%
Y: Leave blank	78	0.66%
Z: Examiner read test questions aloud	3,153	26.58%
Accommodation is in Section 504 plan	4	0.03%
Accommodation is in IEP	4,874	41.09%
English Learner Test Variation A	4	0.03%
English Learner Test Variation B	5	0.04%
English Learner Test Variation C	3	0.03%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	5,210	43.92%
No Accommodation or EL Variation	6,653	56.08%

Accommodation Summary for Mathematics, Grade Five		
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	15	3.61%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	2	0.48%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.48%
J: Tested over more than one day	25	6.01%
K: Had supervised breaks	69	16.59%
L: Most beneficial time of day	39	9.38%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	4	0.96%
Q: Used a calculator	33	7.93%
S: Used math manipulatives	8	1.92%
X: Used an unlisted accommodation	21	5.05%
Y: Leave blank	2	0.48%
Z: Examiner read test questions aloud	117	28.13%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	177	42.55%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	2	0.48%
English Learner Test Variation C	1	0.24%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	186	44.71%
No Accommodation or EL Variation	230	55.29%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	250	2.76%
C: Dictated responses to a scribe	10	0.11%
F: Used non-interfering assistive device	19	0.21%
G: Used braille test	8	0.09%
H: Used large-print test	19	0.21%
J: Tested over more than one day	452	4.98%
K: Had supervised breaks	1,500	16.54%
L: Most beneficial time of day	728	8.03%
M: Administered at home or in a hospital	9	0.10%
O: Examiner presented with MCE or ASL	16	0.18%
Q: Used a calculator	843	9.29%
S: Used math manipulatives	128	1.41%
X: Used an unlisted accommodation	368	4.06%
Y: Leave blank	48	0.53%
Z: Examiner read test questions aloud	2,823	31.12%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,905	43.05%
English Learner Test Variation A	19	0.21%
English Learner Test Variation B	42	0.46%
English Learner Test Variation C	30	0.33%
English Learner Test Variation D	4	0.04%
Any Accommodation or EL Variation	4,156	45.82%
No Accommodation or EL Variation	4,914	54.18%

Accommodation Summary for Mathematics, Grade Five		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	13	5.94%
C: Dictated responses to a scribe	1	0.46%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	1	0.46%
H: Used large-print test	3	1.37%
J: Tested over more than one day	6	2.74%
K: Had supervised breaks	32	14.61%
L: Most beneficial time of day	19	8.68%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.91%
Q: Used a calculator	29	13.24%
S: Used math manipulatives	3	1.37%
X: Used an unlisted accommodation	7	3.20%
Y: Leave blank	3	1.37%
Z: Examiner read test questions aloud	52	23.74%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	86	39.27%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	95	43.38%
No Accommodation or EL Variation	124	56.62%

Table 2.D.11 Accommodation Summary for Mathematics, Grade Six

Accommodation Summary for Mathematics, Grade Six		
All Tested	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	435	2.00%
C: Dictated responses to a scribe	27	0.12%
F: Used non-interfering assistive device	25	0.11%
G: Used braille test	5	0.02%
H: Used large-print test	65	0.30%
J: Tested over more than one day	792	3.64%
K: Had supervised breaks	2,781	12.79%
L: Most beneficial time of day	1,329	6.11%
M: Administered at home or in a hospital	13	0.06%
O: Examiner presented with MCE or ASL	39	0.18%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	262	1.20%
X: Used an unlisted accommodation	807	3.71%
Y: Leave blank	155	0.71%
Z: Examiner read test questions aloud	4,064	18.69%
Accommodation is in Section 504 plan	4	0.02%
Accommodation is in IEP	6,442	29.62%
English Learner Test Variation A	12	0.06%
English Learner Test Variation B	25	0.11%
English Learner Test Variation C	12	0.06%
English Learner Test Variation D	8	0.04%
Any Accommodation or EL Variation	6,866	31.57%
No Accommodation or EL Variation	14,883	68.43%
English-Only Students	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	294	2.40%
C: Dictated responses to a scribe	17	0.14%
F: Used non-interfering assistive device	6	0.05%
G: Used braille test	0	0.00%
H: Used large-print test	45	0.37%
J: Tested over more than one day	473	3.86%
K: Had supervised breaks	1,594	12.99%
L: Most beneficial time of day	753	6.14%
M: Administered at home or in a hospital	11	0.09%
O: Examiner presented with MCE or ASL	27	0.22%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	137	1.12%
X: Used an unlisted accommodation	425	3.46%
Y: Leave blank	108	0.88%
Z: Examiner read test questions aloud	2,169	17.68%
Accommodation is in Section 504 plan	4	0.03%
Accommodation is in IEP	3,605	29.38%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	4	0.03%
English Learner Test Variation C	2	0.02%
English Learner Test Variation D	2	0.02%
Any Accommodation or EL Variation	3,853	31.40%
No Accommodation or EL Variation	8,416	68.60%

Accommodation Summary for Mathematics, Grade Six		
Initially Fluent English Proficient (I-FEP) Students	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	4	0.81%
C: Dictated responses to a scribe	1	0.20%
F: Used non-interfering assistive device	1	0.20%
G: Used braille test	1	0.20%
H: Used large-print test	1	0.20%
J: Tested over more than one day	19	3.87%
K: Had supervised breaks	75	15.27%
L: Most beneficial time of day	37	7.54%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.20%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	5	1.02%
X: Used an unlisted accommodation	22	4.48%
Y: Leave blank	3	0.61%
Z: Examiner read test questions aloud	90	18.33%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	146	29.74%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	156	31.77%
No Accommodation or EL Variation	335	68.23%
English Learner (EL) Students	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	127	1.48%
C: Dictated responses to a scribe	8	0.09%
F: Used non-interfering assistive device	18	0.21%
G: Used braille test	3	0.03%
H: Used large-print test	17	0.20%
J: Tested over more than one day	285	3.32%
K: Had supervised breaks	1,063	12.40%
L: Most beneficial time of day	512	5.97%
M: Administered at home or in a hospital	2	0.02%
O: Examiner presented with MCE or ASL	8	0.09%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	116	1.35%
X: Used an unlisted accommodation	351	4.09%
Y: Leave blank	44	0.51%
Z: Examiner read test questions aloud	1,741	20.31%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	2,592	30.23%
English Learner Test Variation A	11	0.13%
English Learner Test Variation B	21	0.24%
English Learner Test Variation C	10	0.12%
English Learner Test Variation D	6	0.07%
Any Accommodation or EL Variation	2,749	32.07%
No Accommodation or EL Variation	5,824	67.93%

Accommodation Summary for Mathematics, Grade Six		
Reclassified Fluent English Proficient (R-FEP) Students		
B: Marked in test booklet	10	2.66%
C: Dictated responses to a scribe	1	0.27%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	1	0.27%
H: Used large-print test	2	0.53%
J: Tested over more than one day	14	3.72%
K: Had supervised breaks	45	11.97%
L: Most beneficial time of day	24	6.38%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	3	0.80%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	4	1.06%
X: Used an unlisted accommodation	7	1.86%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	59	15.69%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	90	23.94%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	98	26.06%
No Accommodation or EL Variation	278	73.94%

Table 2.D.12 Accommodation Summary for Mathematics, Grade Seven

Accommodation Summary for Mathematics, Grade Seven		
All Tested	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	265	1.25%
C: Dictated responses to a scribe	8	0.04%
F: Used non-interfering assistive device	26	0.12%
G: Used braille test	6	0.03%
H: Used large-print test	58	0.27%
J: Tested over more than one day	488	2.30%
K: Had supervised breaks	1,934	9.11%
L: Most beneficial time of day	694	3.27%
M: Administered at home or in a hospital	20	0.09%
O: Examiner presented with MCE or ASL	44	0.21%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	113	0.53%
X: Used an unlisted accommodation	770	3.63%
Y: Leave blank	145	0.68%
Z: Examiner read test questions aloud	1,980	9.33%
Accommodation is in Section 504 plan	1	0.00%
Accommodation is in IEP	4,316	20.33%
English Learner Test Variation A	9	0.04%
English Learner Test Variation B	18	0.08%
English Learner Test Variation C	9	0.04%
English Learner Test Variation D	17	0.08%
Any Accommodation or EL Variation	4,652	21.92%
No Accommodation or EL Variation	16,574	78.08%
English-Only Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	148	1.25%
C: Dictated responses to a scribe	6	0.05%
F: Used non-interfering assistive device	20	0.17%
G: Used braille test	3	0.03%
H: Used large-print test	33	0.28%
J: Tested over more than one day	258	2.18%
K: Had supervised breaks	1,115	9.43%
L: Most beneficial time of day	398	3.36%
M: Administered at home or in a hospital	12	0.10%
O: Examiner presented with MCE or ASL	26	0.22%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	56	0.47%
X: Used an unlisted accommodation	419	3.54%
Y: Leave blank	83	0.70%
Z: Examiner read test questions aloud	1,026	8.67%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	2,374	20.07%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	1	0.01%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	2	0.02%
Any Accommodation or EL Variation	2,557	21.62%
No Accommodation or EL Variation	9,272	78.38%

Accommodation Summary for Mathematics, Grade Seven		
Initially Fluent English Proficient (I-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	10	2.53%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	1	0.25%
G: Used braille test	0	0.00%
H: Used large-print test	4	1.01%
J: Tested over more than one day	15	3.79%
K: Had supervised breaks	38	9.60%
L: Most beneficial time of day	18	4.55%
M: Administered at home or in a hospital	1	0.25%
O: Examiner presented with MCE or ASL	4	1.01%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	1	0.25%
X: Used an unlisted accommodation	19	4.80%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	35	8.84%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	83	20.96%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	89	22.47%
No Accommodation or EL Variation	307	77.53%
English Learner (EL) Students		
B: Marked in test booklet	95	1.12%
C: Dictated responses to a scribe	2	0.02%
F: Used non-interfering assistive device	5	0.06%
G: Used braille test	3	0.04%
H: Used large-print test	20	0.24%
J: Tested over more than one day	199	2.35%
K: Had supervised breaks	739	8.74%
L: Most beneficial time of day	263	3.11%
M: Administered at home or in a hospital	7	0.08%
O: Examiner presented with MCE or ASL	14	0.17%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	53	0.63%
X: Used an unlisted accommodation	310	3.67%
Y: Leave blank	60	0.71%
Z: Examiner read test questions aloud	870	10.29%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	1,739	20.57%
English Learner Test Variation A	8	0.09%
English Learner Test Variation B	17	0.20%
English Learner Test Variation C	9	0.11%
English Learner Test Variation D	15	0.18%
Any Accommodation or EL Variation	1,883	22.27%
No Accommodation or EL Variation	6,573	77.73%

Accommodation Summary for Mathematics, Grade Seven		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	9	1.87%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.21%
J: Tested over more than one day	15	3.11%
K: Had supervised breaks	37	7.68%
L: Most beneficial time of day	15	3.11%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	3	0.62%
X: Used an unlisted accommodation	13	2.70%
Y: Leave blank	2	0.41%
Z: Examiner read test questions aloud	40	8.30%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	97	20.12%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	100	20.75%
No Accommodation or EL Variation	382	79.25%

Table 2.D.13 Accommodation Summary for Mathematics, Algebra I

Accommodation Summary for Mathematics, Algebra I		
All Tested	**Algebra I**	**Pct. of Total**
B: Marked in test booklet	58	0.37%
C: Dictated responses to a scribe	7	0.04%
F: Used non-interfering assistive device	12	0.08%
G: Used braille test	0	0.00%
H: Used large-print test	27	0.17%
J: Tested over more than one day	201	1.28%
K: Had supervised breaks	1,440	9.19%
L: Most beneficial time of day	316	2.02%
M: Administered at home or in a hospital	9	0.06%
O: Examiner presented with MCE or ASL	36	0.23%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	20	0.13%
X: Used an unlisted accommodation	438	2.80%
Y: Leave blank	29	0.19%
Z: Examiner read test questions aloud	663	4.23%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	1,728	11.03%
English Learner Test Variation A	33	0.21%
English Learner Test Variation B	41	0.26%
English Learner Test Variation C	40	0.26%
English Learner Test Variation D	15	0.10%
Any Accommodation or EL Variation	2,392	15.27%
No Accommodation or EL Variation	13,274	84.73%
English-Only Students	**Algebra I**	**Pct. of Total**
B: Marked in test booklet	36	0.42%
C: Dictated responses to a scribe	3	0.03%
F: Used non-interfering assistive device	6	0.07%
G: Used braille test	0	0.00%
H: Used large-print test	15	0.17%
J: Tested over more than one day	110	1.27%
K: Had supervised breaks	755	8.71%
L: Most beneficial time of day	192	2.22%
M: Administered at home or in a hospital	8	0.09%
O: Examiner presented with MCE or ASL	20	0.23%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	16	0.18%
X: Used an unlisted accommodation	202	2.33%
Y: Leave blank	24	0.28%
Z: Examiner read test questions aloud	378	4.36%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	943	10.88%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	6	0.07%
English Learner Test Variation C	2	0.02%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	1,265	14.60%
No Accommodation or EL Variation	7,401	85.40%

Accommodation Summary for Mathematics, Algebra I		
Initially Fluent English Proficient (I-FEP) Students	**Algebra I**	**Pct. of Total**
B: Marked in test booklet	0	0.00%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%
J: Tested over more than one day	3	0.62%
K: Had supervised breaks	40	8.28%
L: Most beneficial time of day	6	1.24%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.21%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	1	0.21%
X: Used an unlisted accommodation	12	2.48%
Y: Leave blank	1	0.21%
Z: Examiner read test questions aloud	12	2.48%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	41	8.49%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.21%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	62	12.84%
No Accommodation or EL Variation	421	87.16%
English Learner (EL) Students		
B: Marked in test booklet	20	0.35%
C: Dictated responses to a scribe	4	0.07%
F: Used non-interfering assistive device	6	0.10%
G: Used braille test	0	0.00%
H: Used large-print test	8	0.14%
J: Tested over more than one day	77	1.34%
K: Had supervised breaks	589	10.27%
L: Most beneficial time of day	109	1.90%
M: Administered at home or in a hospital	1	0.02%
O: Examiner presented with MCE or ASL	15	0.26%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	3	0.05%
X: Used an unlisted accommodation	191	3.33%
Y: Leave blank	4	0.07%
Z: Examiner read test questions aloud	248	4.32%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	670	11.68%
English Learner Test Variation A	32	0.56%
English Learner Test Variation B	34	0.59%
English Learner Test Variation C	38	0.66%
English Learner Test Variation D	15	0.26%
Any Accommodation or EL Variation	956	16.67%
No Accommodation or EL Variation	4,779	83.33%

Accommodation Summary for Mathematics, Algebra I		
Reclassified Fluent English Proficient (R-FEP) Students	**Algebra I**	**Pct. of Total**
B: Marked in test booklet	2	0.35%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	4	0.70%
J: Tested over more than one day	5	0.87%
K: Had supervised breaks	39	6.82%
L: Most beneficial time of day	5	0.87%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	25	4.37%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	21	3.67%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	47	8.22%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	79	13.81%
No Accommodation or EL Variation	493	86.19%

Table 2.D.14 Accommodation Summary for Science, Grade Five

Accommodation Summary for Science, Grade Five		
All Tested	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	712	3.15%
C: Dictated responses to a scribe	30	0.13%
F: Used non-interfering assistive device	53	0.23%
G: Used braille test	16	0.07%
H: Used large-print test	75	0.33%
J: Tested over more than one day	1,154	5.11%
K: Had supervised breaks	3,526	15.62%
L: Most beneficial time of day	1,807	8.01%
M: Administered at home or in a hospital	26	0.12%
O: Examiner presented with MCE or ASL	58	0.26%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	112	0.50%
X: Used an unlisted accommodation	874	3.87%
Y: Leave blank	137	0.61%
Z: Examiner read test questions aloud	6,516	28.87%
Accommodation is in Section 504 plan	4	0.02%
Accommodation is in IEP	9,109	40.36%
English Learner Test Variation A	20	0.09%
English Learner Test Variation B	53	0.23%
English Learner Test Variation C	37	0.16%
English Learner Test Variation D	4	0.02%
Any Accommodation or EL Variation	9,671	42.85%
No Accommodation or EL Variation	12,899	57.15%
English-Only Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	434	3.53%
C: Dictated responses to a scribe	20	0.16%
F: Used non-interfering assistive device	30	0.24%
G: Used braille test	7	0.06%
H: Used large-print test	52	0.42%
J: Tested over more than one day	667	5.42%
K: Had supervised breaks	1,915	15.57%
L: Most beneficial time of day	969	7.88%
M: Administered at home or in a hospital	14	0.11%
O: Examiner presented with MCE or ASL	36	0.29%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	46	0.37%
X: Used an unlisted accommodation	454	3.69%
Y: Leave blank	70	0.57%
Z: Examiner read test questions aloud	3,334	27.11%
Accommodation is in Section 504 plan	4	0.03%
Accommodation is in IEP	4,876	39.65%
English Learner Test Variation A	4	0.03%
English Learner Test Variation B	7	0.06%
English Learner Test Variation C	2	0.02%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	5,194	42.23%
No Accommodation or EL Variation	7,105	57.77%

Accommodation Summary for Science, Grade Five		
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	16	3.55%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	1	0.22%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.44%
J: Tested over more than one day	28	6.21%
K: Had supervised breaks	74	16.41%
L: Most beneficial time of day	45	9.98%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	4	0.89%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	3	0.67%
X: Used an unlisted accommodation	24	5.32%
Y: Leave blank	2	0.44%
Z: Examiner read test questions aloud	134	29.71%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	187	41.46%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	2	0.44%
English Learner Test Variation C	1	0.22%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	196	43.46%
No Accommodation or EL Variation	255	56.54%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	246	2.58%
C: Dictated responses to a scribe	9	0.09%
F: Used non-interfering assistive device	22	0.23%
G: Used braille test	8	0.08%
H: Used large-print test	18	0.19%
J: Tested over more than one day	451	4.72%
K: Had supervised breaks	1,506	15.77%
L: Most beneficial time of day	769	8.05%
M: Administered at home or in a hospital	10	0.10%
O: Examiner presented with MCE or ASL	15	0.16%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	63	0.66%
X: Used an unlisted accommodation	390	4.08%
Y: Leave blank	60	0.63%
Z: Examiner read test questions aloud	2,975	31.15%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,943	41.28%
English Learner Test Variation A	16	0.17%
English Learner Test Variation B	44	0.46%
English Learner Test Variation C	34	0.36%
English Learner Test Variation D	4	0.04%
Any Accommodation or EL Variation	4,170	43.66%
No Accommodation or EL Variation	5,381	56.34%

Accommodation Summary for Science, Grade Five		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	14	6.17%
C: Dictated responses to a scribe	1	0.44%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	1	0.44%
H: Used large-print test	3	1.32%
J: Tested over more than one day	5	2.20%
K: Had supervised breaks	23	10.13%
L: Most beneficial time of day	21	9.25%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.88%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	4	1.76%
Y: Leave blank	3	1.32%
Z: Examiner read test questions aloud	63	27.75%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	85	37.44%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	90	39.65%
No Accommodation or EL Variation	137	60.35%

Table 2.D.15 Accommodation Summary for Science, Grade Eight

Accommodation Summary for Science, Grade Eight		
All Tested	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	152	0.85%
C: Dictated responses to a scribe	13	0.07%
F: Used non-interfering assistive device	13	0.07%
G: Used braille test	5	0.03%
H: Used large-print test	43	0.24%
J: Tested over more than one day	310	1.74%
K: Had supervised breaks	1,673	9.38%
L: Most beneficial time of day	591	3.31%
M: Administered at home or in a hospital	18	0.10%
O: Examiner presented with MCE or ASL	35	0.20%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	46	0.26%
X: Used an unlisted accommodation	409	2.29%
Y: Leave blank	131	0.73%
Z: Examiner read test questions aloud	1,741	9.76%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,234	18.13%
English Learner Test Variation A	7	0.04%
English Learner Test Variation B	25	0.14%
English Learner Test Variation C	10	0.06%
English Learner Test Variation D	16	0.09%
Any Accommodation or EL Variation	3,752	21.03%
No Accommodation or EL Variation	14,089	78.97%
English-Only Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	94	0.95%
C: Dictated responses to a scribe	6	0.06%
F: Used non-interfering assistive device	8	0.08%
G: Used braille test	2	0.02%
H: Used large-print test	19	0.19%
J: Tested over more than one day	167	1.69%
K: Had supervised breaks	944	9.58%
L: Most beneficial time of day	341	3.46%
M: Administered at home or in a hospital	11	0.11%
O: Examiner presented with MCE or ASL	25	0.25%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	24	0.24%
X: Used an unlisted accommodation	223	2.26%
Y: Leave blank	57	0.58%
Z: Examiner read test questions aloud	911	9.24%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	1,767	17.92%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	7	0.07%
English Learner Test Variation C	3	0.03%
English Learner Test Variation D	1	0.01%
Any Accommodation or EL Variation	2,043	20.72%
No Accommodation or EL Variation	7,816	79.28%

Accommodation Summary for Science, Grade Eight		
Initially Fluent English Proficient (I-FEP) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	6	1.74%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.29%
J: Tested over more than one day	6	1.74%
K: Had supervised breaks	28	8.14%
L: Most beneficial time of day	11	3.20%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.29%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	5	1.45%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	32	9.30%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	55	15.99%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	66	19.19%
No Accommodation or EL Variation	278	80.81%
English Learner (EL) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	45	0.65%
C: Dictated responses to a scribe	4	0.06%
F: Used non-interfering assistive device	4	0.06%
G: Used braille test	3	0.04%
H: Used large-print test	19	0.28%
J: Tested over more than one day	124	1.80%
K: Had supervised breaks	633	9.19%
L: Most beneficial time of day	216	3.13%
M: Administered at home or in a hospital	5	0.07%
O: Examiner presented with MCE or ASL	9	0.13%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	20	0.29%
X: Used an unlisted accommodation	166	2.41%
Y: Leave blank	74	1.07%
Z: Examiner read test questions aloud	726	10.54%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	1,281	18.59%
English Learner Test Variation A	7	0.10%
English Learner Test Variation B	16	0.23%
English Learner Test Variation C	5	0.07%
English Learner Test Variation D	12	0.17%
Any Accommodation or EL Variation	1,493	21.67%
No Accommodation or EL Variation	5,397	78.33%

Accommodation Summary for Science, Grade Eight		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	3	0.60%
C: Dictated responses to a scribe	3	0.60%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.40%
J: Tested over more than one day	5	1.00%
K: Had supervised breaks	30	6.02%
L: Most beneficial time of day	12	2.41%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	1	0.20%
X: Used an unlisted accommodation	5	1.00%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	53	10.64%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	74	14.86%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	89	17.87%
No Accommodation or EL Variation	409	82.13%

Table 2.D.16 Accommodation Summary for Life Science, Grade Ten

Accommodation Summary for Life Science, Grade Ten		
All Tested	**Life Science**	**Pct. of Total**
B: Marked in test booklet	15	0.24%
C: Dictated responses to a scribe	8	0.13%
F: Used non-interfering assistive device	8	0.13%
G: Used braille test	0	0.00%
H: Used large-print test	8	0.13%
J: Tested over more than one day	42	0.67%
K: Had supervised breaks	563	9.01%
L: Most beneficial time of day	102	1.63%
M: Administered at home or in a hospital	2	0.03%
O: Examiner presented with MCE or ASL	5	0.08%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	138	2.21%
Y: Leave blank	11	0.18%
Z: Examiner read test questions aloud	155	2.48%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	627	10.03%
English Learner Test Variation A	14	0.22%
English Learner Test Variation B	14	0.22%
English Learner Test Variation C	13	0.21%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	787	12.59%
No Accommodation or EL Variation	5,462	87.41%
English-Only Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	7	0.20%
C: Dictated responses to a scribe	3	0.09%
F: Used non-interfering assistive device	2	0.06%
G: Used braille test	0	0.00%
H: Used large-print test	4	0.12%
J: Tested over more than one day	30	0.87%
K: Had supervised breaks	319	9.27%
L: Most beneficial time of day	69	2.01%
M: Administered at home or in a hospital	2	0.06%
O: Examiner presented with MCE or ASL	0	0.00%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	65	1.89%
Y: Leave blank	9	0.26%
Z: Examiner read test questions aloud	79	2.30%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	338	9.82%
English Learner Test Variation A	1	0.03%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	1	0.03%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	420	12.21%
No Accommodation or EL Variation	3,021	87.79%

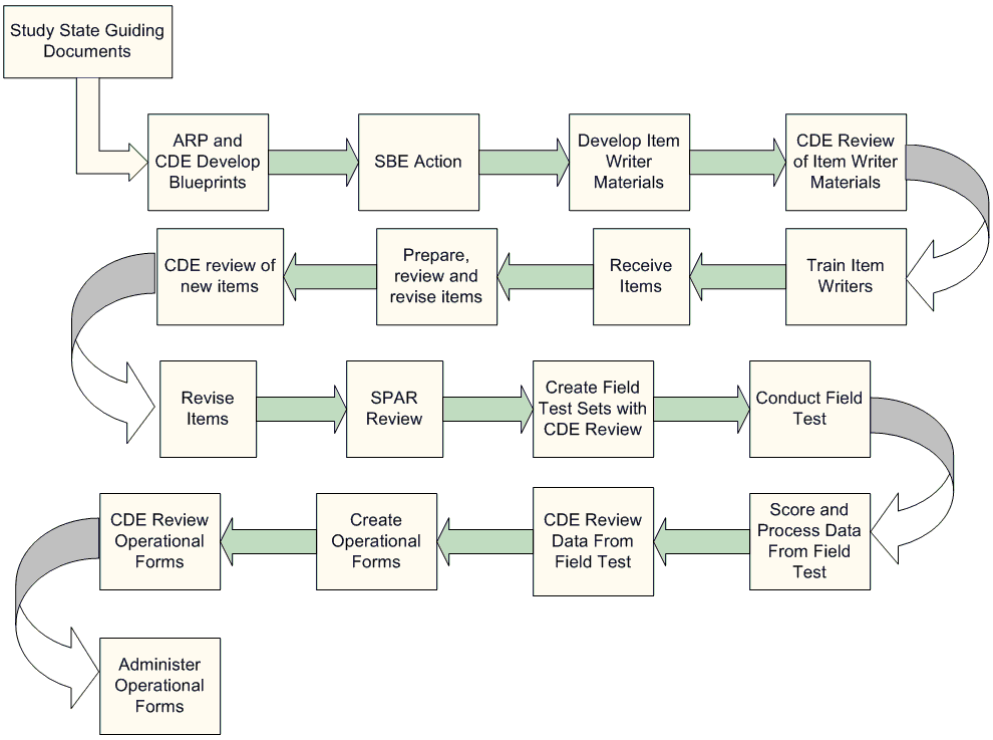
Accommodation Summary for Life Science, Grade Ten		
Initially Fluent English Proficient (I-FEP) Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	1	0.49%
C: Dictated responses to a scribe	1	0.49%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.49%
J: Tested over more than one day	2	0.98%
K: Had supervised breaks	12	5.88%
L: Most beneficial time of day	1	0.49%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	5	2.45%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	3	1.47%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	20	9.80%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	22	10.78%
No Accommodation or EL Variation	182	89.22%
English Learner (EL) Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	7	0.30%
C: Dictated responses to a scribe	4	0.17%
F: Used non-interfering assistive device	6	0.26%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.09%
J: Tested over more than one day	8	0.35%
K: Had supervised breaks	212	9.17%
L: Most beneficial time of day	29	1.25%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	4	0.17%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	62	2.68%
Y: Leave blank	2	0.09%
Z: Examiner read test questions aloud	61	2.64%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	242	10.47%
English Learner Test Variation A	12	0.52%
English Learner Test Variation B	14	0.61%
English Learner Test Variation C	12	0.52%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	311	13.46%
No Accommodation or EL Variation	2,000	86.54%

Accommodation Summary for Life Science, Grade Ten		
Reclassified Fluent English Proficient (R-FEP) Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	0	0.00%
C: Dictated responses to a scribe	0	0.00%
F: Used non-interfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.40%
J: Tested over more than one day	2	0.81%
K: Had supervised breaks	18	7.26%
L: Most beneficial time of day	3	1.21%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%
Q: Used a calculator	0	0.00%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	3	1.21%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	11	4.44%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	22	8.87%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	28	11.29%
No Accommodation or EL Variation	220	88.71%

Chapter 3: Item Development

The CMA items are developed to measure California's modified content standards and designed to conform to principles of item writing defined by ETS (ETS, 2002). Each CMA item goes through a comprehensive development cycle as is described in Figure 3.1, below.

Figure 3.1 The ETS Item Development Process for the STAR Program



Rules for Item Development

ETS maintains and updates item development specifications for each CMA and has developed an item utilization plan to guide the development of the items for each content area. Item writing emphasis is determined in consultation with the CDE.

Item Development Specifications

The item specifications describe the characteristics of the items that should be written to measure each content standard. The item specifications help ensure that the items in the CMA measure the content standards. To achieve this, the item specifications provide detailed information to item writers that are developing items for the CMA. The specifications include the following:

- A full statement of each academic content standard, as defined by the SBE (CDE, 2009)
- A description of each content strand
- The expected depth of knowledge (DOK) measured by items written for each standard (coded as 1, 2, 3, or 4; items assigned a DOK of 1 are the least cognitively complex, items assigned a DOK of 3 are the most cognitively complex, and the code of 4 only applies to some writing tasks)
- The homogeneity of the construct measured by each standard
- A description of the kinds of item stems appropriate for multiple-choice items used to assess each standard

- A description of the kinds of distractors that are appropriate for multiple-choice items assessing each standard
- A description of appropriate data representations (such as charts, tables, graphs, or other illustrations) for mathematics and science items
- The content limits for the standard (such as one or two variables, maximum place values of numbers) for mathematics and science items
- A description of appropriate reading passages, if applicable, for ELA items
- A description of specific kinds of items to be avoided, if any (for example, items with any negative connotation in the stem, e.g. “Which of the following is NOT…”)

In addition, the ELA item specifications contain guidelines for passages used to assess reading comprehension and writing. These guidelines include the following:

- The acceptable ranges for passage length
- The expected distribution of passages by genre
- Guidelines for readability and cognitive load, using standards agreed to by the CDE and ETS
- Expected use of illustrations
- The target number of items that should follow each reading passage and each writing passage
- Writing passages to have an appropriate readability level
- A list of topics to be avoided

Expected Item Ratio

ETS has developed the item utilization plan to continue the development of CMA items. The plan includes strategies for developing items that will permit coverage of all appropriate standards for all tests in each content area and at each grade level. ETS test development staff uses this plan to determine the number of items to develop for each content area.

The item utilization plan assumes that after the first two operational administrations, 35 percent of items on an operational form would be refreshed (replaced) each year; these items would remain in the item bank for future use. The plan also declares that an additional five percent of the operational items are likely to become unusable because of normal attrition and notes that there is a need to focus development on “critical” standards, which are standards that are difficult to measure well or for which there are few usable items.

For all content areas except science, it is assumed that at least 75 percent of all field-tested items are expected to have acceptable field test statistics and become candidates for use in operational tests. For science, it is expected that 60 percent of the items will achieve this status.

ETS has developed field-test percentages and item counts that are shown in Table 3.1. The number of items to be field-tested for a given CMA reflects the demand for new items and is determined as a percent of the number of operational items. For example, there are 48 operational items on the CMA for ELA in grade three; the number of items to be field-tested is 113 percent of 48, which is 54 items.

Table 3.1 Field-test Percentages for the CMA

Content Area	Grade or Course	Number of Operational Items per Grade or Course	Field-test Percent per Grade or Course	Number of Items to be Field-tested per Grade or Course
English–Language Arts	3–5	48	113%	54
	6–8	54	67%	36
	9	60	67%	40
Mathematics	3–5	48	113%	54
	6–7	54	67%	36
	Algebra I	60	67%	40
Science	5	48	113%	54
	8	54	100%	54
	10 Life Science	60	100%	60

Selection of Item Writers

Criteria for Selecting Item Writers

The items for each CMA are developed by individual item writers who have a thorough understanding of the California content standards. Applicants for item writing are screened by senior ETS content staff. Only those with strong content and teaching backgrounds are approved for inclusion in the training program for item writers. Because most of the participants are current or former California educators, they are particularly knowledgeable about the standards assessed in the CMA. All item writers meet the following minimum qualifications:

- Possession of a Bachelor's degree in the relevant content area or in the field of education with special focus on a particular content of interest; an advanced degree in the relevant content area is desirable
- Previous experience in writing items for standards-based assessments, including knowledge of the many considerations that are important when developing items to match state-specific standards
- Previous experience in writing items in the content areas covered by CMA grades and/or courses
- Familiarity, understanding, and support of the California content standards
- Current or previous teaching experience in California, when possible

Item Review Process

The items selected for each CMA undergo an extensive item review process that is designed to provide the best standards-based tests possible. This section summarizes the various reviews performed that ensure the quality of the CMA items and test forms.

Contractor Review

Once the items have been written, ETS employs a series of internal reviews. The reviews establish the criteria used to judge the quality of the item content and are designed to ensure that each item is measuring what it is intended to measure. The internal reviews also examine the overall quality of the test items before they are prepared for presentation to the CDE and the Assessment Review Panels (ARPs). Because of the complexities involved in producing defensible items for high-stakes programs such as the STAR Program, it is

essential that many experienced individuals review each item before it is brought to the CDE, the ARPs, and Statewide Pupil Assessment Review (SPAR) panels.

The ETS review process for the CMA includes the following:

1. Internal content review
2. Internal editorial review
3. Internal sensitivity review

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

1. Internal Content Review

Test items and materials undergo two reviews by the content-area assessment specialists. These assessment specialists make sure that the test items and related materials are in compliance with ETS's written guidelines for clarity, style, accuracy, and appropriateness for California students as well as in compliance with the approved item specifications. Assessment specialists review each item in terms of the following characteristics:

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

Each item is classified with a code for the standard it is intended to measure. The assessment specialists check all items against their classification codes, both to evaluate the correctness of the classification and to ensure that the task posed by the item is relevant to the outcome it is intended to measure. The reviewers may accept the item and classification as written, they may suggest revisions, or they may recommend that the item be discarded. These steps occur prior to the CDE's review.

2. Internal Editorial Review

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

3. Internal Sensitivity Review

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

The review process promotes a general awareness of and 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
- Contributions of diverse groups (including ethnic and minority groups, individuals with disabilities, and women) to the history and culture of the United States and the achievements of individuals within these groups
- Item accessibility for English-language learners

Content Expert Reviews

Assessment Review Panels

ETS is responsible for working with ARPs as items are developed for the CMA. The ARPs are advisory panels to the CDE and ETS and provide guidance on areas related to item development for the CMA. The ARPs are responsible for reviewing all newly developed items for alignment to the California content standards. The ARPs also review the items for accuracy of content, clarity of phrasing, and quality. ETS provides the ARPs with the opportunity to review the items with the applicable field-test statistics and to make recommendations for the use of items in subsequent test forms. In their examination of test items, the ARPs may raise concerns related to age/grade appropriateness, and gender, racial, ethnic, and/or socioeconomic bias.

Composition of ARPs

The ARPs are comprised of current and former teachers, resource specialists, administrators, curricular experts, and other education professionals. Current school staff members must meet minimum qualifications to serve on the CMA ARPs, including:

- Three or more years of general teaching experience in grades kindergarten through twelve and in the relevant content areas (ELA, mathematics, or science);
- Bachelor’s or higher degree in a grade or content area related to ELA, mathematics, or science;
- Knowledge and experience with the California content standards in ELA, mathematics, or science;
- Special education credential;
- Experience with more than one type of disability; and
- Three to five years of experience as a teacher or school administrator with a special education credential.

School administrators, district/county content/program specialists, or university educators serving on the CMA ARPs must meet the following qualifications:

- Three or more years of experience as a school administrator, district/county content/ program specialist, or university instructor in a grade-specific area or area related to ELA, mathematics, or science
- Bachelor’s or higher degree in a grade-specific or content area related to ELA, mathematics, or science; and
- Knowledge of and experience with the California content standards in ELA, mathematics, or science

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

Current ARP members are recruited through an application process. Recommendations are solicited from school districts and county offices of education as well as from CDE and SBE staff. Applications are received and reviewed throughout the year. They are reviewed by the ETS assessment directors, who confirm that the applicant's qualifications meet the specified criteria. Applications that meet the criteria are forwarded to CDE and SBE staff for further review and agreement on ARP membership. Upon approval, the applicant is notified that he or she has been selected to serve on the ARP committee.

Table 3.2 shows the educational qualifications, present occupation, and credentials of the current CMA ARP members.

Table 3.2 CMA ARP Member Qualifications, by Content Area and Total

CMA	ELA	Math	Science	Grand Total
Total	**14**	**13**	**9**	**36**
Occupation (Members may teach multiple levels.)				
Teacher or Program Specialist, Elementary/Middle School	9	7	4	20
Teacher or Program Specialist, High School	2	3	0	5
Teacher or Program Specialist, K–12	3	2	2	7
University Personnel	0	1	1	2
Other District Personnel (e.g., Director of Special Services, etc.)	2	1	1	4
Highest Degree Earned				
Bachelor's Degree	4	3	2	9
Master's Degree	8	8	6	22
Doctorate	0	0	1	1
Credential (Members may hold multiple credentials.)				
Elementary Teaching (multiple subjects)	7	9	2	18
Secondary Teaching (single subject)	2	0	5	7
Special Education	3	9	3	15
Reading Specialist	4	3	0	7
English Learner (CLAD,BCLAD)	4	6	1	11
Administrative	5	1	0	6
Other	3	0	1	4
None (teaching at the university level)	0	0	0	0

ARP Meetings for Review of CMA Items

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

- Overview of the purpose and scope of the CMA
- Overview of the CMA test design specifications and blueprints
- Analysis of the CMA item specifications

- Overview of criteria for evaluating multiple-choice test items and for reviewing constructed-response writing tasks
- Review and evaluation of items for bias and sensitivity issues

The criteria for evaluating multiple-choice items and constructed-response writing tasks include the following:

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

Criteria also include more global factors, including—for ELA—the appropriateness, difficulty, and readability of reading passages. The ARPs also are trained on how to make recommendations for revising items. Guidelines for reviewing items are provided by ETS and approved by the CDE. The set of guidelines for reviewing items is summarized below.

Does the item:

- Have one and only one clearly correct answer?
- Measure the content standard?
- Match the test item specifications?
- Align with the construct being measured?
- Test worthwhile concepts or information?
- Reflect good and current teaching practices?
- Have a stem that gives the student a full sense of what the item is asking?
- Avoid unnecessary wordiness?
- Use response options that relate to the stem in the same way?
- Use response options that are plausible and have reasonable misconceptions and errors?
- Avoid having one response option that is markedly different from the others?
- Avoid clues to students, such as absolutes or words repeated in both the stem and options?
- Reflect content that is free of bias against any person or group?

Is the stimulus, if any, for the item:

- Required in order to answer the item?
- Likely to be interesting to students?
- Clearly and correctly labeled?
- Providing all the information needed to answer the item?

As the first step of the item review process, ARP members review a set of items independently and record their individual comments. The next step in the review process is for the group to discuss each item. The content-area assessment specialists facilitate the discussion and record all recommendations. Those recommendations are recorded in a master item review booklet. Item review binders and other item evaluation materials also identify potential bias and sensitivity factors the ARP will consider as a part of its item reviews.

Depending on CDE approval and the numbers of items still to be reviewed, some ARPs are divided further into smaller groups. The science ARP, for example, divides into content area and grade-level groups. These smaller groups are also facilitated by the content-area assessment specialists.

ETS staff maintains the minutes summarizing the review process, and then forwards copies of the minutes to the CDE, emphasizing in particular the recommendations of the panel members.

Statewide Pupil Assessment Review Panel

The SPAR panel is responsible for reviewing and approving all achievement tests to be used statewide for the testing of students in California public schools, grades two through eleven. At the SPAR panel meetings, all new items are presented in binders for review. The SPAR panel representatives ensure that the test items conform to the requirements of *EC* Section 60602. The constructed-response writing tasks are also presented for review. If the SPAR panel rejects specific items and/or constructed-response writing tasks, the items and/or tasks are marked for rejection in the item bank and excluded from use on field tests. For the SPAR panel meeting, the item development coordinator is available by telephone to respond to any questions during the course of the meeting.

Field Testing

The primary purposes of field testing are to obtain information about item performance and to obtain statistics that can be used to assemble operational forms.

Stand-alone Field Testing

For each new CMA launched, a pool of items is initially constructed by administering the newly developed items in a stand-alone field test. In stand-alone field testing, examinees are recruited to take tests outside of the usual testing circumstances and the test results are typically not used for instructional or accountability purposes (Schmeiser & Welch, 2006). CMA stand-alone field testing occurred in the fall before the test became operational in the following spring. In the case of writing prompts administered as part of the grade seven CMA for ELA, due to time constraints, field-testing is conducted only as stand-alone event. ETS field-tested new writing prompts in the fall of 2008 to identify prompts that could be used in the operational ELA test for grade seven; six prompts were field-tested. Following reviews of field test results by the CDE, ETS, and the ELA ARP, two prompts were selected for use in subsequent operational administrations of the grade seven writing test.

The field-testing schedule for the CMA is presented in Table 3.3, on the next page.

Table 3.3 Field-testing Schedule for the CMA

Content Area	CMA*	Field-testing Year
English–Language Arts	**3**	2007
	4	2007
	5	2007
	6	2008
	7	2008
	8	2008
	9	2009
	10	2010
	11	2010
	Writing**	2008
Mathematics	**3**	2007
	4	2007
	5	2007
	6	2008
	7	2008
	Algebra I	2009
	Geometry	2010
Science	**5**	2007
	8	2008
	10 Life Science	2009

* Number indicates grade-level test.

** Grades four and seven

Embedded Field-test Items

Although a stand-alone field test is useful for developing a new test because it can produce a large pool of quality items, embedded field testing is generally preferred because the items being field-tested are scattered throughout the operational test. Variables such as test-taker motivation and test security are the same in embedded field testing as they will be when the field-tested items are later administered operationally. Such field-testing involves distributing the items being field-tested within an operational test form. Different forms contain the same operational items and different field-test items. The numbers of embedded field-test items for the CMA are shown in Table 3.4.

Allocation of Students to Field-test Items

The operational test forms for a given CMA are spiraled among students in the state so that a large representative sample of test takers responds to the field-test items embedded in these forms. The spiraling design ensures that a diverse sample of students take each field-test item. The students do not know which items are field-test items and which items are operational items; therefore, their motivation is not expected to vary over the two types of items (Patrick & Way, 2008).

Number of Forms and Sample Sizes

A set of field-test items is administered on all CMA forms. The sets of field-test items differ across forms and the number of forms varies across content area and grade level. As mentioned earlier, the number of items to be field-tested for a given CMA reflects the demand for new items.

Table 3.4 also shows the number of forms administered for each CMA in 2010 and the numbers of examinees included in samples used for the field test or "final" item analyses (FIA) of these forms. The samples used for operational FIA constitute approximately 90 percent of the entire population tested. The field-test samples are listed in the last column of Table 3.4.

Table 3.4 Summary of Items and Forms Presented in the 2010 CMA

		Operational			Field Test	
Content Area	**CMA***	**No. Items**	**No. Examinees FIA Sample**	**No. Forms**	**No. Items**	**No. Examinees FIA Sample**
English–Language Arts	**3****	48	15,991	6	9	2,601–2,988
	4	48	22,570	5	9	3,554–5,294
	5	48	23,684	6	9	2,919–4,379
	6	54	22,435	4	9	5,256–6,178
	7***	54	20,871	4	9	5,218–5,861
	8	54	18,781	4	9	2,886–3,384
	9	60	10,908	4	10	2,701–3,007
Mathematics	**3**	48	13,554	6	9	2,226–2,574
	4	48	18,860	5	9	2,956–4,502
	5	48	21,059	6	9	2,572–3,895
	6	54	21,157	4	9	4,968–5,799
	7	54	20,179	4	9	4,896–5,263
	Algebra I	60	15,134	4	10	3,804–3,923
Science	**5**	48	21,955	6	9	2,757–4,043
	8	54	17,337	6	9	2,587–3,075
	10 Life Science	60	6,008	6	6	994–1,071

* Numbers indicate grade-level tests.

**Standard form

*** MC only

CDE Data Review

Once items have been field-tested, ETS prepares the items and the associated statistics for review by the CDE. ETS provides items with their statistical data, along with annotated comment sheets, for the CDE to use in its review. ETS conducts an introductory training to highlight any new issues and serve as a statistical refresher. CDE consultants then make decisions about which items should be included in the item bank. ETS psychometric and content staff are available to CDE consultants throughout this process.

Item Banking

Once the ARP new item review is complete, the items are placed in the item bank along with their corresponding review information. Items that are accepted by the ARP and CDE are updated to a "field-test ready" status; items that are rejected are updated to a "rejected before use" status. ETS then delivers the items to the CDE by means of a delivery of the California electronic item bank. Subsequent updates to items are based on field-test and operational use of the items. However, only the latest content of the item is in the bank at any given time, along with the administration data from every administration that has included the item.

After field-test or operational use, items that do not meet statistical specifications may be rejected; such items are updated with a status of "rejected for statistical reasons" and remain unavailable in the bank. These statistics are obtained by the research group at ETS

which carefully evaluates each item for its level of difficulty and discrimination as well as conformance to the IRT Rasch model. Researchers also determine if the item functions similarly for various subgroups of interest.

All unavailable items are clearly marked with an availability indicator of “Unavailable,” a reason for rejection as described above, and cause alerts so they are not inadvertently included on subsequent test forms. Statuses and availability are updated programmatically as items are presented for review, accepted or rejected, placed on a form for field testing, presented for statistical review, used operationally, and released. All rejection and release indications are monitored and controlled through ETS’s assessment development processes.

ETS currently provides and maintains the electronic item banks for several of the California assessments including the California High School Exit Examination (CAHSEE) and STAR (CST, CMA, CAPA, and STS). CAHSEE and STAR are currently consolidated in the California Item Banking system. ETS works with the CDE to obtain the data for assessments under contract with other vendors for inclusion into the item bank, using the tools developed previously. ETS provides the item banking application using the LAN architecture and the relational database management system, SQL 2000, already deployed. ETS provides updated versions of the item bank to the CDE on an ongoing basis, and works with the CDE to determine the optimum process if a change in databases is desired.

References

California Department of Education. (2009). *California content standards.* http://www.cde.ca.gov/be/st/ss/.

Educational Testing Service (2002). *ETS standards for quality and fairness*. Office of Testing Integrity, Princeton, NJ: Educational Testing Service.

Patrick, R., and Way, D. (March, 2008). *Field testing and equating designs for state educational assessments*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

Schmeiser, C.B., and Welch, C.J. (2006). Test development. In R.L. Brennan (Ed.), *Educational measurement* (4th ed.). Westport, CT: American Council on Education and Praeger Publishers.

Chapter 4: Test Assembly

The CMA tests are constructed to measure students' performance relative to California's content standards approved by the SBE. They are also constructed to meet professional standards for validity and reliability. For each CMA, the content standards and psychometric attributes are used as the basis for assembling the test forms.

Test Length

The number of items in each CMA blueprint was determined by considering the construct that the test is intended to measure and the level of psychometric quality desired. Test length is closely related to the complexity of content to be measured by each test; this content is defined by the California content standards for each grade level and content area. Also considered is the goal that the test be short enough that most of the students complete it in a reasonable amount of time.

There are 57 items on the CMA tests for ELA in grades three through five, for mathematics in grades three through five, and for science in grade five. There are 63 items on the CMA tests for ELA in grades six through eight, for mathematics in grades six and seven, and for science in grade eight. There are 70 items on the CMA for ELA in grade nine and Algebra I, and 66 items on the CMA for Life Science in grade ten. For more details on the distribution of items, see Appendix 2.A on page 21.

Rules for Item Selection

Test Blueprint

ETS selects all CMA test items to conform to the SBE-approved California content standards and test blueprints. The content blueprints for the CMA can be found on the CDE STAR CMA Blueprints Web page at http://www.cde.ca.gov/ta/tg/sr/cmablueprints.asp.

Although the test blueprints call for the number of items at the individual standard level, scores for the CMA items are grouped into subcontent areas (reporting clusters). For each CMA reporting cluster, the percentage of questions correctly answered is reported on a student's score report. A description of the CMA reporting clusters and the standards that compose each reporting cluster is provided in Appendix 2.B in Chapter 2 which starts on page 22.

Content Rules and Item Selection

When developing a new test form for a given grade and content area, test developers follow a number of rules. First and foremost, they select items that meet the blueprint for that grade level and content area. Using an electronic item bank, assessment specialists begin by identifying a number of linking items. These are items that appeared in the previous year's operational administration and are used to equate the test forms administered each year. Linking items are selected to proportionally represent the full blueprint. For example, if 25 percent of all of the items in a test are in the first reporting cluster, then 25 percent of the linking items should come from that cluster. The linking items are selected for their strong match to the content and are reviewed to ensure that they meet specific psychometric criteria.

After the linking items are approved, assessment specialists populate the rest of the test form. Their first consideration is the strength of the content and the match of each item to the standard. In selecting items, team members also try to ensure that they include a variety

of formats and content and that at least some of the items include graphics for visual interest.

Another consideration is the difficulty of each item. Test developers strive to ensure that there are some easy and some hard items and that there are a number of items in the middle range of difficulty. If items do not meet all content and psychometric criteria, staff reviews the other available items to determine if there are other selections that could improve the match of the test to all of the requirements. If such a match is not attainable, the content team works in conjunction with psychometricians and the CDE to determine which combination of items will best serve the needs of the students taking the test. Chapter 3 on page 74 contains further information about this process.

These are rules that, in general, test developers follow to construct new forms for well-established tests. Slightly different test construction rules were followed for the CMA for ELA in grade nine, Algebra I, and Life Science in grade ten because base year scales had not been established for these tests and therefore, sets of linking items were not needed.

Psychometric Criteria

For the CMA, the test developers and psychometricians strive to accomplish three goals while developing a test:

1. The test must have desired precision of measurement at all ability levels.
2. The test score must be valid and reliable for the intended population and for the various subgroups of test-takers.
3. The test forms must be comparable across years of administration to ensure the generalizability of scores over time.

In order to achieve these goals, a set of rules is developed that outlines the desired psychometric properties of each CMA. Such rules are referred to as statistical targets.

Three types of assembly targets are developed for each CMA: the total test target, the linking block target, and reporting cluster targets. These targets are provided to test developers before a test construction cycle begins. The test developers and psychometricians work together to design the tests to these targets.

The total test target or primary statistical targets used for assembling the CMA forms for the 2010 STAR administration were the test information function based on the item response theory (IRT) item parameters and an average point-biserial correlation. When using the IRT Rasch model, the target information function makes it possible to choose items to produce a test that has the desired precision of measurement at all ability levels. The target mean and standard deviation of item difficulty (*b*-values) consistent with the information curves were also provided to test development staff to help with the test construction process. The point-biserial correlation describes the relationship between student performance on a dichotomously scored item and student performance on the test as a whole. It is used as a measure of how well an item discriminates among test takers that differ in their ability and it is related to the overall reliability of the test.

The target *b*-value range approximates a minimum *p*-value of 0.33 and a maximum *p*-value of 0.95 for each test. The minimum target value for an item point biserial was set at 0.14 for each test. This value approximates a biserial correlation of 0.20.

Note: For the CMA for ELA and mathematics in grades three through five and for science in grade five, the assembly targets were developed from the analyses of operational forms

administered in spring 2009. The targets for ELA in grades six through eight, mathematics in grades six and seven, and science in grade eight were developed using data from the fall 2008 field test administration of those tests and were used to develop the spring 2009 operational ELA, mathematics, and science forms for these grades, which were re-used in the 2010 administration.

The targets for these CMA tests will be subsequently updated using data from the 2010 operational administration after the base scale was established and for use in assembling the spring 2011 operational test forms. The forms for ELA in grade nine, Algebra I, and Life Science in grade ten will be re-used for the spring 2011 administration. The targets for these CMA tests were developed from the analyses of the field-test forms administered in the fall of 2009 and will be updated using data from the 2011 operational administration for use in assembling spring 2012 operational test forms. The target values for the forms administered in 2010 in all grades and content areas are presented in Table 4.1.

Table 4.1 Target Statistical Specifications for the CMA

		Point Biserial		*b-Values*		*p-value*	
Content Area	**CMA***	**Mean**	**Minimum**	**Mean**	**St. Dev.**	**Minimum**	**Maximum**
English–Language Arts	3	0.37	0.14	–0.51	0.55	0.33	0.95
	4	0.37	0.14	–0.41	0.53	0.33	0.95
	5	0.37	0.14	–0.40	0.77	0.33	0.95
	6	0.35	0.14	–0.22	0.65	0.33	0.95
	7	0.35	0.14	–0.23	0.65	0.33	0.95
	8	0.35	0.14	–0.23	0.65	0.33	0.95
	9	0.30	0.14	–0.23	0.65	0.33	0.95
Mathematics	3	0.37	0.14	–0.43	0.75	0.33	0.95
	4	0.37	0.14	–0.40	0.76	0.33	0.95
	5	0.37	0.14	–0.38	0.78	0.33	0.95
	6	0.30	0.14	–0.21	0.65	0.33	0.95
	7	0.30	0.14	–0.22	0.65	0.33	0.95
	Algebra I	0.30	0.14	–0.22	0.65	0.33	0.95
Science	5	0.37	0.14	–0.43	0.74	0.33	0.95
	8	0.30	0.14	–0.22	0.65	0.33	0.95
	10 Life Science	0.30	0.14	–0.22	0.65	0.33	0.95

* Numbers indicate grade-level tests.

Projected Psychometric Properties of the Assembled Tests

Prior to the 2010 administration, ETS psychometricians performed a preliminary review of the technical characteristics of the assembled tests. The expected or projected performance of examinees and the overall score reliability were estimated using the item-level statistics available in the California item bank for the selected items. The test reliability was based on Gulliksen's formula (Gulliksen, 1987) for estimating test reliability (r_{xx}) from item *p*-values and item point-biserial correlations:

$$r_{xx} = \left(\frac{K}{K-1}\right)\left(1 - \frac{\sum_{g=1}^{K} s_g^{\,2}}{\left(\sum_{g=1}^{K} r_{xg} s_g\right)^2}\right) \tag{4.1}$$

where,

K is the number of items in the test,

$s_g^{\ 2}$ is the estimated item variances i.e. $p_g(1-p_g)$, where p_g is the item *p*-value for item g,

r_{xg} is the item point-biserial correlation for item g, and

$r_{xg}s_g$ is the item reliability index.

In addition, estimated test raw score means were calculated by summing the item *p*-values, and estimated test raw score standard deviations were calculated by summing the item reliability indices. Table 4.A.1 on page 91 presents these summary values by content area and grade. Table 4.A.2 on page 91 shows the mean observed statistics of the items on each CMA based on the item-level statistics available in the item bank for the most recent administration of those items. These values can be compared to the target values in Table 4.1.

For the 2010 tests with linking sets (grades three to five), the graphs in Figure 4.A.1 through Figure 4.A.3 starting on page 92 show the target test information function and the projected test information function for the total test and the linking set. The information curves for the linking sets were adjusted so they could be directly compared to the information curves for the longer total tests. Figure 4.B.1 through Figure 4.B.7 starting on page 94 present the target and projected information curves for the clusters in each CMA.

Rules for Item Sequence and Layout

The items on test forms are organized and sequenced differently according to the requirements of the content area.

- ELA—Because the ELA test is primarily passage-dependent, items are sequenced with their associated reading passages. Passages are sequenced according to genre and interest level; test developers work to place high-interest pieces (typically narrative selections) near lower-interest pieces (typically functional or technical writing). Stand-alone items are placed throughout the form, where appropriate.
- Mathematics—The CMA grade-level mathematics test forms are sequenced according to reporting cluster; that is, all items from a single reporting cluster are presented together and then all of the items from the next reporting cluster are presented. There are three reporting clusters: Reporting cluster 1, which tests Number Sense; reporting cluster 2, which tests both Algebra and Functions and Statistics, Data Analysis, and Probability; and reporting cluster 3, which tests Measurement and Geometry. For the end-of-course (EOC) CMA for Algebra I, test forms are sequenced according to content standards because items are not yet associated with reporting clusters.
- Science—The science tests for grades five and eight are sequenced according to reporting cluster; that is, all items from a single reporting cluster are presented together and then all of the items from the next reporting cluster are presented. For the grade ten Life Science test, the test is sequenced by content standard and does not yet have associated reporting clusters.

Reference

Gulliksen, H. (1987). *Theory of mental tests*. Hillsdale, NJ: Erlbaum.

Appendix 4.A—Technical Characteristics

Table 4.A.1 Summary of 2010 CMA Projected Raw Score Statistics

Content Area	CMA*	Number of Items	Mean Raw Score	Std. Dev. of Raw Scores	Reliability
English–Language Arts	**3**	48	26.66	8.02	0.84
	4	48	24.71	7.22	0.79
	5	48	26.41	7.27	0.81
	6	54	28.82	7.34	0.78
	7**	54	29.12	8.39	0.83
	8	54	28.90	8.17	0.83
	9	60	25.96	7.50	0.75
Mathematics	**3**	48	29.11	9.22	0.89
	4	48	26.72	6.46	0.76
	5	48	27.58	7.59	0.83
	6	54	28.70	7.27	0.77
	7	54	25.08	6.49	0.71
	Algebra I	60	27.01	5.37	0.51
Science	**5**	48	27.07	6.98	0.79
	8	54	28.13	7.47	0.79
	10 Life Science	60	28.87	7.84	0.78

* Numbers indicate grade-level tests.

** MC items

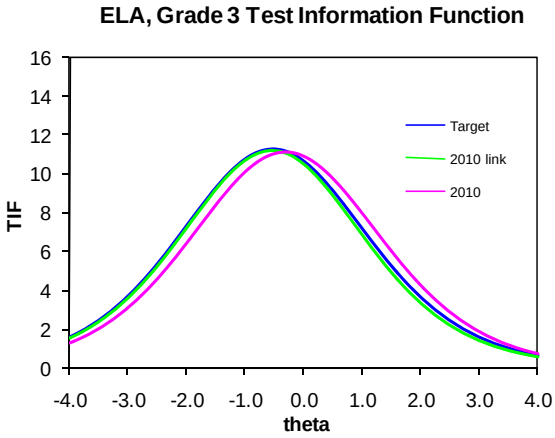
Table 4.A.2 Summary of 2010 CMA Projected Item Statistics

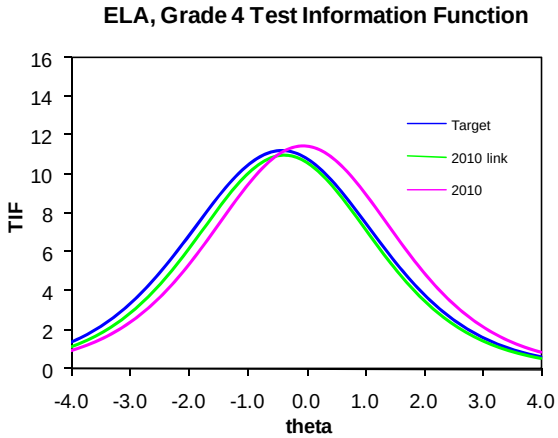
Content Area	CMA*	Mean b	SD b	Mean *p*–value	Min *p*–value	Max *p*–value	Mean Point Biserial	Min Point Biserial
English–Language Arts	**3**	–0.30	0.58	0.56	0.21	0.79	0.35	0.12
	4	–0.05	0.42	0.51	0.34	0.72	0.31	0.10
	5	–0.20	0.58	0.55	0.31	0.83	0.32	0.08
	6	–0.15	0.60	0.53	0.19	0.84	0.28	0.00
	7**	–0.17	0.46	0.54	0.36	0.76	0.32	0.16
	8	–0.16	0.61	0.54	0.30	0.89	0.32	0.13
	9	0.26	0.27	0.43	0.29	0.60	0.25	0.08
Mathematics	**3**	–0.48	0.52	0.61	0.37	0.82	0.40	0.24
	4	–0.27	0.76	0.56	0.29	0.92	0.29	0.01
	5	–0.32	0.61	0.58	0.36	0.93	0.33	0.13
	6	–0.14	0.49	0.53	0.28	0.81	0.28	0.05
	7	0.15	0.45	0.46	0.22	0.68	0.25	0.06
	Algebra I	0.19	0.30	0.45	0.34	0.65	0.18	0.03
Science	**5**	–0.27	0.60	0.56	0.29	0.85	0.30	0.09
	8	–0.10	0.53	0.52	0.31	0.86	0.29	0.05
	10 Life Science	0.07	0.41	0.48	0.31	0.70	0.27	0.06

* Numbers indicate grade-level tests.

