California Department of Education
Assessment Development and Administration Division

California Modified Assessment
Technical Report
Spring 2013 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
APA	American Psychological Association
API	Academic Performance Index
ARP	Assessment Review Panel
ASL	American Sign Language
AYP	Adequate Yearly Progress
CAHSEE	California High School Exit Examination
CAPA	California Alternate Performance Assessment
CCR	California *Code of Regulations*
CDE	California Department of Education
CDS	county/district/school
CELDT	California English Language Development Test
CI	confidence interval
CMA	California Modified Assessment
CR	constructed response
CSEMs	conditional standard errors of measurement
CSTs	California Standards Tests
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	intraclass correlation coefficient item characteristic curve
IEP	individualized education program
I-FEP	initially fluent English proficient
IRT	item response theory
IT	Information Technology
LEA	local educational agency
MC	multiple choice
MCE	Manually Coded English
MH DIF	Mantel-Haenszel DIF
MR/ID	Mentally retarded/Intellectually disabled
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
QC	quality control
QTR	Quick-turnaround Reporting
RACF	Random Access Control Facility
R-FEP	reclassified fluent English proficient
SBE	State Board of Education
SD	standard deviation
SEM	standard error 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
TIF	test information function
WRMSD	Weighted root-mean-square difference

Chapter 1: Introduction

Background

In 1997 and 1998, the California State Board of Education (SBE) adopted 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).

During its 2013 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
- 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)

Test Purpose

The purposes of the CMA are to allow students with disabilities greater access to an assessment that helps measure their achievement with respect to California's content standards and to provide information about how well schools and school districts are meeting state and federal accountability requirements regarding ELA, mathematics, and science.

CMA results for ELA and mathematics in grades three through eight are used in calculating school and district Academic Performance Index (API) and Adequate Yearly Progress (AYP), which apply toward meeting the requirement of the federal Elementary and Secondary Education Act (ESEA) that all students score at the proficient level or above by 2014.

Test Content

The CMA are administered in three content areas: ELA, mathematics, and science. Students in grades three through eleven are tested in ELA; students in grades three through seven are tested in grade-level mathematics; students who meet the end-of-course (EOC) criteria in grades seven through eleven are tested in EOC Algebra I; students who meet the EOC criteria in grades eight through eleven are tested in EOC Geometry; and students in

grades five, eight, and ten are tested in grade-level science. Students who take the CMA for ELA in grades four and seven also take an associated writing test (essay).

In 2013, the CMA included the following tests:

- English–Language Arts (grades three through eleven)
- Mathematics (grades three through seven)
- Algebra I (grades seven through eleven)
- Geometry (grades eight through eleven)
- Science (grades five and eight)
- Life Science (grade ten)

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 in ELA, grades three through seven in mathematics, EOC Algebra I, and Geometry, and grades five, eight, and ten in science), 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. For students with cognitive disabilities, the decision to administer the CSTs, the CMA, or the CAPA is made by their IEP team.

The CMA are designed for students with an IEP who meet eligibility criteria adopted by the SBE. The decision to administer the CMA is made by a student's IEP team. 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. 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 ELA tests in grades four and seven, parents can submit a written request to have their child exempted from taking the essay associated with the ELA test. Only students whose parents submit a written request may be exempted from taking the tests (*Education Code [EC]* Section 60615).

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 *EC* Section 60602 Web page at http://www.leginfo.ca.gov/cgi-bin/displaycode?section=edc&group=60001-61000&file=60600-60603): [Note: the preceding Web address is no longer valid.]

"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, district, and state purposes and to meet federal accountability requirements.

Testing Window

The CMA are administered within a 25-day window which begins 12 instructional days before and ends 12 instructional days after the day on which 85 percent of the instructional year is completed. School districts may use all or any part of the 25 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 linked at http://www.cde.ca.gov/ta/tg/sr/admin.asp)

Significant STAR Developments in 2013

Forms Reuse

Test forms from previous STAR administrations from different years were reused during the 2013 administration to facilitate Quick-turnaround Reporting (QTR). There was no new item development for grades three through eight 2013 forms, so these forms did not contain new field-test items. However, new field-test items were embedded in the CMA for ELA in grades ten and eleven, end-of-course (EOC) Algebra I and Geometry, and grade ten Life Science.

Pre-equating and the Implementation of Quick-turnaround Reporting

Because test forms were pre-equated, the raw-score-to-scale-score conversion tables were developed before tests were administered and the writing scores were not included with the multiple-choice scores for students in grades four and seven, so individual student results were available within approximately ten days of processing the school district's scorable testing materials. A new Web application, called the Quick-turnaround Reporting module, was added to the STAR Management System; this module permitted districts to securely download a file containing these results.

Changes to the ELA Reporting Clusters and Score Calculation in Grades Four and Seven

"Writing Applications" is no longer a reporting cluster. The writing task now yields a separate writing response score that is not included in the CMA for ELA results for students in grades

four and seven. Scale scores and performance levels reported on STAR Student Reports, other individual reports, aggregate reports, as well as results tables in this technical report, include data from multiple-choice tests only.

Number of Available Test Versions

The number of versions for the grade-level tests in grades three through eight was reduced to three.

Limitations of the Assessment

Score Interpretation

Teachers and administrators should not use STAR results in isolation to make inferences about instructional needs. In addition, 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 local assessments, classroom tests, student grades, classroom work, and teacher recommendations in addition to the child's CMA results (CDE, 2013). 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

Each CMA is designed to measure the content corresponding to a specific grade or course and is appropriate for students in the specific grade or course. 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. School districts are advised to review all IEPs to ensure that any provision for testing below a student's grade level has been removed.

Score Comparison

When comparing scale score 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 2013 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 or to previous years. Comparisons between scores obtained in different grades or content areas should be avoided.

Finally, it is inappropriate to conduct any type of score comparisons (including raw score, percent correct, scale score, or performance level comparisons) between CST and CMA tests. The CMA follows an independent procedure for test development and establishment of performance levels; therefore, comparison between CMA and CST results is discouraged.

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 the state's Public School Accountability Act (PSAA) and for reporting results in terms of the AYP and API, which measure 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 6,200,000 children and young adults in more than 9,800 schools. California aims to provide a world-class education for all students, from early childhood to adulthood. The Department of Education serves California by innovating and collaborating with educators, schools, parents, and community partners which together, as a team, prepares students to live, work, and thrive in a highly connected world.

Contractors

Educational Testing Service

The CDE and the SBE contract with 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 2013. 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 included, as

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 also 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 that guided the construction of the CMA before the 2013 administration; in 2013, because the test forms from previous STAR administrations from different years were reused, there were no new CMA forms constructed.
- Chapter 5 presents the processes involved in the actual administration of the 2013 CMA 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.
- Chapter 7 details the types of scores and score reports that are produced at the end of each administration of the CMA and includes a discussion of quick-turnaround reporting.
- Chapter 8 summarizes the results of the test- and item-level analyses performed during the spring 2013 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 performance-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, documentation of the equating, CMA conversion tables, and the considerations and processes involved in pre-equating. Finally, for the CMA for ELA in grades nine through eleven, the CMA for Life Science (Grade 10), and the EOC CMA for Algebra I and Geometry, the chapter summarizes the results of analyses investigating the differential item functioning (DIF).
- 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 past three years and for the base year, which vary according to test.

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.

References

California *Code of Regulations, Title 5,* Education, Division 1, Chapter 2, Subchapter 3.75, Article 2, § 855.

California Department of Education. (2013). *STAR Program information packet for school district and school staff* (p. 15). Sacramento, CA. Downloaded from http://www.cde.ca.gov/ta/tg/sr/resources.asp

California Department of Education, EdSource, & the Fiscal Crisis Management Assistance Team. (2013). *Fiscal, demographic, and performance data on California's K–12 schools*. Sacramento, CA: Ed-Data. http://www.ed-data.k12.ca.us/App_Resx/EdDataClassic/fsTwoPanel.aspx?#!bottom=/_layouts/EdDataClassic/profile.asp?Tab=1&level=04&reportNumber=16 [Note: the preceding Web address is no longer valid.]

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 the CMA. Also described are the specifications maintained by ETS to implement each of those processes. Starting from the 2013 administration, test forms from previous STAR administrations from different years were reused, and pre-equating was implemented to facilitate Quick-turnaround Reporting (QTR). The changes in test development and administration processes are noted in addition to the processes that were used to develop the 2013 forms prior to their first use.

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 grades four and seven have an associated constructed response component, the CMA for Writing, which contains one writing task. Starting with the 2013 administration, the score for the writing task is not included in the ELA results.

Item Specifications

The CMA items were developed to measure California content standards and designed to conform to principles of item writing defined by ETS (ETS, 2002). ETS maintained and updates an item specifications document, otherwise known as "item writer guidelines," for each CMA and used an item utilization plan to guide the development of the items for each content area. Item writing emphasis was determined in consultation with the CDE.

The item specifications described the characteristics of the items that should be written to measure each content standard; items of the same type should consistently measure the content standards in the same way. The item specifications helped ensure that the items on the CMA measure the content standards in the same way. To achieve this, the item specifications provided detailed information to item writers who developed 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 specifications, the item review process, and the item utilization plan are presented in Chapter 3, starting on page 60.

Item Banking

Before newly developed items were placed in the item bank, ETS prepared them for review by content experts and various external review organizations such as the Assessment Review Panels (ARPs), described in Chapter 3, starting on page 64; and the Statewide Pupil Assessment Review (SPAR) panel, described in Chapter 3, starting on page 67.

Once the ARP review was complete, the items were placed in the item bank along with the associated information obtained at the review sessions. Items that were accepted by the content experts were updated to a "field-test ready" status. ETS then delivered the items to the CDE by means of a delivery of the California electronic item bank. Items were subsequently field-tested to obtain information about item performance and item statistics

that could be used to assemble operational forms. The CDE then reviewed the item data and made decisions about which items could be used operationally (see page 69 for more information about the CDE's data review). Any additional updates to item content and statistics were based on data collected from 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 69 in Chapter 3.

Item Refresh Rate

Prior to form reuse in the 2013 administration, the item utilization plan assumed that each year, 30 percent of items on an operational form were refreshed (replaced); these items remained in the item bank for future use.

Test Assembly

Test Length

The number of operational items in each CMA varies by content area and grade. There are 48 operational items on the CMA for ELA in grades three through five, the CMA for mathematics in grades three through five, and the CMA for science in grade five. There are 54 operational items on the CMA for ELA in grades six through eight, for mathematics in grades six and seven, and for science in grade eight. There are 60 operational items on the CMA for ELA in grades nine through eleven, the CMA for Algebra I and Geometry, and the CMA for Life Science in grade ten. The considerations used in deciding the test length are described on page 72 in Chapter 4.

Each CMA also includes a various number of field-test items in addition to the operational items. Although there was no new item development for the 2013 administration for the CMA for ELA in grades three through eight, the CMA for mathematics in grades three through seven, and the CMA for science in grades five and eight, the field-test items were included as part of the intact reused forms. The total number of items, including field-test items, in each CMA and the estimated time to complete a test are presented in Appendix 2.A on page 20.

Test Blueprints

ETS selects all CMA 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 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 CMA reporting clusters and the standards that comprise each cluster are provided in Appendix 2.B, which starts on page 21.

Content Rules and Item Selection

Test forms from previous STAR administrations from different years were reused during the 2013 administration to facilitate QTR. (See Table 8.4 on page 190 for administration years.) Prior to the 2013 administration, test developers followed a number of rules when developing a new test form for a given grade and content area. First and foremost, they selected items that met the blueprint for that grade and content area. Using an electronic item bank, assessment specialists began by identifying a number of linking items. These

were items that had appeared in previous operational test administrations and were then used to equate subsequent (new) test forms. After the linking items were approved, assessment specialists populated the rest of the test form.

Linking items were selected to proportionally represent the full blueprint. Each CMA form was a collection of test items designed to reflect a reliable, fair, and valid measure of student learning within well-defined course content.

Another consideration was the difficulty of each item. Test developers strived to ensure that there were some easy and some hard items and that there were a number of items in the middle range of difficulty. The detailed rules are presented in Chapter 4, which begins on page 72.

Psychometric Criteria

The staff assesses the projected test characteristics during the preliminary review of the assembled forms. The statistical targets used to develop the 2013 forms and the projected characteristics of the assembled forms are presented in Chapter 4, starting on page 73.

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 76 in Chapter 4.

All the forms in the 2013 CMA administration were used in prior operational STAR administrations. See Table 8.4 on page 190 for the list of the administration in which each CMA was originally administered.

Test Administration

It is of utmost priority to administer the CMA in an appropriate, consistent, secure, 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 99.

In the 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 of the following processes are discussed in detail in Chapter 5, starting on page 99.

- 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, as described in this section.

Test Administrators

The CMA 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 who are central to the processes include district STAR coordinators, test site coordinators, test examiners, proctors, and scribes. The responsibilities of each of the staff members are included in the *STAR District and Test Site Coordinator Manual* (CDE, 2013); see page 104 in Chapter 5 for more information.

Test Directions

A series of instructions compiled in detailed manuals is provided 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 105 in Chapter 5 for more information.)

***District and Test Site Coordinator Manual*—**Test administration procedures for district STAR coordinators and test site coordinators (See page 105 in Chapter 5 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 106 in Chapter 5 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.

All eligible students may have test variations if these variations are regularly used in the classroom. Each student also must be allowed to use the accommodations that are specified in his or her IEP or Section 504 plan. Accommodations change the way the test is given but do not change what is tested. These accommodations must match the one(s) used for classroom work throughout the year.

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. Appropriate test variations and accommodations for the 2013 administration of the California Modified Assessment are based on the study of item format and delivery mode from the California Modified Assessment Pilot Test.

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 an adaptation of the 2013 Matrix of Test Variations, Accommodations, and Modifications for Administration of California Statewide Assessments; this version shows the complete list of the variations and accommodations that were allowed for the CMA in 2013. Because the CMA were developed with modifications built into the test, additional modifications are not allowed. Students who require additional modifications take the content-area CST with modifications.

Special Services Summaries

The percentage of students using various testing accommodations during the 2013 administration of the CMA is presented in Appendix 2.D, which starts on page 27. 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 school 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 California English Language Development Test [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 variations and accommodations are common across the CMA, although the CMA for grades four and seven ELA also include variations and accommodations related to the writing tasks. Additional accommodations are included for the CMA for mathematics that involved the use of calculators and for the CMA for science and mathematics that involved the use of manipulatives.

Scores

The CMA total test raw scores equal the sum of examinees' scores on the operational multiple-choice test items. In grades four and seven, students also receive a separate score for the writing task; the score was separated from the total ELA score in 2013 to allow for early ELA student results to be reported via Quick-turnaround Reporting (QTR). 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 starting on page 117 in Chapter 7.

Total test raw scores on each CMA are converted to three-digit scale scores using the pre-equating process described starting on page 14. 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, performance on the associated reporting clusters is reported. 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 found in Chapter 7, which starts on page 115.

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 for both individual students and demographic subgroups. The following sections present the summary results of individual and demographic subgroup CMA scores aggregated at the state level.

Please note that aggregation is performed on valid scores only, which are cases where examinees met all 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 or Geometry tests, the particular test taken.

5. Did not test out of level (grade inappropriate).

Individual Scores

Table 7.1 and Table 7.2, starting on page 121 in Chapter 7, provide summary statistics for individual scores aggregated at the state level, 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.

Statistics summarizing CMA student performance by content area and grade are provided in Table 7.B.1 through Table 7.B.4 starting on page 134 in Appendix 7.B.

Demographic Subgroup Scores

In Table 7.C.1 through Table 7.C.19, starting on page 136, students are grouped by demographic characteristics, including gender, ethnicity, English-language fluency, economic status, and primary disability. The tables show the numbers of students with valid scores 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 122 provides definitions for the demographic groups included in the tables.

Post-Equating

Prior to the 2013 administration, the CMA were equated to a reference form using a common-item nonequivalent groups data collection design and methods based on item response theory (IRT) (Hambleton & Swaminathan, 1985). The “base” or “reference” calibrations for the CMA were established by calibrating samples of item response data from a specific administration, through which item parameter estimates for the items in the reused forms were placed on the reference scale using a set of linking items selected from the previous year. Doing so established a scale to which subsequent item calibrations could be linked.

For ELA in grades three through five, mathematics in grades three through five, and science in grade five, the reference scales were established in 2009 and were based on the spring 2009 operational administration. For ELA in grades six through eight, mathematics in grades six and seven, and science in grade eight, the reference scales were established in 2010 and were based on the spring 2010 operational administration. For ELA in grade nine, EOC Algebra I, and Life Science in grade ten, the reference scales were established in 2011 and were based on the spring 2011 operational administration. Finally, for ELA in grades ten and eleven and Geometry, the reference scales were established in 2012 and were based on the spring 2012 operational administration.

The procedure used for post-equating the CMA involves three steps: item calibration, item scaling, and production of scoring tables. Each of those steps, as described below, was applied to all of the tests of the CMA.

Pre-Equating

During the 2013 administration, because all the test forms were used in previous STAR operational administrations, pre-equating was conducted prior to administration of the tests. Based on the sample invariant property of item response theory (IRT), all the item parameter estimates were placed on the reference scale in their previous administrations through the post-equating procedure described above. Item parameters derived in such a

manner can be used to create raw-score-to-scale-score conversion tables prior to test administration.

During the 2013 administration, all CMA reused forms without any edits or replacement to items. Therefore, the conversion tables from previous administrations when the forms were originally used are directly applied to the current administration.

Table 8.4 on page 190 shows the years the forms were introduced for each test.

Calibration

To obtain item calibrations during the initial administration of each form, a proprietary version of the PARSCALE program was used. The estimation process was 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 in grades four and seven. For the purpose of equating, only the operational items were calibrated for each test.

The PARSCALE calibrations were 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 were used as starting values for a second PARSCALE run, in which the subject prior distribution was updated after each expectation maximization (EM) cycle with no constraints. For both stages, the metric of the scale is controlled by the constant discrimination parameters.

Scaling

Prior to the 2013 administration, calibrations of the items 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 was equivalent to setting the mean of the new item parameter estimates for the linking set equal to the mean of the previously scaled estimates. As noted earlier, the linking set was a collection of items in a current test form that also appeared in the previous year's form and was scaled at that time.

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

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

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 from the linking set. 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 were transformed to the base scale after items' initial administration, IRT procedures were used to transform the new form number-correct scores (raw scores) to their corresponding ability (theta). The ability estimates were then transformed to scale scores through linear transformation.

The procedure is based on the relationship between raw scores and ability (theta). For the CMA 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 2013, the writing task for ELA in grades four and seven is reported separately and not included in the calculation of scale scores, so the equating procedure for tests consisting entirely of multiple-choice items is sufficient. However, for the administrations prior to 2013 when "Writing Applications" was a reporting cluster of ELA scale score in grades four and seven, ξ(θ) is based on a sum of multiple-choice and constructed response essay items; the relationship could be defined as:

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

where,

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,

s_{xj} is the value for score category x for the constructed response item *j*, and

$P_{xj}(\theta)$ is the probability that an examinee with ability θ obtains score s_x on the constructed response item *j*. For each integer score ξ_n on the form after its original use, the procedure was used to first solve for the corresponding ability estimate using equation 2.2, except in the case of the grades four and seven ELA tests prior to 2013, where equation 2.3 is used. The ability estimates were then expressed in the reporting scale metric by applying linear transformation with the appropriate slope and intercept, using equation 2.4:

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

where,

θ represents student ability.

The slope and intercept for each CMA were developed from the base forms using equations 2.5 and 2.6 because the basic and proficiency cut scores were required to be equal to 300 and 350, respectively.

$$\text{Slope} = \frac{350 - 300}{\theta_{proficient} - \theta_{basic}} \tag{2.5}$$

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

where,

$\theta_{proficient}$ represents theta cut score for proficient on the base scale, and

θ_{basic} represents theta cut score for basic on the base scale.

Complete raw-score-to-scale-score conversion tables for the CMA are presented in Table 8.D.8 through Table 8.D.8 in Appendix 8.D, starting on page 275. The raw scores and corresponding rounded, transformed scale scores are listed in those tables. Data used are from the forms' original STAR administration.

For all of the CMA, regardless of when the form was administered, 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.

The scale-score ranges defining the various performance levels are presented in Table 2.1.

Table 2.1 Scale-Score 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
	9	150 – 242	243 – 299	300 – 349	350 – 406	407 – 600
	10	150 – 242	243 – 299	300 – 349	350 – 406	407 – 600
	11	150 – 249	250 – 299	300 – 349	350 – 405	406 – 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
	Algebra I	150 – 250	251 – 299	300 – 349	350 – 409	410 – 600
	Geometry	150 – 256	257 – 299	300 – 349	350 – 412	413 – 600
Science	5	150 – 242	243 – 299	300 – 349	350 – 400	401 – 600
	8	150 – 263	264 – 299	300 – 349	350 – 405	406 – 600
	10 Life Science	150 – 250	251 – 299	300 – 349	350 – 409	410 – 600

* Numbers indicate grade-level tests.

Pre-Equating the Braille Versions of the CMA

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

In 2013, this process was applied to the CMA for ELA (Grade 3) because one item on this test could not be translated into braille.

References

California Department of Education. (2013). *2013 STAR district and test site coordinator manual.* Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.coord_man.2013.pdf

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

Hambleton, R. K. & Swaminathan, H. (1985). *Item response theory: principles and applications*. Boston, MA: Kluwer-Nijhoff.

Lord, F. M. (1980). *Applications of item response theory to practical testing problems.* Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

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

Appendix 2.A—CMA Items and Estimated Time Chart

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**		**150**		**150**
Part 1	57	45	57	45	57	45	63	55	63	55	63	55	70	50	70	50	70	50
Part 2		45		45		45		55		55		55		50		50		50
Part 3		45		45		45		55		55		55		50		50		50
Part 4–only grade 3		45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Writing	–	–	1	70[1]	--	--	--	--	1	70[1]	--	--	--	--	--	--	--	--
Mathematics		**140**		**105**		**105**		**120**		**120**		**150**		**150**		**150**		**150**
Part 1	57	35	57	35	57	35	63	40	63[2]	40	70[3]	50	70[3]	50	70[3]	50	70[3]	50
Part 2		35		35		35		40		40		50		50		50		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 tests in grades four and seven are 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 Geometry or the appropriate mathematics CST.

Appendix 2.B—Reporting Clusters

English–Language Arts

English–Language Arts Modified Standards Assessment (Grade Three)

Vocabulary	14 items
Reading for Understanding	17 items
Language	17 items

English–Language Arts Modified Standards Assessment (Grade Four)

Vocabulary	11 items
Reading for Understanding	16 items
Language	21 items

English–Language Arts Modified Writing Standards Test (Grade Four)

Writing Response Score	1 (4 points)

English–Language Arts Modified Standards Assessment (Grade Five)

Vocabulary	8 items
Reading for Understanding	18 items
Language	22 items

English–Language Arts Modified Standards Assessment (Grade Six)

Vocabulary	9 items
Reading for Understanding	22 items
Language	23 items

English–Language Arts Modified Standards Assessment (Grade Seven)

Vocabulary	8 items
Reading for Understanding	22 items
Language	24 items

English–Language Arts Modified Writing Standards Test (Grade Seven)

Writing Response Score	1 (4 points)

English–Language Arts Modified Standards Assessment (Grade Eight)

Vocabulary	6 items
Reading for Understanding	24 items
Language	24 items

English–Language Arts Modified Standards Assessment (Grade Nine)

Vocabulary	7 items
Reading for Understanding	27 items
Language	26 items

English–Language Arts Modified Standards Assessment (Grade Ten)

Vocabulary	7 items
Reading for Understanding	27 items
Language	26 items

English–Language Arts Modified Standards Assessment (Grade Eleven)

Vocabulary	7 items
Reading for Understanding	29 items
Language	24 items

Mathematics

Mathematics Modified Standards Assessment (Grade Three)

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

Mathematics Modified Standards Assessment (Grade Four)

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

Mathematics Modified Standards Assessment (Grade Five)

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

Mathematics Modified Standards Assessment (Grade Six)

Number Sense	21 items
Algebra and Data Analysis	25 items
Measurement and Geometry	8 items

Mathematics Modified Standards Assessment (Grade Seven)

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

Mathematics Modified Standards Assessment (Algebra I)

Number Properties, Operations, and Linear Equations	15 items
Graphing and Systems of Linear Equations	14 items
Quadratics and Polynomials	19 items
Functions and Rational Expressions	12 items

Mathematics Modified Standards Assessment (Geometry)

Logic and Geometric Proofs	23 items
Volume and Area Formulas	11 items
Angle Relationships, Constructions, and Lines	14 items
Trigonometry	12 items

Science

Science Modified Standards Assessment (Grade Five)

Physical Sciences	16 items
Life Sciences	16 items
Earth Sciences	16 items

Science Modified Standards Assessment (Grade Eight)

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

Science Modified Standards Assessment (Grade Ten)

Cell Biology and Genetics	22 items
Evolution and Ecology	22 items
Physiology	10 items
Investigation and Experimentation	6 items

Appendix 2.C—2013 CMA Test Variations and Accommodations

Table 2.C.1 Matrix of Test Variations and Accommodations for the CMA

1: Test Variation 2: Accommodation	
Test administration directions that are simplified or clarified (does not apply to test questions)	ALL
Student marks in test booklet (other than responses) including highlighting	ALL For grade 3 marks must be removed to avoid scanning interference or transcribed.
Test students in a small group setting	ALL
Extra time on a test within a testing day	ALL
Test individual student separately, provided that a test examiner directly supervises the student	1
Visual magnifying equipment	1
Audio amplification equipment	1
Noise buffers (e.g., individual carrel or study enclosure)	1
Special lighting or acoustics; special or adaptive furniture	1
Colored overlay, mask, or other means to maintain visual attention	1
Manually Coded English (MCE) or American Sign Language (ASL) to present directions for administration (does not apply to test questions)	1
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	2
Student dictates multiple-choice question responses orally, or in MCE to a scribe, audio recorder, or speech-to-text converter for selected response items	2
Word processing software with spell and grammar check tools turned off for the essay responses (writing portion of the test)	2
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	2
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)	2
Braille transcriptions provided by the test contractor	2
Large-print versions or test items enlarged (not duplicated) to a font size larger than that used on large print versions	2
Test over more than one day for a test or test part to be administered in a single sitting	2
Supervised breaks within a section of the test	2
Administration of the test at the most beneficial time of day to the student	2
Test administered at home or in hospital by a test examiner	2

1: Test Variation 2: Accommodation	
MCE or ASL to present test questions and answer options	2 Math and Science
	2 ELA (excludes passages)
	2 Writing Task
Test questions and answer options read aloud to student or used audio CD presentation	2 Math and Science
	2 ELA (excludes passages)
	2 Writing Task
Calculator on the mathematics tests	2 Grade 5 only
Math manipulatives on the mathematics tests	2
Math manipulatives on the science tests	2
Unlisted Accommodation	Check with CDE prior to use

All = All students may be provided these test variations.

(1): Test Variation = Students may have these testing variations if regularly used in the classroom.

(2): Accommodation = Eligible students shall be permitted to take the examination/test with accommodations if specified in the eligible student's IEP or Section 504 plan for use on the examination, standardized testing, or for use during classroom instruction and assessment.

Table 2.C.2 Matrix of Test Variations for English Learners for the CMA

Test 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.	Variation Allowed
Additional supervised breaks within a testing day *or* following each section (STAR) within a test part provided that the test section is completed within a testing day. A test section is identified by a "STOP" at the end of it.	Variation Allowed
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.	Variation Allowed
Access to translation glossaries/word lists (English-to-primary language). Glossaries/Word lists shall not include definitions or formulas.	Variation Allowed Math and Science
	Not Allowed ELA

Appendix 2.D—Special Service Summary Tables

Notes:

1. 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 in grade three. The column with the heading of "Pct. of Total" in the same table represents the percent of students using a service out of the total number of test-takers.
2. 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."
3. The sum of the numbers of students across subgroups may not match exactly to the total testing population, due to the fact that only valid codes were chosen to identify these subgroups.

Table 2.D.1 Special Service Summary for ELA, Grade Three

Special Service Summary for ELA, Grade Three		
All Tested	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	432	2.14%
C: Dictated responses to a scribe	81	0.40%
F: Used noninterfering assistive device	78	0.39%
G: Used braille test	7	0.03%
H: Used large-print test	85	0.42%
J: Tested over more than one day	1,206	5.98%
K: Had supervised breaks	4,471	22.18%
L: Most beneficial time of day	2,195	10.89%
M: Administered at home or in a hospital	10	0.05%
O: Examiner presented with MCE or ASL	39	0.19%
X: Used an unlisted accommodation	901	4.47%
Y: Leave blank	272	1.35%
Z: Examiner read test questions aloud	5,822	28.89%
Accommodation is in Section 504 plan	4	0.02%
Accommodation is in IEP	8,950	44.41%
English Learner Test Variation A	9	0.04%
English Learner Test Variation B	57	0.28%
English Learner Test Variation C	53	0.26%
Any Accommodation or EL Variation	9,789	48.57%
No Accommodation or EL Variation	10,366	51.43%
English-Only Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	240	2.23%
C: Dictated responses to a scribe	57	0.53%
F: Used noninterfering assistive device	37	0.34%
G: Used braille test	2	0.02%
H: Used large-print test	60	0.56%
J: Tested over more than one day	673	6.25%
K: Had supervised breaks	2,297	21.32%
L: Most beneficial time of day	1,173	10.89%
M: Administered at home or in a hospital	5	0.05%
O: Examiner presented with MCE or ASL	24	0.22%
X: Used an unlisted accommodation	444	4.12%
Y: Leave blank	150	1.39%
Z: Examiner read test questions aloud	3,055	28.36%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	4,706	43.69%

Special Service Summary for ELA, Grade Three		
English Learner Test Variation A	2	0.02%
English Learner Test Variation B	4	0.04%
English Learner Test Variation C	7	0.06%
Any Accommodation or EL Variation	5,137	47.69%
No Accommodation or EL Variation	5,635	52.31%
Initially Fluent English Proficient (I-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	2	1.15%
C: Dictated responses to a scribe	1	0.57%
F: Used noninterfering 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	8	4.60%
K: Had supervised breaks	32	18.39%
L: Most beneficial time of day	17	9.77%
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	3.45%
Y: Leave blank	3	1.72%
Z: Examiner read test questions aloud	38	21.84%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	60	34.48%
English Learner Test Variation A	1	0.57%
English Learner Test Variation B	1	0.57%
English Learner Test Variation C	1	0.57%
Any Accommodation or EL Variation	71	40.80%
No Accommodation or EL Variation	103	59.20%
English Learner (EL) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	175	2.03%
C: Dictated responses to a scribe	19	0.22%
F: Used noninterfering assistive device	41	0.48%
G: Used braille test	4	0.05%
H: Used large-print test	24	0.28%
J: Tested over more than one day	488	5.66%
K: Had supervised breaks	2,021	23.43%
L: Most beneficial time of day	957	11.10%
M: Administered at home or in a hospital	5	0.06%
O: Examiner presented with MCE or ASL	14	0.16%
X: Used an unlisted accommodation	418	4.85%
Y: Leave blank	111	1.29%
Z: Examiner read test questions aloud	2,584	29.96%
Accommodation is in Section 504 plan	3	0.03%
Accommodation is in IEP	3,940	45.68%
English Learner Test Variation A	6	0.07%
English Learner Test Variation B	52	0.60%
English Learner Test Variation C	45	0.52%
Any Accommodation or EL Variation	4,319	50.08%
No Accommodation or EL Variation	4,306	49.92%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	4	5.63%
C: Dictated responses to a scribe	1	1.41%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	1	1.41%

Special Service Summary for ELA, Grade Three		
H: Used large-print test	0	0.00%
J: Tested over more than one day	4	5.63%
K: Had supervised breaks	13	18.31%
L: Most beneficial time of day	11	15.49%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	1.41%
X: Used an unlisted accommodation	2	2.82%
Y: Leave blank	1	1.41%
Z: Examiner read test questions aloud	16	22.54%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	30	42.25%
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	32	45.07%
No Accommodation or EL Variation	39	54.93%

Table 2.D.2 Special Service Summary for ELA, Grade Four

Special Service Summary for ELA, Grade Four		
All Tested	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	1,260	4.38%
C: Dictated responses to a scribe	56	0.19%
D: Used word processing with tools off	102	0.35%
E: Dictated essay with conventions	68	0.24%
F: Used noninterfering assistive device	112	0.39%
G: Used braille test	10	0.03%
H: Used large-print test	103	0.36%
J: Tested over more than one day	1,534	5.34%
K: Had supervised breaks	7,288	25.35%
L: Most beneficial time of day	3,674	12.78%
M: Administered at home or in a hospital	22	0.08%
O: Examiner presented with MCE or ASL	96	0.33%
X: Used an unlisted accommodation	1,739	6.05%
Y: Leave blank	553	1.92%
Z: Examiner read test questions aloud	10,987	38.22%
Accommodation is in Section 504 plan	16	0.06%
Accommodation is in IEP	12,667	44.06%
English Learner Test Variation A	49	0.17%
English Learner Test Variation B	89	0.31%
English Learner Test Variation C	94	0.33%
Any Accommodation or EL Variation	16,307	56.72%
No Accommodation or EL Variation	12,442	43.28%
English-Only Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	768	4.91%
C: Dictated responses to a scribe	33	0.21%
D: Used word processing with tools off	82	0.52%
E: Dictated essay with conventions	48	0.31%
F: Used noninterfering assistive device	68	0.43%
G: Used braille test	3	0.02%
H: Used large-print test	68	0.43%
J: Tested over more than one day	854	5.46%
K: Had supervised breaks	3,909	25.00%
L: Most beneficial time of day	1,966	12.57%
M: Administered at home or in a hospital	10	0.06%
O: Examiner presented with MCE or ASL	70	0.45%
X: Used an unlisted accommodation	923	5.90%
Y: Leave blank	306	1.96%
Z: Examiner read test questions aloud	5,745	36.74%
Accommodation is in Section 504 plan	9	0.06%
Accommodation is in IEP	6,814	43.58%
English Learner Test Variation A	2	0.01%
English Learner Test Variation B	4	0.03%
English Learner Test Variation C	6	0.04%
Any Accommodation or EL Variation	8,771	56.10%
No Accommodation or EL Variation	6,864	43.90%
Initially Fluent English Proficient (I-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	7	2.42%
C: Dictated responses to a scribe	0	0.00%
D: Used word processing with tools off	2	0.69%
E: Dictated essay with conventions	1	0.35%

Special Service Summary for ELA, Grade Four		
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.35%
J: Tested over more than one day	11	3.81%
K: Had supervised breaks	57	19.72%
L: Most beneficial time of day	35	12.11%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	4	1.38%
X: Used an unlisted accommodation	17	5.88%
Y: Leave blank	4	1.38%
Z: Examiner read test questions aloud	81	28.03%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	110	38.06%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.35%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	141	48.79%
No Accommodation or EL Variation	148	51.21%
English Learner (EL) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	465	3.71%
C: Dictated responses to a scribe	21	0.17%
D: Used word processing with tools off	15	0.12%
E: Dictated essay with conventions	19	0.15%
F: Used noninterfering assistive device	43	0.34%
G: Used braille test	6	0.05%
H: Used large-print test	34	0.27%
J: Tested over more than one day	652	5.20%
K: Had supervised breaks	3,231	25.76%
L: Most beneficial time of day	1,629	12.99%
M: Administered at home or in a hospital	11	0.09%
O: Examiner presented with MCE or ASL	21	0.17%
X: Used an unlisted accommodation	788	6.28%
Y: Leave blank	236	1.88%
Z: Examiner read test questions aloud	5,054	40.29%
Accommodation is in Section 504 plan	7	0.06%
Accommodation is in IEP	5,610	44.72%
English Learner Test Variation A	47	0.37%
English Learner Test Variation B	84	0.67%
English Learner Test Variation C	88	0.70%
Any Accommodation or EL Variation	7,231	57.65%
No Accommodation or EL Variation	5,313	42.35%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	18	8.96%
C: Dictated responses to a scribe	0	0.00%
D: Used word processing with tools off	2	1.00%
E: Dictated essay with conventions	0	0.00%
F: Used noninterfering assistive device	1	0.50%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%
J: Tested over more than one day	12	5.97%
K: Had supervised breaks	69	34.33%
L: Most beneficial time of day	32	15.92%

Special Service Summary for ELA, Grade Four		
M: Administered at home or in a hospital	1	0.50%
O: Examiner presented with MCE or ASL	1	0.50%
X: Used an unlisted accommodation	7	3.48%
Y: Leave blank	5	2.49%
Z: Examiner read test questions aloud	79	39.30%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	95	47.26%
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	120	59.70%
No Accommodation or EL Variation	81	40.30%

Table 2.D.3 Special Service Summary for ELA, Grades Five and Six

Special Service Summary for ELA, Grades Five and Six				
All Tested	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	1,233	4.12%	808	2.69%
C: Dictated responses to a scribe	46	0.15%	45	0.15%
F: Used noninterfering assistive device	71	0.24%	38	0.13%
G: Used braille test	3	0.01%	7	0.02%
H: Used large-print test	104	0.35%	97	0.32%
J: Tested over more than one day	1,753	5.85%	1,303	4.33%
K: Had supervised breaks	6,266	20.92%	4,935	16.41%
L: Most beneficial time of day	3,213	10.73%	2,186	7.27%
M: Administered at home or in a hospital	30	0.10%	17	0.06%
O: Examiner presented with MCE or ASL	42	0.14%	55	0.18%
X: Used an unlisted accommodation	1,201	4.01%	1,119	3.72%
Y: Leave blank	408	1.36%	406	1.35%
Z: Examiner read test questions aloud	7,911	26.41%	5,926	19.71%
Accommodation is in Section 504 plan	2	0.01%	1	0.00%
Accommodation is in IEP	13,159	43.93%	10,446	34.74%
English Learner Test Variation A	26	0.09%	19	0.06%
English Learner Test Variation B	56	0.19%	37	0.12%
English Learner Test Variation C	56	0.19%	29	0.10%
Any Accommodation or EL Variation	13,922	46.48%	11,167	37.14%
No Accommodation or EL Variation	16,032	53.52%	18,901	62.86%
English-Only Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	777	4.89%	501	3.16%
C: Dictated responses to a scribe	27	0.17%	26	0.16%
F: Used noninterfering assistive device	30	0.19%	21	0.13%
G: Used braille test	2	0.01%	7	0.04%
H: Used large-print test	65	0.41%	63	0.40%
J: Tested over more than one day	1,000	6.30%	699	4.41%
K: Had supervised breaks	3,195	20.12%	2,647	16.71%
L: Most beneficial time of day	1,677	10.56%	1,146	7.23%
M: Administered at home or in a hospital	24	0.15%	9	0.06%
O: Examiner presented with MCE or ASL	29	0.18%	34	0.21%
X: Used an unlisted accommodation	660	4.16%	590	3.72%
Y: Leave blank	223	1.40%	239	1.51%
Z: Examiner read test questions aloud	4,048	25.50%	2,878	18.17%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	6,914	43.55%	5,407	34.14%
English Learner Test Variation A	1	0.01%	3	0.02%
English Learner Test Variation B	2	0.01%	2	0.01%
English Learner Test Variation C	1	0.01%	1	0.01%
Any Accommodation or EL Variation	7,313	46.06%	5,802	36.63%
No Accommodation or EL Variation	8,564	53.94%	10,038	63.37%
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	13	4.50%	8	2.47%
C: Dictated responses to a scribe	2	0.69%	1	0.31%
F: Used noninterfering assistive device	1	0.35%	2	0.62%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	2	0.69%	2	0.62%
J: Tested over more than one day	17	5.88%	12	3.70%
K: Had supervised breaks	59	20.42%	51	15.74%
L: Most beneficial time of day	28	9.69%	16	4.94%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	1	0.35%	2	0.62%

Special Service Summary for ELA, Grades Five and Six				
X: Used an unlisted accommodation	13	4.50%	18	5.56%
Y: Leave blank	3	1.04%	5	1.54%
Z: Examiner read test questions aloud	75	25.95%	55	16.98%
Accommodation is in Section 504 plan	1	0.35%	0	0.00%
Accommodation is in IEP	126	43.60%	108	33.33%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	133	46.02%	115	35.49%
No Accommodation or EL Variation	156	53.98%	209	64.51%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	420	3.16%	277	2.13%
C: Dictated responses to a scribe	15	0.11%	16	0.12%
F: Used noninterfering assistive device	38	0.29%	15	0.12%
G: Used braille test	1	0.01%	0	0.00%
H: Used large-print test	36	0.27%	24	0.18%
J: Tested over more than one day	713	5.36%	561	4.32%
K: Had supervised breaks	2,916	21.92%	2,121	16.32%
L: Most beneficial time of day	1,459	10.97%	975	7.50%
M: Administered at home or in a hospital	6	0.05%	8	0.06%
O: Examiner presented with MCE or ASL	12	0.09%	17	0.13%
X: Used an unlisted accommodation	513	3.86%	460	3.54%
Y: Leave blank	177	1.33%	154	1.19%
Z: Examiner read test questions aloud	3,665	27.56%	2,841	21.87%
Accommodation is in Section 504 plan	1	0.01%	1	0.01%
Accommodation is in IEP	5,926	44.56%	4,648	35.77%
English Learner Test Variation A	25	0.19%	16	0.12%
English Learner Test Variation B	54	0.41%	35	0.27%
English Learner Test Variation C	55	0.41%	28	0.22%
Any Accommodation or EL Variation	6,271	47.15%	4,951	38.11%
No Accommodation or EL Variation	7,029	52.85%	8,042	61.89%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	20	4.63%	20	2.35%
C: Dictated responses to a scribe	1	0.23%	2	0.24%
F: Used noninterfering assistive device	1	0.23%	0	0.00%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	1	0.23%	7	0.82%
J: Tested over more than one day	20	4.63%	27	3.17%
K: Had supervised breaks	81	18.75%	107	12.57%
L: Most beneficial time of day	39	9.03%	44	5.17%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	1	0.12%
X: Used an unlisted accommodation	14	3.24%	44	5.17%
Y: Leave blank	5	1.16%	8	0.94%
Z: Examiner read test questions aloud	103	23.84%	139	16.33%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	163	37.73%	259	30.43%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	173	40.05%	275	32.31%
No Accommodation or EL Variation	259	59.95%	576	67.69%

Table 2.D.4 Special Service Summary for ELA, Grade Seven

Special Service Summary for ELA, Grade Seven		
All Tested	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	449	1.57%
C: Dictated responses to a scribe	30	0.10%
D: Used word processing with tools off	204	0.71%
E: Dictated essay with conventions	32	0.11%
F: Used noninterfering assistive device	37	0.13%
G: Used braille test	14	0.05%
H: Used large-print test	100	0.35%
J: Tested over more than one day	682	2.38%
K: Had supervised breaks	4,431	15.48%
L: Most beneficial time of day	1,684	5.88%
M: Administered at home or in a hospital	42	0.15%
O: Examiner presented with MCE or ASL	104	0.36%
X: Used an unlisted accommodation	1,464	5.11%
Y: Leave blank	649	2.27%
Z: Examiner read test questions aloud	6,472	22.61%
Accommodation is in Section 504 plan	8	0.03%
Accommodation is in IEP	7,367	25.74%
English Learner Test Variation A	20	0.07%
English Learner Test Variation B	27	0.09%
English Learner Test Variation C	37	0.13%
Any Accommodation or EL Variation	11,252	39.31%
No Accommodation or EL Variation	17,373	60.69%
English-Only Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	269	1.78%
C: Dictated responses to a scribe	21	0.14%
D: Used word processing with tools off	157	1.04%
E: Dictated essay with conventions	24	0.16%
F: Used noninterfering assistive device	17	0.11%
G: Used braille test	7	0.05%
H: Used large-print test	58	0.38%
J: Tested over more than one day	401	2.65%
K: Had supervised breaks	2,433	16.06%
L: Most beneficial time of day	982	6.48%
M: Administered at home or in a hospital	26	0.17%
O: Examiner presented with MCE or ASL	78	0.51%
X: Used an unlisted accommodation	767	5.06%
Y: Leave blank	343	2.26%
Z: Examiner read test questions aloud	3,035	20.04%
Accommodation is in Section 504 plan	7	0.05%
Accommodation is in IEP	3,833	25.31%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	4	0.03%
English Learner Test Variation C	2	0.01%
Any Accommodation or EL Variation	5,781	38.17%
No Accommodation or EL Variation	9,365	61.83%
Initially Fluent English Proficient (I-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	3	0.58%
C: Dictated responses to a scribe	1	0.19%
D: Used word processing with tools off	1	0.19%
E: Dictated essay with conventions	1	0.19%

Special Service Summary for ELA, Grade Seven		
F: Used noninterfering 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	10	1.95%
K: Had supervised breaks	75	14.59%
L: Most beneficial time of day	25	4.86%
M: Administered at home or in a hospital	1	0.19%
O: Examiner presented with MCE or ASL	7	1.36%
X: Used an unlisted accommodation	31	6.03%
Y: Leave blank	10	1.95%
Z: Examiner read test questions aloud	95	18.48%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	119	23.15%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.19%
English Learner Test Variation C	1	0.19%
Any Accommodation or EL Variation	186	36.19%
No Accommodation or EL Variation	328	63.81%
English Learner (EL) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	148	1.27%
C: Dictated responses to a scribe	7	0.06%
D: Used word processing with tools off	33	0.28%
E: Dictated essay with conventions	5	0.04%
F: Used noninterfering assistive device	18	0.15%
G: Used braille test	6	0.05%
H: Used large-print test	33	0.28%
J: Tested over more than one day	246	2.10%
K: Had supervised breaks	1,726	14.77%
L: Most beneficial time of day	611	5.23%
M: Administered at home or in a hospital	15	0.13%
O: Examiner presented with MCE or ASL	18	0.15%
X: Used an unlisted accommodation	575	4.92%
Y: Leave blank	273	2.34%
Z: Examiner read test questions aloud	3,009	25.74%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	3,027	25.90%
English Learner Test Variation A	19	0.16%
English Learner Test Variation B	22	0.19%
English Learner Test Variation C	34	0.29%
Any Accommodation or EL Variation	4,748	40.62%
No Accommodation or EL Variation	6,941	59.38%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	28	2.33%
C: Dictated responses to a scribe	1	0.08%
D: Used word processing with tools off	13	1.08%
E: Dictated essay with conventions	2	0.17%
F: Used noninterfering assistive device	2	0.17%
G: Used braille test	1	0.08%
H: Used large-print test	7	0.58%
J: Tested over more than one day	24	2.00%
K: Had supervised breaks	183	15.25%
L: Most beneficial time of day	60	5.00%

Special Service Summary for ELA, Grade Seven		
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.08%
X: Used an unlisted accommodation	81	6.75%
Y: Leave blank	23	1.92%
Z: Examiner read test questions aloud	320	26.67%
Accommodation is in Section 504 plan	1	0.08%
Accommodation is in IEP	366	30.50%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	508	42.33%
No Accommodation or EL Variation	692	57.67%

Table 2.D.5 Special Service Summary for ELA, Grades Eight and Nine

Special Service Summary for ELA, Grades Eight and Nine				
All Tested	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	320	1.19%	140	0.63%
C: Dictated responses to a scribe	19	0.07%	13	0.06%
F: Used noninterfering assistive device	23	0.09%	7	0.03%
G: Used braille test	8	0.03%	5	0.02%
H: Used large-print test	61	0.23%	44	0.20%
J: Tested over more than one day	752	2.79%	246	1.11%
K: Had supervised breaks	3,389	12.58%	3,061	13.76%
L: Most beneficial time of day	1,129	4.19%	484	2.18%
M: Administered at home or in a hospital	26	0.10%	20	0.09%
O: Examiner presented with MCE or ASL	42	0.16%	22	0.10%
X: Used an unlisted accommodation	955	3.55%	425	1.91%
Y: Leave blank	339	1.26%	247	1.11%
Z: Examiner read test questions aloud	2,882	10.70%	738	3.32%
Accommodation is in Section 504 plan	2	0.01%	2	0.01%
Accommodation is in IEP	6,422	23.84%	3,637	16.35%
English Learner Test Variation A	7	0.03%	8	0.04%
English Learner Test Variation B	11	0.04%	55	0.25%
English Learner Test Variation C	3	0.01%	7	0.03%
Any Accommodation or EL Variation	7,242	26.89%	4,449	20.00%
No Accommodation or EL Variation	19,692	73.11%	17,794	80.00%
English-Only Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	211	1.49%	87	0.73%
C: Dictated responses to a scribe	14	0.10%	10	0.08%
F: Used noninterfering assistive device	13	0.09%	4	0.03%
G: Used braille test	5	0.04%	3	0.03%
H: Used large-print test	41	0.29%	24	0.20%
J: Tested over more than one day	430	3.03%	170	1.43%
K: Had supervised breaks	1,813	12.77%	1,702	14.35%
L: Most beneficial time of day	636	4.48%	303	2.56%
M: Administered at home or in a hospital	14	0.10%	17	0.14%
O: Examiner presented with MCE or ASL	28	0.20%	11	0.09%
X: Used an unlisted accommodation	433	3.05%	233	1.96%
Y: Leave blank	186	1.31%	131	1.10%
Z: Examiner read test questions aloud	1,353	9.53%	362	3.05%
Accommodation is in Section 504 plan	1	0.01%	1	0.01%
Accommodation is in IEP	3,268	23.03%	2,003	16.89%
English Learner Test Variation A	2	0.01%	0	0.00%
English Learner Test Variation B	0	0.00%	10	0.08%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	3,711	26.15%	2,404	20.27%
No Accommodation or EL Variation	10,481	73.85%	9,454	79.73%
Initially Fluent English Proficient (I-FEP) Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	1	0.18%	3	0.55%
C: Dictated responses to a scribe	0	0.00%	0	0.00%
F: Used noninterfering assistive device	0	0.00%	0	0.00%
G: Used braille test	0	0.00%	1	0.18%
H: Used large-print test	1	0.18%	2	0.37%
J: Tested over more than one day	17	2.99%	5	0.92%
K: Had supervised breaks	62	10.90%	69	12.71%
L: Most beneficial time of day	25	4.39%	8	1.47%
M: Administered at home or in a hospital	0	0.00%	0	0.00%

Special Service Summary for ELA, Grades Eight and Nine				
O: Examiner presented with MCE or ASL	4	0.70%	0	0.00%
X: Used an unlisted accommodation	23	4.04%	13	2.39%
Y: Leave blank	9	1.58%	6	1.10%
Z: Examiner read test questions aloud	52	9.14%	21	3.87%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	128	22.50%	92	16.94%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	1	0.18%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	144	25.31%	112	20.63%
No Accommodation or EL Variation	425	74.69%	431	79.37%
English Learner (EL) Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	82	0.78%	43	0.52%
C: Dictated responses to a scribe	4	0.04%	2	0.02%
F: Used noninterfering assistive device	10	0.09%	3	0.04%
G: Used braille test	2	0.02%	1	0.01%
H: Used large-print test	16	0.15%	16	0.20%
J: Tested over more than one day	273	2.58%	63	0.77%
K: Had supervised breaks	1,340	12.67%	1,081	13.18%
L: Most beneficial time of day	406	3.84%	151	1.84%
M: Administered at home or in a hospital	10	0.09%	3	0.04%
O: Examiner presented with MCE or ASL	10	0.09%	8	0.10%
X: Used an unlisted accommodation	422	3.99%	152	1.85%
Y: Leave blank	126	1.19%	93	1.13%
Z: Examiner read test questions aloud	1,320	12.48%	298	3.63%
Accommodation is in Section 504 plan	1	0.01%	1	0.01%
Accommodation is in IEP	2,654	25.09%	1,298	15.82%
English Learner Test Variation A	5	0.05%	8	0.10%
English Learner Test Variation B	11	0.10%	43	0.52%
English Learner Test Variation C	3	0.03%	7	0.09%
Any Accommodation or EL Variation	2,962	28.00%	1,620	19.75%
No Accommodation or EL Variation	7,615	72.00%	6,584	80.25%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	19	1.31%	7	0.46%
C: Dictated responses to a scribe	1	0.07%	1	0.07%
F: Used noninterfering assistive device	0	0.00%	0	0.00%
G: Used braille test	1	0.07%	0	0.00%
H: Used large-print test	3	0.21%	2	0.13%
J: Tested over more than one day	24	1.66%	7	0.46%
K: Had supervised breaks	145	10.01%	196	12.93%
L: Most beneficial time of day	55	3.80%	20	1.32%
M: Administered at home or in a hospital	1	0.07%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	2	0.13%
X: Used an unlisted accommodation	71	4.90%	22	1.45%
Y: Leave blank	16	1.10%	17	1.12%
Z: Examiner read test questions aloud	141	9.73%	52	3.43%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	327	22.57%	219	14.45%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	1	0.07%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	375	25.88%	288	19.00%
No Accommodation or EL Variation	1,074	74.12%	1,228	81.00%

Table 2.D.6 Special Service Summary for ELA, Grades Ten and Eleven

Special Service Summary for ELA, Grades Ten and Eleven				
All Tested	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	133	0.69%	83	0.50%
C: Dictated responses to a scribe	18	0.09%	24	0.14%
F: Used noninterfering assistive device	12	0.06%	5	0.03%
G: Used braille test	9	0.05%	10	0.06%
H: Used large-print test	34	0.18%	30	0.18%
J: Tested over more than one day	196	1.02%	241	1.45%
K: Had supervised breaks	2,469	12.79%	2,095	12.62%
L: Most beneficial time of day	345	1.79%	327	1.97%
M: Administered at home or in a hospital	18	0.09%	29	0.17%
O: Examiner presented with MCE or ASL	42	0.22%	46	0.28%
X: Used an unlisted accommodation	380	1.97%	347	2.09%
Y: Leave blank	258	1.34%	246	1.48%
Z: Examiner read test questions aloud	568	2.94%	448	2.70%
Accommodation is in Section 504 plan	1	0.01%	1	0.01%
Accommodation is in IEP	3,049	15.80%	2,576	15.52%
English Learner Test Variation A	9	0.05%	12	0.07%
English Learner Test Variation B	33	0.17%	22	0.13%
English Learner Test Variation C	6	0.03%	1	0.01%
Any Accommodation or EL Variation	3,709	19.21%	3,173	19.11%
No Accommodation or EL Variation	15,594	80.79%	13,430	80.89%
English-Only Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	90	0.88%	50	0.55%
C: Dictated responses to a scribe	11	0.11%	11	0.12%
F: Used noninterfering assistive device	1	0.01%	2	0.02%
G: Used braille test	5	0.05%	6	0.07%
H: Used large-print test	21	0.20%	16	0.18%
J: Tested over more than one day	111	1.08%	138	1.52%
K: Had supervised breaks	1,352	13.19%	1,125	12.40%
L: Most beneficial time of day	213	2.08%	201	2.21%
M: Administered at home or in a hospital	11	0.11%	19	0.21%
O: Examiner presented with MCE or ASL	24	0.23%	29	0.32%
X: Used an unlisted accommodation	209	2.04%	178	1.96%
Y: Leave blank	114	1.11%	115	1.27%
Z: Examiner read test questions aloud	268	2.61%	238	2.62%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	1,671	16.30%	1,405	15.48%
English Learner Test Variation A	1	0.01%	9	0.10%
English Learner Test Variation B	5	0.05%	5	0.06%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	1,986	19.37%	1,699	18.72%
No Accommodation or EL Variation	8,267	80.63%	7,377	81.28%
Initially Fluent English Proficient (I-FEP) Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	1	0.24%	1	0.24%
C: Dictated responses to a scribe	1	0.24%	2	0.47%
F: Used noninterfering assistive device	0	0.00%	0	0.00%
G: Used braille test	1	0.24%	1	0.24%
H: Used large-print test	1	0.24%	0	0.00%
J: Tested over more than one day	6	1.43%	2	0.47%
K: Had supervised breaks	47	11.19%	45	10.64%
L: Most beneficial time of day	9	2.14%	4	0.95%
M: Administered at home or in a hospital	1	0.24%	1	0.24%

Special Service Summary for ELA, Grades Ten and Eleven				
O: Examiner presented with MCE or ASL	1	0.24%	1	0.24%
X: Used an unlisted accommodation	8	1.90%	12	2.84%
Y: Leave blank	7	1.67%	9	2.13%
Z: Examiner read test questions aloud	14	3.33%	17	4.02%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	62	14.76%	65	15.37%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	76	18.10%	82	19.39%
No Accommodation or EL Variation	344	81.90%	341	80.61%
English Learner (EL) Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	34	0.47%	25	0.42%
C: Dictated responses to a scribe	4	0.05%	11	0.18%
F: Used noninterfering assistive device	8	0.11%	3	0.05%
G: Used braille test	2	0.03%	3	0.05%
H: Used large-print test	10	0.14%	12	0.20%
J: Tested over more than one day	67	0.92%	91	1.52%
K: Had supervised breaks	907	12.42%	759	12.69%
L: Most beneficial time of day	99	1.36%	104	1.74%
M: Administered at home or in a hospital	6	0.08%	8	0.13%
O: Examiner presented with MCE or ASL	16	0.22%	15	0.25%
X: Used an unlisted accommodation	141	1.93%	126	2.11%
Y: Leave blank	120	1.64%	94	1.57%
Z: Examiner read test questions aloud	247	3.38%	168	2.81%
Accommodation is in Section 504 plan	1	0.01%	1	0.02%
Accommodation is in IEP	1,116	15.29%	914	15.28%
English Learner Test Variation A	8	0.11%	3	0.05%
English Learner Test Variation B	27	0.37%	17	0.28%
English Learner Test Variation C	6	0.08%	1	0.02%
Any Accommodation or EL Variation	1,403	19.22%	1,150	19.23%
No Accommodation or EL Variation	5,897	80.78%	4,830	80.77%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	8	0.64%	6	0.57%
C: Dictated responses to a scribe	1	0.08%	0	0.00%
F: Used noninterfering assistive device	3	0.24%	0	0.00%
G: Used braille test	1	0.08%	0	0.00%
H: Used large-print test	2	0.16%	2	0.19%
J: Tested over more than one day	12	0.96%	8	0.76%
K: Had supervised breaks	155	12.42%	151	14.41%
L: Most beneficial time of day	23	1.84%	15	1.43%
M: Administered at home or in a hospital	0	0.00%	1	0.10%
O: Examiner presented with MCE or ASL	0	0.00%	1	0.10%
X: Used an unlisted accommodation	20	1.60%	25	2.39%
Y: Leave blank	15	1.20%	23	2.19%
Z: Examiner read test questions aloud	38	3.04%	23	2.19%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	188	15.06%	175	16.70%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	1	0.08%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	230	18.43%	219	20.90%
No Accommodation or EL Variation	1,018	81.57%	829	79.10%

Table 2.D.7 Special Service Summary for Mathematics, Grades Three and Four

Special Service Summary for Mathematics, Grades Three and Four				
All Tested	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	370	2.12%	1,085	4.45%
C: Dictated responses to a scribe	69	0.39%	63	0.26%
F: Used noninterfering assistive device	51	0.29%	70	0.29%
G: Used braille test	7	0.04%	7	0.03%
H: Used large-print test	66	0.38%	79	0.32%
J: Tested over more than one day	1,063	6.08%	1,299	5.33%
K: Had supervised breaks	3,844	21.99%	5,032	20.65%
L: Most beneficial time of day	1,917	10.96%	2,511	10.30%
M: Administered at home or in a hospital	7	0.04%	16	0.07%
O: Examiner presented with MCE or ASL	45	0.26%	62	0.25%
S: Used math manipulatives	338	1.93%	383	1.57%
X: Used an unlisted accommodation	807	4.62%	1,067	4.38%
Y: Leave blank	147	0.84%	243	1.00%
Z: Examiner read test questions aloud	7,026	40.19%	9,465	38.84%
Accommodation is in Section 504 plan	5	0.03%	7	0.03%
Accommodation is in IEP	8,918	51.01%	12,432	51.02%
English Learner Test Variation A	10	0.06%	13	0.05%
English Learner Test Variation B	50	0.29%	43	0.18%
English Learner Test Variation C	46	0.26%	47	0.19%
English Learner Test Variation D	1	0.01%	2	0.01%
Any Accommodation or EL Variation	9,527	54.49%	13,109	53.79%
No Accommodation or EL Variation	7,956	45.51%	11,260	46.21%
English-Only Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	200	2.15%	661	4.98%
C: Dictated responses to a scribe	54	0.58%	42	0.32%
F: Used noninterfering assistive device	25	0.27%	38	0.29%
G: Used braille test	3	0.03%	2	0.02%
H: Used large-print test	47	0.51%	52	0.39%
J: Tested over more than one day	605	6.51%	722	5.44%
K: Had supervised breaks	1,980	21.30%	2,662	20.06%
L: Most beneficial time of day	1,029	11.07%	1,342	10.11%
M: Administered at home or in a hospital	3	0.03%	7	0.05%
O: Examiner presented with MCE or ASL	27	0.29%	47	0.35%
S: Used math manipulatives	172	1.85%	185	1.39%
X: Used an unlisted accommodation	412	4.43%	572	4.31%
Y: Leave blank	84	0.90%	134	1.01%
Z: Examiner read test questions aloud	3,714	39.95%	4,905	36.95%
Accommodation is in Section 504 plan	2	0.02%	6	0.05%
Accommodation is in IEP	4,692	50.47%	6,686	50.37%
English Learner Test Variation A	2	0.02%	1	0.01%
English Learner Test Variation B	3	0.03%	2	0.02%
English Learner Test Variation C	6	0.06%	2	0.02%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	5,042	54.24%	7,033	52.99%
No Accommodation or EL Variation	4,254	45.76%	6,240	47.01%
Initially Fluent English Proficient (I-FEP) Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	2	1.40%	4	1.91%
C: Dictated responses to a scribe	1	0.70%	0	0.00%
F: Used noninterfering assistive device	0	0.00%	0	0.00%
G: Used braille test	0	0.00%	0	0.00%

Special Service Summary for Mathematics, Grades Three and Four				
H: Used large-print test	1	0.70%	1	0.48%
J: Tested over more than one day	9	6.29%	9	4.31%
K: Had supervised breaks	30	20.98%	32	15.31%
L: Most beneficial time of day	19	13.29%	16	7.66%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	3	1.44%
S: Used math manipulatives	2	1.40%	3	1.44%
X: Used an unlisted accommodation	3	2.10%	12	5.74%
Y: Leave blank	3	2.10%	2	0.96%
Z: Examiner read test questions aloud	49	34.27%	71	33.97%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	66	46.15%	95	45.45%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	1	0.70%	1	0.48%
English Learner Test Variation C	1	0.70%	0	0.00%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	72	50.35%	101	48.33%
No Accommodation or EL Variation	71	49.65%	108	51.67%
English Learner (EL) Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	155	2.06%	403	3.79%
C: Dictated responses to a scribe	12	0.16%	19	0.18%
F: Used noninterfering assistive device	26	0.35%	32	0.30%
G: Used braille test	4	0.05%	4	0.04%
H: Used large-print test	18	0.24%	25	0.23%
J: Tested over more than one day	420	5.59%	557	5.23%
K: Had supervised breaks	1,734	23.09%	2,276	21.38%
L: Most beneficial time of day	827	11.01%	1,118	10.50%
M: Administered at home or in a hospital	4	0.05%	9	0.08%
O: Examiner presented with MCE or ASL	17	0.23%	12	0.11%
S: Used math manipulatives	154	2.05%	190	1.78%
X: Used an unlisted accommodation	362	4.82%	477	4.48%
Y: Leave blank	55	0.73%	103	0.97%
Z: Examiner read test questions aloud	3,060	40.75%	4,396	41.30%
Accommodation is in Section 504 plan	3	0.04%	1	0.01%
Accommodation is in IEP	3,903	51.97%	5,519	51.85%
English Learner Test Variation A	8	0.11%	12	0.11%
English Learner Test Variation B	46	0.61%	40	0.38%
English Learner Test Variation C	39	0.52%	45	0.42%
English Learner Test Variation D	1	0.01%	2	0.02%
Any Accommodation or EL Variation	4,141	55.14%	5,835	54.81%
No Accommodation or EL Variation	3,369	44.86%	4,810	45.19%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	3	4.41%	14	8.09%
C: Dictated responses to a scribe	0	0.00%	0	0.00%
F: Used noninterfering assistive device	0	0.00%	0	0.00%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	0	0.00%	1	0.58%
J: Tested over more than one day	2	2.94%	5	2.89%
K: Had supervised breaks	12	17.65%	45	26.01%
L: Most beneficial time of day	8	11.76%	24	13.87%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	1	1.47%	0	0.00%

Special Service Summary for Mathematics, Grades Three and Four				
S: Used math manipulatives	3	4.41%	4	2.31%
X: Used an unlisted accommodation	1	1.47%	3	1.73%
Y: Leave blank	0	0.00%	2	1.16%
Z: Examiner read test questions aloud	22	32.35%	63	36.42%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	32	47.06%	91	52.60%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	32	47.06%	96	55.49%
No Accommodation or EL Variation	36	52.94%	77	44.51%

Table 2.D.8 Special Service Summary for Mathematics, Grades Five and Six

Special Service Summary for Mathematics, Grades Five and Six				
All Tested	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	1,138	4.27%	758	2.75%
C: Dictated responses to a scribe	41	0.15%	47	0.17%
F: Used noninterfering assistive device	69	0.26%	35	0.13%
G: Used braille test	7	0.03%	9	0.03%
H: Used large-print test	90	0.34%	90	0.33%
J: Tested over more than one day	1,534	5.75%	1,160	4.21%
K: Had supervised breaks	5,397	20.24%	4,433	16.11%
L: Most beneficial time of day	2,912	10.92%	1,979	7.19%
M: Administered at home or in a hospital	32	0.12%	15	0.05%
O: Examiner presented with MCE or ASL	58	0.22%	72	0.26%
Q: Used a calculator	2,432	9.12%	0	0.00%
S: Used math manipulatives	367	1.38%	274	1.00%
X: Used an unlisted accommodation	1,098	4.12%	1,051	3.82%
Y: Leave blank	300	1.13%	315	1.14%
Z: Examiner read test questions aloud	9,466	35.50%	6,737	24.48%
Accommodation is in Section 504 plan	2	0.01%	3	0.01%
Accommodation is in IEP	13,485	50.57%	10,385	37.73%
English Learner Test Variation A	24	0.09%	13	0.05%
English Learner Test Variation B	57	0.21%	31	0.11%
English Learner Test Variation C	41	0.15%	23	0.08%
English Learner Test Variation D	5	0.02%	8	0.03%
Any Accommodation or EL Variation	14,177	53.17%	11,020	40.04%
No Accommodation or EL Variation	12,488	46.83%	16,503	59.96%
English-Only Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	729	5.04%	479	3.19%
C: Dictated responses to a scribe	24	0.17%	27	0.18%
F: Used noninterfering assistive device	29	0.20%	20	0.13%
G: Used braille test	4	0.03%	8	0.05%
H: Used large-print test	58	0.40%	61	0.41%
J: Tested over more than one day	906	6.27%	657	4.38%
K: Had supervised breaks	2,827	19.56%	2,460	16.39%
L: Most beneficial time of day	1,556	10.77%	1,048	6.98%
M: Administered at home or in a hospital	26	0.18%	8	0.05%
O: Examiner presented with MCE or ASL	39	0.27%	44	0.29%
Q: Used a calculator	1,337	9.25%	0	0.00%
S: Used math manipulatives	189	1.31%	148	0.99%
X: Used an unlisted accommodation	616	4.26%	579	3.86%
Y: Leave blank	170	1.18%	210	1.40%
Z: Examiner read test questions aloud	4,904	33.93%	3,407	22.71%
Accommodation is in Section 504 plan	1	0.01%	1	0.01%
Accommodation is in IEP	7,251	50.17%	5,522	36.80%
English Learner Test Variation A	2	0.01%	3	0.02%
English Learner Test Variation B	2	0.01%	2	0.01%
English Learner Test Variation C	1	0.01%	1	0.01%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	7,631	52.80%	5,891	39.26%
No Accommodation or EL Variation	6,821	47.20%	9,114	60.74%

Special Service Summary for Mathematics, Grades Five and Six				
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	9	3.42%	7	2.34%
C: Dictated responses to a scribe	1	0.38%	2	0.67%
F: Used noninterfering assistive device	0	0.00%	2	0.67%
G: Used braille test	0	0.00%	1	0.33%
H: Used large-print test	2	0.76%	1	0.33%
J: Tested over more than one day	11	4.18%	11	3.68%
K: Had supervised breaks	52	19.77%	47	15.72%
L: Most beneficial time of day	22	8.37%	17	5.69%
M: Administered at home or in a hospital	0	0.00%	1	0.33%
O: Examiner presented with MCE or ASL	1	0.38%	2	0.67%
Q: Used a calculator	17	6.46%	0	0.00%
S: Used math manipulatives	2	0.76%	2	0.67%
X: Used an unlisted accommodation	12	4.56%	15	5.02%
Y: Leave blank	3	1.14%	3	1.00%
Z: Examiner read test questions aloud	100	38.02%	60	20.07%
Accommodation is in Section 504 plan	0	0.00%	1	0.33%
Accommodation is in IEP	131	49.81%	102	34.11%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	136	51.71%	108	36.12%
No Accommodation or EL Variation	127	48.29%	191	63.88%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	382	3.31%	255	2.24%
C: Dictated responses to a scribe	14	0.12%	16	0.14%
F: Used noninterfering assistive device	38	0.33%	13	0.11%
G: Used braille test	3	0.03%	0	0.00%
H: Used large-print test	30	0.26%	21	0.18%
J: Tested over more than one day	599	5.20%	467	4.09%
K: Had supervised breaks	2,435	21.13%	1,823	15.98%
L: Most beneficial time of day	1,289	11.19%	869	7.62%
M: Administered at home or in a hospital	5	0.04%	6	0.05%
O: Examiner presented with MCE or ASL	18	0.16%	24	0.21%
Q: Used a calculator	1,044	9.06%	0	0.00%
S: Used math manipulatives	167	1.45%	110	0.96%
X: Used an unlisted accommodation	456	3.96%	403	3.53%
Y: Leave blank	125	1.08%	95	0.83%
Z: Examiner read test questions aloud	4,330	37.57%	3,105	27.22%
Accommodation is in Section 504 plan	1	0.01%	1	0.01%
Accommodation is in IEP	5,908	51.27%	4,475	39.23%
English Learner Test Variation A	22	0.19%	10	0.09%
English Learner Test Variation B	54	0.47%	29	0.25%
English Learner Test Variation C	40	0.35%	22	0.19%
English Learner Test Variation D	5	0.04%	8	0.07%
Any Accommodation or EL Variation	6,205	53.84%	4,718	41.36%
No Accommodation or EL Variation	5,319	46.16%	6,688	58.64%

Special Service Summary for Mathematics, Grades Five and Six				
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	16	4.29%	15	1.98%
C: Dictated responses to a scribe	1	0.27%	2	0.26%
F: Used noninterfering assistive device	1	0.27%	0	0.00%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	0	0.00%	6	0.79%
J: Tested over more than one day	16	4.29%	22	2.91%
K: Had supervised breaks	69	18.50%	96	12.68%
L: Most beneficial time of day	34	9.12%	42	5.55%
M: Administered at home or in a hospital	1	0.27%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	1	0.13%
Q: Used a calculator	31	8.31%	0	0.00%
S: Used math manipulatives	9	2.41%	13	1.72%
X: Used an unlisted accommodation	12	3.22%	47	6.21%
Y: Leave blank	2	0.54%	7	0.92%
Z: Examiner read test questions aloud	111	29.76%	147	19.42%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	165	44.24%	260	34.35%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	1	0.27%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	174	46.65%	277	36.59%
No Accommodation or EL Variation	199	53.35%	480	63.41%

Table 2.D.9 Special Service Summary for Mathematics, Grade Seven

Special Service Summary for Mathematics, Grade Seven		
All Tested	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	433	1.58%
C: Dictated responses to a scribe	32	0.12%
F: Used noninterfering assistive device	25	0.09%
G: Used braille test	13	0.05%
H: Used large-print test	82	0.30%
J: Tested over more than one day	594	2.16%
K: Had supervised breaks	3,226	11.75%
L: Most beneficial time of day	1,094	3.98%
M: Administered at home or in a hospital	17	0.06%
O: Examiner presented with MCE or ASL	56	0.20%
S: Used math manipulatives	235	0.86%
X: Used an unlisted accommodation	1,001	3.65%
Y: Leave blank	406	1.48%
Z: Examiner read test questions aloud	3,884	14.15%
Accommodation is in Section 504 plan	3	0.01%
Accommodation is in IEP	7,277	26.51%
English Learner Test Variation A	8	0.03%
English Learner Test Variation B	14	0.05%
English Learner Test Variation C	6	0.02%
English Learner Test Variation D	4	0.01%
Any Accommodation or EL Variation	7,895	28.76%
No Accommodation or EL Variation	19,559	71.24%
English-Only Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	268	1.79%
C: Dictated responses to a scribe	23	0.15%
F: Used noninterfering assistive device	16	0.11%
G: Used braille test	7	0.05%
H: Used large-print test	55	0.37%
J: Tested over more than one day	361	2.41%
K: Had supervised breaks	1,834	12.24%
L: Most beneficial time of day	691	4.61%
M: Administered at home or in a hospital	12	0.08%
O: Examiner presented with MCE or ASL	41	0.27%
S: Used math manipulatives	102	0.68%
X: Used an unlisted accommodation	539	3.60%
Y: Leave blank	227	1.52%
Z: Examiner read test questions aloud	1,898	12.67%
Accommodation is in Section 504 plan	2	0.01%
Accommodation is in IEP	3,898	26.02%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	2	0.01%
English Learner Test Variation C	1	0.01%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	4,231	28.25%
No Accommodation or EL Variation	10,747	71.75%
Initially Fluent English Proficient (I-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	4	0.80%
C: Dictated responses to a scribe	1	0.20%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	1	0.20%

Special Service Summary for Mathematics, Grade Seven		
H: Used large-print test	0	0.00%
J: Tested over more than one day	9	1.80%
K: Had supervised breaks	56	11.20%
L: Most beneficial time of day	19	3.80%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	4	0.80%
S: Used math manipulatives	3	0.60%
X: Used an unlisted accommodation	22	4.40%
Y: Leave blank	5	1.00%
Z: Examiner read test questions aloud	61	12.20%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	120	24.00%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.20%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	133	26.60%
No Accommodation or EL Variation	367	73.40%
English Learner (EL) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	135	1.25%
C: Dictated responses to a scribe	7	0.06%
F: Used noninterfering assistive device	8	0.07%
G: Used braille test	4	0.04%
H: Used large-print test	22	0.20%
J: Tested over more than one day	204	1.89%
K: Had supervised breaks	1,200	11.12%
L: Most beneficial time of day	347	3.21%
M: Administered at home or in a hospital	5	0.05%
O: Examiner presented with MCE or ASL	10	0.09%
S: Used math manipulatives	116	1.07%
X: Used an unlisted accommodation	369	3.42%
Y: Leave blank	164	1.52%
Z: Examiner read test questions aloud	1,750	16.21%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	2,917	27.02%
English Learner Test Variation A	8	0.07%
English Learner Test Variation B	11	0.10%
English Learner Test Variation C	5	0.05%
English Learner Test Variation D	4	0.04%
Any Accommodation or EL Variation	3,171	29.37%
No Accommodation or EL Variation	7,624	70.63%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	25	2.25%
C: Dictated responses to a scribe	1	0.09%
F: Used noninterfering assistive device	1	0.09%
G: Used braille test	1	0.09%
H: Used large-print test	4	0.36%
J: Tested over more than one day	19	1.71%
K: Had supervised breaks	125	11.25%
L: Most beneficial time of day	35	3.15%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.09%

Special Service Summary for Mathematics, Grade Seven		
S: Used math manipulatives	14	1.26%
X: Used an unlisted accommodation	60	5.40%
Y: Leave blank	10	0.90%
Z: Examiner read test questions aloud	169	15.21%
Accommodation is in Section 504 plan	1	0.09%
Accommodation is in IEP	321	28.89%
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	339	30.51%
No Accommodation or EL Variation	772	69.49%

Table 2.D.10 Special Service Summary for Mathematics, Algebra I

Special Service Summary for Mathematics, Algebra I							
All Tested	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	1	37	64	50	28	180	0.57%
C: Dictated responses to a scribe	0	5	4	5	2	16	0.05%
F: Used noninterfering assistive device	0	6	4	9	2	21	0.07%
G: Used braille test	0	1	3	3	1	8	0.03%
H: Used large-print test	0	12	16	10	6	44	0.14%
J: Tested over more than one day	3	237	108	101	70	519	1.64%
K: Had supervised breaks	12	825	1,515	1,031	572	3,955	12.53%
L: Most beneficial time of day	14	299	195	157	127	792	2.51%
M: Administered at home or in a hospital	0	3	5	12	7	27	0.09%
O: Examiner presented with MCE or ASL	0	10	12	23	14	59	0.19%
S: Used math manipulatives	0	49	35	29	8	121	0.38%
X: Used an unlisted accommodation	2	219	202	219	125	767	2.43%
Y: Leave blank	0	85	122	151	92	450	1.43%
Z: Examiner read test questions aloud	4	645	426	321	135	1,531	4.85%
Accommodation is in Section 504 plan	0	0	1	1	0	2	0.01%
Accommodation is in IEP	30	1,481	1,741	1,432	730	5,414	17.15%
English Learner Test Variation A	0	2	7	13	2	24	0.08%
English Learner Test Variation B	0	1	42	18	5	66	0.21%
English Learner Test Variation C	0	1	6	6	0	13	0.04%
English Learner Test Variation D	0	11	27	21	12	71	0.22%
Any Accommodation or EL Variation	30	1,705	2,193	1,745	930	6,603	20.91%
No Accommodation or EL Variation	54	4,387	8,886	7,391	4,250	24,968	79.09%
English-Only Students	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	1	27	36	30	18	112	0.65%
C: Dictated responses to a scribe	0	5	4	2	2	13	0.08%
F: Used noninterfering assistive device	0	3	4	5	2	14	0.08%
G: Used braille test	0	1	2	2	1	6	0.03%
H: Used large-print test	0	5	7	5	4	21	0.12%
J: Tested over more than one day	1	146	71	48	51	317	1.85%
K: Had supervised breaks	5	404	778	558	352	2,097	12.22%
L: Most beneficial time of day	5	162	114	83	93	457	2.66%
M: Administered at home or in a hospital	0	3	3	7	5	18	0.10%
O: Examiner presented with MCE or ASL	0	6	5	18	8	37	0.22%
S: Used math manipulatives	0	22	14	13	3	52	0.30%
X: Used an unlisted accommodation	0	117	94	115	68	394	2.30%
Y: Leave blank	0	52	70	80	51	253	1.47%
Z: Examiner read test questions aloud	2	302	216	166	78	764	4.45%
Accommodation is in Section 504 plan	0	0	1	0	0	1	0.01%
Accommodation is in IEP	12	742	914	773	439	2,880	16.78%
English Learner Test Variation A	0	0	0	1	0	1	0.01%
English Learner Test Variation B	0	0	7	5	3	15	0.09%
English Learner Test Variation C	0	0	0	0	0	0	0.00%
English Learner Test Variation D	0	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	12	870	1,113	933	554	3,482	20.28%
No Accommodation or EL Variation	31	2,324	4,589	4,188	2,552	13,684	79.72%
Initially Fluent English Proficient (I-FEP) Students	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	0	3	0	1	4	0.51%
C: Dictated responses to a scribe	0	0	0	0	0	0	0.00%
F: Used noninterfering assistive device	0	0	0	0	0	0	0.00%

Special Service Summary for Mathematics, Algebra I							
G: Used braille test	0	0	0	0	0	0	0.00%
H: Used large-print test	0	0	2	0	0	2	0.25%
J: Tested over more than one day	0	1	3	4	0	8	1.02%
K: Had supervised breaks	0	16	33	20	19	88	11.18%
L: Most beneficial time of day	0	4	4	4	2	14	1.78%
M: Administered at home or in a hospital	0	0	0	0	0	0	0.00%
O: Examiner presented with MCE or ASL	0	0	1	0	0	1	0.13%
S: Used math manipulatives	0	3	0	0	1	4	0.51%
X: Used an unlisted accommodation	0	8	5	1	2	16	2.03%
Y: Leave blank	0	2	3	1	4	10	1.27%
Z: Examiner read test questions aloud	0	11	14	6	7	38	4.83%
Accommodation is in Section 504 plan	0	0	0	0	0	0	0.00%
Accommodation is in IEP	0	33	43	23	26	125	15.88%
English Learner Test Variation A	0	0	0	0	0	0	0.00%
English Learner Test Variation B	0	0	0	0	0	0	0.00%
English Learner Test Variation C	0	0	0	0	0	0	0.00%
English Learner Test Variation D	0	1	0	0	0	1	0.13%
Any Accommodation or EL Variation	0	39	55	25	31	150	19.06%
No Accommodation or EL Variation	3	108	258	163	105	637	80.94%
English Learner (EL) Students	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	7	20	19	9	55	0.48%
C: Dictated responses to a scribe	0	0	0	3	0	3	0.03%
F: Used noninterfering assistive device	0	3	0	4	0	7	0.06%
G: Used braille test	0	0	1	1	0	2	0.02%
H: Used large-print test	0	5	6	4	2	17	0.15%
J: Tested over more than one day	2	84	28	43	19	176	1.54%
K: Had supervised breaks	7	358	577	378	172	1,492	13.05%
L: Most beneficial time of day	9	115	63	59	27	273	2.39%
M: Administered at home or in a hospital	0	0	2	5	2	9	0.08%
O: Examiner presented with MCE or ASL	0	4	6	5	6	21	0.18%
S: Used math manipulatives	0	22	18	14	3	57	0.50%
X: Used an unlisted accommodation	2	73	82	88	47	292	2.55%
Y: Leave blank	0	21	36	63	29	149	1.30%
Z: Examiner read test questions aloud	2	289	169	133	42	635	5.55%
Accommodation is in Section 504 plan	0	0	0	1	0	1	0.01%
Accommodation is in IEP	18	604	654	545	224	2,045	17.89%
English Learner Test Variation A	0	2	7	12	2	23	0.20%
English Learner Test Variation B	0	1	33	13	2	49	0.43%
English Learner Test Variation C	0	1	6	6	0	13	0.11%
English Learner Test Variation D	0	10	27	21	12	70	0.61%
Any Accommodation or EL Variation	18	678	845	682	293	2,516	22.01%
No Accommodation or EL Variation	14	1,620	3,296	2,622	1,364	8,916	77.99%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	2	5	1	0	8	0.40%
C: Dictated responses to a scribe	0	0	0	0	0	0	0.00%
F: Used noninterfering assistive device	0	0	0	0	0	0	0.00%
G: Used braille test	0	0	0	0	0	0	0.00%
H: Used large-print test	0	2	1	1	0	4	0.20%
J: Tested over more than one day	0	6	5	5	0	16	0.79%
K: Had supervised breaks	0	42	118	72	28	260	12.88%
L: Most beneficial time of day	0	15	12	9	5	41	2.03%

