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Acronyms and Initialisms Used in the *CMA Technical Report*

ADA	Americans with Disabilities Act	GENASYS	Generalized Analysis System
AERA	American Educational Research Association	ICC	item characteristic curve
ARP	Assessment Review Panel	IEP	individualized education program
APA	American Psychological Association	I-FEP	initially fluent English proficient
API	Academic Performance Index	IRT	item response theory
ASL	American Sign Language	IT	Information Technology
AYP	Adequate Yearly Progress	LEA	local education agency
CAHSEE	California High School Exit Examination	MC	multiple choice
CAPA	California Alternate Performance Assessment	MCE	Manually Coded English
CDE	California Department of Education	MH DIF	Mantel-Haenszel DIF
CDS	county/district/school	NCME	National Council on Measurement in Education
CELDT	California English Language Development Test		
CI	confidence interval	NPS	nonpublic, nonsectarian school
CMA	California Modified Assessment	NSLP	National School Lunch Program
CR	constructed response	OIB	ordered item booklet
CSTs	California Standards Tests	OTI	Office of Testing Integrity
CSEMs	conditional standard errors of measurement	*p*-value	item proportion correct
DFA	*Directions for Administration*	PSAA	Public School Accountability Act
DIF	differential item functioning	Pt-Bis	point-biserial correlations
DOK	depth of knowledge	QC	quality control
DPLT	designated primary language test	RACF	Random Access Control Facility
DQS	Data Quality Services	R-FEP	reclassified fluent English proficient
d-study	decision study	SBE	State Board of Education
EC	Education Code	SD	standard deviation
EL	English learner	SEMs	standard errors of measurement
ELA	English–language arts	SFTP	secure file transfer protocol
EM	expectation maximization	SGID	School and Grade Identification sheet
EOC	end-of-course	SKM	score key management
ePEN™	Electronic Performance Evaluation Network	SPAR	Statewide Pupil Assessment Review
ESEA	Elementary and Secondary Education Act	STAR	Standardized Testing and Reporting
ETS	Educational Testing Service	STAR TAC	STAR Technical Assistance Center
FIA	final item analysis	STS	Standards-based Tests in Spanish
g-study	generalizability study	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 2011 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 tests 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.

In November 2010, the SBE approved performance levels for the CMA for ELA in grade nine, Algebra I (taken by students who meet the test's requirements in grades seven through eleven), and Life Science in grade ten. CMA results for these tests are included in the API beginning with the 2011 Base API. As with CAPA results in API reporting, the performance level the student receives on the CMA (far below basic, below basic, basic, proficient, or advanced) was the level that was included in the API calculations.

In the spring of 2011, the CMA was expanded to include ELA in grades ten and eleven and EOC mathematics in Geometry, taken by eligible students in grades eight through eleven. The SBE is scheduled to adopt performance levels for these grade levels in January 2012. Accordingly, CMA results were not available in time for reporting the 2011 Growth API in September 2011.

Test Content

The CMA is 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 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 a writing test.

In 2011, 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 student with cognitive disabilities, the decision to administer the CSTs, the CMA, or the CAPA is made by their IEP team.

The CMA tests are designed for students with an IEP who cannot achieve grade-level proficiency on the CSTs with or without accommodations and/or modifications and who meet eligibility criteria adopted by the SBE. The decision to administer the CMA is made by a student's IEP team. 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 portion of 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 is administered within a 21-day window which begins 10 days before and ends 10 days after the day on which 85 percent of the instructional year is completed. School districts may use all or any part of the 21 days for testing but are encouraged to schedule testing over no more than a 10- to 15-day period. (California *Code of Regulations [CCR], Title 5,* Education, Division 1, Chapter 2, Subchapter 3.75, Article 2, § 855; in the California Department of Education [CDE] Web document at http://www.cde.ca.gov/ta/tg/sr/starregs0207cln.doc) (This regulation was updated in June 2011. The new regulation, which will take effect beginning with the 2012 STAR administration, extends the STAR testing window by 4 days, from 21 instructional days to 25 instructional days.)

Significant Developments in 2011

Cut Scores and Score Scales for Newly Developed Tests

A standard setting was held in the summer of 2010 to establish cut scores for the below basic, basic, proficient, and advanced performance levels for the ELA test in grade nine, Algebra I, and for Life Science in grade ten. A scale for reporting each of these CMA test results was developed and used to report scores after the spring 2011 administration.

Restoration of the California Modified Writing Standards Test in Grade Four

The writing test, which had been suspended in 2010, was administered to students in grade four as a part of the CMA for ELA in 2011. The Writing Applications cluster was included in determining results for the CMA for ELA in 2011.

New CMA for ELA in Grades Ten and Eleven and EOC Geometry Were Available

A CMA for ELA was made available to CMA-eligible students in grades ten and eleven. The CMA for Geometry was available as an end-of-course mathematics test for students in grades eight through eleven who met the eligibility criteria. Results for these tests are reported as percent-correct for the entire content-area test; no cluster scores are provided. The cut scores and scales will be determined by the standard setting to be held later.

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 classroom work and progress reports in addition to the child's CMA results (CDE, 2009). It is also important to note that student scores in a content area contain measurement error and could vary if students were retested.

Out-of-Level Testing

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 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 2011 grade three mathematics test; it would not be appropriate to compare scores obtained on the grade three mathematics test with those obtained on the grade four mathematics test. The reviewer may compare results for the same content area and grade, within a school, between schools, or between a school and its district, its county, or the state within the same year, and if based on the same score scale, across years. Comparisons between scores obtained in different grades or content areas should be avoided.

In 2011, the results for the CMA for grades ten and eleven ELA and Geometry are reported as the percent-correct scores, which are number-correct scores divided by the total number

of items on the test. When comparing percent-correct score results, the reviewer is limited to making comparisons within the same content area, grade, and year. No direct comparisons should be made between grades, between content areas, or across the years.

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 7,000,000 children and young adults in more than 9,000 schools. California will 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 Educational Testing Service (ETS) to develop and administer the STAR Program. As the prime contractor, ETS has overall responsibility for working with the CDE to implement and maintain an effective assessment system and to coordinate the work of ETS and its subcontractor Pearson. Activities directly conducted by ETS include the following:

- Overall management of the program activities;
- Development of all test items;
- Construction and production of test booklets and related test materials;
- Support and training provided to counties, school districts, and independently testing charter schools;
- Implementation and maintenance of the STAR Management System for orders of materials and pre-identification services; and
- Completion of all psychometric activities.

Pearson

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

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

Overview of the Technical Report

This technical report addresses the characteristics of the CMA administered in spring 2011. The technical report contains nine additional chapters as follows:

- Chapter 2 presents a conceptual overview of processes involved in a testing cycle for a CMA. This includes test construction, test administration, generation of test scores, and dissemination of score reports. Information about the distributions of scores aggregated by subgroups based on demographics and the use of special services is also included in this chapter. Also included are references to various chapters that detail the processes briefly discussed in this chapter.
- Chapter 3 describes the procedures followed during the development of valid CMA items; the chapter explains the process of field-testing new items and the review of items by contractors and content experts.
- Chapter 4 details the content and psychometric criteria that guided the construction of the CMA for 2011.
- Chapter 5 presents the processes involved in the actual administration of the 2011 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 tests.
- Chapter 7 details the types of scores and score reports that are produced at the end of each administration of the CMA.
- Chapter 8 summarizes the results of the test and item-level analyses performed during the spring 2011 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, as well as documentation of the equating, along with CMA conversion tables. Finally, the chapter summarizes the results of analyses investigating the differential item functioning (DIF) for each CMA.
- Chapter 9 highlights the importance of controlling and maintaining the quality of the CMA.
- Chapter 10 presents historical comparisons of various item- and test-level results for the past two years and for the base year.

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

Reference

California Department of Education. (2009). *Interpreting 2009 STAR program test results*. Sacramento, CA.

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; these processes are similar to those undertaken to develop the CSTs. Also described are the specifications maintained by ETS to carry out each of those processes. The chapter is organized to provide a brief description of each process followed by a summary of the associated specifications. More details about the specifications and the analyses associated with each process are described in other chapters that are referenced in the sections that follow.

Item Development

Item Formats

All tests of the CMA contain three-option multiple-choice items. The CMA for ELA in grades four and seven also include a writing component, the CMA for Writing, which contains one writing task.

Item Specifications

The CMA items are developed to measure California content standards and designed to conform to principles of item writing defined by ETS (ETS, 2002). ETS maintains and updates an item specifications document, otherwise known as “item writer guidelines,” 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.

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

The items selected for the CMA undergo an extensive item review process that is designed to provide the best standards-based tests possible. Details about the item specifications, the item review process, and the item utilization plan are presented in Chapter 3, starting on page 66.

Item Banking

Before newly developed items are placed in the item bank, ETS prepares the items for review by content experts and various external review organizations such as the Assessment Review Panels (ARPs), which are described in Chapter 3 starting on page 70; and the Statewide Pupil Assessment Review (SPAR) panel, described in Chapter 3 starting on page 73.

Once the ARP review is complete, the items are placed in the item bank along with their corresponding information obtained at the review sessions. Items that are accepted by the content experts are updated to a “field-test ready” status; items that are rejected are updated to a “rejected before use” status. ETS then delivers the items to the CDE by means of a delivery of the California electronic item bank. Items are then field tested to obtain information about item performance and item statistics that can be used to assemble operational forms. Subsequent updates to item content and statistics are 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 administraton data from every administration that has included the item.

Further details on item banking are presented on page 75 in Chapter 3.

Item Refresh Rate

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

Test Assembly

Test Length

The number of operational items in each CMA varies by content area and grade. There are 48 operational items on the CMA tests for ELA in grades three through five, for mathematics in grades three through five, and for science in grade five. There are 54 operational items on the CMA tests for ELA in grades six through eight, for mathematics in grades six and seven, and for science in grade eight. There are 60 operational items on the CMA for ELA in grades nine through eleven, Algebra I, and Geometry, and Life Science in grade ten. The considerations in deciding upon the test length are described on page 78 in Chapter 4. Each CMA also includes various number of field-test items in addition to the operational items. 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 19.

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 for ELA in grades three through nine, mathematics in grades three through seven and Algebra I, and science in grades five, eight, and ten are grouped into subcontent areas referred to as “reporting clusters.”

For each CMA reporting cluster, the percentage of questions correctly answered is reported on a student’s score report. A description of the reporting clusters for ELA in grades three through nine, mathematics in grades three through seven and Algebra I, and science in grades five, eight, and ten, and the standards that comprise each cluster, are provided in Appendix 2.B, which starts on page 20.

Content Rules and Item Selection

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

Another consideration is the difficulty of each item. Test developers strive to ensure that there are some easy and some hard items and that there are a number of items in the middle range of difficulty. The detailed rules are presented in Chapter 4, which begins on page 78.

Psychometric Criteria

The staff assesses the projected test characteristics during the preliminary review of the assembled forms. The statistical targets used for the 2011 test development and the projected characteristics of the assembled forms are presented starting from page 79 in Chapter 4.

The items in test forms are organized and sequenced differently according to the requirements of the content area. Further details on the arrangement of items during test assembly are also described on page 79 in Chapter 4.

Test Administration

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

Test Security and Confidentiality

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

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

- 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 that 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 Manua*l (CDE, 2011); see page 107 in Chapter 5 for more information.

Test Directions

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

***Directions for Administration* (*DFA*s)—**Manuals used by test examiners to administer the CMA to students to be followed exactly so that all students have an equal opportunity to demonstrate their academic achievement (See page 107 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 107 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 108 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.

In addition, all eligible students may have test variations, if these variations are regularly used in the classroom. They also must be allowed to use the accommodations that are specified in each student's IEP or Section 504 plan. These accommodations must match the one(s) used for classroom work throughout the year.

Accommodations change the way the test is given but do not change what is tested. The purpose of test variations and accommodations is to enable the students to take the CMA, not to give them an advantage over other students or to artificially inflate their scores. Test administration variations and accommodations do not result in changes to the students' scores for API or AYP calculations.

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

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

Category 2: Accommodations—Eligible students are permitted to take the CMA with accommodations if specified in their IEP or Section 504 plan for use on the CMA or for use during classroom instruction and assessment. Examples of accommodations are

large-print or braille versions of the CMA or providing more than one day for a test designed for a single sitting.

Appendix 2.C on page 22 presents a complete list of test variations and accommodations that were allowed for the CMA in 2011.

Accommodation Summaries

The percentage of students using various testing accommodations during the 2011 administration of the CMA is presented in Appendix 2.D, which starts on page 24. The data are organized into two sections within each table. The first section presents the percentages of students using each accommodation in the total testing population. The second section presents the results for students in various categories based on the following levels of English-language fluency:

- **English only (EO)—**A student for whom there is a report of English as the primary language (i.e., language first learned, most frequently used at home, or most frequently spoken by the parents or adults in the home) on the "Home Language Survey"
- **Initially fluent English proficient (I-FEP)—**A student whose primary language is a language other than English who initially met the district criteria for determining proficiency in English
- **English learner (EL)—**A student who first learned or has a home language other than English who was determined to lack sufficient fluency in English on the basis of state oral language (K–12) and literacy (3–12) assessments to succeed in the school's regular instructional program (For students tested for initial classification prior to May 2001, this determination is made on the basis of the state-approved instrument the district was using. For students tested after May 2001, use the 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 science and mathematics that involved 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, the total ELA raw score equals the sum of examinees' scores on both the multiple-choice items and the writing task. The writing score is reported on a scale with possible scores of 0, 1, 2, 3 and 4. Details about CMA writing scores and scoring rubrics are described on page 130 in Chapter 7.

Total test raw scores on each CMA for ELA in grades three through nine, mathematics in grades three through seven and Algebra I, and science in grades five, eight, and ten are converted to three-digit scale scores using the 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, CMA performance on various reporting clusters is reported for ELA in grades three through nine, mathematics in grades three through seven and Algebra I, and science in grades five, eight, and ten. 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 117.

Aggregation Procedures

In order to provide meaningful results to the stakeholders, CMA scores for a given grade and content area are aggregated at the school, independently testing charter school, district, county, and state levels. The aggregated scores are generated for both individual students and demographic subgroups. The following sections present the summary results of individual and demographic subgroup CMA scores aggregrated at the state level.

Please note that aggregation is performaned 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.

Individual Scores

Table 7.1 and Table 7.2, which start on page 123 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.8 starting on page 136 in Appendix 7.B.

Demographic Subgroup Scores

In Table 7.C.1 through Table 7.C.16 starting on page 141, students taking the CMA for ELA in grades three through nine, mathematics in grades three through seven and Algebra I, and science in grades five, eight, and ten are grouped by demographic characteristics including gender, ethnicity, English-language fluency, economic status, and primary disability. For the CMA with established reporting scales and proficiency levels, 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 125 provides definitions for the demographic groups included in the tables.

Equating

The CMA is equated to a reference form using a common-item nonequivalent groups data collection design and methods based on tiem response theory (Hambleton & Swaminathan, 1985) The “base” or “reference” calibrations for the CMA were established by calibrating samples of item response data from a specific administration. Doing so established a scale to which subsequent item calibrations could be linked. The 2011 items were placed on the reference scale using a set of linking items selected from the 2010 operational forms and re-administered in 2011.

For ELA in grades three through five, mathematics in grades three through five, and science in grade five, the reference scales were established on spring 2009 administration. For ELA in grades six through eight, mathematics in grades six to seven, and science in grade eight, the reference scales were established on spring 2010 administraton. For ELA in grade nine, EOC Algebra I, and Life Science in grade ten, test forms were reused in 2011 from the spring 2010 operational test and a new scale was developed using 2011 student data. Therefore, equating of those CMA tests to previously established scales was not required.

Calibration

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

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

Scaling

Calibrations of the 2011 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 is equivalent to setting the mean of the new item parameter estimates for the linking set equal to the mean of the previously scaled estimates. As noted earlier, the linking set is a collection of items in a current test form that also appeared in last year’s form and was scaled at that time.

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

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

where,

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

n_g is the number of intervals/groups,

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

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

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

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

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

Scoring Table Production

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

The procedure is based on the relationship between raw scores and ability (theta). For the CMA 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 ELA in grades four and seven, $\xi(\theta)$ is based on a sum of multiple-choice and constructed response essay items; the relationship can be defined as:

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

where,

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

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

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

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

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

For each integer score ξ_n on the new form, the procedure is 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, where equation 2.3 is used. The ability estimates are then expressed in

the reporting scale metric by applying linear transformation with the appropriate slope and intercept, using 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, 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

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

Complete raw-to-scale score conversion tables for the 2011 CMA are presented in Table 8.D.29 through Table 8.D.46, starting on page 278. The raw scores and corresponding rounded transformed scale scores are listed in those tables.

For all of the CMA with performance levels, 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 for grades three to eight CMA are presented in Table 2.1.

Table 2.1 Scale Scores Ranges for Performance Levels

Content Area	CMA*	Far Below Basic	Below Basic	Basic	Proficient	Advanced
English–Language Arts	3	150 – 227	228 – 299	300 – 349	350 – 396	397 – 600
	4	150 – 240	241 – 299	300 – 349	350 – 406	407 – 600
	5	150 – 218	219 – 299	300 – 349	350 – 399	400 – 600
	6	150 – 220	221 – 299	300 – 349	350 – 404	405 – 600
	7	150 – 227	228 – 299	300 – 349	350 – 408	409 – 600
	8	150 – 234	235 – 299	300 – 349	350 – 406	407 – 600
	9	150 – 242	243 – 299	300 – 349	350 – 406	407 – 600
Mathematics	3	150 – 228	229 – 299	300 – 349	350 – 422	423 – 600
	4	150 – 218	219 – 299	300 – 349	350 – 429	430 – 600
	5	150 – 225	226 – 299	300 – 349	350 – 421	422 – 600
	6	150 – 229	230 – 299	300 – 349	350 – 427	428 – 600
	7	150 – 236	237 – 299	300 – 349	350 – 442	443 – 600
	Algebra I	150 – 250	251 – 299	300 – 349	350 – 409	410 – 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	150 – 250	251 – 299	300 – 349	350 – 409	410 – 600

* Numbers indicate grade-level tests.

Equating the Braille Versions of the CMA

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

References

California Department of Education. (2011). *2011 STAR district and test site coordinator manual.* Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.coord_man.2011.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 Item 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		45		45		45		55		55		55		50		50		50
Part 2	57	45	57	45	57	45	63	55	63	55	63	55	70	50	70	50	70	50
Part 3		45		45		45		55		55		55		50		50		50
Part 4–only grade 3		45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Writing Application	–	–	1	70[1]	--	--	--	--	1	70[1]	--	--	--	--	--	--	--	--
Mathematics		**140**		**105**		**105**		**120**		**120**		**150**		**150**		**150**		**150**
Part 1		35		35		35		40		40		50		50		50		50
Part 2	57	35	57	35	57	35	63	40	63[2]	40	70[3]	50	70[3]	50	70[3]	50	70[3]	50
Part 3		35		35		35		40		40		50		50		50		50
Part 4–only grade 3		35	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Science		--		--		**120**		--		--		**135**		**--**		**150**		**--**
Part 1	--	--	--	--	57	40	--	--	--	--	63	45	--	--	66	50	N/A	--
Part 2		--		--		40		--		--		45		--		50		--
Part 3		--		--		40		--		--		45		--		50		--

1 The writing 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
Writing Applications	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
Writing Applications	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

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

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—2011 Test Variations and Accommodations

Appropriate testing variations and accommodations for the 2011 administration of the California Modified Assessment are based on the study of item format and delivery mode from the California Modified Assessment Pilot Test.

Allowable Variations

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

Allowable Accommodations

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

- Calculator on the grade five mathematics test
- Math manipulatives on the mathematics tests
- Math manipulatives on the science tests
- Unlisted Accommodation

Allowable English Learner Variations

- Hear the test directions printed in the test administration manual translated into the student's primary language. Ask clarifying questions about the test directions in the student's primary language. (Variation A)
- Additional supervised breaks within a testing day or within a test part provided that the test part is completed within the day of testing. The end of a test part is identified by a "STOP" sign. (Variation B)
- 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 C)

CMA for Math and Science ONLY

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

Appendix 2.D—Accommodation Summary Tables

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

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

Accommodation Summary for ELA, Grade Three		
All Tested	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	222	1.25%
C: Dictated responses to a scribe	38	0.21%
F: Used noninterfering assistive device	35	0.20%
G: Used braille test	6	0.03%
H: Used large-print test	75	0.42%
J: Tested over more than one day	949	5.33%
K: Had supervised breaks	3,377	18.96%
L: Most beneficial time of day	1,658	9.31%
M: Administered at home or in a hospital	13	0.07%
O: Examiner presented with MCE or ASL	21	0.12%
X: Used an unlisted accommodation	805	4.52%
Y: Leave blank	196	1.10%
Z: Examiner read test questions aloud	3,654	20.51%
Accommodation is in Section 504 plan	9	0.05%
Accommodation is in IEP	6,514	36.57%
English Learner Test Variation A	23	0.13%
English Learner Test Variation B	77	0.43%
English Learner Test Variation C	43	0.24%
Any Accommodation or EL Variation	7,194	40.39%
No Accommodation or EL Variation	10,618	59.61%
English-Only Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	128	1.32%
C: Dictated responses to a scribe	30	0.31%
F: Used noninterfering assistive device	20	0.21%
G: Used braille test	3	0.03%
H: Used large-print test	46	0.48%
J: Tested over more than one day	528	5.45%
K: Had supervised breaks	1,763	18.21%
L: Most beneficial time of day	952	9.83%
M: Administered at home or in a hospital	9	0.09%
O: Examiner presented with MCE or ASL	16	0.17%
X: Used an unlisted accommodation	424	4.38%
Y: Leave blank	115	1.19%
Z: Examiner read test questions aloud	1,887	19.49%
Accommodation is in Section 504 plan	5	0.05%
Accommodation is in IEP	3,487	36.01%
English Learner Test Variation A	2	0.02%
English Learner Test Variation B	6	0.06%
English Learner Test Variation C	2	0.02%

Accommodation Summary for ELA, Grade Three		
Any Accommodation or EL Variation	3,829	39.54%
No Accommodation or EL Variation	5,854	60.46%
Initially Fluent English Proficient (I-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	3	1.68%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	1	0.56%
H: Used large-print test	2	1.12%
J: Tested over more than one day	10	5.59%
K: Had supervised breaks	23	12.85%
L: Most beneficial time of day	11	6.15%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.56%
X: Used an unlisted accommodation	7	3.91%
Y: Leave blank	1	0.56%
Z: Examiner read test questions aloud	30	16.76%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	56	31.28%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	63	35.20%
No Accommodation or EL Variation	116	64.80%
English Learner (EL) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	85	1.14%
C: Dictated responses to a scribe	7	0.09%
F: Used noninterfering assistive device	15	0.20%
G: Used braille test	2	0.03%
H: Used large-print test	22	0.29%
J: Tested over more than one day	384	5.14%
K: Had supervised breaks	1,494	19.99%
L: Most beneficial time of day	674	9.02%
M: Administered at home or in a hospital	4	0.05%
O: Examiner presented with MCE or ASL	3	0.04%
X: Used an unlisted accommodation	353	4.72%
Y: Leave blank	74	0.99%
Z: Examiner read test questions aloud	1,647	22.04%
Accommodation is in Section 504 plan	4	0.05%
Accommodation is in IEP	2,790	37.33%
English Learner Test Variation A	21	0.28%
English Learner Test Variation B	69	0.92%
English Learner Test Variation C	39	0.52%
Any Accommodation or EL Variation	3,112	41.64%
No Accommodation or EL Variation	4,362	58.36%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 3**	**Pct. of Total**
B: Marked in test booklet	1	1.96%
C: Dictated responses to a scribe	1	1.96%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	0	0.00%

Accommodation Summary for ELA, Grade Three		
J: Tested over more than one day	2	3.92%
K: Had supervised breaks	7	13.73%
L: Most beneficial time of day	3	5.88%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	1.96%
X: Used an unlisted accommodation	3	5.88%
Y: Leave blank	0	0.00%
Z: Examiner read test questions aloud	6	11.76%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	11	21.57%
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	13	25.49%
No Accommodation or EL Variation	38	74.51%

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

Accommodation Summary for ELA, Grade Four		
All Tested	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	909	3.62%
C: Dictated responses to a scribe	39	0.16%
D: Used word processing with tools off	69	0.27%
E: Dictated essay with conventions	57	0.23%
F: Used noninterfering assistive device	28	0.11%
G: Used braille test	2	0.01%
H: Used large-print test	68	0.27%
J: Tested over more than one day	135	0.54%
K: Had supervised breaks	2,569	10.24%
L: Most beneficial time of day	1,316	5.24%
M: Administered at home or in a hospital	12	0.05%
O: Examiner presented with MCE or ASL	71	0.28%
X: Used an unlisted accommodation	581	2.32%
Y: Leave blank	199	0.79%
Z: Examiner read test questions aloud	4,747	18.91%
Accommodation is in Section 504 plan	8	0.03%
Accommodation is in IEP	6,622	26.39%
English Learner Test Variation A	38	0.15%
English Learner Test Variation B	58	0.23%
English Learner Test Variation C	73	0.29%
Any Accommodation or EL Variation	7,750	30.88%
No Accommodation or EL Variation	17,347	69.12%
English-Only Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	576	4.17%
C: Dictated responses to a scribe	30	0.22%
D: Used word processing with tools off	54	0.39%
E: Dictated essay with conventions	38	0.28%
F: Used noninterfering assistive device	20	0.14%
G: Used braille test	2	0.01%
H: Used large-print test	46	0.33%
J: Tested over more than one day	77	0.56%
K: Had supervised breaks	1,326	9.60%
L: Most beneficial time of day	706	5.11%
M: Administered at home or in a hospital	8	0.06%
O: Examiner presented with MCE or ASL	45	0.33%
X: Used an unlisted accommodation	311	2.25%
Y: Leave blank	111	0.80%
Z: Examiner read test questions aloud	2,576	18.65%
Accommodation is in Section 504 plan	5	0.04%
Accommodation is in IEP	3,619	26.20%
English Learner Test Variation A	4	0.03%
English Learner Test Variation B	4	0.03%
English Learner Test Variation C	7	0.05%
Any Accommodation or EL Variation	4,245	30.73%
No Accommodation or EL Variation	9,568	69.27%

Accommodation Summary for ELA, Grade Four		
Initially Fluent English Proficient (I-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	14	5.22%
C: Dictated responses to a scribe	0	0.00%
D: Used word processing with tools off	2	0.75%
E: Dictated essay with conventions	2	0.75%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.75%
J: Tested over more than one day	1	0.37%
K: Had supervised breaks	26	9.70%
L: Most beneficial time of day	18	6.72%
M: Administered at home or in a hospital	1	0.37%
O: Examiner presented with MCE or ASL	6	2.24%
X: Used an unlisted accommodation	2	0.75%
Y: Leave blank	1	0.37%
Z: Examiner read test questions aloud	45	16.79%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	66	24.63%
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	80	29.85%
No Accommodation or EL Variation	188	70.15%
English Learner (EL) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	313	2.89%
C: Dictated responses to a scribe	9	0.08%
D: Used word processing with tools off	13	0.12%
E: Dictated essay with conventions	17	0.16%
F: Used noninterfering assistive device	8	0.07%
G: Used braille test	0	0.00%
H: Used large-print test	20	0.18%
J: Tested over more than one day	57	0.53%
K: Had supervised breaks	1,207	11.13%
L: Most beneficial time of day	588	5.42%
M: Administered at home or in a hospital	3	0.03%
O: Examiner presented with MCE or ASL	19	0.18%
X: Used an unlisted accommodation	267	2.46%
Y: Leave blank	83	0.77%
Z: Examiner read test questions aloud	2,105	19.41%
Accommodation is in Section 504 plan	3	0.03%
Accommodation is in IEP	2,905	26.79%
English Learner Test Variation A	34	0.31%
English Learner Test Variation B	54	0.50%
English Learner Test Variation C	66	0.61%
Any Accommodation or EL Variation	3,390	31.26%
No Accommodation or EL Variation	7,454	68.74%

Accommodation Summary for ELA, Grade Four		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	4	3.33%
C: Dictated responses to a scribe	0	0.00%
D: Used word processing with tools off	0	0.00%
E: Dictated essay with conventions	0	0.00%
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	0	0.00%
K: Had supervised breaks	9	7.50%
L: Most beneficial time of day	3	2.50%
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	1	0.83%
Y: Leave blank	4	3.33%
Z: Examiner read test questions aloud	17	14.17%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	24	20.00%
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	27	22.50%
No Accommodation or EL Variation	93	77.50%

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

Accommodation Summary for ELA, Grades Five and Six				
All Tested	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	954	3.45%	478	1.82%
C: Dictated responses to a scribe	44	0.16%	21	0.08%
F: Used noninterfering assistive device	62	0.22%	49	0.19%
G: Used braille test	11	0.04%	13	0.05%
H: Used large-print test	124	0.45%	102	0.39%
J: Tested over more than one day	1,529	5.52%	1,181	4.50%
K: Had supervised breaks	5,375	19.42%	4,314	16.45%
L: Most beneficial time of day	2,583	9.33%	1,740	6.64%
M: Administered at home or in a hospital	37	0.13%	17	0.06%
O: Examiner presented with MCE or ASL	41	0.15%	33	0.13%
X: Used an unlisted accommodation	1,149	4.15%	891	3.40%
Y: Leave blank	326	1.18%	319	1.22%
Z: Examiner read test questions aloud	5,226	18.88%	3,834	14.62%
Accommodation is in Section 504 plan	12	0.04%	6	0.02%
Accommodation is in IEP	10,604	38.31%	8,111	30.93%
English Learner Test Variation A	32	0.12%	14	0.05%
English Learner Test Variation B	108	0.39%	62	0.24%
English Learner Test Variation C	51	0.18%	25	0.10%
Any Accommodation or EL Variation	11,059	39.95%	8,506	32.44%
No Accommodation or EL Variation	16,623	60.05%	17,718	67.56%
English-Only Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	559	3.75%	313	2.21%
C: Dictated responses to a scribe	27	0.18%	13	0.09%
F: Used noninterfering assistive device	37	0.25%	32	0.23%
G: Used braille test	6	0.04%	8	0.06%
H: Used large-print test	78	0.52%	66	0.47%
J: Tested over more than one day	854	5.73%	659	4.66%
K: Had supervised breaks	2,700	18.13%	2,275	16.09%
L: Most beneficial time of day	1,370	9.20%	1,020	7.21%
M: Administered at home or in a hospital	18	0.12%	13	0.09%
O: Examiner presented with MCE or ASL	27	0.18%	18	0.13%
X: Used an unlisted accommodation	598	4.02%	475	3.36%
Y: Leave blank	170	1.14%	164	1.16%
Z: Examiner read test questions aloud	2,568	17.24%	1,818	12.86%
Accommodation is in Section 504 plan	9	0.06%	3	0.02%
Accommodation is in IEP	5,484	36.82%	4,223	29.87%
English Learner Test Variation A	6	0.04%	3	0.02%
English Learner Test Variation B	4	0.03%	9	0.06%
English Learner Test Variation C	3	0.02%	1	0.01%
Any Accommodation or EL Variation	5,688	38.19%	4,424	31.29%
No Accommodation or EL Variation	9,206	61.81%	9,714	68.71%
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	17	3.28%	10	1.81%
C: Dictated responses to a scribe	0	0.00%	0	0.00%
F: Used noninterfering assistive device	0	0.00%	2	0.36%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	1	0.19%	1	0.18%

Accommodation Summary for ELA, Grades Five and Six				
J: Tested over more than one day	25	4.83%	32	5.79%
K: Had supervised breaks	90	17.37%	83	15.01%
L: Most beneficial time of day	49	9.46%	38	6.87%
M: Administered at home or in a hospital	1	0.19%	0	0.00%
O: Examiner presented with MCE or ASL	3	0.58%	5	0.90%
X: Used an unlisted accommodation	20	3.86%	17	3.07%
Y: Leave blank	6	1.16%	4	0.72%
Z: Examiner read test questions aloud	92	17.76%	89	16.09%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	188	36.29%	174	31.46%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	3	0.58%	0	0.00%
English Learner Test Variation C	0	0.00%	0	0.00%
Any Accommodation or EL Variation	199	38.42%	178	32.19%
No Accommodation or EL Variation	319	61.58%	375	67.81%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	363	3.04%	133	1.21%
C: Dictated responses to a scribe	17	0.14%	7	0.06%
F: Used noninterfering assistive device	24	0.20%	15	0.14%
G: Used braille test	5	0.04%	4	0.04%
H: Used large-print test	43	0.36%	31	0.28%
J: Tested over more than one day	630	5.28%	472	4.30%
K: Had supervised breaks	2,527	21.18%	1,890	17.21%
L: Most beneficial time of day	1,136	9.52%	653	5.95%
M: Administered at home or in a hospital	17	0.14%	4	0.04%
O: Examiner presented with MCE or ASL	10	0.08%	7	0.06%
X: Used an unlisted accommodation	515	4.32%	372	3.39%
Y: Leave blank	146	1.22%	146	1.33%
Z: Examiner read test questions aloud	2,501	20.96%	1,828	16.64%
Accommodation is in Section 504 plan	3	0.03%	3	0.03%
Accommodation is in IEP	4,809	40.30%	3,542	32.25%
English Learner Test Variation A	26	0.22%	11	0.10%
English Learner Test Variation B	100	0.84%	53	0.48%
English Learner Test Variation C	46	0.39%	24	0.22%
Any Accommodation or EL Variation	5,042	42.26%	3,726	33.92%
No Accommodation or EL Variation	6,890	57.74%	7,258	66.08%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	11	4.14%	21	4.45%
C: Dictated responses to a scribe	0	0.00%	0	0.00%
F: Used noninterfering assistive device	1	0.38%	0	0.00%
G: Used braille test	0	0.00%	1	0.21%
H: Used large-print test	2	0.75%	2	0.42%
J: Tested over more than one day	16	6.02%	13	2.75%
K: Had supervised breaks	46	17.29%	54	11.44%
L: Most beneficial time of day	21	7.89%	25	5.30%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	1	0.38%	2	0.42%
X: Used an unlisted accommodation	14	5.26%	26	5.51%
Y: Leave blank	4	1.50%	4	0.85%
Z: Examiner read test questions aloud	52	19.55%	88	18.64%

Accommodation Summary for ELA, Grades Five and Six				
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	99	37.22%	150	31.78%
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	1	0.38%	0	0.00%
Any Accommodation or EL Variation	106	39.85%	156	33.05%
No Accommodation or EL Variation	160	60.15%	316	66.95%

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

Accommodation Summary for ELA, Grade Seven		
All Tested	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	318	1.29%
C: Dictated responses to a scribe	19	0.08%
D: Used word processing with tools off	117	0.47%
E: Dictated essay with conventions	41	0.17%
F: Used noninterfering assistive device	16	0.06%
G: Used braille test	3	0.01%
H: Used large-print test	37	0.15%
J: Tested over more than one day	78	0.32%
K: Had supervised breaks	1,323	5.37%
L: Most beneficial time of day	555	2.25%
M: Administered at home or in a hospital	3	0.01%
O: Examiner presented with MCE or ASL	69	0.28%
X: Used an unlisted accommodation	542	2.20%
Y: Leave blank	310	1.26%
Z: Examiner read test questions aloud	3,310	13.43%
Accommodation is in Section 504 plan	5	0.02%
Accommodation is in IEP	4,038	16.38%
English Learner Test Variation A	8	0.03%
English Learner Test Variation B	15	0.06%
English Learner Test Variation C	10	0.04%
Any Accommodation or EL Variation	5,324	21.60%
No Accommodation or EL Variation	19,323	78.40%
English-Only Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	209	1.54%
C: Dictated responses to a scribe	14	0.10%
D: Used word processing with tools off	88	0.65%
E: Dictated essay with conventions	33	0.24%
F: Used noninterfering assistive device	12	0.09%
G: Used braille test	1	0.01%
H: Used large-print test	23	0.17%
J: Tested over more than one day	38	0.28%
K: Had supervised breaks	724	5.32%
L: Most beneficial time of day	281	2.07%
M: Administered at home or in a hospital	2	0.01%
O: Examiner presented with MCE or ASL	48	0.35%
X: Used an unlisted accommodation	314	2.31%
Y: Leave blank	156	1.15%
Z: Examiner read test questions aloud	1,706	12.55%
Accommodation is in Section 504 plan	4	0.03%
Accommodation is in IEP	2,131	15.67%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	5	0.04%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	2,838	20.87%
No Accommodation or EL Variation	10,760	79.13%

Accommodation Summary for ELA, Grade Seven		
Initially Fluent English Proficient (I-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	7	1.17%
C: Dictated responses to a scribe	1	0.17%
D: Used word processing with tools off	5	0.83%
E: Dictated essay with conventions	1	0.17%
F: Used noninterfering assistive device	1	0.17%
G: Used braille test	1	0.17%
H: Used large-print test	1	0.17%
J: Tested over more than one day	2	0.33%
K: Had supervised breaks	26	4.33%
L: Most beneficial time of day	10	1.67%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.33%
X: Used an unlisted accommodation	20	3.33%
Y: Leave blank	6	1.00%
Z: Examiner read test questions aloud	77	12.83%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	83	13.83%
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	123	20.50%
No Accommodation or EL Variation	477	79.50%
English Learner (EL) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	80	0.83%
C: Dictated responses to a scribe	2	0.02%
D: Used word processing with tools off	19	0.20%
E: Dictated essay with conventions	6	0.06%
F: Used noninterfering assistive device	3	0.03%
G: Used braille test	1	0.01%
H: Used large-print test	11	0.11%
J: Tested over more than one day	33	0.34%
K: Had supervised breaks	529	5.50%
L: Most beneficial time of day	242	2.51%
M: Administered at home or in a hospital	1	0.01%
O: Examiner presented with MCE or ASL	14	0.15%
X: Used an unlisted accommodation	182	1.89%
Y: Leave blank	143	1.49%
Z: Examiner read test questions aloud	1,439	14.95%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	1,676	17.41%
English Learner Test Variation A	7	0.07%
English Learner Test Variation B	10	0.10%
English Learner Test Variation C	10	0.10%
Any Accommodation or EL Variation	2,176	22.61%
No Accommodation or EL Variation	7,448	77.39%

Accommodation Summary for ELA, Grade Seven		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	20	2.73%
C: Dictated responses to a scribe	0	0.00%
D: Used word processing with tools off	4	0.55%
E: Dictated essay with conventions	1	0.14%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.14%
J: Tested over more than one day	5	0.68%
K: Had supervised breaks	38	5.19%
L: Most beneficial time of day	22	3.01%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	5	0.68%
X: Used an unlisted accommodation	25	3.42%
Y: Leave blank	5	0.68%
Z: Examiner read test questions aloud	81	11.07%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	135	18.44%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
Any Accommodation or EL Variation	173	23.63%
No Accommodation or EL Variation	559	76.37%

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

Accommodation Summary for ELA, Grades Eight and Nine				
All Tested	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	265	1.14%	76	0.45%
C: Dictated responses to a scribe	20	0.09%	8	0.05%
F: Used noninterfering assistive device	10	0.04%	5	0.03%
G: Used braille test	11	0.05%	4	0.02%
H: Used large-print test	72	0.31%	34	0.20%
J: Tested over more than one day	543	2.33%	298	1.78%
K: Had supervised breaks	2,228	9.55%	1,808	10.81%
L: Most beneficial time of day	882	3.78%	313	1.87%
M: Administered at home or in a hospital	27	0.12%	39	0.23%
O: Examiner presented with MCE or ASL	37	0.16%	15	0.09%
X: Used an unlisted accommodation	672	2.88%	416	2.49%
Y: Leave blank	384	1.65%	278	1.66%
Z: Examiner read test questions aloud	1,715	7.35%	366	2.19%
Accommodation is in Section 504 plan	9	0.04%	6	0.04%
Accommodation is in IEP	4,477	19.20%	2,505	14.98%
English Learner Test Variation A	14	0.06%	5	0.03%
English Learner Test Variation B	15	0.06%	9	0.05%
English Learner Test Variation C	8	0.03%	18	0.11%
Any Accommodation or EL Variation	5,053	21.67%	2,885	17.26%
No Accommodation or EL Variation	18,267	78.33%	13,833	82.74%
English-Only Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	162	1.30%	53	0.57%
C: Dictated responses to a scribe	13	0.10%	6	0.06%
F: Used noninterfering assistive device	7	0.06%	4	0.04%
G: Used braille test	8	0.06%	3	0.03%
H: Used large-print test	46	0.37%	18	0.19%
J: Tested over more than one day	328	2.64%	167	1.81%
K: Had supervised breaks	1,228	9.88%	970	10.50%
L: Most beneficial time of day	477	3.84%	202	2.19%
M: Administered at home or in a hospital	14	0.11%	26	0.28%
O: Examiner presented with MCE or ASL	26	0.21%	10	0.11%
X: Used an unlisted accommodation	359	2.89%	224	2.42%
Y: Leave blank	193	1.55%	180	1.95%
Z: Examiner read test questions aloud	757	6.09%	185	2.00%
Accommodation is in Section 504 plan	4	0.03%	5	0.05%
Accommodation is in IEP	2,344	18.86%	1,425	15.42%
English Learner Test Variation A	2	0.02%	1	0.01%
English Learner Test Variation B	2	0.02%	1	0.01%
English Learner Test Variation C	1	0.01%	2	0.02%
Any Accommodation or EL Variation	2,623	21.11%	1,606	17.38%
No Accommodation or EL Variation	9,804	78.89%	7,636	82.62%
Initially Fluent English Proficient (I-FEP) Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	4	0.96%	1	0.26%
C: Dictated responses to a scribe	1	0.24%	0	0.00%
F: Used noninterfering assistive device	1	0.24%	1	0.26%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	2	0.48%	0	0.00%