** MC items

Figure 4.A.1 Plots for Target Information Function and Projected Information for Total Test and Linking Set for English–Language Arts, Grades Three through Five





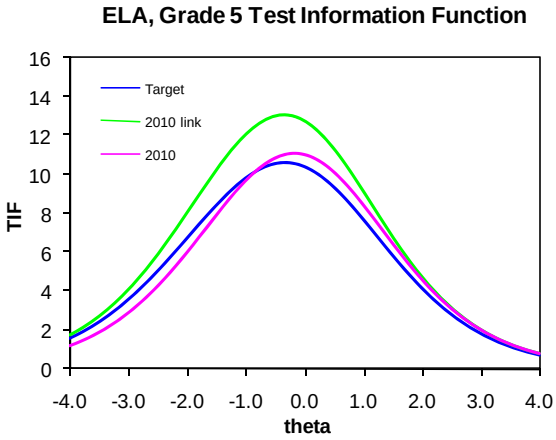
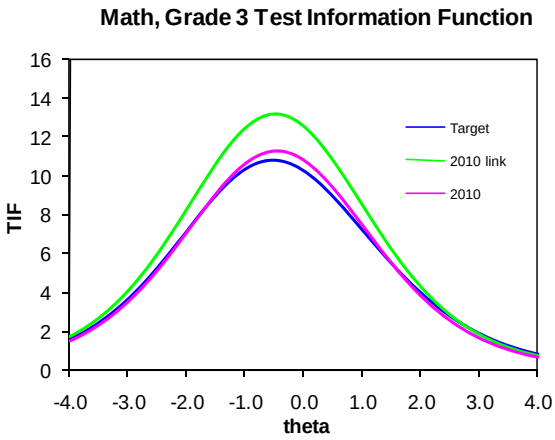
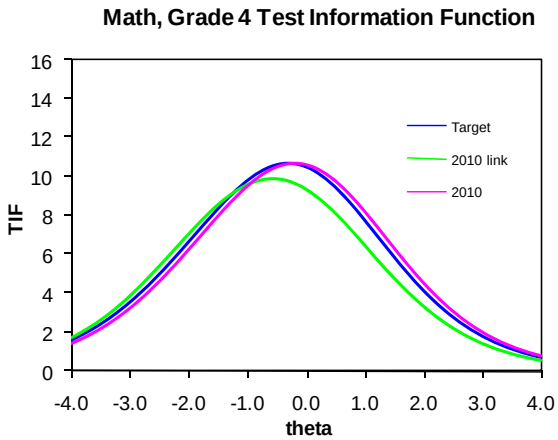


Figure 4.A.2 Plots for Target Information Function and Projected Information for Total Test and Linking Set for Mathematics, Grades Three through Five





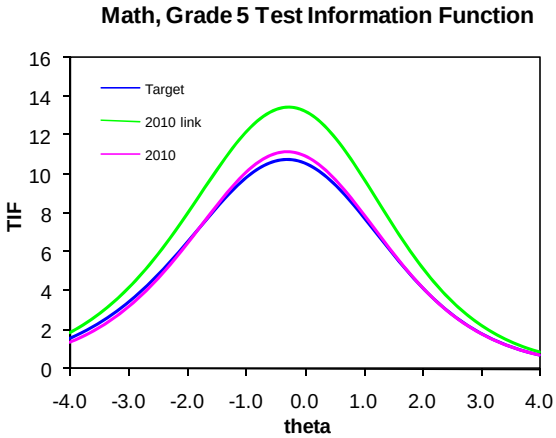
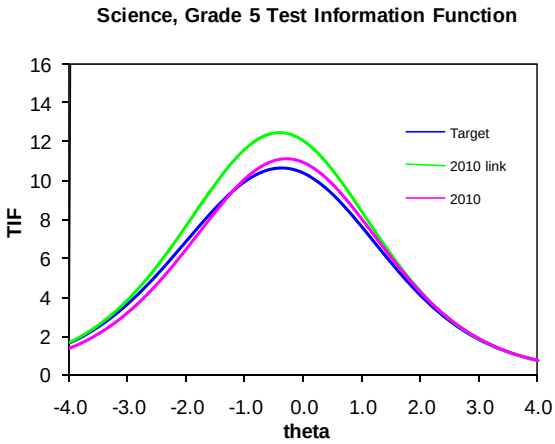
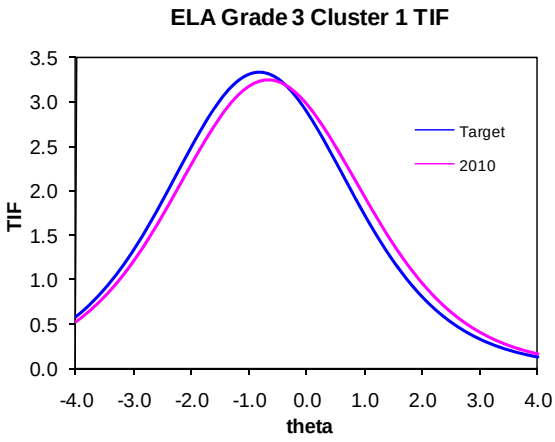


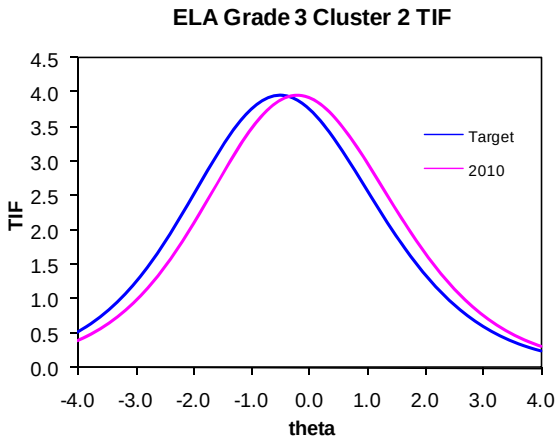
Figure 4.A.3 Plots for Target Information Function and Projected Information for Total Test and Linking Set for Science, Grade Five



Appendix 4.B—Cluster Targets for Grades Three Through Five

Figure 4.B.1 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Three





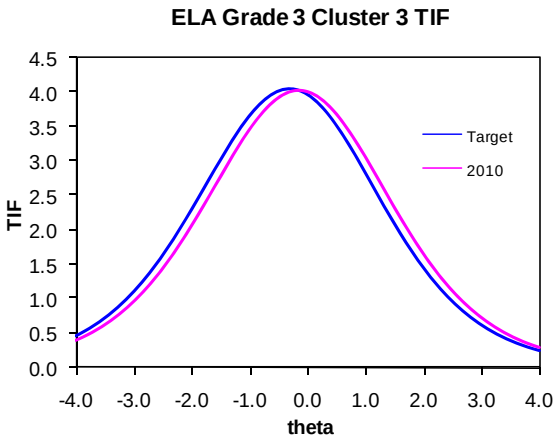
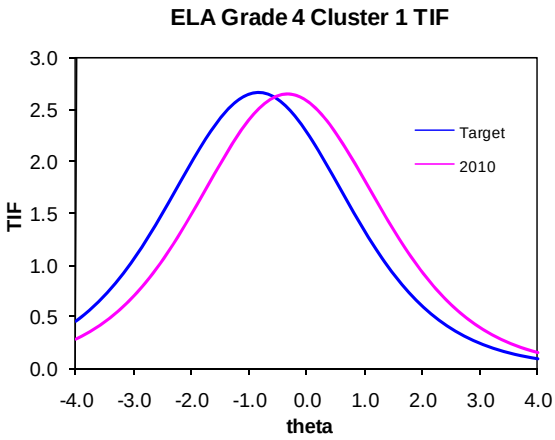
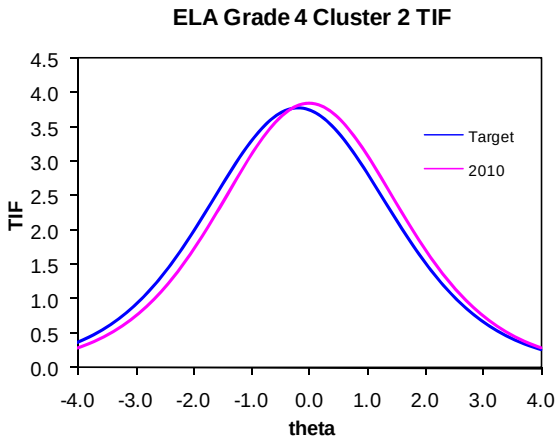


Figure 4.B.2 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Four





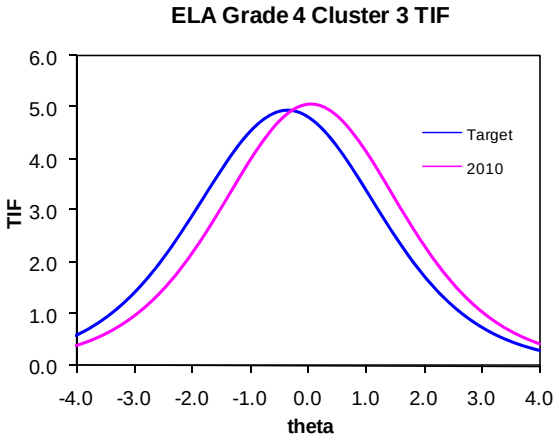
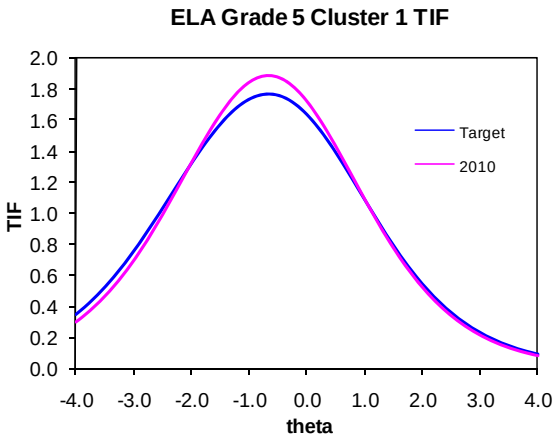
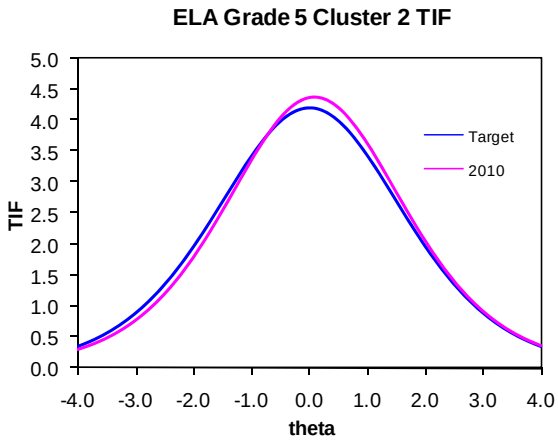


Figure 4.B.3 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Five





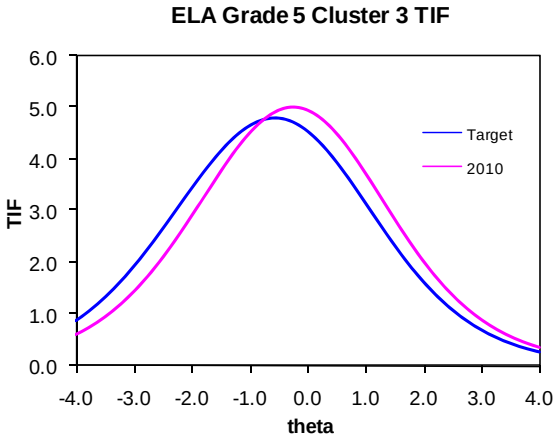
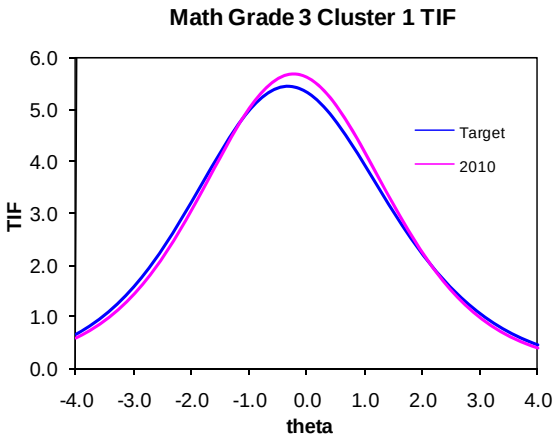
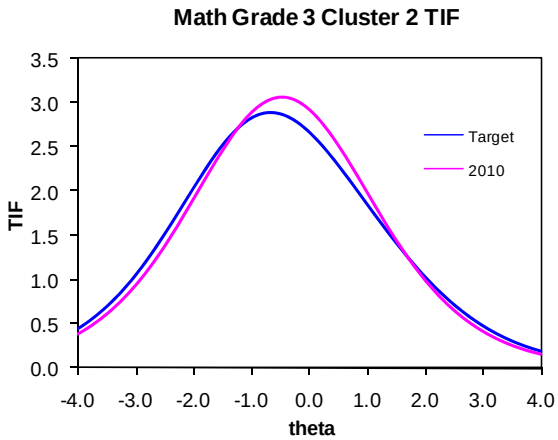


Figure 4.B.4 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Three





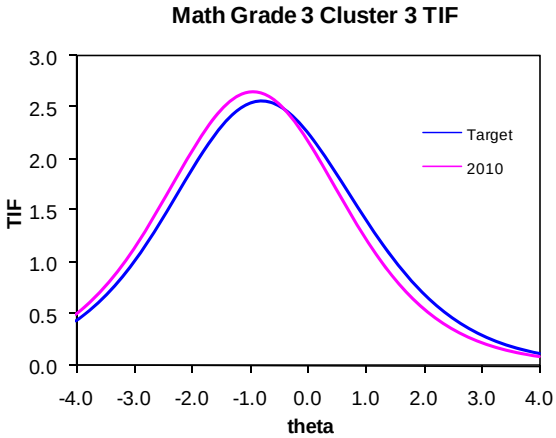
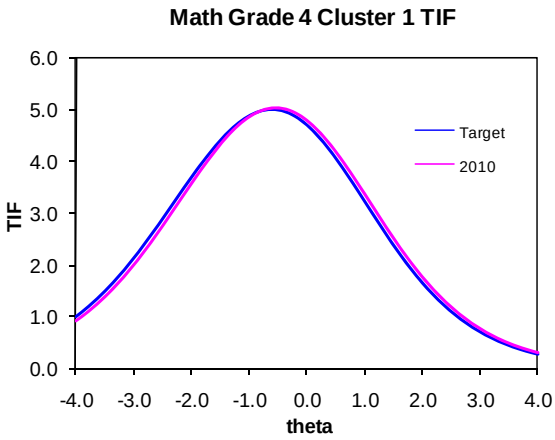
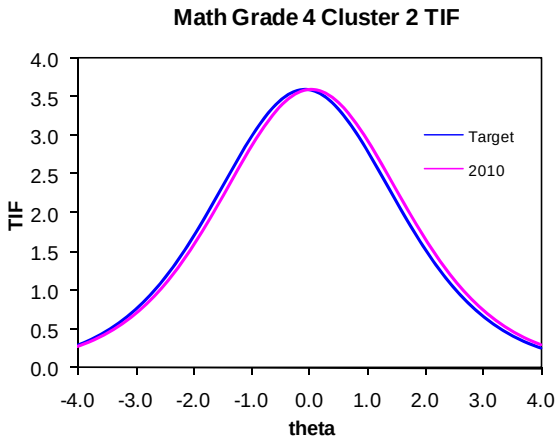


Figure 4.B.5 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Four





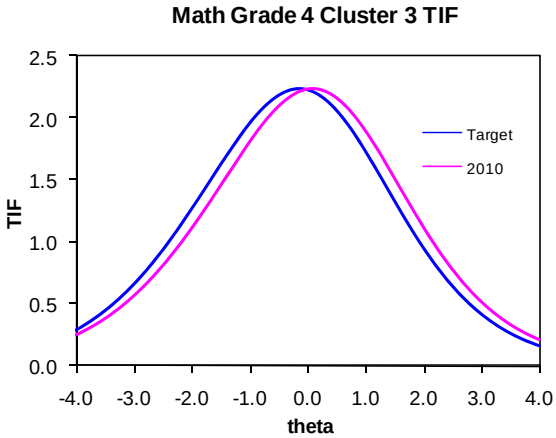
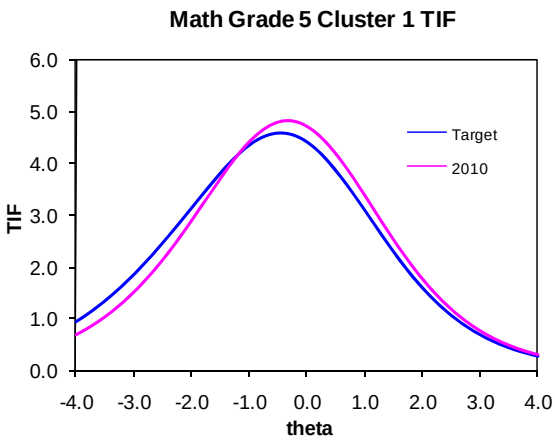
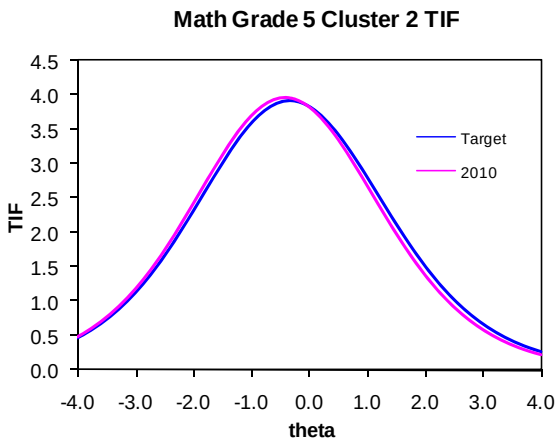


Figure 4.B.6 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Five





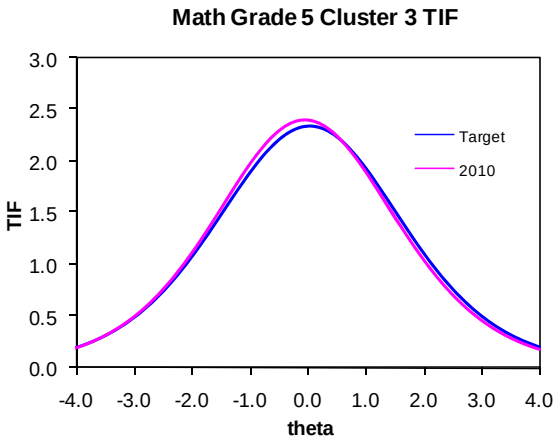
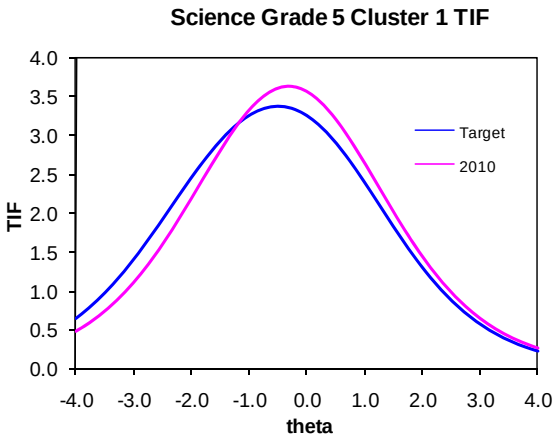
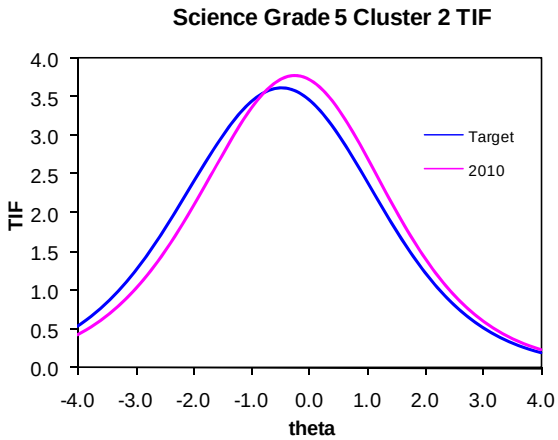
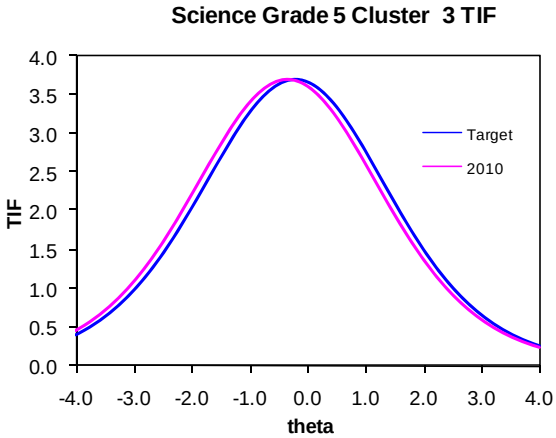


Figure 4.B.7 Plots of Target Information Functions and Projected Information for Clusters for Science, Grade Five







Chapter 5: Test Administration

Test Security and Confidentiality

All tests within the STAR Program are secure documents. For the CMA administration, every person having access to test materials maintains the security and confidentiality of the tests. ETS's Code of Ethics requires that all test information, including tangible materials (such as test booklets), confidential files, processes, and activities are kept secure. ETS has systems in place that maintain tight security for test questions and test results, as well as for student data. To ensure security for all the tests that ETS develops or handles, ETS maintains an OTI, which is described in the next section.

ETS's Office of Testing Integrity

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

The OTI's mission is to

- Minimize any testing security violations that can impact the fairness of testing
- Minimize and investigate any security breach
- Report on security activities

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

Test Development

During the test development process, ETS staff members consistently adhere to the following established security procedures:

- Only authorized individuals have access to test content at any step in the test development, item review, and data analysis processes.
- Test developers keep all hard-copy test content, computer disk copies, art, film, proofs, and plates in locked storage when not in use.
- ETS shreds working copies of secure content as soon as they are no longer needed in the test development process.
- Test developers take further security measures when test materials are to be shared outside of ETS; this is achieved by using registered and/or secure mail, using express delivery methods, and actively tracking records of dispatch and receipt of the materials.

Item and Data Review

ETS enforces security measures at ARP meetings to protect the integrity of meeting materials using the following guidelines:

- Individuals who participate in the ARPs must sign a confidentiality agreement.
- Meeting materials are strictly managed before, during, and after the review meetings.
- Meeting participants are supervised at all times during the meetings.
- Use of electronic devices is strictly prohibited in the meeting rooms.

Item Banking

Once the ARP review is complete, the items are placed in the item bank. ETS then delivers the items to the CDE through the California electronic item bank. Subsequent updates to content and statistics associated with items are based on data collected from field testing and the operational use of the items. The latest version of the item is retained in the bank along with the data from every administration that has included the item.

Security of the electronic item banking system is of critical importance. The measures that ETS takes for assuring the security of electronic files include the following:

- Electronic forms of test content, documentation, and item banks are backed up, and the backups are kept offsite.
- The offsite backup files are kept in secure storage with access limited to authorized personnel only.
- To prevent unauthorized electronic access to the item bank, state-of-the-art network security measures are used.

ETS routinely maintains many secure electronic systems for both internal and external access. The current electronic item banking application includes a login/password system to provide authorized access to the database or designated portions of the database. In addition, only users authorized to access the specific SQL database are able to use the electronic item banking system. Designated administrators at the CDE and at ETS authorize users to access these electronic systems.

Transfer of Forms and Items to the CDE

ETS shares a secure file transfer protocol (SFTP) site with the CDE. SFTP is a method for reliable and exclusive routing of files. Files reside on a password-protected server that only authorized users may access. On that site, ETS posts Microsoft Word and Excel, Adobe Acrobat PDF, or other document files for the CDE to review. ETS sends a notification e-mail to the CDE to announce that files are posted. Item data are always transmitted in an encrypted format to the SFTP site; test data are never sent via e-mail. The SFTP server is used as a conduit for the transfer of files; secure test data are not stored permanently on the shared SFTP server.

Security of Electronic Items Using a Firewall

A firewall is software that prevents unauthorized entry to files, e-mail, and other organization-specific programs. ETS data exchange and internal e-mail remain within the ETS firewall at all ETS locations, ranging from Princeton, New Jersey, to San Antonio, Texas, to Concord and Sacramento, California.

All electronic applications included in the STAR Management System (CDE, 2010a) remain protected by the ETS firewall software at all times. Due to the sensitive nature of the student information processed by the STAR Management System, the firewall plays a significant role in maintaining an assurance of confidentiality in the users of this information. (It should be noted that the STAR Management System neither stores nor processes tests or student test results.)

Printing and Publishing

After items and test forms are approved, the files are sent for printing on a CD using a secure courier system. According to the established procedures, the OTI pre-approves all printing vendors before they can work on secured confidential and proprietary testing materials. The printing vendor must submit a completed ETS Printing Plan and a Typesetting Facility Security Plan; both plans document security procedures, access to testing materials, a log of work in progress, personnel procedures, and access to the facilities by the employees and visitors. After reviewing the completed plans, representatives of the OTI visit the printing vendor to conduct an onsite inspection. The printing vendor ships printed test booklets to Pearson and other authorized locations. Pearson distributes the booklets to school districts in securely packaged boxes.

Test Administration

Pearson receives testing materials from printers, packages them, and sends them to school districts. After testing, the school districts return materials to Pearson for scoring. During these events, Pearson takes extraordinary measures to protect the testing materials. Pearson's customized Oracle business applications verify that inventory controls are in place from receipt of materials to packaging. The reputable carriers used by Pearson provide a specialized handling and delivery service that maintains test security and meets the STAR program schedule. The carriers provide inside delivery directly to the district STAR coordinators or authorized recipients of the assessment materials.

Test Delivery

Test security requires accounting for all secure materials before, during, and after each test administration. The district STAR coordinators are, therefore, required to keep all testing materials in central locked storage except during actual test administration times. Test site coordinators are responsible for accounting for and returning all secure materials to the district STAR coordinator, who is responsible for returning them to the STAR Scoring and Processing Center. The following measures are in place to ensure security of STAR testing materials:

- District STAR coordinators are required to sign and submit a "STAR Test (including field tests) Security Agreement for District and Test Site Coordinators" form to the STAR Technical Assistance Center before ETS can ship any testing materials to the district.
- Test site coordinators have to sign and submit a "STAR Test (including field tests) Security Agreement for District and Test Site Coordinators" form to the district STAR coordinator before any testing materials can be delivered to the school/test site.
- Anyone having access to the testing materials must sign and submit a "STAR Test (including field tests) Security Affidavit for Test Examiners, Proctors, Scribes, and Any Other Person Having Access to STAR Tests" form to the test site coordinator before receiving access to any testing materials.
- It is the responsibility of each person participating in the STAR Program to report immediately any violation or suspected violation of test security or confidentiality. The test site coordinator is responsible for immediately reporting any security violation to the district STAR coordinator. The district STAR coordinator must contact the CDE immediately; the coordinator will be asked to follow up with a written explanation of the violation or suspected violation.

Processing and Scoring

An environment that promotes the security of the test prompts, student responses, data, and employees throughout a project is of utmost concern to Pearson. Pearson requires the following standard safeguards for security at their sites:

- There is controlled access to the facility.
- No test materials may leave the facility during the project without the permission of a person or persons designated by the CDE.
- All scoring personnel must sign a nondisclosure and confidentiality form in which they agree not to use or divulge any information concerning tests, scoring guides, or individual student responses.
- All staff must wear Pearson identification badges at all times in Pearson facilities.

No recording or photographic equipment is allowed in the scoring area without the consent of the CDE.

The completed and scored answer documents are stored in secure warehouses. After they are stored, they will not be handled again unless questions arise about a student's score. For example, a school district or a parent may request that a student's test responses be rescored. In such a case, the answer document is removed from storage, copied, and sent securely to the ETS facility in Sacramento, California, for hand scoring, after which the copy is destroyed. School and district personnel are not allowed to look at a completed answer document unless required for transcription, or to investigate irregular cases.

All answer documents, test booklets, and other secure testing materials are destroyed after October 31 each year.

Data Management

Pearson provides overall security for assessment materials through its limited-access facilities and through its secure data processing capabilities. Pearson enforces stringent procedures to prevent unauthorized attempts to access their facilities. Entrances are monitored by security personnel and a computerized badge-reading system is utilized. Upon entering the facilities, all Pearson employees are required to display identification badges that must be worn at all times while in the facility. Visitors must sign in and out. While they are at the facility, they are assigned a visitor badge and escorted by Pearson personnel. Access to the Data Center is further controlled by the computerized badge-reading system that allows entrance only to those employees who possess the proper authorization.

Data, electronic files, test files, programs (source and object), and all associated tables and parameters are maintained in secure network libraries for all systems developed and maintained in a client-server environment. Only authorized software development employees are given access as needed for development, testing, and implementation, in a strictly controlled Configuration Management environment.

For mainframe processes, Pearson utilizes Random Access Control Facility (RACF) to limit and control access to all data files (test and production), source code, object code, databases, and tables. RACF controls who is authorized to alter, update, or even read the files. All attempts to access files on the mainframe by unauthorized users are logged and monitored. In addition, Pearson uses ChangeMan, a mainframe configuration management tool, to control versions of the software and data files. ChangeMan provides another level of security, combined with RACF, to place the correct tested version of code into production. Unapproved changes are not implemented without prior review and approval.

Transfer of Scores via Secure Data Exchange

After scoring is completed, Pearson sends scored data files to ETS and follows secure data exchange procedures. ETS and Pearson have implemented procedures and systems to provide efficient coordination of secure data exchange. This includes the established SFTP site that is used for secure data transfers between ETS and Pearson. These well-established procedures provide timely, efficient, and secure transfer of data. Access to the STAR data files is limited to appropriate personnel with direct project responsibilities.

Statistical Analysis

The Information Technology (IT) area at ETS retrieves the Pearson data files from the SFTP site and loads them into a database. The Data Quality Services (DQS) area at ETS extracts the data from the database and performs quality control procedures before passing files to the ETS Statistical Analysis group. The Statistical Analysis group then keeps the files on secure servers and adheres to the ETS Code of Ethics to prevent any unauthorized access.

Reporting and Posting Results

After statistical analysis has been completed on student data, the files flow in three different directions. Paper reports, some with individual student results and others with summary results, are produced. Encrypted files of summary results are also sent to the CDE by means of SFTP. Any summary results that have fewer than eleven students are not reported. The item-level statistics based on the results are also entered into the item bank.

Student Confidentiality

To meet ESEA and state requirements, school districts must collect demographic data about students. This includes information about students' ethnicity, parent education, disabilities, whether the student qualifies for the National School Lunch Program (NSLP), and so forth (CDE, 2010b). In addition, students may reveal other information about themselves through the essays they write. ETS takes precautions to prevent any of this information from becoming public or being used for anything other than testing purposes. These procedures are applied to all documents where this demographic information may appear, including the following:

- Pre-ID files
- Reports
- Essays

Student Test Results

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

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

ETS has many facilities and procedures that protect computer files. Facilities, policies, software, and procedures such as firewalls, intrusion detection, and virus control are in

place to provide for physical security, data security, and disaster recovery. Comprehensive disaster recovery facilities are available and tested regularly at the SunGard installation in Philadelphia, Pennsylvania. ETS routinely sends backup data cartridges and files for critical software, applications, and documentation to a secure offsite storage facility for safekeeping.

Access to the ETS Computer Processing Center is controlled by employee and visitor identification badges. The Center is secured by doors that can only be unlocked by the badges of personnel who have functional responsibilities within its secure perimeter. Authorized personnel accompany visitors to the Data Center at all times. Extensive smoke detection and alarm systems, as well as a pre-action fire-control system, are installed in the Center.

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

- Scoring
- Transfer of scores by means of secure data exchange
- Reporting
- Analysis and reporting of erasure marks
- Posting of aggregate data
- Storage

In addition to protecting the confidentiality of testing materials, ETS's Code of Ethics further prohibits ETS employees from financial misuse, conflicts of interest, and unauthorized appropriation of ETS's property and resources. Specific rules are also given to ETS employees and their immediate families who may take a test developed by ETS, such as a STAR examination. The ETS Office of Testing Integrity verifies that these standards are followed throughout ETS. It does this, in part, by conducting periodic onsite security audits of departments, with followup reports containing recommendations for improvement.

Procedures to Maintain Standardization

The CMA processes are designed so that the tests are administered and scored in a standardized manner. ETS takes all necessary measures to ensure the standardization of CMA tests, as described in this section.

Test Administrators

The CMA is administered in conjunction with the other tests that comprise the STAR Program. In that respect, ETS employs personnel who facilitate various processes involved in the standardization of an administration cycle.

The responsibilities for district and test site staff members are included in the *STAR District and Test Site Coordinator Manua*l (CDE, 2010c). This manual is described in the next section.

The staff members centrally involved in the test administration are as follows:

District STAR Coordinator

Each local education agency[1] (LEA) designates a district STAR coordinator who is responsible for ensuring the proper and consistent administration of the STAR tests. They are also responsible for securing testing materials upon receipt, distributing testing materials to schools, tracking the materials, training and answering questions from district staff and test site coordinators, reporting any testing irregularities or security breaches to the CDE, receiving scorable and nonscorable materials from schools after an administration, and returning the materials to the STAR contractor for processing.

Test Examiner

CMA tests are administered by test examiners who may be assisted by test proctors and scribes. A test examiner is an employee of a school district or an employee of a nonpublic, nonsectarian school (NPS) who has been trained to administer the tests and has signed a STAR Test Security Affidavit. Test examiners must follow the directions in the *California Modified Assessment Directions for Administration* (*DFA*) (CDE, 2010d) exactly.

Test Proctor

A test proctor is an employee of the school district or a person, assigned by an NPS to implement the IEP of a student, who has received training designed to prepare him or her to assist the test examiner in the administration of tests within the STAR Program (*5 CCR* Section 850 [r]). Test proctors must sign STAR Test Security Affidavits (*5 CCR* Section 859 [c]).

Scribe

A scribe is an employee of the school district or a person, assigned by an NPS to implement the IEP of a student, who is required to transcribe a student's responses to the format required by the test. A student's parent or guardian is not eligible to serve as a scribe (*5 CCR* Section 850 [m]). Scribes must sign STAR Test Security Affidavits (*5 CCR* Section 859 [c]).

Directions for Administration

STAR *DFAs* are manuals used by test examiners to administer the CMA to students (CDE, 2010d). They must follow all directions and guidelines and read, word-for-word, the instructions to students in "SAY" boxes to ensure test standardization.

District and Test Site Coordinator Manual

Test administration procedures are to be followed exactly so that all students have an equal opportunity to demonstrate their academic achievement. The *STAR District and Test Site Coordinator Manual* contributes to this goal by providing information about the responsibilities of district and test site coordinators, as well as those of the other staff involved in the administration cycle (CDE, 2010c). However, the manual is not intended as a substitute for the *CCR*, *Title 5,* Education (*5 CCR*) or to detail all of the coordinator's responsibilities.

STAR Management System Manuals

The STAR Management System is a series of secure, Web-based modules that allow district STAR coordinators to set up test administrations, order materials, and submit and correct student Pre-ID data. Every module has its own user manual with detailed

[1] Local education agencies include public school districts, statewide benefit charter schools, state board-authorized charter schools, county of education programs, and charter schools testing independently from their home district.

instructions on how to use the STAR Management System. The modules of the STAR Management System are as follows:

- **Test Administration Setup—**This module allows school districts to determine and calculate dates for scheduling the test administration for school districts, to verify contact information of those school districts, and to update the school district's shipping information. (CDE, 2010e)
- **Order Management—**This module allows school districts to enter quantities of testing materials for schools. Its manual includes guidelines for determining which materials to order. (CDE, 2010f)
- **Pre-ID—**This module allows school districts to enter or upload student information including demographics and to identify the test(s) the student will take. This information is printed on student test booklets or answer documents or on labels that can be affixed to test booklets or answer documents. Its manual includes the CDE's Pre-ID layout. (CDE, 2010b)
- **Extended Data Corrections—**This module allows school districts to correct the data that were submitted during Pre-ID prior to the end of the school district's selected testing window. (CDE, 2010g)

Test Booklets

For each grade-level and end-of-course test, multiple versions of test booklets are administered. The versions differ only in terms of the field-test items they contain. These versions are spiraled and packaged, consecutively and are distributed at the student level—that is, each classroom or group of test takers receives at least one of each version of the test.

The test booklets, along with answer documents and other supporting materials, are packaged by school or group, depending on how the district STAR coordinator ordered the materials. All materials are sent to the district STAR coordinator for proper distribution within the LEA. Special formats of test booklets are also available for test takers who require accommodations to participate in testing. These special formats include large-print test materials and braille test materials and are available for grades three through eight tests except EOC Algebra I, grade nine ELA, and grade ten Life Science for the spring 2010 administration.

Test Variations and Accommodations

All public school students participate in the STAR Program, including students with disabilities and English learners. ETS policy states that reasonable testing accommodations be provided to candidates with documented disabilities that are identified in the Americans with Disabilities Act (ADA). The ADA mandates that test accommodations be individualized, meaning that no single type of test accommodation may be adequate or appropriate for all individuals with any given type of disability. ADA authorizes that test takers with disabilities may be tested under standard conditions if ETS determines that only minor adjustments to the testing environment are required (e.g., wheelchair access, large-print test book, a sign language interpreter for spoken directions.)

Identification

Most students with disabilities and most English learners take the CMA under standard conditions. However, some students with disabilities and some English learners may need assistance when taking the CMA. This assistance takes the form of test variations or accommodations (see Appendix 2.D in Chapter 2 for details). During the test, these

students may use the special services specified in their IEP or Section 504 plan. If students use accommodations for the CMA, test examiners are responsible for marking the accommodation(s) used on the students' test booklets, answer documents, or Writing Response Booklet. Because the CMA was developed with modifications built into the test, modifications are not allowed. Students who require additional modifications take the content-area CST with modifications.

In the event that a student injures a hand or arm prior to the writing test, is willing and able to sit for the examination, but unable to write, the school completes a Section 504 plan for the student. The Section 504 plan identifies which accommodations the student will use in completion of his or her writing test (CDE, 2010b).

Scoring

The purpose of test variations and accommodations is to enable students to take the CMA, not to give them an advantage over other students or to artificially inflate their scores. Test administration variations and accommodations do not result in changes to students' scores for API or AYP calculations. The addition of CMA into the API does not change the API test weights; the same test weights and calculation rules used for the CST also apply to the CMA.

Demographic Data Corrections

After reviewing student data, some school districts may discover demographic data that are incorrect. The Demographic Data Corrections module of the STAR Management System gives school districts the means to correct these data within a specified availability window. Districts may correct data to: (1) Have the school district's API/AYP recalculated; (2) Rescore uncoded or miscoded CST end-of-course mathematics and/or science tests; (3) Obtain a corrected data CD-ROM for school district records; or (4) Match unmatched records for grade seven writing and multiple-choice tests (CDE, 2010h).

Testing Irregularities

Testing irregularities are circumstances that may compromise the reliability and validity of test results and, if more than five percent of the students tested are involved, could affect a school's API and AYP.

The district STAR coordinator is responsible for immediately notifying the CDE of any irregularities that occur before, during, or after testing. The test examiner is responsible for immediately notifying the district STAR coordinator of any security breaches or testing irregularities that occur in the administration of the test. Once the district STAR coordinator and the CDE have determined that an irregularity has occurred, the CDE instructs the district STAR coordinator on how and when to identify the irregularity on the student test booklet or answer document. The information and procedures to assist in identifying irregularities and notifying the CDE are provided in the *STAR District and Test Site Coordinator Manual* (CDE, 2010c).

Test Administration Incidents

A test administration incident is any event that occurs before, during, or after test administrations that does not conform to the instructions stated in the *DFA*s and the *STAR District and Test Site Coordinator Manual* (CDE, 2010c). These events include test administration errors, disruptions, and student cheating. Test administration incidents generally do not affect test results. These administration incidents are not reported to the CDE or the STAR Program testing contractor. The STAR test site coordinator should immediately

notify the district STAR coordinator of any test administration incidents that occur. It is recommended by the CDE that districts and schools maintain records of these incidents.

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Chapter 6: Performance Standards

Background

The CMA tests for ELA and mathematics for grades three through five and science for grade five became part of the STAR Program in spring 2008. Five performance standards were developed in September and October 2008 and adopted by the SBE for the 2009 administration of those tests.

In spring 2009, the CMA tests for ELA in grades six through eight, mathematics in grades six and seven, and science in grade eight were introduced. The performance standards for those tests were adopted in the fall of 2009 and were reported beginning with the 2010 operational administration.

The CMA tests for high school phase 1 (ELA for grade nine, Life Science for grade ten, and EOC Algebra I) were introduced in spring 2010. The performance standards for those tests were established and adopted in fall 2010 and will be reported operationally starting in the 2011 operational administration. The CMA tests for high school phase 2 (ELA for grades ten and eleven and EOC Geometry) will be introduced in spring 2011. Performance standards for high school phase 2 will be established in fall 2011 and will be reported starting in the 2012 operational administration.

The performance standards for the CMA were defined by the SBE as far below basic, below basic, basic, proficient, and advanced. The state target is to have all students achieve the proficient and advanced levels by 2014. Schools and districts are expected to provide additional assistance to students scoring at and below the basic level.

California employs carefully designed standard-setting procedures to decide on the performance standards for each CMA. These practices are described in the following sections.

Standard Setting Procedure

The process of standard setting is designed to identify a “cut score” or minimum test score that is required to qualify a student for each performance level. The process generally requires that a panel of subject-matter experts and others with relevant perspectives (for example, teachers, school administrators) be assembled. The panelists for the CMA standard setting were selected based on the following characteristics:

- Familiarity with the subject matter assessed
- Familiarity with students in the respective grade levels
- Experience with English learners
- Experience in special education and general education classrooms as well as integrated classrooms
- Familiarity with the California content standards
- An understanding of the CMA
- An appreciation of the consequences of setting these cut scores

Panelists were recruited from diverse geographic regions and from different gender and major racial/ethnic subgroups to be representative of the educators of the state’s CMA-eligible students (ETS, 2009a, 2009b, 2010).

For each test, three cut scores were developed in order to differentiate four of the five performance levels: below basic, basic, proficient, and advanced. Far below basic was defined as chance-level performance. The standard setting processes employed required panelists to follow the steps listed below:

1. Prior to attending the workshop, all panelists received a pre-workshop assignment. The task was to review, on their own, the content standards upon which the test items are based and take notes on their own expectations in the content area. This allowed the panelists to understand how their perceptions may relate to the complexity of the content standards.
2. At the start of the workshop, panelists received training, which included the purpose of standard setting and their role in the work; the meaning of a “cut score” and “impact data”; and specific training and practice in the Bookmark method. Impact data include the percentage of examinees assessed in a previous administration of the test that would fall into each level, given the panelists’ judgments of cut scores.
3. Panelists next became familiar with the difficulty level of the items by taking the actual test and then assessing and discussing the demands of the test items.
4. Panelists reviewed the draft list of competencies as a group, noting the increasing demands of each subsequent level. In this step, they began to visualize the knowledge and skills of students in each performance level.
5. Panelists identified characteristics of a “borderline” test-taker or “target student.” This student is defined as one who possesses just enough knowledge of the content to move over the border separating a performance level from the performance level below it.
6. After training in the method was complete and confirmed through an evaluation questionnaire, panelists made individual judgments. Working in small groups, they discussed feedback related to other panelists’ judgments and feedback based on student performance data (impact data). Panelists revised their judgments during the process if they wished.
7. The final recommended cut scores were based on the median of panelists’ judgments[1] at the end of three rounds. For the CMA, the cut scores recommended by the panelists and the recommendation of the State Superintendent of Public Instruction are presented for public comment at regional public hearings. Comments and recommendations are then presented to the SBE for adoption.

Development of Competencies Lists

Prior to the CMA standard-setting workshop, ETS facilitated a meeting in which a subset of the standard-setting panelists were assembled to develop a list of competencies based on the California content standards and California policy level descriptors. For each content area, one panel of educators was assembled for each grade to identify and discuss the competencies required of students in the CMA for each performance level (below basic, basic, proficient, and advanced). The lists were used to facilitate the discussion and construction of the target student definitions during the standard-setting workshop.

[1] In the bookmark method, the panel recommendation is calculated by taking the median of the small group (table) medians.

Standard Setting Methodology

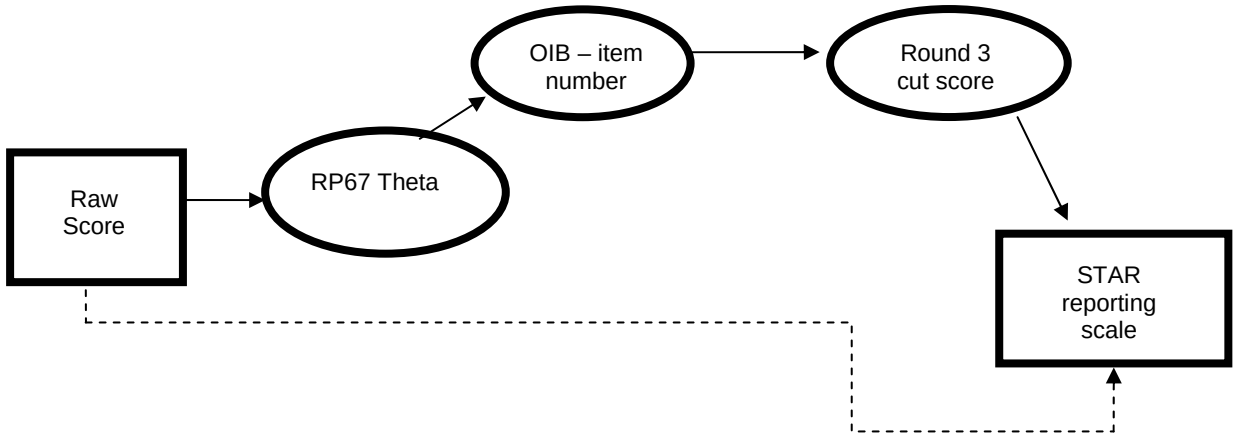
Bookmark Method

The Bookmark method for setting passing scores was introduced in 1999 and has been used widely across the United States (Lewis, et al., 1999; Mitzel, et al., 2001). The Bookmark method requires panelists to work through a test booklet in which the items have been re-ordered from easiest to hardest based on student performance data.[2] Panelists are asked to place a bookmark in the ordered item booklet (OIB) to demarcate each performance standard. The bookmarks are placed with the assumption that the borderline students will perform successfully at a given performance level with a probability of at least 0.67. Conversely, these students are expected to perform successfully on the items after the bookmark with a probability of less than 0.67 (Huynh, 1998).

In this method, the panelists' cut score recommendations are presented in the metric of the OIB and are derived by obtaining the median of the corresponding bookmarks placed for each performance level across panelists.

Each item location corresponds to a value of theta, based on a response probability of 0.67, which maps back to a raw score on this test form. The figure below may best illustrate the relationship among the various metrics used when the Bookmark method is applied. The solid lines represent steps in the standard-setting process described above; the dotted line represents the scaling described in the next section.

Figure 6.1 Bookmark Standard Setting Process for the CMAs



Results

The cut scores obtained as a result of the standard-setting process are on the number-correct or raw score scale; the scores are then translated to a score scale that ranges between 150 and 600. The cut score for the basic performance level is 300 for every grade and content area; this means that a student must earn a score of 300 or higher to achieve a basic classification. The cut score for the proficient performance level is 350 for every grade and content area; this means that a student must earn a score of 350 or higher to achieve a proficient classification.

[2] An "item map" accompanies the ordered item booklet. The "map" includes information on the content measured by each question, information about each question's difficulty, the correct answer for each question, and where each question was located in the test booklet before the questions were reordered by difficulty.

The cut scores for the other performance levels are derived using procedure based on IRT and usually vary by grade and content area. The raw cut scores for a given test are mapped to IRT *thetas* ($\hat{\theta}_S$) using the test characteristic function[3] and then transformed to the scale score metric using the following equation:

$$\text{Scale Cut Score} = (350 - \hat{\theta}_{proficient} \times \left(\frac{350 - 300}{\hat{\theta}_{proficient} - \hat{\theta}_{basic}} \right)) + \left(\frac{350 - 300}{\hat{\theta}_{proficient} - \hat{\theta}_{basic}} \right) \times \hat{\theta}_s \qquad (6.1)$$

where,

$\hat{\theta}_S$ represents the student ability,

$\hat{\theta}_{proficient}$ represents the theta corresponding to the cut-score for proficient, and

$\hat{\theta}_{basic}$ represents the theta corresponding to the cut score for basic.

The scale score ranges for each performance level are presented in Table 2.1 on page 18. The cut score for each performance level is the lower bound of each scale score range. The scale score ranges do not change from year to year. Once established, they remain unchanged from administration to administration until such time that new performance standard are adopted.

Table 7.2 on page 124 presents the percentages of examinees meeting each performance level in 2010.

[3] An IRT test characteristic curve is the sum of item characteristic curves (ICC), where an ICC represents the probability of correctly responding to an item conditioned on examinee ability.

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Chapter 7: Scoring and Reporting

ETS conforms to high standards of quality and fairness (ETS, 2002) when scoring tests and reporting scores. Such standards dictate that ETS provides accurate and understandable assessment results to the intended recipients. It is also ETS's mission to provide appropriate guidelines for score interpretation and cautions about the limitations in the meaning and use of the test scores. Finally, attempts are made to ensure sufficient data are collected for the major subgroups of students. Such data help ETS to conduct analyses needed to ensure that the assessments are equitable for various groups of test takers.

Procedures for Maintaining and Retrieving Individual Scores

Items for all CMAs, except for the writing task in grade seven, are multiple choice. Students are presented with a question and asked to select the correct answer from among three possible choices. In grade three, students mark their answer choices in the test booklet. In the other grades, students mark their answer choices on an answer document. All multiple-choice questions are machine scored. Responses to the writing task are scored by trained raters.

In order to score and report CMA results, ETS follows an established set of written procedures. These specifications are presented in the next sections.

Scoring and Reporting Specifications

ETS develops standardized scoring procedures and specifications so that test materials are processed and scored accurately. These documents include the following:

- General Reporting Specifications—Provides the calculation rules for the information presented on STAR summary reports and defines the appropriate codes to use when a student does not take or complete a test or when a score will not be reported
- Score Key and Score Conversion—Defines file formats and information that is provided for scoring and the process of converting raw scores to scale scores
- Form Planner Specifications—Describes, in detail, the contents of files that contain keys required for scoring
- Aggregation Rules—Describes how and when a school's results are aggregated at the school, district, county, and state levels
- "What If" List—Provides a variety of anomalous scenarios that may occur when test materials are returned by school districts to Pearson and defines the action(s) to be taken in response
- Edit Specifications—Describes edits, defaults, and solutions to errors encountered while data are being captured as answer documents are processed
- Reporting Cluster Names and Item Numbers—Identifies the reporting clusters for each test and the number of items in each cluster
- CST and CMA Matching Criteria—Describes the criteria necessary to ensure that, for students who take both CST and CMA tests, all results are reported to a single student data record by matching specific demographic fields on test booklets
- Matching Criteria for Multiple-choice and Writing Answer Documents—Describes the method used to match students' writing and multiple-choice responses

The scoring specifications are reviewed and revised by the CDE, ETS, and Pearson each year. After a version that all parties agree to is finalized, the CDE issues a formal approval of the scoring and reporting specifications.

Scanning and Scoring

Answer documents are scanned and scored by Pearson in accordance with the scoring specifications that have been approved by the CDE. Answer documents are designed to produce a single complete record for each student. This record includes demographic data and scanned responses for each student; once computed, the scored responses and the total test scores for a student are also merged into the same record. All scores must comply with the ETS scoring specifications. Pearson has quality control checks in place to ensure the quality and accuracy of scanning and the transfer of scores into the database of student records.

Each school district must return scorable and nonscorable materials within five working days after the last day for each test administration period. For the CMA for Writing test materials, school districts return the writing booklets within two working days after the test administration's makeup day.

Types of Scores and Subscores

Raw Score

For all of the tests except the ELA in grade seven, the total raw score equals the sum of examinees' scores on the multiple-choice test items. In grade seven, the total ELA raw score equals the sum of examinees' scores on both the multiple-choice items and the writing task.

Subscore

The items in the CMA for ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight are aggregated into groups of reporting clusters. A subscore is a measure of an examinee's performance on the items in each reporting cluster. These results are reported both as raw scores and percent correct of items answered correctly. A description of the CMA reporting clusters for grades three through eight is provided in Appendix 2.B of Chapter 2, starting on page 22.

Scale Score

Raw scores obtained on the ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight are converted to three-digit scale scores using the equating process described in Chapter 2 on page 16. Scale scores range from 150 to 600 on each CMA. The scale scores of examinees that have been tested in different years at a given grade level and content area can be compared. However, the raw scores of these examinees cannot be meaningfully compared, because these scores are affected by the relative difficulty of the test taken as well as the ability of the examinee.

Performance Levels

The CMA performance for each student is categorized into one of the following performance levels:

- far below basic
- below basic
- basic

- proficient
- advanced

For all CMA tests that report performance levels—where scale scores are also reported—the cut score for the basic performance level is 300; this means that a student must earn a score of 300 or higher to achieve a basic classification. The cut score for the proficient performance level is 350 for every grade level and content area; this means that a student must earn a score of 350 or higher to achieve a proficient classification. The cut scores for the other performance levels usually vary by grade level and content area.

Percent Correct Score

For the CMA tests that are introduced in 2010—the CMA for ELA in grade nine, Algebra I, and Life Science in grade ten—percent correct scores are reported. The percent correct score is the proportion of items on the test that were answered correctly.

Writing Score

Examinees' responses to the essay associated with the grade seven CMA for ELA are rated on a 0–4 scale by a single reader. A score of zero indicates that the student attempted the writing task but either did not provide a response, refused to provide a response, or responded to a writing task from an earlier administration. The rubric used to assign the non-zero scores to the writing task for grade seven is presented in Appendix 7.A, which starts on page 130.

It is important to note that the writing score is not related to the performance levels used to show overall student performance on the CMA for ELA test. For example, a writing score of 4 is not related to the advanced performance level, nor does a writing score of 3 relate to the proficient performance level. Students' ELA performance levels are decided in light of their performance on all of the items in the ELA grade seven test; this total may include the writing component.[1]

Score Verification Procedures

ETS and Pearson take various necessary measures to ascertain that the scoring keys are applied to the student responses as expected and that the student scores are computed accurately.

Scoring Key Verification Process

Scoring keys, provided in the form planners, are produced by ETS and verified thoroughly by performing multiple quality control checks. The form planners contain the information about an assembled test form including scoring keys, test name, administration year, subscore identification, and the standards and statistics associated with each item. The quality control checks that are performed before keys are finalized are listed below:

- The form planners are checked for accuracy against the Form Planner Specification document and the Score Key and Score Conversion document before the keys are loaded into the score key management system (SKM) at ETS.
- The printed lists of the scoring keys are checked again once the keys have been loaded into the SKM system.

[1] Parents/guardians may choose not to let their child attempt the writing task. In these cases, the 54-item multiple-choice score counts as the ELA score in grade seven.

- The sequence of linking items[2] in the form planners are matched with their sequence in the actual test booklets.
- The demarcations of various sections in the actual test book are checked against the list of demarcations provided by ETS test development staff.
- Scoring is verified internally at Pearson. ETS independently generates scores and verifies Pearson's scoring of the data by comparing the two results. Any discrepancies are then resolved.
- The entire scoring system is tested using a test deck that includes typical and extremely atypical response vectors.
- Classical item analyses are run on an early sample of data to provide an additional check of the keys. Although rare, if an item is found to be problematic, a followup process is carried out for it to be excluded from further analyses.

Monitoring and Quality Control of Writing Scoring

Students who take the CMA for ELA in grade seven respond to one of two writing tasks each year. One task is administered to the majority of test takers; the other is administered to students in schools, tracks, or programs not in session during the first administration.

Students' responses to the writing task are read by a single reader; their writing score is based on that reviewer's rating. In addition, ten percent of students' responses also are read by a second reader to provide data that can be used to assess the accuracy and reliability of the writing scores. The score from the second reader does not count toward the student's writing test score. Presented in the next sections are details on the process employed by Pearson to score the writing tasks.

Scoring System

All student responses are scanned into the Electronic Performance Evaluation Network (ePEN™) system. Scorers view assigned responses on a computer at one of Pearson's regional scoring centers. The screen does *not* display the student's name or background information; the scorer sees only the student response.

Scorer Training

Individuals who are selected to serve as scorers must be college graduates who possess at least a Bachelor of Arts degree. Each prospective scorer is required to participate in extensive computer-based training and is provided with the following kinds of information:

- General information about the ePEN™ system
- Background information about the STAR Program
- Information about the STAR writing tasks
- Explanations of STAR scoring rubrics and scoring principles
- Sets of prescored annotated training papers (The training papers include anchor and practice papers. Anchor papers provide samples of student writing that represent each

[2] Linking items are used to link the scores on the current year's test form to scores obtained on the previous years' test forms so as to adjust for the difficulty level of the forms across years. This is accomplished during the equating process, as discussed in Chapter 2.

of the four points in the scoring rubric.[3] Practice papers include samples of student writing that demonstrate the "high" and "low" end of each score point.)

Scorer Qualification

Once the training is complete, the potential scorers complete the Qualification Sets (three sets of scored papers consisting of ten papers per set) before being eligible to score. On at least two of the three sets, scorers must demonstrate exact agreement or adjacent agreement with the scores assigned to seventy percent of the papers on each of these sets.

Scorers continue to qualify throughout the scoring process. Before each operational scoring session, each scorer scores a Calibration Set of three to four papers. The scores on these sets have been previously agreed upon by scoring directors, in conjunction with other personnel. The sets are given to scorers to ensure that the accuracy of their scoring does not drift. These sets "calibrate" the scorers. The scorers that cannot be calibrated during this process do not qualify for operational scoring.

Scoring Supervisors and Directors

Scoring supervisors monitor and mentor scorers during operational scoring. If a writing response is difficult to score, the scorers elevate the response to the supervisor to be scored. In these cases, the scoring supervisor's score is the final writing score.

Scorers with a history of achieving the highest accuracy on the Qualification Sets and the highest level of scoring consistency and validity statistics during operational scoring are selected as scoring supervisors. Approximately ten scorers are assigned to one scoring supervisor; this ratio allows scoring supervisors to work closely with each scorer. The ePEN™ system also allows scoring supervisors to continuously monitor each response scored and the score point assigned to ensure accuracy. All scoring supervisors participate in a two-day training session that provides the same training that qualify scorers. If a scoring supervisor does not achieve the accuracy required on the Qualification Sets, he or she is not allowed to be a supervisor. In addition, all supervisors received extensive training on how the ePEN™ system works, how to best manage scorers, and how to maintain accuracy as scoring continues.

Scoring directors are responsible for overseeing the scoring and for providing leadership for the scoring supervisors. They also help to manage the scorers and they are ultimately responsible for maintaining the highest accuracy possible during STAR scoring. Scoring directors represent the best of the scoring supervisors. They typically have two to three years of experience as scoring supervisors and they have strong leadership qualities, as well as a thorough understanding of STAR scoring.

Accuracy Monitoring

The accuracy of all scoring is regularly monitored using several procedures: First, scoring supervisors and scoring directors constantly monitor the degree to which readers are consistent in scores that they assign. This is done using data provided by the second readers employed to score ten percent of all student responses a second time. The consistency is measured in terms of the percentage of instances in which the first and second readers' scores are identical, adjacent, and nonadjacent; this is a commonly used measure of inter-rater reliability. If a scorer's rate of agreement begins to decline, the scorer

[3] The samples of student responses are identified at the rangefinding sessions. During these sessions, the content experts at Pearson select sample responses that represent each of the four score points and illustrate the different ways of responding to the topic.

is retrained by a scoring supervisor or scoring director and closely monitored thereafter. If the scorer's performance does not improve, the scorer is released.

Second, the consistency between readers' scores and those of scoring directors or supervisors is evaluated using student responses that are known as validity papers, because they have been previously scored by scoring directors or supervisors. Validity papers are ones with known psychometric properties that are intended to exemplify certain aspects of student responses and the scores that should be assigned. One in every 40 papers read by each scorer is a validity paper. The consistency of the scorer's ratings with the scores on the validity papers is checked throughout the day to ensure that each scorer has applied the scoring rubrics accurately. The validity papers are introduced throughout the scoring process. If a scorer's performance on the validity papers falls below required levels, the scorer is retrained by a scoring supervisor or scoring director. If scorer's ratings continue to show poor validity, the scorer is excused.

Third, scoring supervisors "back-read" a certain percentage of the student responses that had been scored by the scorers. The scorer and supervisor scores are then compared to check the scorer's consistency and reliability and to ensure that the scorer is maintaining scoring standards. In addition, ePEN™ allows scoring directors to view the back-reading completed by scoring supervisors to ensure that scoring supervisors are maintaining accuracy. Scoring directors also back-read to scorers.

Fourth, to minimize score drift, scorers are required to score a Calibration Set before each scoring session. If a scorer is deficient on any of the accuracy indices, he or she is immediately retrained or released from the scoring process.

Score Verification Process

ETS psychometricians employ special procedures that adjust for differences in item difficulty of one test form to another. (See Chapter 2, Equating, for details.) Such tables map the current year's raw score to an appropriate scale score. Pearson utilizes these tables to generate scale scores for each student.

ETS verifies Pearson's scale scores by adhering to procedures such as the following:

- Independently generating the scale scores for students in a small number of school districts and comparing these scores with those generated by Pearson; the selection of school districts is based on the availability of data for all schools included in those districts, known as "complete districts" (Similar procedures are employed to verify the percent correct scores for ELA in grade nine, Algebra I, and Life Science in grade ten.)
- Reviewing longitudinal data for reasonableness; the results of the analyses are used to look at the tends and trends for the complete districts
- Reviewing longitudinal data for reasonableness using over 90 percent of the entire testing population; the results are used to evaluate the trends for the state as well as few large school districts.

The results of the longitudinal analyses are provided to the CDE and jointly discussed. Any anomalies in the results are investigated further and jointly discussed with the CDE. Scores are released after explanations that satisfy both the CDE and ETS are obtained.

Overview of Score Aggregation Procedures

In order to provide meaningful results to the stakeholders, CMA scores for a given grade level and content area are aggregated at the school, independently testing charter school, district, county, and state levels. The aggregated scores are generated both for individual scores as well as group scores. The next section presents the types of aggregation performed on CMA scores.

Individual Scores

The tables in this section provide state-level summary statistics describing student performance on each CMA. Students taking the CMA for ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight receive scale scores, and they are classified in terms of their performance level. For students who took the CMA for ELA in grade nine, Algebra I and Life Science in grade ten, only percent-correct scores by content area are reported.

Score Distributions and Summary Statistics

Summary statistics are presented in Table 7.1 that describe student performance on each CMA. Included in the table are the number of items in each test, the number of examinees taking each test, and the means and standard deviations of student scores expressed in terms of both raw scores and scale scores. The last two columns in the table list the raw score means and standard deviations as percentages of the total raw score points in each test.

Table 7.1 Mean and Standard Deviation of Raw and Scale Scores for the CMA

Content Area	CMA*	No. of Items	No. of Examinees	Scale Score		Raw Score		Raw Score Pct	
				Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
English–Language Arts	**3**	48	15,998	307	66	27.91	8.68	58.16	18.09
	4	48	23,137	320	72	26.26	7.91	54.70	16.47
	5	48	24,105	322	70	27.34	7.91	56.95	16.48
	6	54	22,755	307	78	29.98	7.47	55.52	13.83
	7**	54	21,088	303	76	29.95	8.63	55.46	15.99
	8	54	19,030	303	75	29.38	8.31	54.41	15.40
	9***	60	11,090	N/A	N/A	29.18	8.34	48.63	13.91
Mathematics	**3**	48	13,554	324	71	30.12	8.95	62.76	18.65
	4	48	19,392	325	78	27.15	7.03	56.56	14.64
	5	48	21,496	335	75	28.65	8.09	59.68	16.86
	6	54	21,543	315	79	29.23	7.38	54.13	13.66
	7	54	21,000	294	85	25.48	6.55	47.18	12.12
	Algebra I***	60	15,343	N/A	N/A	28.60	7.80	47.67	13.00
Science	**5**	48	22,394	341	56	28.95	7.30	60.31	15.22
	8	54	17,606	320	60	28.67	7.69	53.09	14.23
	10 Life Science***	60	6,161	N/A	N/A	30.63	8.91	51.05	14.85

* Numbers indicate grade-level tests.

** MC only

*** Scale scores and performance levels were not available for grades nine, ten, and Algebra I during the spring 2010 operational administration.

The percentages of students in each performance level are presented in Table 7.2 on page 124; scale scores and performance levels were not available for grade nine ELA, Algebra I, and grade ten Life Science during the spring 2010 operational administration. The last column on the table presents the overall proportion of examinees that were classified at the proficient level or higher.

The numbers in the summary tables may not match exactly the results reported on the CDE's Web site because of slight differences in the samples used to compute the statistics. The P1 data file was used for the analyses in this chapter. This file contained more than 99 percent of the entire test-taking population and approximately 99 percent of the student records used in the August 16, 2010, reporting of STAR results.

Table 7.2 Percentage of Examinees in Each Performance Level

Content Area	CMA*	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Proficient/ Advanced
English–Language Arts	**3**	11%	37%	25%	17%	10%	27%
	4	11%	34%	24%	19%	12%	31%
	5	4%	35%	29%	17%	15%	32%
	6	15%	32%	24%	19%	10%	29%
	7**	16%	35%	21%	18%	10%	28%
	8	19%	33%	23%	16%	9%	25%
Mathematics	**3**	7%	33%	24%	29%	8%	36%
	4	9%	28%	26%	28%	10%	38%
	5	5%	28%	27%	27%	12%	39%
	6	13%	30%	24%	25%	9%	34%
	7	24%	30%	21%	20%	6%	26%
Science	**5**	3%	22%	31%	32%	13%	44%
	8	15%	23%	31%	21%	10%	31%

* Numbers indicate grade-level tests.