Special Service Summary for Mathematics, Algebra I							
M: Administered at home or in a hospital	0	0	0	0	0	0	0.00%
O: Examiner presented with MCE or ASL	0	0	0	0	0	0	0.00%
S: Used math manipulatives	0	2	3	2	0	7	0.35%
X: Used an unlisted accommodation	0	18	17	13	5	53	2.63%
Y: Leave blank	0	9	12	7	5	33	1.64%
Z: Examiner read test questions aloud	0	39	24	16	6	85	4.21%
Accommodation is in Section 504 plan	0	0	0	0	0	0	0.00%
Accommodation is in IEP	0	91	113	86	37	327	16.20%
English Learner Test Variation A	0	0	0	0	0	0	0.00%
English Learner Test Variation B	0	0	2	0	0	2	0.10%
English Learner Test Variation C	0	0	0	0	0	0	0.00%
English Learner Test Variation D	0	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	0	106	162	100	45	413	20.47%
No Accommodation or EL Variation	6	308	695	387	209	1,605	79.53%

Table 2.D.11 Special Service Summary for Mathematics, Geometry

Special Service Summary for Mathematics, Geometry						
All Tested	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	2	23	17	42	0.50%
C: Dictated responses to a scribe	0	0	0	3	3	0.04%
F: Used noninterfering assistive device	0	2	4	1	7	0.08%
G: Used braille test	0	1	1	0	2	0.02%
H: Used large-print test	0	0	6	7	13	0.16%
J: Tested over more than one day	0	10	34	41	85	1.02%
K: Had supervised breaks	2	60	526	405	993	11.90%
L: Most beneficial time of day	1	10	64	47	122	1.46%
M: Administered at home or in a hospital	0	0	1	11	12	0.14%
O: Examiner presented with MCE or ASL	0	1	22	8	31	0.37%
S: Used math manipulatives	0	2	9	10	21	0.25%
X: Used an unlisted accommodation	0	12	61	133	206	2.47%
Y: Leave blank	0	6	23	49	78	0.94%
Z: Examiner read test questions aloud	0	15	93	98	206	2.47%
Accommodation is in Section 504 plan	0	1	0	0	1	0.01%
Accommodation is in IEP	2	71	653	545	1,271	15.24%
English Learner Test Variation A	0	1	2	1	4	0.05%
English Learner Test Variation B	0	0	17	6	23	0.28%
English Learner Test Variation C	0	0	0	0	0	0.00%
English Learner Test Variation D	0	2	3	6	11	0.13%
Any Accommodation or EL Variation	2	88	731	677	1,498	17.96%
No Accommodation or EL Variation	2	543	3,293	3,006	6,844	82.04%
English-Only Students	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	1	12	8	21	0.52%
C: Dictated responses to a scribe	0	0	0	1	1	0.02%
F: Used noninterfering assistive device	0	1	0	0	1	0.02%
G: Used braille test	0	1	0	0	1	0.02%
H: Used large-print test	0	0	3	3	6	0.15%
J: Tested over more than one day	0	7	20	16	43	1.06%
K: Had supervised breaks	2	24	264	197	487	11.97%
L: Most beneficial time of day	1	7	36	20	64	1.57%
M: Administered at home or in a hospital	0	0	1	8	9	0.22%
O: Examiner presented with MCE or ASL	0	0	7	5	12	0.30%
S: Used math manipulatives	0	1	5	5	11	0.27%
X: Used an unlisted accommodation	0	6	26	66	98	2.41%
Y: Leave blank	0	6	11	15	32	0.79%
Z: Examiner read test questions aloud	0	6	45	55	106	2.61%
Accommodation is in Section 504 plan	0	0	0	0	0	0.00%
Accommodation is in IEP	2	31	333	275	641	15.76%
English Learner Test Variation A	0	0	0	0	0	0.00%
English Learner Test Variation B	0	0	2	1	3	0.07%
English Learner Test Variation C	0	0	0	0	0	0.00%
English Learner Test Variation D	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	2	43	360	329	734	18.05%
No Accommodation or EL Variation	2	221	1,545	1,565	3,333	81.95%

Special Service Summary for Mathematics, Geometry						
Initially Fluent English Proficient (I-FEP) Students	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	1	0	0	1	0.48%
C: Dictated responses to a scribe	0	0	0	0	0	0.00%
F: Used noninterfering assistive device	0	0	0	0	0	0.00%
G: Used braille test	0	0	0	0	0	0.00%
H: Used large-print test	0	0	0	0	0	0.00%
J: Tested over more than one day	0	0	2	1	3	1.44%
K: Had supervised breaks	0	1	11	9	21	10.05%
L: Most beneficial time of day	0	1	2	2	5	2.39%
M: Administered at home or in a hospital	0	0	0	0	0	0.00%
O: Examiner presented with MCE or ASL	0	0	0	0	0	0.00%
S: Used math manipulatives	0	0	0	0	0	0.00%
X: Used an unlisted accommodation	0	0	3	3	6	2.87%
Y: Leave blank	0	0	4	3	7	3.35%
Z: Examiner read test questions aloud	0	1	2	1	4	1.91%
Accommodation is in Section 504 plan	0	0	0	0	0	0.00%
Accommodation is in IEP	0	2	14	11	27	12.92%
English Learner Test Variation A	0	0	0	0	0	0.00%
English Learner Test Variation B	0	0	0	0	0	0.00%
English Learner Test Variation C	0	0	0	0	0	0.00%
English Learner Test Variation D	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	0	2	21	16	39	18.66%
No Accommodation or EL Variation	0	14	69	87	170	81.34%
English Learner (EL) Students	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	0	6	6	12	0.37%
C: Dictated responses to a scribe	0	0	0	2	2	0.06%
F: Used noninterfering assistive device	0	1	3	0	4	0.12%
G: Used braille test	0	0	0	0	0	0.00%
H: Used large-print test	0	0	2	3	5	0.15%
J: Tested over more than one day	0	1	9	20	30	0.92%
K: Had supervised breaks	0	25	209	147	381	11.72%
L: Most beneficial time of day	0	2	22	18	42	1.29%
M: Administered at home or in a hospital	0	0	0	3	3	0.09%
O: Examiner presented with MCE or ASL	0	1	15	2	18	0.55%
S: Used math manipulatives	0	0	3	4	7	0.22%
X: Used an unlisted accommodation	0	4	22	53	79	2.43%
Y: Leave blank	0	0	4	24	28	0.86%
Z: Examiner read test questions aloud	0	7	36	32	75	2.31%
Accommodation is in Section 504 plan	0	1	0	0	1	0.03%
Accommodation is in IEP	0	28	246	199	473	14.55%
English Learner Test Variation A	0	1	2	1	4	0.12%
English Learner Test Variation B	0	0	15	5	20	0.62%
English Learner Test Variation C	0	0	0	0	0	0.00%
English Learner Test Variation D	0	2	3	6	11	0.34%
Any Accommodation or EL Variation	0	31	281	256	568	17.47%
No Accommodation or EL Variation	0	229	1,345	1,109	2,683	82.53%

Special Service Summary for Mathematics, Geometry						
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	0	5	3	8	1.02%
C: Dictated responses to a scribe	0	0	0	0	0	0.00%
F: Used noninterfering assistive device	0	0	1	1	2	0.26%
G: Used braille test	0	0	1	0	1	0.13%
H: Used large-print test	0	0	1	1	2	0.26%
J: Tested over more than one day	0	2	3	4	9	1.15%
K: Had supervised breaks	0	10	41	49	100	12.77%
L: Most beneficial time of day	0	0	4	6	10	1.28%
M: Administered at home or in a hospital	0	0	0	0	0	0.00%
O: Examiner presented with MCE or ASL	0	0	0	1	1	0.13%
S: Used math manipulatives	0	1	1	1	3	0.38%
X: Used an unlisted accommodation	0	2	10	9	21	2.68%
Y: Leave blank	0	0	4	6	10	1.28%
Z: Examiner read test questions aloud	0	1	10	10	21	2.68%
Accommodation is in Section 504 plan	0	0	0	0	0	0.00%
Accommodation is in IEP	0	10	59	57	126	16.09%
English Learner Test Variation A	0	0	0	0	0	0.00%
English Learner Test Variation B	0	0	0	0	0	0.00%
English Learner Test Variation C	0	0	0	0	0	0.00%
English Learner Test Variation D	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	0	12	68	71	151	19.28%
No Accommodation or EL Variation	0	78	317	237	632	80.72%

Table 2.D.12 Special Service Summary for Science, Grades Five, Eight, and Ten (Life Science)

Special Service Summary for Science, Grades Five, Eight, and Ten (Life Science)						
All Tested	**Grade 5**	**Pct. of Total**	**Grade 8**	**Pct. of Total**	**Grade 10 Life Sci.**	**Pct. of Total**
B: Marked in test booklet	1,130	4.06%	258	1.05%	93	0.58%
C: Dictated responses to a scribe	45	0.16%	16	0.07%	12	0.08%
F: Used noninterfering assistive device	62	0.22%	20	0.08%	13	0.08%
G: Used braille test	4	0.01%	8	0.03%	5	0.03%
H: Used large-print test	99	0.36%	57	0.23%	27	0.17%
J: Tested over more than one day	1,506	5.41%	561	2.28%	143	0.90%
K: Had supervised breaks	5,412	19.43%	2,786	11.33%	1,798	11.29%
L: Most beneficial time of day	3,008	10.80%	937	3.81%	232	1.46%
M: Administered at home or in a hospital	29	0.10%	19	0.08%	12	0.08%
O: Examiner presented with MCE or ASL	60	0.22%	38	0.15%	53	0.33%
S: Used math manipulatives	157	0.56%	74	0.30%	8	0.05%
X: Used an unlisted accommodation	1,020	3.66%	839	3.41%	234	1.47%
Y: Leave blank	293	1.05%	306	1.24%	206	1.29%
Z: Examiner read test questions aloud	10,148	36.43%	3,298	13.42%	581	3.65%
Accommodation is in Section 504 plan	3	0.01%	1	0.00%	1	0.01%
Accommodation is in IEP	13,715	49.23%	5,907	24.03%	2,307	14.49%
English Learner Test Variation A	26	0.09%	12	0.05%	9	0.06%
English Learner Test Variation B	53	0.19%	8	0.03%	27	0.17%
English Learner Test Variation C	47	0.17%	2	0.01%	5	0.03%
English Learner Test Variation D	0	0.00%	12	0.05%	17	0.11%
Any Accommodation or EL Variation	14,399	51.69%	6,693	27.23%	2,815	17.68%
No Accommodation or EL Variation	13,460	48.31%	17,889	72.77%	13,110	82.32%
English-Only Students	**Grade 5**	**Pct. of Total**	**Grade 8**	**Pct. of Total**	**Grade 10 Life Sci.**	**Pct. of Total**
B: Marked in test booklet	722	4.86%	183	1.41%	62	0.73%
C: Dictated responses to a scribe	25	0.17%	12	0.09%	7	0.08%
F: Used noninterfering assistive device	29	0.20%	11	0.08%	1	0.01%
G: Used braille test	3	0.02%	5	0.04%	3	0.04%
H: Used large-print test	64	0.43%	38	0.29%	18	0.21%
J: Tested over more than one day	868	5.84%	323	2.49%	75	0.89%
K: Had supervised breaks	2,776	18.69%	1,479	11.38%	940	11.09%
L: Most beneficial time of day	1,570	10.57%	524	4.03%	133	1.57%
M: Administered at home or in a hospital	22	0.15%	10	0.08%	6	0.07%
O: Examiner presented with MCE or ASL	38	0.26%	22	0.17%	27	0.32%
S: Used math manipulatives	70	0.47%	45	0.35%	4	0.05%
X: Used an unlisted accommodation	568	3.82%	388	2.99%	117	1.38%
Y: Leave blank	161	1.08%	164	1.26%	92	1.09%
Z: Examiner read test questions aloud	5,131	34.54%	1,615	12.43%	290	3.42%
Accommodation is in Section 504 plan	2	0.01%	0	0.00%	0	0.00%
Accommodation is in IEP	7,175	48.30%	3,041	23.40%	1,222	14.42%
English Learner Test Variation A	1	0.01%	9	0.07%	1	0.01%
English Learner Test Variation B	2	0.01%	0	0.00%	2	0.02%
English Learner Test Variation C	1	0.01%	0	0.00%	0	0.00%
English Learner Test Variation D	0	0.00%	0	0.00%	0	0.00%
Any Accommodation or EL Variation	7,539	50.75%	3,480	26.78%	1,456	17.18%
No Accommodation or EL Variation	7,315	49.25%	9,517	73.22%	7,018	82.82%

Special Service Summary for Science, Grades Five, Eight, and Ten (Life Science)						
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 8**	**Pct. of Total**	**Grade 10 Life Sci.**	**Pct. of Total**
B: Marked in test booklet	10	3.68%	1	0.19%	1	0.30%
C: Dictated responses to a scribe	1	0.37%	0	0.00%	1	0.30%
F: Used noninterfering assistive device	0	0.00%	0	0.00%	0	0.00%
G: Used braille test	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	2	0.74%	1	0.19%	0	0.00%
J: Tested over more than one day	15	5.51%	11	2.10%	6	1.79%
K: Had supervised breaks	56	20.59%	56	10.69%	39	11.61%
L: Most beneficial time of day	26	9.56%	23	4.39%	7	2.08%
M: Administered at home or in a hospital	0	0.00%	0	0.00%	1	0.30%
O: Examiner presented with MCE or ASL	1	0.37%	2	0.38%	0	0.00%
S: Used math manipulatives	1	0.37%	2	0.38%	0	0.00%
X: Used an unlisted accommodation	10	3.68%	21	4.01%	4	1.19%
Y: Leave blank	2	0.74%	8	1.53%	6	1.79%
Z: Examiner read test questions aloud	104	38.24%	61	11.64%	14	4.17%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%	0	0.00%
Accommodation is in IEP	132	48.53%	118	22.52%	47	13.99%
English Learner Test Variation A	0	0.00%	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	0	0.00%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%	0	0.00%
English Learner Test Variation D	0	0.00%	1	0.19%	0	0.00%
Any Accommodation or EL Variation	136	50.00%	133	25.38%	58	17.26%
No Accommodation or EL Variation	136	50.00%	391	74.62%	278	82.74%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**	**Grade 8**	**Pct. of Total**	**Grade 10 Life Sci.**	**Pct. of Total**
B: Marked in test booklet	377	3.07%	54	0.56%	23	0.38%
C: Dictated responses to a scribe	17	0.14%	3	0.03%	2	0.03%
F: Used noninterfering assistive device	31	0.25%	9	0.09%	8	0.13%
G: Used braille test	1	0.01%	2	0.02%	1	0.02%
H: Used large-print test	32	0.26%	14	0.15%	8	0.13%
J: Tested over more than one day	603	4.91%	203	2.12%	55	0.91%
K: Had supervised breaks	2,493	20.30%	1,108	11.58%	696	11.58%
L: Most beneficial time of day	1,361	11.08%	338	3.53%	78	1.30%
M: Administered at home or in a hospital	7	0.06%	8	0.08%	5	0.08%
O: Examiner presented with MCE or ASL	21	0.17%	14	0.15%	25	0.42%
S: Used math manipulatives	79	0.64%	25	0.26%	3	0.05%
X: Used an unlisted accommodation	427	3.48%	369	3.86%	98	1.63%
Y: Leave blank	127	1.03%	117	1.22%	94	1.56%
Z: Examiner read test questions aloud	4,755	38.72%	1,457	15.23%	242	4.03%
Accommodation is in Section 504 plan	1	0.01%	1	0.01%	1	0.02%
Accommodation is in IEP	6,199	50.48%	2,408	25.16%	886	14.74%
English Learner Test Variation A	25	0.20%	3	0.03%	8	0.13%
English Learner Test Variation B	51	0.42%	8	0.08%	24	0.40%
English Learner Test Variation C	46	0.37%	2	0.02%	5	0.08%
English Learner Test Variation D	0	0.00%	11	0.11%	17	0.28%
Any Accommodation or EL Variation	6,501	52.94%	2,695	28.16%	1,117	18.58%
No Accommodation or EL Variation	5,778	47.06%	6,874	71.84%	4,895	81.42%

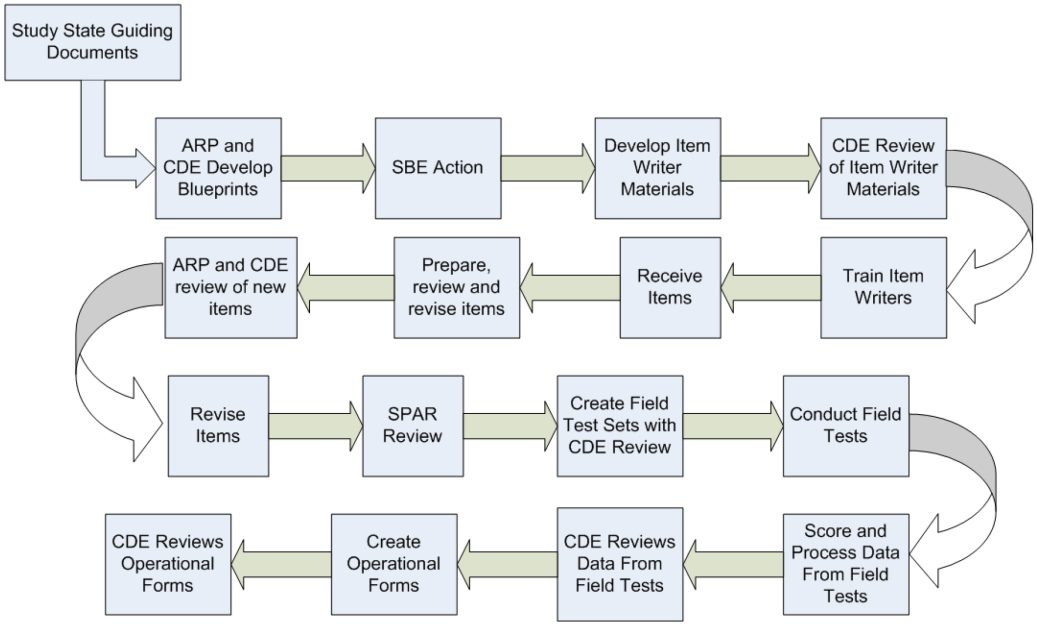
Special Service Summary for Science, Grades Five, Eight, and Ten (Life Science)						
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 8**	**Pct. of Total**	**Grade 10 Life Sci.**	**Pct. of Total**
B: Marked in test booklet	18	4.47%	17	1.25%	7	0.68%
C: Dictated responses to a scribe	1	0.25%	1	0.07%	1	0.10%
F: Used noninterfering assistive device	1	0.25%	0	0.00%	4	0.39%
G: Used braille test	0	0.00%	1	0.07%	1	0.10%
H: Used large-print test	1	0.25%	4	0.29%	1	0.10%
J: Tested over more than one day	19	4.71%	18	1.32%	7	0.68%
K: Had supervised breaks	73	18.11%	116	8.52%	118	11.42%
L: Most beneficial time of day	40	9.93%	45	3.31%	14	1.36%
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%
S: Used math manipulatives	7	1.74%	1	0.07%	1	0.10%
X: Used an unlisted accommodation	13	3.23%	56	4.11%	14	1.36%
Y: Leave blank	3	0.74%	16	1.18%	13	1.26%
Z: Examiner read test questions aloud	138	34.24%	146	10.73%	35	3.39%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%	0	0.00%
Accommodation is in IEP	180	44.67%	300	22.04%	145	14.04%
English Learner Test Variation A	0	0.00%	0	0.00%	0	0.00%
English Learner Test Variation B	0	0.00%	0	0.00%	1	0.10%
English Learner Test Variation C	0	0.00%	0	0.00%	0	0.00%
English Learner Test Variation D	0	0.00%	0	0.00%	0	0.00%
Any Accommodation or EL Variation	193	47.89%	341	25.06%	176	17.04%
No Accommodation or EL Variation	210	52.11%	1,020	74.94%	857	82.96%

Chapter 3: Item Development

Test forms from previous STAR administrations from different years were reused during the 2013 administration to facilitate QTR. This reuse permitted score conversion tables from the previous administration to be used to look up student scores and performance levels, making individual student results available within approximately ten days of processing the school district's scorable testing materials. There was no new item development for the grades three through eight 2013 forms. However, new field-test items were developed for the CMA for ELA in grades ten and eleven, EOC mathematics for Algebra I and Geometry, and grade ten Life Science and were embedded in the 2013 forms for these tests.

The CMA items are developed to measure California's content standards and designed to conform to principles of item writing defined by ETS (ETS, 2002). Each CMA item on the 2013 tests, new or reused, went 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 Specifications

The item specifications describe the characteristics of the items that should be written to measure each content standard; items of the same type should consistently measure the content standards in the same way. To achieve this, the item specifications provided detailed information to item writers who developed 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 applies only 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 expressions 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
- Appropriate readability levels for writing passages
- A list of topics to be avoided

Expected Item Ratio

ETS prepared the item utilization plan for the development of CMA items. The plan includes strategies for developing items that permit coverage of all appropriate standards for all tests in each content area and at each grade level. ETS test development staff used this plan to determine the number of items to develop for each content area. For content areas for which item development has been halted, the item utilization plan is no longer used.

The item utilization plan assumes that after the first two operational administrations, 30 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 achieve this status.

ETS has developed field-test percentages and item counts for the CMA for ELA in grades nine through eleven, EOC mathematics CMA in Algebra I and Geometry, and the CMA for Life Science (Grade 10) that are shown in Table 3.1; the grade-level CMA for ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight reused the field-test items on the previously used forms. The number of items to be field-tested for a given CMA is determined as a percent of the number of operational items. For example, there are 60 operational items on the CMA for ELA in grade nine; the number of items to be field-tested is 67 percent of 48, which is 40 items.

Table 3.1 Field-test Percentages for the CMA

Content Area	Number of Operational Items per Grade or Course	Percentage of Operational Form to Be Field Tested	Number of Items to Be Field-tested per Grade or Course
ELA for Grades 9–11	60	67%	40
Algebra I	60	67%	40
Geometry	60	67%	40
10 Life Science	60	100%	60

Selection of Item Writers

Criteria for Selecting Item Writers

The items for each CMA were developed by individual item writers with a thorough understanding of the California content standards. Applicants for item writing were screened by senior ETS content staff. Only those with strong content and teaching backgrounds were approved for inclusion in the training program for item writers. Because most of the participants were current or former California educators, they were particularly knowledgeable about the standards assessed by the CMA. All item writers met 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 new CMA items and test forms for the CMA for ELA in grades nine through eleven, EOC mathematics CMA in Algebra I and Geometry, and the CMA for Life Science (Grade 10). See Table 8.4 on page 190 for the dates of the previous administrations.

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 evaluated 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 DOK
- 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, suggest revisions, or 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 reviews 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 was responsible for working with ARPs as items were developed for the CMA. The ARPs are advisory panels to the CDE and ETS and provide guidance on matters related to item development for the CMA. The ARPs were responsible for reviewing all newly developed items for alignment to the California content standards. The ARPs also reviewed the items for accuracy of content, clarity of phrasing, and quality. In their examination of test items, the ARPs could raise concerns related to age/grade appropriateness and gender, racial, ethnic, and/or socioeconomic bias.

Composition of ARPs

The ARPs comprise 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	Total
Total	**11**	**12**	**8**	**31**
Occupation (Members may teach multiple levels.)				
Teacher or Program Specialist, Elementary/Middle School	4	7	4	15
Teacher or Program Specialist, High School	6	8	2	16
Teacher or Program Specialist, K–12	4	2	3	9
University Personnel	0	0	1	1
Other District Personnel (e.g., Director of Special Services, etc.)	2	1	1	4
Highest Degree Earned				
Bachelor's Degree	4	4	2	10
Master's Degree	6	8	4	18
Doctorate	0	0	0	0
K–12 Teaching Credentials and Experience (Members may hold multiple credentials.)				
Elementary Teaching (multiple subjects)	5	5	2	12
Secondary Teaching (single subject)	3	5	6	14
Special Education	6	5	3	14
Reading Specialist	4	1	0	5
English Learner (CLAD,BCLAD)	2	3	1	6
Administrative	3	1	0	4
Other	2	0	4	6
None (teaching at the university level)	0	0	0	0

ARP Meetings for Review of New CMA Field-test Items

For the 2013 STAR administration, the CMA ARP met to review new field-test items for the CMA for grades nine through eleven ELA, EOC mathematics for Algebra I and Geometry, and Life Science in grade ten only; the grade-level CMA for ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight all reused the field-test items on the previously used forms.

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 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 test items 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. In the 2013 STAR administration, new field-test items were introduced for the CMA for ELA in grades nine through eleven, EOC mathematics CMA for Algebra I and Geometry, and the CMA for Life Science (Grade 10). For the grade-level CMA for ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight, field-test items were repeated as a part of the intact reused forms.

Stand-alone Field Testing

For each new CMA launched, a pool of items was initially constructed by administering the newly developed items in a stand-alone field test. In stand-alone field testing, examinees were recruited to take tests outside of the usual testing circumstances, and the test results were typically not used for instructional or accountability purposes (Schmeiser & Welch, 2006).

CMA stand-alone field testing for each new test occurred in the fall before the test became operational in the following spring. In the case of writing prompts administered as part of the

grades four and seven CMA for ELA, due to time constraints, field-testing occurs every few years and was conducted only as stand-alone event.

The writing prompts for the 2013 administration of grades four and seven CMA for ELA were selected from the writing prompts field-tested by ETS in the fall of 2011. Before the field test, a task force was convened to provide an opportunity for representatives from the field and other specialists to recommend possible changes to the writing test that could be incorporated into the field tests. Six prompts were field-tested for grade four, and eight prompts were field-tested for grade seven to determine which of the modifications in format and directions recommended by the Writing Test Task Force were most helpful to students. These new writing prompts with modified formats and directions were field-tested with thousands of California students.

Following reviews of field test results by the CDE, ETS, and the ELA ARP, two grade-four and two grade-seven prompts were selected for the subsequent administrations.

The stand-alone field-testing timeline for the CMA is presented in Table 3.3.

Table 3.3 Stand-alone Field-testing Timeline for the CMA

Content Area	CMA *	Field-test Year
English–Language Arts	3	2007
	4	2007
	5	2007
	6	2008
	7	2008
	8	2008
	9	2009
	10	2010
	11	2010
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 tests.

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 seeded throughout the operational test. Factors 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 core set of operational items and different sets of field-test items. The numbers of embedded field-test items for the CMA introduced during the 2013 STAR administration are shown in Table 3.4 on the next page.

Allocation of Students to Forms

The 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 takes 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 the CMA forms for ELA in grades nine through eleven, EOC mathematics for Algebra I and Geometry, and Life Science in grade ten. The sets of field-test items differ across forms, and the number of forms and number of field-test items per form may vary 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, operational items, field-test items, and the approximate number of students included in the P2 data. This P2 data file contained the entire test-taking population and all the student records used in the August 20, 2013, reporting of STAR results.

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 2013 CMA

		Operational			Field Test	
Content Area	CMA *	No. Items	No. Examinees P2 Data †	No. Forms	No. Items	No. Examinees P2 Data †
English–Language Arts	9	60	21,430	4	40	5,244–5,511
	10	60	18,741	6	40	2,873–3,500
	11	60	16,128	4	40	3,966–4,115
Mathematics	Algebra I	60	30,957	4	40	7,575–7,998
	Geometry	60	8,214	4	40	1,995–2,090
Science	10 Life Science	60	15,356	6	36	2,331–2,831

* Numbers indicate grade-level tests.

† Valid forms

CDE Data Review

Once items for ELA in grades nine through eleven, EOC mathematics for Algebra I and Geometry, and Life Science in grade ten 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, SPAR, 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 psychometrics group at ETS, which carefully evaluates each item for its level of difficulty and discrimination as well as conformance to the IRT Rasch model. Psychometricians 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, and used operationally. All rejection 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), the California English Language Development Test (CELDT), 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 such as the CELDT, under contract with other vendors for inclusion into the item bank. ETS provides the item banking application using the LAN architecture and the relational database management system, SQL 2008, 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

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Chapter 4: Test Assembly

The CMA 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 desired 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.

The number of operational items on each CMA varies across grades and content areas. There are 48 operational items on the CMA for ELA in grades three through five, for mathematics in grades three through five, and for science in grade five. There are 54 operational items on the CMA for ELA in grades six through eight, for mathematics in grades six and seven, and for science in grade eight. There are 60 operational items on the CMA for ELA in grades nine through eleven, Algebra I and Geometry, and Life Science in grade ten. In addition, a writing test (essay) is administered in association with the CMA for ELA in grades four and seven.

The total number of items also varies. There are 57 items on the CMA 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 for ELA in grades six through eight, for mathematics in grades six and seven, and for science in grade eight. There are 66 items on the CMA for Life Science in grade ten, and 70 items on the CMA for ELA in grades nine through eleven, Algebra I, and Geometry.

In addition to operational items, a certain number of the items on each test are field-test items. Specifically, there are nine field-test items for grade-level tests in grades three through eight; ten on the tests for ELA in grades nine through eleven and EOC Algebra I and Geometry; and six field-test items for Life Science in grade ten. For more details on the distribution of items, see Appendix 2.A—CMA Items and Estimated Time Chart starting on page 20.

Rules for Item Selection

Test Blueprint

All test items on CMA forms were selected 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 list of the CMA reporting clusters by test and the number of items

in the cluster that appear in each test are provided in Appendix 2.B—Reporting Clusters, which starts on page 21.

Content Rules and Item Selection

Test forms from previous STAR administrations from different years were reused during the 2013 administration to facilitate quick-turnaround reporting. Prior to the 2013 administration, test developers followed a number of rules when developing a new test form for a given grade and content area. First and foremost, they selected items that met the blueprint for that grade level and content area. Using an electronic item bank, assessment specialists began 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 selected linking items are also reviewed by psychometricians to ensure that specific psychometric criteria are met.

After the linking items were approved, assessment specialists populated the rest of the test form. Their first consideration was the strength of the content and the match of each item to a specified content standard. In selecting items, team members also tried to ensure that they included a variety of formats and content and that at least some of the items included graphics for visual interest.

Another consideration was the difficulty of each item. Test developers strived to ensure that there were some easy and some hard items and that there were a number of items in the middle range of difficulty. If items did not meet all content and psychometric criteria, staff reviewed the other available items to determine if there were other selections that could improve the match of the test to all of the requirements. If such a match was not attainable, the content team worked in conjunction with psychometricians and the CDE to determine which combination of items would best serve the needs of the students taking the test. Chapter 3, starting on page 60, contains further information about this process.

Psychometric Criteria

The three goals of CMA test development are as follows:

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 that outlines the desired psychometric properties of each CMA was developed. Such rules are referred to as statistical targets.

Two types of assembly targets were developed for each CMA: the total test target and (reporting) cluster targets. These targets were provided to test developers before a test construction cycle began. The test developers and psychometricians worked together to design the tests to these targets.

Primary Statistical Targets

The total test targets, or primary statistical targets, used for assembling the CMA forms for the 2013 administration were the test information function (TIF) and an average point-biserial correlation.

The TIF is the sum of the item information function based on the item response theory (IRT) item parameters. When using an IRT model, the target TIF makes it possible to choose items to produce a test that has the desired precision of measurement at all ability levels.

The graphs for the total test are presented in Figure 4.A.1 through Figure 4.A.3, starting on page 78, for the ELA, mathematics, and science tests, respectively. These curves present the target TIF and the projected TIF for the total content area.

Due to the unique characteristics of the Rasch IRT model, the information curve conditional on each ability level is determined by item difficulty (*b*-values) alone. In this case, the TIF would, therefore, suffice as the target for conditional test difficulty. Although additional item difficulty targets are not imperative when the target TIF is used for form construction, the target mean and standard deviation of item difficulty consistent with the TIF were still provided to test development staff to help with the test construction process. The target *b*-value range approximates a minimum proportion-correct value (*p*-value) of 0.33 and a maximum *p*-value of 0.95 for each test.

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 who differ in their ability, and it is related to the overall reliability of the 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.

Assembly Targets

Table 4.1 shows the source of assembly targets for each CMA.

Table 4.1 Matrix of Assembly Targets

CMA Content Area			Source of Assembly Targets
ELA • Grade 3 • Grade 4 • Grade 5	Mathematics • Grade 3 • Grade 4 • Grade 5	Science • Grade 5	Analyses of spring 2009 operational forms
ELA • Grade 6 • Grade 7 • Grade 8	Mathematics • Grade 6 • Grade 7	Science • Grade 8	Analyses of spring 2010 operational forms
ELA • Grade 9	Mathematics • Algebra I	Science • 10 Life Science	Analyses of spring 2011 operational forms
ELA • Grade 10 • Grade 11	Mathematics • Geometry		The spring 2012 forms were reused for spring 2013. The statistics from the fall 2011 field-test administration were used for spring 2012 forms. The targets for these tests will be updated for future operational form construction with base-year statistics.

The target values for the CMA are presented in Table 4.2. These specifications were developed from the analyses of test forms administered starting from 2009 to the present as shown in the previous matrix.

Table 4.2 Statistical Targets for CMA Test Assembly

		Point Biserial		*b*-value		*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	–0.46	0.64	0.33	0.95
	7	0.35	0.14	–0.51	0.48	0.33	0.95
	8	0.35	0.14	–0.49	0.65	0.33	0.95
	9	0.30	0.14	–0.23	0.65	0.33	0.95
	10	0.30	0.14	–0.21	0.65	0.33	0.95
	11	0.30	0.14	–0.21	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	–0.44	0.52	0.33	0.95
	7	0.30	0.14	–0.49	0.50	0.33	0.95
	Algebra I	0.30	0.14	–0.23	0.50	0.33	0.95
	Geometry	0.30	0.14	–0.21	0.65	0.33	0.95
Science	5	0.37	0.14	–0.43	0.74	0.33	0.95
	8	0.33	0.14	–0.46	0.50	0.33	0.95
	10 Life Science	0.30	0.14	–0.22	0.50	0.33	0.95

* Numbers indicate grade-level tests.

Target information functions are also used to evaluate the items selected to measure each subscore in the interest of maintaining some consistency in the accuracy of cluster scores across years. Because the clusters include fewer items than the total test, there is always more variability between the target and the information curves constructed for the new form clusters than there is for the total test.

Figure 4.B.1 through Figure 4.B.16, starting on page 83, present the target and projected information curves for the clusters in the ELA, mathematics, and science tests, respectively.

Projected Psychometric Properties of the Assembled Tests

Prior to the 2013 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:

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

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 78 presents these summary values by content area and grade.

It should be noted that the projected reliabilities in Table 4.A.1 were based on item *p*-values and point-biserial correlations that, for some of the items, were based on external field-testing using samples of students that were not fully representative of the state. Chapter 8 presents item *p*-values, point-biserial correlations, and test reliability estimates based on the data from the 2013 CMA administration.

Table 4.A.2 on page 78 shows the mean observed statistics of the items on each CMA based on the item-level statistics from the year the form was previously administered. See Table 8.4 on page 190 for the dates of the original administrations. These values can be compared to the target values in Table 4.2.

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 forms are 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 mathematics test forms are sequenced mostly 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 for the grade-level mathematics tests: 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. There are four reporting clusters for each of the EOC tests.
- Science—The science 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. Items from the Investigation and Experimentation reporting cluster are an exception to this rule: these items assess aspects of practical knowledge in various clusters; they are presented with their associated clusters and then aggregated for reporting purposes as an Investigation and Experimentation cluster.

Reference

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

Appendix 4.A—Technical Characteristics

Table 4.A.1 Summary of 2013 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	29.77	7.90	0.82
	7	54	30.49	8.75	0.85
	8	54	29.17	7.92	0.82
	9	60	29.69	8.80	0.83
	10	60	30.01	8.42	0.81
	11	60	26.76	7.36	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	28.33	7.21	0.77
	7	54	24.78	6.36	0.70
	Algebra I	60	28.69	7.86	0.78
	Geometry	60	28.54	8.05	0.79
Science	5	48	27.07	6.98	0.79
	8	54	29.56	7.81	0.81
	10 Life Science	60	30.97	8.81	0.83

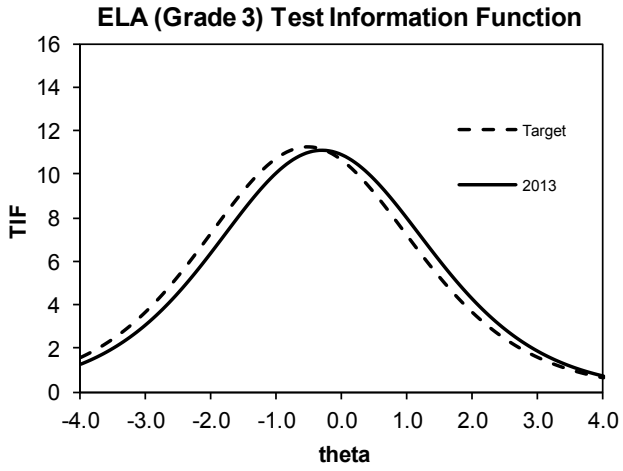
* Numbers indicate grade-level tests.

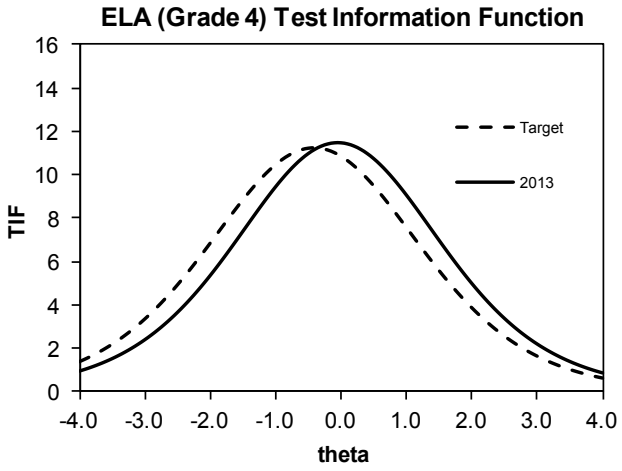
Table 4.A.2 Summary of 2013 CMA Projected Item Statistics

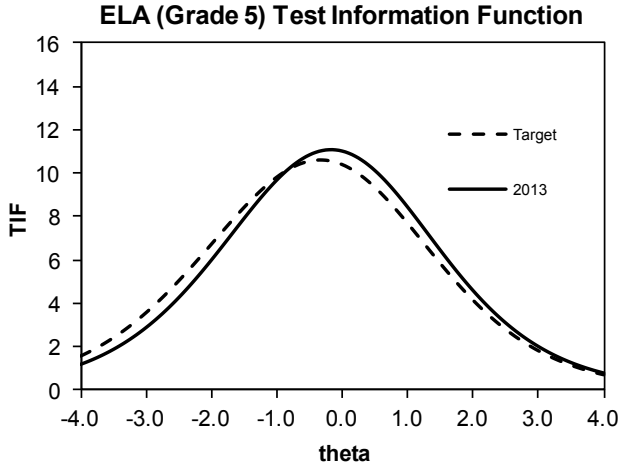
Content Area	CMA *	Mean b	SD b	Mean *p*–value	Min *p*–value	Max *p*–value	Mean Point Biserial	Min Point Biserial
English–Language Arts	3	–0.30	0.58	0.56	0.21	0.79	0.35	0.12
	4	–0.05	0.42	0.51	0.34	0.72	0.31	0.10
	5	–0.20	0.58	0.55	0.31	0.83	0.32	0.08
	6	–0.32	0.57	0.55	0.18	0.82	0.31	0.06
	7	–0.40	0.48	0.56	0.38	0.76	0.34	0.16
	8	–0.24	0.58	0.54	0.26	0.81	0.31	0.06
	9	–0.04	0.42	0.49	0.20	0.75	0.30	0.10
	10	–0.01	0.52	0.50	0.27	0.82	0.29	0.06
	11	0.22	0.41	0.45	0.29	0.69	0.25	0.07
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	–0.20	0.45	0.52	0.29	0.77	0.28	0.03
	7	0.11	0.49	0.46	0.21	0.70	0.24	0.05
	Algebra I	0.04	0.38	0.48	0.28	0.65	0.27	0.12
	Geometry	0.10	0.41	0.48	0.27	0.70	0.27	0.12
Science	5	–0.27	0.60	0.56	0.29	0.85	0.30	0.09
	8	–0.27	0.52	0.55	0.33	0.86	0.30	0.11
	10 Life Science	–0.07	0.43	0.52	0.32	0.72	0.30	–0.09

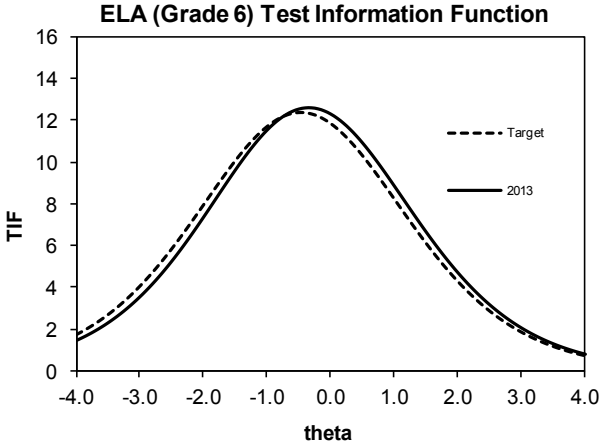
* Numbers indicate grade-level tests.

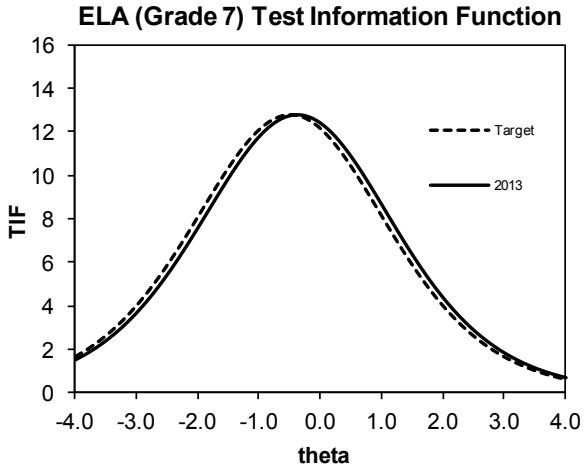
Figure 4.A.1 Plots of Target Information Function and Projected Information for Total Test for ELA










ELA (Grade 7) Test Information Function
TIF
theta
Target
2013
16
14
12
10
8
6
4
2
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-4.0
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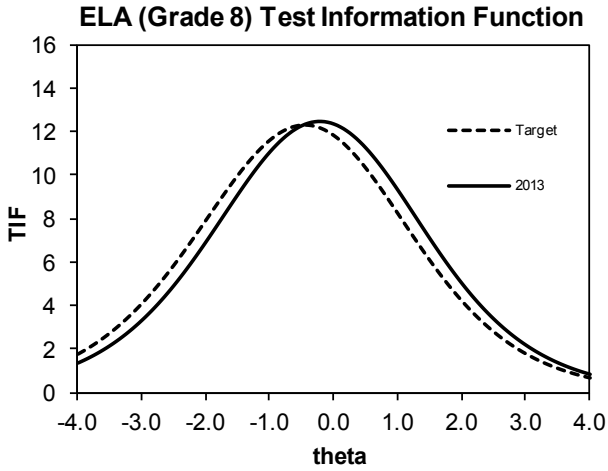
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0


ELA (Grade 8) Test Information Function
TIF
theta
Target
2013
16
14
12
10
8
6
4
2
0
-4.0
-3.0
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0

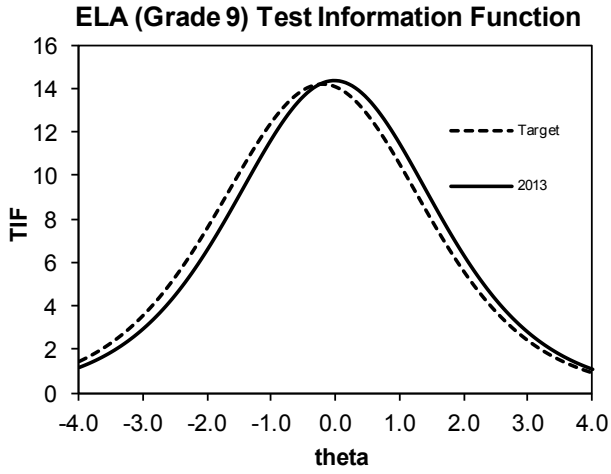

ELA (Grade 9) Test Information Function
TIF
theta
Target
2013
16
14
12
10
8
6
4
2
0
-4.0
-3.0
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0

Figure 4.A.2 Plots of Target Information Function and Projected Information for Total Test for Mathematics

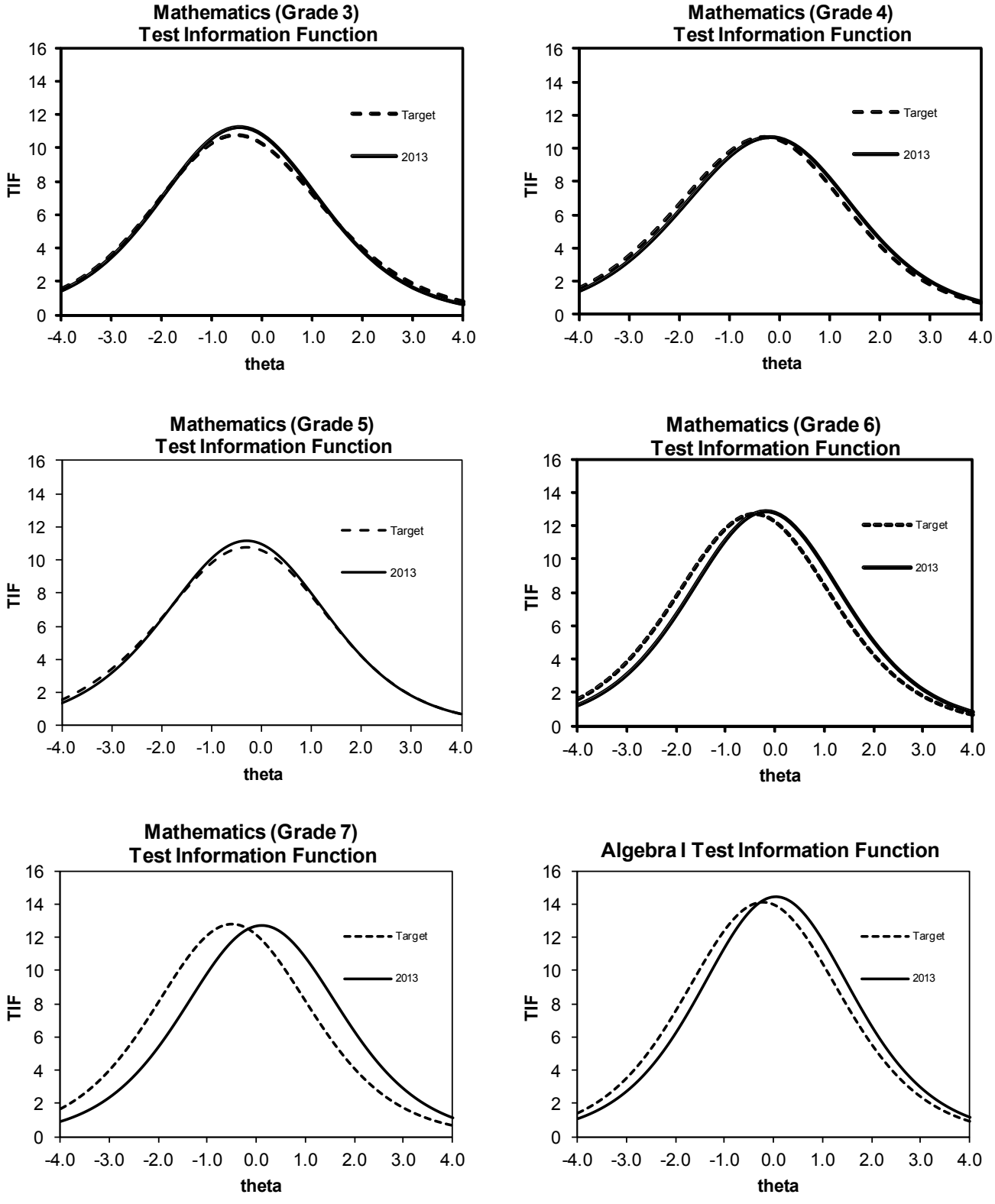
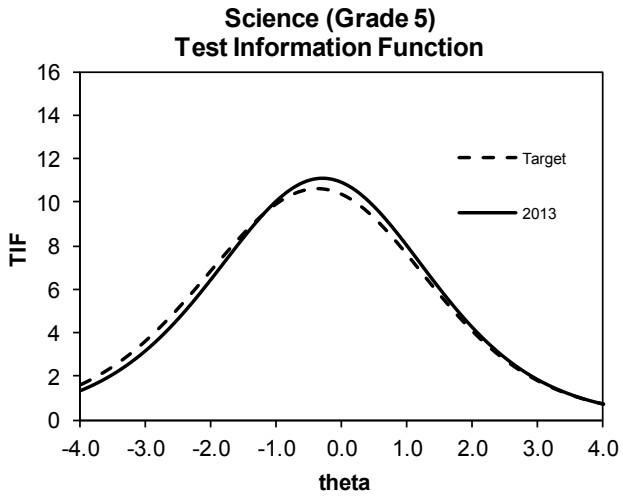
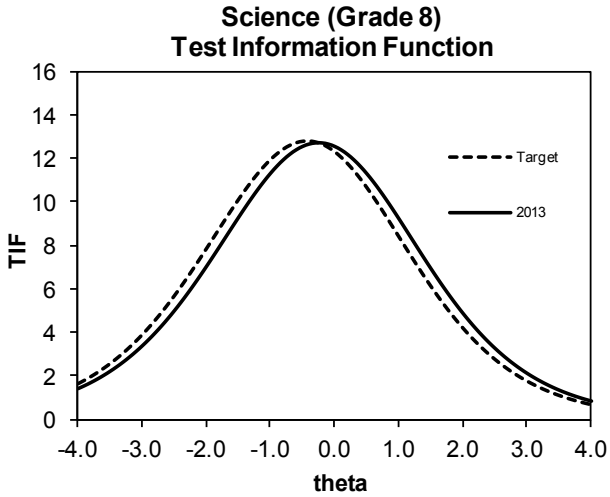
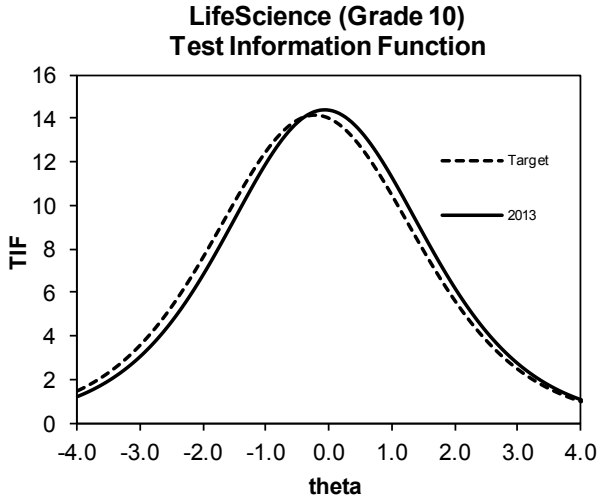


Figure 4.A.3 Plots of Target Information Function and Projected Information for Total Test for Science

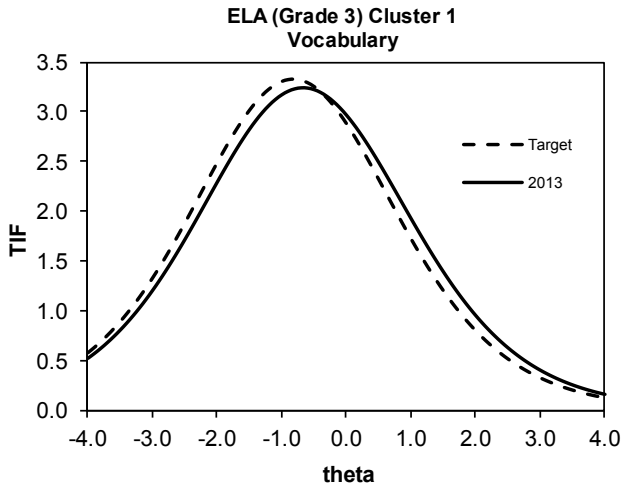


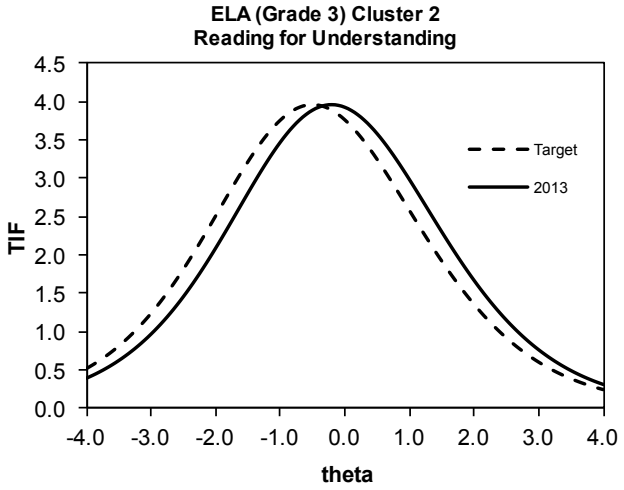




Appendix 4.B—Cluster Targets

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





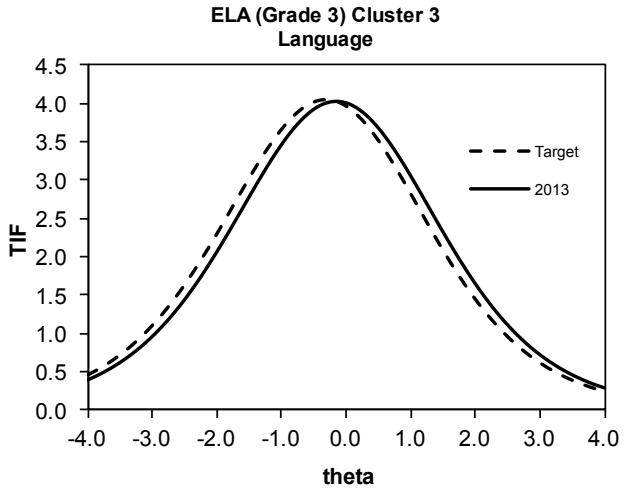
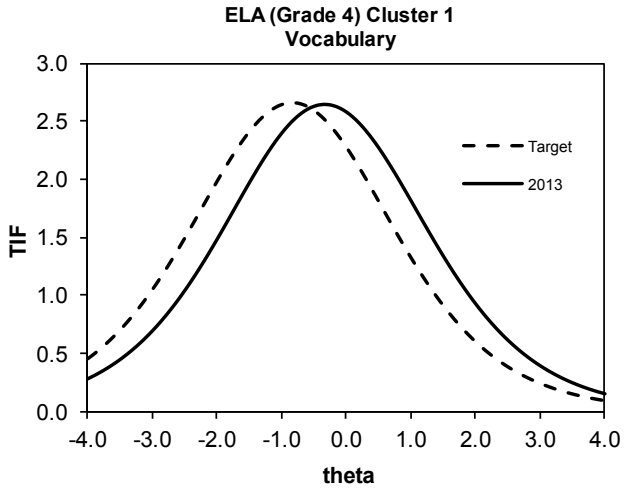
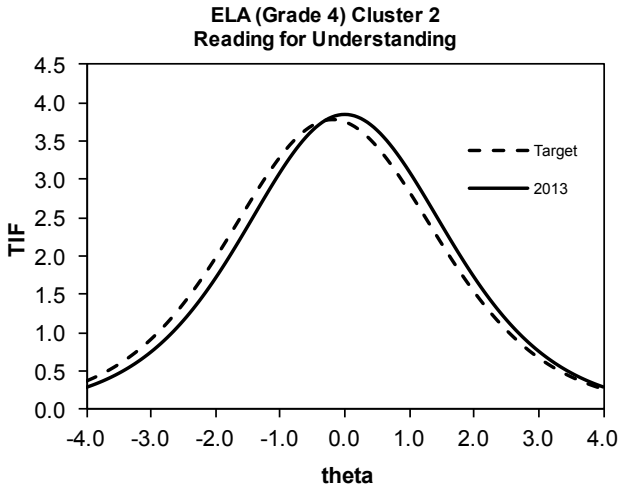


Figure 4.B.2 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Four





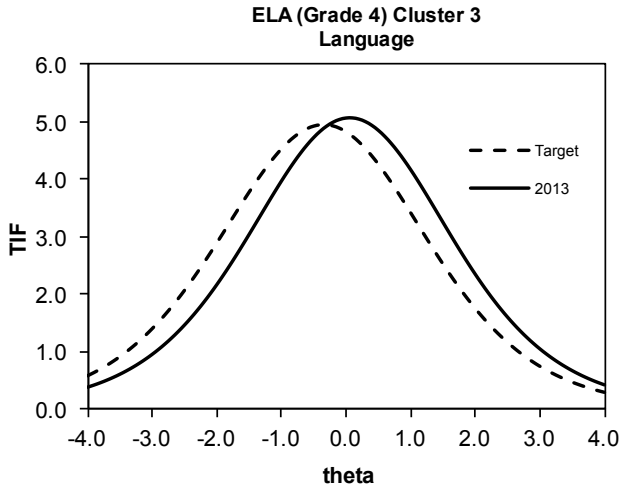
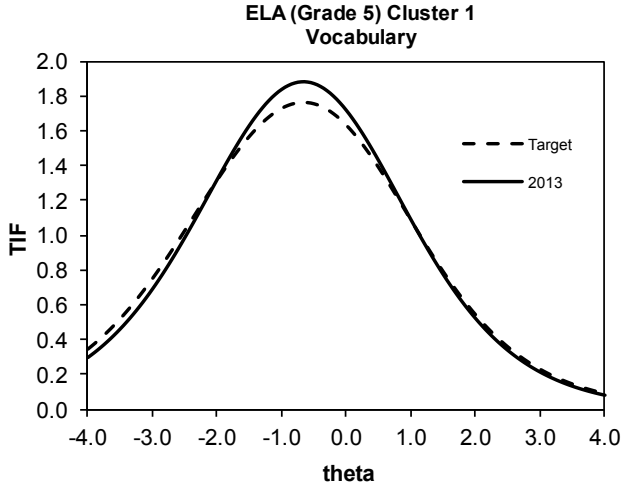
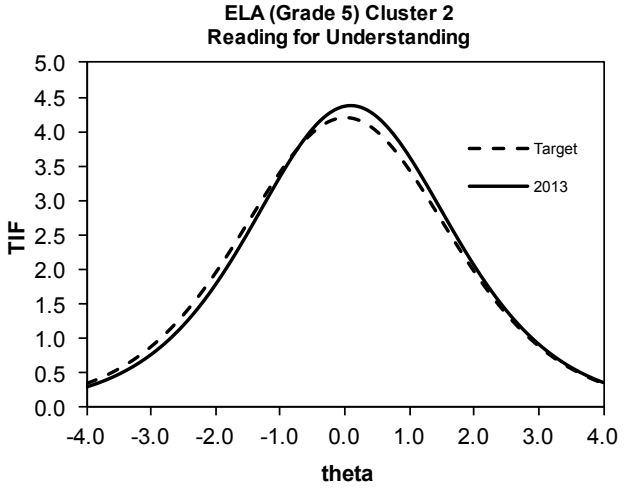


Figure 4.B.3 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Five





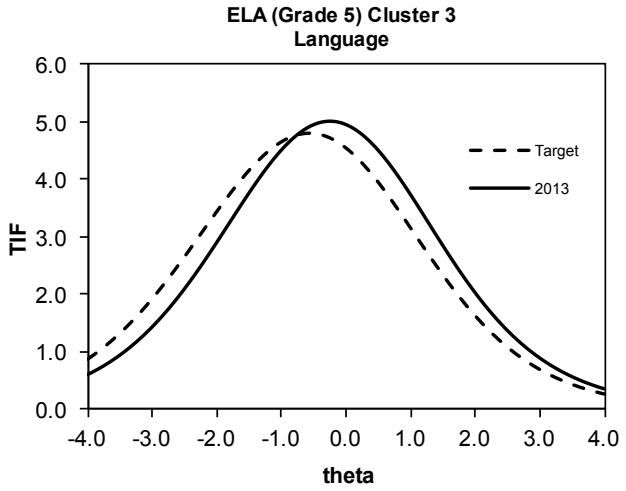
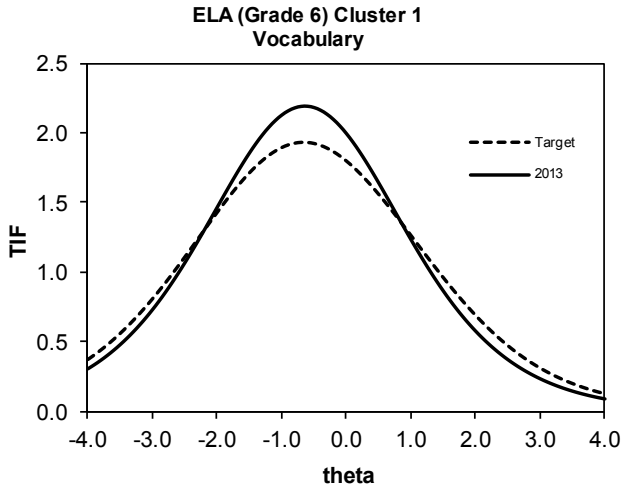
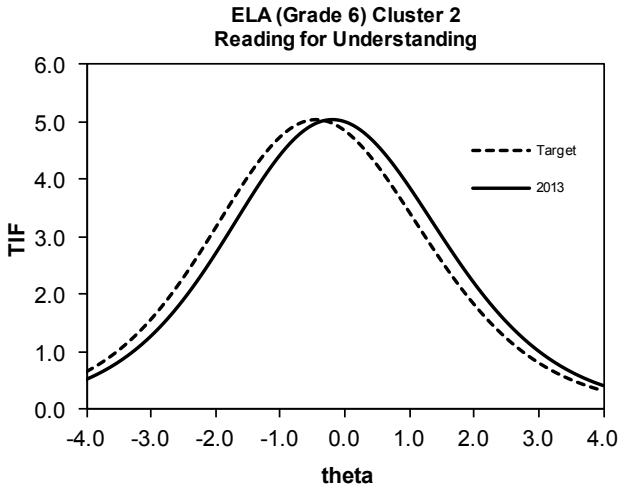


Figure 4.B.4 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Six





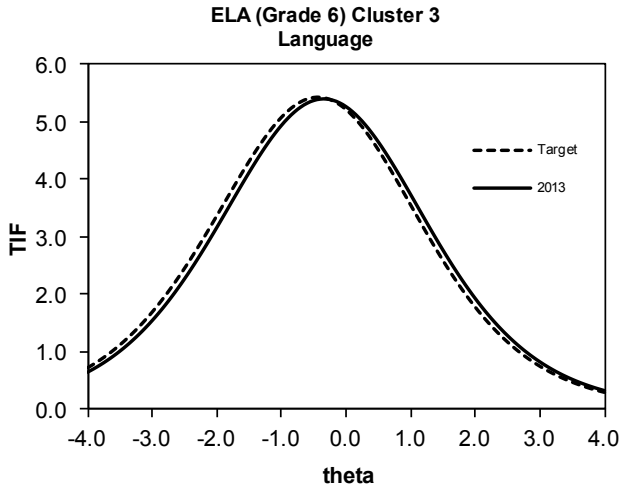
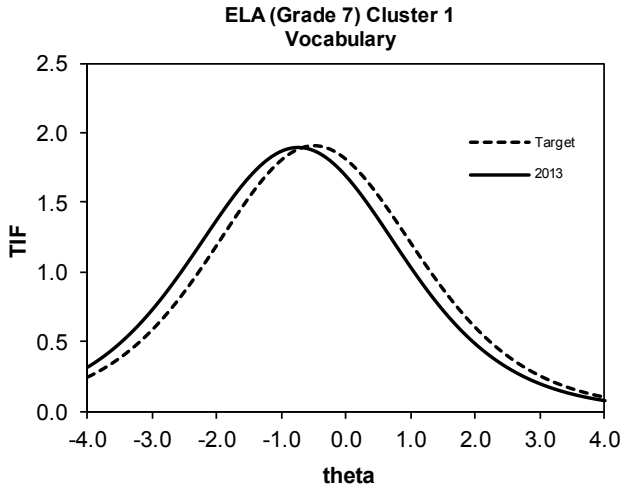
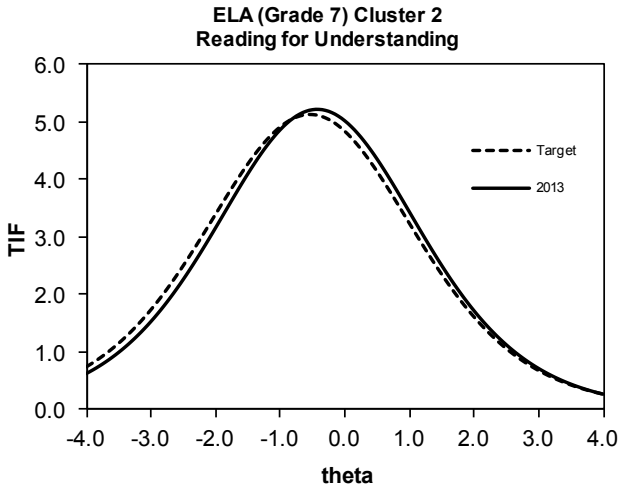


Figure 4.B.5 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Seven





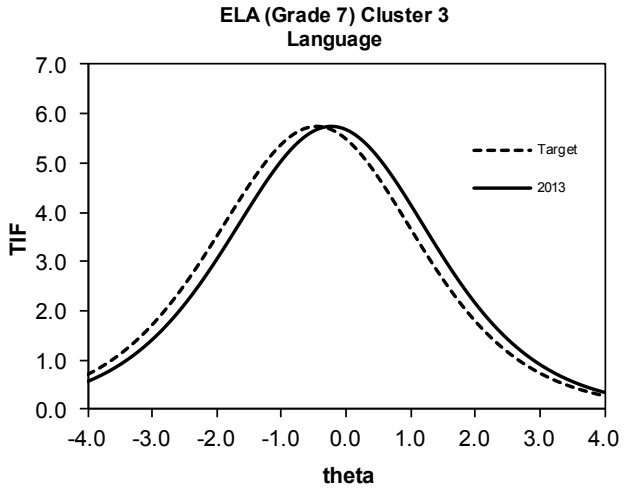
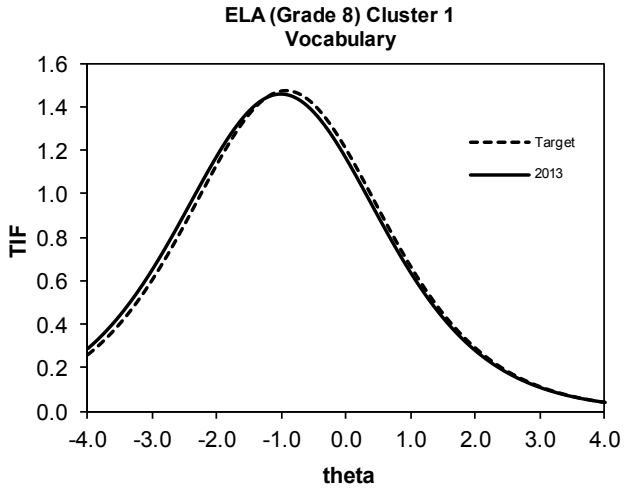
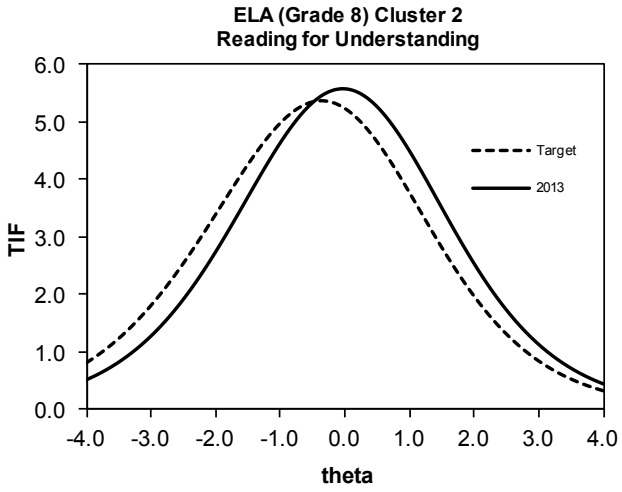


Figure 4.B.6 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Eight





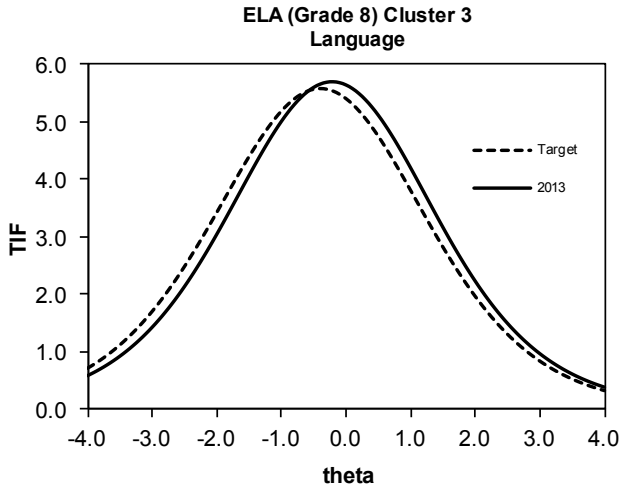
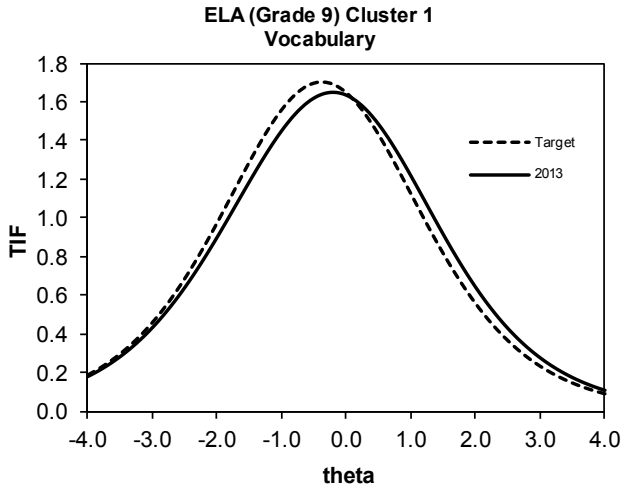
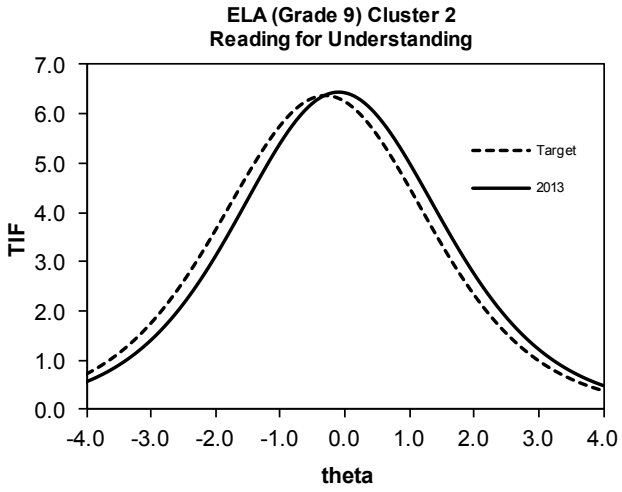


Figure 4.B.7 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Nine





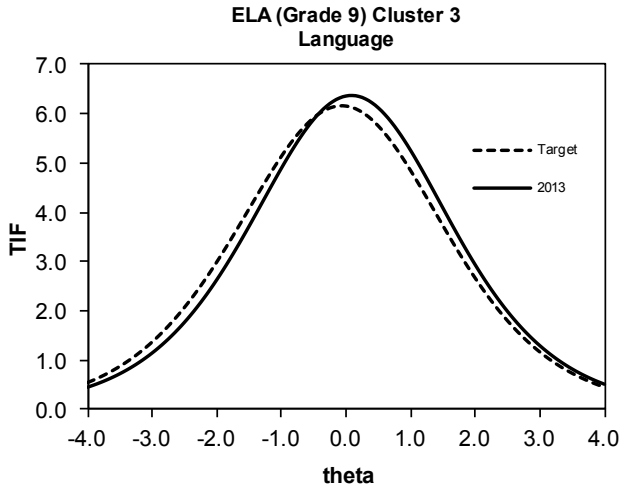
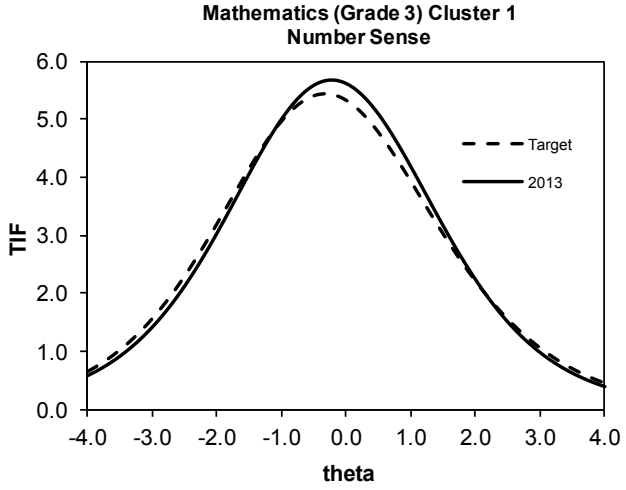
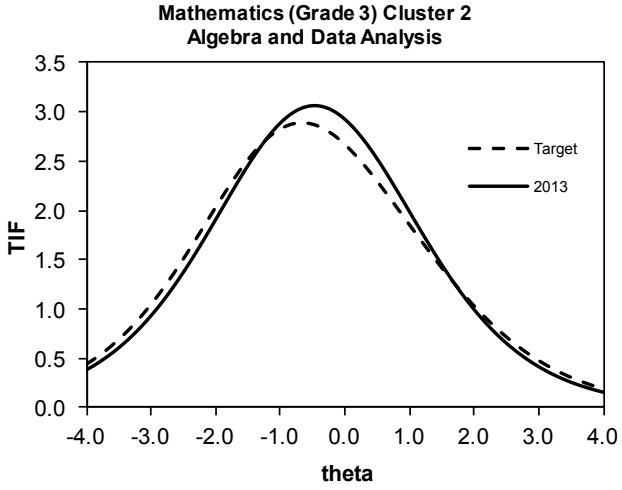


Figure 4.B.8 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Three





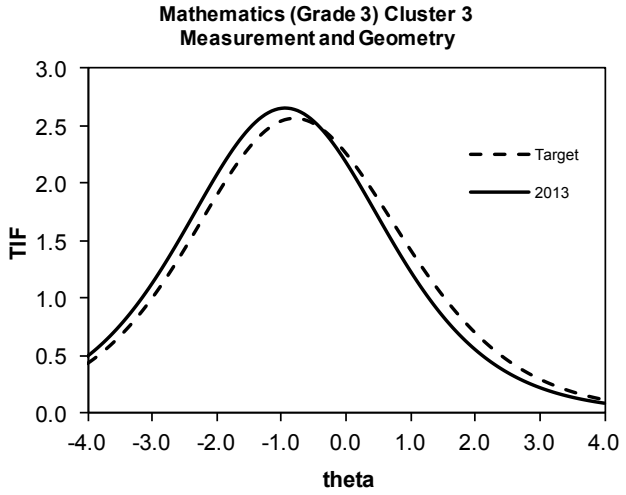
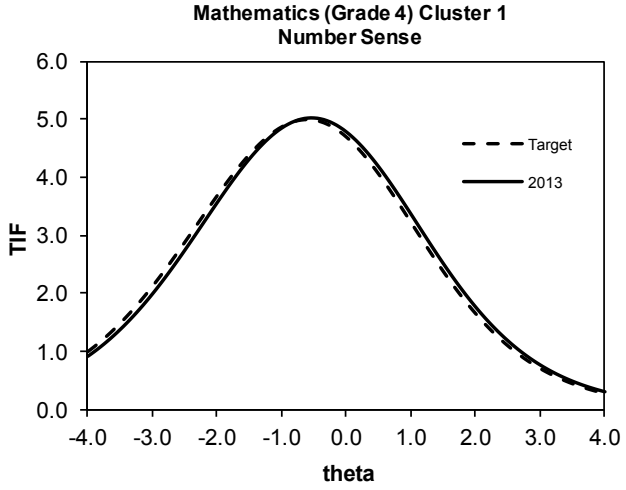
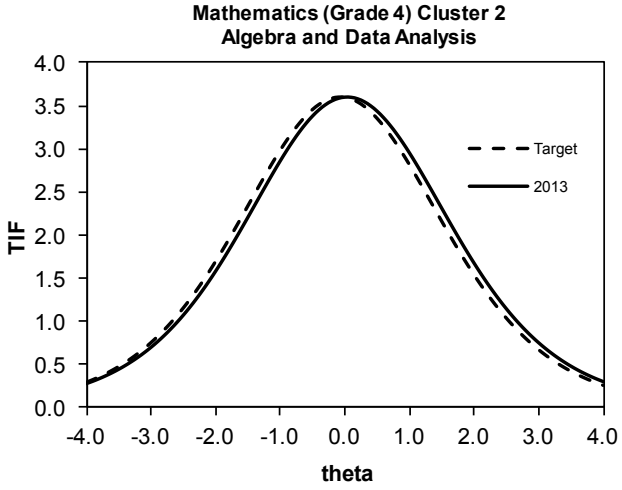


Figure 4.B.9 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Four





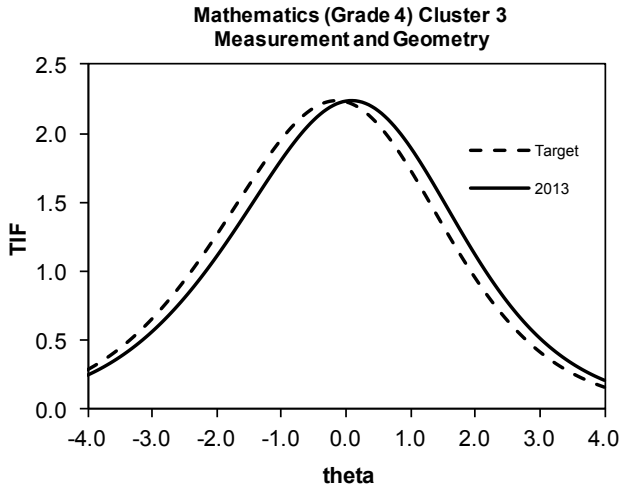
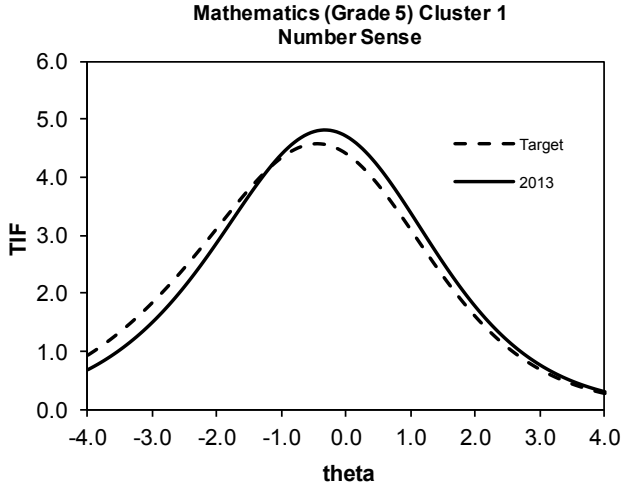
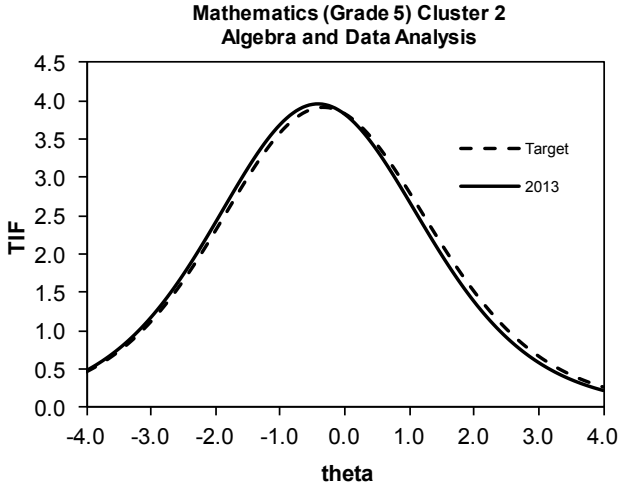


Figure 4.B.10 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Five





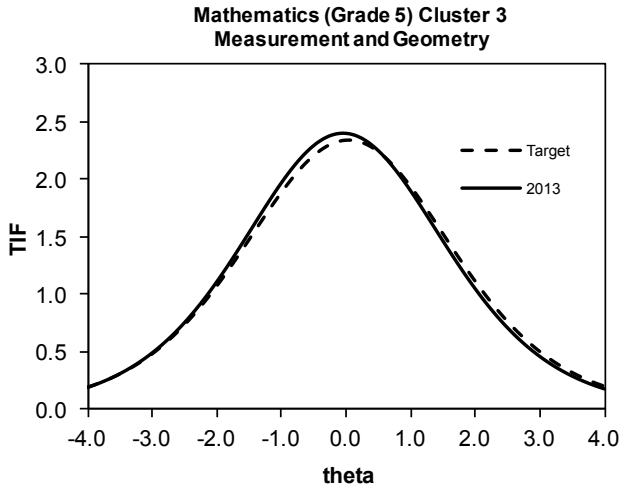
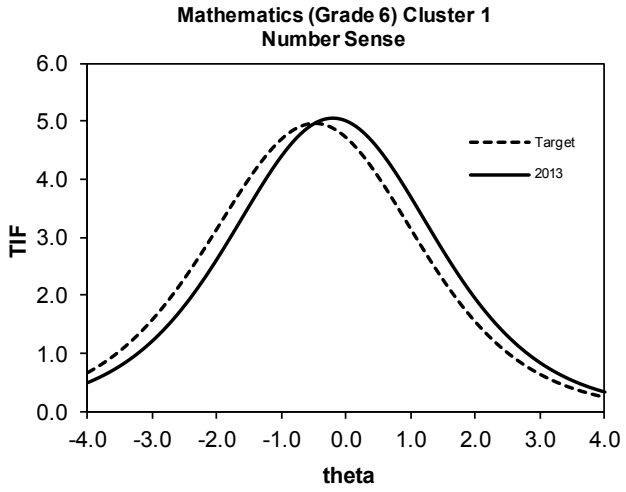
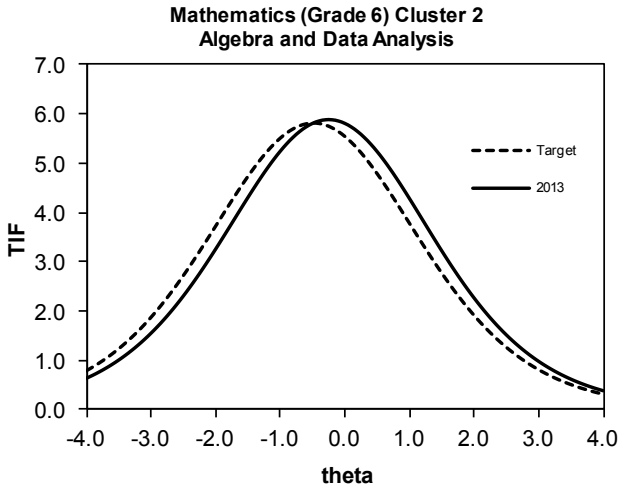