Accommodation Summary for ELA, Grades Eight and Nine				
J: Tested over more than one day	9	2.15%	4	1.03%
K: Had supervised breaks	35	8.37%	32	8.23%
L: Most beneficial time of day	21	5.02%	7	1.80%
M: Administered at home or in a hospital	2	0.48%	2	0.51%
O: Examiner presented with MCE or ASL	3	0.72%	2	0.51%
X: Used an unlisted accommodation	9	2.15%	12	3.08%
Y: Leave blank	3	0.72%	9	2.31%
Z: Examiner read test questions aloud	30	7.18%	9	2.31%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	74	17.70%	59	15.17%
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	85	20.33%	68	17.48%
No Accommodation or EL Variation	333	79.67%	321	82.52%
English Learner (EL) Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	78	0.83%	15	0.24%
C: Dictated responses to a scribe	5	0.05%	2	0.03%
F: Used noninterfering assistive device	2	0.02%	0	0.00%
G: Used braille test	3	0.03%	1	0.02%
H: Used large-print test	21	0.22%	12	0.19%
J: Tested over more than one day	198	2.12%	119	1.90%
K: Had supervised breaks	879	9.40%	726	11.59%
L: Most beneficial time of day	357	3.82%	94	1.50%
M: Administered at home or in a hospital	10	0.11%	11	0.18%
O: Examiner presented with MCE or ASL	7	0.07%	3	0.05%
X: Used an unlisted accommodation	247	2.64%	168	2.68%
Y: Leave blank	180	1.93%	80	1.28%
Z: Examiner read test questions aloud	862	9.22%	142	2.27%
Accommodation is in Section 504 plan	5	0.05%	1	0.02%
Accommodation is in IEP	1,859	19.88%	903	14.42%
English Learner Test Variation A	12	0.13%	4	0.06%
English Learner Test Variation B	13	0.14%	8	0.13%
English Learner Test Variation C	7	0.07%	16	0.26%
Any Accommodation or EL Variation	2,127	22.75%	1,083	17.29%
No Accommodation or EL Variation	7,222	77.25%	5,179	82.71%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 8**	**Pct. of Total**	**Grade 9**	**Pct. of Total**
B: Marked in test booklet	16	1.99%	5	0.73%
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	2	0.25%	3	0.44%
J: Tested over more than one day	7	0.87%	6	0.87%
K: Had supervised breaks	62	7.70%	67	9.74%
L: Most beneficial time of day	21	2.61%	9	1.31%
M: Administered at home or in a hospital	1	0.12%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%
X: Used an unlisted accommodation	42	5.22%	10	1.45%
Y: Leave blank	3	0.37%	8	1.16%
Z: Examiner read test questions aloud	45	5.59%	25	3.63%

Accommodation Summary for ELA, Grades Eight and Nine				
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	139	17.27%	99	14.39%
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	157	19.50%	108	15.70%
No Accommodation or EL Variation	648	80.50%	580	84.30%

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

Accommodation Summary for ELA, Grades Ten and Eleven				
All Tested	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	71	0.54%	36	0.39%
C: Dictated responses to a scribe	12	0.09%	10	0.11%
F: Used noninterfering assistive device	8	0.06%	7	0.08%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	31	0.24%	11	0.12%
J: Tested over more than one day	246	1.87%	164	1.77%
K: Had supervised breaks	1,372	10.42%	861	9.27%
L: Most beneficial time of day	258	1.96%	246	2.65%
M: Administered at home or in a hospital	31	0.24%	34	0.37%
O: Examiner presented with MCE or ASL	15	0.11%	32	0.34%
X: Used an unlisted accommodation	375	2.85%	238	2.56%
Y: Leave blank	166	1.26%	133	1.43%
Z: Examiner read test questions aloud	315	2.39%	224	2.41%
Accommodation is in Section 504 plan	2	0.02%	0	0.00%
Accommodation is in IEP	1,934	14.69%	1,304	14.04%
English Learner Test Variation A	8	0.06%	16	0.17%
English Learner Test Variation B	19	0.14%	9	0.10%
English Learner Test Variation C	19	0.14%	23	0.25%
Any Accommodation or EL Variation	2,283	17.34%	1,550	16.69%
No Accommodation or EL Variation	10,880	82.66%	7,738	83.31%
English-Only Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	54	0.73%	29	0.56%
C: Dictated responses to a scribe	9	0.12%	7	0.13%
F: Used noninterfering assistive device	6	0.08%	6	0.12%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	19	0.26%	10	0.19%
J: Tested over more than one day	140	1.90%	97	1.87%
K: Had supervised breaks	728	9.87%	463	8.91%
L: Most beneficial time of day	159	2.16%	169	3.25%
M: Administered at home or in a hospital	25	0.34%	26	0.50%
O: Examiner presented with MCE or ASL	9	0.12%	10	0.19%
X: Used an unlisted accommodation	178	2.41%	109	2.10%
Y: Leave blank	116	1.57%	87	1.67%
Z: Examiner read test questions aloud	155	2.10%	115	2.21%
Accommodation is in Section 504 plan	2	0.03%	0	0.00%
Accommodation is in IEP	1,088	14.75%	740	14.24%
English Learner Test Variation A	0	0.00%	1	0.02%
English Learner Test Variation B	1	0.01%	0	0.00%
English Learner Test Variation C	0	0.00%	1	0.02%
Any Accommodation or EL Variation	1,260	17.09%	853	16.42%
No Accommodation or EL Variation	6,114	82.91%	4,343	83.58%
Initially Fluent English Proficient (I-FEP) Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	1	0.25%	1	0.38%
C: Dictated responses to a scribe	1	0.25%	0	0.00%
F: Used noninterfering assistive device	1	0.25%	0	0.00%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	2	0.49%	1	0.38%

Accommodation Summary for ELA, Grades Ten and Eleven				
J: Tested over more than one day	5	1.23%	3	1.13%
K: Had supervised breaks	35	8.62%	21	7.89%
L: Most beneficial time of day	7	1.72%	5	1.88%
M: Administered at home or in a hospital	2	0.49%	2	0.75%
O: Examiner presented with MCE or ASL	1	0.25%	2	0.75%
X: Used an unlisted accommodation	5	1.23%	10	3.76%
Y: Leave blank	2	0.49%	3	1.13%
Z: Examiner read test questions aloud	5	1.23%	5	1.88%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	47	11.58%	38	14.29%
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	55	13.55%	43	16.17%
No Accommodation or EL Variation	351	86.45%	223	83.83%
English Learner (EL) Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	16	0.33%	5	0.15%
C: Dictated responses to a scribe	1	0.02%	2	0.06%
F: Used noninterfering assistive device	0	0.00%	1	0.03%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	9	0.19%	0	0.00%
J: Tested over more than one day	97	2.03%	61	1.79%
K: Had supervised breaks	562	11.76%	356	10.47%
L: Most beneficial time of day	84	1.76%	68	2.00%
M: Administered at home or in a hospital	4	0.08%	6	0.18%
O: Examiner presented with MCE or ASL	4	0.08%	19	0.56%
X: Used an unlisted accommodation	187	3.91%	113	3.32%
Y: Leave blank	45	0.94%	40	1.18%
Z: Examiner read test questions aloud	133	2.78%	87	2.56%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	735	15.38%	480	14.12%
English Learner Test Variation A	8	0.17%	15	0.44%
English Learner Test Variation B	18	0.38%	9	0.26%
English Learner Test Variation C	19	0.40%	22	0.65%
Any Accommodation or EL Variation	894	18.70%	605	17.79%
No Accommodation or EL Variation	3,886	81.30%	2,795	82.21%
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 10**	**Pct. of Total**	**Grade 11**	**Pct. of Total**
B: Marked in test booklet	0	0.00%	1	0.29%
C: Dictated responses to a scribe	1	0.20%	0	0.00%
F: Used noninterfering assistive device	1	0.20%	0	0.00%
G: Used braille test	0	0.00%	0	0.00%
H: Used large-print test	1	0.20%	0	0.00%
J: Tested over more than one day	4	0.81%	2	0.59%
K: Had supervised breaks	41	8.30%	17	5.00%
L: Most beneficial time of day	7	1.42%	4	1.18%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	1	0.20%	0	0.00%
X: Used an unlisted accommodation	3	0.61%	3	0.88%
Y: Leave blank	3	0.61%	1	0.29%
Z: Examiner read test questions aloud	19	3.85%	13	3.82%

Accommodation Summary for ELA, Grades Ten and Eleven				
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	55	11.13%	34	10.00%
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	63	12.75%	35	10.29%
No Accommodation or EL Variation	431	87.25%	305	89.71%

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

Accommodation Summary for Mathematics, Grades Three and Four				
All Tested	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	198	1.28%	783	3.71%
C: Dictated responses to a scribe	49	0.32%	40	0.19%
F: Used noninterfering assistive device	32	0.21%	42	0.20%
G: Used braille test	6	0.04%	4	0.02%
H: Used large-print test	67	0.43%	95	0.45%
J: Tested over more than one day	795	5.15%	1,092	5.17%
K: Had supervised breaks	2,803	18.15%	4,053	19.20%
L: Most beneficial time of day	1,429	9.25%	2,041	9.67%
M: Administered at home or in a hospital	12	0.08%	19	0.09%
O: Examiner presented with MCE or ASL	44	0.28%	58	0.27%
S: Used math manipulatives	344	2.23%	370	1.75%
X: Used an unlisted accommodation	708	4.59%	946	4.48%
Y: Leave blank	122	0.79%	130	0.62%
Z: Examiner read test questions aloud	5,210	33.74%	7,020	33.26%
Accommodation is in Section 504 plan	5	0.03%	9	0.04%
Accommodation is in IEP	6,780	43.91%	9,827	46.56%
English Learner Test Variation A	20	0.13%	18	0.09%
English Learner Test Variation B	64	0.41%	101	0.48%
English Learner Test Variation C	40	0.26%	42	0.20%
English Learner Test Variation D	1	0.01%	1	0.00%
Any Accommodation or EL Variation	7,450	48.25%	10,229	48.47%
No Accommodation or EL Variation	7,991	51.75%	10,876	51.53%
English-Only Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	113	1.36%	491	4.19%
C: Dictated responses to a scribe	38	0.46%	29	0.25%
F: Used noninterfering assistive device	17	0.20%	28	0.24%
G: Used braille test	3	0.04%	3	0.03%
H: Used large-print test	39	0.47%	63	0.54%
J: Tested over more than one day	448	5.37%	650	5.55%
K: Had supervised breaks	1,451	17.40%	2,144	18.31%
L: Most beneficial time of day	800	9.59%	1,171	10.00%
M: Administered at home or in a hospital	10	0.12%	8	0.07%
O: Examiner presented with MCE or ASL	30	0.36%	37	0.32%
S: Used math manipulatives	184	2.21%	176	1.50%
X: Used an unlisted accommodation	359	4.31%	493	4.21%
Y: Leave blank	67	0.80%	78	0.67%
Z: Examiner read test questions aloud	2,754	33.03%	3,723	31.80%
Accommodation is in Section 504 plan	4	0.05%	5	0.04%
Accommodation is in IEP	3,611	43.31%	5,316	45.40%
English Learner Test Variation A	1	0.01%	2	0.02%
English Learner Test Variation B	2	0.02%	9	0.08%
English Learner Test Variation C	1	0.01%	6	0.05%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	3,993	47.89%	5,523	47.17%
No Accommodation or EL Variation	4,345	52.11%	6,186	52.83%

Accommodation Summary for Mathematics, Grades Three and Four				
Initially Fluent English Proficient (I-FEP) Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	3	2.13%	10	4.95%
C: Dictated responses to a scribe	0	0.00%	0	0.00%
F: Used noninterfering assistive device	0	0.00%	1	0.50%
G: Used braille test	1	0.71%	1	0.50%
H: Used large-print test	2	1.42%	1	0.50%
J: Tested over more than one day	5	3.55%	8	3.96%
K: Had supervised breaks	18	12.77%	39	19.31%
L: Most beneficial time of day	8	5.67%	17	8.42%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	3	2.13%	5	2.48%
S: Used math manipulatives	2	1.42%	7	3.47%
X: Used an unlisted accommodation	5	3.55%	5	2.48%
Y: Leave blank	0	0.00%	3	1.49%
Z: Examiner read test questions aloud	47	33.33%	49	24.26%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	57	40.43%	85	42.08%
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	65	46.10%	88	43.56%
No Accommodation or EL Variation	76	53.90%	114	56.44%
English Learner (EL) Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	74	1.13%	276	3.05%
C: Dictated responses to a scribe	9	0.14%	11	0.12%
F: Used noninterfering assistive device	15	0.23%	13	0.14%
G: Used braille test	2	0.03%	0	0.00%
H: Used large-print test	21	0.32%	30	0.33%
J: Tested over more than one day	315	4.81%	428	4.73%
K: Had supervised breaks	1,258	19.22%	1,846	20.38%
L: Most beneficial time of day	601	9.18%	848	9.36%
M: Administered at home or in a hospital	2	0.03%	11	0.12%
O: Examiner presented with MCE or ASL	10	0.15%	15	0.17%
S: Used math manipulatives	151	2.31%	185	2.04%
X: Used an unlisted accommodation	324	4.95%	445	4.91%
Y: Leave blank	51	0.78%	46	0.51%
Z: Examiner read test questions aloud	2,279	34.83%	3,214	35.49%
Accommodation is in Section 504 plan	1	0.02%	4	0.04%
Accommodation is in IEP	2,921	44.64%	4,368	48.23%
English Learner Test Variation A	19	0.29%	16	0.18%
English Learner Test Variation B	60	0.92%	92	1.02%
English Learner Test Variation C	37	0.57%	36	0.40%
English Learner Test Variation D	1	0.02%	1	0.01%
Any Accommodation or EL Variation	3,192	48.78%	4,560	50.35%
No Accommodation or EL Variation	3,352	51.22%	4,497	49.65%

Accommodation Summary for Mathematics, Grades Three and Four				
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 3**	**Pct. of Total**	**Grade 4**	**Pct. of Total**
B: Marked in test booklet	1	2.33%	4	4.35%
C: Dictated responses to a scribe	1	2.33%	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	1.09%
J: Tested over more than one day	2	4.65%	3	3.26%
K: Had supervised breaks	5	11.63%	13	14.13%
L: Most beneficial time of day	3	6.98%	3	3.26%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	1	2.33%	1	1.09%
S: Used math manipulatives	3	6.98%	2	2.17%
X: Used an unlisted accommodation	2	4.65%	2	2.17%
Y: Leave blank	0	0.00%	2	2.17%
Z: Examiner read test questions aloud	8	18.60%	22	23.91%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	8	18.60%	36	39.13%
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	13	30.23%	36	39.13%
No Accommodation or EL Variation	30	69.77%	56	60.87%

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

Accommodation Summary for Mathematics, Grades Five and Six				
All Tested	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	863	3.57%	477	1.94%
C: Dictated responses to a scribe	45	0.19%	21	0.09%
F: Used noninterfering assistive device	68	0.28%	58	0.24%
G: Used braille test	12	0.05%	13	0.05%
H: Used large-print test	105	0.43%	84	0.34%
J: Tested over more than one day	1,342	5.56%	1,082	4.40%
K: Had supervised breaks	4,625	19.15%	3,850	15.66%
L: Most beneficial time of day	2,306	9.55%	1,586	6.45%
M: Administered at home or in a hospital	37	0.15%	13	0.05%
O: Examiner presented with MCE or ASL	77	0.32%	47	0.19%
Q: Used a calculator	2,157	8.93%	N/A	N/A
S: Used math manipulatives	383	1.59%	316	1.29%
X: Used an unlisted accommodation	1,034	4.28%	891	3.62%
Y: Leave blank	178	0.74%	265	1.08%
Z: Examiner read test questions aloud	7,330	30.35%	5,110	20.79%
Accommodation is in Section 504 plan	12	0.05%	6	0.02%
Accommodation is in IEP	11,090	45.92%	8,450	34.37%
English Learner Test Variation A	31	0.13%	9	0.04%
English Learner Test Variation B	101	0.42%	58	0.24%
English Learner Test Variation C	40	0.17%	23	0.09%
English Learner Test Variation D	0	0.00%	2	0.01%
Any Accommodation or EL Variation	11,607	48.06%	8,846	35.99%
No Accommodation or EL Variation	12,545	51.94%	15,736	64.01%
English-Only Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	515	3.89%	317	2.32%
C: Dictated responses to a scribe	27	0.20%	14	0.10%
F: Used noninterfering assistive device	38	0.29%	40	0.29%
G: Used braille test	6	0.05%	8	0.06%
H: Used large-print test	69	0.52%	53	0.39%
J: Tested over more than one day	760	5.74%	615	4.50%
K: Had supervised breaks	2,385	18.01%	2,077	15.20%
L: Most beneficial time of day	1,248	9.43%	951	6.96%
M: Administered at home or in a hospital	18	0.14%	10	0.07%
O: Examiner presented with MCE or ASL	48	0.36%	28	0.20%
Q: Used a calculator	1,104	8.34%	N/A	N/A
S: Used math manipulatives	189	1.43%	154	1.13%
X: Used an unlisted accommodation	569	4.30%	485	3.55%
Y: Leave blank	104	0.79%	143	1.05%
Z: Examiner read test questions aloud	3,731	28.18%	2,571	18.82%
Accommodation is in Section 504 plan	9	0.07%	3	0.02%
Accommodation is in IEP	5,894	44.51%	4,530	33.15%
English Learner Test Variation A	7	0.05%	2	0.01%
English Learner Test Variation B	3	0.02%	9	0.07%
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	6,151	46.45%	4,737	34.67%
No Accommodation or EL Variation	7,090	53.55%	8,927	65.33%

Accommodation 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	12	2.83%	8	1.58%
C: Dictated responses to a scribe	1	0.24%	0	0.00%
F: Used noninterfering assistive device	0	0.00%	2	0.39%
G: Used braille test	1	0.24%	0	0.00%
H: Used large-print test	1	0.24%	1	0.20%
J: Tested over more than one day	22	5.19%	26	5.13%
K: Had supervised breaks	80	18.87%	72	14.20%
L: Most beneficial time of day	42	9.91%	35	6.90%
M: Administered at home or in a hospital	1	0.24%	0	0.00%
O: Examiner presented with MCE or ASL	4	0.94%	5	0.99%
Q: Used a calculator	50	11.79%	N/A	NA
S: Used math manipulatives	10	2.36%	1	0.20%
X: Used an unlisted accommodation	14	3.30%	20	3.94%
Y: Leave blank	2	0.47%	3	0.59%
Z: Examiner read test questions aloud	132	31.13%	99	19.53%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	191	45.05%	170	33.53%
English Learner Test Variation A	0	0.00%	0	0.00%
English Learner Test Variation B	2	0.47%	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	199	46.93%	174	34.32%
No Accommodation or EL Variation	225	53.07%	333	65.68%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**	**Grade 6**	**Pct. of Total**
B: Marked in test booklet	322	3.16%	131	1.32%
C: Dictated responses to a scribe	17	0.17%	6	0.06%
F: Used noninterfering assistive device	28	0.27%	15	0.15%
G: Used braille test	5	0.05%	4	0.04%
H: Used large-print test	33	0.32%	25	0.25%
J: Tested over more than one day	541	5.31%	425	4.29%
K: Had supervised breaks	2,105	20.66%	1,636	16.52%
L: Most beneficial time of day	989	9.71%	573	5.79%
M: Administered at home or in a hospital	17	0.17%	3	0.03%
O: Examiner presented with MCE or ASL	24	0.24%	11	0.11%
Q: Used a calculator	971	9.53%	N/A	NA
S: Used math manipulatives	179	1.76%	154	1.56%
X: Used an unlisted accommodation	436	4.28%	356	3.60%
Y: Leave blank	70	0.69%	114	1.15%
Z: Examiner read test questions aloud	3,378	33.15%	2,340	23.63%
Accommodation is in Section 504 plan	3	0.03%	3	0.03%
Accommodation is in IEP	4,869	47.79%	3,567	36.02%
English Learner Test Variation A	24	0.24%	7	0.07%
English Learner Test Variation B	95	0.93%	49	0.49%
English Learner Test Variation C	37	0.36%	22	0.22%
English Learner Test Variation D	0	0.00%	2	0.02%
Any Accommodation or EL Variation	5,113	50.18%	3,748	37.85%
No Accommodation or EL Variation	5,076	49.82%	6,154	62.15%

Accommodation 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	10	4.37%	20	4.62%
C: Dictated responses to a scribe	0	0.00%	0	0.00%
F: Used noninterfering assistive device	2	0.87%	1	0.23%
G: Used braille test	0	0.00%	1	0.23%
H: Used large-print test	2	0.87%	3	0.69%
J: Tested over more than one day	16	6.99%	12	2.77%
K: Had supervised breaks	42	18.34%	53	12.24%
L: Most beneficial time of day	21	9.17%	23	5.31%
M: Administered at home or in a hospital	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	1	0.44%	2	0.46%
Q: Used a calculator	25	10.92%	N/A	NA
S: Used math manipulatives	3	1.31%	4	0.92%
X: Used an unlisted accommodation	13	5.68%	29	6.70%
Y: Leave blank	1	0.44%	4	0.92%
Z: Examiner read test questions aloud	70	30.57%	88	20.32%
Accommodation is in Section 504 plan	0	0.00%	0	0.00%
Accommodation is in IEP	105	45.85%	160	36.95%
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	1	0.44%	0	0.00%
English Learner Test Variation D	0	0.00%	0	0.00%
Any Accommodation or EL Variation	112	48.91%	164	37.88%
No Accommodation or EL Variation	117	51.09%	269	62.12%

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

Accommodation Summary for Mathematics, Grade Seven		
All Tested	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	325	1.35%
C: Dictated responses to a scribe	20	0.08%
F: Used noninterfering assistive device	24	0.10%
G: Used braille test	6	0.02%
H: Used large-print test	66	0.27%
J: Tested over more than one day	454	1.89%
K: Had supervised breaks	2,269	9.43%
L: Most beneficial time of day	806	3.35%
M: Administered at home or in a hospital	18	0.07%
O: Examiner presented with MCE or ASL	43	0.18%
S: Used math manipulatives	124	0.52%
X: Used an unlisted accommodation	747	3.11%
Y: Leave blank	353	1.47%
Z: Examiner read test questions aloud	2,708	11.26%
Accommodation is in Section 504 plan	6	0.02%
Accommodation is in IEP	5,654	23.51%
English Learner Test Variation A	5	0.02%
English Learner Test Variation B	12	0.05%
English Learner Test Variation C	9	0.04%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	5,909	24.57%
No Accommodation or EL Variation	18,143	75.43%
English-Only Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	221	1.61%
C: Dictated responses to a scribe	15	0.11%
F: Used noninterfering assistive device	17	0.12%
G: Used braille test	3	0.02%
H: Used large-print test	43	0.31%
J: Tested over more than one day	285	2.08%
K: Had supervised breaks	1,269	9.27%
L: Most beneficial time of day	470	3.43%
M: Administered at home or in a hospital	14	0.10%
O: Examiner presented with MCE or ASL	26	0.19%
S: Used math manipulatives	80	0.58%
X: Used an unlisted accommodation	423	3.09%
Y: Leave blank	188	1.37%
Z: Examiner read test questions aloud	1,441	10.53%
Accommodation is in Section 504 plan	5	0.04%
Accommodation is in IEP	3,119	22.79%
English Learner Test Variation A	1	0.01%
English Learner Test Variation B	1	0.01%
English Learner Test Variation C	2	0.01%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	3,273	23.91%
No Accommodation or EL Variation	10,415	76.09%

Accommodation Summary for Mathematics, Grade Seven		
Initially Fluent English Proficient (I-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	5	0.88%
C: Dictated responses to a scribe	1	0.18%
F: Used noninterfering assistive device	1	0.18%
G: Used braille test	1	0.18%
H: Used large-print test	1	0.18%
J: Tested over more than one day	10	1.76%
K: Had supervised breaks	55	9.68%
L: Most beneficial time of day	17	2.99%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	2	0.35%
S: Used math manipulatives	4	0.70%
X: Used an unlisted accommodation	26	4.58%
Y: Leave blank	7	1.23%
Z: Examiner read test questions aloud	56	9.86%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	127	22.36%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.18%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	135	23.77%
No Accommodation or EL Variation	433	76.23%
English Learner (EL) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	76	0.84%
C: Dictated responses to a scribe	2	0.02%
F: Used noninterfering assistive device	5	0.06%
G: Used braille test	2	0.02%
H: Used large-print test	17	0.19%
J: Tested over more than one day	156	1.73%
K: Had supervised breaks	868	9.65%
L: Most beneficial time of day	296	3.29%
M: Administered at home or in a hospital	4	0.04%
O: Examiner presented with MCE or ASL	12	0.13%
S: Used math manipulatives	38	0.42%
X: Used an unlisted accommodation	251	2.79%
Y: Leave blank	152	1.69%
Z: Examiner read test questions aloud	1,138	12.65%
Accommodation is in Section 504 plan	1	0.01%
Accommodation is in IEP	2,192	24.37%
English Learner Test Variation A	4	0.04%
English Learner Test Variation B	10	0.11%
English Learner Test Variation C	7	0.08%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	2,283	25.38%
No Accommodation or EL Variation	6,712	74.62%

Accommodation Summary for Mathematics, Grade Seven		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 7**	**Pct. of Total**
B: Marked in test booklet	21	2.97%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.28%
J: Tested over more than one day	2	0.28%
K: Had supervised breaks	61	8.63%
L: Most beneficial time of day	15	2.12%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	3	0.42%
S: Used math manipulatives	1	0.14%
X: Used an unlisted accommodation	44	6.22%
Y: Leave blank	5	0.71%
Z: Examiner read test questions aloud	64	9.05%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	179	25.32%
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	181	25.60%
No Accommodation or EL Variation	526	74.40%

Table 2.D.10 Accommodation Summary for Mathematics, Algebra I

Accommodation 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	36	35	28	15	115	0.49%
C: Dictated responses to a scribe	0	6	1	3	4	14	0.06%
F: Used noninterfering assistive device	0	3	8	12	16	39	0.17%
G: Used braille test	0	2	0	2	0	4	0.02%
H: Used large-print test	0	13	20	12	6	51	0.22%
J: Tested over more than one day	2	135	133	93	66	429	1.84%
K: Had supervised breaks	7	614	927	604	344	2,496	10.72%
L: Most beneficial time of day	2	283	109	116	78	588	2.53%
M: Administered at home or in a hospital	0	8	20	12	5	45	0.19%
O: Examiner presented with MCE or ASL	0	15	24	5	14	58	0.25%
S: Used math manipulatives	0	21	5	2	6	34	0.15%
X: Used an unlisted accommodation	1	158	189	200	115	663	2.85%
Y: Leave blank	0	76	107	75	60	318	1.37%
Z: Examiner read test questions aloud	3	538	181	124	89	935	4.02%
Accommodation is in Section 504 plan	0	3	5	1	3	12	0.05%
Accommodation is in IEP	11	1,195	1,253	859	522	3,840	16.50%
English Learner Test Variation A	0	0	2	7	9	18	0.08%
English Learner Test Variation B	0	4	4	15	10	33	0.14%
English Learner Test Variation C	0	5	3	9	12	29	0.12%
English Learner Test Variation D	0	1	6	12	8	27	0.12%
Any Accommodation or EL Variation	11	1,347	1,429	1,013	620	4,420	18.99%
No Accommodation or EL Variation	43	4,219	6,098	5,637	2,856	18,853	81.01%
English-Only Students	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	1	20	21	24	9	75	0.57%
C: Dictated responses to a scribe	0	4	1	2	3	10	0.08%
F: Used noninterfering assistive device	0	2	4	9	16	31	0.24%
G: Used braille test	0	2	0	1	0	3	0.02%
H: Used large-print test	0	9	10	7	6	32	0.24%
J: Tested over more than one day	2	71	78	56	41	248	1.89%
K: Had supervised breaks	5	329	486	328	199	1,347	10.27%
L: Most beneficial time of day	1	146	70	70	53	340	2.59%
M: Administered at home or in a hospital	0	3	13	7	2	25	0.19%
O: Examiner presented with MCE or ASL	0	7	10	3	5	25	0.19%
S: Used math manipulatives	0	16	4	2	4	26	0.20%
X: Used an unlisted accommodation	0	75	103	104	49	331	2.52%
Y: Leave blank	0	53	73	52	31	209	1.59%
Z: Examiner read test questions aloud	2	285	93	70	52	502	3.83%
Accommodation is in Section 504 plan	0	2	4	1	1	8	0.06%
Accommodation is in IEP	8	653	691	496	286	2,134	16.27%

Accommodation Summary for Mathematics, Algebra I							
English Learner Test Variation A	0	0	0	0	0	0	0.00%
English Learner Test Variation B	0	2	0	1	0	3	0.02%
English Learner Test Variation C	0	0	0	0	0	0	0.00%
English Learner Test Variation D	0	1	0	0	0	1	0.01%
Any Accommodation or EL Variation	8	736	778	572	339	2,433	18.55%
No Accommodation or EL Variation	25	2,300	3,365	3,262	1,729	10,681	81.45%
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	0	0	1	1	0.17%
C: Dictated responses to a scribe	0	1	0	0	0	1	0.17%
F: Used noninterfering assistive device	0	0	1	0	0	1	0.17%
G: Used braille test	0	0	0	0	0	0	0.00%
H: Used large-print test	0	1	0	0	0	1	0.17%
J: Tested over more than one day	0	5	1	0	0	6	1.00%
K: Had supervised breaks	0	14	14	12	10	50	8.32%
L: Most beneficial time of day	0	11	2	3	2	18	3.00%
M: Administered at home or in a hospital	0	0	1	1	1	3	0.50%
O: Examiner presented with MCE or ASL	0	3	1	0	0	4	0.67%
S: Used math manipulatives	0	0	0	0	0	0	0.00%
X: Used an unlisted accommodation	0	2	7	2	9	20	3.33%
Y: Leave blank	0	1	4	1	3	9	1.50%
Z: Examiner read test questions aloud	0	12	4	3	3	22	3.66%
Accommodation is in Section 504 plan	0	0	0	0	1	1	0.17%
Accommodation is in IEP	0	23	26	19	20	88	14.64%
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	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	0	26	32	19	24	101	16.81%
No Accommodation or EL Variation	5	86	152	186	71	500	83.19%
English Learner (EL) Students	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	6	8	3	4	21	0.25%
C: Dictated responses to a scribe	0	1	0	0	0	1	0.01%
F: Used noninterfering assistive device	0	1	3	3	0	7	0.08%
G: Used braille test	0	0	0	0	0	0	0.00%
H: Used large-print test	0	3	7	4	0	14	0.17%
J: Tested over more than one day	0	56	53	35	25	169	2.04%
K: Had supervised breaks	2	238	381	244	129	994	11.97%
L: Most beneficial time of day	1	110	36	42	23	212	2.55%
M: Administered at home or in a hospital	0	4	6	3	2	15	0.18%
O: Examiner presented with MCE or ASL	0	4	13	2	9	28	0.34%
S: Used math manipulatives	0	4	1	0	2	7	0.08%

Accommodation Summary for Mathematics, Algebra I							
X: Used an unlisted accommodation	1	72	72	91	49	285	3.43%
Y: Leave blank	0	22	30	19	24	95	1.14%
Z: Examiner read test questions aloud	1	220	67	44	31	363	4.37%
Accommodation is in Section 504 plan	0	0	1	0	1	2	0.02%
Accommodation is in IEP	3	451	473	314	199	1,440	17.35%
English Learner Test Variation A	0	0	2	7	9	18	0.22%
English Learner Test Variation B	0	2	4	14	10	30	0.36%
English Learner Test Variation C	0	5	3	9	12	29	0.35%
English Learner Test Variation D	0	0	6	12	8	26	0.31%
Any Accommodation or EL Variation	3	511	548	387	238	1,687	20.32%
No Accommodation or EL Variation	13	1,591	2,206	1,892	913	6,615	79.68%
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	8	4	1	1	14	1.37%
C: Dictated responses to a scribe	0	0	0	1	0	1	0.10%
F: Used noninterfering assistive device	0	0	0	0	0	0	0.00%
G: Used braille test	0	0	0	1	0	1	0.10%
H: Used large-print test	0	0	3	1	0	4	0.39%
J: Tested over more than one day	0	3	1	2	0	6	0.59%
K: Had supervised breaks	0	25	39	17	5	86	8.42%
L: Most beneficial time of day	0	12	1	1	0	14	1.37%
M: Administered at home or in a hospital	0	1	0	1	0	2	0.20%
O: Examiner presented with MCE or ASL	0	0	0	0	0	0	0.00%
S: Used math manipulatives	0	0	0	0	0	0	0.00%
X: Used an unlisted accommodation	0	8	5	2	7	22	2.15%
Y: Leave blank	0	0	0	2	2	4	0.39%
Z: Examiner read test questions aloud	0	17	15	6	1	39	3.82%
Accommodation is in Section 504 plan	0	1	0	0	0	1	0.10%
Accommodation is in IEP	0	52	52	24	13	141	13.81%
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	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	0	58	60	29	15	162	15.87%
No Accommodation or EL Variation	0	185	315	246	113	859	84.13%

Table 2.D.11 Accommodation Summary for Mathematics, Geometry

Accommodation Summary for Mathematics, Geometry						
All Tested	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	0	7	3	10	0.21%
C: Dictated responses to a scribe	0	0	1	0	1	0.02%
F: Used noninterfering assistive device	0	0	3	3	6	0.13%
G: Used braille test	0	0	0	0	0	0.00%
H: Used large-print test	0	0	7	2	9	0.19%
J: Tested over more than one day	0	10	60	24	94	1.99%
K: Had supervised breaks	0	25	291	146	462	9.80%
L: Most beneficial time of day	0	0	18	26	44	0.93%
M: Administered at home or in a hospital	0	0	1	2	3	0.06%
O: Examiner presented with MCE or ASL	0	2	2	2	6	0.13%
S: Used math manipulatives	0	0	2	3	5	0.11%
X: Used an unlisted accommodation	0	2	67	73	142	3.01%
Y: Leave blank	1	5	21	27	54	1.15%
Z: Examiner read test questions aloud	0	12	65	50	127	2.69%
Accommodation is in Section 504 plan	0	0	0	1	1	0.02%
Accommodation is in IEP	1	31	352	244	628	13.32%
English Learner Test Variation A	0	2	0	3	5	0.11%
English Learner Test Variation B	0	0	0	0	0	0.00%
English Learner Test Variation C	0	2	2	3	7	0.15%
English Learner Test Variation D	0	0	4	2	6	0.13%
Any Accommodation or EL Variation	1	42	422	293	758	16.08%
No Accommodation or EL Variation	2	243	1,970	1,741	3,956	83.92%
English-Only Students	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	0	6	3	9	0.37%
C: Dictated responses to a scribe	0	0	0	0	0	0.00%
F: Used noninterfering assistive device	0	0	3	3	6	0.25%
G: Used braille test	0	0	0	0	0	0.00%
H: Used large-print test	0	0	5	1	6	0.25%
J: Tested over more than one day	0	6	37	14	57	2.35%
K: Had supervised breaks	0	9	131	66	206	8.49%
L: Most beneficial time of day	0	0	6	14	20	0.82%
M: Administered at home or in a hospital	0	0	1	1	2	0.08%
O: Examiner presented with MCE or ASL	0	1	1	0	2	0.08%
S: Used math manipulatives	0	0	2	1	3	0.12%
X: Used an unlisted accommodation	0	1	31	30	62	2.56%
Y: Leave blank	1	4	15	13	33	1.36%
Z: Examiner read test questions aloud	0	2	19	16	37	1.53%
Accommodation is in Section 504 plan	0	0	0	1	1	0.04%
Accommodation is in IEP	1	15	160	110	286	11.79%

Accommodation Summary for Mathematics, Geometry						
English Learner Test Variation A	0	1	0	0	1	0.04%
English Learner Test Variation B	0	0	0	0	0	0.00%
English Learner Test Variation C	0	1	0	0	1	0.04%
English Learner Test Variation D	0	0	0	0	0	0.00%
Any Accommodation or EL Variation	1	16	203	131	351	14.47%
No Accommodation or EL Variation	2	118	1,033	922	2,075	85.53%
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	0	0	0	0	0.00%
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	1	0	1	0.66%
J: Tested over more than one day	0	0	1	1	2	1.32%
K: Had supervised breaks	0	1	8	5	14	9.27%
L: Most beneficial time of day	0	0	1	1	2	1.32%
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	1	1	0.66%
X: Used an unlisted accommodation	0	0	0	4	4	2.65%
Y: Leave blank	0	0	0	1	1	0.66%
Z: Examiner read test questions aloud	0	0	2	2	4	2.65%
Accommodation is in Section 504 plan	0	0	0	0	0	0.00%
Accommodation is in IEP	0	1	10	9	20	13.25%
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	1	12	12	25	16.56%
No Accommodation or EL Variation	0	5	66	55	126	83.44%
English Learner (EL) Students	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Total**	**Pct. of Total**
B: Marked in test booklet	0	0	1	0	1	0.05%
C: Dictated responses to a scribe	0	0	1	0	1	0.05%
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	1	1	2	0.11%
J: Tested over more than one day	0	4	21	9	34	1.84%
K: Had supervised breaks	0	13	139	66	218	11.78%
L: Most beneficial time of day	0	0	10	8	18	0.97%
M: Administered at home or in a hospital	0	0	0	1	1	0.05%
O: Examiner presented with MCE or ASL	0	1	0	2	3	0.16%
S: Used math manipulatives	0	0	0	1	1	0.05%

Accommodation Summary for Mathematics, Geometry						
X: Used an unlisted accommodation	0	0	34	35	69	3.73%
Y: Leave blank	0	1	5	13	19	1.03%
Z: Examiner read test questions aloud	0	10	35	28	73	3.95%
Accommodation is in Section 504 plan	0	0	0	0	0	0.00%
Accommodation is in IEP	0	13	160	108	281	15.19%
English Learner Test Variation A	0	1	0	3	4	0.22%
English Learner Test Variation B	0	0	0	0	0	0.00%
English Learner Test Variation C	0	1	2	3	6	0.32%
English Learner Test Variation D	0	0	4	2	6	0.32%
Any Accommodation or EL Variation	0	22	183	132	337	18.22%
No Accommodation or EL Variation	0	106	737	670	1,513	81.78%
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	0	0	0	0.00%
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	1	0	1	0.39%
K: Had supervised breaks	0	2	13	6	21	8.20%
L: Most beneficial time of day	0	0	1	3	4	1.56%
M: Administered at home or in a hospital	0	0	0	0	0	0.00%
O: Examiner presented with MCE or ASL	0	0	1	0	1	0.39%
S: Used math manipulatives	0	0	0	0	0	0.00%
X: Used an unlisted accommodation	0	1	1	4	6	2.34%
Y: Leave blank	0	0	1	0	1	0.39%
Z: Examiner read test questions aloud	0	0	9	4	13	5.08%
Accommodation is in Section 504 plan	0	0	0	0	0	0.00%
Accommodation is in IEP	0	2	22	15	39	15.23%
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	3	23	15	41	16.02%
No Accommodation or EL Variation	0	14	113	88	215	83.98%

Table 2.D.12 Accommodation Summary for Science, Grade Five

Accommodation Summary for Science, Grade Five		
All Tested	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	862	3.40%
C: Dictated responses to a scribe	47	0.19%
F: Used noninterfering assistive device	63	0.25%
G: Used braille test	12	0.05%
H: Used large-print test	113	0.45%
J: Tested over more than one day	1,314	5.18%
K: Had supervised breaks	4,621	18.20%
L: Most beneficial time of day	2,399	9.45%
M: Administered at home or in a hospital	41	0.16%
O: Examiner presented with MCE or ASL	70	0.28%
S: Used math manipulatives	143	0.56%
X: Used an unlisted accommodation	1,007	3.97%
Y: Leave blank	207	0.82%
Z: Examiner read test questions aloud	7,705	30.35%
Accommodation is in Section 504 plan	12	0.05%
Accommodation is in IEP	16,330	64.32%
English Learner Test Variation A	34	0.13%
English Learner Test Variation B	102	0.40%
English Learner Test Variation C	48	0.19%
English Learner Test Variation D	1	0.00%
Any Accommodation or EL Variation	25,387	100.00%
No Accommodation or EL Variation	0	0.00%
English-Only Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	510	3.72%
C: Dictated responses to a scribe	31	0.23%
F: Used noninterfering assistive device	38	0.28%
G: Used braille test	6	0.04%
H: Used large-print test	73	0.53%
J: Tested over more than one day	722	5.26%
K: Had supervised breaks	2,320	16.91%
L: Most beneficial time of day	1,270	9.26%
M: Administered at home or in a hospital	21	0.15%
O: Examiner presented with MCE or ASL	46	0.34%
S: Used math manipulatives	75	0.55%
X: Used an unlisted accommodation	548	3.99%
Y: Leave blank	112	0.82%
Z: Examiner read test questions aloud	3,871	28.22%
Accommodation is in Section 504 plan	9	0.07%
Accommodation is in IEP	8,780	64.00%
English Learner Test Variation A	7	0.05%
English Learner Test Variation B	4	0.03%
English Learner Test Variation C	2	0.01%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	13,719	100.00%
No Accommodation or EL Variation	0	0.00%