** MC only

Table 7.B.1 through Table 7.B.3 in Appendix 7.B, starting on page 133, show the distributions of scale scores for each CMA for which scale scores were provided. The results are reported in terms of 15 score intervals, each of which contains 30 scale score points. Table 7.B.4 through Table 7.B.6 show the distribution of raw scores for the CMA grade-level tests in grades nine and eleven and in Algebra I. A frequency count of zero indicates that either there are no obtainable scale scores within that scale score range, or there were no students who obtained a scale score within the scale score range.

Group Scores

Statistics summarizing student performance by content area and grade level for selected groups of students are provided in Table 7.C.1 through Table 7.C.13 .In the tables, students are grouped by demographic characteristics, including gender, ethnicity, English-language fluency, need for special education services, and economic status. The tables show the numbers of valid cases in each group as well as scale score means and standard deviations for each demographic group. These statistics are provided for the CMA tests with established reporting scales and performance levels. When a test is administered at more than one grade level, the results are reported for the test as a whole and also by grade.

Table 7.3 provides definitions of the demographic groups included in the tables. Students' economic status was determined by considering the education level of their parents and whether or not they participated in the National School Lunch Program (NSLP). To protect privacy when the number of students in a subgroup is ten or fewer, the score distribution mean subscores are not reported.

Table 7.3 Subgroup Definitions

Subgroup	Definition
Gender	• Male • Female
Ethnicity	• American Indian or Alaska Native • Asian – Asian Indian – Cambodian – Chinese – Hmong – Japanese – Korean – Laotian – Vietnamese – Other Asian • Pacific Islander – Guamanian – Native Hawaiian – Samoan – Tahitian – Other Pacific Islander • Filipino • Hispanic or Latino • African American • White (not Hispanic)
English Language Fluency	• English only • Initially fluent English proficient • English learner • Reclassified fluent English proficient
Economic Status	• Not economically disadvantaged • Economically disadvantaged
Primary Disability	• Mental retardation • Hard of hearing • Deafness • Speech/language impairment • Visual impairment • Emotional disturbance • Orthopedic impairment • Other health impairment • Specific learning impairment • Deaf blindness • Multiple group • Autism • Traumatic brain injury

Reports to Be Produced and Scores for Each Report

The tests that make up the STAR Program provide results or score summaries that are reported for different purposes. The four major purposes include:

1. Communicating with parents and guardians;
2. Informing decisions needed to support student achievement;
3. Evaluating school programs; and
4. Providing data for state and federal accountability programs for schools and districts.

A detailed description of the uses and applications of STAR reports is presented in the next section.

Types of Score Reports

There are three categories of CMA reports. These categories and the specific reports in each category are given in Table 7.4, below.

Table 7.4 Types of CMA Reports

1. Summary Reports	▪ STAR Student Master List Summary ▪ STAR Student Master List Summary, End-of-Course ▪ STAR Subgroup Summary (including the Ethnicity for Economic Status)
2. Individual Reports	▪ STAR Student Record Label ▪ STAR Student Master List ▪ STAR Student Report for CMA
3. Internet Reports	▪ CMA Scores (state, county, district, school) ▪ CMA Summary Scores (state, county, district, school)

These reports are sent to the independently testing charter schools, counties, or school districts; the school district forwards the appropriate reports to test sites or, in the case of the STAR Student Report, sends the reports to the child's parents or guardians and forwards a copy to the student's school or test site. Reports such as the STAR Student Report, Student Record Label, and Student Master List that include individual student results are not distributed beyond the student's school. Internet reports are described on the CDE Web site and are accessible to the public online at http://star.cde.ca.gov/.

Score Report Contents

The STAR Student Report provides scale scores, performance levels, and reporting cluster (subscore) results for each grade-level CMA taken by the students in grades three to eight. Scale scores are reported on a scale ranging from 150 to 600. Results for these CMA tests also are reported by performance levels, which are: far below basic, below basic, basic, proficient, and advanced.

In addition, percent correct scores are provided at the cluster level. Also given for each cluster is the average percent correct cluster score obtained by students who achieved the lowest score that qualifies a student to be classified as proficient on the total test, as well as the average percent correct cluster score obtained by students who achieved the lowest score that qualifies a student to be classified as advanced on the total test. These two averages are given as a range of values in the report. The average percent correct was obtained empirically for the tests that have sample sizes of 25 or more examinees at both the minimum proficient and the minimum advanced score levels. In cases where the

available sample sizes were less than 25, “data smoothing” was conducted before obtaining the averages.

For students who took the CMA for ELA in grade nine, Algebra I, and Life Science in grade ten, only percent-correct results are reported. Students in grade seven also receive a numerical score (from 0–4) for the CMA writing task. Performance levels and scale score are not reported this year for these tests, although the score for the writing tests is incorporated into the overall grade seven ELA test score (for which a performance level and scale score are available).

Reports for students with disabilities and English learners who use accommodations include a notation that indicates that the student used accommodations. Scores for students who use accommodations are reported in the same way as they are for non-accommodated tests.

Further information about the STAR Student Report and the other reports is provided in Appendix 7.D on page 162. Beginning in 2009, an additional score report, Ethnicity for Economic Status, is produced for the CMA. This Subgroup Summary report disaggregates and reports results by selected ethnic groups within an economic status.

Score Report Applications

CMA results provide parents and guardians with information about their children’s progress. The results are a tool for increasing communication and collaboration between parents or guardians and teachers. Along with report cards from teachers and information from school and classroom tests, the STAR Student Report can be used by parents and guardians to talk with teachers about ways to improve their children’s achievement of the California content standards.

Schools may use the CMA results to help make decisions about how to best support student achievement. CMA results, however, should never be used as the only source of information to make important decisions about a child’s education.

CMA results help school districts and schools identify strengths and weaknesses in their instructional programs. Each year, school districts and school staffs examine CMA results at each grade level and content area tested. Their findings are used to help determine:

- The extent to which students are learning the academic standards,
- Instructional areas that can be improved,
- Teaching strategies that can be developed to address needs of students, and
- Decisions about how to use funds to ensure that students achieve the standards.

The results from the CMA are used for state and federal accountability programs to monitor each school’s and district’s progress toward achieving established goals. As mentioned previously, CMA results are used to calculate each school’s and district’s API. The API is a major component of California’s Public School Accountability Act (PSAA) and is used to rank the academic performance of schools, compare schools with similar characteristics (for example, size and ethnic makeup), identify low-performing and high-priority schools, and set yearly targets for academic growth.

CMA results also are used to comply with federal ESEA legislation that requires all schools to meet specific academic goals. The progress of each school toward achieving these goals is provided annually in an adequate yearly progress (AYP) report. Each year, California schools and districts must meet AYP goals by showing that a specified percentage of CMA

test takers at the district and school level are performing at or above the proficient level on the CMAs in ELA and mathematics.

Criteria for Interpreting Test Scores

A school district may use CMA 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 test can provide only limited information. Other relevant information should be considered as well. It is advisable for parents to evaluate their child's strengths and weaknesses in the relevant topics by reviewing classroom work and progress reports in addition to the child's CMA results (CDE, 2010a). It is also important to note that a student's score in a content area contains measurement error and could vary if the student was retested.

Criteria for Interpreting Score Reports

The information presented on various reports must be interpreted with caution when making performance comparisons. When comparing scale score and performance level results for the CMA, the user is limited to comparisons within the same content area and grade level. This is because the score scales are different for each content area and grade. The user may compare scale scores for the same content area and grade, within a school, between schools, or between a school and its district, its county, or the state. The user can also make comparisons within the same grade and content area across years. Comparing scores obtained in different grades or content areas should be avoided because the results are not on the same scale. Comparisons between raw scores or cluster scores should be limited to comparisons within not only content area and grade but also test year. For more details on the criteria for interpreting information provided on the score reports, see the *2010 STAR Post-Test Guide* (CDE, 2010b).

Reference

California Department of Education. (2010a). *2010 STAR CST/CMA, CAPA, and STS printed reports*. http://www.startest.org/pdfs/STAR.reports.2010.pdf.

California Department of Education. (2010b). *2010 STAR post-test guide.* http://www.startest.org/pdfs/STAR.post-test_guide.2010.pdf.

Educational Testing Service. (2002). *ETS standards for quality and fairness*. Office of Testing Integrity, Princeton, NJ: Educational Testing Service.

Appendix 7.A—ELA for Writing (Grade Seven) Rubric

The scoring rubric that follows was used to assign scores to students' written responses on the writing test for grade seven. This rubric includes two sets of criteria. The criteria under "The Writing" are adapted from the writing strategies and written conventions strands of California's English–language arts content standards. These criteria are used to evaluate on-demand, first-draft written responses in all genres. Student responses are evaluated on their clarity of purpose, central idea, and organization; their coherence; and their use of supporting evidence, sentence variety, and written conventions. The writing, The criteria under "Fictional or autobiographical narrative writing," "Response to literature writing," "Persuasive writing," and "Summary writing," adapted from the writing applications strand of the state's content standards for these genres. These criteria are used to evaluated student writing in the specific genres to which they apply.

Score: 4

The Writing:

- *Clearly* addresses the writing task
- Demonstrates a *clear* understanding of purpose and audience
- Maintains a *consistent* point of view, focus, and organizational structure, including the *effective* use of transitions
- Includes a *clearly presented* central idea with *relevant* facts, details, and/or explanations. (The relevancy of facts, details, and/or explanations is determined by the genre.)
- Includes sentence *variety*
- Contains *some errors* in the conventions of the English language (grammar, punctuation, capitalization, and spelling).These errors do **not** interfere with the reader's understanding of the writing.

Fictional or autobiographical narrative writing:

- Provides a *thoroughly developed* plot line, including major and minor characters and a *definite* setting
- Includes *appropriate* strategies (e.g., dialogue; suspense; narrative action)

Response to literature writing:

- Develops interpretations that demonstrate a *thoughtful,* comprehensive grasp of the text
- Organizes *accurate and coherent* interpretations around *clear* ideas, premises, or images from the literary work
- Provides *specific* textual examples and details to support the interpretations

Persuasive writing:

- *Authoritatively* defends a clear position with precise and relevant evidence and *convincingly* addresses the reader's concerns, biases, and expectations

Summary writing:

- Summarizes text with clear identification of the main idea(s) and most significant details, in student's own words, and clearly reflects underlying meaning

Score: 3

The Writing:

- Addresses most of the writing task
- Demonstrates a *general* understanding of purpose and audience
- Maintains a *mostly consistent* point of view, focus, and organizational structure, including use of isolated and/or single word transitions
- Presents a central idea with *mostly relevant* facts, details, and/or explanations. (The relevancy of facts, details, and/or explanations is determined by the genre.)
- Includes some sentence *variety*
- Contains *some errors* in the conventions of the English language (grammar, punctuation, capitalization, and spelling). These errors do **not** interfere with the reader's understanding of the writing.

Fictional or autobiographical narrative writing:

- Provides an *adequately developed* plot line, including major and minor characters and a *definite* setting
- Includes *appropriate* strategies (e.g., dialogue; suspense; narrative action)

Response to literature writing:

- Develops interpretations that demonstrate a comprehensive grasp of the text
- Organizes accurate and *reasonably* coherent interpretations around *clear* ideas, premises, or images from the literary work
- Provides textual examples and details to support the interpretations

Persuasive writing

- *Generally* defends a position with relevant evidence and addresses the reader's concerns, biases, and expectations

Summary writing

- Summarizes text with the main idea(s) and *important* details, *mostly* in student's own words, and generally reflects underlying meaning

Score: 2

The Writing:

- Addresses *some* of the writing task
- Demonstrates *little* understanding of purpose and audience
- Maintains an *inconsistent* point of view, focus, and/or organizational structure, which may include *ineffective or awkward* transitions that do not unify important ideas
- *Suggests* a central idea with *limited* facts, details, and/or explanations. (The relevancy of facts, details, and/or explanations is determined by the genre.)
- Includes *little* sentence variety
- Contains *many errors* in the conventions of the English language (grammar, punctuation, capitalization, and spelling).These errors **may** interfere with the reader's understanding of the writing.

Fictional or autobiographical narrative writing:

- Provides a *minimally developed* plot line, including characters and a setting
- *Attempts* to use strategies but with *minimal* effectiveness (e.g., dialogue; suspense; narrative action)

Response to literature writing:

- Develops interpretations that demonstrate a *limited* grasp of the text
- Includes interpretations that *lack* accuracy or coherence as related to ideas, premises, or images from the literary work
- Provides *few, if any,* textual examples and details to support the interpretations

Persuasive writing:

- Defends a position with *little, if any,* evidence and *may* address the reader's concerns, biases, and expectations

Summary writing:

- Summarizes text with *some* of the main idea(s) and details, which may be superficial, minimal use of the student's own words, and minimal reflection of underlying meaning

Score: 1

The Writing:

- Addresses *only one part*, if any, of the writing task
- Demonstrates *no* understanding of purpose and audience
- *Lacks* a point of view, focus, organizational structure, and transitions that unify important ideas
- *Lacks* a central idea but may contain *marginally related* facts, details, and/or explanations. (The relevancy of facts, details, and/or explanations is determined by the genre.)
- Includes *no* sentence variety
- Contains *serious errors* in the conventions of the English language (grammar, punctuation, capitalization, and spelling).These errors interfere with the reader's understanding of the writing.

Fictional or autobiographical narrative writing:

- *Lacks* a developed plot line
- *Fails* to use strategies (e.g., dialogue; suspense; narrative action)

Response to literature writing:

- Demonstrates *little* grasp of the text
- *Lacks* an interpretation or may be a simple retelling of the passage
- *Lacks* textual examples and details

Persuasive writing:

- *Fails* to defend a position with *any* evidence and *fails* to address the reader's concerns, biases, and expectations

Summary writing:

- Summarizes text with few, if any, of the main ideas and/or details, little or no use of the student's own words, little or no reflection of underlying meaning

Appendix 7.B—Scale Score Distributions

Table 7.B.1 Distribution of CMA Scale Scores for ELA

Scale Score	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
570 – 600	3	34	62	22	26	36
540 – 569	14	54	0	66	19	52
510 – 539	36	91	98	64	100	75
480 – 509	86	388	371	245	108	208
450 – 479	156	685	662	509	373	378
420 – 449	536	983	1,031	870	956	571
390 – 419	749	1,869	2,042	1,250	1,455	1,153
360 – 389	2,195	2,320	2,539	2,728	1,942	1,628
330 – 359	2,325	3,450	3,900	3,148	2,346	2,679
300 – 329	2,220	2,854	3,967	3,282	2,982	2,270
270 – 299	2,699	4,142	3,018	2,973	2,937	3,161
240 – 269	2,271	3,720	3,627	2,737	3,077	3,160
210 – 239	1,815	1,758	2,192	2,190	2,726	1,940
180 – 209	771	644	505	1,556	1,303	1,139
150 – 179	122	145	91	1,115	738	580

Table 7.B.2 Distribution of CMA Scale Scores for Mathematics

Scale Score	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
570 – 600	31	61	103	75	84
540 – 569	82	58	147	97	111
510 – 539	0	229	179	90	78
480 – 509	131	178	271	294	270
450 – 479	479	553	816	517	436
420 – 449	317	1,418	1,165	820	646
390 – 419	1,350	1,326	2,249	1,908	969
360 – 389	1,556	2,501	2,603	2,510	1,953
330 – 359	1,959	2,918	3,518	3,019	1,810
300 – 329	2,258	3,039	3,316	3,057	3,391
270 – 299	2,190	2,698	2,350	3,036	2,522
240 – 269	1,555	1,439	2,738	2,711	2,506
210 – 239	1,343	1,736	1,335	1,331	3,359
180 – 209	242	892	554	1,344	1,457
150 – 179	61	346	152	734	1,408

Table 7.B.3 Distribution of CMA Scale Scores for Science

Scale Score	Grade 5	Grade 8
570 – 600	7	18
540 – 569	32	17
510 – 539	57	27
480 – 509	117	110
450 – 479	482	279
420 – 449	1,370	625
390 – 419	2,604	1,011
360 – 389	3,026	2,027
330 – 359	5,437	2,780
300 – 329	3,690	4,069
270 – 299	3,547	3,291
240 – 269	1,569	2,333
210 – 239	364	759
180 – 209	84	221
150 – 179	8	39

Table 7.B.4 Distribution of CMA Raw Scores for ELA, Grade Nine

	Grade 9			
Raw Score	No. Tested	Pct*.	Cum. No. Tested	Pct. Below*
57–60	2	–	11,090	100%
54–56	16	–	11,088	100%
51–53	67	–	11,072	100%
48–50	135	1%	11,005	99%
45–47	292	3%	10,870	98%
42–44	535	5%	10,578	95%
39–41	672	6%	10,043	91%
36–38	840	8%	9,371	84%
33–35	1,098	10%	8,531	77%
30–32	1,197	11%	7,433	67%
27–29	1,405	13%	6,236	56%
24–26	1,639	15%	4,831	44%
21–23	1,567	14%	3,192	29%
18–20	1,067	10%	1,625	15%
15–17	431	4%	558	5%
12–14	111	1%	127	1%
9–11	15	–	16	–
6–8	1	–	1	–
3–5	0	–	0	–
0–2	0	–	0	–

* Percentages less than 1 are not shown.

Table 7.B.5 Distribution of CMA Raw Scores for Algebra I

Algebra I				
Raw Score	No. Tested	Pct*.	Cum. No. Tested	Pct. Below*
57–60	8	–	15,343	100%
54–56	15	–	15,335	100%
51–53	58	–	15,320	100%
48–50	147	–	15,262	99%
45–47	271	2%	15,115	99%
42–44	528	3%	14,844	97%
39–41	758	5%	14,316	93%
36–38	1,142	7%	13,558	88%
33–35	1,481	10%	12,416	81%
30–32	1,970	13%	10,935	71%
27–29	2,350	15%	8,965	58%
24–26	2,339	15%	6,615	43%
21–23	2,065	13%	4,276	28%
18–20	1,366	9%	2,211	14%
15–17	598	4%	845	6%
12–14	200	1%	247	2%
9–11	32	–	47	–
6–8	6	–	15	–
3–5	3	–	9	–
0–2	6	–	6	–

* Percentages less than 1 are not shown.

Table 7.B.6 Distribution of CMA Raw Scores for Life Science, Grade Ten

Life Science				
Raw Score	No. Tested	Pct*.	Cum. No. Tested	Pct. Below*
57–60	10	–	6,161	100%
54–56	40	–	6,151	100%
51–53	81	1%	6,111	99%
48–50	144	2%	6,030	98%
45–47	233	4%	5,886	96%
42–44	324	5%	5,653	92%
39–41	375	6%	5,329	86%
36–38	516	8%	4,954	80%
33–35	632	10%	4,438	72%
30–32	745	12%	3,806	62%
27–29	781	13%	3,061	50%
24–26	816	13%	2,280	37%
21–23	759	12%	1,464	24%
18–20	438	7%	705	11%
15–17	218	4%	267	4%
12–14	40	–	49	–
9–11	8	–	9	–
6–8	0	–	1	–
3–5	1	–	1	–
0–2	0	–	0	–

* Percentages less than 1 are not shown.

Appendix 7.C—Demographic Summaries

Table 7.C.1 Demographic Summary for ELA, Grade Three

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
All valid scores	15,998	307	66	11%	37%	25%	17%	10%	65%	54%	56%
Male	10,941	306	66	11%	38%	25%	17%	10%	65%	54%	55%
Female	4,955	310	65	10%	36%	26%	18%	10%	65%	55%	58%
Gender unknown	102	314	67	9%	32%	28%	21%	10%	66%	57%	57%
American Indian	155	302	65	13%	37%	24%	17%	9%	66%	53%	54%
Asian American	483	306	64	10%	39%	26%	16%	10%	66%	52%	57%
Pacific Islander	67	298	74	15%	39%	21%	16%	9%	63%	51%	53%
Filipino	155	312	60	12%	30%	32%	19%	8%	69%	55%	57%
Hispanic	9,852	302	64	12%	40%	25%	16%	8%	64%	53%	55%
African American	1,559	301	65	12%	40%	24%	16%	9%	63%	53%	54%
White	3,007	324	68	8%	30%	25%	22%	15%	70%	60%	60%
Ethnicity unknown	720	318	69	10%	31%	26%	20%	13%	68%	58%	59%
English only	8,663	314	67	10%	34%	25%	19%	12%	67%	56%	58%
Initially fluent English prof.	156	318	70	8%	37%	24%	18%	13%	68%	56%	60%
English learner	6,809	298	62	12%	41%	25%	15%	7%	63%	52%	54%
Reclassified fluent English prof.	37	349	77	3%	27%	32%	11%	27%	76%	64%	66%
English prof. unknown	333	313	66	10%	33%	29%	17%	11%	66%	57%	57%
Autism	940	308	66	10%	38%	22%	20%	10%	67%	54%	55%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	87	264	47	21%	57%	15%	7%	0%	55%	39%	46%
Emotional disturbance	253	310	72	11%	35%	21%	21%	13%	66%	57%	55%
Hard of hearing	131	305	57	10%	37%	30%	16%	7%	65%	52%	59%
Mental retardation	354	258	50	28%	51%	16%	5%	1%	50%	42%	41%
Multiple disability	28	279	48	14%	54%	25%	7%	0%	60%	47%	46%
Orthopedic impairment	129	302	71	15%	39%	19%	15%	13%	62%	53%	55%
Other health impairment	1,154	318	69	10%	31%	24%	20%	15%	68%	58%	59%
Specific learning disability	8,776	306	65	11%	38%	25%	16%	9%	64%	54%	56%
Speech or language Impairment	2,958	312	64	9%	35%	27%	19%	10%	67%	55%	58%
Traumatic brain injury	46	294	65	15%	43%	20%	11%	11%	60%	52%	53%
Visual impairment	43	317	77	16%	28%	23%	12%	21%	64%	57%	60%
Disability unknown	1,098	314	67	11%	33%	26%	18%	12%	67%	56%	58%
Not economically disadvantaged	3,508	325	68	7%	30%	26%	21%	16%	70%	59%	60%
Economically disadvantaged	11,926	302	64	12%	39%	25%	16%	8%	64%	53%	55%
Economic status unknown	564	312	69	10%	35%	25%	18%	11%	67%	56%	57%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	37	290	60	14%	41%	24%	16%	5%	63%	49%	51%
Asian American	187	315	67	9%	36%	23%	19%	13%	69%	54%	59%
Pacific Islander	22	332	80	5%	36%	14%	32%	14%	73%	57%	63%
Filipino	87	315	57	10%	28%	36%	17%	9%	72%	56%	57%
Hispanic	1,217	320	68	8%	33%	27%	18%	14%	69%	58%	59%
African American	281	310	68	10%	36%	25%	17%	12%	66%	55%	57%
White	1,460	333	68	6%	26%	25%	24%	19%	72%	62%	62%
Ethnicity unknown	217	337	67	5%	24%	26%	28%	16%	73%	62%	64%
Primary Ethnicity—Economically Disadvantaged											
American Indian	113	306	66	13%	35%	24%	19%	10%	67%	54%	54%
Asian American	277	299	61	12%	41%	26%	14%	7%	64%	51%	55%
Pacific Islander	43	281	64	19%	42%	26%	7%	7%	59%	47%	48%
Filipino	58	310	63	10%	36%	26%	21%	7%	68%	52%	59%
Hispanic	8,419	300	63	12%	41%	25%	15%	7%	63%	52%	55%
African American	1,226	298	63	12%	41%	24%	15%	8%	63%	52%	54%
White	1,438	314	67	9%	33%	25%	20%	12%	67%	57%	58%
Ethnicity unknown	352	309	68	13%	34%	26%	17%	12%	66%	55%	56%
Primary Ethnicity—Unknown Economic Status											
American Indian	5	–	–	–	–	–	–	–	–	–	–
Asian American	19	323	57	0%	32%	42%	11%	16%	73%	54%	63%
Pacific Islander	2	–	–	–	–	–	–	–	–	–	–
Filipino	10	–	–	–	–	–	–	–	–	–	–
Hispanic	216	304	65	11%	40%	23%	17%	9%	65%	53%	55%
African American	52	314	76	10%	37%	21%	19%	13%	67%	55%	58%
White	109	325	68	9%	29%	25%	24%	13%	70%	60%	60%
Ethnicity unknown	151	313	72	11%	34%	26%	17%	13%	66%	57%	56%

Table 7.C.2 Demographic Summary for ELA, Grade Four

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
All valid scores	23,137	320	72	11%	34%	24%	19%	12%	60%	55%	51%
Male	15,570	317	72	12%	35%	24%	18%	11%	60%	55%	51%
Female	7,555	327	72	9%	32%	24%	21%	13%	61%	57%	53%
Gender unknown	12	286	58	17%	58%	17%	0%	8%	44%	52%	44%
American Indian	206	325	75	10%	33%	23%	20%	14%	62%	57%	51%
Asian American	762	328	71	9%	30%	25%	22%	14%	61%	56%	55%
Pacific Islander	143	315	65	11%	37%	25%	18%	8%	59%	54%	51%
Filipino	262	333	66	7%	23%	33%	25%	12%	63%	57%	56%
Hispanic	14,092	314	70	12%	36%	24%	18%	10%	59%	54%	50%
African American	2,326	310	70	14%	37%	23%	17%	9%	58%	53%	49%
White	4,641	340	77	8%	27%	23%	22%	19%	65%	60%	55%
Ethnicity unknown	705	333	75	9%	28%	24%	22%	16%	63%	59%	54%
English only	12,723	328	75	10%	31%	23%	21%	15%	62%	57%	53%
Initially fluent English prof.	415	337	79	9%	29%	23%	20%	20%	65%	59%	54%
English learner	9,835	310	67	12%	38%	25%	17%	8%	58%	53%	49%
Reclassified fluent English prof.	125	335	83	12%	28%	17%	23%	20%	62%	58%	55%
English prof. unknown	39	305	94	26%	36%	8%	15%	15%	53%	50%	49%
Autism	1,165	321	72	11%	34%	24%	19%	12%	59%	54%	53%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	119	273	55	26%	50%	14%	8%	2%	43%	43%	44%
Emotional disturbance	452	325	81	13%	31%	21%	19%	17%	63%	57%	50%
Hard of hearing	214	325	65	8%	30%	33%	19%	10%	59%	56%	54%
Mental retardation	376	265	53	31%	49%	14%	3%	2%	44%	43%	40%
Multiple disability	34	275	55	24%	44%	26%	6%	0%	48%	45%	42%
Orthopedic impairment	174	324	79	16%	25%	25%	20%	14%	60%	55%	53%
Other health impairment	1,868	334	77	9%	29%	23%	22%	17%	65%	58%	53%
Specific learning disability	13,294	319	72	11%	35%	23%	19%	11%	60%	55%	51%
Speech or language Impairment	3,660	325	69	9%	32%	26%	21%	12%	61%	56%	53%
Traumatic brain injury	37	310	87	16%	43%	16%	8%	16%	57%	53%	48%
Visual impairment	69	337	74	9%	19%	23%	35%	14%	67%	60%	54%
Disability unknown	1,675	323	71	9%	34%	24%	20%	12%	62%	56%	52%
Not economically disadvantaged	5,787	341	76	7%	27%	24%	23%	19%	65%	60%	56%
Economically disadvantaged	17,263	313	70	12%	36%	24%	18%	10%	59%	54%	50%
Economic status unknown	87	305	80	23%	33%	16%	17%	10%	54%	51%	49%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	51	325	79	10%	29%	25%	22%	14%	63%	56%	52%
Asian American	310	346	70	6%	22%	25%	27%	20%	66%	60%	59%
Pacific Islander	39	321	69	10%	33%	26%	21%	10%	60%	56%	51%
Filipino	160	336	65	6%	24%	31%	27%	13%	64%	58%	57%
Hispanic	1,903	333	75	8%	31%	23%	22%	16%	63%	57%	55%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
African American	425	325	75	10%	33%	24%	18%	14%	61%	56%	52%
White	2,588	350	77	6%	23%	24%	24%	23%	67%	62%	57%
Ethnicity unknown	311	344	74	6%	26%	23%	24%	20%	66%	61%	56%
Primary Ethnicity—Economically Disadvantaged											
American Indian	154	326	74	10%	34%	23%	19%	14%	62%	58%	51%
Asian American	450	315	69	11%	36%	26%	18%	10%	57%	54%	51%
Pacific Islander	104	313	64	12%	38%	25%	17%	8%	58%	53%	51%
Filipino	101	326	67	9%	23%	37%	23%	9%	60%	55%	55%
Hispanic	12,152	311	68	13%	37%	24%	18%	9%	58%	53%	50%
African American	1,892	307	69	14%	38%	23%	17%	8%	57%	52%	49%
White	2,034	329	76	9%	33%	23%	20%	15%	62%	58%	52%
Ethnicity unknown	376	326	73	11%	30%	24%	22%	14%	61%	58%	52%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	37	303	80	30%	27%	16%	19%	8%	54%	51%	48%
African American	9	–	–	–	–	–	–	–	–	–	–
White	19	291	76	16%	53%	5%	16%	11%	49%	48%	47%
Ethnicity unknown	18	305	80	17%	39%	28%	6%	11%	51%	53%	49%

Table 7.C.3 Demographic Summary for ELA, Grade Five

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
All valid scores	24,105	322	70	4%	35%	29%	17%	15%	69%	51%	58%
Male	16,067	320	70	4%	36%	28%	17%	14%	69%	50%	57%
Female	8,026	328	69	3%	33%	30%	18%	16%	68%	52%	60%
Gender unknown	12	340	102	17%	17%	8%	42%	17%	65%	54%	63%
American Indian	238	328	73	5%	35%	22%	19%	19%	71%	53%	58%
Asian American	691	324	68	3%	34%	32%	17%	15%	69%	49%	60%
Pacific Islander	111	340	65	1%	24%	32%	28%	15%	73%	55%	63%
Filipino	267	332	65	2%	27%	34%	19%	17%	75%	51%	61%
Hispanic	14,807	316	67	4%	38%	30%	16%	12%	67%	49%	57%
African American	2,674	314	68	5%	39%	28%	16%	12%	67%	49%	55%
White	4,665	344	75	3%	26%	26%	22%	24%	75%	56%	62%
Ethnicity unknown	652	336	73	3%	29%	28%	20%	20%	73%	55%	59%
English only	13,005	332	73	4%	31%	28%	19%	19%	72%	53%	59%
Initially fluent English prof.	490	339	72	4%	26%	24%	22%	23%	73%	56%	61%
English learner	10,326	309	63	5%	42%	30%	15%	9%	64%	47%	55%
Reclassified fluent English prof.	240	354	82	3%	22%	25%	22%	29%	75%	57%	66%
English prof. unknown	44	308	83	7%	45%	20%	18%	9%	59%	49%	54%
Autism	1,100	319	72	4%	38%	29%	14%	15%	67%	48%	58%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	107	269	54	13%	64%	13%	7%	2%	47%	39%	47%
Emotional disturbance	550	327	78	5%	36%	24%	15%	21%	71%	54%	56%
Hard of hearing	216	316	62	4%	38%	32%	16%	10%	66%	47%	59%
Mental retardation	425	264	50	13%	64%	16%	6%	1%	50%	38%	44%
Multiple disability	42	290	64	10%	50%	21%	14%	5%	57%	44%	51%
Orthopedic impairment	176	323	70	5%	38%	26%	14%	18%	69%	51%	58%
Other health impairment	1,942	339	72	2%	28%	27%	23%	20%	75%	55%	60%
Specific learning disability	15,169	323	70	4%	35%	29%	18%	15%	69%	51%	58%
Speech or language Impairment	2,894	322	66	4%	34%	31%	17%	13%	69%	49%	59%
Traumatic brain injury	45	306	63	4%	42%	33%	9%	11%	68%	47%	53%
Visual impairment	69	320	76	6%	38%	22%	22%	13%	68%	50%	57%
Disability unknown	1,369	321	68	3%	35%	30%	19%	13%	68%	51%	57%
Not economically disadvantaged	5,756	343	74	3%	26%	27%	21%	23%	74%	56%	62%
Economically disadvantaged	18,271	316	67	4%	38%	29%	16%	12%	67%	49%	56%
Economic status unknown	78	321	83	9%	32%	22%	21%	17%	68%	50%	57%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	62	347	73	3%	24%	19%	23%	31%	78%	58%	61%
Asian American	276	335	69	1%	27%	32%	20%	19%	70%	52%	63%
Pacific Islander	36	351	69	0%	19%	28%	33%	19%	76%	57%	65%
Filipino	152	330	65	3%	26%	35%	20%	16%	74%	50%	61%
Hispanic	1,981	336	73	3%	28%	30%	20%	19%	73%	54%	61%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
African American	518	322	73	3%	37%	25%	18%	16%	69%	52%	56%
White	2,470	353	75	2%	23%	25%	23%	27%	77%	58%	64%
Ethnicity unknown	261	351	75	2%	23%	27%	21%	26%	76%	58%	63%
Primary Ethnicity—Economically Disadvantaged											
American Indian	176	322	72	5%	39%	23%	18%	15%	69%	51%	57%
Asian American	414	317	67	4%	38%	31%	14%	13%	68%	48%	58%
Pacific Islander	74	335	63	1%	26%	34%	26%	14%	71%	54%	61%
Filipino	113	334	64	0%	30%	34%	19%	18%	76%	53%	59%
Hispanic	12,801	313	66	4%	39%	30%	16%	11%	66%	49%	56%
African American	2,150	312	66	5%	40%	29%	15%	11%	66%	49%	55%
White	2,169	333	73	4%	29%	27%	20%	19%	73%	54%	59%
Ethnicity unknown	374	326	69	4%	33%	29%	19%	16%	71%	53%	57%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	1	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	2	–	–	–	–	–	–	–	–	–	–
Hispanic	25	286	83	20%	44%	8%	12%	16%	56%	44%	49%
African American	6	–	–	–	–	–	–	–	–	–	–
White	26	345	69	4%	15%	38%	23%	19%	82%	55%	61%
Ethnicity unknown	17	322	98	6%	41%	18%	24%	12%	66%	50%	56%

Table 7.C.4 Demographic Summary for ELA, Grade Six

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
All valid scores	22,755	307	78	15%	32%	24%	19%	10%	58%	54%	56%
Male	15,164	302	79	17%	33%	23%	18%	10%	58%	53%	54%
Female	7,583	318	76	11%	29%	26%	22%	12%	58%	56%	58%
Gender unknown	8	–	–	–	–	–	–	–	–	–	–
American Indian	234	305	72	14%	32%	27%	19%	8%	60%	54%	55%
Asian American	654	311	77	14%	30%	25%	21%	10%	58%	53%	58%
Pacific Islander	122	309	83	16%	33%	20%	21%	10%	60%	54%	55%
Filipino	219	317	75	10%	28%	30%	24%	8%	60%	55%	59%
Hispanic	13,821	302	77	16%	33%	24%	18%	9%	56%	53%	55%
African American	2,551	298	79	17%	35%	22%	16%	9%	58%	53%	53%
White	4,472	325	80	10%	27%	24%	23%	16%	62%	58%	58%
Ethnicity unknown	682	318	78	11%	31%	22%	21%	14%	61%	56%	57%
English only	12,520	313	80	13%	30%	24%	20%	13%	60%	56%	56%
Initially fluent English prof.	502	327	78	9%	27%	24%	24%	16%	61%	58%	59%
English learner	9,315	296	74	17%	34%	24%	17%	7%	55%	52%	55%
Reclassified fluent English prof.	383	338	79	10%	19%	23%	29%	19%	63%	59%	62%
English prof. unknown	35	280	75	29%	37%	20%	6%	9%	55%	48%	51%
Autism	1,010	303	82	16%	33%	23%	17%	11%	55%	52%	58%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	109	248	74	43%	34%	11%	7%	5%	42%	44%	46%
Emotional disturbance	579	308	84	16%	33%	18%	21%	12%	60%	55%	54%
Hard of hearing	182	308	74	15%	27%	29%	21%	7%	56%	53%	58%
Mental retardation	453	247	67	41%	39%	13%	5%	2%	44%	44%	45%
Multiple disability	41	306	90	22%	22%	24%	17%	15%	56%	53%	57%
Orthopedic impairment	140	309	84	16%	26%	29%	16%	13%	57%	54%	57%
Other health impairment	1,921	323	79	10%	29%	23%	23%	15%	62%	57%	58%
Specific learning disability	14,875	307	77	14%	32%	24%	19%	10%	58%	55%	56%
Speech or language Impairment	2,236	308	74	14%	31%	28%	19%	9%	57%	54%	57%
Traumatic brain injury	54	301	75	13%	30%	30%	20%	7%	56%	54%	55%
Visual impairment	40	306	86	15%	25%	38%	10%	13%	59%	51%	58%
Disability unknown	1,115	304	79	16%	32%	23%	19%	10%	58%	54%	55%
Not economically disadvantaged	5,678	326	80	10%	27%	24%	22%	16%	62%	58%	59%
Economically disadvantaged	17,008	301	77	16%	33%	24%	18%	8%	57%	53%	55%
Economic status unknown	69	287	90	33%	23%	16%	17%	10%	56%	49%	53%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	52	309	67	12%	33%	27%	23%	6%	63%	55%	54%
Asian American	242	324	82	12%	26%	24%	21%	17%	59%	56%	60%
Pacific Islander	39	318	84	10%	28%	28%	28%	5%	60%	56%	57%
Filipino	124	320	70	8%	28%	35%	20%	9%	61%	56%	59%
Hispanic	2,005	318	80	12%	29%	24%	21%	14%	60%	56%	57%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
African American	545	310	80	13%	32%	26%	16%	13%	60%	55%	55%
White	2,399	336	79	8%	24%	24%	25%	19%	64%	60%	60%
Ethnicity unknown	272	330	82	10%	28%	21%	22%	19%	63%	58%	59%
Primary Ethnicity—Economically Disadvantaged											
American Indian	181	305	74	15%	32%	27%	18%	8%	59%	54%	55%
Asian American	412	302	73	16%	32%	25%	21%	7%	57%	52%	57%
Pacific Islander	83	305	82	18%	35%	17%	18%	12%	60%	54%	55%
Filipino	95	314	80	12%	28%	23%	29%	7%	59%	53%	59%
Hispanic	11,787	299	76	17%	33%	24%	18%	8%	56%	53%	55%
African American	1,997	295	78	19%	36%	21%	16%	8%	58%	52%	53%
White	2,054	313	79	13%	30%	24%	21%	12%	60%	56%	56%
Ethnicity unknown	399	310	74	12%	33%	24%	21%	10%	59%	55%	56%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	0	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	29	289	99	34%	21%	10%	24%	10%	55%	49%	54%
African American	9	–	–	–	–	–	–	–	–	–	–
White	19	290	81	26%	21%	32%	11%	11%	56%	48%	56%
Ethnicity unknown	11	299	91	27%	36%	9%	9%	18%	63%	52%	52%

Table 7.C.5 Demographic Summary for ELA, Grade Seven

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
All valid scores	21,088	303	76	16%	35%	21%	18%	10%	55%	56%	55%
Male	14,100	299	76	17%	37%	20%	17%	9%	56%	55%	54%
Female	6,977	311	76	13%	33%	23%	20%	11%	54%	57%	58%
Gender unknown	11	288	78	27%	27%	36%	0%	9%	51%	52%	52%
American Indian	196	305	81	16%	36%	18%	20%	10%	55%	56%	56%
Asian American	636	314	74	11%	34%	24%	19%	11%	56%	57%	59%
Pacific Islander	102	318	84	15%	29%	19%	22%	16%	61%	59%	57%
Filipino	177	320	74	10%	33%	23%	19%	15%	55%	58%	62%
Hispanic	12,752	296	73	17%	37%	21%	17%	7%	53%	54%	54%
African American	2,479	293	72	17%	39%	21%	15%	7%	54%	54%	53%
White	4,163	326	81	11%	29%	21%	23%	16%	60%	62%	58%
Ethnicity unknown	583	317	82	14%	30%	20%	20%	16%	59%	59%	58%
English only	11,383	311	78	14%	33%	21%	20%	12%	57%	58%	56%
Initially fluent English prof.	386	312	77	12%	35%	21%	20%	12%	58%	58%	56%
English learner	8,799	290	71	19%	39%	21%	16%	6%	52%	52%	54%
Reclassified fluent English prof.	458	335	76	9%	24%	26%	23%	19%	61%	62%	63%
English prof. unknown	62	270	68	29%	40%	16%	10%	5%	46%	49%	49%
Autism	759	305	78	15%	34%	23%	19%	9%	56%	54%	59%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	107	250	66	44%	35%	12%	7%	2%	44%	40%	48%
Emotional disturbance	631	309	85	18%	32%	21%	15%	15%	59%	59%	55%
Hard of hearing	200	307	75	13%	37%	23%	18%	10%	54%	54%	59%
Mental retardation	472	238	51	44%	44%	9%	3%	0%	40%	41%	43%
Multiple disability	43	287	83	26%	37%	12%	16%	9%	50%	53%	51%
Orthopedic impairment	175	299	79	19%	35%	19%	15%	11%	54%	55%	55%
Other health impairment	1,669	321	79	11%	30%	22%	23%	14%	61%	60%	58%
Specific learning disability	14,373	304	75	15%	36%	22%	18%	10%	55%	56%	55%
Speech or language Impairment	1,669	304	71	14%	35%	22%	22%	7%	53%	55%	57%
Traumatic brain injury	49	290	80	22%	37%	18%	14%	8%	50%	52%	55%
Visual impairment	61	316	83	11%	38%	20%	13%	18%	57%	60%	57%
Disability unknown	880	296	75	18%	37%	21%	16%	8%	56%	55%	53%
Not economically disadvantaged	5,268	324	79	11%	29%	21%	23%	16%	59%	61%	59%
Economically disadvantaged	15,717	296	74	17%	37%	21%	16%	8%	54%	54%	54%
Economic status unknown	103	276	63	23%	38%	26%	11%	2%	50%	51%	49%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	52	314	76	12%	35%	21%	25%	8%	58%	58%	57%
Asian American	232	326	75	9%	32%	21%	24%	14%	58%	59%	62%
Pacific Islander	33	322	87	12%	36%	15%	21%	15%	56%	61%	58%
Filipino	96	323	71	8%	31%	27%	18%	16%	55%	59%	62%
Hispanic	1,864	316	78	13%	31%	22%	22%	13%	58%	59%	58%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
African American	573	311	75	13%	34%	21%	20%	11%	57%	58%	56%
White	2,197	334	81	9%	26%	21%	25%	19%	62%	63%	60%
Ethnicity unknown	221	335	81	10%	25%	20%	24%	20%	63%	62%	62%
Primary Ethnicity—Economically Disadvantaged											
American Indian	144	302	82	17%	37%	17%	19%	10%	54%	55%	55%
Asian American	402	307	73	13%	34%	26%	17%	10%	55%	55%	58%
Pacific Islander	68	317	84	16%	25%	21%	22%	16%	63%	58%	56%
Filipino	78	316	79	13%	35%	17%	22%	14%	54%	56%	61%
Hispanic	10,837	293	72	18%	38%	21%	16%	6%	53%	53%	54%
African American	1,889	288	70	19%	41%	21%	13%	6%	53%	53%	52%
White	1,952	317	80	13%	31%	22%	21%	13%	59%	60%	56%
Ethnicity unknown	347	307	81	17%	33%	19%	17%	13%	57%	57%	55%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	3	–	–	–	–	–	–	–	–	–	–
Hispanic	51	266	61	31%	33%	25%	8%	2%	47%	49%	47%
African American	17	292	70	18%	29%	41%	6%	6%	58%	56%	49%
White	14	294	61	7%	50%	14%	29%	0%	52%	53%	56%
Ethnicity unknown	15	274	71	27%	33%	27%	13%	0%	48%	51%	49%

Table 7.C.6 Demographic Summary for ELA, Grade Eight

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
All valid scores	19,030	303	75	19%	33%	23%	16%	9%	64%	53%	53%
Male	12,645	299	75	21%	34%	22%	15%	8%	63%	53%	52%
Female	6,336	311	73	16%	32%	25%	19%	9%	65%	54%	55%
Gender unknown	49	299	72	16%	45%	16%	14%	8%	59%	51%	55%
American Indian	189	303	78	23%	26%	24%	18%	9%	68%	53%	52%
Asian American	518	304	74	19%	33%	23%	18%	7%	60%	53%	55%
Pacific Islander	65	305	69	17%	29%	32%	12%	9%	67%	54%	53%
Filipino	166	316	69	12%	28%	34%	19%	7%	63%	55%	58%
Hispanic	11,306	298	72	20%	35%	23%	15%	7%	62%	52%	52%
African American	2,281	296	72	21%	35%	23%	14%	7%	63%	52%	51%
White	3,921	320	82	16%	29%	22%	20%	14%	70%	57%	56%
Ethnicity unknown	584	314	78	16%	32%	23%	16%	13%	66%	55%	55%
English only	10,397	310	78	18%	32%	22%	17%	11%	67%	55%	54%
Initially fluent English prof.	376	308	75	17%	34%	23%	17%	9%	67%	54%	54%
English learner	7,496	292	68	22%	36%	23%	14%	5%	59%	51%	51%
Reclassified fluent English prof.	510	336	83	11%	25%	24%	23%	17%	71%	59%	60%
English prof. unknown	251	304	81	22%	31%	22%	14%	11%	63%	54%	53%
Autism	622	302	82	23%	35%	15%	16%	10%	58%	51%	55%
Deaf-blindness	2	–	–	–	–	–	–	–	–	–	–
Deafness	114	253	60	45%	37%	11%	7%	1%	47%	42%	45%
Emotional disturbance	653	312	88	20%	31%	18%	16%	15%	69%	55%	54%
Hard of hearing	156	294	77	30%	25%	23%	13%	9%	58%	51%	53%
Mental retardation	505	242	47	48%	42%	7%	2%	0%	42%	41%	42%
Multiple disability	29	261	68	41%	31%	17%	7%	3%	47%	41%	50%
Orthopedic impairment	151	301	79	20%	38%	17%	14%	11%	65%	53%	52%
Other health impairment	1,395	318	80	16%	29%	22%	21%	12%	70%	56%	55%
Specific learning disability	13,222	305	74	18%	33%	24%	17%	9%	65%	54%	53%
Speech or language Impairment	1,252	301	67	17%	35%	26%	17%	5%	62%	53%	54%
Traumatic brain injury	51	281	64	24%	43%	20%	10%	4%	57%	50%	48%
Visual impairment	48	318	87	19%	25%	23%	19%	15%	69%	56%	55%
Disability unknown	830	302	76	20%	34%	21%	15%	10%	64%	53%	52%
Not economically disadvantaged	4,886	318	79	15%	29%	23%	19%	13%	69%	56%	56%
Economically disadvantaged	13,848	298	72	20%	35%	23%	15%	7%	62%	52%	52%
Economic status unknown	296	303	81	22%	31%	23%	14%	10%	64%	53%	53%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	60	303	83	22%	30%	23%	15%	10%	71%	54%	50%
Asian American	181	317	75	14%	31%	24%	20%	10%	64%	56%	57%
Pacific Islander	21	314	79	19%	19%	33%	14%	14%	71%	55%	55%
Filipino	91	324	77	11%	26%	33%	19%	11%	66%	56%	59%
Hispanic	1,745	310	76	17%	32%	23%	18%	10%	67%	54%	54%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
African American	507	300	73	20%	32%	24%	15%	8%	66%	52%	52%
White	2,082	329	83	13%	27%	22%	22%	16%	73%	58%	58%
Ethnicity unknown	199	322	81	16%	28%	23%	18%	16%	69%	57%	57%
Primary Ethnicity—Economically Disadvantaged											
American Indian	128	303	76	23%	25%	24%	20%	9%	67%	53%	53%
Asian American	332	298	72	22%	33%	22%	17%	6%	58%	52%	54%
Pacific Islander	41	298	64	17%	34%	32%	12%	5%	63%	53%	51%
Filipino	73	305	58	14%	30%	34%	19%	3%	60%	53%	56%
Hispanic	9,434	296	71	21%	35%	23%	15%	6%	61%	52%	52%
African American	1,739	295	71	21%	36%	22%	14%	7%	62%	52%	51%
White	1,803	310	80	18%	31%	22%	17%	11%	67%	55%	53%
Ethnicity unknown	298	309	74	15%	36%	23%	15%	11%	65%	54%	55%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	5	–	–	–	–	–	–	–	–	–	–
Pacific Islander	3	–	–	–	–	–	–	–	–	–	–
Filipino	2	–	–	–	–	–	–	–	–	–	–
Hispanic	127	299	78	21%	34%	20%	16%	9%	64%	52%	52%
African American	35	300	73	20%	37%	23%	14%	6%	62%	55%	50%
White	36	307	92	31%	19%	25%	8%	17%	64%	52%	55%
Ethnicity unknown	87	309	85	20%	30%	24%	15%	11%	63%	54%	55%

Table 7.C.7 Demographic Summary for Mathematics, Grade Three

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
All valid scores	13,554	324	71	7%	33%	24%	29%	8%	58%	63%	73%
Male	9,039	325	72	7%	32%	24%	28%	8%	58%	63%	73%
Female	4,432	322	68	7%	34%	24%	29%	6%	57%	63%	73%
Gender unknown	83	337	81	8%	28%	18%	28%	18%	61%	66%	74%
American Indian	142	328	73	5%	33%	27%	25%	9%	57%	66%	76%
Asian American	427	330	78	10%	31%	20%	26%	13%	61%	62%	72%
Pacific Islander	64	320	73	8%	33%	22%	27%	11%	56%	61%	74%
Filipino	143	323	67	10%	23%	33%	30%	4%	59%	63%	72%
Hispanic	8,312	323	70	7%	33%	24%	28%	7%	58%	63%	72%
African American	1,493	311	68	9%	39%	23%	23%	6%	55%	59%	70%
White	2,358	333	72	5%	29%	24%	32%	10%	61%	66%	75%
Ethnicity unknown	615	330	72	7%	29%	21%	33%	9%	60%	64%	74%
English only	7,356	325	71	7%	33%	24%	29%	8%	58%	63%	73%
Initially fluent English prof.	117	338	72	5%	24%	26%	33%	11%	63%	66%	76%
English learner	5,758	322	69	7%	33%	24%	28%	7%	58%	62%	72%
Reclassified fluent English prof.	31	355	93	13%	23%	6%	35%	23%	67%	67%	77%
English prof. unknown	292	328	74	7%	30%	25%	28%	10%	59%	63%	73%
Autism	916	318	72	10%	34%	22%	26%	7%	56%	62%	70%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	79	314	74	6%	47%	16%	24%	6%	55%	61%	67%
Emotional disturbance	241	314	78	10%	37%	24%	18%	10%	56%	58%	68%
Hard of hearing	118	335	74	6%	27%	25%	33%	9%	62%	65%	74%
Mental retardation	348	262	51	24%	57%	12%	7%	1%	40%	45%	56%
Multiple disability	29	303	60	10%	41%	21%	28%	0%	56%	55%	65%
Orthopedic impairment	135	310	68	7%	42%	22%	21%	7%	54%	59%	69%
Other health impairment	1,011	327	72	7%	33%	23%	29%	9%	58%	64%	74%
Specific learning disability	7,248	326	69	6%	32%	26%	29%	8%	59%	64%	73%
Speech or language Impairment	2,558	327	71	7%	31%	22%	31%	8%	59%	63%	73%
Traumatic brain injury	44	311	67	9%	41%	16%	32%	2%	56%	59%	68%
Visual impairment	41	318	79	7%	46%	15%	20%	12%	58%	59%	68%
Disability unknown	786	331	68	5%	30%	24%	34%	8%	60%	65%	75%
Not economically disadvantaged	2,905	333	73	6%	29%	23%	32%	10%	61%	65%	74%
Economically disadvantaged	10,139	321	70	7%	34%	24%	28%	7%	57%	62%	72%
Economic status unknown	510	329	73	6%	32%	24%	30%	9%	59%	64%	74%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	36	326	71	3%	44%	19%	19%	14%	57%	65%	74%
Asian American	178	335	80	8%	30%	21%	25%	16%	63%	62%	73%
Pacific Islander	21	331	70	5%	29%	24%	33%	10%	59%	66%	78%
Filipino	84	327	69	7%	24%	35%	29%	6%	59%	64%	73%
Hispanic	987	330	73	6%	32%	23%	31%	8%	60%	64%	73%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
African American	289	316	70	10%	35%	20%	28%	6%	57%	60%	71%
White	1,133	338	72	5%	26%	24%	34%	11%	62%	67%	75%
Ethnicity unknown	177	341	73	5%	27%	18%	42%	9%	63%	68%	77%
Primary Ethnicity—Economically Disadvantaged											
American Indian	102	330	75	6%	27%	31%	27%	8%	58%	66%	76%
Asian American	230	323	76	11%	33%	20%	26%	10%	59%	61%	70%
Pacific Islander	41	310	72	10%	37%	22%	22%	10%	53%	58%	71%
Filipino	50	313	63	12%	26%	32%	28%	2%	57%	61%	69%
Hispanic	7,126	322	69	7%	33%	24%	28%	7%	57%	63%	72%
African American	1,156	310	67	9%	40%	23%	22%	6%	54%	59%	69%
White	1,124	328	70	6%	32%	25%	30%	8%	59%	65%	74%
Ethnicity unknown	310	325	71	8%	30%	24%	29%	8%	59%	63%	73%
Primary Ethnicity—Unknown Economic Status											
American Indian	4	–	–	–	–	–	–	–	–	–	–
Asian American	19	361	74	5%	11%	21%	47%	16%	68%	72%	83%
Pacific Islander	2	–	–	–	–	–	–	–	–	–	–
Filipino	9	–	–	–	–	–	–	–	–	–	–
Hispanic	199	321	72	6%	38%	24%	27%	7%	57%	62%	72%
African American	48	324	69	6%	23%	42%	27%	2%	58%	62%	76%
White	101	344	75	2%	29%	23%	32%	15%	62%	70%	78%
Ethnicity unknown	128	325	75	9%	32%	20%	30%	10%	58%	63%	73%

Table 7.C.8 Demographic Summary for Mathematics, Grade Four

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
All valid scores	19,392	325	78	9%	28%	26%	28%	10%	63%	50%	51%
Male	12,714	325	79	9%	28%	25%	27%	10%	63%	50%	50%
Female	6,666	326	75	8%	27%	27%	29%	9%	63%	51%	52%
Gender unknown	12	264	56	17%	58%	17%	8%	0%	51%	43%	34%
American Indian	175	323	75	7%	28%	26%	31%	7%	62%	51%	51%
Asian American	602	341	84	8%	24%	21%	31%	17%	67%	53%	52%
Pacific Islander	115	316	69	10%	27%	27%	30%	5%	62%	49%	49%
Filipino	221	339	82	10%	19%	29%	31%	13%	66%	52%	53%
Hispanic	11,825	324	77	9%	29%	26%	27%	10%	63%	50%	51%
African American	2,148	306	74	12%	33%	26%	22%	6%	59%	47%	48%
White	3,719	337	80	8%	23%	25%	32%	13%	66%	52%	53%
Ethnicity unknown	587	318	79	11%	29%	26%	24%	9%	62%	48%	50%
English only	10,655	326	79	9%	27%	25%	28%	10%	63%	50%	51%
Initially fluent English prof.	312	342	75	4%	24%	28%	33%	12%	66%	54%	53%
English learner	8,280	323	76	9%	29%	26%	27%	9%	63%	50%	51%
Reclassified fluent English prof.	109	342	85	6%	29%	17%	28%	18%	66%	53%	54%
English prof. unknown	36	286	78	25%	31%	25%	17%	3%	57%	43%	40%
Autism	1,044	320	85	13%	27%	24%	25%	11%	62%	50%	50%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	107	318	87	10%	36%	25%	16%	12%	61%	50%	48%
Emotional disturbance	445	303	80	15%	35%	23%	19%	8%	58%	47%	47%
Hard of hearing	175	343	74	5%	23%	26%	32%	14%	67%	54%	53%
Mental retardation	374	253	60	33%	46%	13%	7%	1%	47%	37%	41%
Multiple disability	31	285	75	16%	45%	19%	16%	3%	54%	41%	49%
Orthopedic impairment	182	316	90	15%	33%	19%	22%	12%	60%	50%	48%
Other health impairment	1,620	325	78	9%	27%	26%	28%	10%	63%	50%	51%
Specific learning disability	10,899	326	76	8%	28%	27%	28%	10%	63%	51%	51%
Speech or language Impairment	3,014	331	79	8%	26%	25%	29%	12%	65%	51%	51%
Traumatic brain injury	28	291	69	18%	46%	11%	21%	4%	56%	45%	43%
Visual impairment	61	326	76	10%	28%	25%	28%	10%	64%	51%	49%
Disability unknown	1,412	334	76	6%	25%	27%	31%	11%	65%	52%	52%
Not economically disadvantaged	4,663	338	80	7%	22%	26%	31%	13%	66%	52%	53%
Economically disadvantaged	14,654	321	77	9%	29%	26%	26%	9%	62%	50%	50%
Economic status unknown	75	295	81	19%	39%	17%	19%	7%	58%	45%	43%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	45	350	69	2%	20%	22%	44%	11%	67%	57%	56%
Asian American	236	352	84	6%	21%	21%	30%	22%	69%	56%	52%
Pacific Islander	26	316	61	4%	31%	35%	23%	8%	63%	46%	50%
Filipino	135	344	82	7%	19%	26%	33%	15%	68%	53%	53%
Hispanic	1,561	333	79	8%	23%	27%	30%	12%	65%	52%	52%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
African American	405	316	78	11%	28%	27%	24%	9%	61%	49%	50%
White	1,999	345	80	6%	20%	25%	34%	15%	67%	54%	54%
Ethnicity unknown	256	327	80	10%	27%	25%	27%	12%	64%	50%	52%
Primary Ethnicity—Economically Disadvantaged											
American Indian	129	315	75	9%	31%	28%	26%	6%	60%	49%	50%
Asian American	364	333	84	9%	25%	21%	32%	13%	65%	51%	52%
Pacific Islander	89	317	71	12%	26%	25%	33%	4%	61%	50%	48%
Filipino	85	333	82	14%	16%	33%	27%	9%	64%	52%	53%
Hispanic	10,233	323	76	9%	29%	26%	27%	9%	62%	50%	51%
African American	1,736	304	73	13%	34%	25%	22%	5%	59%	46%	47%
White	1,705	327	79	9%	26%	25%	29%	10%	64%	50%	52%
Ethnicity unknown	313	313	78	12%	31%	28%	21%	8%	61%	48%	48%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	31	302	82	10%	45%	19%	19%	6%	58%	47%	45%
African American	7	–	–	–	–	–	–	–	–	–	–
White	15	298	98	33%	13%	20%	27%	7%	59%	43%	45%
Ethnicity unknown	18	285	72	22%	39%	17%	17%	6%	55%	44%	42%

Table 7.C.9 Demographic Summary for Mathematics, Grade Five

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
All valid scores	21,496	335	75	5%	28%	27%	27%	12%	62%	62%	52%
Male	14,005	333	76	5%	30%	27%	26%	12%	61%	61%	51%
Female	7,482	338	74	4%	26%	28%	29%	13%	63%	63%	52%
Gender unknown	9	–	–	–	–	–	–	–	–	–	–
American Indian	204	331	75	8%	23%	30%	27%	11%	60%	61%	52%
Asian American	547	353	81	4%	22%	25%	28%	21%	67%	64%	55%
Pacific Islander	107	349	76	5%	20%	25%	35%	16%	66%	64%	54%
Filipino	226	354	82	4%	22%	25%	28%	20%	67%	65%	56%
Hispanic	13,045	335	74	5%	28%	28%	27%	12%	62%	62%	51%
African American	2,560	317	72	7%	35%	27%	22%	8%	58%	57%	49%
White	4,195	341	77	5%	26%	26%	29%	15%	63%	63%	54%
Ethnicity unknown	612	333	77	4%	31%	29%	23%	13%	62%	61%	52%
English only	11,776	333	76	5%	29%	27%	26%	12%	61%	61%	52%
Initially fluent English prof.	413	350	78	5%	21%	25%	32%	17%	65%	66%	55%
English learner	9,049	336	73	4%	28%	28%	28%	12%	62%	62%	51%
Reclassified fluent English prof.	219	355	80	5%	21%	23%	31%	20%	66%	67%	55%
English prof. unknown	39	298	71	8%	49%	18%	21%	5%	57%	49%	43%
Autism	1,028	324	80	8%	33%	24%	22%	13%	59%	58%	51%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	89	332	82	4%	34%	22%	24%	16%	60%	60%	54%
Emotional disturbance	545	310	73	10%	37%	26%	20%	7%	55%	56%	46%
Hard of hearing	183	337	79	5%	28%	26%	25%	15%	64%	61%	52%
Mental retardation	427	267	57	20%	54%	16%	8%	1%	45%	44%	41%
Multiple disability	43	319	74	7%	33%	40%	7%	14%	60%	54%	51%
Orthopedic impairment	173	309	77	10%	36%	28%	16%	9%	56%	55%	46%
Other health impairment	1,856	337	76	5%	27%	27%	28%	13%	62%	62%	52%
Specific learning disability	13,295	338	74	4%	27%	28%	28%	13%	63%	63%	52%
Speech or language Impairment	2,497	338	75	5%	27%	28%	28%	13%	63%	62%	52%
Traumatic brain injury	42	312	67	10%	31%	36%	19%	5%	56%	57%	47%
Visual impairment	65	325	88	9%	35%	22%	22%	12%	60%	58%	49%
Disability unknown	1,252	337	69	4%	25%	32%	29%	11%	62%	63%	52%
Not economically disadvantaged	5,058	344	78	5%	25%	25%	29%	16%	64%	63%	54%
Economically disadvantaged	16,368	332	74	5%	29%	28%	26%	11%	61%	61%	51%
Economic status unknown	70	311	70	4%	44%	23%	20%	9%	58%	54%	46%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	55	351	77	2%	25%	25%	29%	18%	64%	65%	58%
Asian American	206	363	81	3%	18%	24%	31%	24%	70%	66%	56%
Pacific Islander	32	342	75	3%	25%	25%	28%	19%	64%	63%	54%
Filipino	127	347	81	6%	23%	27%	26%	19%	66%	62%	54%
Hispanic	1,727	341	75	5%	25%	25%	31%	14%	63%	64%	54%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
African American	474	324	77	9%	32%	23%	24%	12%	59%	59%	51%
White	2,192	348	80	5%	23%	24%	30%	17%	65%	64%	55%
Ethnicity unknown	245	337	75	5%	28%	28%	24%	15%	63%	61%	53%
Primary Ethnicity—Economically Disadvantaged											
American Indian	148	323	73	11%	22%	32%	26%	9%	59%	60%	50%
Asian American	340	348	81	4%	25%	26%	26%	20%	65%	64%	54%
Pacific Islander	74	350	77	5%	18%	26%	36%	15%	67%	64%	54%
Filipino	98	362	82	3%	21%	22%	31%	22%	68%	68%	58%
Hispanic	11,297	334	74	5%	28%	28%	27%	12%	62%	62%	51%
African American	2,080	316	70	7%	36%	28%	22%	7%	57%	57%	48%
White	1,981	334	74	5%	29%	28%	27%	12%	61%	62%	52%
Ethnicity unknown	350	332	78	3%	31%	30%	22%	13%	61%	61%	51%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	1	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	21	293	63	10%	48%	29%	5%	10%	56%	48%	40%
African American	6	–	–	–	–	–	–	–	–	–	–
White	22	338	70	5%	27%	27%	27%	14%	61%	65%	52%
Ethnicity unknown	17	300	71	0%	59%	18%	18%	6%	57%	48%	45%