Figure 4.B.11 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Six





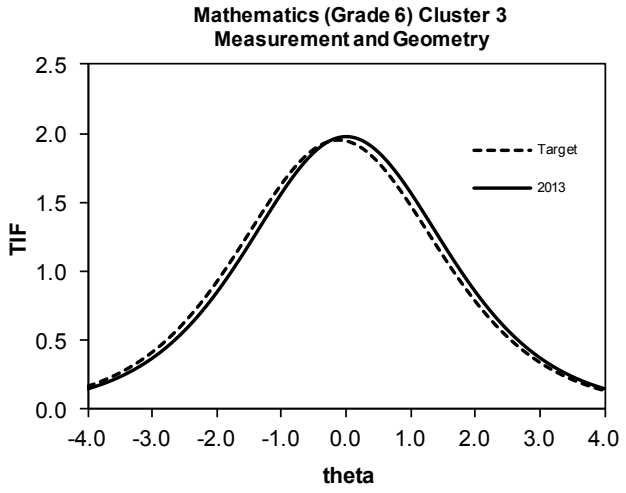
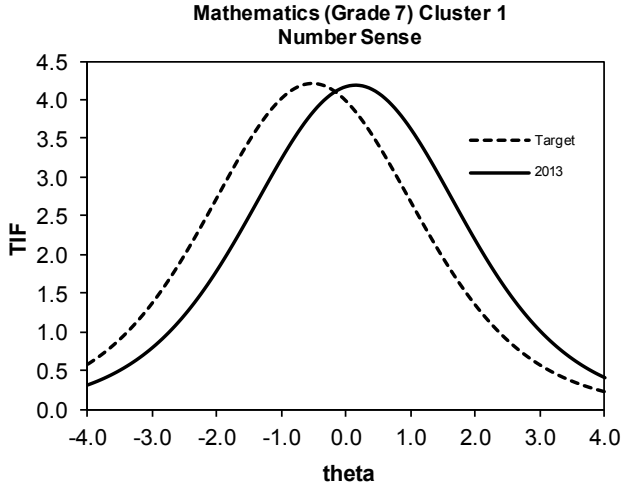
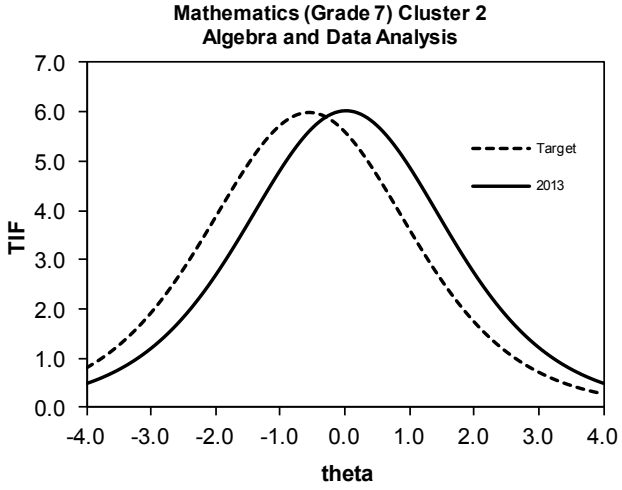


Figure 4.B.12 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Seven





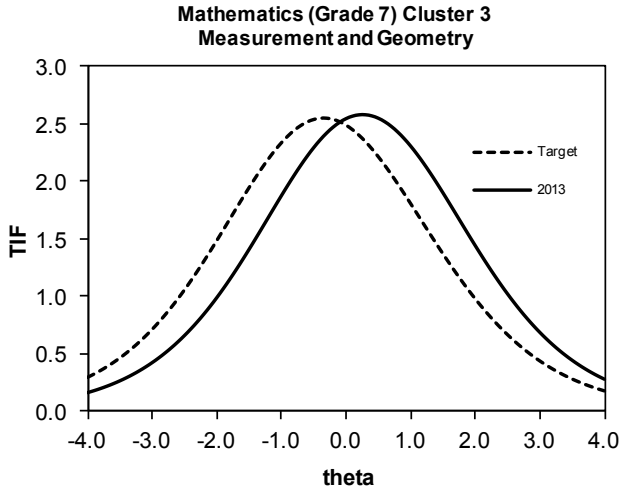


Figure 4.B.13 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Algebra I

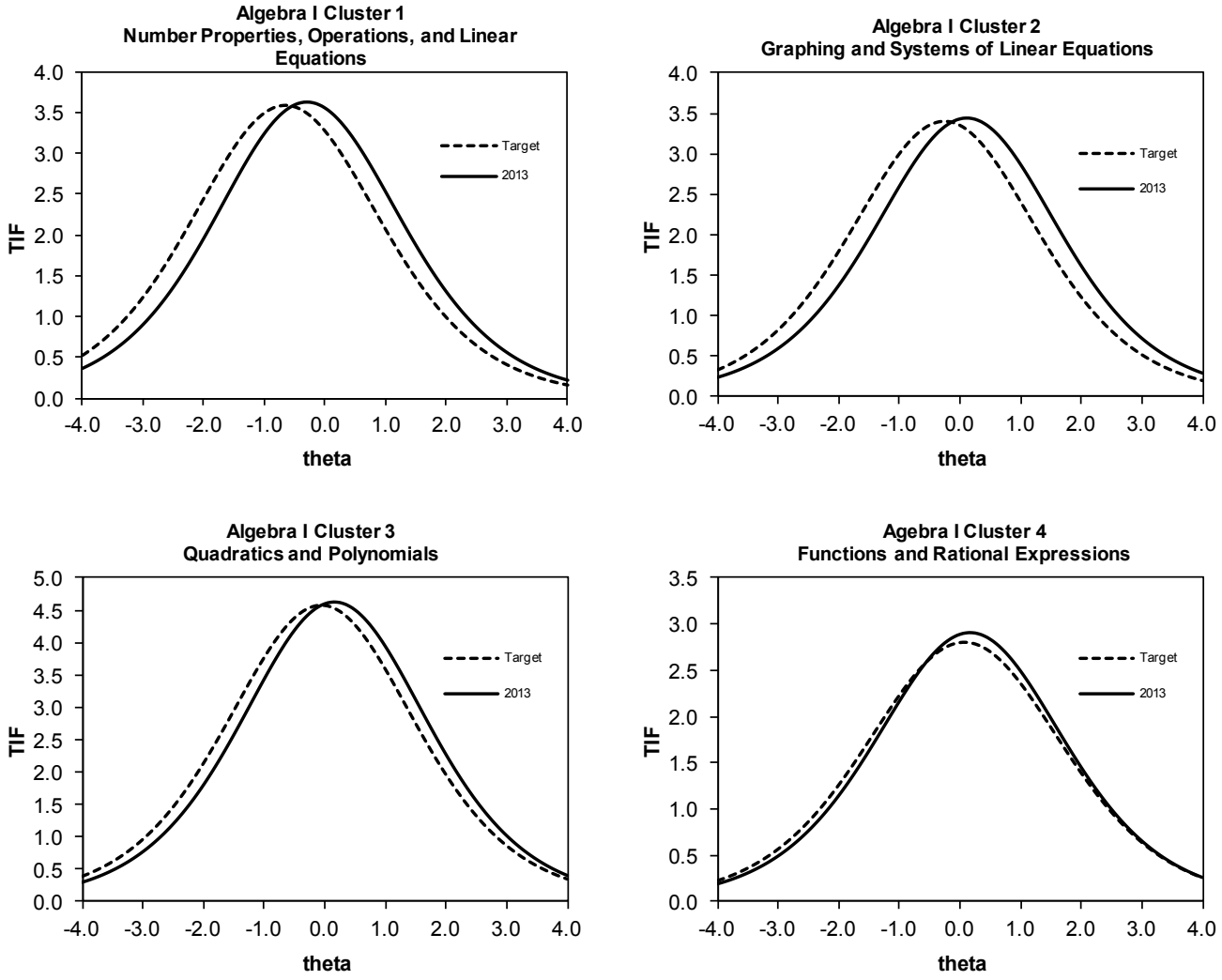
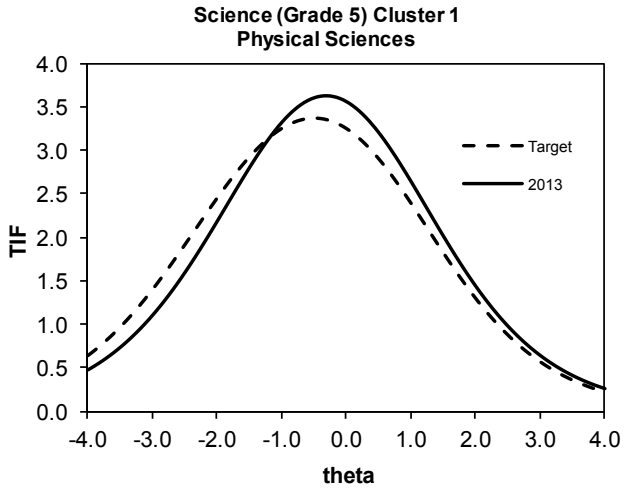
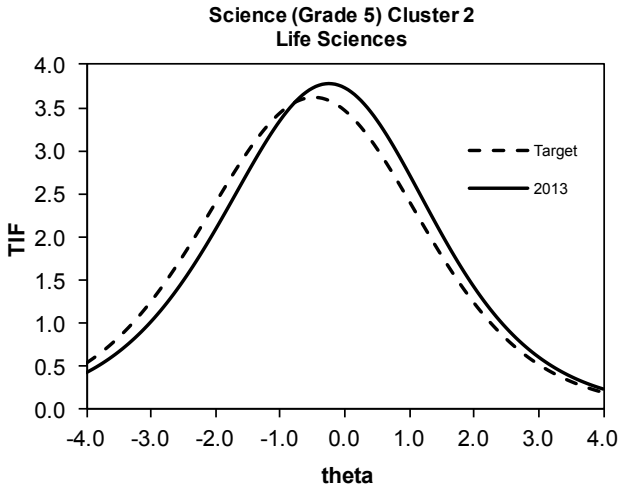


Figure 4.B.14 Plots of Target Information Functions and Projected Information for Clusters for Science, Grade Five





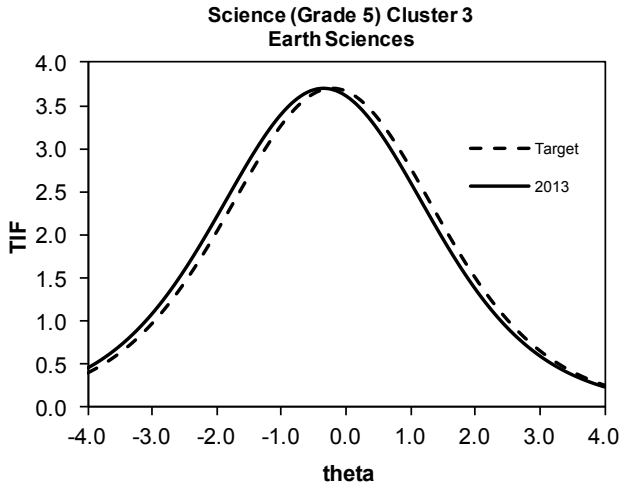


Figure 4.B.15 Plots of Target Information Functions and Projected Information for Clusters for Science, Grade Eight

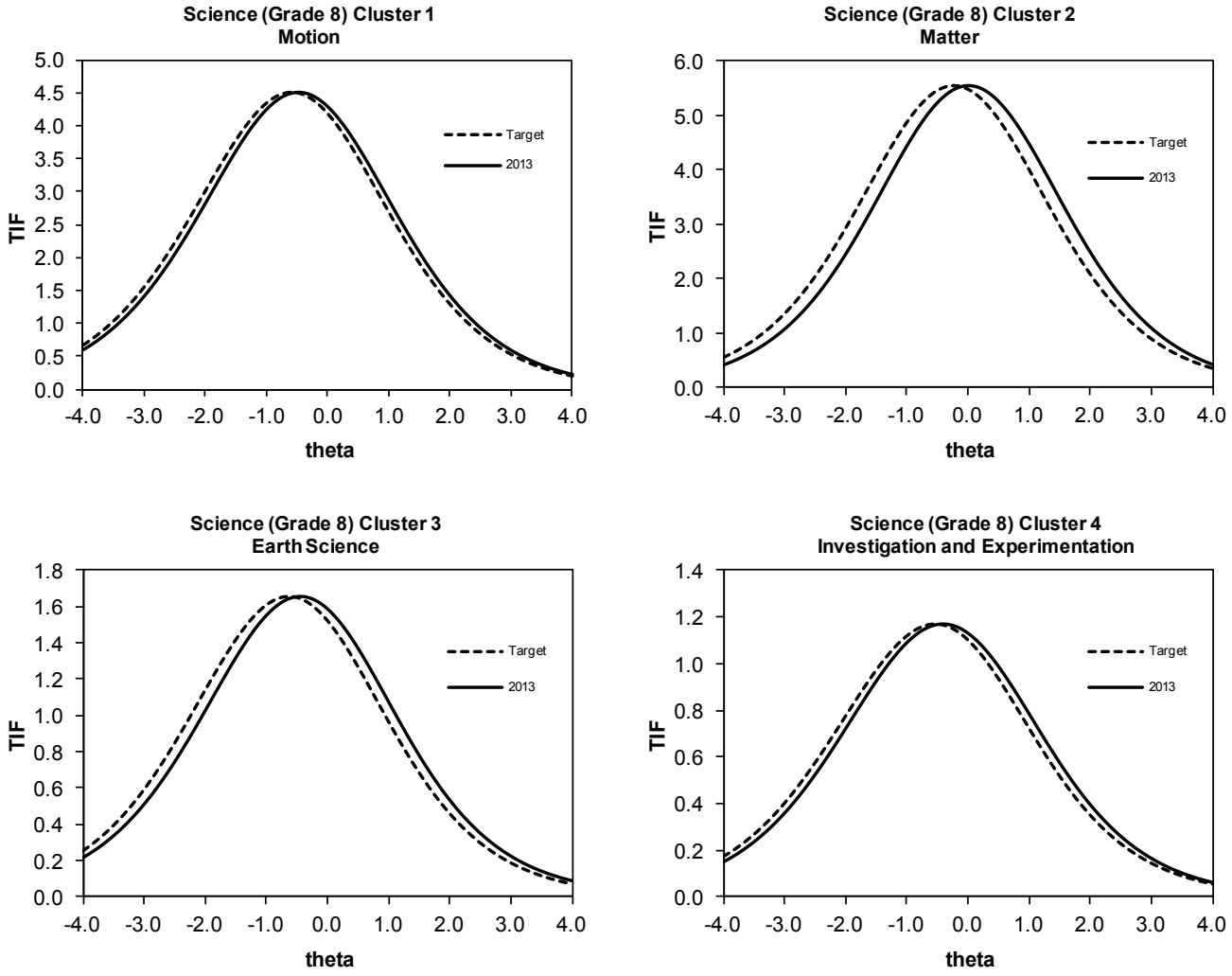
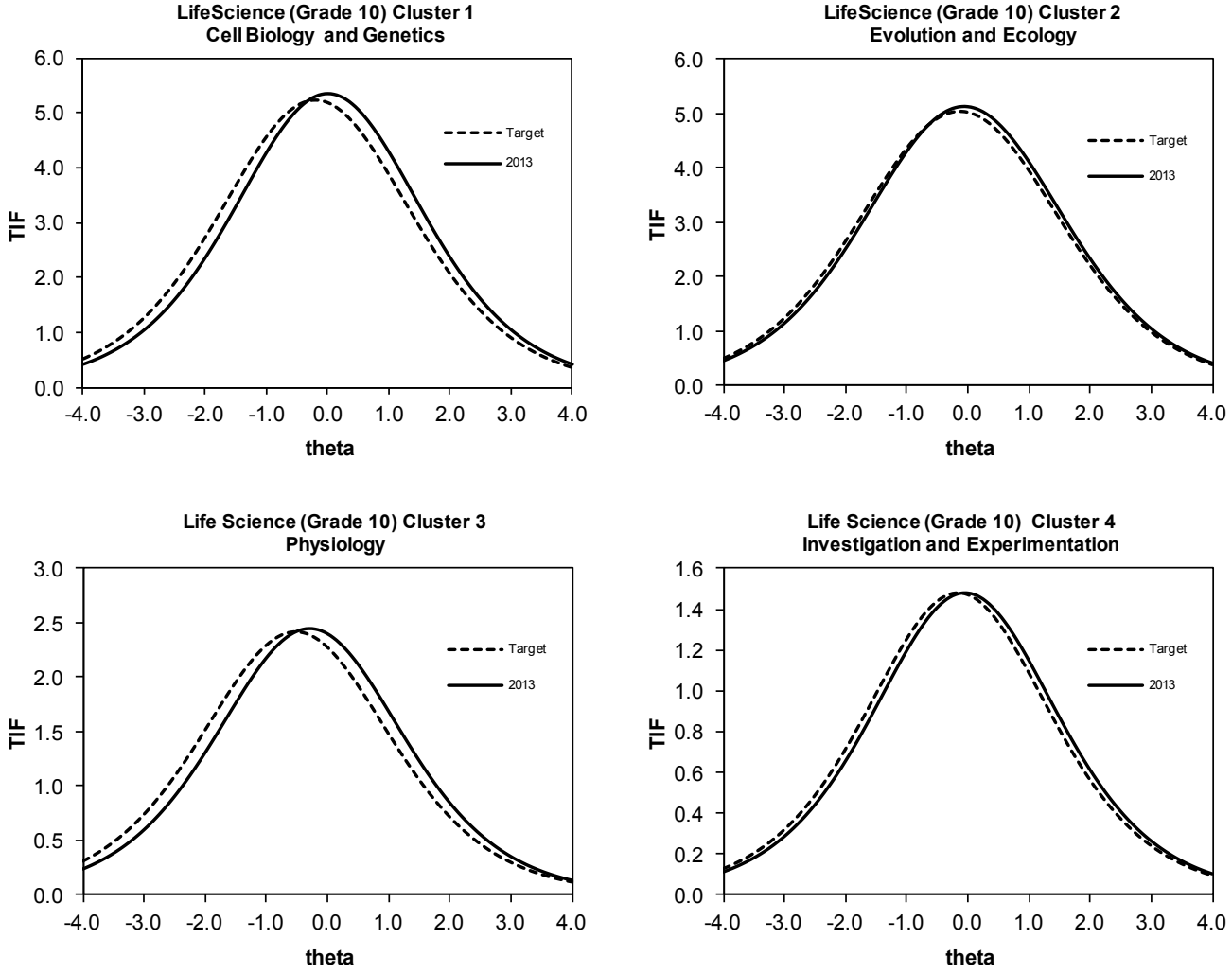


Figure 4.B.16 Plots of Target Information Functions and Projected Information for Clusters for Life Science, Grade Ten



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 testing 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 Office of Testing Integrity (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 during 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 during 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 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 electronically, with the backups kept off site, to prevent loss from a system breakdown or a natural disaster.
- 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 Files 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, 2013a) 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.

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 preapproves 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 materials receipt 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 school 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 its 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 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 its facilities. Entrances are monitored by security personnel and a computerized badge-reading system is utilized. Upon entering a facility, 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 keeps the files on secure servers and adheres to the ETS Code of Ethics and the ETS Information Protection Policies to prevent any unauthorized access.

Reporting and Posting Results

After statistical analysis has been completed on student data, the following deliverables are produced:

- Paper reports, some with individual student results and others with summary results
- A file of individual student results—available for download through the QTR module of the STAR Management System—that shows students' scale scores and performance levels
- Encrypted files of summary results (sent to the CDE by means of SFTP) (Any summary results that have fewer than 11 students are not reported.)
- Item-level statistics based on the results which are 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, 2013b). 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 in which these student demographic data 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 place 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. ETS is certified in the BS 25999-2 standard for business continuity and conducts disaster recovery exercises annually. ETS routinely backs up its data to either disk through deduplication or to tape, both of which are stored off site.

Access to the ETS Computer Processing Center is controlled by employee and visitor identification badges. The Center is secured by doors that 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 students' 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 follow-up 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 employs personnel who facilitate various processes involved in the standardization of an administration cycle and takes all necessary measures to ensure the standardization of the CMA, as described in this section.

Test Administrators

The CMA are administered in conjunction with the other tests that comprise the STAR Program. The responsibilities for district and test site staff members are included in the *STAR District and Test Site Coordinator Manual* (CDE, 2013c). 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 educational agency (LEA) designates a district STAR coordinator who is responsible for ensuring the proper and consistent administration of the STAR tests. LEAs include public school districts, statewide benefit charter schools, state board-authorized charter schools, county office of education programs, and charter schools testing independently from their home district.

District STAR coordinators 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 Site Coordinator

The superintendent of the school district or the district STAR coordinator designates a STAR test site coordinator at each test site from among the employees of the school district. (*5 CCR* Section 858 [a])

Test site coordinators are responsible for making sure that the school has the proper testing materials, distributing testing materials within a school, securing materials before, during, and after the administration period, answering questions from test examiners, preparing and packaging materials to be returned to the school district after testing, and returning the materials to the school district. (CDE, 2013c)

Test Examiner

The CMA 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, 2013d) 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 the proctor 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 the student's scribe (*5 CCR* Section 850 [m]). Scribes must sign STAR Test Security Affidavits (*5 CCR* Section 859 [c]).

Directions for Administration

CMA *DFAs* are manuals used by test examiners to administer the CMA to students (CDE, 2013d). Test examiners 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, 2013c). 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 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 test administrations for school districts, to verify contact information for those school districts, and to update the school district's shipping information. (CDE, 2013e)
- **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, 2013f)
- **Pre-ID—**This module allows school districts to enter or upload student information, including demographics, and 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, 2013b)
- **Extended Pre-ID Data Corrections—**This module allows school districts to correct the data that were submitted during Pre-ID prior to the last day of the school district's selected testing window. (CDE, 2013b)

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. In grades three through eleven, these versions are spiraled—comingled—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 and braille testing materials.

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. The 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 on page 27 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 Booklets. Because the CMA were 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, 2013c).

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 inflate their scores artificially. Test administration variations and accommodations do not result in changes to students' scores for API or AYP calculations. The addition of CMA results into the API does not change the API test weights; the same test weights and calculation rules used for the CSTs also apply to the CMA.

Demographic Data Corrections

After reviewing student data, some school districts may discover assessment-related data—such as special conditions, accommodations, variations, test taken, and so forth—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 (when changes are merged with demographic data corrections entered into the California Longitudinal Pupil Assessment Data System); (2) Rescore uncoded or miscoded CMA end-of-course mathematics tests; (3) Obtain a corrected data CD-ROM for school district records; or (4) Match unmatched records for grades four and seven writing and multiple-choice tests. (CDE, 2013g)

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 where 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, 2013c).

Social Media Security Breaches

Social media security breaches are exposures of test questions and testing materials through social media Web sites. These security breaches raise serious concerns that require comprehensive investigation and additional statistical analyses. In recognizing the importance of and the need to provide valid and reliable results to the state, districts, and schools, both the CDE and ETS take every precaution necessary, including extensive statistical analyses, to ensure that all test results maintain the highest levels of psychometric integrity.

A preliminary investigation into the scope and magnitude of 2013 social media security breaches was completed by the end of May and resulted in a list of exposed test questions (items) that were found on social media Web sites.

After the list of exposed items was obtained, ETS identified whether any of those items were operational (and, therefore, contributed to test scores) and conducted statistical analyses to determine whether any test items affected by the security breach needed to be removed from scoring to maintain the validity of test results. Because the CMA comprise previously administered forms and are pre-equated, were any items removed from scoring due to exposure, scoring keys and conversion tables for the affected test(s) would be revised and all the students who had taken those tests rescored.

An exhaustive review of the spring 2013 statistical results did not provide evidence of performance differences between exposed and nonexposed items. From a statistical perspective, results did not indicate the need to remove exposed items from scoring. ETS, therefore, recommended that all exposed items be included in scoring for the 2013 administration.

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 *DFAs* (CDE, 2013d) and the *STAR District and Test Site Coordinator Manual* (CDE, 2013c). 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 were introduced in stages, starting with the lower grades in 2008. Performance standards for each new test were developed after the introductory year for operational use in subsequent administrations. The CMA for ELA and mathematics in grades three through five and science in grade five became part of the STAR Program in spring 2008. For each test, the performance standards were developed in September and October 2008 and adopted by the SBE for the 2009 operational administration of those tests.

In spring 2009, the CMA 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 developed in August 2009 and adopted by the SBE for the 2010 operational administration of those CMA.

The CMA for high school phase 1 (ELA in grade nine, Life Science in grade ten, and EOC Algebra I) were introduced in spring 2010. The performance standards for those tests were developed in August 2010 and adopted by the SBE for use starting in the 2011 operational administration.

Finally, the CMA for high school phase 2 (ELA in grades ten and eleven and EOC Geometry) were introduced in spring 2011. The performance standards for these tests were established in fall 2011 and adopted by the SBE for use 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. Performance standards are developed from a general description of the performance level (policy-level descriptors) and competencies lists, which operationally define each level. Cut scores numerically define the performance levels.

The state target is to have all students achieve the proficient or advanced level by 2014. Schools and districts are expected to provide additional assistance to students scoring at or below the basic level.

California employed carefully designed standard-setting procedures to facilitate the development of performance standards for each CMA. The standard-setting method used for the CMA is the Bookmark method. These processes are described in the sections that follow.

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, 2011).

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 implemented for the CMA required panelists to follow these steps, which include training and practice prior to making judgments:

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 included 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 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 could revise their judgments during the process if they wished.
7. The final recommended cut scores were based on the median of panelists' judgment scores at the end of three rounds (in the Bookmark method, the panel recommendation is calculated by taking the median of the small group [table] medians). For the CMA, the cut scores recommended by the panelists and the recommendation of the State Superintendent of Public Instruction were presented for public comment at regional public hearings. Comments and recommendations were 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 was assembled to develop lists of competencies based on the California content standards and 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 taking 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.

Standard-Setting Methodology

Bookmark Method

The Bookmark method for setting cut scores was introduced in 1999 and has been used widely across the United States (Lewis, et al., 1999; Mitzel, et al., 2001). In California, the Bookmark method has been used in standard settings for most of the STAR tests.

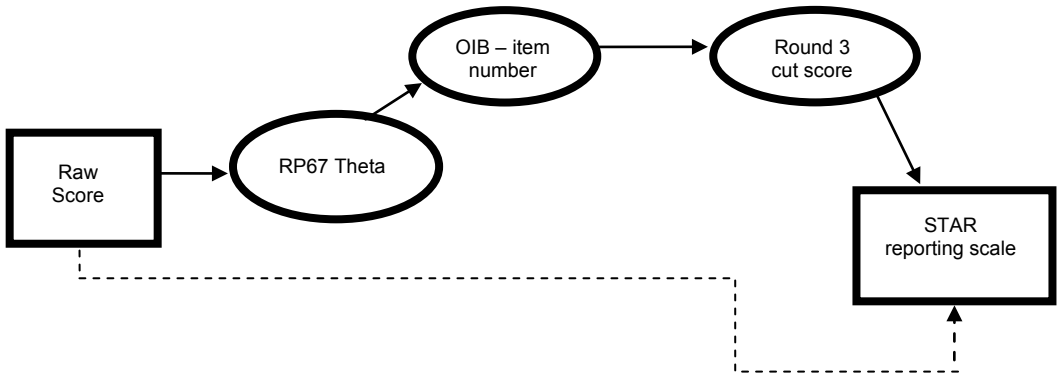
The Bookmark method is an item-mapping procedure in which panelists consider content covered by items in a specially constructed book where items are ordered from easiest to hardest based on operational student performance data from a previous test administration. The "item map," which accompanies the ordered item booklet (OIB), includes information on the content measured by each operational test 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.

Panelists are asked to place a bookmark in the OIB to demarcate each performance level. 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 (RP67 Theta), which maps back to a raw score on this test form. Figure 6.1 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 CMA



Results

The cut scores obtained as a result of the standard-setting process are on the IRT scale; each recommended cut score is associated with a theta value in the OIB. This RP67 Theta has a corresponding number-correct or raw score for the test form upon which standards were set; 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.

The cut scores for the other performance levels are derived using procedures based on IRT and usually vary by grade and content area. Each raw cut score for a given test is mapped to an IRT *theta* (θ) using the test characteristic function or curve and then transformed to the scale-score metric using the following equation:

$$\text{Scale Cut Score}=(350-\theta_{proficient}\times\left(\frac{350-300}{\theta_{proficient}-\theta_{basic}}\right))+\left(\frac{350-300}{\theta_{proficient}-\theta_{basic}}\right)\times\theta_{cut\text{-}score} \quad (6.1)$$

where,

$\theta_{cut-score}$ represents the student ability at cut scores for performance levels other than proficient or basic, e.g., below basic or advanced,

$\theta_{proficient}$ represents the theta corresponding to the cut score for proficient, and

θ_{basic} represents the theta corresponding to the cut score for basic.

Please note that an IRT test characteristic function or 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.

The scale-score ranges for each performance level are presented in Table 2.1 on page 17. 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 levels are adopted.

Table 7.2 on page 121 in Chapter 7 presents the percentages of examinees meeting each performance level in 2013.

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Mitzel, H. C., Lewis, D. M., Patz, R. J., & Green, D. R. (2001). The bookmark procedure: Psychological perspectives. In G. J. Cizek (Ed.), *Setting performance standards: Concepts, methods, and perspectives* (pp. 249–81). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Chapter 7: Scoring and Reporting

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

Procedures for Maintaining and Retrieving Individual Scores

Items for all the CMA, except for the writing task in grades four and 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 in an answer document. All multiple-choice questions are machine scored. Responses to the writing task are scored by trained raters.

In the 2013 administration, because the raw-score-to-scale-score conversion tables were developed before tests were administered using pre-equating, individual student results were available within approximately ten days of processing the school district's scorable testing materials through the Quick-turnaround Reporting (QTR) module in the STAR Management System.

In order to score and report CMA results, ETS follows an established set of written procedures. The specifications for these procedures 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 combined into a single

student data record by matching specific demographic fields on test booklets and answer documents

- 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 agreeable to all parties 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, including those available in quick-turnaround reporting, 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 selected last day of testing 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, the total test raw score equals the number of multiple-choice test items answered correctly.

Subscore

The items in each CMA are aggregated into groups of related content standards to form 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 of items answered correctly. A description of the CMA reporting clusters is provided in Appendix 2.B of Chapter 2, starting on page 21.

Scale Score

Raw scores obtained on each CMA are transformed to three-digit scale scores using the equating process described in Chapter 2 on page 14. 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 performance of each student on each CMA is categorized into one of the following performance levels:

- far below basic
- below basic
- basic

- proficient
- advanced

For all CMA, 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. The cut scores for the other performance levels usually vary by grade and content area.

Writing Response Score

Examinees' essay responses to the writing task associated with the grades four and 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 rubrics used to assign the nonzero scores to the writing tasks for grades four and seven are presented in Appendix 7.A, which starts on page 128.

It is important to note that the writing score, considered in isolation, does not correspond directly to one of the five performance levels used to show overall student performance on the CMA for ELA tests, nor is it included in the CMA for ELA total score. For example, a writing score of 4 does not correspond to the advanced performance level, nor does a writing score of 3 correspond to the proficient performance level.

It should be noted that parents/guardians may choose not to let their child attempt the writing task in grade four or seven. In these cases, the student will not receive a writing score.

In 2013, the writing score was separated from the total ELA score to allow for early ELA student results to be reported via QTR.

Score Verification Procedures

Various necessary measures are taken to ascertain that the scoring keys are applied to the student responses as intended and that the student scores are computed accurately. In 2013, every regular and special-version multiple-choice test is certified by ETS prior to being included in quick-turnaround reporting. To certify a test, psychometricians gather a certain number of test cases and verify the accurate application of scoring keys and scoring tables.

Scoring Key Verification Process

Scoring keys, provided in the form planners, are produced by ETS and verified 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:

1. Keys in the form planners are checked against their matching test booklets to ensure that the correct keys are listed.
2. 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.
3. The printed lists of the scoring keys are checked again once the keys have been loaded into the SKM system.

4. The demarcations of various sections in the actual test booklets are checked against the list of demarcations provided by ETS test development staff.
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 response vectors.
7. Classical item analyses are computed 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 follow-up 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 grades four and 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 each read by a single reader; the writing score is based on that reader's rating. In addition, 10 percent of students' responses are also 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.

The next sections detail 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 of the four points in the scoring rubric. 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.
  - 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 are used to 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 scoring 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 is used to qualify scorers. If a scoring supervisor does not achieve the accuracy required on the Qualification Sets, that individual is not allowed to be a supervisor. In addition, all supervisors receive 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 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 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 10 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 interrater reliability. If a scorer's rate of agreement begins to decline, the scorer 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 a 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 have been scored by each scorer. The scorer's and supervisor's scores are then compared to check the scorer's 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 assess scorers' work.

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, that scorer is immediately retrained or released from the scoring process.

Score Verification Process

ETS psychometricians employ special procedures that adjust for differences in item difficulty from one test form to another. (See Chapter 2, Pre-equating, on page 14 for details.) As a result of this process, scoring tables are produced. Such tables map the current year's raw score to an appropriate scale score. A series of quality control (QC) checks is carried out by ETS psychometricians to ensure the accuracy of each scoring table, as discussed in Chapter 9 on page 296.

Pearson utilizes the scoring tables to generate scale scores for each student. ETS verifies Pearson's scale scores by conducting QC and reasonableness checks, which are described in Chapter 9 on page 297.

Overview of Score 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 next section contains a description of 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.

Score Distributions and Summary Statistics

Summary statistics that describe student performance on each CMA are presented in Table 7.1. 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.

The last content-area section in the table presents information on the grade-specific end-of-course testing groups. The statistics for grade-specific end-of-course testing groups are

based on the population of test-takers in a particular grade for which the course is recommended. While the assessments are presented to students at a variety of grade levels, the majority of test-takers belong to that specific grade.

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

				Scale Score		Raw Score		Raw Score Percent Correct	
Content Area	CMA *	No. of Items	No. of Examinees	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
English–Language Arts	3	48	19,966	308	64	28.07	8.46	58.47	17.63
	4	48	28,630	323	71	26.55	7.77	55.31	16.19
	5	48	29,852	328	70	28.00	7.90	58.33	16.46
	6	54	29,891	308	87	30.76	8.17	56.96	15.13
	7	54	28,364	314	84	32.73	9.02	60.60	16.71
	8	54	26,593	316	76	31.08	8.34	57.55	15.45
	9	60	21,731	295	73	31.58	9.26	52.64	15.43
	10	60	18,952	293	66	30.56	8.71	50.94	14.52
	11	60	16,343	281	56	27.36	7.53	45.60	12.55
Mathematics	3	48	17,267	322	69	29.97	8.83	62.44	18.39
	4	48	24,228	326	77	27.28	6.93	56.83	14.43
	5	48	26,565	341	76	29.35	8.09	61.14	16.85
	6	54	27,348	319	81	28.86	7.49	53.44	13.87
	7	54	27,142	298	85	25.04	6.47	46.38	11.99
	Algebra I	60	31,124	290	55	29.26	8.22	48.76	13.70
	Geometry	60	8,247	288	47	28.71	7.96	47.86	13.26
Science	5	48	27,709	345	56	29.43	7.20	61.30	14.99
	8	54	24,251	336	69	31.62	8.37	58.55	15.50
	10 Life Science	60	15,629	303	62	32.03	9.28	53.39	15.47
Grade-Specific	Algebra I – 8	60	6,035	295	58	29.93	8.58	49.89	14.30
	Geometry – 9	60	628	295	57	29.68	9.15	49.46	15.25

* Numbers indicate grade-level tests.

The percentages of students in each performance level are presented in Table 7.2. The last column of the table presents the overall percentage 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 P2 data file was used for the analyses in this chapter. This file contained the entire test-taking population and all the student records used in the August 8, 2013, reporting of STAR results.

Table 7.2 Percentages of Examinees in Each Performance Level

Content Area	CMA *	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Proficient/ Advanced †
English–Language Arts	3	10%	38%	26%	17%	10%	27%
	4	10%	34%	24%	20%	12%	32%
	5	4%	32%	29%	19%	17%	35%
	6	18%	29%	21%	15%	16%	31%
	7	16%	28%	22%	22%	12%	34%
	8	14%	30%	24%	20%	12%	32%
	9	26%	32%	21%	14%	7%	21%
	10	24%	33%	23%	14%	6%	20%
	11	29%	37%	22%	10%	3%	13%

Content Area	CMA *	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Proficient/ Advanced †
Mathematics	3	7%	33%	24%	28%	7%	35%
	4	8%	28%	26%	28%	10%	38%
	5	4%	26%	27%	29%	14%	43%
	6	14%	31%	23%	23%	9%	32%
	7	26%	30%	20%	19%	5%	24%
	Algebra I	22%	38%	25%	11%	3%	14%
	Geometry	23%	40%	26%	9%	2%	11%
Science	5	3%	20%	31%	33%	14%	47%
	8	16%	18%	24%	26%	16%	42%
	10 Life Science	21%	29%	27%	17%	6%	23%
Grade-Specific	Algebra I – 8	20%	37%	25%	13%	4%	17%
	Geometry –9	24%	37%	22%	13%	4%	17%

* Numbers indicate grade-level tests.

† May not exactly match the sum of percent proficient and percent advanced due to rounding.

Table 7.B.1 through Table 7.B.3 in Appendix 7.B, starting on page 134, show the distributions of scale scores for each CMA. Table 7.B.4 presents analogous information for the grade-specific EOC mathematics testing groups.

The results are reported in terms of 15 score intervals, each of which contains 30 scale score points. A cell value of "N/A" indicates that there are no obtainable scale scores within that scale-score range for the particular CMA.

Group Scores

Statistics summarizing student performance by content area and grade for selected groups of students are provided starting on page 136 in Table 7.C.1 through Table 7.C.19 for the CMA. When a test is administered at more than one grade level, the results are reported for all students tested and also by grade.

In these tables, students are grouped by demographic characteristics, including gender, ethnicity, English-language fluency, primary disability, and economic status. The tables show, for each demographic group, the numbers of valid cases, scale score means and standard deviations, the percentages of students in each performance level, as well as the mean percent correct in each reporting cluster.

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 10 or fewer, the summary statistics at the test- and reporting-cluster–level are not reported and are presented as hyphens. Percentages in these tables may not sum up to 100 due to rounding.

Table 7.3 Subgroup Definitions

Subgroup	Definition
Gender	• Male • Female
Ethnicity	• American Indian or Alaska Native • Asian – Asian Indian – Cambodian – Chinese

Subgroup	Definition
	– 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/Intellectual disability (MR/ID) • Hard of hearing • Deafness • Speech or language impairment • Visual impairment • Emotional disturbance • Orthopedic impairment • Other health impairment • Specific learning impairment • Deaf blindness • Multiple group • Autism • Traumatic brain injury

In addition to the subgroups presented in Table 7.3, the demographic tables also include grade-level data for the end-of-course mathematics CMA. The grades included for the end-of-course tests are as follows:

Grades	Test
7, 8, 9, 10, 11	Algebra I
8, 9, 10, 11	Geometry

Reports 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.

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 report(s) to the child's parent or guardian 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/.

Because results were pre-equated, individual student scores were also available to school districts approximately two weeks after scorable materials were received by the contractor by way of the QTR module to the STAR Management System. This module permits districts to download a file containing student data that includes scale scores and performance levels for multiple-choice CST and CMA tests taken.

Score Report Contents

The STAR Student Report provides scale scores, performance levels, and reporting cluster (subscore) results for each CMA taken by the student. Scale scores are reported on a scale ranging from 150 to 600. The performance levels reported are: far below basic, below basic, basic, proficient, and advanced. These same scale scores and performance levels are available in the school district's QTR file.

In addition, percent-correct scores are provided at the cluster level. Also given for each cluster is the average percent-correct for proficient students, which is presented as a range

from the percent-correct score associated with the lowest proficient score on the total test to the percent-correct score associated with the lowest advanced score on the total test, less one percent. The average percent-correct estimates associated with the lowest proficient and advanced scores were 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 (Lu & Smith, 2009).

Students in grades four and seven also receive a numerical score (from 0–4) for the CMA writing task after QTR.

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 nonaccommodated students.

Further information about the STAR Student Report and the other reports is provided in Appendix 7.D on page 174.

Score Report Applications

CMA results provide parents and guardians with information about their child'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 while talking with teachers about ways to improve their child's achievement of the California content standards.

Schools may use the CMA results to help make decisions about how best to 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 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 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 levels are performing at or above the proficient level on the CMA 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, 2013a). It is also important to note that a student's score in a content area contains measurement error and could vary somewhat if the student were retested.

Criteria for Interpreting Score Reports

The information presented in various reports must be interpreted with caution when making performance comparisons. When comparing scale score and performance-level results for the CMA, the user is limited to comparisons within the same content area and grade. 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 *2013 STAR Post-Test Guide* (CDE, 2013b).

Reference

California Department of Education. (2013a). *2013 STAR CST/CMA, CAPA, and STS printed reports*. Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.reports.2013.pdf

California Department of Education. (2013b). *2013 STAR post-test guide.* Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.post-test_guide.2013.pdf

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

Lu, Y., & Smith, R. L. (2009, April). *An alternative method to estimate cluster performance of proficient students on a large scale state assessment.* Paper presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA.

Appendix 7.A—ELA for Writing (Grades Four and Seven) Rubrics

Grade Four Scoring Rubric

The scoring rubric that follows was used to assign scores to students' written responses on the grade four writing tests. This rubric includes two sets of criteria. The criteria under "The Writing" are adapted from California's English–language arts content standards for Writing Strategies and Written Conventions of English. 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 criteria under "Narrative writing," "Summary writing," and "Response to literature writing," adapted from the grade four Writing Applications content standards for these genres, are used to evaluate 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.
- Maintains a *consistent* point of view, focus, and organizational structure, including paragraphing when appropriate.
- Includes a *clearly presented* central idea with *relevant* facts, details, and/or explanations.
- 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.

Narrative writing:

- Provides a *thoroughly developed* sequence of *significant* events to relate ideas, observations, and/or memories.
- Includes *vivid* descriptive language and sensory details that enable the reader to imagine the events or experiences.

Summary writing:

- Summarizes text with *clear* identification of the main idea(s) and the most significant details, in the student's own words.

Response to literature writing:

- Demonstrates a *clear* understanding of the literary work.
- Provides *effective* support for judgments through *specific* references to text and/or prior knowledge.

Score: 3

The Writing:

- Addresses *most* of the writing task.
- Demonstrates a *general* understanding of purpose.
- Maintains a *mostly consistent* point of view, focus, and organizational structure, including paragraphing when appropriate.
- Presents a central idea with *mostly* relevant facts, details, and/or explanations.
- Includes some sentence *variety.*

- Contains *errors* in the conventions of the English language (grammar, punctuation, capitalization, spelling). These errors do **not** interfere with the reader's understanding of the writing.

Narrative writing

- Provides an *adequately developed* sequence of significant events to relate ideas, observations, and/or memories.
- Includes *some* descriptive language and sensory details that enable the reader to imagine the events or experiences.

Summary writing

- Summarizes text with the main idea(s) and important details, generally in the student's own words.

Response to literature writing

- Demonstrates an understanding of the literary work.
- Provides *some* support for judgments through references to text and/or prior knowledge.

Score: 2

The Writing:

- Addresses *some* of the writing task.
- Demonstrates *little* understanding of purpose.
- Maintains an *inconsistent* point of view, focus, and/or organizational structure; may lack appropriate paragraphing.
- *Suggests* a central idea with *limited* facts, details, and/or explanations.
- Includes *little* sentence variety.
- Contains *many errors* in the conventions of the English language (grammar, punctuation, capitalization, spelling). These errors **may** interfere with the reader's understanding of the writing.

Narrative writing:

- Provides a *minimally developed* sequence of events to relate ideas, observations, and/or memories.
- Includes *limited* descriptive language and sensory details that enable the reader to imagine the events or experiences.

Summary writing:

- Summarizes text with some of the main idea(s) and details, minimal use of student's own words.

Response to literature writing:

- Demonstrates a *limited* understanding of the literary work.
- Provides *weak* support for judgments.

Score: 1

The Writing:

- Addresses *only one part*, if any, of the writing task.
- Demonstrates *no* understanding of purpose.
- *Lacks* a clear point of view, focus, and/or organizational structure; may contain inappropriate paragraphing.

- *Lacks* a central idea but may contain *marginally related* facts, details, and/or explanations.
- Includes *no* sentence variety.
- Contains *serious errors* in the conventions of the English language (grammar, punctuation, capitalization, spelling). These errors interfere with the reader's understanding of the writing.

Narrative writing:

- *Lacks* a sequence of events to relate ideas, observations, and/or memories.
- *Lacks* descriptive language and sensory details that enable the reader to imagine the events or experiences.

Summary writing:

- Summarizes text with few, if any, main idea(s) and/or details, little or no use of the student's own words.

Response to literature writing:

- Demonstrates *little or no* understanding of the literary work.
- *Fails* to provide support for judgments.

Grade Seven Scoring Rubric

The scoring rubric that follows was used to assign scores to students' written responses on the grade seven writing tests. This rubric includes two sets of criteria. The criteria under "The Writing" are adapted from California's English–language arts content standards for Writing Strategies and Written Conventions of English. 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 criteria under "Fictional or autobiographical narrative writing," "Response to literature writing," "Persuasive writing," and "Summary writing," adapted from the grade seven Writing Applications content standards for these genres, are used to evaluate 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, 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 *errors* in the conventions of the English language (grammar, punctuation, capitalization, 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, 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, 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 Distribution Tables

In Appendix 7.B, a cell value of "N/A" indicates that there are no obtainable scale scores within that scale-score range for the particular CMA.

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	Grade 9	Grade 10	Grade 11
570 – 600	2	42	75	46	62	42	39	4	0
540 – 569	15	80	N/A	67	96	68	37	1	2
510 – 539	52	107	130	301	158	124	134	40	16
480 – 509	96	439	524	240	678	402	86	78	32
450 – 479	181	827	981	890	473	780	462	161	58
420 – 449	615	1,291	1,436	1,438	1,267	1,105	501	527	175
390 – 419	939	2,421	2,757	2,867	2,679	2,271	996	849	356
360 – 389	2,613	2,938	3,391	2,260	3,170	2,737	1,866	1,651	814
330 – 359	3,044	4,497	5,008	3,683	3,277	3,126	2,432	2,256	1,410
300 – 329	2,932	3,614	4,880	3,808	4,123	4,303	2,740	2,678	2,818
270 – 299	3,637	5,080	3,622	3,582	2,881	4,175	3,260	2,911	3,204
240 – 269	2,717	4,531	4,086	3,322	3,351	2,841	3,608	3,272	3,682
210 – 239	2,122	1,951	2,282	2,804	3,096	2,848	3,274	2,770	2,661
180 – 209	882	686	569	2,401	1,700	1,227	1,748	1,413	847
150 – 179	119	126	111	2,182	1,353	544	548	341	268

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

Scale Score	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Algebra I	Geometry
570 – 600	32	64	140	153	125	10	2
540 – 569	84	81	173	100	61	13	1
510 – 539	N/A	252	281	303	208	42	0
480 – 509	133	235	387	237	416	40	12
450 – 479	538	724	1,140	1,117	631	234	30
420 – 449	431	1,814	1,643	1,150	960	442	67
390 – 419	1,625	1,627	3,123	2,420	1,252	735	165
360 – 389	1,941	3,184	3,525	2,016	2,841	1,669	350
330 – 359	2,659	3,718	4,265	3,598	2,432	3,749	760
300 – 329	2,894	3,865	3,890	3,921	2,917	5,453	1,606
270 – 299	2,783	3,382	2,735	3,970	4,937	5,637	2,038
240 – 269	2,105	1,861	3,006	3,551	3,300	7,609	2,082
210 – 239	1,634	1,972	1,508	2,626	2,837	4,031	979
180 – 209	349	1,055	607	1,554	2,151	1,284	147
150 – 179	59	394	142	632	2,074	176	8

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

Scale Score	Grade 5	Grade 8	Grade 10
570 – 600	14	36	4
540 – 569	41	73	12
510 – 539	87	219	19
480 – 509	167	212	87
450 – 479	603	1,048	164
420 – 449	2,007	1,041	421
390 – 419	3,211	2,882	691
360 – 389	3,929	2,788	1,335
330 – 359	6,964	3,970	2,349
300 – 329	4,467	3,844	2,717
270 – 299	4,096	4,304	2,791
240 – 269	1,653	2,462	2,370
210 – 239	391	986	2,107
180 – 209	67	316	489
150 – 179	12	70	73

Table 7.B.4 Distribution of CMA Scale Scores for a Grade-specific Population

Scale Score	Algebra I – Grade 8	Geometry – Grade 9
570 – 600	3	1
540 – 569	4	1
510 – 539	16	0
480 – 509	10	4
450 – 479	69	5
420 – 449	114	7
390 – 419	169	21
360 – 389	389	39
330 – 359	738	55
300 – 329	1,059	113
270 – 299	1,060	147
240 – 269	1,457	153
210 – 239	685	63
180 – 209	233	18
150 – 179	29	1

Appendix 7.C—Demographic Summaries

To protect privacy when the number of students in a subgroup is 10 or fewer, the summary statistics at the test- and reporting-cluster–level are not reported and are presented as hyphens in the tables in Appendix 7.C. Percentages in these tables may not sum up to 100 due to rounding.

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	19,966	308	64	10%	38%	26%	17%	10%	66%	55%	56%
Male	13,440	306	63	10%	39%	26%	16%	9%	66%	54%	55%
Female	6,293	313	64	8%	36%	26%	18%	11%	66%	56%	58%
Gender unknown	233	302	67	13%	39%	20%	20%	8%	64%	54%	54%
American Indian	185	312	66	9%	39%	25%	17%	11%	66%	56%	57%
Asian American	591	310	66	9%	38%	25%	18%	10%	67%	55%	57%
Pacific Islander	83	321	58	4%	35%	31%	20%	10%	70%	58%	61%
Filipino	173	320	61	5%	35%	28%	22%	11%	72%	56%	60%
Hispanic	12,598	303	61	10%	41%	26%	16%	8%	64%	54%	55%
African American	1,896	304	65	11%	39%	25%	16%	9%	64%	54%	55%
White	3,639	326	68	8%	29%	25%	22%	16%	70%	61%	60%
Ethnicity unknown	801	310	67	12%	33%	24%	20%	10%	66%	56%	56%
English only	10,651	315	66	9%	34%	26%	19%	12%	68%	57%	57%
Initially fluent English prof.	173	325	66	6%	29%	33%	15%	17%	71%	59%	61%
English learner	8,564	299	60	11%	42%	26%	14%	6%	63%	52%	54%
Reclassified fluent English prof.	71	309	73	14%	34%	21%	18%	13%	65%	55%	56%
English prof. unknown	507	305	66	13%	35%	24%	19%	9%	65%	54%	55%
Autism	1,625	306	65	10%	40%	24%	17%	10%	67%	54%	54%
Deaf-blindness	6	–	–	–	–	–	–	–	–	–	–
Deafness	78	269	54	17%	60%	18%	3%	3%	52%	41%	50%
Emotional disturbance	245	316	68	9%	33%	25%	19%	13%	68%	59%	55%
Hard of hearing	172	308	57	8%	35%	35%	16%	7%	65%	54%	58%
MR/ID	366	259	48	27%	54%	14%	4%	0%	50%	42%	43%
Multiple disability	19	300	71	16%	47%	16%	11%	11%	62%	54%	52%
Orthopedic impairment	128	309	62	9%	34%	32%	13%	12%	68%	55%	56%
Other health impairment	1,979	319	66	8%	33%	25%	21%	13%	69%	58%	58%
Specific learning disability	11,573	308	63	9%	38%	26%	17%	9%	65%	55%	56%
Speech or language impairment	2,989	312	62	8%	35%	29%	18%	9%	67%	56%	57%
Traumatic brain injury	47	310	58	4%	49%	26%	11%	11%	63%	56%	59%
Visual impairment	48	308	60	8%	35%	31%	19%	6%	67%	56%	55%
Disability unknown	691	301	64	13%	38%	25%	15%	8%	64%	53%	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
Not economically disadvantaged	3,825	328	68	6%	30%	26%	22%	16%	72%	61%	61%
Economically disadvantaged	15,293	303	62	10%	40%	26%	16%	8%	64%	54%	55%
Economic status unknown	848	305	64	12%	35%	27%	19%	8%	65%	55%	55%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	29	323	76	17%	28%	14%	28%	14%	71%	56%	61%
Asian American	238	324	68	7%	32%	26%	21%	15%	71%	58%	60%
Pacific Islander	17	333	49	0%	29%	29%	29%	12%	76%	59%	65%
Filipino	91	321	63	5%	37%	20%	25%	12%	72%	55%	61%
Hispanic	1,246	322	67	7%	33%	27%	20%	14%	70%	58%	59%
African American	286	317	65	7%	35%	26%	21%	11%	69%	58%	58%
White	1,739	336	69	5%	26%	26%	24%	20%	73%	63%	62%
Ethnicity unknown	179	329	63	7%	28%	24%	26%	15%	73%	61%	61%
Primary Ethnicity—Economically Disadvantaged											
American Indian	152	308	63	7%	41%	26%	15%	10%	64%	56%	56%
Asian American	330	301	63	12%	42%	24%	16%	7%	65%	53%	54%
Pacific Islander	63	316	60	5%	37%	33%	17%	8%	68%	57%	59%
Filipino	73	320	59	4%	30%	38%	18%	10%	71%	58%	59%
Hispanic	11,002	301	60	10%	41%	26%	15%	7%	64%	53%	54%
African American	1,547	302	64	11%	40%	25%	15%	9%	64%	54%	54%
White	1,766	317	67	9%	33%	25%	20%	13%	68%	58%	58%
Ethnicity unknown	360	308	65	11%	36%	25%	18%	10%	66%	54%	56%
Primary Ethnicity—Unknown Economic Status											
American Indian	4	–	–	–	–	–	–	–	–	–	–
Asian American	23	304	61	4%	43%	39%	4%	9%	67%	52%	55%
Pacific Islander	3	–	–	–	–	–	–	–	–	–	–
Filipino	9	–	–	–	–	–	–	–	–	–	–
Hispanic	350	303	58	9%	38%	31%	15%	7%	65%	54%	54%
African American	63	296	63	14%	37%	25%	17%	6%	63%	52%	53%
White	134	318	64	10%	28%	25%	28%	10%	69%	58%	59%
Ethnicity unknown	262	300	69	17%	32%	23%	20%	8%	63%	54%	53%

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	28,630	323	71	10%	34%	24%	20%	12%	61%	56%	52%
Male	19,122	320	71	11%	35%	24%	19%	11%	60%	55%	51%
Female	9,496	329	71	8%	32%	25%	21%	14%	62%	57%	54%
Gender unknown	12	312	79	17%	42%	8%	17%	17%	58%	49%	53%
American Indian	271	329	70	6%	34%	24%	21%	14%	63%	57%	53%
Asian American	927	328	71	8%	32%	27%	21%	13%	61%	56%	55%
Pacific Islander	121	323	71	7%	40%	21%	21%	11%	60%	55%	53%
Filipino	307	336	69	9%	23%	27%	26%	14%	63%	59%	56%
Hispanic	18,164	317	69	10%	36%	25%	19%	10%	60%	54%	51%
African American	2,749	316	69	11%	35%	25%	19%	10%	60%	54%	50%
White	5,460	342	76	7%	26%	23%	24%	19%	66%	61%	55%
Ethnicity unknown	631	332	73	8%	30%	23%	23%	16%	63%	59%	53%
English only	15,555	330	74	9%	30%	24%	22%	15%	63%	58%	53%
Initially fluent English prof.	289	348	77	7%	21%	25%	27%	21%	68%	63%	56%
English learner	12,507	313	66	11%	38%	25%	18%	9%	58%	53%	50%
Reclassified fluent English prof.	199	352	86	7%	25%	22%	22%	25%	67%	62%	58%
English prof. unknown	80	307	67	15%	34%	23%	24%	5%	55%	54%	49%
Autism	2,178	322	71	10%	34%	24%	21%	12%	60%	55%	53%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	107	300	60	10%	47%	23%	14%	6%	51%	50%	49%
Emotional disturbance	534	321	74	12%	32%	23%	21%	13%	63%	56%	50%
Hard of hearing	227	329	72	9%	32%	26%	21%	13%	62%	56%	54%
MR/ID	392	269	48	25%	54%	15%	5%	1%	47%	43%	40%
Multiple disability	50	281	63	26%	46%	12%	12%	4%	48%	48%	42%
Orthopedic impairment	195	325	85	13%	29%	25%	17%	16%	60%	57%	52%
Other health impairment	2,905	335	75	8%	29%	24%	22%	17%	65%	58%	54%
Specific learning disability	17,401	322	71	10%	34%	24%	20%	12%	61%	56%	52%
Speech or language impairment	3,430	326	68	8%	32%	26%	21%	12%	61%	56%	53%
Traumatic brain injury	73	315	56	5%	36%	33%	23%	3%	59%	55%	51%
Visual impairment	68	328	79	12%	22%	35%	13%	18%	67%	55%	52%
Disability unknown	1,070	327	68	9%	31%	26%	22%	12%	64%	56%	52%
Not economically disadvantaged	6,293	343	75	7%	25%	24%	25%	19%	66%	60%	56%
Economically disadvantaged	22,214	317	69	10%	36%	25%	19%	10%	60%	54%	51%
Economic status unknown	123	313	70	14%	34%	26%	18%	8%	59%	53%	50%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	62	353	65	0%	26%	29%	26%	19%	70%	63%	58%
Asian American	405	342	74	6%	27%	24%	25%	17%	65%	58%	58%
Pacific Islander	33	337	80	6%	33%	27%	15%	18%	62%	57%	57%
Filipino	150	339	71	9%	22%	26%	25%	19%	63%	59%	58%
Hispanic	2,114	335	73	8%	28%	24%	24%	16%	64%	58%	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	474	324	66	7%	34%	26%	23%	9%	62%	56%	52%
White	2,809	352	77	6%	22%	24%	26%	23%	68%	63%	58%
Ethnicity unknown	246	351	71	3%	26%	20%	30%	21%	67%	64%	57%
Primary Ethnicity—Economically Disadvantaged											
American Indian	208	320	68	8%	36%	23%	20%	13%	61%	55%	51%
Asian American	519	318	67	8%	35%	29%	17%	10%	59%	54%	52%
Pacific Islander	87	319	68	7%	41%	20%	24%	8%	60%	54%	52%
Filipino	156	334	66	9%	24%	29%	28%	10%	65%	59%	54%
Hispanic	15,998	315	68	11%	37%	25%	18%	9%	59%	54%	50%
African American	2,265	315	69	12%	35%	25%	18%	10%	60%	54%	50%
White	2,622	331	74	9%	30%	23%	22%	16%	64%	59%	53%
Ethnicity unknown	359	320	72	12%	31%	25%	19%	13%	61%	55%	51%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	52	317	63	12%	29%	31%	21%	8%	62%	53%	51%
African American	10	–	–	–	–	–	–	–	–	–	–
White	29	320	73	21%	17%	31%	17%	14%	61%	56%	50%
Ethnicity unknown	26	306	69	8%	46%	23%	19%	4%	57%	53%	47%

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	29,852	328	70	4%	32%	29%	19%	17%	70%	52%	59%
Male	19,742	325	70	4%	34%	28%	18%	16%	71%	52%	58%
Female	10,090	334	70	3%	29%	30%	20%	18%	70%	53%	61%
Gender unknown	20	282	63	20%	45%	20%	10%	5%	61%	43%	45%
American Indian	268	329	72	3%	33%	25%	23%	15%	72%	53%	58%
Asian American	894	330	71	3%	33%	30%	17%	18%	70%	51%	61%
Pacific Islander	137	333	65	4%	24%	36%	21%	15%	75%	53%	60%
Filipino	333	335	67	2%	30%	31%	19%	19%	72%	53%	61%
Hispanic	19,001	323	68	4%	34%	30%	18%	14%	69%	51%	58%
African American	3,018	319	66	4%	37%	30%	17%	13%	69%	50%	56%
White	5,565	349	75	2%	24%	26%	21%	26%	76%	58%	63%
Ethnicity unknown	636	336	74	3%	29%	28%	20%	20%	73%	54%	60%
English only	15,808	337	73	3%	29%	28%	20%	20%	73%	54%	60%
Initially fluent English prof.	288	351	77	4%	22%	25%	22%	27%	76%	58%	63%
English learner	13,270	316	65	4%	37%	31%	17%	11%	66%	49%	57%
Reclassified fluent English prof.	432	368	79	3%	16%	21%	22%	38%	78%	62%	68%
English prof. unknown	54	298	71	9%	52%	22%	6%	11%	62%	48%	49%
Autism	1,968	324	72	4%	34%	30%	16%	16%	69%	50%	59%
Deaf-blindness	5	–	–	–	–	–	–	–	–	–	–
Deafness	124	277	61	15%	54%	18%	9%	5%	49%	41%	49%
Emotional disturbance	694	331	78	5%	32%	24%	21%	19%	73%	54%	57%
Hard of hearing	239	320	68	5%	34%	28%	19%	14%	65%	49%	60%
MR/ID	477	265	49	12%	67%	15%	4%	1%	51%	38%	43%
Multiple disability	33	271	71	15%	61%	9%	6%	9%	50%	42%	44%
Orthopedic impairment	182	334	75	4%	30%	25%	21%	20%	69%	54%	61%
Other health impairment	2,963	342	73	3%	26%	28%	21%	23%	75%	56%	61%
Specific learning disability	19,442	328	69	3%	32%	29%	19%	16%	70%	53%	59%
Speech or language impairment	2,748	329	67	3%	31%	32%	20%	15%	71%	51%	60%
Traumatic brain injury	72	311	74	7%	47%	19%	10%	17%	66%	48%	54%
Visual impairment	67	351	74	0%	24%	19%	34%	22%	75%	58%	64%
Disability unknown	838	327	68	3%	33%	29%	19%	15%	70%	52%	59%
Not economically disadvantaged	6,356	349	75	2%	24%	27%	21%	26%	76%	57%	63%
Economically disadvantaged	23,399	322	68	4%	34%	29%	18%	14%	69%	51%	58%
Economic status unknown	97	302	63	8%	45%	19%	21%	7%	66%	47%	51%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	59	358	64	0%	17%	27%	34%	22%	81%	60%	64%
Asian American	363	337	71	2%	28%	33%	17%	20%	72%	52%	63%
Pacific Islander	37	343	58	0%	19%	46%	22%	14%	79%	57%	60%
Filipino	162	343	70	2%	23%	31%	21%	22%	74%	54%	64%
Hispanic	2,109	343	73	2%	26%	27%	20%	24%	74%	56%	62%

				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	510	325	65	3%	33%	31%	22%	12%	72%	52%	58%
White	2,853	361	77	2%	20%	25%	22%	32%	79%	60%	66%
Ethnicity unknown	263	348	75	1%	25%	27%	23%	23%	76%	56%	64%
Primary Ethnicity—Economically Disadvantaged											
American Indian	209	321	72	4%	37%	25%	20%	13%	69%	51%	56%
Asian American	524	324	71	3%	36%	28%	16%	16%	68%	50%	59%
Pacific Islander	99	329	67	5%	26%	32%	20%	16%	74%	52%	59%
Filipino	170	326	63	1%	36%	31%	17%	15%	70%	51%	59%
Hispanic	16,858	320	67	4%	35%	30%	18%	13%	68%	50%	57%
African American	2,492	318	67	4%	37%	30%	16%	13%	69%	50%	56%
White	2,696	338	72	3%	28%	27%	20%	21%	74%	55%	60%
Ethnicity unknown	351	330	72	4%	30%	29%	19%	19%	72%	53%	59%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	7	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	34	290	60	6%	59%	12%	21%	3%	60%	43%	51%
African American	16	308	64	13%	31%	19%	31%	6%	70%	49%	52%
White	16	295	56	6%	50%	31%	6%	6%	69%	46%	47%
Ethnicity unknown	22	298	66	14%	45%	18%	14%	9%	64%	47%	50%

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	29,891	308	87	18%	29%	21%	15%	16%	63%	53%	59%
Male	19,915	303	88	20%	30%	20%	14%	15%	62%	52%	57%
Female	9,958	319	85	14%	27%	23%	17%	18%	63%	54%	62%
Gender unknown	18	315	116	22%	22%	22%	11%	22%	60%	54%	59%
American Indian	305	303	85	19%	32%	20%	14%	15%	63%	52%	57%
Asian American	920	311	88	17%	28%	22%	16%	17%	61%	53%	61%
Pacific Islander	127	305	87	19%	32%	20%	13%	16%	63%	52%	58%
Filipino	308	300	83	19%	33%	18%	17%	13%	60%	49%	60%
Hispanic	19,196	303	84	19%	31%	21%	15%	14%	61%	52%	58%
African American	3,191	296	85	22%	31%	19%	15%	13%	62%	51%	56%
White	5,250	335	94	14%	23%	20%	18%	26%	70%	57%	62%
Ethnicity unknown	594	318	92	15%	29%	19%	15%	21%	67%	54%	59%
English only	15,726	316	91	17%	27%	20%	17%	19%	66%	54%	59%
Initially fluent English prof.	321	333	89	11%	25%	22%	18%	23%	67%	58%	62%
English learner	12,935	294	81	21%	33%	22%	13%	11%	58%	50%	57%
Reclassified fluent English prof.	849	364	86	5%	19%	18%	21%	37%	73%	62%	68%
English prof. unknown	60	298	87	15%	43%	18%	8%	15%	57%	51%	58%
Autism	1,777	305	94	21%	30%	18%	13%	18%	60%	51%	60%
Deaf-blindness	8	–	–	–	–	–	–	–	–	–	–
Deafness	133	228	66	51%	34%	9%	5%	2%	39%	40%	47%
Emotional disturbance	743	309	98	23%	25%	16%	17%	19%	65%	53%	57%
Hard of hearing	249	303	83	19%	30%	23%	15%	13%	57%	51%	61%
MR/ID	473	232	65	48%	35%	12%	3%	2%	44%	41%	45%
Multiple disability	38	269	86	32%	39%	13%	5%	11%	55%	48%	50%
Orthopedic impairment	194	315	99	19%	30%	16%	13%	22%	64%	54%	59%
Other health impairment	2,804	325	91	15%	26%	20%	17%	23%	68%	55%	61%
Specific learning disability	20,338	309	86	18%	30%	21%	16%	16%	63%	53%	59%
Speech or language impairment	2,266	307	83	18%	29%	24%	16%	14%	61%	52%	60%
Traumatic brain injury	76	302	98	22%	30%	12%	16%	20%	61%	52%	57%
Visual impairment	63	291	92	32%	21%	22%	10%	16%	58%	49%	57%
Disability unknown	729	314	83	16%	29%	24%	16%	16%	64%	54%	59%
Not economically disadvantaged	6,127	334	92	13%	24%	20%	18%	25%	69%	57%	63%
Economically disadvantaged	23,663	302	85	20%	31%	21%	15%	14%	61%	52%	58%
Economic status unknown	101	302	80	14%	38%	20%	17%	12%	63%	53%	57%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	65	311	73	14%	29%	23%	20%	14%	67%	54%	58%
Asian American	356	324	89	15%	24%	22%	17%	21%	65%	54%	63%
Pacific Islander	33	333	92	9%	27%	24%	18%	21%	70%	55%	64%
Filipino	158	310	84	16%	32%	17%	20%	15%	62%	51%	62%
Hispanic	2,159	329	90	13%	25%	20%	19%	23%	67%	56%	62%

				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	541	307	87	18%	29%	22%	14%	16%	65%	52%	58%
White	2,608	347	93	10%	21%	19%	19%	31%	73%	59%	64%
Ethnicity unknown	207	334	89	10%	29%	17%	17%	27%	71%	56%	62%
Primary Ethnicity—Economically Disadvantaged											
American Indian	240	300	88	20%	33%	19%	13%	15%	62%	51%	57%
Asian American	562	304	86	19%	30%	22%	14%	14%	59%	52%	59%
Pacific Islander	93	296	84	22%	34%	18%	12%	14%	61%	51%	57%
Filipino	150	289	80	22%	35%	19%	13%	11%	59%	48%	57%
Hispanic	16,997	300	83	20%	32%	22%	14%	13%	60%	51%	58%
African American	2,636	294	85	23%	31%	19%	15%	12%	62%	51%	55%
White	2,625	322	93	17%	25%	20%	17%	22%	68%	55%	60%
Ethnicity unknown	360	310	91	18%	28%	21%	15%	18%	65%	54%	58%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	40	309	71	10%	40%	18%	20%	13%	63%	54%	58%
African American	14	290	60	7%	50%	21%	21%	0%	67%	48%	55%
White	17	303	63	6%	35%	35%	12%	12%	75%	56%	50%
Ethnicity unknown	27	303	109	22%	33%	15%	11%	19%	54%	53%	59%

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	28,364	314	84	16%	28%	22%	22%	12%	69%	61%	58%
Male	18,992	308	84	18%	29%	22%	20%	11%	68%	60%	56%
Female	9,365	325	83	12%	26%	23%	24%	15%	69%	62%	61%
Gender unknown	7	–	–	–	–	–	–	–	–	–	–
American Indian	260	320	94	18%	23%	20%	22%	17%	69%	62%	59%
Asian American	823	332	87	12%	23%	21%	26%	18%	71%	62%	64%
Pacific Islander	135	318	80	10%	28%	30%	20%	11%	70%	62%	58%
Filipino	280	327	81	8%	31%	22%	23%	16%	72%	61%	63%
Hispanic	18,230	308	82	17%	29%	22%	21%	11%	67%	59%	57%
African American	2,973	298	82	20%	31%	22%	18%	9%	66%	58%	54%
White	5,095	336	88	11%	22%	21%	26%	20%	73%	66%	61%
Ethnicity unknown	568	329	85	12%	24%	22%	24%	18%	72%	64%	61%
English only	14,987	321	86	14%	26%	22%	23%	15%	70%	62%	59%
Initially fluent English prof.	511	337	87	11%	22%	19%	28%	19%	73%	67%	61%
English learner	11,607	298	78	19%	31%	23%	19%	8%	65%	57%	56%
Reclassified fluent English prof.	1,184	366	86	6%	15%	19%	30%	30%	78%	71%	68%
English prof. unknown	75	308	87	23%	25%	19%	19%	15%	67%	60%	57%
Autism	1,550	322	93	16%	27%	18%	22%	17%	71%	58%	62%
Deaf-blindness	2	–	–	–	–	–	–	–	–	–	–
Deafness	138	251	67	41%	31%	17%	10%	1%	51%	45%	50%
Emotional disturbance	850	317	93	17%	28%	19%	19%	17%	71%	62%	57%
Hard of hearing	229	309	84	17%	31%	26%	12%	15%	67%	57%	60%
MR/ID	467	243	63	42%	41%	12%	3%	2%	52%	44%	46%
Multiple disability	34	271	94	29%	41%	6%	18%	6%	58%	49%	51%
Orthopedic impairment	171	327	88	12%	25%	25%	19%	19%	72%	62%	61%
Other health impairment	2,838	327	87	13%	25%	22%	24%	16%	73%	64%	59%
Specific learning disability	19,496	313	83	16%	28%	23%	22%	12%	68%	61%	58%
Speech or language impairment	1,814	312	80	15%	29%	24%	21%	11%	68%	59%	59%
Traumatic brain injury	83	310	92	18%	29%	24%	17%	12%	69%	59%	57%
Visual impairment	73	336	97	11%	23%	21%	26%	19%	73%	64%	62%
Disability unknown	619	317	83	16%	24%	24%	23%	13%	70%	62%	58%
Not economically disadvantaged	6,258	337	87	11%	22%	22%	26%	19%	73%	65%	62%
Economically disadvantaged	22,004	307	82	17%	29%	22%	20%	11%	67%	59%	57%
Economic status unknown	102	313	88	20%	25%	22%	19%	16%	69%	61%	57%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	66	345	85	8%	20%	23%	30%	20%	75%	66%	64%
Asian American	314	342	86	9%	23%	20%	27%	21%	73%	64%	66%
Pacific Islander	40	347	88	5%	28%	25%	20%	23%	73%	70%	62%
Filipino	144	340	86	8%	25%	22%	24%	22%	74%	63%	66%
Hispanic	2,262	330	86	13%	22%	24%	25%	17%	72%	64%	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	544	312	85	16%	28%	22%	24%	11%	70%	60%	57%
White	2,671	347	88	9%	21%	20%	28%	23%	75%	68%	64%
Ethnicity unknown	217	342	83	7%	22%	24%	26%	21%	76%	66%	64%
Primary Ethnicity—Economically Disadvantaged											
American Indian	194	311	95	21%	24%	20%	19%	16%	67%	60%	57%
Asian American	505	326	86	14%	23%	21%	26%	16%	70%	61%	62%
Pacific Islander	95	305	74	13%	28%	33%	20%	6%	69%	59%	57%
Filipino	134	316	71	7%	37%	23%	22%	10%	70%	59%	61%
Hispanic	15,918	305	81	18%	30%	22%	20%	10%	67%	59%	57%
African American	2,415	295	81	21%	32%	22%	17%	8%	65%	57%	54%
White	2,409	325	87	14%	24%	22%	24%	16%	72%	64%	59%
Ethnicity unknown	334	320	85	15%	26%	21%	22%	15%	70%	62%	59%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	4	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	2	–	–	–	–	–	–	–	–	–	–
Hispanic	50	306	90	22%	26%	20%	16%	16%	70%	60%	54%
African American	14	317	74	14%	29%	21%	29%	7%	71%	62%	59%
White	15	310	75	13%	27%	33%	13%	13%	72%	58%	59%
Ethnicity unknown	17	338	97	18%	18%	18%	24%	24%	71%	68%	60%

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	26,593	316	76	14%	30%	24%	20%	12%	76%	53%	58%
Male	17,879	312	77	16%	31%	23%	19%	12%	75%	52%	57%
Female	8,620	325	74	10%	28%	26%	23%	13%	78%	54%	60%
Gender unknown	94	310	76	13%	39%	16%	19%	13%	77%	52%	55%
American Indian	230	321	76	12%	29%	24%	21%	14%	78%	54%	58%
Asian American	699	317	78	14%	31%	22%	20%	13%	71%	53%	59%
Pacific Islander	106	299	77	20%	31%	26%	16%	7%	71%	49%	54%
Filipino	280	330	72	8%	25%	29%	24%	14%	78%	55%	62%
Hispanic	16,872	313	74	14%	31%	25%	20%	11%	75%	52%	57%
African American	3,017	306	75	18%	32%	23%	17%	10%	75%	51%	55%
White	4,823	332	81	11%	25%	23%	22%	18%	81%	56%	60%
Ethnicity unknown	566	326	79	13%	25%	24%	21%	16%	79%	55%	59%
English only	13,981	322	78	14%	28%	24%	21%	14%	78%	54%	58%
Initially fluent English prof.	559	332	78	10%	28%	23%	22%	17%	80%	56%	61%
English learner	10,469	301	68	17%	34%	25%	17%	7%	72%	50%	55%
Reclassified fluent English prof.	1,443	366	74	4%	14%	20%	33%	28%	86%	62%	68%
English prof. unknown	141	306	82	18%	35%	18%	17%	11%	75%	51%	54%
Autism	1,346	317	83	16%	31%	21%	17%	15%	70%	51%	61%
Deaf-blindness	3	–	–	–	–	–	–	–	–	–	–
Deafness	125	272	64	28%	42%	17%	10%	3%	53%	44%	51%
Emotional disturbance	910	311	84	19%	29%	21%	16%	14%	76%	52%	55%
Hard of hearing	247	316	76	13%	30%	24%	21%	12%	72%	52%	60%
MR/ID	500	248	56	45%	38%	12%	4%	1%	53%	41%	43%
Multiple disability	39	293	62	23%	31%	28%	13%	5%	67%	50%	53%
Orthopedic impairment	183	326	78	9%	32%	24%	24%	11%	77%	56%	59%
Other health impairment	2,635	327	79	11%	27%	24%	21%	17%	80%	55%	59%
Specific learning disability	18,724	317	75	13%	29%	25%	21%	12%	77%	53%	58%
Speech or language impairment	1,475	314	72	13%	30%	27%	20%	10%	74%	52%	59%
Traumatic brain injury	61	309	77	13%	39%	20%	15%	13%	78%	50%	57%
Visual impairment	67	335	90	12%	24%	25%	21%	18%	79%	56%	62%
Disability unknown	278	314	76	17%	27%	26%	21%	10%	76%	52%	57%
Not economically disadvantaged	5,897	334	79	11%	24%	23%	23%	18%	80%	56%	62%
Economically disadvantaged	20,516	311	74	15%	31%	24%	19%	10%	75%	52%	57%
Economic status unknown	180	297	81	23%	34%	19%	14%	9%	73%	50%	52%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	61	340	89	11%	21%	20%	23%	25%	80%	56%	64%
Asian American	256	333	80	10%	28%	21%	22%	18%	76%	55%	63%
Pacific Islander	28	324	69	11%	21%	39%	18%	11%	77%	52%	62%
Filipino	159	338	76	8%	25%	22%	27%	18%	78%	57%	63%
Hispanic	2,203	330	77	10%	26%	24%	23%	16%	79%	55%	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	553	318	79	16%	26%	24%	21%	14%	78%	53%	58%
White	2,462	340	81	10%	22%	23%	24%	21%	82%	57%	63%
Ethnicity unknown	175	340	81	9%	21%	27%	22%	21%	82%	57%	63%
Primary Ethnicity—Economically Disadvantaged											
American Indian	168	314	70	13%	31%	26%	21%	10%	77%	53%	56%
Asian American	437	307	75	17%	32%	23%	18%	9%	69%	51%	57%
Pacific Islander	77	291	78	22%	35%	22%	16%	5%	68%	49%	52%
Filipino	121	319	64	8%	26%	39%	19%	8%	77%	53%	59%
Hispanic	14,602	310	73	15%	31%	25%	19%	10%	74%	51%	57%
African American	2,448	303	74	18%	33%	23%	16%	9%	75%	51%	54%
White	2,342	323	79	13%	28%	24%	21%	15%	79%	55%	58%
Ethnicity unknown	321	321	76	14%	27%	23%	21%	14%	78%	55%	58%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	6	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	67	292	71	22%	36%	21%	15%	6%	72%	49%	52%
African American	16	271	72	31%	44%	19%	0%	6%	69%	45%	45%
White	19	288	93	32%	42%	0%	16%	11%	78%	48%	47%
Ethnicity unknown	70	308	87	21%	27%	23%	17%	11%	74%	52%	54%

Table 7.C.7 Demographic Summary for ELA, Grade Nine

				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	21,731	295	73	26%	32%	21%	14%	7%	58%	53%	51%
Male	14,624	293	74	27%	32%	20%	14%	7%	58%	53%	50%
Female	7,051	300	71	22%	32%	24%	15%	7%	57%	53%	53%
Gender unknown	56	296	75	27%	29%	20%	16%	9%	61%	53%	50%
American Indian	223	292	70	28%	30%	24%	13%	6%	58%	53%	50%
Asian American	488	305	73	18%	33%	25%	15%	9%	56%	54%	55%
Pacific Islander	96	293	72	30%	24%	23%	17%	6%	55%	52%	52%
Filipino	203	310	68	18%	31%	23%	23%	6%	59%	55%	56%
Hispanic	13,851	290	70	27%	33%	21%	13%	6%	56%	52%	50%
African American	2,391	285	70	31%	33%	19%	13%	5%	57%	51%	48%
White	3,997	316	81	19%	27%	23%	19%	13%	63%	58%	55%
Ethnicity unknown	482	310	77	19%	30%	24%	15%	12%	61%	56%	54%
English only	11,564	302	77	24%	30%	22%	16%	9%	60%	55%	52%
Initially fluent English prof.	530	313	76	18%	30%	23%	18%	11%	63%	57%	54%
English learner	8,024	277	61	31%	36%	20%	10%	2%	53%	49%	48%
Reclassified fluent English prof.	1,498	337	77	12%	21%	25%	26%	17%	65%	62%	60%
English prof. unknown	115	299	81	27%	31%	19%	12%	10%	60%	53%	51%
Autism	1,076	311	82	21%	29%	23%	15%	12%	59%	55%	56%
Deaf-blindness	5	–	–	–	–	–	–	–	–	–	–
Deafness	143	255	53	45%	38%	10%	4%	1%	47%	42%	45%
Emotional disturbance	786	301	86	28%	28%	19%	13%	12%	62%	55%	50%
Hard of hearing	201	295	71	23%	31%	24%	16%	5%	55%	52%	53%
MR/ID	400	237	48	59%	32%	7%	2%	1%	42%	40%	39%
Multiple disability	31	269	79	39%	29%	19%	6%	6%	49%	46%	47%
Orthopedic impairment	150	309	82	22%	27%	21%	19%	11%	57%	56%	54%
Other health impairment	2,183	310	78	20%	29%	22%	17%	11%	63%	57%	53%
Specific learning disability	15,486	294	71	26%	32%	22%	14%	6%	57%	53%	51%
Speech or language impairment	998	294	65	22%	35%	24%	14%	5%	56%	52%	52%
Traumatic brain injury	56	284	70	30%	29%	25%	11%	5%	51%	51%	49%
Visual impairment	46	295	90	35%	22%	17%	17%	9%	58%	54%	49%
Disability unknown	170	298	82	28%	28%	19%	14%	11%	59%	54%	50%
Not economically disadvantaged	5,525	311	79	21%	28%	22%	18%	11%	62%	56%	54%
Economically disadvantaged	16,035	290	70	27%	33%	21%	13%	6%	56%	52%	50%
Economic status unknown	171	296	73	24%	34%	21%	14%	7%	60%	52%	51%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	72	300	66	22%	25%	31%	17%	6%	63%	54%	51%
Asian American	197	314	73	15%	34%	23%	16%	12%	59%	55%	58%
Pacific Islander	34	307	78	24%	21%	24%	24%	9%	57%	56%	54%
Filipino	120	322	69	15%	26%	22%	31%	7%	61%	58%	59%
Hispanic	2,161	302	76	23%	31%	21%	16%	9%	60%	54%	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	Vocabulary	Reading for Understanding	Language
African American	646	291	74	30%	30%	18%	16%	5%	58%	52%	49%
White	2,124	325	82	16%	24%	23%	20%	15%	65%	59%	57%
Ethnicity unknown	171	326	79	15%	22%	28%	19%	15%	65%	59%	58%
Primary Ethnicity—Economically Disadvantaged											
American Indian	151	289	72	30%	32%	21%	11%	6%	56%	52%	49%
Asian American	288	300	73	21%	32%	26%	14%	7%	55%	54%	53%
Pacific Islander	61	286	68	34%	25%	23%	13%	5%	53%	50%	50%
Filipino	79	295	64	20%	38%	27%	10%	5%	56%	53%	52%
Hispanic	11,622	288	69	28%	33%	21%	12%	5%	55%	51%	50%
African American	1,729	283	68	31%	34%	19%	11%	5%	57%	51%	48%
White	1,847	306	78	22%	29%	22%	17%	10%	61%	56%	52%
Ethnicity unknown	258	299	70	20%	35%	23%	14%	8%	59%	54%	51%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	4	–	–	–	–	–	–	–	–	–	–
Hispanic	68	293	58	18%	40%	25%	16%	1%	58%	53%	51%
African American	16	293	73	25%	25%	25%	19%	6%	62%	50%	52%
White	26	282	72	35%	31%	19%	12%	4%	58%	50%	47%
Ethnicity unknown	53	310	92	25%	30%	17%	11%	17%	64%	56%	52%