Accommodation Summary for Science, Grade Five		
Initially Fluent English Proficient (I-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	13	2.83%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.22%
J: Tested over more than one day	16	3.48%
K: Had supervised breaks	76	16.52%
L: Most beneficial time of day	44	9.57%
M: Administered at home or in a hospital	1	0.22%
O: Examiner presented with MCE or ASL	4	0.87%
S: Used math manipulatives	3	0.65%
X: Used an unlisted accommodation	14	3.04%
Y: Leave blank	4	0.87%
Z: Examiner read test questions aloud	135	29.35%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	283	61.52%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	1	0.22%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	460	100.00%
No Accommodation or EL Variation	0	0.00%
English Learner (EL) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	324	2.98%
C: Dictated responses to a scribe	16	0.15%
F: Used noninterfering assistive device	23	0.21%
G: Used braille test	6	0.06%
H: Used large-print test	37	0.34%
J: Tested over more than one day	558	5.13%
K: Had supervised breaks	2,171	19.95%
L: Most beneficial time of day	1,057	9.71%
M: Administered at home or in a hospital	18	0.17%
O: Examiner presented with MCE or ASL	19	0.17%
S: Used math manipulatives	64	0.59%
X: Used an unlisted accommodation	431	3.96%
Y: Leave blank	89	0.82%
Z: Examiner read test questions aloud	3,595	33.03%
Accommodation is in Section 504 plan	3	0.03%
Accommodation is in IEP	7,073	64.99%
English Learner Test Variation A	27	0.25%
English Learner Test Variation B	96	0.88%
English Learner Test Variation C	44	0.40%
English Learner Test Variation D	1	0.01%
Any Accommodation or EL Variation	10,884	100.00%
No Accommodation or EL Variation	0	0.00%

Accommodation Summary for Science, Grade Five		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 5**	**Pct. of Total**
B: Marked in test booklet	11	4.28%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	2	0.78%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.78%
J: Tested over more than one day	14	5.45%
K: Had supervised breaks	42	16.34%
L: Most beneficial time of day	22	8.56%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.39%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	12	4.67%
Y: Leave blank	2	0.78%
Z: Examiner read test questions aloud	86	33.46%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	151	58.75%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	1	0.39%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	257	100.00%
No Accommodation or EL Variation	0	0.00%

Table 2.D.13 Accommodation Summary for Science, Grade Eight

Accommodation Summary for Science, Grade Eight		
All Tested	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	219	1.03%
C: Dictated responses to a scribe	18	0.08%
F: Used noninterfering assistive device	11	0.05%
G: Used braille test	10	0.05%
H: Used large-print test	63	0.30%
J: Tested over more than one day	463	2.17%
K: Had supervised breaks	1,931	9.05%
L: Most beneficial time of day	810	3.80%
M: Administered at home or in a hospital	23	0.11%
O: Examiner presented with MCE or ASL	56	0.26%
S: Used math manipulatives	25	0.12%
X: Used an unlisted accommodation	612	2.87%
Y: Leave blank	291	1.36%
Z: Examiner read test questions aloud	2,408	11.29%
Accommodation is in Section 504 plan	26	0.12%
Accommodation is in IEP	10,122	47.44%
English Learner Test Variation A	15	0.07%
English Learner Test Variation B	11	0.05%
English Learner Test Variation C	7	0.03%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	21,335	100.00%
No Accommodation or EL Variation	0	0.00%
English-Only Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	144	1.26%
C: Dictated responses to a scribe	12	0.11%
F: Used noninterfering assistive device	7	0.06%
G: Used braille test	8	0.07%
H: Used large-print test	41	0.36%
J: Tested over more than one day	279	2.45%
K: Had supervised breaks	1,081	9.49%
L: Most beneficial time of day	454	3.98%
M: Administered at home or in a hospital	10	0.09%
O: Examiner presented with MCE or ASL	32	0.28%
S: Used math manipulatives	15	0.13%
X: Used an unlisted accommodation	329	2.89%
Y: Leave blank	140	1.23%
Z: Examiner read test questions aloud	1,192	10.46%
Accommodation is in Section 504 plan	20	0.18%
Accommodation is in IEP	5,361	47.05%
English Learner Test Variation A	3	0.03%
English Learner Test Variation B	1	0.01%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	11,395	100.00%
No Accommodation or EL Variation	0	0.00%

Accommodation Summary for Science, Grade Eight		
Initially Fluent English Proficient (I-FEP) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	2	0.52%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	1	0.26%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.26%
J: Tested over more than one day	6	1.57%
K: Had supervised breaks	27	7.09%
L: Most beneficial time of day	17	4.46%
M: Administered at home or in a hospital	2	0.52%
O: Examiner presented with MCE or ASL	3	0.79%
S: Used math manipulatives	1	0.26%
X: Used an unlisted accommodation	7	1.84%
Y: Leave blank	3	0.79%
Z: Examiner read test questions aloud	38	9.97%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	182	47.77%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	381	100.00%
No Accommodation or EL Variation	0	0.00%
English Learner (EL) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	51	0.60%
C: Dictated responses to a scribe	5	0.06%
F: Used noninterfering assistive device	2	0.02%
G: Used braille test	2	0.02%
H: Used large-print test	18	0.21%
J: Tested over more than one day	171	2.01%
K: Had supervised breaks	750	8.81%
L: Most beneficial time of day	312	3.66%
M: Administered at home or in a hospital	10	0.12%
O: Examiner presented with MCE or ASL	20	0.23%
S: Used math manipulatives	8	0.09%
X: Used an unlisted accommodation	219	2.57%
Y: Leave blank	137	1.61%
Z: Examiner read test questions aloud	1,088	12.77%
Accommodation is in Section 504 plan	6	0.07%
Accommodation is in IEP	4,079	47.89%
English Learner Test Variation A	12	0.14%
English Learner Test Variation B	10	0.12%
English Learner Test Variation C	7	0.08%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	8,517	100.00%
No Accommodation or EL Variation	0	0.00%

Accommodation Summary for Science, Grade Eight		
Reclassified Fluent English Proficient (R-FEP) Students	**Grade 8**	**Pct. of Total**
B: Marked in test booklet	16	2.15%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	1	0.13%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.27%
J: Tested over more than one day	5	0.67%
K: Had supervised breaks	46	6.17%
L: Most beneficial time of day	21	2.82%
M: Administered at home or in a hospital	1	0.13%
O: Examiner presented with MCE or ASL	0	0.00%
S: Used math manipulatives	1	0.13%
X: Used an unlisted accommodation	44	5.91%
Y: Leave blank	3	0.40%
Z: Examiner read test questions aloud	67	8.99%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	331	44.43%
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	745	100.00%
No Accommodation or EL Variation	0	0.00%

Table 2.D.14 Accommodation Summary for Life Science, Grade Ten

Accommodation Summary for Life Science, Grade Ten		
All Tested	**Life Science**	**Pct. of Total**
B: Marked in test booklet	49	0.44%
C: Dictated responses to a scribe	6	0.05%
F: Used noninterfering assistive device	8	0.07%
G: Used braille test	1	0.01%
H: Used large-print test	23	0.21%
J: Tested over more than one day	158	1.43%
K: Had supervised breaks	1,010	9.17%
L: Most beneficial time of day	189	1.72%
M: Administered at home or in a hospital	19	0.17%
O: Examiner presented with MCE or ASL	34	0.31%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	329	2.99%
Y: Leave blank	120	1.09%
Z: Examiner read test questions aloud	294	2.67%
Accommodation is in Section 504 plan	5	0.05%
Accommodation is in IEP	4,502	40.88%
English Learner Test Variation A	4	0.04%
English Learner Test Variation B	11	0.10%
English Learner Test Variation C	8	0.07%
English Learner Test Variation D	37	0.34%
Any Accommodation or EL Variation	11,014	100.00%
No Accommodation or EL Variation	0	0.00%
English-Only Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	41	0.67%
C: Dictated responses to a scribe	5	0.08%
F: Used noninterfering assistive device	6	0.10%
G: Used braille test	1	0.02%
H: Used large-print test	14	0.23%
J: Tested over more than one day	89	1.45%
K: Had supervised breaks	520	8.48%
L: Most beneficial time of day	117	1.91%
M: Administered at home or in a hospital	16	0.26%
O: Examiner presented with MCE or ASL	13	0.21%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	148	2.41%
Y: Leave blank	77	1.26%
Z: Examiner read test questions aloud	162	2.64%
Accommodation is in Section 504 plan	4	0.07%
Accommodation is in IEP	2,501	40.77%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	6,135	100.00%
No Accommodation or EL Variation	0	0.00%

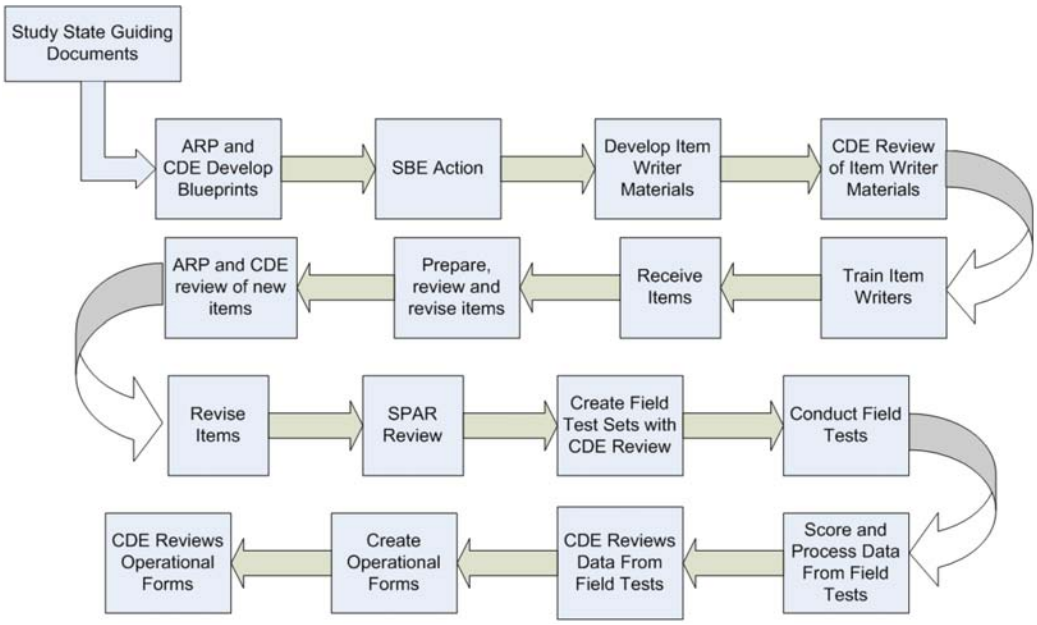
Accommodation Summary for Life Science, Grade Ten		
Initially Fluent English Proficient (I-FEP) Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	1	0.28%
C: Dictated responses to a scribe	1	0.28%
F: Used noninterfering assistive device	1	0.28%
G: Used braille test	0	0.00%
H: Used large-print test	2	0.56%
J: Tested over more than one day	4	1.12%
K: Had supervised breaks	30	8.38%
L: Most beneficial time of day	6	1.68%
M: Administered at home or in a hospital	2	0.56%
O: Examiner presented with MCE or ASL	3	0.84%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	5	1.40%
Y: Leave blank	3	0.84%
Z: Examiner read test questions aloud	6	1.68%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	132	36.87%
English Learner Test Variation A	0	0.00%
English Learner Test Variation B	0	0.00%
English Learner Test Variation C	0	0.00%
English Learner Test Variation D	0	0.00%
Any Accommodation or EL Variation	358	100.00%
No Accommodation or EL Variation	0	0.00%
English Learner (EL) Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	7	0.18%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	0	0.00%
G: Used braille test	0	0.00%
H: Used large-print test	6	0.15%
J: Tested over more than one day	61	1.53%
K: Had supervised breaks	427	10.70%
L: Most beneficial time of day	60	1.50%
M: Administered at home or in a hospital	1	0.03%
O: Examiner presented with MCE or ASL	17	0.43%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	167	4.19%
Y: Leave blank	37	0.93%
Z: Examiner read test questions aloud	106	2.66%
Accommodation is in Section 504 plan	1	0.03%
Accommodation is in IEP	1,664	41.70%
English Learner Test Variation A	4	0.10%
English Learner Test Variation B	11	0.28%
English Learner Test Variation C	8	0.20%
English Learner Test Variation D	37	0.93%
Any Accommodation or EL Variation	3,990	100.00%
No Accommodation or EL Variation	0	0.00%

Accommodation Summary for Life Science, Grade Ten		
Reclassified Fluent English Proficient (R-FEP) Students	**Life Science**	**Pct. of Total**
B: Marked in test booklet	0	0.00%
C: Dictated responses to a scribe	0	0.00%
F: Used noninterfering assistive device	1	0.23%
G: Used braille test	0	0.00%
H: Used large-print test	1	0.23%
J: Tested over more than one day	4	0.91%
K: Had supervised breaks	30	6.83%
L: Most beneficial time of day	5	1.14%
M: Administered at home or in a hospital	0	0.00%
O: Examiner presented with MCE or ASL	1	0.23%
S: Used math manipulatives	0	0.00%
X: Used an unlisted accommodation	6	1.37%
Y: Leave blank	3	0.68%
Z: Examiner read test questions aloud	17	3.87%
Accommodation is in Section 504 plan	0	0.00%
Accommodation is in IEP	163	37.13%
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	439	100.00%
No Accommodation or EL Variation	0	0.00%

Chapter 3: Item Development

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 goes through a comprehensive development cycle as is described in Figure 3.1, below.

Figure 3.1 The ETS Item Development Process for the STAR Program



Rules for Item Development

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

Item Specifications

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

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

- A description of appropriate data representations (such as charts, tables, graphs, or other illustrations) for mathematics and science items
- The content limits for the standard (such as one or two variables, maximum place values of numbers) for mathematics and science items
- A description of appropriate reading passages, if applicable, for ELA items
- A description of specific kinds of items to be avoided, if any (for example, items with any negative 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 has developed the item utilization plan to continue the development of CMA items. The plan includes strategies for developing items that will permit coverage of all appropriate standards for all tests in each content area and at each grade level. ETS test development staff uses this plan to determine the number of items to develop for each content area.

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

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

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

Table 3.1 Field-test Percentages for the CMA

Content Area	Grade or Course	Number of Operational Items per Grade or Course	Percentage of Operational Form to Be Field Tested	Number of Items to Be Field-tested per Grade or Course
English–Language Arts	3 & 5	48	113%	54
	4	48	94%	45
	6–8	54	67%	36
	9–12	60	67%	40
Mathematics	3 & 5	48	113%	54
	4	48	94%	45
	6–7	54	67%	36
	Algebra I	60	67%	40
	Geometry	60	67%	40
Science	5	48	113%	54
	8	54	100%	54
	10 Life Science	60	100%	60

Selection of Item Writers

Criteria for Selecting Item Writers

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

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

Item Review Process

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

Contractor Review

Once the items have been written, ETS employs a series of internal reviews. The reviews establish the criteria used to judge the quality of the item content and are designed to

ensure that each item is measuring what it is intended to measure. The internal reviews also examine the overall quality of the test items before they are prepared for presentation to the CDE and the Assessment Review Panels (ARPs). Because of the complexities involved in producing defensible items for high-stakes programs such as the STAR Program, it is essential that many experienced individuals review each item before it is brought to the CDE, the ARPs, and Statewide Pupil Assessment Review (SPAR) panels.

The ETS review process for the CMA includes the following:

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

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

1. Internal Content Review

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

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

Each item is classified with a code for the standard it is intended to measure. The assessment specialists check all items against their classification codes, both to evaluate the correctness of the classification and to ensure that the task posed by the item is relevant to the outcome it is intended to measure. The reviewers may accept the item and classification as written, 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 review each item in preparation for review by the CDE and the ARPs. The editors check items for clarity, correctness of language, appropriateness of language for the grade level assessed, adherence to the style guidelines, and conformity with accepted item-writing practices.

3. Internal Sensitivity Review

ETS assessment specialists who are specially trained to identify and eliminate questions that contain content or wording that could be construed to be offensive to or biased against

members of specific ethnic, racial, or gender groups, conduct the next level of review. These trained staff members review every item before the CDE and ARP reviews.

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

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

Content Expert Reviews

Assessment Review Panels

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

Composition of ARPs

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

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

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

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

- Knowledge of and experience with the California content standards in ELA, mathematics, or science

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

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

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

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

CMA	ELA	Math	Science	Total
Total	**9**	**12**	**6**	**27**
Occupation (Members may teach multiple levels.)				
Teacher or Program Specialist, Elementary/Middle School	4	7	3	14
Teacher or Program Specialist, High School	5	8	2	15
Teacher or Program Specialist, K–12	3	2	2	7
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	5	8	4	17
Doctorate	0	0	0	0
K–12 Teaching Credentials and Experience (Members may hold multiple credentials.)				
Elementary Teaching (multiple subjects)	4	5	2	11
Secondary Teaching (single subject)	3	5	5	13
Special Education	4	5	3	12
Reading Specialist	3	1	0	4
English Learner (CLAD,BCLAD)	2	3	1	6
Administrative	3	1	0	4
Other	2	0	1	3
None (teaching at the university level)	0	0	0	0

ARP Meetings for Review of CMA Items

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

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

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

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

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

Criteria also include more global factors, including—for ELA—the appropriateness, difficulty, and readability of reading passages. The ARPs also are trained on how to make recommendations for revising items.

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

Does the item:

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

Is the stimulus, if any, for the item:

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

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

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

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

Statewide Pupil Assessment Review Panel

The SPAR panel is responsible for reviewing and approving all achievement 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.

Stand-alone Field Testing

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

CMA stand-alone field testing 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 is conducted only as stand-alone event.

The writing prompts for the 2011 administration of grades four and seven CMA for ELA were selected from the writing prompts field-tested by ETS in the fall of 2008. Six prompts were field-tested for each grade. 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, on the next page.

Table 3.3 Field-testing Timeline for the CMA

Content Area	CMA*	Field-testing Year
English–Language Arts	3	2007
	4	2007
	5	2007
	6	2008
	7	2008
	8	2008
	9	2009
	10	2010
	11	2010
	Writing**	2008 and 2011
Mathematics	3	2007
	4	2007
	5	2007
	6	2008
	7	2008
	Algebra I	2009
	Geometry	2010
Science	5	2007
	8	2008
	10 Life Science	2009

* Number indicates grade-level test.

** Grades four and seven

Embedded Field-test Items

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

Allocation of Students to Field-test Items

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 take each field-test item. The students do not know which items are field-test items and which items are operational items; therefore, their motivation is not expected to vary over the two types of items (Patrick & Way, 2008).

Number of Forms and Sample Sizes

A set of field-test items is administered on all CMA forms. The sets of field-test items differ across forms, and the number of forms and number of field-test items per form 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 administered for each CMA in 2011 and the numbers of examinees included in samples used for the field test or "final" item analyses (FIA) of these forms. The field-test samples used for operational FIA constitute approximately 99.5 percent of the entire population tested. The field-test samples are listed in the last column of Table 3.4.

Table 3.4 Summary of Items and Forms Presented in the 2011 CMA

		Operational			Field Test	
Content Area	CMA*	No. Items	No. Examinees FIA Sample	No. Forms	No. Items	No. Examinees FIA Sample
English–Language Arts	3**	48	17,609	6	54	2,811–3,333
	4***	48	24,509	5	45	4,009–5,728
	5	48	27,163	6	54	4,228–5,111
	6	54	25,831	4	36	6,271–6,868
	7***	54	24,156	4	36	5,892–6,349
	8	54	22,753	4	36	3,662–4,139
	9	60	16,042	4	40	3,914–4,187
	10	60	12,724	6	60	2,082–2,195
	11	60	8,980	4	40	2,230–2,322
Mathematics	3	48	15,296	6	54	2,418–2,905
	4	48	20,514	5	45	3,367–4,796
	5	48	23,637	6	54	3,710–4,493
	6	54	24,073	4	36	5,846–6,321
	7	54	22,926	4	36	5,606–6,000
	Algebra I	60	22,800	4	40	5,619–5,849
	Geometry	60	4,643	4	40	1,153–1,195
Science	5	48	24,839	6	54	3,861–4,693
	8	54	20,761	6	54	3,307–3,816
	10 Life Science	60	10,505	6	36	1,675–1,800

* Numbers indicate grade-level tests.

** Standard form

*** MC only

CDE Data Review

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

Item Banking

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

After field-test or operational use, items that do not meet statistical specifications may be rejected; such items are updated with a status of “rejected for statistical reasons” and remain unavailable in the bank. These statistics are obtained by the 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) and STAR (CST, CMA, CAPA, and STS). CAHSEE and STAR are currently consolidated in the California Item Banking system. ETS works with the CDE to obtain the data for assessments under contract with other vendors for inclusion into the item bank. ETS provides the item banking application using the LAN architecture and the relational database management system, SQL 2000, already deployed. ETS provides updated versions of the item bank to the CDE on an ongoing basis, and works with the CDE to determine the optimum process if a change in databases is desired.

References

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

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

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

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

Chapter 4: Test Assembly

The CMA tests are constructed to measure students' performance relative to California's content standards approved by the SBE. They are also constructed to meet professional standards for validity and reliability. For each CMA, the content standards and 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 total number of items on each CMA varies across grades and content areas. There are 57 total items on the CMA tests for ELA in grades three through five, for mathematics in grades three through five, and for science in grade five. There are 63 total items on the CMA tests for ELA in grades six through eight, for mathematics in grades six and seven, and for science in grade eight. There are 70 total items on the CMA for ELA in grades nine through eleven, Algebra I, and Geometry, and 66 total items on the CMA for Life Science in grade ten.In addition, a writing test (essay) is administered as part of the CMA for ELA at grades four and seven. For more details on the distribution of items, see Appendix 2.A—CMA Item and Estimated Time Chart starting on page 19.

Rules for Item Selection

Test Blueprint

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

Although the test blueprints call for the number of items at the individual standard level, scores for the CMA items are grouped into subcontent areas (reporting clusters). For each CMA reporting cluster, the percentage of questions correctly answered is reported on a student's score report. A 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 20.

Content Rules and Item Selection

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

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

Another consideration is the difficulty of each item. Test developers strive to ensure that there are some easy and some hard items and that there are a number of items in the middle range of difficulty. If items do not meet all content and psychometric criteria, staff reviews the other available items to determine if there are other selections that could improve the match of the test to all of the requirements. If such a match is not attainable, the content team works in conjunction with psychometricians and the CDE to determine which combination of items will best serve the needs of the students taking the test. Chapter 3, starting on page 66, contains further information about this process.

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

Psychometric Criteria

The three goals of CMA test development are:

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 has been developed. Such rules are referred to as statistical targets.

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

The total test target or primary statistical targets used for assembling the CMA forms for the 2011 administration were the test information function (TIF) based on the item response theory (IRT) item parameter estimates and an average point-biserial correlation. 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. 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 difficulaty 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 that 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.

Note: For the CMA for ELA and mathematics in grades three through five and for science in grade five, the assembly targets were developed from the analyses of operational forms administered in spring 2009. The targets for ELA in grades six through eight, mathematics in grades six and seven, and science in grade eight were developed using data from the analyses of operational forms administered in spring 2010. The forms for ELA in grade nine, Algebra I, and Life Science in grade ten were reused for the spring 2011 administration. The targets for these CMA tests were developed from the analyses of the field-test forms administered in the fall of 2009 and will be updated using data from the 2011 operational administration for use in assembling spring 2012 operational test forms.

Finally, for the CMA for ELA in grades ten and eleven and the CMA for Geometry, the targets were developed using data from the fall 2010 field-test administration and were used to develop the spring 2011 operational forms. The targets for these test will be subsequently updated using data from the 2012 operational administration after the base scale is established and for use in assembling the spring 2013 operational test form.

The target values for the forms administered in 2011 in all grades and content areas are presented in Table 4.1.

Table 4.1 Target Statistical Specifications for the CMA

		Point Biserial		*b-Values*		*p-value*	
Content Area	**CMA***	**Mean**	**Minimum**	**Mean**	**St. Dev.**	**Minimum**	**Maximum**
English–Language Arts	3	0.37	0.14	–0.51	0.55	0.33	0.95
	4**	0.37	0.14	–0.41	0.53	0.33	0.95
	5	0.37	0.14	–0.40	0.77	0.33	0.95
	6	0.35	0.14	–0.46	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.

**MC items

Projected Psychometric Properties of the Assembled Tests

Prior to the 2011 administration, ETS psychometricians performed a preliminary review of the technical characteristics of the assembled tests. The expected or projected performance of examinees and the overall score reliability were estimated using the item-level statistics available in the California item bank for the selected items. The test reliability was based on Gulliksen's formula (Gulliksen, 1987) for estimating test reliability (r_{xx}) from item *p*-values and item point-biserial correlations:

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

where,

K is the number of items in the test,

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

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

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

In addition, estimated test raw score means were calculated by summing the item *p*-values, and estimated test raw score standard deviations were calculated by summing the item reliability indices. Table 4.A.1 on page 84 presents these summary values by content area and grade.

It should be noted that the projected reliabilities in Table 4.1 on page 80 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 2011 CMA administration.

Table 4.A.2 on page 84 shows the mean observed statistics of the items on each CMA based on the item-level statistics available in the item bank for the most recent administration of those items. These values can be compared to the target values in Table 4.1.

For the 2011 tests with linking sets (grades three through eight ELA, grades three through seven grade-level mathematics, grades five and eight science), the graphs in Figure 4.A.1 through Figure 4.A.3 starting on page 85 show the target TIFs and the projected test information functions for the total tests and the linking sets. The information curves for the linking sets were adjusted so they could be directly compared to the information curves for the longer total tests. Figure 4.B.1 through Figure 4.B.13 starting on page 88 present the target and projected information curves for the clusters in each CMA.

Rules for Item Sequence and Layout

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

- ELA—Because the ELA test is primarily passage-dependent, items are sequenced with their associated reading passages. Passages are sequenced according to genre and interest level; test developers work to place high-interest pieces (typically narrative selections) near lower-interest pieces (typically functional or technical writing). Stand-alone items are placed throughout the form, where appropriate.
- Mathematics—The CMA grade-level mathematics test forms are sequenced according to reporting cluster; that is, all items from a single reporting cluster are presented together and then all of the items from the next reporting cluster are presented. There are three reporting clusters 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. For the EOC CMA for Algebra I, there are four reporting clusters: reporting cluster 1, which tests Number Properties, Operations, and Linear Equations; reporting cluster 2, which tests Graphing and Systems of Linear Equations; reporting cluster 3, which tests Quadratics and Polynomials; and reporting cluster 4, which tests Functions and Rational Expressions. For the EOC CMA for Geometry, test forms are sequenced according to content standards because items are not yet associated with reporting clusters.
- Science—The science tests for grades five and eight are sequenced according to reporting cluster; that is, all items from a single reporting cluster are presented together and then all of the items from the next reporting cluster are presented. The grade ten Life Science test, for the most part, is also sequenced according to reporting cluster. Items from the Investigation and Experimentation reporting cluster, however, 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 2011 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	28.84	9.22	0.89
	4**	48	26.74	7.68	0.82
	5	48	28.30	7.46	0.82
	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	29.22	8.33	0.81
	10	60	26.36	7.46	0.76
	11	60	24.61	6.23	0.65
Mathematics	3	48	29.44	8.55	0.87
	4	48	27.89	7.32	0.82
	5	48	28.72	7.79	0.84
	6	54	28.33	7.21	0.77
	7	54	24.78	6.36	0.70
	Algebra I	60	28.63	7.85	0.78
	Geometry	60	26.65	6.69	0.69
Science	5	48	26.88	7.21	0.80
	8	54	29.56	7.81	0.81
	10 Life Science	60	30.54	8.82	0.83

* Numbers indicate grade-level tests.

** MC items

Table 4.A.2 Summary of 2011 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	–0.44	0.43	0.60	0.37	0.81	0.40	0.20
	4**	–0.22	0.45	0.56	0.36	0.72	0.33	0.10
	5	–0.37	0.59	0.59	0.37	0.82	0.33	0.11
	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	0.06	0.42	0.49	0.30	0.70	0.28	0.04
	10	0.24	0.37	0.44	0.27	0.68	0.26	0.06
	11	0.37	0.33	0.41	0.27	0.56	0.21	0.06
Mathematics	3	–0.44	0.58	0.61	0.38	0.83	0.38	0.18
	4	–0.34	0.70	0.58	0.27	0.89	0.33	0.01
	5	–0.36	0.72	0.60	0.33	0.95	0.35	0.07
	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	0.06	0.36	0.48	0.31	0.64	0.27	0.10
	Geometry	0.22	0.33	0.44	0.25	0.64	0.23	0.10
Science	5	–0.25	0.52	0.56	0.33	0.84	0.31	0.05
	8	–0.27	0.52	0.55	0.33	0.86	0.30	0.11
	10 Life Science	0.02	0.49	0.51	0.29	0.71	0.30	0.05

* Numbers indicate grade-level tests.

** MC items

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

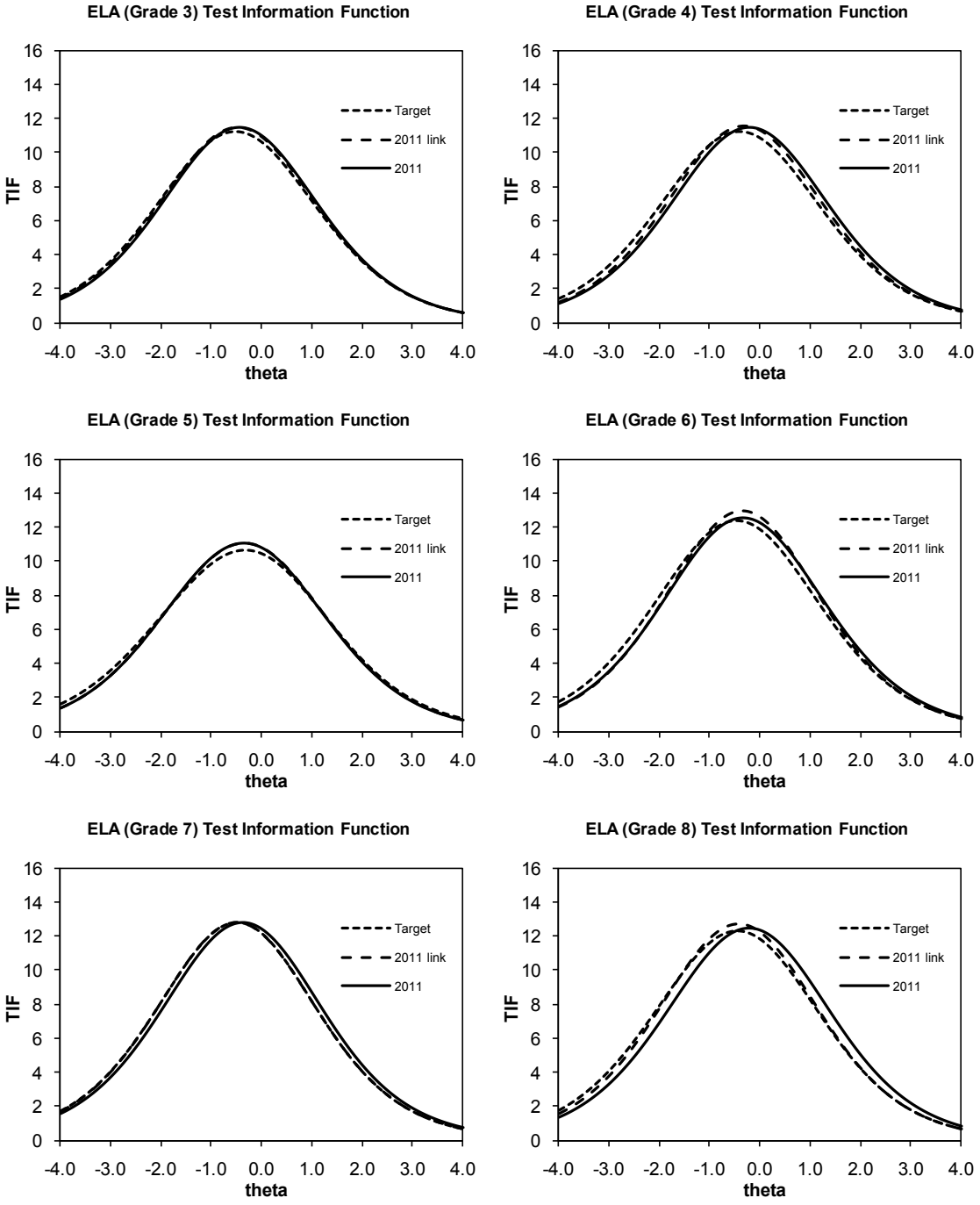


Figure 4.A.2 Plots for Target Information Function and Projected Information for Total Test and Linking Set for Mathematics, Grades Three through Seven

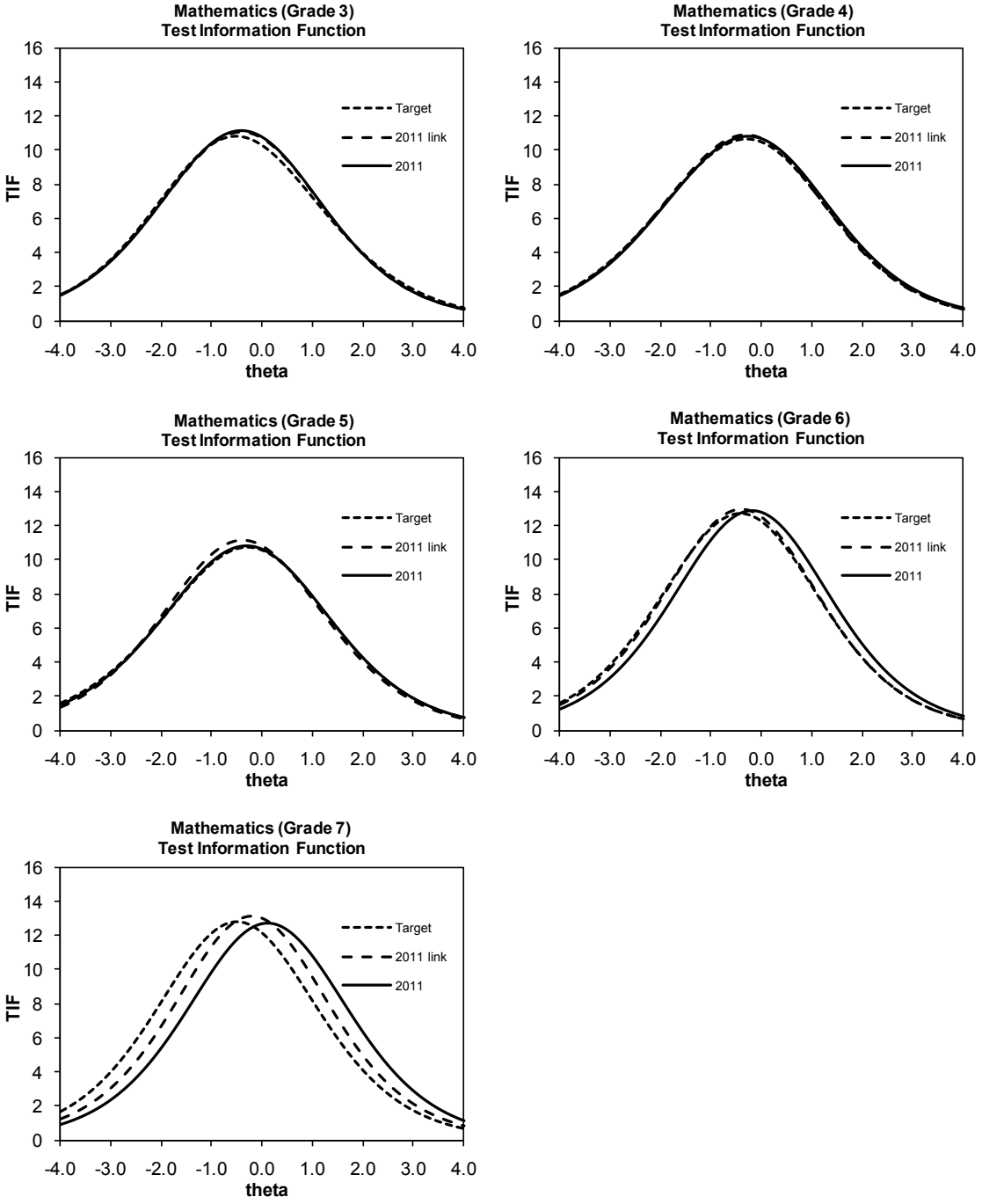
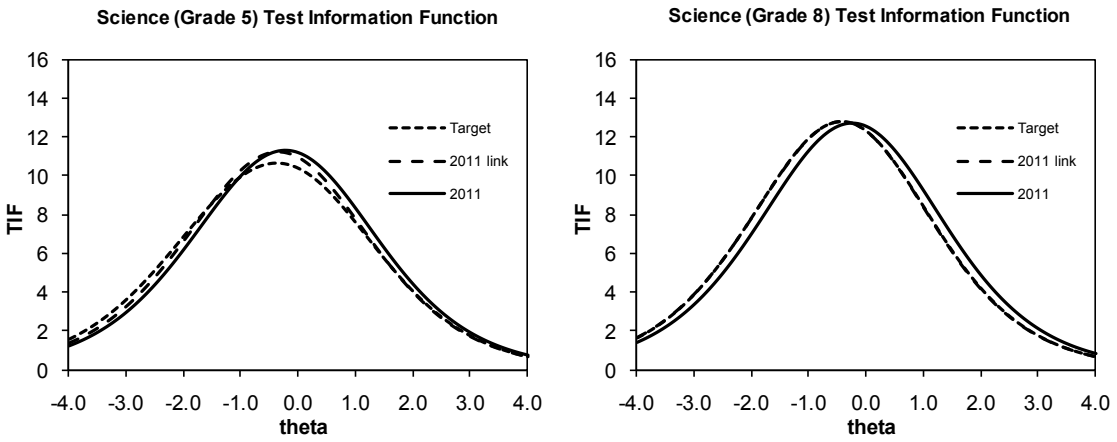


Figure 4.A.3 Plots for Target Information Function and Projected Information for Total Test and Linking Set for Science, Grade Five and Eight