Table 7.C.10 Demographic Summary for Mathematics, Grade Six

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
All valid scores	21,543	315	79	13%	30%	24%	25%	9%	56%	55%	47%
Male	14,059	313	80	14%	30%	23%	25%	9%	56%	55%	47%
Female	7,477	316	76	11%	31%	25%	25%	9%	56%	56%	48%
Gender unknown	7	–	–	–	–	–	–	–	–	–	–
American Indian	232	311	74	11%	31%	25%	25%	8%	55%	54%	48%
Asian American	565	322	83	12%	28%	22%	27%	11%	56%	57%	48%
Pacific Islander	114	311	86	17%	26%	25%	24%	8%	57%	53%	46%
Filipino	201	316	75	9%	32%	27%	22%	9%	55%	57%	46%
Hispanic	12,839	313	78	13%	31%	24%	25%	8%	55%	55%	47%
African American	2,519	298	75	16%	35%	24%	19%	6%	53%	52%	45%
White	4,415	327	80	10%	26%	24%	29%	11%	58%	57%	49%
Ethnicity unknown	658	318	82	13%	28%	23%	27%	8%	55%	57%	47%
English only	12,143	315	79	13%	29%	24%	25%	9%	56%	55%	47%
Initially fluent English prof.	487	336	82	8%	25%	22%	32%	13%	60%	59%	50%
English learner	8,501	312	78	13%	32%	23%	24%	8%	55%	55%	47%
Reclassified fluent English prof.	373	346	85	8%	20%	24%	29%	18%	60%	62%	51%
English prof. unknown	39	290	89	31%	28%	21%	10%	10%	52%	51%	39%
Autism	1,002	304	84	19%	28%	23%	21%	9%	53%	54%	45%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	99	296	90	22%	32%	20%	16%	9%	51%	52%	43%
Emotional disturbance	607	304	79	17%	30%	25%	21%	7%	54%	53%	45%
Hard of hearing	165	328	79	8%	25%	24%	33%	9%	58%	59%	47%
Mental retardation	455	247	62	37%	43%	13%	5%	2%	44%	42%	37%
Multiple disability	43	301	86	23%	23%	21%	26%	7%	54%	53%	43%
Orthopedic impairment	153	307	76	15%	35%	18%	26%	6%	54%	55%	44%
Other health impairment	1,936	320	79	11%	29%	23%	27%	10%	57%	56%	47%
Specific learning disability	13,806	317	78	11%	30%	24%	26%	9%	56%	56%	48%
Speech or language Impairment	2,089	313	77	12%	32%	24%	25%	8%	54%	55%	48%
Traumatic brain injury	52	306	72	13%	31%	27%	23%	6%	54%	55%	44%
Visual impairment	41	319	93	17%	22%	22%	24%	15%	56%	56%	46%
Disability unknown	1,095	316	77	11%	29%	25%	26%	8%	56%	55%	48%
Not economically disadvantaged	5,526	325	80	11%	26%	25%	28%	11%	57%	57%	48%
Economically disadvantaged	15,941	311	78	13%	31%	23%	24%	8%	55%	54%	47%
Economic status unknown	76	299	87	22%	28%	21%	18%	11%	53%	52%	45%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	53	326	77	8%	26%	25%	28%	13%	57%	57%	50%
Asian American	206	322	82	13%	24%	27%	26%	11%	55%	58%	47%
Pacific Islander	32	310	75	16%	25%	28%	22%	9%	56%	54%	45%
Filipino	122	316	78	8%	33%	30%	18%	11%	56%	56%	45%
Hispanic	1,898	320	78	11%	28%	24%	28%	9%	57%	56%	48%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
African American	545	306	79	17%	28%	25%	23%	7%	54%	54%	46%
White	2,394	334	80	9%	23%	25%	31%	13%	59%	59%	49%
Ethnicity unknown	276	330	85	11%	26%	23%	28%	12%	57%	59%	49%
Primary Ethnicity—Economically Disadvantaged											
American Indian	177	306	72	12%	32%	24%	24%	7%	55%	53%	47%
Asian American	359	323	84	12%	30%	19%	28%	11%	56%	57%	49%
Pacific Islander	82	311	90	17%	27%	24%	24%	7%	57%	52%	47%
Filipino	79	316	71	10%	30%	23%	29%	8%	53%	58%	48%
Hispanic	10,910	312	78	13%	31%	24%	24%	8%	55%	55%	47%
African American	1,963	295	74	16%	37%	23%	18%	6%	53%	51%	45%
White	1,999	318	78	11%	29%	23%	27%	9%	57%	56%	48%
Ethnicity unknown	372	309	78	15%	29%	23%	27%	5%	54%	55%	45%
Primary Ethnicity—Unknown Economic Status											
American Indian	2	–	–	–	–	–	–	–	–	–	–
Asian American	0	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	31	300	92	16%	35%	23%	16%	10%	52%	52%	47%
African American	11	294	101	36%	18%	9%	27%	9%	51%	53%	42%
White	22	307	87	23%	18%	23%	23%	14%	54%	54%	47%
Ethnicity unknown	10	–	–	–	–	–	–	–	–	–	–

Table 7.C.11 Demographic Summary for Mathematics, Grade Seven

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
All valid scores	21,000	294	85	24%	30%	21%	20%	6%	48%	49%	43%
Male	13,755	295	87	24%	29%	20%	20%	7%	48%	48%	43%
Female	7,233	293	81	23%	31%	22%	19%	5%	47%	49%	42%
Gender unknown	12	255	77	42%	25%	25%	8%	0%	45%	42%	36%
American Indian	199	286	78	24%	37%	16%	19%	5%	46%	47%	43%
Asian American	589	311	91	19%	27%	21%	25%	9%	50%	52%	43%
Pacific Islander	98	298	89	28%	26%	23%	18%	5%	49%	49%	44%
Filipino	180	316	88	19%	23%	22%	27%	9%	50%	53%	43%
Hispanic	12,382	291	83	24%	31%	21%	19%	5%	48%	48%	42%
African American	2,532	276	77	29%	33%	20%	15%	3%	45%	46%	40%
White	4,423	310	90	20%	26%	22%	23%	9%	49%	51%	46%
Ethnicity unknown	597	297	90	26%	26%	20%	21%	7%	48%	49%	43%
English only	11,682	297	86	23%	29%	21%	20%	7%	48%	49%	43%
Initially fluent English prof.	392	310	83	18%	24%	26%	24%	7%	49%	51%	46%
English learner	8,392	289	83	25%	31%	20%	19%	5%	48%	48%	42%
Reclassified fluent English prof.	473	325	92	14%	25%	23%	27%	12%	51%	54%	48%
English prof. unknown	61	246	69	49%	25%	20%	5%	2%	43%	40%	36%
Autism	813	295	90	25%	30%	18%	19%	8%	48%	49%	41%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	99	287	80	27%	26%	25%	18%	3%	49%	46%	40%
Emotional disturbance	673	291	88	26%	29%	21%	18%	6%	47%	48%	44%
Hard of hearing	194	309	86	18%	32%	20%	24%	7%	48%	52%	44%
Mental retardation	470	228	60	55%	32%	9%	4%	0%	39%	38%	34%
Multiple disability	43	277	92	30%	33%	19%	14%	5%	43%	45%	47%
Orthopedic impairment	189	274	84	32%	32%	22%	11%	4%	46%	46%	37%
Other health impairment	1,790	300	87	23%	27%	21%	22%	7%	48%	49%	44%
Specific learning disability	14,023	296	85	23%	30%	21%	20%	6%	48%	49%	43%
Speech or language Impairment	1,657	300	82	20%	29%	23%	21%	6%	49%	50%	42%
Traumatic brain injury	45	267	81	38%	27%	13%	18%	4%	44%	45%	39%
Visual impairment	61	288	73	21%	33%	23%	20%	3%	47%	47%	43%
Disability unknown	943	288	84	26%	31%	20%	18%	5%	47%	47%	42%
Not economically disadvantaged	5,488	310	88	19%	27%	23%	23%	9%	49%	51%	45%
Economically disadvantaged	15,413	289	83	25%	31%	20%	18%	5%	47%	48%	42%
Economic status unknown	99	259	67	40%	30%	21%	7%	1%	44%	42%	40%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	51	298	82	14%	39%	18%	24%	6%	46%	50%	45%
Asian American	230	318	93	16%	27%	21%	25%	10%	50%	53%	44%
Pacific Islander	29	320	84	10%	34%	38%	7%	10%	53%	51%	46%
Filipino	95	319	93	18%	19%	27%	24%	12%	50%	54%	43%
Hispanic	1,885	305	87	21%	28%	21%	23%	8%	49%	51%	44%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
African American	579	287	80	25%	31%	24%	16%	4%	47%	48%	40%
White	2,384	318	90	17%	24%	24%	25%	10%	50%	53%	46%
Ethnicity unknown	235	307	90	21%	26%	19%	26%	8%	49%	52%	44%
Primary Ethnicity—Economically Disadvantaged											
American Indian	148	281	76	27%	36%	16%	18%	4%	46%	46%	43%
Asian American	357	306	89	21%	27%	20%	24%	7%	49%	51%	43%
Pacific Islander	68	290	90	34%	22%	18%	24%	3%	47%	48%	43%
Filipino	82	313	84	20%	27%	15%	32%	7%	51%	53%	42%
Hispanic	10,446	289	82	25%	31%	21%	18%	5%	47%	48%	42%
African American	1,938	273	76	30%	34%	19%	14%	3%	45%	46%	39%
White	2,026	302	89	23%	27%	21%	21%	8%	48%	49%	45%
Ethnicity unknown	348	292	89	28%	26%	20%	20%	6%	48%	48%	43%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	3	–	–	–	–	–	–	–	–	–	–
Hispanic	51	262	69	41%	29%	18%	12%	0%	44%	42%	41%
African American	15	269	64	27%	33%	33%	7%	0%	46%	44%	41%
White	13	250	47	46%	31%	23%	0%	0%	46%	38%	38%
Ethnicity unknown	14	233	60	50%	29%	21%	0%	0%	44%	39%	29%

Table 7.C.12 Demographic Summary for Science, Grade Five

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Physical Sciences	Life Sciences	Earth Sciences
All valid scores	22,394	341	56	3%	22%	31%	32%	13%	59%	61%	61%
Male	14,832	343	58	3%	21%	29%	32%	14%	59%	61%	61%
Female	7,552	337	52	3%	22%	34%	31%	10%	57%	60%	60%
Gender unknown	10	–	–	–	–	–	–	–	–	–	–
American Indian	220	352	56	1%	17%	31%	35%	16%	61%	65%	63%
Asian American	648	342	58	3%	23%	27%	33%	14%	60%	60%	61%
Pacific Islander	104	342	53	2%	23%	31%	33%	12%	58%	62%	62%
Filipino	254	346	54	3%	17%	30%	38%	13%	61%	62%	63%
Hispanic	13,613	337	53	3%	23%	33%	31%	10%	58%	60%	60%
African American	2,543	326	54	5%	29%	31%	27%	8%	55%	58%	55%
White	4,400	361	60	2%	15%	25%	37%	22%	63%	67%	66%
Ethnicity unknown	612	345	55	3%	20%	28%	36%	14%	59%	63%	62%
English only	12,183	347	58	3%	19%	28%	34%	16%	60%	63%	62%
Initially fluent English prof.	448	357	57	2%	16%	25%	38%	19%	62%	65%	66%
English learner	9,496	332	51	3%	25%	34%	29%	8%	57%	58%	59%
Reclassified fluent English prof.	226	355	60	3%	16%	24%	36%	21%	62%	64%	66%
English prof. unknown	41	309	54	10%	44%	15%	29%	2%	50%	53%	50%
Autism	1,057	337	60	4%	26%	30%	25%	14%	58%	59%	60%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	104	307	48	7%	41%	30%	19%	3%	51%	50%	51%
Emotional disturbance	532	340	64	6%	24%	23%	33%	14%	58%	62%	59%
Hard of hearing	204	333	51	3%	27%	32%	30%	8%	58%	57%	60%
Mental retardation	417	292	46	13%	49%	25%	12%	1%	46%	46%	46%
Multiple disability	40	320	56	8%	35%	33%	18%	8%	53%	55%	54%
Orthopedic impairment	174	329	56	9%	22%	31%	29%	9%	56%	60%	56%
Other health impairment	1,835	349	58	2%	20%	27%	36%	15%	60%	64%	63%
Specific learning disability	13,928	344	56	3%	20%	31%	33%	13%	59%	62%	62%
Speech or language Impairment	2,729	339	53	3%	21%	33%	32%	11%	58%	60%	61%
Traumatic brain injury	45	326	53	7%	24%	38%	24%	7%	56%	59%	53%
Visual impairment	67	333	59	6%	27%	27%	28%	12%	56%	60%	58%
Disability unknown	1,261	337	52	3%	21%	36%	31%	10%	58%	60%	60%
Not economically disadvantaged	5,389	356	60	2%	17%	25%	36%	20%	62%	65%	65%
Economically disadvantaged	16,935	337	54	4%	23%	32%	31%	10%	58%	60%	60%
Economic status unknown	70	324	53	6%	30%	24%	34%	6%	53%	58%	56%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	57	358	56	0%	18%	25%	40%	18%	63%	67%	65%
Asian American	253	352	61	3%	19%	23%	39%	17%	62%	63%	64%
Pacific Islander	35	352	55	0%	20%	29%	31%	20%	61%	67%	63%
Filipino	144	338	52	5%	19%	31%	36%	9%	60%	58%	61%
Hispanic	1,841	350	55	2%	17%	30%	34%	16%	61%	64%	64%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Physical Sciences	Life Sciences	Earth Sciences
African American	495	333	57	6%	25%	27%	31%	11%	57%	60%	57%
White	2,317	367	62	2%	13%	22%	37%	26%	65%	68%	68%
Ethnicity unknown	247	357	57	1%	18%	23%	39%	19%	63%	66%	65%
Primary Ethnicity—Economically Disadvantaged											
American Indian	163	349	56	1%	17%	34%	33%	15%	61%	64%	63%
Asian American	394	335	55	4%	25%	29%	30%	12%	58%	59%	60%
Pacific Islander	68	337	51	3%	25%	31%	34%	7%	57%	60%	61%
Filipino	109	356	56	1%	14%	28%	39%	18%	62%	66%	65%
Hispanic	11,752	335	53	4%	24%	33%	30%	10%	57%	59%	60%
African American	2,042	324	53	5%	30%	33%	25%	7%	55%	57%	55%
White	2,059	354	57	2%	16%	28%	37%	18%	61%	66%	64%
Ethnicity unknown	348	339	52	3%	20%	32%	34%	11%	57%	62%	60%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	1	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	20	310	46	0%	50%	25%	20%	5%	47%	54%	54%
African American	6	–	–	–	–	–	–	–	–	–	–
White	24	348	37	0%	13%	29%	54%	4%	60%	65%	64%
Ethnicity unknown	17	309	65	18%	29%	18%	29%	6%	50%	53%	51%

Table 7.C.13 Demographic Summary for Science, Grade Eight

				Percent in Performance Level					Mean Percent Correct in Content Area			
	No. Tested	Mean Scale Scores	Std. Dev. of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Motion	Matter	Earth Sciences	Investg &Experi
All valid scores	17,606	320	60	15%	23%	31%	21%	10%	57%	48%	58%	56%
Male	11,556	322	63	16%	22%	30%	21%	11%	58%	48%	59%	56%
Female	6,002	317	53	14%	24%	34%	21%	6%	55%	48%	56%	56%
Gender unknown	48	308	55	15%	33%	33%	8%	10%	51%	47%	55%	54%
American Indian	167	332	66	13%	19%	28%	27%	13%	59%	50%	62%	60%
Asian American	494	324	60	14%	22%	31%	23%	11%	56%	50%	57%	59%
Pacific Islander	62	319	55	11%	19%	45%	18%	6%	57%	48%	58%	55%
Filipino	169	334	64	12%	21%	30%	23%	14%	58%	52%	61%	58%
Hispanic	10,339	316	57	16%	24%	33%	20%	8%	56%	47%	57%	56%
African American	2,127	311	57	19%	25%	30%	19%	7%	55%	46%	54%	52%
White	3,698	336	66	12%	19%	28%	26%	16%	61%	51%	61%	60%
Ethnicity unknown	550	322	59	15%	21%	30%	26%	9%	57%	49%	59%	56%
English Only	9,695	326	62	14%	21%	30%	23%	12%	58%	49%	59%	57%
Initially fluent English prof.	342	325	56	11%	24%	34%	23%	8%	58%	49%	60%	57%
English learner	6,830	310	54	17%	26%	34%	17%	6%	54%	45%	56%	55%
Reclassified fluent English prof.	493	339	60	7%	18%	33%	26%	16%	62%	52%	62%	62%
English prof. unknown	246	322	65	17%	21%	30%	21%	12%	56%	49%	57%	57%
Autism	608	323	66	17%	21%	28%	20%	13%	54%	50%	60%	57%
Deaf-blindness	2	–	–	–	–	–	–	–	–	–	–	–
Deafness	108	291	52	27%	34%	25%	9%	5%	47%	43%	46%	53%
Emotional disturbance	623	319	69	20%	22%	26%	20%	12%	56%	48%	56%	55%
Hard of hearing	152	318	58	15%	19%	36%	22%	9%	55%	49%	55%	58%
Mental retardation	471	278	44	34%	38%	20%	6%	1%	42%	41%	47%	45%
Multiple disability	26	288	56	42%	27%	15%	12%	4%	47%	41%	49%	50%
Orthopedic impairment	145	318	63	16%	27%	30%	16%	11%	56%	48%	55%	58%
Other health impairment	1,340	329	62	12%	22%	30%	23%	13%	59%	50%	60%	57%
Specific learning disability	12,077	322	59	14%	22%	32%	22%	10%	58%	48%	58%	57%
Speech or language impairment	1,182	318	53	13%	23%	35%	21%	7%	55%	48%	58%	57%
Traumatic brain injury	46	314	54	15%	26%	33%	22%	4%	56%	46%	56%	55%
Visual impairment	46	330	68	17%	15%	28%	20%	20%	59%	50%	60%	62%
Disability unknown	780	317	60	17%	22%	32%	20%	9%	56%	47%	57%	57%
Not economically disadvantaged	4,590	333	64	12%	18%	30%	25%	15%	60%	51%	61%	58%
Economically disadvantaged	12,733	316	57	16%	24%	32%	20%	8%	56%	47%	57%	55%
Economic status unknown	283	320	64	17%	20%	32%	19%	12%	56%	48%	57%	56%
Primary Ethnicity—Not economically disadvantaged												
American Indian	53	333	66	8%	26%	28%	21%	17%	60%	51%	62%	54%
Asian American	172	336	63	9%	20%	32%	24%	15%	60%	52%	60%	60%
Pacific Islander	19	332	35	5%	11%	58%	26%	0%	61%	50%	60%	61%
Filipino	93	348	70	11%	17%	25%	25%	23%	61%	56%	64%	61%
Hispanic	1,622	325	60	14%	19%	34%	22%	11%	58%	49%	60%	57%

				Percent in Performance Level					Mean Percent Correct in Content Area			
	No. Tested	Mean Scale Scores	Std. Dev. of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Motion	Matter	Earth Sciences	Investg &Experi
African American	463	315	58	19%	22%	28%	22%	8%	55%	48%	57%	52%
White	1,978	344	67	10%	16%	28%	27%	19%	62%	54%	64%	62%
Ethnicity unknown	190	325	60	14%	19%	29%	28%	10%	59%	49%	61%	55%
Primary Ethnicity—Economically disadvantaged												
American Indian	113	331	67	16%	14%	28%	30%	12%	59%	50%	61%	63%
Asian American	319	317	58	16%	23%	31%	22%	8%	54%	48%	55%	59%
Pacific Islander	40	309	60	15%	25%	40%	13%	8%	54%	46%	56%	52%
Filipino	73	317	51	12%	27%	34%	22%	4%	55%	48%	57%	56%
Hispanic	8,597	314	56	16%	25%	33%	19%	7%	55%	46%	57%	55%
African American	1,629	310	56	18%	26%	31%	18%	7%	54%	46%	54%	52%
White	1,686	327	64	14%	22%	28%	24%	12%	59%	49%	59%	57%
Ethnicity unknown	276	321	58	16%	24%	28%	26%	7%	57%	48%	58%	57%
Primary Ethnicity—Unknown Economic Status												
American Indian	1	–	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–	–
Pacific Islander	3	–	–	–	–	–	–	–	–	–	–	–
Filipino	3	–	–	–	–	–	–	–	–	–	–	–
Hispanic	120	326	66	15%	20%	31%	22%	13%	57%	49%	60%	59%
African American	35	295	51	31%	26%	26%	11%	6%	52%	42%	48%	46%
White	34	321	66	21%	24%	24%	18%	15%	55%	50%	57%	57%
Ethnicity unknown	84	321	63	14%	18%	38%	19%	11%	56%	49%	57%	57%

Appendix 7.D—Types of Score Reports

Table 7.D.1 Score Reports Reflecting CMA Results

2010 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
The CMA Student Report	
This report provides parents/guardians and teachers with the student's results, presented in tables and graphs. For grades three through eight, the report shows performance-level results for the grade-level tests taken in ELA, mathematics, and science (grades five and eight). For grade nine ELA, grade ten Life Science, and EOC Algebra I, the report shows percent correct by each CMA content area taken by the student. For grades three through eight only (grade-level ELA, mathematics, and science, but not for Algebra I), data presented include: • Scale scores • Performance levels (advanced, proficient, basic, below basic, and far below basic) • Number and percent correct in each reporting cluster • Comparison of the student's scores on specific reporting clusters to the range of scores of students statewide who scored proficient on the total test	This report includes individual student results and is not distributed beyond parents/guardians and the student's school. Two copies of this report are provided for each student. One is for the student's current teacher, and one is to be distributed by the school district to parents/guardians.
Student Record Label	
These reports are printed on adhesive labels to be affixed to the student's permanent school records. Each student shall have an individual record of accomplishment that includes STAR testing results (see California *EC* Section 60607[a]). For the CMA for grades three through eight (grade-level ELA and mathematics, and science for grades five and eight), data presented include the following: • Scale scores • Performance levels For the CMA for grade nine ELA, CMA for grade ten Life Science, and CMA for Algebra I, and Geometry, data presented include the following: • Percent correct	This report includes individual student results and is not distributed beyond the student's school.
Student Master List	
This report is an alphabetical roster that presents individual student results. For the CMA for grades three through eight (grade-level ELA and mathematics, and science for grades five and eight), data include the following: • Percent correct for each reporting cluster within each content area tested • A scale score and a performance level for each content area tested	This report provides administrators and teachers with all students' results within each grade or within each grade and year-round schedule at a school. Because this report includes individual student results, it is not distributed beyond the student's school.

2010 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
• Writing score (CMA in grade seven only) For the grade-level CMA for grade nine ELA, CMA for grade ten Life Science, and CMA for Algebra I, data include the following: • Percent correct for the content area tested	
Student Master List Summary	
This report summarizes student results at the school, district, county, and state levels for each grade. It does not include any individual student information. ***Note:*** Summaries for specific CMA tests for mathematics across grades are provided in the Student Master List Summary—End-of-Course Report. For each content area, the following data are summarized: • Number of students enrolled • Number and percent of students tested • Number and percent of valid scores • Number tested with scores • Mean percent correct For each content area tested for the CMA for grades three through eight (grade-level ELA and mathematics, and science for grades five and eight), the following data are summarized: • Mean scale score • Scale score standard deviation • Number and percent of students scoring at each performance level For the CMA for grades three through eight (grade-level ELA and mathematics, and science for grades five and eight), the following data are summarized: • The number of items for each reporting cluster and the mean percent correct • For the CMA for ELA in grade seven, the percent of students achieving each Writing Application score For the CMA for ELA (Grade 9), Life Science (Grade 10), and EOC Algebra I: • The percent correct for each content area tested	This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is packaged for the school, and one for the school district. This report is also produced for school districts, counties, and the state. ***Note:*** The data in this report may be shared with parents/guardians, community members, and the media only if the data are for 11 or more students.
Student Master List Summary—End of Course	
This report summarizes Student Master List information for the EOC CMA test for Algebra I, which is given to students in grades seven through eleven. It does *not* include any individual student information. The following data are summarized for each of these tests: • Number of students enrolled • Number and percent of students tested	This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is packaged for the school, and one for the school district. This report is also produced for school districts, counties, and the state. ***Note:*** The data on this report may be shared with

2010 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
• Number and percent of valid scores • Number tested with scores • Mean percent correct	parents/guardians, community members, and the media only if the data are for 11 or more students.
Subgroup Summary	
Information is provided on the subgroup summary reports. This set of reports disaggregates and reports results by the following subgroups:: • All students • Disability status • Economic status • Gender • English proficiency • Primary ethnicity. These reports contain no individual student-identifying information and are aggregated at the school, district, county, and state levels.	This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is packaged for the school, and one for the school district. This report is also produced for school districts, counties, and the state. ***Note:*** The data on this report may be shared with parents/guardians, community members, and the media only if the data are for 11 or more students.
Subgroup Summary—Ethnicity for Economic Status	
This report, a part of the Subgroup Summary, disaggregates and reports results by cross-referencing each ethnicity with economic status. The economic status for each student is “economically disadvantaged,” “not economically disadvantaged,” or “economic status unknown.” A student is defined as “economically disadvantaged” if both parents have not received a high school diploma or the student is eligible to participate in the free or reduced-price lunch program also known as the National School Lunch Program (NSLP). As with the standard Subgroup Summary, this disaggregation contains no individual student-identifying information and is aggregated at the school, district, county, and state levels. This report provides information for the CMA for grades three through eight (grade-level ELA and mathematics, and science for grades five and eight). For each subgroup within a report, and for the total number of students, the following data are included: • Total number tested in the subgroup • Percent tested in the subgroup as a percent of all students tested • Number and percent of valid scores • Number tested who received scores • Mean scale score • Standard deviation of scale score • Number and percent of students scoring at each performance level	This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is packaged for the school, and one for the school district. This report is also produced for school districts, counties, and the state. ***Note:*** The data on this report may be shared with parents/guardians, community members, and the media only if the data are for 11 or more students.

Chapter 8: Analyses

This chapter summarizes the item- and test-level statistics obtained for the CMA tests administered during the spring of 2010.

The statistics presented in this chapter are divided into five sections in the following order:

1. Classical Item Analyses
2. Reliability Analyses
3. Analyses in Support of Validity Evidence
4. Item Response Theory (IRT) Analyses
5. Differential Item Functioning (DIF) Analyses

Each of those sets of analyses is presented in the body of the text and in the appendixes as listed below.

1. Appendix 8.A presents the classical item analyses including proportion-correct values (*p*-values) and point-biserial correlation (Pt-Bis) for each item in each operational test. The appendix also presents information about the distribution of scores on the writing task administered in grade seven for the overall population and for the various subgroups. In addition, the average and median *p*-value and Pt-Bis for the operational tests are presented in Table 8.2 on page 167.
2. Appendix 8.B presents results of the reliability analyses of total test scores and subscores for the population as a whole and for selected subgroups. Also presented are results of the analyses of the accuracy and consistency of the performance classifications. Finally, inter-rater reliability results for the writing task administered in grade seven are shown.
3. Appendix 8.C presents tables showing the correlation between scores obtained on the CMA measure different content areas, which are provided as an example of the evidence of validity of the interpretation and uses of CMA scores. The results for the overall test population are presented in Table 8.5; the tables in Appendix 8.C summarize the results for various subgroups.
4. Appendix 8.D presents the results of IRT analyses including the distribution of items based on their fit to the Rasch model. The appendix also includes summaries of Rasch item difficulty statistics (*b*-values) for the operational and field-test items. In addition, the appendix presents the scoring tables for the CMA in grades three through eight, obtained as a result of the IRT equating process. Information related to the evaluation of linking items is presented in Table 8.4 on page 171; these linking items were used in the equating process discussed later in this chapter.
5. Appendix 8.E presents the results of the DIF analyses applied to all operational and field-test items for which sufficient student samples were available. In this appendix, items flagged for significant DIF are listed. Also given are the distributions of items across DIF categories.

Samples Used for the Analyses

CMA analyses were conducted at different times after test administration and involved varying proportions of the full CMA data. The classical-item analyses presented in Appendix 8.A, the reliability statistics included in Appendix 8.B, the content area correlations presented in Appendix 8.C, the IRT results presented in Appendix 8.D, and the item-level

DIF results presented in Appendix 8.E were calculated using the P1 data file. This file contained more than 99 percent of the test results of the overall population. For the raw-to-scale score conversion tables presented in Appendix 8.D, test results available by early June 2010 were used. Summary statistics describing the samples are presented in Table 8.1; the samples used to generate scoring tables are labeled as "Equating Samples."

Table 8.1 Summary Statistics for P1 and Equating Samples

		P1			Equating Sample			
Content Area	**CMA***	**N**	**Mean**	**SD**	**N**	**% of P1**	**Mean**	**SD**
English–Language Arts	3	15,998	27.91	8.68	4,902	31%	27.98	8.76
	4	23,137	26.26	7.91	5,263	23%	26.42	7.95
	5	24,105	27.34	7.91	5,430	23%	27.64	7.88
	6	22,755	29.98	7.47	4,955	22%	30.31	7.50
	7**	21,088	29.95	8.63	4,994	24%	30.62	8.64
	8	19,030	29.38	8.31	4,451	23%	29.84	8.28
	9***	11,090	29.18	8.34	N/A	N/A	N/A	N/A
Mathematics	3	13,554	30.12	8.95	4,037	30%	29.96	8.93
	4	19,392	27.15	7.03	4,358	22%	27.09	6.92
	5	21,496	28.65	8.09	4,791	22%	28.66	8.16
	6	21,543	29.23	7.38	4,638	22%	29.51	7.37
	7	21,000	25.48	6.55	5,042	24%	25.98	6.64
	Algebra I***	15,343	28.60	7.80	N/A	N/A	N/A	N/A
Science	5	22,394	28.95	7.30	5,988	27%	29.12	7.33
	8	17,606	28.67	7.69	5,156	29%	29.10	7.83
	10 Life Science***	6,161	30.63	8.91	N/A	N/A	N/A	N/A

* CMA tests named by number only are grade-level tests.

** MC only

*** The CMA for ELA in grade nine, Algebra I, and Life Science in grade ten were introduced in 2010; therefore, equating was not performed on those tests. Scores for these tests were reported as a percent correct.

Classical Item Analyses

Multiple-choice Items

The classical item statistics that included overall and item-by-item proportion correct indices and the point-biserial correlation indices were computed for the operational items. The *p*-value of an item represents the proportion of examinees in the sample that answered an item correctly. The formula for *p*-value is:

$$P-value_i = \frac{N_{ic}}{N_i} \tag{8.1}$$

where,

N_{ic} is the number of examinees that answered item *i* correctly, and

N_i is the total number of examinees that attempted item.

The point-biserial correlation is a special case of the Pearson product-moment correlation used to measure the strength of the relationship between two variables, one dichotomous

$$R_{it} = \frac{Cov(i,t)}{\sigma_{xi}\sigma_t} \tag{8.2}$$

where,

Cov(i,t) is the covariance between an item *i* and total score *t,*

σ_{xi} is the standard deviation for an item *i,* and

σ_t is the standard deviation for total score *t*

The classical statistics for the overall test are presented in Table 8.2. The item-by-item values for the indices are presented in Table 8.A.1 through Table 8.A.3, which start on page 190.

Table 8.2 Mean and Median Proportion Correct and Point-Biserial Correlation

				Mean		Median	
Content Area	**CMA***	**No. of Items**	**No. of Examinees**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
English–Language Arts	3	48	15,998	0.58	0.38	0.59	0.40
	4	48	23,137	0.55	0.34	0.54	0.35
	5	48	24,105	0.57	0.35	0.55	0.36
	6	54	22,755	0.56	0.29	0.55	0.31
	7**	54	21,088	0.55	0.33	0.55	0.33
	8	54	19,030	0.54	0.32	0.55	0.33
	9	60	11,090	0.49	0.28	0.48	0.28
Mathematics	3	48	13,554	0.63	0.40	0.64	0.40
	4	48	19,392	0.57	0.31	0.56	0.34
	5	48	21,496	0.60	0.36	0.60	0.38
	6	54	21,543	0.54	0.28	0.53	0.29
	7	54	21,000	0.47	0.25	0.46	0.26
	Algebra I	60	15,343	0.48	0.26	0.48	0.26
Science	5	48	22,394	0.60	0.32	0.61	0.33
	8	54	17,606	0.53	0.29	0.52	0.31
	10 Life Science	60	6,161	0.51	0.30	0.51	0.30

* CMA tests named by number only are grade-level tests.

** MC only

Writing Tasks

As described earlier, students in grade seven were administered two different writing prompts at different times in the STAR testing cycle. Students were given one of the two writing prompts depending upon when they were tested.

The distributions of writing scores for the overall population and for the various subgroups are presented in Table 8.A.4, which appears on page 194. The subgroups include gender, ethnicity, economic status, primary disability, and English-language fluency.

The mean scores obtained on the writing test for the overall population and for various subgroups are presented in Table 8.A.5. To quantify the differences between mean scores of subgroups, effect sizes were calculated; Cohen's *d* (1992) was used as the measure of effect size. Cohen's *d* is defined as the difference between two means divided by the pooled

standard deviation adjusted for sample size. Cohen (1992) suggested that 0.2 is indicative of a small effect, 0.5 a medium, and 0.8 a large effect size. The effect sizes for various subgroup differences are presented in Table 8.A.6.

Reliability Analyses

Reliability focuses on the extent to which differences in test scores reflect true differences in the knowledge, ability, or skill being tested, rather than fluctuations due to chance or random factors. The variance in the distributions of test scores—essentially, the differences among individuals—is partly due to real differences in the knowledge, skill, or ability being tested (true-score variance) and partly due to random unsystematic errors in the measurement process (error variance).

The number used to describe reliability is an estimate of the proportion of the total variance that is true score variance. Several different ways of estimating this proportion exist. The estimates of reliability reported here are internal-consistency measures, which are derived from analysis of the consistency of the performance of individuals on items within a test (internal-consistency reliability). Therefore, they apply only to the test form being analyzed. They do not take into account form-to-form variation due to equating limitations or lack of parallelism, nor are they responsive to day-to-day variation due, for example, to students' state of health or testing environment.

Reliability coefficients may range from 0 to 1. The higher the reliability coefficient for a set of scores, the more likely individuals would be to obtain very similar scores if they were retested. The formula for the internal consistency reliability as measured by Cronbach's Alpha (Cronbach, 1951) is shown in equation (8.3):

$$\alpha = \frac{n}{n-1}\left[1 - \frac{\sum_{i=1}^{n}\sigma_i^2}{\sigma_t^2}\right] \tag{8.3}$$

where,

n is the number of items,

σ_i^2 is the variance of scores on the i-th item, and

σ_t^2 is the variance of the total score (either the total raw score or scale score).

The standard error of measurement (SEM) provides a measure of score instability in the score metric. The SEM was computed as shown in equation (8.4):

$$\sigma_e = \sigma_t\sqrt{1-\alpha} \tag{8.4}$$

where,

α is the reliability estimated using (8.3) above, and

σ_t is the standard deviation of the total raw scores.

The SEM is particularly useful in determining the confidence interval (CI) that captures an examinee's true score. Assuming that measurement error is normally distributed, it can be said that upon infinite replications of the testing occasion, approximately 95 percent of the CIs of ±1.96 SEM around the observed score would contain an examinee's true score (Crocker & Algina, 1986). For example, if an examinee's observed score on a given test equals 15 points, and the SEM equals 1.92, one can be 95 percent confident that the examinee's true score lies between 11 and 19 points (15 ± 3.76 rounded to the nearest integer).

15 points, and the SEM equals 1.92, one can be 95 percent confident that the examinee's true score lies between 11 and 19 points (15 ± 3.76 rounded to the nearest integer).

Table 8.3 gives the reliability for each of the operational CMA tests, along with the number of items and examinees upon which those analyses were performed.

Table 8.3 Reliabilities and SEMs for the CMA

					Scale Score			Raw Score		
Content Area	**CMA***	**No. of Items**	**No. of Examinees**	**Reliability**	**Mean**	**Std. Dev.**	**SEM**	**Mean**	**Std. Dev.**	**SEM**
English–Language Arts	**3**	48	15,998	0.87	307	66	23.46	27.91	8.68	3.11
	4	48	23,137	0.83	320	72	29.48	26.26	7.91	3.23
	5	48	24,105	0.84	322	70	27.87	27.34	7.91	3.15
	6	54	22,755	0.79	307	78	35.67	29.98	7.47	3.40
	7**	54	21,088	0.84	303	76	30.06	29.95	8.63	3.41
	8	54	19,030	0.83	303	75	30.47	29.38	8.31	3.38
	9***	60	11,090	0.81	N/A	N/A	N/A	29.18	8.34	3.68
Mathematics	**3**	48	13,554	0.89	324	71	23.83	30.12	8.95	3.02
	4	48	19,392	0.80	325	78	34.73	27.15	7.03	3.13
	5	48	21,496	0.85	335	75	28.80	28.65	8.09	3.10
	6	54	21,543	0.78	315	79	37.04	29.23	7.38	3.46
	7	54	21,000	0.71	294	85	45.48	25.48	6.55	3.50
	Algebra I	60	15,343	0.77	N/A	N/A	N/A	28.60	7.80	3.71
Science	**5**	48	22,394	0.81	341	56	24.21	28.95	7.30	3.16
	8	54	17,606	0.80	320	60	26.73	28.67	7.69	3.44
	10 Life Science	60	6,161	0.83	N/A	N/A	N/A	30.63	8.91	3.63

* CMA tests named by number only are grade-level tests.

** MC only

*** Scale scores were not available for ELA in grade nine, Algebra I, and Life Science in grade ten during the spring 2010 administration.

Intercorrelations, Reliabilities, and SEMs for Reporting Clusters

For each grade-level CMA in grades three through eight, number-correct scores are computed for the reporting clusters—three in all tests except for the CMA for ELA (Grade 7) and CMA for Science (Grade 8), which have four. Intercorrelations and reliability estimates for the reporting clusters are presented in Table 8.B.1 through Table 8.B.3 starting on page 198. Consistent with previous years, the reliabilities across reporting clusters varied significantly according to the number of items in each cluster.

Subgroup Reliabilities and SEMs

The reliabilities of the grade-level CMA tests in grades three to eight were examined for various subgroups of the examinee population. The subgroups included in these analyses were defined by their gender, ethnicity, economic status, primary disability, and English-language fluency. As of 2009, reliability analyses are also presented by ethnicity within economic status.

For each subgroup analysis, reliability and SEM information is reported for the total test scores and also for the cluster scores. Table 8.B.4 through Table 8.B.7 present the reliabilities for the subgroups based on gender, economic status, English-language fluency, and ethnicity. The next set of tables, Table 8.B.8 through Table 8.B.10, show the same analyses for the subgroups based on primary ethnicity within economic status, and gender

The overall reliabilities for the various subgroups are compiled in Table 8.B.13 through Table 8.B.19.

Table 8.B.20 through Table 8.B.29 present the cluster-level reliabilities for the various subgroups.

Note that the reliabilities are reported only for samples that are comprised of 11 or more examinees. Also, in some cases, score reliabilities were not estimable and are presented in the tables as a hyphen.

Conditional Standard Errors of Measurement

As part of the IRT-based equating procedures, scale-score conversion tables and conditional standard errors of measurement (CSEMs) are produced. CSEMs for CMA scale scores are based on IRT and are calculated by the IRTEQUATE module in a computer system called the Generalized Analysis System (GENASYS). The CSEM is estimated as a function of measured ability. It is typically smaller in scale-score units toward the center of the scale in the test metric where more items are located and larger at the extremes where there are fewer items. An examinee's CSEM under the IRT framework is equal to the inverse of the square root of the test information function:

$$\mathrm{CSEM}(\hat{\theta}) = \frac{1}{\sqrt{\mathrm{I}(\theta)}} a, \tag{8.5}$$

where,

$\mathrm{CSEM}(\hat{\theta})$ is the standard error of measurement and

$\mathrm{I}(\theta)$ is the test information function.

The statistic is multiplied by a, where a is the original scaling factor needed to transform theta to the scale score metric. The value of a varies by grade and content area.

SEMs vary across the scale. When a test has cut scores, it is important to provide CSEMs at the cut scores.

Table 8.4 presents the scale score CSEMs at the lowest score required for a student to be classified in the below basic, basic, proficient, and advanced performance levels for each CMA for which scale scores are available.[1]

The CSEMs tended to be higher at the advanced cut points for all tests. The pattern of lower values of CSEMs at the basic and proficient levels are expected since (1) more items tend to be of middle difficulty; and (2) items at the extremes still provide information toward the middle of the scale. This results in more precise scores in the middle of the scale and less precise scores in the extremes of the scale.

[1] CSEMs are not provided for the CMA for ELA (Grade 9), Algebra I, and Life Science (Grade 10) because scale scores were not available for these tests in the spring 2010 administration.

Table 8.4 Scale Score CSEM at Performance Level Cut Points

		Below Basic		Basic		Proficient		Advanced	
Content Area	**CMA***	**Min SS**	**CSEM**	**Min SS**	**CSEM**	**Min SS**	**CSEM**	**Min SS**	**CSEM**
English–Language Arts	3	228	22	300	22	350	24	397	28
	4	241	28	300	27	350	28	407	32
	5	219	28	300	26	350	27	400	30
	6	221	35	300	34	350	36	405	38
	7**	228	28	300	28	350	29	409	33
	8	235	29	300	29	350	30	407	33
Mathematics	3	229	22	300	21	350	23	423	31
	4	219	34	300	32	350	33	430	38
	5	226	28	300	26	350	27	422	32
	6	230	36	300	35	350	36	428	40
	7	237	46	300	45	350	45	443	48
Science	5	243	24	300	22	350	23	401	26
	8	264	26	300	25	350	26	406	28

* CMA tests named by number only are grade-level tests.

** MC only

Decision Classification Analyses

The methodology used for estimating the reliability of classification decisions is described in Livingston and Lewis (1995) and is implemented using the ETS-proprietary computer program RELCLASS-COMP (Version 4.14).

Decision accuracy describes the extent to which examinees are classified in the same way as they would be on the basis of the average of all possible forms of a test. Decision accuracy answers the question: How 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 were somehow known? RELCLASS-COMP also estimates decision accuracy using an estimated multivariate distribution of reported classifications on the current form of the exam and the classifications based on an all-forms average (true score).

Decision consistency describes the extent to which examinees are classified in the same way as they would be on the basis of a single form of a test other than the one for which data are available. Decision consistency answers the question: What is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test? RELCLASS-COMP estimates decision consistency using an estimated multivariate distribution of reported classifications on the current form of the exam and classifications on a hypothetical alternate form using the reliability of the test and strong true score theory.

In each case, the proportion of classifications with exact agreement is the sum of the entries in the diagonal of the contingency table representing the multivariate distribution. Reliability of classification at a cut score is estimated by collapsing the multivariate distribution at the passing score boundary into an *n* by *n* table (where *n* is the number of performance levels) and summing the entries in the diagonal. Figure 8.1 and Figure 8.2 present the two scenarios graphically.

Figure 8.1 Decision Accuracy for Achieving a Performance Level

		Decision made on a form actually taken	
		Does not achieve a performance level	Achieves a performance level
True status on all-forms average	Does not achieve a performance level	Correct classification	Mis-classification
	Achieves a performance level	Mis-classification	Correct classification

Figure 8.2 Decision Consistency for Achieving a Performance Level

		Decision made on the alternate form taken	
		Does not achieve a performance level	Achieves a performance level
Decision made on the form taken	Does not achieve a performance level	Correct classification	Mis-classification
	Achieves a performance level	Mis-classification	Correct classification

The results of these analyses are presented in Table 8.B.25 through Table 8.B.29 in Appendix 8.B.[2] These tables are provided for the CMAs for ELA and mathematics in grades three through eight and science in grade eight. For the CMA for ELA in grade seven, two sets of tables are presented for the decision classification analyses: a table for all examinees who attempted multiple-choice (MC) items and a second table for examinees who attempted MC as well as the Writing Application section of the test.

Each table includes the contingency tables for the various performance-level classifications. The proportion of accurately classified students 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.

The classifications are collapsed to below-proficient versus proficient and above, which are the critical categories for adequate yearly progress (AYP) calculations and are also presented in the tables.

Writing Score Reliability

The reliability of the total scores for the students who responded to the writing prompt for ELA in grade seven was computed using the following composite reliability formula (Feldt & Brennan, 1989):

$$\alpha_c = 1 - \frac{\sum_{j=1}^{k} \left(w_j \sigma_{e_j} \right)^2}{\sigma_c^2} \tag{8.6}$$

[2] Decision classification analyses are not provided for the CMA for ELA (Grade 9), Algebra I, and Life Science (Grade 10) because performance levels were not available for these tests in spring 2010 administration.

where,

k is the number of part scores in the composite,

w_j is the weight associated with the j-th part score,

σ_{e_j} is the SEM of the j-th part score, and

σ_c^2 is the variance of the composite score.

The reliability of the writing task can be found indirectly by examining the correlation between the MC and writing components in relation to the MC reliability. The lower bound reliability for a constructed response (CR) item in a test with MC items and only one CR item can be found using the squared correlation between the MC and writing (CR) portions of the test and dividing by the reliability of the MC portion of the test ($(Corr_{Writing\text{-}MC})^2/Rel_{MC}$) (Sax, 1989).

The SEM for writing (that is, the CR portion of the test) can then be found using the following equation:

$$\sigma_{e_{CR}} = \sigma_{CR} * \sqrt{1 - reliability_{CR}} \quad (8.7)$$

where,

σ_{CR} is the standard deviation of the writing scores.

The reliability of the grade seven ELA multiple choice scores was 0.84. The approximate lower bound reliability for the essay scores was found to be 0.35. The composite reliability for the combined MC and essay scores was 0.87.

Prompt and Rater Agreement Summary

As described earlier, in order to monitor the accuracy of ratings, two raters scored approximately ten percent of the examinees' writing responses. The two sets of ratings were used to carry out inter-rater agreement and generalizability analyses to assess the reliability of the writing scores.

Inter-rater Reliability Analyses

In the context of essay scoring, inter-rater reliability or consistency is defined as the degree of agreement between ratings or scores assigned by two or more readers to a given response. It is an indicator of homogeneity and is most frequently measured using intraclass correlation (ICC) which looks at the exact agreement between raters over and above that expected by chance. The index is defined as,

$$ICC = r_I = (ms_{between} - ms_{within})/(ms_{between} + [k - 1]ms_{within}) \quad (8.8)$$

where,

$ms_{between}$ is the mean-square estimate of between-subjects variance, and

ms_{within} is the mean-square estimate of within-subjects variance.

For categorical ratings, Cohen's Kappa statistic has the properties of an intraclass correlation coefficient and can be used for inter-rater reliability. Cohen's Kappa was therefore used as a primary indicator of the inter-rater reliability of the writing scoring. In addition, the percentages of ratings on which the raters were in exact agreement or differed by just one point were also computed.

The reliability analyses were performed on the approximately ten percent of the overall testing population that were scored by two raters. From those double-scored writing responses, samples were selected that had valid ratings (1, 2, 3, or 4) for both raters[3] (see Appendix 7.A for the writing scoring rubric). The results of these analyses are presented in Table 8.B.30 and Table 8.B.44 in Appendix 8.B.

Generalizability Analyses

Generalizability analyses were performed on the writing scores to quantify the proportion of variance explained by various possible sources of variation including raters, writing prompt, and persons (desired variance). A generalizability study (g-study) was performed to estimate variance components for selected sources of variation also known as "facets." A d-study was performed to estimate the generalizability coefficient (Brennan, 2001a; Crocker & Algina, 1986).

The computer programs GENOVA, and its extension, urGENOVA, were used to carry out these analyses (Brennan, 2001b; Crick & Brennan, 1983). Since two raters scored each student's response but each student did not receive the same prompt, a nested unbalanced design was studied (Lee & Kantor, 2005; Wang et al., 2007) as described below:

Design = (Person : Task) x Rater

The model assumes that the raters are selected from an infinite pool of raters and all the raters are randomly equivalent. The model also assumes that the writing prompts are randomly selected from a universe of prompts and that students' writing responses are randomly assigned to the raters. The results of the study are presented in Table 8.B.46 on page 231.

Validity Evidence

Validity refers to the degree to which each interpretation or use of a test score is supported by evidence that is gathered (AERA, APA & NCME, 1999; ETS, 2002). It is a central concern underlying the development, administration, and scoring of a test and the uses and interpretations of test scores.

Validation is the process of accumulating evidence to support each proposed score interpretation or use. It does not involve a single study or gathering one particular kind of evidence. Validation involves multiple investigations and various kinds of evidence (AERA, APA & NCME, 1999; Cronbach, 1971; ETS, 2002; Kane, 2006). The process begins with test design and continues through the entire assessment process including item development and field testing, analyses of item and test data, test scaling, scoring, and score reporting.

This section presents the evidence gathered to support the intended uses and interpretations of scores for the CMA testing program. The description is organized in the manner prescribed by *The Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 1999). These standards require a clear definition of the purpose of the test, which includes a description of the qualities—called constructs—that are to be assessed by a test, the population to be assessed, as well as how the scores are to be interpreted and used.

[3] Zero is a valid score for the writing responses but is not provided by a rater. Instead, a score of zero is assigned when the student attempted the writing task but either did not provide a response, refused to provide a response, or responded to a writing task from an earlier administration.

In addition, the *Standards* identify five kinds of evidence that can provide support for score interpretations and uses, which are as follows:

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; and
5. Evidence based on the consequences of testing.

These kinds of evidence are also defined as important elements of validity information in documents developed by the U.S. Department of Education for the peer review of testing programs administered by states in response to the Elementary and Secondary Education Act (USDOE, 2001).

The next section defines the purpose of the CMA, followed by a description and discussion of the kinds of validity evidence that has been gathered.

Purpose of the CMA

As mentioned in Chapter 1, the CMA test results contribute to calculating school and district API. Additionally, the CMA for ELA and mathematics are used in determining AYP that applies toward meeting the requirement of the federal Elementary and Secondary Education Act (ESEA), which is to have all students score at proficient or above by 2014.

The Constructs to Be Measured

The CMA tests, given in English, are designed to show how well students perform relative to the California content standards. These content standards were approved by the SBE; they describe what students should know and be able to do at each grade level.

Test blueprints and specifications written to define the procedures used to measure the content standards provide an operational definition of the construct to which each set of standards refers—that is, they define, for each content area to be assessed, the tasks to be presented, the administration instructions to be given, and the rules used to score examinee responses. They control as many aspects of the measurement procedure as possible so that the testing conditions will remain the same over test administrations (Cronbach, 1971; Cronbach, Gleser, Nanda, & Rajaratnam, 1972) to minimize construct irrelevant score variance (Messick, 1989). The content blueprints for the CMA can be found on the CDE STAR CMA Blueprints Web page at http://www.cde.ca.gov/ta/tg/sr/cmablueprints.asp. ETS has developed all CMA test items to conform to the SBE-approved content standards and test blueprints.

The Interpretations and Uses of The Scores Generated

Total scores expressed as scale scores, student performance levels, and subscores for each reporting cluster are generated for the CMA except for grade nine ELA, Algebra I and grade ten Life Science tests. For these CMA tests, introduced in 2010, students' total scores were expressed in the raw score metric and no performance levels were reported. On the basis of a student's total score, an inference is drawn about how much knowledge and skill in the content area the student has. The total score also is used to classify students in terms of their level of knowledge and skill in the content area. These levels are called performance levels and are as follows: advanced, proficient, basic, below basic, and far below basic.

Reporting cluster scores, also called subscores, are used to draw inferences about a student's achievement in each of several specific knowledge or skill areas covered by each

test. Reporting cluster results compare an individual student's percent-correct score to the average percent correct for the state as a whole. The range of scores for students who scored proficient is also provided for each cluster using a percent-correct metric. The reference points for this range are: (1) the average-percent correct for students who received the lowest score qualifying for the proficient performance level; and (2) the average-percent correct for students who received the lowest score qualifying for the advanced performance level. A detailed description of the uses and applications of CMA scores is presented in Chapter 7.

The tests that make up the STAR Program, along with other assessments, provide results or score summaries that are used for different purposes. The four major purposes are:

1. Communicating with parents and guardians;
2. Informing decisions needed to support student achievement;
3. Evaluating school programs; and
4. Providing data for state and federal accountability programs for schools.

These are the only uses and interpretations of scores for which validity evidence has been gathered. If the user wishes to interpret or use the scores in other ways, the user is cautioned that the validity of doing so has not been established (AERA, APA, & NCME, 1999, Standard 1.3). The user is advised to gather evidence to support these additional interpretations or uses (AERA, APA, & NCME, 1999, Standard 1.4).

Intended Test Population(s)

California public school students who meet certain eligibility criteria are the intended test population for the CMA. Students in grades three through nine are tested in ELA; students in grades three through seven are tested in mathematics; and students in grades five, eight and ten are tested in science. In addition, students in grades seven through eleven can take an end-of-course CMA for Algebra I. In grade seven, students take either grade-level mathematics or Algebra I.

Validity Evidence Collected

Evidence Based on Content

According to *The Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 1999), analyses that demonstrate a strong relationship between a test's content and the construct that the test was designed to measure can provide important evidence of validity. In current K–12 testing, the construct of interest usually is operationally defined by state content standards and the test blueprints that specify the content, format, and scoring of items that are admissible measures of the knowledge and skills described in the content standards. Evidence that the items meet these specifications and represent the domain of knowledge and skills referenced by the standards supports the inference that students' scores on these items can appropriately be regarded as measures of the intended construct.

As noted in the AERA, APA and NCME *Test Standards* (1999), evidence based on test content may involve logical analyses of test content in which experts judge the adequacy with which the test content conforms to the test specifications and represents the intended domain of content. Such reviews can also be used to determine whether the test content contains material that is not relevant to the construct of interest. Analyses of test content may also involve the use of empirical evidence of item quality.

Also to be considered in evaluating test content are the procedures used for test administration and test scoring. As Kane (2006, p. 29) has noted, although evidence that appropriate administration and scoring procedures have been used does not provide compelling evidence to support a particular score interpretation or use, such evidence may prove useful in refuting rival explanations of test results. Evidence based on content includes the following:

Description of the state standards—As was noted in Chapter 1, the SBE adopted rigorous content standards in 1997 and 1998 in four major content areas: ELA, history–social science, mathematics, and science. These standards were designed to guide instruction and learning for all students in the state and to bring California students to world-class levels of achievement.

Specifications and blueprints—ETS maintains item development specifications for each CMA. The item specifications describe the characteristics of the items that should be written to measure each content standard. A thorough description of the specifications can be found in Chapter 3. Once the items are developed and field-tested, ETS selects all CMA test items to conform to the SBE-approved California content standards and test blueprints. Test blueprints for the CMA were proposed by ETS and reviewed and approved by the Assessment Review Panels (ARPs), which are advisory panels to the CDE and ETS on areas related to item development for the CMA. Test blueprints were also reviewed and approved by the CDE and presented to the SBE for adoption. There have been no recent changes in the blueprints for the CMA. The test blueprints for the CMA can be found on the CDE STAR CMA Blueprints Web page at http://www.cde.ca.gov/ta/tg/sr/cmablueprints.asp.

Item development process—A detailed description of the content and psychometric criteria applicable to the construction of the 2010 CMA is presented in Chapter 4, starting on page 86.

Item review process—Chapter 3 explains in detail the extensive item review process applied to items written for use in the CMA. In brief, items written for the CMA undergo multiple review cycles and involve multiple groups of reviewers. One of the reviews is carried out by an external reviewer, that is, the ARPs. The ARPs is responsible for reviewing all newly developed items for alignment to the California content standards.

Form construction process—For each test, the content standards, blueprints, and test specifications are used as the basis for choosing items. Additional targets for item difficulty and discrimination that are used for test construction were defined in light of what are desirable statistical characteristics in test items and statistical evaluations of the CMA items. Guidelines for test construction were established with the goal of maintaining parallel forms to the greatest extent possible from year to year. Details can be found in Chapter 4, starting on page 89.

Additionally, an external review panel, the Statewide Pupil Assessment Review (SPAR), is responsible for reviewing and approving the achievement tests to be used statewide for the testing of students in California public schools, grades two through eleven. More information about the SPAR is given in Chapter 3, starting on page 81.

Evidence Based on Relations to Other Variables

Empirical results concerning the relationships between score on a test and measures of other variables external to the test can also provide evidence of validity when these relationships are found to be consistent with the definition of the construct that the test is

intended to measure. As indicated in the *Test Standards* (AERA, APA, & NCME, 1999), the variables investigated can include other tests that measure the same construct and different constructs, criterion measures that score on the test are expected to predict, as well as demographic characteristics of examinees that are expected to be related and unrelated to test performance.

Differential Item Functioning Analyses

Analyses of DIF can provide evidence of the degree to which a score interpretation or use is valid for individuals who differ in particular demographic characteristics. For the CMA, DIF analyses were performed on all operational items and all field-test items for which sufficient student samples were available.

The results of the DIF analyses are presented in Appendix 8.E. The vast majority of the items exhibited little or no significant DIF, suggesting that, in general, scores based on the CMA items would have the same meaning for individuals who differed in their demographic characteristics.

Intercorrelations Between Content Areas

To the degree that students' content area scores correlate as expected, evidence of the validity in regarding those scores as measures of the intended constructs is provided. Table 8.5 gives the correlations between scores on the CMA content-area tests and the numbers of students on which these correlations were based. Sample sizes for individual tests are shown on the diagonals of the correlation matrices, and the numbers of students on which the correlations were based are shown on the lower off-diagonals. The correlations are provided in the upper off-diagonals.

Results in the table appear to be consistent with expectations. In general, students' ELA scores correlated moderately with their mathematics scores. They correlated more highly with their scores on the science CMA.

Table 8.C.1 through Table 8.C.9 in Appendix 8.C provide the correlations between content-area tests by gender, ethnicity, English-language fluency level, economic status, and primary disability. Similar patterns of correlations between students' ELA, mathematics, and science scores were found within the subgroups.

Note that the correlations are reported only for samples that are comprised of more than ten examinees. Correlations between any two content areas where ten or fewer examinees took the tests are expressed as hyphens. Correlations between content areas where no examinees took the two tests are expressed as "N/A."

Table 8.5 CMA Content Area Correlations (All Valid Scores)

Grade	CMA	ELA	Mathematics	Algebra I	Science
3	**ELA**	**15,998**	0.62		
	Mathematics	12,584	**13,554**		
4	**ELA**	**23,137**	0.55		
	Mathematics	18,592	**19,392**		
5	**ELA**	**24,105**	0.52		0.66
	Mathematics	20,168	**21,496**		0.54
	Science	21,787	19,557		**22,394**
6	**ELA**	**22,755**	0.53		
	Mathematics	19,838	**21,543**		
7	**ELA**	**21,088**	0.53	0.19	
	Mathematics	18,962	**21,000**	N/A	
	Algebra I	52	N/A	**57**	

Grade	CMA	ELA	Mathematics	Algebra I	Science
8	**ELA**	**19,030**		0.46	0.62
	Algebra I	3,849		**4,353**	0.51
	Science	16,712		3,670	**17,606**
9	**ELA**	**11,090**		0.46	
	Algebra I	4,362		**5,058**	
10	**Algebra I**			**3,911**	0.48
	Life Science			2,718	**6,161**

Intercorrelations between the reporting clusters are presented in Table 8.B.1 through Table 8.B.3 for the CMA. In general, moderate correlations between cluster scores should be expected since, by design, the clusters measure various aspects of the same construct. The findings given in the tables show that, in general, moderate intercorrelations were obtained. As also would be expected, the intercorrelations were higher among clusters that assessed more similar skills than they were among clusters that assessed somewhat dissimilar skills. For example, in mathematics, the clusters related to number sense correlated more highly with the cluster Algebra and Data Analysis than they did with Measurement and Geometry.

Generalizability Analyses for Writing

Generalizability analyses were performed on students' writing scores for grade seven to assess the proportion of variance explained by raters, writing prompt, and persons. The details on the design and methodology are described in the subsection "Generalizability Analyses" in the "Writing Score Reliability" section on page 172. Details about the results can be found in Table 8.B.46.

A decision study (d-study) was conducted to look at the generalizability-coefficient (g-coefficient) for the writing scores; the g-coefficient was 0.81. The largest variance component was attributed to the "person" variation, which is the desired variation to occur among the examinee or "person" scores. Variation attributable to the construct-irrelevant rater variable was small, and the variation attributable to the prompt was negligible.

Evidence Based on Response Processes

As noted in the APA, AERA, and NCME *Standards* (1999), additional support for a particular score interpretation or use can be provided by theoretical and empirical evidence indicating that examinees are using the intended response processes when responding to the items in a test. This evidence may be gathered from interacting with examinees in order to understand what processes underlie their item responses. Finally, evidence may also be derived from feedback provided by observers or judges involved in the scoring of examinee responses.

Evidence of Rater Reliability, Inter-rater Agreement

Rater consistency for the writing prompt is critical to the CMA writing scores and their interpretations. These findings provide evidence of the degree to which raters agree in their observations about the qualities evident in students' essay responses. In order to evaluate the reliability of the student scores on the writing prompts administered in grade seven, two raters scored approximately ten percent of the examinee responses. The data collected were used to evaluate inter-rater reliability and inter-rater agreement.

Inter-rater Reliability

Cohen's Kappa statistics findings provide evidence of the degree to which a student's score may vary from rater to rater. Without explicit criteria to guide the rating process, two

independent raters may not assign the same score to a given response. The results showed moderate levels of agreement between raters that scored examinees' written responses to the prompts administered in grade seven.[4]

Inter-rater agreement

As noted previously, approximately ten percent of the test population's responses to the writing prompts in grade seven were scored by two raters. The percentage of students for whom the raters were in exact agreement was 72 percent. All of the tests exhibited exact or adjacent agreement between the two sets of ratings.

Evidence Based on Internal Structure

As suggested by the *Standards,* evidence of validity can also be obtained from studies of the properties of the item scores and the relationship between these scores and scores on components of the test. To the extent that the score properties and relationships found are consistent with the definition of the construct measured by test, support is gained for interpreting these scores as measures of the construct.

For the CMA, it is assumed that a single construct underlies the total scores obtained on each test. Evidence to support this assumption can be gathered from the results of item analyses, evaluations of internal consistency, and studies of model-data fit, dimensionality, and reliability.

With respect to the subscores that are reported, these scores are intended to reflect examinees' knowledge and/or skill in an area that is part of the construct underlying the total test. Analyses of the intercorrelations among the subscores themselves and between the subscores and total test score can be used for this purpose. Information about the internal consistency of the items on which each subscore is based is also useful to provide.