Table 7.C.8 Demographic Summary for ELA, Grade Ten

				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	18,952	293	66	24%	33%	23%	14%	6%	58%	50%	49%
Male	12,628	290	67	26%	33%	22%	14%	5%	58%	50%	49%
Female	6,291	300	65	20%	33%	25%	16%	6%	59%	52%	51%
Gender unknown	33	276	64	33%	33%	27%	0%	6%	52%	47%	45%
American Indian	160	291	64	24%	34%	22%	17%	4%	58%	50%	49%
Asian American	491	299	66	22%	29%	26%	18%	5%	58%	51%	52%
Pacific Islander	96	297	63	22%	32%	25%	14%	7%	60%	51%	50%
Filipino	175	311	69	15%	33%	27%	17%	8%	61%	54%	54%
Hispanic	11,893	291	65	25%	33%	24%	14%	5%	57%	50%	49%
African American	2,086	282	62	28%	36%	21%	12%	3%	55%	48%	47%
White	3,642	306	70	20%	29%	25%	17%	9%	62%	53%	52%
Ethnicity unknown	409	301	71	21%	36%	20%	16%	8%	61%	52%	50%
English only	10,035	297	68	23%	32%	24%	15%	7%	60%	51%	50%
Initially fluent English prof.	412	303	72	22%	27%	25%	17%	9%	62%	52%	52%
English learner	7,193	280	58	28%	37%	22%	11%	2%	55%	48%	47%
Reclassified fluent English prof.	1,237	335	71	11%	19%	26%	28%	16%	67%	59%	59%
English prof. unknown	75	285	63	23%	44%	24%	3%	7%	53%	49%	48%
Autism	890	306	70	19%	30%	24%	18%	9%	60%	52%	53%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	143	249	45	52%	35%	10%	3%	0%	42%	41%	41%
Emotional disturbance	758	295	77	29%	28%	18%	15%	9%	58%	51%	49%
Hard of hearing	212	299	66	19%	35%	23%	17%	6%	56%	52%	51%
MR/ID	395	243	43	51%	38%	9%	1%	0%	42%	40%	39%
Multiple disability	34	267	52	29%	44%	26%	0%	0%	52%	45%	43%
Orthopedic impairment	150	302	70	21%	31%	22%	18%	7%	64%	51%	52%
Other health impairment	1,865	302	71	21%	30%	24%	17%	8%	61%	52%	51%
Specific learning disability	13,474	293	64	23%	33%	24%	14%	5%	58%	51%	49%
Speech or language impairment	770	292	64	23%	33%	26%	13%	5%	56%	50%	50%
Traumatic brain injury	66	287	63	24%	32%	24%	17%	3%	61%	48%	49%
Visual impairment	54	308	86	28%	24%	11%	28%	9%	64%	54%	51%
Disability unknown	140	292	73	31%	29%	17%	16%	8%	60%	50%	48%
Not economically disadvantaged	4,956	306	69	19%	30%	25%	18%	8%	62%	53%	52%
Economically disadvantaged	13,887	289	64	26%	34%	23%	13%	5%	57%	50%	48%
Economic status unknown	109	288	69	24%	41%	20%	8%	6%	54%	49%	48%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	49	302	70	22%	31%	18%	22%	6%	60%	51%	53%
Asian American	189	307	66	16%	29%	30%	19%	6%	59%	53%	54%
Pacific Islander	31	307	66	13%	32%	29%	19%	6%	64%	55%	51%
Filipino	101	323	76	15%	30%	24%	19%	13%	64%	56%	57%
Hispanic	1,943	303	68	19%	30%	26%	18%	7%	61%	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	Vocabulary	Reading for Understanding	Language
African American	517	292	67	25%	33%	22%	14%	6%	58%	51%	49%
White	1,970	312	71	17%	28%	25%	19%	11%	64%	54%	54%
Ethnicity unknown	156	308	72	19%	31%	21%	22%	7%	64%	53%	52%
Primary Ethnicity—Economically Disadvantaged											
American Indian	111	287	60	24%	35%	23%	14%	3%	58%	49%	48%
Asian American	300	295	66	25%	29%	24%	17%	5%	57%	51%	50%
Pacific Islander	65	292	62	26%	32%	23%	11%	8%	58%	50%	49%
Filipino	74	294	54	16%	38%	31%	14%	1%	57%	51%	51%
Hispanic	9,908	288	64	26%	34%	23%	13%	4%	57%	50%	48%
African American	1,556	279	60	29%	37%	20%	11%	2%	54%	48%	46%
White	1,659	298	69	23%	30%	24%	15%	7%	60%	51%	51%
Ethnicity unknown	214	295	71	23%	37%	17%	13%	9%	59%	51%	49%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	42	287	77	29%	40%	14%	10%	7%	55%	48%	49%
African American	13	253	72	54%	31%	8%	0%	8%	45%	40%	42%
White	13	293	55	15%	46%	23%	15%	0%	47%	52%	52%
Ethnicity unknown	39	299	62	13%	44%	28%	8%	8%	59%	53%	49%

Table 7.C.9 Demographic Summary for ELA, Grade Eleven

				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	16,343	281	56	29%	37%	22%	10%	3%	42%	47%	45%
Male	10,706	279	57	31%	36%	20%	10%	3%	42%	47%	44%
Female	5,603	285	55	25%	37%	25%	10%	3%	41%	48%	46%
Gender unknown	34	277	47	24%	41%	26%	9%	0%	42%	46%	44%
American Indian	159	283	66	33%	30%	21%	10%	6%	43%	47%	46%
Asian American	386	277	51	28%	40%	23%	7%	2%	38%	46%	45%
Pacific Islander	51	279	55	27%	45%	16%	10%	2%	40%	46%	46%
Filipino	136	290	55	18%	37%	30%	10%	4%	44%	49%	48%
Hispanic	10,129	278	54	29%	38%	22%	9%	2%	41%	47%	44%
African American	1,825	274	56	34%	37%	19%	9%	2%	40%	46%	43%
White	3,316	293	63	24%	32%	25%	13%	5%	45%	50%	47%
Ethnicity unknown	341	290	62	26%	33%	22%	13%	6%	45%	49%	47%
English only	8,924	285	60	27%	35%	23%	11%	4%	43%	48%	45%
Initially fluent English prof.	412	286	56	25%	39%	21%	11%	4%	43%	48%	46%
English learner	5,897	268	47	33%	41%	20%	5%	1%	39%	44%	42%
Reclassified fluent English prof.	1,035	314	60	14%	26%	30%	21%	9%	48%	55%	53%
English prof. unknown	75	277	54	27%	43%	20%	8%	3%	41%	46%	44%
Autism	658	296	64	24%	33%	24%	12%	7%	47%	49%	49%
Deaf-blindness	3	–	–	–	–	–	–	–	–	–	–
Deafness	159	253	43	45%	43%	9%	3%	0%	37%	40%	39%
Emotional disturbance	742	285	67	30%	33%	20%	10%	7%	44%	48%	45%
Hard of hearing	159	280	60	28%	43%	12%	14%	3%	39%	47%	45%
MR/ID	391	245	40	55%	35%	8%	2%	0%	34%	39%	37%
Multiple disability	32	255	44	38%	53%	6%	3%	0%	42%	41%	38%
Orthopedic impairment	138	287	60	28%	36%	18%	14%	4%	44%	48%	47%
Other health impairment	1,484	294	64	24%	34%	21%	15%	6%	45%	50%	47%
Specific learning disability	11,743	280	54	28%	37%	23%	9%	2%	41%	47%	44%
Speech or language impairment	637	278	52	28%	40%	22%	8%	2%	41%	46%	45%
Traumatic brain injury	61	280	59	28%	43%	18%	7%	5%	41%	47%	44%
Visual impairment	46	297	71	26%	33%	15%	15%	11%	46%	51%	47%
Disability unknown	90	275	52	26%	49%	18%	6%	2%	41%	46%	43%
Not economically disadvantaged	4,635	291	62	25%	33%	24%	13%	5%	44%	49%	47%
Economically disadvantaged	11,618	277	54	30%	38%	21%	8%	2%	41%	46%	44%
Economic status unknown	90	275	56	32%	40%	17%	9%	2%	40%	46%	44%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	51	298	75	25%	25%	29%	10%	10%	48%	50%	49%
Asian American	148	279	52	27%	42%	22%	5%	3%	39%	46%	45%
Pacific Islander	16	309	60	13%	31%	31%	19%	6%	50%	53%	51%
Filipino	79	290	49	20%	32%	35%	11%	1%	44%	48%	48%
Hispanic	1,851	287	59	25%	35%	24%	12%	4%	43%	49%	46%

				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	511	276	57	33%	35%	21%	9%	3%	42%	46%	44%
White	1,845	299	66	22%	31%	24%	15%	7%	46%	51%	49%
Ethnicity unknown	134	298	65	25%	32%	18%	18%	7%	47%	50%	49%
Primary Ethnicity—Economically Disadvantaged											
American Indian	108	276	60	36%	31%	18%	10%	5%	41%	45%	45%
Asian American	238	276	50	29%	39%	23%	8%	1%	38%	47%	44%
Pacific Islander	35	265	47	34%	51%	9%	6%	0%	35%	43%	43%
Filipino	56	291	62	16%	43%	23%	9%	9%	44%	49%	48%
Hispanic	8,248	276	52	30%	39%	21%	8%	2%	40%	46%	44%
African American	1,303	273	55	34%	38%	18%	9%	2%	40%	46%	42%
White	1,461	284	57	27%	35%	25%	10%	3%	44%	48%	45%
Ethnicity unknown	169	284	60	28%	32%	26%	9%	5%	44%	48%	45%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	0	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	30	266	56	43%	37%	17%	0%	3%	38%	44%	41%
African American	11	269	65	27%	45%	18%	9%	0%	32%	47%	42%
White	10	–	–	–	–	–	–	–	–	–	–
Ethnicity unknown	38	283	55	24%	39%	21%	13%	3%	44%	46%	47%

Table 7.C.10 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	17,267	322	69	7%	33%	24%	28%	7%	57%	63%	73%
Male	11,334	323	69	7%	33%	24%	28%	7%	58%	63%	73%
Female	5,749	321	67	7%	33%	25%	29%	6%	57%	63%	73%
Gender unknown	184	315	67	10%	34%	24%	28%	5%	56%	60%	72%
American Indian	158	323	70	8%	32%	23%	31%	6%	57%	64%	74%
Asian American	516	334	76	6%	30%	20%	32%	12%	62%	63%	73%
Pacific Islander	76	329	60	3%	33%	25%	34%	5%	60%	64%	76%
Filipino	165	327	67	6%	29%	23%	35%	7%	60%	64%	72%
Hispanic	10,968	321	68	7%	34%	25%	28%	7%	57%	63%	73%
African American	1,812	312	67	10%	37%	25%	23%	6%	54%	60%	71%
White	2,894	331	70	6%	29%	24%	32%	9%	60%	65%	74%
Ethnicity unknown	678	319	67	7%	35%	26%	26%	6%	56%	63%	72%
English only	9,167	324	69	7%	33%	24%	28%	8%	58%	63%	73%
Initially fluent English prof.	142	334	69	6%	26%	26%	32%	9%	62%	65%	75%
English learner	7,430	320	67	7%	34%	25%	28%	6%	57%	62%	72%
Reclassified fluent English prof.	67	325	78	7%	40%	12%	28%	12%	56%	66%	73%
English prof. unknown	461	322	69	8%	31%	26%	28%	7%	58%	63%	73%
Autism	1,637	319	74	9%	37%	20%	27%	8%	57%	61%	70%
Deaf-blindness	5	–	–	–	–	–	–	–	–	–	–
Deafness	75	310	69	12%	39%	23%	20%	7%	55%	58%	67%
Emotional disturbance	232	314	70	9%	37%	22%	25%	6%	55%	61%	70%
Hard of hearing	159	333	70	6%	27%	23%	35%	9%	62%	65%	74%
MR/ID	361	262	51	25%	55%	14%	6%	1%	40%	45%	56%
Multiple disability	20	311	86	10%	40%	20%	20%	10%	56%	54%	67%
Orthopedic impairment	133	313	72	10%	35%	25%	24%	6%	54%	61%	71%
Other health impairment	1,823	329	73	6%	32%	22%	31%	9%	59%	65%	74%
Specific learning disability	9,597	324	66	6%	32%	26%	29%	7%	58%	63%	74%
Speech or language impairment	2,546	325	69	7%	32%	25%	29%	8%	58%	63%	74%
Traumatic brain injury	44	330	66	7%	25%	27%	30%	11%	61%	65%	74%
Visual impairment	44	308	70	14%	36%	20%	23%	7%	55%	60%	64%
Disability unknown	591	315	65	8%	35%	26%	26%	5%	56%	60%	71%
Not economically disadvantaged	3,199	334	71	5%	28%	24%	33%	9%	61%	66%	75%
Economically disadvantaged	13,276	319	68	8%	34%	24%	27%	7%	57%	62%	72%
Economic status unknown	792	322	67	6%	32%	26%	28%	7%	58%	63%	73%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	24	342	72	4%	29%	13%	46%	8%	63%	66%	78%
Asian American	209	343	71	3%	26%	22%	38%	11%	66%	65%	74%
Pacific Islander	14	327	63	0%	36%	14%	43%	7%	61%	60%	77%
Filipino	85	327	72	8%	31%	19%	33%	9%	60%	64%	71%
Hispanic	1,091	334	72	6%	28%	24%	32%	10%	61%	66%	75%

				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	287	320	66	7%	34%	26%	28%	6%	58%	61%	72%
White	1,338	337	70	5%	27%	23%	36%	9%	62%	67%	75%
Ethnicity unknown	151	332	74	3%	32%	28%	26%	11%	60%	65%	73%
Primary Ethnicity—Economically Disadvantaged											
American Indian	130	318	65	8%	32%	25%	29%	5%	55%	63%	74%
Asian American	284	328	79	8%	33%	18%	27%	13%	60%	62%	73%
Pacific Islander	60	329	60	3%	33%	27%	32%	5%	60%	64%	75%
Filipino	71	328	63	4%	27%	27%	38%	4%	60%	66%	73%
Hispanic	9,535	320	68	7%	34%	25%	28%	6%	57%	62%	72%
African American	1,462	311	67	10%	38%	24%	22%	6%	54%	59%	71%
White	1,426	324	70	7%	31%	25%	29%	8%	58%	64%	73%
Ethnicity unknown	308	315	63	7%	37%	25%	27%	4%	55%	63%	72%
Primary Ethnicity—Unknown Economic Status											
American Indian	4	–	–	–	–	–	–	–	–	–	–
Asian American	23	335	76	9%	26%	26%	26%	13%	63%	64%	73%
Pacific Islander	2	–	–	–	–	–	–	–	–	–	–
Filipino	9	–	–	–	–	–	–	–	–	–	–
Hispanic	342	324	68	6%	32%	26%	28%	8%	58%	63%	73%
African American	63	305	53	8%	32%	40%	19%	2%	53%	60%	70%
White	130	333	65	2%	35%	20%	36%	8%	61%	67%	74%
Ethnicity unknown	219	316	67	10%	32%	26%	26%	6%	56%	60%	72%

Table 7.C.11 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	24,228	326	77	8%	28%	26%	28%	10%	63%	51%	52%
Male	15,758	326	78	9%	28%	26%	27%	10%	63%	50%	51%
Female	8,459	327	75	7%	27%	27%	29%	10%	63%	51%	53%
Gender unknown	11	336	94	18%	9%	18%	36%	18%	66%	53%	51%
American Indian	227	324	74	7%	30%	27%	27%	9%	63%	50%	50%
Asian American	727	342	89	8%	24%	22%	27%	19%	67%	53%	53%
Pacific Islander	104	322	77	9%	29%	25%	28%	10%	61%	51%	51%
Filipino	256	339	83	7%	24%	27%	27%	16%	66%	52%	53%
Hispanic	15,460	325	75	8%	28%	27%	27%	10%	63%	50%	52%
African American	2,582	311	75	12%	33%	25%	24%	7%	60%	48%	49%
White	4,359	337	80	7%	23%	25%	32%	12%	65%	52%	54%
Ethnicity unknown	513	329	75	7%	27%	26%	29%	11%	64%	51%	52%
English only	13,173	327	78	9%	27%	26%	28%	11%	63%	51%	52%
Initially fluent English prof.	206	346	78	8%	16%	29%	34%	13%	67%	55%	55%
English learner	10,607	325	75	8%	29%	27%	27%	10%	63%	50%	51%
Reclassified fluent English prof.	173	351	89	9%	20%	18%	33%	20%	68%	55%	56%
English prof. unknown	69	317	78	16%	23%	28%	20%	13%	61%	51%	47%
Autism	1,982	324	86	12%	28%	23%	25%	13%	62%	51%	50%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–
Deafness	88	342	81	5%	27%	31%	22%	16%	66%	54%	53%
Emotional disturbance	511	305	79	15%	30%	29%	19%	7%	58%	47%	49%
Hard of hearing	180	337	80	9%	25%	20%	33%	13%	65%	54%	53%
MR/ID	386	256	61	30%	49%	15%	6%	1%	46%	39%	43%
Multiple disability	47	291	83	26%	30%	26%	13%	6%	55%	44%	48%
Orthopedic impairment	186	304	76	16%	33%	20%	25%	6%	57%	48%	50%
Other health impairment	2,563	327	78	9%	26%	25%	30%	10%	63%	51%	52%
Specific learning disability	14,469	328	74	7%	27%	27%	28%	10%	64%	51%	52%
Speech or language impairment	2,801	332	78	7%	26%	26%	29%	12%	65%	51%	52%
Traumatic brain injury	61	296	80	18%	38%	20%	16%	8%	59%	42%	47%
Visual impairment	60	300	72	12%	40%	23%	18%	7%	60%	44%	46%
Disability unknown	894	333	70	5%	26%	28%	32%	9%	65%	52%	53%
Not economically disadvantaged	5,092	339	80	7%	23%	25%	31%	14%	66%	53%	54%
Economically disadvantaged	19,029	323	75	8%	29%	27%	27%	9%	62%	50%	51%
Economic status unknown	107	317	77	10%	31%	25%	23%	10%	61%	51%	49%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	50	339	69	6%	20%	28%	36%	10%	68%	52%	52%
Asian American	314	354	95	8%	20%	21%	27%	24%	69%	54%	55%
Pacific Islander	26	323	82	12%	27%	23%	27%	12%	61%	53%	50%
Filipino	125	337	84	7%	24%	30%	23%	16%	66%	52%	53%
Hispanic	1,754	334	76	7%	24%	26%	30%	12%	65%	52%	53%

				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	440	315	75	11%	31%	26%	24%	8%	61%	49%	49%
White	2,185	344	81	6%	21%	23%	34%	15%	67%	54%	55%
Ethnicity unknown	198	347	81	5%	23%	21%	32%	18%	68%	53%	55%
Primary Ethnicity—Economically Disadvantaged											
American Indian	176	319	74	7%	34%	27%	24%	9%	62%	49%	50%
Asian American	412	333	82	8%	27%	24%	27%	15%	66%	52%	51%
Pacific Islander	77	323	76	8%	29%	26%	29%	9%	62%	51%	52%
Filipino	129	341	83	7%	23%	24%	29%	16%	67%	52%	52%
Hispanic	13,662	324	75	8%	29%	27%	27%	9%	63%	50%	52%
African American	2,132	310	74	12%	33%	24%	24%	7%	60%	48%	49%
White	2,148	329	78	8%	26%	26%	29%	10%	64%	51%	52%
Ethnicity unknown	293	318	69	8%	30%	29%	27%	6%	62%	49%	51%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	1	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	2	–	–	–	–	–	–	–	–	–	–
Hispanic	44	312	84	7%	41%	23%	18%	11%	59%	49%	48%
African American	10	–	–	–	–	–	–	–	–	–	–
White	26	339	70	8%	15%	35%	31%	12%	67%	54%	52%
Ethnicity unknown	22	315	73	9%	36%	23%	18%	14%	61%	51%	46%

Table 7.C.12 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	26,565	341	76	4%	26%	27%	29%	14%	63%	64%	53%
Male	17,064	339	77	5%	27%	26%	27%	14%	62%	63%	53%
Female	9,482	345	73	4%	23%	27%	32%	14%	64%	65%	53%
Gender unknown	19	309	62	5%	37%	37%	16%	5%	55%	57%	47%
American Indian	256	336	79	5%	28%	28%	24%	15%	62%	62%	51%
Asian American	727	358	83	4%	22%	21%	32%	21%	67%	66%	56%
Pacific Islander	125	335	71	6%	20%	38%	27%	9%	63%	61%	52%
Filipino	286	349	71	4%	21%	26%	34%	16%	65%	66%	54%
Hispanic	16,715	342	75	4%	25%	27%	30%	14%	63%	64%	53%
African American	2,938	323	73	7%	32%	28%	25%	9%	59%	59%	50%
White	4,936	345	78	4%	25%	25%	30%	16%	64%	64%	55%
Ethnicity unknown	582	337	80	6%	28%	25%	27%	14%	62%	62%	53%
English only	14,377	339	76	5%	27%	26%	28%	14%	62%	63%	53%
Initially fluent English prof.	262	360	76	2%	22%	23%	30%	23%	66%	68%	58%
English learner	11,501	343	74	4%	25%	27%	30%	14%	64%	64%	53%
Reclassified fluent English prof.	372	371	80	2%	16%	24%	33%	25%	70%	69%	59%
English prof. unknown	53	308	72	9%	38%	32%	15%	6%	53%	57%	48%
Autism	1,852	337	85	6%	30%	23%	25%	16%	62%	61%	53%
Deaf-blindness	2	–	–	–	–	–	–	–	–	–	–
Deafness	98	344	85	5%	30%	18%	28%	19%	63%	64%	54%
Emotional disturbance	684	311	74	11%	35%	24%	22%	8%	56%	57%	46%
Hard of hearing	208	352	77	3%	22%	26%	29%	19%	66%	64%	56%
MR/ID	476	272	55	14%	57%	19%	9%	1%	47%	45%	41%
Multiple disability	32	284	65	9%	59%	9%	22%	0%	50%	47%	44%
Orthopedic impairment	175	325	71	6%	30%	29%	25%	10%	61%	58%	52%
Other health impairment	2,772	341	76	5%	26%	26%	29%	15%	63%	63%	53%
Specific learning disability	17,006	344	74	4%	24%	28%	30%	14%	64%	64%	53%
Speech or language impairment	2,327	347	78	4%	24%	26%	30%	16%	65%	65%	53%
Traumatic brain injury	64	330	80	8%	28%	22%	31%	11%	63%	58%	51%
Visual impairment	65	334	80	8%	25%	29%	26%	12%	61%	59%	57%
Disability unknown	804	345	72	3%	23%	27%	33%	13%	63%	66%	54%
Not economically disadvantaged	5,622	350	78	4%	23%	25%	30%	18%	65%	65%	55%
Economically disadvantaged	20,845	339	75	4%	26%	27%	29%	13%	63%	63%	52%
Economic status unknown	98	312	65	6%	42%	26%	21%	5%	55%	57%	49%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	54	355	79	2%	19%	33%	20%	26%	67%	67%	52%
Asian American	296	361	81	3%	20%	23%	32%	22%	69%	66%	56%
Pacific Islander	31	341	78	6%	23%	35%	23%	13%	63%	61%	55%
Filipino	129	354	72	3%	20%	26%	33%	18%	66%	67%	56%
Hispanic	1,884	347	77	4%	22%	27%	31%	16%	64%	65%	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	Number Sense	Algebra and Data Analysis	Measurement and Geometry
African American	497	328	76	5%	32%	26%	27%	10%	60%	60%	52%
White	2,506	354	79	3%	23%	23%	31%	20%	66%	66%	57%
Ethnicity unknown	225	347	78	4%	23%	26%	31%	16%	65%	63%	56%
Primary Ethnicity—Economically Disadvantaged											
American Indian	202	332	79	6%	31%	26%	25%	12%	61%	61%	51%
Asian American	424	357	85	4%	24%	21%	32%	21%	66%	67%	56%
Pacific Islander	93	333	69	5%	19%	40%	28%	8%	62%	61%	51%
Filipino	156	345	70	5%	21%	26%	35%	14%	65%	65%	52%
Hispanic	14,798	342	74	4%	25%	27%	30%	14%	63%	64%	53%
African American	2,424	322	72	7%	32%	28%	24%	9%	59%	59%	50%
White	2,411	336	75	5%	27%	27%	28%	13%	62%	62%	53%
Ethnicity unknown	337	331	81	7%	31%	23%	26%	13%	60%	61%	52%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	7	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	33	317	69	6%	36%	27%	24%	6%	58%	57%	49%
African American	17	307	58	6%	53%	18%	24%	0%	53%	58%	48%
White	19	303	75	5%	47%	26%	16%	5%	48%	58%	51%
Ethnicity unknown	20	316	54	0%	40%	40%	15%	5%	58%	57%	50%

Table 7.C.13 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	27,348	319	81	14%	31%	23%	23%	9%	53%	55%	48%
Male	17,732	317	82	15%	31%	23%	22%	9%	53%	55%	48%
Female	9,598	322	78	12%	31%	24%	24%	9%	53%	57%	48%
Gender unknown	18	295	84	28%	33%	11%	22%	6%	48%	51%	48%
American Indian	293	314	83	15%	35%	22%	18%	10%	52%	54%	47%
Asian American	736	332	89	11%	30%	24%	23%	13%	55%	58%	49%
Pacific Islander	114	308	77	18%	33%	24%	19%	5%	50%	54%	47%
Filipino	288	316	78	14%	32%	25%	21%	9%	51%	56%	49%
Hispanic	17,259	317	79	14%	32%	24%	22%	8%	53%	55%	48%
African American	3,120	302	77	19%	36%	22%	18%	6%	50%	52%	45%
White	4,979	335	85	11%	26%	23%	28%	12%	56%	58%	51%
Ethnicity unknown	559	323	81	14%	30%	23%	25%	10%	53%	57%	48%
English only	14,881	320	82	14%	30%	23%	23%	9%	53%	56%	48%
Initially fluent English prof.	295	338	76	7%	24%	27%	31%	11%	57%	58%	52%
English learner	11,360	314	78	14%	34%	24%	21%	8%	52%	55%	48%
Reclassified fluent English prof.	757	362	81	6%	18%	24%	32%	20%	61%	63%	53%
English prof. unknown	55	305	90	24%	27%	16%	22%	11%	50%	52%	50%
Autism	1,694	316	89	18%	31%	19%	22%	11%	52%	55%	48%
Deaf-blindness	8	–	–	–	–	–	–	–	–	–	–
Deafness	117	301	87	22%	40%	15%	11%	12%	48%	53%	48%
Emotional disturbance	753	303	81	21%	32%	21%	20%	6%	51%	52%	46%
Hard of hearing	204	334	76	8%	30%	24%	28%	9%	55%	59%	50%
MR/ID	465	247	56	43%	42%	12%	2%	1%	40%	42%	38%
Multiple disability	37	279	89	32%	32%	19%	11%	5%	45%	49%	42%
Orthopedic impairment	197	315	88	19%	31%	19%	22%	10%	53%	54%	47%
Other health impairment	2,790	325	83	13%	29%	23%	25%	10%	55%	56%	49%
Specific learning disability	18,259	321	79	13%	31%	24%	23%	9%	53%	56%	49%
Speech or language impairment	1,972	319	79	13%	31%	23%	24%	9%	52%	56%	48%
Traumatic brain injury	72	299	89	25%	32%	17%	18%	8%	50%	52%	45%
Visual impairment	65	316	82	14%	34%	25%	17%	11%	54%	55%	44%
Disability unknown	715	321	79	12%	29%	29%	21%	9%	53%	56%	48%
Not economically disadvantaged	5,679	334	84	11%	27%	23%	27%	12%	56%	58%	50%
Economically disadvantaged	21,567	315	79	15%	32%	23%	22%	8%	52%	55%	48%
Economic status unknown	102	307	82	19%	32%	22%	19%	9%	51%	52%	49%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	64	327	83	8%	38%	23%	16%	16%	56%	55%	49%
Asian American	282	337	92	10%	29%	24%	22%	15%	55%	60%	49%
Pacific Islander	32	316	78	13%	41%	22%	19%	6%	52%	55%	48%
Filipino	147	324	82	14%	30%	24%	20%	12%	52%	57%	51%
Hispanic	1,967	330	82	12%	28%	23%	27%	11%	55%	58%	50%

				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	525	311	80	16%	35%	20%	20%	9%	52%	54%	47%
White	2,475	342	85	10%	24%	23%	30%	14%	57%	60%	51%
Ethnicity unknown	187	330	87	14%	28%	19%	26%	13%	54%	58%	48%
Primary Ethnicity—Economically Disadvantaged											
American Indian	229	310	83	17%	34%	22%	19%	8%	51%	54%	46%
Asian American	451	329	86	11%	30%	24%	23%	12%	55%	57%	49%
Pacific Islander	81	305	77	21%	30%	25%	20%	5%	49%	54%	46%
Filipino	141	308	74	13%	34%	25%	22%	6%	50%	54%	48%
Hispanic	15,250	315	78	14%	32%	24%	22%	8%	52%	55%	48%
African American	2,581	300	76	19%	36%	22%	18%	5%	50%	52%	45%
White	2,487	328	84	13%	28%	23%	25%	11%	55%	57%	50%
Ethnicity unknown	347	318	76	13%	31%	24%	24%	7%	53%	56%	49%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	42	304	75	14%	40%	24%	14%	7%	50%	50%	54%
African American	14	302	76	21%	29%	29%	14%	7%	49%	55%	40%
White	17	280	88	35%	35%	0%	24%	6%	46%	48%	43%
Ethnicity unknown	25	326	94	16%	20%	24%	24%	16%	56%	57%	46%

Table 7.C.14 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	27,142	298	85	26%	30%	20%	19%	5%	46%	49%	41%
Male	17,758	297	88	27%	30%	19%	18%	6%	46%	49%	42%
Female	9,377	299	81	24%	31%	21%	19%	4%	46%	50%	40%
Gender unknown	7	–	–	–	–	–	–	–	–	–	–
American Indian	259	299	90	27%	30%	18%	19%	7%	46%	49%	41%
Asian American	740	325	96	19%	27%	21%	22%	11%	50%	54%	43%
Pacific Islander	132	286	76	27%	33%	23%	13%	3%	45%	48%	37%
Filipino	273	308	97	26%	28%	19%	18%	10%	47%	52%	40%
Hispanic	17,104	295	83	27%	31%	20%	18%	5%	46%	49%	41%
African American	3,014	277	79	33%	34%	17%	13%	3%	44%	46%	38%
White	5,065	313	90	21%	28%	21%	23%	8%	47%	51%	44%
Ethnicity unknown	555	300	85	24%	31%	22%	18%	6%	46%	50%	42%
English only	14,781	299	86	26%	30%	19%	19%	6%	46%	49%	42%
Initially fluent English prof.	493	310	87	20%	31%	20%	23%	6%	47%	51%	42%
English learner	10,702	292	82	27%	32%	20%	17%	4%	45%	48%	40%
Reclassified fluent English prof.	1,097	336	90	15%	23%	22%	28%	12%	50%	56%	45%
English prof. unknown	69	274	82	35%	39%	12%	12%	3%	42%	44%	42%
Autism	1,511	302	94	27%	30%	16%	18%	8%	46%	50%	41%
Deaf-blindness	2	–	–	–	–	–	–	–	–	–	–
Deafness	130	299	88	25%	35%	18%	16%	5%	46%	49%	42%
Emotional disturbance	904	284	88	34%	32%	17%	12%	6%	43%	47%	41%
Hard of hearing	213	312	89	18%	34%	17%	21%	9%	48%	52%	41%
MR/ID	464	236	62	57%	29%	9%	4%	1%	38%	39%	34%
Multiple disability	30	265	77	37%	43%	3%	17%	0%	41%	44%	37%
Orthopedic impairment	189	287	88	33%	29%	20%	13%	5%	44%	48%	39%
Other health impairment	2,888	299	86	26%	30%	19%	19%	5%	46%	49%	42%
Specific learning disability	18,363	299	84	25%	30%	20%	19%	5%	46%	49%	41%
Speech or language impairment	1,658	302	87	24%	31%	20%	19%	6%	46%	50%	41%
Traumatic brain injury	79	285	94	30%	37%	23%	3%	8%	42%	47%	42%
Visual impairment	77	302	85	26%	30%	19%	19%	5%	45%	52%	41%
Disability unknown	634	297	77	24%	31%	23%	20%	3%	46%	48%	42%
Not economically disadvantaged	6,148	313	90	21%	29%	20%	22%	8%	47%	52%	44%
Economically disadvantaged	20,894	293	84	27%	31%	20%	18%	5%	45%	48%	40%
Economic status unknown	100	275	76	32%	39%	16%	11%	2%	41%	46%	42%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	70	317	90	20%	30%	20%	23%	7%	48%	54%	42%
Asian American	279	333	97	14%	29%	21%	23%	13%	52%	54%	44%
Pacific Islander	36	301	89	25%	33%	14%	19%	8%	47%	50%	39%
Filipino	140	318	102	24%	27%	16%	21%	11%	48%	53%	41%
Hispanic	2,176	307	86	22%	29%	21%	21%	6%	46%	51%	42%

				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	561	288	88	30%	32%	18%	16%	5%	45%	48%	40%
White	2,672	321	92	19%	27%	20%	24%	10%	48%	52%	46%
Ethnicity unknown	214	309	85	20%	31%	22%	21%	6%	47%	51%	42%
Primary Ethnicity—Economically Disadvantaged											
American Indian	188	293	89	30%	29%	18%	17%	6%	46%	48%	40%
Asian American	458	320	96	21%	25%	21%	22%	10%	49%	53%	43%
Pacific Islander	96	280	70	28%	33%	27%	10%	1%	45%	47%	36%
Filipino	131	300	90	27%	29%	22%	15%	8%	46%	50%	39%
Hispanic	14,880	294	83	27%	31%	20%	18%	4%	45%	48%	40%
African American	2,440	275	77	34%	34%	17%	12%	3%	43%	45%	38%
White	2,377	305	87	24%	28%	21%	21%	6%	47%	50%	43%
Ethnicity unknown	324	296	84	26%	30%	22%	16%	6%	46%	49%	41%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	2	–	–	–	–	–	–	–	–	–	–
Hispanic	48	271	68	33%	42%	13%	13%	0%	39%	45%	44%
African American	13	261	65	38%	38%	15%	8%	0%	38%	46%	32%
White	16	297	100	25%	19%	44%	6%	6%	43%	50%	44%
Ethnicity unknown	17	289	84	29%	41%	6%	18%	6%	44%	47%	43%

Table 7.C.15 Demographic Summary for Algebra I

				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 Properties, Operations, and Linear Equations	Graphing and Systems of Linear Equations	Quadratics and Polynomials	Functions and Rational Expressions
All valid scores	31,124	290	55	22%	38%	25%	11%	3%	56%	45%	47%	48%
Male	20,344	287	55	24%	38%	24%	10%	3%	55%	44%	46%	47%
Female	10,696	296	54	18%	37%	28%	13%	3%	57%	45%	49%	50%
Gender unknown	84	292	65	29%	32%	20%	13%	6%	56%	47%	45%	49%
American Indian	270	280	49	25%	46%	20%	7%	2%	52%	44%	44%	45%
Asian American	646	317	69	14%	31%	26%	17%	12%	63%	51%	53%	54%
Pacific Islander	136	299	61	19%	36%	23%	18%	4%	59%	46%	49%	50%
Filipino	275	307	59	14%	35%	24%	22%	5%	61%	49%	51%	50%
Hispanic	19,618	290	55	22%	38%	25%	11%	3%	56%	45%	47%	48%
African American	3,922	281	50	26%	41%	23%	8%	2%	53%	43%	45%	45%
White	5,526	294	55	20%	37%	27%	13%	3%	58%	46%	47%	49%
Ethnicity unknown	731	293	56	22%	35%	27%	12%	4%	58%	46%	46%	48%
English only	16,897	289	54	22%	38%	25%	11%	3%	56%	45%	46%	47%
Initially fluent English prof.	777	295	59	20%	39%	24%	12%	5%	59%	46%	47%	48%
English learner	11,279	287	54	24%	40%	24%	10%	3%	54%	44%	46%	47%
Reclassified fluent English prof.	2,007	315	60	12%	28%	33%	20%	8%	65%	49%	52%	55%
English prof. unknown	164	291	59	25%	37%	20%	15%	4%	56%	47%	45%	48%
Autism	1,396	301	61	18%	35%	26%	15%	6%	58%	48%	49%	52%
Deaf-blindness	2	–	–	–	–	–	–	–	–	–	–	–
Deafness	139	302	56	17%	35%	29%	14%	6%	56%	50%	52%	49%
Emotional disturbance	1,245	275	48	30%	41%	21%	7%	1%	52%	42%	42%	44%
Hard of hearing	317	312	59	13%	32%	28%	21%	6%	60%	49%	54%	54%
MR/ID	596	253	37	47%	41%	10%	1%	0%	40%	39%	40%	37%
Multiple disability	41	282	67	34%	37%	15%	10%	5%	49%	46%	46%	43%
Orthopedic impairment	219	290	57	24%	37%	25%	11%	3%	57%	44%	47%	48%
Other health impairment	3,300	291	55	21%	39%	25%	12%	3%	58%	45%	46%	47%
Specific learning disability	22,181	290	54	22%	38%	26%	11%	3%	56%	45%	47%	48%
Speech or language impairment	1,239	299	57	17%	35%	29%	15%	4%	58%	47%	49%	50%
Traumatic brain injury	89	282	54	26%	37%	26%	10%	1%	55%	41%	45%	47%
Visual impairment	86	291	58	26%	35%	23%	12%	5%	58%	45%	45%	49%
Disability unknown	274	284	58	29%	35%	21%	11%	4%	53%	46%	44%	47%
Not economically disadvantaged	8,065	296	57	19%	36%	27%	13%	4%	58%	46%	48%	49%
Economically disadvantaged	22,840	288	54	23%	39%	25%	11%	3%	55%	44%	46%	47%
Economic status unknown	219	289	56	23%	41%	20%	12%	4%	56%	47%	45%	47%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	94	284	50	23%	51%	16%	6%	3%	53%	45%	45%	46%
Asian American	271	320	71	14%	27%	30%	16%	14%	64%	52%	54%	53%
Pacific Islander	46	321	68	11%	30%	24%	26%	9%	63%	50%	54%	57%
Filipino	155	309	60	14%	35%	23%	25%	5%	62%	49%	52%	51%

				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 Properties, Operations, and Linear Equations	Graphing and Systems of Linear Equations	Quadratics and Polynomials	Functions and Rational Expressions
Hispanic	3,208	293	56	21%	36%	27%	13%	3%	57%	45%	48%	48%
African American	1,052	283	51	25%	40%	25%	8%	2%	54%	43%	46%	45%
White	2,959	299	56	17%	35%	29%	15%	4%	60%	47%	48%	51%
Ethnicity unknown	280	302	59	20%	31%	29%	16%	5%	62%	48%	48%	50%
Primary Ethnicity—Economically Disadvantaged												
American Indian	176	277	48	26%	43%	22%	8%	1%	51%	43%	44%	45%
Asian American	369	315	68	13%	34%	24%	17%	11%	62%	50%	52%	55%
Pacific Islander	89	288	53	24%	38%	22%	15%	1%	57%	44%	46%	47%
Filipino	120	304	57	15%	36%	25%	18%	6%	61%	49%	50%	49%
Hispanic	16,332	289	54	23%	38%	25%	11%	3%	55%	45%	47%	48%
African American	2,845	280	50	27%	41%	22%	8%	1%	52%	42%	45%	45%
White	2,542	288	52	23%	40%	25%	11%	2%	56%	44%	46%	47%
Ethnicity unknown	367	286	53	25%	37%	27%	8%	3%	55%	44%	45%	47%
Primary Ethnicity—Unknown Economic Status												
American Indian	0	–	–	–	–	–	–	–	–	–	–	–
Asian American	6	–	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–	–
Hispanic	78	288	53	19%	45%	24%	9%	3%	55%	46%	45%	47%
African American	25	274	48	36%	36%	16%	12%	0%	53%	42%	41%	42%
White	25	292	62	28%	32%	24%	12%	4%	54%	48%	47%	49%
Ethnicity unknown	84	294	60	21%	40%	18%	14%	6%	58%	48%	45%	48%

Table 7.C.16 Demographic Summary for Geometry

				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	Logic and Geometric Proofs	Volume and Area Formulas	Angle Relationships, Constructions, and Lines	Trigonometry
All valid scores	8,247	288	47	23%	40%	26%	9%	2%	50%	49%	46%	45%
Male	5,254	288	49	25%	39%	25%	10%	2%	50%	50%	46%	45%
Female	2,982	289	42	21%	43%	27%	8%	1%	51%	49%	46%	44%
Gender unknown	11	291	60	18%	55%	18%	0%	9%	47%	55%	45%	46%
American Indian	45	297	47	16%	31%	40%	11%	2%	54%	51%	48%	48%
Asian American	218	307	49	11%	36%	38%	12%	3%	55%	57%	51%	47%
Pacific Islander	39	290	47	21%	41%	28%	8%	3%	51%	53%	42%	46%
Filipino	79	309	58	11%	34%	38%	10%	6%	56%	57%	49%	50%
Hispanic	5,437	285	45	25%	42%	24%	8%	1%	49%	48%	45%	44%
African American	962	274	39	33%	43%	20%	4%	0%	46%	45%	43%	40%
White	1,318	307	52	14%	34%	32%	16%	4%	56%	56%	50%	49%
Ethnicity unknown	149	292	53	21%	40%	24%	12%	3%	50%	52%	49%	44%
English only	4,022	292	48	22%	39%	27%	10%	2%	51%	51%	47%	45%
Initially fluent English prof.	208	296	44	20%	31%	38%	11%	1%	53%	53%	47%	46%
English learner	3,207	278	40	28%	45%	21%	5%	1%	47%	45%	43%	42%
Reclassified fluent English prof.	778	311	51	12%	31%	37%	16%	4%	56%	58%	51%	51%
English prof. unknown	32	279	48	22%	56%	16%	3%	3%	48%	42%	46%	43%
Autism	357	304	60	18%	33%	26%	17%	5%	54%	55%	50%	50%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–	–
Deafness	62	310	60	13%	40%	21%	23%	3%	55%	56%	55%	46%
Emotional disturbance	257	288	54	29%	37%	21%	9%	4%	49%	50%	44%	45%
Hard of hearing	94	301	48	18%	35%	28%	17%	2%	54%	57%	48%	46%
MR/ID	77	258	34	48%	44%	6%	1%	0%	40%	40%	38%	37%
Multiple disability	12	274	25	33%	50%	17%	0%	0%	44%	45%	45%	41%
Orthopedic impairment	50	288	46	20%	46%	22%	10%	2%	49%	52%	46%	43%
Other health impairment	816	296	52	22%	36%	26%	12%	3%	52%	52%	47%	46%
Specific learning disability	6,156	286	44	24%	41%	26%	8%	1%	50%	49%	45%	44%
Speech or language impairment	279	294	45	17%	42%	27%	12%	1%	52%	52%	49%	45%
Traumatic brain injury	29	276	33	31%	38%	31%	0%	0%	43%	51%	40%	46%
Visual impairment	21	305	43	14%	29%	43%	14%	0%	54%	63%	47%	47%
Disability unknown	37	291	55	16%	51%	22%	5%	5%	48%	50%	47%	47%
Not economically disadvantaged	2,104	299	51	19%	35%	30%	13%	3%	53%	54%	48%	47%
Economically disadvantaged	6,096	285	45	25%	42%	24%	7%	1%	49%	48%	45%	44%
Economic status unknown	47	273	45	32%	49%	13%	4%	2%	45%	43%	43%	41%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	18	324	46	6%	17%	50%	22%	6%	62%	58%	52%	58%
Asian American	72	310	43	10%	33%	38%	18%	1%	56%	60%	52%	48%
Pacific Islander	18	299	47	17%	33%	39%	6%	6%	55%	58%	42%	49%
Filipino	43	317	68	14%	28%	35%	14%	9%	58%	58%	51%	52%
Hispanic	866	291	47	23%	37%	28%	10%	2%	51%	51%	45%	45%

				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	Logic and Geometric Proofs	Volume and Area Formulas	Angle Relationships, Constructions, and Lines	Trigonometry
African American	250	281	44	29%	39%	24%	7%	1%	48%	47%	45%	42%
White	784	311	53	13%	31%	34%	17%	5%	57%	58%	51%	50%
Ethnicity unknown	53	297	51	21%	36%	26%	15%	2%	51%	56%	50%	44%
Primary Ethnicity—Economically Disadvantaged												
American Indian	27	280	40	22%	41%	33%	4%	0%	48%	46%	44%	41%
Asian American	145	305	51	12%	37%	38%	10%	3%	54%	56%	51%	47%
Pacific Islander	21	283	48	24%	48%	19%	10%	0%	48%	49%	43%	43%
Filipino	36	300	44	8%	42%	42%	6%	3%	53%	56%	47%	48%
Hispanic	4,552	284	44	25%	42%	24%	7%	1%	49%	48%	45%	44%
African American	703	272	36	34%	44%	19%	4%	0%	45%	44%	42%	39%
White	530	300	49	16%	39%	29%	14%	3%	54%	54%	48%	47%
Ethnicity unknown	82	290	54	22%	39%	23%	12%	4%	50%	51%	48%	44%
Primary Ethnicity—Unknown Economic Status												
American Indian	0	–	–	–	–	–	–	–	–	–	–	–
Asian American	1	–	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–	–
Hispanic	19	263	28	42%	47%	11%	0%	0%	41%	39%	40%	40%
African American	9	–	–	–	–	–	–	–	–	–	–	–
White	4	–	–	–	–	–	–	–	–	–	–	–
Ethnicity unknown	14	285	61	14%	57%	21%	0%	7%	49%	43%	47%	45%

Table 7.C.17 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	27,709	345	56	3%	20%	31%	33%	14%	60%	63%	61%
Male	18,164	346	57	3%	20%	29%	33%	15%	60%	63%	62%
Female	9,526	342	52	2%	20%	34%	33%	11%	59%	62%	61%
Gender unknown	19	327	34	0%	26%	47%	26%	0%	55%	54%	62%
American Indian	246	351	58	4%	17%	25%	37%	17%	60%	65%	64%
Asian American	840	342	57	3%	22%	29%	32%	14%	59%	61%	61%
Pacific Islander	122	344	53	3%	18%	30%	34%	14%	60%	64%	60%
Filipino	314	344	51	2%	20%	29%	40%	10%	60%	63%	61%
Hispanic	17,588	341	54	3%	21%	33%	32%	12%	59%	62%	61%
African American	2,858	332	53	4%	25%	33%	29%	9%	57%	60%	57%
White	5,141	363	59	2%	14%	25%	36%	24%	64%	68%	66%
Ethnicity unknown	600	350	60	3%	18%	30%	31%	18%	61%	65%	62%
English only	14,748	351	58	2%	18%	29%	34%	17%	61%	65%	63%
Initially fluent English prof.	271	360	53	1%	14%	27%	39%	20%	63%	68%	66%
English learner	12,237	337	52	3%	23%	34%	31%	10%	58%	60%	60%
Reclassified fluent English prof.	402	370	58	2%	8%	21%	41%	28%	66%	70%	68%
English prof. unknown	51	336	54	2%	20%	37%	33%	8%	58%	59%	61%
Autism	1,882	340	62	4%	25%	28%	28%	15%	58%	61%	60%
Deaf-blindness	4	–	–	–	–	–	–	–	–	–	–
Deafness	113	306	53	12%	37%	28%	19%	4%	52%	49%	51%
Emotional disturbance	672	338	62	5%	26%	25%	29%	16%	59%	61%	58%
Hard of hearing	224	333	50	3%	25%	33%	31%	9%	58%	58%	58%
MR/ID	460	290	45	13%	49%	29%	7%	2%	46%	47%	45%
Multiple disability	32	300	53	6%	56%	19%	13%	6%	48%	51%	47%
Orthopedic impairment	174	330	54	9%	22%	30%	32%	8%	55%	60%	57%
Other health impairment	2,769	353	57	2%	17%	27%	35%	18%	62%	65%	63%
Specific learning disability	17,932	347	54	2%	18%	32%	34%	14%	60%	63%	62%
Speech or language impairment	2,547	342	53	2%	20%	33%	33%	12%	59%	62%	61%
Traumatic brain injury	63	338	67	8%	27%	22%	25%	17%	56%	61%	60%
Visual impairment	66	349	55	2%	20%	29%	36%	14%	60%	65%	62%
Disability unknown	771	345	52	2%	18%	33%	34%	13%	60%	62%	62%
Not economically disadvantaged	5,885	360	59	2%	14%	26%	36%	22%	63%	67%	65%
Economically disadvantaged	21,736	341	54	3%	21%	32%	32%	12%	59%	62%	60%
Economic status unknown	88	333	51	2%	27%	33%	30%	8%	56%	59%	60%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	49	371	49	0%	10%	18%	45%	27%	64%	71%	70%
Asian American	343	346	59	3%	21%	29%	31%	17%	61%	63%	61%
Pacific Islander	32	337	47	0%	19%	47%	22%	13%	58%	63%	58%
Filipino	151	350	51	1%	17%	29%	41%	12%	60%	65%	63%
Hispanic	1,987	355	56	2%	15%	28%	37%	18%	62%	66%	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	487	337	57	4%	22%	32%	31%	11%	57%	62%	59%
White	2,595	370	60	1%	12%	22%	37%	28%	66%	69%	68%
Ethnicity unknown	241	360	61	3%	12%	27%	35%	22%	63%	67%	65%
Primary Ethnicity—Economically Disadvantaged											
American Indian	197	346	60	5%	19%	27%	35%	15%	59%	64%	62%
Asian American	491	339	56	4%	22%	30%	32%	13%	58%	60%	60%
Pacific Islander	89	345	55	4%	18%	25%	38%	15%	61%	64%	60%
Filipino	162	337	49	2%	23%	28%	39%	7%	59%	60%	60%
Hispanic	15,571	340	53	3%	21%	33%	32%	11%	58%	61%	60%
African American	2,358	331	52	3%	26%	33%	29%	8%	57%	60%	56%
White	2,528	356	57	2%	15%	27%	36%	20%	62%	66%	64%
Ethnicity unknown	340	344	59	3%	22%	31%	28%	16%	59%	63%	60%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	6	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	30	326	63	7%	37%	27%	13%	17%	54%	54%	59%
African American	13	332	38	0%	15%	46%	38%	0%	56%	59%	60%
White	18	328	41	0%	33%	33%	28%	6%	56%	60%	56%
Ethnicity unknown	19	333	41	0%	21%	37%	42%	0%	57%	58%	61%

Table 7.C.18 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 Science	Investigation and Experimentation
All valid scores	24,251	336	69	16%	18%	24%	26%	16%	63%	52%	64%	63%
Male	16,206	338	72	17%	17%	23%	26%	18%	64%	52%	64%	63%
Female	7,960	333	62	14%	19%	27%	27%	13%	62%	52%	63%	63%
Gender unknown	85	333	66	15%	22%	19%	31%	13%	63%	51%	63%	60%
American Indian	213	338	65	17%	13%	27%	26%	17%	64%	52%	65%	64%
Asian American	631	349	75	13%	16%	21%	29%	22%	65%	56%	65%	66%
Pacific Islander	103	321	69	21%	20%	28%	20%	10%	61%	48%	58%	57%
Filipino	261	355	70	8%	16%	24%	28%	24%	66%	58%	67%	67%
Hispanic	15,371	332	66	16%	19%	25%	26%	14%	63%	51%	63%	62%
African American	2,750	321	65	21%	21%	25%	23%	11%	60%	49%	60%	58%
White	4,402	356	75	12%	14%	20%	29%	25%	67%	57%	68%	67%
Ethnicity unknown	520	345	72	16%	15%	19%	28%	22%	65%	54%	65%	64%
English Only	12,803	341	72	15%	17%	22%	26%	19%	64%	54%	65%	64%
Initially fluent English prof.	512	346	73	13%	16%	23%	28%	21%	66%	54%	67%	65%
English learner	9,458	324	61	18%	21%	27%	24%	10%	61%	49%	61%	60%
Reclassified fluent English prof.	1,352	372	68	6%	9%	19%	35%	31%	71%	60%	71%	73%
English prof. unknown	126	329	73	23%	16%	20%	30%	11%	61%	50%	64%	60%
Autism	1,240	348	79	15%	16%	21%	25%	22%	64%	56%	66%	64%
Deaf-blindness	3	–	–	–	–	–	–	–	–	–	–	–
Deafness	119	304	58	24%	29%	23%	18%	7%	54%	47%	53%	60%
Emotional disturbance	797	322	72	25%	20%	19%	22%	14%	60%	48%	60%	60%
Hard of hearing	234	343	65	12%	16%	30%	20%	22%	65%	53%	63%	67%
MR/ID	462	278	50	45%	27%	18%	9%	1%	48%	40%	50%	48%
Multiple disability	34	308	56	24%	24%	21%	29%	3%	57%	45%	59%	59%
Orthopedic impairment	179	336	68	15%	18%	24%	28%	15%	62%	54%	63%	61%
Other health impairment	2,443	343	74	16%	15%	23%	26%	20%	64%	54%	66%	63%
Specific learning disability	17,030	337	67	15%	18%	25%	26%	16%	64%	52%	64%	63%
Speech or language impairment	1,333	336	64	14%	19%	23%	28%	15%	63%	52%	64%	64%
Traumatic brain injury	59	335	72	19%	14%	27%	25%	15%	61%	53%	62%	62%
Visual impairment	61	348	78	13%	20%	15%	34%	18%	65%	54%	69%	63%
Disability unknown	257	336	74	16%	19%	21%	29%	15%	63%	51%	64%	62%
Not economically disadvantaged	5,429	354	73	12%	14%	21%	29%	24%	67%	56%	68%	67%
Economically disadvantaged	18,662	331	66	17%	19%	25%	25%	14%	62%	51%	63%	62%
Economic status unknown	160	324	73	24%	19%	23%	24%	11%	60%	49%	61%	59%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	55	340	67	13%	18%	18%	35%	16%	62%	53%	68%	65%
Asian American	232	364	78	9%	14%	22%	28%	28%	67%	59%	67%	72%
Pacific Islander	31	352	69	10%	10%	32%	32%	16%	69%	54%	68%	67%
Filipino	148	365	75	9%	11%	21%	28%	30%	68%	60%	68%	69%
Hispanic	2,060	348	69	12%	16%	23%	30%	20%	65%	55%	67%	66%

				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 Science	Investigation and Experimentation
African American	488	332	67	17%	19%	23%	27%	14%	63%	52%	62%	60%
White	2,247	363	77	11%	12%	19%	29%	29%	68%	58%	70%	69%
Ethnicity unknown	168	355	71	14%	11%	18%	29%	27%	67%	57%	67%	68%
Primary Ethnicity—Economically Disadvantaged												
American Indian	157	337	65	18%	11%	30%	24%	17%	64%	52%	64%	63%
Asian American	393	341	72	16%	17%	20%	29%	18%	64%	54%	63%	63%
Pacific Islander	72	308	65	26%	25%	26%	15%	7%	58%	46%	53%	52%
Filipino	113	342	61	7%	23%	27%	27%	15%	63%	55%	65%	65%
Hispanic	13,246	330	65	17%	19%	26%	25%	13%	62%	50%	63%	61%
African American	2,249	320	64	21%	21%	25%	22%	10%	60%	49%	59%	58%
White	2,135	347	71	14%	15%	22%	28%	21%	65%	55%	66%	65%
Ethnicity unknown	297	341	73	17%	16%	20%	27%	20%	65%	53%	64%	62%
Primary Ethnicity—Unknown Economic Status												
American Indian	1	–	–	–	–	–	–	–	–	–	–	–
Asian American	6	–	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–	–
Hispanic	65	313	57	18%	28%	29%	20%	5%	60%	46%	60%	56%
African American	13	255	49	69%	15%	8%	8%	0%	40%	39%	38%	38%
White	20	368	99	20%	5%	20%	20%	35%	64%	61%	71%	68%
Ethnicity unknown	55	335	72	22%	15%	18%	33%	13%	62%	52%	63%	64%

Table 7.C.19 Demographic Summary for Life Science (Grade 10)

				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	Cell Biology and Genetics	Evolution and Ecology	Physiology	Investigation and Experimentation
All valid scores	15,629	303	62	21%	29%	27%	17%	6%	52%	53%	58%	52%
Male	10,310	303	65	23%	28%	26%	17%	7%	52%	53%	58%	52%
Female	5,290	302	56	18%	32%	29%	17%	4%	53%	53%	57%	52%
Gender unknown	29	307	66	24%	17%	31%	21%	7%	54%	53%	57%	57%
American Indian	127	295	53	22%	30%	35%	11%	2%	51%	51%	55%	51%
Asian American	397	315	63	14%	25%	33%	20%	7%	56%	56%	61%	53%
Pacific Islander	81	297	66	25%	31%	27%	12%	5%	50%	52%	56%	49%
Filipino	158	325	59	9%	23%	31%	28%	8%	57%	58%	65%	60%
Hispanic	9,749	300	60	21%	31%	27%	16%	5%	52%	52%	57%	52%
African American	1,768	287	59	29%	32%	23%	12%	4%	49%	48%	53%	49%
White	2,993	318	68	16%	25%	27%	22%	10%	56%	56%	63%	56%
Ethnicity unknown	356	310	70	21%	25%	24%	20%	9%	54%	54%	60%	54%
English Only	8,303	307	65	20%	28%	26%	19%	7%	53%	53%	59%	54%
Initially fluent English prof.	330	319	70	16%	27%	24%	22%	11%	56%	56%	62%	57%
English learner	5,912	290	54	24%	34%	28%	12%	2%	50%	50%	54%	49%
Reclassified fluent English prof.	1,018	339	66	9%	18%	29%	31%	13%	60%	62%	69%	62%
English prof. unknown	66	295	62	26%	32%	23%	14%	6%	51%	50%	54%	52%
Autism	742	327	69	13%	23%	28%	22%	13%	57%	59%	64%	57%
Deaf-blindness	0	–	–	–	–	–	–	–	–	–	–	–
Deafness	122	285	40	16%	49%	25%	8%	1%	50%	50%	49%	45%
Emotional disturbance	609	300	69	26%	25%	23%	19%	7%	51%	52%	58%	53%
Hard of hearing	179	311	59	14%	29%	32%	21%	3%	55%	54%	59%	55%
MR/ID	339	258	39	45%	39%	13%	2%	0%	41%	42%	44%	42%
Multiple disability	26	289	44	12%	54%	19%	15%	0%	50%	49%	50%	51%
Orthopedic impairment	135	313	63	12%	32%	31%	19%	7%	55%	56%	60%	54%
Other health impairment	1,542	311	67	20%	26%	26%	20%	8%	55%	54%	61%	54%
Specific learning disability	11,087	302	61	21%	30%	27%	17%	5%	52%	52%	57%	52%
Speech or language impairment	645	300	56	19%	31%	31%	16%	4%	52%	52%	58%	51%
Traumatic brain injury	52	296	57	21%	35%	25%	17%	2%	51%	51%	53%	55%
Visual impairment	43	323	68	16%	21%	26%	30%	7%	57%	58%	64%	57%
Disability unknown	108	300	68	28%	27%	21%	16%	8%	53%	51%	55%	52%
Not economically disadvantaged	4,088	316	66	16%	25%	28%	22%	9%	55%	56%	61%	56%
Economically disadvantaged	11,452	298	60	22%	31%	27%	16%	5%	51%	52%	56%	51%
Economic status unknown	89	296	65	27%	27%	25%	15%	7%	52%	50%	55%	51%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	40	305	44	15%	28%	40%	15%	3%	54%	54%	58%	52%
Asian American	151	320	61	11%	23%	38%	20%	8%	57%	58%	64%	53%
Pacific Islander	27	313	64	19%	30%	26%	22%	4%	54%	58%	59%	54%
Filipino	91	336	61	7%	20%	30%	32%	12%	60%	60%	67%	63%
Hispanic	1,584	309	63	18%	27%	28%	20%	7%	53%	55%	59%	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	Cell Biology and Genetics	Evolution and Ecology	Physiology	Investigation and Experimentation
African American	431	298	66	26%	29%	22%	16%	6%	51%	50%	57%	53%
White	1,626	325	68	14%	23%	28%	23%	12%	57%	58%	64%	57%
Ethnicity unknown	138	327	72	15%	24%	20%	27%	14%	58%	58%	64%	59%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	87	291	56	25%	31%	32%	9%	2%	50%	50%	54%	50%
Asian American	244	312	63	16%	26%	30%	21%	7%	55%	55%	60%	53%
Pacific Islander	54	289	66	28%	31%	28%	7%	6%	49%	49%	54%	46%
Filipino	67	312	52	13%	28%	33%	24%	1%	54%	56%	61%	56%
Hispanic	8,130	298	59	22%	31%	27%	16%	4%	51%	52%	56%	51%
African American	1,327	283	56	30%	33%	24%	11%	3%	48%	47%	52%	48%
White	1,359	311	67	19%	27%	25%	21%	8%	54%	54%	61%	55%
Ethnicity unknown	184	299	66	24%	27%	28%	16%	5%	52%	51%	58%	50%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	0	–	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–	–
Hispanic	35	300	52	11%	46%	29%	9%	6%	52%	52%	57%	52%
African American	10	–	–	–	–	–	–	–	–	–	–	–
White	8	–	–	–	–	–	–	–	–	–	–	–
Ethnicity unknown	34	305	74	29%	18%	26%	15%	12%	54%	51%	56%	57%

Appendix 7.D—Types of Score Reports

Table 7.D.1 Score Reports Reflecting CMA Results

2013 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. Data presented include the following: • 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 • Writing response score and scoring rubric, for students in grades four and seven	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 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]). Data presented include the following for each content area tested: • Scale scores • Performance levels	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. 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 • Writing response score (CMA in grades four and seven only)	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. It is recommended that Student Master List reports be retained until the grade level exits the school.
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	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.

2013 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
report. For each CMA, the following data are summarized: • By content area tests: – Number of students enrolled – Number and percent of students tested – Number and percent of valid scores – Number tested with scores – Mean percent correct • Mean scale score • Scale score standard deviation • Number and percent of students scoring at each performance level • The number of items for each reporting cluster and the mean percent correct • For grades four and seven, the percent of students achieving each writing response score	***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. It is recommended that summary reports be retained until the grade level exits the school.
Student Master List Summary—End of Course	
This report summarizes Student Master List information for the EOC CMA for Algebra I, administered to students in grades seven through eleven, and Geometry, administered to students in grades eight through eleven. It does not include any individual student information. For each of these CMA, the following data are summarized: • By content area tested: – Number of students enrolled – Number and percent of students tested – Number and percent of valid scores – Number tested with scores – Mean percent correct – Mean scale score – Scale score standard deviation – Number and percent of students scoring at each performance level For each reporting cluster: • Number of items • Mean percent correct	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. It is recommended that summary reports be retained until the grade level exits the school.
Subgroup Summary	
This set of reports disaggregates and reports results by the following subgroups: • All students • Disability status • Economic status	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.

2013 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
• Gender • English proficiency • Primary ethnicity These reports contain no individual student-identifying information and are aggregated at the school, district, county, and state levels. For each subgroup within a report and for the total number of students, the following data are included for each test: • Total number tested in the subgroup • Percent of enrollment tested in the subgroup • 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 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. It is recommended that summary reports be retained until the grade level exits the school.
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 the most educated parent of the student, as indicated in the answer document or Pre-ID, has 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. 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 of enrollment tested in the subgroup • Number and percent of valid scores • Number tested who received scores • Mean scale scores • Standard deviation of scale scores • 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. It is recommended that summary reports be retained until the grade level exits the school.

Chapter 8: Analyses

Background

This chapter summarizes the item- and test-level statistics obtained for the CMA administered during the spring of 2013.

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 on page 203 presents the classical item analyses, including proportion-correct value (*p*-value) and point-biserial correlation (Pt-Bis) for each item in each operational test. Because all forms were reused, *p*-values and Pt-Bis are shown for both the original and the current administration of the tests. The appendix also presents information about the distribution of scores on the writing tasks administered in grades four and seven for the overall population and for the various subgroups. In addition, the average and median *p*-value and Pt-Bis for the operational test forms based on the current administrations are presented in Table 8.1 on page 179.
2. Appendix 8.B on page 216 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, interrater reliability results for the writing tasks administered in grades four and seven are shown.
3. Appendix 8.C on page 263 presents tables showing the correlation between scores obtained on the CMA measured in the different content areas, which are provided as an example of the evidence of the 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 on page 272 presents the results of IRT analyses, including the distribution of items based on their fit to the Rasch model and the summaries of Rasch item difficulty statistics (*b*-values) for the field-test items administered for the first time in 2013 in the CMA for ELA in grades nine through eleven, EOC mathematics Algebra I and Geometry, and Life Science in grade ten. (For the summaries of *b*-values for all CMA operational items, refer to Appendix D of the *CMA Technical Report* in the year the form was administered originally; see Table 8.4 on page 190 for administration years.) In addition, the appendix presents the scoring tables with frequency for each score point.
5. Appendix 8.E on page 286 presents the results of the DIF analyses applied to field-test items administered for the first time in 2013 for ELA in grades nine through eleven, EOC mathematics Algebra I and Geometry, and Life Science in grade ten 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. Because forms are reused and there are no new field-test items, DIF analyses were not performed in 2013 for ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight.

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 for field-test items administered for the first time in 2013 presented in Appendix 8.E were calculated using the P2 data file, which contained the entire test-taking population and all the student records used in the August 8, 2013, reporting of STAR results.

Following the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999, Standard 6.4), the results of the classical item analyses and reliability analyses for the EOC mathematics CMA in Algebra I and Geometry are also presented for the grade-specific population in addition to the overall test-taking population. “Grade-specific population” refers to test-takers in the particular grade for which the course has been recommended by the SBE, that is, in grade eight for Algebra I and grade nine for Geometry. No grade-specific DIF or IRT analyses were conducted for these tests.

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:

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

where,

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

N_i is the total number of examinees that attempted the 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 dichotomously and one continuously measured—in this case, the item score (right/wrong) and the total test score. The formula for the Pearson product-moment correlation is:

$$r_{X_iT} = \frac{\mathrm{cov}(X_i, T)}{s_{X_i} s_T} \tag{8.2}$$

where,

$cov(X_i, T)$ is the covariance between the score of item *i* and total score T,

s_{X_i} is the standard deviation for the score of item i, and

s_T is the standard deviation for total score T.

The classical statistics for the current administration of the overall test are presented in Table 8.1. The item-by-item values for the indices are presented in Table 8.A.1 through Table 8.A.6, starting on page 203. Each set of values is presented for both the current and the original presentation of each CMA.

Table 8.1 Mean and Median Proportion Correct and Point-Biserial Correlation—Current Administration

					Mean		Median	
Subject	CMA *	Admin. Year	No. of Items	No. of Examinees	*p*-value	Pt-Bis	*p*-value	Pt-Bis
English–Language Arts	3	2013	48	19,966	0.58	0.37	0.59	0.39
	4	2013	48	28,630	0.55	0.33	0.55	0.34
	5	2013	48	29,852	0.58	0.35	0.56	0.36
	6	2013	54	29,891	0.57	0.32	0.58	0.34
	7	2013	54	28,364	0.61	0.35	0.60	0.36
	8	2013	54	26,593	0.58	0.33	0.58	0.34
	9	2013	60	21,731	0.53	0.32	0.52	0.32
	10	2013	60	18,952	0.51	0.30	0.51	0.32
	11	2013	60	16,343	0.46	0.26	0.45	0.26
Mathematics	3	2013	48	17,267	0.62	0.39	0.63	0.40
	4	2013	48	24,228	0.57	0.31	0.55	0.33
	5	2013	48	26,565	0.61	0.36	0.62	0.38
	6	2013	54	27,348	0.53	0.29	0.54	0.29
	7	2013	54	27,142	0.46	0.25	0.47	0.26
	Algebra I	2013	60	31,124	0.49	0.28	0.49	0.29
	Geometry	2013	60	8,247	0.48	0.27	0.49	0.27
Science	5	2013	48	27,709	0.61	0.32	0.61	0.33
	8	2013	54	24,251	0.59	0.33	0.59	0.34
	10 Life Science	2013	60	15,629	0.53	0.32	0.54	0.31
Grade-Specific	Algebra I – 8	2013	60	6,035	0.50	0.29	0.51	0.30
	Geometry – 9	2013	60	628	0.49	0.31	0.51	0.31

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

Writing Tasks

As described earlier, students in grades four and 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.7 and Table 8.A.8, which appear starting on page 212. 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.9 and Table 8.A.10. 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.11 and Table 8.A.12.

In 2013, the writing score is not included in the total ELA score that is used to calculate student scale scores.

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 distribution 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 defined by equation 8.3:

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

where,

n is the number of items,

s_i^2 is the variance of scores on the item *i*, and

s_t^2 is the variance of the total 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:

$$s_e = s_t\sqrt{1-\alpha} \tag{8.4}$$

where,

α is the reliability estimated in equation 8.3, and

s_t is the standard deviation of the total score (either the total raw score or scale score).

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).

Table 8.2 gives the reliability and SEM for each of the 19 operational CMA, along with the number of items and examinees upon which those analyses were performed. The results for the grade-specific population for the EOC mathematics Algebra I and Geometry are also presented in this table.

Table 8.2 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	19,966	0.86	308	64	23.50	28.07	8.46	3.12
	4	48	28,630	0.83	323	71	29.45	26.55	7.77	3.22
	5	48	29,852	0.84	328	70	27.82	28.00	7.90	3.13
	6	54	29,891	0.83	308	87	35.78	30.76	8.17	3.34
	7	54	28,364	0.87	314	84	30.94	32.73	9.02	3.31
	8	54	26,593	0.84	316	76	30.39	31.08	8.34	3.33
	9	60	21,731	0.85	295	73	28.58	31.58	9.26	3.62
	10	60	18,952	0.83	293	66	27.54	30.56	8.71	3.63
	11	60	16,343	0.76	281	56	27.63	27.36	7.53	3.68
Mathematics	3	48	17,267	0.88	322	69	23.57	29.97	8.83	3.03
	4	48	24,228	0.80	326	77	34.69	27.28	6.93	3.13
	5	48	26,565	0.86	341	76	28.71	29.35	8.09	3.07
	6	54	27,348	0.79	319	81	37.19	28.86	7.49	3.46
	7	54	27,142	0.71	298	85	45.81	25.04	6.47	3.47
	Algebra I	60	31,124	0.80	290	55	24.54	29.26	8.22	3.68
	Geometry	60	8,247	0.79	288	47	21.62	28.71	7.96	3.69
Science	5	48	27,709	0.81	345	56	24.30	29.43	7.20	3.14
	8	54	24,251	0.84	336	69	27.49	31.62	8.37	3.36
	10 Life Science	60	15,629	0.85	303	62	24.25	32.03	9.28	3.61
Grade-Specific	Algebra I – 8	60	6,035	0.82	295	58	24.81	29.93	8.58	3.67
	Geometry – 9	60	628	0.84	295	57	22.54	29.68	9.15	3.65

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

Intercorrelations, Reliabilities, and SEMs for Reporting Clusters

For each CMA, number-correct scores are computed for the reporting clusters—three in all tests except for the CMA for science in grades eight and ten, Algebra I, and Geometry, which have four. The number of items within each reporting cluster is limited, and cluster scores alone should not be used in making inferences about individual students.

Intercorrelations and reliability estimates for the reporting clusters are presented in Table 8.B.1 through Table 8.B.3 starting on page 216. Results are also reported in Table 8.B.4 for grade-specific samples of the mathematics tests of Algebra I and Geometry. Consistent with results from previous years, the reliabilities across reporting clusters vary significantly according to the number of items in each cluster.

Subgroup Reliabilities and SEMs

The reliabilities of the 19 operational CMA and the two grade-specific CMA 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. The reliability analyses are also presented by ethnicity within economic status.

Reliabilities and SEM information for the total test scores and the reporting cluster scores are reported for each subgroup analysis. Table 8.B.5 through Table 8.B.8 present the reliabilities for the subgroups based on gender, economic status, English-language fluency, and primary ethnicity. The next set of tables, Table 8.B.9 through Table 8.B.11, shows the same analyses for the subgroups based on primary ethnicity within economic status and gender within economic status. Table 8.B.12 and Table 8.B.13 present the reliabilities for subgroups based on primary disability.

Test-level reliabilities for the various subgroups are compiled in Table 8.B.14 through Table 8.B.20. The corresponding cluster-level reliabilities are provided in Table 8.B.21 through Table 8.B.48.

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 hyphens. Finally, results based on samples that contain 50 or fewer examinees should be interpreted with caution due to small sample sizes.

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:

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

where,

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

$\mathrm{I}(\hat{\theta})$ is the test information function at ability level $\hat{\theta}$.

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 8.3 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.

The CSEMs tend 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 at the extremes of the scale.

Table 8.3 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	35	350	36	405	39
	7	228	28	300	28	350	30	409	34
	8	235	29	300	29	350	30	407	33
	9	243	27	300	27	350	28	407	31
	10	243	27	300	26	350	27	407	30
	11	250	27	300	27	350	27	406	30
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	39
	7	237	46	300	45	350	45	443	48
	Algebra I	251	24	300	23	350	24	410	28
	Geometry	257	21	300	20	350	21	413	26
Science	5	243	24	300	22	350	23	401	26
	8	264	26	300	25	350	26	406	29
	10 Life Science	251	23	300	23	350	24	410	28

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

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 following 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 test 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 following question: What is the agreement between the classifications based on two nonoverlapping, 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 test 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	Misclassification
	Achieves a performance level	Misclassification	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	Misclassification
	Achieves a performance level	Misclassification	Correct classification

The results of these analyses are presented in Table 8.B.49 through Table 8.B.69 in Appendix 8.B. For the CMA for ELA in grades four and seven, the decision classification analyses are based on scores of the multiple-choice items only because the writing component score is not a part of the total ELA score.

Each table includes the contingency tables for both accuracy and consistency of the various performance-level classifications. The proportion of students being accurately classified is determined by summing across the diagonals of the upper tables. The proportion of consistently classified students is determined by summing the diagonals of the lower tables.

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 writing task can be estimated 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 estimated 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 ($[Corr_{Writing-MC}]^2/Rel_{MC}$) (Sax, 1989).

The reliability estimates for the multiple-choice scores were 0.83 for grade four and 0.87 for grade seven. The approximate lower bound reliability for the essay scores was estimated to be 0.21 and 0.22 for the two grades, respectively.

Prompt and Rater Agreement Summary

As described earlier, in order to monitor the accuracy of ratings, two raters scored approximately 10 percent of the examinees' writing responses. The two sets of ratings were used to carry out interrater agreement and generalizability analyses to assess the reliability of the writing scores.

Interrater Reliability Analyses

In the context of essay scoring, interrater 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 coefficient (ICC), which incorporates the exact agreement between raters over and above that expected by chance. The index is defined as the following:

$$ICC = r_I = (ms_{between} - ms_{within})/(ms_{between} + [k - 1]ms_{within}) \quad (8.6)$$

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 interrater reliability. Cohen's Kappa was therefore used as a primary indicator of the interrater 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 computed.

The reliability analyses were performed on the approximately 10 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 (see Appendix 7.A on page 128 for the writing scoring rubrics). Zero is a valid score for the writing responses but was not provided by a rater. Instead, a score of zero was 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.

The results of interrater analyses are presented in Table 8.B.70 and Table 8.B.71 in Appendix 8.B. Table 8.B.72 and Table 8.B.73 provide descriptive statistics of the ratings by the two raters.

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 used (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.74 and Table 8.B.75 on page 262.

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 involves more than a single study or gathering of 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.

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 purposes of the CMA, followed by a description and discussion of the kinds of validity evidence that have been gathered.

Purposes 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 tests of the CMA, 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.

Interpretations and Uses of the Scores Generated

Total test scores expressed as scale scores, student performance levels, and subscores for each reporting cluster are generated for each grade-level and content-area test. The total test scale score is used to draw inferences about a student's achievement in the content area and to classify the achievement into one of five performance levels: 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 on the total test 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, minus one percent. A detailed description of the uses and applications of CMA scores is presented in Chapter 7, which starts on page 115.

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 eleven 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 the EOC CMA for Algebra I, and students in grades eight through eleven can take the EOC CMA for Geometry. In grade seven, students take either grade-level mathematics or EOC Algebra I. Only those students whose parents/guardians have submitted written requests to exempt them from STAR Program testing do not take the tests.

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 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, starting on page 60. Once the items were developed and field-tested, ETS selected 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 item development process for the CMA is presented in Chapter 3, starting on page 60.

Item review process—Chapter 3 explains in detail the extensive item review process applied to items that were written for use in the CMA. In brief, items written for the CMA underwent multiple review cycles and involved multiple groups of reviewers. One of the reviews was carried out by an external reviewer, that is, the ARPs. The ARPs were 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 were used as the basis for choosing items for the initial year of their use in a form. Additional targets for item difficulty and discrimination that were 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 72.

Additionally, an external review panel, the Statewide Pupil Assessment Review (SPAR), was 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 67.

Evidence Based on Relations to Other Variables

Empirical results concerning the relationships between the 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 scores 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 field-test items that were administered for the first time in 2013 for the CMA for ELA in grades nine through eleven, EOC mathematics Algebra I and Geometry, and Life Science in grade ten for which sufficient student samples were available.

The results of the DIF analyses for the field-test items are presented in Appendix 8.E, which starts on page 286. 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.

Results of the DIF analyses for operational items are presented in Appendix 8.E of the *CMA Technical Report* produced for the year the form was originally administered. Reports are linked on the CDE's Technical Reports and Studies Web page at

http://www.cde.ca.gov/ta/tg/sr/technicalrpts.asp. The year of original administration for each multiple-choice CMA is shown in Table 8.4.

Table 8.4 Original Year of Administration for the CMA

Content Area	CMA *	Year
English–Language Arts	3	2010
	4	2010
	5	2010
	6	2011
	7	2011
	8	2011
	9	2012
	10	2012
	11	2012
Mathematics	3	2010
	4	2010
	5	2010
	6	2011
	7	2011
	Algebra I	2012
	Geometry	2012
Science	5	2010
	8	2011
	10 Life Science	2012

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

Correlations Between Content-area Test Scores

To the degree that students' content-area test scores correlate as expected, evidence of the validity in regarding those scores as measures of the intended constructs is provided. Table 8.5 provides the correlations between scores on the 2013 CMA content-area tests and the numbers of students on which these correlations were based. Sample sizes for individual tests are shown in bold font 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 are based on all students with valid CMA scores and are provided by grade to account for different course-taking patterns in the upper grades.

Results for these students 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 content-area test score correlations by gender, ethnicity, English-language fluency, economic status, and primary disability. Similar patterns of correlations between students' ELA, mathematics, and science scores were found within the subgroups.

Note that while the correlations are reported only for samples that comprise 11 or more examinees, results based on samples that contain 50 or fewer examinees should be interpreted with caution due to small sample sizes. Correlations between scores on any two content-area tests where 10 or fewer examinees have valid scores are expressed as hyphens. Correlations between scores on two content-area tests that cannot be administered together to the same group of students are expressed as "N/A."

Note: Due to limited column space, test names were not repeated on the column heading of each correlation matrix in Table 8.C.1 through Table 8.C.9. Instead, numerical headings, such as "1." or "2." were used.

Table 8.5 CMA Content-area Correlations (All Valid Scores)

Grade	CMA	ELA	Mathematics		
3	**ELA**	**19,966**	0.61		
	Mathematics	15,840	**17,267**		
Grade	**CMA**	**ELA**	**Mathematics**		
4	**ELA**	**28,630**	0.54		
	Mathematics	22,995	**24,228**		
Grade	**CMA**	**ELA**	**Mathematics**	**Science**	
5	**ELA**	**29,852**	0.52	0.67	
	Mathematics	24,710	**26,565**	0.54	
	Science	27,102	23,943	**27,709**	
Grade	**CMA**	**ELA**	**Mathematics**		
6	**ELA**	**29,891**	0.57		
	Mathematics	25,284	**27,348**		
Grade	**CMA**	**ELA**	**Mathematics**	**Algebra I**	
7	**ELA**	**28,364**	0.53	–0.14	
	Mathematics	24,774	**27,142**	0	
	Algebra I	76	0	**83**	
Grade	**CMA**	**ELA**	**Algebra I**	**Geometry**	**Science**
8	**ELA**	**26,593**	0.49	–	0.64
	Algebra I	5,290	**6,035**	N/A	0.56
	Geometry	4	N/A	**4**	–
	Science	23,073	5,100	4	**24,251**
Grade	**CMA**	**ELA**	**Algebra I**	**Geometry**	
9	**ELA**	**21,731**	0.49	0.54	
	Algebra I	9,618	**10,895**	N/A	
	Geometry	550	N/A	**628**	
Grade	**CMA**	**ELA**	**Algebra I**	**Geometry**	**Life Science**
10	**ELA**	**18,952**	0.47	0.50	0.65
	Algebra I	7,817	**9,002**	N/A	0.49
	Geometry	3,430	N/A	**3,971**	0.56
	Life Science	14,893	6,756	2,963	**15,629**
Grade	**CMA**	**ELA**	**Algebra I**	**Geometry**	
11	**ELA**	**16,343**	0.39	0.47	
	Algebra I	4,454	**5,109**	N/A	
	Geometry	3,076	N/A	**3,644**	

Correlations between the reporting cluster scores are presented in Table 8.B.1 through Table 8.B.3 for the CMA. Results are also reported in Table 8.B.4 for grade-specific samples of the EOC mathematics tests for Algebra I and Geometry.

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 Table 8.5 show that, in general, moderate intercorrelations were obtained. More specifically, in general they ranged between .39 and .67. As also would be expected, the correlations 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 grades four and 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 184. Details about the results can be found in Table 8.B.74 and Table 8.B.75 on page 262.

A decision study (d-study) was conducted to look at the generalizability-coefficient (g-coefficient) for the writing scores; the g-coefficient was 0.76 for grade four and 0.74 for grade seven. 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 for both grades.

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 and Interrater 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 grades four and seven, two raters scored approximately 10 percent of the examinee responses. The data collected were used to evaluate interrater reliability and interrater agreement.

Interrater 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. Research has shown the value of Kappa statistics between 0.41 and 0.60 as exhibiting moderate levels of agreement between the two ratings (Landis & Koch, 1977). The results in Table 8.B.70 and Table 8.B.71 showed moderate levels of agreement between raters that scored examinees’ written responses to the prompts administered in grades four and seven.

Interrater Agreement

As noted previously, approximately 10 percent of the test population’s responses to the writing prompts in grades four and seven were scored by two raters. The percentage of students for whom the raters were in exact agreement was 68 percent for grade four and 63 percent for grade seven The percentage of essay responses for which there was exact or adjacent agreement between the two sets of ratings was 99.6 percent for grade four and 98.3 percent for grade seven.

Evidence Based on Internal Structure

As suggested by the *Standards* (AERA, APA, & NCME, 1999), 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 the 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 studying this aspect of the construct. 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. As shown in Table 8.1, the mean point biserial was between 0.31 and 0.39 for 13 out of 19 operational CMA and was between 0.25 and 0.30 for the other six CMA. The point biserials for the individual items in the CMA are presented in Table 8.A.1 through Table 8.A.5.