Appendix 4.B—Cluster Targets for Grades Three through Eight

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

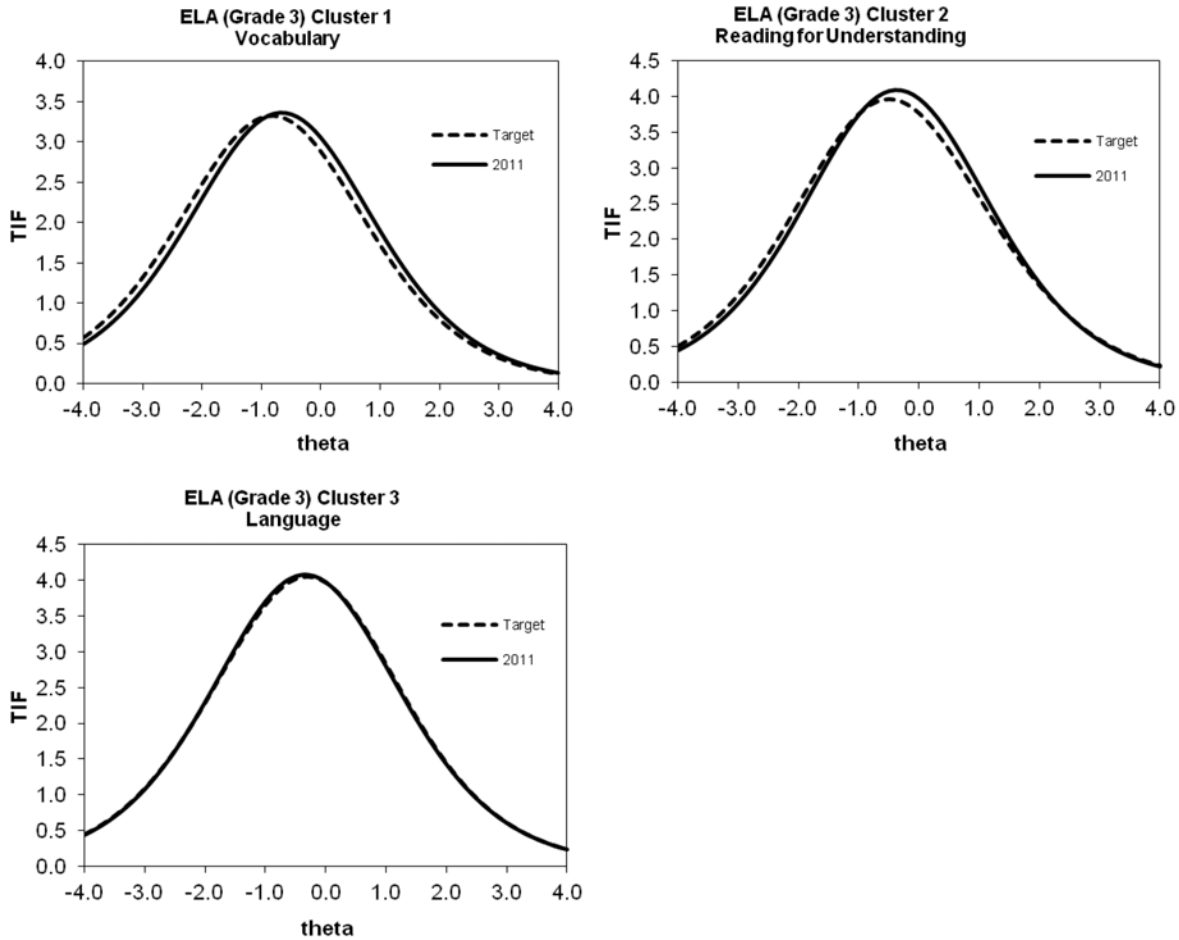


Figure 4.B.2 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Four

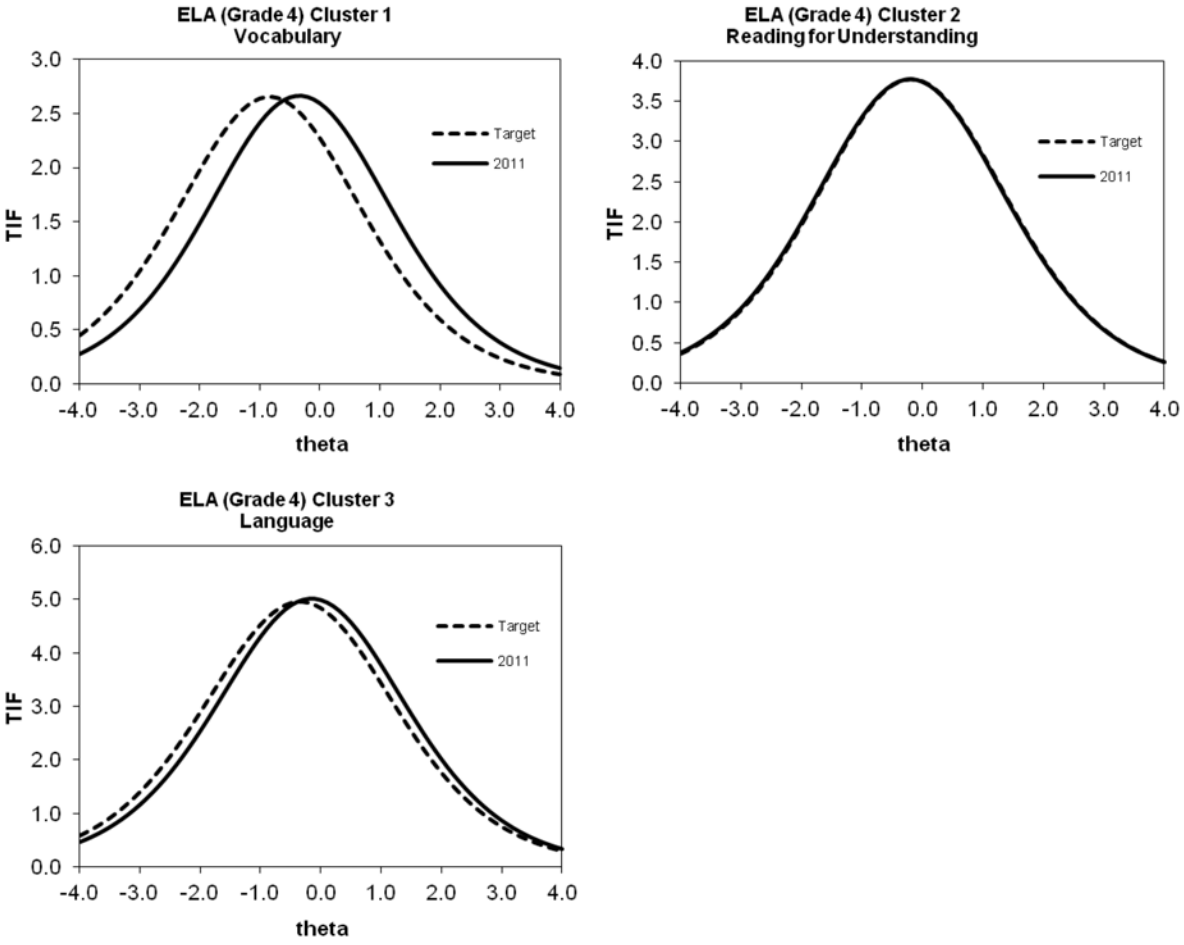
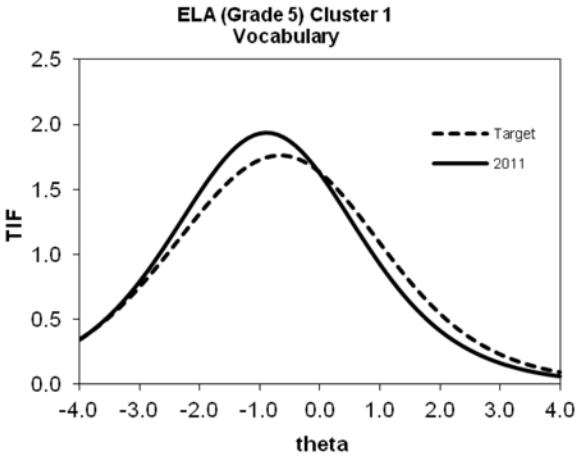
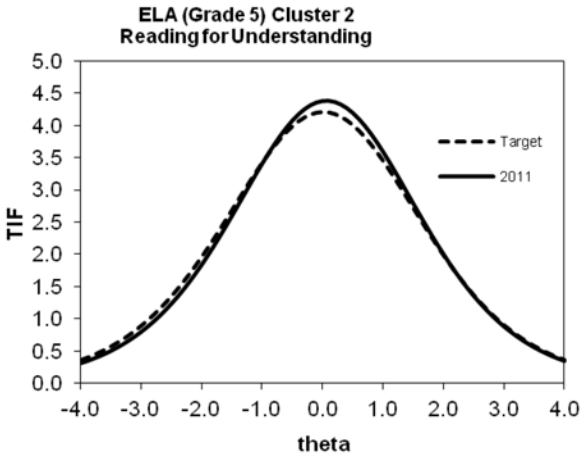


Figure 4.B.3 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Five





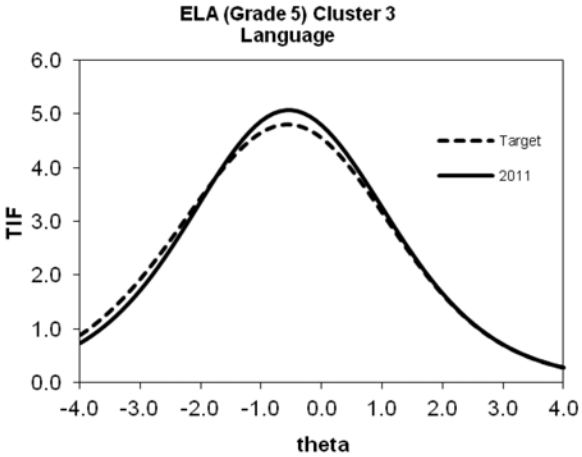


Figure 4.B.4 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Six

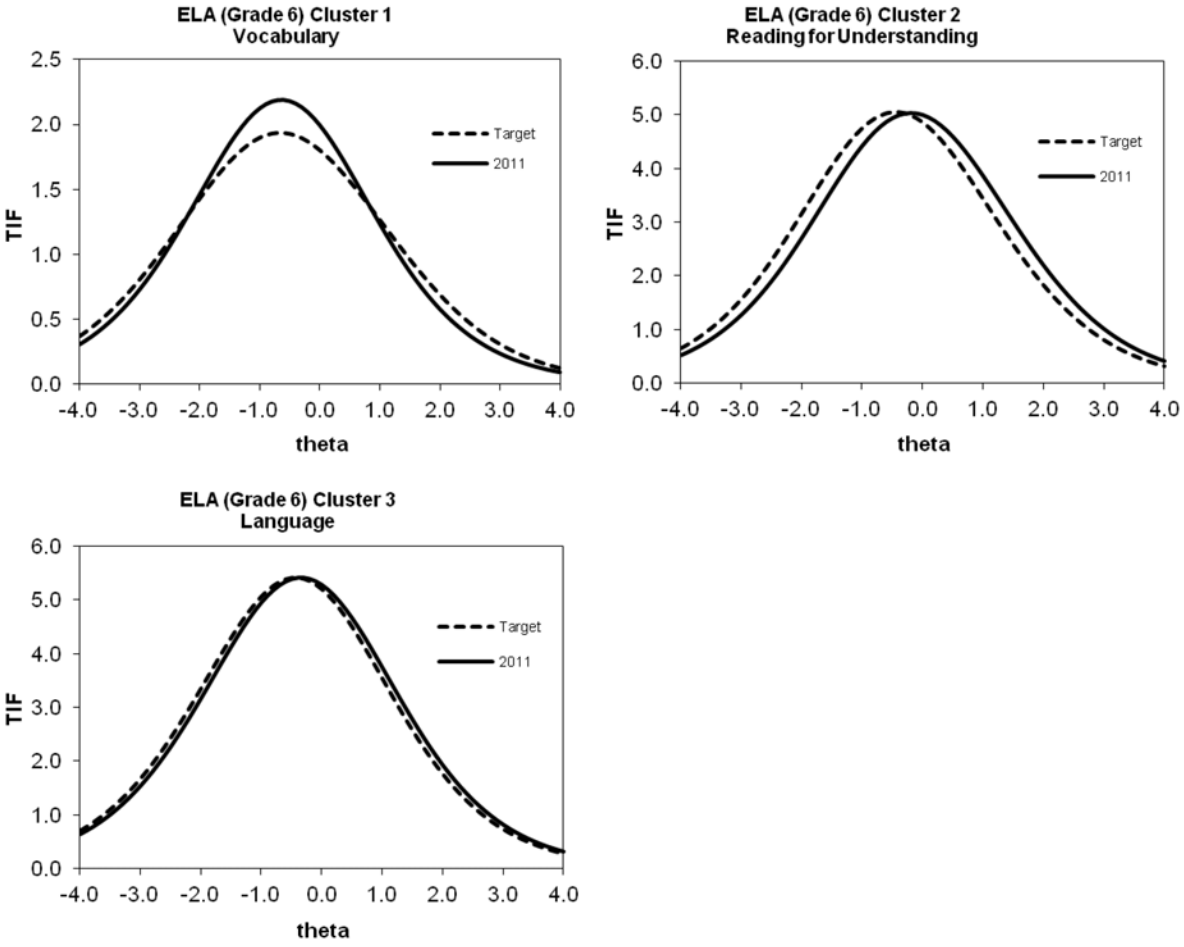


Figure 4.B.5 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Seven

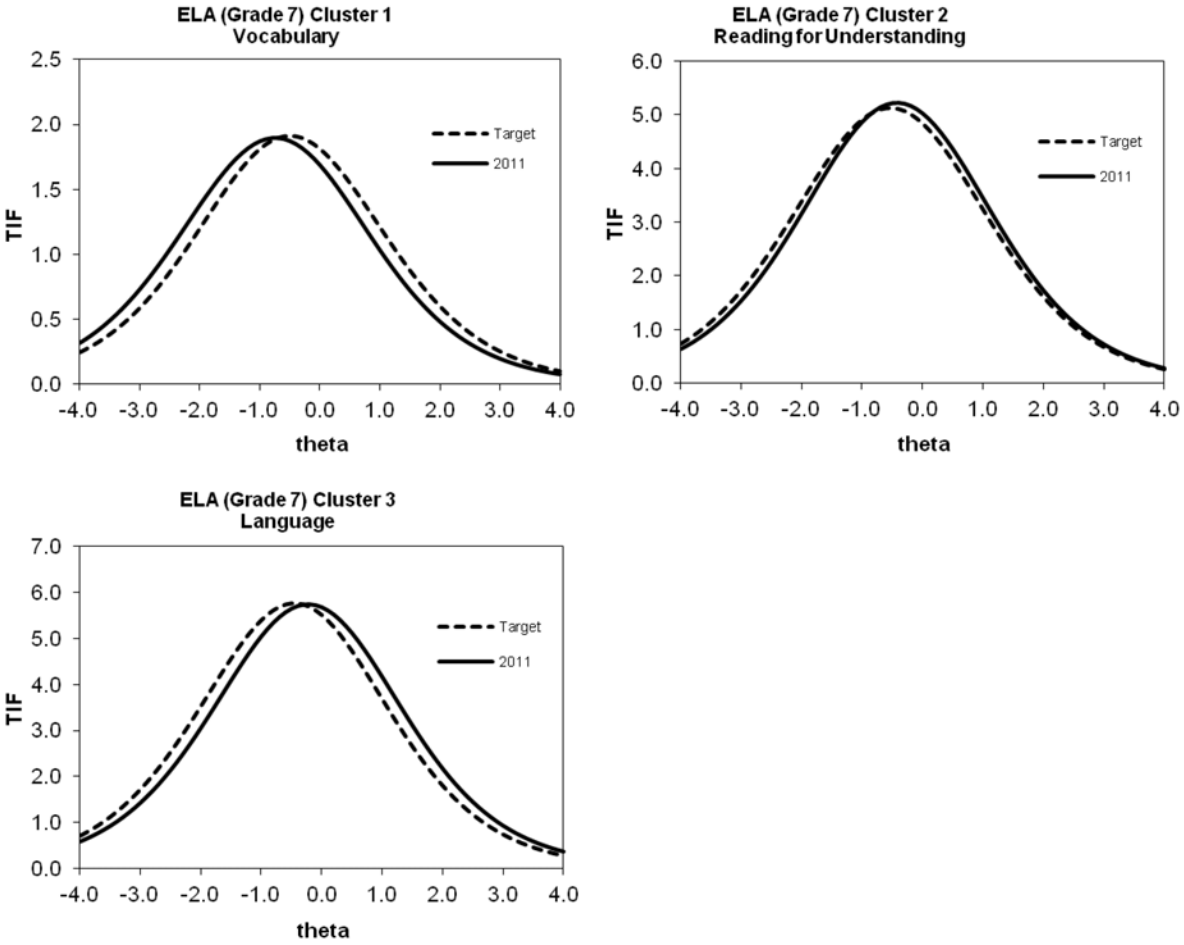


Figure 4.B.6 Plots of Target Information Functions and Projected Information for Clusters for ELA, Grade Eight

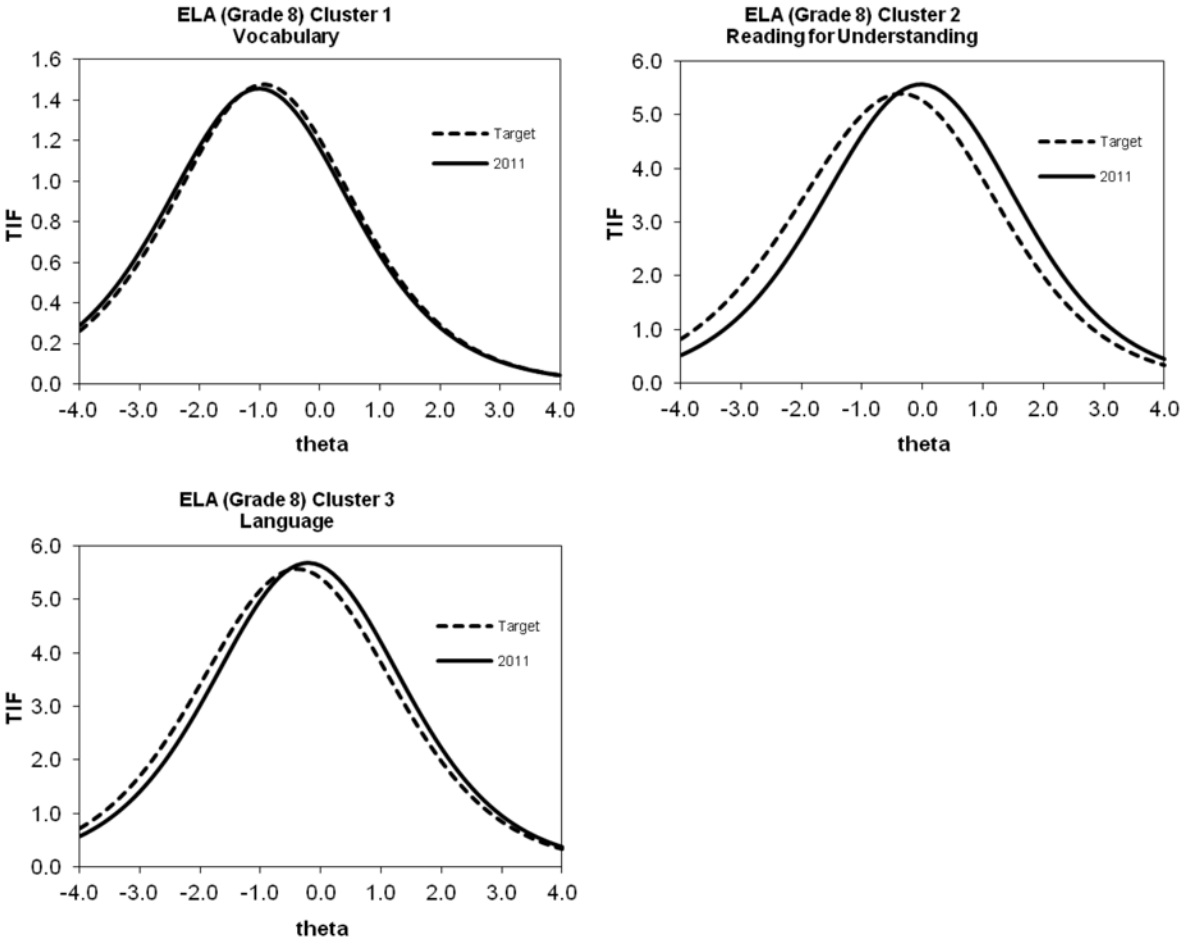


Figure 4.B.7 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Three

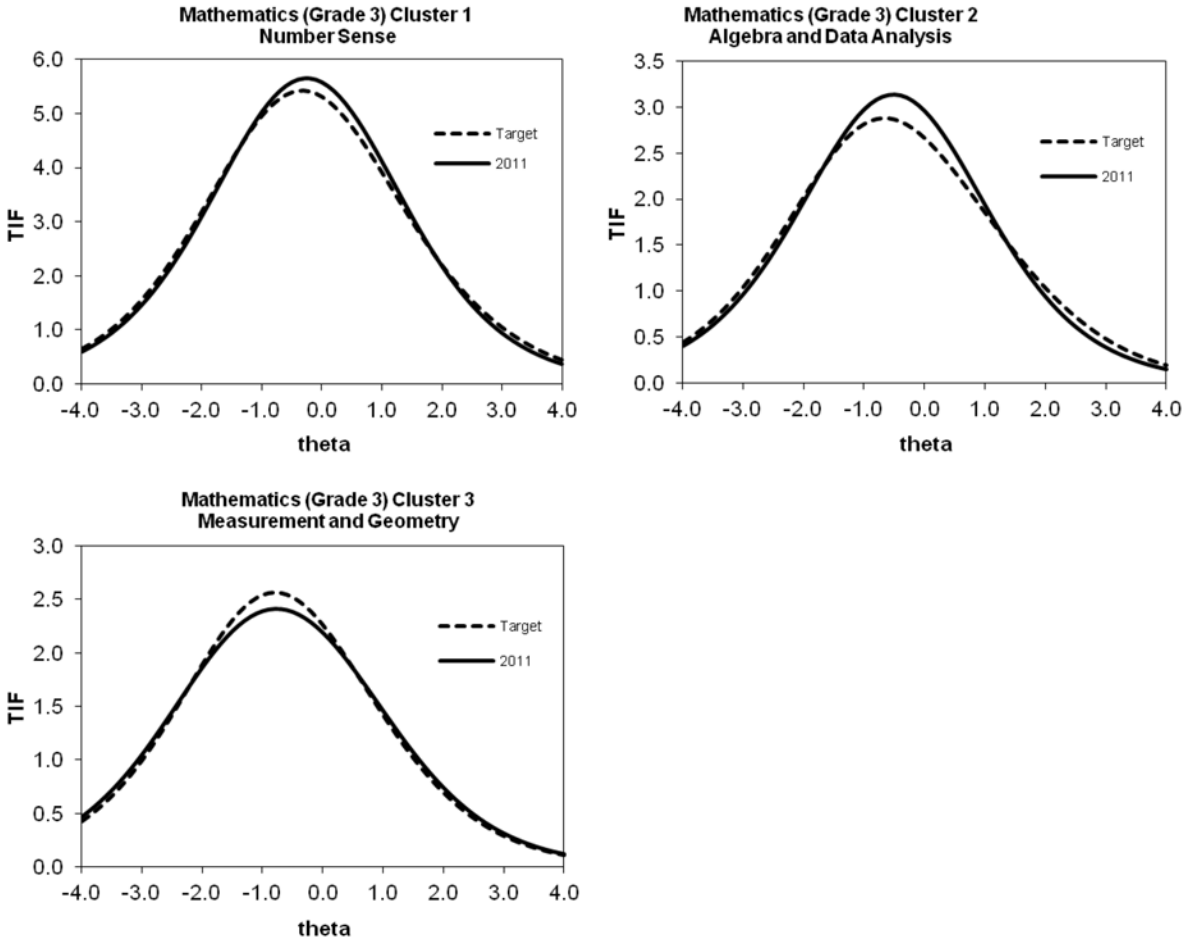


Figure 4.B.8 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Four

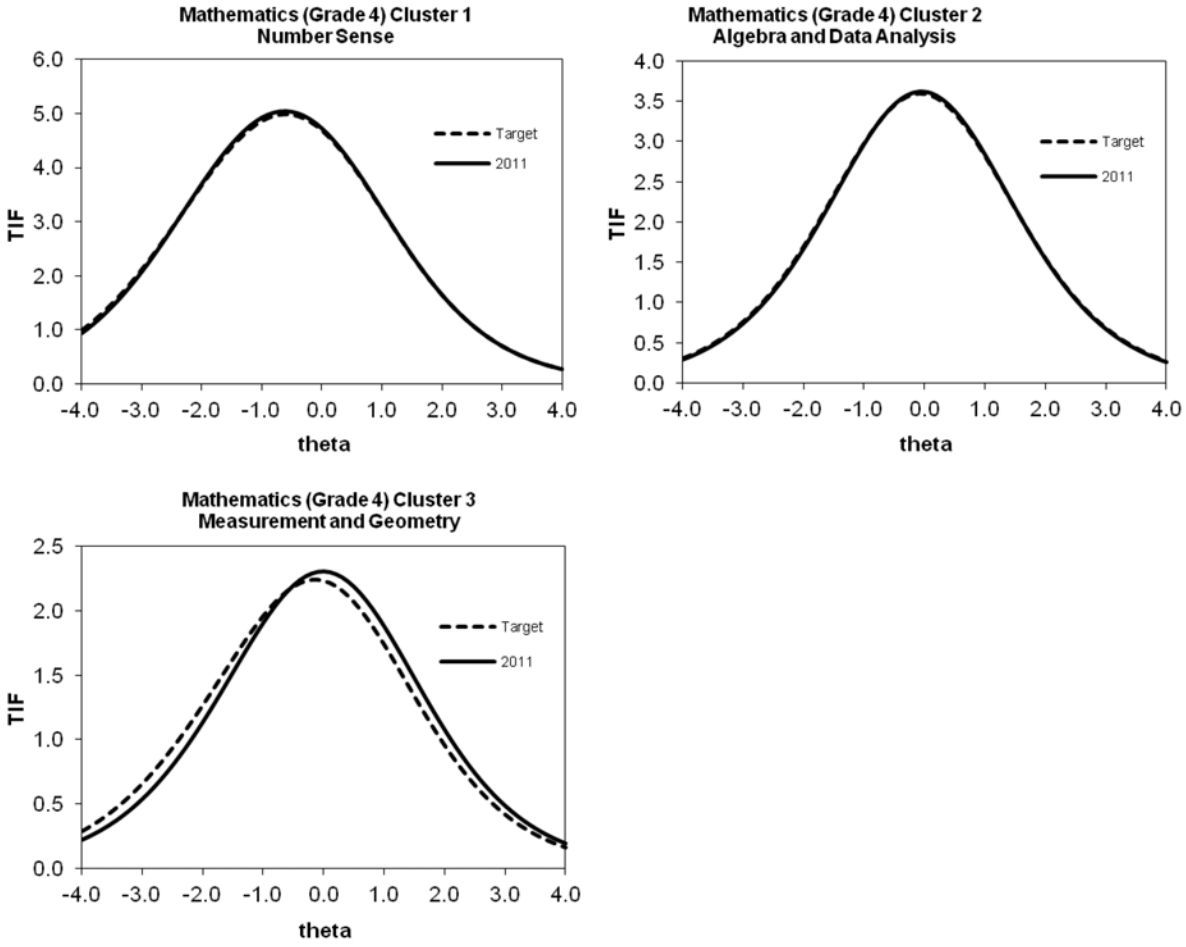
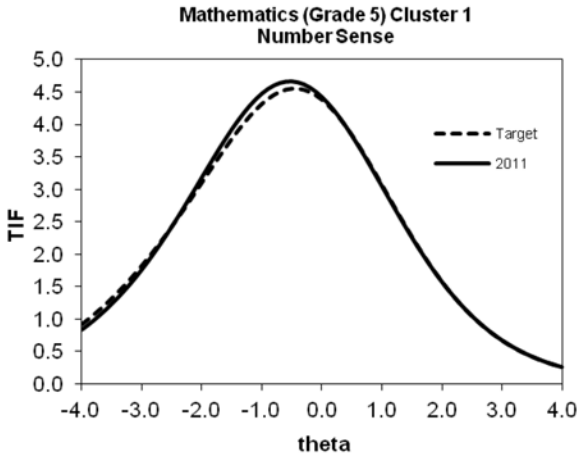
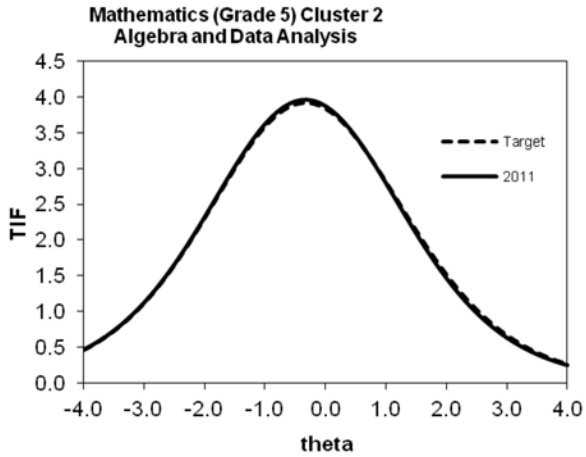


Figure 4.B.9 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Five





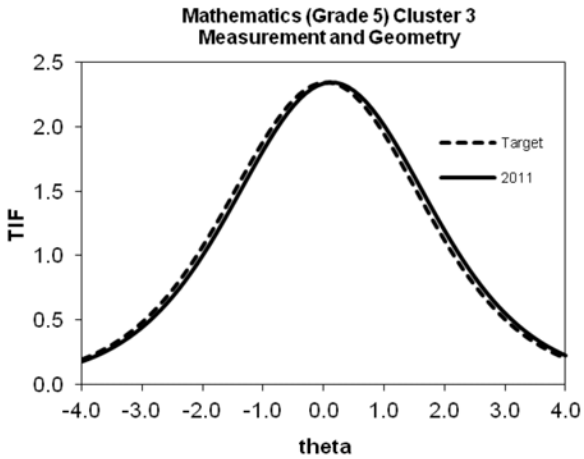


Figure 4.B.10 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Six

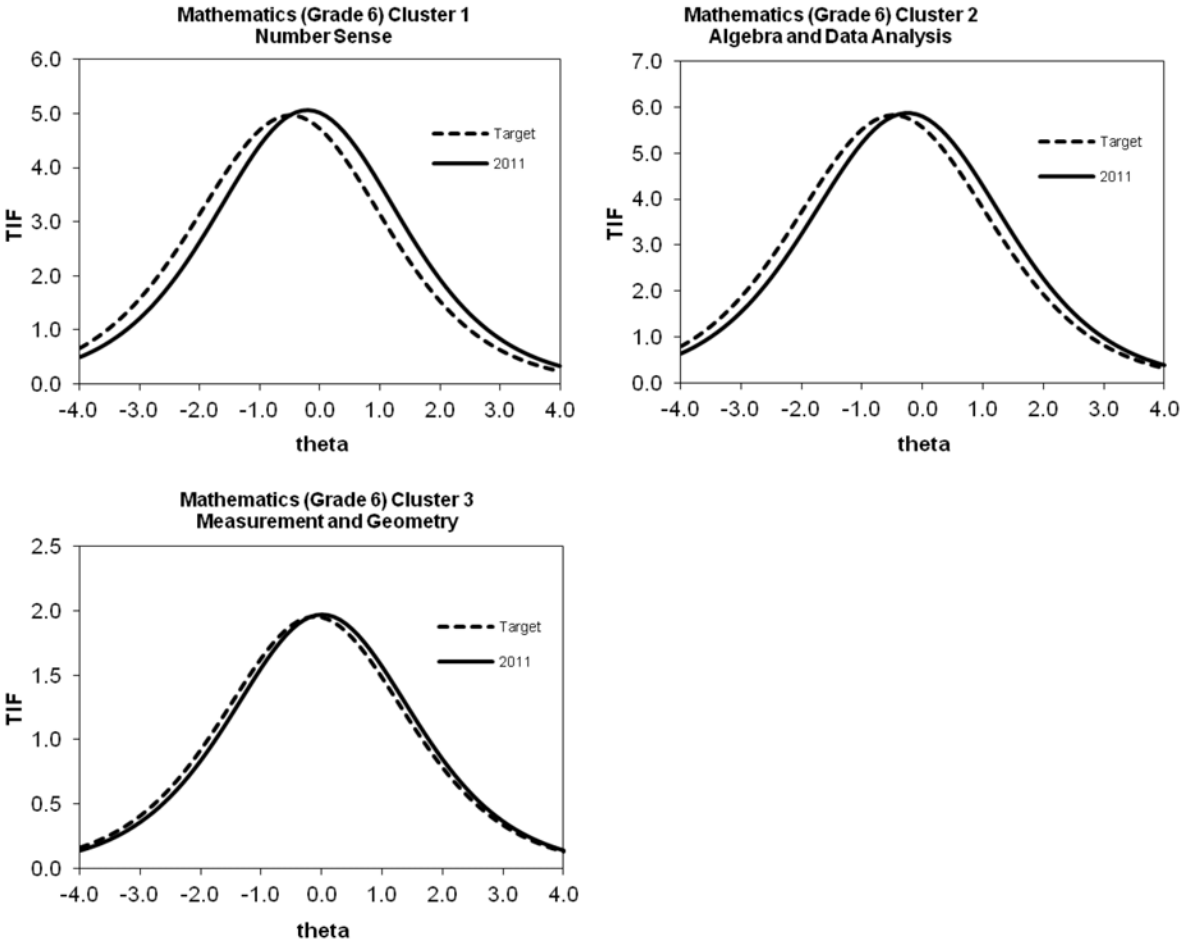


Figure 4.B.11 Plots of Target Information Functions and Projected Information for Clusters for Mathematics, Grade Seven

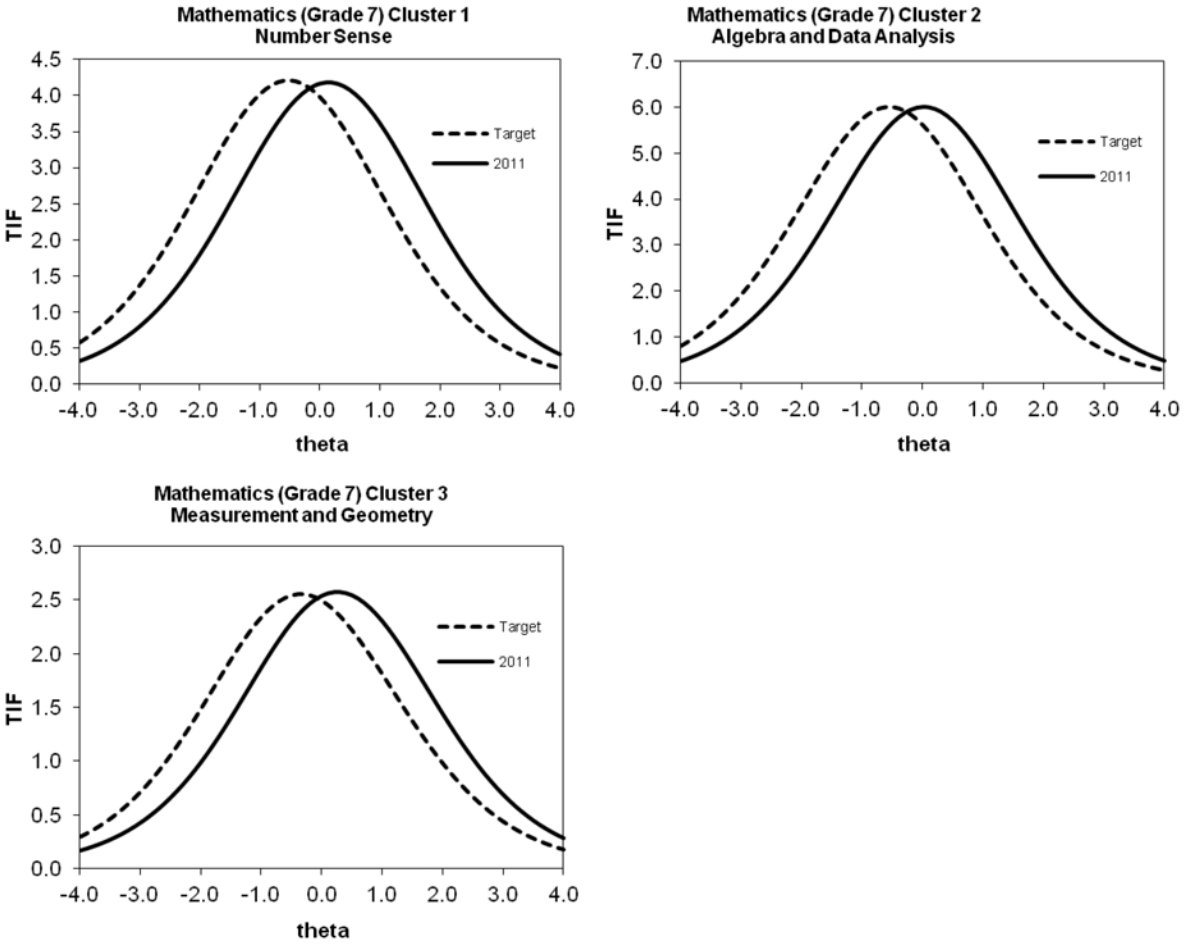


Figure 4.B.12 Plots of Target Information Functions and Projected Information for Clusters for Science, Grade Five

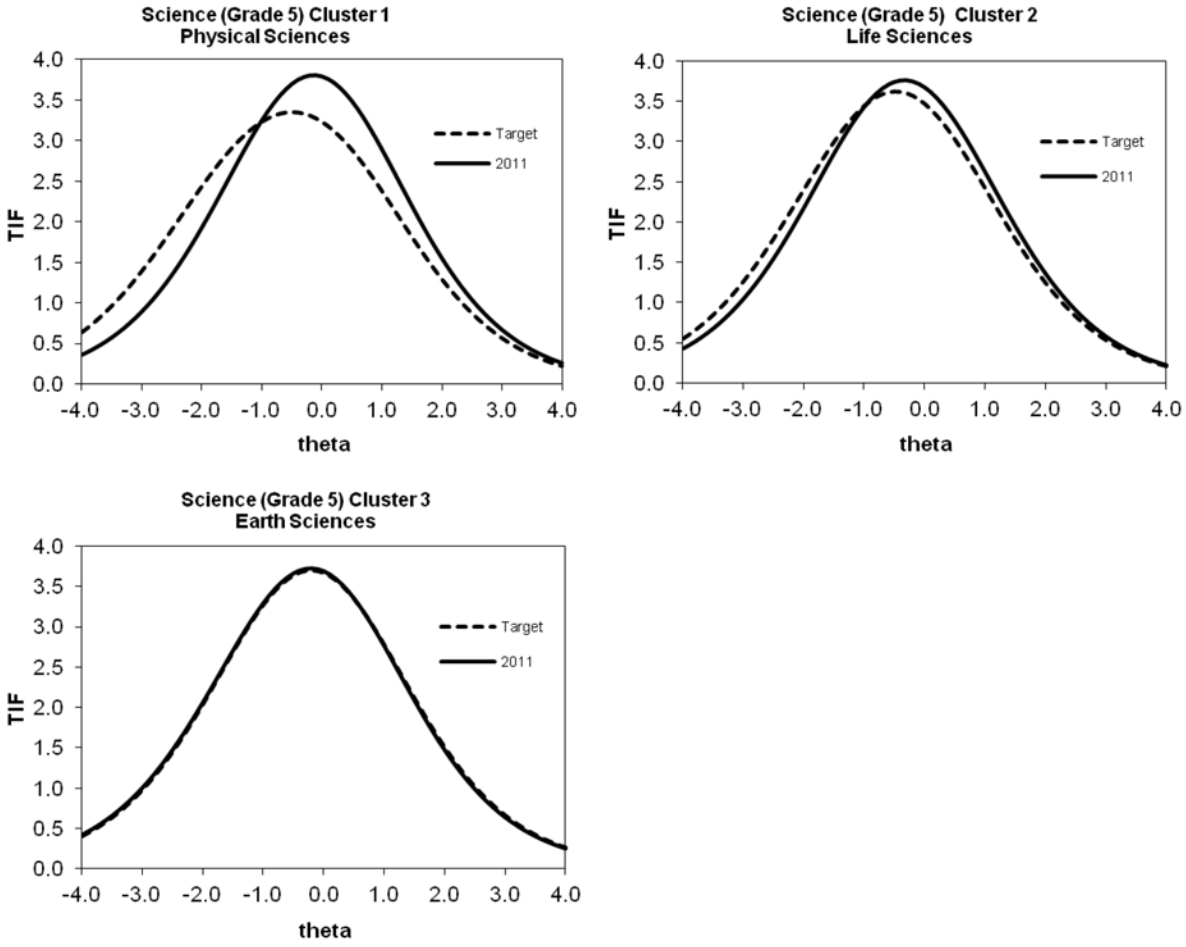
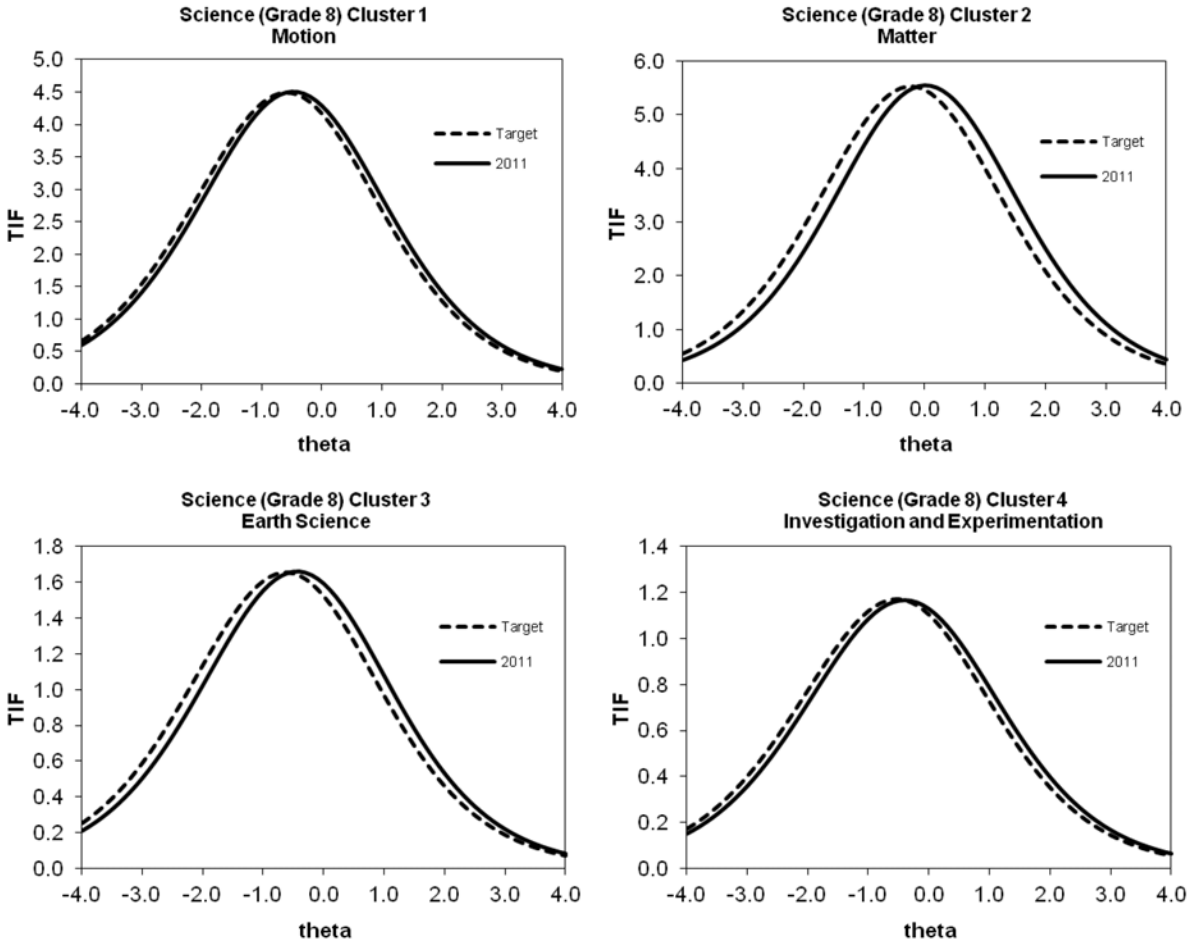


Figure 4.B.13 Plots of Target Information Functions and Projected Information for Clusters for Science, Grade Eight



Chapter 5: Test Administration

Test Security and Confidentiality

All tests within the STAR Program are secure documents. For the CMA administration, every person having access to test materials maintains the security and confidentiality of the tests. ETS's Code of Ethics requires that all test information, including tangible materials (such as test booklets), confidential files, processes, and activities are kept secure. ETS has systems in place that maintain tight security for test questions and test results, as well as for student data. To ensure security for all the tests that ETS develops or handles, ETS maintains an 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, and the backups are kept offsite.
- The offsite backup files are kept in secure storage with access limited to authorized personnel only.
- To prevent unauthorized electronic access to the item bank, state-of-the-art network security measures are used.