Classical Statistics

Point-biserial correlations calculated for the items in a test show the degree to which the items discriminate between students with low and high scores on a test. To the degree that the correlations are high, evidence that the items assess the same construct is provided. The mean point-biserials for the items in the CMA are presented in Table 8.A.1 through Table 8.A.5. As shown in Table 8.2, this index was between 0.30 and 0.40 for 10 out of 16 CMA tests and was between 0.25 and 0.29 for six CMA tests. Also germane to the validity of a score interpretation are the ranges of item difficulty for the items on which a test score will be based. The finding that items have difficulties that span the range of examinee ability provides evidence that examinees at all levels of ability are adequately measured by the items. Information on item *p*-values is given in Table 8.2; the distributions of item *b*-values are given in Table 8.D.20 through Table 8.D.25.

The data in Table 8.1 indicate that CMA tests had average *p*-values that ranged from 0.47 to 0.63. As shown in the Table 8.D.20 through Table 8.D.25, they had a wide range of *b*-values indicating a wide range of item difficulty that spanned the ability range.

Reliability

Reliability is a prerequisite for validity. The finding of reliability in student scores supports the validity of the inference that the scores reflect a stable construct. This section will describe

[4] Research has shown the value of Kappa statistics between 0.41 and 0.60 as exhibiting moderate levels of agreement between the two ratings (National Institute of Water and Atmospheric Research Ltd., n.d.).

briefly findings concerning the total test level, as well as reliability results for the reporting clusters.

Overall reliability—The reliability analyses on each of the operational CMA tests are presented in Table 8.3. The results indicate that the reliabilities of the CMA for ELA, mathematics, and science tests were moderately high, ranging from 0.71 to 0.89.

Subgroup reliabilities—The reliabilities of the operational CMA tests were also examined for various subgroups of the examinee population that differed in their demographic characteristics. The characteristics considered were gender, ethnicity, economic status, primary disabilities, English-language fluency, and ethnicity-by-economic status. The results of these analyses can be found in Table 8.B.4 though Table 8.B.19.

Reporting cluster reliabilities—For each CMA, number-correct scores are computed for the reporting clusters The reliabilities of these scores are presented in Table 8.B.20 through Table 8.B.29 for the 13 CMA tests for which cluster scores were reported in 2010. The reliabilities of reporting clusters are invariably lower than those for the total tests because they are based on very few items. Consistent with the findings of previous years, the cluster reliabilities also are affected by the number of items in each cluster, with cluster scores based on fewer items having somewhat lower reliabilities than cluster scores based on more items. Because the reliabilities of scores at the cluster level are lower, schools supplement the score results with other information when interpreting the results.

Reliability of performance classifications—The methodology used for estimating the reliability of classification decisions is described in the section “Decision Classification Analyses” on page 171. The results of these analyses are presented in Table 8.B.30 through Table 8.B.43 in Appendix 8.B; these tables start on page 224. When the decisions are collapsed to below proficient versus proficient and above, which are the critical categories for AYP analyses, the proportion of students that were classified accurately ranged from 0.87 to 0.91 across the CMA tests for which performance level were available. Similarly, the proportion of students that were classified consistently ranged from 0.82 to 0.88 for students classified into below proficient versus proficient and advanced.

Dimensionality

Dimensionality analyses were conducted by a CDE psychometrics team (Gaffney et al., in press; Gaffney & Perryman, 2009). The study investigated the factor structures of the CMA at grades three and five as part peer review for ESEA.

Two factors corresponding to the ELA and mathematics domain were found for the CMA in these grades, as would be expected, since these tests were designed to measure different constructs.

Evidence Based on Consequences of Testing

As observed in the *Standards*, tests are usually administered “with the expectation that some benefit will be realized from the intended use of the scores” (1999, p. 18). When this is the case, evidence that the expected benefits accrue will provide support for intended use of the scores. The CDE and ETS are in the process of determining what kinds of information can be gathered to assess the consequences of administration of the CMA.

IRT Analyses

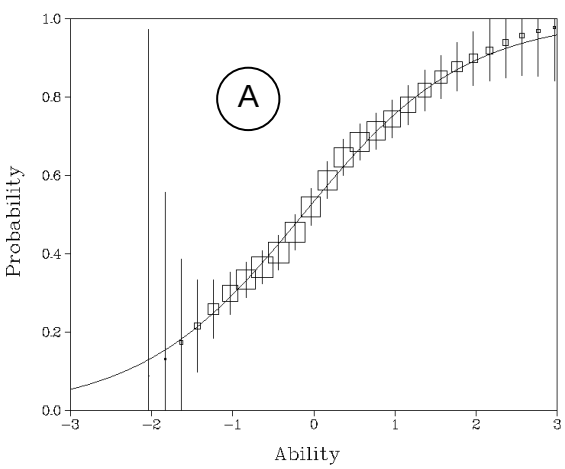
The CMA tests are equated to a reference form using a common-item nonequivalent groups design and methods based on IRT. The “base” or “reference” calibrations for the CMA were established by calibrating samples of data from a specific administration. Doing so established a scale to which subsequent item calibrations could be linked. The 2010 items were placed on the reference scale through a set of linking items that appeared in the 2009 operational forms and were re-administered in 2010.

The procedures used for equating the CMA involve three steps: item calibration, item parameter scaling, and production of raw-score-to-scale-score conversions using the scaled item parameters. ETS uses GENASYS for the IRT item calibration and equating work. As part of this system, a proprietary version of the PARSCALE computer program (Muraki & Bock, 1995) is used and parameterized to result in one-parameter calibrations. Research at ETS has suggested that PARSCALE calibrations done in this manner produce results that are virtually identical to results based on WINSTEPS (Way, Kubiak, Henderson, & Julian, 2002). The equating procedures were applied to all CMA tests except for the CMA for ELA (Grade 9), Algebra I and Life Science (Grade 10); these CMA tests were introduced in 2010. The details on all equating procedures are given in Chapter 2 starting on page 16.

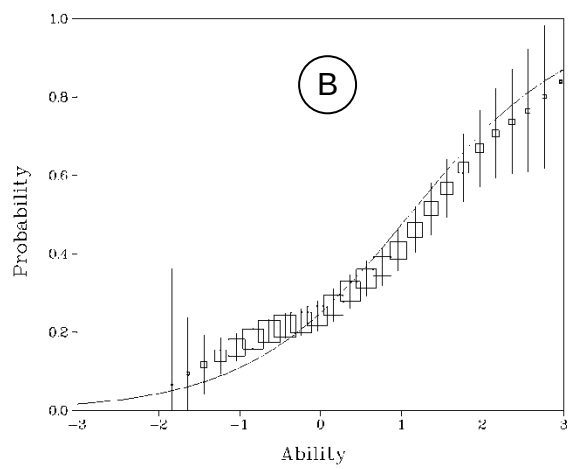
IRT Model-Data Fit Analyses

Because the Rasch model is used in equating the CMA, an important part of IRT analyses is the assessment of model-data fit. ETS psychometricians classify operational and field-test items for the CMA into discrete categories based on an evaluation of how well each item was fit by the Rasch model. The flagging procedure has categories of A, B, C, D, and F that are assigned based on an evaluation of graphical model-data fit information. Descriptors for each category are provided on the next page. As an illustration, the IRT item characteristic curves and empirical data (item-ability regressions) for five items field-tested in 2005 are shown in Figure 8.3. These five items represent the various rating categories. The item number in the calibration and ETS identification number for each item (“accession number”) are listed next to each item, as well as the corresponding rating categories.

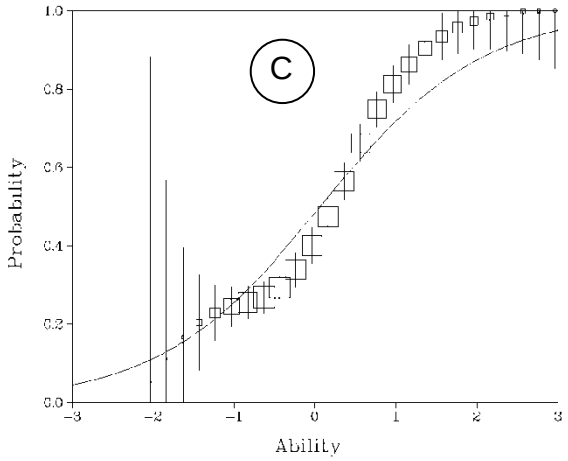
Figure 8.3 Items from the 2005 CST for History–Social Science Grade Ten Field-test Calibration



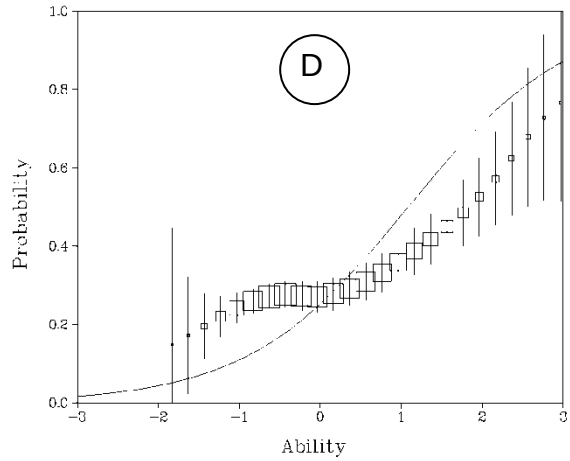
Version 30, Seq 29 (236) CSV23487 4-Choice P+ = 0.563
a = 0.588 F, b = –0.135, c = 0.000 F, CHI = 5.41, N = 5,912



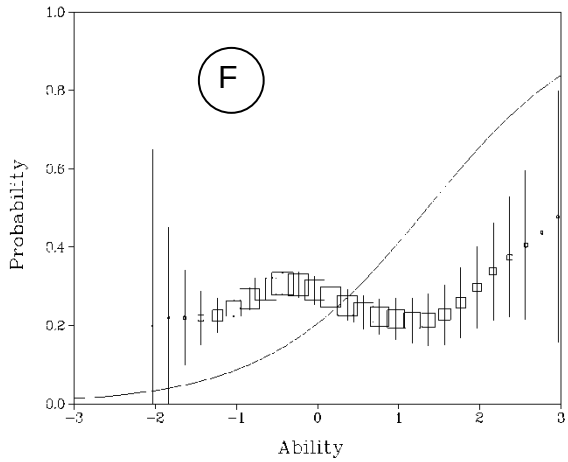
Version 1, Seq 28 (61) CSV22589 4 Choice P+ = 0.307
a = 0.588 F, b = 1.104, c = 0.000 F, CHI = 66.70, N = 6,348



Version 18, Seq 30 (165) CSV20282 4-Choice P+ = 0.523
a = 0.588 F, b = 0.066, c = 0.000 F, CHI = 208.99, N = 6,183



Version 9, Seq 32 (113) CSV20317 4-Choice P+ = 0.314
a = 0.588 F, b = 1.089, c = 0.000 F, CHI = 361.31, N = 6,047



Version 21, Seq 31 (184) CSV20311 4-Choice P+ = 0.263
a = 0.588 F, b = 1.356, c = 0.000 F, CHI = 1027.57, N = 6,277

Flag A (Item 236, CSV23487)

- Good fit of theoretical curve to empirical data along the entire ability range, may have some small divergence at the extremes
- Small Chi-square value relative to the other items in the calibration with similar sample sizes

Flag B (Item 061, CSV22589)

- Theoretical curve within error range across most of ability range, may have some small divergence at the extremes
- Acceptable Chi-square value relative to the other items in the calibration with similar sample sizes

Flag C (Item 165, CSV20282)

- Theoretical curve within error range at some regions and slightly outside of error range at remaining regions of ability range
- Moderate Chi-square value relative to the other items in the calibration with similar sample sizes

- This category often applies to items that appear to be functioning well, but that are not well fit by the Rasch model

Flag D (Item 113, CSV20317)

- Theoretical curve outside of error range at some regions across ability range
- Large Chi-square value relative to the other items in the calibration with similar sample sizes

Flag F (Item 184, CSV20311)

- Theoretical curve outside of error range at most regions across ability range
- Probability of answering item correctly may be higher at lower ability than higher ability (U-shaped empirical curve)
- Very large Chi-square value relative to the other items with similar sample sizes and classical item statistics tend also to be very poor

In general, items with flagging categories of A, B, or C are all considered acceptable. Ratings of D are considered questionable, and the ratings of F indicate a poor model fit.

Model-fit Assessment Results

The model-fit assessment is performed twice in the administration cycle. The assessment is first performed before scoring tables are produced and released. The assessment is performed again as part of the final item analyses when much larger samples are available. The flags produced as a result of this assessment are placed in the item bank. The test developers are asked to avoid the items flagged as D if possible and to carefully review them if they must be used. Test developers are instructed to avoid using items rated F for operational test assembly without a review by a psychometrician and by CDE content specialists.

The distributions of the operational items across the IRT model data fit classifications are presented in Table 8.D.1 through Table 8.D.3 on page 241. The distributions for the field test items are presented in Table 8.D.4 through Table 8.D.6, which start on page 241.

Evaluation of Scaling

Calibrations of the 2010 forms were scaled to the previously obtained reference scale estimates in the item bank using the Stocking and Lord (1983) procedure. Details on the scaling procedures are provided on page 16 of Chapter 2.

The linking process is carried out iteratively by inspecting differences between the transformed new and old (reference) estimates for the linking items and removing items for which the item difficulty estimates changed significantly. Items with large weighted root-mean-square differences (WRMSDs) between item characteristic curves (ICCs) on the basis of the old and new difficulty estimates are removed from the linking set. Based on established procedures, any linking items for which the WRMSD is greater than 0.125 are eliminated. This criterion has produced reasonable results over time in similar equating work done for other testing programs at ETS.

Table 8.6 presents, for each CMA, the number of linking items between the 2010 (new) and the test form to which it was linked (2009); the numbers of items removed from the linking item sets; the correlation between the final set of new and reference difficulty estimates for the linking items; and the average WRMSD statistic across the final set of linking items.

Table 8.6 Evaluation of Common Items between New and Reference Test Forms

Content Area	CMA*	No. of Linking Items	Linking Items Removed	Final Correlation	WRMSD**
English–Language Arts	3	20	0	0.98	0.02
	4	20	0	0.90	0.03
	5	22	0	0.99	0.02
Mathematics	3	24	0	0.97	0.03
	4	23	0	0.99	0.02
	5	23	0	0.98	0.03
Science	5	22	0	0.97	0.03

* CMA tests named by number only are grade-level tests**.**

****** Average over retained items

Summaries of Scaled IRT b-values

Once the IRT *b*-values are placed on the item bank scale, analyses are performed to assess the overall test difficulty, the difficulty level of reporting clusters, and the distribution of items in a particular range of item difficulty.

Table 8.D.7 through Table 8.D.19 present univariate statistics (mean, standard deviation, minimum, and maximum) for the scaled IRT *b*-values. The results for the overall test are presented separately for the operational items and the field test items. For the operational items, the results are also presented for each reporting cluster. No IRT statistics are presented for the CMA for ELA in grade nine, Algebra I, and Life Science in grade ten; these tests were introduced in 2010.

Post-equating Results

As described on page 16 of Chapter 2, once the new item calibrations are transformed to the base scale, raw score to theta scoring tables are generated. The thetas in these tables are linearly transformed to scale scores.

Complete raw-to-scale score conversion tables for the 2010 CMA are presented in Table 8.D.26 through Table 8.D.40 in Appendix 8.D, starting on page 248. The raw scores and corresponding transformed scale scores are listed on those tables. The scale scores were truncated at both ends of the scale so that the minimum reported scale score was 150 and the maximum reported scale score was 600. The scale scores defining the various performance-level cut points are presented in Table 2.1, which is in Chapter 2 on page 18.

Differential Item Functioning Analyses

Analyses of DIF assess differences in the item performance of groups of students that differ in their demographic characteristics.

DIF analyses were performed on all operational items and all field-test items for which sufficient student samples were available. The sample size requirements for the field-test DIF analyses were 100 in the focal group and 400 in the combined focal and reference groups. These sample sizes were based on standard operating procedures with respect to DIF analyses at ETS. The DIF analyses utilized the Mantel-Haenszel (MH) DIF statistic (Mantel & Haenszel, 1959; Holland & Thayer, 1985). This statistic is based on the estimate of constant odds ratio and is described as:

The α_{MH} is the constant odds ratio taken from Dorans and Holland (1993, equation 7) and computed as:

$$\alpha_{MH} = \frac{\left(\sum_m R_{rm} \frac{W_{fm}}{N_{tm}}\right)}{\left(\sum_m R_{fm} \frac{W_{rm}}{N_{tm}}\right)} \tag{8.9}$$

$$MH\ \ D\text{-}DIF\ = -2.35\ \ln[\ \alpha_{MH}\ ] \tag{8.10}$$

where,

R = number right,

W = number wrong,

N = total in:

fm = focal group at ability m,

rm = reference group at ability m, and

tm = total group at ability l m.

Items analyzed for DIF at ETS are classified into one of three categories: A, B, or C. Category A contains items with negligible DIF. Category B contains items with slight to moderate DIF. Category C contains items with moderate to large values of DIF.

These categories have been used by ETS testing programs for more than 14 years. The definitions of the categories based on evaluations of the item-level MH D-DIF statistics is as follows:

DIF Category	Definition
A (negligible)	• Absolute value of MH D-DIF is not significantly different from zero, or is less than one. • 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 significantly different from one, and is at least 1.5. • Positive values are classified as “C+” and negative values as “C-.”

The factors considered in the DIF analyses included gender, ethnicity, level of English-language fluency,[5] and primary disability. The results of the DIF analyses are presented in Appendix 8.E.

Table 8.E.1 lists the operational items exhibiting significant DIF (C-DIF). Table 8.E.2 represents the analogous list for the field-test items. Test developers are instructed to avoid selecting field-test items flagged as having shown DIF that disadvantages a focal group

[5] Analyses of English learners on the CMA for ELA are presented for readers’ interest; however, differential performance on an item that is due to the language difficulties of nonnative speakers does not indicate that an item is unfair or biased.

(C-DIF) for future operational test forms unless their inclusion is deemed essential to meeting test-content specifications.

Table 8.E.3 to Table 8.E.18 show the distributions of operational items across the DIF category classifications for the CMA. In these tables, classifications of B- or C- indicate DIF against a focal group; classifications of B+ and C+ indicate DIF in favor of a focal group. The last two columns of each table show the total number of items flagged for DIF in one or more comparisons. Table 8.E.19 to Table 8.E.34 to provide the analogous results for the field-test items. Table 8.7 lists specific subgroups that were used for DIF analyses for the CMA.

Table 8.7 Subgroup Classification for DIF Analyses

DIF Type	Reference Group	Focal Group
Gender	Male	Female
Race/Ethnicity	White	African American American Indian Asian Combined Asian Group (Asian/Pacific Islander/Filipino) Filipino Hispanic/Latin American Pacific Islander
Disability	Specific Learning Disability	Autism Deaf-Blindness Deafness Emotional disturbance Hard of hearing Mental retardation Multiple disabilities Orthopedic impairment Other health impairment Speech or language impairment Traumatic brain injury Visual impairment

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Appendix 8.A—Classical Analyses

Table 8.A.1 Item-by-item *p*-value and Point-Biserial for ELA

CMA	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Grade 8		Grade 9	
Items	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis
1	0.71	0.42	0.71	0.42	0.75	0.42	0.86	0.38	0.55	0.19	0.89	0.35	0.60	0.29
2	0.72	0.40	0.59	0.37	0.82	0.35	0.62	0.31	0.57	0.33	0.64	0.41	0.53	0.21
3	0.63	0.37	0.57	0.41	0.75	0.43	0.28	0.00	0.66	0.39	0.40	0.13	0.47	0.26
4	0.81	0.46	0.66	0.35	0.70	0.37	0.74	0.41	0.76	0.36	0.70	0.24	0.70	0.39
5	0.72	0.41	0.58	0.40	0.66	0.40	0.33	0.04	0.59	0.31	0.79	0.39	0.70	0.35
6	0.69	0.38	0.62	0.28	0.52	0.33	0.73	0.41	0.40	0.20	0.42	0.32	0.55	0.35
7	0.53	0.32	0.64	0.40	0.33	0.19	0.71	0.41	0.66	0.38	0.55	0.25	0.66	0.38
8	0.61	0.44	0.58	0.16	0.58	0.38	0.65	0.38	0.74	0.42	0.34	0.29	0.45	0.26
9	0.71	0.42	0.55	0.38	0.50	0.34	0.62	0.46	0.69	0.44	0.60	0.39	0.65	0.42
10	0.69	0.47	0.62	0.43	0.65	0.41	0.70	0.36	0.60	0.45	0.73	0.39	0.53	0.45
11	0.36	0.29	0.71	0.38	0.48	0.37	0.63	0.38	0.50	0.31	0.69	0.36	0.35	0.22
12	0.41	0.26	0.52	0.28	0.61	0.34	0.62	0.39	0.70	0.49	0.56	0.38	0.42	0.22
13	0.54	0.40	0.69	0.36	0.55	0.39	0.54	0.21	0.59	0.28	0.33	0.19	0.58	0.43
14	0.53	0.35	0.58	0.46	0.45	0.32	0.45	0.08	0.38	0.32	0.51	0.31	0.43	0.38
15	0.48	0.32	0.42	0.21	0.55	0.29	0.63	0.36	0.50	0.27	0.47	0.31	0.52	0.37
16	0.58	0.48	0.46	0.36	0.67	0.47	0.72	0.30	0.50	0.31	0.44	0.26	0.51	0.31
17	0.60	0.44	0.39	0.27	0.61	0.41	0.41	0.24	0.58	0.44	0.57	0.37	0.61	0.42
18	0.68	0.40	0.70	0.42	0.49	0.33	0.55	0.25	0.37	0.17	0.66	0.41	0.42	0.32
19	0.60	0.33	0.53	0.40	0.48	0.25	0.54	0.32	0.45	0.32	0.52	0.34	0.44	0.24
20	0.44	0.35	0.67	0.40	0.57	0.44	0.49	0.33	0.44	0.35	0.55	0.33	0.44	0.20
21	0.60	0.45	0.54	0.33	0.53	0.30	0.60	0.20	0.68	0.39	0.39	0.33	0.45	0.19
22	0.28	0.17	0.38	0.22	0.33	0.11	0.42	0.21	0.56	0.27	0.39	0.21	0.37	0.19
23	0.56	0.35	0.65	0.43	0.47	0.40	0.20	0.07	0.62	0.38	0.37	0.22	0.54	0.36
24	0.49	0.37	0.41	0.31	0.51	0.27	0.57	0.29	0.59	0.43	0.48	0.43	0.53	0.32
25	0.70	0.32	0.46	0.34	0.42	0.34	0.42	0.20	0.67	0.46	0.46	0.29	0.51	0.34
26	0.55	0.49	0.57	0.38	0.65	0.40	0.56	0.37	0.45	0.35	0.58	0.38	0.59	0.36
27	0.58	0.44	0.69	0.47	0.72	0.41	0.54	0.40	0.58	0.39	0.65	0.30	0.49	0.26
28	0.62	0.36	0.54	0.19	0.55	0.37	0.67	0.37	0.47	0.20	0.61	0.40	0.46	0.28
29	0.38	0.16	0.49	0.14	0.38	0.12	0.30	0.18	0.41	0.26	0.63	0.43	0.40	0.24
30	0.37	0.20	0.47	0.39	0.79	0.32	0.58	0.39	0.47	0.34	0.71	0.43	0.48	0.33
31	0.61	0.40	0.37	0.16	0.53	0.34	0.51	0.34	0.54	0.20	0.29	0.13	0.49	0.31
32	0.51	0.41	0.44	0.30	0.43	0.33	0.64	0.33	0.45	0.23	0.48	0.35	0.45	0.22
33	0.48	0.43	0.59	0.38	0.66	0.32	0.47	0.30	0.48	0.28	0.51	0.32	0.49	0.33
34	0.54	0.31	0.49	0.28	0.54	0.38	0.67	0.43	0.43	0.20	0.57	0.36	0.49	0.34
35	0.63	0.31	0.63	0.36	0.45	0.26	0.63	0.34	0.47	0.24	0.56	0.26	0.43	0.27
36	0.63	0.45	0.46	0.30	0.69	0.41	0.56	0.25	0.50	0.32	0.53	0.35	0.44	0.23
37	0.71	0.46	0.58	0.44	0.69	0.41	0.48	0.21	0.65	0.40	0.58	0.28	0.68	0.33
38	0.59	0.46	0.52	0.34	0.50	0.32	0.42	0.17	0.54	0.26	0.38	0.24	0.56	0.35
39	0.63	0.47	0.60	0.34	0.82	0.37	0.36	0.18	0.69	0.39	0.43	0.22	0.70	0.46
40	0.51	0.39	0.50	0.27	0.69	0.44	0.82	0.40	0.54	0.29	0.46	0.28	0.48	0.22
41	0.66	0.45	0.59	0.41	0.45	0.27	0.50	0.26	0.48	0.36	0.44	0.27	0.39	0.27
42	0.41	0.21	0.51	0.31	0.74	0.43	0.51	0.28	0.50	0.28	0.77	0.41	0.36	0.19
43	0.51	0.34	0.64	0.43	0.49	0.27	0.49	0.17	0.67	0.38	0.56	0.36	0.42	0.18
44	0.64	0.5	0.54	0.31	0.50	0.36	0.68	0.26	0.63	0.40	0.48	0.24	0.34	0.04
45	0.58	0.41	0.47	0.32	0.60	0.42	0.55	0.33	0.54	0.17	0.39	0.28	0.43	0.24
46	0.73	0.38	0.48	0.29	0.37	0.26	0.54	0.31	0.57	0.27	0.41	0.28	0.45	0.24
47	0.53	0.33	0.50	0.33	0.49	0.37	0.52	0.24	0.73	0.44	0.59	0.44	0.50	0.36
48	0.79	0.42	0.41	0.30	0.60	0.35	0.60	0.34	0.75	0.41	0.72	0.27	0.42	0.21

CMA	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Grade 8		Grade 9	
Items	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis
49							0.53	0.34	0.54	0.33	0.39	0.22	0.46	0.33
50							0.52	0.29	0.46	0.26	0.55	0.43	0.56	0.36
51							0.64	0.35	0.59	0.37	0.67	0.41	0.30	0.12
52							0.54	0.28	0.45	0.31	0.68	0.39	0.51	0.26
53							0.41	0.12	0.57	0.41	0.60	0.34	0.47	0.26
54							0.76	0.44	0.51	0.37	0.72	0.36	0.45	0.29
55													0.56	0.35
56													0.31	0.06
57													0.52	0.32
58													0.43	0.24
59													0.36	0.09
60													0.39	0.15

Table 8.A.2 Item-by-item *p*-value and Point-Biserial for Mathematics

CMA	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Algebra I	
Items	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis
1	0.50	0.38	0.82	0.41	0.70	0.37	0.74	0.28	0.53	0.14	0.59	0.22
2	0.60	0.44	0.81	0.34	0.79	0.35	0.81	0.17	0.40	0.27	0.61	0.30
3	0.68	0.46	0.82	0.41	0.63	0.40	0.60	0.19	0.23	0.21	0.42	0.15
4	0.57	0.50	0.80	0.43	0.73	0.40	0.44	0.18	0.53	0.17	0.61	0.40
5	0.77	0.31	0.36	0.11	0.66	0.41	0.55	0.34	0.34	0.15	0.49	0.42
6	0.41	0.33	0.61	0.43	0.93	0.33	0.47	0.18	0.42	0.19	0.61	0.36
7	0.50	0.40	0.58	0.35	0.64	0.38	0.59	0.36	0.64	0.19	0.60	0.39
8	0.44	0.38	0.44	0.30	0.44	0.29	0.66	0.29	0.47	0.21	0.44	0.21
9	0.71	0.47	0.46	0.26	0.58	0.43	0.67	0.19	0.64	0.23	0.42	0.28
10	0.64	0.46	0.43	0.34	0.61	0.45	0.52	0.35	0.51	0.28	0.59	0.46
11	0.51	0.38	0.39	0.21	0.42	0.17	0.55	0.22	0.37	0.12	0.62	0.37
12	0.68	0.47	0.41	0.34	0.59	0.25	0.46	0.29	0.38	0.15	0.49	0.32
13	0.53	0.36	0.56	0.31	0.40	0.34	0.58	0.30	0.37	0.16	0.57	0.45
14	0.42	0.35	0.71	0.35	0.57	0.41	0.45	0.36	0.56	0.18	0.64	0.39
15	0.58	0.44	0.61	0.32	0.57	0.36	0.49	0.24	0.60	0.30	0.52	0.28
16	0.34	0.13	0.64	0.42	0.40	0.18	0.61	0.31	0.40	0.20	0.44	0.26
17	0.61	0.36	0.53	0.43	0.71	0.44	0.63	0.34	0.62	0.35	0.42	0.27
18	0.60	0.29	0.89	0.37	0.59	0.44	0.49	0.26	0.61	0.26	0.45	0.26
19	0.68	0.44	0.56	0.31	0.74	0.46	0.52	0.33	0.42	0.38	0.58	0.27
20	0.59	0.51	0.67	0.43	0.65	0.44	0.48	0.20	0.55	0.37	0.49	0.17
21	0.64	0.49	0.80	0.43	0.67	0.46	0.38	0.19	0.45	0.26	0.60	0.19
22	0.63	0.36	0.81	0.35	0.73	0.43	0.73	0.39	0.40	0.19	0.40	0.20
23	0.64	0.53	0.79	0.44	0.80	0.28	0.56	0.31	0.41	0.35	0.50	0.26
24	0.68	0.48	0.29	0.09	0.70	0.46	0.55	0.37	0.58	0.27	0.49	0.28
25	0.77	0.44	0.58	0.44	0.48	0.28	0.60	0.46	0.70	0.35	0.40	0.23
26	0.60	0.33	0.59	0.41	0.60	0.42	0.46	0.30	0.42	0.16	0.42	0.23
27	0.65	0.37	0.50	0.29	0.60	0.47	0.46	0.36	0.40	0.37	0.57	0.35
28	0.51	0.24	0.60	0.40	0.65	0.49	0.73	0.46	0.48	0.33	0.48	0.30
29	0.51	0.33	0.48	0.35	0.44	0.21	0.54	0.16	0.32	0.10	0.53	0.33
30	0.61	0.29	0.44	0.29	0.72	0.45	0.46	0.26	0.45	0.25	0.40	0.23
31	0.66	0.38	0.47	0.19	0.51	0.36	0.56	0.37	0.42	0.23	0.34	0.10
32	0.73	0.43	0.35	0.10	0.71	0.42	0.28	0.07	0.56	0.32	0.55	0.39
33	0.82	0.34	0.68	0.44	0.47	0.31	0.65	0.50	0.63	0.29	0.53	0.39
34	0.78	0.44	0.59	0.35	0.45	0.29	0.65	0.39	0.47	0.30	0.41	0.18
35	0.67	0.46	0.81	0.35	0.39	0.07	0.54	0.28	0.52	0.32	0.46	0.29
36	0.73	0.38	0.40	0.10	0.49	0.36	0.62	0.37	0.43	0.22	0.54	0.43
37	0.64	0.40	0.45	0.28	0.33	0.23	0.71	0.43	0.45	0.36	0.38	0.12
38	0.80	0.22	0.44	0.27	0.61	0.43	0.37	0.14	0.34	0.24	0.40	0.16
39	0.83	0.39	0.31	0.10	0.57	0.33	0.54	0.37	0.51	0.26	0.43	0.16
40	0.65	0.49	0.41	0.26	0.52	0.32	0.40	0.12	0.32	0.28	0.37	0.16
41	0.54	0.16	0.58	0.32	0.67	0.37	0.49	0.20	0.53	0.30	0.42	0.12
42	0.77	0.40	0.58	0.27	0.54	0.19	0.42	0.22	0.49	0.29	0.51	0.30
43	0.76	0.43	0.53	0.31	0.60	0.30	0.51	0.36	0.18	-0.09	0.48	0.31
44	0.57	0.48	0.54	0.25	0.73	0.42	0.56	0.27	0.38	0.04	0.54	0.31
45	0.72	0.48	0.31	0.07	0.36	0.15	0.49	0.22	0.45	0.24	0.38	0.12
46	0.52	0.44	0.51	0.32	0.61	0.47	0.43	0.22	0.46	0.36	0.39	0.21
47	0.61	0.53	0.54	0.36	0.70	0.46	0.47	0.22	0.45	0.29	0.53	0.36
48	0.73	0.51	0.68	0.43	0.69	0.48	0.45	0.19	0.32	0.12	0.43	0.26
49							0.66	0.38	0.61	0.32	0.49	0.30
50							0.77	0.34	0.61	0.33	0.36	0.06
51							0.50	0.23	0.55	0.29	0.63	0.37
52							0.53	0.30	0.54	0.30	0.31	0.08
53							0.35	0.08	0.46	0.27	0.41	0.19
54							0.53	0.30	0.57	0.24	0.50	0.33
55											0.40	0.16
56											0.38	0.21
57											0.34	0.12
58											0.39	0.24
59											0.50	0.26
60											0.48	0.21

Table 8.A.3 Item-by-item *p*-value and Point-Biserial for Science

CMA	Grade 5		Grade 8		Grade 10	
Items	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis
1	0.62	0.39	0.58	0.17	0.61	0.15
2	0.68	0.32	0.54	0.22	0.50	0.29
3	0.49	0.30	0.63	0.40	0.55	0.35
4	0.60	0.35	0.42	0.23	0.42	0.19
5	0.47	0.26	0.65	0.31	0.53	0.33
6	0.47	0.13	0.48	0.20	0.32	0.05
7	0.45	0.28	0.58	0.30	0.43	0.25
8	0.69	0.44	0.60	0.37	0.41	0.20
9	0.80	0.28	0.86	0.38	0.45	0.26
10	0.68	0.10	0.71	0.35	0.39	0.27
11	0.52	0.33	0.38	0.29	0.54	0.29
12	0.55	0.37	0.49	0.16	0.59	0.28
13	0.39	0.16	0.59	0.37	0.57	0.21
14	0.72	0.39	0.42	0.27	0.49	0.26
15	0.63	0.26	0.62	0.30	0.36	0.15
16	0.48	0.19	0.53	0.23	0.58	0.29
17	0.40	0.21	0.45	0.32	0.58	0.33
18	0.64	0.35	0.58	0.33	0.45	0.28
19	0.53	0.29	0.51	0.41	0.49	0.28
20	0.74	0.39	0.48	0.36	0.55	0.31
21	0.58	0.33	0.65	0.39	0.61	0.42
22	0.85	0.38	0.48	0.33	0.51	0.26
23	0.65	0.37	0.50	0.33	0.71	0.37
24	0.70	0.26	0.56	0.27	0.59	0.34
25	0.62	0.33	0.42	0.30	0.51	0.41
26	0.63	0.45	0.47	0.34	0.62	0.42
27	0.70	0.36	0.51	0.34	0.48	0.26
28	0.57	0.37	0.77	0.36	0.69	0.42
29	0.48	0.30	0.55	0.37	0.65	0.44
30	0.59	0.37	0.41	0.28	0.61	0.40
31	0.64	0.40	0.65	0.41	0.65	0.47
32	0.62	0.34	0.63	0.42	0.45	0.37
33	0.67	0.43	0.41	0.30	0.50	0.36
34	0.42	0.27	0.37	0.05	0.56	0.35
35	0.54	0.32	0.58	0.32	0.49	0.30
36	0.58	0.28	0.43	0.18	0.49	0.36
37	0.54	0.32	0.71	0.35	0.42	0.27
38	0.54	0.37	0.56	0.30	0.46	0.25
39	0.50	0.30	0.55	0.35	0.65	0.40
40	0.73	0.40	0.77	0.37	0.65	0.40
41	0.61	0.26	0.56	0.20	0.33	0.16
42	0.40	0.22	0.46	0.28	0.51	0.28
43	0.58	0.37	0.44	0.31	0.65	0.49
44	0.84	0.41	0.38	0.16	0.39	0.28
45	0.63	0.41	0.33	0.11	0.53	0.38
46	0.76	0.44	0.51	0.28	0.67	0.40
47	0.74	0.37	0.45	0.20	0.34	0.28
48	0.68	0.24	0.42	0.23	0.50	0.40
49			0.36	0.17	0.43	0.27
50			0.64	0.43	0.40	0.28
51			0.36	0.13	0.64	0.34
52			0.47	0.41	0.36	0.14
53			0.61	0.34	0.67	0.45
54			0.59	0.29	0.59	0.41
55					0.36	0.24
56					0.29	0.05
57					0.40	0.23
58					0.34	0.18
59					0.62	0.41
60					0.63	0.31

Table 8.A.4 Distribution of Essay Scores for ELA Grade Seven—Overall and by Subgroup (all %)

Score	Total	Female	Male	English only	I-FEP	EL	R-FEP	Not Econ Disadv.	Econ Disadv.
0	1.47	0.31	1.16	0.97	0.02	0.47	0.01	0.34	1.11
1	8.56	1.90	6.65	4.41	0.13	3.86	0.15	1.73	6.81
2	47.68	14.23	33.46	24.33	0.83	21.62	0.89	10.87	36.79
3	39.68	15.83	23.85	21.83	0.76	15.96	1.13	10.79	28.93
4	2.62	1.29	1.32	1.81	0.09	0.65	0.07	1.01	1.62
Total	100	33.56	66.44	53.35	1.83	42.56	2.25	24.74	75.26

Score	American Indian	Asian	Pacific Islander	Filipino	Hispanic	African American	White	Autism	Deafness
0	0.02	0.01	0.01	0.02	0.75	0.23	0.41	0.15	0.01
1	0.05	0.29	0.02	0.07	5.46	1.11	1.57	0.71	0.13
2	0.46	1.58	0.18	0.42	30.62	5.82	8.71	1.65	0.12
3	0.37	1.25	0.23	0.30	24.55	4.11	8.78	0.84	0.11
4	0.04	0.08	0.02	0.04	1.28	0.25	0.88	0.10	0.01
Total	0.94	3.21	0.46	0.85	62.66	11.52	20.35	3.45	0.38

Score	Emotional Dist.	Hard of Hearing	Mental Retard.	Mult. Disab.	Orthoped. Impair.	Other Health Impair.	Specific Learning Disab.	Speech or Lang. Disab.	Traumatic Brain Injury	Visual Impair.
0	0.16	0.02	0.08	0.00	0.02	0.10	0.80	0.10	0.00	0.01
1	0.33	0.05	0.63	0.04	0.14	0.75	4.89	0.76	0.04	0.03
2	1.27	0.45	1.15	0.08	0.45	3.80	34.51	3.88	0.13	0.16
3	0.75	0.36	0.33	0.11	0.24	3.25	30.11	3.49	0.06	0.11
4	0.10	0.04	0.00	0.01	0.00	0.23	1.92	0.24	0.00	0.01
Total	2.61	0.92	2.19	0.24	0.85	8.13	72.23	8.47	0.23	0.32

Table 8.A.5 Mean Scores for ELA Grade Seven Essay—Overall and by Subgroup

Overall		Female		Male		English only		I-FEP		EL		R-FEP		Not Econ Disadv		Econ Disadv	
N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
17,181	2.33	5,766	2.47	11,412	2.26	9,154	2.36	316	2.42	7,302	2.29	386	2.49	4,239	2.42	12,898	2.31

Am. Indian		Asian		Pac. Islander		Filipino		Hispanic		Af. American		White		Autism		Deafness	
N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
158	2.38	538	2.34	77	2.49	142	2.34	10,486	2.32	1,927	2.26	3,404	2.40	578	2.01	62	1.97

Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disabilities		Orthopedic Impair.		Other Health Impair.		Specific Learning Disability		Speech or Lang. Impair.		Traumatic Brain Injury	
N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
437	2.11	154	2.38	369	1.79	40	2.35	143	2.06	1360	2.34	12,100	2.38	1,418	2.36	38	2.08

Visual Imp.	
N	Mean
53	2.21

Table 8.A.6 Effect Sizes for ELA Grade Seven Essay—by Subgroup

	Gender	Econ. Status	English-language Fluency					
	(M-F)	(No-Yes)	EO–I-FEP	EO-EL	EO–R-FEP	I-FEP–EL	I-FEP–R-FEP	EL–R-FEP
7	–0.29	0.15	–0.08	0.10	–0.17	0.19	–0.10	–0.29

	Primary Ethnicity										
	W-Am. Ind	W-Asian	W-Pac. Isl.	W-Filipino	W-Hisp.	W-Af. Am.	Am. Ind.-Asian	Am. Ind.-Pac. Isl.	Am. Ind.-Filipino	Am. Ind.-Hisp.	Am. Ind.-Af. Am.
7	0.03	0.08	–0.12	0.08	0.11	0.18	0.06	–0.15	0.05	0.08	0.16
	Asian-Pac. Isl.	Asian-Filipino	Asian-Hisp.	Asian-Af. Am.	Pac. Isl.-Filipino	Pac. Isl. -Hisp.	Pac. Isl. -Af. Am.	Filipino-Hispanic	Filipino-Af. Am.	Hisp. -Af. Am.	
7	–0.22	0.00	0.03	0.11	0.20	0.24	0.31	0.03	0.11	0.08	

	Disability	
	SLD- Disab Not Rptd	SLI-Disab Not Rptd
7	0.20	0.16

Appendix 8.B—Reliability Analyses

Table 8.B.1 Subscore Reliabilities and Intercorrelations for ELA

Subscore Area	No. of items	Intercorrelations			*Reliab.*	*SEM*
Grade 3		**1.**	**2.**	**3.**		
1. Vocabulary	14	1.00	0.65	0.67	0.69	1.61
2. Reading for Understanding	17	.	1.00	0.65	0.71	1.87
3. Language	17	.	.	1.00	0.72	1.87
Grade 4		**1.**	**2.**	**3.**		
1. Vocabulary	11	1.00	0.58	0.56	0.65	1.48
2. Reading for Understanding	16	.	1.00	0.58	0.65	1.84
3. Language	21	.	.	1.00	0.66	2.17
Grade 5		**1.**	**2.**	**3.**		
1. Vocabulary	8	1.00	0.56	0.56	0.62	1.17
2. Reading for Understanding	18	.	1.00	0.59	0.65	1.99
3. Language	22	.	.	1.00	0.72	2.12
Grade 6		**1.**	**2.**	**3.**		
1. Vocabulary	9	1.00	0.48	0.43	0.41	1.34
2. Reading for Understanding	22	.	1.00	0.54	0.63	2.17
3. Language	23	.	.	1.00	0.65	2.24
Grade 7		**1.**	**2.**	**3.**		
1. Vocabulary	8	1.00	0.54	0.45	0.43	1.32
2. Reading for Understanding	22	.	1.00	0.60	0.74	2.13
3. Language	24	.	.	1.00	0.71	2.28
Grade 8		**1.**	**2.**	**3.**		
1. Vocabulary	6	1.00	0.56	0.51	0.56	1.06
2. Reading for Understanding	24	.	1.00	0.59	0.69	2.24
3. Language	24	.	.	1.00	0.70	2.27

Table 8.B.2 Subscore Reliabilities and Intercorrelations for Mathematics

Subscore Area	No. of items	Intercorrelations			*Reliab.*	*SEM*
Grade 3		**1.**	**2.**	**3.**		
1. Number Sense	24	1.00	0.65	0.60	0.82	2.17
2. Algebra and Data Analysis	13	.	1.00	0.62	0.71	1.57
3. Measurement and Geometry	11	.	.	1.00	0.65	1.34
Grade 4		**1.**	**2.**	**3.**		
1. Number Sense	23	1.00	0.56	0.42	0.74	2.06
2. Algebra and Data Analysis	15	.	1.00	0.40	0.54	1.82
3. Measurement and Geometry	10	.	.	1.00	0.39	1.48
Grade 5		**1.**	**2.**	**3.**		
1. Number Sense	21	1.00	0.65	0.48	0.75	2.01
2. Algebra and Data Analysis	17	.	1.00	0.49	0.73	1.80
3. Measurement and Geometry	10	.	.	1.00	0.46	1.49
Grade 6		**1.**	**2.**	**3.**		
1. Number Sense	21	1.00	0.54	0.33	0.57	2.16
2. Algebra and Data Analysis	25	.	1.00	0.37	0.69	2.31
3. Measurement and Geometry	8	.	.	1.00	0.30	1.36
Grade 7		**1.**	**2.**	**3.**		
1. Number Sense	18	1.00	0.39	0.26	0.38	2.02
2. Algebra and Data Analysis	25	.	1.00	0.38	0.65	2.37
3. Measurement and Geometry	11	.	.	1.00	0.34	1.56

Table 8.B.3 Subscore Reliabilities and Intercorrelations for Science

Subscore Area	No. of items	Intercorrelations				*Reliab.*	*SEM*
Grade 5		**1.**	**2.**	**3.**			
1. Physical Sciences	16	1.00	0.54	0.52		0.55	1.85
2. Life Sciences	16	.	1.00	0.59		0.63	1.81
3. Earth Sciences	16	.	.	1.00		0.64	1.80
Grade 8		**1.**	**2.**	**3.**	**4.**		
1. Motion	19	1.00	0.54	0.43	0.44	0.63	2.02
2. Matter	23	.	1.00	0.45	0.43	0.59	2.28
3. Earth Science	7	.	.	1.00	0.34	0.40	1.21
4. Investigation and Experimentation	5	.	.	.	1.00	0.34	1.03

Table 8.B.4 Reliabilities and SEMs for the CMA by Gender

		Male			Female			Unknown		
Content Area	**CMA***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	10,941	0.87	3.12	4,955	0.87	3.09	102	0.88	3.08
	4	15,570	0.83	3.23	7,555	0.83	3.21	12	0.74	3.38
	5	16,067	0.84	3.16	8,026	0.84	3.13	12	0.91	3.04
	6	15,164	0.80	3.42	7,583	0.78	3.38	8	–	–
	7**	14,100	0.84	3.42	6,977	0.84	3.39	11	0.82	3.51
	8	12,645	0.84	3.39	6,336	0.83	3.35	49	0.82	3.40
	9	7,304	0.81	3.68	3,770	0.80	3.68	16	0.53	3.78
Mathematics	3	9,039	0.89	3.02	4,432	0.88	3.02	83	0.91	2.92
	4	12,714	0.81	3.14	6,666	0.79	3.12	12	0.61	3.30
	5	14,005	0.86	3.11	7,482	0.85	3.08	9	–	–
	6	14,059	0.79	3.46	7,477	0.76	3.46	7	–	–
	7	13,755	0.73	3.50	7,233	0.69	3.49	12	0.65	3.45
	Algebra I	9,892	0.78	3.71	5,420	0.76	3.71	31	0.76	3.67
Science	5	14,832	0.82	3.14	7,552	0.79	3.18	10	–	–
	8	11,556	0.82	3.43	6,002	0.76	3.46	48	0.76	3.48
	10 Life Science	3,996	0.85	3.62	2,156	0.80	3.64	9	–	–

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.5 Reliabilities and SEMs for the CMA by Economic Status

		Econ Disadv.			Not Econ Disadv.			Unknown		
Content Area	**CMA***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	11,926	0.87	3.14	3,508	0.88	3.02	564	0.88	3.07
	4	17,263	0.82	3.25	5,787	0.85	3.16	87	0.86	3.23
	5	18,271	0.83	3.18	5,756	0.86	3.06	78	0.88	3.11
	6	17,008	0.78	3.42	5,678	0.80	3.35	69	0.84	3.41
	7**	15,717	0.84	3.43	5,268	0.85	3.35	103	0.78	3.50
	8	13,848	0.83	3.40	4,886	0.85	3.33	296	0.85	3.37
	9	7,556	0.79	3.69	3,435	0.83	3.64	99	0.76	3.71
Mathematics	3	10,139	0.88	3.04	2,905	0.89	2.97	510	0.89	3.00
	4	14,654	0.80	3.15	4,663	0.81	3.09	75	0.82	3.17
	5	16,368	0.85	3.11	5,058	0.86	3.06	70	0.84	3.20
	6	15,941	0.78	3.47	5,526	0.78	3.44	76	0.83	3.45
	7	15,413	0.70	3.50	5,488	0.73	3.49	99	0.55	3.53
	Algebra I	10,493	0.76	3.72	4,629	0.79	3.69	221	0.77	3.69
Science	5	16,935	0.80	3.18	5,389	0.83	3.08	70	0.81	3.23
	8	12,733	0.78	3.46	4,590	0.82	3.40	283	0.82	3.44
	10 Life Science	4,143	0.80	3.66	1,967	0.87	3.57	51	0.88	3.60

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.6 Reliabilities and SEMs for the CMA by English-language Fluency

Content Area		English Only			I-FEP[1]			English Learner			R-FEP[2]			Unknown		
	CMA*	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM
English–Language Arts	3	8,663	0.88	3.08	156	0.88	3.06	6,809	0.86	3.16	37	0.88	2.88	333	0.87	3.08
	4	12,723	0.84	3.20	415	0.86	3.15	9,835	0.81	3.26	125	0.88	3.14	39	0.89	3.20
	5	13,005	0.85	3.11	490	0.86	3.09	10,326	0.81	3.21	240	0.88	2.98	44	0.87	3.20
	6	12,520	0.80	3.38	502	0.79	3.35	9,315	0.77	3.43	383	0.80	3.31	35	0.76	3.47
	7**	11,383	0.85	3.39	386	0.85	3.39	8,799	0.82	3.44	458	0.85	3.30	62	0.81	3.49
	8	10,397	0.84	3.36	376	0.83	3.37	7,496	0.81	3.41	510	0.86	3.27	251	0.86	3.38
	9	6,190	0.82	3.66	354	0.82	3.65	4,141	0.76	3.71	336	0.83	3.63	69	0.75	3.70
Mathematics	3	7,356	0.89	3.02	117	0.88	2.95	5,758	0.88	3.03	31	0.94	2.77	292	0.89	3.01
	4	10,655	0.81	3.13	312	0.78	3.09	8,280	0.79	3.14	109	0.83	3.07	36	0.79	3.24
	5	11,776	0.86	3.11	413	0.86	3.03	9,049	0.85	3.09	219	0.87	2.99	39	0.85	3.25
	6	12,143	0.78	3.46	487	0.79	3.41	8,501	0.77	3.46	373	0.81	3.37	39	0.83	3.45
	7	11,682	0.72	3.50	392	0.70	3.50	8,392	0.70	3.50	473	0.75	3.46	61	0.59	3.50
	Algebra I	8,466	0.78	3.71	477	0.77	3.70	5,631	0.76	3.72	567	0.81	3.66	202	0.75	3.70
Science	5	12,183	0.83	3.12	448	0.82	3.07	9,496	0.78	3.21	226	0.84	3.06	41	0.81	3.27
	8	9,695	0.81	3.43	342	0.77	3.46	6,830	0.76	3.47	493	0.80	3.39	246	0.83	3.44
	10 Life Science	3,394	0.85	3.61	200	0.86	3.59	2,277	0.77	3.68	248	0.85	3.55	42	0.83	3.68

[1] Initially Fluent English Proficient

[2] Reclassified Fluent English Proficient

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.7 Reliabilities and SEMs for the CMA by Ethnicity

		African American			American Indian			Asian			Filipino			Hispanic			Pacific Islander			White			Unknown		
Content Area	**CMA***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	1,559	0.87	3.14	155	0.88	3.11	483	0.87	3.10	155	0.86	3.07	9,852	0.86	3.14	67	0.89	3.10	3,007	0.88	3.02	720	0.88	3.05
	4	2,326	0.83	3.25	206	0.84	3.20	762	0.83	3.22	262	0.80	3.21	14,092	0.82	3.24	143	0.80	3.26	4,641	0.85	3.16	705	0.84	3.18
	5	2,674	0.84	3.17	238	0.86	3.11	691	0.84	3.12	267	0.82	3.11	14,807	0.83	3.18	111	0.81	3.11	4,665	0.86	3.06	652	0.85	3.10
	6	2,551	0.80	3.42	234	0.76	3.42	654	0.79	3.38	219	0.76	3.37	13,821	0.78	3.42	122	0.81	3.38	4,472	0.80	3.35	682	0.79	3.38
	7**	2,479	0.83	3.44	196	0.86	3.40	636	0.83	3.39	177	0.84	3.37	12,752	0.83	3.43	102	0.87	3.34	4,163	0.86	3.33	583	0.86	3.36
	8	2,281	0.82	3.40	189	0.85	3.36	518	0.83	3.37	166	0.80	3.38	11,306	0.82	3.39	65	0.82	3.33	3,921	0.86	3.32	584	0.84	3.36
	9	1,133	0.79	3.69	139	0.84	3.64	306	0.80	3.66	118	0.83	3.61	6,586	0.78	3.70	53	0.80	3.69	2,461	0.83	3.63	294	0.82	3.66
Mathematics	3	1,493	0.88	3.09	142	0.88	3.00	427	0.91	2.98	143	0.88	3.02	8,312	0.88	3.03	64	0.90	3.01	2,358	0.89	2.98	615	0.90	2.97
	4	2,148	0.78	3.19	175	0.80	3.15	602	0.83	3.08	221	0.82	3.08	11,825	0.80	3.13	115	0.75	3.18	3,719	0.81	3.09	587	0.81	3.15
	5	2,560	0.84	3.17	204	0.85	3.12	547	0.87	3.01	226	0.87	3.01	13,045	0.85	3.10	107	0.86	3.04	4,195	0.86	3.07	612	0.85	3.12
	6	2,519	0.76	3.50	232	0.76	3.47	565	0.80	3.42	201	0.76	3.47	12,839	0.78	3.46	114	0.81	3.46	4,415	0.78	3.43	658	0.79	3.45
	7	2,532	0.66	3.51	199	0.67	3.51	589	0.75	3.48	180	0.74	3.47	12,382	0.70	3.50	98	0.72	3.52	4,423	0.74	3.49	597	0.74	3.50
	Algebra I	1,813	0.75	3.72	160	0.77	3.70	379	0.84	3.62	158	0.82	3.66	9,098	0.76	3.72	66	0.81	3.67	3,210	0.79	3.69	459	0.78	3.71
Science	5	2,543	0.80	3.22	220	0.81	3.12	648	0.83	3.14	254	0.81	3.14	13,613	0.80	3.18	104	0.79	3.18	4,400	0.83	3.05	612	0.81	3.14
	8	2,127	0.78	3.48	167	0.83	3.39	494	0.80	3.43	169	0.82	3.40	10,339	0.78	3.46	62	0.77	3.47	3,698	0.83	3.39	550	0.80	3.45
	10 Life Science	628	0.81	3.67	79	0.89	3.52	174	0.81	3.63	66	0.82	3.61	3,599	0.80	3.66	32	0.85	3.62	1,405	0.87	3.55	178	0.83	3.64

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.8 Reliabilities and SEMs for the CMA by Ethnicity-for-Not-Economically-Disadvantaged

		African American			American Indian			Asian			Filipino			Hispanic			Pacific Islander			White			Unknown		
Content Area	**CMA***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	281	0.88	3.08	37	0.86	3.17	187	0.88	3.04	87	0.84	3.07	1,217	0.88	3.05	22	0.89	3.00	1,460	0.88	2.97	217	0.87	2.98
	4	425	0.84	3.21	51	0.86	3.20	310	0.83	3.16	160	0.79	3.21	1,903	0.85	3.18	39	0.83	3.20	2,588	0.85	3.13	311	0.84	3.14
	5	518	0.86	3.13	62	0.86	3.04	276	0.84	3.09	152	0.83	3.11	1,981	0.85	3.09	36	0.83	3.05	2,470	0.86	3.02	261	0.85	3.05
	6	545	0.80	3.38	52	0.73	3.41	242	0.81	3.31	124	0.73	3.37	2,005	0.80	3.37	39	0.81	3.33	2,399	0.79	3.31	272	0.81	3.33
	7**	573	0.84	3.40	52	0.85	3.40	232	0.83	3.36	96	0.82	3.37	1,864	0.85	3.37	33	0.88	3.32	2,197	0.86	3.31	221	0.86	3.30
	8	507	0.83	3.38	60	0.86	3.35	181	0.83	3.33	91	0.83	3.33	1,745	0.84	3.36	21	0.87	3.16	2,082	0.86	3.29	199	0.86	3.32
	9	330	0.83	3.65	56	0.84	3.62	110	0.76	3.67	74	0.83	3.61	1,271	0.81	3.67	22	0.81	3.68	1,455	0.83	3.61	117	0.86	3.61
Mathematics	3	289	0.89	3.03	36	0.88	3.02	178	0.91	2.94	84	0.87	3.01	987	0.89	2.99	21	0.89	2.97	1,133	0.89	2.94	177	0.89	2.92
	4	405	0.80	3.16	45	0.76	3.10	236	0.83	3.04	135	0.82	3.07	1,561	0.81	3.10	26	0.69	3.24	1,999	0.81	3.06	256	0.81	3.12
	5	474	0.86	3.13	55	0.86	3.09	206	0.87	2.96	127	0.87	3.05	1,727	0.85	3.07	32	0.87	3.06	2,192	0.87	3.04	245	0.86	3.11
	6	545	0.78	3.47	53	0.80	3.40	206	0.81	3.41	122	0.77	3.45	1,898	0.77	3.45	32	0.78	3.45	2,394	0.78	3.41	276	0.80	3.42
	7	579	0.68	3.51	51	0.68	3.53	230	0.77	3.47	95	0.77	3.45	1,885	0.73	3.49	29	0.66	3.54	2,384	0.74	3.48	235	0.75	3.49
	Algebra I	496	0.77	3.72	63	0.81	3.66	156	0.82	3.60	98	0.81	3.64	1,714	0.77	3.71	23	0.79	3.66	1,907	0.79	3.67	172	0.80	3.70
Science	5	495	0.83	3.19	57	0.80	3.09	253	0.84	3.08	144	0.80	3.17	1,841	0.81	3.12	35	0.81	3.11	2,317	0.84	3.01	247	0.82	3.08
	8	463	0.79	3.47	53	0.83	3.40	172	0.81	3.38	93	0.85	3.34	1,622	0.80	3.44	19	0.45	3.49	1,978	0.84	3.36	190	0.81	3.43
	10 Life Science	197	0.84	3.63	32	0.90	3.48	63	0.83	3.57	41	0.85	3.56	699	0.84	3.61	12	0.91	3.46	852	0.88	3.52	71	0.88	3.56

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.9 Reliabilities and SEMs for the CMA by Ethnicity-for-Economically-Disadvantaged

		African American			American Indian			Asian			Filipino			Hispanic			Pacific Islander			White			Unknown		
Content Area	**CMA***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	1,226	0.86	3.15	113	0.88	3.09	277	0.86	3.14	58	0.87	3.08	8,419	0.86	3.15	43	0.88	3.17	1,438	0.88	3.07	352	0.88	3.09
	4	1,892	0.82	3.25	154	0.84	3.20	450	0.82	3.25	101	0.80	3.23	12,152	0.82	3.25	104	0.79	3.27	2,034	0.84	3.20	376	0.84	3.20
	5	2,150	0.83	3.18	176	0.86	3.14	414	0.83	3.15	113	0.81	3.12	12,801	0.82	3.19	74	0.80	3.14	2,169	0.85	3.10	374	0.83	3.14
	6	1,997	0.79	3.43	181	0.76	3.42	412	0.76	3.41	95	0.79	3.38	11,787	0.78	3.42	83	0.80	3.39	2,054	0.80	3.39	399	0.77	3.41
	7**	1,889	0.82	3.46	144	0.86	3.39	402	0.83	3.40	78	0.87	3.36	10,837	0.83	3.44	68	0.87	3.34	1,952	0.86	3.36	347	0.86	3.39
	8	1,739	0.82	3.40	128	0.85	3.37	332	0.83	3.39	73	0.74	3.43	9,434	0.82	3.40	41	0.79	3.42	1,803	0.85	3.36	298	0.82	3.38
	9	797	0.77	3.70	82	0.83	3.64	196	0.81	3.65	44	0.82	3.60	5,277	0.77	3.70	30	0.79	3.72	984	0.83	3.65	146	0.79	3.67
Mathematics	3	1,156	0.88	3.10	102	0.89	2.98	230	0.90	3.02	50	0.88	3.06	7,126	0.88	3.03	41	0.89	3.06	1,124	0.88	3.01	310	0.89	3.00
	4	1,736	0.77	3.20	129	0.79	3.16	364	0.83	3.10	85	0.81	3.11	10,233	0.79	3.14	89	0.77	3.18	1,705	0.81	3.12	313	0.80	3.17
	5	2,080	0.84	3.18	148	0.85	3.14	340	0.87	3.04	98	0.88	2.96	11,297	0.85	3.10	74	0.86	3.04	1,981	0.85	3.11	350	0.85	3.12
	6	1,963	0.75	3.50	177	0.75	3.49	359	0.80	3.42	79	0.74	3.49	10,910	0.78	3.46	82	0.82	3.46	1,999	0.78	3.45	372	0.77	3.48
	7	1,938	0.65	3.51	148	0.66	3.50	357	0.74	3.48	82	0.71	3.48	10,446	0.69	3.50	68	0.74	3.52	2,026	0.74	3.49	348	0.74	3.50
	Algebra I	1,293	0.74	3.72	96	0.73	3.72	222	0.85	3.62	59	0.81	3.69	7,277	0.76	3.72	42	0.83	3.66	1,271	0.76	3.71	233	0.75	3.73
Science	5	2,042	0.80	3.23	163	0.81	3.12	394	0.82	3.17	109	0.81	3.09	11,752	0.79	3.19	68	0.79	3.21	2,059	0.82	3.09	348	0.79	3.18
	8	1,629	0.78	3.48	113	0.84	3.37	319	0.79	3.45	73	0.74	3.46	8,597	0.77	3.46	40	0.80	3.46	1,686	0.82	3.41	276	0.79	3.46
	10 Life Science	419	0.78	3.70	47	0.89	3.54	110	0.78	3.65	25	0.74	3.69	2,891	0.79	3.67	20	0.70	3.70	542	0.85	3.61	89	0.78	3.69

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.10 Reliabilities and SEMs for the CMA by Gender by Economic Status