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 average item *p*-values is given in Table 8.1; individual item *p*-values are presented in Table 8.A.1 through Table 8.A.5. (The distributions of IRT difficulty indicator *b*-values are given in Table 8.D.4 for new field-test items in the CMA for ELA in grades nine through eleven, EOC Algebra I and Geometry, and Life Science in grade ten. For operational items, the summaries of *b*-values can be found in Appendix D of the *CMA Technical Report* for the year the form was administered originally; see Table 8.4 on page 190 for administration years.)

The data in Table 8.1 indicate that CMA tests had average *p*-values that range from 0.46 to 0.62.

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 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 are presented in Table 8.2. The results indicate that the reliabilities of the CMA for ELA, mathematics, and science tests were moderately high, ranging from 0.71 to 0.88.

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.1 through Table 8.B.4 for the 19 CMA. 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.

Subgroup reliabilities—The reliabilities of the 19 operational CMA and the two grade-specific CMA mathematics 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.5 through Table 8.B.20.

Reliability of performance classifications—The methodology used for estimating the reliability of classification decisions is described in the section "Decision Classification Analyses" on page 183. The results of these analyses are presented in Table 8.B.49 through Table 8.B.69 in Appendix 8.B; these tables start on page 254. When the classifications 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 0.95 across all the CMA. Similarly, the proportion of students that were classified consistently ranged from 0.87 to 0.93 for students classified into below proficient versus proficient and advanced.

These levels of accuracy and consistency are high and they are consistent with levels seen in previous years.

Dimensionality

Dimensionality analyses were conducted by a CDE psychometrics team (Gaffney et al., 2010; Gaffney & Perryman, 2009). The study investigated the factor structures of the CMA in grades three and five as part of the 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" (AERA, APA, & NCME, 1999, p. 18). When this is the case, evidence that the expected benefits accrue will provide support for the 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

Post-Equating

Prior to 2013, the CMA were equated to a reference form using a common-item nonequivalent groups design and post-equating 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 procedures used for post-equating the CMA prior to 2013 involved three steps: item calibration, item parameter scaling, and production of raw-score-to-scale-score conversions using the scaled item parameters. ETS used 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) was 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 post-equating procedures were applied to all CMA tests.

Pre-Equating

During the 2013 administration, because all the test forms were used in previous STAR operational administrations, pre-equating was conducted prior to administration of the tests. Based on the sample invariant property of item response theory (IRT), all the item parameter estimates were placed on the reference scale in their previous administrations through the post-equating procedure described above. For all CMA using reuse intact forms, the conversion tables from previous administrations when the forms were originally used are directly applied to the current administration.

The results of the IRT analyses for operational items are presented in Appendix 8.D of the *CMA Technical Report* produced for the year the form was originally administered. Reports are linked on the CDE's Technical Reports and Studies Web page at http://www.cde.ca.gov/ta/tg/sr/technicalrpts.asp.

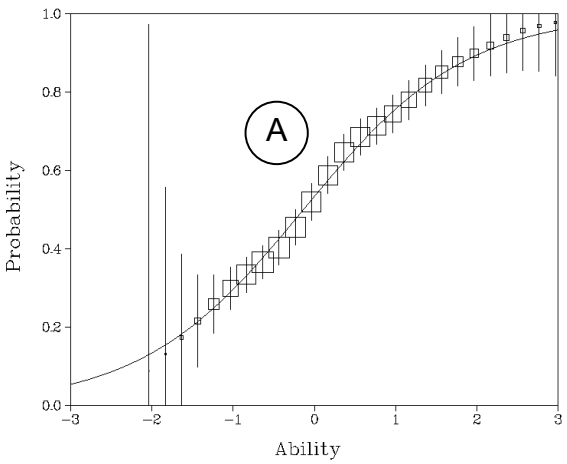
IRT analyses were performed on reused forms with field-test items that were administered for the first time in 2013. The CMA for ELA in grades nine through eleven, EOC mathematics Algebra I and Geometry, and Life Science in grade ten have IRT *b*-value and distribution tables available in Appendix 8.D starting on page 272.

IRT Model-Data Fit Analyses

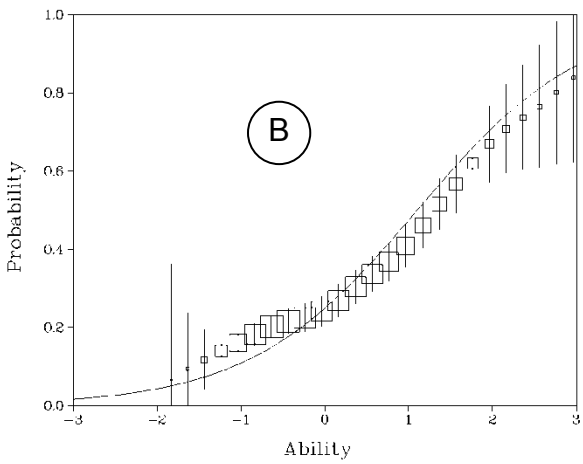
Because the Rasch model is used in equating the CMA, an important part of IRT analyses is the assessment of model-data fit. ETS psychometricians classify operational and field-test items for the CMA into discrete categories based on an evaluation of how well each item was fit by the Rasch model. The 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 page 197. In 2013, these analyses were performed for only those CMA with new field-test items—the CMA for ELA in grades nine through eleven, EOC mathematics Algebra I and Geometry, and Life Science in grade ten.

As an illustration, the IRT item characteristic curves and empirical data (item-ability regressions) for five CST 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 the ETS identification number for each item ("accession number") are listed next to each item, along with the corresponding rating categories.

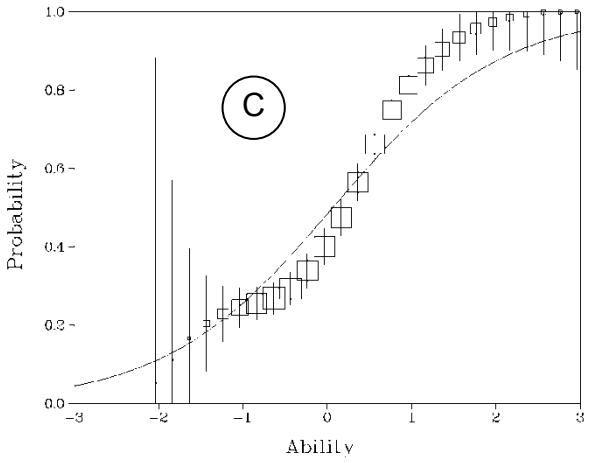
Figure 8.3 Items from the 2005 CST for History–Social Science Grade Ten Field-test Calibration



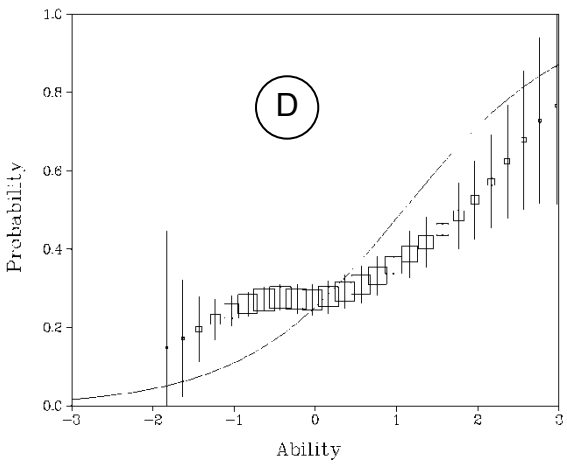
Version 30, Seq 29 (236) CSV23487 4-Choice P+ = 0.563
a = 0.588 F, b = –0.135, c = 0.000 F, CHI = 5.41, N = 5,912



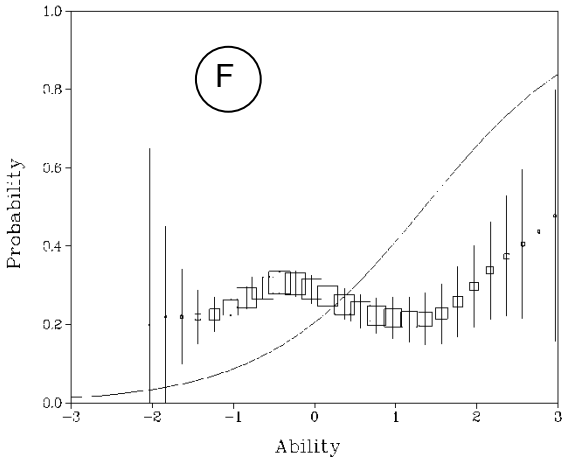
Version 1, Seq 28 (61) CSV22589 4 Choice P+ = 0.307
a = 0.588 F, b = 1.104, c = 0.000 F, CHI = 66.70, N = 6,348



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

For the CMA that contained field-test items that were administered for the first time in 2013, the model-fit assessment is performed as part of the final item analyses using P2 data in the 2013 administration cycle; for all other CMA, the model-fit assessment was performed when the form was originally administered. 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 number of the new field-test items in each IRT model-data fit classification is presented in Table 8.D.1 through Table 8.D.3 on page 272.

Summaries of Scaled IRT *b*-values

For the post-equating procedure prior to the 2013 administration, once the IRT *b*-values were placed on the item bank scale, analyses were 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.

During the 2013 administration, IRT calibrations or scaling are only performed on the CMA that contain field-test items administered for the first time in 2013. However, scaled *b*-value parameters derived through the post-equating procedure from their previous administrations are used for pre-equating the CMA. Table 8.D.4 presents univariate statistics (mean, standard deviation, minimum, and maximum) for the scaled IRT *b*-values of the field-test items for CMA for ELA in grades nine through eleven, EOC Algebra I and Geometry, and Life Science in grade ten.

Table 8.D.5 through Table 8.D.7 show the distributions of field-test items across 16 intervals of *b*-values. In these tables the intervals range from “greater than or equal to 3.5” to “less than –3.5” points within each interval.

Evaluation of Pre-equating

Pre-equating is performed on the basis of the assumption of item response theory (IRT) models that item parameters remain invariant across samples given a similar ability distribution. To produce results that are sufficiently accurate for high-stakes decisions, previously administered operational forms were reused so that item parameters were obtained from large, representative samples, and factors that may affect item parameter estimations, such as context effects (e.g., item positions) and speededness, were well controlled.

To ensure that items performed similarly in the current administration as in the year they were originally administered in the intact forms, comparisons of classical statistics such as *p*-values and point-biserial correlations are made between the current administration and the item bank values in the year of the original administration.

Equating Results

During the 2013 administration, for all operational CMA using reuse forms without any edits, the conversion tables from their original administrations (listed in Table 8.4 on page 190) are directly applied to the current administration.

Complete raw-score-to-scale-score conversion tables for the CMA administered in 2013 are presented in Table 8.D.8 through Table 8.D.18 starting on page 275. The raw scores and corresponding transformed scale scores are listed in 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 17.

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 field-test items administered for the first time in 2013—in the CMA for ELA in grades nine through eleven, EOC mathematics Algebra I and Geometry, and Life Science in grade ten—and for which sufficient student samples were available. The sample size requirements for the 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 following:

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

$$\alpha_{MH} = \frac{\left(\sum_m R_{rm} \frac{W_{fm}}{N_{tm}}\right)}{\left(\sum_m R_{fm} \frac{W_{rm}}{N_{tm}}\right)} \tag{8.7}$$

$$MH\ D\text{-}DIF = -2.35 \ln[\alpha_{MH}] \tag{8.8}$$

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 *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 15 years. The definitions of the categories based on evaluations of the item-level MH D-DIF statistics are 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, and primary disability. The results of the DIF analyses for the field-test items administered for the first time in 2013 are presented in Appendix 8.E. Note, however,

that analyses of English learners on the CMA for ELA are presented for readers' interest. Differential performance on an ELA item that is due to the language difficulties of nonnative speakers does not indicate that an item is unfair or biased.

There are no significant DIF (C-DIF) for the new field test items administered for the first item in 2013. Were there, test developers would be instructed to avoid selecting field-test items flagged as having shown DIF that disadvantages a focal group (C-DIF) for future operational test forms unless their inclusion is deemed essential to meeting test-content specifications.

Table 8.E.1 through Table 8.E.6 show the distributions of field-test 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 8.6 lists specific subgroups that were used for DIF analyses for the CMA.

Table 8.6 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/Intellectual disability (MR/ID) 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, Grades Three through Six—Current Year (2013) and Original Year of Administration

Item-by-item *p*-value and Point Biserial for ELA, Grades Three through Six																
CMA	**Grade 3**				**Grade 4**				**Grade 5**				**Grade 6**			
Year	**2013**		**2010**		**2013**		**2010**		**2013**		**2010**		**2013**		**2011**	
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**	***p*-value**	**Pt-Bis**
1	0.70	0.41	0.71	0.42	0.73	0.41	0.71	0.42	0.75	0.40	0.75	0.42	0.70	0.36	0.69	0.37
2	0.72	0.39	0.72	0.40	0.61	0.35	0.59	0.37	0.85	0.35	0.82	0.35	0.57	0.31	0.58	0.32
3	0.66	0.36	0.63	0.37	0.57	0.39	0.57	0.41	0.76	0.43	0.75	0.43	0.40	0.23	0.41	0.23
4	0.81	0.45	0.81	0.46	0.66	0.34	0.66	0.35	0.71	0.36	0.70	0.37	0.73	0.41	0.74	0.41
5	0.74	0.41	0.72	0.41	0.58	0.38	0.58	0.40	0.69	0.40	0.66	0.40	0.75	0.45	0.75	0.45
6	0.69	0.39	0.69	0.38	0.62	0.27	0.62	0.28	0.54	0.34	0.52	0.33	0.19	0.10	0.19	0.09
7	0.55	0.33	0.53	0.32	0.65	0.41	0.64	0.40	0.34	0.20	0.33	0.19	0.71	0.43	0.69	0.43
8	0.63	0.44	0.61	0.44	0.59	0.18	0.58	0.16	0.61	0.38	0.58	0.38	0.73	0.42	0.71	0.43
9	0.72	0.40	0.71	0.42	0.55	0.38	0.55	0.38	0.52	0.34	0.50	0.34	0.68	0.39	0.65	0.39
10	0.70	0.45	0.69	0.47	0.66	0.43	0.62	0.43	0.67	0.37	0.65	0.41	0.63	0.45	0.61	0.45
11	0.35	0.28	0.36	0.29	0.72	0.38	0.71	0.38	0.50	0.37	0.48	0.37	0.54	0.36	0.51	0.35
12	0.41	0.25	0.41	0.26	0.53	0.27	0.52	0.28	0.62	0.34	0.61	0.34	0.65	0.38	0.64	0.38
13	0.54	0.38	0.54	0.40	0.69	0.38	0.69	0.36	0.57	0.40	0.55	0.39	0.64	0.38	0.63	0.37
14	0.55	0.37	0.53	0.35	0.59	0.45	0.58	0.46	0.47	0.33	0.45	0.32	0.38	0.21	0.38	0.23
15	0.51	0.32	0.48	0.32	0.40	0.21	0.42	0.21	0.58	0.31	0.55	0.29	0.55	0.26	0.55	0.24
16	0.59	0.47	0.58	0.48	0.47	0.37	0.46	0.36	0.70	0.45	0.67	0.47	0.57	0.34	0.57	0.34
17	0.61	0.42	0.60	0.44	0.39	0.25	0.39	0.27	0.63	0.41	0.61	0.41	0.51	0.34	0.50	0.34
18	0.69	0.39	0.68	0.40	0.72	0.41	0.70	0.42	0.49	0.33	0.49	0.33	0.58	0.19	0.57	0.19
19	0.60	0.31	0.60	0.33	0.53	0.39	0.53	0.40	0.48	0.25	0.48	0.25	0.44	0.22	0.44	0.23
20	0.43	0.34	0.44	0.35	0.68	0.40	0.67	0.40	0.58	0.45	0.57	0.44	0.57	0.29	0.57	0.29
21	0.62	0.46	0.60	0.45	0.54	0.32	0.54	0.33	0.55	0.32	0.53	0.30	0.51	0.25	0.52	0.24
22	0.30	0.19	0.28	0.17	0.38	0.21	0.38	0.22	0.33	0.13	0.33	0.11	0.52	0.28	0.50	0.29
23	0.57	0.35	0.56	0.35	0.66	0.42	0.65	0.43	0.47	0.40	0.47	0.40	0.21	0.07	0.22	0.06
24	0.50	0.37	0.49	0.37	0.39	0.30	0.41	0.31	0.53	0.27	0.51	0.27	0.58	0.35	0.59	0.34
25	0.69	0.28	0.70	0.32	0.45	0.32	0.46	0.34	0.44	0.36	0.42	0.34	0.39	0.21	0.40	0.20
26	0.55	0.47	0.55	0.49	0.56	0.38	0.57	0.38	0.67	0.40	0.65	0.40	0.65	0.36	0.66	0.37
27	0.59	0.43	0.58	0.44	0.70	0.46	0.69	0.47	0.73	0.41	0.72	0.41	0.46	0.35	0.49	0.36
28	0.62	0.32	0.62	0.36	0.55	0.20	0.54	0.19	0.55	0.38	0.55	0.37	0.70	0.43	0.70	0.43
29	0.38	0.14	0.38	0.16	0.49	0.15	0.49	0.14	0.38	0.10	0.38	0.12	0.36	0.13	0.37	0.13
30	0.36	0.19	0.37	0.20	0.48	0.40	0.47	0.39	0.82	0.32	0.79	0.32	0.73	0.37	0.71	0.37
31	0.60	0.39	0.61	0.40	0.38	0.18	0.37	0.16	0.54	0.35	0.53	0.34	0.62	0.41	0.62	0.42
32	0.49	0.41	0.51	0.41	0.45	0.29	0.44	0.30	0.43	0.34	0.43	0.33	0.49	0.35	0.49	0.35
33	0.50	0.42	0.48	0.43	0.57	0.36	0.59	0.38	0.67	0.33	0.66	0.32	0.66	0.34	0.64	0.34
34	0.53	0.29	0.54	0.31	0.50	0.28	0.49	0.28	0.56	0.40	0.54	0.38	0.46	0.29	0.46	0.30
35	0.63	0.30	0.63	0.31	0.64	0.35	0.63	0.36	0.47	0.28	0.45	0.26	0.67	0.44	0.67	0.42
36	0.63	0.46	0.63	0.45	0.47	0.32	0.46	0.30	0.70	0.41	0.69	0.41	0.62	0.33	0.61	0.33
37	0.71	0.45	0.71	0.46	0.60	0.42	0.58	0.44	0.70	0.42	0.69	0.41	0.57	0.25	0.56	0.26
38	0.58	0.44	0.59	0.46	0.52	0.33	0.52	0.34	0.51	0.32	0.50	0.32	0.36	0.19	0.37	0.20
39	0.63	0.45	0.63	0.47	0.60	0.34	0.60	0.34	0.84	0.36	0.82	0.37	0.32	0.13	0.32	0.10
40	0.51	0.37	0.51	0.39	0.48	0.26	0.50	0.27	0.71	0.45	0.69	0.44	0.85	0.39	0.83	0.40

Item-by-item *p*-value and Point Biserial for ELA, Grades Three through Six																
CMA	**Grade 3**				**Grade 4**				**Grade 5**				**Grade 6**			
Year	**2013**		**2010**		**2013**		**2010**		**2013**		**2010**		**2013**		**2011**	
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**	***p*-value**	**Pt-Bis**
41	0.66	0.46	0.66	0.45	0.60	0.41	0.59	0.41	0.45	0.27	0.45	0.27	0.61	0.28	0.60	0.27
42	0.42	0.20	0.41	0.21	0.51	0.32	0.51	0.31	0.77	0.43	0.74	0.43	0.52	0.31	0.51	0.30
43	0.51	0.32	0.51	0.34	0.66	0.42	0.64	0.43	0.50	0.27	0.49	0.27	0.69	0.26	0.67	0.24
44	0.66	0.48	0.64	0.5	0.55	0.30	0.54	0.31	0.51	0.37	0.50	0.36	0.55	0.35	0.53	0.33
45	0.59	0.43	0.58	0.41	0.49	0.32	0.47	0.32	0.60	0.42	0.60	0.42	0.44	0.27	0.44	0.27
46	0.71	0.37	0.73	0.38	0.47	0.30	0.48	0.29	0.38	0.25	0.37	0.26	0.79	0.37	0.78	0.36
47	0.53	0.33	0.53	0.33	0.49	0.30	0.50	0.33	0.50	0.37	0.49	0.37	0.60	0.38	0.58	0.38
48	0.80	0.41	0.79	0.42	0.42	0.31	0.41	0.30	0.61	0.37	0.60	0.35	0.77	0.47	0.76	0.49
49	.	.	.	.	.	.	.	.	.	.	.	.	0.71	0.44	0.71	0.45
50	.	.	.	.	.	.	.	.	.	.	.	.	0.65	0.33	0.64	0.35
51	.	.	.	.	.	.	.	.	.	.	.	.	0.56	0.30	0.56	0.30
52	.	.	.	.	.	.	.	.	.	.	.	.	0.55	0.37	0.54	0.38
53	.	.	.	.	.	.	.	.	.	.	.	.	0.48	0.27	0.50	0.27
54	.	.	.	.	.	.	.	.	.	.	.	.	0.59	0.38	0.57	0.37

Table 8.A.2 Item-by-item *p*-value and Point Biserial for ELA, Grades Seven through Eleven—Current Year (2013) and Original Year of Administration

Item-by-item *p*-value and Point Biserial for ELA, Grades Seven through Eleven																				
CMA	**Grade 7**				**Grade 8**				**Grade 9**				**Grade 10**				**Grade 11**			
Years	**2013**		**2011**		**2013**		**2011**		**2013**		**2012**		**2013**		**2012**		**2013**		**2012**	
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**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
1	0.80	0.32	0.79	0.31	0.78	0.35	0.76	0.35	0.82	0.29	0.82	0.29	0.71	0.39	0.71	0.39	0.38	0.11	0.39	0.11
2	0.59	0.32	0.56	0.31	0.86	0.34	0.83	0.35	0.67	0.28	0.65	0.29	0.58	0.25	0.58	0.25	0.58	0.29	0.57	0.29
3	0.80	0.45	0.77	0.45	0.40	0.30	0.37	0.29	0.46	0.24	0.46	0.26	0.74	0.39	0.72	0.40	0.65	0.35	0.65	0.36
4	0.60	0.35	0.59	0.35	0.66	0.43	0.65	0.42	0.57	0.34	0.57	0.31	0.82	0.41	0.82	0.41	0.34	0.12	0.34	0.12
5	0.54	0.32	0.55	0.34	0.73	0.24	0.72	0.24	0.69	0.40	0.67	0.39	0.75	0.38	0.74	0.37	0.66	0.19	0.64	0.19
6	0.68	0.40	0.66	0.41	0.40	0.30	0.41	0.31	0.72	0.35	0.70	0.36	0.56	0.33	0.54	0.31	0.71	0.36	0.71	0.36
7	0.78	0.39	0.77	0.39	0.58	0.21	0.58	0.22	0.55	0.35	0.54	0.34	0.44	0.30	0.44	0.28	0.62	0.34	0.61	0.33
8	0.61	0.35	0.59	0.33	0.80	0.39	0.77	0.39	0.44	0.25	0.45	0.28	0.55	0.31	0.54	0.29	0.51	0.12	0.50	0.12
9	0.42	0.22	0.41	0.21	0.33	0.25	0.33	0.26	0.66	0.41	0.66	0.40	0.37	0.10	0.38	0.10	0.31	0.16	0.30	0.18
10	0.85	0.43	0.83	0.44	0.79	0.43	0.77	0.43	0.65	0.43	0.65	0.44	0.72	0.36	0.72	0.36	0.52	0.36	0.52	0.37
11	0.70	0.39	0.68	0.38	0.66	0.37	0.63	0.38	0.56	0.42	0.55	0.43	0.54	0.28	0.54	0.27	0.41	0.24	0.41	0.24
12	0.73	0.43	0.74	0.45	0.61	0.32	0.60	0.31	0.32	0.22	0.33	0.21	0.45	0.32	0.44	0.30	0.46	0.35	0.45	0.35
13	0.59	0.42	0.60	0.44	0.57	0.41	0.56	0.41	0.40	0.21	0.40	0.21	0.49	0.35	0.48	0.33	0.50	0.33	0.51	0.32
14	0.49	0.29	0.49	0.29	0.52	0.36	0.51	0.36	0.58	0.43	0.59	0.42	0.27	0.16	0.26	0.16	0.47	0.25	0.49	0.25
15	0.72	0.51	0.71	0.51	0.79	0.40	0.75	0.41	0.45	0.38	0.44	0.40	0.51	0.30	0.52	0.31	0.52	0.15	0.52	0.15
16	0.59	0.41	0.58	0.41	0.49	0.24	0.49	0.23	0.54	0.37	0.54	0.38	0.52	0.36	0.52	0.35	0.53	0.40	0.52	0.41
17	0.68	0.45	0.66	0.45	0.49	0.17	0.48	0.16	0.53	0.32	0.53	0.32	0.46	0.15	0.46	0.15	0.46	0.28	0.46	0.27
18	0.74	0.48	0.74	0.47	0.41	0.24	0.39	0.21	0.52	0.39	0.51	0.39	0.60	0.38	0.59	0.38	0.54	0.38	0.53	0.37
19	0.43	0.35	0.42	0.33	0.47	0.35	0.46	0.34	0.71	0.40	0.71	0.40	0.61	0.36	0.60	0.38	0.43	0.27	0.43	0.26
20	0.60	0.36	0.59	0.36	0.49	0.27	0.48	0.24	0.63	0.43	0.63	0.41	0.37	0.26	0.36	0.24	0.34	0.26	0.34	0.27
21	0.44	0.36	0.44	0.35	0.31	–0.01	0.30	–0.01	0.45	0.26	0.45	0.24	0.47	0.23	0.45	0.22	0.47	0.24	0.47	0.25
22	0.54	0.23	0.55	0.25	0.54	0.34	0.54	0.34	0.45	0.19	0.45	0.19	0.43	0.23	0.43	0.22	0.50	0.29	0.49	0.29
23	0.60	0.44	0.58	0.43	0.58	0.35	0.57	0.34	0.52	0.29	0.50	0.29	0.36	0.23	0.35	0.22	0.62	0.36	0.62	0.37
24	0.70	0.49	0.69	0.48	0.47	0.40	0.46	0.40	0.52	0.21	0.51	0.24	0.54	0.42	0.52	0.40	0.52	0.43	0.51	0.42
25	0.63	0.45	0.62	0.45	0.50	0.30	0.49	0.29	0.57	0.39	0.56	0.40	0.51	0.33	0.51	0.32	0.59	0.35	0.59	0.36
26	0.61	0.46	0.60	0.47	0.62	0.40	0.60	0.38	0.54	0.33	0.54	0.34	0.39	0.21	0.39	0.20	0.34	0.25	0.34	0.25
27	0.67	0.34	0.66	0.33	0.63	0.28	0.62	0.28	0.51	0.36	0.51	0.36	0.57	0.33	0.58	0.33	0.45	0.24	0.45	0.23
28	0.63	0.44	0.62	0.44	0.31	0.25	0.30	0.24	0.57	0.34	0.57	0.36	0.57	0.36	0.57	0.35	0.36	0.14	0.36	0.14
29	0.58	0.41	0.56	0.40	0.74	0.43	0.73	0.42	0.53	0.29	0.51	0.31	0.40	0.33	0.39	0.33	0.41	0.27	0.40	0.25
30	0.46	0.21	0.45	0.20	0.68	0.44	0.66	0.42	0.49	0.32	0.49	0.30	0.28	0.03	0.28	0.02	0.28	0.11	0.28	0.11
31	0.55	0.19	0.55	0.19	0.50	0.40	0.50	0.40	0.49	0.30	0.49	0.30	0.58	0.37	0.57	0.36	0.37	0.19	0.37	0.18
32	0.50	0.24	0.48	0.22	0.54	0.29	0.53	0.29	0.52	0.34	0.51	0.32	0.52	0.46	0.51	0.44	0.31	0.15	0.31	0.15
33	0.50	0.30	0.49	0.29	0.61	0.29	0.60	0.29	0.22	0.06	0.22	0.05	0.47	0.25	0.46	0.24	0.30	0.06	0.31	0.07
34	0.45	0.19	0.44	0.20	0.63	0.25	0.60	0.26	0.51	0.35	0.51	0.34	0.34	0.10	0.33	0.08	0.43	0.27	0.42	0.26
35	0.49	0.24	0.48	0.25	0.47	0.29	0.45	0.28	0.50	0.35	0.49	0.34	0.42	0.25	0.41	0.23	0.53	0.36	0.51	0.35
36	0.55	0.35	0.53	0.34	0.45	0.26	0.43	0.26	0.43	0.27	0.42	0.27	0.34	0.12	0.34	0.10	0.47	0.35	0.47	0.34
37	0.54	0.25	0.53	0.24	0.47	0.30	0.46	0.30	0.45	0.22	0.45	0.21	0.59	0.31	0.57	0.31	0.38	0.27	0.39	0.28
38	0.73	0.38	0.72	0.39	0.45	0.28	0.43	0.28	0.68	0.35	0.67	0.34	0.47	0.29	0.45	0.27	0.41	0.20	0.41	0.22
39	0.49	0.37	0.47	0.36	0.59	0.34	0.58	0.34	0.58	0.35	0.57	0.35	0.55	0.37	0.53	0.36	0.46	0.27	0.46	0.26
40	0.61	0.32	0.61	0.33	0.48	0.27	0.46	0.26	0.73	0.49	0.72	0.49	0.50	0.24	0.49	0.25	0.41	0.25	0.41	0.26

Item-by-item *p*-value and Point Biserial for ELA, Grades Seven through Eleven

CMA	Grade 7				Grade 8				Grade 9				Grade 10				Grade 11			
Years	2013		2011		2013		2011		2013		2012		2013		2012		2013		2012	
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	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis
41	0.66	0.43	0.65	0.42	0.40	0.28	0.40	0.30	0.46	0.25	0.46	0.25	0.38	0.18	0.36	0.15	0.45	0.22	0.44	0.19
42	0.55	0.32	0.56	0.33	0.44	0.29	0.42	0.29	0.44	0.25	0.43	0.25	0.62	0.42	0.61	0.42	0.42	0.18	0.41	0.21
43	0.60	0.16	0.61	0.18	0.76	0.34	0.75	0.35	0.40	0.26	0.40	0.25	0.53	0.33	0.55	0.33	0.34	0.25	0.33	0.24
44	0.71	0.40	0.69	0.39	0.68	0.46	0.66	0.46	0.58	0.33	0.57	0.35	0.48	0.27	0.46	0.25	0.29	0.15	0.30	0.15
45	0.54	0.28	0.54	0.28	0.64	0.38	0.62	0.38	0.51	0.28	0.50	0.27	0.53	0.27	0.53	0.28	0.56	0.42	0.55	0.42
46	0.67	0.39	0.65	0.39	0.46	0.28	0.46	0.28	0.38	0.13	0.38	0.13	0.41	0.32	0.40	0.30	0.41	0.22	0.41	0.23
47	0.54	0.41	0.53	0.40	0.59	0.39	0.56	0.39	0.45	0.27	0.44	0.27	0.36	0.14	0.36	0.13	0.45	0.28	0.43	0.29
48	0.76	0.44	0.76	0.45	0.64	0.46	0.61	0.46	0.47	0.32	0.47	0.31	0.47	0.26	0.47	0.27	0.42	0.19	0.40	0.19
49	0.78	0.42	0.77	0.43	0.74	0.33	0.73	0.33	0.51	0.38	0.50	0.38	0.54	0.39	0.53	0.39	0.41	0.19	0.41	0.19
50	0.55	0.32	0.55	0.33	0.63	0.35	0.62	0.36	0.71	0.40	0.70	0.42	0.71	0.47	0.69	0.46	0.56	0.38	0.54	0.38
51	0.61	0.37	0.59	0.36	0.72	0.41	0.70	0.42	0.60	0.42	0.59	0.42	0.47	0.32	0.45	0.30	0.59	0.38	0.58	0.38
52	0.48	0.32	0.46	0.31	0.74	0.41	0.70	0.41	0.52	0.28	0.50	0.27	0.59	0.42	0.57	0.41	0.45	0.31	0.44	0.32
53	0.61	0.37	0.60	0.36	0.48	0.39	0.47	0.40	0.50	0.31	0.50	0.30	0.57	0.35	0.54	0.34	0.65	0.36	0.63	0.37
54	0.42	0.25	0.42	0.24	0.77	0.38	0.74	0.38	0.46	0.26	0.45	0.24	0.58	0.35	0.56	0.35	0.44	0.23	0.42	0.23
55	.	.	.	.	.	.	.	.	0.48	0.31	0.47	0.29	0.38	0.23	0.36	0.22	0.32	0.10	0.32	0.11
56	.	.	.	.	.	.	.	.	0.54	0.36	0.54	0.35	0.44	0.31	0.43	0.29	0.47	0.29	0.47	0.30
57	.	.	.	.	.	.	.	.	0.44	0.26	0.40	0.24	0.45	0.26	0.45	0.25	0.40	0.20	0.39	0.20
58	.	.	.	.	.	.	.	.	0.55	0.36	0.54	0.33	0.66	0.43	0.62	0.44	0.39	0.33	0.39	0.31
59	.	.	.	.	.	.	.	.	0.45	0.26	0.45	0.26	0.55	0.37	0.53	0.35	0.41	0.20	0.42	0.20
60	.	.	.	.	.	.	.	.	0.46	0.29	0.46	0.28	0.47	0.26	0.45	0.26	0.34	0.09	0.35	0.11

Table 8.A.3 Item-by-item *p*-value and Point Biserial for Mathematics, Grades Three through Seven—Current Year (2013) and Original Year of Administration

Item-by-item *p*-value and Point Biserial for Mathematics, Grades Three through Seven																				
CMA	**Grade 3**				**Grade 4**				**Grade 5**				**Grade 6**				**Grade 7**			
Years	**2013**		**2010**		**2013**		**2010**		**2013**		**2010**		**2013**		**2011**		**2013**		**2011**	
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**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
1	0.48	0.37	0.50	0.38	0.82	0.41	0.82	0.41	0.72	0.38	0.70	0.37	0.47	0.23	0.48	0.24	0.69	0.15	0.69	0.14
2	0.61	0.43	0.60	0.44	0.80	0.36	0.81	0.34	0.79	0.36	0.79	0.35	0.70	0.28	0.71	0.29	0.44	0.27	0.44	0.27
3	0.67	0.46	0.68	0.46	0.82	0.40	0.82	0.41	0.65	0.40	0.63	0.40	0.49	0.33	0.49	0.33	0.31	0.25	0.31	0.26
4	0.58	0.50	0.57	0.50	0.80	0.42	0.80	0.43	0.74	0.41	0.73	0.40	0.30	0.08	0.31	0.08	0.27	0.14	0.27	0.14
5	0.75	0.32	0.77	0.31	0.35	0.14	0.36	0.11	0.67	0.42	0.66	0.41	0.50	0.32	0.53	0.35	0.35	0.18	0.34	0.17
6	0.38	0.31	0.41	0.33	0.61	0.43	0.61	0.43	0.93	0.34	0.93	0.33	0.66	0.28	0.66	0.27	0.54	0.15	0.53	0.16
7	0.49	0.40	0.50	0.40	0.58	0.34	0.58	0.35	0.65	0.38	0.64	0.38	0.56	0.35	0.57	0.37	0.29	0.15	0.28	0.15
8	0.42	0.35	0.44	0.38	0.43	0.30	0.44	0.30	0.44	0.29	0.44	0.29	0.66	0.29	0.66	0.30	0.46	0.21	0.45	0.21
9	0.70	0.47	0.71	0.47	0.45	0.25	0.46	0.26	0.59	0.44	0.58	0.43	0.42	0.29	0.42	0.30	0.62	0.20	0.62	0.21
10	0.64	0.45	0.64	0.46	0.44	0.33	0.43	0.34	0.63	0.46	0.61	0.45	0.53	0.39	0.54	0.39	0.53	0.30	0.53	0.29
11	0.53	0.40	0.51	0.38	0.38	0.18	0.39	0.21	0.41	0.18	0.42	0.17	0.53	0.20	0.52	0.21	0.34	0.13	0.35	0.15
12	0.67	0.48	0.68	0.47	0.41	0.34	0.41	0.34	0.60	0.24	0.59	0.25	0.51	0.26	0.50	0.24	0.48	0.18	0.49	0.19
13	0.52	0.35	0.53	0.36	0.55	0.31	0.56	0.31	0.42	0.35	0.40	0.34	0.56	0.28	0.57	0.29	0.24	0.24	0.24	0.23
14	0.41	0.37	0.42	0.35	0.72	0.34	0.71	0.35	0.59	0.42	0.57	0.41	0.61	0.31	0.61	0.29	0.44	0.20	0.44	0.20
15	0.57	0.44	0.58	0.44	0.61	0.32	0.61	0.32	0.59	0.37	0.57	0.36	0.45	0.23	0.44	0.23	0.58	0.33	0.60	0.32
16	0.33	0.09	0.34	0.13	0.65	0.43	0.64	0.42	0.38	0.16	0.40	0.18	0.59	0.32	0.59	0.33	0.42	0.20	0.43	0.20
17	0.61	0.35	0.61	0.36	0.53	0.42	0.53	0.43	0.74	0.45	0.71	0.44	0.58	0.31	0.60	0.31	0.65	0.37	0.64	0.37
18	0.59	0.31	0.60	0.29	0.89	0.38	0.89	0.37	0.62	0.43	0.59	0.44	0.55	0.28	0.54	0.28	0.61	0.25	0.62	0.26
19	0.69	0.45	0.68	0.44	0.55	0.31	0.56	0.31	0.77	0.46	0.74	0.46	0.56	0.34	0.56	0.34	0.44	0.24	0.44	0.24
20	0.59	0.50	0.59	0.51	0.69	0.43	0.67	0.43	0.67	0.44	0.65	0.44	0.38	0.27	0.39	0.26	0.57	0.37	0.57	0.36
21	0.63	0.49	0.64	0.49	0.81	0.42	0.80	0.43	0.67	0.47	0.67	0.46	0.48	0.35	0.50	0.36	0.46	0.25	0.45	0.24
22	0.63	0.38	0.63	0.36	0.79	0.34	0.81	0.35	0.75	0.44	0.73	0.43	0.74	0.40	0.73	0.40	0.33	0.03	0.33	0.02
23	0.63	0.54	0.64	0.53	0.80	0.43	0.79	0.44	0.82	0.28	0.80	0.28	0.55	0.30	0.56	0.31	0.47	0.19	0.46	0.17
24	0.67	0.48	0.68	0.48	0.30	0.09	0.29	0.09	0.74	0.46	0.70	0.46	0.46	0.15	0.45	0.17	0.56	0.26	0.57	0.26
25	0.78	0.44	0.77	0.44	0.58	0.44	0.58	0.44	0.50	0.28	0.48	0.28	0.58	0.46	0.59	0.46	0.72	0.33	0.71	0.33
26	0.61	0.31	0.60	0.33	0.60	0.41	0.59	0.41	0.62	0.45	0.60	0.42	0.56	0.40	0.56	0.40	0.36	0.38	0.37	0.39
27	0.63	0.36	0.65	0.37	0.51	0.29	0.50	0.29	0.62	0.47	0.60	0.47	0.48	0.27	0.49	0.27	0.29	0.17	0.28	0.15
28	0.50	0.22	0.51	0.24	0.60	0.39	0.60	0.40	0.66	0.50	0.65	0.49	0.73	0.44	0.73	0.44	0.48	0.32	0.48	0.33
29	0.50	0.28	0.51	0.33	0.48	0.34	0.48	0.35	0.45	0.22	0.44	0.21	0.58	0.35	0.58	0.35	0.39	0.26	0.38	0.27
30	0.60	0.29	0.61	0.29	0.44	0.29	0.44	0.29	0.73	0.45	0.72	0.45	0.44	0.26	0.44	0.26	0.46	0.26	0.47	0.27
31	0.66	0.36	0.66	0.38	0.46	0.17	0.47	0.19	0.53	0.38	0.51	0.36	0.56	0.38	0.55	0.38	0.46	0.38	0.44	0.37
32	0.72	0.41	0.73	0.43	0.35	0.10	0.35	0.10	0.73	0.42	0.71	0.42	0.61	0.36	0.60	0.37	0.58	0.34	0.58	0.34
33	0.81	0.34	0.82	0.34	0.68	0.44	0.68	0.44	0.47	0.30	0.47	0.31	0.30	0.09	0.31	0.11	0.66	0.29	0.65	0.29
34	0.78	0.43	0.78	0.44	0.61	0.35	0.59	0.35	0.45	0.29	0.45	0.29	0.75	0.36	0.76	0.36	0.48	0.33	0.48	0.33
35	0.67	0.44	0.67	0.46	0.82	0.32	0.81	0.35	0.39	0.07	0.39	0.07	0.55	0.28	0.56	0.27	0.53	0.30	0.52	0.31
36	0.74	0.35	0.73	0.38	0.39	0.08	0.40	0.10	0.51	0.37	0.49	0.36	0.68	0.37	0.68	0.37	0.37	0.29	0.38	0.29
37	0.64	0.41	0.64	0.40	0.46	0.27	0.45	0.28	0.33	0.20	0.33	0.23	0.77	0.41	0.77	0.41	0.46	0.38	0.45	0.38
38	0.82	0.22	0.80	0.22	0.44	0.26	0.44	0.27	0.63	0.43	0.61	0.43	0.39	0.25	0.40	0.24	0.39	0.26	0.40	0.27
39	0.83	0.39	0.83	0.39	0.32	0.10	0.31	0.10	0.59	0.31	0.57	0.33	0.55	0.35	0.55	0.36	0.51	0.23	0.52	0.23
40	0.65	0.47	0.65	0.49	0.42	0.27	0.41	0.26	0.55	0.33	0.52	0.32	0.41	0.06	0.39	0.06	0.47	0.26	0.45	0.25

Item-by-item *p*-value and Point Biserial for Mathematics, Grades Three through Seven

CMA	Grade 3				Grade 4				Grade 5				Grade 6				Grade 7			
Years	2013		2010		2013		2010		2013		2010		2013		2011		2013		2011	
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	*p*-value	Pt-Bis	*p*-value	Pt-Bis	*p*-value	Pt-Bis
41	0.54	0.16	0.54	0.16	0.58	0.33	0.58	0.32	0.69	0.38	0.67	0.37	0.46	0.18	0.47	0.18	0.53	0.30	0.54	0.31
42	0.77	0.40	0.77	0.40	0.58	0.26	0.58	0.27	0.55	0.19	0.54	0.19	0.46	0.19	0.45	0.19	0.48	0.29	0.47	0.28
43	0.77	0.43	0.76	0.43	0.54	0.33	0.53	0.31	0.61	0.29	0.60	0.30	0.51	0.34	0.52	0.35	0.16	-.10	0.16	-.09
44	0.57	0.47	0.57	0.48	0.53	0.24	0.54	0.25	0.74	0.42	0.73	0.42	0.55	0.24	0.56	0.26	0.27	0.06	0.28	0.06
45	0.73	0.49	0.72	0.48	0.29	0.05	0.31	0.07	0.38	0.16	0.36	0.15	0.53	0.25	0.54	0.26	0.24	0.09	0.25	0.09
46	0.52	0.46	0.52	0.44	0.51	0.30	0.51	0.32	0.62	0.48	0.61	0.47	0.44	0.22	0.44	0.22	0.46	0.38	0.45	0.37
47	0.62	0.51	0.61	0.53	0.54	0.36	0.54	0.36	0.74	0.47	0.70	0.46	0.46	0.28	0.46	0.29	0.48	0.32	0.48	0.32
48	0.74	0.51	0.73	0.51	0.69	0.43	0.68	0.43	0.71	0.47	0.69	0.48	0.47	0.23	0.46	0.22	0.31	0.10	0.31	0.11
49	.	.	.	.	.	.	.	.	.	.	.	.	0.64	0.34	0.64	0.35	0.62	0.33	0.62	0.34
50	.	.	.	.	.	.	.	.	.	.	.	.	0.79	0.35	0.78	0.36	0.61	0.35	0.61	0.34
51	.	.	.	.	.	.	.	.	.	.	.	.	0.38	0.09	0.39	0.09	0.57	0.31	0.56	0.31
52	.	.	.	.	.	.	.	.	.	.	.	.	0.54	0.28	0.53	0.29	0.57	0.32	0.56	0.32
53	.	.	.	.	.	.	.	.	.	.	.	.	0.36	0.16	0.36	0.16	0.48	0.29	0.47	0.27
54	.	.	.	.	.	.	.	.	.	.	.	.	0.47	0.36	0.47	0.37	0.58	0.25	0.58	0.25

Table 8.A.4 Item-by-item *p*-value and Point Biserial for EOC Algebra I and Geometry—Current Year (2013) and Original Year of Administration

Item-by-item *p*-value and Point Biserial for EOC Algebra I and Geometry								
CMA	**Algebra I**				**Geometry**			
Years	**2013**		**2012**		**2013**		**2012**	
Items	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
1	0.64	0.17	0.65	0.17	0.71	0.25	0.69	0.25
2	0.63	0.29	0.63	0.29	0.55	0.36	0.56	0.36
3	0.50	0.29	0.50	0.29	0.56	0.34	0.56	0.33
4	0.63	0.43	0.63	0.44	0.56	0.24	0.56	0.22
5	0.50	0.43	0.50	0.43	0.62	0.17	0.63	0.19
6	0.48	0.23	0.48	0.23	0.48	0.30	0.49	0.28
7	0.57	0.31	0.57	0.31	0.52	0.37	0.51	0.37
8	0.29	0.24	0.30	0.24	0.52	0.35	0.51	0.35
9	0.50	0.32	0.50	0.32	0.47	0.34	0.47	0.32
10	0.60	0.46	0.60	0.46	0.48	0.22	0.48	0.24
11	0.67	0.36	0.67	0.35	0.39	0.16	0.40	0.14
12	0.61	0.32	0.61	0.33	0.50	0.24	0.49	0.23
13	0.59	0.34	0.57	0.34	0.34	0.15	0.34	0.17
14	0.60	0.35	0.61	0.35	0.59	0.37	0.60	0.37
15	0.58	0.40	0.58	0.40	0.37	0.17	0.39	0.15
16	0.44	0.20	0.43	0.19	0.44	0.19	0.44	0.16
17	0.40	0.24	0.40	0.29	0.50	0.25	0.50	0.27
18	0.31	0.22	0.32	0.21	0.54	0.26	0.52	0.27
19	0.43	0.20	0.42	0.19	0.69	0.44	0.68	0.44
20	0.32	0.18	0.32	0.18	0.33	0.10	0.33	0.11
21	0.56	0.19	0.56	0.20	0.35	0.26	0.35	0.26
22	0.48	0.30	0.48	0.29	0.51	0.32	0.50	0.32
23	0.49	0.23	0.48	0.23	0.49	0.36	0.49	0.36
24	0.50	0.27	0.49	0.27	0.51	0.39	0.49	0.38
25	0.37	0.18	0.37	0.20	0.57	0.39	0.57	0.38
26	0.39	0.26	0.40	0.26	0.53	0.38	0.53	0.34
27	0.56	0.32	0.56	0.32	0.35	0.12	0.35	0.11
28	0.48	0.29	0.48	0.29	0.55	0.30	0.54	0.30
29	0.53	0.33	0.54	0.33	0.50	0.32	0.49	0.32
30	0.61	0.31	0.59	0.31	0.51	0.30	0.51	0.31
31	0.35	0.10	0.35	0.10	0.44	0.28	0.44	0.27
32	0.58	0.41	0.57	0.41	0.50	0.28	0.51	0.27
33	0.55	0.39	0.55	0.40	0.47	0.36	0.47	0.35
34	0.42	0.18	0.42	0.18	0.51	0.37	0.50	0.39
35	0.46	0.31	0.46	0.32	0.41	0.20	0.41	0.20
36	0.58	0.44	0.57	0.44	0.29	0.19	0.28	0.20
37	0.32	0.17	0.32	0.18	0.48	0.25	0.48	0.25
38	0.41	0.19	0.41	0.21	0.44	0.11	0.45	0.15
39	0.45	0.18	0.44	0.18	0.34	0.24	0.36	0.23
40	0.37	0.12	0.38	0.12	0.50	0.40	0.49	0.39
41	0.40	0.11	0.40	0.12	0.36	0.20	0.37	0.18
42	0.54	0.31	0.54	0.29	0.36	0.18	0.37	0.20
43	0.50	0.33	0.50	0.33	0.73	0.34	0.71	0.36
44	0.55	0.31	0.55	0.33	0.31	0.13	0.32	0.10
45	0.38	0.15	0.38	0.14	0.52	0.29	0.52	0.28
46	0.39	0.20	0.38	0.20	0.45	0.20	0.45	0.18
47	0.55	0.39	0.54	0.39	0.58	0.29	0.58	0.31
48	0.44	0.26	0.44	0.27	0.66	0.38	0.66	0.38
49	0.49	0.32	0.49	0.32	0.39	0.20	0.38	0.18
50	0.45	0.32	0.46	0.32	0.56	0.34	0.56	0.31
51	0.64	0.38	0.63	0.38	0.49	0.30	0.48	0.29
52	0.42	0.29	0.42	0.30	0.49	0.23	0.47	0.23
53	0.38	0.23	0.39	0.23	0.46	0.28	0.45	0.28
54	0.53	0.34	0.53	0.34	0.41	0.27	0.43	0.26
55	0.46	0.26	0.44	0.25	0.51	0.38	0.50	0.38
56	0.38	0.16	0.39	0.16	0.49	0.27	0.49	0.26
57	0.51	0.36	0.50	0.36	0.39	0.17	0.38	0.17
58	0.43	0.28	0.42	0.27	0.36	0.25	0.35	0.22
59	0.49	0.26	0.49	0.27	0.40	0.19	0.40	0.18
60	0.56	0.31	0.55	0.30	0.40	0.20	0.39	0.20

Table 8.A.5 Item-by-item *p*-value and Point Biserial for Science, Grades Five, Eight, and Ten—Current Year (2013) and Original Year of Administration

Item-by-item *p*-value and Point Biserial for Science, Grades Five, Eight, and Ten												
CMA	**Grade 5**				**Grade 8**				**Life Science (Grade 10)**			
Years	**2013**		**2010**		**2013**		**2011**		**2013**		**2012**	
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	0.65	0.40	0.62	0.39	0.79	0.35	0.78	0.34	0.71	0.27	0.69	0.29
2	0.70	0.31	0.68	0.32	0.78	0.28	0.77	0.29	0.44	0.29	0.43	0.27
3	0.49	0.32	0.49	0.30	0.66	0.39	0.65	0.39	0.59	0.24	0.59	0.24
4	0.60	0.35	0.60	0.35	0.45	0.30	0.44	0.28	0.67	0.28	0.69	0.28
5	0.49	0.26	0.47	0.26	0.69	0.33	0.68	0.32	0.47	0.22	0.47	0.22
6	0.48	0.14	0.47	0.13	0.52	0.25	0.52	0.27	0.39	0.26	0.38	0.24
7	0.47	0.30	0.45	0.28	0.60	0.26	0.60	0.29	0.32	–0.07	0.31	–0.05
8	0.71	0.45	0.69	0.44	0.67	0.40	0.63	0.39	0.48	0.26	0.46	0.25
9	0.81	0.28	0.80	0.28	0.89	0.38	0.88	0.38	0.42	0.20	0.42	0.19
10	0.66	0.11	0.68	0.10	0.62	0.35	0.59	0.35	0.56	0.34	0.55	0.30
11	0.53	0.34	0.52	0.33	0.66	0.36	0.65	0.37	0.41	0.22	0.42	0.19
12	0.55	0.37	0.55	0.37	0.39	0.16	0.40	0.16	0.62	0.30	0.60	0.29
13	0.41	0.17	0.39	0.16	0.64	0.42	0.61	0.42	0.58	0.25	0.59	0.25
14	0.75	0.39	0.72	0.39	0.62	0.38	0.61	0.38	0.50	0.28	0.49	0.26
15	0.63	0.23	0.63	0.26	0.65	0.29	0.63	0.29	0.53	0.26	0.52	0.26
16	0.52	0.20	0.48	0.19	0.51	0.22	0.48	0.22	0.44	0.29	0.44	0.29
17	0.41	0.21	0.40	0.21	0.68	0.30	0.67	0.31	0.58	0.36	0.58	0.36
18	0.65	0.33	0.64	0.35	0.59	0.31	0.58	0.31	0.46	0.32	0.47	0.31
19	0.53	0.27	0.53	0.29	0.62	0.24	0.60	0.23	0.47	0.30	0.48	0.30
20	0.75	0.36	0.74	0.39	0.58	0.38	0.56	0.38	0.54	0.32	0.54	0.33
21	0.59	0.34	0.58	0.33	0.69	0.38	0.67	0.38	0.62	0.42	0.62	0.40
22	0.87	0.35	0.85	0.38	0.54	0.35	0.51	0.34	0.50	0.27	0.50	0.26
23	0.66	0.37	0.65	0.37	0.56	0.38	0.53	0.35	0.63	0.38	0.63	0.38
24	0.72	0.25	0.70	0.26	0.61	0.29	0.56	0.28	0.62	0.37	0.61	0.36
25	0.63	0.32	0.62	0.33	0.46	0.33	0.44	0.32	0.52	0.40	0.51	0.39
26	0.67	0.45	0.63	0.45	0.48	0.33	0.45	0.32	0.62	0.42	0.61	0.43
27	0.71	0.35	0.70	0.36	0.55	0.36	0.53	0.36	0.50	0.32	0.50	0.32
28	0.59	0.38	0.57	0.37	0.77	0.36	0.76	0.37	0.71	0.42	0.69	0.42
29	0.50	0.31	0.48	0.30	0.58	0.42	0.57	0.42	0.66	0.48	0.65	0.46
30	0.58	0.38	0.59	0.37	0.57	0.39	0.55	0.39	0.62	0.39	0.61	0.38
31	0.65	0.40	0.64	0.40	0.70	0.44	0.66	0.42	0.52	0.24	0.51	0.27
32	0.63	0.34	0.62	0.34	0.69	0.47	0.67	0.46	0.52	0.36	0.51	0.35
33	0.69	0.44	0.67	0.43	0.46	0.27	0.44	0.25	0.60	0.49	0.61	0.49
34	0.41	0.26	0.42	0.27	0.52	0.23	0.49	0.23	0.56	0.42	0.55	0.41
35	0.53	0.32	0.54	0.32	0.55	0.33	0.54	0.32	0.59	0.40	0.58	0.39
36	0.59	0.28	0.58	0.28	0.41	0.19	0.40	0.18	0.46	0.27	0.44	0.26
37	0.54	0.33	0.54	0.32	0.55	0.36	0.51	0.34	0.59	0.44	0.59	0.44
38	0.54	0.36	0.54	0.37	0.57	0.31	0.54	0.31	0.47	0.25	0.47	0.25
39	0.47	0.27	0.50	0.30	0.59	0.38	0.57	0.36	0.66	0.41	0.65	0.42
40	0.77	0.40	0.73	0.40	0.82	0.39	0.80	0.39	0.64	0.55	0.63	0.54
41	0.60	0.26	0.61	0.26	0.60	0.25	0.59	0.25	0.56	0.40	0.56	0.39
42	0.40	0.23	0.40	0.22	0.72	0.34	0.71	0.35	0.53	0.30	0.51	0.30
43	0.60	0.38	0.58	0.37	0.61	0.38	0.60	0.39	0.66	0.42	0.65	0.41
44	0.86	0.39	0.84	0.41	0.52	0.41	0.49	0.38	0.45	0.26	0.45	0.27
45	0.62	0.37	0.63	0.41	0.40	0.24	0.38	0.22	0.33	0.15	0.33	0.14
46	0.78	0.43	0.76	0.44	0.52	0.28	0.51	0.27	0.68	0.43	0.67	0.43
47	0.75	0.37	0.74	0.37	0.43	0.29	0.42	0.28	0.47	0.23	0.46	0.23
48	0.68	0.24	0.68	0.24	0.48	0.44	0.48	0.44	0.43	0.27	0.42	0.25
49	.	.	.	.	0.40	0.17	0.40	0.16	0.70	0.38	0.70	0.37
50	.	.	.	.	0.68	0.44	0.67	0.44	0.26	0.10	0.26	0.08
51	.	.	.	.	0.35	0.15	0.36	0.15	0.63	0.35	0.62	0.34
52	.	.	.	.	0.34	0.16	0.35	0.15	0.48	0.34	0.47	0.34
53	.	.	.	.	0.65	0.34	0.63	0.33	0.35	0.16	0.36	0.15
54	.	.	.	.	0.65	0.42	0.62	0.41	0.57	0.40	0.56	0.38
55	.	.	.	.	.	.	.	.	0.39	0.27	0.39	0.26
56	.	.	.	.	.	.	.	.	0.67	0.47	0.66	0.47
57	.	.	.	.	.	.	.	.	0.42	0.21	0.41	0.21
58	.	.	.	.	.	.	.	.	0.42	0.31	0.42	0.30
59	.	.	.	.	.	.	.	.	0.63	0.43	0.62	0.41
60	.	.	.	.	.	.	.	.	0.60	0.31	0.60	0.29

Table 8.A.6 Item-by-item *p*-value and Point Biserial for Grade-specific CMA—Current Year (2013) and Original Year of Administration

Item-by-item *p*-value and Point Biserial for Grade-specific CMA								
CSTs	**Algebra I (Grade 8)**				**Geometry (Grade 9)**			
Years	**2013**		**2012**		**2013**		**2012**	
Items	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
1	0.65	0.14	0.65	0.19	0.69	0.27	0.63	0.20
2	0.64	0.29	0.63	0.30	0.57	0.43	0.55	0.38
3	0.47	0.29	0.47	0.31	0.56	0.39	0.55	0.37
4	0.61	0.44	0.60	0.46	0.56	0.26	0.52	0.25
5	0.49	0.44	0.48	0.44	0.58	0.16	0.59	0.20
6	0.46	0.25	0.46	0.22	0.49	0.37	0.48	0.33
7	0.57	0.31	0.56	0.32	0.51	0.42	0.48	0.41
8	0.29	0.27	0.28	0.27	0.54	0.38	0.49	0.40
9	0.52	0.32	0.51	0.31	0.51	0.36	0.43	0.36
10	0.59	0.48	0.57	0.48	0.50	0.31	0.42	0.34
11	0.67	0.38	0.67	0.36	0.43	0.18	0.42	0.15
12	0.59	0.31	0.58	0.29	0.54	0.29	0.52	0.19
13	0.58	0.35	0.55	0.34	0.36	0.24	0.33	0.17
14	0.58	0.37	0.58	0.37	0.60	0.41	0.61	0.36
15	0.59	0.39	0.59	0.39	0.39	0.15	0.39	0.14
16	0.46	0.24	0.44	0.23	0.44	0.22	0.44	0.17
17	0.40	0.26	0.40	0.31	0.51	0.22	0.51	0.23
18	0.32	0.26	0.33	0.23	0.55	0.31	0.52	0.31
19	0.44	0.24	0.43	0.20	0.70	0.48	0.67	0.44
20	0.33	0.22	0.33	0.20	0.32	0.05	0.34	0.15
21	0.57	0.18	0.57	0.18	0.38	0.31	0.36	0.26
22	0.50	0.32	0.48	0.30	0.53	0.34	0.49	0.34
23	0.51	0.25	0.50	0.25	0.51	0.38	0.46	0.37
24	0.52	0.29	0.51	0.29	0.53	0.47	0.50	0.40
25	0.37	0.21	0.37	0.22	0.61	0.40	0.58	0.34
26	0.41	0.28	0.41	0.28	0.54	0.45	0.53	0.34
27	0.58	0.32	0.58	0.33	0.33	0.13	0.33	0.15
28	0.51	0.32	0.50	0.31	0.56	0.31	0.49	0.28
29	0.53	0.31	0.52	0.32	0.49	0.38	0.48	0.36
30	0.60	0.32	0.57	0.30	0.54	0.35	0.52	0.27
31	0.36	0.10	0.35	0.08	0.47	0.30	0.37	0.24
32	0.58	0.40	0.57	0.42	0.54	0.34	0.52	0.30
33	0.55	0.37	0.55	0.40	0.52	0.42	0.46	0.37
34	0.44	0.20	0.44	0.19	0.53	0.39	0.48	0.43
35	0.50	0.37	0.49	0.37	0.45	0.25	0.39	0.18
36	0.56	0.44	0.55	0.45	0.31	0.31	0.28	0.17
37	0.32	0.21	0.33	0.20	0.50	0.27	0.46	0.33
38	0.44	0.22	0.44	0.24	0.47	0.21	0.47	0.18
39	0.45	0.18	0.45	0.17	0.38	0.29	0.38	0.25
40	0.37	0.08	0.36	0.11	0.55	0.41	0.49	0.38
41	0.42	0.12	0.41	0.12	0.37	0.28	0.39	0.26
42	0.59	0.30	0.58	0.29	0.37	0.21	0.35	0.28
43	0.53	0.33	0.52	0.33	0.73	0.31	0.71	0.33
44	0.60	0.30	0.59	0.34	0.31	0.25	0.31	0.10
45	0.40	0.17	0.39	0.16	0.55	0.31	0.51	0.27
46	0.40	0.21	0.39	0.24	0.46	0.24	0.44	0.21
47	0.60	0.42	0.58	0.42	0.58	0.37	0.62	0.28
48	0.45	0.28	0.45	0.29	0.65	0.43	0.64	0.37
49	0.53	0.35	0.50	0.34	0.43	0.19	0.39	0.17
50	0.50	0.34	0.49	0.33	0.57	0.34	0.57	0.36
51	0.67	0.37	0.65	0.37	0.51	0.36	0.50	0.28
52	0.46	0.34	0.45	0.33	0.51	0.29	0.46	0.29
53	0.40	0.25	0.40	0.23	0.49	0.36	0.44	0.31
54	0.52	0.38	0.51	0.37	0.46	0.33	0.48	0.23
55	0.50	0.30	0.47	0.28	0.56	0.38	0.50	0.41
56	0.40	0.17	0.40	0.15	0.53	0.31	0.47	0.31
57	0.55	0.36	0.53	0.38	0.38	0.20	0.38	0.14
58	0.42	0.29	0.41	0.26	0.37	0.30	0.42	0.30
59	0.52	0.26	0.52	0.25	0.40	0.26	0.39	0.21
60	0.55	0.29	0.54	0.28	0.37	0.23	0.40	0.23

Table 8.A.7 Distribution of Essay Scores for ELA Grade Four—Overall and by Subgroup (all %)

Score	Total	Female	Male	English only	I-FEP	EL	R-FEP	Not Econ Disadv.	Econ Disadv.
0	1.25	0.25	1.00	0.78	0.01	0.46	0.00	0.28	0.98
1	9.89	2.33	7.56	5.11	0.07	4.63	0.07	1.62	8.26
2	60.40	19.03	41.36	31.61	0.49	27.90	0.41	11.64	48.76
3	25.78	10.13	15.65	14.71	0.37	10.51	0.18	7.26	18.52
4	2.68	1.26	1.42	1.81	0.06	0.78	0.03	1.07	1.61
Total*	100.00	33.00	66.99	54.02	1.00	44.28	0.69	21.87	78.13

Score	American Indian	Asian	Pacific Islander	Filipino	Hispanic	African American	White	Autism	Deafness
0	0.02	0.03	0.00	0.01	0.75	0.12	0.31	0.27	0.01
1	0.09	0.35	0.03	0.11	6.63	1.05	1.61	1.17	0.15
2	0.61	1.89	0.25	0.58	40.52	5.77	10.90	4.74	0.22
3	0.17	0.86	0.11	0.36	16.02	2.29	5.89	1.54	0.03
4	0.02	0.12	0.01	0.02	1.45	0.19	0.85	0.14	0.00
Total*	0.91	3.25	0.40	1.08	65.37	9.42	19.56	7.86	0.41

Score	Emotional Dist.	Hard of Hearing	MR/ID	Mult. Disab.	Orthoped. Impair.	Other Health Impair.	Specific Learning Disab.	Speech or Lang. Impair.	Traumatic Brain Injury	Visual Impair.
0	0.09	0.01	0.02	0.00	0.02	0.14	0.57	0.10	0.01	0.02
1	0.23	0.12	0.48	0.06	0.11	0.95	5.44	1.17	0.04	0.02
2	1.05	0.50	0.77	0.07	0.44	6.18	38.87	7.38	0.18	0.10
3	0.25	0.18	0.07	0.03	0.13	2.79	17.25	3.24	0.06	0.09
4	0.02	0.03	0.00	0.00	0.01	0.34	1.69	0.39	0.00	0.02
Total*	1.64	0.84	1.34	0.16	0.71	10.40	63.82	12.28	0.29	0.25

* Note: The marginal percentage for each subgroup is the percentage of examinees in that subgroup who obtained a valid writing score.

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

Score	Total	Femal	Male	English only	I-FEP	EL	R-FEP	Not Econ Disadv.	Econ Disadv.
0	1.29	0.22	1.08	0.87	0.02	0.39	0.03	0.33	0.96
1	3.98	0.82	3.15	2.09	0.06	1.77	0.04	0.79	3.18
2	41.09	11.74	29.36	20.06	0.65	19.12	1.25	7.41	33.67
3	44.01	15.97	28.04	23.11	0.89	17.72	2.32	10.22	33.81
4	9.62	4.40	5.23	5.88	0.21	2.91	0.63	3.07	6.55
Total*	99.99	33.15	66.86	52.01	1.83	41.91	4.27	21.82	78.17

Score	American Indian	Asian	Pacific Islander	Filipino	Hispanic	African American	White	Autism	Deafness
0	0.01	0.04	0.00	0.01	0.75	0.23	0.25	0.24	0.01
1	0.04	0.16	0.01	0.05	2.56	0.45	0.71	0.53	0.16
2	0.36	1.30	0.16	0.43	27.78	4.31	6.87	2.53	0.23
3	0.37	1.18	0.24	0.45	29.35	4.30	8.07	1.81	0.09
4	0.10	0.31	0.06	0.11	5.83	0.76	2.40	0.38	0.01
Total*	0.88	2.99	0.47	1.05	66.27	10.05	18.30	5.49	0.50

Score	Emotional Dist.	Hard of Hearing	MR/ID	Mult. Disab.	Orthoped. Impair.	Other Health Impair.	Specific Learning Disab.	Speech or Lang. Impair.	Traumatic Brain Injury	Visual Impair.
0	0.15	0.01	0.03	0.01	0.02	0.11	0.65	0.07	0.02	0.00
1	0.19	0.04	0.32	0.02	0.03	0.26	2.12	0.27	0.13	0.01
2	1.15	0.33	0.99	0.06	0.33	4.04	28.31	2.87	0.11	0.11
3	0.81	0.33	0.32	0.03	0.16	4.48	32.95	2.82	0.01	0.07
4	0.21	0.06	0.03	0.00	0.04	1.12	7.09	0.62	0.02	0.07
Total*	2.51	0.77	1.69	0.12	0.58	10.01	71.12	6.65	0.27	0.26

* Note: The marginal percentage for each subgroup is the percentage of examinees in that subgroup who obtained a valid writing score.

Table 8.A.9 Mean Scores for ELA Grade Four 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
24,101	2.19	7,953	2.30	16,147	2.13	13,006	2.22	241	2.40	10,659	2.15	166	2.25	5,259	2.33	18,796	2.15
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
215	2.08	767	2.22	95	2.24	257	2.25	15,425	2.16	2,221	2.15	4,616	2.27	1,856	2.01	98	1.69
Emotional Disturbance		**Hard of Hearing**		**MR/ID**		**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
387	1.93	199	2.12	317	1.67	39	1.79	168	2.00	2,457	2.22	15,075	2.22	2,899	2.22	66	2.00
Visual Imp.																	
N	Mean																
60	2.25																

Table 8.A.10 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
24,880	2.57	8,246	2.71	16,631	2.50	12,925	2.60	453	2.66	10,414	2.50	1,061	2.82	5,421	2.68	19,421	2.53
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
215	2.58	729	2.53	115	2.73	256	2.57	16,179	2.56	2,451	2.49	4,467	2.64	1,350	2.28	123	1.83
Emotional Disturbance		**Hard of Hearing**		**MR/ID**		**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
618	2.29	189	2.50	417	2.00	29	2.00	145	2.30	2,460	2.62	17,463	2.61	1,631	2.55	67	2.39
Visual Imp.																	
N	Mean																
60	2.77																

Table 8.A.11 Effect Sizes for ELA Grade Four 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
–0.25	0.26	–0.25	0.10	–0.04	0.38	0.21	–0.15

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.
0.26	0.07	0.04	0.03	0.16	0.17	–0.20	–0.24	–0.24	–0.12	–0.10
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.	
–0.03	–0.04	0.09	0.10	–0.01	0.12	0.13	0.13	0.15	0.01	

Disability	
SLD–Disab Not Rptd	SLI–Disab Not Rptd
–0.12	–0.12

Table 8.A.12 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
–0.28	0.19	–0.08	0.13	–0.28	0.22	–0.22	–0.44

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.
0.07	0.14	–0.11	0.09	0.10	0.19	0.06	–0.19	0.01	0.03	0.11
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.	
–0.25	–0.05	–0.04	0.05	0.21	0.23	0.30	0.01	0.10	0.09	

Disability	
SLD–Disab Not Rptd	SLI–Disab Not Rptd
0.05	–0.03

Appendix 8.B—Reliability Analyses

The reliabilities are reported only for samples that comprise 11 or more examinees. Also, in some cases in Appendix 8.B, score reliabilities were not estimable and are presented in the tables as hyphens. Finally, results based on samples that contain 50 or fewer examinees should be interpreted with caution due to small sample sizes.

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

Subscore Reliabilities and Intercorrelations for ELA						
Subscore Area	**No. of items**	**Intercorrelations**			**Reliab.**	**SEM**
Grade 3		**1.**	**2.**	**3.**		
1. Vocabulary	14	1.00	–	–	0.68	1.61
2. Reading for Understanding	17	0.64	1.00	–	0.70	1.87
3. Language	17	0.66	0.64	1.00	0.70	1.89
Grade 4		**1.**	**2.**	**3.**		
1. Vocabulary	11	1.00	–	–	0.63	1.48
2. Reading for Understanding	16	0.57	1.00	–	0.64	1.84
3. Language	21	0.54	0.57	1.00	0.66	2.17
Grade 5		**1.**	**2.**	**3.**		
1. Vocabulary	8	1.00	–	–	0.60	1.16
2. Reading for Understanding	18	0.56	1.00	–	0.66	1.98
3. Language	22	0.56	0.61	1.00	0.72	2.10
Grade 6		**1.**	**2.**	**3.**		
1. Vocabulary	9	1.00	–	–	0.57	1.33
2. Reading for Understanding	22	0.56	1.00	–	0.64	2.15
3. Language	23	0.52	0.59	1.00	0.71	2.17
Grade 7		**1.**	**2.**	**3.**		
1. Vocabulary	8	1.00	–	–	0.53	1.19
2. Reading for Understanding	22	0.58	1.00	–	0.79	2.07
3. Language	24	0.50	0.62	1.00	0.71	2.26
Grade 8		**1.**	**2.**	**3.**		
1. Vocabulary	6	1.00	–	–	0.56	0.94
2. Reading for Understanding	24	0.55	1.00	–	0.67	2.27
3. Language	24	0.53	0.61	1.00	0.74	2.23
Grade 9		**1.**	**2.**	**3.**		
1. Vocabulary	7	1.00	–	–	0.42	1.20
2. Reading for Understanding	27	0.53	1.00	–	0.75	2.40
3. Language	26	0.43	0.61	1.00	0.72	2.40
Grade 10		**1.**	**2.**	**3.**		
1. Vocabulary	7	1.00	–	–	0.45	1.15
2. Reading for Understanding	27	0.55	1.00	–	0.67	2.45
3. Language	26	0.52	0.62	1.00	0.69	2.41
Grade 11		**1.**	**2.**	**3.**		
1. Vocabulary	7	1.00	–	–	0.25	1.26
2. Reading for Understanding	29	0.37	1.00	–	0.62	2.54
3. Language	24	0.32	0.54	1.00	0.60	2.33

Table 8.B.2 Subscore Reliabilities and Intercorrelations for Mathematics

Subscore Reliabilities and Intercorrelations for Mathematics							
Subscore Area	**No. of items**	**Intercorrelations**				**Reliab.**	**SEM**
Grade 3		**1.**	**2.**	**3.**	**4.**		
1. Number Sense	24	1.00	–	–		0.81	2.18
2. Algebra and Data Analysis	13	0.64	1.00	–		0.69	1.58
3. Measurement and Geometry	11	0.59	0.61	1.00		0.63	1.34
Grade 4		**1.**	**2.**	**3.**	**4.**		
1. Number Sense	23	1.00	–	–		0.73	2.06
2. Algebra and Data Analysis	15	0.55	1.00	–		0.53	1.82
3. Measurement and Geometry	10	0.42	0.38	1.00		0.38	1.48
Grade 5		**1.**	**2.**	**3.**	**4.**		
1. Number Sense	21	1.00	–	–		0.76	1.99
2. Algebra and Data Analysis	17	0.66	1.00	–		0.74	1.77
3. Measurement and Geometry	10	0.48	0.49	1.00		0.46	1.48
Grade 6		**1.**	**2.**	**3.**	**4.**		
1. Number Sense	21	1.00	–	–		0.61	2.17
2. Algebra and Data Analysis	25	0.58	1.00	–		0.68	2.30
3. Measurement and Geometry	8	0.35	0.36	1.00		0.28	1.37
Grade 7		**1.**	**2.**	**3.**	**4.**		
1. Number Sense	18	1.00	–	–		0.37	2.00
2. Algebra and Data Analysis	25	0.45	1.00	–		0.64	2.36
3. Measurement and Geometry	11	0.28	0.36	1.00		0.29	1.54
Algebra I		**1.**	**2.**	**3.**	**4.**		
1. Number Properties, Operations, and Linear Equations	15	1.00	–	–	–	0.66	1.78
2. Graphing and Systems of Linear Equations	14	0.39	1.00	–	–	0.47	1.78
3. Quadratics and Polynomials	19	0.48	0.39	1.00	–	0.52	2.08
4. Functions and Rational Expressions	12	0.43	0.34	0.47	1.00	0.53	1.64
Geometry		**1.**	**2.**	**3.**	**4.**		
1. Logic and Geometric Proofs	23	1.00	–	–	–	0.61	2.28
2. Volume and Area Formulas	11	0.48	1.00	–	–	0.55	1.56
3. Angle Relationships, Constructions, and Lines	14	0.45	0.43	1.00	–	0.39	1.76
4. Trigonometry	12	0.42	0.39	0.40	1.00	0.43	1.66

Table 8.B.3 Subscore Reliabilities and Intercorrelations for Science

Subscore Reliabilities and Intercorrelations for Science							
Subscore Area	**No. of items**	**Intercorrelations**				**Reliab.**	**SEM**
Grade 5		**1.**	**2.**	**3.**	**4.**		
1. Physical Sciences	16	1.00	.	–		0.55	1.84
2. Life Sciences	16	0.55	1.00	–		0.62	1.79
3. Earth Sciences	16	0.53	0.59	1.00		0.63	1.79
Grade 8		**1.**	**2.**	**3.**	**4.**		
1. Motion	19	1.00	–	–	–	0.64	1.95
2. Matter	23	0.58	1.00	–	–	0.69	2.24
3. Earth Science	7	0.49	0.51	1.00	–	0.48	1.17
4. Investigation and Experimentation	5	0.53	0.50	0.40	1.00	0.43	0.99
Grade 10		**1.**	**2.**	**3.**	**4.**		
1. Cell Biology and Genetics	22	1.00	–	–	–	0.60	2.22
2. Evolution and Ecology	22	0.59	1.00	–	–	0.70	2.15
3. Physiology	10	0.56	0.61	1.00	–	0.62	1.43
4. Investigation and Experimentation	6	0.47	0.52	0.46	1.00	0.39	1.16

Table 8.B.4 Subscore Reliabilities and Intercorrelations for Grade-specific Tests

Subscore Area	No. of items	Intercorrelations				Reliab.	SEM
Algebra I – 8		**1.**	**2.**	**3.**	**4.**		
1. Number Properties, Operations, and Linear Equations	15	1.00	–	–	–	0.66	1.78
2. Graphing and Systems of Linear Equations	14	0.44	1.00	–	–	0.51	1.77
3. Quadratics and Polynomials	19	0.50	0.42	1.00	–	0.54	2.08
4. Functions and Rational Expressions	12	0.48	0.39	0.50	1.00	0.56	1.63
Geometry – 9		**1.**	**2.**	**3.**	**4.**		
1. Logic and Geometric Proofs	23	1.00	–	–	–	0.67	2.26
2. Volume and Area Formulas	11	0.59	1.00	–	–	0.61	1.54
3. Angle Relationships, Constructions, and Lines	14	0.55	0.56	1.00	–	0.52	1.75
4. Trigonometry	12	0.52	0.47	0.52	1.00	0.51	1.64

Table 8.B.5 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	13,440	0.86	3.13	6,293	0.87	3.09	233	0.88	3.11
	4	19,122	0.83	3.23	9,496	0.83	3.20	12	0.87	3.23
	5	19,742	0.84	3.14	10,090	0.84	3.10	20	0.83	3.17
	6	19,915	0.83	3.37	9,958	0.83	3.29	18	0.89	3.35
	7	18,992	0.87	3.33	9,365	0.86	3.27	7	–	–
	8	17,879	0.84	3.35	8,620	0.83	3.29	94	0.84	3.37
	9	14,624	0.85	3.62	7,051	0.84	3.60	56	0.86	3.61
	10	12,628	0.83	3.63	6,291	0.82	3.61	33	0.79	3.68
	11	10,706	0.77	3.69	5,603	0.75	3.66	34	0.66	3.74
Mathematics	3	11,334	0.88	3.03	5,749	0.88	3.03	184	0.88	3.07
	4	15,758	0.80	3.13	8,459	0.79	3.12	11	0.88	3.01
	5	17,064	0.86	3.08	9,482	0.85	3.04	19	0.80	3.22
	6	17,732	0.79	3.46	9,598	0.77	3.45	18	0.81	3.47
	7	17,758	0.73	3.47	9,377	0.69	3.46	7	–	–
	Algebra I	20,344	0.80	3.68	10,696	0.79	3.68	84	0.85	3.65
	Geometry	5,254	0.80	3.68	2,982	0.75	3.69	11	0.84	3.66
Science	5	18,164	0.82	3.13	9,526	0.79	3.16	19	0.54	3.27
	8	16,206	0.85	3.33	7,960	0.81	3.39	85	0.83	3.37
	10 Life Science	10,310	0.86	3.60	5,290	0.82	3.63	29	0.86	3.57
Grade-Specific	Algebra I – Grade 8	3,935	0.82	3.67	2,079	0.81	3.66	21	0.91	3.54
	Geometry – Grade 9	417	0.86	3.63	211	0.77	3.67	0	–	–

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

Table 8.B.6 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	15,293	0.86	3.15	3,825	0.88	3.00	848	0.87	3.12
	4	22,214	0.82	3.24	6,293	0.84	3.15	123	0.82	3.26
	5	23,399	0.83	3.15	6,356	0.86	3.03	97	0.82	3.21
	6	23,663	0.82	3.36	6,127	0.85	3.26	101	0.79	3.41
	7	22,004	0.86	3.34	6,258	0.87	3.21	102	0.88	3.30
	8	20,516	0.83	3.35	5,897	0.85	3.27	180	0.85	3.40
	9	16,035	0.84	3.64	5,525	0.87	3.56	171	0.84	3.63
	10	13,887	0.82	3.64	4,956	0.84	3.59	109	0.83	3.65
	11	11,618	0.74	3.69	4,635	0.80	3.67	90	0.76	3.69
Mathematics	3	13,276	0.88	3.04	3,199	0.89	2.97	792	0.88	3.04
	4	19,029	0.79	3.14	5,092	0.81	3.09	107	0.80	3.15
	5	20,845	0.85	3.08	5,622	0.86	3.03	98	0.81	3.21
	6	21,567	0.78	3.46	5,679	0.80	3.42	102	0.79	3.50
	7	20,894	0.70	3.47	6,148	0.74	3.46	100	0.63	3.50
	Algebra I	22,840	0.79	3.69	8,065	0.81	3.67	219	0.81	3.68
	Geometry	6,096	0.77	3.70	2,104	0.82	3.65	47	0.76	3.69
Science	5	21,736	0.80	3.16	5,885	0.83	3.06	88	0.78	3.20
	8	18,662	0.83	3.38	5,429	0.86	3.28	160	0.85	3.37
	10 Life Science	11,452	0.84	3.63	4,088	0.86	3.56	89	0.87	3.60
Grade-Specific	Algebra I – Grade 8	4,675	0.81	3.68	1,311	0.83	3.65	49	0.80	3.68
	Geometry – Grade 9	505	0.83	3.66	121	0.87	3.59	2	–	–

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

Table 8.B.7 Reliabilities and SEMs for the CMA by English-language Fluency

		English Only			I-FEP[1]			English Learner			R-FEP[2]			Unknown		
Content Area	**CMA ***	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**	**N**	**Rel**	**SEM**
English–Language Arts	3	10,651	0.87	3.08	173	0.87	3.03	8,564	0.85	3.17	71	0.90	3.08	507	0.88	3.11
	4	15,555	0.84	3.20	289	0.85	3.12	12,507	0.81	3.25	199	0.87	3.09	80	0.82	3.27
	5	15,808	0.85	3.09	288	0.86	3.04	13,270	0.82	3.18	432	0.88	2.92	54	0.83	3.22
	6	15,726	0.84	3.32	321	0.84	3.27	12,935	0.81	3.38	849	0.82	3.13	60	0.83	3.40
	7	14,987	0.87	3.28	511	0.87	3.22	11,607	0.85	3.38	1,184	0.86	3.07	75	0.87	3.33
	8	13,981	0.85	3.31	559	0.84	3.28	10,469	0.81	3.38	1,443	0.83	3.13	141	0.86	3.37
	9	11,564	0.86	3.59	530	0.86	3.56	8,024	0.79	3.68	1,498	0.86	3.48	115	0.86	3.61
	10	10,035	0.83	3.62	412	0.85	3.58	7,193	0.78	3.66	1,237	0.85	3.48	75	0.79	3.68
	11	8,924	0.78	3.68	412	0.76	3.68	5,897	0.65	3.69	1,035	0.79	3.62	75	0.73	3.71
Mathematics	3	9,167	0.88	3.02	142	0.88	2.98	7,430	0.88	3.04	67	0.91	2.95	461	0.88	3.03
	4	13,173	0.80	3.13	206	0.80	3.04	10,607	0.79	3.14	173	0.85	3.03	69	0.81	3.14
	5	14,377	0.86	3.08	262	0.86	2.99	11,501	0.85	3.06	372	0.86	2.94	53	0.82	3.22
	6	14,881	0.79	3.45	295	0.77	3.41	11,360	0.77	3.47	757	0.79	3.36	55	0.83	3.47
	7	14,781	0.72	3.47	493	0.71	3.46	10,702	0.69	3.47	1,097	0.75	3.42	69	0.69	3.47
	Algebra I	16,897	0.79	3.69	777	0.82	3.66	11,279	0.79	3.69	2,007	0.83	3.60	164	0.83	3.67
	Geometry	4,022	0.80	3.68	208	0.78	3.67	3,207	0.72	3.71	778	0.82	3.62	32	0.78	3.69
Science	5	14,748	0.82	3.11	271	0.80	3.05	12,237	0.79	3.18	402	0.82	3.00	51	0.80	3.19
	8	12,803	0.85	3.33	512	0.85	3.30	9,458	0.81	3.41	1,352	0.83	3.20	126	0.85	3.36
	10 Life Science	8,303	0.86	3.59	330	0.88	3.54	5,912	0.80	3.67	1,018	0.86	3.45	66	0.85	3.64
Grade-Specific	Algebra I – Grade 8	3,160	0.81	3.68	146	0.84	3.65	2,276	0.81	3.68	414	0.83	3.58	39	0.83	3.68
	Geometry – Grade 9	261	0.85	3.63	16	0.74	3.61	260	0.78	3.70	90	0.86	3.54	1	–	–