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

Transfer of Forms and Items to the CDE

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

Security of Electronic Items Using a Firewall

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

All electronic applications included in the STAR Management System (CDE, 2011a) remain protected by the ETS firewall software at all times. Due to the sensitive nature of the student information processed by the STAR Management System, the firewall plays a significant role in maintaining an assurance of confidentiality in the users of this information. (It should be noted that the STAR Management System neither stores nor processes tests or student test results.)

Printing and Publishing

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

Test Administration

Pearson receives testing materials from printers, packages them, and sends them to school districts. After testing, the school districts return materials to Pearson for scoring. During these events, Pearson takes extraordinary measures to protect the testing materials. Pearson's customized Oracle business applications verify that inventory controls are in place, from 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 or a parent may request that a student's test responses be rescored. In such a case, the answer document is removed from storage, copied, and sent securely to the ETS facility in Sacramento, California, for hand scoring, after which the copy is destroyed. School and district personnel are not allowed to look at a completed answer document unless required for transcription, or to investigate irregular cases.

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

Data Management

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

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

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

Transfer of Scores via Secure Data Exchange

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

Statistical Analysis

The Information Technology (IT) area at ETS retrieves the Pearson data files from the SFTP site and loads them into a database. The Data Quality Services (DQS) area at ETS extracts the data from the database and performs quality control procedures before passing files to the ETS Statistical Analysis group. The Statistical Analysis group 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
- Encrypted files of summary results (sent to the CDE by means of SFTP); any summary results that have fewer than eleven 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, 2011b). 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. Comprehensive disaster recovery facilities are available and tested regularly at the SunGard installation in Philadelphia, Pennsylvania. ETS routinely sends backup data cartridges and files for critical software, applications, and documentation to a secure offsite storage facility for safekeeping.

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

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

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

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

Procedures to Maintain Standardization

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

Test Administrators

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

The responsibilities for district and test site staff members are included in the *STAR District and Test Site Coordinator Manua*l (CDE, 2011c). This manual is described in the next section.

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

District STAR Coordinator

Each local education agency (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 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

At each test site, the superintendent of the school district or the district STAR coordinator designates a STAR test site coordinator 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, 2011c)

Test Examiner

The CMA is 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, 2011d) 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 a 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, 2011d). 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, 2011c). 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, 2011e)
- **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, 2011f)
- **Pre-ID—**This module allows school districts to enter or upload student information including demographics and to identify the test(s) the student will take. This information is printed on student test booklets or answer documents or on labels that can be affixed to test booklets or answer documents. Its manual includes the CDE's Pre-ID layout. (CDE, 2011b)
- **Extended 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, 2011g)

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 testing materials for all tests and braille testing materials for all tests except for the CMA for grades ten and eleven ELA and Geometry.

Test Variations and Accommodations

All public school students participate in the STAR Program, including students with disabilities and English learners. ETS policy states that reasonable testing accommodations be provided to candidates with documented disabilities that are identified in the Americans with Disabilities Act (ADA). The ADA mandates that test accommodations be individualized, meaning that no single type of test accommodation may be adequate or appropriate for all individuals with any given type of disability. ADA authorizes that test takers with disabilities

may be tested under standard conditions if ETS determines that only minor adjustments to the testing environment are required (e.g., wheelchair access, large-print test book, a sign language interpreter for spoken directions).

Identification

Most students with disabilities and most English learners take the CMA under standard conditions. However, some students with disabilities and some English learners may need assistance when taking the CMA. This assistance takes the form of test variations or accommodations (see Appendix 2.D in Chapter 2 for details). During the test, these students may use the special services specified in their IEP or Section 504 plan. If students use accommodations for the CMA, test examiners are responsible for marking the accommodation(s) used on the students' test booklets, answer documents, or Writing Response Booklets. Because the CMA was developed with modifications built into the test, modifications are not allowed. Students who require additional modifications take the content-area CST with modifications.

In the event that a student injures a hand or arm prior to the writing test, is willing and able to sit for the examination, but unable to write, the school completes a Section 504 plan for the student. The Section 504 plan identifies which accommodations the student will use in completion of his or her writing test (CDE, 2011b).

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 demographic data that are incorrect. The Demographic Data Corrections module of the STAR Management System gives school districts the means to correct these data within a specified availability window. Districts may correct data to: (1) Have the school district's API/AYP recalculated; (2) Rescore uncoded or miscoded 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, 2011h).

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, 2011c).

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, 2011d) and the *STAR District and Test Site Coordinator Manual* (CDE, 2011c). 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.

References

California Department of Education. (2011a). *2011 STAR Management System.* http://www.startest.org/sms.html

California Department of Education. (2011b). *2011 STAR Pre-ID instructions manual*. Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.pre-id_manual.2011.pdf

California Department of Education. (2011c). *2011 STAR district and test site coordinator manual*. Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.coord_man.2011.pdf

California Department of Education. (2011d). *2011 California Modified Assessment directions for administration.* Sacramento, CA. Downloaded from http://www.startest.org/pdfs/CMA.grade-5_dfa.2011.pdf

California Department of Education. (2011e). *2011 STAR Test Administration Setup manual*. Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.test_admin_setup.2011.pdf

California Department of Education. (2011f). *2011 STAR Order Management manual*. Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.order_mgmt.2011.pdf

California Department of Education. (2011g). *2011 STAR Extended Data Corrections manual*. Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.xdc_manual.2011.pdf

California Department of Education. (2011h). *2011 STAR Demographic Data Corrections manual*. Sacramento, CA. Downloaded from http://www.startest.org/pdfs/STAR.data_corrections_ manual.2011.pdf [Note: the preceding Web address is no longer valid.]

Chapter 6: Performance Standards

Background

The CMA for ELA and mathematics in grades three through five and science for 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. Performance standards for high school phase 2 will be established in fall 2011 and will be reported starting in the 2012 operational administration.

The performance standards for the CMA were defined by the SBE as far below basic, below basic, basic, proficient, and advanced. 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 employs carefully designed standard-setting procedures to facilitate the development of performance standards for each CMA. The standard-setting method used for CMA is the bookmark method. These processes are described in the following sections.

Standard Setting Procedure

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

- Familiarity with the subject matter assessed
- Familiarity with students in the respective grade levels
- Experience with English learners
- Experience in special education and general education classrooms as well as integrated classrooms
- Familiarity with the California content standards

- An understanding of the CMA
- An appreciation of the consequences of setting these cut scores

Panelists were recruited from diverse geographic regions and from different gender and major racial/ethnic subgroups to be representative of the educators of the state's CMA-eligible students (ETS, 2009a, 2009b, 2010, 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 CMA required panelists to follow the steps listed below, 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' judgments 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 are 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.

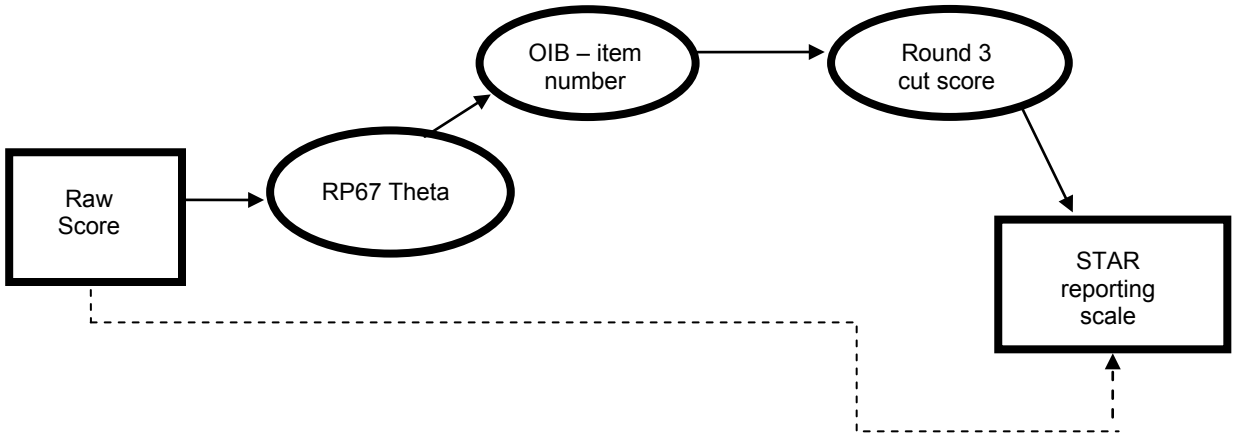
The Bookmark method is an item-mapping procedure in which panelists consider content covered by items in a specially constructed book where items are ordered from easiest to hardest, based on operational student performance data from a previous test administration. The "item map," which accompanies the ordered item booklet, includes information on the content measured by each question, information about each question's difficulty, the correct answer for each question, and where each question was located in the test booklet before the questions were reordered by difficulty.

Panelists are asked to place a bookmark in the ordered item booklet (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:

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

where,

θ represents the student ability,

$\theta_{proficient}$ 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 16. 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 124 presents the percentages of examinees meeting each performance level in 2011.

References

Educational Testing Service. (2009a). *Technical report on the standard setting workshop for the California Modified Assessment: ELA grades three through five, mathematics grades three through five, and science grade five. February 6, 2009* (California Department of Education Contract Number 5417). Princeton, NJ: Author.

Educational Testing Service. (2009b). *Technical report on the standard setting workshop for the California Modified Assessment: ELA grades six through eight, mathematics grades six and seven, and science grade eight. November 5, 2009* (California Department of Education Contract Number 5417). Princeton, NJ: Author.

Educational Testing Service. (2010). *Technical report on the standard setting workshop for the California Modified Assessment: ELA grade nine, Algebra I, and Life Science grade ten. November 9, 2010* (California Department of Education Contract Number 5417). Princeton, NJ: Author.

Educational Testing Service. (2011). *Technical report on the standard setting workshop for the California Modified Assessment: ELA grades ten and eleven and Geometry. November 1, 2011* (California Department of Education Contract Number 5417). Princeton, NJ: Author.

Huynh, H. (1998). On score locations of binary and partial credit items and their applications to item mapping and criterion-referenced interpretation. *Journal of Educational and Behavioral Statistics, 23*(19), 35–56.

Lewis, D. M., Green, D. R., Mitzel, H. C., Baum, K., & Patz, R. J. (1999). *The bookmark standard setting procedure: Methodology and recent implications*. Manuscript under review.

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. Such standards dictate that ETS provides accurate and understandable assessment results to the intended recipients. It is also ETS's mission to provide appropriate guidelines for score interpretation and cautions about the limitations in the meaning and use of the test scores. Finally 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 on an answer document. All multiple-choice questions are machine scored. Responses to the writing task are scored by trained raters.

In order to score and report CMA results, ETS follows an established set of written procedures. 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 reported to a single student data record by matching specific demographic fields on test booklets
- Matching Criteria for Multiple-choice and Writing Answer Documents—Describes the method used to match students' writing and multiple-choice responses

The scoring specifications are reviewed and revised by the CDE, ETS, and Pearson each year. After a version 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 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 except for ELA in grades four and seven, the total raw score equals the number of examinees' scores on the multiple-choice test items answered correctly. In grades four and seven, the total ELA raw score equals the sum of examinees' scores on the multiple-choice items and the writing task.

Subscore

The items in the CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I administered in grades seven through eleven are aggregated into groups of reporting clusters. A subscore is a measure of an examinee's performance on the items in each reporting cluster. These results are reported both as raw scores and percent of items answered correctly. A description of the CMA reporting clusters for: grades three through nine in ELA; grades five, eight, and ten in science; grades three through seven in mathematics; and Algebra I, is provided in Appendix 2.B of Chapter 2, starting on page 20.

Scale Score

Raw scores obtained on the tests for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I 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 of these tests. 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

For the CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I administered in grades seven through eleven, the performance of each student is categorized into one of the following performance levels:

- far below basic
- below basic
- basic

- proficient
- advanced

For all CMA that report performance levels—where scale scores are also reported—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.

Percent-correct Score

For the CMA tests that are introduced in 2011—the CMA for ELA in grades ten and eleven and Geometry—percent-correct scores are reported. The percent-correct score is the proportion of items on an examinee's test that was answered correctly.

Writing Score

Examinees' responses to the essay 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 130.

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

It should be noted that parents/guardians may choose not to let their child attempt the writing task in grades four or seven. In these cases, the student's ELA score is based on the multiple-choice portion of the test only.

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.

Scoring Key Verification Process

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

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 sequences of linking items in the form planners are matched with their sequence in the actual test booklets. Linking items are used to link the scores on the current year's test form to scores obtained on the previous years' test forms so as to adjust for the difficulty level of the forms across years. This is accomplished during the equating process, as discussed in Chapter 2 on page 14.
5. The demarcations of various sections in the actual test booklets are checked against the list of demarcations provided by ETS test development staff.
6. 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.
7. The entire scoring system is tested using a test deck that includes typical and extremely atypical response vectors.
8. 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 followup process is carried out for it to be excluded from further analyses.

Monitoring and Quality Control of Writing Scoring

Students who take the CMA for ELA in 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 read by a single reader; their writing score is based on that reader's rating. In addition, 10 percent of students' responses also are read by a second reader to provide data that can be used to assess the accuracy and reliability of the writing scores. The score from the second reader does not count toward the student's writing test score. 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 received extensive training on how the ePEN™ system works, how to best manage scorers, and how to maintain accuracy as scoring continues.

Scoring directors are responsible for overseeing the scoring and for providing leadership for the scoring supervisors. They also help to manage the scorers and they are ultimately responsible for maintaining the highest accuracy possible during STAR scoring. Scoring directors represent the best of the scoring supervisors. They typically have two to three years of experience as scoring supervisors and 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 of one test form to another. (See Chapter 2, Equating, 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 are carried out by ETS psychometricians to ensure the accuracy of each scoring tables, as discussed in Chapter 9 on page 323.

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 324.

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. Students taking the CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I administered in grade seven through eleven receive scale scores and are classified in terms of their performance levels. For students who took the CMA for ELA in

grades ten and eleven and Geometry, only percent-correct scores by content area are reported.

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 two rows in the tables present 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	17,609	311	71	29.80	9.11	62.09	18.99
	4**	48	24,969	326	73	27.63	7.89	57.57	16.44
	5	48	27,577	326	75	29.21	8.07	60.86	16.82
	6	54	26,059	305	88	30.48	8.19	56.45	15.17
	7**	54	24,392	309	84	32.18	9.06	59.59	16.79
	8	54	23,020	309	76	30.30	8.38	56.11	15.52
	9	60	16,269	287	64	29.07	8.52	48.45	14.21
	10***	60	12,871	N/A	N/A	29.16	8.06	48.61	13.43
	11***	60	9,095	N/A	N/A	26.65	7.27	44.42	12.11
Mathematics	**3**	48	15,296	327	71	30.28	8.95	63.09	18.64
	4	48	20,974	328	86	28.32	7.61	59.00	15.85
	5	48	24,044	347	81	30.04	8.25	62.59	17.20
	6	54	24,404	320	82	28.95	7.59	53.61	14.06
	7	54	23,784	297	86	25.00	6.50	46.29	12.04
	Algebra I	60	22,935	288	52	28.82	7.88	48.04	13.13
	Geometry***	60	4,661	N/A	N/A	28.65	8.06	47.75	13.43
Science	**5**	48	25,223	343	58	28.26	7.54	58.87	15.71
	8	54	21,106	329	68	30.71	8.35	56.88	15.45
	10 Life Science	60	10,786	294	58	29.79	8.79	49.64	14.66
Grade Specific	**Algebra I – 8**	60	5,487	288	54	28.83	8.08	48.06	13.46
	Geometry – 9***	60	281	N/A	N/A	29.46	8.93	49.09	14.88

* Numbers indicate grade-level tests.

** MC only

*** Scale scores and performance levels were not available for ELA in grades ten and eleven and Geometry during the spring 2011 operational administration.

The percentages of students in each performance level are presented in Table 7.2, on the next page The last column of the table presents the overall percentage of examinees that were classified at the proficient level or higher. Scale scores and performance levels were not available for grades ten and eleven ELA and Geometry during the spring 2011 operational administration.

The numbers in the summary tables may not match exactly the results reported on the CDE's Web site because of slight differences in the samples used to compute the statistics.

The P1 data file was used for the analyses in this chapter. This file contained more than 99.5 percent of the entire test-taking population and approximately 99.8 percent of the student records used in the August 15, 2011, 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	11%	36%	24%	15%	14%	29%
	4**	12%	25%	27%	22%	14%	36%
	5	6%	32%	25%	19%	18%	37%
	6	19%	30%	21%	15%	15%	30%
	7**	20%	28%	21%	20%	11%	31%
	8	17%	31%	23%	19%	11%	29%
	9	25%	36%	21%	13%	5%	18%
Mathematics	3	7%	32%	24%	28%	8%	37%
	4	8%	33%	19%	27%	13%	40%
	5	5%	26%	23%	29%	17%	46%
	6	14%	31%	23%	23%	10%	32%
	7	26%	31%	19%	18%	5%	23%
	Algebra I	23%	39%	26%	10%	2%	12%
Science	5	3%	22%	30%	30%	15%	45%
	8	18%	20%	25%	23%	14%	37%
	10	22%	36%	24%	14%	4%	18%
Grade Specific	Algebra I – 8	23%	40%	24%	10%	3%	13%

* Numbers indicate grade-level tests.

** MC only

Table 7.B.1 through Table 7.B.4 in Appendix 7.B, starting on page 136, show the distributions of scale scores for each CMA for which scale scores were provided. The results are reported in terms of 15 score intervals, each of which contains 30 scale score points. 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.5 through Table 7.B.7 show the distribution of raw scores for the CMA grade-level tests for ELA in grades ten and eleven and for Geometry. Table 7.B.8 presents similar information for grade-specific results of the EOC Geometry test. A frequency count of zero indicates that either there are no obtainable scale scores within that scale score range, or there were no students who obtained a scale score within the scale score range.

Group Scores

Statistics summarizing student performance by content area and grade for selected groups of students are provided in Table 7.C.1 through Table 7.C.16.

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

Table 7.3 provides definitions of the demographic groups included in the tables. Students’ economic status was determined by considering the education level of their parents and whether or not they participated in the National School Lunch Program (NSLP). To protect

privacy when the number of students in a subgroup is 10 or fewer, the summary statistics are not reported and are presented as hyphens.

Table 7.3 Subgroup Definitions

Subgroup	Definition
Gender	• Male • Female

Ethnicity	• American Indian or Alaska Native
	• Asian
	  • Asian Indian
	  • Cambodian
	  • Chinese
	  • Hmong
	  • Japanese
	  • Korean
	  • Laotian
	  • Vietnamese
	  • Other Asian
	• Pacific Islander
	  • Guamanian
	  • Native Hawaiian
	  • Samoan
	  • Tahitian
	  • Other Pacific Islander
	• Filipino
	• Hispanic or Latino
	• African American
	• White (not Hispanic)

English-language Fluency	• English only • Initially fluent English proficient • English learner • Reclassified fluent English proficient
Economic Status	• Not economically disadvantaged • Economically disadvantaged
Primary Disability	• Mental retardation • Hard of hearing • Deafness • Speech/language impairment • Visual impairment • Emotional disturbance • Orthopedic impairment • Other health impairment • Specific learning impairment • Deaf blindness • Multiple group

Subgroup	Definition
	• 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/.

Score Report Contents

The STAR Student Report provides scale scores, performance levels, and reporting cluster (subscore) results for the CMA for ELA in grades three through nine, science in grades five,

eight, and ten, mathematics in grades three through seven, and Algebra I administered in grade seven through eleven. 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.

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).

For students who took the CMA for ELA in grades ten and eleven and Geometry, only percent-correct results are reported.

Students in grades four and seven also receive a numerical score (from 0–4) for the CMA writing task. The score for the writing tests is incorporated into the overall grades four and seven ELA test scores (for which a performance level and scale score are available).

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

Further information about the STAR Student Report and the other reports is provided in Appendix 7.D on page 173.

Score Report Applications

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

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

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

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

The results from the CMA are used for state and federal accountability programs to monitor each school’s and district’s progress toward achieving established goals. As mentioned

previously, CMA results are used to calculate each school's and district's API. The API is a major component of California's Public School Accountability Act (PSAA) and is used to rank the academic performance of schools, compare schools with similar characteristics (for example, size and ethnic makeup), identify low-performing and high-priority schools, and set yearly targets for academic growth.

CMA results also are used to comply with federal ESEA legislation that requires all schools to meet specific academic goals. The progress of each school toward achieving these goals is provided annually in an Adequate Yearly Progress (AYP) report. Each year, California schools and districts must meet AYP goals by showing that a specified percentage of CMA test-takers at the district and school level are performing at or above the proficient level on the 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, 2011a). 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 *2011 STAR Post-Test Guide* (CDE, 2011b).

Reference

California Department of Education. (2011a). *2011 STAR CST/CMA, CAPA, and STS printed reports*. Downloaded from http://www.startest.org/pdfs/STAR.reports.2011.pdf

California Department of Education. (2011b). *2011 STAR post-test guide.* Downloaded from http://www.startest.org/pdfs/STAR.post-test_guide.2011.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 writing test for grade four. This rubric includes two sets of criteria. The criteria under "The Writing" are adapted from the writing strategies and written conventions strands of California's English–language arts content standards. These criteria are used to evaluate on-demand, first-draft written responses in all genres. Student responses are evaluated on their clarity of purpose, central idea, and organization; their coherence; and their use of supporting evidence, sentence variety, and written conventions. The criteria under "Narrative writing," "Summary writing," "Response to literature writing" have been adapted from the writing applications strand of the state's content standards for these genres. These criteria are used to evaluated student writing in the specific genres to which they apply.

Score: 4

The Writing:

- *Clearly* addresses the writing task
- Demonstrates a *clear* understanding of purpose
- 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 visualize the events or experiences

Summary writing:

- Summarizes text with *clear* identification of the main idea(s) and the most significant details, in 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, and 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 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
- S*uggests* 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, and 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, and 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, the 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 writing test for grade seven. This rubric includes two sets of criteria. The criteria under "The Writing" are adapted from the writing strategies and written conventions strands of California's English–language arts content standards. These criteria are used to evaluate on-demand, first-draft written responses in all genres. Student responses are evaluated on their clarity of purpose, central idea, and organization; their coherence; and their use of supporting evidence, sentence variety, and written conventions. The criteria under "Fictional or autobiographical narrative writing," "Response to literature writing," "Persuasive writing," and "Summary writing" have been adapted from the writing applications strand of the state's content standards for these genres. These criteria 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, and spelling).These errors do **not** interfere with the reader's understanding of the writing.

Fictional or autobiographical narrative writing:

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

Response to literature writing:

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

Persuasive writing:

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

Summary writing:

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

Score: 3

The Writing:

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

Fictional or autobiographical narrative writing:

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

Response to literature writing:

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

Persuasive writing

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

Summary writing

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

Score: 2

The Writing:

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

Fictional or autobiographical narrative writing:

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

Response to literature writing:

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

Persuasive writing:

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

Summary writing:

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

Score: 1

The Writing:

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

Fictional or autobiographical narrative writing:

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

Response to literature writing:

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

Persuasive writing:

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

Summary writing:

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

Appendix 7.B—Scale Score Distributions

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

Scale Score	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
570 – 600	19	50	62	64	66	35	1
540 – 569	63	67	113	60	86	43	14
510 – 539	N/A	129	213	266	143	93	12
480 – 509	147	183	304	235	258	308	59
450 – 479	241	656	977	664	620	602	127
420 – 449	812	1,652	1,418	1,144	1,011	825	315
390 – 419	1,120	2,220	2,729	2,362	2,005	1,747	514
360 – 389	1,979	2,803	3,270	1,997	2,486	2,203	1,110
330 – 359	2,561	3,924	3,470	3,203	2,625	2,578	1,700
300 – 329	2,392	3,998	4,485	3,229	3,417	3,556	2,529
270 – 299	2,739	2,854	4,177	3,105	3,160	3,729	2,690
240 – 269	2,625	3,464	2,666	2,937	2,969	2,622	3,170
210 – 239	1,791	2,087	2,515	2,594	2,688	2,904	2,583
180 – 209	929	711	868	2,119	1,563	1,209	1,063
150 – 179	191	171	310	2,080	1,295	566	382

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
570 – 600	28	168	246	145	119	5
540 – 569	90	163	248	74	57	4
510 – 539	N/A	235	349	300	209	24
480 – 509	167	655	495	199	354	23
450 – 479	596	426	1,223	1,114	569	115
420 – 449	865	1,721	1,590	1,113	774	261
390 – 419	1,052	1,427	2,953	2,145	1,110	403
360 – 389	2,279	2,582	3,043	1,831	2,464	1,068
330 – 359	2,207	1,898	3,836	3,102	2,062	2,644
300 – 329	2,019	2,959	2,528	3,409	2,486	4,291
270 – 299	2,460	3,609	3,122	3,460	4,373	5,486
240 – 269	2,118	2,215	2,587	3,165	2,912	4,437
210 – 239	1,100	1,191	1,242	2,452	2,578	3,384
180 – 209	293	1,187	468	1,295	1,871	633
150 – 179	22	538	114	600	1,846	157

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

Scale Score	Grade 5	Grade 8	Grade 10
570 – 600	12	28	5
540 – 569	39	40	7
510 – 539	76	182	11
480 – 509	104	160	41
450 – 479	892	745	67
420 – 449	1,159	796	153
390 – 419	2,481	2,186	457
360 – 389	4,342	2,210	694
330 – 359	5,791	3,229	1,307
300 – 329	4,125	3,503	1,807
270 – 299	3,953	4,185	2,261
240 – 269	1,757	2,440	2,035
210 – 239	410	972	1,602
180 – 209	76	362	273
150 – 179	6	68	66

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

Scale Score	Algebra I – Grade 8
570 – 600	3
540 – 569	2
510 – 539	11
480 – 509	7
450 – 479	37
420 – 449	74
390 – 419	104
360 – 389	249
330 – 359	614
300 – 329	935
270 – 299	1,370
240 – 269	1,084
210 – 239	800
180 – 209	153
150 – 179	44

Table 7.B.5 Distribution of CMA Raw Scores for ELA, Grade 10

Raw Score	No. Tested	Pct*.	Cum. No. Tested	Pct. Below*
57–60	1	–	12,871	100%
54–56	7	–	12,870	100%
51–53	49	–	12,863	100%
48–50	147	1%	12,814	98%
45–47	304	2%	12,667	96%
42–44	560	4%	12,363	92%
39–41	782	6%	11,803	86%
36–38	1,061	8%	11,021	77%
33–35	1,296	10%	9,960	67%
30–32	1,497	12%	8,664	56%
27–29	1,716	13%	7,167	42%
24–26	1,968	15%	5,451	27%
21–23	1,709	13%	3,483	14%
18–20	1,155	9%	1,774	5%
15–17	472	4%	619	1%
12–14	118	1%	147	–
9–11	25	–	29	–
6–8	2	–	4	–
3–5	1	–	2	–
0–2	1	–	1	–

* Percentages less than 1 are not shown.

Table 7.B.6 Distribution of CMA Raw Scores for ELA, Grade 11

Raw Score	No. Tested	Pct*.	Cum. No. Tested	Pct. Below*
57–60	0	–	9,095	100%
54–56	4	–	9,095	100%
51–53	16	–	9,091	100%
48–50	50	1%	9,075	99%
45–47	99	1%	9,025	98%
42–44	168	2%	8,926	96%
39–41	302	3%	8,758	93%
36–38	485	5%	8,456	88%
33–35	720	8%	7,971	80%
30–32	989	11%	7,251	69%
27–29	1,292	14%	6,262	55%
24–26	1,582	17%	4,970	37%
21–23	1,578	17%	3,388	20%
18–20	1,128	12%	1,810	7%
15–17	502	6%	682	2%
12–14	144	2%	180	–
9–11	26	–	36	–
6–8	4	–	10	–
3–5	2	–	6	–
0–2	4	–	4	–

* Percentages less than 1 are not shown.

Table 7.B.7 Distribution of CMA Raw Scores for Geometry

Raw Score	No. Tested	Pct*.	Cum. No. Tested	Pct. Below*
57–60	3	–	4,661	100%
54–56	15	–	4,658	100%
51–53	35	1%	4,643	99%
48–50	63	1%	4,608	98%
45–47	97	2%	4,545	95%
42–44	150	3%	4,448	92%
39–41	233	5%	4,298	87%
36–38	300	6%	4,065	81%
33–35	389	8%	3,765	72%
30–32	560	12%	3,376	60%
27–29	714	15%	2,816	45%
24–26	753	16%	2,102	29%
21–23	710	15%	1,349	14%
18–20	424	9%	639	5%
15–17	168	4%	215	1%
12–14	41	1%	47	–
9–11	4	–	6	–
6–8	2	–	2	–
3–5	0	–	0	–
0–2	0	–	0	–

* Percentages less than 1 are not shown.

Table 7.B.8 Distribution of CMA Raw Scores for a Grade-specific Population

Geometry – Grade 9				
Raw Score	No. Tested	Pct*.	Cum. No. Tested	Pct. Below*
57–60	0	–	281	100%
54–56	2	1%	281	99%
51–53	7	2%	279	97%
48–50	8	3%	272	94%
45–47	5	2%	264	92%
42–44	11	4%	259	88%
39–41	12	4%	248	84%
36–38	16	6%	236	78%
33–35	22	8%	220	70%
30–32	35	12%	198	58%
27–29	35	12%	163	46%
24–26	48	17%	128	28%
21–23	42	15%	80	14%
18–20	25	9%	38	5%
15–17	11	4%	13	1%
12–14	2	1%	2	–
9–11	0	–	0	–
6–8	0	–	0	–
3–5	0	–	0	–
0–2	0	–	0	–

* Percentages less than 1 are not shown.

Appendix 7.C—Demographic Summaries

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

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Vocabulary	Reading for Understanding	Language
All valid scores	17,609	311	71	11%	36%	24%	15%	14%	65%	61%	61%
Male	11,893	309	71	11%	37%	24%	14%	13%	65%	60%	60%
Female	5,599	315	71	10%	34%	25%	17%	14%	65%	62%	63%
Gender unknown	117	310	76	17%	28%	25%	15%	15%	63%	60%	62%
American Indian	170	318	73	10%	34%	22%	16%	17%	66%	63%	63%
Asian American	529	322	68	8%	30%	30%	18%	15%	70%	61%	66%
Pacific Islander	94	312	68	9%	40%	23%	14%	14%	65%	61%	61%
Filipino	182	319	62	4%	34%	34%	16%	12%	70%	61%	65%
Hispanic	10,739	305	70	12%	38%	24%	14%	12%	63%	59%	60%
African American	1,612	303	71	13%	38%	24%	12%	12%	62%	59%	59%
White	3,558	328	74	8%	30%	24%	19%	20%	70%	66%	65%
Ethnicity unknown	725	318	72	10%	32%	26%	16%	15%	67%	63%	63%
English only	9,558	316	73	10%	34%	25%	16%	16%	66%	63%	62%
Initially fluent English prof.	178	323	71	7%	35%	22%	15%	21%	68%	64%	65%
English learner	7,407	303	68	12%	40%	24%	14%	11%	63%	59%	60%
Reclassified fluent English prof.	49	324	80	12%	22%	27%	20%	18%	69%	65%	62%
English prof. unknown	417	315	70	11%	34%	27%	16%	13%	65%	62%	63%
Autism	1,248	315	73	9%	35%	25%	15%	15%	69%	60%	62%
Deaf-blindness	2	288	85	0%	50%	50%	0%	0%	54%	59%	56%
Deafness	105	254	56	37%	49%	7%	4%	4%	46%	42%	48%
Emotional disturbance	285	320	81	13%	28%	22%	16%	21%	67%	64%	62%
Hard of hearing	145	306	70	13%	34%	27%	15%	11%	63%	59%	61%
Mental retardation	319	261	55	29%	50%	15%	4%	2%	51%	48%	46%
Multiple disability	19	270	52	5%	68%	21%	0%	5%	54%	54%	44%
Orthopedic impairment	120	312	73	10%	38%	24%	13%	15%	66%	61%	60%
Other health impairment	1,474	322	72	9%	32%	23%	17%	19%	68%	64%	64%
Specific learning disability	9,621	308	71	11%	37%	24%	14%	13%	63%	61%	60%
Speech or language Impairment	3,043	316	68	9%	34%	26%	18%	13%	67%	62%	63%
Traumatic brain injury	36	291	74	14%	53%	8%	17%	8%	59%	58%	51%
Visual impairment	49	317	77	10%	27%	33%	12%	18%	67%	63%	61%
Disability unknown	1,143	318	72	10%	33%	26%	16%	15%	66%	63%	63%
Not economically disadvantaged	3,780	331	73	7%	28%	24%	20%	21%	71%	66%	66%
Economically disadvantaged	13,099	305	70	12%	38%	24%	14%	12%	63%	60%	60%
Economic status unknown	730	311	73	11%	37%	25%	14%	13%	65%	61%	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
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	37	334	72	5%	32%	24%	19%	19%	73%	64%	68%
Asian American	209	338	69	4%	23%	31%	22%	19%	75%	64%	70%
Pacific Islander	21	308	56	10%	33%	29%	19%	10%	70%	59%	60%
Filipino	89	320	65	4%	33%	34%	17%	12%	71%	60%	65%
Hispanic	1,230	324	71	8%	31%	23%	20%	18%	69%	65%	65%
African American	230	313	75	13%	31%	26%	12%	18%	65%	62%	61%
White	1,753	338	75	6%	26%	23%	20%	24%	72%	68%	67%
Ethnicity unknown	211	334	69	7%	25%	29%	20%	19%	72%	67%	67%
Primary Ethnicity—Economically Disadvantaged											
American Indian	126	312	72	12%	34%	23%	15%	16%	63%	62%	62%
Asian American	291	313	67	11%	32%	29%	16%	12%	68%	59%	64%
Pacific Islander	71	314	73	8%	42%	21%	13%	15%	64%	62%	62%
Filipino	82	318	60	2%	39%	33%	12%	13%	68%	62%	64%
Hispanic	9,208	303	69	13%	39%	24%	14%	11%	62%	59%	59%
African American	1,308	301	70	13%	40%	24%	12%	11%	62%	58%	58%
White	1,690	318	70	9%	33%	26%	17%	15%	67%	63%	62%
Ethnicity unknown	323	306	70	13%	37%	24%	14%	12%	64%	60%	59%
Primary Ethnicity—Unknown Economic Status											
American Indian	7	–	–	–	–	–	–	–	–	–	–
Asian American	29	298	65	7%	48%	28%	7%	10%	62%	55%	60%
Pacific Islander	2	309	33	0%	50%	50%	0%	0%	71%	56%	65%
Filipino	11	324	50	9%	9%	45%	36%	0%	73%	63%	66%
Hispanic	301	299	70	15%	40%	26%	10%	10%	62%	58%	57%
African American	74	314	73	14%	31%	24%	15%	16%	67%	62%	61%
White	115	326	74	3%	40%	22%	21%	14%	70%	63%	64%
Ethnicity unknown	191	321	75	10%	31%	27%	16%	17%	67%	63%	64%

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	24,969	326	73	12%	25%	27%	22%	14%	59%	56%	58%
Male	16,843	322	73	13%	26%	27%	21%	13%	58%	56%	57%
Female	8,119	333	72	9%	24%	28%	23%	16%	60%	58%	60%
Gender unknown	7	–	–	–	–	–	–	–	–	–	–
American Indian	258	325	77	14%	24%	24%	23%	15%	58%	56%	59%
Asian American	806	331	76	12%	23%	26%	23%	17%	61%	57%	59%
Pacific Islander	107	320	73	15%	24%	27%	23%	10%	58%	55%	56%
Filipino	264	333	71	9%	23%	25%	29%	14%	61%	58%	61%
Hispanic	15,457	321	70	12%	27%	28%	21%	12%	58%	55%	57%
African American	2,575	313	72	16%	29%	27%	17%	12%	56%	53%	55%
White	4,933	344	76	8%	20%	25%	25%	21%	63%	61%	62%
Ethnicity unknown	569	334	77	11%	21%	26%	25%	17%	61%	58%	60%
English only	13,732	331	74	11%	24%	26%	23%	16%	60%	58%	59%
Initially fluent English prof.	267	343	76	10%	19%	28%	23%	21%	63%	59%	62%
English learner	10,800	318	69	13%	27%	29%	20%	11%	57%	54%	56%
Reclassified fluent English prof.	118	355	73	4%	18%	27%	29%	22%	67%	60%	65%
English prof. unknown	52	307	74	15%	29%	31%	19%	6%	54%	52%	53%
Autism	1,473	328	77	13%	25%	25%	20%	17%	59%	57%	59%
Deaf-blindness	4	–	–	–	–	–	–	–	–	–	–
Deafness	105	272	60	31%	33%	30%	3%	3%	44%	42%	48%
Emotional disturbance	456	329	79	14%	23%	22%	23%	18%	61%	58%	57%
Hard of hearing	216	335	72	9%	25%	25%	25%	16%	58%	59%	61%
Mental retardation	398	267	56	34%	39%	19%	6%	1%	45%	43%	45%
Multiple disability	24	320	80	8%	33%	38%	8%	13%	55%	57%	56%
Orthopedic impairment	186	321	83	18%	22%	27%	17%	17%	57%	55%	57%
Other health impairment	2,086	337	76	10%	21%	27%	23%	19%	62%	59%	60%
Specific learning disability	14,539	323	72	12%	26%	27%	21%	13%	58%	56%	57%
Speech or language Impairment	3,665	332	70	9%	23%	29%	24%	15%	60%	57%	60%
Traumatic brain injury	45	327	80	20%	18%	20%	27%	16%	63%	53%	59%
Visual impairment	46	312	81	24%	17%	28%	17%	13%	56%	52%	56%
Disability unknown	1,726	330	70	9%	24%	28%	23%	15%	60%	57%	59%
Not economically disadvantaged	5,728	347	75	8%	19%	26%	25%	22%	63%	61%	63%
Economically disadvantaged	19,153	319	71	13%	27%	28%	20%	12%	57%	55%	57%
Economic status unknown	88	313	72	15%	26%	34%	16%	9%	56%	54%	54%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	70	340	79	9%	23%	29%	21%	19%	62%	59%	61%
Asian American	322	345	78	10%	17%	25%	25%	22%	64%	59%	63%
Pacific Islander	27	342	79	11%	19%	33%	15%	22%	64%	57%	62%
Filipino	150	339	70	5%	25%	24%	30%	16%	61%	58%	63%
Hispanic	1,875	340	72	9%	20%	28%	24%	19%	62%	60%	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	427	329	77	13%	24%	28%	19%	17%	59%	57%	58%
White	2,633	356	76	6%	17%	24%	27%	26%	65%	63%	64%
Ethnicity unknown	224	347	75	6%	18%	27%	28%	21%	63%	61%	63%
Primary Ethnicity—Economically Disadvantaged											
American Indian	188	320	76	15%	24%	22%	24%	14%	56%	55%	58%
Asian American	479	322	73	13%	27%	26%	21%	13%	58%	55%	57%
Pacific Islander	80	312	70	16%	26%	25%	26%	6%	56%	54%	54%
Filipino	114	326	70	14%	21%	27%	27%	11%	60%	57%	57%
Hispanic	13,549	318	70	13%	28%	28%	20%	11%	57%	55%	56%
African American	2,138	310	70	16%	30%	27%	17%	11%	56%	53%	54%
White	2,279	331	73	11%	24%	26%	24%	16%	60%	59%	59%
Ethnicity unknown	326	327	77	13%	23%	25%	23%	15%	60%	57%	58%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	5	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	33	316	77	15%	21%	36%	18%	9%	59%	55%	54%
African American	10	314	75	20%	20%	30%	20%	10%	58%	54%	53%
White	21	312	54	5%	43%	33%	10%	10%	52%	55%	55%
Ethnicity unknown	19	311	88	21%	16%	42%	11%	11%	56%	54%	52%