		Economically Disadvantaged									Not Economically Disadvantaged								
		Male			Female			Unknown			Male			Female			Unknown		
Content Area	**CMA***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	8,158	0.87	3.14	3,748	0.86	3.12	20	0.82	3.18	2,459	0.88	3.03	1,043	0.89	2.99	6	–	–
	4	11,567	0.82	3.25	5,694	0.82	3.23	2	–	–	3,949	0.85	3.18	1,837	0.85	3.12	1	–	–
	5	12,038	0.83	3.18	6,231	0.83	3.16	2	–	–	3,980	0.86	3.08	1,774	0.86	3.03	2	–	–
	6	11,215	0.79	3.43	5,790	0.77	3.39	3	–	–	3,901	0.80	3.36	1,776	0.78	3.31	1	–	–
	7**	10,484	0.84	3.44	5,226	0.83	3.41	7	–	–	3,554	0.85	3.36	1,713	0.85	3.31	1	–	–
	8	9,147	0.83	3.41	4,691	0.82	3.37	10	–	–	3,322	0.85	3.34	1,560	0.85	3.29	4	–	–
	9	4,922	0.79	3.69	2,631	0.77	3.69	3	–	–	2,323	0.83	3.64	1,112	0.82	3.63	0	–	–
Mathematics	3	6,779	0.89	3.04	3,342	0.88	3.04	18	0.93	2.88	1,970	0.89	2.98	930	0.89	2.96	5	–	–
	4	9,603	0.80	3.15	5,049	0.78	3.13	2	–	–	3,065	0.82	3.09	1,597	0.80	3.08	1	–	–
	5	10,585	0.85	3.12	5,782	0.84	3.09	1	–	–	3,377	0.86	3.07	1,679	0.86	3.04	2	–	–
	6	10,352	0.78	3.47	5,586	0.76	3.46	3	–	–	3,654	0.80	3.43	1,871	0.76	3.45	1	–	–
	7	10,104	0.72	3.51	5,301	0.67	3.49	8	–	–	3,593	0.75	3.49	1,895	0.71	3.48	0	–	–
	Algebra I	6,742	0.77	3.72	3,743	0.76	3.71	8	–	–	3,009	0.80	3.69	1,617	0.77	3.69	3	–	–
Science	5	11,103	0.81	3.17	5,831	0.78	3.20	1	–	–	3,685	0.84	3.06	1,702	0.81	3.10	2	–	–
	8	8,329	0.80	3.45	4,393	0.74	3.47	11	0.73	3.51	3,060	0.84	3.39	1,527	0.78	3.43	3	–	–
	10 Life Science	2,658	0.82	3.66	1,481	0.77	3.66	4	–	–	1,305	0.88	3.55	661	0.84	3.60	1	–	–

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.11 Reliabilities and SEMs for the CMA by Primary Disability

Content Area	CMA*	Autism			Deaf-Blindness			Deafness			Emotional Dist.			Hard of Hearing			Mental Retard.			Mult. Disab.		
		N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM
English–Language Arts	3	940	0.88	3.08	1	–	–	87	0.77	3.25	253	0.89	3.07	131	0.84	3.16	354	0.80	3.25	28	0.78	3.28
	4	1,165	0.83	3.23	0	–	–	119	0.72	3.29	452	0.87	3.18	214	0.79	3.24	376	0.69	3.31	34	0.73	3.31
	5	1,100	0.85	3.14	1	–	–	107	0.75	3.27	550	0.87	3.11	216	0.81	3.16	425	0.71	3.29	42	0.82	3.23
	6	1,010	0.81	3.40	0	–	–	109	0.77	3.46	579	0.82	3.39	182	0.77	3.39	453	0.71	3.52	41	0.85	3.38
	7**	759	0.85	3.39	0	–	–	107	0.80	3.45	631	0.87	3.36	200	0.84	3.38	472	0.68	3.52	43	0.88	3.39
	8	622	0.86	3.36	2	–	–	114	0.76	3.46	653	0.88	3.33	156	0.85	3.36	505	0.60	3.49	29	0.82	3.43
	9	335	0.85	3.64	0	–	–	85	0.66	3.67	334	0.85	3.64	113	0.83	3.68	259	0.66	3.70	16	0.78	3.70
Mathematics	3	916	0.89	3.03	0	–	–	79	0.88	3.05	241	0.90	3.08	118	0.90	2.93	348	0.80	3.24	29	0.87	3.12
	4	1,044	0.83	3.15	0	–	–	107	0.83	3.16	445	0.80	3.20	175	0.78	3.09	374	0.67	3.29	31	0.77	3.24
	5	1,028	0.87	3.12	1	–	–	89	0.88	3.08	545	0.85	3.19	183	0.87	3.06	427	0.75	3.29	43	0.85	3.20
	6	1,002	0.81	3.44	0	–	–	99	0.82	3.44	607	0.78	3.47	165	0.78	3.41	455	0.65	3.52	43	0.82	3.47
	7	813	0.75	3.49	0	–	–	99	0.70	3.46	673	0.73	3.51	194	0.71	3.48	470	0.47	3.49	43	0.76	3.50
	Algebra I	446	0.82	3.66	2	–	–	65	0.78	3.68	488	0.77	3.71	141	0.79	3.66	321	0.63	3.70	16	0.82	3.69
Science	5	1,057	0.84	3.15	1	–	–	104	0.77	3.26	532	0.86	3.13	204	0.79	3.21	417	0.73	3.30	40	0.81	3.26
	8	608	0.83	3.42	2	–	–	108	0.74	3.46	623	0.84	3.42	152	0.79	3.45	471	0.63	3.52	26	0.78	3.46
	10 Life Science	179	0.89	3.47	0	–	–	27	0.73	3.64	191	0.89	3.56	58	0.79	3.61	140	0.62	3.73	11	0.85	3.64

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.12 Reliabilities and SEMs for the CMA by Primary Disability (continued)

		Orthoped. Impair.			Other Health Impair.			Specific Lrn Disab.			Speech or Lang Impair.			Traumatic Brain Injury			Visual Impair.			Unknown		
Content Area	**CMA***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	129	0.89	3.11	1,154	0.89	3.05	8,776	0.87	3.12	2,958	0.87	3.09	46	0.88	3.14	43	0.90	3.06	1,098	0.88	3.07
	4	174	0.86	3.20	1,868	0.85	3.18	13,294	0.83	3.23	3,660	0.82	3.22	37	0.88	3.19	69	0.85	3.16	1,675	0.83	3.22
	5	176	0.85	3.16	1,942	0.85	3.09	15,169	0.84	3.15	2,894	0.83	3.15	45	0.82	3.19	69	0.87	3.12	1,369	0.83	3.16
	6	140	0.81	3.40	1,921	0.80	3.35	14,875	0.79	3.40	2,236	0.77	3.40	54	0.79	3.46	40	0.82	3.43	1,115	0.80	3.41
	7**	175	0.85	3.42	1,669	0.85	3.35	14,373	0.84	3.41	1,669	0.83	3.41	49	0.85	3.41	61	0.86	3.37	880	0.84	3.43
	8	151	0.85	3.35	1,395	0.85	3.33	13,222	0.83	3.38	1,252	0.80	3.39	51	0.78	3.44	48	0.88	3.33	830	0.84	3.39
	9	90	0.85	3.63	843	0.83	3.63	7,921	0.80	3.68	643	0.77	3.69	35	0.66	3.71	29	0.80	3.68	387	0.81	3.68
Mathematics	3	135	0.87	3.12	1,011	0.89	3.01	7,248	0.88	3.02	2,558	0.89	3.00	44	0.88	3.08	41	0.89	3.09	786	0.88	2.99
	4	182	0.84	3.14	1,620	0.80	3.13	10,899	0.79	3.13	3,014	0.81	3.11	28	0.76	3.23	61	0.79	3.20	1,412	0.79	3.11
	5	173	0.85	3.18	1,856	0.86	3.10	13,295	0.85	3.09	2,497	0.85	3.08	42	0.84	3.16	65	0.89	3.10	1,252	0.83	3.11
	6	153	0.77	3.47	1,936	0.78	3.45	13,806	0.78	3.46	2,089	0.77	3.46	52	0.75	3.48	41	0.84	3.43	1,095	0.77	3.47
	7	189	0.71	3.49	1,790	0.73	3.50	14,023	0.71	3.50	1,657	0.70	3.50	45	0.68	3.51	61	0.63	3.53	943	0.70	3.51
	Algebra I	128	0.77	3.71	1,233	0.79	3.69	11,009	0.77	3.71	804	0.79	3.69	48	0.87	3.63	34	0.82	3.70	608	0.77	3.71
Science	5	174	0.83	3.19	1,835	0.82	3.13	13,928	0.81	3.15	2,729	0.79	3.18	45	0.80	3.23	67	0.82	3.19	1,261	0.78	3.19
	8	145	0.81	3.44	1,340	0.81	3.43	12,077	0.79	3.44	1,182	0.76	3.46	46	0.77	3.49	46	0.85	3.41	780	0.80	3.44
	10 Life Science	43	0.89	3.56	525	0.87	3.57	4,469	0.82	3.64	312	0.77	3.65	21	0.87	3.61	13	0.93	3.44	172	0.81	3.69

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.13 Overall Subgroup Reliabilities

Content Area	CMA*	*Gender*		*Econ. Dis.*		*Language Fluency*			
		Male	**Female**	**No**	**Yes**	**EO**	**I-FEP**	**EL**	**R-FEP**
English–Language Arts	3	0.87	0.87	0.88	0.87	0.88	0.88	0.86	0.88
	4	0.83	0.83	0.85	0.82	0.84	0.86	0.81	0.88
	5	0.84	0.84	0.86	0.83	0.85	0.86	0.81	0.88
	6	0.80	0.78	0.80	0.78	0.80	0.79	0.77	0.80
	7**	0.84	0.84	0.85	0.84	0.85	0.85	0.82	0.85
	8	0.84	0.83	0.85	0.83	0.84	0.83	0.81	0.86
	9	0.81	0.80	0.83	0.79	0.82	0.82	0.76	0.83
Mathematics	3	0.89	0.88	0.89	0.88	0.89	0.88	0.88	0.94
	4	0.81	0.79	0.81	0.80	0.81	0.78	0.79	0.83
	5	0.86	0.85	0.86	0.85	0.86	0.86	0.85	0.87
	6	0.79	0.76	0.78	0.78	0.78	0.79	0.77	0.81
	7	0.73	0.69	0.73	0.70	0.72	0.70	0.70	0.75
	Algebra I	0.78	0.76	0.79	0.76	0.78	0.77	0.76	0.81
Science	5	0.82	0.79	0.83	0.80	0.83	0.82	0.78	0.84
	8	0.82	0.76	0.82	0.78	0.81	0.77	0.76	0.80
	10 Life Science	0.85	0.80	0.87	0.80	0.85	0.86	0.77	0.85

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.14 Overall Subgroup Reliabilities—Ethnicity

Content Area	CMA*	*Ethnicity*						
		African American	**American Indian**	**Asian**	**Filipino**	**Hispanic**	**Pacific Islander**	**White**
English–Language Arts	3	0.87	0.88	0.87	0.86	0.86	0.89	0.88
	4	0.83	0.84	0.83	0.80	0.82	0.80	0.85
	5	0.84	0.86	0.84	0.82	0.83	0.81	0.86
	6	0.80	0.76	0.79	0.76	0.78	0.81	0.80
	7**	0.83	0.86	0.83	0.84	0.83	0.87	0.86
	8	0.82	0.85	0.83	0.80	0.82	0.82	0.86
	9	0.79	0.84	0.80	0.83	0.78	0.80	0.83
Mathematics	3	0.88	0.88	0.91	0.88	0.88	0.90	0.89
	4	0.78	0.80	0.83	0.82	0.80	0.75	0.81
	5	0.84	0.85	0.87	0.87	0.85	0.86	0.86
	6	0.76	0.76	0.80	0.76	0.78	0.81	0.78
	7	0.66	0.67	0.75	0.74	0.70	0.72	0.74
	Algebra I	0.75	0.77	0.84	0.82	0.76	0.81	0.79
Science	5	0.80	0.81	0.83	0.81	0.80	0.79	0.83
	8	0.78	0.83	0.80	0.82	0.78	0.77	0.83
	10 Life Science	0.81	0.89	0.81	0.82	0.80	0.85	0.87

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.15 Overall Subgroup Reliabilities by Ethnicity—Not Economically Disadvantaged

Content Area	CMA*	*Ethnicity*						
		African American	American Indian	Asian	Filipino	Hispanic	Pacific Islander	White
English–Language Arts	3	0.88	0.86	0.88	0.84	0.88	0.89	0.88
	4	0.84	0.86	0.83	0.79	0.85	0.83	0.85
	5	0.86	0.86	0.84	0.83	0.85	0.83	0.86
	6	0.80	0.73	0.81	0.73	0.80	0.81	0.79
	7**	0.84	0.85	0.83	0.82	0.85	0.88	0.86
	8	0.83	0.86	0.83	0.83	0.84	0.87	0.86
	9	0.83	0.84	0.76	0.83	0.81	0.81	0.83
Mathematics	3	0.89	0.88	0.91	0.87	0.89	0.89	0.89
	4	0.80	0.76	0.83	0.82	0.81	0.69	0.81
	5	0.86	0.86	0.87	0.87	0.85	0.87	0.87
	6	0.78	0.80	0.81	0.77	0.77	0.78	0.78
	7	0.68	0.68	0.77	0.77	0.73	0.66	0.74
	Algebra I	0.77	0.81	0.82	0.81	0.77	0.79	0.79
Science	5	0.83	0.80	0.84	0.80	0.81	0.81	0.84
	8	0.79	0.83	0.81	0.85	0.80	0.45	0.84
	10 Life Science	0.84	0.90	0.83	0.85	0.84	0.91	0.88

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.16 Overall Subgroup Reliabilities by Ethnicity—Economically Disadvantaged

		Ethnicity						
Content Area	**CMA***	**African American**	**American Indian**	**Asian**	**Filipino**	**Hispanic**	**Pacific Islander**	**White**
English–Language Arts	3	0.86	0.88	0.86	0.87	0.86	0.88	0.88
	4	0.82	0.84	0.82	0.80	0.82	0.79	0.84
	5	0.83	0.86	0.83	0.81	0.82	0.80	0.85
	6	0.79	0.76	0.76	0.79	0.78	0.80	0.80
	7**	0.82	0.86	0.83	0.87	0.83	0.87	0.86
	8	0.82	0.85	0.83	0.74	0.82	0.79	0.85
	9	0.77	0.83	0.81	0.82	0.77	0.79	0.83
Mathematics	3	0.88	0.89	0.90	0.88	0.88	0.89	0.88
	4	0.77	0.79	0.83	0.81	0.79	0.77	0.81
	5	0.84	0.85	0.87	0.88	0.85	0.86	0.85
	6	0.75	0.75	0.80	0.74	0.78	0.82	0.78
	7	0.65	0.66	0.74	0.71	0.69	0.74	0.74
	Algebra I	0.74	0.73	0.85	0.81	0.76	0.83	0.76
Science	5	0.80	0.81	0.82	0.81	0.79	0.79	0.82
	8	0.78	0.84	0.79	0.74	0.77	0.80	0.82
	10 Life Science	0.78	0.89	0.78	0.74	0.79	0.70	0.85

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.17 Overall Subgroup Reliabilities by Gender/Economic Status

		Economically Disadvantaged		**Not Economically Disadvantaged**	
Content Area	**CMA***	**Male**	**Female**	**Male**	**Female**
English–Language Arts	3	0.87	0.86	0.88	0.89
	4	0.82	0.82	0.85	0.85
	5	0.83	0.83	0.86	0.86
	6	0.79	0.77	0.80	0.78
	7**	0.84	0.83	0.85	0.85
	8	0.83	0.82	0.85	0.85
	9	0.79	0.77	0.83	0.82
Mathematics	3	0.89	0.88	0.89	0.89
	4	0.80	0.78	0.82	0.80
	5	0.85	0.84	0.86	0.86
	6	0.78	0.76	0.80	0.76
	7	0.72	0.67	0.75	0.71
	Algebra I	0.77	0.76	0.80	0.77
Science	5	0.81	0.78	0.84	0.81
	8	0.80	0.74	0.84	0.78
	10 Life Science	0.82	0.77	0.88	0.84

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.18 Overall Subgroup Reliabilities by Primary Disability

Content Area	CMA*	Autism	Deaf-Blindness	Deafness	Emotional Dist.	Hard of Hearing	Mental Retard.	Mult. Disab.
English–Language Arts	3	0.88	–	0.77	0.89	0.84	0.80	0.78
	4	0.83	–	0.72	0.87	0.79	0.69	0.73
	5	0.85	–	0.75	0.87	0.81	0.71	0.82
	6	0.81	–	0.77	0.82	0.77	0.71	0.85
	7**	0.85	–	0.80	0.87	0.84	0.68	0.88
	8	0.86	–	0.76	0.88	0.85	0.60	0.82
	9	0.85	–	0.66	0.85	0.83	0.66	0.78
Mathematics	3	0.89	–	0.88	0.90	0.90	0.80	0.87
	4	0.83	–	0.83	0.80	0.78	0.67	0.77
	5	0.87	–	0.88	0.85	0.87	0.75	0.85
	6	0.81	–	0.82	0.78	0.78	0.65	0.82
	7	0.75	–	0.70	0.73	0.71	0.47	0.76
	Algebra I	0.82	–	0.78	0.77	0.79	0.63	0.82
Science	5	0.84	–	0.77	0.86	0.79	0.73	0.81
	8	0.83	–	0.74	0.84	0.79	0.63	0.78
	10 Life Science	0.89	–	0.73	0.89	0.79	0.62	0.85

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.19 Overall Subgroup Reliabilities by Primary Disability (continued)

Content Area	CMA*	Orthoped. Impair.	Other Health Impair.	Specific Lrn Disab.	Speech or Lang Impair.	Traumatic Brain Injury	Visual Impair.
English–Language Arts	3	0.89	0.89	0.87	0.87	0.88	0.90
	4	0.86	0.85	0.83	0.82	0.88	0.85
	5	0.85	0.85	0.84	0.83	0.82	0.87
	6	0.81	0.80	0.79	0.77	0.79	0.82
	7**	0.85	0.85	0.84	0.83	0.85	0.86
	8	0.85	0.85	0.83	0.80	0.78	0.88
	9	0.85	0.83	0.80	0.77	0.66	0.80
Mathematics	3	0.87	0.89	0.88	0.89	0.88	0.89
	4	0.84	0.80	0.79	0.81	0.76	0.79
	5	0.85	0.86	0.85	0.85	0.84	0.89
	6	0.77	0.78	0.78	0.77	0.75	0.84
	7	0.71	0.73	0.71	0.70	0.68	0.63
	Algebra I	0.77	0.79	0.77	0.79	0.87	0.82
Science	5	0.83	0.82	0.81	0.79	0.80	0.82
	8	0.81	0.81	0.79	0.76	0.77	0.85
	10 Life Science	0.89	0.87	0.82	0.77	0.87	0.93

* CMA tests named by number only are grade-level tests.

** MC only

Table 8.B.20 Subscore Reliabilities and SEM by Gender

Subscore Area	No. of Items	Male		Female	
		Reliab.	SEM	Reliab.	SEM
ELA Grade 3					
1. Vocabulary	14	0.69	1.61	0.69	1.61
2. Reading for Understanding	17	0.71	1.87	0.71	1.86
3. Language	17	0.72	1.88	0.72	1.86
ELA Grade 4					
1. Vocabulary	11	0.65	1.48	0.64	1.48
2. Reading for Understanding	16	0.65	1.85	0.63	1.83
3. Language	21	0.66	2.17	0.67	2.16
ELA Grade 5					
1. Vocabulary	8	0.63	1.17	0.58	1.19
2. Reading for Understanding	18	0.65	1.99	0.65	1.98
3. Language	22	0.72	2.13	0.72	2.09
ELA Grade 6					
1. Vocabulary	9	0.43	1.34	0.39	1.35
2. Reading for Understanding	22	0.63	2.18	0.61	2.15
3. Language	23	0.65	2.25	0.62	2.22
ELA Grade 7					
1. Vocabulary	8	0.44	1.32	0.39	1.32
2. Reading for Understanding	22	0.74	2.14	0.75	2.12
3. Language	24	0.71	2.29	0.70	2.26
ELA Grade 8					
1. Vocabulary	6	0.57	1.06	0.55	1.05
2. Reading for Understanding	24	0.69	2.24	0.67	2.23
3. Language	24	0.70	2.28	0.69	2.24
Mathematics Grade 3					
1. Number Sense	24	0.82	2.17	0.81	2.17
2. Algebra and Data Analysis	13	0.72	1.57	0.70	1.58
3. Measurement and Geometry	11	0.65	1.35	0.64	1.34
Mathematics Grade 4					
1. Number Sense	23	0.75	2.06	0.72	2.05
2. Algebra and Data Analysis	15	0.54	1.82	0.53	1.81
3. Measurement and Geometry	10	0.40	1.48	0.36	1.48
Mathematics Grade 5					
1. Number Sense	21	0.76	2.01	0.74	1.99
2. Algebra and Data Analysis	17	0.74	1.81	0.73	1.79
3. Measurement and Geometry	10	0.46	1.49	0.44	1.48
Mathematics Grade 6					
1. Number Sense	21	0.58	2.16	0.55	2.17
2. Algebra and Data Analysis	25	0.70	2.32	0.68	2.31
3. Measurement and Geometry	8	0.32	1.36	0.26	1.37
Mathematics Grade 7					
1. Number Sense	18	0.42	2.02	0.31	2.02
2. Algebra and Data Analysis	25	0.66	2.37	0.63	2.36
3. Measurement and Geometry	11	0.35	1.56	0.32	1.56

Subscore Area	No. of Items	Male		Female	
		Reliab.	SEM	Reliab.	SEM
Science Grade 5					
1. Physical Sciences	16	0.57	1.84	0.49	1.86
2. Life Sciences	16	0.64	1.80	0.60	1.83
3. Earth Sciences	16	0.65	1.79	0.61	1.80
Science Grade 8					
1. Motion	19	0.65	2.00	0.57	2.04
2. Matter	23	0.61	2.28	0.55	2.29
3. Earth Science	7	0.45	1.20	0.28	1.23
4. Investigation and Experimentation	5	0.37	1.03	0.29	1.03

Table 8.B.21 Subscore Reliabilities and SEM by Gender—Not Economically Disadvantaged

Subscore Area	No. of Items	Male		Female	
		Reliab.	SEM	Reliab.	SEM
ELA Grade 3					
1. Vocabulary	14	0.69	1.54	0.70	1.54
2. Reading for Understanding	17	0.73	1.83	0.75	1.80
3. Language	17	0.73	1.84	0.74	1.82
ELA Grade 4					
1. Vocabulary	11	0.66	1.45	0.65	1.42
2. Reading for Understanding	16	0.68	1.80	0.67	1.78
3. Language	21	0.69	2.15	0.69	2.12
ELA Grade 5					
1. Vocabulary	8	0.65	1.09	0.61	1.10
2. Reading for Understanding	18	0.68	1.96	0.69	1.94
3. Language	22	0.75	2.08	0.74	2.03
ELA Grade 6					
1. Vocabulary	9	0.41	1.29	0.38	1.30
2. Reading for Understanding	22	0.66	2.14	0.64	2.10
3. Language	23	0.66	2.22	0.61	2.19
ELA Grade 7					
1. Vocabulary	8	0.45	1.29	0.41	1.31
2. Reading for Understanding	22	0.76	2.09	0.76	2.07
3. Language	24	0.73	2.26	0.72	2.21
ELA Grade 8					
1. Vocabulary	6	0.59	1.01	0.57	1.00
2. Reading for Understanding	24	0.73	2.22	0.70	2.21
3. Language	24	0.73	2.25	0.72	2.21
Mathematics Grade 3					
1. Number Sense	24	0.82	2.14	0.82	2.13
2. Algebra and Data Analysis	13	0.72	1.55	0.72	1.55
3. Measurement and Geometry	11	0.64	1.32	0.65	1.30
Mathematics Grade 4					
1. Number Sense	23	0.77	2.01	0.73	2.00
2. Algebra and Data Analysis	15	0.56	1.80	0.56	1.79
3. Measurement and Geometry	10	0.41	1.47	0.37	1.47
Mathematics Grade 5					
1. Number Sense	21	0.77	1.99	0.77	1.96
2. Algebra and Data Analysis	17	0.75	1.78	0.74	1.77
3. Measurement and Geometry	10	0.49	1.48	0.46	1.47

Subscore Area	No. of Items	Male		Female	
		Reliab.	SEM	Reliab.	SEM
Mathematics Grade 6					
1. Number Sense	21	0.60	2.14	0.53	2.17
2. Algebra and Data Analysis	25	0.71	2.28	0.68	2.29
3. Measurement and Geometry	8	0.32	1.36	0.25	1.37
Mathematics Grade 7					
1. Number Sense	18	0.45	2.02	0.35	2.02
2. Algebra and Data Analysis	25	0.68	2.36	0.64	2.35
3. Measurement and Geometry	11	0.38	1.55	0.37	1.55
Science Grade 5					
1. Physical Sciences	16	0.60	1.80	0.49	1.84
2. Life Sciences	16	0.66	1.75	0.61	1.77
3. Earth Sciences	16	0.68	1.74	0.64	1.75
Science Grade 8					
1. Motion	19	0.68	1.97	0.60	2.01
2. Matter	23	0.64	2.26	0.62	2.26
3. Earth Science	7	0.50	1.18	0.31	1.21
4. Investigation and Experimentation	5	0.42	1.01	0.31	1.02

Table 8.B.22 Subscore Reliabilities and SEM by Gender—Economically Disadvantaged

Subscore Area	No. of Items	Male		Female	
		Reliab.	SEM	Reliab.	SEM
ELA Grade 3					
1. Vocabulary	14	0.69	1.64	0.68	1.63
2. Reading for Understanding	17	0.69	1.89	0.69	1.87
3. Language	17	0.71	1.89	0.71	1.87
ELA Grade 4					
1. Vocabulary	11	0.64	1.50	0.63	1.49
2. Reading for Understanding	16	0.63	1.86	0.61	1.85
3. Language	21	0.64	2.18	0.64	2.17
ELA Grade 5					
1. Vocabulary	8	0.62	1.19	0.56	1.21
2. Reading for Understanding	18	0.63	2.00	0.62	2.00
3. Language	22	0.70	2.15	0.70	2.11
ELA Grade 6					
1. Vocabulary	9	0.42	1.35	0.38	1.36
2. Reading for Understanding	22	0.61	2.19	0.59	2.16
3. Language	23	0.64	2.26	0.62	2.22
ELA Grade 7					
1. Vocabulary	8	0.43	1.33	0.38	1.33
2. Reading for Understanding	22	0.73	2.15	0.74	2.13
3. Language	24	0.69	2.30	0.68	2.28
ELA Grade 8					
1. Vocabulary	6	0.55	1.08	0.54	1.07
2. Reading for Understanding	24	0.68	2.25	0.66	2.24
3. Language	24	0.68	2.29	0.68	2.25
Mathematics Grade 3					
1. Number Sense	24	0.82	2.18	0.80	2.18
2. Algebra and Data Analysis	13	0.71	1.57	0.69	1.58
3. Measurement and Geometry	11	0.65	1.35	0.64	1.35

Subscore Area	No. of Items	Male		Female	
		Reliab.	SEM	Reliab.	SEM
Mathematics Grade 4					
1. Number Sense	23	0.74	2.08	0.71	2.06
2. Algebra and Data Analysis	15	0.53	1.82	0.52	1.82
3. Measurement and Geometry	10	0.39	1.48	0.36	1.48
Mathematics Grade 5					
1. Number Sense	21	0.75	2.02	0.74	1.99
2. Algebra and Data Analysis	17	0.73	1.82	0.73	1.79
3. Measurement and Geometry	10	0.45	1.49	0.43	1.49
Mathematics Grade 6					
1. Number Sense	21	0.57	2.16	0.55	2.17
2. Algebra and Data Analysis	25	0.70	2.33	0.67	2.31
3. Measurement and Geometry	8	0.32	1.36	0.26	1.37
Mathematics Grade 7					
1. Number Sense	18	0.40	2.02	0.29	2.02
2. Algebra and Data Analysis	25	0.65	2.38	0.62	2.36
3. Measurement and Geometry	11	0.34	1.56	0.30	1.56
Science Grade 5					
1. Physical Sciences	16	0.56	1.85	0.49	1.87
2. Life Sciences	16	0.63	1.81	0.58	1.85
3. Earth Sciences	16	0.63	1.81	0.60	1.82
Science Grade 8					
1. Motion	19	0.64	2.01	0.56	2.05
2. Matter	23	0.59	2.28	0.51	2.29
3. Earth Science	7	0.42	1.21	0.26	1.23
4. Investigation and Experimentation	5	0.34	1.03	0.27	1.03

Table 8.B.23 Subscore Reliabilities and SEM by English-language Fluency

Subscore Area	No. of Items	English Learner		English Only		I-FEP		R-FEP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
ELA Grade 3									
1. Vocabulary	14	0.68	1.65	0.70	1.59	0.68	1.57	0.67	1.46
2. Reading for Understanding	17	0.66	1.90	0.73	1.84	0.75	1.83	0.68	1.80
3. Language	17	0.70	1.89	0.73	1.86	0.74	1.85	0.80	1.70
ELA Grade 4									
1. Vocabulary	11	0.63	1.50	0.66	1.47	0.71	1.42	0.77	1.40
2. Reading for Understanding	16	0.60	1.87	0.67	1.82	0.68	1.80	0.67	1.82
3. Language	21	0.62	2.18	0.68	2.16	0.71	2.14	0.73	2.12
ELA Grade 5									
1. Vocabulary	8	0.57	1.23	0.64	1.13	0.63	1.13	0.62	1.09
2. Reading for Understanding	18	0.59	2.01	0.67	1.97	0.68	1.96	0.71	1.94
3. Language	22	0.68	2.15	0.74	2.10	0.74	2.07	0.79	1.97
ELA Grade 6									
1. Vocabulary	9	0.37	1.37	0.43	1.32	0.39	1.30	0.41	1.29
2. Reading for Understanding	22	0.58	2.19	0.65	2.16	0.64	2.14	0.65	2.12
3. Language	23	0.63	2.25	0.65	2.23	0.64	2.20	0.62	2.18
ELA Grade 7									
1. Vocabulary	8	0.39	1.33	0.44	1.31	0.45	1.30	0.42	1.28
2. Reading for Understanding	22	0.71	2.17	0.76	2.11	0.75	2.11	0.75	2.07
3. Language	24	0.68	2.30	0.72	2.27	0.71	2.28	0.72	2.20

Subscore Area	No. of Items	English Learner		English Only		I-FEP		R-FEP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
ELA Grade 8									
1. Vocabulary	6	0.51	1.10	0.58	1.03	0.53	1.05	0.59	0.99
2. Reading for Understanding	24	0.64	2.26	0.70	2.23	0.72	2.22	0.73	2.18
3. Language	24	0.66	2.28	0.72	2.25	0.67	2.28	0.73	2.19
Mathematics Grade 3									
1. Number Sense	24	0.81	2.17	0.82	2.17	0.80	2.14	0.91	1.93
2. Algebra and Data Analysis	13	0.70	1.58	0.72	1.56	0.72	1.54	0.81	1.47
3. Measurement and Geometry	11	0.64	1.35	0.65	1.34	0.64	1.28	0.64	1.29
Mathematics Grade 4									
1. Number Sense	23	0.73	2.06	0.75	2.05	0.70	2.02	0.76	2.00
2. Algebra and Data Analysis	15	0.53	1.82	0.54	1.81	0.55	1.79	0.62	1.79
3. Measurement and Geometry	10	0.38	1.48	0.39	1.48	0.32	1.48	0.46	1.45
Mathematics Grade 5									
1. Number Sense	21	0.74	2.00	0.76	2.02	0.74	1.98	0.75	1.94
2. Algebra and Data Analysis	17	0.73	1.80	0.74	1.81	0.75	1.74	0.75	1.73
3. Measurement and Geometry	10	0.43	1.49	0.47	1.49	0.53	1.46	0.56	1.44
Mathematics Grade 6									
1. Number Sense	21	0.57	2.16	0.56	2.16	0.58	2.13	0.62	2.13
2. Algebra and Data Analysis	25	0.68	2.32	0.70	2.31	0.71	2.27	0.72	2.22
3. Measurement and Geometry	8	0.30	1.36	0.30	1.36	0.34	1.36	0.36	1.34
Mathematics Grade 7									
1. Number Sense	18	0.37	2.02	0.39	2.03	0.35	2.02	0.44	2.01
2. Algebra and Data Analysis	25	0.64	2.37	0.65	2.37	0.66	2.36	0.68	2.34
3. Measurement and Geometry	11	0.31	1.56	0.36	1.56	0.30	1.57	0.34	1.55
Science Grade 5									
1. Physical Sciences	16	0.52	1.87	0.56	1.83	0.59	1.81	0.58	1.81
2. Life Sciences	16	0.58	1.85	0.65	1.78	0.64	1.75	0.62	1.79
3. Earth Sciences	16	0.60	1.82	0.66	1.78	0.66	1.73	0.72	1.68
Science Grade 8									
1. Motion	19	0.58	2.04	0.65	2.00	0.57	2.03	0.60	1.98
2. Matter	23	0.52	2.29	0.62	2.27	0.57	2.29	0.60	2.26
3. Earth Science	7	0.35	1.23	0.43	1.21	0.30	1.24	0.41	1.19
4. Investigation and Experimentation	5	0.30	1.03	0.36	1.02	0.26	1.05	0.34	1.00

Table 8.B.24 Subscore Reliabilities and SEM by Ethnicity

Subscore Area	No. of Items	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
ELA Grade 3															
1. Vocabulary	14	0.68	1.64	0.70	1.61	0.70	1.59	0.69	1.54	0.68	1.64	0.75	1.60	0.70	1.55
2. Reading for Understanding	17	0.70	1.88	0.73	1.87	0.68	1.89	0.70	1.86	0.69	1.88	0.75	1.85	0.74	1.82
3. Language	17	0.72	1.88	0.73	1.87	0.74	1.85	0.69	1.87	0.71	1.88	0.74	1.89	0.74	1.84
ELA Grade 4															
1. Vocabulary	11	0.64	1.50	0.67	1.45	0.68	1.46	0.63	1.47	0.64	1.49	0.57	1.51	0.66	1.44
2. Reading for Understanding	16	0.63	1.86	0.70	1.80	0.65	1.84	0.59	1.85	0.62	1.86	0.60	1.86	0.69	1.79
3. Language	21	0.65	2.17	0.66	2.18	0.65	2.16	0.56	2.16	0.65	2.18	0.65	2.17	0.69	2.14
ELA Grade 5															
1. Vocabulary	8	0.62	1.19	0.70	1.11	0.60	1.17	0.51	1.13	0.60	1.20	0.57	1.13	0.65	1.08
2. Reading for Understanding	18	0.63	2.00	0.63	2.00	0.62	2.00	0.62	1.99	0.63	2.00	0.56	2.00	0.69	1.95
3. Language	22	0.71	2.14	0.75	2.10	0.73	2.07	0.73	2.07	0.70	2.13	0.72	2.06	0.75	2.07
ELA Grade 6															
1. Vocabulary	9	0.46	1.33	0.32	1.34	0.39	1.34	0.43	1.32	0.39	1.36	0.51	1.30	0.41	1.29
2. Reading for Understanding	22	0.63	2.18	0.57	2.18	0.62	2.16	0.60	2.17	0.61	2.18	0.68	2.14	0.66	2.14
3. Language	23	0.65	2.25	0.64	2.25	0.63	2.21	0.56	2.20	0.64	2.24	0.61	2.25	0.65	2.22
ELA Grade 7															
1. Vocabulary	8	0.40	1.33	0.43	1.32	0.36	1.33	0.34	1.33	0.41	1.33	0.46	1.29	0.47	1.29
2. Reading for Understanding	22	0.72	2.16	0.76	2.13	0.73	2.14	0.75	2.12	0.73	2.15	0.73	2.11	0.77	2.06
3. Language	24	0.69	2.30	0.72	2.27	0.71	2.23	0.71	2.23	0.70	2.29	0.80	2.21	0.73	2.25
ELA Grade 8															
1. Vocabulary	6	0.55	1.07	0.56	1.04	0.50	1.10	0.57	1.07	0.54	1.08	0.41	1.09	0.60	1.00
2. Reading for Understanding	24	0.67	2.25	0.71	2.24	0.68	2.24	0.67	2.24	0.67	2.25	0.66	2.22	0.73	2.21
3. Language	24	0.69	2.28	0.75	2.24	0.68	2.25	0.62	2.25	0.68	2.27	0.65	2.23	0.74	2.24
Mathematics Grade 3															
1. Number Sense	24	0.80	2.21	0.83	2.17	0.84	2.12	0.79	2.16	0.82	2.17	0.84	2.15	0.81	2.16
2. Algebra and Data Analysis	13	0.70	1.62	0.70	1.55	0.75	1.56	0.72	1.57	0.70	1.58	0.75	1.57	0.72	1.53
3. Measurement and Geometry	11	0.65	1.38	0.63	1.27	0.69	1.34	0.60	1.38	0.64	1.35	0.65	1.33	0.66	1.30
Mathematics Grade 4															
1. Number Sense	23	0.73	2.12	0.73	2.08	0.78	2.00	0.80	1.98	0.73	2.06	0.70	2.10	0.75	2.01
2. Algebra and Data Analysis	15	0.50	1.84	0.52	1.82	0.60	1.79	0.46	1.82	0.53	1.82	0.47	1.85	0.56	1.79
3. Measurement and Geometry	10	0.35	1.49	0.26	1.49	0.41	1.46	0.41	1.46	0.38	1.48	0.39	1.47	0.41	1.47
Mathematics Grade 5															
1. Number Sense	21	0.74	2.05	0.76	2.03	0.78	1.92	0.78	1.93	0.75	2.00	0.77	1.95	0.76	2.00
2. Algebra and Data Analysis	17	0.72	1.85	0.71	1.82	0.77	1.75	0.79	1.74	0.73	1.80	0.74	1.77	0.74	1.78
3. Measurement and Geometry	10	0.45	1.49	0.51	1.47	0.49	1.47	0.47	1.46	0.45	1.49	0.50	1.46	0.47	1.48
Mathematics Grade 6															
1. Number Sense	21	0.52	2.19	0.48	2.17	0.59	2.15	0.56	2.18	0.57	2.16	0.64	2.15	0.57	2.14
2. Algebra and Data Analysis	25	0.68	2.34	0.70	2.31	0.73	2.26	0.68	2.31	0.69	2.32	0.70	2.32	0.70	2.29

Subscore Area	No. of Items	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
3. Measurement and Geometry	8	0.26	1.37	0.38	1.35	0.27	1.37	0.38	1.35	0.30	1.36	0.41	1.35	0.32	1.36
Mathematics Grade 7															
1. Number Sense	18	0.35	2.03	0.22	2.02	0.41	2.02	0.45	2.01	0.38	2.02	0.52	2.02	0.41	2.03
2. Algebra and Data Analysis	25	0.60	2.38	0.63	2.38	0.70	2.34	0.65	2.34	0.64	2.38	0.55	2.41	0.68	2.36
3. Measurement and Geometry	11	0.24	1.57	0.29	1.57	0.36	1.56	0.36	1.56	0.32	1.56	0.45	1.55	0.40	1.55
Science Grade 5															
1. Physical Sciences	16	0.52	1.88	0.53	1.83	0.61	1.83	0.58	1.83	0.53	1.86	0.42	1.89	0.58	1.80
2. Life Sciences	16	0.63	1.84	0.64	1.77	0.66	1.81	0.61	1.80	0.60	1.83	0.61	1.82	0.65	1.73
3. Earth Sciences	16	0.63	1.85	0.63	1.78	0.65	1.77	0.61	1.79	0.62	1.81	0.66	1.78	0.66	1.74
Science Grade 8															
1. Motion	19	0.61	2.04	0.66	1.97	0.65	2.01	0.63	2.01	0.61	2.03	0.61	2.02	0.68	1.97
2. Matter	23	0.57	2.29	0.66	2.26	0.62	2.27	0.65	2.24	0.56	2.29	0.54	2.31	0.64	2.26
3. Earth Science	7	0.39	1.23	0.52	1.17	0.39	1.20	0.48	1.18	0.37	1.22	0.45	1.19	0.47	1.19
4. Investigation and Experimentation	5	0.32	1.04	0.44	1.00	0.29	1.02	0.32	1.01	0.32	1.03	0.38	1.01	0.40	1.01

Table 8.B.25 Subscore Reliabilities and SEM by Ethnicity—Not Economically Disadvantaged

Subscore Area	No. of Items	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
ELA Grade 3															
1. Vocabulary	14	0.70	1.60	0.70	1.67	0.71	1.53	0.60	1.54	0.68	1.57	0.68	1.52	0.71	1.51
2. Reading for Understanding	17	0.72	1.85	0.73	1.87	0.71	1.86	0.71	1.85	0.73	1.84	0.81	1.79	0.74	1.79
3. Language	17	0.74	1.85	0.72	1.87	0.76	1.83	0.69	1.86	0.73	1.85	0.69	1.85	0.74	1.81
ELA Grade 4															
1. Vocabulary	11	0.66	1.47	0.66	1.46	0.67	1.42	0.60	1.47	0.66	1.45	0.60	1.50	0.65	1.42
2. Reading for Understanding	16	0.67	1.83	0.78	1.76	0.65	1.81	0.58	1.85	0.66	1.82	0.62	1.84	0.69	1.77
3. Language	21	0.68	2.16	0.66	2.19	0.62	2.13	0.60	2.15	0.70	2.14	0.72	2.10	0.69	2.13
ELA Grade 5															
1. Vocabulary	8	0.67	1.14	0.75	0.99	0.59	1.15	0.55	1.12	0.61	1.13	0.66	1.03	0.64	1.05
2. Reading for Understanding	18	0.64	1.99	0.59	1.98	0.64	1.99	0.65	1.98	0.67	1.97	0.68	1.98	0.69	1.93
3. Language	22	0.75	2.11	0.76	2.06	0.74	2.04	0.71	2.08	0.74	2.08	0.69	2.04	0.76	2.04
ELA Grade 6															
1. Vocabulary	9	0.48	1.30	0.27	1.31	0.41	1.30	0.42	1.31	0.39	1.32	0.57	1.31	0.37	1.27
2. Reading for Understanding	22	0.64	2.16	0.59	2.16	0.67	2.13	0.56	2.17	0.66	2.15	0.67	2.13	0.66	2.11
3. Language	23	0.63	2.24	0.67	2.24	0.65	2.17	0.50	2.21	0.65	2.22	0.64	2.17	0.64	2.20
ELA Grade 7															
1. Vocabulary	8	0.39	1.32	0.51	1.30	0.32	1.33	0.31	1.33	0.42	1.31	0.52	1.30	0.47	1.28
2. Reading for Understanding	22	0.74	2.12	0.77	2.11	0.73	2.13	0.72	2.12	0.75	2.11	0.72	2.09	0.76	2.05
3. Language	24	0.72	2.27	0.70	2.27	0.70	2.21	0.69	2.23	0.73	2.26	0.80	2.20	0.73	2.23
ELA Grade 8															
1. Vocabulary	6	0.57	1.05	0.58	1.00	0.48	1.09	0.59	1.04	0.56	1.04	0.49	1.03	0.60	0.97

Subscore Area	No. of Items	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
2. Reading for Understanding	24	0.69	2.24	0.74	2.23	0.70	2.22	0.72	2.22	0.69	2.23	0.76	2.10	0.73	2.19
3. Language	24	0.68	2.27	0.73	2.26	0.68	2.21	0.68	2.22	0.72	2.25	0.71	2.14	0.74	2.22
Mathematics Grade 3															
1. Number Sense	24	0.83	2.16	0.81	2.19	0.84	2.10	0.78	2.16	0.83	2.13	0.85	2.11	0.81	2.14
2. Algebra and Data Analysis	13	0.68	1.62	0.70	1.58	0.75	1.55	0.73	1.54	0.72	1.56	0.70	1.57	0.72	1.53
3. Measurement and Geometry	11	0.69	1.34	0.67	1.30	0.67	1.33	0.45	1.40	0.62	1.34	0.61	1.29	0.67	1.28
Mathematics Grade 4															
1. Number Sense	23	0.74	2.08	0.74	2.00	0.78	1.96	0.82	1.95	0.74	2.02	0.67	2.13	0.75	1.98
2. Algebra and Data Analysis	15	0.51	1.82	0.37	1.83	0.62	1.77	0.41	1.82	0.56	1.80	0.51	1.84	0.55	1.79
3. Measurement and Geometry	10	0.38	1.49	0.32	1.47	0.44	1.45	0.41	1.47	0.38	1.48	0.10	1.55	0.41	1.46
Mathematics Grade 5															
1. Number Sense	21	0.78	2.02	0.74	2.02	0.78	1.87	0.78	1.94	0.76	1.98	0.77	1.99	0.77	1.97
2. Algebra and Data Analysis	17	0.74	1.83	0.78	1.76	0.77	1.74	0.78	1.77	0.73	1.78	0.76	1.77	0.75	1.76
3. Measurement and Geometry	10	0.47	1.49	0.47	1.47	0.51	1.45	0.48	1.47	0.48	1.48	0.45	1.47	0.49	1.47
Mathematics Grade 6															
1. Number Sense	21	0.56	2.18	0.57	2.13	0.58	2.16	0.54	2.18	0.56	2.16	0.69	2.10	0.57	2.14
2. Algebra and Data Analysis	25	0.71	2.31	0.76	2.23	0.73	2.24	0.69	2.29	0.69	2.30	0.67	2.32	0.70	2.27
3. Measurement and Geometry	8	0.23	1.37	0.39	1.34	0.35	1.36	0.39	1.34	0.26	1.37	0.47	1.33	0.32	1.36
Mathematics Grade 7															
1. Number Sense	18	0.41	2.02	0.35	2.03	0.46	2.03	0.50	2.00	0.42	2.01	0.56	2.02	0.42	2.03
2. Algebra and Data Analysis	25	0.63	2.37	0.62	2.40	0.69	2.33	0.67	2.33	0.67	2.37	0.35	2.44	0.67	2.35
3. Measurement and Geometry	11	0.22	1.57	0.53	1.53	0.32	1.57	0.41	1.54	0.33	1.56	0.38	1.56	0.42	1.54
Science Grade 5															
1. Physical Sciences	16	0.55	1.86	0.46	1.83	0.59	1.82	0.57	1.85	0.54	1.83	0.44	1.85	0.58	1.78
2. Life Sciences	16	0.66	1.82	0.59	1.75	0.68	1.77	0.58	1.83	0.62	1.78	0.60	1.78	0.66	1.71
3. Earth Sciences	16	0.67	1.82	0.68	1.76	0.68	1.73	0.61	1.81	0.63	1.77	0.70	1.74	0.68	1.71
Science Grade 8															
1. Motion	19	0.61	2.04	0.64	1.99	0.64	1.98	0.69	1.97	0.62	2.01	0.63	2.01	0.69	1.95
2. Matter	23	0.60	2.29	0.66	2.26	0.66	2.25	0.66	2.22	0.61	2.28	0.27	2.30	0.64	2.25
3. Earth Science	7	0.37	1.22	0.61	1.14	0.34	1.19	0.51	1.16	0.41	1.20	0.13	1.19	0.49	1.17
4. Investigation and Experimentation	5	0.36	1.03	0.41	1.01	0.36	1.00	0.31	1.00	0.34	1.03	0.06	1.10	0.42	0.99

Table 8.B.26 Subscore Reliabilities and SEM by Ethnicity—Economically Disadvantaged

Subscore Area	No. of Items	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
ELA Grade 3															
1. Vocabulary	14	0.68	1.65	0.71	1.59	0.69	1.63	0.77	1.52	0.68	1.64	0.74	1.66	0.69	1.59
2. Reading for Understanding	17	0.68	1.89	0.73	1.86	0.66	1.90	0.71	1.87	0.68	1.89	0.68	1.89	0.73	1.84
3. Language	17	0.72	1.89	0.74	1.87	0.73	1.86	0.64	1.89	0.70	1.89	0.71	1.92	0.73	1.85
ELA Grade 4															
1. Vocabulary	11	0.63	1.51	0.66	1.46	0.66	1.49	0.68	1.46	0.63	1.50	0.57	1.52	0.66	1.46
2. Reading for Understanding	16	0.62	1.86	0.66	1.82	0.63	1.86	0.61	1.85	0.61	1.86	0.60	1.87	0.68	1.81
3. Language	21	0.64	2.18	0.66	2.17	0.63	2.17	0.47	2.19	0.63	2.18	0.63	2.19	0.68	2.16
ELA Grade 5															
1. Vocabulary	8	0.61	1.20	0.67	1.15	0.61	1.18	0.43	1.14	0.59	1.21	0.52	1.16	0.64	1.12
2. Reading for Understanding	18	0.62	2.00	0.62	2.00	0.60	2.00	0.56	2.01	0.62	2.00	0.46	2.02	0.68	1.96
3. Language	22	0.69	2.15	0.75	2.11	0.71	2.10	0.76	2.07	0.69	2.14	0.74	2.07	0.74	2.10
ELA Grade 6															
1. Vocabulary	9	0.45	1.34	0.33	1.35	0.37	1.35	0.45	1.34	0.39	1.36	0.48	1.30	0.42	1.32
2. Reading for Understanding	22	0.62	2.18	0.57	2.18	0.57	2.18	0.64	2.17	0.60	2.18	0.68	2.14	0.65	2.16
3. Language	23	0.65	2.25	0.64	2.25	0.61	2.23	0.62	2.19	0.64	2.25	0.60	2.27	0.65	2.24
ELA Grade 7															
1. Vocabulary	8	0.39	1.34	0.39	1.32	0.39	1.32	0.36	1.33	0.40	1.33	0.44	1.27	0.46	1.30
2. Reading for Understanding	22	0.71	2.17	0.75	2.13	0.73	2.15	0.79	2.11	0.72	2.16	0.74	2.12	0.77	2.08
3. Language	24	0.68	2.31	0.73	2.27	0.71	2.25	0.73	2.23	0.69	2.30	0.80	2.22	0.72	2.28
ELA Grade 8															
1. Vocabulary	6	0.54	1.08	0.54	1.05	0.50	1.11	0.53	1.10	0.54	1.09	0.34	1.14	0.60	1.03
2. Reading for Understanding	24	0.66	2.25	0.70	2.24	0.67	2.25	0.57	2.27	0.66	2.25	0.60	2.29	0.71	2.22
3. Language	24	0.69	2.28	0.76	2.24	0.67	2.26	0.51	2.29	0.67	2.28	0.62	2.28	0.73	2.26
Mathematics Grade 3															
1. Number Sense	24	0.80	2.22	0.84	2.17	0.84	2.15	0.78	2.19	0.81	2.18	0.82	2.18	0.80	2.19
2. Algebra and Data Analysis	13	0.70	1.62	0.72	1.53	0.74	1.57	0.72	1.59	0.70	1.58	0.76	1.59	0.73	1.54
3. Measurement and Geometry	11	0.65	1.39	0.63	1.27	0.69	1.36	0.72	1.36	0.65	1.35	0.64	1.39	0.65	1.32
Mathematics Grade 4															
1. Number Sense	23	0.72	2.12	0.71	2.10	0.78	2.02	0.77	2.03	0.73	2.07	0.71	2.09	0.75	2.05
2. Algebra and Data Analysis	15	0.49	1.84	0.54	1.82	0.58	1.81	0.53	1.82	0.52	1.82	0.46	1.86	0.55	1.80
3. Measurement and Geometry	10	0.34	1.49	0.18	1.50	0.40	1.47	0.43	1.46	0.38	1.48	0.45	1.45	0.41	1.47
Mathematics Grade 5															
1. Number Sense	21	0.73	2.06	0.76	2.04	0.77	1.95	0.77	1.92	0.74	2.01	0.77	1.94	0.75	2.02
2. Algebra and Data Analysis	17	0.71	1.86	0.68	1.84	0.78	1.76	0.79	1.70	0.73	1.80	0.74	1.78	0.73	1.80
3. Measurement and Geometry	10	0.44	1.50	0.51	1.48	0.47	1.48	0.45	1.44	0.44	1.49	0.53	1.46	0.44	1.49
Mathematics Grade 6															
1. Number Sense	21	0.51	2.19	0.45	2.19	0.60	2.15	0.58	2.17	0.58	2.16	0.63	2.16	0.57	2.15
2. Algebra and Data	25	0.67	2.35	0.68	2.33	0.73	2.27	0.66	2.32	0.69	2.32	0.72	2.32	0.70	2.31

Subscore Area	No. of Items	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Analysis															
3. Measurement and Geometry	8	0.26	1.37	0.37	1.36	0.22	1.38	0.35	1.36	0.30	1.36	0.38	1.36	0.31	1.36
Mathematics Grade 7															
1. Number Sense	18	0.32	2.03	0.17	2.02	0.37	2.02	0.37	2.03	0.37	2.02	0.49	2.03	0.39	2.03
2. Algebra and Data Analysis	25	0.59	2.38	0.63	2.37	0.70	2.35	0.63	2.34	0.63	2.38	0.61	2.40	0.67	2.36
3. Measurement and Geometry	11	0.25	1.57	0.15	1.58	0.38	1.55	0.30	1.57	0.31	1.56	0.48	1.54	0.39	1.55
Science Grade 5															
1. Physical Sciences	16	0.51	1.88	0.55	1.83	0.61	1.84	0.59	1.81	0.53	1.86	0.42	1.90	0.58	1.81
2. Life Sciences	16	0.62	1.85	0.65	1.78	0.64	1.83	0.61	1.76	0.60	1.84	0.59	1.85	0.63	1.75
3. Earth Sciences	16	0.61	1.85	0.60	1.79	0.62	1.80	0.61	1.76	0.61	1.81	0.64	1.80	0.64	1.77
Science Grade 8															
1. Motion	19	0.61	2.03	0.68	1.96	0.65	2.03	0.45	2.06	0.60	2.03	0.54	2.05	0.66	1.99
2. Matter	23	0.56	2.29	0.65	2.25	0.58	2.27	0.59	2.27	0.54	2.29	0.59	2.30	0.63	2.27
3. Earth Science	7	0.39	1.23	0.48	1.18	0.40	1.21	0.44	1.18	0.35	1.22	0.53	1.19	0.44	1.21
4. Investigation and Experimentation	5	0.31	1.04	0.45	0.99	0.25	1.03	0.28	1.03	0.31	1.03	0.51	0.96	0.37	1.02

Table 8.B.27 Subscore Reliabilities and SEM by Economic Status

Subscore Area	No. of Items	Economically Disadvantaged		Not Economically Disadvantaged		Unknown Economic Status	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
ELA Grade 3							
1. Vocabulary	14	0.68	1.64	0.70	1.54	0.68	1.59
2. Reading for Understanding	17	0.69	1.88	0.74	1.82	0.74	1.84
3. Language	17	0.71	1.89	0.73	1.83	0.73	1.85
ELA Grade 4							
1. Vocabulary	11	0.64	1.50	0.65	1.44	0.73	1.48
2. Reading for Understanding	16	0.63	1.86	0.68	1.80	0.73	1.82
3. Language	21	0.64	2.18	0.69	2.14	0.70	2.17
ELA Grade 5							
1. Vocabulary	8	0.60	1.20	0.64	1.09	0.71	1.14
2. Reading for Understanding	18	0.63	2.00	0.68	1.96	0.70	1.97
3. Language	22	0.70	2.14	0.75	2.06	0.79	2.08
ELA Grade 6							
1. Vocabulary	9	0.41	1.35	0.40	1.30	0.45	1.36
2. Reading for Understanding	22	0.61	2.18	0.66	2.13	0.68	2.18
3. Language	23	0.64	2.25	0.65	2.21	0.72	2.23
ELA Grade 7							
1. Vocabulary	8	0.41	1.33	0.44	1.30	0.36	1.35
2. Reading for Understanding	22	0.73	2.15	0.76	2.08	0.64	2.21
3. Language	24	0.69	2.30	0.73	2.24	0.66	2.33
ELA Grade 8							
1. Vocabulary	6	0.55	1.08	0.58	1.01	0.57	1.06
2. Reading for Understanding	24	0.67	2.25	0.72	2.22	0.72	2.24
3. Language	24	0.69	2.28	0.73	2.23	0.7	2.27

Subscore Area	No. of Items	Economically Disadvantaged		Not Economically Disadvantaged		Unknown Economic Status	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Mathematics Grade 3							
1. Number Sense	24	0.81	2.18	0.82	2.14	0.82	2.16
2. Algebra and Data Analysis	13	0.71	1.58	0.72	1.55	0.71	1.56
3. Measurement & Geometry	11	0.65	1.35	0.65	1.32	0.62	1.33
Mathematics Grade 4							
1. Number Sense	23	0.73	2.07	0.76	2.01	0.75	2.12
2. Algebra and Data Analysis	15	0.53	1.82	0.56	1.80	0.61	1.82
3. Measurement and Geometry	10	0.38	1.48	0.40	1.47	0.29	1.49
Mathematics Grade 5							
1. Number Sense	21	0.75	2.01	0.77	1.98	0.71	2.08
2. Algebra and Data Analysis	17	0.73	1.81	0.75	1.78	0.72	1.89
3. Measurement and Geometry	10	0.45	1.49	0.48	1.48	0.39	1.51
Mathematics Grade 6							
1. Number Sense	21	0.57	2.16	0.57	2.15	0.68	2.13
2. Algebra and Data Analysis	25	0.69	2.32	0.70	2.29	0.75	2.32
3. Measurement and Geometry	8	0.30	1.36	0.30	1.36	0.41	1.33
Mathematics Grade 7							
1. Number Sense	18	0.37	2.02	0.42	2.02	0.32	2.03
2. Algebra and Data Analysis	25	0.64	2.37	0.67	2.36	0.47	2.40
3. Measurement and Geometry	11	0.33	1.56	0.37	1.55	0.27	1.57
Science Grade 5							
1. Physical Sciences	16	0.54	1.86	0.57	1.81	0.52	1.88
2. Life Sciences	16	0.61	1.83	0.65	1.76	0.57	1.87
3. Earth Sciences	16	0.62	1.81	0.67	1.75	0.66	1.83
Science Grade 8							
1. Motion	19	0.61	2.03	0.66	1.98	0.66	2.02
2. Matter	23	0.56	2.29	0.63	2.26	0.63	2.28
3. Earth Science	7	0.38	1.22	0.45	1.19	0.41	1.21
4. Investigation and Experimentation	5	0.32	1.03	0.39	1.01	0.37	1.02

Table 8.B.28 Subscore Reliabilities and SEM by Disability

		Autism		Deafness		Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disability	
Subscore Area	**No. of Items**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**
ELA Grade 3													
1. Vocabulary	14	0.71	1.56	0.50	1.77	0.74	1.58	0.63	1.64	0.59	1.76	0.62	1.72
2. Reading for Understanding	17	0.71	1.87	0.48	1.93	0.74	1.84	0.64	1.92	0.54	1.93	0.64	1.94
3. Language	17	0.73	1.86	0.58	1.93	0.77	1.85	0.64	1.89	0.56	1.94	0.24	2.01
ELA Grade 4													
1. Vocabulary	11	0.65	1.49	0.37	1.59	0.73	1.42	0.66	1.49	0.47	1.57	0.54	1.57
2. Reading for Understanding	16	0.63	1.86	0.52	1.88	0.72	1.81	0.54	1.86	0.45	1.91	0.52	1.89
3. Language	21	0.65	2.16	0.51	2.17	0.71	2.15	0.58	2.18	0.47	2.18	0.51	2.19
ELA Grade 5													
1. Vocabulary	8	0.63	1.18	0.41	1.34	0.69	1.12	0.57	1.22	0.48	1.32	0.56	1.28
2. Reading for Understanding	18	0.64	1.99	0.36	2.02	0.70	1.96	0.60	2.00	0.40	2.01	0.62	1.99
3. Language	22	0.75	2.09	0.71	2.17	0.76	2.11	0.69	2.10	0.54	2.23	0.67	2.17
ELA Grade 6													
1. Vocabulary	9	0.44	1.36	0.33	1.42	0.37	1.33	0.45	1.32	0.28	1.44	0.46	1.33
2. Reading for Understanding	22	0.64	2.19	0.57	2.20	0.66	2.16	0.57	2.19	0.52	2.23	0.68	2.17
3. Language	23	0.68	2.20	0.63	2.26	0.71	2.22	0.66	2.20	0.57	2.29	0.71	2.23
ELA Grade 7													
1. Vocabulary	8	0.43	1.32	0.34	1.35	0.52	1.28	0.24	1.36	0.20	1.36	0.50	1.31
2. Reading for Understanding	22	0.75	2.15	0.57	2.20	0.79	2.08	0.76	2.12	0.52	2.22	0.81	2.11
3. Language	24	0.72	2.24	0.71	2.28	0.75	2.27	0.72	2.23	0.54	2.34	0.74	2.28
ELA Grade 8													
1. Vocabulary	6	0.61	1.06	0.32	1.16	0.63	1.00	0.52	1.11	0.31	1.16	0.55	1.11
2. Reading for Understanding	24	0.73	2.25	0.58	2.31	0.76	2.21	0.74	2.23	0.38	2.31	0.48	2.31
3. Language	24	0.72	2.23	0.57	2.30	0.77	2.24	0.71	2.23	0.43	2.32	0.75	2.26
Mathematics Grade 3													
1. Number Sense	24	0.82	2.17	0.80	2.18	0.83	2.20	0.83	2.08	0.64	2.29	0.78	2.17
2. Algebra and Data Analysis	13	0.73	1.58	0.71	1.57	0.71	1.61	0.73	1.54	0.61	1.68	0.58	1.70
3. Measurement and Geometry	11	0.68	1.35	0.68	1.41	0.69	1.39	0.67	1.32	0.61	1.51	0.73	1.43
Mathematics Grade 4													
1. Number Sense	23	0.78	2.07	0.72	2.14	0.75	2.13	0.68	2.02	0.59	2.27	0.78	2.14
2. Algebra and Data Analysis	15	0.58	1.81	0.58	1.83	0.54	1.83	0.52	1.80	0.32	1.83	0.48	1.82
3. Measurement and Geometry	10	0.35	1.49	0.45	1.44	0.41	1.49	0.40	1.47	0.30	1.49	-0.06	1.57
Mathematics Grade 5													
1. Number Sense	21	0.79	2.01	0.78	1.99	0.73	2.09	0.75	1.98	0.66	2.14	0.78	2.05
2. Algebra and Data Analysis	17	0.75	1.83	0.72	1.84	0.74	1.85	0.77	1.78	0.56	1.95	0.73	1.87
3. Measurement and Geometry	10	0.49	1.49	0.63	1.42	0.47	1.49	0.45	1.48	0.29	1.51	0.22	1.55

		Autism		Deafness		Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disability	
Subscore Area	**No. of Items**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**
Mathematics Grade 6													
1. Number Sense	21	0.60	2.16	0.67	2.14	0.60	2.16	0.58	2.16	0.44	2.20	0.66	2.15
2. Algebra and Data Analysis	25	0.72	2.30	0.72	2.31	0.68	2.34	0.69	2.25	0.56	2.39	0.67	2.37
3. Measurement and Geometry	8	0.38	1.35	0.33	1.35	0.27	1.36	0.26	1.36	0.28	1.33	0.43	1.32
Mathematics Grade 7													
1. Number Sense	18	0.46	2.03	0.28	2.02	0.42	2.03	0.33	2.01	0.26	2.03	0.46	2.03
2. Algebra and Data Analysis	25	0.66	2.35	0.64	2.34	0.64	2.38	0.65	2.36	0.42	2.36	0.66	2.36
3. Measurement and Geometry	11	0.37	1.56	0.38	1.53	0.34	1.57	0.29	1.57	0.06	1.56	0.42	1.58
Science Grade 5													
1. Physical Sciences	16	0.56	1.86	0.51	1.91	0.61	1.83	0.45	1.88	0.46	1.90	0.51	1.91
2. Life Sciences	16	0.68	1.80	0.46	1.90	0.71	1.77	0.59	1.86	0.54	1.90	0.55	1.89
3. Earth Sciences	16	0.67	1.78	0.57	1.84	0.71	1.80	0.62	1.80	0.48	1.90	0.68	1.85
Science Grade 8													
1. Motion	19	0.69	2.01	0.58	2.06	0.68	2.00	0.68	2.01	0.44	2.08	0.52	2.07
2. Matter	23	0.63	2.27	0.55	2.25	0.67	2.26	0.56	2.29	0.39	2.30	0.62	2.25
3. Earth Science	7	0.49	1.18	0.19	1.23	0.49	1.21	0.18	1.24	0.07	1.28	0.48	1.18
4. Investigation and Experimentation	5	0.39	1.02	0.25	1.03	0.43	1.03	0.40	0.99	0.15	1.05	0.07	1.10