[1] Initially Fluent English Proficient

[2] Reclassified Fluent English Proficient

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

Table 8.B.8 Reliabilities and SEMs for the CMA by Primary 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	1,896	0.87	3.13	185	0.87	3.10	591	0.87	3.09	173	0.85	3.04	12,598	0.85	3.15	83	0.84	3.08	3,639	0.88	3.02	801	0.88	3.09
	4	2,749	0.82	3.25	271	0.82	3.22	927	0.83	3.21	307	0.82	3.19	18,164	0.82	3.24	121	0.82	3.24	5,460	0.85	3.15	631	0.84	3.19
	5	3,018	0.83	3.16	268	0.85	3.11	894	0.85	3.10	333	0.83	3.09	19,001	0.83	3.15	137	0.81	3.11	5,565	0.86	3.03	636	0.86	3.09
	6	3,191	0.83	3.38	305	0.82	3.38	920	0.84	3.32	308	0.83	3.33	19,196	0.82	3.36	127	0.82	3.36	5,250	0.85	3.26	594	0.85	3.30
	7	2,973	0.86	3.36	260	0.89	3.25	823	0.87	3.23	280	0.85	3.25	18,230	0.86	3.34	135	0.84	3.31	5,095	0.87	3.21	568	0.87	3.25
	8	3,017	0.84	3.36	230	0.84	3.30	699	0.85	3.31	280	0.83	3.28	16,872	0.83	3.34	106	0.84	3.38	4,823	0.86	3.28	566	0.85	3.31
	9	2,391	0.84	3.64	223	0.84	3.64	488	0.84	3.58	203	0.83	3.59	13,851	0.84	3.64	96	0.85	3.61	3,997	0.87	3.54	482	0.86	3.57
	10	2,086	0.80	3.66	160	0.82	3.64	491	0.83	3.60	175	0.83	3.57	11,893	0.82	3.63	96	0.81	3.62	3,642	0.85	3.59	409	0.84	3.60
	11	1,825	0.76	3.67	159	0.82	3.67	386	0.71	3.66	136	0.75	3.67	10,129	0.74	3.68	51	0.74	3.72	3,316	0.80	3.67	341	0.80	3.67
Mathematics	3	1,812	0.88	3.08	158	0.88	3.03	516	0.90	2.96	165	0.89	3.01	10,968	0.88	3.03	76	0.85	3.04	2,894	0.88	2.99	678	0.88	3.06
	4	2,582	0.78	3.18	227	0.78	3.14	727	0.84	3.06	256	0.82	3.08	15,460	0.79	3.13	104	0.80	3.15	4,359	0.81	3.09	513	0.79	3.13
	5	2,938	0.85	3.14	256	0.86	3.11	727	0.88	2.98	286	0.84	3.03	16,715	0.85	3.06	125	0.84	3.09	4,936	0.86	3.05	582	0.87	3.09
	6	3,120	0.77	3.49	293	0.80	3.46	736	0.82	3.41	288	0.78	3.46	17,259	0.78	3.46	114	0.76	3.48	4,979	0.81	3.42	559	0.79	3.45
	7	3,014	0.67	3.48	259	0.74	3.46	740	0.77	3.44	273	0.78	3.42	17,104	0.70	3.47	132	0.64	3.49	5,065	0.74	3.46	555	0.71	3.48
	Algebra I	3,922	0.77	3.70	270	0.75	3.71	646	0.87	3.57	275	0.83	3.64	19,618	0.80	3.68	136	0.83	3.64	5,526	0.80	3.67	731	0.81	3.67
	Geometry	962	0.70	3.71	45	0.79	3.67	218	0.78	3.65	79	0.83	3.63	5,437	0.77	3.70	39	0.80	3.71	1,318	0.82	3.63	149	0.84	3.64
Science	5	2,858	0.79	3.20	246	0.83	3.09	840	0.82	3.14	314	0.78	3.15	17,588	0.80	3.16	122	0.80	3.15	5,141	0.83	3.04	600	0.83	3.11
	8	2,750	0.82	3.42	213	0.83	3.35	631	0.86	3.30	261	0.85	3.28	15,371	0.83	3.37	103	0.84	3.41	4,402	0.86	3.26	520	0.86	3.30
	10 Life Science	1,768	0.83	3.66	127	0.79	3.67	397	0.84	3.59	158	0.83	3.55	9,749	0.84	3.63	81	0.86	3.63	2,993	0.87	3.54	356	0.88	3.56
Grade-Specific	Algebra I – 8	902	0.77	3.70	46	0.65	3.75	144	0.90	3.47	69	0.84	3.66	3,862	0.81	3.67	23	0.86	3.62	876	0.82	3.67	113	0.84	3.67
	Geometry – 9	74	0.73	3.71	2	–	–	22	0.89	3.46	11	0.87	3.62	440	0.83	3.66	1	–	–	72	0.86	3.53	6	–	–

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

Table 8.B.9 Reliabilities and SEMs for the CMA by Primary 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	286	0.87	3.05	29	0.91	2.96	238	0.88	3.01	91	0.87	3.03	1,246	0.87	3.04	17	0.78	3.03	1,739	0.88	2.96	179	0.87	3.00
	4	474	0.80	3.24	62	0.79	3.15	405	0.84	3.16	150	0.83	3.17	2,114	0.84	3.18	33	0.85	3.18	2,809	0.85	3.11	246	0.83	3.12
	5	510	0.83	3.13	59	0.81	3.00	363	0.84	3.08	162	0.85	3.05	2,109	0.85	3.07	37	0.71	3.13	2,853	0.86	2.98	263	0.86	3.05
	6	541	0.84	3.34	65	0.77	3.36	356	0.84	3.28	158	0.83	3.30	2,159	0.84	3.27	33	0.84	3.23	2,608	0.85	3.22	207	0.84	3.25
	7	544	0.87	3.30	66	0.86	3.17	314	0.87	3.18	144	0.87	3.19	2,262	0.87	3.24	40	0.85	3.17	2,671	0.87	3.16	217	0.86	3.21
	8	553	0.85	3.31	61	0.88	3.20	256	0.85	3.26	159	0.85	3.24	2,203	0.84	3.29	28	0.80	3.32	2,462	0.86	3.24	175	0.85	3.24
	9	646	0.85	3.62	72	0.82	3.65	197	0.85	3.55	120	0.83	3.57	2,161	0.86	3.59	34	0.88	3.53	2,124	0.88	3.51	171	0.87	3.51
	10	517	0.83	3.63	49	0.85	3.62	189	0.82	3.57	101	0.86	3.50	1,943	0.83	3.60	31	0.83	3.56	1,970	0.85	3.57	156	0.85	3.59
	11	511	0.77	3.67	51	0.85	3.62	148	0.72	3.67	79	0.70	3.68	1,851	0.78	3.67	16	0.79	3.68	1,845	0.82	3.66	134	0.82	3.66
Mathematics	3	287	0.87	3.06	24	0.88	2.98	209	0.88	2.93	85	0.90	3.00	1,091	0.89	2.96	14	0.87	3.07	1,338	0.88	2.96	151	0.88	3.01
	4	440	0.78	3.17	50	0.76	3.12	314	0.86	3.00	125	0.82	3.07	1,754	0.80	3.11	26	0.82	3.12	2,185	0.82	3.06	198	0.82	3.03
	5	497	0.86	3.12	54	0.86	3.03	296	0.87	2.97	129	0.85	2.98	1,884	0.86	3.04	31	0.86	3.04	2,506	0.87	3.01	225	0.86	3.06
	6	525	0.79	3.47	64	0.80	3.43	282	0.83	3.41	147	0.79	3.45	1,967	0.80	3.43	32	0.77	3.45	2,475	0.80	3.40	187	0.82	3.40
	7	561	0.73	3.47	70	0.74	3.45	279	0.77	3.43	140	0.80	3.41	2,176	0.72	3.46	36	0.73	3.49	2,672	0.75	3.45	214	0.71	3.48
	Algebra I	1,052	0.77	3.70	94	0.75	3.71	271	0.87	3.56	155	0.84	3.63	3,208	0.81	3.67	46	0.87	3.57	2,959	0.81	3.66	280	0.83	3.63
	Geometry	250	0.77	3.69	18	0.78	3.58	72	0.77	3.67	43	0.88	3.56	866	0.79	3.68	18	0.79	3.71	784	0.83	3.62	53	0.83	3.65
Science	5	487	0.82	3.16	49	0.76	2.99	343	0.83	3.12	151	0.78	3.13	1,987	0.81	3.09	32	0.74	3.24	2,595	0.83	2.99	241	0.83	3.05
	8	488	0.83	3.39	55	0.83	3.35	232	0.86	3.23	148	0.87	3.22	2,060	0.84	3.31	31	0.84	3.32	2,247	0.87	3.22	168	0.86	3.26
	10 Life Science	431	0.86	3.61	40	0.72	3.68	151	0.84	3.58	91	0.84	3.52	1,584	0.85	3.59	27	0.86	3.60	1,626	0.87	3.52	138	0.89	3.50
Grade-Specific	Algebra I – 8	185	0.80	3.68	15	0.78	3.72	58	0.90	3.41	37	0.86	3.62	518	0.83	3.65	10	–	–	455	0.81	3.67	33	0.80	3.69
	Geometry – 9	13	0.78	3.63	1	–	–	8	–	–	5	–	–	58	0.83	3.65	0	–	–	34	0.90	3.45	2	–	–

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

Table 8.B.10 Reliabilities and SEMs for the CMA by Primary 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	1,547	0.87	3.14	152	0.86	3.13	330	0.86	3.14	73	0.84	3.05	11,002	0.85	3.16	63	0.84	3.10	1,766	0.88	3.07	360	0.87	3.12
	4	2,265	0.82	3.24	208	0.82	3.24	519	0.81	3.24	156	0.81	3.21	15,998	0.81	3.25	87	0.81	3.26	2,622	0.84	3.18	359	0.83	3.23
	5	2,492	0.83	3.17	209	0.85	3.14	524	0.85	3.12	170	0.81	3.14	16,858	0.83	3.16	99	0.84	3.10	2,696	0.85	3.09	351	0.85	3.11
	6	2,636	0.82	3.38	240	0.83	3.39	562	0.83	3.34	150	0.82	3.37	16,997	0.82	3.37	93	0.81	3.39	2,625	0.85	3.30	360	0.85	3.33
	7	2,415	0.85	3.37	194	0.89	3.28	505	0.87	3.25	134	0.82	3.32	15,918	0.86	3.35	95	0.83	3.37	2,409	0.87	3.26	334	0.87	3.28
	8	2,448	0.83	3.37	168	0.82	3.34	437	0.84	3.34	121	0.78	3.33	14,602	0.83	3.35	77	0.84	3.40	2,342	0.85	3.31	321	0.84	3.33
	9	1,729	0.83	3.65	151	0.84	3.65	288	0.84	3.60	79	0.80	3.62	11,622	0.83	3.65	61	0.83	3.65	1,847	0.86	3.58	258	0.84	3.61
	10	1,556	0.79	3.67	111	0.80	3.65	300	0.83	3.61	74	0.75	3.66	9,908	0.81	3.64	65	0.81	3.64	1,659	0.84	3.61	214	0.85	3.60
	11	1,303	0.75	3.68	108	0.79	3.69	238	0.71	3.65	56	0.81	3.66	8,248	0.72	3.69	35	0.65	3.72	1,461	0.77	3.69	169	0.79	3.69
Mathematics	3	1,462	0.88	3.09	130	0.88	3.04	284	0.91	2.97	71	0.88	3.00	9,535	0.88	3.04	60	0.84	3.05	1,426	0.88	3.02	308	0.86	3.08
	4	2,132	0.78	3.19	176	0.78	3.15	412	0.83	3.10	129	0.82	3.08	13,662	0.79	3.14	77	0.80	3.15	2,148	0.80	3.12	293	0.75	3.18
	5	2,424	0.85	3.14	202	0.86	3.13	424	0.88	2.98	156	0.84	3.06	14,798	0.85	3.06	93	0.83	3.10	2,411	0.86	3.10	337	0.87	3.09
	6	2,581	0.76	3.49	229	0.80	3.47	451	0.81	3.41	141	0.75	3.47	15,250	0.78	3.46	81	0.76	3.49	2,487	0.80	3.43	347	0.77	3.47
	7	2,440	0.65	3.48	188	0.73	3.47	458	0.77	3.44	131	0.74	3.43	14,880	0.70	3.47	96	0.58	3.50	2,377	0.73	3.46	324	0.70	3.48
	Algebra I	2,845	0.76	3.70	176	0.75	3.72	369	0.86	3.58	120	0.82	3.65	16,332	0.80	3.69	89	0.80	3.67	2,542	0.78	3.69	367	0.78	3.69
	Geometry	703	0.66	3.72	27	0.72	3.70	145	0.79	3.65	36	0.73	3.72	4,552	0.76	3.70	21	0.80	3.68	530	0.81	3.66	82	0.85	3.63
Science	5	2,358	0.79	3.21	197	0.83	3.12	491	0.82	3.15	162	0.77	3.18	15,571	0.79	3.17	89	0.81	3.13	2,528	0.82	3.08	340	0.82	3.14
	8	2,249	0.82	3.42	157	0.83	3.35	393	0.85	3.34	113	0.80	3.35	13,246	0.82	3.38	72	0.81	3.45	2,135	0.85	3.31	297	0.86	3.31
	10 Life Science	1,327	0.82	3.68	87	0.81	3.67	244	0.84	3.60	67	0.80	3.59	8,130	0.83	3.63	54	0.85	3.64	1,359	0.87	3.56	184	0.86	3.60
Grade-Specific	Algebra I – 8	711	0.77	3.70	31	0.55	3.76	85	0.89	3.50	32	0.81	3.68	3,328	0.81	3.67	13	0.84	3.65	413	0.82	3.67	62	0.85	3.65
	Geometry – 9	61	0.71	3.72	1	–	–	14	0.92	3.40	6	–	–	381	0.83	3.66	1	–	–	37	0.83	3.60	4	–	–

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

Table 8.B.11 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	10,297	0.86	3.15	4,936	0.86	3.13	60	0.85	3.19	2,654	0.88	3.02	1,162	0.88	2.95	9	–	–
	4	14,762	0.82	3.25	7,451	0.82	3.22	1	–	–	4,276	0.84	3.17	2,016	0.84	3.12	1	–	–
	5	15,316	0.84	3.16	8,079	0.83	3.13	4	–	–	4,367	0.85	3.05	1,988	0.86	2.99	1	–	–
	6	15,716	0.83	3.39	7,939	0.82	3.31	8	–	–	4,134	0.85	3.29	1,991	0.84	3.19	2	–	–
	7	14,580	0.86	3.36	7,420	0.85	3.31	4	–	–	4,348	0.87	3.24	1,910	0.87	3.14	0	–	–
	8	13,716	0.84	3.37	6,766	0.82	3.30	34	0.80	3.41	4,069	0.85	3.29	1,820	0.85	3.21	8	–	–
	9	10,760	0.84	3.64	5,259	0.83	3.62	16	0.83	3.70	3,776	0.87	3.57	1,748	0.86	3.54	1	–	–
	10	9,187	0.82	3.64	4,692	0.81	3.63	8	–	–	3,384	0.84	3.60	1,572	0.83	3.57	0	–	–
	11	7,517	0.74	3.69	4,091	0.72	3.67	10	–	–	3,144	0.81	3.67	1,489	0.79	3.64	2	–	–
Mathematics	3	8,730	0.88	3.04	4,493	0.88	3.04	53	0.88	3.13	2,134	0.89	2.97	1,059	0.88	2.96	6	0.90	3.16
	4	12,372	0.79	3.15	6,656	0.78	3.13	1	–	–	3,314	0.82	3.09	1,778	0.80	3.08	0	–	–
	5	13,290	0.86	3.09	7,552	0.85	3.05	3	–	–	3,716	0.87	3.04	1,905	0.86	3.01	1	–	–
	6	13,993	0.79	3.47	7,565	0.77	3.46	9	–	–	3,676	0.81	3.42	2,001	0.79	3.41	2	–	–
	7	13,613	0.71	3.47	7,277	0.68	3.46	4	–	–	4,084	0.76	3.46	2,064	0.70	3.45	0	–	–
	Algebra I	14,864	0.80	3.69	7,953	0.79	3.68	23	0.76	3.72	5,375	0.81	3.67	2,686	0.80	3.66	4	–	–
	Geometry	3,857	0.79	3.69	2,237	0.73	3.70	2	–	–	1,368	0.83	3.65	735	0.78	3.67	1	–	–
Science	5	14,120	0.81	3.15	7,613	0.77	3.18	3	–	–	3,992	0.83	3.05	1,892	0.81	3.07	1	–	–
	8	12,425	0.84	3.36	6,206	0.79	3.41	31	0.85	3.38	3,694	0.87	3.25	1,727	0.83	3.31	8	–	–
	10 Life Science	7,496	0.85	3.62	3,950	0.81	3.65	6	–	–	2,769	0.87	3.55	1,318	0.83	3.58	1	–	–
Grade-Specific	Algebra I – 8	3,027	0.81	3.68	1,643	0.81	3.66	5	–	–	886	0.84	3.65	423	0.81	3.66	2	–	–
	Geometry – 9	332	0.85	3.65	173	0.77	3.68	0	–	–	84	0.89	3.56	37	0.80	3.65	0	–	–

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

Table 8.B.12 Reliabilities and SEMs for the CMA by Primary Disability

Content Area	CMA *	Autism			Deaf-Blindness			Deafness			Emotional Dist.			Hard of Hearing			MR/ID			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	1,625	0.87	3.09	6	–	–	78	0.81	3.24	245	0.88	3.06	172	0.83	3.13	366	0.77	3.27	19	0.88	3.15
	4	2,178	0.83	3.22	0	–	–	107	0.77	3.29	534	0.84	3.21	227	0.83	3.20	392	0.65	3.33	50	0.80	3.30
	5	1,968	0.85	3.12	5	–	–	124	0.80	3.25	694	0.87	3.10	239	0.84	3.14	477	0.68	3.30	33	0.85	3.21
	6	1,777	0.85	3.32	8	–	–	133	0.75	3.41	743	0.87	3.33	249	0.82	3.33	473	0.72	3.49	38	0.82	3.44
	7	1,550	0.89	3.25	2	–	–	138	0.81	3.46	850	0.89	3.28	229	0.86	3.32	467	0.77	3.50	34	0.90	3.36
	8	1,346	0.86	3.31	3	–	–	125	0.78	3.45	910	0.87	3.33	247	0.84	3.33	500	0.72	3.48	39	0.78	3.42
	9	1,076	0.87	3.55	5	–	–	143	0.72	3.66	786	0.88	3.57	201	0.84	3.61	400	0.67	3.70	31	0.88	3.58
	10	890	0.84	3.59	1	–	–	143	0.63	3.67	758	0.87	3.60	212	0.83	3.59	395	0.59	3.70	34	0.73	3.68
	11	658	0.81	3.65	3	–	–	159	0.60	3.67	742	0.82	3.66	159	0.78	3.65	391	0.50	3.68	32	0.58	3.67
Mathematics	3	1,637	0.89	3.04	5	–	–	75	0.89	3.05	232	0.89	3.06	159	0.89	2.98	361	0.79	3.24	20	0.91	3.11
	4	1,982	0.83	3.13	0	–	–	88	0.80	3.08	511	0.80	3.19	180	0.82	3.08	386	0.67	3.30	47	0.81	3.24
	5	1,852	0.88	3.07	2	–	–	98	0.89	2.98	684	0.85	3.18	208	0.86	3.02	476	0.75	3.29	32	0.82	3.25
	6	1,694	0.83	3.44	8	–	–	117	0.82	3.43	753	0.79	3.49	204	0.77	3.44	465	0.57	3.53	37	0.83	3.47
	7	1,511	0.76	3.45	2	–	–	130	0.73	3.42	904	0.72	3.48	213	0.74	3.45	464	0.48	3.47	30	0.66	3.49
	Algebra I	1,396	0.83	3.65	2	–	–	139	0.81	3.64	1,245	0.75	3.71	317	0.83	3.63	596	0.57	3.71	41	0.85	3.62
	Geometry	357	0.86	3.61	0	–	–	62	0.86	3.54	257	0.83	3.66	94	0.80	3.65	77	0.59	3.68	12	0.35	3.68
Science	5	1,882	0.84	3.14	4	–	–	113	0.81	3.23	672	0.85	3.15	224	0.78	3.20	460	0.72	3.30	32	0.79	3.25
	8	1,240	0.87	3.29	3	–	–	119	0.80	3.43	797	0.86	3.37	234	0.83	3.34	462	0.72	3.51	34	0.79	3.45
	10 Life Science	742	0.87	3.51	0	–	–	122	0.67	3.68	609	0.88	3.59	179	0.83	3.61	339	0.63	3.72	26	0.73	3.64
Grade-Specific	Algebra I – 8	273	0.87	3.61	0	–	–	15	0.73	3.73	185	0.73	3.72	72	0.84	3.59	111	0.56	3.69	6	–	–
	Geometry – 9	34	0.93	3.29	0	–	–	4	–	–	17	0.84	3.66	8	–	–	5	–	–	2	–	–

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

Table 8.B.13 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	128	0.86	3.11	1,979	0.87	3.06	11,573	0.86	3.12	2,989	0.86	3.10	47	0.83	3.14	48	0.85	3.13	691	0.87	3.14
	4	195	0.87	3.17	2,905	0.84	3.18	17,401	0.83	3.22	3,430	0.82	3.22	73	0.74	3.31	68	0.86	3.18	1,070	0.82	3.21
	5	182	0.86	3.10	2,963	0.85	3.06	19,442	0.84	3.13	2,748	0.83	3.12	72	0.86	3.17	67	0.85	3.04	838	0.84	3.13
	6	194	0.87	3.30	2,804	0.84	3.29	20,338	0.83	3.34	2,266	0.82	3.34	76	0.87	3.33	63	0.85	3.38	729	0.81	3.35
	7	171	0.87	3.26	2,838	0.87	3.25	19,496	0.86	3.32	1,814	0.85	3.32	83	0.88	3.29	73	0.89	3.21	619	0.86	3.30
	8	183	0.83	3.31	2,635	0.85	3.29	18,724	0.83	3.33	1,475	0.83	3.32	61	0.85	3.32	67	0.87	3.25	278	0.84	3.35
	9	150	0.87	3.56	2,183	0.86	3.57	15,486	0.84	3.63	998	0.81	3.64	56	0.84	3.62	46	0.90	3.56	170	0.87	3.60
	10	150	0.84	3.61	1,865	0.85	3.59	13,474	0.82	3.63	770	0.81	3.63	66	0.81	3.66	54	0.90	3.53	140	0.86	3.61
	11	138	0.79	3.68	1,484	0.81	3.66	11,743	0.74	3.68	637	0.72	3.68	61	0.76	3.70	46	0.84	3.66	90	0.71	3.70
Mathematics	3	133	0.89	3.06	1,823	0.89	2.99	9,597	0.88	3.03	2,546	0.88	3.01	44	0.87	3.01	44	0.89	3.12	591	0.87	3.07
	4	186	0.79	3.20	2,563	0.80	3.12	14,469	0.78	3.13	2,801	0.80	3.11	61	0.82	3.18	60	0.77	3.18	894	0.76	3.11
	5	175	0.85	3.11	2,772	0.86	3.07	17,006	0.85	3.06	2,327	0.86	3.04	64	0.87	3.10	65	0.86	3.11	804	0.84	3.05
	6	197	0.82	3.44	2,790	0.80	3.44	18,259	0.78	3.46	1,972	0.78	3.45	72	0.83	3.47	65	0.79	3.46	715	0.78	3.45
	7	189	0.74	3.44	2,888	0.71	3.48	18,363	0.71	3.47	1,658	0.72	3.45	79	0.76	3.44	77	0.69	3.49	634	0.66	3.50
	Algebra I	219	0.80	3.68	3,300	0.80	3.68	22,181	0.80	3.68	1,239	0.81	3.65	89	0.79	3.69	86	0.83	3.67	274	0.82	3.67
	Geometry	50	0.78	3.70	816	0.82	3.66	6,156	0.77	3.70	279	0.78	3.68	29	0.59	3.75	21	0.77	3.70	37	0.81	3.68
Science	5	174	0.81	3.19	2,769	0.82	3.10	17,932	0.80	3.13	2,547	0.79	3.16	63	0.87	3.12	66	0.81	3.10	771	0.79	3.15
	8	179	0.84	3.37	2,443	0.86	3.32	17,030	0.83	3.36	1,333	0.82	3.37	59	0.85	3.37	61	0.87	3.31	257	0.85	3.34
	10 Life Science	135	0.84	3.62	1,542	0.87	3.58	11,087	0.84	3.62	645	0.82	3.63	52	0.82	3.67	43	0.88	3.54	108	0.87	3.61
Grade-Specific	Algebra I – 8	42	0.83	3.65	676	0.82	3.66	4,272	0.81	3.68	279	0.84	3.62	10	–	–	14	0.83	3.67	80	0.82	3.68
	Geometry – 9	1	–	–	54	0.85	3.63	478	0.81	3.68	19	0.87	3.58	2	–	–	1	–	–	3	–	–

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

Table 8.B.14 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	0.86	0.87	0.88	0.86	0.87	0.87	0.85	0.90
	4	0.83	0.83	0.84	0.82	0.84	0.85	0.81	0.87
	5	0.84	0.84	0.86	0.83	0.85	0.86	0.82	0.88
	6	0.83	0.83	0.85	0.82	0.84	0.84	0.81	0.82
	7	0.87	0.86	0.87	0.86	0.87	0.87	0.85	0.86
	8	0.84	0.83	0.85	0.83	0.85	0.84	0.81	0.83
	9	0.85	0.84	0.87	0.84	0.86	0.86	0.79	0.86
	10	0.83	0.82	0.84	0.82	0.83	0.85	0.78	0.85
	11	0.77	0.75	0.80	0.74	0.78	0.76	0.65	0.79
Mathematics	3	0.88	0.88	0.89	0.88	0.88	0.88	0.88	0.91
	4	0.80	0.79	0.81	0.79	0.80	0.80	0.79	0.85
	5	0.86	0.85	0.86	0.85	0.86	0.86	0.85	0.86
	6	0.79	0.77	0.80	0.78	0.79	0.77	0.77	0.79
	7	0.73	0.69	0.74	0.70	0.72	0.71	0.69	0.75
	Algebra I	0.80	0.79	0.81	0.79	0.79	0.82	0.79	0.83
	Geometry	0.80	0.75	0.82	0.77	0.80	0.78	0.72	0.82
Science	5	0.82	0.79	0.83	0.80	0.82	0.80	0.79	0.82
	8	0.85	0.81	0.86	0.83	0.85	0.85	0.81	0.83
	10 Life Science	0.86	0.82	0.86	0.84	0.86	0.88	0.80	0.86
Grade–Specific	Algebra I – 8	0.82	0.81	0.83	0.81	0.81	0.84	0.81	0.83
	Geometry – 9	0.86	0.77	0.87	0.83	0.85	0.74	0.78	0.86

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

Table 8.B.15 Overall Subgroup Reliabilities—Primary Ethnicity

Content Area	CMA *	Primary Ethnicity						
		African American	American Indian	Asian	Filipino	Hispanic	Pacific Islander	White
English–Language Arts	3	0.87	0.87	0.87	0.85	0.85	0.84	0.88
	4	0.82	0.82	0.83	0.82	0.82	0.82	0.85
	5	0.83	0.85	0.85	0.83	0.83	0.81	0.86
	6	0.83	0.82	0.84	0.83	0.82	0.82	0.85
	7	0.86	0.89	0.87	0.85	0.86	0.84	0.87
	8	0.84	0.84	0.85	0.83	0.83	0.84	0.86
	9	0.84	0.84	0.84	0.83	0.84	0.85	0.87
	10	0.80	0.82	0.83	0.83	0.82	0.81	0.85
	11	0.76	0.82	0.71	0.75	0.74	0.74	0.80
Mathematics	3	0.88	0.88	0.90	0.89	0.88	0.85	0.88
	4	0.78	0.78	0.84	0.82	0.79	0.80	0.81
	5	0.85	0.86	0.88	0.84	0.85	0.84	0.86
	6	0.77	0.80	0.82	0.78	0.78	0.76	0.81
	7	0.67	0.74	0.77	0.78	0.70	0.64	0.74
	Algebra I	0.77	0.75	0.87	0.83	0.80	0.83	0.80
	Geometry	0.70	0.79	0.78	0.83	0.77	0.80	0.82
Science	5	0.79	0.83	0.82	0.78	0.80	0.80	0.83
	8	0.82	0.83	0.86	0.85	0.83	0.84	0.86
	10 Life Science	0.83	0.79	0.84	0.83	0.84	0.86	0.87
Grade–Specific	Algebra I – 8	0.77	0.65	0.90	0.84	0.81	0.86	0.82
	Geometry – 9	0.73	–	0.89	0.87	0.83	–	0.86

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

Table 8.B.16 Overall Subgroup Reliabilities by Primary Ethnicity—Not Economically Disadvantaged

		Ethnicity						
Content Area	**CMA ***	**African American**	**American Indian**	**Asian**	**Filipino**	**Hispanic**	**Pacific Islander**	**White**
English–Language Arts	3	0.87	0.91	0.88	0.87	0.87	0.78	0.88
	4	0.80	0.79	0.84	0.83	0.84	0.85	0.85
	5	0.83	0.81	0.84	0.85	0.85	0.71	0.86
	6	0.84	0.77	0.84	0.83	0.84	0.84	0.85
	7	0.87	0.86	0.87	0.87	0.87	0.85	0.87
	8	0.85	0.88	0.85	0.85	0.84	0.80	0.86
	9	0.85	0.82	0.85	0.83	0.86	0.88	0.88
	10	0.83	0.85	0.82	0.86	0.83	0.83	0.85
	11	0.77	0.85	0.72	0.70	0.78	0.79	0.82
Mathematics	3	0.87	0.88	0.88	0.90	0.89	0.87	0.88
	4	0.78	0.76	0.86	0.82	0.80	0.82	0.82
	5	0.86	0.86	0.87	0.85	0.86	0.86	0.87
	6	0.79	0.80	0.83	0.79	0.80	0.77	0.80
	7	0.73	0.74	0.77	0.80	0.72	0.73	0.75
	Algebra I	0.77	0.75	0.87	0.84	0.81	0.87	0.81
	Geometry	0.77	0.78	0.77	0.88	0.79	0.79	0.83
Science	5	0.82	0.76	0.83	0.78	0.81	0.74	0.83
	8	0.83	0.83	0.86	0.87	0.84	0.84	0.87
	10 Life Science	0.86	0.72	0.84	0.84	0.85	0.86	0.87
Grade–Specific	Algebra I – 8	0.80	0.78	0.90	0.86	0.83	–	0.81
	Geometry – 9	0.78	–	–	–	0.83	–	0.90

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

Table 8.B.17 Overall Subgroup Reliabilities by Primary Ethnicity—Economically Disadvantaged

		Ethnicity						
Content Area	**CMA***	**African American**	**American Indian**	**Asian**	**Filipino**	**Hispanic**	**Pacific Islander**	**White**
English–Language Arts	3	0.87	0.91	0.88	0.87	0.87	0.78	0.88
	4	0.80	0.79	0.84	0.83	0.84	0.85	0.85
	5	0.83	0.81	0.84	0.85	0.85	0.71	0.86
	6	0.84	0.77	0.84	0.83	0.84	0.84	0.85
	7	0.87	0.86	0.87	0.87	0.87	0.85	0.87
	8	0.85	0.88	0.85	0.85	0.84	0.80	0.86
	9	0.85	0.82	0.85	0.83	0.86	0.88	0.88
	10	0.83	0.85	0.82	0.86	0.83	0.83	0.85
	11	0.77	0.85	0.72	0.70	0.78	0.79	0.82
Mathematics	3	0.87	0.88	0.88	0.90	0.89	0.87	0.88
	4	0.78	0.76	0.86	0.82	0.80	0.82	0.82
	5	0.86	0.86	0.87	0.85	0.86	0.86	0.87
	6	0.79	0.80	0.83	0.79	0.80	0.77	0.80
	7	0.73	0.74	0.77	0.80	0.72	0.73	0.75
	Algebra I	0.77	0.75	0.87	0.84	0.81	0.87	0.81
	Geometry	0.77	0.78	0.77	0.88	0.79	0.79	0.83
Science	5	0.82	0.76	0.83	0.78	0.81	0.74	0.83
	8	0.83	0.83	0.86	0.87	0.84	0.84	0.87
	10 Life Science	0.86	0.72	0.84	0.84	0.85	0.86	0.87
Grade–Specific	Algebra I – 8	0.80	0.78	0.90	0.86	0.83	–	0.81
	Geometry – 9	0.78	–	–	–	0.83	–	0.90

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

Table 8.B.18 Overall Subgroup Reliabilities by Gender/Economic Status

		Economically Disadvantaged		Not Economically Disadvantaged	
Content Area	**CMA ***	**Male**	**Female**	**Male**	**Female**
English–Language Arts	3	0.86	0.86	0.88	0.88
	4	0.82	0.82	0.84	0.84
	5	0.84	0.83	0.85	0.86
	6	0.83	0.82	0.85	0.84
	7	0.86	0.85	0.87	0.87
	8	0.84	0.82	0.85	0.85
	9	0.84	0.83	0.87	0.86
	10	0.82	0.81	0.84	0.83
	11	0.74	0.72	0.81	0.79
Mathematics	3	0.88	0.88	0.89	0.88
	4	0.79	0.78	0.82	0.80
	5	0.86	0.85	0.87	0.86
	6	0.79	0.77	0.81	0.79
	7	0.71	0.68	0.76	0.70
	Algebra I	0.80	0.79	0.81	0.80
	Geometry	0.79	0.73	0.83	0.78
Science	5	0.81	0.77	0.83	0.81
	8	0.84	0.79	0.87	0.83
	10 Life Science	0.85	0.81	0.87	0.83
Grade–Specific	Algebra I – 8	0.81	0.81	0.84	0.81
	Geometry – 9	0.85	0.77	0.89	0.80

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

Table 8.B.19 Overall Subgroup Reliabilities by Primary Disability

		Ethnicity						
Content Area	**CMA ***	**Autism**	**Deaf–Blindness**	**Deafness**	**Emotional Dist.**	**Hard of Hearing**	**MR/ID**	**Mult. Disab.**
English–Language Arts	3	0.87	–	0.81	0.88	0.83	0.77	0.88
	4	0.83	–	0.77	0.84	0.83	0.65	0.80
	5	0.85	–	0.80	0.87	0.84	0.68	0.85
	6	0.85	–	0.75	0.87	0.82	0.72	0.82
	7	0.89	–	0.81	0.89	0.86	0.77	0.90
	8	0.86	–	0.78	0.87	0.84	0.72	0.78
	9	0.87	–	0.72	0.88	0.84	0.67	0.88
	10	0.84	–	0.63	0.87	0.83	0.59	0.73
	11	0.81	–	0.60	0.82	0.78	0.50	0.58
Mathematics	3	0.89	–	0.89	0.89	0.89	0.79	0.91
	4	0.83	–	0.80	0.80	0.82	0.67	0.81
	5	0.88	–	0.89	0.85	0.86	0.75	0.82
	6	0.83	–	0.82	0.79	0.77	0.57	0.83
	7	0.76	–	0.73	0.72	0.74	0.48	0.66
	Algebra I	0.83	–	0.81	0.75	0.83	0.57	0.85
	Geometry	0.86	–	0.86	0.83	0.80	0.59	0.35
Science	5	0.84	–	0.81	0.85	0.78	0.72	0.79
	8	0.87	–	0.80	0.86	0.83	0.72	0.79
	10 Life Science	0.87	–	0.67	0.88	0.83	0.63	0.73
Grade–Specific	Algebra I – 8	0.87	–	0.73	0.73	0.84	0.56	–
	Geometry – 9	0.93	–	–	0.84	–	–	–

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

Table 8.B.20 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	0.86	0.87	0.86	0.86	0.83	0.85
	4	0.87	0.84	0.83	0.82	0.74	0.86
	5	0.86	0.85	0.84	0.83	0.86	0.85
	6	0.87	0.84	0.83	0.82	0.87	0.85
	7	0.87	0.87	0.86	0.85	0.88	0.89
	8	0.83	0.85	0.83	0.83	0.85	0.87
	9	0.87	0.86	0.84	0.81	0.84	0.90
	10	0.84	0.85	0.82	0.81	0.81	0.90
	11	0.79	0.81	0.74	0.72	0.76	0.84
Mathematics	3	0.89	0.89	0.88	0.88	0.87	0.89
	4	0.79	0.80	0.78	0.80	0.82	0.77
	5	0.85	0.86	0.85	0.86	0.87	0.86
	6	0.82	0.80	0.78	0.78	0.83	0.79
	7	0.74	0.71	0.71	0.72	0.76	0.69
	Algebra I	0.80	0.80	0.80	0.81	0.79	0.83
	Geometry	0.78	0.82	0.77	0.78	0.59	0.77
Science	5	0.81	0.82	0.80	0.79	0.87	0.81
	8	0.84	0.86	0.83	0.82	0.85	0.87
	10 Life Science	0.84	0.87	0.84	0.82	0.82	0.88
Grade–Specific	Algebra I – 8	0.83	0.82	0.81	0.84	–	0.83
	Geometry – 9	–	0.85	0.81	0.87	–	–

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

Table 8.B.21 Subscore Reliabilities and SEM for ELA by Gender/Economic Status

Subscore Reliabilities and SEM for ELA by Gender/Economic Status									
Subscore Area	N of Items	Male		Female		Not Econ. Dis.		Econ. Dis.	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Vocabulary	14	0.69	1.61	0.68	1.61	0.67	1.63	0.69	1.52
2. Reading for Understanding	17	0.69	1.88	0.71	1.85	0.68	1.89	0.74	1.80
3. Language	17	0.69	1.90	0.70	1.87	0.68	1.90	0.72	1.83
Grade 4									
1. Vocabulary	11	0.63	1.48	0.63	1.47	0.63	1.49	0.64	1.44
2. Reading for Understanding	16	0.65	1.84	0.62	1.83	0.62	1.85	0.68	1.79
3. Language	21	0.65	2.17	0.66	2.16	0.64	2.18	0.68	2.14
Grade 5									
1. Vocabulary	8	0.61	1.16	0.57	1.18	0.59	1.19	0.60	1.08
2. Reading for Understanding	18	0.66	1.98	0.66	1.97	0.64	1.99	0.69	1.94
3. Language	22	0.72	2.12	0.72	2.07	0.71	2.12	0.75	2.04
Grade 6									
1. Vocabulary	9	0.57	1.33	0.56	1.32	0.55	1.34	0.59	1.26
2. Reading for Understanding	22	0.64	2.16	0.64	2.11	0.63	2.16	0.67	2.11
3. Language	23	0.71	2.19	0.69	2.12	0.70	2.18	0.73	2.12
Grade 7									
1. Vocabulary	8	0.55	1.19	0.50	1.19	0.53	1.21	0.53	1.13
2. Reading for Understanding	22	0.79	2.08	0.78	2.05	0.78	2.09	0.80	2.00
3. Language	24	0.71	2.27	0.70	2.22	0.70	2.27	0.73	2.20
Grade 8									
1. Vocabulary	6	0.57	0.95	0.54	0.92	0.55	0.95	0.56	0.88
2. Reading for Understanding	24	0.67	2.28	0.65	2.25	0.65	2.28	0.70	2.24
3. Language	24	0.74	2.24	0.72	2.19	0.73	2.24	0.75	2.19
Grade 9									
1. Vocabulary	7	0.44	1.20	0.38	1.21	0.40	1.21	0.47	1.17
2. Reading for Understanding	27	0.75	2.41	0.72	2.40	0.73	2.42	0.77	2.37
3. Language	26	0.71	2.40	0.71	2.38	0.70	2.41	0.75	2.37
Grade 10									
1. Vocabulary	7	0.45	1.15	0.44	1.13	0.43	1.16	0.48	1.12
2. Reading for Understanding	27	0.67	2.46	0.66	2.44	0.66	2.46	0.69	2.43
3. Language	26	0.69	2.41	0.67	2.41	0.67	2.42	0.72	2.38
Grade 11									
1. Vocabulary	7	0.26	1.26	0.24	1.25	0.23	1.26	0.28	1.26
2. Reading for Understanding	29	0.62	2.55	0.60	2.52	0.59	2.55	0.66	2.53
3. Language	24	0.61	2.33	0.58	2.33	0.56	2.34	0.66	2.32

Table 8.B.22 Subscore Reliabilities and SEM for Mathematics by Gender/Economic Status

Subscore Reliabilities and SEM for Mathematics by Gender/Economic Status									
Subscore Area	N of Items	Male		Female		Not Econ. Dis.		Econ. Dis.	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Number Sense	24	0.82	2.17	0.81	2.17	0.81	2.18	0.82	2.14
2. Algebra and Data Analysis	13	0.70	1.58	0.68	1.58	0.69	1.59	0.70	1.55
3. Measurement and Geometry	11	0.64	1.35	0.63	1.34	0.63	1.35	0.64	1.31
Grade 4									
1. Number Sense	23	0.74	2.06	0.72	2.05	0.73	2.07	0.75	2.01
2. Algebra and Data Analysis	15	0.53	1.82	0.52	1.81	0.51	1.82	0.57	1.79
3. Measurement and Geometry	10	0.38	1.48	0.38	1.47	0.37	1.48	0.40	1.47
Grade 5									
1. Number Sense	21	0.76	2.00	0.75	1.96	0.75	1.99	0.77	1.96
2. Algebra and Data Analysis	17	0.74	1.78	0.74	1.76	0.74	1.78	0.75	1.75
3. Measurement and Geometry	10	0.47	1.48	0.44	1.48	0.45	1.48	0.48	1.47
Grade 6									
1. Number Sense	21	0.61	2.17	0.59	2.17	0.59	2.17	0.63	2.15
2. Algebra and Data Analysis	25	0.69	2.31	0.66	2.29	0.67	2.31	0.70	2.27
3. Measurement and Geometry	8	0.29	1.37	0.26	1.38	0.28	1.37	0.27	1.37
Grade 7									
1. Number Sense	18	0.39	2.00	0.32	2.00	0.36	2.00	0.38	2.01
2. Algebra and Data Analysis	25	0.65	2.37	0.62	2.35	0.63	2.37	0.67	2.35
3. Measurement and Geometry	11	0.31	1.54	0.27	1.54	0.28	1.54	0.34	1.53
Algebra I									
1. Number Properties, Operations, and Linear Equations	15	0.67	1.78	0.65	1.77	0.66	1.78	0.67	1.76
2. Graphing and Systems of Linear Equations	14	0.48	1.78	0.45	1.78	0.46	1.78	0.50	1.78
3. Quadratics and Polynomials	19	0.52	2.08	0.51	2.08	0.51	2.08	0.54	2.08
4. Functions and Rational Expressions	12	0.53	1.63	0.53	1.64	0.52	1.64	0.55	1.63
Geometry									
1. Logic and Geometric Proofs	23	0.63	2.27	0.57	2.28	0.59	2.28	0.64	2.25
2. Volume and Area Formulas	11	0.57	1.56	0.52	1.57	0.53	1.57	0.59	1.54
3. Angle Relationships, Constructions, and Lines	14	0.43	1.77	0.32	1.76	0.36	1.77	0.47	1.75
4. Trigonometry	12	0.46	1.65	0.36	1.67	0.41	1.66	0.46	1.65

Table 8.B.23 Subscore Reliabilities and SEM for Science by Gender/Economic Status

Subscore Reliabilities and SEM for Science by Gender/Economic Status									
Subscore Area	N of Items	Male		Female		Not Econ. Dis.		Econ. Dis.	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 5 Science									
1. Physical Sciences	16	0.56	1.84	0.51	1.85	0.54	1.85	0.56	1.81
2. Life Sciences	16	0.64	1.78	0.58	1.82	0.61	1.81	0.65	1.74
3. Earth Sciences	16	0.64	1.78	0.60	1.79	0.61	1.80	0.65	1.74
Grade 8 Science									
1. Motion	19	0.67	1.93	0.59	1.99	0.64	1.96	0.65	1.90
2. Matter	23	0.71	2.23	0.65	2.25	0.67	2.25	0.73	2.20
3. Earth Science	7	0.53	1.16	0.36	1.20	0.46	1.18	0.53	1.13
4. Investigation and Experimentation	5	0.45	0.98	0.38	1.00	0.42	1.00	0.45	0.96
Grade 10 Life Science									
1. Cell Biology and Genetics	22	0.63	2.21	0.55	2.22	0.58	2.23	0.64	2.20
2. Evolution and Ecology	22	0.72	2.15	0.66	2.16	0.68	2.17	0.72	2.12
3. Physiology	10	0.65	1.42	0.57	1.45	0.61	1.44	0.65	1.39
4. Investigation and Experimentation	6	0.41	1.15	0.33	1.17	0.37	1.16	0.42	1.14

Table 8.B.24 Subscore Reliabilities and SEM for Grade-specific CMA by Gender/Economic Status

Subscore Reliabilities and SEM for Grade-specific CMA by Gender/Economic Status									
Subscore Area	N of Items	Male		Female		Not Econ. Dis.		Econ. Dis.	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – Grade 8									
1. Number Properties, Operations, and Linear Equations	15	0.66	1.79	0.66	1.76	0.65	1.78	0.68	1.76
2. Graphing and Systems of Linear Equations	14	0.52	1.77	0.50	1.77	0.50	1.78	0.55	1.77
3. Quadratics and Polynomials	19	0.55	2.08	0.52	2.08	0.53	2.08	0.56	2.07
4. Functions and Rational Expressions	12	0.56	1.62	0.55	1.64	0.55	1.63	0.58	1.62
Geometry – Grade 9									
1. Logic and Geometric Proofs	23	0.70	2.25	0.59	2.28	0.64	2.27	0.71	2.22
2. Volume and Area Formulas	11	0.65	1.52	0.48	1.56	0.59	1.55	0.65	1.49
3. Angle Relationships, Constructions, and Lines	14	0.60	1.74	0.26	1.76	0.46	1.76	0.67	1.70
4. Trigonometry	12	0.55	1.63	0.42	1.66	0.50	1.65	0.57	1.62

Table 8.B.25 Subscore Reliabilities and SEM for ELA by English-language Fluency

Subscore Reliabilities and SEM for ELA by English-language Fluency									
Subscore Area	N of Items	English Learner		English Only		I–FEP		R–FEP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Vocabulary	14	0.66	1.65	0.70	1.58	0.68	1.55	0.69	1.63
2. Reading for Understanding	17	0.65	1.90	0.72	1.85	0.73	1.81	0.78	1.82
3. Language	17	0.68	1.90	0.70	1.87	0.70	1.85	0.77	1.84
Grade 4									
1. Vocabulary	11	0.62	1.50	0.64	1.46	0.69	1.39	0.71	1.38
2. Reading for Understanding	16	0.58	1.87	0.67	1.82	0.67	1.76	0.72	1.75
3. Language	21	0.62	2.18	0.67	2.16	0.69	2.14	0.72	2.12
Grade 5									
1. Vocabulary	8	0.56	1.22	0.61	1.12	0.64	1.08	0.62	1.04

Subscore Reliabilities and SEM for ELA by English-language Fluency									
Subscore Area	N of Items	English Learner		English Only		I–FEP		R–FEP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
2. Reading for Understanding	18	0.61	2.00	0.68	1.96	0.72	1.92	0.71	1.89
3. Language	22	0.69	2.13	0.74	2.08	0.73	2.06	0.77	1.95
Grade 6									
1. Vocabulary	9	0.51	1.37	0.58	1.30	0.57	1.28	0.51	1.20
2. Reading for Understanding	22	0.60	2.17	0.66	2.13	0.67	2.10	0.67	2.03
3. Language	23	0.68	2.18	0.72	2.16	0.72	2.13	0.69	2.03
Grade 7									
1. Vocabulary	8	0.51	1.23	0.54	1.17	0.46	1.16	0.47	1.08
2. Reading for Understanding	22	0.76	2.12	0.80	2.04	0.81	1.97	0.79	1.91
3. Language	24	0.68	2.29	0.73	2.25	0.73	2.22	0.72	2.12
Grade 8									
1. Vocabulary	6	0.52	1.00	0.57	0.90	0.50	0.89	0.48	0.77
2. Reading for Understanding	24	0.60	2.29	0.69	2.26	0.70	2.23	0.67	2.18
3. Language	24	0.69	2.26	0.75	2.22	0.73	2.21	0.71	2.09
Grade 9									
1. Vocabulary	7	0.32	1.24	0.45	1.18	0.41	1.18	0.42	1.15
2. Reading for Understanding	27	0.66	2.46	0.77	2.38	0.77	2.35	0.77	2.29
3. Language	26	0.64	2.43	0.73	2.39	0.74	2.37	0.75	2.31
Grade 10									
1. Vocabulary	7	0.37	1.17	0.47	1.14	0.50	1.09	0.46	1.05
2. Reading for Understanding	27	0.60	2.47	0.68	2.45	0.72	2.42	0.74	2.35
3. Language	26	0.63	2.43	0.70	2.40	0.71	2.39	0.72	2.33
Grade 11									
1. Vocabulary	7	0.18	1.25	0.27	1.26	0.32	1.25	0.22	1.26
2. Reading for Understanding	29	0.50	2.55	0.64	2.54	0.61	2.54	0.65	2.48
3. Language	24	0.47	2.34	0.63	2.32	0.63	2.33	0.65	2.30

Table 8.B.26 Subscore Reliabilities and SEM for Mathematics by English-language Fluency

Subscore Reliabilities and SEM for Mathematics by English-language Fluency									
Subscore Area	N of Items	English Learner		English Only		I–FEP		R–FEP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Number Sense	24	0.81	2.18	0.81	2.17	0.81	2.14	0.88	2.09
2. Algebra and Data Analysis	13	0.68	1.59	0.70	1.58	0.70	1.56	0.73	1.52
3. Measurement and Geometry	11	0.63	1.36	0.64	1.33	0.66	1.30	0.59	1.35
Grade 4									
1. Number Sense	23	0.72	2.06	0.74	2.05	0.73	1.97	0.78	1.98
2. Algebra and Data Analysis	15	0.50	1.82	0.54	1.81	0.56	1.77	0.65	1.75
3. Measurement and Geometry	10	0.37	1.48	0.39	1.48	0.41	1.46	0.43	1.45
Grade 5									
1. Number Sense	21	0.75	1.97	0.76	2.00	0.76	1.94	0.76	1.89
2. Algebra and Data Analysis	17	0.74	1.77	0.74	1.78	0.72	1.73	0.72	1.70
3. Measurement and Geometry	10	0.45	1.48	0.46	1.48	0.47	1.45	0.54	1.44
Grade 6									
1. Number Sense	21	0.58	2.17	0.62	2.17	0.57	2.14	0.64	2.11
2. Algebra and Data Analysis	25	0.66	2.31	0.69	2.30	0.68	2.25	0.66	2.21
3. Measurement and Geometry	8	0.27	1.37	0.28	1.37	0.27	1.37	0.32	1.36
Grade 7									
1. Number Sense	18	0.36	2.00	0.36	2.01	0.43	1.99	0.39	1.99
2. Algebra and Data Analysis	25	0.63	2.37	0.64	2.36	0.63	2.37	0.68	2.31
3. Measurement and Geometry	11	0.25	1.54	0.31	1.54	0.38	1.51	0.35	1.51
Algebra I									
1. Number Properties, Operations, and Linear Equations	15	0.64	1.79	0.66	1.78	0.68	1.76	0.69	1.69
2. Graphing and Systems of Linear Equations	14	0.45	1.78	0.47	1.78	0.52	1.77	0.55	1.77
3. Quadratics and Polynomials	19	0.52	2.08	0.51	2.09	0.56	2.07	0.57	2.05
4. Functions and Rational Expressions	12	0.52	1.64	0.52	1.64	0.54	1.63	0.58	1.60
Geometry									
1. Logic and Geometric Proofs	23	0.55	2.29	0.63	2.27	0.59	2.26	0.61	2.25
2. Volume and Area Formulas	11	0.46	1.58	0.57	1.55	0.48	1.58	0.65	1.50
3. Angle Relationships, Constructions, and Lines	14	0.31	1.77	0.42	1.76	0.24	1.77	0.48	1.73
4. Trigonometry	12	0.32	1.67	0.46	1.65	0.52	1.64	0.48	1.64

Table 8.B.27 Subscore Reliabilities and SEM for Science by English-language Fluency

Subscore Reliabilities and SEM for Science by English-language Fluency									
Subscore Area	N of Items	English Learner		English Only		I–FEP		R–FEP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 5 Science									
1. Physical Sciences	16	0.52	1.86	0.56	1.83	0.57	1.79	0.56	1.77
2. Life Sciences	16	0.59	1.83	0.64	1.77	0.59	1.74	0.63	1.70
3. Earth Sciences	16	0.59	1.81	0.65	1.77	0.60	1.74	0.64	1.71
Grade 8 Science									
1. Motion	19	0.61	1.99	0.66	1.93	0.65	1.92	0.60	1.84
2. Matter	23	0.63	2.27	0.71	2.22	0.72	2.21	0.70	2.17
3. Earth Science	7	0.41	1.20	0.52	1.16	0.58	1.12	0.46	1.10
4. Investigation and Experimentation	5	0.39	1.01	0.45	0.98	0.40	0.99	0.40	0.93
Grade 10 Life Science									
1. Cell Biology and Genetics	22	0.52	2.24	0.63	2.21	0.66	2.18	0.63	2.15
2. Evolution and Ecology	22	0.64	2.18	0.72	2.14	0.74	2.12	0.70	2.06
3. Physiology	10	0.55	1.48	0.65	1.41	0.69	1.38	0.66	1.32
4. Investigation and Experimentation	6	0.30	1.18	0.41	1.15	0.43	1.13	0.44	1.11

Table 8.B.28 Subscore Reliabilities and SEM for Grade-specific CMA by English-language Fluency

Subscore Reliabilities and SEM for Grade-specific CMA by English-language Fluency									
Subscore Area	N of Items	English Learner		English Only		I–FEP		R–FEP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – Grade 8									
1. Number Properties, Operations, and Linear Equations	15	0.64	1.79	0.66	1.78	0.67	1.78	0.66	1.69
2. Graphing and Systems of Linear Equations	14	0.50	1.78	0.50	1.78	0.57	1.76	0.58	1.76
3. Quadratics and Polynomials	19	0.54	2.08	0.54	2.08	0.54	2.09	0.54	2.04
4. Functions and Rational Expressions	12	0.54	1.64	0.55	1.63	0.59	1.61	0.61	1.58
Geometry – Grade 9									
1. Logic and Geometric Proofs	23	0.61	2.29	0.68	2.25	0.57	2.27	0.62	2.23
2. Volume and Area Formulas	11	0.46	1.59	0.64	1.52	0.24	1.56	0.70	1.44
3. Angle Relationships, Constructions, and Lines	14	0.36	1.78	0.59	1.73	–0.17	1.66	0.56	1.70
4. Trigonometry	12	0.43	1.65	0.54	1.64	0.51	1.64	0.52	1.61

Table 8.B.29 Subscore Reliabilities and SEM for ELA by Primary Ethnicity

Subscore Reliabilities and SEM for ELA by Primary Ethnicity															
Subscore Area	N 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
Grade 3															
1. Vocabulary	14	0.69	1.62	0.69	1.60	0.68	1.59	0.64	1.54	0.66	1.64	0.69	1.55	0.71	1.53
2. Reading for Understanding	17	0.69	1.88	0.74	1.84	0.68	1.88	0.64	1.85	0.67	1.89	0.56	1.88	0.74	1.81
3. Language	17	0.70	1.89	0.68	1.89	0.73	1.85	0.72	1.84	0.68	1.90	0.62	1.88	0.71	1.85
Grade 4															
1. Vocabulary	11	0.62	1.49	0.63	1.46	0.62	1.48	0.57	1.47	0.63	1.49	0.54	1.52	0.64	1.43
2. Reading for Understanding	16	0.64	1.85	0.64	1.83	0.64	1.84	0.58	1.85	0.61	1.85	0.70	1.83	0.69	1.78
3. Language	21	0.64	2.18	0.64	2.18	0.65	2.15	0.68	2.13	0.64	2.18	0.58	2.19	0.69	2.14
Grade 5															
1. Vocabulary	8	0.60	1.17	0.65	1.14	0.60	1.16	0.57	1.14	0.58	1.19	0.49	1.11	0.60	1.08
2. Reading for Understanding	18	0.64	1.99	0.68	1.96	0.66	1.98	0.64	1.98	0.64	1.99	0.61	1.98	0.70	1.93
3. Language	22	0.70	2.14	0.72	2.11	0.74	2.06	0.72	2.06	0.71	2.11	0.66	2.12	0.75	2.05
Grade 6															
1. Vocabulary	9	0.56	1.33	0.54	1.35	0.57	1.32	0.48	1.35	0.54	1.35	0.59	1.32	0.61	1.24
2. Reading for Understanding	22	0.63	2.16	0.59	2.17	0.67	2.14	0.63	2.15	0.63	2.15	0.63	2.15	0.67	2.11
3. Language	23	0.71	2.20	0.69	2.21	0.70	2.14	0.71	2.14	0.70	2.17	0.67	2.19	0.74	2.13
Grade 7															
1. Vocabulary	8	0.54	1.20	0.58	1.18	0.51	1.17	0.40	1.16	0.52	1.21	0.49	1.18	0.54	1.13
2. Reading for Understanding	22	0.78	2.10	0.82	2.03	0.79	2.04	0.78	2.06	0.78	2.09	0.78	2.06	0.80	1.99
3. Language	24	0.70	2.28	0.77	2.22	0.73	2.18	0.70	2.20	0.70	2.27	0.68	2.26	0.74	2.22
Grade 8															
1. Vocabulary	6	0.58	0.94	0.58	0.90	0.53	1.00	0.55	0.91	0.55	0.96	0.51	1.01	0.56	0.87
2. Reading for Understanding	24	0.65	2.28	0.69	2.26	0.69	2.26	0.68	2.25	0.65	2.28	0.63	2.31	0.71	2.24
3. Language	24	0.74	2.25	0.73	2.21	0.73	2.19	0.69	2.17	0.73	2.23	0.73	2.24	0.76	2.20
Grade 9															
1. Vocabulary	7	0.40	1.21	0.47	1.20	0.40	1.20	0.36	1.20	0.40	1.21	0.42	1.19	0.47	1.16
2. Reading for Understanding	27	0.73	2.42	0.75	2.41	0.73	2.39	0.69	2.41	0.73	2.42	0.75	2.40	0.79	2.34
3. Language	26	0.70	2.41	0.68	2.42	0.73	2.35	0.74	2.34	0.70	2.41	0.70	2.41	0.75	2.36

Subscore Reliabilities and SEM for ELA by Primary Ethnicity															
Subscore Area	N 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
Grade 10															
1. Vocabulary	7	0.42	1.17	0.56	1.13	0.40	1.14	0.43	1.09	0.43	1.15	0.46	1.12	0.50	1.12
2. Reading for Understanding	27	0.63	2.47	0.67	2.46	0.65	2.43	0.70	2.41	0.66	2.45	0.69	2.44	0.70	2.43
3. Language	26	0.66	2.42	0.65	2.42	0.72	2.38	0.67	2.39	0.68	2.41	0.59	2.43	0.72	2.38
Grade 11															
1. Vocabulary	7	0.25	1.25	0.43	1.24	0.27	1.23	0.32	1.25	0.22	1.26	0.38	1.24	0.28	1.27
2. Reading for Understanding	29	0.61	2.55	0.70	2.52	0.56	2.53	0.63	2.53	0.59	2.55	0.56	2.59	0.67	2.54
3. Language	24	0.60	2.32	0.66	2.33	0.51	2.32	0.56	2.34	0.57	2.33	0.57	2.34	0.66	2.32

Table 8.B.30 Subscore Reliabilities and SEM for Mathematics by Primary Ethnicity

Subscore Reliabilities and SEM for Mathematics by Primary Ethnicity															
Subscore Area	N 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
Grade 3															
1. Number Sense	24	0.79	2.22	0.81	2.18	0.84	2.09	0.82	2.14	0.81	2.18	0.79	2.17	0.82	2.15
2. Algebra and Data Analysis	13	0.70	1.61	0.65	1.60	0.73	1.56	0.67	1.59	0.69	1.58	0.60	1.63	0.70	1.55
3. Measurement and Geometry	11	0.66	1.36	0.66	1.31	0.63	1.35	0.66	1.36	0.63	1.35	0.47	1.33	0.63	1.32
Grade 4															
1. Number Sense	23	0.73	2.11	0.72	2.07	0.80	1.98	0.78	1.99	0.72	2.06	0.75	2.06	0.75	2.01
2. Algebra and Data Analysis	15	0.51	1.83	0.52	1.81	0.61	1.78	0.48	1.83	0.51	1.82	0.50	1.84	0.57	1.79
3. Measurement and Geometry	10	0.35	1.49	0.30	1.49	0.44	1.46	0.41	1.46	0.38	1.48	0.51	1.47	0.38	1.47
Grade 5															
1. Number Sense	21	0.74	2.04	0.77	2.01	0.78	1.91	0.74	1.96	0.75	1.98	0.72	1.98	0.77	1.98
2. Algebra and Data Analysis	17	0.73	1.83	0.75	1.80	0.77	1.73	0.73	1.75	0.74	1.77	0.72	1.81	0.75	1.76
3. Measurement and Geometry	10	0.43	1.49	0.47	1.50	0.52	1.45	0.38	1.47	0.46	1.48	0.51	1.47	0.48	1.47
Grade 6															
1. Number Sense	21	0.57	2.19	0.64	2.16	0.65	2.15	0.57	2.19	0.59	2.17	0.49	2.22	0.64	2.14
2. Algebra and Data Analysis	25	0.67	2.33	0.67	2.33	0.73	2.24	0.67	2.29	0.67	2.31	0.69	2.30	0.70	2.27
3. Measurement and Geometry	8	0.27	1.37	0.33	1.35	0.25	1.38	0.23	1.38	0.27	1.37	0.21	1.37	0.27	1.36
Grade 7															
1. Number Sense	18	0.31	2.01	0.27	2.02	0.44	2.00	0.48	1.98	0.36	2.00	0.23	2.03	0.40	2.00
2. Algebra and Data Analysis	25	0.60	2.37	0.65	2.37	0.71	2.32	0.71	2.32	0.63	2.37	0.54	2.40	0.66	2.35
3. Measurement and Geometry	11	0.25	1.54	0.41	1.52	0.38	1.54	0.31	1.53	0.27	1.54	0.30	1.51	0.34	1.53

Subscore Reliabilities and SEM for Mathematics by Primary Ethnicity															
Subscore Area	N 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
Algebra I															
1. Number Properties, Operations, and Linear Equations	15	0.64	1.80	0.62	1.80	0.70	1.70	0.68	1.73	0.66	1.78	0.71	1.73	0.67	1.76
2. Graphing and Systems of Linear Equations	14	0.41	1.79	0.44	1.79	0.66	1.73	0.55	1.77	0.46	1.78	0.57	1.76	0.50	1.78
3. Quadratics and Polynomials	19	0.48	2.09	0.36	2.11	0.63	2.03	0.60	2.05	0.52	2.08	0.62	2.05	0.51	2.08
4. Functions and Rational Expressions	12	0.48	1.65	0.45	1.65	0.64	1.60	0.60	1.62	0.53	1.64	0.54	1.63	0.53	1.63
Geometry															
1. Logic and Geometric Proofs	23	0.52	2.29	0.69	2.23	0.59	2.26	0.61	2.26	0.59	2.28	0.53	2.31	0.65	2.24
2. Volume and Area Formulas	11	0.47	1.58	0.50	1.59	0.60	1.52	0.63	1.51	0.52	1.57	0.63	1.54	0.62	1.52
3. Angle Relationships, Constructions, and Lines	14	0.30	1.78	0.47	1.73	0.44	1.74	0.45	1.75	0.36	1.77	0.44	1.77	0.47	1.74
4. Trigonometry	12	0.33	1.65	0.38	1.67	0.40	1.67	0.48	1.66	0.41	1.66	0.40	1.68	0.49	1.65

Table 8.B.31 Subscore Reliabilities and SEM for Science by Primary Ethnicity

Subscore Reliabilities and SEM for Science by Primary Ethnicity															
Subscore Area	N 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
Science Grade 5															
1. Physical Sciences	16	0.53	1.87	0.58	1.83	0.56	1.85	0.47	1.87	0.54	1.85	0.51	1.85	0.56	1.79
2. Life Sciences	16	0.62	1.83	0.67	1.75	0.64	1.80	0.61	1.79	0.60	1.81	0.61	1.78	0.65	1.72
3. Earth Sciences	16	0.60	1.84	0.65	1.75	0.63	1.78	0.58	1.78	0.61	1.79	0.63	1.81	0.66	1.73
Science Grade 8															
1. Motion	19	0.62	2.00	0.64	1.94	0.66	1.93	0.62	1.93	0.63	1.96	0.66	1.98	0.67	1.89
2. Matter	23	0.66	2.26	0.65	2.26	0.74	2.19	0.71	2.17	0.67	2.25	0.63	2.28	0.73	2.19
3. Earth Science	7	0.46	1.20	0.55	1.14	0.48	1.16	0.46	1.15	0.46	1.18	0.53	1.19	0.55	1.12
4. Investigation and Experimentation	5	0.43	1.01	0.34	1.00	0.50	0.95	0.41	0.97	0.41	0.99	0.47	1.00	0.47	0.96
Grade 10 Life Science															
1. Cell Biology and Genetics	22	0.56	2.25	0.52	2.26	0.59	2.21	0.59	2.18	0.58	2.22	0.65	2.22	0.65	2.19
2. Evolution and Ecology	22	0.68	2.19	0.58	2.18	0.67	2.15	0.62	2.14	0.68	2.16	0.70	2.16	0.74	2.11
3. Physiology	10	0.61	1.46	0.59	1.45	0.61	1.42	0.65	1.37	0.60	1.44	0.59	1.46	0.66	1.38
4. Investigation and Experimentation	6	0.32	1.17	0.27	1.18	0.39	1.15	0.30	1.15	0.37	1.16	0.44	1.15	0.43	1.14

Table 8.B.32 Subscore Reliabilities and SEM for Grade-specific CMA by Primary Ethnicity

Subscore Reliabilities and SEM for Grade-specific CMA by Primary Ethnicity															
Subscore Area	N 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
Algebra I – 8															
1. Number Properties, Operations, and Linear Equations	15	0.63	1.79	0.54	1.83	0.72	1.66	0.65	1.78	0.66	1.78	0.78	1.68	0.68	1.76
2. Graphing and Systems of Linear Equations	14	0.40	1.79	0.22	1.81	0.72	1.67	0.54	1.78	0.50	1.78	0.53	1.76	0.55	1.76
3. Quadratics and Polynomials	19	0.48	2.09	0.18	2.15	0.70	1.99	0.58	2.06	0.54	2.08	0.72	2.02	0.53	2.08
4. Functions and Rational Expressions	12	0.48	1.65	0.47	1.63	0.69	1.55	0.69	1.57	0.55	1.63	0.64	1.62	0.55	1.63
Geometry – 9															
1. Logic and Geometric Proofs	23	0.56	2.28	–	–	0.78	2.15	0.77	2.21	0.63	2.28	–	–	0.71	2.16
2. Volume and Area Formulas	11	0.49	1.58	–	–	0.69	1.35	0.48	1.58	0.56	1.56	–	–	0.71	1.44
3. Angle Relationships, Constructions, and Lines	14	0.40	1.78	–	–	0.65	1.69	0.66	1.70	0.48	1.75	–	–	0.63	1.71
4. Trigonometry	12	0.26	1.67	–	–	0.58	1.59	0.59	1.63	0.50	1.64	–	–	0.60	1.59

Table 8.B.33 Subscore Reliabilities and SEM for ELA by Primary Ethnicity-for-Not Economically Disadvantaged

Subscore Reliabilities and SEM for ELA by Primary Ethnicity-for-Not Economically Disadvantaged															
Subscore Area	N 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
Grade 3															
1. Vocabulary	14	0.73	1.53	0.82	1.46	0.68	1.53	0.66	1.54	0.68	1.56	0.60	1.50	0.69	1.50
2. Reading for Understanding	17	0.71	1.84	0.75	1.83	0.74	1.82	0.66	1.86	0.72	1.83	0.59	1.83	0.75	1.77
3. Language	17	0.69	1.86	0.78	1.81	0.75	1.82	0.76	1.81	0.71	1.85	0.22	1.91	0.72	1.82
Grade 4															
1. Vocabulary	11	0.64	1.48	0.50	1.42	0.64	1.44	0.56	1.48	0.65	1.45	0.37	1.54	0.63	1.42
2. Reading for Understanding	16	0.62	1.85	0.66	1.76	0.67	1.81	0.63	1.82	0.66	1.81	0.71	1.80	0.69	1.76
3. Language	21	0.59	2.19	0.61	2.15	0.65	2.13	0.68	2.12	0.67	2.15	0.67	2.14	0.69	2.12
Grade 5															
1. Vocabulary	8	0.61	1.13	0.48	1.04	0.55	1.15	0.60	1.10	0.61	1.11	0.43	1.06	0.59	1.04
2. Reading for Understanding	18	0.60	1.99	0.62	1.92	0.65	1.98	0.65	1.97	0.69	1.95	0.45	2.01	0.70	1.91
3. Language	22	0.71	2.11	0.68	2.04	0.73	2.04	0.73	2.02	0.73	2.06	0.46	2.16	0.76	2.01
Grade 6															
1. Vocabulary	9	0.58	1.31	0.49	1.32	0.57	1.29	0.52	1.33	0.57	1.28	0.46	1.28	0.60	1.21
2. Reading for Understanding	22	0.66	2.14	0.58	2.13	0.69	2.13	0.63	2.15	0.66	2.11	0.72	2.05	0.67	2.09
3. Language	23	0.72	2.18	0.59	2.21	0.70	2.11	0.71	2.12	0.72	2.13	0.65	2.14	0.74	2.10
Grade 7															
1. Vocabulary	8	0.58	1.15	0.31	1.15	0.54	1.14	0.43	1.12	0.53	1.15	0.40	1.12	0.52	1.11
2. Reading for Understanding	22	0.81	2.06	0.76	2.01	0.79	2.03	0.80	2.04	0.80	2.01	0.78	1.95	0.80	1.96
3. Language	24	0.72	2.25	0.77	2.13	0.73	2.14	0.71	2.16	0.72	2.22	0.74	2.19	0.74	2.19

Subscore Reliabilities and SEM for ELA by Primary Ethnicity-for-Not Economically Disadvantaged															
Subscore Area	N 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
Grade 8															
1. Vocabulary	6	0.60	0.90	0.50	0.90	0.52	0.95	0.59	0.90	0.56	0.90	0.17	1.00	0.56	0.84
2. Reading for Understanding	24	0.67	2.27	0.80	2.20	0.71	2.25	0.70	2.23	0.67	2.25	0.57	2.30	0.72	2.23
3. Language	24	0.76	2.22	0.76	2.13	0.75	2.15	0.73	2.14	0.74	2.20	0.70	2.18	0.76	2.17
Grade 9															
1. Vocabulary	7	0.45	1.20	0.47	1.16	0.44	1.17	0.43	1.18	0.45	1.19	0.39	1.22	0.50	1.14
2. Reading for Understanding	27	0.74	2.41	0.75	2.41	0.72	2.39	0.70	2.39	0.76	2.39	0.81	2.30	0.79	2.32
3. Language	26	0.74	2.39	0.69	2.41	0.73	2.33	0.75	2.33	0.73	2.39	0.73	2.38	0.76	2.34
Grade 10															
1. Vocabulary	7	0.47	1.15	0.64	1.09	0.29	1.15	0.45	1.08	0.47	1.12	0.65	1.02	0.48	1.11
2. Reading for Understanding	27	0.68	2.45	0.72	2.45	0.63	2.43	0.76	2.35	0.67	2.44	0.66	2.41	0.71	2.42
3. Language	26	0.69	2.40	0.64	2.42	0.73	2.34	0.72	2.35	0.70	2.39	0.63	2.40	0.73	2.36
Grade 11															
1. Vocabulary	7	0.18	1.27	0.59	1.18	0.29	1.24	0.27	1.26	0.30	1.26	0.48	1.26	0.27	1.27
2. Reading for Understanding	29	0.61	2.55	0.71	2.50	0.56	2.54	0.59	2.53	0.63	2.53	0.48	2.55	0.69	2.53
3. Language	24	0.61	2.32	0.75	2.29	0.56	2.33	0.47	2.34	0.64	2.32	0.76	2.29	0.69	2.31

Table 8.B.34 Subscore Reliabilities and SEM for Mathematics by Primary Ethnicity-for-Not Economically Disadvantaged

Subscore Reliabilities and SEM for Mathematics by Primary Ethnicity-for-Not Economically Disadvantaged															
Subscore Area	N 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
Grade 3															
1. Number Sense	24	0.78	2.20	0.81	2.15	0.82	2.05	0.84	2.13	0.82	2.13	0.69	2.27	0.81	2.14
2. Algebra and Data Analysis	13	0.68	1.60	0.63	1.60	0.67	1.57	0.72	1.57	0.71	1.55	0.77	1.59	0.70	1.53
3. Measurement and Geometry	11	0.67	1.35	0.56	1.30	0.56	1.35	0.68	1.36	0.64	1.30	0.53	1.31	0.63	1.30
Grade 4															
1. Number Sense	23	0.73	2.08	0.65	2.03	0.82	1.93	0.77	1.98	0.73	2.04	0.80	2.03	0.76	1.99
2. Algebra and Data Analysis	15	0.53	1.83	0.65	1.77	0.63	1.75	0.49	1.83	0.53	1.81	0.46	1.79	0.59	1.78
3. Measurement and Geometry	10	0.36	1.49	0.23	1.51	0.46	1.45	0.44	1.45	0.42	1.47	0.37	1.52	0.37	1.47
Grade 5															
1. Number Sense	21	0.76	2.02	0.68	1.99	0.78	1.88	0.75	1.92	0.76	1.97	0.74	1.92	0.76	1.95
2. Algebra and Data Analysis	17	0.73	1.83	0.81	1.70	0.75	1.75	0.73	1.74	0.74	1.76	0.79	1.77	0.76	1.74
3. Measurement and Geometry	10	0.41	1.49	0.61	1.45	0.50	1.45	0.42	1.44	0.47	1.47	0.66	1.41	0.49	1.45
Grade 6															
1. Number Sense	21	0.60	2.18	0.60	2.14	0.67	2.16	0.61	2.19	0.62	2.16	0.47	2.23	0.64	2.13
2. Algebra and Data Analysis	25	0.69	2.31	0.68	2.32	0.74	2.24	0.67	2.28	0.69	2.28	0.69	2.26	0.70	2.25
3. Measurement and Geometry	8	0.28	1.37	0.25	1.33	0.26	1.38	0.25	1.38	0.28	1.37	0.52	1.30	0.26	1.37
Grade 7															
1. Number Sense	18	0.35	2.01	0.37	2.02	0.41	2.01	0.54	1.99	0.36	2.00	0.37	2.03	0.39	2.01
2. Algebra and Data Analysis	25	0.64	2.36	0.60	2.36	0.72	2.30	0.71	2.30	0.65	2.36	0.65	2.39	0.68	2.34
3. Measurement and Geometry	11	0.30	1.55	0.46	1.50	0.36	1.54	0.34	1.52	0.29	1.53	0.11	1.54	0.35	1.53

Subscore Reliabilities and SEM for Mathematics by Primary Ethnicity-for-Not Economically Disadvantaged															
Subscore Area	N 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
Algebra I															
1. Number Properties, Operations, and Linear Equations	15	0.66	1.78	0.63	1.79	0.67	1.71	0.67	1.72	0.67	1.77	0.71	1.69	0.66	1.75
2. Graphing and Systems of Linear Equations	14	0.41	1.79	0.50	1.78	0.67	1.73	0.58	1.77	0.47	1.78	0.59	1.75	0.52	1.77
3. Quadratics and Polynomials	19	0.51	2.09	0.40	2.10	0.63	2.03	0.58	2.06	0.54	2.08	0.63	2.05	0.53	2.08
4. Functions and Rational Expressions	12	0.48	1.65	0.43	1.65	0.67	1.58	0.67	1.59	0.55	1.63	0.61	1.59	0.55	1.62
Geometry															
1. Logic and Geometric Proofs	23	0.54	2.28	0.70	2.13	0.56	2.27	0.70	2.20	0.62	2.27	0.58	2.29	0.65	2.23
2. Volume and Area Formulas	11	0.54	1.56	0.47	1.58	0.57	1.51	0.74	1.44	0.53	1.57	0.64	1.54	0.62	1.51
3. Angle Relationships, Constructions, and Lines	14	0.43	1.76	0.58	1.66	0.47	1.73	0.59	1.71	0.43	1.75	0.44	1.77	0.49	1.74
4. Trigonometry	12	0.41	1.64	0.24	1.67	0.16	1.71	0.42	1.67	0.40	1.66	0.39	1.69	0.52	1.64

Table 8.B.35 Subscore Reliabilities and SEM for Science by Primary Ethnicity-for-Not Economically Disadvantaged

Subscore Reliabilities and SEM for Science by Primary Ethnicity-for-Not Economically Disadvantaged															
Subscore Area	N 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
Grade 5 Science															
1. Physical Sciences	16	0.54	1.86	0.39	1.82	0.56	1.84	0.46	1.87	0.55	1.82	0.41	1.92	0.56	1.77
2. Life Sciences	16	0.65	1.80	0.70	1.63	0.66	1.78	0.59	1.78	0.63	1.76	0.50	1.85	0.65	1.69
3. Earth Sciences	16	0.65	1.81	0.57	1.68	0.66	1.77	0.59	1.76	0.63	1.76	0.70	1.79	0.65	1.70
Grade 8 Science															
1. Motion	19	0.62	1.97	0.61	1.95	0.63	1.90	0.65	1.89	0.63	1.93	0.48	1.92	0.67	1.86
2. Matter	23	0.68	2.26	0.72	2.22	0.75	2.16	0.74	2.15	0.71	2.21	0.70	2.25	0.74	2.17
3. Earth Science	7	0.51	1.18	0.54	1.13	0.48	1.15	0.53	1.12	0.49	1.15	0.45	1.15	0.56	1.10
4. Investigation and Experimentation	5	0.50	0.99	0.04	1.04	0.52	0.89	0.54	0.92	0.39	0.98	0.65	0.90	0.47	0.94
Grade 10 Life Science															
1. Cell Biology and Genetics	22	0.63	2.22	0.32	2.28	0.51	2.23	0.63	2.15	0.62	2.20	0.66	2.19	0.65	2.18
2. Evolution and Ecology	22	0.74	2.16	0.51	2.17	0.69	2.13	0.63	2.14	0.70	2.14	0.62	2.19	0.74	2.10
3. Physiology	10	0.63	1.43	0.54	1.45	0.57	1.40	0.65	1.35	0.65	1.41	0.70	1.40	0.66	1.36
4. Investigation and Experimentation	6	0.42	1.15	0.19	1.21	0.33	1.16	0.24	1.14	0.39	1.15	0.59	1.10	0.43	1.13

Table 8.B.36 Subscore Reliabilities and SEM for Grade-specific CMA by Primary Ethnicity-for-Not Economically Disadvantaged

Subscore Reliabilities and SEM for Grade-specific CMA by Primary Ethnicity–for–Not Economically Disadvantaged															
Subscore Area	**N of**	**African American**		**American Indian**		**Asian**		**Filipino**		**Hispanic**		**Pacific Islander**		**White**	
	Items	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**
Algebra I – 8															
1. Number Properties, Operations, and Linear Equations	15	0.65	1.78	0.69	1.79	0.68	1.62	0.66	1.78	0.68	1.76	–	–	0.67	1.76
2. Graphing and Systems of Linear Equations	14	0.48	1.78	0.40	1.85	0.75	1.65	0.62	1.74	0.53	1.77	–	–	0.56	1.77
3. Quadratics and Polynomials	19	0.57	2.07	0.47	2.12	0.69	1.97	0.53	2.04	0.56	2.06	–	–	0.53	2.08
4. Functions and Rational Expressions	12	0.50	1.64	0.44	1.59	0.71	1.53	0.77	1.54	0.56	1.63	–	–	0.56	1.62
Geometry – 9															
1. Logic and Geometric Proofs	23	0.66	2.10	–	–	–	–	–	–	0.65	2.28	–	–	0.47	2.28
2. Volume and Area Formulas	11	0.54	1.28	–	–	–	–	–	–	0.52	1.56	–	–	0.61	1.49
3. Angle Relationships, Constructions, and Lines	14	0.56	1.75	–	–	–	–	–	–	0.59	1.72	–	–	0.54	1.70
4. Trigonometry	12	–0.83	1.73	–	–	–	–	–	–	0.53	1.63	–	–	0.49	1.61

Table 8.B.37 Subscore Reliabilities and SEM for ELA by Primary Ethnicity-for-Economically Disadvantaged