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	27,577	326	75	6%	32%	25%	19%	18%	71%	53%	64%
Male	18,295	321	74	7%	34%	24%	19%	16%	71%	52%	62%
Female	9,251	335	75	5%	28%	25%	21%	21%	72%	54%	67%
Gender unknown	31	277	55	13%	48%	29%	10%	0%	53%	42%	55%
American Indian	247	333	78	7%	28%	25%	21%	20%	73%	55%	64%
Asian American	872	332	75	6%	27%	26%	23%	18%	74%	52%	66%
Pacific Islander	155	326	65	3%	36%	23%	25%	14%	73%	51%	65%
Filipino	300	330	68	4%	30%	30%	19%	17%	74%	52%	67%
Hispanic	17,212	320	72	6%	34%	25%	19%	15%	69%	51%	63%
African American	2,874	315	72	8%	36%	25%	17%	14%	70%	51%	60%
White	5,353	348	80	4%	24%	22%	22%	28%	76%	58%	68%
Ethnicity unknown	564	334	77	5%	29%	26%	18%	21%	73%	54%	66%
English only	14,821	333	77	5%	29%	24%	20%	21%	73%	55%	65%
Initially fluent English prof.	518	351	81	5%	23%	20%	24%	28%	76%	59%	69%
English learner	11,904	315	69	7%	36%	26%	19%	13%	68%	50%	62%
Reclassified fluent English prof.	264	356	79	4%	18%	26%	19%	33%	78%	60%	70%
English prof. unknown	70	304	79	13%	30%	33%	13%	11%	61%	47%	61%
Autism	1,377	318	75	8%	35%	24%	18%	15%	70%	49%	63%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	127	268	50	16%	58%	18%	7%	1%	54%	39%	51%
Emotional disturbance	622	324	83	10%	32%	20%	18%	21%	72%	53%	61%
Hard of hearing	237	327	74	4%	39%	20%	17%	20%	69%	51%	67%
Mental retardation	441	262	56	22%	55%	14%	6%	2%	53%	40%	48%
Multiple disability	35	265	51	17%	57%	20%	6%	0%	55%	39%	50%
Orthopedic impairment	203	331	82	6%	33%	22%	17%	22%	71%	55%	64%
Other health impairment	2,406	338	78	5%	28%	24%	21%	23%	76%	56%	65%
Specific learning disability	17,212	326	74	6%	32%	25%	20%	18%	71%	53%	64%
Speech or language Impairment	3,272	328	70	5%	31%	27%	21%	17%	72%	52%	65%
Traumatic brain injury	61	314	83	13%	33%	26%	13%	15%	69%	51%	59%
Visual impairment	80	342	83	10%	19%	25%	18%	29%	72%	58%	67%
Disability unknown	1,503	328	71	5%	31%	27%	21%	16%	73%	53%	64%
Not economically disadvantaged	6,323	348	79	4%	24%	24%	21%	27%	77%	57%	68%
Economically disadvantaged	21,125	319	72	7%	35%	25%	19%	15%	69%	51%	63%
Economic status unknown	129	303	71	10%	36%	29%	15%	9%	63%	49%	59%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	74	347	80	7%	16%	30%	22%	26%	79%	58%	67%
Asian American	338	350	77	3%	22%	25%	25%	25%	78%	56%	70%
Pacific Islander	39	333	66	0%	33%	31%	26%	10%	77%	55%	64%
Filipino	171	333	70	4%	27%	33%	20%	16%	74%	52%	67%
Hispanic	2,073	341	76	4%	27%	25%	21%	24%	75%	56%	67%

				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	519	328	78	7%	31%	25%	18%	19%	74%	53%	63%
White	2,893	357	80	3%	20%	22%	22%	32%	79%	60%	70%
Ethnicity unknown	216	341	76	3%	31%	23%	19%	24%	76%	55%	67%
Primary Ethnicity—Economically Disadvantaged											
American Indian	173	326	77	7%	32%	23%	20%	17%	71%	54%	63%
Asian American	531	320	71	7%	31%	26%	22%	14%	71%	50%	64%
Pacific Islander	116	323	65	3%	37%	21%	24%	15%	72%	50%	65%
Filipino	126	327	66	4%	33%	27%	18%	18%	74%	51%	66%
Hispanic	15,088	317	71	7%	35%	25%	19%	14%	69%	50%	63%
African American	2,344	312	71	8%	37%	25%	17%	12%	69%	50%	60%
White	2,434	337	78	5%	28%	23%	21%	23%	74%	56%	66%
Ethnicity unknown	313	335	76	5%	28%	27%	19%	20%	72%	55%	66%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	3	–	–	–	–	–	–	–	–	–	–
Hispanic	51	293	57	8%	43%	29%	18%	2%	62%	49%	55%
African American	11	323	74	9%	18%	36%	18%	18%	68%	55%	63%
White	26	335	79	0%	35%	27%	19%	19%	72%	56%	65%
Ethnicity unknown	35	293	81	20%	31%	31%	6%	11%	59%	44%	59%

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	26,059	305	88	19%	30%	21%	15%	15%	62%	52%	58%
Male	17,290	300	88	22%	31%	20%	14%	14%	62%	52%	56%
Female	8,758	317	86	14%	29%	22%	17%	17%	63%	54%	61%
Gender unknown	11	230	89	64%	18%	0%	9%	9%	47%	37%	45%
American Indian	238	311	86	19%	26%	21%	20%	15%	67%	53%	58%
Asian American	775	313	87	18%	27%	22%	17%	17%	63%	52%	61%
Pacific Islander	121	305	82	15%	39%	20%	12%	15%	65%	52%	58%
Filipino	282	314	80	12%	34%	20%	19%	15%	64%	53%	61%
Hispanic	16,255	299	85	21%	32%	21%	14%	13%	60%	51%	57%
African American	2,947	294	87	23%	31%	20%	13%	13%	62%	51%	55%
White	4,975	331	93	13%	25%	20%	18%	24%	70%	57%	61%
Ethnicity unknown	466	314	90	18%	26%	20%	16%	20%	67%	54%	58%
English only	14,033	315	91	17%	28%	20%	16%	19%	66%	54%	59%
Initially fluent English prof.	549	330	90	13%	26%	20%	18%	23%	68%	56%	62%
English learner	10,932	290	80	23%	34%	21%	13%	9%	57%	50%	56%
Reclassified fluent English prof.	469	351	94	9%	21%	18%	19%	33%	69%	60%	66%
English prof. unknown	76	265	79	34%	36%	13%	9%	8%	55%	47%	49%
Autism	1,221	304	93	20%	31%	18%	14%	16%	60%	51%	60%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	102	242	69	45%	34%	14%	5%	2%	41%	42%	50%
Emotional disturbance	672	303	96	23%	28%	17%	14%	17%	66%	52%	56%
Hard of hearing	225	290	79	21%	36%	20%	14%	9%	56%	49%	58%
Mental retardation	423	224	63	57%	30%	8%	4%	1%	42%	40%	44%
Multiple disability	39	278	86	26%	38%	18%	10%	8%	54%	47%	54%
Orthopedic impairment	176	318	99	19%	23%	23%	14%	20%	64%	53%	61%
Other health impairment	2,196	323	92	16%	26%	19%	18%	21%	69%	55%	60%
Specific learning disability	17,154	306	87	19%	30%	21%	15%	15%	63%	53%	58%
Speech or language Impairment	2,447	306	81	16%	32%	23%	15%	13%	61%	52%	60%
Traumatic brain injury	54	271	90	33%	35%	17%	7%	7%	53%	46%	53%
Visual impairment	72	315	101	25%	21%	18%	13%	24%	64%	54%	59%
Disability unknown	1,277	307	85	18%	30%	22%	16%	15%	64%	53%	57%
Not economically disadvantaged	5,888	332	92	13%	25%	20%	17%	24%	69%	56%	62%
Economically disadvantaged	20,074	298	85	21%	32%	21%	14%	12%	61%	51%	57%
Economic status unknown	97	267	80	35%	33%	14%	9%	8%	56%	48%	49%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	70	324	91	16%	24%	23%	19%	19%	70%	54%	61%
Asian American	289	326	86	14%	23%	22%	20%	21%	67%	54%	64%
Pacific Islander	39	314	93	18%	36%	13%	10%	23%	65%	54%	58%
Filipino	164	313	77	10%	37%	21%	18%	13%	64%	53%	60%
Hispanic	2,021	325	90	14%	26%	21%	17%	22%	67%	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	565	311	93	19%	28%	20%	13%	19%	66%	53%	58%
White	2,577	344	94	10%	23%	20%	19%	28%	72%	58%	63%
Ethnicity unknown	163	336	89	11%	24%	23%	17%	25%	72%	57%	62%
Primary Ethnicity—Economically Disadvantaged											
American Indian	167	307	83	20%	26%	20%	21%	13%	66%	53%	57%
Asian American	483	305	87	20%	29%	23%	15%	14%	60%	52%	59%
Pacific Islander	81	302	77	12%	41%	23%	12%	11%	65%	51%	57%
Filipino	118	316	84	15%	30%	19%	20%	16%	65%	53%	61%
Hispanic	14,199	295	83	21%	33%	21%	14%	11%	59%	51%	57%
African American	2,370	291	85	24%	32%	20%	13%	11%	61%	50%	55%
White	2,375	317	90	16%	27%	21%	18%	19%	67%	54%	59%
Ethnicity unknown	281	307	89	21%	27%	19%	15%	18%	65%	53%	57%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	35	259	72	37%	37%	11%	9%	6%	51%	48%	48%
African American	12	265	95	50%	17%	8%	17%	8%	61%	48%	45%
White	23	303	87	17%	39%	17%	9%	17%	68%	51%	57%
Ethnicity unknown	22	256	72	36%	32%	18%	9%	5%	54%	46%	47%

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	24,392	309	84	20%	28%	21%	20%	11%	67%	60%	57%
Male	16,282	304	84	21%	29%	21%	18%	11%	67%	59%	55%
Female	8,097	319	83	16%	26%	21%	23%	13%	67%	61%	60%
Gender unknown	13	304	81	8%	46%	8%	31%	8%	69%	56%	59%
American Indian	259	312	82	19%	24%	24%	20%	12%	68%	62%	56%
Asian American	693	320	84	16%	27%	20%	23%	14%	69%	60%	62%
Pacific Islander	130	314	86	21%	22%	19%	28%	11%	67%	61%	57%
Filipino	241	320	84	15%	29%	23%	20%	14%	69%	60%	61%
Hispanic	15,009	303	81	21%	30%	21%	18%	10%	66%	58%	56%
African American	2,697	296	81	24%	29%	21%	18%	8%	65%	58%	54%
White	4,829	332	87	13%	23%	22%	24%	18%	72%	65%	61%
Ethnicity unknown	534	311	84	18%	29%	19%	22%	13%	68%	61%	57%
English only	13,449	317	86	18%	26%	21%	21%	14%	69%	62%	58%
Initially fluent English prof.	595	325	84	14%	27%	19%	24%	16%	71%	63%	60%
English learner	9,532	294	77	23%	32%	21%	16%	7%	64%	56%	55%
Reclassified fluent English prof.	727	354	88	9%	19%	19%	27%	26%	74%	69%	65%
English prof. unknown	89	286	83	30%	24%	20%	18%	8%	62%	55%	52%
Autism	1,134	310	89	20%	28%	19%	18%	14%	68%	57%	61%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	110	249	67	46%	34%	12%	6%	2%	53%	43%	50%
Emotional disturbance	720	315	94	20%	25%	21%	19%	16%	71%	61%	57%
Hard of hearing	206	310	87	22%	28%	17%	21%	13%	65%	59%	59%
Mental retardation	466	235	60	53%	33%	8%	5%	1%	49%	43%	45%
Multiple disability	36	289	97	39%	14%	19%	14%	14%	63%	55%	53%
Orthopedic impairment	155	301	85	25%	25%	20%	22%	8%	66%	57%	57%
Other health impairment	2,132	327	87	15%	23%	21%	25%	15%	73%	64%	59%
Specific learning disability	16,431	308	82	19%	29%	21%	19%	11%	67%	60%	57%
Speech or language Impairment	1,882	310	76	15%	31%	24%	21%	9%	67%	59%	59%
Traumatic brain injury	59	293	81	22%	31%	19%	24%	5%	62%	57%	55%
Visual impairment	48	324	83	15%	23%	23%	25%	15%	71%	64%	59%
Disability unknown	1,012	313	83	17%	29%	21%	21%	12%	68%	62%	57%
Not economically disadvantaged	5,873	331	87	14%	24%	22%	23%	18%	72%	64%	61%
Economically disadvantaged	18,400	302	81	21%	30%	21%	18%	10%	66%	58%	56%
Economic status unknown	119	297	84	23%	30%	16%	20%	11%	65%	58%	54%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	79	309	84	20%	24%	25%	16%	14%	68%	62%	56%
Asian American	282	335	85	12%	24%	19%	27%	18%	71%	63%	65%
Pacific Islander	37	343	88	19%	11%	14%	35%	22%	73%	68%	62%
Filipino	146	325	79	12%	27%	27%	21%	14%	70%	61%	62%
Hispanic	2,039	324	86	15%	26%	22%	22%	15%	70%	63%	60%

				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	574	310	86	22%	25%	21%	21%	11%	68%	60%	57%
White	2,521	343	87	11%	21%	22%	25%	21%	74%	67%	63%
Ethnicity unknown	195	325	88	15%	26%	18%	24%	17%	69%	63%	61%
Primary Ethnicity—Economically Disadvantaged											
American Indian	176	312	81	19%	25%	24%	22%	11%	69%	62%	57%
Asian American	407	310	82	18%	29%	20%	20%	12%	67%	58%	59%
Pacific Islander	92	304	83	21%	26%	22%	25%	7%	65%	59%	56%
Filipino	94	313	90	18%	32%	16%	19%	15%	66%	59%	59%
Hispanic	12,926	299	80	22%	31%	21%	18%	9%	65%	57%	56%
African American	2,108	293	79	24%	31%	21%	17%	7%	64%	57%	53%
White	2,285	321	85	16%	25%	22%	22%	15%	70%	64%	58%
Ethnicity unknown	312	301	79	21%	31%	20%	20%	9%	67%	59%	55%
Primary Ethnicity—Unknown Economic Status											
American Indian	4	–	–	–	–	–	–	–	–	–	–
Asian American	4	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	44	290	73	23%	30%	25%	16%	7%	66%	59%	51%
African American	15	284	94	27%	33%	13%	13%	13%	60%	52%	54%
White	23	292	76	22%	43%	4%	26%	4%	65%	55%	55%
Ethnicity unknown	27	327	95	11%	26%	15%	26%	22%	71%	63%	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	23,020	309	76	17%	31%	23%	19%	11%	74%	52%	56%
Male	15,446	306	77	18%	32%	22%	18%	10%	73%	51%	55%
Female	7,493	316	74	13%	30%	24%	21%	11%	75%	53%	58%
Gender unknown	81	300	77	20%	41%	11%	20%	9%	75%	49%	54%
American Indian	208	308	78	22%	28%	18%	23%	9%	73%	51%	56%
Asian American	704	316	75	14%	29%	26%	20%	10%	72%	52%	59%
Pacific Islander	110	322	83	15%	30%	17%	22%	15%	81%	54%	57%
Filipino	206	320	76	14%	26%	22%	26%	12%	73%	53%	61%
Hispanic	14,038	304	74	18%	32%	23%	18%	9%	72%	50%	55%
African American	2,701	300	73	19%	34%	22%	17%	8%	73%	50%	54%
White	4,444	328	81	12%	27%	21%	22%	17%	79%	56%	59%
Ethnicity unknown	609	317	78	14%	33%	18%	20%	14%	76%	54%	57%
English only	12,241	315	78	15%	30%	22%	20%	13%	76%	53%	57%
Initially fluent English prof.	417	326	77	11%	29%	22%	24%	15%	79%	54%	60%
English learner	9,249	297	70	20%	34%	24%	16%	6%	70%	49%	54%
Reclassified fluent English prof.	799	354	81	7%	18%	20%	29%	25%	82%	60%	66%
English prof. unknown	314	317	80	17%	30%	20%	20%	14%	76%	53%	58%
Autism	882	309	81	18%	30%	21%	18%	12%	69%	50%	59%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	125	254	57	41%	41%	14%	2%	2%	51%	41%	46%
Emotional disturbance	732	312	88	20%	28%	19%	17%	16%	74%	53%	56%
Hard of hearing	211	314	75	13%	34%	24%	16%	13%	69%	52%	59%
Mental retardation	493	244	53	47%	37%	14%	2%	1%	53%	39%	43%
Multiple disability	36	286	73	25%	33%	19%	17%	6%	65%	48%	51%
Orthopedic impairment	182	309	78	17%	34%	18%	19%	13%	73%	51%	56%
Other health impairment	2,025	323	80	13%	28%	22%	21%	16%	79%	54%	58%
Specific learning disability	15,752	310	74	16%	31%	24%	19%	10%	74%	52%	56%
Speech or language Impairment	1,443	309	69	14%	32%	25%	21%	8%	72%	51%	57%
Traumatic brain injury	56	292	78	25%	32%	18%	16%	9%	69%	47%	54%
Visual impairment	63	325	78	17%	16%	22%	35%	10%	78%	55%	59%
Disability unknown	1,019	308	78	18%	33%	20%	19%	11%	74%	51%	56%
Not economically disadvantaged	5,387	327	79	12%	27%	22%	23%	16%	78%	55%	60%
Economically disadvantaged	17,267	304	74	18%	32%	23%	17%	9%	72%	51%	55%
Economic status unknown	366	311	77	17%	33%	19%	19%	12%	75%	52%	56%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	50	323	62	10%	26%	18%	40%	6%	81%	54%	60%
Asian American	253	330	72	9%	27%	27%	27%	11%	75%	54%	63%
Pacific Islander	36	312	81	14%	42%	11%	25%	8%	80%	52%	55%
Filipino	115	331	76	10%	25%	20%	27%	17%	74%	54%	64%
Hispanic	1,906	320	77	14%	28%	22%	22%	14%	76%	53%	59%

				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	539	308	77	18%	31%	20%	21%	9%	75%	51%	55%
White	2,321	337	81	9%	25%	22%	24%	20%	81%	57%	61%
Ethnicity unknown	167	328	82	13%	31%	14%	24%	19%	78%	55%	60%
Primary Ethnicity—Economically Disadvantaged											
American Indian	154	302	82	26%	29%	18%	18%	10%	70%	50%	55%
Asian American	444	309	75	18%	30%	26%	17%	10%	70%	51%	57%
Pacific Islander	74	327	84	16%	24%	20%	20%	19%	82%	56%	58%
Filipino	85	310	71	16%	26%	26%	26%	6%	73%	51%	58%
Hispanic	12,037	302	73	19%	32%	24%	17%	8%	72%	50%	55%
African American	2,130	298	72	19%	35%	22%	15%	8%	72%	50%	53%
White	2,080	318	80	15%	29%	21%	20%	14%	77%	54%	57%
Ethnicity unknown	263	307	74	14%	38%	20%	18%	10%	74%	52%	55%
Primary Ethnicity—Unknown Economic Status											
American Indian	4	–	–	–	–	–	–	–	–	–	–
Asian American	7	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	6	–	–	–	–	–	–	–	–	–	–
Hispanic	95	300	75	19%	39%	21%	13%	8%	73%	49%	54%
African American	32	291	57	19%	41%	22%	16%	3%	77%	48%	51%
White	43	327	89	16%	28%	7%	35%	14%	75%	55%	60%
Ethnicity unknown	179	320	78	16%	29%	19%	20%	16%	77%	54%	58%

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	16,269	287	64	25%	36%	21%	13%	5%	51%	50%	46%
Male	10,804	285	65	27%	35%	20%	13%	5%	52%	50%	45%
Female	5,398	292	62	21%	37%	23%	14%	5%	50%	51%	48%
Gender unknown	67	290	53	18%	36%	36%	7%	3%	52%	51%	47%
American Indian	168	288	63	24%	37%	19%	13%	7%	52%	52%	45%
Asian American	426	291	60	21%	36%	23%	16%	4%	50%	49%	49%
Pacific Islander	44	292	60	14%	48%	20%	11%	7%	52%	51%	47%
Filipino	148	310	66	16%	31%	22%	24%	7%	55%	55%	52%
Hispanic	9,944	281	61	27%	37%	20%	12%	4%	49%	49%	45%
African American	1,768	278	60	30%	37%	19%	10%	4%	51%	48%	44%
White	3,390	305	71	18%	32%	23%	17%	10%	57%	55%	49%
Ethnicity unknown	381	296	66	19%	35%	26%	12%	7%	54%	53%	47%
English only	8,969	293	67	22%	34%	22%	14%	7%	53%	52%	47%
Initially fluent English prof.	379	294	65	20%	37%	21%	16%	6%	52%	52%	47%
English learner	6,112	274	56	30%	39%	19%	10%	2%	47%	47%	44%
Reclassified fluent English prof.	676	320	69	13%	27%	23%	26%	11%	58%	58%	53%
English prof. unknown	133	283	58	21%	44%	23%	7%	5%	50%	49%	45%
Autism	536	301	76	22%	32%	21%	14%	11%	53%	52%	51%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	109	252	52	48%	36%	12%	4%	1%	41%	38%	42%
Emotional disturbance	577	301	78	23%	31%	21%	14%	11%	58%	54%	47%
Hard of hearing	143	291	65	21%	41%	20%	12%	6%	52%	50%	48%
Mental retardation	366	244	43	48%	42%	7%	3%	0%	41%	39%	38%
Multiple disability	28	285	78	32%	39%	11%	4%	14%	45%	49%	47%
Orthopedic impairment	131	292	74	23%	39%	15%	15%	8%	50%	51%	48%
Other health impairment	1,214	301	69	19%	32%	23%	17%	8%	56%	54%	48%
Specific learning disability	11,186	286	62	25%	36%	22%	13%	4%	51%	50%	46%
Speech or language Impairment	789	284	60	23%	41%	20%	11%	5%	49%	48%	47%
Traumatic brain injury	40	274	75	33%	38%	13%	13%	5%	50%	45%	44%
Visual impairment	40	289	65	20%	40%	13%	25%	3%	53%	50%	47%
Disability unknown	1,109	289	64	23%	38%	21%	12%	6%	51%	51%	46%
Not economically disadvantaged	4,489	302	68	19%	32%	24%	17%	9%	56%	54%	49%
Economically disadvantaged	11,606	281	61	27%	37%	20%	12%	4%	49%	49%	45%
Economic status unknown	174	286	61	25%	34%	26%	9%	5%	51%	50%	45%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	62	290	65	24%	34%	21%	15%	6%	54%	51%	46%
Asian American	148	299	62	16%	36%	24%	18%	5%	53%	52%	50%
Pacific Islander	19	308	71	5%	53%	16%	11%	16%	56%	55%	50%
Filipino	87	316	64	14%	25%	26%	29%	6%	56%	57%	53%
Hispanic	1,712	295	64	21%	33%	25%	16%	6%	54%	52%	47%

				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	502	290	62	22%	37%	23%	13%	5%	54%	50%	46%
White	1,824	313	73	16%	30%	23%	18%	13%	58%	57%	51%
Ethnicity unknown	135	301	71	21%	30%	26%	15%	9%	56%	55%	47%
Primary Ethnicity—Economically Disadvantaged											
American Indian	103	287	64	25%	38%	17%	13%	7%	51%	52%	44%
Asian American	274	287	59	23%	36%	23%	15%	3%	48%	48%	49%
Pacific Islander	25	281	48	20%	44%	24%	12%	0%	48%	49%	45%
Filipino	61	302	68	18%	39%	16%	18%	8%	53%	53%	50%
Hispanic	8,178	279	60	28%	38%	20%	11%	3%	48%	48%	45%
African American	1,251	273	59	33%	37%	18%	9%	3%	50%	47%	43%
White	1,541	296	69	21%	33%	24%	15%	8%	54%	53%	47%
Ethnicity unknown	173	289	64	21%	39%	25%	10%	5%	54%	51%	45%
Primary Ethnicity—Unknown Economic Status											
American Indian	3	–	–	–	–	–	–	–	–	–	–
Asian American	4	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	54	267	60	37%	35%	20%	4%	4%	47%	46%	41%
African American	15	282	54	33%	20%	33%	13%	0%	58%	50%	42%
White	25	290	65	28%	24%	32%	8%	8%	58%	50%	46%
Ethnicity unknown	73	301	61	12%	38%	29%	14%	7%	52%	54%	49%

Table 7.C.8 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	15,296	327	71	7%	32%	24%	28%	8%	60%	64%	70%
Male	10,052	329	72	7%	32%	23%	29%	9%	60%	64%	70%
Female	5,146	324	68	7%	33%	25%	28%	7%	59%	64%	69%
Gender unknown	98	315	71	5%	41%	30%	16%	8%	56%	61%	66%
American Indian	148	328	67	6%	30%	29%	26%	9%	60%	65%	71%
Asian American	469	343	76	5%	28%	20%	33%	14%	66%	65%	72%
Pacific Islander	91	327	67	9%	29%	25%	27%	10%	60%	62%	72%
Filipino	165	332	71	5%	31%	26%	29%	8%	61%	64%	72%
Hispanic	9,384	326	70	7%	33%	24%	28%	8%	59%	64%	69%
African American	1,514	312	67	9%	39%	23%	24%	5%	55%	60%	67%
White	2,900	336	74	6%	29%	22%	32%	11%	62%	66%	72%
Ethnicity unknown	625	329	71	6%	31%	27%	28%	8%	60%	65%	70%
English only	8,249	326	71	7%	33%	24%	28%	9%	59%	64%	70%
Initially fluent English prof.	141	340	70	7%	23%	27%	30%	13%	64%	68%	72%
English learner	6,493	327	70	7%	32%	24%	29%	8%	60%	64%	70%
Reclassified fluent English prof.	43	348	88	7%	21%	23%	35%	14%	63%	68%	75%
English prof. unknown	370	327	70	7%	31%	26%	28%	9%	60%	64%	70%
Autism	1,259	326	78	10%	34%	20%	26%	10%	59%	63%	68%
Deaf-blindness	2	–	–	–	–	–	–	–	–	–	–
Deafness	88	311	61	5%	41%	33%	16%	6%	57%	59%	65%
Emotional disturbance	264	321	77	8%	36%	26%	22%	8%	58%	62%	67%
Hard of hearing	138	332	65	7%	23%	30%	34%	6%	63%	65%	69%
Mental retardation	324	266	55	25%	54%	13%	7%	1%	43%	46%	52%
Multiple disability	21	266	62	33%	57%	0%	5%	5%	39%	47%	55%
Orthopedic impairment	123	309	69	11%	41%	20%	24%	6%	54%	61%	64%
Other health impairment	1,333	328	73	7%	32%	22%	29%	9%	60%	64%	70%
Specific learning disability	8,230	328	69	6%	31%	25%	29%	8%	60%	65%	71%
Speech or language Impairment	2,645	332	71	6%	31%	23%	30%	9%	61%	65%	71%
Traumatic brain injury	36	309	61	6%	53%	19%	17%	6%	53%	60%	68%
Visual impairment	48	324	75	8%	35%	19%	31%	6%	59%	62%	70%
Disability unknown	785	328	69	6%	32%	24%	29%	9%	61%	63%	70%
Not economically disadvantaged	3,191	337	73	6%	28%	24%	32%	11%	63%	66%	72%
Economically disadvantaged	11,427	324	70	7%	33%	24%	27%	8%	59%	63%	69%
Economic status unknown	678	328	71	7%	31%	25%	29%	8%	60%	64%	70%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	36	334	57	0%	28%	39%	28%	6%	61%	68%	73%
Asian American	189	349	78	4%	29%	20%	30%	17%	67%	67%	73%
Pacific Islander	22	331	64	5%	27%	32%	27%	9%	64%	63%	69%
Filipino	81	337	77	7%	26%	26%	30%	11%	63%	64%	73%
Hispanic	1,087	334	69	5%	29%	26%	31%	9%	62%	66%	71%

				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	216	319	66	7%	36%	22%	29%	6%	58%	61%	68%
White	1,395	341	75	6%	26%	22%	33%	13%	63%	67%	73%
Ethnicity unknown	165	342	72	5%	25%	22%	39%	10%	64%	69%	72%
Primary Ethnicity—Economically Disadvantaged											
American Indian	107	326	71	8%	29%	26%	26%	10%	59%	64%	70%
Asian American	249	339	72	6%	27%	20%	36%	12%	65%	65%	72%
Pacific Islander	67	325	68	10%	30%	22%	27%	10%	59%	62%	72%
Filipino	73	328	66	3%	36%	27%	27%	7%	61%	64%	70%
Hispanic	8,016	324	70	7%	33%	24%	28%	8%	59%	63%	69%
African American	1,222	310	66	9%	41%	23%	23%	5%	55%	59%	67%
White	1,395	331	72	6%	31%	23%	30%	10%	60%	66%	71%
Ethnicity unknown	298	322	70	6%	35%	29%	22%	7%	57%	63%	69%
Primary Ethnicity—Unknown Economic Status											
American Indian	5	–	–	–	–	–	–	–	–	–	–
Asian American	31	339	91	10%	23%	26%	26%	16%	65%	63%	67%
Pacific Islander	2	–	–	–	–	–	–	–	–	–	–
Filipino	11	317	67	9%	36%	18%	36%	0%	53%	66%	73%
Hispanic	281	325	69	7%	33%	24%	28%	7%	59%	63%	70%
African American	76	328	74	11%	25%	29%	25%	11%	59%	64%	70%
White	110	329	67	5%	31%	22%	35%	6%	61%	63%	72%
Ethnicity unknown	162	330	71	6%	30%	28%	28%	9%	61%	65%	70%

Table 7.C.9 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	20,974	328	86	8%	33%	19%	27%	13%	64%	54%	55%
Male	13,798	327	87	9%	34%	19%	26%	13%	64%	53%	54%
Female	7,169	330	84	7%	33%	19%	28%	13%	64%	55%	56%
Gender unknown	7	–	–	–	–	–	–	–	–	–	–
American Indian	217	321	85	10%	33%	17%	27%	12%	62%	53%	54%
Asian American	623	338	100	11%	28%	17%	25%	19%	66%	55%	55%
Pacific Islander	96	341	93	9%	25%	20%	29%	17%	67%	58%	55%
Filipino	213	338	93	8%	28%	19%	25%	19%	66%	55%	57%
Hispanic	13,020	328	85	8%	34%	19%	27%	12%	64%	54%	55%
African American	2,418	307	83	11%	41%	17%	22%	9%	60%	50%	51%
White	3,927	339	87	7%	30%	19%	28%	16%	66%	56%	57%
Ethnicity unknown	460	335	87	7%	31%	18%	30%	14%	66%	55%	55%
English only	11,623	327	86	8%	34%	19%	27%	13%	64%	54%	55%
Initially fluent English prof.	201	349	85	4%	27%	21%	28%	19%	69%	56%	60%
English learner	9,013	328	86	8%	33%	19%	26%	13%	64%	54%	55%
Reclassified fluent English prof.	92	354	96	4%	32%	15%	25%	24%	71%	57%	55%
English prof. unknown	45	311	82	9%	42%	20%	18%	11%	61%	51%	52%
Autism	1,345	324	92	11%	35%	16%	24%	14%	63%	54%	54%
Deaf-blindness	3	–	–	–	–	–	–	–	–	–	–
Deafness	97	312	90	9%	43%	22%	16%	9%	62%	50%	49%
Emotional disturbance	427	310	87	14%	36%	17%	23%	9%	60%	51%	52%
Hard of hearing	184	346	91	4%	34%	15%	26%	21%	69%	56%	57%
Mental retardation	394	248	64	32%	50%	9%	8%	1%	45%	41%	43%
Multiple disability	22	307	79	14%	45%	5%	27%	9%	63%	50%	45%
Orthopedic impairment	181	309	91	14%	39%	19%	17%	11%	58%	52%	53%
Other health impairment	1,802	326	86	8%	35%	19%	26%	12%	64%	54%	54%
Specific learning disability	12,039	330	84	7%	33%	19%	27%	13%	65%	54%	55%
Speech or language Impairment	2,969	334	89	8%	30%	19%	27%	15%	66%	55%	55%
Traumatic brain injury	40	309	99	20%	30%	15%	23%	13%	58%	50%	57%
Visual impairment	39	317	76	8%	36%	28%	13%	15%	61%	53%	53%
Disability unknown	1,432	338	85	6%	31%	18%	30%	14%	66%	55%	58%
Not economically disadvantaged	4,590	343	88	7%	27%	19%	30%	17%	67%	56%	57%
Economically disadvantaged	16,314	324	85	9%	35%	19%	26%	12%	63%	53%	54%
Economic status unknown	70	306	90	19%	33%	21%	17%	10%	59%	49%	54%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	58	332	76	5%	28%	22%	31%	14%	66%	54%	55%
Asian American	245	359	102	6%	27%	15%	27%	25%	71%	58%	58%
Pacific Islander	27	345	82	7%	19%	33%	22%	19%	70%	57%	54%
Filipino	121	345	98	7%	28%	15%	28%	21%	67%	56%	58%
Hispanic	1,525	337	86	8%	28%	20%	29%	15%	66%	56%	56%

				Percent in Performance Level					Mean Percent Correct in Content Area		
	No. Tested	Mean Scale Scores	Std. Dev. Of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Number Sense	Algebra and Data Analysis	Measurement and Geometry
African American	405	321	85	11%	33%	18%	27%	11%	63%	52%	54%
White	2,040	349	88	6%	26%	19%	31%	19%	68%	58%	58%
Ethnicity unknown	169	347	90	7%	25%	18%	31%	19%	69%	56%	57%
Primary Ethnicity—Economically Disadvantaged											
American Indian	159	317	89	12%	35%	15%	26%	12%	61%	53%	53%
Asian American	373	324	96	14%	29%	18%	23%	15%	63%	53%	53%
Pacific Islander	69	339	97	10%	28%	14%	32%	16%	65%	58%	55%
Filipino	92	330	87	10%	27%	25%	22%	16%	64%	54%	55%
Hispanic	11,469	326	85	8%	35%	19%	26%	12%	64%	54%	55%
African American	2,004	305	82	11%	42%	17%	22%	8%	59%	50%	51%
White	1,873	328	86	8%	34%	20%	26%	13%	64%	54%	55%
Ethnicity unknown	275	331	85	6%	33%	19%	30%	12%	64%	56%	55%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	5	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	26	326	104	12%	38%	12%	23%	15%	60%	55%	58%
African American	9	–	–	–	–	–	–	–	–	–	–
White	14	313	67	14%	21%	36%	21%	7%	63%	44%	61%
Ethnicity unknown	16	275	55	19%	50%	19%	13%	0%	54%	45%	44%

Table 7.C.10 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	24,044	347	81	5%	26%	23%	29%	17%	67%	63%	52%
Male	15,594	344	82	6%	28%	22%	28%	17%	66%	62%	52%
Female	8,419	353	79	5%	23%	23%	31%	18%	69%	65%	53%
Gender unknown	31	303	61	10%	35%	35%	16%	3%	60%	49%	47%
American Indian	212	345	85	5%	27%	25%	27%	16%	67%	61%	53%
Asian American	701	369	89	4%	23%	17%	28%	28%	72%	67%	55%
Pacific Islander	138	343	68	4%	24%	22%	34%	15%	67%	63%	52%
Filipino	264	357	77	3%	22%	22%	33%	20%	70%	65%	54%
Hispanic	14,873	348	81	5%	26%	23%	29%	18%	68%	63%	52%
African American	2,746	328	77	8%	31%	24%	26%	11%	63%	58%	49%
White	4,603	350	81	6%	24%	21%	31%	18%	67%	64%	53%
Ethnicity unknown	507	341	78	5%	28%	25%	27%	15%	66%	61%	52%
English only	13,159	344	80	6%	27%	23%	29%	16%	66%	62%	52%
Initially fluent English prof.	424	364	84	4%	21%	20%	32%	23%	71%	67%	55%
English learner	10,165	350	81	5%	25%	23%	29%	18%	68%	64%	52%
Reclassified fluent English prof.	229	377	85	3%	17%	20%	33%	27%	73%	69%	59%
English prof. unknown	67	317	69	7%	40%	22%	21%	9%	63%	54%	47%
Autism	1,278	337	87	8%	33%	21%	21%	18%	64%	60%	51%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	119	344	87	5%	30%	25%	19%	20%	65%	62%	53%
Emotional disturbance	619	314	78	13%	37%	20%	21%	9%	59%	55%	47%
Hard of hearing	200	357	83	6%	24%	16%	34%	21%	70%	66%	53%
Mental retardation	431	278	67	22%	50%	17%	9%	3%	50%	45%	43%
Multiple disability	35	306	83	23%	31%	11%	26%	9%	56%	55%	45%
Orthopedic impairment	211	327	90	12%	32%	18%	21%	17%	61%	58%	50%
Other health impairment	2,194	345	80	6%	25%	25%	29%	16%	67%	63%	53%
Specific learning disability	14,728	351	79	4%	25%	23%	30%	18%	68%	64%	53%
Speech or language Impairment	2,749	351	81	5%	24%	22%	30%	18%	69%	64%	52%
Traumatic brain injury	52	304	79	12%	40%	25%	15%	8%	58%	52%	44%
Visual impairment	75	335	76	4%	32%	24%	28%	12%	64%	60%	53%
Disability unknown	1,352	351	77	5%	22%	25%	31%	17%	69%	64%	53%
Not economically disadvantaged	5,478	356	81	5%	23%	22%	30%	21%	69%	65%	55%
Economically disadvantaged	18,446	344	80	6%	27%	23%	29%	16%	67%	63%	51%
Economic status unknown	120	312	71	11%	37%	26%	19%	8%	61%	53%	48%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	67	363	80	1%	25%	21%	31%	21%	71%	65%	58%
Asian American	265	381	90	4%	20%	16%	28%	32%	74%	70%	57%
Pacific Islander	34	348	77	9%	15%	18%	41%	18%	69%	63%	51%
Filipino	154	358	84	4%	23%	21%	29%	23%	69%	65%	55%
Hispanic	1,789	355	81	4%	24%	22%	30%	21%	69%	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	506	339	79	7%	26%	24%	28%	15%	66%	60%	52%
White	2,471	357	81	5%	21%	21%	31%	21%	69%	65%	55%
Ethnicity unknown	192	350	81	3%	27%	26%	27%	18%	68%	64%	53%
Primary Ethnicity—Economically Disadvantaged											
American Indian	145	336	86	7%	28%	26%	25%	14%	65%	59%	51%
Asian American	433	362	88	4%	24%	17%	28%	26%	70%	66%	54%
Pacific Islander	104	342	65	3%	27%	24%	32%	14%	67%	63%	52%
Filipino	107	358	66	0%	21%	23%	40%	16%	72%	66%	53%
Hispanic	13,039	348	80	5%	26%	23%	29%	17%	68%	63%	52%
African American	2,229	325	77	8%	32%	24%	26%	10%	62%	58%	49%
White	2,109	342	80	7%	27%	21%	30%	15%	66%	62%	52%
Ethnicity unknown	280	339	76	6%	29%	24%	29%	14%	65%	61%	52%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	3	–	–	–	–	–	–	–	–	–	–
Hispanic	45	305	66	13%	40%	24%	18%	4%	59%	52%	46%
African American	11	340	72	0%	45%	9%	36%	9%	67%	62%	50%
White	23	317	80	9%	30%	35%	13%	13%	61%	54%	49%
Ethnicity unknown	35	313	72	9%	34%	29%	20%	9%	61%	51%	50%