Table 8.B.29 Subscore Reliabilities and SEM by Disability (continued)

		Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
Subscore Area	**No. of Items**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**
ELA Grade 3													
1. Vocabulary	14	0.74	1.63	0.74	1.55	0.67	1.63	0.69	1.59	0.64	1.68	0.78	1.58
2. Reading for Understanding	17	0.75	1.86	0.73	1.84	0.71	1.87	0.68	1.87	0.78	1.83	0.73	1.87
3. Language	17	0.76	1.86	0.74	1.84	0.71	1.88	0.72	1.85	0.72	1.89	0.81	1.78
ELA Grade 4													
1. Vocabulary	11	0.63	1.49	0.66	1.44	0.65	1.49	0.63	1.48	0.72	1.47	0.71	1.41
2. Reading for Understanding	16	0.71	1.82	0.68	1.81	0.65	1.84	0.61	1.84	0.70	1.82	0.60	1.82
3. Language	21	0.69	2.15	0.70	2.15	0.66	2.17	0.65	2.16	0.72	2.16	0.73	2.13
ELA Grade 5													
1. Vocabulary	8	0.63	1.17	0.64	1.09	0.61	1.18	0.57	1.19	0.38	1.25	0.52	1.22
2. Reading for Understanding	18	0.59	2.02	0.66	1.97	0.65	1.99	0.61	2.00	0.62	2.01	0.72	1.95
3. Language	22	0.73	2.12	0.73	2.09	0.72	2.12	0.70	2.11	0.68	2.14	0.78	2.09
ELA Grade 6													
1. Vocabulary	9	0.58	1.32	0.37	1.30	0.41	1.33	0.37	1.35	0.38	1.40	0.54	1.29
2. Reading for Understanding	22	0.67	2.18	0.65	2.14	0.62	2.17	0.59	2.17	0.61	2.20	0.66	2.21
3. Language	23	0.62	2.23	0.66	2.20	0.64	2.24	0.63	2.22	0.66	2.26	0.60	2.27

		Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
Subscore Area	**No. of Items**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**
ELA Grade 7													
1. Vocabulary	8	0.54	1.30	0.46	1.29	0.41	1.32	0.37	1.33	0.60	1.28	0.34	1.35
2. Reading for Understanding	22	0.74	2.16	0.76	2.09	0.74	2.13	0.69	2.16	0.76	2.15	0.76	2.10
3. Language	24	0.70	2.29	0.72	2.26	0.70	2.29	0.70	2.26	0.58	2.30	0.77	2.24
ELA Grade 8													
1. Vocabulary	6	0.56	1.05	0.58	1.01	0.55	1.06	0.50	1.10	0.48	1.11	0.59	1.02
2. Reading for Understanding	24	0.68	2.25	0.72	2.21	0.68	2.24	0.64	2.26	0.57	2.30	0.77	2.21
3. Language	24	0.72	2.24	0.73	2.24	0.69	2.27	0.64	2.26	0.72	2.26	0.73	2.26
Mathematics Grade 3													
1. Number Sense	24	0.79	2.23	0.82	2.18	0.81	2.17	0.82	2.15	0.81	2.22	0.78	2.22
2. Algebra and Data Analysis	13	0.72	1.60	0.72	1.55	0.70	1.57	0.70	1.57	0.70	1.60	0.75	1.57
3. Measurement and Geometry	11	0.57	1.42	0.65	1.32	0.63	1.34	0.65	1.33	0.68	1.35	0.55	1.46
Mathematics Grade 4													
1. Number Sense	23	0.78	2.09	0.74	2.05	0.73	2.05	0.74	2.03	0.62	2.20	0.75	2.08
2. Algebra and Data Analysis	15	0.66	1.78	0.55	1.82	0.52	1.82	0.56	1.81	0.42	1.88	0.44	1.86
3. Measurement and Geometry	10	0.41	1.47	0.42	1.48	0.38	1.47	0.38	1.48	0.52	1.41	0.39	1.53
Mathematics Grade 5													
1. Number Sense	21	0.77	2.06	0.75	2.01	0.74	2.00	0.75	1.98	0.74	2.08	0.75	2.03
2. Algebra and Data Analysis	17	0.74	1.86	0.74	1.79	0.73	1.79	0.73	1.80	0.73	1.81	0.81	1.80
3. Measurement and Geometry	10	0.40	1.50	0.47	1.48	0.46	1.49	0.43	1.49	0.46	1.46	0.49	1.48
Mathematics Grade 6													
1. Number Sense	21	0.63	2.15	0.57	2.15	0.56	2.16	0.54	2.17	0.49	2.18	0.63	2.18
2. Algebra and Data Analysis	25	0.64	2.34	0.70	2.30	0.69	2.31	0.69	2.31	0.67	2.33	0.76	2.27
3. Measurement and Geometry	8	0.24	1.37	0.29	1.36	0.29	1.37	0.28	1.37	0.03	1.39	0.43	1.35
Mathematics Grade 7													
1. Number Sense	18	0.31	2.05	0.37	2.03	0.38	2.02	0.37	2.02	0.38	2.03	0.25	2.06
2. Algebra and Data Analysis	25	0.64	2.34	0.68	2.36	0.65	2.37	0.62	2.37	0.67	2.35	0.54	2.38
3. Measurement and Geometry	11	0.29	1.55	0.40	1.55	0.34	1.56	0.31	1.56	0.27	1.58	0.23	1.59
Science Grade 5													
1. Physical Sciences	16	0.50	1.88	0.57	1.83	0.55	1.84	0.53	1.86	0.40	1.92	0.64	1.85
2. Life Sciences	16	0.67	1.82	0.63	1.78	0.62	1.80	0.59	1.83	0.68	1.82	0.59	1.83
3. Earth Sciences	16	0.65	1.83	0.66	1.78	0.63	1.79	0.61	1.80	0.57	1.86	0.70	1.80
Science Grade 8													
1. Motion	19	0.60	2.05	0.64	1.99	0.62	2.01	0.57	2.04	0.68	2.01	0.62	2.03
2. Matter	23	0.65	2.26	0.62	2.28	0.59	2.28	0.52	2.30	0.46	2.33	0.69	2.26
3. Earth Science	7	0.27	1.23	0.42	1.21	0.40	1.21	0.35	1.21	0.27	1.24	0.55	1.18
4. Investigation and Experimentation	5	0.16	1.04	0.37	1.02	0.34	1.03	0.26	1.03	0.45	1.01	0.36	1.02

Table 8.B.30 Reliability of Classification for ELA, Grade Three

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	40 – 48	0.06	0.04	0.00	0.00	0.00	0.10
	35 – 39	0.03	0.10	0.05	0.00	0.00	0.17
	28 – 34	0.00	0.04	0.16	0.05	0.00	0.25
	17 – 27	0.00	0.00	0.04	0.30	0.03	0.37
	0 – 16	0.00	0.00	0.00	0.05	0.06	0.11
Estimated Proportion Correctly Classified: Total = 0.68, Proficient & Above = 0.91							
Decision Consistency	40 – 48	0.06	0.04	0.00	0.00	0.00	0.10
	35 – 39	0.04	0.08	0.05	0.00	0.00	0.17
	28 – 34	0.01	0.05	0.13	0.06	0.00	0.25
	17 – 27	0.00	0.00	0.06	0.26	0.05	0.37
	0 – 16	0.00	0.00	0.00	0.05	0.06	0.11
Estimated Proportion Correctly Classified: Total = 0.57, Proficient & Above = 0.88							

Table 8.B.31 Reliability of Classification for ELA, Grade Four

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	37 – 48	0.08	0.04	0.00	0.00	0.00	0.12
	31 – 36	0.02	0.11	0.05	0.00	0.00	0.19
	25 – 30	0.00	0.04	0.14	0.06	0.00	0.24
	17 – 24	0.00	0.00	0.06	0.25	0.03	0.34
	0 – 16	0.00	0.00	0.00	0.06	0.05	0.11
Estimated Proportion Correctly Classified: Total = 0.63, Proficient & Above = 0.90							
Decision Consistency	37 – 48	0.08	0.04	0.01	0.00	0.00	0.12
	31 – 36	0.04	0.09	0.05	0.01	0.00	0.19
	25 – 30	0.01	0.05	0.11	0.07	0.00	0.24
	17 – 24	0.00	0.01	0.07	0.20	0.06	0.34
	0 – 16	0.00	0.00	0.00	0.06	0.05	0.11
Estimated Proportion Correctly Classified: Total = 0.52, Proficient & Above = 0.86							

Table 8.B.32 Reliability of Classification for ELA, Grade Five

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	37 – 48	0.11	0.04	0.00	0.00	0.00	0.15
	32 – 36	0.03	0.09	0.05	0.00	0.00	0.17
	25 – 31	0.00	0.04	0.19	0.06	0.00	0.29
	15 – 24	0.00	0.00	0.06	0.29	0.00	0.35
	0 – 14	0.00	0.00	0.00	0.04	0.00	0.04
Estimated Proportion Correctly Classified: Total = 0.68, Proficient & Above = 0.90							
Decision Consistency	37 – 48	0.10	0.04	0.01	0.00	0.00	0.15
	32 – 36	0.04	0.07	0.06	0.01	0.00	0.17
	25 – 31	0.01	0.05	0.15	0.08	0.00	0.29
	15 – 24	0.00	0.01	0.08	0.24	0.03	0.35
	0 – 14	0.00	0.00	0.00	0.03	0.01	0.04
Estimated Proportion Correctly Classified: Total = 0.57, Proficient & Above = 0.86							

Table 8.B.33 Reliability of Classification for ELA, Grade Six

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	40 – 54	0.06	0.04	0.00	0.00	0.00	0.10
	35 – 39	0.02	0.10	0.06	0.01	0.00	0.19
	30 – 34	0.00	0.05	0.13	0.06	0.00	0.24
	22 – 29	0.00	0.00	0.06	0.23	0.03	0.32
	0 – 21	0.00	0.00	0.00	0.06	0.09	0.15
Estimated Proportion Correctly Classified: Total = 0.60, Proficient & Above = 0.88							
Decision Consistency	40 – 54	0.06	0.04	0.01	0.00	0.00	0.10
	35 – 39	0.04	0.08	0.06	0.02	0.00	0.19
	30 – 34	0.01	0.06	0.09	0.07	0.01	0.24
	22 – 29	0.00	0.02	0.07	0.18	0.05	0.32
	0 – 21	0.00	0.00	0.01	0.06	0.08	0.15
Estimated Proportion Correctly Classified: Total = 0.49, Proficient & Above = 0.83							

Table 8.B.34 Reliability of Classification for ELA, Grade Seven (Reading Only)

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	42 – 54	0.07	0.04	0.00	0.00	0.00	0.10
	36 – 41	0.02	0.11	0.05	0.00	0.00	0.19
	30 – 35	0.00	0.04	0.13	0.06	0.00	0.23
	21 – 29	0.00	0.00	0.05	0.24	0.03	0.33
	0 – 20	0.00	0.00	0.00	0.05	0.09	0.15
Estimated Proportion Correctly Classified: Total = 0.64, Proficient & Above = 0.90							
Decision Consistency	42 – 54	0.06	0.04	0.00	0.00	0.00	0.10
	36 – 41	0.04	0.09	0.05	0.01	0.00	0.19
	30 – 35	0.01	0.05	0.10	0.07	0.00	0.23
	21 – 29	0.00	0.01	0.07	0.20	0.06	0.33
	0 – 20	0.00	0.00	0.00	0.06	0.08	0.15
Estimated Proportion Correctly Classified: Total = 0.53, Proficient & Above = 0.86							

Table 8.B.35 Reliability of Classification for ELA, Grade Seven (Reading and Writing)

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	45 – 58	0.04	0.04	0.00	0.00	0.00	0.09
	39 – 44	0.02	0.09	0.05	0.01	0.00	0.17
	33 – 38	0.00	0.04	0.10	0.06	0.00	0.21
	23 – 32	0.00	0.00	0.05	0.25	0.05	0.36
	0 – 22	0.00	0.00	0.00	0.07	0.10	0.17
Estimated Proportion Correctly Classified: Total = 0.59, Proficient & Above = 0.89							
Decision Consistency	45 – 58	0.04	0.04	0.01	0.00	0.00	0.09
	39 – 44	0.04	0.07	0.05	0.02	0.00	0.17
	33 – 38	0.01	0.05	0.08	0.07	0.01	0.21
	23 – 32	0.00	0.02	0.07	0.20	0.07	0.36
	0 – 22	0.00	0.00	0.01	0.08	0.09	0.17
Estimated Proportion Correctly Classified: Total = 0.48, Proficient & Above = 0.85							

Table 8.B.36 Reliability of Classification for ELA, Grade Eight

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	42 – 54	0.06	0.03	0.00	0.00	0.00	0.09
	36 – 41	0.02	0.09	0.05	0.00	0.00	0.16
	30 – 35	0.00	0.03	0.13	0.06	0.00	0.23
	22 – 29	0.00	0.00	0.05	0.23	0.04	0.33
	0 – 21	0.00	0.00	0.00	0.06	0.13	0.19
Estimated Proportion Correctly Classified: Total = 0.64, Proficient & Above = 0.91							
Decision Consistency	42 – 54	0.05	0.03	0.00	0.00	0.00	0.09
	36 – 41	0.03	0.07	0.05	0.01	0.00	0.16
	30 – 35	0.01	0.05	0.10	0.07	0.01	0.23
	22 – 29	0.00	0.01	0.07	0.18	0.07	0.33
	0 – 21	0.00	0.00	0.01	0.07	0.12	0.19
Estimated Proportion Correctly Classified: Total = 0.53, Proficient & Above = 0.87							

Table 8.B.37 Reliability of Classification for Mathematics, Grade Three

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	43 – 48	0.04	0.03	0.00	0.00	0.00	0.08
	35 – 42	0.02	0.21	0.05	0.00	0.00	0.29
	28 – 34	0.00	0.04	0.16	0.04	0.00	0.24
	17 – 27	0.00	0.00	0.04	0.26	0.02	0.33
	0 – 16	0.00	0.00	0.00	0.04	0.04	0.07
Estimated Proportion Correctly Classified: Total = 0.71, Proficient & Above = 0.91							
Decision Consistency	43 – 48	0.04	0.03	0.00	0.00	0.00	0.08
	35 – 42	0.04	0.18	0.06	0.01	0.00	0.29
	28 – 34	0.00	0.06	0.13	0.06	0.00	0.24
	17 – 27	0.00	0.00	0.06	0.22	0.04	0.33
	0 – 16	0.00	0.00	0.00	0.04	0.03	0.07
Estimated Proportion Correctly Classified: Total = 0.61, Proficient & Above = 0.88							

Table 8.B.38 Reliability of Classification for Mathematics, Grade Four

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	37 – 48	0.06	0.04	0.00	0.00	0.00	0.10
	30 – 36	0.02	0.18	0.07	0.01	0.00	0.28
	25 – 29	0.00	0.05	0.14	0.06	0.00	0.26
	18 – 24	0.00	0.00	0.07	0.19	0.02	0.28
	0 – 17	0.00	0.00	0.00	0.05	0.04	0.09
Estimated Proportion Correctly Classified: Total = 0.62, Proficient & Above = 0.87							
Decision Consistency	37 – 48	0.06	0.04	0.00	0.00	0.00	0.10
	30 – 36	0.04	0.15	0.07	0.02	0.00	0.28
	25 – 29	0.00	0.07	0.11	0.07	0.01	0.26
	18 – 24	0.00	0.02	0.07	0.15	0.04	0.28
	0 – 17	0.00	0.00	0.01	0.04	0.04	0.09
Estimated Proportion Correctly Classified: Total = 0.50, Proficient & Above = 0.82							

Table 8.B.39 Reliability of Classification for Mathematics, Grade Five

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	39 – 48	0.09	0.04	0.00	0.00	0.00	0.12
	32 – 38	0.03	0.18	0.06	0.00	0.00	0.27
	25 – 31	0.00	0.04	0.18	0.05	0.00	0.27
	16 – 24	0.00	0.00	0.06	0.21	0.01	0.28
	0 – 15	0.00	0.00	0.00	0.04	0.01	0.05
Estimated Proportion Correctly Classified: Total = 0.68, Proficient & Above = 0.89							
Decision Consistency	39 – 48	0.08	0.04	0.00	0.00	0.00	0.12
	32 – 38	0.05	0.15	0.07	0.01	0.00	0.27
	25 – 31	0.00	0.06	0.14	0.07	0.00	0.27
	16 – 24	0.00	0.01	0.07	0.18	0.03	0.28
	0 – 15	0.00	0.00	0.00	0.03	0.02	0.05
Estimated Proportion Correctly Classified: Total = 0.56, Proficient & Above = 0.85							

Table 8.B.40 Reliability of Classification for Mathematics, Grade Six

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	40 – 54	0.05	0.04	0.00	0.00	0.00	0.09
	33 – 39	0.02	0.15	0.07	0.01	0.00	0.25
	28 – 32	0.00	0.05	0.13	0.06	0.00	0.24
	21 – 27	0.00	0.01	0.07	0.20	0.03	0.30
	0 – 20	0.00	0.00	0.00	0.06	0.06	0.13
Estimated Proportion Correctly Classified: Total = 0.59, Proficient & Above = 0.87							
Decision Consistency	40 – 54	0.05	0.03	0.00	0.00	0.00	0.09
	33 – 39	0.04	0.12	0.07	0.02	0.00	0.25
	28 – 32	0.00	0.06	0.09	0.07	0.01	0.24
	21 – 27	0.00	0.02	0.07	0.15	0.05	0.30
	0 – 20	0.00	0.00	0.01	0.05	0.06	0.13
Estimated Proportion Correctly Classified: Total = 0.48, Proficient & Above = 0.82							

Table 8.B.41 Reliability of Classification for Mathematics, Grade Seven

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	37 – 54	0.03	0.03	0.00	0.00	0.00	0.06
	30 – 36	0.01	0.11	0.06	0.02	0.00	0.20
	26 – 29	0.00	0.04	0.09	0.08	0.01	0.21
	21 – 25	0.00	0.01	0.06	0.17	0.06	0.30
	0 – 20	0.00	0.00	0.01	0.09	0.14	0.24
Estimated Proportion Correctly Classified: Total = 0.54, Proficient & Above = 0.88							
Decision Consistency	37 – 54	0.03	0.02	0.00	0.00	0.00	0.06
	30 – 36	0.02	0.09	0.05	0.03	0.00	0.20
	26 – 29	0.00	0.05	0.06	0.07	0.02	0.21
	21 – 25	0.00	0.03	0.06	0.12	0.08	0.30
	0 – 20	0.00	0.00	0.02	0.08	0.13	0.24
Estimated Proportion Correctly Classified: Total = 0.43, Proficient & Above = 0.83							

Table 8.B.42 Reliability of Classification for Science, Grade Five

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	38 – 48	0.08	0.05	0.00	0.00	0.00	0.13
	31 – 37	0.03	0.22	0.07	0.00	0.00	0.32
	24 – 30	0.00	0.06	0.21	0.04	0.00	0.31
	16 – 23	0.00	0.00	0.06	0.15	0.01	0.22
	0 – 15	0.00	0.00	0.00	0.03	0.01	0.03
Estimated Proportion Correctly Classified: Total = 0.65, Proficient & Above = 0.87							
Decision Consistency	38 – 48	0.07	0.05	0.00	0.00	0.00	0.13
	31 – 37	0.06	0.17	0.08	0.01	0.00	0.32
	24 – 30	0.00	0.08	0.16	0.06	0.00	0.31
	16 – 23	0.00	0.01	0.07	0.12	0.02	0.22
	0 – 15	0.00	0.00	0.00	0.02	0.01	0.03
Estimated Proportion Correctly Classified: Total = 0.54, Proficient & Above = 0.82							

Table 8.B.43 Reliability of Classification for Science, Grade Eight

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	40 – 54	0.06	0.03	0.00	0.00	0.00	0.10
	33 – 39	0.02	0.13	0.06	0.00	0.00	0.21
	26 – 32	0.00	0.04	0.20	0.07	0.00	0.31
	21 – 25	0.00	0.00	0.06	0.13	0.04	0.23
	0 – 20	0.00	0.00	0.01	0.07	0.08	0.15
Estimated Proportion Correctly Classified: Total = 0.60, Proficient & Above = 0.89							
Decision Consistency	40 – 54	0.06	0.03	0.00	0.00	0.00	0.10
	33 – 39	0.03	0.10	0.06	0.01	0.00	0.21
	26 – 32	0.00	0.06	0.16	0.07	0.02	0.31
	21 – 25	0.00	0.01	0.07	0.09	0.06	0.23
	0 – 20	0.00	0.00	0.02	0.06	0.07	0.15
Estimated Proportion Correctly Classified: Total = 0.48, Proficient & Above = 0.84							

Table 8.B.44 Inter-Rater Analyses for ELA, Grade Seven

		Rater 1								
		1	**%**	**2**	**%**	**3**	**%**	**4**	**%**	**Total**
	1	79	4.66	49	2.89	0	0.00	0	0.00	128
	2	52	3.07	615	36.26	179	10.55	0	0.00	846
	3	0	0.00	146	8.61	509	30.01	29	1.71	684
Rater 2	**4**	0	0.00	0	0.00	23	1.36	15	0.88	38
	Total	131	7.72	810	47.76	711	41.92	44	2.59	1696

Percent Exact = 71.81%
Percent Adjacent = 28.19%
Percent Exact + Adjacent = 100.00%
Kappa = 0.52
Weighted Kappa =0.59

Table 8.B.45 Descriptive Statistics for the Ratings by the Two Raters

N*	Rater 1		Rater 2		
	Mean	**Std**	**Mean**	**Std**	***Pearson Correlation***
1,696	2.37	0.66	2.39	0.67	0.68

* Number of students who received valid ratings of 1–4

Table 8.B.46 Generalizability Analyses for Grade Seven Essay—[(Person: Essay) x Rater)]

Effect	Degrees of Freedom	Sum of Squares	Mean Squares	Estimated Variance Components	Percentage of Total Variance
E	1	0.89431	0.89431	0.00181	0.41
P:E	1,694	1243.87455	0.73428	0.29675	67.51
R	1	0.38208	0.38208	0.00024	0.05
ER	1	0.13644	0.13644	0.00000	0.00
PR:E	1,694	238.48148	0.14078	0.14078	32.03
Note: E = Essay Prompt, P = Person, and R = Rater				**G-Coefficient= 0.81**	

Appendix 8.C—Validity Analyses

Table 8.C.1 CMA Content Area Correlations (Gender)

		Male			Female			Gender Unknown		
Grade	**CMA**	**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**10,941**	0.62		**4,955**	0.63		**102**	0.81	
	2. Mathematics	8,472	**9,039**		4,038	**4,432**		74	**83**	
Grade	**CMA**	**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**15,570**	0.54		**7,555**	0.56		**12**	0.51	
	2. Mathematics	12,268	**12,714**		6,312	**6,666**		12	**12**	
Grade	**CMA**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**16,067**	0.52	0.66	**8,026**	0.51	0.67	**12**	–	–
	2.Mathematics	13,238	**14,005**	0.55	6,921	**7,482**	0.53	9	**9**	–
	3. Science	14,467	12,797	**14,832**	7,310	6,751	**7,552**	10	9	**10**
Grade	**CMA**	**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**15,164**	0.54		**7,583**	0.53		**8**	–	
	2. Mathematics	13,068	**14,059**		6,763	**7,477**		7	**7**	
Grade	**CMA**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**14,100**	0.53	0.37	**6,977**	0.54	0.10	**11**	–	–
	2. Mathematics	12,557	**13,755**	N/A	6,395	**7,233**	N/A	10	**12**	N/A
	3. Algebra I	31	N/A	**35**	21	N/A	**22**	0	N/A	**0**
Grade	**CMA**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**12,645**	0.46	0.63	**6,336**	0.45	0.62	**49**	0.38	0.68
	2. Algebra I	2,509	**2,811**	0.51	1,329	**1,528**	0.52	11	**14**	–
	3. Science	11,019	2,369	**11,556**	5,647	1,292	**6,002**	46	9	**48**
Grade	**CMA**	**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**7,304**	0.46		**3,770**	0.47		**16**	–	
	2. Algebra I	2,832	**3,247**		1,528	**1,807**		2	**4**	
Grade	**CMA**	**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**2,518**	0.49		**1,388**	0.45		**5**	–	
	2. Life Science	1,745	**3,996**		972	**2,156**1			**9**	

Table 8.C.2 CMA Content Area Correlations (Primary Ethnicity)

		American Indian			Asian American			Pacific Islander		
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**155**	0.50		**483**	0.64		**67**	0.55	
	2. Mathematics	131	**142**		384	**427**		54	**64**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**206**	0.50		**762**	0.58		**143**	0.60	
	2. Mathematics	164	**175**		580	**602**		114	**115**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**238**	0.60	0.67	**691**	0.55	0.68	**111**	0.47	0.67
	2. Mathematics	194	**204**	0.51	527	**547**	0.59	98	**107**	0.53
	3. Science	216	190	**220**	630	513	**648**	102	95	**104**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**234**	0.50		**654**	0.52		**122**	0.59	
	2. Mathematics	206	**232**		534	**565**		108	**114**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**196**	0.59	–	**636**	0.56	–	**102**	0.64	–
	2. Mathematics	176	**199**	N/A	529	**589**	N/A	89	**98**	N/A
	3. Algebra I	0	N/A	**0**	2	0	**3**	0	N/A	**0**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**189**	0.32	0.66	**518**	0.41	0.65	**65**	0.20	0.62
	2. Algebra I	40	**44**	0.39	88	**109**	0.55	12	**14**	0.20
	3. Science	162	37	**167**	460	91	**494**	57	12	**62**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**139**	0.61		**306**	0.50		**53**	0.54	
	2. Algebra I	38	**45**		121	**134**		19	**22**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**44**	0.54		**91**	0.58		**20**	0.54	
	2. Life Science	36	**79**		64	**174**		14	**32**	

Table 8.C.3 CMA Content Area Correlations (Primary Ethnicity, continued)

		Filipino			Hispanic			African American		
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**155**	0.55		**9,852**	0.62		**1,559**	0.64	
	2. Mathematics	127	**143**		7,833	**8,312**		1,371	**1,493**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**262**	0.52		**14,092**	0.54		**2,326**	0.54	
	2. Mathematics	204	**221**		11,460	**11,825**		2,052	**2,148**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**267**	0.55	0.72	**14,807**	0.51	0.64	**2,674**	0.55	0.65
	2. Mathematics	220	**226**	0.66	12,449	**13,045**	0.53	2,393	**2,560**	0.57
	3. Science	249	218	**254**	13,336	11,895	**13,613**	2,468	2,355	**2,543**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**219**	0.49		**13,821**	0.53		**2,551**	0.54	
	2. Mathematics	189	**201**		12,119	**12,839**		2,318	**2,519**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**177**	0.51	–	**12,752**	0.52	-0.23	**2,479**	0.50	0.35
	2. Mathematics	158	**180**	N/A	11,490	**12,382**	N/A	2,307	**2,532**	N/A
	3. Algebra I	5	N/A	**5**	26	N/A	**28**	12	N/A	**13**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**166**	0.38	0.60	**11,306**	0.45	0.61	**2,281**	0.46	0.61
	2. Algebra I	38	**40**	0.72	2,261	**2,480**	0.48	605	**669**	0.50
	3. Science	154	35	**169**	9,937	2,143	**10,339**	2,006	548	**2,127**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**118**	0.53		**6,586**	0.44		**1,133**	0.46	
	2. Algebra I	46	**50**		2,795	**3,184**		474	**550**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**39**	0.40		**2,287**	0.44		**394**	0.56	
	2. Life Science	34	**66**		1,610	**3,599**		275	**628**	

Table 8.C.4 CMA Content Area Correlations (Primary Ethnicity, continued)

		White			Unknown		
Grade		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**3,007**	0.63		**720**	0.68	
	2. Mathematics	2,122	**2,358**		562	**615**	
Grade		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**4,641**	0.56		**705**	0.56	
	2. Mathematics	3,460	**3,719**		558	**587**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**4,665**	0.54	0.66	**652**	0.47	0.64
	2. Mathematics	3,737	**4,195**	0.56	550	**612**	0.50
	3. Science	4,197	3,742	**4,400**	589	549	**612**
Grade		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**4,472**	0.53		**682**	0.55	
	2. Mathematics	3,783	**4,415**		581	**658**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**4,163**	0.53	–	**583**	0.59	–
	2. Mathematics	3,691	**4,423**	N/A	522	**597**	N/A
	3. Algebra I	4	N/A	**5**	3	N/A	**3**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**3,921**	0.53	0.63	**584**	0.39	0.61
	2. Algebra I	666	**834**	0.55	139	**163**	0.64
	3. Science	3,417	674	**3,698**	519	130	**550**
Grade		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**2,461**	0.47		**294**	0.41	
	2. Algebra I	770	**949**		99	**124**	
Grade		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**922**	0.50		**114**	0.54	
	2. Life Science	604	**1,405**		81	**178**	

Table 8.C.5 CMA Content Area Correlations (English-language Fluency)

		English Only			Initially Fluent English Proficient			English Learner		
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**8,663**	0.63		**156**	0.71		**6,809**	0.62	
	2. Mathematics	6,721	**7,356**		105	**117**		5,460	**5,758**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**12,723**	0.56		**415**	0.55		**9,835**	0.54	
	2. Mathematics	10,096	**10,655**		299	**312**		8,064	**8,280**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**13,005**	0.55	0.66	**490**	0.53	0.65	**10,326**	0.49	0.63
	2. Mathematics	10,821	**11,776**	0.57	371	**413**	0.55	8,747	**9,049**	0.51
	3. Science	11,764	10,646	**12,183**	430	360	**448**	9,336	8,321	**9,496**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**12,520**	0.55		**502**	0.49		**9,315**	0.51	
	2. Mathematics	10,877	**12,143**		429	**487**		8,187	**8,501**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**11,383**	0.54	0.19	**386**	0.47	–	**8,799**	0.52	0.24
	2. Mathematics	10,250	**11,682**	N/A	336	**392**	N/A	7,932	**8,392**	N/A
	3. Algebra I	30	N/A	**33**	1	N/A	**1**	19	N/A	**21**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**10,397**	0.46	0.63	**376**	0.28	0.52	**7,496**	0.45	0.59
	2. Algebra I	2,053	**2,389**	0.52	88	**102**	0.57	1,523	**1,623**	0.46
	3. Science	9,077	1,965	**9,695**	319	79	**342**	6,631	1,436	**6,830**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**6,190**	0.46		**354**	0.44		**4,141**	0.46	
	2. Algebra I	2,255	**2,698**		153	**182**		1,764	**1,946**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**2,220**	0.50		**123**	0.54		**1,386**	0.43	
	2. Life Science	1,495	**3,394**		83	**200**		1,022	**2,277**	

Table 8.C.6 CMA Content Area Correlations (English-language Fluency, continued)

		Reclassified Fluent English Proficient			English-language Fluency unknown		
Grade		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**37**	0.70		**333**	0.69	
	2. Mathematics	27	**31**		271	**292**	
Grade		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**125**	0.69		**39**	0.63	
	2. Mathematics	99	**109**		34	**36**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**240**	0.54	0.77	**44**	0.73	0.78
	2. Mathematics	192	**219**	0.53	37	**39**	0.76
	3. Science	217	192	**226**	40	38	**41**
Grade		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**383**	0.56		**35**	0.56	
	2. Mathematics	312	**373**		33	**39**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**458**	0.55	–	**62**	0.23	–
	2. Mathematics	388	**473**	N/A	56	**61**	N/A
	3. Algebra I	0	N/A	**0**	2	N/A	**2**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**510**	0.56	0.66	**251**	0.56	0.67
	2. Algebra I	96	**128**	0.65	89	**111**	0.69
	3. Science	453	97	**493**	232	93	**246**
Grade		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**336**	0.46		**69**	0.59	
	2. Algebra I	158	**196**		32	**36**	
Grade		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**156**	0.46		**26**	0.53	
	2. Life Science	107	**248**		11	**42**	

Table 8.C.7 CMA Content Area Correlations (Economic Status)

		Not Economically Disadvantaged			Economically Disadvantaged			Unknown Economic Status		
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**3,508**	0.63		**11,926**	0.62		**564**	0.69	
	2. Mathematics	2,556	**2,905**		9,549	**10,139**		479	**510**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**5,787**	0.56		**17,263**	0.54		**87**	0.62	
	2. Mathematics	4,352	**4,663**		14,167	**14,654**		73	**75**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**5,756**	0.55	0.68	**18,271**	0.50	0.64	**78**	0.52	0.63
	2. Mathematics	4,551	**5,058**	0.57	15,553	**16,368**	0.53	64	**70**	0.65
	3. Science	5,163	4,532	**5,389**	16,557	14,961	**16,935**	67	64	**70**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**5,678**	0.54		**17,008**	0.53		**69**	0.49	
	2. Mathematics	4,808	**5,526**		14,964	**15,941**		66	**76**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**5,268**	0.51	–	**15,717**	0.53	-0.17	**103**	0.37	–
	2. Mathematics	4,662	**5,488**	N/A	14,207	**15,413**	N/A	93	**99**	N/A
	3. Algebra I	9	N/A	**12**	41	N/A	**43**	2	N/A	**2**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**4,886**	0.49	0.64	**13,848**	0.44	0.61	**296**	0.52	0.65
	2. Algebra I	948	**1,156**	0.54	2,805	**3,090**	0.48	96	**107**	0.69
	3. Science	4,251	920	**4,590**	12,192	2,651	**12,733**	269	99	**283**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**3,435**	0.49		**7,556**	0.44		**99**	0.50	
	2. Algebra I	1,214	**1,483**		3,104	**3,524**		44	**51**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**1,267**	0.54		**2,603**	0.43		**41**	0.59	
	2. Life Science	866	**1,967**		1,829	**4,143**		23	**51**	

Table 8.C.8 CMA Content Area Correlations (Primary Disability)

		Autism			Mental Retardation			Specific Learning Disability		
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**940**	0.69		**354**	0.58		**8,776**	0.59	
	2. Mathematics	826	**916**		340	**348**		6,862	**7,248**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**1,165**	0.60		**376**	0.42		**13,294**	0.53	
	2. Mathematics	991	**1,044**		367	**374**		10,504	**10,899**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**1,100**	0.53	0.72	**425**	0.48	0.59	**15,169**	0.50	0.65
	2. Mathematics	962	**1,028**	0.54	422	**427**	0.51	12,563	**13,295**	0.52
	3. Science	1,024	957	**1,057**	413	414	**417**	13,591	12,050	**13,928**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**1,010**	0.58		**453**	0.43		**14,875**	0.52	
	2. Mathematics	906	**1,002**		446	**455**		12,831	**13,806**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**759**	0.52	–	**472**	0.44	–	**14,373**	0.52	0.00
	2. Mathematics	709	**813**	N/A	464	**470**	N/A	12,825	**14,023**	N/A
	3. Algebra I	2	N/A	**2**	0	N/A	**N/A**	32	N/A	**34**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**622**	0.53	0.72	**505**	0.34	0.47	**13,222**	0.45	0.61
	2. Algebra I	116	**135**	0.64	99	**101**	0.33	2,719	**3,048**	0.48
	3. Science	562	113	**608**	459	95	**471**	11,496	2,555	**12,077**
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**335**	0.52		**259**	0.35		**7,921**	0.45	
	2. Algebra I	130	**150**		101	**107**		3,213	**3,687**	
Grade		**1.**	**2.**		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**108**	0.55		**72**	0.26		**2,821**	0.45	
	2. Life Science	63	**179**		58	**140**		1,980	**4,469**	

Table 8.C.9 CMA Content Area Correlations (Primary Disability, continued)

		Speech or Language Impairment			Other Health Impairment		
Grade		**1.**	**2.**		**1.**	**2.**	
3	**1. ELA**	**2,958**	0.65		**1,154**	0.66	
	2. Mathematics	2,348	**2,558**		920	**1,011**	
Grade		**1.**	**2.**		**1.**	**2.**	
4	**1. ELA**	**3,660**	0.58		**1,868**	0.59	
	2. Mathematics	2,912	**3,014**		1,530	**1,620**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
5	**1. ELA**	**2,894**	0.54	0.66	**1,942**	0.59	0.68
	2. Mathematics	2,373	**2,497**	0.56	1,679	**1,856**	0.59
	3. Science	2,668	2,339	**2,729**	1,762	1,656	**1,835**
Grade		**1.**	**2.**		**1.**	**2.**	
6	**1. ELA**	**2,236**	0.52		**1,921**	0.56	
	2. Mathematics	1,950	**2,089**		1,690	**1,936**	
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
7	**1. ELA**	**1,669**	0.51	–	**1,669**	0.55	–
	2. Mathematics	1,501	**1,657**	N/A	1,502	**1,790**	N/A
	3. Algebra I	7	N/A	**8**	3	N/A	**3**
Grade		**1.**	**2.**	**3.**	**1.**	**2.**	**3.**
8	**1. ELA**	**1,252**	0.46	0.59	**1,395**	0.49	0.63
	2. Algebra I	228	**250**	0.54	246	**310**	0.57
	3. Science	1,143	226	**1,182**	1,243	252	**1,340**
Grade		**1.**	**2.**		**1.**	**2.**	
9	**1. ELA**	**643**	0.53		**843**	0.49	
	2. Algebra I	215	**244**		316	**401**	
Grade		**1.**	**2.**		**1.**	**2.**	
10	**1. Algebra I**	**222**	0.57		**336**	0.59	
	2. Life Science	164	**312**		228	**525**	

Appendix 8.D—IRT Analyses

Table 8.D.1 IRT Model Data Fit Distribution for ELA, Grades Three through Nine

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Grade 8		Grade 9	
Flag	**N**	**Pct.**	**N**	Pct.	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	22	46	27	56	28	58	21	39	20	36	25	46	28	47
B	13	27	12	25	11	23	15	28	19	35	17	31	15	25
C	13	27	9	19	7	15	16	30	16	29	12	22	14	23
D	0	0	0	0	2	4	1	2	0	0	0	0	2	3
F	0	0	0	0	0	0	1	2	0	0	0	0	1	2
Total	48	100	48	100	48	100	54	100	55	100	54	100	60	100

Table 8.D.2 IRT Model Data Fit Distribution for Mathematics, Grade Three through Algebra I

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Algebra I	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	17	35	19	40	16	33	24	44	34	63	23	38
B	17	35	11	23	14	29	21	39	12	22	11	18
C	12	25	18	38	16	33	7	13	6	11	21	35
D	2	4	0	0	2	4	2	4	1	2	5	8
F	0	0	0	0	0	0	0	0	1	2	0	0
Total	48	100	48	100	48	100	54	100	54	100	60	100

Table 8.D.3 IRT Model Data Fit Distribution for Science, Grades Five, Eight, and Ten

Items	Grade 5		Grade 8		Grade 10	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	29	60	29	54	20	33
B	8	17	13	24	24	40
C	11	23	11	20	14	23
D	0	0	0	0	2	3
F	0	0	1	2	0	0
Total	48	100	54	100	60	100

Table 8.D.4 IRT Model Data Fit Distribution for ELA, Grades Three through Nine (field-test items)

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Grade 8		Grade 9	
Flag	**N**	**Pct.**	**N**	Pct.	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	3	6	11	24	18	33	19	53	16	44	12	34	6	16
B	11	20	11	24	14	26	8	22	9	25	13	37	7	19
C	22	41	15	33	18	33	8	22	6	17	8	23	12	32
D	14	26	7	16	2	4	0	0	3	8	1	3	8	22
F	4	7	1	2	2	4	1	3	2	6	1	3	4	11
Total	54	100	45	100	54	100	36	100	36	100	35	100	37	100

Table 8.D.5 IRT Model Data Fit Distribution for Mathematics, Grade Three through Algebra I (field-test items)

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Algebra I	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	9	17	17	38	16	30	16	44	21	58	7	18
B	11	20	12	27	6	11	4	11	8	22	6	15
C	13	24	13	29	19	35	12	33	3	8	17	43
D	16	30	2	4	11	20	3	8	2	6	6	15
F	5	9	1	2	2	4	1	3	2	6	4	10
Total	54	100	45	100	54	100	36	100	36	100	40	100

Table 8.D.6 IRT Model Data Fit Distribution for Science, Grades Five, Eight, and Ten (field-test items)

Items	Grade 5		Grade 8		Grade 10	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	16	30	18	33	6	17
B	16	30	12	22	5	14
C	16	30	17	31	15	42
D	4	7	5	9	7	19
F	2	4	2	4	3	8
Total	54	100	54	100	36	100

Table 8.D.7 IRT *b*-values for ELA, Grade Three

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	14	–0.68	0.58	–1.61	0.50
Reading for Understanding	17	–0.13	0.61	–1.01	1.26
Language	17	–0.20	0.45	–0.90	0.71
All operational items	48	–0.32	0.59	–1.61	1.26
Field-test items	54	0.40	0.49	–1.02	1.41

Table 8.D.8 IRT *b*-values for ELA, Grade Four

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	11	–0.39	0.39	–0.89	0.45
Reading for Understanding	16	–0.16	0.50	–0.91	0.64
Language	21	0.03	0.33	–0.61	0.69
All operational items	48	–0.13	0.43	–0.91	0.69
Field-test items	45	0.31	0.49	–0.91	1.31

Table 8.D.9 IRT *b*-values for ELA, Grade Five

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	8	–0.85	0.50	–1.61	0.10
Reading for Understanding	18	0.06	0.43	–0.67	0.97
Language	22	–0.29	0.64	–1.64	0.67
All operational items	48	–0.25	0.62	–1.64	0.97
Field-test items	54	0.31	0.48	–1.05	1.23

Table 8.D.10 IRT *b*-values for ELA, Grade Six

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	9	–0.42	0.92	–1.96	1.05
Reading for Understanding	22	–0.20	0.64	–1.10	1.49
Language	23	–0.27	0.52	–1.67	0.60
All operational items	54	–0.27	0.64	–1.96	1.49
Field-test items	36	0.15	0.51	–1.14	0.96

Table 8.D.11 IRT *b*-values for ELA, Grade Seven

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	8	–0.27	0.47	–0.87	0.57
Reading for Understanding	22	–0.33	0.55	–1.35	0.48
Language	24	–0.26	0.43	–1.23	0.28
Writing Applications	1	–0.27	–	–	–
All operational items	55	–0.29	0.47	–1.35	0.57
Field-test items	36	0.15	0.53	–1.12	1.31

Table 8.D.12 IRT *b*-values for ELA, Grade Eight

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	6	–0.69	0.27	–1.17	–0.38
Reading for Understanding	24	–0.20	0.74	–2.28	0.80
Language	24	–0.16	0.58	–1.38	1.04
All operational items	54	–0.24	0.65	–2.28	1.04
Field-test items	35	0.12	0.46	–0.84	0.95

Table 8.D.13 IRT *b*-values for Mathematics, Grade Three

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	24	–0.22	0.53	–1.25	0.91
Algebra and Data Analysis	13	–0.48	0.46	–1.26	0.18
Measurement and Geometry	11	–1.01	0.53	–1.64	0.02
All operational items	48	–0.47	0.59	–1.64	0.91
Field-test items	54	0.27	0.82	–1.45	1.57

Table 8.D.14 IRT *b*-values for Mathematics, Grade Four

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	23	–0.59	0.85	–2.22	0.74
Algebra and Data Analysis	15	0.06	0.53	–0.76	1.04
Measurement and Geometry	10	0.04	0.67	–1.49	0.92
All operational items	48	–0.25	0.78	–2.22	1.04
Field-test items	45	0.34	0.54	–1.11	1.98

Table 8.D.15 IRT *b*-values for Mathematics, Grade Five

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	21	–0.41	0.73	–2.56	0.66
Algebra and Data Analysis	17	–0.37	0.60	–1.36	0.85
Measurement and Geometry	10	0.13	0.47	–0.54	0.95
All operational items	48	–0.28	0.66	–2.56	0.95
Field-test items	54	0.41	0.79	–1.22	2.27

Table 8.D.16 IRT *b*-values for Mathematics, Grade Six

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	21	–0.28	0.49	–1.55	0.46
Algebra and Data Analysis	25	–0.25	0.56	–1.35	0.99
Measurement and Geometry	8	0.13	0.31	–0.27	0.57
All operational items	54	–0.20	0.52	–1.55	0.99
Field-test items	36	0.55	0.53	–0.97	1.39

Table 8.D.17 IRT *b*-values for Mathematics, Grade Seven

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	18	0.06	0.53	–0.65	1.16
Algebra and Data Analysis	25	0.02	0.41	–0.95	0.81
Measurement and Geometry	11	0.28	0.61	–0.57	1.65
All operational items	54	0.08	0.50	–0.95	1.65
Field-test items	36	0.56	0.52	–0.39	1.52

Table 8.D.18 IRT *b*-values for Science, Grade Five

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Physical Sciences	16	–0.29	0.56	–1.36	0.63
Life Sciences	16	–0.43	0.56	–1.87	0.57
Earth Sciences	16	–0.43	0.60	–1.71	0.51
All operational items	48	–0.38	0.57	–1.87	0.63
Field-test items	54	0.44	0.56	–1.72	1.55

Table 8.D.19 IRT *b*-values for Science, Grade Eight

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Motion	19	–0.35	0.56	–1.96	0.50
Matter	23	0.07	0.43	–0.70	0.70
Earth Science	7	–0.39	0.57	–1.35	0.23
Investigation and Experimentation	5	–0.31	0.64	–1.36	0.12
All operational items	54	–0.18	0.54	–1.96	0.70
Field-test items	54	0.23	0.52	–0.84	1.44

Table 8.D.20 Distribution of IRT *b*-values for ELA

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
>=3.5	0	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0	0
2.0 < 2.5	0	0	0	0	0	0	0
1.5 < 2.0	0	0	0	0	0	0	0
1.0 < 1.5	1	0	0	2	0	1	0
0.5 < 1.0	4	3	4	3	1	4	7
0.0 < 0.5	7	16	16	10	16	16	30
–0.5 < 0.0	19	18	12	19	22	16	17
–1.0 < –0.5	11	11	10	14	11	10	6
–1.5 < –1.0	5	0	4	4	5	5	0
–2.0 < –1.5	1	0	2	2	0	1	0
–2.5 < –2.0	0	0	0	0	0	1	0
–3.0 < –2.5	0	0	0	0	0	0	0
–3.5 < –3.0	0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0	0
Total	48	48	48	54	55	54	60

Table 8.D.21 Distribution of IRT *b*-values for ELA (field-test items)

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
>=3.5	0	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0	0
2.0 < 2.5	0	0	0	0	0	0	0
1.5 < 2.0	0	0	0	0	0	0	0
1.0 < 1.5	2	2	3	0	2	0	3
0.5 < 1.0	24	15	15	10	6	8	14
0.0 < 0.5	18	15	23	15	17	15	12
–0.5 < 0.0	8	10	11	7	6	7	7
–1.0 < –0.5	1	3	1	2	4	5	0
–1.5 < –1.0	1	0	1	2	1	0	0
–2.0 < –1.5	0	0	0	0	0	0	1
–2.5 < –2.0	0	0	0	0	0	0	0
–3.0 < –2.5	0	0	0	0	0	0	0
–3.5 < –3.0	0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0	0
Total	54	45	54	36	36	35	37

Table 8.D.22 Distribution of IRT *b*-values for Mathematics

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Algebra I
>=3.5	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0
2.0 < 2.5	0	0	0	0	0	0
1.5 < 2.0	0	0	0	0	1	0
1.0 < 1.5	0	1	0	0	1	0
0.5 < 1.0	3	7	6	3	9	8
0.0 < 0.5	8	11	9	18	20	28
–0.5 < 0.0	14	15	15	19	15	20
–1.0 < –0.5	13	5	15	8	8	4
–1.5 < –1.0	8	6	2	5	0	0
–2.0 < –1.5	2	2	0	1	0	0
–2.5 < –2.0	0	1	0	0	0	0
–3.0 < –2.5	0	0	1	0	0	0
–3.5 < –3.0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0
Total	48	48	48	54	54	60

Table 8.D.23 Distribution of IRT *b*-values for Mathematics (field–test items)

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Algebra I
>=3.5	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0
2.0 < 2.5	0	0	2	0	0	0
1.5 < 2.0	1	1	3	0	1	0
1.0 < 1.5	11	3	7	9	8	9
0.5 < 1.0	13	13	12	11	11	20
0.0 < 0.5	11	16	18	13	10	8
–0.5 < 0.0	8	10	5	1	6	3
–1.0 < –0.5	4	1	4	2	0	0
–1.5 < –1.0	6	1	3	0	0	0
–2.0 < –1.5	0	0	0	0	0	0
–2.5 < –2.0	0	0	0	0	0	0
–3.0 < –2.5	0	0	0	0	0	0
–3.5 < –3.0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0
Total	54	45	54	36	36	40

Table 8.D.24 Distribution of IRT *b*-values for Science

IRT *b*-value	Grade 5	Grade 8	Grade 10
>=3.5	0	0	0
3.0 < 3.5	0	0	0
2.5 < 3.0	0	0	0
2.0 < 2.5	0	0	0
1.5 < 2.0	0	0	0
1.0 < 1.5	0	0	0
0.5 < 1.0	3	6	8
0.0 < 0.5	8	17	19
–0.5 < 0.0	17	19	20
–1.0 < –0.5	14	8	13
–1.5 < –1.0	4	3	0
–2.0 < –1.5	2	1	0
–2.5 < –2.0	0	0	0
–3.0 < –2.5	0	0	0
–3.5 < –3.0	0	0	0
< –3.5	0	0	0
Total	48	54	60

Table 8.D.25 Distribution of IRT *b*-values for Science (field-test items)

IRT *b*-value	Grade 5	Grade 8	Grade 10
>=3.5	0	0	0
3.0 < 3.5	0	0	0
2.5 < 3.0	0	0	0
2.0 < 2.5	0	0	0
1.5 < 2.0	1	0	0
1.0 < 1.5	4	5	2
0.5 < 1.0	20	11	13
0.0 < 0.5	21	19	9
–0.5 < 0.0	7	14	10
–1.0 < –0.5	0	5	1
–1.5 < –1.0	0	0	1
–2.0 < –1.5	1	0	0
–2.5 < –2.0	0	0	0
–3.0 < –2.5	0	0	0
–3.5 < –3.0	0	0	0
< –3.5	0	0	0
Total	54	54	36

Table 8.D.26 New Conversions for ELA, Grade Three (standard form)

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.2309	283	Below Basic
1	–4.3175	150		26	–0.1408	290	
2	–3.5965	150		27	–0.0500	296	
3	–3.1626	150		28	0.0418	303	Basic
4	–2.8460	150		29	0.1348	310	
5	–2.5934	150		30	0.2295	316	
6	–2.3810	150		31	0.3262	323	
7	–2.1964	150		32	0.4254	330	
8	–2.0317	154		33	0.5277	338	
9	–1.8822	165		34	0.6335	345	
10	–1.7445	175		35	0.7437	353	Proficient
11	–1.6162	184		36	0.8591	361	
12	–1.4955	193		37	0.9808	370	
13	–1.3809	201		38	1.1102	379	
14	–1.2715	209		39	1.2491	389	
15	–1.1664	216		40	1.3998	400	Advanced
16	–1.0648	224		41	1.5659	412	
17	–0.9661	231	Below Basic	42	1.7521	425	
18	–0.8698	238		43	1.9661	441	
19	–0.7755	244		44	2.2205	459	
20	–0.6828	251		45	2.5392	482	
21	–0.5913	258		46	2.9753	513	
22	–0.5007	264		47	3.6984	565	
23	–0.4106	270		48	N/A	600	
24	–0.3208	277					

Table 8.D.27 New Conversions for ELA, Grade 3 (braille version)

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.1787	287	Below Basic
1	–4.2952	150		26	–0.0862	294	
2	–3.5735	150		27	0.0072	300	Basic
3	–3.1388	150		28	0.1017	307	
4	–2.8213	150		29	0.1978	314	
5	–2.5679	150		30	0.2959	321	
6	–2.3547	150		31	0.3964	328	
7	–2.1691	150		32	0.4998	336	
8	–2.0036	156		33	0.6068	343	
9	–1.8531	167		34	0.7181	351	Proficient
10	–1.7144	177		35	0.8346	360	
11	–1.5851	186		36	0.9573	368	
12	–1.4633	195		37	1.0876	378	
13	–1.3477	203		38	1.2274	388	
14	–1.2371	211		39	1.3791	399	Advanced
15	–1.1307	219		40	1.546	411	
16	–1.0279	226		41	1.733	424	
17	–0.9279	233	Below Basic	42	1.9477	439	
18	–0.8302	240		43	2.2030	458	
19	–0.7344	247		44	2.5224	480	
20	–0.6401	254		45	2.9593	512	
21	–0.5470	261		46	3.6831	564	
22	–0.4546	267		47	N/A	600	
23	–0.3626	274					
24	–0.2708	280					

Table 8.D.28 New Conversions for ELA, Grade Four

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.0449	307	Basic
1	–4.0665	150		26	0.0425	315	
2	–3.3485	150		27	0.1304	323	
3	–2.9176	150		28	0.2192	331	
4	–2.6038	150		29	0.3093	339	
5	–2.3540	150		30	0.4009	348	
6	–2.1445	150		31	0.4946	357	Proficient
7	–1.9626	150		32	0.5906	365	
8	–1.8006	150		33	0.6896	375	
9	–1.6538	158		34	0.7921	384	
10	–1.5188	171		35	0.8988	394	
11	–1.3931	182		36	1.0107	404	
12	–1.2750	193		37	1.1288	415	Advanced
13	–1.1630	203		38	1.2544	427	
14	–1.0562	213		39	1.3894	439	
15	–0.9537	223		40	1.5361	453	
16	–0.8547	232		41	1.6980	468	
17	–0.7586	241	Below Basic	42	1.8798	484	
18	–0.6649	249		43	2.0893	504	
19	–0.5733	258		44	2.3390	527	
20	–0.4832	266		45	2.6526	556	
21	–0.3943	274		46	3.0836	596	
22	–0.3064	283		47	3.8010	600	
23	–0.2190	291		48	N/A	600	
24	–0.1320	299					

Table 8.D.29 New Conversions for ELA, Grade Five

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.1559	300	Basic
1	–4.2860	150		26	–0.0650	308	
2	–3.5622	150		27	0.0265	316	
3	–3.1255	150		28	0.1188	323	
4	–2.8063	150		29	0.2123	331	
5	–2.5511	150		30	0.3073	339	
6	–2.3363	150		31	0.4043	348	
7	–2.1493	150		32	0.5037	356	Proficient
8	–1.9824	150		33	0.6060	365	
9	–1.8307	158		34	0.7118	374	
10	–1.6909	170		35	0.8218	383	
11	–1.5606	181		36	0.9369	393	
12	–1.4379	192		37	1.0582	403	Advanced
13	–1.3215	201		38	1.1871	414	
14	–1.2103	211		39	1.3253	426	
15	–1.1035	220	Below Basic	40	1.4753	438	
16	–1.0003	229		41	1.6403	452	
17	–0.9001	237		42	1.8254	468	
18	–0.8024	245		43	2.0382	486	
19	–0.7068	254		44	2.2911	508	
20	–0.6128	261		45	2.6081	535	
21	–0.5201	269		46	3.0423	571	
22	–0.4284	277		47	3.7632	600	
23	–0.3373	285		48	N/A	600	
24	–0.2466	293					

Table 8.D.30 New Conversions for ELA, Grade Six

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.1882	285	Below Basic
1	–4.4286	150		29	–0.1073	294	
2	–3.7075	150		30	–0.0260	304	Basic
3	–3.2738	150		31	0.0560	314	
4	–2.9578	150		32	0.1389	324	
5	–2.7060	150		33	0.2228	334	
6	–2.4949	150		34	0.3082	344	
7	–2.3117	150		35	0.3953	355	Proficient
8	–2.1489	150		36	0.4844	366	
9	–2.0014	150		37	0.5759	377	
10	–1.8661	150		38	0.6702	388	
11	–1.7404	150		39	0.7678	400	
12	–1.6226	150		40	0.8693	412	Advanced
13	–1.5113	150		41	0.9754	425	
14	–1.4055	150		42	1.0870	438	
15	–1.3042	150		43	1.2051	452	
16	–1.2068	162		44	1.3311	468	
17	–1.1127	173		45	1.4668	484	
18	–1.0213	184		46	1.6146	502	
19	–0.9324	195		47	1.7779	521	
20	–0.8454	205		48	1.9614	544	
21	–0.7602	216		49	2.1731	569	
22	–0.6763	226	Below Basic	50	2.4254	599	
23	–0.5935	236		51	2.7420	600	
24	–0.5116	246		52	3.1763	600	
25	–0.4303	255		53	3.8980	600	
26	–0.3495	265		54	N/A	600	
27	–0.2688	275					

Table 8.D.31 New Conversions for ELA, Grade Seven (with Essay)

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	30	–0.2303	282	Below Basic
1	–4.5009	150		31	–0.1548	290	
2	–3.7926	150		32	–0.0789	297	
3	–3.3695	150		33	–0.0026	305	Basic
4	–3.0623	150		34	0.0745	313	
5	–2.8179	150		35	0.1525	321	
6	–2.6130	150		36	0.2316	329	
7	–2.4349	150		37	0.3121	337	
8	–2.2764	150		38	0.3943	345	
9	–2.1327	150		39	0.4784	354	Proficient
10	–2.0006	150		40	0.5648	363	
11	–1.8778	150		41	0.6539	372	
12	–1.7627	150		42	0.7461	381	
13	–1.6539	150		43	0.8419	391	
14	–1.5505	150		44	0.9420	401	
15	–1.4516	158		45	1.0472	412	Advanced
16	–1.3566	167		46	1.1584	423	
17	–1.2650	177		47	1.2768	435	
18	–1.1763	186		48	1.4039	448	
19	–1.0901	195		49	1.5417	462	
20	–1.0061	203		50	1.6931	477	
21	–0.9239	211		51	1.8617	494	
22	–0.8434	220		52	2.0532	514	
23	–0.7641	228	Below Basic	53	2.2763	536	
24	–0.6861	236		54	2.5450	564	
25	–0.6089	243		55	2.8855	598	
26	–0.5324	251		56	3.3555	600	
27	–0.4565	259		57	4.1304	600	
28	–0.3810	267		58	N/A	600	
29	–0.3056	274					

Table 8.D.32 New Conversions for ELA, Grade Seven (MC Only)

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.2082	284	Below Basic
1	–4.3689	150		29	–0.1300	292	
2	–3.6524	150		30	–0.0513	300	Basic
3	–3.2230	150		31	0.0279	308	
4	–2.9109	150		32	0.1080	316	
5	–2.6630	150		33	0.1892	324	
6	–2.4555	150		34	0.2716	333	
7	–2.2758	150		35	0.3557	341	
8	–2.1162	150		36	0.4418	350	Proficient
9	–1.9719	150		37	0.5301	359	
10	–1.8396	150		38	0.6211	368	
11	–1.7169	150		39	0.7154	378	
12	–1.6019	150		40	0.8134	388	
13	–1.4934	154		41	0.9159	398	
14	–1.3902	164		42	1.0237	409	Advanced
15	–1.2916	174		43	1.1378	421	
16	–1.1968	184		44	1.2597	433	
17	–1.1052	193		45	1.3912	447	
18	–1.0164	202		46	1.5345	461	
19	–0.9300	211		47	1.6931	477	
20	–0.8455	219		48	1.8717	495	
21	–0.7627	228	Below Basic	49	2.0782	516	
22	–0.6813	236		50	2.3250	541	
23	–0.6010	244		51	2.6358	573	
24	–0.5215	252		52	3.0640	600	
25	–0.4428	260		53	3.7787	600	
26	–0.3644	268		54	N/A	600	
27	–0.2863	276					

Table 8.D.33 New Conversions for ELA, Grade Eight

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.1510	289	Below Basic
1	–4.4293	150		29	–0.0700	297	
2	–3.7043	150		30	0.0115	305	Basic
3	–3.2672	150		31	0.0935	314	
4	–2.9481	150		32	0.1763	322	
5	–2.6937	150		33	0.2601	330	
6	–2.4802	150		34	0.3453	339	
7	–2.2948	150		35	0.4321	347	
8	–2.1300	150		36	0.5208	356	Proficient
9	–1.9808	150		37	0.6118	365	
10	–1.8438	150		38	0.7055	375	
11	–1.7166	150		39	0.8024	384	
12	–1.5974	150		40	0.9031	395	
13	–1.4848	156		41	1.0082	405	
14	–1.3778	166		42	1.1187	416	Advanced
15	–1.2754	177		43	1.2355	428	
16	–1.1769	187		44	1.3601	440	
17	–1.0818	196		45	1.4942	454	
18	–0.9896	205		46	1.6403	468	
19	–0.8999	214		47	1.8015	484	
20	–0.8121	223		48	1.9830	503	
21	–0.7262	232		49	2.1921	523	
22	–0.6416	240	Below Basic	50	2.4417	548	
23	–0.5583	248		51	2.7552	580	
24	–0.4759	257		52	3.1862	600	
25	–0.3942	265		53	3.9043	600	
26	–0.3129	273		54	N/A	600	
27	–0.2319	281					

Table 8.D.34 New Conversions for Mathematics, Grade Three

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.3808	283	Below Basic
1	–4.4771	150		26	–0.2905	289	
2	–3.7557	150		27	–0.1995	295	
3	–3.3213	150		28	–0.1076	302	Basic
4	–3.0042	150		29	–0.0146	308	
5	–2.7511	150		30	0.0802	315	
6	–2.5383	150		31	0.1769	321	
7	–2.3531	150		32	0.2761	328	
8	–2.1880	159		33	0.3782	335	
9	–2.0380	169		34	0.4839	342	
10	–1.8998	179		35	0.5940	350	Proficient
11	–1.7710	188		36	0.7091	358	
12	–1.6498	196		37	0.8305	366	
13	–1.5348	204		38	0.9596	375	
14	–1.4250	211		39	1.0980	384	
15	–1.3194	219		40	1.2483	395	
16	–1.2174	226		41	1.4138	406	
17	–1.1183	232	Below Basic	42	1.5994	419	
18	–1.0217	239		43	1.8126	433	Advanced
19	–0.9270	245		44	2.0662	451	
20	–0.8340	252		45	2.3839	473	
21	–0.7422	258		46	2.8187	502	
22	–0.6512	264		47	3.5409	552	
23	–0.5609	271		48	N/A	600	
24	–0.4709	277					