Subscore Reliabilities and SEM for ELA by Ethnicity-for-Economically Disadvantaged															
Subscore Area	N 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
Grade 3															
1. Vocabulary	14	0.68	1.64	0.65	1.63	0.68	1.63	0.63	1.54	0.66	1.65	0.70	1.56	0.71	1.57
2. Reading for Understanding	17	0.68	1.89	0.74	1.85	0.63	1.92	0.63	1.83	0.66	1.89	0.54	1.91	0.73	1.83
3. Language	17	0.70	1.90	0.66	1.91	0.72	1.87	0.66	1.88	0.68	1.90	0.67	1.88	0.70	1.88
Grade 4															
1. Vocabulary	11	0.61	1.50	0.64	1.48	0.58	1.51	0.56	1.47	0.63	1.49	0.59	1.51	0.64	1.45
2. Reading for Understanding	16	0.64	1.85	0.61	1.86	0.61	1.86	0.53	1.87	0.60	1.86	0.71	1.83	0.68	1.80
3. Language	21	0.65	2.18	0.63	2.19	0.64	2.16	0.67	2.14	0.64	2.18	0.52	2.21	0.68	2.16
Grade 5															
1. Vocabulary	8	0.59	1.18	0.65	1.16	0.63	1.17	0.53	1.18	0.58	1.20	0.50	1.14	0.60	1.12
2. Reading for Understanding	18	0.64	1.99	0.67	1.97	0.66	1.98	0.61	1.99	0.63	1.99	0.65	1.97	0.68	1.95
3. Language	22	0.70	2.14	0.72	2.13	0.74	2.07	0.70	2.09	0.70	2.12	0.71	2.10	0.74	2.09
Grade 6															
1. Vocabulary	9	0.56	1.34	0.55	1.35	0.56	1.34	0.42	1.38	0.53	1.35	0.61	1.33	0.60	1.27
2. Reading for Understanding	22	0.62	2.16	0.59	2.18	0.66	2.14	0.62	2.16	0.62	2.16	0.59	2.18	0.67	2.12
3. Language	23	0.70	2.21	0.70	2.21	0.69	2.16	0.71	2.17	0.69	2.18	0.65	2.21	0.74	2.16
Grade 7															
1. Vocabulary	8	0.53	1.22	0.61	1.19	0.49	1.19	0.34	1.20	0.52	1.22	0.52	1.19	0.56	1.15
2. Reading for Understanding	22	0.77	2.11	0.83	2.04	0.79	2.05	0.74	2.09	0.78	2.10	0.76	2.11	0.80	2.02
3. Language	24	0.70	2.29	0.76	2.24	0.73	2.20	0.66	2.25	0.69	2.28	0.65	2.29	0.73	2.25
Grade 8															
1. Vocabulary	6	0.57	0.95	0.61	0.90	0.53	1.02	0.48	0.94	0.54	0.96	0.56	1.02	0.56	0.89
2. Reading for Understanding	24	0.65	2.29	0.61	2.28	0.67	2.28	0.65	2.27	0.64	2.28	0.64	2.32	0.70	2.25
3. Language	24	0.73	2.26	0.71	2.23	0.71	2.21	0.62	2.21	0.72	2.24	0.72	2.26	0.75	2.23
Grade 9															
1. Vocabulary	7	0.39	1.22	0.45	1.22	0.37	1.22	0.24	1.24	0.39	1.22	0.45	1.18	0.43	1.18
2. Reading for Understanding	27	0.72	2.43	0.74	2.42	0.74	2.39	0.63	2.44	0.72	2.43	0.69	2.45	0.78	2.36
3. Language	26	0.69	2.41	0.68	2.42	0.72	2.36	0.70	2.35	0.69	2.41	0.68	2.43	0.73	2.39
Grade 10															
1. Vocabulary	7	0.39	1.18	0.52	1.14	0.45	1.14	0.37	1.11	0.41	1.16	0.32	1.16	0.50	1.13
2. Reading for Understanding	27	0.60	2.48	0.64	2.46	0.66	2.44	0.56	2.48	0.65	2.46	0.71	2.45	0.70	2.44
3. Language	26	0.64	2.42	0.64	2.42	0.72	2.39	0.54	2.45	0.67	2.42	0.57	2.43	0.69	2.40
Grade 11															
1. Vocabulary	7	0.28	1.25	0.31	1.26	0.25	1.23	0.37	1.25	0.20	1.26	0.21	1.24	0.28	1.27
2. Reading for Understanding	29	0.60	2.55	0.69	2.53	0.57	2.53	0.68	2.52	0.58	2.55	0.52	2.59	0.63	2.55
3. Language	24	0.59	2.32	0.60	2.35	0.47	2.32	0.64	2.32	0.55	2.34	0.32	2.37	0.60	2.34

Table 8.B.38 Subscore Reliabilities and SEM for Mathematics by Primary Ethnicity-for-Economically Disadvantaged

Subscore Reliabilities and SEM for Mathematics by Ethnicity-for-Economically Disadvantaged															
Subscore Area	N 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
Grade 3															
1. Number Sense	24	0.80	2.22	0.80	2.19	0.84	2.12	0.79	2.15	0.81	2.18	0.81	2.14	0.82	2.17
2. Algebra and Data Analysis	13	0.70	1.61	0.64	1.61	0.76	1.55	0.66	1.58	0.68	1.59	0.50	1.66	0.70	1.57
3. Measurement and Geometry	11	0.66	1.37	0.68	1.31	0.68	1.33	0.66	1.35	0.63	1.35	0.44	1.35	0.62	1.33
Grade 4															
1. Number Sense	23	0.73	2.11	0.73	2.08	0.77	2.02	0.79	1.98	0.72	2.07	0.73	2.08	0.74	2.04
2. Algebra and Data Analysis	15	0.51	1.83	0.46	1.83	0.59	1.80	0.47	1.83	0.51	1.82	0.53	1.83	0.55	1.81
3. Measurement and Geometry	10	0.35	1.49	0.31	1.48	0.41	1.47	0.40	1.47	0.37	1.48	0.51	1.46	0.39	1.48
Grade 5															
1. Number Sense	21	0.74	2.04	0.78	2.02	0.78	1.93	0.73	1.98	0.75	1.98	0.73	2.00	0.76	2.01
2. Algebra and Data Analysis	17	0.73	1.83	0.73	1.83	0.79	1.71	0.74	1.76	0.74	1.77	0.69	1.82	0.74	1.79
3. Measurement and Geometry	10	0.43	1.49	0.41	1.51	0.53	1.45	0.35	1.49	0.46	1.48	0.43	1.48	0.45	1.48
Grade 6															
1. Number Sense	21	0.56	2.19	0.64	2.17	0.64	2.15	0.53	2.19	0.59	2.17	0.50	2.21	0.63	2.15
2. Algebra and Data Analysis	25	0.66	2.34	0.66	2.33	0.72	2.24	0.67	2.30	0.66	2.31	0.70	2.30	0.70	2.29
3. Measurement and Geometry	8	0.26	1.37	0.35	1.35	0.26	1.38	0.21	1.38	0.27	1.37	0.01	1.40	0.29	1.36
Grade 7															
1. Number Sense	18	0.29	2.01	0.23	2.02	0.45	2.00	0.39	1.98	0.36	2.00	0.16	2.03	0.41	2.00
2. Algebra and Data Analysis	25	0.59	2.37	0.65	2.37	0.71	2.33	0.71	2.33	0.63	2.37	0.48	2.41	0.64	2.36
3. Measurement and Geometry	11	0.23	1.54	0.40	1.52	0.39	1.54	0.30	1.52	0.26	1.54	0.36	1.50	0.32	1.54
Algebra I															
1. Number Properties, Operations, and Linear Equations	15	0.63	1.80	0.62	1.81	0.72	1.70	0.70	1.73	0.66	1.78	0.70	1.76	0.66	1.78
2. Graphing and Systems of Linear Equations	14	0.40	1.79	0.41	1.79	0.65	1.73	0.50	1.79	0.46	1.78	0.54	1.76	0.46	1.78
3. Quadratics and Polynomials	19	0.46	2.10	0.33	2.12	0.64	2.03	0.62	2.04	0.52	2.08	0.58	2.05	0.48	2.09
4. Functions and Rational Expressions	12	0.48	1.65	0.46	1.64	0.61	1.61	0.47	1.66	0.53	1.64	0.45	1.66	0.50	1.64
Geometry															
1. Logic and Geometric Proofs	23	0.51	2.30	0.61	2.24	0.61	2.25	0.41	2.33	0.58	2.29	0.46	2.31	0.66	2.25
2. Volume and Area Formulas	11	0.44	1.58	0.46	1.60	0.61	1.52	0.37	1.61	0.52	1.57	0.61	1.57	0.61	1.54
3. Angle Relationships, Constructions, and Lines	14	0.23	1.79	0.35	1.77	0.42	1.74	0.10	1.78	0.35	1.77	0.48	1.76	0.43	1.74
4. Trigonometry	12	0.29	1.66	0.19	1.69	0.47	1.64	0.53	1.65	0.41	1.66	0.43	1.62	0.45	1.66

Table 8.B.39 Subscore Reliabilities and SEM for Science by Primary Ethnicity-for-Economically Disadvantaged

Subscore Reliabilities and SEM for Science by Primary Ethnicity-for-Economically Disadvantaged															
Subscore Area	N of	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
	Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 5 Science															
1. Physical Sciences	16	0.52	1.87	0.60	1.84	0.56	1.85	0.48	1.87	0.53	1.86	0.54	1.83	0.55	1.81
2. Life Sciences	16	0.61	1.83	0.65	1.78	0.63	1.82	0.61	1.80	0.60	1.82	0.64	1.76	0.63	1.75
3. Earth Sciences	16	0.58	1.84	0.65	1.77	0.61	1.79	0.56	1.81	0.60	1.80	0.61	1.82	0.65	1.76
Grade 8 Science															
1. Motion	19	0.62	2.00	0.65	1.93	0.67	1.94	0.56	1.99	0.63	1.97	0.68	2.01	0.66	1.91
2. Matter	23	0.66	2.27	0.62	2.27	0.73	2.22	0.66	2.20	0.66	2.25	0.57	2.29	0.71	2.21
3. Earth Science	7	0.45	1.21	0.56	1.15	0.49	1.17	0.36	1.18	0.45	1.19	0.50	1.21	0.53	1.15
4. Investigation and Experimentation	5	0.41	1.01	0.42	0.98	0.47	0.98	0.16	1.02	0.41	1.00	0.30	1.04	0.46	0.97
Grade 10 Life Science															
1. Cell Biology and Genetics	22	0.53	2.25	0.57	2.24	0.62	2.20	0.49	2.21	0.57	2.23	0.65	2.23	0.64	2.20
2. Evolution and Ecology	22	0.65	2.20	0.60	2.19	0.64	2.16	0.60	2.15	0.68	2.17	0.71	2.15	0.74	2.12
3. Physiology	10	0.60	1.46	0.61	1.46	0.62	1.42	0.64	1.39	0.59	1.45	0.52	1.49	0.66	1.39
4. Investigation and Experimentation	6	0.28	1.18	0.32	1.17	0.42	1.15	0.36	1.15	0.36	1.17	0.31	1.18	0.44	1.14

Table 8.B.40 Subscore Reliabilities and SEM for Grade-specific CMA by Primary Ethnicity-for-Economically Disadvantaged

Subscore Reliabilities and SEM for Grade-specific CMA by Primary Ethnicity-for-Economically Disadvantaged															
Subscore Area	N of	African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
	Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – 8															
1. Number Properties, Operations, and Linear Equations	15	0.63	1.80	0.44	1.84	0.73	1.68	0.64	1.77	0.65	1.78	0.76	1.72	0.68	1.77
2. Graphing and Systems of Linear Equations	14	0.38	1.79	0.12	1.81	0.69	1.69	0.41	1.82	0.50	1.78	0.63	1.75	0.55	1.76
3. Quadratics and Polynomials	19	0.45	2.10	–	–	0.71	2.00	0.64	2.06	0.54	2.08	0.66	1.99	0.53	2.09
4. Functions and Rational Expressions	12	0.47	1.65	0.51	1.63	0.67	1.55	0.55	1.61	0.55	1.63	0.52	1.70	0.55	1.63
Geometry – 9															
1. Logic and Geometric Proofs	23	0.56	2.28	–	–	0.81	2.16	–	–	0.63	2.28	–	–	0.64	2.22
2. Volume and Area Formulas	11	0.46	1.59	–	–	0.76	1.35	–	–	0.57	1.55	–	–	0.67	1.48
3. Angle Relationships, Constructions, and Lines	14	0.35	1.78	–	–	0.71	1.63	–	–	0.45	1.76	–	–	0.44	1.74
4. Trigonometry	12	0.20	1.68	–	–	0.74	1.53	–	–	0.49	1.65	–	–	0.54	1.61

Table 8.B.41 Subscore Reliabilities and SEM for ELA by Disability

Subscore Reliabilities and SEM for ELA by Disability													
Subscore Area	N of Items	Autism		Deafness		Emotional Disturbance		Hard of Hearing		MR/ID		Multiple Disability	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3													
1. Vocabulary	14	0.72	1.57	0.59	1.74	0.73	1.56	0.65	1.63	0.62	1.75	0.70	1.64
2. Reading for Understanding	17	0.70	1.87	0.50	1.93	0.74	1.82	0.61	1.88	0.44	1.95	0.71	1.89
3. Language	17	0.71	1.87	0.63	1.93	0.73	1.88	0.66	1.89	0.52	1.96	0.72	1.91
Grade 4													
1. Vocabulary	11	0.62	1.49	0.52	1.57	0.69	1.45	0.67	1.45	0.44	1.59	0.62	1.55
2. Reading for Understanding	16	0.63	1.85	0.47	1.91	0.66	1.84	0.64	1.83	0.42	1.92	0.55	1.91
3. Language	21	0.66	2.15	0.59	2.18	0.68	2.17	0.65	2.16	0.39	2.20	0.57	2.19
Grade 5													
1. Vocabulary	8	0.61	1.17	0.46	1.33	0.68	1.10	0.53	1.23	0.46	1.33	0.63	1.28
2. Reading for Understanding	18	0.67	1.98	0.43	2.03	0.70	1.96	0.60	2.00	0.38	2.01	0.66	1.96
3. Language	22	0.73	2.09	0.71	2.15	0.77	2.10	0.75	2.08	0.55	2.22	0.72	2.17
Grade 6													
1. Vocabulary	9	0.58	1.33	0.41	1.40	0.61	1.30	0.51	1.37	0.36	1.43	0.50	1.39
2. Reading for Understanding	22	0.68	2.15	0.42	2.19	0.70	2.14	0.66	2.14	0.47	2.21	0.64	2.20
3. Language	23	0.74	2.13	0.63	2.21	0.76	2.18	0.69	2.13	0.58	2.28	0.68	2.23
Grade 7													
1. Vocabulary	8	0.57	1.16	0.54	1.31	0.60	1.14	0.57	1.19	0.53	1.30	0.57	1.27
2. Reading for Understanding	22	0.80	2.08	0.66	2.18	0.81	2.04	0.77	2.11	0.62	2.22	0.82	2.13
3. Language	24	0.76	2.18	0.62	2.32	0.77	2.24	0.73	2.23	0.55	2.35	0.77	2.27
Grade 8													
1. Vocabulary	6	0.58	0.99	0.56	1.11	0.62	0.91	0.48	1.01	0.48	1.12	0.43	1.07
2. Reading for Understanding	24	0.72	2.26	0.57	2.31	0.70	2.28	0.68	2.28	0.44	2.32	0.42	2.34
3. Language	24	0.75	2.18	0.59	2.29	0.78	2.23	0.70	2.19	0.56	2.32	0.74	2.22
Grade 9													
1. Vocabulary	7	0.48	1.17	0.18	1.28	0.49	1.17	0.38	1.23	0.21	1.27	0.49	1.19
2. Reading for Understanding	27	0.77	2.38	0.56	2.45	0.81	2.36	0.71	2.41	0.53	2.47	0.78	2.42
3. Language	26	0.76	2.33	0.51	2.39	0.77	2.38	0.71	2.38	0.46	2.43	0.77	2.32
Grade 10													
1. Vocabulary	7	0.48	1.13	0.15	1.21	0.54	1.15	0.36	1.13	0.20	1.24	0.03	1.21
2. Reading for Understanding	27	0.69	2.44	0.42	2.48	0.75	2.43	0.69	2.41	0.39	2.50	0.49	2.50
3. Language	26	0.73	2.37	0.49	2.43	0.74	2.39	0.69	2.40	0.36	2.43	0.66	2.41
Grade 11													
1. Vocabulary	7	0.27	1.27	0.37	1.20	0.32	1.26	0.10	1.25	0.15	1.23	0.26	1.25
2. Reading for Understanding	29	0.66	2.53	0.36	2.55	0.71	2.52	0.60	2.53	0.36	2.57	0.38	2.57
3. Language	24	0.69	2.30	0.45	2.33	0.69	2.31	0.69	2.30	0.27	2.33	0.52	2.27

Table 8.B.42 Subscore Reliabilities and SEM for ELA by Disability (continued)

Subscore Reliabilities and SEM for ELA by Disability (continued)													
Subscore Area	N of Items	Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3													
1. Vocabulary	14	0.70	1.57	0.71	1.56	0.67	1.62	0.68	1.60	0.57	1.69	0.70	1.59
2. Reading for Understanding	17	0.67	1.89	0.70	1.85	0.70	1.87	0.67	1.87	0.63	1.87	0.74	1.86
3. Language	17	0.71	1.88	0.71	1.86	0.69	1.89	0.69	1.88	0.67	1.87	0.52	1.95
Grade 4													
1. Vocabulary	11	0.70	1.45	0.64	1.45	0.64	1.48	0.60	1.49	0.56	1.51	0.64	1.42
2. Reading for Understanding	16	0.68	1.83	0.68	1.80	0.64	1.84	0.61	1.84	0.36	1.92	0.69	1.84
3. Language	21	0.73	2.13	0.68	2.15	0.65	2.17	0.64	2.17	0.61	2.20	0.76	2.12
Grade 5													
1. Vocabulary	8	0.60	1.18	0.61	1.09	0.59	1.17	0.55	1.17	0.53	1.23	0.63	1.09
2. Reading for Understanding	18	0.69	1.96	0.68	1.95	0.66	1.98	0.63	1.98	0.67	1.97	0.69	1.94
3. Language	22	0.73	2.09	0.73	2.07	0.72	2.10	0.71	2.08	0.75	2.16	0.70	2.06
Grade 6													
1. Vocabulary	9	0.56	1.31	0.58	1.27	0.56	1.33	0.52	1.35	0.55	1.35	0.64	1.34
2. Reading for Understanding	22	0.69	2.14	0.66	2.12	0.63	2.14	0.61	2.15	0.69	2.14	0.58	2.19
3. Language	23	0.77	2.12	0.74	2.14	0.70	2.17	0.70	2.15	0.76	2.17	0.77	2.17
Grade 7													
1. Vocabulary	8	0.49	1.18	0.50	1.15	0.53	1.20	0.47	1.21	0.52	1.19	0.51	1.16
2. Reading for Understanding	22	0.80	2.06	0.80	2.02	0.79	2.07	0.77	2.09	0.82	2.05	0.83	2.00
3. Language	24	0.70	2.23	0.74	2.23	0.70	2.27	0.69	2.25	0.71	2.26	0.73	2.22
Grade 8													
1. Vocabulary	6	0.55	0.92	0.54	0.88	0.54	0.93	0.54	0.97	0.34	0.96	0.59	0.88
2. Reading for Understanding	24	0.65	2.25	0.69	2.26	0.66	2.27	0.65	2.27	0.70	2.24	0.72	2.25
3. Language	24	0.72	2.22	0.76	2.21	0.73	2.23	0.71	2.20	0.73	2.25	0.78	2.15
Grade 9													
1. Vocabulary	7	0.39	1.21	0.45	1.16	0.40	1.21	0.39	1.21	0.40	1.23	0.55	1.17
2. Reading for Understanding	27	0.79	2.35	0.77	2.37	0.74	2.41	0.69	2.43	0.71	2.39	0.80	2.38
3. Language	26	0.76	2.36	0.75	2.38	0.70	2.40	0.68	2.40	0.74	2.38	0.77	2.37
Grade 10													
1. Vocabulary	7	0.47	1.14	0.48	1.12	0.43	1.15	0.37	1.16	0.39	1.18	0.58	1.11
2. Reading for Understanding	27	0.70	2.44	0.69	2.43	0.66	2.45	0.62	2.47	0.65	2.46	0.81	2.37
3. Language	26	0.72	2.40	0.73	2.38	0.68	2.41	0.68	2.40	0.69	2.43	0.75	2.37
Grade 11													
1. Vocabulary	7	0.29	1.26	0.32	1.26	0.22	1.26	0.30	1.25	0.40	1.24	0.32	1.27
2. Reading for Understanding	29	0.60	2.56	0.68	2.53	0.60	2.55	0.58	2.54	0.54	2.58	0.69	2.56
3. Language	24	0.67	2.31	0.67	2.32	0.58	2.33	0.51	2.34	0.62	2.33	0.74	2.28

Table 8.B.43 Subscore Reliabilities and SEM for Mathematics by Disability

Subscore Reliabilities and SEM for Mathematics by Disability													
Subscore Area	N of Items	Autism		Deafness		Emotional Disturbance		Hard of Hearing		MR/ID		Multiple Disability	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3													
1. Number Sense	24	0.83	2.17	0.85	2.12	0.78	2.23	0.84	2.11	0.65	2.28	0.86	2.18
2. Algebra and Data Analysis	13	0.72	1.59	0.65	1.63	0.75	1.56	0.69	1.57	0.54	1.70	0.66	1.67
3. Measurement and Geometry	11	0.66	1.37	0.63	1.41	0.71	1.34	0.62	1.33	0.56	1.52	0.64	1.46
Grade 4													
1. Number Sense	23	0.78	2.06	0.74	2.01	0.76	2.11	0.79	1.99	0.62	2.26	0.77	2.17
2. Algebra and Data Analysis	15	0.59	1.80	0.40	1.83	0.56	1.83	0.50	1.81	0.32	1.85	0.54	1.82
3. Measurement and Geometry	10	0.39	1.48	0.48	1.43	0.30	1.51	0.38	1.48	0.23	1.52	0.36	1.52
Grade 5													
1. Number Sense	21	0.79	1.98	0.79	1.96	0.75	2.07	0.77	1.92	0.64	2.15	0.77	2.09
2. Algebra and Data Analysis	17	0.78	1.78	0.81	1.71	0.73	1.86	0.76	1.76	0.59	1.94	0.61	1.93
3. Measurement and Geometry	10	0.51	1.47	0.50	1.44	0.44	1.50	0.41	1.47	0.26	1.52	0.38	1.51
Grade 6													
1. Number Sense	21	0.65	2.16	0.66	2.15	0.60	2.18	0.59	2.17	0.30	2.20	0.53	2.22
2. Algebra and Data Analysis	25	0.73	2.29	0.69	2.30	0.70	2.33	0.64	2.27	0.50	2.39	0.73	2.34
3. Measurement and Geometry	8	0.31	1.37	0.40	1.36	0.29	1.36	0.28	1.37	0.14	1.35	0.47	1.31
Grade 7													
1. Number Sense	18	0.41	2.00	0.45	1.96	0.42	2.01	0.46	1.99	0.19	2.01	0.32	2.02
2. Algebra and Data Analysis	25	0.69	2.33	0.68	2.32	0.62	2.38	0.63	2.35	0.43	2.36	0.41	2.39
3. Measurement and Geometry	11	0.40	1.54	0.19	1.54	0.30	1.55	0.35	1.53	0.09	1.56	0.52	1.52
Algebra I													
1. Number Properties, Operations, and Linear Equations	15	0.69	1.76	0.66	1.75	0.67	1.79	0.68	1.74	0.41	1.82	0.55	1.82
2. Graphing and Systems of Linear Equations	14	0.56	1.76	0.49	1.76	0.47	1.78	0.52	1.78	0.28	1.79	0.65	1.74
3. Quadratics and Polynomials	19	0.58	2.07	0.55	2.06	0.41	2.10	0.55	2.05	0.34	2.10	0.63	2.03
4. Functions and Rational Expressions	12	0.55	1.62	0.51	1.64	0.44	1.64	0.57	1.62	0.29	1.64	0.63	1.59
Geometry													
1. Logic and Geometric Proofs	23	0.69	2.23	0.70	2.18	0.70	2.25	0.63	2.25	0.21	2.30	0.30	2.34
2. Volume and Area Formulas	11	0.67	1.50	0.61	1.52	0.54	1.57	0.63	1.51	0.48	1.55	–	–
3. Angle Relationships, Constructions, and Lines	14	0.57	1.73	0.60	1.66	0.42	1.76	0.39	1.77	0.41	1.73	–	–
4. Trigonometry	12	0.57	1.63	0.61	1.61	0.53	1.64	0.35	1.67	0.22	1.65	0.30	1.65

Table 8.B.44 Subscore Reliabilities and SEM for Mathematics by Disability (continued)

Subscore Reliabilities and SEM for Mathematics by Disability (continued)													
Subscore Area	**N of Items**	**Orthopedic Impairment**		**Other Health Impairment**		**Specific Learning Disability**		**Speech or Language Impairment**		**Traumatic Brain Injury**		**Visual Impairment**	
		Reliab.	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**	**Reliab.**	**SEM**
Grade 3													
1. Number Sense	24	0.81	2.21	0.82	2.16	0.81	2.18	0.82	2.15	0.78	2.16	0.85	2.18
2. Algebra and Data Analysis	13	0.72	1.60	0.71	1.55	0.68	1.58	0.69	1.58	0.66	1.59	0.55	1.66
3. Measurement and Geometry	11	0.64	1.36	0.65	1.32	0.62	1.34	0.62	1.33	0.54	1.38	0.61	1.46
Grade 4													
1. Number Sense	23	0.70	2.16	0.74	2.05	0.72	2.05	0.74	2.03	0.78	2.10	0.72	2.11
2. Algebra and Data Analysis	15	0.55	1.82	0.56	1.81	0.51	1.82	0.53	1.81	0.57	1.80	0.54	1.82
3. Measurement and Geometry	10	0.31	1.50	0.36	1.48	0.38	1.48	0.38	1.47	0.25	1.53	0.34	1.49
Grade 5													
1. Number Sense	21	0.74	2.03	0.76	1.99	0.74	1.98	0.76	1.96	0.77	1.98	0.69	2.06
2. Algebra and Data Analysis	17	0.74	1.82	0.75	1.78	0.73	1.77	0.75	1.76	0.75	1.82	0.79	1.78
3. Measurement and Geometry	10	0.39	1.48	0.46	1.47	0.45	1.48	0.45	1.48	0.50	1.50	0.59	1.44
Grade 6													
1. Number Sense	21	0.62	2.18	0.63	2.16	0.60	2.17	0.61	2.17	0.59	2.19	0.68	2.15
2. Algebra and Data Analysis	25	0.73	2.28	0.69	2.29	0.67	2.30	0.67	2.29	0.76	2.31	0.59	2.33
3. Measurement and Geometry	8	0.36	1.36	0.29	1.37	0.27	1.37	0.25	1.38	0.50	1.32	0.29	1.37
Grade 7													
1. Number Sense	18	0.48	1.96	0.36	2.01	0.36	2.00	0.36	2.00	0.27	2.00	0.38	2.02
2. Algebra and Data Analysis	25	0.64	2.35	0.64	2.37	0.64	2.36	0.65	2.34	0.70	2.32	0.60	2.37
3. Measurement and Geometry	11	0.29	1.56	0.28	1.55	0.28	1.54	0.36	1.53	0.21	1.57	0.30	1.55
Algebra I													
1. Number Properties, Operations, and Linear Equations	15	0.69	1.75	0.66	1.76	0.66	1.78	0.65	1.76	0.60	1.81	0.73	1.73
2. Graphing and Systems of Linear Equations	14	0.53	1.76	0.48	1.78	0.46	1.78	0.48	1.78	0.45	1.77	0.46	1.79
3. Quadratics and Polynomials	19	0.50	2.09	0.51	2.09	0.52	2.08	0.56	2.06	0.51	2.10	0.50	2.09
4. Functions and Rational Expressions	12	0.54	1.63	0.54	1.63	0.53	1.64	0.56	1.63	0.50	1.64	0.64	1.61
Geometry													
1. Logic and Geometric Proofs	23	0.49	2.31	0.67	2.25	0.59	2.28	0.57	2.28	0.50	2.27	0.59	2.28
2. Volume and Area Formulas	11	0.66	1.51	0.60	1.54	0.53	1.57	0.58	1.55	0.43	1.61	0.74	1.40
3. Angle Relationships, Constructions, and Lines	14	0.47	1.77	0.46	1.76	0.36	1.77	0.36	1.75	–	–	0.02	1.84
4. Trigonometry	12	0.50	1.64	0.51	1.64	0.40	1.66	0.37	1.67	0.29	1.70	0.61	1.64

Table 8.B.45 Subscore Reliabilities and SEM for Science by Disability

Subscore Reliabilities and SEM for Science by Disability													
Subscore Area	N of Items	Autism		Deafness		Emotional Disturbance		Hard of Hearing		MR/ID		Multiple Disability	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 5													
1. Physical Science	16	0.58	1.86	0.56	1.88	0.58	1.84	0.52	1.87	0.44	1.91	0.68	1.81
2. Life Science	16	0.69	1.78	0.61	1.84	0.72	1.78	0.53	1.86	0.49	1.91	0.44	1.87
3. Earth Science	16	0.66	1.78	0.58	1.87	0.69	1.81	0.62	1.79	0.48	1.89	0.57	1.92
Grade 8													
1. Motion	19	0.68	1.94	0.55	2.05	0.70	1.96	0.59	1.96	0.55	2.07	0.67	1.99
2. Matter	23	0.74	2.19	0.62	2.27	0.69	2.25	0.70	2.22	0.43	2.29	0.40	2.33
3. Earth Science	7	0.54	1.14	0.15	1.23	0.55	1.18	0.46	1.17	0.27	1.27	0.53	1.19
4. Investigation and Experimentation	5	0.49	0.96	0.42	1.00	0.45	1.00	0.36	0.97	0.34	1.03	0.26	1.01
Life Science													
1. Cell Biology	22	0.67	2.18	0.35	2.23	0.66	2.21	0.57	2.22	0.25	2.26	0.17	2.24
2. Evolution	22	0.71	2.09	0.45	2.20	0.75	2.15	0.68	2.13	0.38	2.24	0.35	2.17
3. Physiology	10	0.64	1.38	0.45	1.50	0.68	1.40	0.54	1.46	0.37	1.51	0.56	1.46
4. Investigation and Experimentation	6	0.47	1.12	0.12	1.19	0.48	1.14	0.35	1.16	0.23	1.18	0.56	1.12

Table 8.B.46 Subscore Reliabilities and SEM for Science by Disability (continued)

Subscore Reliabilities and SEM for Science by Disability (continued)													
Subscore Area	N of Items	Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 5													
1. Physical Science	16	0.56	1.87	0.56	1.82	0.53	1.84	0.53	1.86	0.72	1.80	0.58	1.83
2. Life Science	16	0.62	1.82	0.62	1.77	0.61	1.79	0.62	1.80	0.68	1.81	0.54	1.78
3. Earth Science	16	0.66	1.80	0.65	1.77	0.61	1.78	0.60	1.79	0.72	1.77	0.64	1.77
Grade 8													
1. Motion	19	0.59	1.99	0.67	1.93	0.63	1.95	0.60	1.97	0.64	1.98	0.70	1.93
2. Matter	23	0.70	2.23	0.72	2.22	0.68	2.24	0.67	2.24	0.67	2.25	0.76	2.20
3. Earth Science	7	0.49	1.18	0.54	1.15	0.47	1.17	0.41	1.18	0.54	1.17	0.61	1.08
4. Investigation and Experimentation	5	0.43	0.99	0.48	0.97	0.42	0.99	0.37	0.99	0.48	0.97	0.33	1.03
Life Science													
1. Cell Biology	22	0.65	2.20	0.65	2.20	0.59	2.22	0.54	2.24	0.61	2.24	0.70	2.18
2. Evolution	22	0.63	2.18	0.74	2.14	0.69	2.16	0.65	2.17	0.71	2.17	0.58	2.16
3. Physiology	10	0.58	1.44	0.68	1.38	0.61	1.44	0.58	1.45	0.56	1.48	0.78	1.30
4. Investigation and Experimentation	6	0.45	1.15	0.40	1.15	0.37	1.16	0.34	1.17	0.30	1.15	0.56	1.11

Table 8.B.47 Subscore Reliabilities and SEM for Grade-specific CMA by Disability

Subscore Reliabilities and SEM for Grade-specific CMA by Disability													
Subscore Area	N of Items	Autism		Deafness		Emotional Disturbance		Hard of Hearing		MR/ID		Multiple Disability	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – 8													
1. Number Properties, Operations, and Linear Equations	15	0.72	1.75	0.60	1.84	0.62	1.82	0.65	1.73	0.39	1.81	–	–
2. Graphing and Systems of Linear Equations	14	0.67	1.74	0.41	1.78	0.43	1.78	0.64	1.75	0.27	1.79	–	–
3. Quadratics and Polynomials	19	0.65	2.05	0.73	1.98	0.43	2.09	0.57	2.02	0.30	2.08	–	–
4. Functions and Rational Expressions	12	0.60	1.61	0.38	1.69	0.52	1.63	0.54	1.62	0.35	1.63	–	–
Geometry – 9													
1. Logic and Geometric Proofs	23	0.84	2.05	–	–	0.70	2.28	–	–	–	–	–	–
2. Volume and Area Formulas	11	0.82	1.27	–	–	0.33	1.62	–	–	–	–	–	–
3. Angle Relationships, Constructions, and Lines	14	0.79	1.58	–	–	0.41	1.75	–	–	–	–	–	–
4. Trigonometry	12	0.75	1.48	–	–	0.37	1.66	–	–	–	–	–	–

Table 8.B.48 Subscore Reliabilities and SEM for Grade-specific CMA by Disability (continued)

Subscore Reliabilities and SEM for Grade-specific CMA by Disability (continued)													
Subscore Area	N of Items	Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – 8													
1. Number Properties, Operations, and Linear Equations	15	0.67	1.73	0.67	1.77	0.65	1.78	0.67	1.75	–	–	0.80	1.67
2. Graphing and Systems of Linear Equations	14	0.63	1.75	0.53	1.77	0.49	1.78	0.54	1.77	–	–	0.54	1.77
3. Quadratics and Polynomials	19	0.61	2.07	0.55	2.08	0.52	2.08	0.61	2.04	–	–	0.13	2.15
4. Functions and Rational Expressions	12	0.45	1.65	0.58	1.62	0.55	1.63	0.57	1.61	–	–	0.54	1.62
Geometry – 9													
1. Logic and Geometric Proofs	23	–	–	0.68	2.25	0.62	2.28	0.72	2.21	–	–	–	–
2. Volume and Area Formulas	11	–	–	0.59	1.55	0.57	1.56	0.62	1.51	–	–	–	–
3. Angle Relationships, Constructions, and Lines	14	–	–	0.61	1.72	0.45	1.76	0.58	1.70	–	–	–	–
4. Trigonometry	12	–	–	0.66	1.56	0.45	1.66	0.38	1.68	–	–	–	–

Table 8.B.49 Reliability of Classification for ELA, Grade Three

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–16	0.05	0.05	0.00	0.00	0.00	0.10
	17–27	0.03	0.30	0.05	0.00	0.00	0.38
	28–34	0.00	0.05	0.17	0.04	0.00	0.26
	35–39	0.00	0.00	0.05	0.10	0.02	0.17
	40–48	0.00	0.00	0.00	0.04	0.06	0.10
	Estimated Proportion Correctly Classified: Total = 0.68, Proficient & Above = 0.91						
Decision Consistency Alternate Form	0–16	0.05	0.05	0.00	0.00	0.00	0.10
	17–27	0.05	0.26	0.07	0.00	0.00	0.38
	28–34	0.00	0.07	0.13	0.05	0.01	0.26
	35–39	0.00	0.01	0.05	0.08	0.04	0.17
	40–48	0.00	0.00	0.01	0.04	0.05	0.10
	Estimated Proportion Consistently Classified: Total = 0.57, Proficient & Above = 0.87						

Table 8.B.50 Reliability of Classification for ELA, Grade Four

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–16	0.03	0.06	0.00	0.00	0.00	0.09
	17–24	0.02	0.25	0.06	0.00	0.00	0.34
	25–30	0.00	0.06	0.15	0.04	0.00	0.25
	31–36	0.00	0.00	0.05	0.12	0.02	0.20
	37–48	0.00	0.00	0.00	0.04	0.08	0.12
	Estimated Proportion Correctly Classified: Total = 0.64, Proficient & Above = 0.90						
Decision Consistency Alternate Form	0–16	0.04	0.05	0.00	0.00	0.00	0.09
	17–24	0.05	0.20	0.07	0.01	0.00	0.34
	25–30	0.00	0.07	0.11	0.05	0.00	0.25
	31–36	0.00	0.01	0.06	0.10	0.04	0.20
	37–48	0.00	0.00	0.01	0.04	0.08	0.12
	Estimated Proportion Consistently Classified: Total = 0.52, Proficient & Above = 0.86						

Table 8.B.51 Reliability of Classification for ELA, Grade Five

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–14	0.00	0.03	0.00	0.00	0.00	0.04
	15–24	0.00	0.26	0.06	0.00	0.00	0.32
	25–31	0.00	0.05	0.19	0.04	0.00	0.29
	32–36	0.00	0.00	0.05	0.10	0.03	0.19
	37–48	0.00	0.00	0.00	0.04	0.12	0.17
	Estimated Proportion Correctly Classified: Total = 0.68, Proficient & Above = 0.90						
Decision Consistency Alternate Form	0–14	0.01	0.02	0.00	0.00	0.00	0.04
	15–24	0.03	0.22	0.07	0.01	0.00	0.32
	25–31	0.00	0.07	0.15	0.06	0.01	0.29
	32–36	0.00	0.01	0.06	0.08	0.04	0.19
	37–48	0.00	0.00	0.01	0.04	0.11	0.17
	Estimated Proportion Consistently Classified: Total = 0.57, Proficient & Above = 0.85						

Table 8.B.52 Reliability of Classification for ELA, Grade Six

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.13	0.05	0.00	0.00	0.00	0.18
	23–30	0.03	0.21	0.05	0.00	0.00	0.29
	31–35	0.00	0.05	0.11	0.04	0.00	0.21
	36–39	0.00	0.01	0.05	0.07	0.03	0.15
	40–54	0.00	0.00	0.01	0.04	0.11	0.16
	Estimated Proportion Correctly Classified: Total = 0.62, Proficient & Above = 0.89						
Decision Consistency Alternate Form	0–22	0.12	0.06	0.01	0.00	0.00	0.18
	23–30	0.06	0.16	0.06	0.01	0.00	0.29
	31–35	0.00	0.06	0.08	0.04	0.02	0.21
	36–39	0.00	0.02	0.04	0.05	0.04	0.15
	40–54	0.00	0.00	0.02	0.04	0.10	0.16
	Estimated Proportion Consistently Classified: Total = 0.51, Proficient & Above = 0.85						

Table 8.B.53 Reliability of Classification for ELA, Grade Seven

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.11	0.04	0.00	0.00	0.00	0.16
	23–31	0.03	0.20	0.05	0.00	0.00	0.28
	32–37	0.00	0.05	0.13	0.04	0.00	0.22
	38–43	0.00	0.00	0.05	0.13	0.03	0.22
	44–54	0.00	0.00	0.00	0.04	0.09	0.12
	Estimated Proportion Correctly Classified: Total = 0.66, Proficient & Above = 0.90						
Decision Consistency Alternate Form	0–22	0.10	0.05	0.00	0.00	0.00	0.16
	23–31	0.05	0.17	0.06	0.01	0.00	0.28
	32–37	0.00	0.06	0.10	0.05	0.01	0.22
	38–43	0.00	0.01	0.06	0.11	0.05	0.22
	44–54	0.00	0.00	0.00	0.04	0.08	0.12
	Estimated Proportion Consistently Classified: Total = 0.55, Proficient & Above = 0.86						

Table 8.B.54 Reliability of Classification for ELA, Grade Eight

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–21	0.09	0.05	0.00	0.00	0.00	0.14
	22–29	0.03	0.21	0.06	0.00	0.00	0.30
	30–35	0.00	0.06	0.14	0.04	0.00	0.24
	36–41	0.00	0.00	0.05	0.12	0.02	0.20
	42–54	0.00	0.00	0.00	0.04	0.08	0.12
	Estimated Proportion Correctly Classified: Total = 0.64, Proficient & Above = 0.90						
Decision Consistency Alternate Form	0–21	0.08	0.05	0.00	0.00	0.00	0.14
	22–29	0.05	0.16	0.07	0.01	0.00	0.30
	30–35	0.00	0.07	0.11	0.06	0.01	0.24
	36–41	0.00	0.01	0.06	0.09	0.04	0.20
	42–54	0.00	0.00	0.01	0.04	0.08	0.12
	Estimated Proportion Consistently Classified: Total = 0.53, Proficient & Above = 0.85						

Table 8.B.55 Reliability of Classification for ELA, Grade Nine

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–24	0.19	0.06	0.00	0.00	0.00	0.26
	25–32	0.06	0.21	0.05	0.00	0.00	0.32
	33–39	0.00	0.06	0.13	0.03	0.00	0.21
	40–46	0.00	0.00	0.04	0.09	0.01	0.14
	47–60	0.00	0.00	0.00	0.02	0.05	0.07
	Estimated Proportion Correctly Classified: Total = 0.66, Proficient & Above = 0.93						
Decision Consistency Alternate Form	0–24	0.17	0.08	0.01	0.00	0.00	0.26
	25–32	0.08	0.17	0.06	0.01	0.00	0.32
	33–39	0.01	0.06	0.10	0.04	0.00	0.21
	40–46	0.00	0.01	0.04	0.07	0.02	0.14
	47–60	0.00	0.00	0.00	0.02	0.05	0.07
	Estimated Proportion Consistently Classified: Total = 0.55, Proficient & Above = 0.90						

Table 8.B.56 Reliability of Classification for ELA, Grade Ten

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–23	0.17	0.07	0.00	0.00	0.00	0.24
	24–31	0.05	0.22	0.05	0.00	0.00	0.33
	32–38	0.00	0.06	0.14	0.03	0.00	0.23
	39–45	0.00	0.00	0.04	0.09	0.01	0.14
	46–60	0.00	0.00	0.00	0.02	0.03	0.06
	Estimated Proportion Correctly Classified: Total = 0.65, Proficient & Above = 0.92						
Decision Consistency Alternate Form	0–23	0.15	0.08	0.01	0.00	0.00	0.24
	24–31	0.08	0.17	0.07	0.01	0.00	0.33
	32–38	0.01	0.07	0.11	0.05	0.00	0.23
	39–45	0.00	0.01	0.05	0.07	0.02	0.14
	46–60	0.00	0.00	0.00	0.02	0.03	0.06
	Estimated Proportion Consistently Classified: Total = 0.54, Proficient & Above = 0.89						

Table 8.B.57 Reliability of Classification for ELA, Grade Eleven

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.19	0.09	0.00	0.00	0.00	0.29
	23–29	0.08	0.24	0.05	0.00	0.00	0.37
	30–36	0.00	0.07	0.13	0.02	0.00	0.22
	37–43	0.00	0.00	0.04	0.05	0.00	0.10
	44–60	0.00	0.00	0.00	0.01	0.02	0.03
	Estimated Proportion Correctly Classified: Total = 0.62, Proficient & Above = 0.94						
Decision Consistency Alternate Form	0–22	0.17	0.10	0.01	0.00	0.00	0.29
	23–29	0.10	0.18	0.07	0.01	0.00	0.37
	30–36	0.01	0.07	0.10	0.03	0.00	0.22
	37–43	0.00	0.01	0.04	0.04	0.01	0.10
	44–60	0.00	0.00	0.00	0.01	0.02	0.03
	Estimated Proportion Consistently Classified: Total = 0.51, Proficient & Above = 0.91						

Table 8.B.58 Reliability of Classification for Mathematics, Grade Three

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–16	0.03	0.04	0.00	0.00	0.00	0.07
	17–27	0.02	0.26	0.05	0.00	0.00	0.33
	28–34	0.00	0.04	0.16	0.04	0.00	0.24
	35–42	0.00	0.00	0.05	0.21	0.02	0.28
	43–48	0.00	0.00	0.00	0.04	0.03	0.07
	Estimated Proportion Correctly Classified: Total = 0.71, Proficient & Above = 0.91						
Decision Consistency Alternate Form	0–16	0.03	0.04	0.00	0.00	0.00	0.07
	17–27	0.04	0.23	0.06	0.00	0.00	0.33
	28–34	0.00	0.06	0.13	0.06	0.00	0.24
	35–42	0.00	0.01	0.06	0.18	0.04	0.28
	43–48	0.00	0.00	0.00	0.04	0.03	0.07
	Estimated Proportion Consistently Classified: Total = 0.60, Proficient & Above = 0.87						

Table 8.B.59 Reliability of Classification for Mathematics, Grade Four

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–17	0.04	0.04	0.00	0.00	0.00	0.08
	18–24	0.02	0.19	0.07	0.00	0.00	0.28
	25–29	0.00	0.06	0.15	0.05	0.00	0.26
	30–36	0.00	0.00	0.07	0.19	0.02	0.28
	37–48	0.00	0.00	0.00	0.04	0.06	0.10
	Estimated Proportion Correctly Classified: Total = 0.62, Proficient & Above = 0.87						
Decision Consistency Alternate Form	0–17	0.04	0.04	0.01	0.00	0.00	0.08
	18–24	0.04	0.15	0.07	0.02	0.00	0.28
	25–29	0.01	0.07	0.11	0.07	0.00	0.26
	30–36	0.00	0.02	0.07	0.15	0.04	0.28
	37–48	0.00	0.00	0.00	0.04	0.06	0.10
	Estimated Proportion Consistently Classified: Total = 0.51, Proficient & Above = 0.82						

Table 8.B.60 Reliability of Classification for Mathematics, Grade Five

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–15	0.01	0.03	0.00	0.00	0.00	0.04
	16–24	0.01	0.19	0.05	0.00	0.00	0.26
	25–31	0.00	0.04	0.18	0.05	0.00	0.27
	32–38	0.00	0.00	0.06	0.20	0.03	0.29
	39–48	0.00	0.00	0.00	0.04	0.10	0.14
	Estimated Proportion Correctly Classified: Total = 0.69, Proficient & Above = 0.89						
Decision Consistency Alternate Form	0–15	0.02	0.03	0.00	0.00	0.00	0.04
	16–24	0.03	0.16	0.06	0.01	0.00	0.26
	25–31	0.00	0.06	0.14	0.06	0.00	0.27
	32–38	0.00	0.01	0.07	0.16	0.05	0.29
	39–48	0.00	0.00	0.00	0.05	0.09	0.14
	Estimated Proportion Consistently Classified: Total = 0.58, Proficient & Above = 0.85						

Table 8.B.61 Reliability of Classification for Mathematics, Grade Six

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–20	0.07	0.06	0.00	0.00	0.00	0.14
	21–27	0.03	0.21	0.06	0.00	0.00	0.31
	28–32	0.00	0.07	0.12	0.04	0.00	0.23
	33–39	0.00	0.01	0.06	0.14	0.02	0.23
	40–54	0.00	0.00	0.00	0.03	0.05	0.09
	Estimated Proportion Correctly Classified: Total = 0.60, Proficient & Above = 0.88						
Decision Consistency Alternate Form	0–20	0.07	0.06	0.01	0.00	0.00	0.14
	21–27	0.06	0.16	0.07	0.02	0.00	0.31
	28–32	0.01	0.07	0.09	0.06	0.00	0.23
	33–39	0.00	0.02	0.06	0.11	0.03	0.23
	40–54	0.00	0.00	0.00	0.03	0.05	0.09
	Estimated Proportion Consistently Classified: Total = 0.49, Proficient & Above = 0.83						

Table 8.B.62 Reliability of Classification for Mathematics, Grade Seven

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–20	0.16	0.09	0.01	0.00	0.00	0.26
	21–25	0.06	0.17	0.06	0.01	0.00	0.30
	26–29	0.01	0.07	0.08	0.03	0.00	0.20
	30–36	0.00	0.02	0.06	0.10	0.01	0.19
	37–54	0.00	0.00	0.00	0.03	0.03	0.05
	Estimated Proportion Correctly Classified: Total = 0.54, Proficient & Above = 0.88						
Decision Consistency Alternate Form	0–20	0.14	0.09	0.02	0.00	0.00	0.26
	21–25	0.09	0.12	0.06	0.03	0.00	0.30
	26–29	0.02	0.06	0.06	0.05	0.00	0.20
	30–36	0.00	0.03	0.05	0.09	0.02	0.19
	37–54	0.00	0.00	0.00	0.02	0.03	0.05
	Estimated Proportion Consistently Classified: Total = 0.44, Proficient & Above = 0.83						

Table 8.B.63 Reliability of Classification for Algebra I

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.14	0.08	0.00	0.00	0.00	0.22
	23–30	0.06	0.27	0.05	0.00	0.00	0.38
	31–38	0.00	0.07	0.16	0.02	0.00	0.25
	39–46	0.00	0.00	0.04	0.07	0.01	0.11
	47–60	0.00	0.00	0.00	0.01	0.02	0.03
	Estimated Proportion Correctly Classified: Total = 0.65, Proficient & Above = 0.94						
Decision Consistency Alternate Form	0–22	0.12	0.09	0.01	0.00	0.00	0.22
	23–30	0.09	0.21	0.08	0.00	0.00	0.38
	31–38	0.01	0.08	0.13	0.04	0.00	0.25
	39–46	0.00	0.00	0.04	0.06	0.01	0.11
	47–60	0.00	0.00	0.00	0.01	0.02	0.03
	Estimated Proportion Consistently Classified: Total = 0.53, Proficient & Above = 0.91						

Table 8.B.64 Reliability of Classification for Geometry

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.14	0.09	0.00	0.00	0.00	0.23
	23–30	0.07	0.28	0.05	0.00	0.00	0.40
	31–39	0.00	0.07	0.17	0.02	0.00	0.26
	40–48	0.00	0.00	0.03	0.06	0.00	0.09
	49–60	0.00	0.00	0.00	0.01	0.01	0.02
	Estimated Proportion Correctly Classified: Total = 0.65, Proficient & Above = 0.95						
Decision Consistency Alternate Form	0–22	0.12	0.10	0.01	0.00	0.00	0.23
	23–30	0.10	0.22	0.08	0.00	0.00	0.40
	31–39	0.01	0.08	0.14	0.03	0.00	0.26
	40–48	0.00	0.00	0.03	0.05	0.01	0.09
	49–60	0.00	0.00	0.00	0.01	0.01	0.02
	Estimated Proportion Consistently Classified: Total = 0.54, Proficient & Above = 0.93						

Table 8.B.65 Reliability of Classification for Science, Grade Five

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–15	0.01	0.02	0.00	0.00	0.00	0.03
	16–23	0.00	0.13	0.06	0.00	0.00	0.20
	24–30	0.00	0.04	0.21	0.06	0.00	0.31
	31–37	0.00	0.00	0.07	0.22	0.03	0.33
	38–48	0.00	0.00	0.00	0.05	0.09	0.14
	Estimated Proportion Correctly Classified: Total = 0.66, Proficient & Above = 0.87						
Decision Consistency Alternate Form	0–15	0.01	0.02	0.00	0.00	0.00	0.03
	16–23	0.02	0.11	0.06	0.01	0.00	0.20
	24–30	0.00	0.06	0.16	0.08	0.00	0.31
	31–37	0.00	0.01	0.08	0.18	0.06	0.33
	38–48	0.00	0.00	0.00	0.05	0.08	0.14
	Estimated Proportion Consistently Classified: Total = 0.54, Proficient & Above = 0.82						

Table 8.B.66 Reliability of Classification for Science, Grade Eight

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.10	0.05	0.01	0.00	0.00	0.16
	23–27	0.03	0.09	0.05	0.00	0.00	0.18
	28–33	0.00	0.05	0.14	0.05	0.00	0.24
	34–40	0.00	0.00	0.06	0.17	0.03	0.26
	41–54	0.00	0.00	0.00	0.04	0.12	0.16
	Estimated Proportion Correctly Classified: Total = 0.62, Proficient & Above = 0.88						
Decision Consistency Alternate Form	0–22	0.09	0.05	0.02	0.00	0.00	0.16
	23–27	0.05	0.07	0.05	0.01	0.00	0.18
	28–33	0.01	0.05	0.11	0.06	0.00	0.24
	34–40	0.00	0.01	0.07	0.13	0.05	0.26
	41–54	0.00	0.00	0.00	0.05	0.11	0.16
	Estimated Proportion Consistently Classified: Total = 0.52, Proficient & Above = 0.84						

Table 8.B.67 Reliability of Classification for Life Science (Grade 10)

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–23	0.14	0.06	0.00	0.00	0.00	0.21
	24–31	0.04	0.20	0.05	0.00	0.00	0.29
	32–39	0.00	0.06	0.18	0.03	0.00	0.27
	40–47	0.00	0.00	0.05	0.11	0.01	0.17
	48–60	0.00	0.00	0.00	0.02	0.04	0.06
	Estimated Proportion Correctly Classified: Total = 0.67, Proficient & Above = 0.92						
Decision Consistency Alternate Form	0–23	0.13	0.07	0.01	0.00	0.00	0.21
	24–31	0.07	0.16	0.07	0.00	0.00	0.29
	32–39	0.01	0.07	0.14	0.05	0.00	0.27
	40–47	0.00	0.01	0.05	0.09	0.02	0.17
	48–60	0.00	0.00	0.00	0.02	0.03	0.06
	Estimated Proportion Consistently Classified: Total = 0.56, Proficient & Above = 0.89						

Table 8.B.68 Reliability of Classification for Algebra I – Grade 8

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.12	0.08	0.00	0.00	0.00	0.20
	23–30	0.06	0.26	0.05	0.00	0.00	0.37
	31–38	0.00	0.07	0.16	0.02	0.00	0.25
	39–46	0.00	0.00	0.04	0.08	0.01	0.13
	47–60	0.00	0.00	0.00	0.02	0.03	0.04
	Estimated Proportion Correctly Classified: Total = 0.65, Proficient & Above = 0.93						
Decision Consistency Alternate Form	0–22	0.11	0.09	0.01	0.00	0.00	0.20
	23–30	0.09	0.20	0.08	0.00	0.00	0.37
	31–38	0.01	0.08	0.13	0.04	0.00	0.25
	39–46	0.00	0.01	0.04	0.07	0.02	0.13
	47–60	0.00	0.00	0.00	0.02	0.03	0.04
	Estimated Proportion Consistently Classified: Total = 0.53, Proficient & Above = 0.90						

Table 8.B.69 Reliability of Classification for Geometry – Grade 9

	Placement Score	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Category Total
Decision Accuracy All–forms Average	0–22	0.16	0.07	0.01	0.00	0.00	0.24
	23–30	0.04	0.23	0.08	0.02	0.00	0.37
	31–39	0.00	0.03	0.19	0.00	0.00	0.22
	40–48	0.00	0.00	0.05	0.08	0.00	0.13
	49–60	0.00	0.01	0.01	0.02	0.01	0.04
	Estimated Proportion Correctly Classified: Total = 0.68, Proficient & Above = 0.92						
Decision Consistency Alternate Form	0–22	0.16	0.07	0.01	0.00	0.00	0.24
	23–30	0.07	0.18	0.10	0.02	0.00	0.37
	31–39	0.00	0.05	0.15	0.03	0.00	0.22
	40–48	0.00	0.00	0.05	0.07	0.01	0.13
	49–60	0.00	0.01	0.01	0.01	0.01	0.04
	Estimated Proportion Consistently Classified: Total = 0.57, Proficient & Above = 0.89						

Table 8.B.70 Interrater Agreement Analyses for Writing, Grade Four

		Rater 1								
		1	%	2	%	3	%	4	%	Total
	1	147	6.10%	113	4.69%	0	0.00%	0	0.00%	260
	2	97	4.03%	1,114	46.26%	244	10.13%	4	0.17%	1,459
	3	2	0.08%	226	9.39%	355	14.74%	40	1.66%	623
Rater 2	4	0	0.00%	3	0.12%	46	1.91%	17	0.71%	66
	Total	246	10.22%	1,456	60.47%	645	26.79%	61	2.53%	2,408

Percent Exact = 67.82%
Percent Adjacent = 31.81%
Percent Exact + Adjacent = 99.63%
Kappa = 0.42
Weighted Kappa = 0.50

Table 8.B.71 Interrater Agreement Analyses for Writing, Grade Seven

		Rater 1								
		1	%	2	%	3	%	4	%	Total
	1	60	2.41%	40	1.61%	0	0.00%	0	0.00%	100
	2	38	1.53%	719	28.93%	265	10.66%	16	0.64%	1,038
	3	5	0.20%	291	11.71%	699	28.13%	111	4.47%	1,106
Rater 2	4	2	0.08%	20	0.80%	124	4.99%	95	3.82%	241
	Total	105	4.23%	1,070	43.06%	1,088	43.78%	222	8.93%	2,485

Percent Exact = 63.30%
Percent Adjacent = 34.97%
Percent Exact + Adjacent = 98.27%
Kappa = 0.40
Weighted Kappa = 0.48

Table 8.B.72 Descriptive Statistics for the Ratings by the Two Raters, Grade Four Writing

N *	Rater 1		Rater 2		
	Mean	Std	Mean	Std	Pearson Correlation
2,408	2.21	0.66	2.22	0.65	0.61

* Number of students who received valid ratings of 1–4

Table 8.B.73 Descriptive Statistics for the Ratings by the Two Raters, Grade Seven Writing

N *	Rater 1		Rater 2		
	Mean	Std	Mean	Std	Pearson Correlation
2,428	2.60	0.72	2.57	0.71	0.59

* Number of students who received valid ratings of 1–4

Table 8.B.74 Generalizability Analyses for Grade Four Writing—[(Person: Essay) x Rater)]

Effect	Degrees of Freedom	Sum of Squares	Mean Squares	Estimated Variance Components	Percentage of Total Variance
E	1	0.07	0.07	0.00	0.00
P:E	2406	1666.59	0.69	0.26	0.26
R	1	0.14	0.14	0.00	0.00
ER	1	0.16	0.16	0.00	0.00
PR:E	2406	400.70	0.17	0.17	0.17
Note: E = Essay Prompt, P = Person, and R = Rater				**G–Coefficient= 0.76**	

Table 8.B.75 Generalizability Analyses for Grade Seven Writing—[(Person: Essay) x Rater)]

Effect	Degrees of Freedom	Sum of Squares	Mean Squares	Estimated Variance Components	Percentage of Total Variance
E	1	2.68	2.68	0.03	5.93
P:E	2483	2013.12	0.81	0.30	54.46
R	1	0.75	0.75	0.01	1.20
ER	1	0.00	0.00	0.00	0.00
PR:E	2483	524.75	0.21	0.21	38.40
Note: E = Essay Prompt, P = Person, and R = Rater				**G–Coefficient= 0.74**	

Appendix 8.C—Validity Analyses

Note that, while the correlations are reported only for samples that comprise 11 or more examinees, results based on samples that contain 50 or fewer examinees should be interpreted with caution due to small sample sizes. Correlations between scores on any two content-area tests where 10 or fewer examinees took the tests are expressed as hyphens. Correlations between scores on two content-area tests that cannot be administered together to the same group of students are expressed as "N/A."

Table 8.C.1 CMA Content Area Correlations (Gender)

		Male				Female				Gender Unknown			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**13,440**	0.62			**6,293**	0.61			**233**	0.58		
	2. Mathematics	10,432	**11,334**			5,237	**5,749**			171	**184**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**19,122**	0.54			**9,496**	0.54			**12**	–		
	2. Mathematics	15,089	**15,758**			7,897	**8,459**			9	**11**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
	1. ELA	**19,742**	0.52	0.68		**10,090**	0.51	0.68		**20**	0.03	0.79	
5	**2.Mathematics**	16,006	**17,064**	0.55		8,686	**9,482**	0.53		18	**19**	0.02	
	3. Science	17,825	15,458	**18,164**		9,259	8,466	**9,526**		18	19	**19**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**19,915**	0.57			**9,958**	0.56			**18**	0.42		
	2. Mathematics	16,580	**17,732**			8,687	**9,598**			17	**18**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
	1. ELA	**18,992**	0.54	–0.18		**9,365**	0.53	–0.11		**7**	–	–	
7	**2. Mathematics**	16,403	**17,758**	N/A		8,366	**9,377**	N/A		5	**7**	N/A	
	3. Algebra I	53	N/A	**58**		23	N/A	**25**		0	N/A	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
	1. ELA	**17,879**	0.48	–	0.65	**8,620**	0.49	–	0.64	**94**	0.51	–	0.68
8	**2. Algebra I**	3,493	**3,935**	N/A	0.56	1,781	**2,079**	N/A	0.57	16	**21**	N/A	0.71
	3. Geometry	3	N/A	**3**	–	1	N/A	**1**	–	0	N/A	**0**	–
	4. Science	15,466	3,341	3	**16,206**	7,528	1,747	1	**7,960**	79	12	0	**85**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
	1. ELA	**14,624**	0.49	0.53		**7,051**	0.49	0.59		**56**	0.73	–	
9	**2. Algebra I**	6,368	**7,157**	N/A		3,225	**3,709**	N/A		25	**29**	N/A	
	3. Geometry	372	N/A	**417**		178	N/A	**211**		0	N/A	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
	1. ELA	**12,628**	0.47	0.51	0.66	**6,291**	0.46	0.49	0.65	**33**	0.38	–	0.47
10	**2. Algebra I**	5,163	**5,867**	N/A	0.49	2,640	**3,115**	N/A	0.48	14	**20**	N/A	0.66
	3. Geometry	2,223	N/A	**2,558**	0.57	1,203	N/A	**1,408**	0.54	4	N/A	**5**	–
	4. Life Science	9,856	4,422	1,920	**10,310**	5,012	2,321	1,040	**5,290**	25	13	3	**29**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
	1. ELA	**10,706**	0.40	0.48		**5,603**	0.35	0.46		**34**	–	–	
11	**2. Algebra I**	2,912	**3,327**	N/A		1,533	**1,768**	N/A		9	**14**	N/A	
	3. Geometry	1,948	N/A	**2,276**		1,124	N/A	**1,362**		4	N/A	**6**	

Table 8.C.2 CMA Content Area Correlations (Primary Ethnicity)

		American Indian				Asian American				Pacific Islander			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**185**	0.60			**591**	0.67			**83**	0.64		
	2. Mathematics	146	**158**			472	**516**			72	**76**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**271**	0.51			**927**	0.58			**121**	0.57		
	2. Mathematics	214	**227**			688	**727**			99	**104**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**268**	0.57	0.67		**894**	0.51	0.73		**137**	0.58	0.61	
	2. Mathematics	235	**256**	0.55		678	**727**	0.57		115	**125**	0.57	
	3. Science	238	228	**246**		825	668	**840**		120	108	**122**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**305**	0.52			**920**	0.57			**127**	0.58		
	2. Mathematics	270	**293**			688	**736**			105	**114**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**260**	0.61	–		**823**	0.58	–		**135**	0.51	–	
	2. Mathematics	231	**259**	N/A		678	**740**	N/A		117	**132**	N/A	
	3. Algebra I	0	N/A	**0**		2	N/A	**3**		0	N/A	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**230**	0.19	–	0.59	**699**	0.44	–	0.67	**106**	0.59	–	0.62
	2. Algebra I	41	**46**	N/A	0.37	124	**144**	N/A	0.57	20	**23**	N/A	0.61
	3. Geometry	0	N/A	**0**	–	0	N/A	**0**	–	0	N/A	**0**	–
	4. Science	200	41	0	**213**	602	125	0	**631**	93	18	0	**103**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**223**	0.43	–		**488**	0.59	0.53		**96**	0.68	–	
	2. Algebra I	77	**88**	N/A		164	**189**	N/A		46	**53**	N/A	
	3. Geometry	1	N/A	**2**		15	N/A	**22**		1	N/A	**1**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**160**	0.42	0.27	0.61	**491**	0.50	0.50	0.71	**96**	0.35	0.40	0.76
	2. Algebra I	66	**83**	N/A	0.35	188	**211**	N/A	0.49	35	**41**	N/A	0.44
	3. Geometry	17	N/A	**19**	0.36	79	N/A	**92**	0.64	19	N/A	**22**	0.33
	4. Life Science	120	56	14	**127**	385	162	64	**397**	78	30	15	**81**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**159**	0.17	0.63		**386**	0.21	0.39		**51**	0.54	0.66	
	2. Algebra I	45	**53**	N/A		87	**99**	N/A		14	**19**	N/A	
	3. Geometry	21	N/A	**24**		91	N/A	**104**		13	N/A	**16**	

Table 8.C.3 CMA Content Area Correlations (Primary Ethnicity, continued)

		Filipino				Hispanic				African American			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**173**	0.64			**12,598**	0.60			**1,896**	0.66		
	2. Mathematics	142	**165**			10,199	**10,968**			1,643	**1,812**		
Grade		**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**307**	0.60			**18,164**	0.54			**2,749**	0.54		
	2. Mathematics	243	**256**			14,852	**15,460**			2,427	**2,582**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**333**	0.55	0.71		**19,001**	0.52	0.67		**3,018**	0.53	0.63	
	2. Mathematics	267	**286**	0.53		15,837	**16,715**	0.54		2,728	**2,938**	0.54	
	3. Science	305	265	**314**		17,297	15,238	**17,588**		2,784	2,646	**2,858**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**308**	0.63			**19,196**	0.56			**3,191**	0.57		
	2. Mathematics	265	**288**			16,292	**17,259**			2,902	**3,120**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**280**	0.55	–		**18,230**	0.52	–0.15		**2,973**	0.50	–0.06	
	2. Mathematics	243	**273**	N/A		15,967	**17,104**	N/A		2,746	**3,014**	N/A	
	3. Algebra I	0	N/A	**0**		50	N/A	**54**		14	N/A	**15**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**280**	0.58	–	0.71	**16,872**	0.48	–	0.63	**3,017**	0.54	–	0.64
	2. Algebra I	63	**69**	N/A	0.57	3,473	**3,862**	N/A	0.55	803	**902**	N/A	0.58
	3. Geometry	0	N/A	**0**	N/A	2	N/A	**2**	–	0	N/A	**0**	N/A
	4. Science	242	62	0	**261**	14,739	3,344	2	**15,371**	2,613	772	0	**2,750**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**203**	0.37	–		**13,851**	0.48	0.55		**2,391**	0.50	0.56	
	2. Algebra I	82	**91**	N/A		6,447	**7,159**	N/A		1,184	**1,363**	N/A	
	3. Geometry	9	N/A	**11**		398	N/A	**440**		64	N/A	**74**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**175**	0.53	0.32	0.72	**11,893**	0.47	0.49	0.65	**2,086**	0.48	0.50	0.63
	2. Algebra I	69	**80**	N/A	0.57	4,908	**5,520**	N/A	0.49	861	**990**	N/A	0.50
	3. Geometry	32	N/A	**36**	0.49	2,365	N/A	**2,663**	0.55	412	N/A	**478**	0.50
	4. Life Science	148	64	31	**158**	9,342	4,206	2,034	**9,749**	1,658	752	367	**1,768**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**136**	0.41	0.59		**10,129**	0.38	0.45		**1,825**	0.37	0.46	
	2. Algebra I	29	**35**	N/A		2,695	**3,023**	N/A		562	**652**	N/A	
	3. Geometry	22	N/A	**32**		2,047	N/A	**2,332**		330	N/A	**410**	

Table 8.C.4 CMA Content Area Correlations (Primary Ethnicity, continued)

		White				Unknown			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**3,639**	0.62			**801**	0.59		
	2. Mathematics	2,543	**2,894**			623	**678**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**5,460**	0.56			**631**	0.56		
	2. Mathematics	3,987	**4,359**			485	**513**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**5,565**	0.54	0.66		**636**	0.55	0.69	
	2. Mathematics	4,334	**4,936**	0.55		516	**582**	0.60	
	3. Science	4,955	4,271	**5,141**		578	519	**600**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**5,250**	0.59			**594**	0.54		
	2. Mathematics	4,268	**4,979**			494	**559**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**5,095**	0.56	–		**568**	0.54	–	
	2. Mathematics	4,301	**5,065**	N/A		491	**555**	N/A	
	3. Algebra I	9	N/A	**10**		1	N/A	**1**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**4,823**	0.48	–	0.62	**566**	0.46	–	0.67
	2. Algebra I	680	**876**	N/A	0.57	86	**113**	N/A	0.63
	3. Geometry	2	N/A	**2**	–	0	N/A	**0**	–
	4. Science	4,100	654	2	**4,402**	484	84	0	**520**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**3,997**	0.51	0.38		**482**	0.53	–	
	2. Algebra I	1,423	**1,711**	N/A		195	**241**	N/A	
	3. Geometry	57	N/A	**72**		5	N/A	**6**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**3,642**	0.47	0.46	0.65	**409**	0.37	0.44	0.66
	2. Algebra I	1,490	**1,830**	N/A	0.47	200	**247**	N/A	0.50
	3. Geometry	450	N/A	**590**	0.56	56	N/A	**71**	0.57
	4. Life Science	2,825	1,302	391	**2,993**	337	184	47	**356**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**3,316**	0.44	0.50		**341**	0.39	0.59	
	2. Algebra I	918	**1,099**	N/A		104	**129**	N/A	
	3. Geometry	491	N/A	**654**		61	N/A	**72**	

Table 8.C.5 CMA Content Area Correlations (English-language Fluency)

		English Only				Initially Fluent English Proficient				English Learner			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**10,651**	0.62			**173**	0.64			**8,564**	0.61		
	2. Mathematics	8,218	**9,167**			127	**142**			6,998	**7,430**		
Grade		**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**15,555**	0.55			**289**	0.56			**12,507**	0.53		
	2. Mathematics	12,312	**13,173**			189	**206**			10,279	**10,607**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**15,808**	0.54	0.67		**288**	0.39	0.63		**13,270**	0.51	0.66	
	2. Mathematics	13,078	**14,377**	0.55		233	**262**	0.44		11,042	**11,501**	0.54	
	3. Science	14,326	12,778	**14,748**		262	232	**271**		12,086	10,573	**12,237**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**15,726**	0.58			**321**	0.59			**12,935**	0.54		
	2. Mathematics	13,394	**14,881**			257	**295**			10,941	**11,360**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**14,987**	0.54	–0.04		**511**	0.48	–		**11,607**	0.51	–0.26	
	2. Mathematics	13,112	**14,781**	N/A		429	**493**	N/A		10,240	**10,702**	N/A	
	3. Algebra I	37	N/A	**42**		3	N/A	**3**		32	N/A	**32**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**13,981**	0.51	–	0.64	**559**	0.50	N/A	0.65	**10,469**	0.46	–	0.60
	2. Algebra I	2,675	**3,160**	N/A	0.59	121	**146**	N/A	0.59	2,140	**2,276**	N/A	0.53
	3. Geometry	4	N/A	**4**	–	0	N/A	**0**	N/A	0	N/A	**0**	–
	4. Science	12,048	2,585	4	**12,803**	471	122	0	**512**	9,203	2,034	0	**9,458**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**11,564**	0.49	0.50		**530**	0.43	0.48		**8,024**	0.48	0.52	
	2. Algebra I	4,818	**5,601**	N/A		263	**309**	N/A		3,779	**4,069**	N/A	
	3. Geometry	218	N/A	**261**		13	N/A	**16**		244	N/A	**260**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**10,035**	0.47	0.49	0.66	**412**	0.54	0.52	0.70	**7,193**	0.44	0.46	0.60
	2. Algebra I	4,236	**5,032**	N/A	0.49	153	**185**	N/A	0.38	3,013	**3,268**	N/A	0.48
	3. Geometry	1,554	N/A	**1,883**	0.56	78	N/A	**90**	0.59	1,479	N/A	**1,599**	0.50
	4. Life Science	7,838	3,694	1,347	**8,303**	306	134	66	**330**	5,719	2,576	1,271	**5,912**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**8,924**	0.40	0.49		**412**	0.44	0.39		**5,897**	0.34	0.39	
	2. Algebra I	2,597	**3,062**	N/A		112	**134**	N/A		1,517	**1,634**	N/A	
	3. Geometry	1,501	N/A	**1,874**		79	N/A	**102**		1,245	N/A	**1,348**	

Table 8.C.6 CMA Content Area Correlations (English-language Fluency, continued)

		Reclassified Fluent English Proficient				English-language Fluency Unknown			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**71**	0.83			**507**	0.65		
	2. Mathematics	55	**67**			442	**461**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**199**	0.64			**80**	0.70		
	2. Mathematics	150	**173**			65	**69**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**432**	0.66	0.75		**54**	0.22	0.58	
	2. Mathematics	310	**372**	0.57		47	**53**	0.53	
	3. Science	382	313	**402**		46	47	**51**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**849**	0.56			**60**	0.42		
	2. Mathematics	641	**757**			51	**55**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**1,184**	0.56	–		**75**	0.40	–	
	2. Mathematics	932	**1,097**	N/A		61	**69**	N/A	
	3. Algebra I	4	N/A	**6**		0	N/A	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**1,443**	0.43	–	0.59	**141**	0.43	–	0.64
	2. Algebra I	325	**414**	N/A	0.46	29	**39**	N/A	0.56
	3. Geometry	0	N/A	**0**	N/A	0	N/A	**0**	N/A
	4. Science	1,233	335	0	**1,352**	118	24	0	**126**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**1,498**	0.51	0.45		**115**	0.47	–	
	2. Algebra I	708	**852**	N/A		50	**64**	N/A	
	3. Geometry	75	N/A	**90**		0	N/A	**1**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**1,237**	0.51	0.39	0.66	**75**	0.46	0.31	0.51
	2. Algebra I	391	**483**	N/A	0.51	24	**34**	N/A	0.70
	3. Geometry	302	N/A	**381**	0.53	17	N/A	**18**	0.39
	4. Life Science	966	330	263	**1,018**	64	22	16	**66**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**1,035**	0.40	0.45		**75**	0.66	–	
	2. Algebra I	205	**252**	N/A		23	**27**	N/A	
	3. Geometry	242	N/A	**307**		9	N/A	**13**	

Table 8.C.7 CMA Content Area Correlations (Economic Status)

		Not Economically Disadvantaged				Economically Disadvantaged				Unknown Economic Status			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**3,825**	0.61			**15,293**	0.61			**848**	0.63		
	2. Mathematics	2,728	**3,199**			12,351	**13,276**			761	**792**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**6,293**	0.57			**22,214**	0.53			**123**	0.49		
	2. Mathematics	4,662	**5,092**			18,230	**19,029**			103	**107**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**6,356**	0.56	0.69		**23,399**	0.51	0.66		**97**	0.32	0.55	
	2. Mathematics	4,981	**5,622**	0.55		19,642	**20,845**	0.54		87	**98**	0.42	
	3. Science	5,681	4,924	**5,885**		21,338	18,936	**21,736**		83	83	**88**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**6,127**	0.58			**23,663**	0.56			**101**	0.44		
	2. Mathematics	4,958	**5,679**			20,236	**21,567**			90	**102**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**6,258**	0.56	0.11		**22,004**	0.52	–0.14		**102**	0.50	–	
	2. Mathematics	5,274	**6,148**	N/A		19,411	**20,894**	N/A		89	**100**	N/A	
	3. Algebra I	13	N/A	**17**		63	N/A	**66**		0	N/A	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**5,897**	0.48	–	0.63	**20,516**	0.49	–	0.63	**180**	0.46	–	0.63
	2. Algebra I	1,076	**1,311**	N/A	0.55	4,175	**4,675**	N/A	0.56	39	**49**	N/A	0.60
	3. Geometry	2	N/A	**2**	–	2	N/A	**2**	–	0	N/A	**0**	N/A
	4. Science	5,037	1,045	2	**5,429**	17,886	4,021	2	**18,662**	150	34	0	**160**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**5,525**	0.53	0.54		**16,035**	0.48	0.54		**171**	0.48	–	
	2. Algebra I	2,240	**2,666**	N/A		7,302	**8,140**	N/A		76	**89**	N/A	
	3. Geometry	97	N/A	**121**		452	N/A	**505**		1	N/A	**2**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**4,956**	0.49	0.49	0.67	**13,887**	0.46	0.49	0.64	**109**	0.38	0.53	0.57
	2. Algebra I	2,056	**2,497**	N/A	0.49	5,723	**6,457**	N/A	0.48	38	**48**	N/A	0.62
	3. Geometry	779	N/A	**981**	0.57	2,623	N/A	**2,961**	0.55	28	N/A	**29**	0.56
	4. Life Science	3,866	1,806	676	**4,088**	10,942	4,919	2,264	**11,452**	85	31	23	**89**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**4,635**	0.43	0.54		**11,618**	0.36	0.44		**90**	0.49	0.05	
	2. Algebra I	1,339	**1,574**	N/A		3,090	**3,502**	N/A		25	**33**	N/A	
	3. Geometry	774	N/A	**1,000**		2,289	N/A	**2,628**		13	N/A	**16**	

Table 8.C.8 CMA Content Area Correlations (Primary Disability)

		Autism				MR/ID				Specific Learning Disability			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**1,625**	0.68			**366**	0.50			**11,573**	0.58		
	2. Mathematics	1,444	**1,637**			351	**361**			8,943	**9,597**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**2,178**	0.60			**392**	0.44			**17,401**	0.52		
	2. Mathematics	1,860	**1,982**			384	**386**			13,846	**14,469**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**1,968**	0.53	0.74		**477**	0.41	0.57		**19,442**	0.51	0.66	
	2. Mathematics	1,720	**1,852**	0.54		470	**476**	0.45		15,962	**17,006**	0.52	
	3. Science	1,830	1,695	**1,882**		456	458	**460**		17,585	15,376	**17,932**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**1,777**	0.63			**473**	0.47			**20,338**	0.54		
	2. Mathematics	1,557	**1,694**			459	**465**			17,012	**18,259**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**1,550**	0.59	–		**467**	0.37	–		**19,496**	0.53	–0.10	
	2. Mathematics	1,368	**1,511**	N/A		456	**464**	N/A		16,862	**18,363**	N/A	
	3. Algebra I	3	N/A	**3**		2	N/A	**2**		54	0	**59**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**1,346**	0.58	–	0.73	**500**	0.35	–	0.57	**18,724**	0.47	–	0.62
	2. Algebra I	228	**273**	N/A	0.58	108	**111**	N/A	0.54	3,799	**4,272**	N/A	0.54
	3. Geometry	2	N/A	**2**	–	1	N/A	**1**	–	1	N/A	**1**	–
	4. Science	1,169	229	2	**1,240**	455	106	1	**462**	16,256	3,648	1	**17,030**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**1,076**	0.50	0.21		**400**	0.38	–		**15,486**	0.50	0.55	
	2. Algebra I	443	**506**	N/A		138	**148**	N/A		7,144	**8,003**	N/A	
	3. Geometry	25	N/A	**34**		5	N/A	**5**		431	N/A	**478**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**890**	0.48	0.57	0.75	**395**	0.24	0.51	0.45	**13,474**	0.46	0.50	0.64
	2. Algebra I	358	**420**	N/A	0.52	195	**199**	N/A	0.18	5,514	**6,268**	N/A	0.48
	3. Geometry	152	N/A	**185**	0.60	32	N/A	**32**	0.53	2,606	N/A	**2,993**	0.56
	4. Life Science	715	317	134	**742**	333	169	29	**339**	10,578	4,756	2,249	**11,087**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**658**	0.45	0.63		**391**	0.32	0.48		**11,743**	0.36	0.45	
	2. Algebra I	162	**194**	N/A		132	**136**	N/A		3,142	**3,579**	N/A	
	3. Geometry	103	N/A	**136**		38	N/A	**39**		2,316	N/A	**2,684**	

Table 8.C.9 CMA Content Area Correlations (Primary Disability, continued)

		Speech or Language Impairment				Other Health Impairment			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**2,989**	0.63			**1,979**	0.65		
	2. Mathematics	2,315	**2,546**			1,601	**1,823**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**3,430**	0.58			**2,905**	0.57		
	2. Mathematics	2,684	**2,801**			2,367	**2,563**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**2,748**	0.54	0.68		**2,963**	0.55	0.67	
	2. Mathematics	2,187	**2,327**	0.56		2,473	**2,772**	0.57	
	3. Science	2,500	2,143	**2,547**		2,684	2,408	**2,769**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**2,266**	0.58			**2,804**	0.60		
	2. Mathematics	1,871	**1,972**			2,449	**2,790**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**1,814**	0.51	–		**2,838**	0.54	–	
	2. Mathematics	1,565	**1,658**	N/A		2,534	**2,888**	N/A	
	3. Algebra I	1	N/A	**1**		9	N/A	**9**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**1,475**	0.55	–	0.63	**2,635**	0.50	–	0.65
	2. Algebra I	252	**279**	N/A	0.61	544	**676**	N/A	0.60
	3. Geometry	0	N/A	**0**	N/A	0	N/A	**0**	–
	4. Science	1,281	243	0	**1,333**	2,271	532	0	**2,443**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**998**	0.49	0.65		**2,183**	0.52	0.63	
	2. Algebra I	363	**401**	N/A		909	**1,101**	N/A	
	3. Geometry	17	N/A	**19**		44	N/A	**54**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**770**	0.54	0.44	0.62	**1,865**	0.49	0.52	0.66
	2. Algebra I	309	**353**	N/A	0.60	814	**1,005**	N/A	0.48
	3. Geometry	113	N/A	**130**	0.65	295	N/A	**361**	0.55
	4. Life Science	617	258	101	**645**	1,449	709	260	**1,542**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**637**	0.39	0.56		**1,484**	0.46	0.44	
	2. Algebra I	188	**205**	N/A		418	**509**	N/A	
	3. Geometry	113	N/A	**130**		305	N/A	**401**	

Appendix 8.D—IRT Analyses

Table 8.D.1 IRT Model-Data Fit Distribution for ELA, Grades Nine through Eleven (field-test items)

Items	Grade 9		Grade 10		Grade 11	
Flag	N	Pct.	N	Pct.	N	Pct.
A	12	33%	10	25%	18	50%
B	15	42%	14	35%	8	22%
C	4	11%	10	25%	8	22%
D	3	8%	3	8%	0	0%
F	2	6%	3	8%	2	6%
Total	36	100%	40	100%	36	100%

Table 8.D.2 IRT Model-Data Fit Distribution for Mathematics, Algebra I and Geometry (field-test items)

Items	Algebra I		Geometry	
Flag	N	Pct.	N	Pct.
A	10	25%	8	20%
B	9	23%	9	23%
C	17	43%	15	38%
D	2	5%	5	13%
F	2	5%	3	8%
Total	40	100%	40	100%

Table 8.D.3 IRT Model-Data Fit Distribution for Life Science (field-test items)

Items	Life Science	
Flag	N	Pct.
A	4	11%
B	8	22%
C	16	44%
D	3	8%
F	5	14%
Total	36	100%

Table 8.D.4 IRT *b*-values for Field-test Items

Content Area	CMA *	Number of Items	Mean	Standard Deviation	Minimum	Maximum
	9	36	0.35	0.41	–1.29	1.06
	10	40	0.38	0.46	–0.65	1.21
English–Language Arts	11	36	0.47	0.32	–0.20	1.21
	Algebra I	40	0.43	0.67	–1.66	1.37
Mathematics	Geometry	40	0.58	0.37	–0.42	1.53
Science	10	36	0.40	0.51	–0.73	1.47

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

Table 8.D.5 Distribution of IRT *b*-values for ELA in Grades Nine, Ten, and Eleven (field-test items)

IRT *b*-value	Grade 9	Grade 10	Grade 11
>=3.5			
3.0 < 3.5			
2.5 < 3.0			
2.0 < 2.5			
1.5 < 2.0			
1.0 < 1.5	2	2	2
0.5 < 1.0	9	15	15
0.0 < 0.5	20	15	15
–0.5 < 0.0	4	6	4
–1.0 < –0.5		2	
–1.5 < –1.0	1		
–2.0 < –1.5			
–2.5 < –2.0			
–3.0 < –2.5			
–3.5 < –3.0			
< –3.5			
Total	36	40	36

Table 8.D.6 Distribution of IRT *b*-values for Algebra I and Geometry (field-test items)

IRT *b*-value	Algebra I	Geometry
>=3.5		
3.0 < 3.5		
2.5 < 3.0		
2.0 < 2.5		
1.5 < 2.0		1
1.0 < 1.5	5	3
0.5 < 1.0	17	18
0.0 < 0.5	12	16
–0.5 < 0.0	2	2
–1.0 < –0.5	1	
–1.5 < –1.0	2	
–2.0 < –1.5	1	
–2.5 < –2.0		
–3.0 < –2.5		
–3.5 < –3.0		
< –3.5		
Total	40	40

Table 8.D.7 Distribution of IRT *b*-values for Life Science (field-test items)

IRT *b*-value	Life Science
>=3.5	
3.0 < 3.5	
2.5 < 3.0	
2.0 < 2.5	
1.5 < 2.0	
1.0 < 1.5	5
0.5 < 1.0	11
0.0 < 0.5	12
–0.5 < 0.0	6
–1.0 < –0.5	2
–1.5 < –1.0	
–2.0 < –1.5	
–2.5 < –2.0	
–3.0 < –2.5	
–3.5 < –3.0	
< –3.5	
Total	36

Table 8.D.8 New Conversions for ELA, Grade Three (paper-and-pencil version and braille version)

Grade Three (paper–and–pencil)									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	25	732	–0.2309	283.3225	283
1	0	–4.3175	150.0000	150	26	715	–0.1408	289.7792	290
2	0	–3.5965	150.0000	150	27	728	–0.0500	296.2811	296
3	0	–3.1626	150.0000	150	28	726	0.0418	302.8508	303
4	0	–2.8460	150.0000	150	29	710	0.1348	309.5121	310
5	1	–2.5934	150.0000	150	30	739	0.2295	316.2908	316
6	3	–2.3810	150.0000	150	31	755	0.3262	323.2155	323
7	7	–2.1964	150.0000	150	32	761	0.4254	330.3202	330
8	16	–2.0317	154.3815	154	33	719	0.5277	337.6399	338
9	29	–1.8822	165.0857	165	34	764	0.6335	345.2188	345
10	63	–1.7445	174.9451	175	35	800	0.7437	353.1084	353
11	121	–1.6162	184.1335	184	36	704	0.8591	361.3716	361
12	180	–1.4955	192.7789	193	37	672	0.9808	370.0860	370
13	248	–1.3809	200.9797	201	38	649	1.1102	379.3503	379
14	333	–1.2715	208.8135	209	39	586	1.2491	389.2945	389
15	436	–1.1664	216.3428	216	40	529	1.3998	400.0903	400
16	481	–1.0648	223.6184	224	41	410	1.5659	411.9793	412
17	562	–0.9661	230.6842	231	42	348	1.7521	425.3125	425
18	643	–0.8698	237.5770	238	43	267	1.9661	440.6359	441
19	671	–0.7755	244.3286	244	44	181	2.2205	458.8552	459
20	683	–0.6828	250.9676	251	45	96	2.5392	481.6707	482
21	693	–0.5913	257.5199	258	46	52	2.9753	512.8968	513
22	669	–0.5007	264.0094	264	47	15	3.6984	564.6756	565
23	745	–0.4106	270.4587	270	48	2	N/A	600.0000	600
24	715	–0.3208	276.8893	277					

Grade Three (braille)									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	–	N/A	150.0000	150	25	–	–0.1787	287.0606	287
1	–	–4.2952	150.0000	150	26	–	–0.0862	293.6865	294
2	–	–3.5735	150.0000	150	27	–	0.0072	300.3720	300
3	–	–3.1388	150.0000	150	28	–	0.1017	307.1424	307
4	–	–2.8213	150.0000	150	29	–	0.1978	314.0239	314
5	–	–2.5679	150.0000	150	30	–	0.2959	321.0456	321
6	–	–2.3547	150.0000	150	31	–	0.3964	328.2396	328
7	–	–2.1691	150.0000	150	32	–	0.4998	335.6482	336
8	–	–2.0036	156.3985	156	33	–	0.6068	343.3096	343
9	–	–1.8531	167.1705	167	34	–	0.7181	351.2779	351
10	–	–1.7144	177.1004	177	35	–	0.8346	359.6161	360
11	–	–1.5851	186.3618	186	36	–	0.9573	368.4023	368
12	–	–1.4633	195.0831	195	37	–	1.0876	377.7354	378
13	–	–1.3477	203.3630	203	38	–	1.2274	387.7422	388
14	–	–1.2371	211.2802	211	39	–	1.3791	398.6047	399
15	–	–1.1307	218.8948	219	40	–	1.5460	410.5548	411
16	–	–1.0279	226.2611	226	41	–	1.7330	423.9471	424
17	–	–0.9279	233.4220	233	42	–	1.9477	439.3208	439
18	–	–0.8302	240.4149	240	43	–	2.2030	457.6019	458
19	–	–0.7344	247.2722	247	44	–	2.5224	480.4712	480
20	–	–0.6401	254.0231	254	45	–	2.9593	511.7494	512
21	–	–0.5470	260.6942	261	46	–	3.6831	563.5810	564
22	–	–0.4546	267.3104	267	47	–	N/A	600.0000	600
23	–	–0.3626	273.8951	274					
24	–	–0.2708	280.4711	280					

Note: Performance-level cut scores are highlighted. To protect student privacy, the frequency distribution is not shown if based on 10 or fewer student records.