Table 7.C.11 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	24,404	320	82	14%	31%	23%	23%	10%	53%	56%	48%
Male	15,916	318	83	15%	31%	21%	22%	10%	54%	55%	48%
Female	8,479	323	78	12%	30%	25%	24%	9%	53%	57%	49%
Gender unknown	9	–	–	–	–	–	–	–	–	–	–
American Indian	224	324	72	8%	34%	25%	24%	9%	54%	56%	51%
Asian American	664	338	91	11%	28%	20%	23%	17%	56%	60%	49%
Pacific Islander	113	314	70	12%	34%	28%	23%	4%	53%	54%	47%
Filipino	246	324	85	15%	28%	22%	24%	12%	53%	57%	50%
Hispanic	14,921	317	80	14%	32%	23%	22%	9%	53%	55%	48%
African American	2,907	304	79	19%	34%	21%	19%	7%	51%	53%	45%
White	4,860	334	84	11%	27%	22%	27%	13%	56%	58%	50%
Ethnicity unknown	469	324	86	15%	28%	22%	23%	12%	55%	56%	48%
English only	13,550	322	83	14%	30%	22%	23%	10%	54%	56%	49%
Initially fluent English prof.	503	333	81	11%	27%	24%	27%	11%	56%	58%	50%
English learner	9,848	315	79	15%	33%	23%	21%	8%	52%	55%	48%
Reclassified fluent English prof.	429	353	87	7%	23%	21%	30%	20%	59%	62%	52%
English prof. unknown	74	288	84	26%	34%	19%	16%	5%	48%	50%	43%
Autism	1,178	318	90	18%	29%	20%	21%	12%	52%	56%	49%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	92	299	88	21%	41%	15%	16%	7%	46%	53%	47%
Emotional disturbance	684	309	89	21%	31%	19%	18%	11%	52%	53%	47%
Hard of hearing	208	322	73	8%	36%	25%	22%	9%	53%	57%	50%
Mental retardation	417	248	59	44%	40%	10%	5%	1%	40%	42%	38%
Multiple disability	40	275	69	28%	48%	15%	8%	3%	45%	49%	38%
Orthopedic impairment	181	314	89	19%	28%	20%	22%	12%	51%	56%	47%
Other health impairment	2,247	325	83	13%	29%	23%	23%	12%	54%	56%	49%
Specific learning disability	15,748	321	81	13%	31%	23%	23%	10%	54%	56%	49%
Speech or language Impairment	2,213	323	79	12%	31%	25%	23%	10%	53%	57%	49%
Traumatic brain injury	54	299	75	22%	41%	15%	17%	6%	49%	53%	44%
Visual impairment	73	334	89	14%	26%	16%	34%	10%	59%	56%	50%
Disability unknown	1,268	321	77	12%	31%	24%	25%	8%	54%	56%	49%
Not economically disadvantaged	5,639	334	84	11%	27%	23%	26%	13%	56%	58%	50%
Economically disadvantaged	18,668	316	81	15%	32%	22%	22%	9%	53%	55%	48%
Economic status unknown	97	291	79	21%	40%	19%	16%	4%	48%	51%	41%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	66	326	67	6%	33%	35%	18%	8%	55%	55%	54%
Asian American	245	349	93	10%	24%	22%	24%	20%	58%	62%	49%
Pacific Islander	37	320	71	8%	38%	27%	22%	5%	54%	55%	49%
Filipino	139	326	85	12%	31%	23%	24%	10%	52%	58%	50%
Hispanic	1,910	328	79	11%	28%	25%	26%	10%	55%	57%	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	559	314	84	16%	32%	21%	21%	9%	52%	55%	46%
White	2,520	341	85	10%	24%	23%	28%	15%	57%	59%	51%
Ethnicity unknown	163	339	86	10%	26%	23%	24%	17%	57%	59%	51%
Primary Ethnicity—Economically Disadvantaged											
American Indian	157	325	73	8%	34%	22%	26%	10%	54%	56%	50%
Asian American	417	332	90	12%	30%	19%	23%	16%	54%	59%	49%
Pacific Islander	75	311	70	13%	32%	28%	24%	3%	53%	54%	46%
Filipino	107	322	86	19%	24%	20%	23%	14%	54%	56%	50%
Hispanic	12,980	316	80	15%	32%	23%	22%	8%	52%	55%	48%
African American	2,335	302	77	19%	35%	21%	18%	6%	50%	52%	45%
White	2,313	327	83	12%	30%	22%	25%	11%	55%	56%	50%
Ethnicity unknown	284	316	84	18%	27%	21%	23%	10%	53%	55%	46%
Primary Ethnicity—Unknown Economic Status											
American Indian	1	–	–	–	–	–	–	–	–	–	–
Asian American	2	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	0	–	–	–	–	–	–	–	–	–	–
Hispanic	31	266	70	26%	55%	6%	10%	3%	43%	46%	38%
African American	13	263	75	46%	23%	8%	23%	0%	46%	46%	33%
White	27	324	74	7%	33%	26%	26%	7%	53%	58%	46%
Ethnicity unknown	22	308	87	14%	36%	32%	14%	5%	52%	53%	44%

Table 7.C.12 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	23,784	297	86	26%	31%	19%	18%	5%	46%	49%	41%
Male	15,539	297	88	27%	30%	19%	18%	6%	46%	48%	42%
Female	8,229	298	83	25%	31%	20%	19%	5%	46%	50%	40%
Gender unknown	16	290	85	25%	38%	6%	25%	6%	39%	51%	45%
American Indian	266	296	81	27%	29%	21%	18%	5%	45%	48%	44%
Asian American	609	327	101	22%	23%	18%	25%	12%	50%	54%	44%
Pacific Islander	123	297	89	28%	29%	22%	15%	7%	47%	48%	41%
Filipino	232	303	90	24%	30%	19%	20%	7%	46%	51%	40%
Hispanic	14,323	294	83	27%	32%	19%	18%	5%	46%	48%	41%
African American	2,768	280	80	32%	33%	18%	13%	4%	44%	46%	38%
White	4,918	311	91	22%	28%	20%	21%	8%	47%	51%	44%
Ethnicity unknown	545	298	86	27%	27%	21%	19%	5%	46%	49%	42%
English only	13,513	298	87	26%	30%	19%	18%	6%	46%	49%	42%
Initially fluent English prof.	562	307	88	25%	27%	21%	21%	7%	47%	50%	43%
English learner	8,911	292	83	27%	32%	19%	17%	4%	46%	48%	40%
Reclassified fluent English prof.	704	332	89	14%	27%	20%	28%	10%	50%	55%	45%
English prof. unknown	94	275	79	38%	30%	14%	14%	4%	42%	46%	39%
Autism	1,130	300	93	28%	30%	17%	17%	8%	46%	49%	41%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	100	281	86	38%	29%	11%	17%	5%	42%	48%	38%
Emotional disturbance	772	289	89	30%	31%	17%	16%	5%	46%	46%	41%
Hard of hearing	190	309	90	23%	30%	19%	22%	7%	47%	52%	41%
Mental retardation	467	232	58	57%	31%	10%	2%	0%	38%	39%	33%
Multiple disability	34	274	86	44%	24%	9%	24%	0%	41%	47%	37%
Orthopedic impairment	171	282	88	34%	30%	16%	15%	5%	44%	46%	40%
Other health impairment	2,257	304	88	24%	30%	19%	20%	7%	47%	50%	43%
Specific learning disability	15,690	298	85	26%	31%	19%	19%	5%	46%	49%	41%
Speech or language Impairment	1,800	300	85	25%	29%	21%	19%	5%	46%	50%	41%
Traumatic brain injury	58	290	83	29%	29%	16%	21%	5%	45%	48%	40%
Visual impairment	51	309	97	25%	24%	22%	16%	14%	44%	53%	42%
Disability unknown	1,063	297	85	26%	30%	21%	17%	6%	46%	49%	41%
Not economically disadvantaged	5,914	312	90	22%	28%	20%	22%	8%	48%	51%	43%
Economically disadvantaged	17,745	292	84	28%	32%	19%	17%	5%	45%	48%	41%
Economic status unknown	125	279	82	38%	29%	13%	18%	3%	42%	47%	40%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	85	315	83	19%	31%	21%	20%	9%	47%	50%	48%
Asian American	247	338	101	17%	22%	21%	27%	14%	52%	55%	45%
Pacific Islander	33	314	89	24%	27%	18%	18%	12%	47%	53%	42%
Filipino	137	299	93	26%	31%	16%	21%	6%	45%	50%	41%
Hispanic	2,027	304	86	23%	30%	21%	21%	6%	47%	50%	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	597	290	83	29%	32%	19%	14%	6%	45%	48%	39%
White	2,589	321	93	20%	26%	20%	24%	10%	49%	52%	45%
Ethnicity unknown	199	299	87	29%	23%	22%	21%	5%	47%	49%	42%
Primary Ethnicity—Economically Disadvantaged											
American Indian	177	289	79	31%	28%	21%	18%	3%	45%	47%	41%
Asian American	357	320	101	25%	24%	16%	24%	11%	48%	53%	42%
Pacific Islander	89	291	90	29%	29%	24%	13%	4%	47%	46%	40%
Filipino	94	309	85	20%	29%	23%	19%	9%	47%	52%	39%
Hispanic	12,251	292	83	28%	32%	19%	17%	4%	45%	48%	41%
African American	2,155	278	79	33%	33%	18%	13%	3%	44%	46%	38%
White	2,306	301	88	25%	30%	20%	18%	7%	46%	49%	42%
Ethnicity unknown	316	296	86	27%	30%	21%	17%	5%	46%	49%	41%
Primary Ethnicity—Unknown Economic Status											
American Indian	4	–	–	–	–	–	–	–	–	–	–
Asian American	5	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–
Hispanic	45	286	83	38%	24%	18%	18%	2%	43%	48%	41%
African American	16	242	75	63%	6%	19%	13%	0%	36%	43%	33%
White	23	267	79	35%	43%	4%	13%	4%	46%	41%	38%
Ethnicity unknown	30	304	88	23%	30%	13%	27%	7%	43%	52%	43%

Table 7.C.13 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	Properties, Operations, and Linear	Graphing and Systems of Linear Equations	Quadratics and Polynomials	Functions and Rational Expressions
All valid scores	22,935	288	52	23%	39%	26%	10%	2%	55%	49%	45%	43%
Male	14,828	287	53	24%	38%	25%	10%	2%	55%	48%	45%	43%
Female	8,030	290	49	20%	40%	29%	9%	2%	56%	49%	46%	43%
Gender unknown	77	289	58	27%	38%	18%	12%	5%	56%	49%	44%	44%
American Indian	247	284	50	26%	38%	28%	6%	2%	54%	46%	46%	41%
Asian American	566	309	59	13%	34%	29%	16%	7%	64%	54%	49%	45%
Pacific Islander	101	291	59	27%	27%	31%	12%	4%	57%	50%	46%	43%
Filipino	200	302	54	16%	34%	30%	18%	3%	60%	50%	49%	46%
Hispanic	13,832	287	52	23%	39%	26%	10%	2%	55%	48%	45%	42%
African American	2,837	279	47	26%	42%	24%	6%	1%	52%	46%	44%	41%
White	4,643	294	54	20%	36%	29%	11%	3%	58%	50%	46%	44%
Ethnicity unknown	509	288	51	24%	36%	28%	11%	2%	56%	50%	44%	43%
English only	12,895	287	51	23%	38%	27%	10%	2%	55%	48%	45%	43%
Initially fluent English prof.	598	295	52	17%	39%	30%	12%	3%	58%	50%	46%	45%
English learner	8,203	285	52	24%	40%	25%	9%	2%	54%	48%	45%	42%
Reclassified fluent English prof.	1,009	310	57	11%	34%	32%	18%	5%	63%	54%	49%	47%
English prof. unknown	230	289	53	22%	43%	20%	11%	4%	55%	49%	46%	43%
Autism	736	304	64	19%	33%	27%	15%	6%	59%	54%	49%	45%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–	–
Deafness	104	296	48	15%	35%	38%	11%	2%	59%	48%	50%	41%
Emotional disturbance	823	280	50	28%	41%	21%	8%	2%	54%	47%	43%	41%
Hard of hearing	187	309	58	16%	28%	29%	24%	4%	63%	54%	51%	46%
Mental retardation	457	254	40	45%	43%	10%	2%	0%	42%	41%	39%	36%
Multiple disability	40	286	66	30%	30%	28%	8%	5%	55%	44%	47%	42%
Orthopedic impairment	173	286	50	19%	43%	27%	9%	2%	55%	49%	45%	41%
Other health impairment	2,017	290	52	22%	38%	28%	10%	2%	57%	49%	45%	43%
Specific learning disability	15,939	287	51	23%	39%	27%	9%	2%	55%	48%	45%	43%
Speech or language Impairment	1,066	298	53	17%	38%	28%	14%	3%	58%	52%	47%	44%
Traumatic brain injury	61	283	46	18%	44%	33%	3%	2%	53%	49%	44%	42%
Visual impairment	49	289	52	18%	47%	22%	8%	4%	55%	48%	46%	44%
Disability unknown	1,282	287	51	23%	39%	26%	10%	2%	55%	48%	45%	43%
Not economically disadvantaged	6,279	294	53	19%	36%	30%	12%	3%	58%	50%	46%	44%
Economically disadvantaged	16,354	285	51	24%	40%	25%	9%	2%	54%	48%	45%	42%
Economic status unknown	302	286	54	25%	40%	24%	8%	4%	54%	49%	45%	43%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	91	286	51	25%	34%	30%	10%	1%	55%	45%	45%	45%
Asian American	234	315	60	9%	35%	30%	18%	8%	66%	55%	51%	46%
Pacific Islander	41	301	55	20%	22%	39%	17%	2%	59%	53%	49%	44%
Filipino	113	307	54	14%	33%	31%	19%	3%	62%	51%	51%	46%
Hispanic	2,346	291	52	20%	37%	29%	12%	2%	57%	50%	46%	43%

				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	Properties, Operations, and Linear	Graphing and Systems of Linear Equations	Quadratics and Polynomials	Functions and Rational Expressions
African American	754	283	49	23%	41%	26%	9%	1%	54%	47%	44%	42%
White	2,525	298	54	18%	35%	32%	13%	3%	60%	51%	47%	45%
Ethnicity unknown	175	292	47	22%	34%	34%	10%	1%	58%	51%	45%	43%
Primary Ethnicity—Economically Disadvantaged												
American Indian	153	282	50	26%	40%	27%	5%	3%	54%	46%	46%	39%
Asian American	328	304	58	16%	34%	29%	16%	6%	62%	53%	48%	45%
Pacific Islander	59	285	61	31%	31%	25%	8%	5%	57%	48%	43%	42%
Filipino	86	296	55	19%	34%	29%	15%	3%	58%	49%	47%	46%
Hispanic	11,377	286	51	24%	40%	25%	9%	2%	54%	48%	45%	42%
African American	2,056	277	46	27%	43%	24%	5%	1%	51%	46%	43%	41%
White	2,071	289	52	23%	38%	27%	10%	2%	55%	49%	45%	43%
Ethnicity unknown	224	285	51	24%	39%	24%	11%	2%	55%	49%	44%	41%
Primary Ethnicity—Unknown Economic Status												
American Indian	3	–	–	–	–	–	–	–	–	–	–	–
Asian American	4	–	–	–	–	–	–	–	–	–	–	–
Pacific Islander	1	–	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	–	–	–	–	–	–	–
Hispanic	109	285	52	19%	46%	23%	8%	4%	53%	49%	46%	41%
African American	27	274	36	22%	56%	22%	0%	0%	46%	47%	41%	45%
White	47	292	62	30%	34%	21%	9%	6%	57%	48%	47%	43%
Ethnicity unknown	110	290	57	28%	31%	26%	11%	4%	56%	49%	45%	44%

Table 7.C.14 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	25,223	343	58	3%	22%	30%	30%	15%	56%	61%	60%
Male	16,639	345	59	3%	21%	29%	30%	17%	57%	61%	60%
Female	8,554	339	54	3%	22%	32%	30%	12%	54%	60%	59%
Gender unknown	30	306	46	7%	50%	23%	13%	7%	48%	47%	50%
American Indian	209	347	62	2%	22%	28%	28%	19%	58%	63%	59%
Asian American	783	347	60	3%	21%	27%	31%	18%	57%	62%	61%
Pacific Islander	138	334	52	4%	24%	36%	26%	10%	55%	57%	58%
Filipino	284	345	57	2%	19%	33%	34%	13%	57%	61%	60%
Hispanic	15,703	339	55	3%	23%	32%	30%	13%	55%	59%	59%
African American	2,673	329	56	5%	27%	32%	26%	10%	53%	58%	54%
White	4,896	362	61	2%	15%	24%	34%	25%	61%	67%	64%
Ethnicity unknown	537	346	60	3%	20%	26%	32%	18%	58%	62%	59%
English only	13,616	349	59	3%	19%	28%	32%	18%	58%	63%	61%
Initially fluent English prof.	458	365	60	2%	12%	24%	38%	24%	60%	68%	66%
English learner	10,826	335	54	3%	25%	33%	28%	11%	54%	58%	58%
Reclassified fluent English prof.	257	362	60	2%	15%	25%	33%	25%	60%	67%	65%
English prof. unknown	66	326	58	8%	30%	29%	21%	12%	52%	56%	54%
Autism	1,303	341	63	4%	25%	27%	26%	18%	55%	59%	60%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–
Deafness	126	306	51	5%	52%	23%	13%	8%	48%	46%	50%
Emotional disturbance	596	336	65	7%	25%	26%	25%	17%	55%	60%	55%
Hard of hearing	216	331	54	4%	27%	34%	25%	10%	52%	56%	58%
Mental retardation	417	296	48	12%	49%	25%	11%	3%	44%	46%	46%
Multiple disability	33	309	42	6%	36%	42%	15%	0%	48%	52%	49%
Orthopedic impairment	197	332	58	4%	26%	32%	26%	12%	52%	60%	57%
Other health impairment	2,212	351	59	3%	18%	27%	33%	19%	58%	63%	61%
Specific learning disability	15,586	345	57	3%	21%	30%	31%	16%	57%	61%	60%
Speech or language Impairment	2,997	340	54	3%	21%	34%	30%	12%	55%	60%	59%
Traumatic brain injury	56	328	57	5%	36%	23%	25%	11%	50%	57%	57%
Visual impairment	77	345	55	3%	18%	34%	31%	14%	55%	63%	60%
Disability unknown	1,406	343	54	2%	20%	32%	33%	13%	56%	61%	60%
Not economically disadvantaged	5,782	359	60	2%	16%	24%	35%	23%	60%	66%	64%
Economically disadvantaged	19,320	338	56	3%	23%	32%	29%	13%	55%	59%	58%
Economic status unknown	121	326	57	6%	29%	35%	22%	8%	53%	55%	54%
Primary Ethnicity—Not Economically Disadvantaged											
American Indian	61	345	60	0%	28%	26%	28%	18%	57%	63%	57%
Asian American	302	361	61	2%	15%	22%	36%	25%	60%	66%	65%
Pacific Islander	35	355	55	0%	14%	34%	34%	17%	61%	67%	59%
Filipino	165	341	54	2%	21%	32%	33%	12%	56%	60%	60%
Hispanic	1,903	351	56	2%	18%	27%	35%	18%	57%	64%	63%

				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	491	340	60	4%	24%	26%	31%	14%	56%	60%	58%
White	2,616	370	60	1%	12%	21%	37%	28%	62%	69%	66%
Ethnicity unknown	209	350	60	3%	20%	24%	32%	21%	57%	64%	61%
Primary Ethnicity—Economically Disadvantaged											
American Indian	148	348	63	3%	20%	29%	28%	20%	58%	63%	59%
Asian American	478	337	58	3%	24%	30%	28%	14%	55%	59%	58%
Pacific Islander	103	327	50	5%	27%	37%	23%	8%	52%	54%	57%
Filipino	116	353	60	1%	16%	34%	36%	14%	59%	64%	62%
Hispanic	13,754	337	55	3%	24%	32%	29%	12%	55%	59%	58%
African American	2,171	327	54	6%	28%	33%	25%	9%	53%	57%	54%
White	2,255	354	61	3%	17%	27%	30%	22%	59%	64%	62%
Ethnicity unknown	295	347	60	3%	19%	27%	34%	17%	59%	62%	59%
Primary Ethnicity—Unknown Economic Status											
American Indian	0	–	–	–	–	–	–	–	–	–	–
Asian American	3	–	–	–	–	–	–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–
Filipino	3	–	–	–	–	–	–	–	–	–	–
Hispanic	46	316	45	7%	28%	48%	17%	0%	50%	51%	54%
African American	11	335	70	9%	27%	9%	27%	27%	54%	60%	56%
White	25	360	65	4%	12%	32%	36%	16%	63%	69%	57%
Ethnicity unknown	33	315	52	6%	39%	27%	18%	9%	48%	51%	54%

Table 7.C.15 Demographic Summary for Science, Grade Eight

				Percent in Performance Level					Mean Percent Correct in Content Area			
	No. Tested	Mean Scale Scores	Std. Dev. of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Motion	Matter	Earth Sciences	Investg &Experi
All valid scores	21,106	329	68	18%	20%	25%	23%	14%	62%	50%	61%	61%
Male	14,048	331	71	19%	19%	23%	23%	16%	63%	50%	62%	62%
Female	6,981	325	61	17%	21%	28%	24%	10%	61%	50%	60%	61%
Gender unknown	77	325	64	18%	21%	26%	23%	12%	62%	49%	60%	58%
American Indian	197	330	61	16%	21%	26%	21%	15%	64%	49%	60%	64%
Asian American	616	342	69	13%	18%	24%	27%	18%	64%	54%	64%	66%
Pacific Islander	99	343	70	16%	14%	18%	35%	16%	67%	53%	62%	65%
Filipino	188	340	64	14%	17%	22%	28%	19%	63%	54%	65%	64%
Hispanic	12,833	324	65	19%	21%	25%	23%	12%	61%	49%	61%	60%
African American	2,494	314	63	24%	23%	25%	20%	9%	59%	47%	57%	57%
White	4,109	350	75	13%	15%	22%	26%	24%	66%	55%	66%	67%
Ethnicity unknown	570	334	67	17%	18%	25%	25%	15%	63%	52%	63%	61%
English Only	11,246	334	71	17%	19%	23%	24%	17%	63%	52%	62%	63%
Initially fluent English prof.	379	348	69	13%	16%	20%	30%	22%	67%	55%	65%	67%
English learner	8,443	318	61	21%	22%	26%	22%	9%	60%	48%	59%	59%
Reclassified fluent English prof.	743	365	67	6%	12%	23%	33%	27%	70%	58%	69%	72%
English prof. unknown	295	326	68	20%	20%	23%	25%	11%	61%	50%	62%	60%
Autism	870	341	77	16%	19%	23%	21%	20%	62%	54%	65%	65%
Deaf-blindness	1	–	–	–	–	–	–	–	–	–	–	–
Deafness	115	299	54	31%	30%	22%	12%	5%	52%	45%	52%	59%
Emotional disturbance	659	323	75	25%	22%	20%	18%	15%	60%	48%	60%	58%
Hard of hearing	194	332	66	15%	24%	22%	25%	14%	63%	50%	62%	66%
Mental retardation	469	273	46	45%	32%	17%	5%	1%	46%	40%	47%	46%
Multiple disability	37	322	76	30%	16%	19%	16%	19%	58%	49%	59%	63%
Orthopedic impairment	183	326	64	20%	21%	21%	27%	11%	60%	51%	61%	60%
Other health impairment	1,869	339	70	16%	17%	22%	26%	19%	64%	53%	63%	63%
Specific learning disability	14,330	330	67	17%	20%	25%	24%	14%	63%	50%	62%	61%
Speech or language impairment	1,335	331	63	15%	20%	28%	24%	13%	62%	51%	62%	63%
Traumatic brain injury	50	314	71	28%	16%	30%	14%	12%	58%	46%	57%	63%
Visual impairment	56	338	70	25%	7%	21%	29%	18%	63%	54%	59%	66%
Disability unknown	938	327	67	19%	18%	24%	26%	12%	61%	50%	62%	62%
Not economically disadvantaged	4,961	346	72	14%	16%	23%	27%	21%	65%	54%	65%	66%
Economically disadvantaged	15,808	324	66	20%	21%	25%	22%	12%	61%	49%	60%	60%
Economic status unknown	337	325	65	18%	23%	25%	23%	11%	61%	49%	61%	59%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	49	343	66	8%	29%	14%	27%	22%	67%	52%	62%	70%
Asian American	230	358	66	7%	15%	25%	28%	25%	67%	58%	68%	69%
Pacific Islander	29	337	59	14%	10%	28%	45%	3%	68%	50%	58%	66%
Filipino	106	349	61	8%	18%	25%	28%	21%	65%	56%	68%	66%
Hispanic	1,769	335	68	16%	18%	26%	24%	16%	63%	52%	63%	63%

				Percent in Performance Level					Mean Percent Correct in Content Area			
	No. Tested	Mean Scale Scores	Std. Dev. of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Motion	Matter	Earth Sciences	Investg &Experi
African American	507	324	68	21%	19%	25%	23%	11%	60%	49%	61%	60%
White	2,118	359	75	11%	14%	20%	29%	27%	68%	57%	69%	70%
Ethnicity unknown	153	352	71	14%	12%	23%	27%	25%	66%	57%	65%	67%
Primary Ethnicity—Economically Disadvantaged												
American Indian	145	325	60	19%	19%	30%	19%	13%	62%	49%	60%	62%
Asian American	380	333	69	16%	19%	24%	26%	14%	62%	52%	61%	64%
Pacific Islander	70	345	74	17%	16%	14%	31%	21%	66%	54%	63%	64%
Filipino	77	333	67	21%	17%	17%	29%	17%	62%	52%	62%	62%
Hispanic	10,981	322	64	20%	21%	25%	23%	11%	61%	49%	60%	60%
African American	1,957	312	61	24%	24%	25%	20%	8%	59%	47%	56%	57%
White	1,952	341	73	15%	17%	24%	24%	20%	65%	53%	64%	65%
Ethnicity unknown	246	328	67	19%	22%	24%	22%	13%	62%	51%	61%	58%
Primary Ethnicity—Unknown Economic Status												
American Indian	3	–	–	–	–	– –		–	–	–	–	–
Asian American	6	–	–	–	–	– –		–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–	–
Filipino	5	–	–	–	–	– –		–	–	–	–	–
Hispanic	83	325	75	18%	23%	30%	16%	13%	60%	50%	59%	60%
African American	30	290	51	27%	47%	13%	7%	7%	57%	40%	50%	43%
White	39	349	72	8%	31%	10%	28%	23%	66%	54%	70%	64%
Ethnicity unknown	171	327	60	18%	16%	27%	29%	9%	62%	49%	63%	60%

Table 7.C.16 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	Motion	Matter	Earth Sciences	Investg &Experi
All valid scores	10,786	294	58	22%	36%	24%	14%	4%	49%	48%	56%	48%
Male	7,039	295	61	23%	35%	23%	14%	4%	49%	48%	56%	49%
Female	3,702	293	53	20%	37%	27%	14%	2%	49%	47%	55%	47%
Gender unknown	45	290	53	27%	38%	20%	13%	2%	46%	48%	60%	44%
American Indian	149	304	59	18%	31%	26%	21%	4%	51%	50%	60%	52%
Asian American	281	302	60	18%	31%	30%	17%	4%	51%	51%	57%	50%
Pacific Islander	55	292	50	22%	31%	35%	13%	0%	49%	46%	59%	48%
Filipino	106	308	60	14%	33%	28%	17%	8%	52%	51%	62%	53%
Hispanic	6,425	290	55	23%	37%	25%	12%	3%	48%	47%	54%	47%
African American	1,210	281	51	28%	40%	21%	10%	1%	46%	45%	52%	44%
White	2,309	310	66	18%	30%	25%	20%	7%	52%	52%	62%	52%
Ethnicity unknown	251	296	59	23%	33%	25%	15%	4%	49%	48%	56%	49%
English Only	6,001	297	61	22%	34%	24%	16%	4%	50%	48%	57%	49%
Initially fluent English prof.	354	299	58	19%	35%	24%	18%	4%	51%	49%	57%	50%
English learner	3,913	286	52	24%	38%	25%	11%	2%	47%	46%	52%	46%
Reclassified fluent English prof.	431	319	65	14%	27%	26%	24%	9%	54%	54%	65%	55%
English prof. unknown	87	288	61	25%	40%	20%	10%	5%	46%	48%	58%	44%
Autism	338	317	70	16%	28%	27%	20%	9%	53%	55%	62%	53%
Deaf-blindness	3	–	–	–	–	–	–	–	–	–	–	–
Deafness	105	280	36	18%	50%	30%	2%	0%	46%	47%	47%	42%
Emotional disturbance	370	300	67	24%	32%	21%	17%	7%	50%	49%	59%	50%
Hard of hearing	93	284	49	23%	40%	26%	10%	2%	48%	45%	53%	43%
Mental retardation	255	261	39	40%	43%	13%	4%	0%	41%	41%	44%	41%
Multiple disability	11	310	87	36%	18%	9%	27%	9%	49%	55%	59%	50%
Orthopedic impairment	90	296	50	11%	46%	26%	14%	3%	51%	47%	56%	53%
Other health impairment	834	305	66	19%	32%	22%	19%	6%	51%	50%	61%	52%
Specific learning disability	7,551	293	57	23%	36%	25%	14%	3%	49%	48%	55%	48%
Speech or language impairment	498	295	52	18%	38%	29%	13%	2%	50%	48%	55%	48%
Traumatic brain injury	31	287	48	32%	26%	29%	10%	3%	46%	48%	52%	48%
Visual impairment	28	315	75	14%	21%	46%	4%	14%	54%	53%	63%	49%
Disability unknown	579	293	57	25%	33%	25%	14%	3%	49%	47%	55%	49%
Not economically disadvantaged	3,092	307	63	17%	32%	26%	19%	6%	52%	51%	61%	51%
Economically disadvantaged	7,557	289	55	24%	37%	24%	12%	3%	48%	47%	54%	47%
Economic status unknown	137	290	61	26%	38%	20%	11%	5%	48%	47%	55%	47%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	65	311	61	14%	29%	29%	22%	6%	52%	52%	63%	55%
Asian American	93	315	64	12%	32%	24%	26%	6%	52%	54%	62%	55%
Pacific Islander	24	307	52	17%	25%	33%	25%	0%	53%	49%	68%	49%
Filipino	59	305	59	15%	34%	27%	17%	7%	51%	51%	62%	51%
Hispanic	1,154	297	57	19%	35%	27%	15%	4%	50%	49%	57%	49%

				Percent in Performance Level					Mean Percent Correct in Content Area			
	No. Tested	Mean Scale Scores	Std. Dev. of Scale Scores	Far Below Basic	Below Basic	Basic	Proficient	Advanced	Motion	Matter	Earth Sciences	Investg &Experi
African American	306	290	54	22%	39%	24%	14%	1%	48%	46%	57%	45%
White	1,302	318	68	15%	28%	26%	22%	9%	54%	53%	65%	54%
Ethnicity unknown	89	311	69	17%	31%	20%	24%	8%	53%	52%	60%	52%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	83	298	56	22%	33%	24%	19%	2%	51%	48%	58%	49%
Asian American	187	296	57	21%	30%	33%	12%	3%	50%	49%	54%	48%
Pacific Islander	31	280	46	26%	35%	35%	3%	0%	45%	44%	53%	46%
Filipino	46	309	60	13%	33%	30%	15%	9%	53%	51%	61%	54%
Hispanic	5,221	288	54	24%	38%	24%	12%	2%	48%	47%	53%	47%
African American	896	278	50	30%	40%	20%	9%	1%	46%	44%	50%	43%
White	982	299	62	23%	32%	23%	18%	5%	50%	49%	58%	50%
Ethnicity unknown	111	291	49	23%	32%	32%	11%	1%	48%	47%	54%	49%
Primary Ethnicity—Not Economically Disadvantaged												
American Indian	1	–	–	–	–	– –		–	–	–	–	–
Asian American	1	–	–	–	–	– –		–	–	–	–	–
Pacific Islander	0	–	–	–	–	–	–	–	–	–	–	–
Filipino	1	–	–	–	–	– –		–	–	–	–	–
Hispanic	50	281	53	32%	34%	24%	8%	2%	47%	45%	49%	46%
African American	8	–	–	–	–	– –		–	–	–	–	–
White	25	318	73	12%	40%	16%	16%	16%	51%	57%	65%	51%
Ethnicity unknown	51	281	58	31%	39%	18%	8%	4%	46%	44%	55%	44%

Appendix 7.D—Types of Score Reports

Table 7.D.1 Score Reports Reflecting CMA Results

2011 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
The CMA Student Report	
This report provides parents/guardians and teachers with the student's results, presented in tables and graphs. For grades three through nine ELA, grades five, eight, and ten for science, grades three through seven for mathematics, and Algebra I administered in grades seven through eleven, the report shows performance-level results. For grades ten and eleven ELA and Geometry administered in grades eight through eleven, the report shows percent correct by each CMA content area taken by the student. For grades three through nine for ELA, grades five, eight, and ten for science, grades three through seven for mathematics, and Algebra I, data presented include: • Scale scores • Performance levels (advanced, proficient, basic, below basic, and far below basic) • Number and percent correct in each reporting cluster • Comparison of the student's scores on specific reporting clusters to the range of scores of students statewide who scored proficient on the total test	This report includes individual student results and is not distributed beyond parents/guardians and the student's school. Two copies of this report are provided for each student. One is for the student's current teacher and one is distributed by the school district to parents/ guardians.
Student Record Label	
These reports are printed on adhesive labels to be affixed to the student's permanent school records. Each student shall have an individual record of accomplishment that includes STAR testing results (see California *EC* Section 60607[a]). For the CMA for ELA in grades three through nine, grades five, eight, and ten in science, grades three through seven in mathematics, and Algebra I administered in grades seven through eleven, data presented include the following for each content area: • Scale scores • Performance levels For the CMA for ELA in grades ten and eleven and Geometry, data presented include overall percent correct for each content area.	This report includes individual student results and is not distributed beyond the student's school.
Student Master List	
This report is an alphabetical roster that presents individual student results. For the CMA for ELA in grades three through nine, grades five, eight, and ten for science, grades three through seven in mathematics, and Algebra I administered in grades seven through eleven, data include the following:	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.

2011 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
• Percent correct for each reporting cluster within each content area tested • A scale score and a performance level for each content area tested • Writing score (CMA in grades four and seven only) For the CMA for grades ten and eleven ELA and Geometry, data include percent correct for the content area tested.	
Student Master List Summary	
This report summarizes student results at the school, district, county, and state levels for each grade. It does not include any individual student information. ***Note:*** Summaries for specific CMA tests for mathematics across grades are provided in the Student Master List Summary—End-of-Course Report. The following data are summarized for each content area and grade level for all tests: • Number of students enrolled • Number and percent of students tested • Number and percent of valid scores • Number tested with scores • Mean percent correct The following data are also summarized, by grade and content area, for the CMA for ELA in grades three through nine, science in grades eight through eleven, mathematics in grades three through seven, and Algebra I: • 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 the CMA for ELA in grades four and seven, the percent of students achieving each Writing Application score Results for the CMA for ELA in grades ten and eleven and Geometry also include the percent correct for each content area tested.	This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is packaged for the school and one for the school district. This report is also produced for school districts, counties, and the state. ***Note:*** The data in this report may be shared with parents/guardians, community members, and the media only if the data are for 11 or more students.
Student Master List Summary—End of Course	
This report summarizes Student Master List information for the EOC CMA 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. The following data are summarized for both the EOC CMA for Algebra I and Geometry:	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.

2011 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
• Number of students enrolled • Number and percent of students tested • Number and percent of valid scores • Number tested with scores • Mean percent correct The following data are also summarized for the CMA for Algebra I only: • 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	***Note:*** The data on this report may be shared with parents/guardians, community members, and the media only if the data are for 11 or more students.
Subgroup Summary	
CMA information is provided on the subgroup summary reports. This set of reports disaggregates and reports results by the following subgroups:: • All students • Disability status • Economic status • Gender • English proficiency • Primary ethnicity. These reports contain no individual student-identifying information and are aggregated at the school, district, county, and state levels. For each subgroup within a report and for the total number of students, the following data are included: • Total number tested in the subgroup • Percent tested in the subgroup as a percent of all students tested • Number and percent of valid scores • Number tested who received scores The following data are also summarized for the CMA for ELA in grades three through nine, science in grades eight through eleven, mathematics in grades three through seven, and Algebra I: • Mean scale score • Standard deviation of scale score • Number and percent of students scoring at each performance level	This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is packaged for the school and one for the school district. This report is also produced for school districts, counties, and the state. ***Note:*** The data on this report may be shared with parents/guardians, community members, and the media only if the data are for 11 or more students.

2011 STAR CMA PRINTED REPORTS	
DESCRIPTION	**DISTRIBUTION**
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 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. This report provides information for the CMA for ELA in grades three through nine, science in grades eight through eleven, mathematics in grades three through seven, and Algebra I. For each subgroup within a report, and for the total number of students, the following data are included: • Total number tested in the subgroup • Percent tested in the subgroup as a percent of all students tested • Number and percent of valid scores • Number tested who received scores • Mean scale 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.

Chapter 8: Analyses

This chapter summarizes the item- and test-level statistics obtained for the CMA administered during the spring of 2011.

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 204 presents the classical item analyses including proportion-correct value (*p*-value) and point-biserial correlation (Pt-Bis) for each item in each operational test. The appendix also presents information about the distribution of scores on the writing 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 each operational test are presented in Table 8.2 on page 180.
2. Appendix 8.B on page 215 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 261 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 270 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 operational and field-test items. In addition, the appendix presents the scoring tables for the CMA in grades three through nine for ELA, grades five, eight, and ten for science, grades three through seven for grade-level mathematics, and end-of-course (EOC) Algebra I, administered to students in grades seven through eleven, obtained as a result of the IRT equating process. Information related to the evaluation of linking items is presented in Table 8.4 on page 184; these linking items were used in the equating process discussed later in this chapter.
5. Appendix 8.E on page 296 presents the results of the DIF analyses applied to all operational and field-test items for which sufficient student samples were available. In this appendix, items flagged for significant DIF are listed. Also given are the distributions of items across DIF categories.

Samples Used for the Analyses

CMA analyses were conducted at different times after test administration and involved varying proportions of the full CMA data. The classical-item analyses presented in Appendix 8.A, the reliability statistics included in Appendix 8.B, the content area correlations presented in Appendix 8.C, the IRT results presented in Appendix 8.D, and the item-level DIF results presented in Appendix 8.E were calculated using the P1 data file. This file contained more than 99.5 percent of the test results of the entire test-taking population.

Following the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], and National Council on Measurement in Education [NCME], 1999, Standard 6.4), the results of the classical item analyses and reliability analyses for the EOC Algebra I and Geometry CMA 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. The item level DIF and IRT analyses for the CMA for Geometry include all students taking these tests; no grade-specific DIF or IRT analyses was conducted for this test.

The raw-to-scale score conversion tables presented in Appendix 8.D were based on equating data available in early June 2011. Summary statistics describing the samples are presented in Table 8.1; the samples used to generate scoring tables are labeled as “Equating Samples.”

Table 8.1 Summary Statistics for P1 and Equating Samples

		P1			Equating Sample			
Content Area	**CMA***	**N**	**Mean**	**SD**	**N**	**% of P1**	**Mean**	**SD**
English–Language Arts	3	17,609	29.80	9.11	5,965	34%	29.96	9.08
	4**	24,969	27.63	7.89	10,081	40%	27.76	7.86
	5	27,577	29.21	8.07	9,377	34%	29.48	8.06
	6	26,059	30.48	8.19	8,999	35%	30.85	8.22
	7**	24,392	32.18	9.06	9,751	40%	32.33	8.99
	8	23,020	30.30	8.38	7,719	34%	30.44	8.34
	9	16,269	29.07	8.52	6,408	39%	29.08	8.60
	10***	12,871	29.16	8.06	N/A	N/A	N/A	N/A
	11***	9,095	26.65	7.27	N/A	N/A	N/A	N/A
Mathematics	3	15,296	30.28	8.95	5,109	33%	30.14	8.87
	4	20,974	28.32	7.61	6,297	30%	28.27	7.53
	5	24,044	30.04	8.25	7,341	31%	30.18	8.30
	6	24,404	28.95	7.59	7,448	31%	29.33	7.67
	7	23,784	25.00	6.50	6,911	29%	25.17	6.45
	Algebra I	22,935	28.82	7.88	7,861	34%	28.98	7.80
	Geometry***	4,661	28.65	8.06	N/A	N/A	N/A	N/A
Science	5	25,223	28.26	7.54	7,308	29%	28.65	7.39
	8	21,106	30.71	8.35	5,510	26%	30.83	8.32
	10 Life Science	10,786	29.79	8.79	4,649	43%	29.88	8.86

Content Area	CMA*	P1			Equating Sample			
		N	Mean	SD	N	% of P1	Mean	SD
Grade-Specific	Algebra I – 8	5,487	28.83	8.08	1,516	28%	29.56	7.99
	Geometry – 9	281	29.46	8.93	N/A	N/A	N/A	N/A

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

** MC only

*** The CMA for ELA in grades ten and eleven and EOC Geometry were introduced in 2011; therefore, equating was not performed on those tests. Scores for these tests were reported as a percent correct.