Table 8.D.35 New Conversions for Mathematics, Grade Four

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150		25	–0.1402	300	
1	–4.4131	150		26	–0.0455	310	
2	–3.6808	150		27	0.0497	320	**Basic**
3	–3.2360	150		28	0.1455	331	
4	–2.9087	150		29	0.2425	341	
5	–2.6459	150		30	0.3409	351	
6	–2.4237	150		31	0.4411	362	
7	–2.2294	150		32	0.5436	373	
8	–2.0556	150	**Far Below Basic**	33	0.6490	384	**Proficient**
9	–1.8971	150		34	0.7577	395	
10	–1.7508	150		35	0.8706	407	
11	–1.6141	150		36	0.9885	420	
12	–1.4853	158		37	1.1126	433	
13	–1.3630	171		38	1.2440	447	
14	–1.2461	184		39	1.3848	461	
15	–1.1338	195		40	1.5373	478	
16	–1.0252	207		41	1.7048	495	
17	–0.9199	218		42	1.8922	515	**Advanced**
18	–0.8172	229		43	2.1072	538	
19	–0.7167	239		44	2.3623	565	
20	–0.6181	250		45	2.6814	598	
21	–0.5209	260	**Below Basic**	46	3.1176	600	
22	–0.4249	270		47	3.8404	600	
23	–0.3296	280		48	N/A	600	
24	–0.2348	290					

Table 8.D.36 New Conversions for Mathematics, Grade Five

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150		25	–0.1831	300	
1	–4.3629	150		26	–0.0918	308	
2	–3.6296	150		27	0.0001	316	
3	–3.1854	150		28	0.0929	324	**Basic**
4	–2.8602	150		29	0.1869	332	
5	–2.6002	150		30	0.2824	340	
6	–2.3816	150		31	0.3800	348	
7	–2.1915	150	**Far Below Basic**	32	0.4800	357	
8	–2.0221	150		33	0.5829	366	
9	–1.8684	154		34	0.6894	375	
10	–1.7269	166		35	0.8001	385	**Proficient**
11	–1.5952	177		36	0.9160	395	
12	–1.4714	188		37	1.0381	405	
13	–1.3542	198		38	1.1678	417	
14	–1.2422	208		39	1.3068	429	
15	–1.1348	217		40	1.4577	442	
16	–1.0310	226		41	1.6237	456	
17	–0.9303	235		42	1.8097	472	
18	–0.8322	243		43	2.0234	491	**Advanced**
19	–0.7362	252		44	2.2773	513	
20	–0.6418	260	**Below Basic**	45	2.5952	540	
21	–0.5488	268		46	3.0304	578	
22	–0.4567	276		47	3.7523	600	
23	–0.3653	284		48	N/A	600	
24	–0.2742	292					

Table 8.D.37 New Conversions for Mathematics, Grade Six

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150		28	–0.1197	300	
1	–4.3047	150		29	–0.0409	310	
2	–3.5866	150		30	0.0382	320	**Basic**
3	–3.1557	150		31	0.1180	330	
4	–2.8422	150		32	0.1985	340	
5	–2.5928	150		33	0.2802	350	
6	–2.3840	150		34	0.3631	361	
7	–2.2031	150		35	0.4477	371	
8	–2.0423	150		36	0.5342	382	**Proficient**
9	–1.8970	150		37	0.6230	393	
10	–1.7636	150	**Far Below Basic**	38	0.7146	405	
11	–1.6399	150		39	0.8093	417	
12	–1.5240	150		40	0.9079	429	
13	–1.4145	150		41	1.0109	442	
14	–1.3105	150		42	1.1192	456	
15	–1.2111	163		43	1.2339	470	
16	–1.1155	175		44	1.3565	486	
17	–1.0232	187		45	1.4885	502	
18	–0.9337	198		46	1.6325	520	
19	–0.8465	209		47	1.7917	540	**Advanced**
20	–0.7614	219		48	1.9711	563	
21	–0.6780	230		49	2.1783	589	
22	–0.5960	240		50	2.4258	600	
23	–0.5151	250		51	2.7374	600	
24	–0.4351	260	**Below Basic**	52	3.1665	600	
25	–0.3558	270		53	3.8826	600	
26	–0.2769	280		54	N/A	600	
27	–0.1983	290					

Table 8.D.38 New Conversions for Mathematics, Grade Seven

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	0.1579	326	Basic
1	–3.9934	150		29	0.2364	338	
2	–3.2777	150		30	0.3153	351	Proficient
3	–2.8491	150		31	0.3949	363	
4	–2.5378	150		32	0.4754	376	
5	–2.2906	150		33	0.5571	389	
6	–2.0838	150		34	0.6400	403	
7	–1.9047	150		35	0.7248	416	
8	–1.7458	150		36	0.8114	430	
9	–1.6021	150		37	0.9005	444	Advanced
10	–1.4703	150		38	0.9924	459	
11	–1.3481	150		39	1.0875	474	
12	–1.2336	150		40	1.1865	490	
13	–1.1255	150		41	1.2901	507	
14	–1.0228	150		42	1.3990	524	
15	–0.9245	152		43	1.5145	543	
16	–0.8300	167		44	1.6378	563	
17	–0.7387	182		45	1.7707	584	
18	–0.6502	196		46	1.9157	600	
19	–0.5639	210		47	2.0761	600	
20	–0.4796	223		48	2.2568	600	
21	–0.3969	237	Below Basic	49	2.4653	600	
22	–0.3156	250		50	2.7144	600	
23	–0.2353	263		51	3.0278	600	
24	–0.1559	275		52	3.4587	600	
25	–0.0771	288		53	4.1769	600	
26	0.0014	300	Basic	54	N/A	600	
27	0.0796	313					

Table 8.D.39 New Conversions for Science, Grade Five

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	24	–0.3803	304	Basic
1	–4.3909	150		25	–0.2909	311	
2	–3.6680	150		26	–0.2012	317	
3	–3.2323	150		27	–0.1110	324	
4	–2.9140	150		28	–0.0200	331	
5	–2.6599	150		29	0.0723	338	
6	–2.4463	150		30	0.1661	345	
7	–2.2604	164		31	0.2619	352	Proficient
8	–2.0947	176		32	0.3601	359	
9	–1.9443	188		33	0.4612	367	
10	–1.8058	198		34	0.5659	374	
11	–1.6768	207		35	0.6747	382	
12	–1.5554	217		36	0.7887	391	
13	–1.4404	225		37	0.9089	400	
14	–1.3306	233		38	1.0366	409	Advanced
15	–1.2251	241		39	1.1736	420	
16	–1.1233	249	Below Basic	40	1.3225	431	
17	–1.0245	256		41	1.4864	443	
18	–0.9281	263		42	1.6704	457	
19	–0.8339	270		43	1.8818	472	
20	–0.7412	277		44	2.1337	491	
21	–0.6499	284		45	2.4494	515	
22	–0.5595	291		46	2.8824	547	
23	–0.4697	297		47	3.6022	600	
				48	N/A	600	

Table 8.D.40 New Conversions for Science, Grade Eight

Raw Score	Theta	Scale Score	Performance Level	Raw score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.0879	314	Basic
1	–4.3024	150		29	–0.0088	321	
2	–3.5811	150		30	0.0706	328	
3	–3.1475	150		31	0.1506	335	
4	–2.8315	150		32	0.2313	343	
5	–2.5801	150		33	0.3132	350	Proficient
6	–2.3693	150		34	0.3963	357	
7	–2.1866	150		35	0.4810	365	
8	–2.0243	150		36	0.5677	373	
9	–1.8775	154		37	0.6566	381	
10	–1.7429	166		38	0.7482	389	
11	–1.6180	177		39	0.8430	397	
12	–1.5011	188		40	0.9416	406	Advanced
13	–1.3907	197		41	1.0446	415	
14	–1.2858	207		42	1.1530	425	
15	–1.1855	216		43	1.2677	435	
16	–1.0892	224		44	1.3901	446	
17	–0.9962	233		45	1.5221	458	
18	–0.9061	241		46	1.6659	471	
19	–0.8184	249		47	1.8249	485	
20	–0.7327	256		48	2.0042	501	
21	–0.6488	264	Below Basic	49	2.2111	520	
22	–0.5663	271		50	2.4583	542	
23	–0.4850	279		51	2.7696	570	
24	–0.4046	286		52	3.1983	600	
25	–0.3249	293		53	3.9139	600	
26	–0.2457	300	Basic	54	N/A	600	
27	–0.1667	307					

Appendix 8.E—DIF Analyses

Table 8.E.1 Operational Items Exhibiting Significant DIF

Content Area	Accession No.	Grade	Item Seq	MHD-DIF	Comparison	In Favor Of
English–Language Arts	VC325567	3	31	–2.13	WHITE/FILIPINO	WHITE
	VC326880	3	3	2.05	SLD/AUT	AUT
	VE049074	3	57	–1.86	SLD/ED	SLD
	VE049074	3	57	–1.65	SLD/MR	SLD
	VE049084	4	46	2.56	WHITE/FILIPINO	FILIPINO
	VE049084	4	46	1.72	WHITE/COMBASIAN	COMBASIAN
	VC326607	4	4	–1.59	SLD/AUT	SLD
	VE049084	4	46	2.19	SLD/AUT	AUT
	VE049131	5	40	1.73	WHITE/ASIAN	ASIAN
	VE049131	5	40	2.00	SLD/AUT	AUT
	VC743596	6	30	–1.81	WHITE/ASIAN	WHITE
	VC743471	6	59	1.86	WHITE/ASIAN	ASIAN
	VC743471	6	59	2.40	WHITE/FILIPINO	FILIPINO
	VC743471	6	59	1.97	WHITE/COMBASIAN	COMBASIAN
	VC743441	6	1	–2.08	SLD/AUT	SLD
	VC743443	6	2	–2.07	SLD/AUT	SLD
	VC743533	6	10	–1.60	SLD/AUT	SLD
	VC743514	6	39	1.91	SLD/AUT	AUT
	VC743471	6	59	1.92	SLD/AUT	AUT
	VC744647	7	64	SMD: 0.209 SE SMD: 0.015	MALE/FEMALE	FEMALE
	VC743739	7	21	–1.71	SLD/AUT	SLD
	VC744647	7	64	SMD: –0.414 SE SMD: 0.035	SLD/AUT	SLD
	VC744647	7	64	SMD: –0.277 SE SMD: 0.038	SLD/ED	SLD
	VC743656	7	57	2.44	SLD/HH	HH
	VC744647	7	64	SMD: –0.416 SE SMD: 0.050	SLD/MR	SLD
	VC743883	8	3	–2.14	SLD/AUT	SLD
	VC743916	8	11	–2.59	SLD/AUT	SLD
	VC743928	8	19	1.77	SLD/AUT	AUT
	VC743837	8	61	1.64	SLD/AUT	AUT
	VC743816	8	62	1.66	SLD/AUT	AUT
	VC743880	8	1	–1.60	SLD/MR	SLD
	VC743883	8	3	–1.86	SLD/MR	SLD
Mathematics	VC744067	6	1	–1.81	WHITE/FILIPINO	WHITE
	VC744278	7	19	2.43	WHITE/ASIAN	ASIAN
	VC744278	7	19	2.01	WHITE/COMBASIAN	COMBASIAN
	VC744422	7	55	–2.09	SLD/MR	SLD
	VC744422	7	55	–1.90	SLD/OI	SLD
Science	VC327146	5	34	–1.75	WHITE/FILIPINO	WHITE
	VC327253	5	54	1.57	SLD/AUT	AUT
	VC327253	5	54	1.98	SLD/OI	OI
	VC744534	8	3	–1.59	SLD/MR	SLD
	VE286413	10	60	2.25	SLF/AUT	AUT

Table 8.E.2 Field Test Items Exhibiting Significant DIF

Content Area	Accession No.	Grade	Item Seq	MHD-DIF	Comparison	In Favor Of
English–Language-Arts	VE331899	7	55	1.91	SLD/AUT	AUT
	VE331908	8	56	1.91	SLD/MR	MR
Mathematics *	–	–	–	–	–	–
Science *	–	–	–	–	–	–

* No field-test items exhibited significant DIF.

Table 8.E.3 DIF Classifications for ELA, Grade Three Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	1	2	5	10	5	10	0	0	0	0	3	6	0	0	3	6	0	0	0	0	0	0	4	8	0	0	0	0	0	0	0	0	0	0	0	0	11	23
A+	25	52	22	46	21	44	18	38	21	44	20	42	0	0	21	44	27	56	18	38	0	0	30	63	0	0	22	46	0	0	0	0	24	50	21	44	0	0	0	0	12	25
A-	23	48	26	54	26	54	24	50	16	33	28	58	0	0	22	46	21	44	24	50	0	0	14	29	0	0	19	40	0	0	0	0	24	50	27	56	0	0	0	0	12	25
B-	0	0	0	0	0	0	1	2	5	10	0	0	0	0	2	4	0	0	2	4	0	0	3	6	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	10	21
C-	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	4
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	48	100	0	0	48	100	48	100	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.4 DIF Classifications for ELA, Grade Four Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	0	0	2	4	1	2	0	0	0	0	0	0	1	2	0	0	0	0	2	4	5	10	1	2	0	0	0	0	0	0	1	2	0	0	0	0	7	15
A+	27	56	25	52	27	56	21	44	21	44	25	52	0	0	23	48	22	46	23	48	0	0	20	42	16	33	22	46	0	0	0	0	23	48	22	46	0	0	0	0	16	33
A-	21	44	23	48	21	44	24	50	23	48	23	48	0	0	24	50	25	52	23	48	0	0	26	54	25	52	22	46	0	0	0	0	25	52	25	52	0	0	0	0	16	33
B-	0	0	0	0	0	0	1	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	3	6	0	0	0	0	0	0	0	0	0	0	0	0	7	15
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.5 DIF Classifications for ELA, Grade Five Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	0	0	3	6	3	6	0	0	0	0	2	4	0	0	0	0	0	0	1	2	2	4	1	2	0	0	2	4	0	0	0	0	0	0	0	0	8	17
A+	27	56	27	56	24	50	23	48	24	50	27	56	0	0	26	54	27	56	24	50	0	0	22	46	21	44	24	50	0	0	22	46	23	48	23	48	0	0	0	0	15	31
A-	20	42	21	44	24	50	17	35	18	38	21	44	0	0	17	35	21	44	17	35	0	0	25	52	22	46	23	48	0	0	23	48	25	52	25	52	0	0	0	0	13	27
B-	1	2	0	0	0	0	4	8	3	6	0	0	0	0	3	6	0	0	6	13	0	0	0	0	3	6	0	0	0	0	1	2	0	0	0	0	0	0	0	0	11	23
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.6 DIF Classifications for ELA, Grade Six Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	1	2	1	2	0	0	0	0	1	2	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
B+	0	0	0	0	1	2	2	4	2	4	0	0	0	0	2	4	0	0	1	2	0	0	0	0	0	0	2	4	0	0	0	0	0	0	1	2	0	0	0	0	5	9
A+	28	52	24	44	27	50	22	41	25	46	23	43	0	0	22	41	29	54	26	48	0	0	27	50	0	0	26	48	0	0	0	0	28	52	26	48	0	0	0	0	20	37
A-	26	48	30	56	26	48	25	46	22	41	31	57	0	0	27	50	24	44	21	39	0	0	26	48	0	0	22	41	0	0	0	0	26	48	27	50	0	0	0	0	19	35
B-	0	0	0	0	0	0	3	6	4	7	0	0	0	0	2	4	1	2	1	2	0	0	1	2	0	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0	4	7
C-	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	7
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	54	100	0	0	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.7 DIF Classifications for ELA, Grade Seven Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	1	2	3	5	4	7	0	0	0	0	1	2	0	0	3	5	0	0	0	0	4	7	1	2	0	0	1	2	0	0	1	2	0	0	0	0	12	22
A+	34	62	24	44	28	51	25	45	20	36	28	51	0	0	27	49	28	51	26	47	0	0	26	47	23	42	26	47	0	0	27	49	26	47	26	47	0	0	0	0	16	29
A-	19	35	31	56	26	47	24	44	25	45	27	49	0	0	26	47	27	49	20	36	0	0	28	51	22	40	25	45	0	0	23	42	29	53	28	51	0	0	0	0	15	27
B-	1	2	0	0	0	0	3	5	5	9	0	0	0	0	1	2	0	0	4	7	0	0	0	0	4	7	2	4	0	0	3	5	0	0	0	0	0	0	0	0	9	16
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	4
Small N	0	0	0	0	0	0	0	0	1	2	0	0	55	100	0	0	0	0	0	0	55	100	0	0	1	2	0	0	55	100	1	2	0	0	0	0	55	100	55	100	0	0
TOTAL	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100

Table 8.E.8 DIF Classifications for ELA, Grade Eight Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6
B+	0	0	0	0	0	0	6	11	0	0	0	0	0	0	4	7	0	0	2	4	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	7	13
A+	25	46	28	52	29	54	19	35	30	56	29	54	0	0	19	35	32	59	27	50	0	0	24	44	0	0	26	48	0	0	0	0	27	50	27	50	0	0	0	0	20	37
A-	29	54	26	48	23	43	25	46	21	39	25	46	0	0	29	54	22	41	16	30	0	0	30	56	0	0	22	41	0	0	0	0	27	50	26	48	0	0	0	0	15	28
B-	0	0	0	0	2	4	4	7	3	6	0	0	0	0	2	4	0	0	4	7	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	6	11
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	3	6
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	54	100	0	0	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.9 DIF Classifications for ELA, Grade Nine Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	1	2	0	0	0	0	0	0	0	0	2	3	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	4	7
A+	31	52	31	52	30	50	0	0	0	0	35	58	0	0	24	40	36	60	32	53	0	0	29	48	0	0	26	43	0	0	0	0	33	55	29	48	0	0	0	0	22	37
A-	29	48	29	48	29	48	0	0	0	0	25	42	0	0	32	53	24	40	25	42	0	0	30	50	0	0	33	55	0	0	0	0	27	45	29	48	0	0	0	0	28	47
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	2	3	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	6	10
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	60	100	60	100	0	0	60	100	0	0	0	0	0	0	60	100	0	0	60	100	0	0	60	100	60	100	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.10 DIF Classifications for Mathematics, Grade Three Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	1	2	2	4	0	0	0	0	0	0	1	2	0	0	1	2	0	0	1	2	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	7	15
A+	25	52	23	48	22	46	23	48	0	0	23	48	0	0	18	38	28	58	23	48	0	0	24	50	0	0	19	40	0	0	0	0	22	46	26	54	0	0	0	0	15	31
A-	23	48	25	52	25	52	22	46	0	0	25	52	0	0	28	58	20	42	24	50	0	0	20	42	0	0	27	56	0	0	0	0	26	54	22	46	0	0	0	0	21	44
B-	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	48	100	0	0	48	100	0	0	0	0	0	0	48	100	0	0	48	100	0	0	48	100	48	100	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.11 DIF Classifications for Mathematics, Grade Four Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	1	2	0	0	1	2	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	2	4	0	0	0	0	0	0	0	0	8	17
A+	25	52	25	52	21	44	26	54	22	46	27	56	0	0	25	52	27	56	25	52	0	0	23	48	0	0	21	44	0	0	19	40	25	52	24	50	0	0	0	0	19	40
A-	22	46	23	48	25	52	18	38	24	50	21	44	0	0	22	46	21	44	21	44	0	0	24	50	0	0	22	46	0	0	26	54	23	48	24	50	0	0	0	0	14	29
B-	0	0	0	0	1	2	3	6	1	2	0	0	0	0	1	2	0	0	2	4	0	0	1	2	0	0	3	6	0	0	1	2	0	0	0	0	0	0	0	0	7	15
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	48	100	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.12 DIF Classifications for Mathematics, Grade Five Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	2	4	4	8	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	7	15
A+	27	56	27	56	20	42	23	48	19	40	25	52	0	0	26	54	26	54	25	52	0	0	21	44	0	0	23	48	0	0	26	54	23	48	25	52	0	0	0	0	17	35
A-	21	44	21	44	28	58	20	42	23	48	23	48	0	0	21	44	21	44	23	48	0	0	27	56	0	0	20	42	0	0	19	40	25	52	23	48	0	0	0	0	15	31
B-	0	0	0	0	0	0	3	6	2	4	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3	6	0	0	3	6	0	0	0	0	0	0	0	0	9	19
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	48	100	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.13 DIF Classifications for Mathematics, Grade Six Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	1	2	0	0	1	2	2	4	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	5	9
A+	31	57	26	48	28	52	27	50	26	48	29	54	0	0	31	57	33	61	28	52	0	0	26	48	0	0	26	48	0	0	0	0	30	56	29	54	0	0	0	0	26	48
A-	22	41	28	52	25	46	24	44	23	43	25	46	0	0	21	39	21	39	26	48	0	0	28	52	0	0	26	48	0	0	0	0	24	44	25	46	0	0	0	0	19	35
B-	0	0	0	0	0	0	1	2	2	4	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	6
C-	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	54	100	0	0	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.14 DIF Classifications for Mathematics, Grade Seven Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	0	0	2	4	5	9	0	0	0	0	1	2	0	0	1	2	0	0	0	0	2	4	1	2	0	0	3	6	0	0	0	0	0	0	0	0	7	13
A+	27	50	28	52	23	43	24	44	16	30	25	46	0	0	23	43	24	44	27	50	0	0	29	54	25	46	29	54	0	0	25	46	31	57	25	46	0	0	0	0	19	35
A-	27	50	26	48	30	56	26	48	32	59	29	54	0	0	28	52	30	56	25	46	0	0	25	46	25	46	23	43	0	0	21	39	23	43	29	54	0	0	0	0	19	35
B-	0	0	0	0	1	2	1	2	1	2	0	0	0	0	1	2	0	0	1	2	0	0	0	0	2	4	0	0	0	0	4	7	0	0	0	0	0	0	0	0	7	13
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.15 DIF Classifications for Mathematics, Algebra I Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	1	2	0	0	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	7
A+	30	50	36	60	32	53	33	55	25	42	28	47	0	0	33	55	39	65	30	50	0	0	29	48	0	0	29	48	0	0	0	0	31	52	28	47	0	0	0	0	23	38
A-	30	50	24	40	26	43	23	38	30	50	32	53	0	0	26	43	21	35	30	50	0	0	31	52	0	0	27	45	0	0	0	0	29	48	32	53	0	0	0	0	22	37
B-	0	0	0	0	1	2	4	7	2	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0	11	18
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	0	0	0	0	60	100	0	0	0	0	0	0	60	100	0	0	60	100	0	0	60	100	60	100	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.16 DIF Classifications for Science, Grade Five Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	1	2	1	2	1	2	0	0	0	0	0	0	0	0	3	6	0	0	0	0	3	6	1	2	0	0	0	0	0	0	0	0	0	0	0	0	7	15
A+	26	54	28	58	24	50	24	50	27	56	23	48	0	0	24	50	24	50	20	42	0	0	24	50	24	50	27	56	0	0	25	52	24	50	24	50	0	0	0	0	15	31
A-	21	44	20	42	23	48	21	44	17	35	25	52	0	0	23	48	23	48	22	46	0	0	24	50	17	35	17	35	0	0	18	38	24	50	24	50	0	0	0	0	13	27
B-	1	2	0	0	0	0	2	4	2	4	0	0	0	0	1	2	1	2	2	4	0	0	0	0	4	8	3	6	0	0	4	8	0	0	0	0	0	0	0	0	11	23
C-	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.17 DIF Classifications for Science, Grade Eight Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	2	4	4	7	1	2	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	7	13
A+	30	56	30	56	24	44	20	37	30	56	29	54	0	0	24	44	30	56	31	57	0	0	28	52	0	0	27	50	0	0	0	0	29	54	27	50	0	0	0	0	20	37
A-	24	44	24	44	27	50	27	50	22	41	25	46	0	0	28	52	24	44	19	35	0	0	26	48	0	0	23	43	0	0	0	0	25	46	27	50	0	0	0	0	20	37
B-	0	0	0	0	1	2	3	6	1	2	0	0	0	0	1	2	0	0	3	6	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	6	11
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	54	100	0	0	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.18 DIF Classifications for Science, Grade Ten Life Science Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	5	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	7	12
A+	30	50	30	50	0	0	0	0	0	0	27	45	0	0	29	48	34	57	23	38	0	0	30	50	0	0	0	0	0	0	0	0	33	55	30	50	0	0	0	0	16	27
A-	29	48	30	50	0	0	0	0	0	0	33	55	0	0	26	43	26	43	29	48	0	0	30	50	0	0	0	0	0	0	0	0	27	45	28	47	0	0	0	0	30	50
B-	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	10
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	60	100	60	100	60	100	0	0	60	100	0	0	0	0	0	0	60	100	0	0	60	100	60	100	60	100	60	100	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.19 DIF Classifications for ELA, Grade Three Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	4	0	0	0	0	6	11
A+	16	30	14	26	0	0	0	0	0	0	21	39	0	0	0	0	19	35	23	43	0	0	0	0	0	0	0	0	0	0	0	0	27	50	21	39	0	0	0	0	14	26
A-	37	69	38	70	0	0	0	0	0	0	31	57	0	0	0	0	35	65	18	33	0	0	0	0	0	0	0	0	0	0	0	0	23	43	27	50	0	0	0	0	23	43
B-	1	2	2	4	0	0	0	0	0	0	2	4	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	6	4	7	0	0	0	0	11	20
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	9	17	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.20 DIF Classifications for ELA, Grade Four Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
A+	16	36	10	22	0	0	0	0	0	0	14	31	0	0	6	13	9	20	23	51	0	0	0	0	0	0	0	0	0	0	0	0	26	58	24	53	0	0	0	0	18	40
A-	29	64	34	76	0	0	0	0	0	0	31	69	0	0	11	24	36	80	19	42	0	0	0	0	0	0	0	0	0	0	0	0	19	42	21	47	0	0	0	0	22	49
B-	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	45	100	45	100	45	100	0	0	45	100	27	60	0	0	0	0	45	100	45	100	45	100	45	100	45	100	45	100	0	0	0	0	45	100	45	100	0	0
TOTAL	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100

Table 8.E.21 DIF Classifications for ELA, Grade Five Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2	4
A+	23	43	22	41	0	0	0	0	0	0	26	48	0	0	0	0	25	46	23	43	0	0	0	0	0	0	0	0	0	0	0	0	30	56	32	59	0	0	0	0	22	41
A-	31	57	32	59	0	0	0	0	0	0	28	52	0	0	0	0	29	54	19	35	0	0	0	0	0	0	0	0	0	0	0	0	23	43	22	41	0	0	0	0	28	52
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	9	17	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.22 DIF Classifications for ELA, Grade Six Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8
A+	17	47	9	25	0	0	0	0	0	0	12	33	0	0	8	22	10	28	14	39	0	0	16	44	0	0	0	0	0	0	0	0	15	42	11	31	0	0	0	0	7	19
A-	19	53	27	75	0	0	0	0	0	0	24	67	0	0	14	39	25	69	21	58	0	0	17	47	0	0	0	0	0	0	0	0	21	58	25	69	0	0	0	0	19	53
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	11	1	3	1	3	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	19
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	36	100	36	100	36	100	0	0	36	100	9	25	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.23 DIF Classifications for ELA, Grade Seven Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	2	6	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	6	0	0	0	0	4	11
A+	23	64	12	33	0	0	0	0	0	0	15	42	0	0	5	14	11	31	12	33	0	0	19	53	0	0	0	0	0	0	0	0	14	39	18	50	0	0	0	0	10	28
A-	13	36	24	67	0	0	0	0	0	0	21	58	0	0	12	33	25	69	16	44	0	0	16	44	0	0	0	0	0	0	0	0	21	58	15	42	0	0	0	0	15	42
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	14	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	6	17
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	36	100	36	100	36	100	0	0	36	100	18	50	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.24 DIF Classifications for ELA, Grade Eight Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	3
B+	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	1	3	0	0	0	0	0	0	3	9	0	0	0	0	4	11
A+	20	57	18	51	0	0	0	0	0	0	20	57	0	0	6	17	21	60	4	11	0	0	5	14	0	0	4	11	0	0	0	0	13	37	14	40	0	0	0	0	10	29
A-	14	40	17	49	0	0	0	0	0	0	15	43	0	0	3	9	14	40	5	14	0	0	12	34	0	0	2	6	0	0	0	0	22	63	17	49	0	0	0	0	18	51
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	1	3	0	0	0	0	0	0	1	3	0	0	0	0	2	6
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	35	100	35	100	35	100	0	0	35	100	26	74	0	0	25	71	35	100	17	49	35	100	26	74	35	100	35	100	0	0	0	0	35	100	35	100	0	0
TOTAL	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100	35	100

Table 8.E.25 DIF Classifications for ELA, Grade Nine Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	1	3
A+	25	68	18	49	0	0	0	0	0	0	21	57	0	0	3	8	11	30	2	5	0	0	1	3	0	0	0	0	0	0	0	0	11	30	1	3	0	0	0	0	17	46
A-	12	32	18	49	0	0	0	0	0	0	16	43	0	0	0	0	26	70	1	3	0	0	2	5	0	0	0	0	0	0	0	0	24	65	2	5	0	0	0	0	17	46
B-	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	2	5
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	37	100	37	100	37	100	0	0	37	100	34	92	0	0	34	92	37	100	34	92	37	100	37	100	37	100	37	100	0	0	34	92	37	100	37	100	0	0
TOTAL	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100

Table 8.E.26 DIF Classifications for Mathematics, Grade Three Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	6	11
A+	24	44	24	44	0	0	0	0	0	0	27	50	0	0	0	0	22	41	15	28	0	0	0	0	0	0	0	0	0	0	0	0	30	56	22	41	0	0	0	0	16	30
A-	28	52	27	50	0	0	0	0	0	0	26	48	0	0	0	0	32	59	23	43	0	0	0	0	0	0	0	0	0	0	0	0	24	44	30	56	0	0	0	0	25	46
B-	2	4	2	4	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	7	13
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	9	17	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.27 DIF Classifications for Mathematics, Grade Four Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
A+	28	62	23	51	0	0	0	0	0	0	23	51	0	0	6	13	24	53	16	36	0	0	0	0	0	0	0	0	0	0	0	0	18	40	21	47	0	0	0	0	15	33
A-	17	38	22	49	0	0	0	0	0	0	22	49	0	0	3	7	21	47	25	56	0	0	0	0	0	0	0	0	0	0	0	0	27	60	24	53	0	0	0	0	26	58
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	45	100	45	100	45	100	0	0	45	100	36	80	0	0	0	0	45	100	45	100	45	100	45	100	45	100	45	100	0	0	0	0	45	100	45	100	0	0
TOTAL	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100

Table 8.E.28 DIF Classifications for Mathematics, Grade Five Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	6
A+	27	50	22	41	0	0	0	0	0	0	15	28	0	0	0	0	23	43	20	37	0	0	0	0	0	0	0	0	0	0	0	0	28	52	21	39	0	0	0	0	21	39
A-	23	43	31	57	0	0	0	0	0	0	39	72	0	0	0	0	31	57	22	41	0	0	0	0	0	0	0	0	0	0	0	0	26	48	32	59	0	0	0	0	26	48
B-	3	6	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	7
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	9	17	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.29 DIF Classifications for Mathematics, Grade Six Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A+	21	58	15	42	0	0	0	0	0	0	15	42	0	0	5	14	16	44	14	39	0	0	13	36	0	0	0	0	0	0	0	0	20	56	19	53	0	0	0	0	17	47
A-	15	42	21	58	0	0	0	0	0	0	21	58	0	0	4	11	20	56	22	61	0	0	23	64	0	0	0	0	0	0	0	0	16	44	17	47	0	0	0	0	19	53
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	36	100	36	100	36	100	0	0	36	100	27	75	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.30 DIF Classifications for Mathematics, Grade Seven Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	1	3
A+	14	39	26	72	0	0	0	0	0	0	25	69	0	0	0	0	21	58	16	44	0	0	13	36	0	0	0	0	0	0	0	0	17	47	18	50	0	0	0	0	11	31
A-	21	58	10	28	0	0	0	0	0	0	11	31	0	0	0	0	15	42	20	56	0	0	21	58	0	0	0	0	0	0	0	0	18	50	17	47	0	0	0	0	20	56
B-	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4	11
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	36	100	36	100	36	100	0	0	36	100	36	100	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.31 DIF Classifications for Mathematics, Algebra I Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	2	5
A+	15	38	13	33	0	0	0	0	0	0	16	40	0	0	0	0	23	58	3	8	0	0	10	25	0	0	0	0	0	0	0	0	17	43	17	43	0	0	0	0	10	25
A-	25	63	27	68	0	0	0	0	0	0	24	60	0	0	0	0	17	43	6	15	0	0	17	43	0	0	0	0	0	0	0	0	22	55	21	53	0	0	0	0	24	60
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	2	5	0	0	0	0	0	0	0	0	0	0	2	5	0	0	0	0	4	10
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	40	100	40	100	40	100	0	0	40	100	40	100	0	0	30	75	40	100	10	25	40	100	40	100	40	100	40	100	0	0	0	0	40	100	40	100	0	0
TOTAL	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100

Table 8.E.32 DIF Classifications for Science, Grade Five Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	6
A+	24	44	21	39	0	0	0	0	0	0	25	46	0	0	0	0	24	44	29	54	0	0	0	0	0	0	0	0	0	0	0	0	30	56	31	57	0	0	0	0	25	46
A-	30	56	31	57	0	0	0	0	0	0	29	54	0	0	0	0	30	56	14	26	0	0	0	0	0	0	0	0	0	0	0	0	23	43	23	43	0	0	0	0	24	44
B-	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	9	17	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.33 DIF Classifications for Science, Grade Eight Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	4	7
A+	25	46	21	39	0	0	0	0	0	0	20	37	0	0	0	0	27	50	0	0	0	0	2	4	0	0	0	0	0	0	0	0	27	50	23	43	0	0	0	0	21	39
A-	25	46	32	59	0	0	0	0	0	0	34	63	0	0	0	0	27	50	0	0	0	0	6	11	0	0	0	0	0	0	0	0	26	48	21	39	0	0	0	0	25	46
B-	2	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	4	7
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	54	100	54	100	45	83	54	100	54	100	54	100	54	100	0	0	9	17	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.34 DIF Classifications for Science, Grade Ten Life Science Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
A+	19	53	0	0	0	0	0	0	0	0	19	53	0	0	0	0	15	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	28
A-	12	33	0	0	0	0	0	0	0	0	17	47	0	0	0	0	21	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	58
B-	3	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	36	100	36	100	36	100	36	100	0	0	36	100	36	100	0	0	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Chapter 9: Quality Control Procedures

ETS implements rigorous quality control procedures throughout the test development, administration, scoring, and reporting processes. As part of this effort, ETS maintains an Office of Testing Integrity (OTI) that resides in the ETS legal department. OTI provides quality assurance services for all testing programs administered by ETS. In addition, the Office of Professional Standards Compliance at ETS publishes and maintains the *ETS Standards for Quality and Fairness,* which supports the OTI's goals and activities. The purposes of the *ETS Standards for Quality and Fairness* are to help ETS design, develop, and deliver technically sound, fair, and useful products and services; and to help the public and auditors evaluate those products and services.

In addition, each department at ETS that is involved in the testing cycle designs and implements an independent set of procedures to ensure the quality of their products. In the next sections, these procedures are described.

Quality Control of Item Development

The item development process for the CMA is described in detail in Chapter 3, starting on page 74. The next sections highlight elements of the process devoted specifically to quality control of item development.

Item Specifications

ETS maintains item development specifications for each CMA and has developed an item utilization plan to guide the development of the items for each content area. Item writing emphasis is determined in consultation with the CDE. Adherence to the specifications ensures the maintenance of quality and consistency of the item development process.

Item Writers

The items for each CMA are written by item writers that have a thorough understanding of the California content standards. The item writers are carefully screened and selected by senior ETS content staff and approved by the CDE. Only those with strong content and teaching backgrounds are invited to participate in an extensive training program for item writers.

Internal Contractor Reviews

Once items have been written, ETS assessment specialists make sure that each item goes through an intensive internal review process. Every step of this process is designed to produce items that exceed industry standards for quality. It includes three rounds of content reviews, two rounds of editorial reviews, an internal fairness review, and a high-level review and approval by a content area director. A carefully designed and monitored workflow and detailed checklists help to ensure that all items meet the specifications for the process.

Content Review

ETS assessment specialists make sure that the test items and related materials comply with ETS's written guidelines for clarity, style, accuracy, and appropriateness and with approved item specifications.

The artwork and graphics for the items are created during the internal content review period so assessment specialists can evaluate the correctness and appropriateness of the art early in the item development process. ETS selects visuals that are relevant to the item content

and that are easily understood so students do not struggle to determine the purpose or meaning of the questions.

Editorial Review

Another step in the ETS internal review process involves a team of specially trained editors who check questions for clarity, correctness of language, grade-level appropriateness of language, adherence to style guidelines, and conformity to acceptable item-writing practices. The editorial review also includes rounds of copyediting and proofreading. ETS takes pride in the typographical integrity of the items presented to our clients and strives for error-free items beginning with the initial rounds of review.

Fairness Review

One of the final steps in the ETS internal review process is to have all items and stimuli reviewed for fairness. Only ETS staff members who have participated in the ETS Fairness Training, a rigorous internal training course, conduct this bias and sensitivity review. These staff members have been trained to identify and eliminate test questions that contain content that could be construed as offensive to, or biased against, members of specific ethnic, racial, or gender groups.

Assessment Director Review

As a final quality control step, the content area's assessment director or another senior-level content reviewer will read each item before it is presented to the CDE.

Assessment Review Panel Review

The ARPs are panels that advise the CDE and ETS on areas related to item development for the CMA. The ARPs are responsible for reviewing all newly developed items for alignment to the California content standards. The ARPs also review the items for accuracy of content, clarity of phrasing, and quality.

Statewide Pupil Assessment Review Panel Review

The SPAR panel is responsible for reviewing and approving a single achievement test to be used statewide for the testing of students in California public schools in grades two through eleven. The SPAR panel representatives ensure that the test items conform to the requirements of *EC* Section 60602. The constructed-response writing tasks are also presented to the SPAR panel for review. If the SPAR panel rejects specific items and/or constructed-response writing tasks, the items and/or tasks are replaced with other items and/or tasks.

Data Review of Field-tested Items

ETS field tests newly developed items to obtain statistical information about item performance. This information is used to evaluate items that are candidates for use in operational test forms. The items and item statistics are examined carefully at data review meetings, which is where content experts discuss items that have poor statistics and do not meet the psychometric criteria for item quality. The CDE defines the criteria for acceptable or unacceptable item statistics. These criteria ensure that the item (1) has an appropriate level of difficulty for the target population; (2) discriminates well between examinees that differ in ability; and (3) conforms well to the statistical model underlying the measurement of the intended constructs. The results of analyses for differential item functioning (DIF) are used to make judgments about the appropriateness of items for various subgroups.

The panelists respond to questions such as:

- Are there any instructional issues that have negatively affected the performance of the item?
- Is there a content problem within the item?

The panelists make recommendations about whether to accept or reject each item for inclusion in the California item bank.

Quality Control of the Item Bank

After the data review meetings, items are placed in the item bank along with their statistics and reviewers' evaluations of their quality. ETS then delivers the items to the CDE through the California electronic item bank. The item bank database is maintained by a staff of application systems programmers, led by the Item Bank Manager, at ETS. All processes are logged; all change requests—including item bank updates for item availability status—are tracked; and all output and California item bank deliveries are quality-controlled for accuracy.

Quality of the item bank and secure transfer of the California item bank to the CDE is very important. The ETS internal item bank database resides on a server within the ETS firewall; access to the SQL Server database is strictly controlled by means of system administration. The electronic item banking application includes a login/password system to authorize access to the database or designated portions of the database. In addition, only users authorized to access the specific database are able to use the item bank. Users are authorized by a designated administrator at the CDE and at ETS.

ETS has extensive experience in accurate and secure data transfer of many types including CDs, secure remote hosting, secure Web access, and secure file transfer protocol (SFTP), which is the current method used to deliver the California electronic item bank to the CDE. In addition, all files posted on the SFTP site by the Item Bank staff are encrypted with a password.

The measures taken for ensuring the accuracy, confidentiality, and security of electronic files are as follows:

- Electronic forms of test content, documentation, and item banks are backed up electronically, with the backup media kept offsite, to prevent loss from system breakdown or a natural disaster.
- The offsite backup files are kept in secure storage, with access limited to authorized personnel only.
- Advanced network security measures are used to prevent unauthorized electronic access to the item bank.

Quality Control of Test Form Development

The ETS Assessment Development group is committed to providing the highest quality product to the students of California and has in place a number of quality control checks to ensure that outcome. During the item development process, there are multiple senior reviews of items and passages, including one by the Assessment Director. Test forms certification is a formal quality control process established as a final checkpoint prior to printing. In it, content, editorial, and senior development staff review test forms for accuracy and clueing issues.

ETS also includes quality checks throughout preparation of the form planners. A form planner specifications document is developed by the test development team lead with input from ETS's item bank and statistics groups; this form is then reviewed by all team members who build forms at a training specific to form planners. After trained content team members sign off on a form planner, a representative from the internal QC group reviews each file for accuracy against the specifications document. Assessment Directors review and sign off on form planners prior to processing.

As processes are refined and enhanced, ETS will implement further QC checks as appropriate.

Quality Control of Test Materials

Collecting Test Materials

Once the tests are administered, school districts return scorable and nonscorable materials within five working days after the last selected testing day of each test administration period. School districts return the CMA writing booklets within two working days after the makeup day for each administration. The freight return kits provided to the districts contain color-coded labels identifying scorable and nonscorable materials and labels with bar-coded information identifying the school and district. The school districts apply the appropriate labels and number the cartons prior to returning the materials to the processing center by means of their assigned carrier. The use of the color-coded labels streamlines the return process.

All scorable materials are delivered to the Pearson scanning and scoring facilities in Iowa City, Iowa. The nonscorable materials, including test booklets, are returned to the Security Processing Department in Pearson's Cedar Rapids, Iowa, facility. ETS and Pearson closely monitor the return of materials. The STAR Technical Assistance Center (TAC) at ETS monitors returns and notifies school districts that do not return their materials in a timely manner. STAR TAC contacts the district STAR coordinators and works with them to facilitate the return of the test materials.

Processing Test Materials

Upon receipt of the test materials, Pearson uses precise inventory and test processing systems, in addition to quality assurance procedures, to maintain an up-to-date accounting of all the testing materials within their facilities. The materials are removed carefully from the shipping cartons and examined for a number of conditions, including physical damage, shipping errors, and omissions. A visual inspection to compare the number of students recorded on the School and Grade Identification (SGID) sheets with the number of answer documents in the stack is also conducted.

Pearson's image scanning process captures security information electronically and compares scorable material quantities reported on the SGIDs to actual documents scanned. School districts are contacted by phone if there are any missing shipments or the quantity of materials returned appears to be less than expected.

Quality Control of Scanning

Before any STAR documents are scanned, Pearson conducts a complete check of the scanning system. ETS and Pearson create test decks for every test and form. Each test deck consists of approximately 25 answer documents marked to cover response ranges, demographic data, blanks, double marks, and other responses. Fictitious students are created to verify that each marking possibility is processed correctly by the scanning

program. The output file generated as a result of this activity is thoroughly checked against each answer document after each stage to verify that the scanner is capturing marks correctly. When the program output is confirmed to match the expected results, a scan program release form is signed and the scan program is placed in the production environment under configuration management.

The intensity levels of each scanner are constantly monitored for quality control purposes. Intensity diagnostics sheets are run before and during each batch to verify that the scanner is working properly. In the event that a scanner fails to properly pick up items on the diagnostic sheets, the scanner is recalibrated to work properly before being allowed to continue processing student documents.

Documents received in poor condition (torn, folded, or water-stained) that could not be fed through the high-speed scanners are either scanned using a flat-bed scanner or keyed into the system manually.

Post-scanning Edits

After scanning, there are three opportunities for demographic data to be edited:

- After scanning, by Pearson online editors
- After Pearson online editing, by district STAR coordinators (demographic edit)
- After paper reporting, by district STAR coordinators

Demographic edits completed by the Pearson editors and by the district STAR coordinator online are included in the data used for the paper reporting and for the technical reports.

Quality Control of Image Editing

Prior to submitting any STAR operational documents through the image editing process, Pearson creates a mock set of documents to test all of the errors listed in the edit specifications. The set of test documents is used to verify that each image of the document is saved so that an editor would be able to review the documents through an interactive interface. The edits are confirmed to show the appropriate error, the correct image to edit the item, and the appropriate problem and resolution text that instructs the editor on the actions that should be taken.

Once the set of mock test documents is created, the image edit system completes the following procedures:

1. Scan the set of test documents.
2. Verify that the images from the documents are saved correctly.
3. Verify that the appropriate problem and resolution text displays for each type of error.
4. Submit the post-edit program.
5. Make changes and resubmit the post-edit program if errors are identified that require correction.
6. Print a listing of the post-edit file, the correction card file, and the original scan file.

Pearson checks the post file against expected results to ensure the appropriate corrections are made. The post file will have all keyed corrections and any defaults from the edit specifications.

Quality Control of Answer Document Processing and Scoring

Accountability of Answer Documents

In addition to the quality control checks carried out in scanning and image editing, the following manual quality checks are conducted to verify that the answer documents are correctly attributed to the students, schools, districts, and subgroups:

- Grade counts are compared to the District Master File Sheets.
- Document counts are compared to the School Master File Sheets.
- Document counts are compared to the SGIDs.
- All school districts and grades are compared to the CDE County-District-School (CDS) Master File.

Any discrepancies identified in the steps outlined above are followed up by Pearson staff with the school districts for resolution.

Processing of Answer Documents

Prior to processing operational answer sheets and executing subsequent data processing programs, ETS conducts an end-to-end test. As part of this test, ETS prepares approximately 700 test cases covering all tests and many scenarios designed to exercise particular business rule logic. ETS marks answer sheets for those 700 test cases. They are then scanned, scored, and aggregated. The results at various inspection points are checked by psychometricians and Data Quality Services staff. Additionally, a post-scan test file of approximately 50,000 records is scored and aggregated to test a broader range of scoring and aggregation scenarios. These procedures assure that students and school districts get the correct scores when the actual scoring process is carried out.

Scoring and Reporting Specifications

ETS develops standardized scoring procedures and specifications so testing materials are processed and scored accurately. These documents include:

- General Reporting Specifications
- Form Planner Specifications
- Aggregation Rules
- ”What If” . . . List
- Edit Specifications
- Reporting Cluster Names and Item Numbers
- CST and CMA Matching Criteria
- Matching Criteria for Multiple-choice and Writing Answer Documents

Each of these documents is explained in detail in Chapter 7, starting on page 117. The scoring specifications are reviewed and revised by the CDE, ETS, and Pearson each year. After a version that all parties endorse is finalized, the CDE issues a formal approval of the scoring and reporting specifications.

Matching Information on CMA Answer Documents

Answer documents are designed to produce a single complete record for each student. This record includes demographic data and scanned responses for each student; once computed, the scored responses and the total test scores for a student are also merged into the same record. All scores must comply with the ETS scoring specifications.

All STAR answer documents contain uniquely numbered lithocodes that are both scannable and eye-readable. The lithocodes allow all pages of the document to be linked throughout processing, even after the documents have been slit into single sheets for scanning. For those students using more than one answer document, lithocodes link their demographics and responses within a document while matching criteria are used to create a single record for all of the student's documents. The documents are matched within grade using the matching criteria approved by the CDE.

Matching Multiple-choice and Writing Scores for ELA Grade Seven

The multiple-choice and writing sections of the ELA grade seven test are administered in separate settings. The answer documents from each section are subsequently matched using the matching criteria approved by the CDE, and scores from each section are combined to yield a single ELA scale score. Student documents that cannot be matched based on the approved criteria are reported separately.

In addition, school districts receive an unmatched report with their reporting package listing the grade seven students for whom there is a multiple-choice score but no writing score, and grade seven students for whom there is a writing score but no multiple-choice score.

Storing Answer Documents

After the answer documents have been scanned, edited, scored, and cleared the clean-post process, they are palletized and placed in the secure storage facilities at Pearson. The materials are stored until October 31 of each year, after which ETS requests permission to destroy the materials. After receiving CDE approval, the materials are destroyed in a secure manner.

Quality Control of Psychometric Processes

Score Key Verification Procedures

ETS and Pearson take various necessary measures to ascertain that the scoring keys are applied to the student responses as expected and the student scores are computed accurately. Scoring keys, provided in the form planners, are produced by ETS and verified thoroughly by performing multiple quality control checks. The form planners contain the information about an assembled test form; other information in the form planner includes the test name, administration year, subscore identification, and standards and statistics associated with each item. The quality control checks that are performed before keys are finalized are listed below:

1. The form planners are checked for accuracy against the Form Planner Specification document and the Score Key and Score Conversion document before the keys are loaded into the score key management system (SKM) at ETS.
2. The printed lists of the scoring keys are checked again once the keys have been loaded into the SKM system.
3. The sequence of linking items[1] in the form planners are matched with their sequence in the actual test booklets.
4. The demarcations of various sections in the actual test booklet are checked against the list of demarcations provided by test development staff.

[1] Linking items are used to link the scores on current year's test form to scores obtained on the previous years' test forms to adjust for the difficulty level of the forms across years. This is accomplished during the equating process, as discussed in Chapter 2.

5. Scoring is verified internally at Pearson. ETS independently generates scores and verifies Pearson's scoring of the data by comparing the two results. Any discrepancies are then resolved.
6. The entire scoring system is tested using a test deck that includes typical and extremely atypical responses vectors, as described earlier in "Processing of Answer Documents" on page 286.
7. Classical item analyses are run on an early sample of data to provide an additional check of the keys. Although rare, if an item is found to be problematic, a followup process is performed that will exclude it from further analyses.

Quality Control of Item Analyses, DIF, and the Equating Process

The psychometric analyses conducted at ETS undergo comprehensive quality checks by a team of psychometricians and data analysts. Detailed checklists are consulted by members of the team for each of the statistical procedures performed on each CMA. Quality assurance checks also include a review of the current year's statistics to statistics from previous years. The results of preliminary classical item analyses that provide a check on scoring keys are also reviewed by a senior psychometrician. The items that are flagged for questionable statistical attributes are sent to test development staff for their review; their comments are reviewed by the psychometricians before items are approved to be included in the equating process.

The results of the equating process are reviewed by a psychometric manager in addition to the aforementioned team of psychometricians and data analysts. If the senior psychometrician and the manager reach a consensus that an equating result does not conform to the norm, special binders are prepared for review by senior psychometric advisors at ETS, along with several pieces of informative analyses to facilitate the process.

A few additional checks are performed for each process, as described below:

Calibrations

During the calibration process, which is described in detail in Chapter 8 starting on page 182, checks are made to ascertain that the correct options for the analyses are selected. Checks are also made on the number of items, number of examinees with valid scores, IRT Rasch item difficulty estimates, standard errors for the Rasch item difficulty estimates, and the match of selected statistics to the results on the same statistics obtained during preliminary item analyses. Psychometricians also perform detailed reviews of plots and statistics to investigate if the data fit the model.

Scaling

During the scaling process, checks are made to ensure the following:

- Correct-linking items are used;
- Stability analysis and subsequent removal of items from the linking set (if any) during the scaling evaluation process are implemented according to specification (see details in the "Evaluation of Scaling" section in Chapter 8, on page 184); and
- The scaling constants are correctly applied to transform the new item difficulty estimates on to the item bank scale.

Scoring Tables

Once the equating activities are complete and raw-to-scale scoring tables are generated, the psychometricians carry out quality control checks on each scoring table. Scoring tables are checked to verify the following:

- All raw scores are included in the tables;
- Scale scores increase as raw scores increase;
- The minimum reported scale score is 150 and maximum reported scale scores is 600; and
- The cut points for the performance levels are correctly identified.

As a check on the reasonableness of the performance levels, psychometricians compare results from the current year with results from the past year at the cut points and the percentage of all students in each performance level. After all quality control steps are completed and any differences are resolved, a senior psychometrician inspects the scoring tables as the final step in quality control.

Score Verification Process

Pearson utilizes the raw-to-scale scoring tables to assign scale scores for each student. ETS verifies Pearson's scale scores by following procedures, such as:

- Independently generating the scale scores for students in a small number of school districts and comparing these scores with those generated by Pearson; the selection of districts is based on the availability of data for all schools included in those districts, known as "complete districts"
- Reviewing longitudinal data for reasonableness; the results of the analyses are used to look at the tendencies and trends for the complete districts
- Reviewing longitudinal data for reasonableness using over 90 percent of the entire testing population; the results are used to look at the trends for the state as well as few large districts

The results of the longitudinal analyses are provided to the CDE and jointly discussed. Any anomalies in the results are investigated further and jointly discussed. Scores are released after explanations that satisfy both CDE and ETS are obtained.

Offloads to Test Development

The statistics based on classical item analyses and the IRT analyses are obtained at two different times in the testing cycle. The first time, the statistics are obtained on the equating samples to ensure the quality of equating and then on larger sample sizes to ensure the stability of the statistics that are to be used for future test assembly. Statistics used to generate DIF flags are also obtained from the larger samples and are provided to test development staff in specially designed Excel spreadsheets called "statistical offloads." The offloads are thoroughly checked by the psychometric staff before their release for test development review.

Quality Control of Reporting

For the quality control of various STAR student and summary reports, four general areas are evaluated, including the following:

1. Comparing report formats to input sources from the CDE-approved samples
2. Validating and verifying the report data by querying the appropriate student data
3. Evaluating the production print execution performance by comparing the number of report copies, sequence of report order, and offset characteristics to the CDE's requirements

4. Proofreading reports at the CDE, ETS, and Pearson prior to any school district mailings

All reports are required to include a single, accurate CDS code, a charter school number (if applicable), a school district name, and a school name. All elements conform to the CDE's official CDS code and naming records. From the start of processing through scoring and reporting, the CDS Master File is used to verify and confirm accurate codes and names. The CDE Master File is provided by the CDE to ETS throughout the year as updates are available.

For students who use more than one answer document, the matching process, as described on page 287, provides for the creation of individual student records from which reports are created.

After the reports are validated against the CDE's requirements, a set of reports for pilot districts are provided to the CDE and ETS for review and approval. Pearson sends paper reports on the actual report forms, folded as they are expected to look in production. The CDE and ETS review and sign off on the report package after a thorough review.

Upon the CDE's approval of the reports generated from the pilot test, Pearson proceeds with the first production batch test. The first production batch is selected to validate a subset of school districts that contain examples of key reporting characteristics representative of the state as a whole. The first production batch test incorporates client-selected school districts and provides the last check prior to generating all reports and mailing them to the districts.

Excluding Student Scores from Summary Reports

ETS provides specifications to the CDE that document when to exclude student scores from summary reports. These specifications include the logic for handling answer documents that, for example, indicate the student tested but marked no answers, was absent, was not tested due to parent/guardian request, or did not complete the test due to illness. The methods for handling other anomalies are also covered in the specifications.

Chapter 10: Historical Comparisons

Base Year Comparisons

Historical comparisons of the CMA results are performed to identify the trends in examinee performance and test characteristics over time. Such comparisons were performed for ELA and mathematics in grades three through five and science in grade five over the spring 2010 and the base year 2009. The indicators of examinee performance include the mean and standard deviation of scale scores, observed score ranges, and the percentage of examinees classified into proficient and advanced performance levels. Test characteristics are compared by looking at the mean proportion correct, overall reliability and SEM, as well as the mean IRT *b*-value for each CMA.

The base year of the CMA refers to the year in which the base score scale was established. Operational forms administered in the years following the base year are linked to the base year score scale using procedures described in Chapter 2.

The CMA was first administered statewide in 2008 for ELA and mathematics in grades three through five and for science in grade five. A standard setting was held in fall 2008 to establish new cut scores for the below basic, basic, proficient, and advanced performance levels.[1] Spring 2009 was the first administration in which test results were reported using the new scales and cut scores for the four performance levels; thus, 2009 became the base year for these tests.

Examinee Performance

Given in Table 10.A.1 for each CMA are the number of examinees assessed and the means and standard deviations of examinees' scale scores in the base year (2009) and in 2010.

Students taking each CMA are classified into one of five performance levels: far below basic, below basic, basic, proficient, and advanced. The percentages of students qualifying for the proficient and advanced levels are presented in Table 10.A.2[2] on page 293. The goal is for all students to achieve at or above the proficient level by 2014. This goal for all students is consistent with school growth targets for state accountability and the federal requirements under the Elementary and Secondary Education Act.

Table 10.A.3 through Table 10.A.5 show for each CMA the distribution of scale scores observed in the base year and in 2010. Frequency counts are provided for each scale score interval of 30. A frequency count of "–" indicates that either there are no obtainable scale scores within that scale score range or there are no students obtaining a scale score within the scale score range. For all CMA tests, a minimum score of 300 is required for a student to reach the basic level of performance and a minimum score of 350 is required for a student to reach the proficient level of performance.

Test Characteristics

The item and test analysis results of CMA over the comparison years indicate that the CMA meet the technical criteria established in professional standards for high-stakes tests. In addition, every year, efforts are made to improve the technical quality of each CMA.

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[1] Cut scores for below basic and far below basic performance levels were set statistically.

[2] This information may differ slightly from information found on the CDE's STAR reporting Web page at http://star.cde.ca.gov due to differing dates on which data were accessed.

Table 10.B.1 and Table 10.B.2 present, respectively, the average proportion correct values and the mean equated IRT *b*-values[3] for the CMA operational items in grades three through five in the base year and in 2010.

The mean proportion correct is affected by both the difficulty of the items and the abilities of the students taking them. The mean equated IRT *b*-values reflect only average item difficulty of operational items.

The average point-biserial correlations for the CMA operational test are presented in Table 10.B.3. The reliabilities and standard errors expressed in raw score units appear in Table 10.B.4. Like the average proportion correct, point-biserial correlations and reliabilities of the operational items are affected by both item characteristics and student characteristics.

[3] Comparisons of mean *b*-values should only be made within a given test. These statistics are based on the equating samples.

Appendix 10.A—Historical Comparisons Tables

Table 10.A.1 Number of Examinees Tested, Scale Score Means and Standard Deviations of CMA for Base Year (2009) and 2010

Content Area	CMA	Number of Examinees (valid scores)		Scale Score Mean and Standard Deviation			
				Base		2010	
		Base	2010	Mean	S.D.	Mean	S.D.
English–Language Arts	**3**	14,175	15,991	307	68	307	66
	4	19,370	22,570	315	72	320	72
	5	19,881	23,684	319	69	322	70
Mathematics	**3**	12,075	13,554	318	70	324	71
	4	16,462	18,860	320	80	325	78
	5	17,591	21,157	324	77	335	75
Science	**5**	18,657	21,955	335	58	341	56

Table 10.A.2 Percentage of Proficient and Above and Percentage of Advanced for Base Year (2009) and 2010

Content Area	CMA	% Proficient and Above		% Advanced	
		Base	2010	Base	2010
English–Language Arts	**3**	28%	27%	11%	10%
	4	30%	31%	12%	12%
	5	34%	32%	14%	15%
Mathematics	**3**	33%	36%	8%	8%
	4	35%	38%	11%	10%
	5	36%	39%	12%	12%
Science	**5**	42%	44%	14%	13%

Table 10.A.3 Observed Score Distributions of CMA across Base Year (2009) and 2010 for ELA (Grades Three through Five)

Observed Score Distributions	ELA Grade 3		ELA Grade 4		ELA Grade 5	
	Base	2010	Base	2010	Base	2010
570 – 600	5	3	32	34	5	62
540 – 569	25	14	48	54	27	–
510 – 539	63	36	72	91	67	98
480 – 509	–	86	272	388	118	371
450 – 479	279	156	447	685	509	662
420 – 449	535	536	696	983	839	1,031
390 – 419	700	749	1,293	1,869	1,907	2,042
360 – 389	1,361	2,195	2,183	2,320	2,467	2,539
330 – 359	2,038	2,325	2,759	3,450	2,679	3,900
300 – 329	2,447	2,220	2,533	2,854	3,487	3,967
270 – 299	1,878	2,699	3,042	4,142	2,451	3,018
240 – 269	2,464	2,271	3,386	3,720	2,695	3,627
210 – 239	1,616	1,815	1,766	1,758	1,800	2,192
180 – 209	686	771	686	644	633	505
150 – 179	78	122	155	145	197	91

Table 10.A.4 Observed Score Distributions of CMA across Base Year (2009) and 2010 for Mathematics (Grades Three through Five)

Observed Score Distributions	Math Grade 3		Math Grade 4		Math Grade 5	
	Base	2010	Base	2010	Base	2010
570 – 600	19	31	52	61	136	103
540 – 569	26	82	54	58	–	147
510 – 539	72	–	221	229	130	179
480 – 509	136	131	182	178	410	271
450 – 479	171	479	538	553	589	816
420 – 449	572	317	720	1,418	826	1,165
390 – 419	797	1,350	1,383	1,326	1,031	2,249
360 – 389	1,795	1,556	1,854	2,501	1,874	2,603
330 – 359	1,309	1,959	2,231	2,918	2,801	3,518
300 – 329	2,165	2,258	2,448	3,039	2,887	3,316
270 – 299	1,505	2,190	2,440	2,698	2,161	2,350
240 – 269	1,816	1,555	2,091	1,439	2,559	2,738
210 – 239	1,145	1,343	991	1,736	1,354	1,335
180 – 209	478	242	882	892	621	554
150 – 179	69	61	375	346	212	152

Table 10.A.5 Observed Score Distributions of CMA across Base Year (2009) and 2010 for Science (Grade Five)

Observed Score Distributions	Science Grade 5	
	Base	2010
570 – 600	5	7
540 – 569	15	32
510 – 539	46	57
480 – 509	82	117
450 – 479	387	482
420 – 449	789	1,370
390 – 419	2,013	2,604
360 – 389	2,602	3,026
330 – 359	3,725	5,437
300 – 329	4,028	3,690
270 – 299	2,396	3,547
240 – 269	1,694	1,569
210 – 239	731	364
180 – 209	123	84
150 – 179	21	8

Appendix 10.B—Historical Comparisons Tables

Table 10.B.1 Average Proportion-Correct for Operational Test Items for Base Year (2009) and 2010

Content Area	Grade-level CMA	Average *p*-value	
		Base	2010
English–Language Arts	3	0.56	0.58
	4	0.53	0.55
	5	0.60	0.57
Mathematics	3	0.61	0.63
	4	0.56	0.57
	5	0.59	0.60
Science	5	0.61	0.60

Table 10.B.2 Overall IRT *b*-values for Operational Test Items for Base Year (2009) and 2010

Content Area	Grade-level CMA	Mean IRT *b*-value	
		Base	2010
English–Language Arts	3	–0.35	–0.32
	4	–0.12	–0.13
	5	–0.45	–0.25
Mathematics	3	–0.47	–0.47
	4	–0.26	–0.25
	5	–0.39	–0.28
Science	5	–0.54	–0.38

Table 10.B.3 Average Point-Biserial Correlation for Operational Test Items for Base Year (2009) and 2010

Content Area	Grade-level CMA	Average Point-Biserial Correlation	
		Base	2010
English–Language Arts	3	0.37	0.38
	4	0.34	0.34
	5	0.35	0.35
Mathematics	3	0.40	0.40
	4	0.32	0.31
	5	0.36	0.36
Science	5	0.33	0.32

Table 10.B.4 Score Reliabilities (Cronbach's Alpha) and SEM of CMAs for Base Year (2009) and 2010

Content Area	Grade-level CMA	Reliability		SEM	
		Base	2010	Base	2010
English–Language Arts	3	0.87	0.87	3.14	3.11
	4	0.83	0.83	3.20	3.23
	5	0.84	0.84	3.08	3.15
Mathematics	3	0.89	0.89	3.00	3.02
	4	0.81	0.80	3.14	3.13
	5	0.85	0.85	3.08	3.10
Science	5	0.82	0.81	3.08	3.16