Table 8.D.9 New Conversions for ELA, Grades Four and Five

Grade Four									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**25**	1,257	–0.0449	306.7288	307
1	0	–4.0665	150.0000	150	**26**	1,172	0.0425	314.7947	315
2	0	–3.3485	150.0000	150	**27**	1,185	0.1304	322.9147	323
3	1	–2.9176	150.0000	150	**28**	1,140	0.2192	331.1173	331
4	0	–2.6038	150.0000	150	**29**	1,135	0.3093	339.4328	339
5	0	–2.3540	150.0000	150	**30**	1,124	0.4009	347.8939	348
6	3	–2.1445	150.0000	150	**31**	1,098	0.4946	356.5392	357
7	6	–1.9626	150.0000	150	**32**	990	0.5906	365.4073	365
8	19	–1.8006	150.0000	150	**33**	1,021	0.6896	374.5463	375
9	37	–1.6538	158.1663	158	**34**	927	0.7921	384.0116	384
10	60	–1.5188	170.6359	171	**35**	870	0.8988	393.8691	394
11	112	–1.3931	182.2416	182	**36**	849	1.0107	404.1988	404
12	210	–1.2750	193.1485	193	**37**	702	1.1288	415.1001	415
13	364	–1.1630	203.4837	203	**38**	681	1.2544	426.7005	427
14	507	–1.0562	213.3452	213	**39**	610	1.3894	439.1641	439
15	647	–0.9537	222.8147	223	**40**	444	1.5361	452.7134	453
16	797	–0.8547	231.9575	232	**41**	383	1.6980	467.6577	468
17	976	–0.7586	240.8289	241	**42**	256	1.8798	484.4468	484
18	1,093	–0.6649	249.4769	249	**43**	183	2.0893	503.7909	504
19	1,158	–0.5733	257.9406	258	**44**	107	2.3390	526.8475	527
20	1,304	–0.4832	266.2582	266	**45**	80	2.6526	555.8089	556
21	1,287	–0.3943	274.4626	274	**46**	32	3.0836	595.5975	596
22	1,259	–0.3064	282.5835	283	**47**	7	3.8010	600.0000	600
23	1,286	–0.2190	290.6500	291	**48**	3	N/A	600.0000	600
24	1,248	–0.1320	298.6895	299					

Grade Five									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**25**	1,280	–0.1559	300.2023	300
1	0	–4.2860	150.0000	150	**26**	1,191	–0.0650	307.9095	308
2	0	–3.5622	150.0000	150	**27**	1,199	0.0265	315.6625	316
3	0	–3.1255	150.0000	150	**28**	1,210	0.1188	323.4877	323
4	1	–2.8063	150.0000	150	**29**	1,288	0.2123	331.4135	331
5	2	–2.5511	150.0000	150	**30**	1,210	0.3073	339.4701	339
6	3	–2.3363	150.0000	150	**31**	1,251	0.4043	347.6908	348
7	7	–2.1493	150.0000	150	**32**	1,259	0.5037	356.1168	356
8	17	–1.9824	150.0000	150	**33**	1,196	0.6060	364.7880	365
9	22	–1.8307	158.2212	158	**34**	1,141	0.7118	373.7569	374
10	59	–1.6909	170.0729	170	**35**	1,054	0.8218	383.0842	383
11	103	–1.5606	181.1227	181	**36**	950	0.9369	392.8439	393
12	200	–1.4379	191.5225	192	**37**	940	1.0582	403.1274	403
13	266	–1.3215	201.3887	201	**38**	867	1.1871	414.0504	414
14	367	–1.2103	210.8139	211	**39**	778	1.3253	425.7687	426
15	475	–1.1035	219.8698	220	**40**	658	1.4753	438.4823	438
16	654	–1.0003	228.6195	229	**41**	567	1.6403	452.4773	452
17	786	–0.9001	237.1145	237	**42**	414	1.8254	468.1680	468
18	937	–0.8024	245.3951	245	**43**	331	2.0382	486.2022	486
19	952	–0.7068	253.5024	254	**44**	193	2.2911	507.6483	508
20	1,090	–0.6128	261.4697	261	**45**	130	2.6081	534.5186	535
21	1,107	–0.5201	269.3272	269	**46**	49	3.0423	571.3296	571
22	1,179	–0.4284	277.1031	277	**47**	23	3.7632	600.0000	600
23	1,271	–0.3373	284.8241	285	**48**	3	N/A	600.0000	600
24	1,172	–0.2466	292.5155	293					

Note: Performance-level cut scores are highlighted.

Table 8.D.10 New Conversions for ELA, Grades Six and Seven

Grade Six										Grade Seven									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**28**	1,207	–0.2580	276.1433	276	**0**	0	N/A	150.0000	150	**28**	886	–0.3647	268.2237	268
1	0	–4.4825	150.0000	150	**29**	1,165	–0.1767	285.9393	286	**1**	0	–4.5544	150.0000	150	**29**	923	–0.2857	276.2566	276
2	1	–3.7636	150.0000	150	**30**	1,210	–0.0949	295.7942	296	**2**	0	–3.8363	150.0000	150	**30**	953	–0.2063	284.3281	284
3	2	–3.3318	150.0000	150	**31**	1,220	–0.0124	305.7334	306	**3**	0	–3.4053	150.0000	150	**31**	1,005	–0.1263	292.4601	292
4	0	–3.0175	150.0000	150	**32**	1,261	0.0710	315.7890	316	**4**	0	–3.0918	150.0000	150	**32**	1,001	–0.0454	300.6755	301
5	1	–2.7673	150.0000	150	**33**	1,327	0.1556	325.9871	326	**5**	0	–2.8425	150.0000	150	**33**	1,057	0.0365	308.9989	309
6	0	–2.5576	150.0000	150	**34**	1,204	0.2417	336.3613	336	**6**	0	–2.6336	150.0000	150	**34**	1,016	0.1197	317.4569	317
7	0	–2.3757	150.0000	150	**35**	1,200	0.3296	346.9468	347	**7**	2	–2.4526	150.0000	150	**35**	1,049	0.2045	326.0785	326
8	3	–2.2139	150.0000	150	**36**	1,279	0.4195	357.7870	358	**8**	4	–2.2918	150.0000	150	**36**	1,093	0.2913	334.8956	335
9	11	–2.0675	150.0000	150	**37**	1,191	0.5119	368.9228	369	**9**	6	–2.1463	150.0000	150	**37**	1,068	0.3804	343.9482	344
10	15	–1.9331	150.0000	150	**38**	1,069	0.6072	380.4076	380	**10**	12	–2.0128	150.0000	150	**38**	1,116	0.4722	353.2751	353
11	41	–1.8082	150.0000	150	**39**	1,053	0.7059	392.3016	392	**11**	37	–1.8889	150.0000	150	**39**	1,100	0.5671	362.9270	363
12	64	–1.6910	150.0000	150	**40**	952	0.8086	404.6761	405	**12**	60	–1.7729	150.0000	150	**40**	1,055	0.6659	372.9625	373
13	129	–1.5804	150.0000	150	**41**	862	0.9160	417.6169	418	**13**	95	–1.6633	150.0000	150	**41**	1,015	0.7691	383.4521	383
14	187	–1.4750	150.0000	150	**42**	777	1.0289	431.2287	431	**14**	181	–1.5591	150.0000	150	**42**	945	0.8776	394.4820	394
15	287	–1.3742	150.0000	150	**43**	661	1.1485	445.6415	446	**15**	256	–1.4594	156.9742	157	**43**	923	0.9926	406.1600	406
16	389	–1.2771	153.3260	153	**44**	487	1.2762	461.0248	461	**16**	309	–1.3636	166.7098	167	**44**	811	1.1152	418.6231	419
17	520	–1.1833	164.6337	165	**45**	403	1.4136	477.5922	478	**17**	391	–1.2711	176.1142	176	**45**	688	1.2474	432.0564	432
18	532	–1.0922	175.6119	176	**46**	240	1.5634	495.6372	496	**18**	511	–1.1814	185.2326	185	**46**	579	1.3914	446.6975	447
19	739	–1.0034	186.3125	186	**47**	170	1.7288	515.5664	516	**19**	566	–1.0940	194.1113	194	**47**	473	1.5508	462.8884	463
20	816	–0.9165	196.7802	197	**48**	131	1.9147	537.9693	538	**20**	623	–1.0086	202.7874	203	**48**	393	1.7302	481.1242	481
21	846	–0.8313	207.0525	207	**49**	67	2.1288	563.7811	564	**21**	671	–0.9250	211.2907	211	**49**	285	1.9374	502.1791	502
22	914	–0.7474	217.1648	217	**50**	26	2.3839	594.5131	595	**22**	778	–0.8427	219.6531	220	**50**	158	2.1849	527.3340	527
23	938	–0.6645	227.1493	227	**51**	16	2.7035	600.0000	600	**23**	847	–0.7615	227.9003	228	**51**	96	2.4965	558.9999	559
24	952	–0.5825	237.0357	237	**52**	3	3.1411	600.0000	600	**24**	800	–0.6813	236.0569	236	**52**	47	2.9254	600.0000	600
25	1,078	–0.5010	246.8521	247	**53**	1	3.8660	600.0000	600	**25**	784	–0.6017	244.1471	244	**53**	15	3.6412	600.0000	600
26	1,082	–0.4199	256.6251	257	**54**	0	N/A	600.0000	600	**26**	851	–0.5225	252.1898	252	**54**	0	N/A	600.0000	600
27	1,162	–0.3390	266.3804	266						**27**	830	–0.4436	260.2084	260					

Note: Performance-level cut scores are highlighted.

Table 8.D.11 New Conversions for ELA, Grades Eight and Nine

Grade Eight									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**31**	1,130	0.0706	311.2927	311
1	0	–4.4212	150.0000	150	**32**	1,055	0.1536	319.5985	320
2	0	–3.7010	150.0000	150	**33**	1,052	0.2377	328.0107	328
3	0	–3.2680	150.0000	150	**34**	1,103	0.3230	336.5555	337
4	0	–2.9524	150.0000	150	**35**	1,018	0.4100	345.2609	345
5	0	–2.7010	150.0000	150	**36**	1,005	0.4990	354.1630	354
6	1	–2.4900	150.0000	150	**37**	915	0.5902	363.2935	363
7	2	–2.3069	150.0000	150	**38**	932	0.6841	372.6958	373
8	2	–2.1439	150.0000	150	**39**	890	0.7813	382.4187	382
9	6	–1.9964	150.0000	150	**40**	797	0.8822	392.5200	393
10	13	–1.8608	150.0000	150	**41**	774	0.9876	403.0691	403
11	36	–1.7348	150.0000	150	**42**	700	1.0984	414.1512	414
12	48	–1.6166	150.0000	150	**43**	587	1.2155	425.8701	426
13	100	–1.5049	153.6148	154	**44**	518	1.3404	438.3703	438
14	133	–1.3986	164.2552	164	**45**	425	1.4748	451.8204	452
15	203	–1.2968	174.4408	174	**46**	355	1.6211	466.4632	466
16	309	–1.1989	184.2418	184	**47**	251	1.7826	482.6327	483
17	435	–1.1042	193.7142	194	**48**	151	1.9643	500.8135	501
18	483	–1.0124	202.9085	203	**49**	124	2.1738	521.7846	522
19	596	–0.9229	211.8673	212	**50**	68	2.4237	546.7884	547
20	619	–0.8354	220.6233	221	**51**	25	2.7376	578.2012	578
21	784	–0.7495	229.2118	229	**52**	14	3.1689	600.0000	600
22	849	–0.6651	237.6611	238	**53**	3	3.8873	600.0000	600
23	905	–0.5818	245.9971	246	**54**	0	N/A	600.0000	600
24	969	–0.4994	254.2440	254					
25	967	–0.4177	262.4245	262					
26	978	–0.3364	270.5601	271					
27	1,047	–0.2553	278.6717	279					
28	1,078	–0.1743	286.7801	287					
29	1,072	–0.0931	294.9056	295					
30	1,066	–0.0116	303.0687	303					

Grade Nine									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**31**	785	0.0181	288.5258	289
1	0	–4.2533	150.0000	150	**32**	801	0.0884	295.5844	296
2	0	–3.5379	150.0000	150	**33**	744	0.1591	302.6709	303
3	1	–3.1098	150.0000	150	**34**	716	0.2301	309.8015	310
4	0	–2.7992	150.0000	150	**35**	686	0.3018	316.9926	317
5	0	–2.5529	150.0000	150	**36**	594	0.3743	324.2613	324
6	0	–2.3473	150.0000	150	**37**	667	0.4477	331.6258	332
7	2	–2.1695	150.0000	150	**38**	629	0.5222	339.1059	339
8	4	–2.0122	150.0000	150	**39**	621	0.5982	346.7268	347
9	1	–1.8703	150.0000	150	**40**	515	0.6758	354.5079	355
10	4	–1.7405	150.0000	150	**41**	498	0.7552	362.4779	362
11	7	–1.6205	150.0000	150	**42**	502	0.8368	370.6673	371
12	23	–1.5084	150.0000	150	**43**	430	0.9210	379.1111	379
13	52	–1.4030	150.0000	150	**44**	436	1.0081	387.8500	388
14	100	–1.3031	155.9868	156	**45**	367	1.0986	396.9316	397
15	143	–1.2079	165.5356	166	**46**	334	1.1931	406.4115	406
16	211	–1.1167	174.6806	175	**47**	295	1.2923	416.3632	416
17	274	–1.0291	183.4784	183	**48**	274	1.3970	426.8665	427
18	384	–0.9443	191.9770	192	**49**	227	1.5083	438.0292	438
19	469	–0.8622	200.2169	200	**50**	195	1.6275	449.9871	450
20	621	–0.7823	208.2330	208	**51**	142	1.7564	462.9175	463
21	714	–0.7043	216.0559	216	**52**	125	1.8974	477.0590	477
22	784	–0.6280	223.7125	224	**53**	86	2.0538	492.7565	493
23	863	–0.5531	231.2278	231	**54**	69	2.2306	510.4900	510
24	913	–0.4794	238.6210	239	**55**	65	2.4353	531.0226	531
25	921	–0.4067	245.9139	246	**56**	37	2.6805	555.6221	556
26	948	–0.3348	253.1249	253	**57**	22	2.9900	586.6782	587
27	860	–0.2636	260.2709	260	**58**	10	3.4171	600.0000	600
28	879	–0.1928	267.3685	267	**59**	6	4.1315	600.0000	600
29	869	–0.1224	274.4331	274	**60**	1	N/A	600.0000	600
30	805	–0.0522	281.4794	281					

Note: Performance-level cut scores are highlighted.

Table 8.D.12 New Conversions for ELA, Grades Ten and Eleven

Grade Ten									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**31**	748	0.0588	295.0000	295
1	2	–4.2429	150.0000	150	**32**	757	0.1299	302.0000	302
2	0	–3.5258	150.0000	150	**33**	652	0.2013	310.0000	310
3	1	–3.0962	150.0000	150	**34**	664	0.2731	317.0000	317
4	0	–2.7842	150.0000	150	**35**	605	0.3455	324.0000	324
5	0	–2.5366	150.0000	150	**36**	634	0.4186	331.0000	331
6	0	–2.3296	150.0000	150	**37**	595	0.4927	338.0000	338
7	0	–2.1506	150.0000	150	**38**	533	0.5679	346.0000	346
8	2	–1.9920	150.0000	150	**39**	494	0.6446	353.0000	353
9	4	–1.8490	150.0000	150	**40**	485	0.7228	361.0000	361
10	8	–1.7181	150.0000	150	**41**	399	0.8028	369.0000	369
11	17	–1.5970	150.0000	150	**42**	394	0.8851	377.0000	377
12	22	–1.4839	150.0000	150	**43**	373	0.9698	385.0000	385
13	47	–1.3774	154.0000	154	**44**	333	1.0575	394.0000	394
14	84	–1.2765	164.0000	164	**45**	267	1.1485	403.0000	403
15	154	–1.1804	173.0000	173	**46**	249	1.2435	412.0000	412
16	217	–1.0883	182.0000	182	**47**	216	1.3432	422.0000	422
17	284	–0.9997	191.0000	191	**48**	168	1.4483	433.0000	433
18	391	–0.9140	199.0000	199	**49**	143	1.5600	444.0000	444
19	521	–0.8310	208.0000	208	**50**	100	1.6795	455.0000	455
20	602	–0.7502	216.0000	216	**51**	61	1.8087	468.0000	468
21	679	–0.6714	223.0000	223	**52**	40	1.9499	482.0000	482
22	712	–0.5943	231.0000	231	**53**	38	2.1066	497.0000	497
23	777	–0.5185	238.0000	238	**54**	24	2.2834	515.0000	515
24	842	–0.4440	246.0000	246	**55**	16	2.4881	535.0000	535
25	812	–0.3705	253.0000	253	**56**	1	2.7332	559.0000	559
26	819	–0.2978	260.0000	260	**57**	3	3.0426	590.0000	590
27	799	–0.2258	267.0000	267	**58**	1	3.4693	600.0000	600
28	722	–0.1543	274.0000	274	**59**	0	4.1833	600.0000	600
29	747	–0.0831	281.0000	281	**60**	0	N/A	600.0000	600
30	694	–0.0121	288.0000	288					

Grade Eleven									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**31**	632	0.2676	307.0000	307
1	1	–3.9698	150.0000	150	**32**	598	0.3373	314.0000	314
2	1	–3.2564	150.0000	150	**33**	514	0.4072	321.0000	321
3	0	–2.8303	150.0000	150	**34**	454	0.4776	328.0000	328
4	1	–2.5216	150.0000	150	**35**	412	0.5486	335.0000	335
5	2	–2.2771	150.0000	150	**36**	365	0.6204	343.0000	343
6	0	–2.0731	150.0000	150	**37**	333	0.6931	350.0000	350
7	4	–1.8969	150.0000	150	**38**	300	0.7670	358.0000	358
8	2	–1.7411	150.0000	150	**39**	246	0.8423	365.0000	365
9	3	–1.6006	150.0000	150	**40**	217	0.9191	373.0000	373
10	10	–1.4722	150.0000	150	**41**	196	0.9978	381.0000	381
11	20	–1.3534	150.0000	150	**42**	155	1.0787	389.0000	389
12	32	–1.2426	154.0000	154	**43**	132	1.1621	398.0000	398
13	75	–1.1383	165.0000	165	**44**	114	1.2484	406.0000	406
14	117	–1.0395	175.0000	175	**45**	110	1.3381	415.0000	415
15	180	–0.9454	184.0000	184	**46**	68	1.4317	425.0000	425
16	282	–0.8553	193.0000	193	**47**	58	1.5300	435.0000	435
17	385	–0.7685	202.0000	202	**48**	49	1.6337	445.0000	445
18	521	–0.6848	211.0000	211	**49**	38	1.7440	456.0000	456
19	585	–0.6035	219.0000	219	**50**	20	1.8621	468.0000	468
20	714	–0.5245	227.0000	227	**51**	18	1.9899	481.0000	481
21	841	–0.4474	235.0000	235	**52**	14	2.1297	495.0000	495
22	902	–0.3719	242.0000	242	**53**	11	2.2848	511.0000	511
23	936	–0.2978	250.0000	250	**54**	5	2.4602	529.0000	529
24	923	–0.2249	257.0000	257	**55**	2	2.6634	550.0000	550
25	921	–0.1529	264.0000	264	**56**	0	2.9071	574.0000	574
26	858	–0.0818	272.0000	272	**57**	0	3.2149	600.0000	600
27	839	–0.0113	279.0000	279	**58**	0	3.6400	600.0000	600
28	792	0.0588	286.0000	286	**59**	0	4.3524	600.0000	600
29	715	0.1285	293.0000	293	**60**	0	N/A	600.0000	600
30	620	0.1980	300.0000	300					

Note: Performance-level cut scores are highlighted.

Table 8.D.13 New Conversions for Mathematics, Grades Three and Four

Grade Three										Grade Four									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**25**	533	–0.3808	282.9106	283	**0**	0	N/A	150.0000	150	**25**	1,236	–0.1402	300.3874	300
1	0	–4.4771	150.0000	150	**26**	567	–0.2905	289.1100	289	**1**	0	–4.4131	150.0000	150	**26**	1,313	–0.0455	310.3913	310
2	0	–3.7557	150.0000	150	**27**	592	–0.1995	295.3507	295	**2**	1	–3.6808	150.0000	150	**27**	1,316	0.0497	320.4393	320
3	0	–3.3213	150.0000	150	**28**	518	–0.1076	301.6539	302	**3**	1	–3.2360	150.0000	150	**28**	1,303	0.1455	330.5652	331
4	1	–3.0042	150.0000	150	**29**	564	–0.0146	308.0413	308	**4**	0	–2.9087	150.0000	150	**29**	1,187	0.2425	340.8045	341
5	0	–2.7511	150.0000	150	**30**	568	0.0802	314.5416	315	**5**	1	–2.6459	150.0000	150	**30**	1,228	0.3409	351.1956	351
6	0	–2.5383	150.0000	150	**31**	611	0.1769	321.1780	321	**6**	2	–2.4237	150.0000	150	**31**	1,182	0.4411	361.7806	362
7	1	–2.3531	150.0000	150	**32**	633	0.2761	327.9824	328	**7**	2	–2.2294	150.0000	150	**32**	1,067	0.5436	372.6106	373
8	9	–2.1880	158.9089	159	**33**	656	0.3782	334.9919	335	**8**	6	–2.0556	150.0000	150	**33**	935	0.6490	383.7365	384
9	17	–2.0380	169.2005	169	**34**	661	0.4839	342.2458	342	**9**	14	–1.8971	150.0000	150	**34**	860	0.7577	395.2237	395
10	31	–1.8998	178.6816	179	**35**	672	0.5940	349.7942	350	**10**	31	–1.7508	150.0000	150	**35**	767	0.8706	407.1483	407
11	60	–1.7710	187.5193	188	**36**	670	0.7091	357.6970	358	**11**	58	–1.6141	150.0000	150	**36**	703	0.9885	419.6025	420
12	121	–1.6498	195.8361	196	**37**	652	0.8305	366.0283	366	**12**	105	–1.4853	158.3144	158	**37**	609	1.1126	432.7010	433
13	168	–1.5348	203.7261	204	**38**	665	0.9596	374.8824	375	**13**	173	–1.3630	171.2313	171	**38**	502	1.2440	446.5850	447
14	221	–1.4250	211.2635	211	**39**	624	1.0980	384.3819	384	**14**	244	–1.2461	183.5786	184	**39**	414	1.3848	461.4568	461
15	254	–1.3194	218.5080	219	**40**	607	1.2483	394.6950	395	**15**	340	–1.1338	195.4447	195	**40**	310	1.5373	477.5579	478
16	339	–1.2174	225.5089	226	**41**	561	1.4138	406.0491	406	**16**	471	–1.0252	206.9099	207	**41**	235	1.7048	495.2476	495
17	406	–1.1183	232.3067	232	**42**	457	1.5994	418.7816	419	**17**	539	–0.9199	218.0373	218	**42**	150	1.8922	515.0413	515
18	414	–1.0217	238.9374	239	**43**	431	1.8126	433.4107	433	**18**	685	–0.8172	228.8832	229	**43**	102	2.1072	537.7485	538
19	508	–0.9270	245.4315	245	**44**	310	2.0662	450.8133	451	**19**	748	–0.7167	239.4919	239	**44**	81	2.3623	564.6977	565
20	516	–0.8340	251.8164	252	**45**	228	2.3839	472.6099	473	**20**	881	–0.6181	249.9094	250	**45**	40	2.6814	598.3954	598
21	542	–0.7422	258.1167	258	**46**	133	2.8187	502.4436	502	**21**	980	–0.5209	260.1738	260	**46**	19	3.1176	600.0000	600
22	539	–0.6512	264.3565	264	**47**	84	3.5409	551.9965	552	**22**	1,014	–0.4249	270.3207	270	**47**	4	3.8404	600.0000	600
23	537	–0.5609	270.5539	271	**48**	32	N/A	600.0000	600	**23**	1,140	–0.3296	280.3839	280	**48**	1	N/A	600.0000	600
24	554	–0.4709	276.7319	277						**24**	1,228	–0.2348	290.3955	290					

Note: Performance-level cut scores are highlighted.

Table 8.D.14 New Conversions for Mathematics, Grades Five and Six

Grade Five									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	28	997	0.0929	323.5305	324
1	0	–4.3629	150.0000	150	29	985	0.1869	331.6657	332
2	0	–3.6296	150.0000	150	30	1,086	0.2824	339.9375	340
3	0	–3.1854	150.0000	150	31	1,119	0.3800	348.3799	348
4	0	–2.8602	150.0000	150	32	1,075	0.4800	357.0349	357
5	1	–2.6002	150.0000	150	33	1,191	0.5829	365.9436	366
6	3	–2.3816	150.0000	150	34	1,174	0.6894	375.1593	375
7	3	–2.1915	150.0000	150	35	1,160	0.8001	384.7441	385
8	13	–2.0221	150.0000	150	36	1,094	0.9160	394.7733	395
9	16	–1.8684	153.7857	154	37	1,084	1.0381	405.3404	405
10	37	–1.7269	166.0282	166	38	945	1.1678	416.5635	417
11	69	–1.5952	177.4259	177	39	853	1.3068	428.6002	429
12	118	–1.4714	188.1390	188	40	790	1.4577	441.6560	442
13	213	–1.3542	198.2907	198	41	618	1.6237	456.0223	456
14	276	–1.2422	207.9795	208	42	522	1.8097	472.1218	472
15	401	–1.1348	217.2799	217	43	387	2.0234	490.6150	491
16	482	–1.0310	226.2600	226	44	281	2.2773	512.5931	513
17	625	–0.9303	234.9734	235	45	173	2.5952	540.1101	540
18	687	–0.8322	243.4646	243	46	90	3.0304	577.7762	578
19	711	–0.7362	251.7755	252	47	36	3.7523	600.0000	600
20	808	–0.6418	259.9412	260	48	14	N/A	600.0000	600
21	800	–0.5488	267.9939	268					
22	860	–0.4567	275.9632	276					
23	949	–0.3653	283.8768	284					
24	926	–0.2742	291.7614	292					
25	949	–0.1831	299.6430	300					
26	994	–0.0918	307.5473	308					
27	950	0.0001	315.5007	316					

Grade Six									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	28	1,358	–0.0553	308.1347	308
1	0	–4.2427	150.0000	150	29	1,326	0.0236	318.0481	318
2	0	–3.5245	150.0000	150	30	1,237	0.1029	328.0137	328
3	0	–3.0936	150.0000	150	31	1,211	0.1828	338.0528	338
4	0	–2.7801	150.0000	150	32	1,235	0.2635	348.1960	348
5	0	–2.5307	150.0000	150	33	1,152	0.3453	358.4736	358
6	0	–2.3219	150.0000	150	34	1,051	0.4284	368.9179	369
7	0	–2.1408	150.0000	150	35	965	0.5132	379.5685	380
8	3	–1.9800	150.0000	150	36	924	0.5999	390.4618	390
9	6	–1.8346	150.0000	150	37	786	0.6889	401.6449	402
10	17	–1.7012	150.0000	150	38	710	0.7806	413.1706	413
11	30	–1.5774	150.0000	150	39	619	0.8755	425.0999	425
12	59	–1.4614	150.0000	150	40	531	0.9742	437.5054	438
13	111	–1.3519	150.0000	150	41	458	1.0774	450.4744	450
14	146	–1.2478	158.2901	158	42	370	1.1860	464.1123	464
15	260	–1.1482	170.7995	171	43	289	1.3009	478.5582	479
16	389	–1.0525	182.8230	183	44	237	1.4236	493.9768	494
17	478	–0.9601	194.4346	194	45	177	1.5559	510.5933	511
18	687	–0.8705	205.6951	206	46	126	1.7000	528.7084	529
19	747	–0.7833	216.6573	217	47	100	1.8594	548.7403	549
20	876	–0.6980	227.3688	227	48	70	2.0391	571.3135	571
21	1,003	–0.6145	237.8652	238	49	35	2.2464	597.3675	597
22	1,110	–0.5324	248.1867	248	50	20	2.4941	600.0000	600
23	1,195	–0.4514	258.3659	258	51	20	2.8059	600.0000	600
24	1,246	–0.3712	268.4330	268	52	6	3.2352	600.0000	600
25	1,325	–0.2918	278.4166	278	53	1	3.9515	600.0000	600
26	1,355	–0.2128	288.3439	288	54	1	N/A	600.0000	600
27	1,290	–0.1340	298.2413	298					

Note: Performance-level cut scores are highlighted.

Table 8.D.15 New Conversions for Mathematics, Grade Seven and Algebra I

Grade Seven										Algebra I									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	1	N/A	150.0000	150	**31**	958	0.4603	373.9380	374	0	0	N/A	150	150	31	1,289	0.1311	300.1021	300
1	0	–3.9673	150.0000	150	**32**	799	0.5422	387.0502	387	1	0	–4.093	150	150	32	1,108	0.2007	306.2142	306
2	0	–3.2503	150.0000	150	**33**	684	0.6252	400.3440	400	2	0	–3.381	150	150	33	1,127	0.2706	312.3528	312
3	0	–2.8203	150.0000	150	**34**	568	0.7096	413.8607	414	3	0	–2.955	150	150	34	977	0.3409	318.5314	319
4	1	–2.5077	150.0000	150	**35**	518	0.7957	427.6514	428	4	0	–2.647	150	150	35	952	0.4119	324.7643	325
5	0	–2.2592	150.0000	150	**36**	442	0.8838	441.7618	442	5	1	–2.404	150	150	36	884	0.4837	331.0662	331
6	2	–2.0511	150.0000	150	**37**	345	0.9743	456.2527	456	6	2	–2.2	150	150	37	785	0.5564	337.4529	337
7	2	–1.8707	150.0000	150	**38**	286	1.0676	471.1912	471	7	0	–2.025	150	150	38	757	0.6303	343.9411	344
8	7	–1.7105	150.0000	150	**39**	230	1.1641	486.6550	487	8	3	–1.87	150	150	39	670	0.7056	350.5533	351
9	13	–1.5655	150.0000	150	**40**	186	1.2645	502.7336	503	9	4	–1.73	150	150	40	653	0.7825	357.3055	357
10	28	–1.4325	150.0000	150	**41**	126	1.3695	519.5526	520	10	14	–1.602	150	150	41	512	0.8613	364.2228	364
11	77	–1.3090	150.0000	150	**42**	82	1.4799	537.2335	537	11	19	–1.484	158.2611	158	42	421	0.9422	371.3317	371
12	133	–1.1932	150.0000	150	**43**	61	1.5968	555.9522	556	12	41	–1.373	167.9493	168	43	389	1.0257	378.6624	379
13	215	–1.0839	150.0000	150	**44**	55	1.7215	575.9267	576	13	92	–1.27	177.0641	177	44	347	1.1121	386.2501	386
14	354	–0.9798	150.0000	150	**45**	26	1.8559	597.4414	597	14	153	–1.171	185.699	186	45	264	1.2019	394.1351	394
15	519	–0.8803	159.2382	159	**46**	13	2.0022	600.0000	600	15	242	–1.078	193.9248	194	46	257	1.2957	402.3708	402
16	722	–0.7845	174.5763	175	**47**	14	2.1640	600.0000	600	16	369	–0.988	201.804	202	47	214	1.3941	411.0128	411
17	972	–0.6919	189.4006	189	**48**	6	2.3460	600.0000	600	17	520	–0.902	209.3852	209	48	190	1.498	420.1362	420
18	1,179	–0.6021	203.7891	204	**49**	4	2.5559	600.0000	600	18	721	–0.818	216.7099	217	49	125	1.6084	429.8335	430
19	1,365	–0.5146	217.8087	218	**50**	4	2.8062	600.0000	600	19	931	–0.737	223.8132	224	50	127	1.7268	440.2226	440
20	1,472	–0.4289	231.5193	232	**51**	1	3.1209	600.0000	600	20	1,124	–0.659	230.7254	231	51	83	1.8547	451.4579	451
21	1,628	–0.3450	244.9676	245	**52**	2	3.5529	600.0000	600	21	1,255	–0.582	237.473	237	52	87	1.9947	463.7466	464
22	1,672	–0.2623	258.2037	258	**53**	0	4.2723	600.0000	600	22	1,387	–0.506	244.0793	244	53	64	2.1501	477.3964	477
23	1,620	–0.1807	271.2689	271	**54**	0	N/A	600.0000	600	23	1,524	–0.433	250.5656	251	54	40	2.3257	492.8183	493
24	1,720	–0.1000	284.2018	284						24	1,604	–0.36	256.9492	257	55	25	2.5292	510.682	511
25	1,597	–0.0198	297.0404	297						25	1,570	–0.288	263.2484	263	56	17	2.773	532.0928	532
26	1,493	0.0599	309.8141	310						26	1,524	–0.217	269.4792	269	57	13	3.0811	559.153	559
27	1,424	0.1395	322.5618	323						27	1,431	–0.147	275.6562	276	58	7	3.5066	596.511	597
28	1,282	0.2192	335.3146	335						28	1,492	–0.077	281.7935	282	59	3	4.2192	600	600
29	1,150	0.2990	348.1057	348						29	1,379	–0.007	287.9049	288	60	0	20	600	600
30	1,084	0.3794	360.9720	361						30	1,335	0.0616	294.0034	294					

Note: Performance-level cut scores are highlighted.

Table 8.D.16 New Conversions for Geometry

Geometry									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	**31**	336	0.1207	300.00	300
1	0	–4.1209	150.0000	150	**32**	308	0.1905	306.00	306
2	0	–3.4074	150.0000	150	**33**	278	0.2606	311.00	311
3	1	–2.9810	150.0000	150	**34**	248	0.3312	317.00	317
4	0	–2.6721	150.0000	150	**35**	215	0.4024	322.00	322
5	0	–2.4274	150.0000	150	**36**	221	0.4743	328.00	328
6	0	–2.2232	150.0000	150	**37**	198	0.5472	333.00	333
7	0	–2.0469	150.0000	150	**38**	155	0.6213	339.00	339
8	0	–1.8909	150.0000	150	**39**	159	0.6967	345.00	345
9	0	–1.7502	156.0000	156	**40**	132	0.7738	351.00	351
10	1	–1.6217	166.0000	166	**41**	116	0.8527	357.00	357
11	6	–1.5028	175.0000	175	**42**	110	0.9338	363.00	363
12	12	–1.3918	184.0000	184	**43**	108	1.0174	369.00	369
13	21	–1.2874	192.0000	192	**44**	75	1.1039	376.00	376
14	45	–1.1885	200.0000	200	**45**	57	1.1938	383.00	383
15	69	–1.0942	207.0000	207	**46**	52	1.2877	390.00	390
16	97	–1.0040	214.0000	214	**47**	43	1.3862	398.00	398
17	137	–0.9172	221.0000	221	**48**	39	1.4902	406.00	406
18	189	–0.8333	227.0000	227	**49**	31	1.6008	414.00	414
19	236	–0.7519	233.0000	233	**50**	23	1.7192	423.00	423
20	320	–0.6728	239.0000	239	**51**	26	1.8472	433.00	433
21	362	–0.5955	245.0000	245	**52**	18	1.9873	444.00	444
22	438	–0.5199	251.0000	251	**53**	21	2.1428	456.00	456
23	440	–0.4457	257.0000	257	**54**	9	2.3185	470.00	470
24	420	–0.3727	262.0000	262	**55**	8	2.5220	485.00	485
25	422	–0.3006	268.0000	268	**56**	4	2.7659	504.00	504
26	433	–0.2293	273.0000	273	**57**	0	3.0742	528.00	528
27	438	–0.1587	279.0000	279	**58**	1	3.4997	560.00	560
28	412	–0.0885	284.0000	284	**59**	2	4.2125	600.00	600
29	381	–0.0187	290.0000	290	**60**	0	N/A	600.00	600
30	374	0.0510	295.0000	295					

Note: Performance-level cut scores are highlighted.

Table 8.D.17 New Conversions for Science, Grades Five and Eight

Grade Five									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	28	1,333	–0.0200	330.7852	331
1	0	–4.3909	150.0000	150	29	1,350	0.0723	337.6526	338
2	0	–3.6680	150.0000	150	30	1,405	0.1661	344.6361	345
3	0	–3.2323	150.0000	150	31	1,379	0.2619	351.7650	352
4	1	–2.9140	150.0000	150	32	1,497	0.3601	359.0720	359
5	0	–2.6599	150.0000	150	33	1,355	0.4612	366.5994	367
6	2	–2.4463	150.2041	150	34	1,327	0.5659	374.3870	374
7	2	–2.2604	164.0371	164	35	1,247	0.6747	382.4899	382
8	7	–2.0947	176.3681	176	36	1,166	0.7887	390.9729	391
9	8	–1.9443	187.5631	188	37	1,092	0.9089	399.9161	400
10	15	–1.8058	197.8711	198	38	953	1.0366	409.4216	409
11	44	–1.6768	207.4736	207	39	831	1.1736	419.6219	420
12	71	–1.5554	216.5041	217	40	643	1.3225	430.6999	431
13	113	–1.4404	225.0652	225	41	533	1.4864	442.9010	443
14	207	–1.3306	233.2379	233	42	346	1.6704	456.5909	457
15	276	–1.2251	241.0879	241	43	257	1.8818	472.3298	472
16	378	–1.1233	248.6672	249	44	167	2.1337	491.0744	491
17	482	–1.0245	256.0225	256	45	87	2.4494	514.5753	515
18	517	–0.9281	263.1929	263	46	41	2.8824	546.7999	547
19	634	–0.8339	270.2102	270	47	10	3.6022	600.0000	600
20	784	–0.7412	277.1047	277	48	4	N/A	600.0000	600
21	804	–0.6499	283.9034	284					
22	945	–0.5595	290.6314	291					
23	929	–0.4697	297.3122	297					
24	1,055	–0.3803	303.9682	304					
25	1,064	–0.2909	310.6214	311					
26	1,165	–0.2012	317.2936	317					
27	1,183	–0.1110	324.0071	324					

Grade Eight									
Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score	Raw Scr.	Freq. Distrib.	Theta	Scale Score	Rprtd Score
0	0	N/A	150.0000	150	28	919	–0.1775	306.0810	306
1	0	–4.4056	150.0000	150	29	931	–0.0978	313.2151	313
2	0	–3.6839	150.0000	150	30	965	–0.0178	320.3811	320
3	0	–3.2498	150.0000	150	31	1,029	0.0628	327.6026	328
4	0	–2.9335	150.0000	150	32	1,034	0.1443	334.8957	335
5	1	–2.6816	150.0000	150	33	994	0.2268	342.2837	342
6	0	–2.4704	150.0000	150	34	998	0.3106	349.7897	350
7	1	–2.2872	150.0000	150	35	944	0.3961	357.4392	357
8	1	–2.1245	150.0000	150	36	1,004	0.4835	365.2643	365
9	6	–1.9773	150.0000	150	37	918	0.5731	373.2935	373
10	10	–1.8422	157.0239	157	38	866	0.6655	381.5657	382
11	22	–1.7168	168.2479	168	39	807	0.7611	390.1244	390
12	29	–1.5994	178.7617	179	40	749	0.8605	399.0214	399
13	58	–1.4886	188.6879	189	41	694	0.9643	408.3189	408
14	114	–1.3832	198.1229	198	42	632	1.0734	418.0927	418
15	144	–1.2824	207.1438	207	43	554	1.1890	428.4370	428
16	232	–1.1856	215.8142	216	44	487	1.3123	439.4779	439
17	337	–1.0921	224.1851	224	45	408	1.4451	451.3692	451
18	417	–1.0015	232.3021	232	46	368	1.5898	464.3269	464
19	498	–0.9132	240.2042	240	47	272	1.7497	478.6499	479
20	578	–0.8270	247.9207	248	48	212	1.9298	494.7719	495
21	678	–0.7426	255.4841	255	49	138	2.1377	513.3882	513
22	708	–0.6595	262.9200	263	50	81	2.3859	535.6120	536
23	822	–0.5776	270.2520	270	51	73	2.6981	563.5702	564
24	815	–0.4967	277.5020	278	52	22	3.1278	600.0000	600
25	861	–0.4164	284.6905	285	53	12	3.8444	600.0000	600
26	886	–0.3366	291.8373	292	54	2	N/A	600.0000	600
27	920	–0.2570	298.9613	299					

Note: Performance-level cut scores are highlighted.

Table 8.D.18 New Conversions for Life Science, Grade Ten

Grade Eight									
Raw Scr.	**Freq. Distrib.**	**Theta**	**Scale Score**	**Rprtd Score**	**Raw Scr.**	**Freq. Distrib.**	**Theta**	**Scale Score**	**Rprtd Score**
0	0	N/A	150.0000	150	**31**	567	0.0060	294.1228	294
1	1	–4.2357	150.0000	150	**32**	542	0.0763	300.1578	300
2	1	–3.5228	150.0000	150	**33**	560	0.1470	306.2201	306
3	6	–3.0971	150.0000	150	**34**	571	0.2182	312.3231	312
4	1	–2.7888	150.0000	150	**35**	540	0.2900	318.4806	318
5	1	–2.5446	150.0000	150	**36**	504	0.3626	324.7072	325
6	1	–2.3408	150.0000	150	**37**	521	0.4362	331.0182	331
7	2	–2.1649	150.0000	150	**38**	497	0.5110	337.4301	337
8	1	–2.0092	150.0000	150	**39**	463	0.5872	343.9650	344
9	1	–1.8688	150.0000	150	**40**	458	0.6650	350.6385	351
10	4	–1.7405	150.0000	150	**41**	410	0.7448	357.4753	357
11	12	–1.6218	154.5435	155	**42**	367	0.8267	364.5012	365
12	10	–1.5110	164.0473	164	**43**	335	0.9112	371.7460	372
13	32	–1.4067	172.9923	173	**44**	343	0.9986	379.2440	379
14	59	–1.3078	181.4687	181	**45**	290	1.0895	387.0360	387
15	72	–1.2136	189.5483	190	**46**	278	1.1844	395.1692	395
16	147	–1.1233	197.2899	197	**47**	218	1.2839	403.7056	404
17	211	–1.0364	204.7412	205	**48**	195	1.3890	412.7138	413
18	270	–0.9524	211.9432	212	**49**	158	1.5006	422.2853	422
19	376	–0.8709	218.9300	219	**50**	159	1.6201	432.5357	433
20	413	–0.7916	225.7314	226	**51**	104	1.7494	443.6164	444
21	540	–0.7142	232.3731	232	**52**	97	1.8906	455.7308	456
22	508	–0.6383	238.8779	239	**53**	67	2.0474	469.1727	469
23	596	–0.5638	245.2666	245	**54**	57	2.2244	484.3522	484
24	575	–0.4904	251.5563	252	**55**	30	2.4293	501.9209	502
25	596	–0.4180	257.7648	258	**56**	19	2.6747	522.9617	523
26	603	–0.3464	263.9076	264	**57**	12	2.9844	549.5157	550
27	570	–0.2754	269.9992	270	**58**	2	3.4114	586.1369	586
28	586	–0.2048	276.0534	276	**59**	2	4.1258	600.0000	600
29	535	–0.1344	282.0834	282	**60**	0	N/A	600.0000	600
30	533	–0.0642	288.1023	288					

Note: Performance-level cut scores are highlighted.

Appendix 8.E—DIF Analyses

Table 8.E.1 DIF Classifications for ELA, Grade Nine Field-test Items

DIF	M-F		W-AfrA		W-Aml		W-Asn		W-Fil		W-His		W-Pacl		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
B+	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	2	6	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8
A+	20	56	14	39	0	0	1	3	0	0	12	33	0	0	9	25	19	53	13	36	0	0	16	44	0	0	1	3	0	0	0	0	16	44	15	42	0	0	0	0	12	33
A-	15	42	22	61	2	6	2	6	0	0	24	67	0	0	8	22	17	47	19	53	0	0	19	53	0	0	3	8	0	0	0	0	20	56	21	58	0	0	0	0	18	50
B-	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	2	6	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	0	0	33	92	33	92	36	100	0	0	36	100	18	50	0	0	0	0	36	100	0	0	36	100	32	89	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.2 DIF Classifications for ELA, Grade Ten Field-test Items

DIF	M-F		W-AfrA		W-Aml		W-Asn		W-Fil		W-His		W-Pacl		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	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	3	8
A+	18	45	17	43	0	0	6	15	0	0	19	48	0	0	5	13	16	40	9	23	0	0	11	28	0	0	3	8	0	0	0	0	21	53	3	8	0	0	0	0	13	33
A-	21	53	22	55	0	0	3	8	0	0	21	53	0	0	5	13	24	60	9	23	0	0	8	20	0	0	6	15	0	0	0	0	18	45	7	18	0	0	0	0	20	50
B-	1	3	0	0	0	0	1	3	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	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	30	75	40	100	0	0	40	100	30	75	0	0	20	50	40	100	20	50	40	100	30	75	40	100	40	100	0	0	30	75	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.3 DIF Classifications for ELA, Grade Eleven Field-test Items

DIF	M-F		W-AfrA		W-Aml		W-Asn		W-Fil		W-His		W-Pacl		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
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
A+	16	44	21	58	0	0	0	0	0	0	20	56	0	0	2	6	13	36	17	47	0	0	15	42	0	0	0	0	0	0	0	0	20	56	4	11	0	0	0	0	12	33
A-	20	56	15	42	0	0	0	0	0	0	16	44	0	0	2	6	22	61	16	44	0	0	21	58	0	0	4	11	0	0	0	0	16	44	8	22	0	0	0	0	20	56
B-	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	0	0	0	0	0	0	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	36	100	36	100	36	100	0	0	36	100	32	89	0	0	0	0	36	100	0	0	36	100	32	89	36	100	36	100	0	0	24	67	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.4 DIF Classifications for Mathematics, Algebra I Field-test Items

DIF	M-F		W-AfrA		W-Aml		W-Asn		W-Fil		W-His		W-Pacl		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	2	5	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	3	8
A+	21	53	13	33	0	0	0	0	0	0	19	48	0	0	15	38	17	43	18	45	0	0	19	48	0	0	4	10	0	0	0	0	23	58	20	50	0	0	0	0	18	45
A-	19	48	27	68	0	0	0	0	0	0	21	53	0	0	22	55	23	58	20	50	0	0	21	53	0	0	6	15	0	0	0	0	17	43	18	45	0	0	0	0	17	43
B-	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	0	0	0	0	0	0	0	0	1	3	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	40	100	40	100	40	100	0	0	40	100	0	0	0	0	0	0	40	100	0	0	40	100	30	75	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.5 DIF Classifications for Mathematics, Geometry Field-test Items

DIF	M-F		W-AfrA		W-Aml		W-Asn		W-Fil		W-His		W-Pacl		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
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	1	3	0	0	0	0	0	0	2	5
A+	15	38	14	35	0	0	0	0	0	0	15	38	0	0	0	0	14	35	0	0	0	0	0	0	0	0	0	0	0	0	24	60	0	0	0	0	0	0	11	28
A-	24	60	23	58	0	0	0	0	0	0	25	63	0	0	0	0	26	65	0	0	0	0	0	0	0	0	0	0	0	0	14	35	0	0	0	0	0	0	23	58
B-	1	3	2	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	1	3	0	0	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
Small N	0	0	0	0	40	100	40	100	40	100	0	0	40	100	40	100	0	0	40	100	40	100	40	100	40	100	40	100	40	100	0	0	40	100	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

Table 8.E.6 DIF Classifications for Science, Grade Ten Life Science Field-test Items

DIF	M-F		W-AfrA		W-Aml		W-Asn		W-Fil		W-His		W-Pacl		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
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	0	0	0	0	0	0	1	3
A+	18	50	16	44	0	0	0	0	0	0	18	50	0	0	0	0	12	33	2	6	0	0	0	0	0	0	0	0	0	0	11	31	0	0	0	0	0	0	13	36
A-	18	50	19	53	0	0	0	0	0	0	18	50	0	0	0	0	24	67	3	8	0	0	0	0	0	0	0	0	0	0	25	69	0	0	0	0	0	0	21	58
B-	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	1	3
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
Small N	0	0	0	0	36	100	36	100	36	100	0	0	36	100	36	100	0	0	30	83	36	100	36	100	36	100	36	100	36	100	0	0	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

Chapter 9: Quality Control Procedures

Rigorous quality control procedures were implemented 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. The 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 its 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 60. The next sections highlight elements of the process devoted specifically to the quality control of item development. During the 2013 CMA administration, there was no new item development except in the CMA for ELA in grades nine through eleven, EOC mathematics Algebra I and Geometry, and Life Science in grade ten.

Item Specifications

ETS maintains item 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 in the item development process.

Item Writers

The items for each CMA are written by item writers who 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 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 reads 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. See page 64 in Chapter 3 for additional information on the function of ARPs within the item-review process.

Statewide Pupil Assessment Review Panel Review

The SPAR panel is responsible for reviewing and approving the achievement tests that are 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. See page 67 in Chapter 3 for additional information on the function of the SPAR panel within the item-review process.

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, 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; in the 2013 administration, DIF analyses are conducted for the CMA for ELA in grades nine through

eleven, EOC Algebra I and Geometry, and Life Science in grade ten only for the newly developed items.

The ETS content experts make recommendations about whether to accept or reject each item for inclusion in the California item bank. The CDE content experts review the recommendations and make the final decision on each item.

Quality Control of the Item Bank

After the data review, 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 are 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 off site, 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 (QC) 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 document is then reviewed by all team members who build forms at a training session specific to form planners before the form-building process starts. 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. For the writing administration, 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 its 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 coordinators 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 to assure that all errors have been corrected.

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.

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 documents 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 documents 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 across the STAR Program is scored and aggregated to test a broader range of scoring and aggregation scenarios. These procedures assure that students and school districts receive the correct scores when the actual scoring process is carried out. In 2013, end-to-end testing also included the inspection of results in quick-turnaround reporting.

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 115. 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 in Grades Four and Seven

The multiple-choice and writing sections of the ELA tests in grades four and seven 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 reported on the same Student Report. However, the writing scores are not included in the calculation of CMA ELA scale scores in grades four and seven during 2013 administration.

Student results 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 students in grades four and seven for whom there is either a multiple-choice score but no writing score or a writing score but no multiple-choice score.

Storing Answer Documents

After the answer documents have been scanned, edited, and scored, and have 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 on page 117 in Chapter 7.

Quality Control of Item Analyses and the Equating Process

When the forms were first administered, the psychometric analyses conducted at ETS underwent comprehensive quality checks by a team of psychometricians and data analysts. Detailed checklists were consulted by members of the team for each of the statistical procedures performed on each CMA following its original administration. Quality assurance checks also included a comparison of the current year's statistics to statistics from previous years. The results of preliminary classical item analyses that provided a check on scoring keys are also reviewed by a senior psychometrician. The items that were flagged for questionable statistical attributes were sent to test development staff for their review; their comments were 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.

When the forms were equated following their original administration, a few additional checks were performed for the calibration, scaling, and scoring table creation processes, as described below:

Calibrations
During the calibration that was conducted for the original administration of each form and is described in detail in Chapter 2 starting on page 15, checks were made to ascertain that the correct options for the analyses were selected. Checks were 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 performed detailed reviews of plots and statistics to investigate if the model fit the data.

Scaling
During the scaling that was conducted for the original administration of each form, checks were made to ensure the following:

- The correct items were used for linking;
- The scaling evaluation process, including stability analysis and subsequent removal of items from the linking set (if any), was implemented according to specification (see details in the “Evaluation of Scaling” section in Chapter 8 of the original year’s technical report); and
- The resulting scaling constants were correctly applied to transform the new item difficulty estimates onto the item bank scale.

Scoring Tables
Once the equating activities were complete and raw-score-to-scale-score conversion tables were generated after the original administration of each content-area test, the psychometricians carried out quality control checks on each scoring table. Scoring tables were 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 score is 600; and
- The cut points for the performance levels are correctly identified.

As a check on the reasonableness of the performance levels, when the tests were originally administered, psychometricians compared results from the current year with results from the past year at the cut points and the percentage of students in each performance level within the equating samples. After all quality control steps were completed and any differences were resolved, a senior psychometrician inspected the scoring tables as the final step in quality control before ETS delivered them to Pearson.

During the current administration, the data derived from prior item analyses are used to pre-equate the 2013 results. Key checks and classical item analyses are also conducted on the current data. For tests with no item replacements, the scoring tables are reused and they are checked against the scoring tables in the re-use year technical report to ensure exact match. For tests with item replacements, the new scoring tables are checked against scoring tables in the re-use year conversion for reasonableness. In addition, prior to reporting in 2013, every regular and special-version multiple-choice test was “certified” by

ETS prior to being included in quick-turnaround reporting. To certify a test, psychometricians gathered a certain number of test cases and verified the accurate application of scoring keys and conversion tables.

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 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 "pilot districts."

Year-to-Year Comparison Analyses

Year-to-year comparison analyses are conducted each year for quality control of the scoring procedure in general and as reasonableness checks for the CMA results.

- The first set of year-to-year comparison analyses looks at the tendencies and trends for the schools and school districts for which ETS has received complete or near-complete results by mid-June.
- The second set of year-to-year comparison analyses uses over 90 percent of the entire testing populations to look at the tendencies and trends for the state as a whole as well as a few large districts.

The results of the year-to-year comparison analyses are provided to the CDE, and their reasonableness is jointly discussed. Any anomalies in the results are investigated further, and scores are released only after explanations that satisfy both CDE and ETS are obtained.

Offloads to Test Development

During the original administration of the CMA forms that are reused in 2013, the statistics based on classical item analyses and the IRT analyses were obtained at two different times in the testing cycle. The first time, the statistics were 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 were to be used for future test assembly. Statistics used to generate DIF flags are also obtained from the larger samples. The resulting classical, IRT, and DIF statistics for all items 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.

During the 2013 administration, statistical offloads for ELA in grades nine through eleven, EOC Algebra I and Geometry, and Life Science in grade ten include classical, IRT, and DIF statistics obtained from the large sample for all items. However, only classical item statistics obtained on larger samples for all operational items are included in the statistical offloads for grades three through eight grade-level tests.

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 by 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 CDS 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 295, 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 is provided to the CDE and ETS for review and approval. Pearson sends paper reports on the actual report forms, foldered 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 districts, Pearson proceeds with the first production batch test. The first production batch is selected to validate a subset of school districts that contains examples of key reporting characteristics representative of the state as a whole. The first production batch test incorporates CDE-selected school districts and provides the last check prior to generating all reports and mailing them to the districts.

Quick-turnaround Reporting

To reduce the time between testing and acquisition of results, students' scale scores and performance levels for CMA multiple-choice tests were made available to districts within approximately two weeks of processing the school district's scorable testing materials. A new Web application, called the Quick-turnaround Reporting module, was added to the STAR Management System; this module permits districts to securely download a file containing these results.

Before a district can download a student data file, ETS statisticians must approve a QC file of test results data and ETS IT must successfully process the QC file. Once the data are deemed reliable and Pearson has processed a scorable test booklet or answer document for every student who took a CMA in that test administration for the school district, the district is notified that these results are available.

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 (for example, for a grade eight mathematics test where the specific mathematics test is unknown) are also covered in the specifications.

Reference

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

Chapter 10: Historical Comparisons

Base Year Comparisons

Historical comparisons of the CMA results are routinely performed to identify the trends in examinee performance and test characteristics over time. Such comparisons were performed for ELA in grades three through eight, mathematics in grades three through seven, and science in grades five and eight over the three most recent administrations—2011, 2012, and 2013—and the base year; for ELA in grade nine, Algebra I, and grade ten Life Science for the two most recent administrations of 2012 and 2013 and the base year; and for ELA in grades ten and eleven and EOC Geometry for 2013 and the base year.

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 each 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 base years for the CMA are presented in Table 10.1.

Table 10.1 Base Years for the CMA

Content Area	CMA	Base Year
English–Language Arts	3	2009
	4	2009
	5	2009
	6	2010
	7	2010
	8	2010
	9	2011
	10	2012
	11	2012
Mathematics	3	2009
	4	2009
	5	2009
	6	2010
	7	2010
	Algebra I	2011
	Geometry	2012
Science	5	2009
	8	2010
	10 Life Science	2011

The base years differ over CMA grades and content areas. Reasons for these differences are as follows:

- In spring 2008, the CMA were first administered statewide 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 cut scores for the below basic, basic, proficient, and advanced performance levels (the cut score for the far below basic performance level was set statistically). Spring 2009 was the first administration in which test results were reported

using the new scales and cut scores for the five performance levels; thus, 2009 became the base year for these tests.

- In spring 2009, the CMA were first administered statewide for ELA in grades six through eight, mathematics in grades six and seven, and science in grade eight. A standard setting was held in fall 2009 to establish cut scores for the below basic, basic, proficient, and advanced performance levels (the cut score for the far below basic performance level was set statistically). Spring 2010 was the first administration in which test results were reported using the new scales and cut scores for the five performance levels; thus, 2010 became the base year for these tests.
- In spring 2010, the CMA were first administered statewide for ELA in grade nine, Algebra I, and grade ten Life Science. A standard setting was held in fall 2010 to establish cut scores for the below basic, basic, proficient, and advanced performance levels (the cut score for the far below basic performance level was set statistically). Spring 2011 was the first administration in which test results were reported using the new scales and cut scores for the five performance levels; thus, 2011 became the base year for these tests.
- In spring 2011, the CMA were first administered statewide for ELA in grades ten and eleven and Geometry. A standard setting was held in fall 2011 to establish cut scores for the below basic, basic, proficient, and advanced performance levels (the cut score for the far below basic performance level was set statistically). Spring 2012 was the first administration in which test results were reported using the new scales and cut scores for the five performance levels; thus, 2012 became the base year for these tests.

Examinee Performance

Table 10.A.1 on page 303 contains the number of examinees assessed and the means and standard deviations of examinees' scale scores in the base year and the past one, two, or three years, depending on the test. As noted in previous chapters, the CMA reporting scales range from 150 to 600 for all content areas.

CMA scale scores are used to classify student results 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 on page 303; please note that 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. 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.7 show for each CMA the distribution of scale scores observed in the base year, which differs according to test, and subsequent administrations in 2011, 2012, and 2013 as applicable. Frequency counts are provided for each scale score interval of 30. A frequency count of "N/A" indicates that there are no obtainable scale scores within that scale-score range. For all tests of the CMA, 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 the 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. For example, in recent years, efforts have been made to field test more easy items for some CMA where previous field testing resulted in an overabundance of very difficult items.

Table 10.B.1 in Appendix 10.B, which starts on page 308, presents the average proportion correct values for the operational items in each CMA based on the equating samples. The mean proportion correct is affected by both the difficulty of the items and the abilities of the students administered the items. Table 10.B.2 shows the mean equated IRT *b*-values for the CMA operational items based on the equating samples. The mean equated IRT *b*-values reflect only average item difficulty. Please note that comparisons of mean *b*-values should be made only within a given test; they should not be compared across grade levels or content areas.

The average point-biserial correlations for all CMA operational tests are presented in Table 10.B.3. The reliabilities and standard error of measurement (SEM) 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.

Appendix 10.A—Historical Comparisons Tables, Examinee Performance

Table 10.A.1 Number of Examinees Tested, Scale Score Means, and Standard Deviations of CMA Across Base Year, 2011, 2012, and 2013

Content Area	CMA	Number of Examinees (valid scores)				Scale Score Mean and Standard Deviation							
						Base		2011		2012		2013	
		Base	2011	2012	2013	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
English–Language Arts	3	14,175	17,609	19,718	19,966	307	68	311	71	307	63	308	64
	4	19,370	24,969	26,694	28,630	315	72	326	73	330	78	323	71
	5	19,881	27,577	29,080	29,852	319	69	326	75	326	67	328	70
	6	22,755	26,059	28,737	29,891	307	78	305	88	320	93	308	87
	7	21,088	24,392	26,908	28,364	303	76	309	84	311	85	314	84
	8	19,030	23,020	25,174	26,593	303	75	309	76	319	82	316	76
	9	16,269	16,269	19,950	21,731	287	64	287	64	293	72	295	73
	10	17,163	.	17,163	18,952	289	64	.	.	289	64	293	66
	11	13,936	.	13,936	16,343	279	57	.	.	279	57	281	56
Mathematics	3	12,075	15,296	16,973	17,267	318	70	327	71	320	63	322	69
	4	16,462	20,974	22,340	24,228	320	80	328	86	330	86	326	77
	5	17,591	24,044	25,586	26,565	324	77	347	81	349	78	341	76
	6	21,543	24,404	26,222	27,348	315	79	320	82	320	83	319	81
	7	21,000	23,784	26,130	27,142	294	85	297	86	295	87	298	85
	Algebra I	22,935	22,935	28,896	31,124	288	52	288	52	289	55	290	55
	Geometry	6,991	.	6,991	8,247	288	46	.	.	288	46	288	47
Science	5	18,657	25,223	26,838	27,709	335	58	343	58	339	56	345	56
	8	17,606	21,106	23,112	24,251	320	60	329	68	331	67	336	69
	10 Life Science	10,786	10,786	14,356	15,629	294	58	294	58	300	61	303	62

Note: Year for which no data are available is represented by a dot.

Table 10.A.2 Percentage of Proficient and Above and Percentage of Advanced Across Base Year, 2011, 2012, and 2013

Content Area	CMA	% Proficient and Above				% Advanced			
		Base	2011	2012	2013	Base	2011	2012	2013
English–Language Arts	3	28%	29%	25%	27%	11%	14%	8%	10%
	4	30%	36%	39%	32%	12%	14%	18%	12%
	5	34%	37%	33%	35%	14%	18%	14%	17%
	6	29%	30%	36%	31%	10%	15%	18%	16%
	7	28%	31%	31%	34%	10%	12%	15%	13%
	8	25%	29%	35%	32%	9%	11%	15%	12%
	9	18%	18%	21%	21%	5%	5%	7%	7%
	10	18%	.	18%	20%	5%	.	5%	6%
	11	12%	.	12%	13%	3%	.	3%	3%
Mathematics	3	33%	37%	33%	35%	8%	8%	5%	7%
	4	35%	40%	38%	38%	11%	13%	14%	10%
	5	36%	46%	48%	43%	12%	17%	19%	14%
	6	34%	32%	35%	32%	9%	10%	10%	9%
	7	26%	24%	25%	24%	6%	6%	6%	5%
	Algebra I	12%	12%	14%	14%	2%	2%	3%	3%
	Geometry	10%	.	10%	11%	2%	.	2%	2%
Science	5	42%	45%	43%	47%	14%	15%	15%	14%
	8	31%	37%	37%	42%	10%	14%	14%	16%
	10 Life Science	18%	18%	22%	23%	4%	4%	5%	6%

Note: Year for which no data are available is represented by a dot.

Table 10.A.3 Observed Score Distributions of CMA Across Base Year, 2011, 2012, and 2013 for ELA (Grades Three through Seven)

Observed Score Distributions	ELA Grade 3				ELA Grade 4				ELA Grade 5				ELA Grade 6				ELA Grade 7			
	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013
570–600	5	19	3	2	32	50	71	42	5	62	55	75	22	64	197	46	26	66	75	62
540–569	25	63	29	15	48	67	85	80	27	113	N/A	N/A	66	60	170	67	19	86	120	96
510–539	63	N/A	N/A	52	72	129	368	107	67	213	84	130	64	266	595	301	100	143	191	158
480–509	N/A	147	57	96	272	183	356	439	118	304	419	524	245	235	427	240	108	258	279	678
450–479	279	241	332	181	447	656	992	827	509	977	830	981	509	664	1,161	890	373	620	801	473
420–449	535	812	285	615	696	1652	2,117	1,291	839	1,418	1,198	1,436	870	1,144	1,611	1,438	956	1,011	1,735	1,267
390–419	700	1,120	1,376	939	1,293	2,220	1,716	2,421	1,907	2,729	2,566	2,757	1,250	2,362	2,892	2,867	1,455	2,005	1,542	2,679
360–389	1,361	1,979	2,018	2,613	2,183	2,803	3,777	2,938	2,467	3,270	3,225	3,391	2,728	1,997	2,142	2,260	1,942	2,486	2,639	3,170
330–359	2,038	2,561	3,043	3,044	2,759	3,924	3,096	4,497	2,679	3,470	5,014	5,008	3,148	3,203	3,449	3,683	2,346	2,625	3,827	3,277
300–329	2,447	2,392	2,896	2,932	2,533	3,998	3,640	3,614	3,487	4,485	5,103	4,880	3,282	3,229	3,326	3,808	2,982	3,417	2,787	4,123
270–299	1,878	2,739	3,448	3,637	3,042	2,854	4,082	5,080	2,451	4,177	4,667	3,622	2,973	3,105	3,103	3,582	2,937	3,160	3,663	2,881
240–269	2,464	2,625	3,346	2,717	3,386	3,464	3,561	4,531	2,695	2,666	3,685	4,086	2,737	2,937	3,902	3,322	3,077	2,969	3,231	3,351
210–239	1,616	1,791	2,036	2,122	1,766	2,087	1,835	1,951	1,800	2,515	1,586	2,282	2,190	2,594	2,479	2,804	2,726	2,688	2,833	3,096
180–209	686	929	757	882	686	711	764	686	633	868	537	569	1,556	2,119	1,333	2,401	1,303	1,563	1,778	1,700
150–179	78	191	92	119	155	171	234	126	197	310	111	111	1,115	2,080	1,950	2,182	738	1,295	1,407	1,353

A frequency count of "N/A" indicates that there are no obtainable scale scores within that scale-score range.

Table 10.A.4 Observed Score Distributions of CMA Across Base Year, 2011, 2012, and 2013 for ELA (Grades Eight through Eleven)

Observed Score Distributions	ELA Grade 8				ELA Grade 9				ELA Grade 10				ELA Grade 11			
	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013
570–600	36	35	45	42	1	1	33	39	2	.	2	4	1	.	1	0
540–569	52	43	75	68	14	14	35	37	2	.	2	1	4	.	4	2
510–539	75	93	147	124	12	12	73	134	17	.	17	40	18	.	18	16
480–509	208	308	550	402	59	59	91	86	64	.	64	78	25	.	25	32
450–479	378	602	942	780	127	127	408	462	123	.	123	161	48	.	48	58
420–449	571	825	1,305	1,105	315	315	405	501	390	.	390	527	151	.	151	175
390–419	1,153	1,747	1,718	2,271	514	514	903	996	625	.	625	849	267	.	267	356
360–389	1,628	2,203	2,959	2,737	1,110	1,110	1,738	1,866	1,418	.	1,418	1,651	640	.	640	814
330–359	2,679	2,578	3,294	3,126	1,700	1,700	2,156	2,432	2,007	.	2,007	2,256	1,201	.	1,201	1,410
300–329	2,270	3,556	3,126	4,303	2,529	2,529	2,537	2,740	2,352	.	2,352	2,678	2,370	.	2,370	2,818
270–299	3,161	3,729	3,758	4,175	2,690	2,690	2,890	3,260	2,761	.	2,761	2,911	2,616	.	2,616	3,204
240–269	3,160	2,622	2,994	2,841	3,170	3,170	3,372	3,608	3,097	.	3,097	3,272	3,108	.	3,108	3,682
210–239	1,940	2,904	1,907	2,848	2,583	2,583	3,093	3,274	2,643	.	2,643	2,770	2,455	.	2,455	2,661
180–209	1,139	1,209	1,352	1,227	1,063	1,063	1,704	1,748	1,326	.	1,326	1,413	798	.	798	847
150–179	580	566	1002	544	382	382	512	548	336	.	336	341	234	.	234	268

Note: Year for which no data are available is represented by a dot.

Table 10.A.5 Observed Score Distributions of CMA Across Base Year, 2011, 2012, and 2013 for Mathematics (Grades Three through Seven)

Observed Score Distributions	Mathematics Grade 3				Mathematics Grade 4				Mathematics Grade 5				Mathematics Grade 6				Mathematics Grade 7			
	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013
570–600	19	28	8	32	52	168	216	64	136	246	205	140	75	145	116	153	84	119	125	125
540–569	26	90	50	84	54	163	202	81	N/A	248	227	173	97	74	214	100	111	57	144	61
510–539	72	N/A	N/A	N/A	221	235	266	252	130	349	326	281	90	300	157	303	78	209	272	208
480–509	136	167	100	133	182	655	328	235	410	495	406	387	294	199	437	237	270	354	183	416
450–479	171	596	421	538	538	426	926	724	589	1,223	1,198	1,140	517	1,114	739	1,117	436	569	515	631
420–449	572	865	347	431	720	1,721	1,254	1,814	826	1,590	2,500	1,643	820	1,113	1,746	1,150	646	774	800	960
390–419	797	1,052	1,419	1,625	1,383	1,427	2,329	1,627	1,031	2,953	3,103	3,123	1,908	2,145	1,623	2,420	969	1,110	1,863	1,252
360–389	1,795	2,279	1,848	1,941	1,854	2,582	1,881	3,184	1,874	3,043	3,187	3,525	2,510	1,831	2,931	2,016	1,953	2,464	1,692	2,841
330–359	1,309	2,207	3,346	2,659	2,231	1,898	3,079	3,718	2,801	3,836	4,011	4,265	3,019	3,102	3,537	3,598	1,810	2,062	2,200	2,432
300–329	2,165	2,019	2,466	2,894	2,448	2,959	3,080	3,865	2,887	2,528	2,722	3,890	3,057	3,409	3,750	3,921	3,391	2,486	4,072	2,917
270–299	1,505	2,460	2,880	2,783	2,440	3,609	2,967	3,382	2,161	3,122	3,339	2,735	3,036	3,460	3,550	3,970	2,522	4,373	3,126	4,937
240–269	1,816	2,118	2,496	2,105	2,091	2,215	2,445	1,861	2,559	2,587	2,652	3,006	2,711	3,165	3,277	3,551	2,506	2,912	3,216	3,300
210–239	1,145	1,100	1,221	1,634	991	1,191	1,853	1,972	1,354	1,242	1,163	1,508	1,331	2,452	2,314	2,626	3,359	2,578	4,098	2,837
180–209	478	293	347	349	882	1,187	1,060	1,055	621	468	457	607	1,344	1,295	947	1,554	1,457	1,871	1,859	2,151
150–179	69	22	24	59	375	538	454	394	212	114	90	142	734	600	884	632	1,408	1,846	1,965	2,074

A frequency count of "N/A" indicates that there are no obtainable scale scores within that scale-score range.

Table 10.A.6 Observed Score Distributions of CMA Across Base Year, 2011, 2012, and 2013 for Algebra I and Geometry

Observed Score Distributions	Algebra I				Geometry			
	Base	2011	2012	2013	Base	2011	2012	2013
570–600	5	5	2	10	0	.	0	2
540–569	4	4	15	13	0	.	0	1
510–539	24	24	49	42	0	.	0	0
480–509	23	23	53	40	11	.	11	12
450–479	115	115	217	234	21	.	21	30
420–449	261	261	419	442	55	.	55	67
390–419	403	403	711	735	125	.	125	165
360–389	1,068	1,068	1,543	1,669	295	.	295	350
330–359	2,644	2,644	3,345	3,749	607	.	607	760
300–329	4,291	4,291	4,945	5,453	1,360	.	1,360	1,606
270–299	5,486	5,486	5,224	5,637	1,788	.	1,788	2,038
240–269	4,437	4,437	7,137	7,609	1,774	.	1,774	2,082
210–239	3,384	3,384	3,813	4,031	832	.	832	979
180–209	633	633	1,246	1,284	111	.	111	147
150–179	157	157	177	176	12	.	12	8

Note: Year for which no data are available is represented by a dot.

Table 10.A.7 Observed Score Distributions of CMA Across Base Year, 2011, 2012, and 2013 for Science (Grades Five and Eight and Life Science [Grade Ten])

Observed Score Distributions	Science Grade Five				Science Grade Eight				Life Science (Grade Ten)			
	Base	2011	2012	2013	Base	2011	2012	2013	Base	2011	2012	2013
570 – 600	5	12	23	14	18	28	40	36	5	5	4	4
540 – 569	15	39	44	41	17	40	51	73	7	7	8	12
510 – 539	46	76	81	87	27	182	211	219	11	11	20	19
480 – 509	82	104	118	167	110	160	163	212	41	41	76	87
450 – 479	387	892	471	603	279	745	843	1,048	67	67	120	164
420 – 449	789	1,159	1,542	2,007	625	796	850	1,041	153	153	351	421
390 – 419	2,013	2,481	2,657	3,211	1,011	2,186	2,368	2,882	457	457	588	691
360 – 389	2,602	4,342	3,747	3,929	2,027	2,210	2,333	2,788	694	694	1,200	1,335
330 – 359	3,725	5,791	5,620	6,964	2,780	3,229	3,676	3,970	1,307	1,307	2,021	2,349
300 – 329	4,028	4,125	6,290	4,467	4,069	3,503	5,084	3,844	1,807	1,807	2,521	2,717
270 – 299	2,396	3,953	3,465	4,096	3,291	4,185	3,571	4,304	2,261	2,261	2,670	2,791
240 – 269	1,694	1,757	1,968	1,653	2,333	2,440	2,591	2,462	2,035	2,035	2,222	2,370
210 – 239	731	410	720	391	759	972	937	986	1,602	1,602	2,073	2,107
180 – 209	123	76	82	67	221	362	348	316	273	273	427	489
150 – 179	21	6	10	12	39	68	46	70	66	66	55	73

Appendix 10.B—Historical Comparisons Tables, Test Characteristics

Table 10.B.1 Mean Proportion Correct for Operational Test Items Across Base Year, 2011, 2012, and 2013

		Mean *p*-value			
Content Area	**CMA**	**Base**	**2011**	**2012**	**2013**
English–Language Arts	3	0.56	0.62	0.59	0.58
	4	0.53	0.58	0.59	0.55
	5	0.60	0.61	0.58	0.58
	6	0.56	0.56	0.59	0.57
	7	0.55	0.60	0.59	0.61
	8	0.54	0.56	0.62	0.58
	9	0.48	0.48	0.52	0.53
	10	0.50	.	0.50	0.51
	11	0.45	.	0.45	0.46
Mathematics	3	0.61	0.63	0.62	0.62
	4	0.56	0.59	0.60	0.57
	5	0.59	0.63	0.61	0.61
	6	0.54	0.54	0.55	0.53
	7	0.47	0.46	0.47	0.46
	Algebra I	0.48	0.48	0.49	0.49
	Geometry	0.48	.	0.48	0.48
Science	5	0.61	0.59	0.60	0.61
	8	0.53	0.57	0.57	0.59
	10 Life Science	0.50	0.50	0.53	0.53

Note: Year for which no data are available is represented by a dot.

Table 10.B.2 Mean IRT *b*-values for Operational Test Items Across Base Year, 2011, 2012, and 2013

		Mean IRT *b*-value			
Content Area	**CMA**	**Base**	**2011**	**2012**	**2013**
English–Language Arts	3	–0.35	–0.47	–0.38	–0.32
	4	–0.12	–0.20	–0.23	–0.13
	5	–0.45	–0.42	–0.23	–0.25
	6	–0.27	–0.33	–0.32	–0.33
	7	–0.29	–0.45	–0.42	–0.45
	8	–0.24	–0.26	–0.47	–0.26
	9	0.06	0.06	–0.06	–0.06
	10	–0.02	.	–0.02	–0.02
	11	0.20	.	0.20	0.20
Mathematics	3	–0.47	–0.45	–0.43	–0.47
	4	–0.26	–0.35	–0.38	–0.25
	5	–0.39	–0.30	–0.19	–0.28
	6	–0.20	–0.14	–0.19	–0.14
	7	0.08	0.14	0.10	0.14
	Algebra I	0.07	0.07	0.06	0.06
	Geometry	0.05	.	0.05	0.05
Science	5	–0.54	–0.29	–0.43	–0.38
	8	–0.18	–0.26	–0.25	–0.26
	10 Life Science	0.01	0.01	–0.06	–0.06

Note: Year for which no data are available is represented by a dot.

Table 10.B.3 Mean Point-Biserial Correlation for Operational Test Items Across Base Year, 2011, 2012, and 2013

		Mean Point-biserial Correlation			
Content Area	**CMA**	**Base**	**2011**	**2012**	**2013**
English–Language Arts	3	0.37	0.40	0.37	0.37
	4	0.34	0.34	0.36	0.33
	5	0.35	0.36	0.34	0.35
	6	0.29	0.32	0.34	0.32
	7	0.33	0.35	0.36	0.35
	8	0.32	0.33	0.34	0.33
	9	0.29	0.29	0.31	0.32
	10	0.29	.	0.29	0.30
	11	0.26	.	0.26	0.26
Mathematics	3	0.40	0.40	0.37	0.39
	4	0.32	0.34	0.34	0.31
	5	0.36	0.37	0.37	0.36
	6	0.28	0.29	0.29	0.29
	7	0.25	0.25	0.25	0.25
	Algebra I	0.27	0.27	0.28	0.28
	Geometry	0.27	.	0.27	0.27
Science	5	0.33	0.33	0.32	0.32
	8	0.29	0.32	0.32	0.33
	10 Life Science	0.30	0.30	0.31	0.32

Note: Year for which no data are available is represented by a dot.

Table 10.B.4 Score Reliabilities (Cronbach's Alpha) and SEM Across Base Year, 2011, 2012, and 2013

		Reliability				SEM			
Content Area	**CMA**	**Base**	**2011**	**2012**	**2013**	**Base**	**2011**	**2012**	**2013**
English–Language Arts	3	0.87	0.89	0.86	0.86	3.14	3.07	3.15	3.12
	4	0.83	0.84	0.85	0.83	3.20	3.19	3.15	3.22
	5	0.84	0.85	0.83	0.84	3.08	3.09	3.17	3.13
	6	0.79	0.83	0.85	0.83	3.40	3.36	3.36	3.34
	7	0.84	0.87	0.87	0.87	3.41	3.33	3.33	3.31
	8	0.83	0.84	0.85	0.84	3.38	3.36	3.24	3.33
	9	0.81	0.81	0.84	0.85	3.67	3.67	3.63	3.62
	10	0.82	.	0.82	0.83	3.64	.	3.64	3.63
	11	0.76	.	0.76	0.76	3.68	.	3.68	3.68
Mathematics	3	0.89	0.89	0.87	0.88	3.00	3.02	3.11	3.03
	4	0.81	0.83	0.83	0.80	3.14	3.11	3.10	3.13
	5	0.85	0.87	0.86	0.86	3.08	3.03	3.08	3.07
	6	0.78	0.79	0.80	0.79	3.46	3.45	3.43	3.46
	7	0.71	0.72	0.72	0.71	3.50	3.47	3.49	3.47
	Algebra I	0.78	0.78	0.80	0.80	3.70	3.70	3.68	3.68
	Geometry	0.78	.	0.78	0.79	3.69	.	3.69	3.69
Science	5	0.82	0.82	0.80	0.81	3.08	3.16	3.12	3.14
	8	0.80	0.84	0.83	0.84	3.44	3.38	3.40	3.36
	10 Life Science	0.83	0.83	0.84	0.85	3.65	3.65	3.62	3.61

Note: Year for which no data are available is represented by a dot.