The IRT results presented in Appendix 8.D and item-level DIF results presented in Appendix 8.E are based on the sample of student data that was used in the final item analyses (FIA) which comprised about 99.5 percent of the full CMA data for the majority of 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:

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

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 overall test are presented in Table 8.2. The item-by-item values for the indices are presented in Table 8.A.1 through Table 8.A.4, which start on page 204.

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

				Mean		Median	
Content Area	**CMA***	**No. of Items**	**No. of Examinees**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
English–Language Arts	3	48	17,609	0.62	0.40	0.63	0.41
	4**	48	24,969	0.58	0.34	0.57	0.35
	5	48	27,577	0.61	0.36	0.61	0.36
	6	54	26,059	0.56	0.32	0.57	0.34
	7**	54	24,392	0.60	0.35	0.59	0.36
	8	54	23,020	0.56	0.33	0.56	0.34
	9	60	16,269	0.48	0.29	0.47	0.29
	10	60	12,871	0.49	0.28	0.48	0.29
	11	60	9,095	0.44	0.25	0.43	0.25
Mathematics	3	48	15,296	0.63	0.40	0.64	0.41
	4	48	20,974	0.59	0.34	0.57	0.34
	5	48	24,044	0.63	0.37	0.66	0.38
	6	54	24,404	0.54	0.29	0.54	0.29
	7	54	23,784	0.46	0.25	0.46	0.26
	Algebra I	60	22,935	0.48	0.27	0.48	0.27
	Geometry	60	4,661	0.48	0.27	0.49	0.27
Science	5	48	25,223	0.59	0.33	0.59	0.34
	8	54	21,106	0.57	0.32	0.57	0.34
	10 Life Science	60	10,786	0.50	0.30	0.50	0.30
Grade-Specific	Algebra I – 8	60	5,487	0.48	0.27	0.48	0.27
	Geometry – 9	60	281	0.49	0.30	0.50	0.31

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

** MC only

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.5 and Table 8.A.6, which appear on page 210. 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.7 and Table 8.A.8. 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.9 and Table 8.A.10.

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 computed by substituting sample estimates of the population variances in the defining formulas (equations 8.3 and 8.4). 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 8.3 on the next page gives the reliability and SEM for each of the operational CMA tests, along with the number of items and examinees upon which those analyses were performed. The results for the grade-specific population for the EOC Algebra I and Geometry CMA are also presented in this table.

Table 8.3 Reliabilities and SEMs for the CMA

					Scale Score			Raw Score		
Content Area	**CMA***	**No. of Items**	**No. of Examinees**	**Reliability**	**Mean**	**Std. Dev.**	**SEM**	**Mean**	**Std. Dev.**	**SEM**
English–Language Arts	3	48	17,609	0.89	311	71	23.97	29.80	9.11	3.07
	4**	48	24,969	0.84	326	73	29.35	27.63	7.89	3.19
	5	48	27,577	0.85	326	75	28.57	29.21	8.07	3.09
	6	54	26,059	0.83	305	88	35.97	30.48	8.19	3.36
	7**	54	24,392	0.87	309	84	30.70	32.18	9.06	3.33
English–Language Arts	8	54	23,020	0.84	309	76	30.40	30.30	8.38	3.36
	9	60	16,269	0.81	287	64	27.66	29.07	8.52	3.67
	10***	60	12,871	0.79	N/A	N/A	N/A	29.16	8.06	3.66
	11***	60	9,095	0.74	N/A	N/A	N/A	26.65	7.27	3.69
Mathematics	3	48	15,296	0.89	327	71	23.84	30.28	8.95	3.02
	4	48	20,974	0.83	328	86	35.18	28.32	7.61	3.11
	5	48	24,044	0.87	347	81	29.63	30.04	8.25	3.03
	6	54	24,404	0.79	320	82	37.16	28.95	7.59	3.45
	7	54	23,784	0.72	297	86	45.90	25.00	6.50	3.47
	Algebra I	60	22,935	0.78	288	52	24.42	28.82	7.88	3.70
	Geometry***	60	4,661	0.79	N/A	N/A	N/A	28.65	8.06	3.69
Science	5	48	25,223	0.82	343	58	24.22	28.26	7.54	3.16
	8	54	21,106	0.84	329	68	27.47	30.71	8.35	3.38
	10 Life Science	60	10,786	0.83	294	58	24.18	29.79	8.79	3.65
Grade-Specific	Algebra I – 8	60	5,487	0.79	288	54	24.71	28.83	8.08	3.70
	Geometry – 9***	60	281	0.83	N/A	N/A	N/A	29.46	8.93	3.66

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

** MC only

*** The CMA for ELA in grades ten and eleven and EOC Geometry were introduced in 2011; therefore, equating was not performed on those tests. Scores for these tests were reported as a percent correct.

Intercorrelations, Reliabilities, and SEMs for Reporting Clusters

For each CMA for ELA in grades three through nine, grades five, eight, and ten for science, grades three through seven for grade-level mathematics, and EOC Algebra I administered to students in grades seven through eleven, number-correct scores are computed for the reporting clusters—three in all tests except for the CMA for ELA in grade seven, science in grades eight and ten, and Algebra I, which have four.

Intercorrelations and reliability estimates for the reporting clusters are presented in Table 8.B.1 through Table 8.B.4, starting on page 215. Results are also reported for grade-specific samples of the mathematics tests of Algebra I and Geometry. Consistent with results from previous years, the reliabilities across reporting clusters varied significantly according to the number of items in each cluster.

Subgroup Reliabilities and SEMs

The reliabilities of the CMA ELA tests in grades three through eleven, science in grades five, eight, and ten, grade-level mathematics in grades three through seven, and Algebra I administered to students in grades seven through eleven, as well as Algebra I for a grade-specific population, 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, show 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.

The overall reliabilities for the various subgroups are compiled in Table 8.B.14 through Table 8.B.20.

Table 8.B.21 through Table 8.B.48 present the cluster-level reliabilities for the various subgroups.

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

Conditional Standard Errors of Measurement

As part of the IRT-based equating procedures, scale-score conversion tables and conditional standard errors of measurement (CSEMs) are produced. CSEMs for CMA scale scores are based on IRT and are calculated by the IRTEQUATE module in a computer system called the Generalized Analysis System (GENASYS).

The CSEM is estimated as a function of measured ability. It is typically smaller in scale-score units toward the center of the scale in the test metric where more items are located and larger at the extremes where there are fewer items. An examinee's CSEM under the IRT framework is equal to the inverse of the square root of the test information function:

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

where,

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

$I(\theta)$ is the test information function at ability level θ.

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

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

Table 8.4 on the next page presents the scale score CSEMs at the lowest score required for a student to be classified in the below basic, basic, proficient, and advanced performance levels for each CMA for which scale scores are available. Note that scale score CSEMs are not provided for the CMA for ELA in grades ten and eleven and Geometry because scale scores were not available for these tests in the spring 2011 administration.

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

the middle of the scale. This results in more precise scores in the middle of the scale and less precise scores in the extremes of the scale.

Table 8.4 Scale Score CSEM at Performance-level Cut Points

		Below Basic		Basic		Proficient		Advanced	
Content Area	**CMA***	**Min SS**	**CSEM**	**Min SS**	**CSEM**	**Min SS**	**CSEM**	**Min SS**	**CSEM**
English–Language Arts	3	228	22	300	22	350	25	397	30
	4**	241	27	300	27	350	28	407	31
	5	219	27	300	26	350	27	400	31
	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	26	350	27	407	30
Mathematics	3	229	22	300	21	350	23	423	31
	4	219	33	300	32	350	33	430	39
	5	226	28	300	26	350	28	422	33
	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
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	27

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

** MC only

Decision Classification Analyses

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

Decision accuracy describes the extent to which examinees are classified in the same way as they would be on the basis of the average of all possible forms of a test. Decision accuracy answers the 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 exam and the classifications based on an all-forms average (true score).

Decision consistency describes the extent to which examinees are classified in the same way as they would be on the basis of a single form of a test other than the one for which data are available. Decision consistency answers the 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 exam and classifications on a hypothetical alternate form using the reliability of the test and strong true-score theory. In each case, the proportion of classifications with exact agreement is the sum of the entries in the diagonal of the contingency table representing the multivariate distribution. Reliability of classification at a cut score is estimated by collapsing the multivariate distribution at the passing score boundary into an *n* by *n* table (where *n* is the

number of performance levels) and summing the entries in the diagonal. Figure 8.1 and Figure 8.2 present the two scenarios graphically.

Figure 8.1 Decision Accuracy for Achieving a Performance Level

		Decision made on a form actually taken	
		Does not achieve a performance level	Achieves a performance level
True status on all-forms average	Does not achieve a performance level	Correct classification	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 for the CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I are presented in Table 8.B.49 through Table 8.B.67 in Appendix 8.B. Table 8.B.67 presents the same analyses for the grade-specific population of the CMA for Algebra I. It should be noted that decision classification analyses are not provided for the CMA for ELA in grades ten and eleven and Geometry because performance levels were not available for these tests in the spring 2011administration.

For the CMA for ELA in grades four and seven, two sets of tables are presented for the decision classification analyses: a table for all examinees who attempted multiple-choice (MC) items and a second table for examinees who attempted MC as well as the Writing Application section of the test.

Each table includes the contingency tables for 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 total scores for the students who responded to the writing prompt for ELA in grades four and seven was estimated using the following definitional formula for composite reliability (Feldt & Brennan, 1989):

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

where,

k is the number of part scores in the composite,

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

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

s_c^2 is the variance of the composite score.

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 ($[Corr_{Writing\text{-}MC}]^2/Rel_{MC}$) (Sax, 1989).

The SEM for writing (that is, the CR portion of the test) can then be estimated by substituting sample estimates into the following equation:

$$\sigma_{e_{CR}} = \sigma_{CR} * \sqrt{1 - reliability_{CR}} \tag{8.7}$$

where,

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

The reliability estimates for the multiple-choice scores were 0.84 for grade four and 0.87 for grade seven. The approximate lower bound reliability for the essay scores were estimated to be 0.17 and 0.18 for the two grades, respectively. The composite reliability estimates for the combined MC and essay scores were 0.86 and 0.89.

Prompt and Rater Agreement Summary

As described earlier, in order to monitor the accuracy of ratings, two raters scored approximately ten percent of the examinees' writing responses. The two sets of ratings were used to carry out 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 (ICC) which incorporates the exact agreement between raters over and above that expected by chance. The index is defined as the following:

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

where,

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

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

For categorical ratings, Cohen's Kappa statistic has the properties of an intraclass correlation coefficient and can be used for 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 130 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.68 and Table 8.B.69 in Appendix 8.B. Table 8.B.70 and Table 8.B.71 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.72 and Table 8.B.73 on page 260.

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

Purpose of the CMA

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

The Constructs to Be Measured

The CMA, 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 scores expressed as scale scores, student performance levels, and subscores for each reporting cluster are generated for the CMA except for grades ten and eleven ELA and Geometry. For these CMA, introduced in 2011, students' total scores were expressed in the raw score metric and no performance levels were reported. On the basis of a student's total score, an inference is drawn about how much knowledge and skill in the content area the

student has acquired. The total score also is used to classify students in terms of their level of knowledge and skill in the content area. These levels are called performance levels and are as follows: advanced, proficient, basic, below basic, and far below basic.

Reporting cluster scores, also called subscores, are used to draw inferences about a student's achievement in each of several specific knowledge or skill areas covered by each test. Reporting cluster results compare an individual student's percent-correct score to the average-percent correct for the state as a whole. The range of scores for students who scored proficient is also provided for each cluster using a percent-correct metric. The reference points for this range are: (1) the average-percent correct for students who received the lowest score qualifying for the proficient performance level; and (2) the average-percent correct for students who received the lowest score qualifying for the advanced performance level, minus one percent. A detailed description of the uses and applications of CMA scores is presented in Chapter 7, which starts on page 117.

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

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

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

Intended Test Population(s)

California public school students who meet certain eligibility criteria are the intended test population for the CMA. Students in grades three through nine are tested in ELA; students in grades three through seven are tested in mathematics; and students in grades five, eight and ten are tested in science. In addition, students in grades seven through eleven can take 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 Algebra I. Only 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 66. Once the items are developed and field-tested, ETS selects all CMA test items to conform to the SBE-approved California content standards and test blueprints. Test blueprints for the CMA were proposed by ETS and reviewed and approved by the Assessment Review Panels (ARPs), which are advisory panels to the CDE and ETS on areas related to item development for the CMA. Test blueprints were also reviewed and approved by the CDE and presented to the SBE for adoption. There have been no recent changes in the blueprints for the CMA. The test blueprints for the CMA can be found on the CDE STAR CMA Blueprints Web page at http://www.cde.ca.gov/ta/tg/sr/cmablueprints.asp.

Item development process—A detailed description of the item development process for the CMA is presented in Chapter 3, starting on page 66.

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

Form construction process—For each test, the content standards, blueprints, and test specifications are used as the basis for choosing items. Additional targets for item difficulty and discrimination that are used for test construction were defined in light of what are desirable statistical characteristics in test items and statistical evaluations of the CMA items. Guidelines for test construction were established with the goal of maintaining parallel forms to the greatest extent possible from year to year. Details can be found in Chapter 4, starting on page 78.

Additionally, an external review panel, the Statewide Pupil Assessment Review (SPAR), is responsible for reviewing and approving the achievement tests to be used statewide for

the testing of students in California public schools, grades two through eleven. More information about the SPAR is given in Chapter 3, starting on page 73.

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 all operational items and all field-test items for which sufficient student samples were available.

The results of the DIF analyses are presented in Appendix 8.E, which starts on page 296. 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.

Correlations Between Content Areas

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

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

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

Note that the correlations are reported only for samples that are comprised of more than 10 examinees. Correlations between any two content areas where 10 or fewer examinees took the tests are expressed as hyphens. Correlations between content areas where no examinees took the two tests are expressed as "N/A."

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

Grade	CMA	ELA	Mathematics	Algebra I	Geometry	Science
3	**ELA**	**17,609**	0.62	N/A	N/A	N/A
	Mathematics	14,104	**15,296**	N/A	N/A	N/A
4	**ELA**	**24,969**	0.58	N/A	N/A	N/A
	Mathematics	20,003	**20,974**	N/A	N/A	N/A
5	**ELA**	**27,577**	0.53	N/A	N/A	0.64
	Mathematics	22,692	**24,044**	N/A	N/A	0.53
	Science	24,686	21,818	N/A	N/A	**25,223**
6	**ELA**	**26,059**	0.57	N/A	N/A	N/A
	Mathematics	22,572	**24,404**	N/A	N/A	N/A
7	**ELA**	**24,392**	0.53	0.38	N/A	N/A
	Mathematics	21,778	**23,784**	N/A	N/A	N/A
	Algebra I	48	0	**54**	N/A	N/A
8	**ELA**	**23,020**	N/A	0.50	–	0.64
	Algebra I	4,870	N/A	**5,487**	N/A	0.55
	Geometry	3	N/A	N/A	**3**	–
	Science	20,114	N/A	4,570	3	**21,106**
9	**ELA**	**16,269**	N/A	0.46	0.62	N/A
	Algebra I	6,487	N/A	**7,429**	N/A	N/A
	Geometry	241	N/A	N/A	**281**	N/A
10	**ELA**	**12,871**	N/A	0.42	0.50	0.61
	Algebra I	5,379	N/A	**6,547**	N/A	0.44
	Geometry	1,972	N/A	N/A	**2,368**	0.53
	Life Science	9,928	N/A	4,769	1,770	**10,786**
11	**ELA**	**9,095**	N/A	0.34	0.44	N/A
	Algebra I	2,699	N/A	**3,418**	N/A	N/A
	Geometry	1,519	N/A	N/A	**2,009**	N/A

Correlations between the reporting clusters 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. 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 185. Details about the results can be found in Table 8.B.72 and Table 8.B.73 on page 260.

A decision study (d-study) was conducted to look at the generalizability-coefficient (g-coefficient) for the writing scores; the g-coefficient for grade four was 0.84 and the g-coefficient for grade seven was 0.83. 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, 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. The results showed moderate levels of agreement between raters that scored examinees' written responses to the prompts administered in grades four and seven. Research has shown the value of Kappa statistics between 0.41 and 0.60 as exhibiting moderate levels of agreement between the two ratings (National Institute of Water and Atmospheric Research Ltd., n.d.).

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 67 percent for grade four and 73 percent for grade seven. All of the tests exhibited exact or adjacent agreement between the two sets of ratings for grades four and seven respectively.

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. The point-biserials for the items in the CMA are presented in Table 8.A.1 through Table 8.A.3. As shown in Table 8.2, this index was between 0.30 and 0.40 for 13 out of 21 CMA tests and was between 0.25 and 0.29 for the other 8 CMA tests.

Also germane to the validity of a score interpretation are the ranges of item difficulty for the items on which a test score will be based. The finding that items have difficulties that span the range of examinee ability provides evidence that examinees at all levels of ability are adequately measured by the items. Information on average item *p*-values is given in Table 8.2. The distributions of item *b*-values are given in Table 8.D.23 through Table 8.D.28.

The data in Table 8.1 indicate that CMA tests had average *p*-values that ranged from 0.44 to 0.63. As shown in Table 8.D.23 through Table 8.D.28, they had a wide range of *b*-values indicating a wide range of item difficulty that spanned the ability range.

Reliability

Reliability is a prerequisite for validity. The finding of reliability in student scores supports the validity of the inference that the scores reflect a stable construct. This section will describe briefly findings concerning the total test level, as well as reliability results for the reporting clusters.

Overall reliability—The reliability analyses on each of the operational CMA tests are presented in Table 8.3. The results indicate that the reliabilities of the CMA for ELA, mathematics, and science tests were moderately high, ranging from 0.72 to 0.89.

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 16 CMA tests for which cluster scores were reported in 2011. 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 operational CMA tests and the two grade-specific CMA 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 though 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 184. The results of these analyses are presented in Table 8.B.49 through Table 8.B.67 in Appendix 8.B; these tables start on page 252. When the

decisions are collapsed to below proficient versus proficient and above, which are the critical categories for AYP analyses, the proportion of students that were classified accurately ranged from 0.85 to 0.93 across the CMA for which performance levels were available. Similarly, the proportion of students that were classified consistently ranged from 0.80 to 0.90 for students classified into below proficient versus proficient and advanced.

Dimensionality

Dimensionality analyses were conducted by a CDE psychometrics team (Gaffney et al., in press; Gaffney & Perryman, 2009). The study investigated the factor structures of the CMA 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 intended use of the scores. The CDE and ETS are in the process of determining what kinds of information can be gathered to assess the consequences of administration of the CMA.

IRT Analyses

The CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I are equated to a reference form using a common-item nonequivalent groups design and methods based on IRT. The "base" or "reference" calibrations for the CMA were established by calibrating samples of data from a specific administration. Doing so established a scale to which subsequent item calibrations could be linked. The 2011 items were placed on the reference scale through a set of linking items that appeared in the 2009 operational forms and were re-administered in 2011.

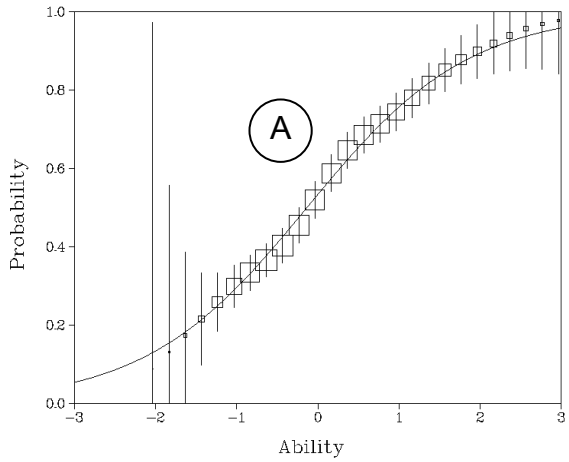
The procedures used for equating the CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I involve three steps: item calibration, item parameter scaling, and production of raw-score-to-scale-score conversions using the scaled item parameters. ETS uses GENASYS for the IRT item calibration and equating work. As part of this system, a proprietary version of the PARSCALE computer program (Muraki & Bock, 1995) is used and parameterized to result in one-parameter calibrations. Research at ETS has suggested that PARSCALE calibrations done in this manner produce results that are virtually identical to results based on WINSTEPS (Way, Kubiak, Henderson, & Julian, 2002). The equating procedures were applied to all CMA tests except for the CMA for ELA in grades ten and eleven and EOC Geometry administered in grades eight through eleven; these CMA tests were introduced in 2011. The details on all equating procedures are given in Chapter 2 starting on page 14.

IRT Model-Data Fit Analyses

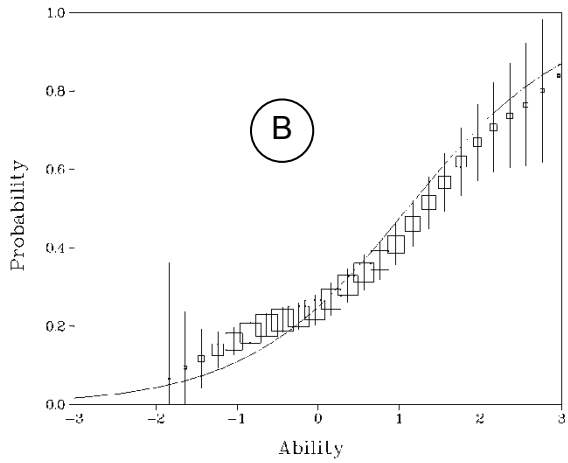
Because the Rasch model is used in equating the CMA, an important part of IRT analyses is the assessment of model-data fit. ETS psychometricians classify operational and field-test items for the CMA into discrete categories based on an evaluation of how well each item was fit by the Rasch model. The 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. As an illustration, the IRT item characteristic curves and empirical data (item-ability regressions) for five items field-tested in 2005 are shown in Figure 8.3. These five items represent the various rating categories. The item number in the calibration and ETS identification number for each item ("accession number") are listed next to each item, along with the corresponding rating categories.

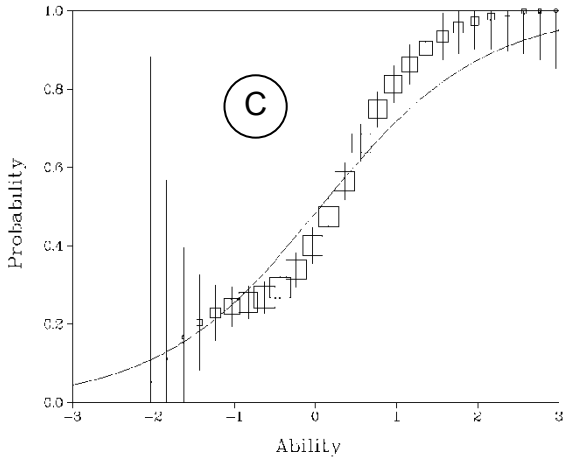
Figure 8.3 Items from the 2005 CST for History–Social Science Grade Ten Field-test Calibration



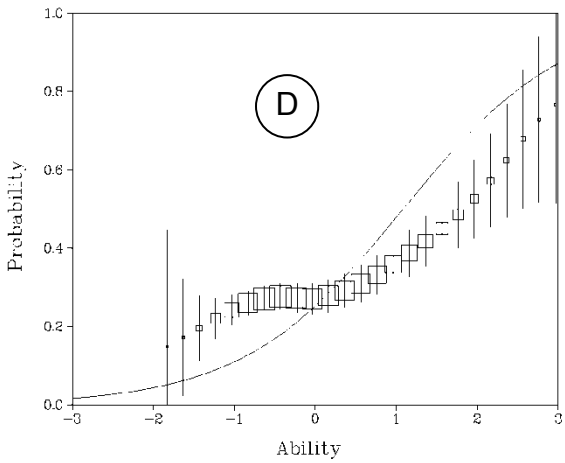
Version 30, Seq 29 (236) CSV23487 4-Choice P+ = 0.563
a = 0.588 F, b = –0.135, c = 0.000 F, CHI = 5.41, N = 5,912



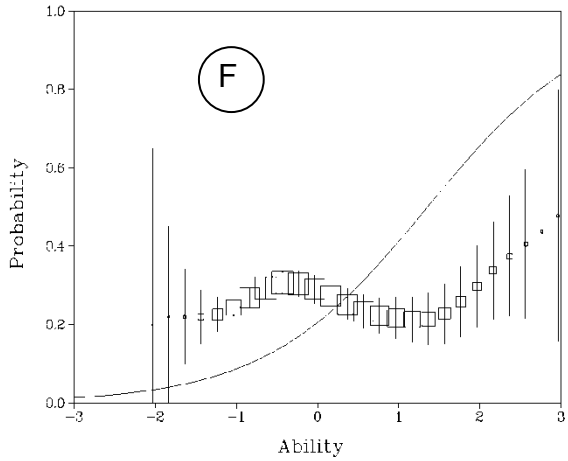
Version 1, Seq 28 (61) CSV22589 4 Choice P+ = 0.307
a = 0.588 F, b = 1.104, c = 0.000 F, CHI = 66.70, N = 6,348



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

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

The number of the operational items in each IRT model data fit classification is presented in Table 8.D.1 through Table 8.D.3 on page 270. The fit classification information for the field test items is presented in Table 8.D.4 through Table 8.D.6, which start on page 271.

Evaluation of Scaling

Calibrations of the 2011 forms were scaled to the previously obtained reference scale estimates in the item bank using the Stocking and Lord (1983) procedure for the CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I. Details on the scaling procedures are provided on page 14 of Chapter 2.

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

Table 8.6 presents, for each grade-level CMA in grades three through eight, the number of linking items between the 2011 (new) and the test form to which it was linked (2010); the numbers of items removed from the linking item sets; the correlation between the final set of new and reference difficulty estimates for the linking items; and the average WRMSD statistic across the final set of linking items.

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

Content Area	CMA*	No. of Linking Items	Linking Items Removed	Final Correlation	WRMSD**
English–Language Arts	3	24	0	0.95	0.03
	4	23	0	0.96	0.03
	5	23	0	0.99	0.02
	6	25	0	0.97	0.02
	7	23	0	0.98	0.02
	8	25	0	0.97	0.02
Mathematics	3	24	0	0.99	0.02
	4	24	0	0.98	0.02
	5	24	0	0.98	0.02
	6	26	0	0.93	0.04
	7	27	0	0.98	0.02

Content Area	CMA*	No. of Linking Items	Linking Items Removed	Final Correlation	WRMSD**
Science	5	21	0	0.96	0.03
	8	26	0	0.98	0.02

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

** Average over retained items

Summaries of Scaled IRT *b*-values

Once the IRT *b*-values are placed on the item bank scale for the CMA for ELA in grades three through eleven, science in grades five, eight, and eleven, mathematics in grades three through eleven, and Algebra I, analyses are performed to assess the overall test difficulty, the difficulty level of reporting clusters, and the distribution of items in a particular range of item difficulty.

Table 8.D.7 through Table 8.D.22 present univariate statistics (mean, standard deviation, minimum, and maximum) for the scaled IRT *b*-values. The results for the overall test are presented separately for the operational items, the field test items, and for each reporting cluster (operational items). No IRT statistics are presented for the CMA for ELA in grades ten and eleven and Geometry; these tests were introduced in 2011.

Post-equating Results

As described on page 14 of Chapter 2, once the new item calibrations are transformed to the base scale, raw-score-to-theta scoring tables are generated for the CMA for ELA in grades three through nine, science in grades five, eight, and ten, mathematics in grades three through seven, and Algebra I. The thetas in these tables are linearly transformed to scale scores.

Complete raw-to-scale score conversion tables for the 2011 CMA are presented in Table 8.D.29 through Table 8.D.46 in Appendix 8.D, starting on page 278. The raw scores and corresponding transformed scale scores are listed on those tables. The scale scores were truncated at both ends of the scale so that the minimum reported scale score was 150 and the maximum reported scale score was 600. The scale scores defining the various performance-level cut points are presented in Table 2.1 which is in Chapter 2 on page 16.

Differential Item Functioning Analyses

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

DIF analyses were performed on all operational items and all field-test items for which sufficient student samples were available. The sample size requirements for the 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:

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

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

where,

R = number right,
W = number wrong,
N = total in:
fm = focal group at ability m,
rm = reference group at ability m, and
tm = total group at ability m.

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

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

Table 8.E.1 on page 296 lists the operational items exhibiting significant DIF (C-DIF). Table 8.E.2 on page 297 represents the analogous list for the field-test items. Test developers are instructed to avoid selecting field-test items flagged as having shown DIF that disadvantages a focal group (C-DIF) for future operational test forms unless their inclusion is deemed essential to meeting test-content specifications.

Table 8.E.3 through Table 8.E.21 show the distributions of operational items across the DIF category classifications for the CMA. In these tables, classifications of B- or C- indicate DIF against a focal group; classifications of B+ and C+ indicate DIF in favor of a focal group. The last two columns of each table show the total number of items flagged for DIF in one or more comparisons. Table 8.E.22 to Table 8.E.40 provide the analogous results for the field-test items. Table 8.7 lists specific subgroups that were used for DIF analyses for the CMA.

Table 8.7 Subgroup Classification for DIF Analyses

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

References

AERA, APA, & NCME.1999. *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

Brennan, R. L. (2001a). *Generalizability theory*. New York, NY: Springer Verlag.

Brennan, R. L. (2001b). *Manual for GENOVA*. Iowa City, IA: Iowa Testing Programs, University of Iowa.

Cohen, J. A. (1992). Power primer. *Psychological Bulletin, 112,* 55–159.

Crick, J. E., & Brennan, R. L. (1983). *Manual for GENOVA: A generalized analysis of variance system* (American College Testing Technical Bulletin 43). Iowa City, IA: ACT, Inc.

Crocker, L. & Algina, J. (1986). *Introduction to classical and modern test theory*. New York, NY: Holt.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16,* 292–334.

Cronbach, L. J. (1971). Test validation. In R. L. Thorndike (Ed.), *Educational measurement* (2nd ed., pp. 443–507). Washington, DC: American Council on Education.

Cronbach, L. J., Gleser, G. C., Nanda, H., & Rajaratnam, N. (1972). *The dependability of behavioral measurements: Theory of generalizability for scores and profiles*. New York, NY: Wiley.

Dorans, N. J., & Holland, P. W. (1993). DIF detection and description: Mantel-Haenszel and standardization. In P. W. Holland & H. Wainer (Eds.), *Differential item functioning* (pp. 35–66). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

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

Feldt, L. S. & Brennan, R. L. (1989). Reliability. In R.L. Linn (Ed.) *Educational measurement* (3rd ed.). New York: Macmillan.

Gaffney, T., Cudeck, R., Ferrer, E., & Widaman, K. F. (in press). On the factor structure of standardized educational achievement tests. *Advances in Rasch modelling*.

Gaffney, T., & Perryman, C. (2009, July). *A longitudinal look at the factor structure of educational achievement tests*. Paper presented at the meeting of the Psychometric Society, Cambridge, England.

Holland, P. W., & Thayer, D. T. (1985). *An alternative definition of the ETS delta scale of item difficulty* (Research Report 85–43). Princeton, NJ: Educational Testing Service

Kane, M. T. (2006). Validation. In R. L. Brennan (Ed.), *Educational measurement* (4th ed., pp. 17–64). Washington, DC: American Council on Education and National Council on Measurement in Education.

Lee, Y., & Kantor, R. (2005). *Dependability of new ESL writing test scores: Evaluating prototype tasks and alternative rating schemes* (TOEFL Monograph 31). Princeton, NJ: Educational Testing Service.

Livingston, S. A., & Lewis, C. (1995). Estimating the consistency and accuracy of classification based on test scores. *Journal of Educational Measurement*, *32,* 179–97.

Mantel, N., & Haenszel, W. (1959). Statistical aspects of the analyses of data from retrospective studies of disease. *Journal of the National Cancer Institute, 22,* 719–48.

Messick, S. (1989). Validity. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp.13–103). New York, NY: Macmillan.

Muraki, E., & Bock, R. D. (1995). *PARSCALE: Parameter scaling of rating data* (Computer software, version 2.2). Chicago, IL: Scientific Software, Inc.

National Institute of Water and Atmospheric Research Ltd. (n.d.). *Cohen's Kappa*. Retrieved from http://www.niwa.co.nz/our-services/online-services/statistical-calculators

Sax, G. (1989). *Principles of educational and psychological measurement and evaluation* (3rd ed.). Belmont, CA: Wadsworth Publishing.

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

United States Department of Education. (2001). Elementary and Secondary Education Act (Public Law 107-11), Title VI, Chapter B, § 4, Section 6162. Retrieved from http://www2.ed.gov/policy/elsec/leg/esea02/index.html

Wang, L., Zhang, Y., & Li, S. (2007, April). *Evaluating the effects of excluding the rater facet in a special generalizability application*. Paper presented at the meeting of the National Council on Measurement in Education, Chicago, IL.

Way, W. D., Kubiak, A. T., Henderson, D., & Julian, M. W. (2002, April). *Accuracy and stability of calibrations for mixed-item-format tests using the one-parameter and generalized partial credit models*. Paper presented at the meeting of the National Council on Measurement in Education, New Orleans, LA.

Appendix 8.A—Classical Analyses

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

Item-by-item *p*-value and Point-Biserial for ELA																		
CMA	**Grade 3**		**Grade 4**		**Grade 5**		**Grade 6**		**Grade 7**		**Grade 8**		**Grade 9**		**Grade 10**		**Grade 11**	
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**
1	0.56	0.34	0.60	0.35	0.73	0.26	0.69	0.37	0.79	0.31	0.76	0.35	0.62	0.28	0.71	0.38	0.39	0.09
2	0.70	0.36	0.66	0.32	0.63	0.36	0.58	0.32	0.56	0.31	0.83	0.35	0.51	0.19	0.59	0.27	0.57	0.31
3	0.65	0.35	0.60	0.24	0.83	0.33	0.41	0.23	0.77	0.45	0.37	0.29	0.47	0.27	0.71	0.39	0.62	0.36
4	0.82	0.46	0.65	0.40	0.63	0.35	0.74	0.41	0.59	0.35	0.65	0.42	0.67	0.38	0.82	0.40	0.34	0.13
5	0.73	0.44	0.68	0.33	0.70	0.38	0.75	0.45	0.55	0.34	0.72	0.24	0.69	0.35	0.75	0.38	0.64	0.20
6	0.77	0.35	0.57	0.38	0.76	0.45	0.19	0.09	0.66	0.41	0.41	0.31	0.54	0.35	0.59	0.27	0.69	0.36
7	0.62	0.44	0.56	0.16	0.69	0.41	0.69	0.43	0.77	0.39	0.58	0.22	0.43	0.27	0.49	0.31	0.61	0.35
8	0.67	0.48	0.62	0.42	0.75	0.46	0.71	0.43	0.59	0.33	0.77	0.39	0.64	0.40	0.45	0.25	0.50	0.13
9	0.69	0.44	0.52	0.29	0.50	0.23	0.65	0.39	0.41	0.21	0.33	0.26	0.65	0.42	0.53	0.31	0.29	0.17
10	0.60	0.33	0.69	0.37	0.45	0.33	0.61	0.45	0.83	0.44	0.77	0.43	0.53	0.44	0.36	0.10	0.52	0.36
11	0.65	0.42	0.71	0.38	0.48	0.30	0.51	0.35	0.68	0.38	0.63	0.38	0.35	0.21	0.69	0.41	0.40	0.25
12	0.42	0.24	0.58	0.44	0.52	0.41	0.64	0.38	0.74	0.45	0.60	0.31	0.40	0.21	0.54	0.29	0.43	0.33
13	0.55	0.39	0.49	0.24	0.62	0.40	0.63	0.37	0.60	0.44	0.56	0.41	0.57	0.42	0.45	0.30	0.48	0.31
14	0.57	0.38	0.48	0.35	0.49	0.21	0.38	0.23	0.49	0.29	0.51	0.36	0.42	0.38	0.49	0.33	0.50	0.25
15	0.75	0.45	0.38	0.25	0.55	0.25	0.55	0.24	0.71	0.51	0.75	0.41	0.53	0.38	0.27	0.16	0.52	0.16
16	0.61	0.45	0.70	0.43	0.52	0.34	0.57	0.34	0.58	0.41	0.49	0.23	0.52	0.30	0.51	0.32	0.51	0.38
17	0.62	0.43	0.53	0.39	0.47	0.27	0.50	0.34	0.66	0.45	0.48	0.16	0.61	0.42	0.52	0.38	0.45	0.29
18	0.70	0.40	0.68	0.41	0.61	0.42	0.57	0.19	0.74	0.47	0.39	0.21	0.42	0.34	0.45	0.17	0.51	0.36
19	0.64	0.33	0.42	0.29	0.50	0.34	0.44	0.23	0.42	0.33	0.46	0.34	0.44	0.27	0.57	0.38	0.41	0.25
20	0.59	0.35	0.39	0.19	0.58	0.44	0.57	0.29	0.59	0.36	0.48	0.24	0.43	0.20	0.58	0.36	0.33	0.24
21	0.42	0.34	0.64	0.44	0.47	0.24	0.52	0.24	0.44	0.35	0.30	-.01	0.46	0.21	0.37	0.25	0.47	0.25
22	0.59	0.41	0.52	0.32	0.53	0.33	0.50	0.29	0.55	0.25	0.54	0.34	0.37	0.18	0.46	0.20	0.49	0.27
23	0.57	0.32	0.65	0.46	0.48	0.41	0.22	0.06	0.58	0.43	0.57	0.34	0.54	0.38	0.44	0.19	0.61	0.37
24	0.71	0.35	0.48	0.17	0.47	0.38	0.59	0.34	0.69	0.48	0.46	0.40	0.53	0.34	0.39	0.18	0.50	0.41
25	0.53	0.38	0.66	0.44	0.51	0.28	0.40	0.20	0.62	0.45	0.49	0.29	0.51	0.33	0.48	0.42	0.57	0.33
26	0.40	0.20	0.48	0.26	0.66	0.40	0.66	0.37	0.60	0.47	0.60	0.38	0.59	0.36	0.48	0.33	0.32	0.24
27	0.63	0.37	0.50	0.24	0.73	0.42	0.49	0.36	0.66	0.33	0.62	0.28	0.49	0.29	0.40	0.20	0.44	0.21
28	0.49	0.44	0.39	0.19	0.53	0.37	0.70	0.43	0.62	0.44	0.30	0.24	0.46	0.29	0.56	0.34	0.38	0.04
29	0.64	0.41	0.50	0.33	0.78	0.35	0.37	0.13	0.56	0.40	0.73	0.42	0.41	0.25	0.55	0.34	0.35	0.16
30	0.58	0.40	0.40	0.18	0.56	0.35	0.71	0.37	0.45	0.20	0.66	0.42	0.48	0.33	0.38	0.31	0.40	0.24
31	0.71	0.34	0.49	0.37	0.85	0.36	0.62	0.42	0.55	0.19	0.50	0.40	0.50	0.32	0.30	0.06	0.29	0.11
32	0.60	0.46	0.74	0.39	0.45	0.24	0.49	0.35	0.48	0.22	0.53	0.29	0.46	0.23	0.27	0.04	0.36	0.17
33	0.58	0.43	0.56	0.37	0.67	0.31	0.64	0.34	0.49	0.29	0.60	0.29	0.48	0.34	0.54	0.36	0.32	0.14
34	0.52	0.40	0.51	0.28	0.81	0.41	0.46	0.30	0.44	0.20	0.60	0.26	0.48	0.33	0.48	0.44	0.30	0.09
35	0.62	0.24	0.67	0.36	0.58	0.41	0.67	0.42	0.48	0.25	0.45	0.28	0.42	0.28	0.46	0.27	0.40	0.27
36	0.65	0.45	0.47	0.32	0.72	0.49	0.61	0.33	0.53	0.34	0.43	0.26	0.43	0.21	0.34	0.11	0.52	0.36

Item-by-item *p*-value and Point-Biserial for ELA																		
CMA	**Grade 3**		**Grade 4**		**Grade 5**		**Grade 6**		**Grade 7**		**Grade 8**		**Grade 9**		**Grade 10**		**Grade 11**	
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**
37	0.73	0.46	0.65	0.46	0.69	0.40	0.56	0.26	0.53	0.24	0.46	0.30	0.67	0.34	0.41	0.23	0.46	0.33
38	0.60	0.48	0.54	0.33	0.69	0.41	0.37	0.20	0.72	0.39	0.43	0.28	0.55	0.37	0.35	0.10	0.37	0.26
39	0.65	0.48	0.53	0.34	0.71	0.42	0.32	0.10	0.47	0.36	0.58	0.34	0.69	0.47	0.57	0.32	0.43	0.22
40	0.73	0.46	0.78	0.44	0.71	0.43	0.83	0.40	0.61	0.33	0.46	0.26	0.48	0.22	0.46	0.28	0.44	0.25
41	0.69	0.46	0.61	0.41	0.72	0.47	0.60	0.27	0.65	0.42	0.40	0.30	0.40	0.27	0.53	0.36	0.41	0.25
42	0.70	0.47	0.72	0.49	0.44	0.28	0.51	0.30	0.56	0.33	0.42	0.29	0.35	0.18	0.47	0.25	0.44	0.20
43	0.63	0.50	0.69	0.43	0.76	0.45	0.67	0.24	0.61	0.18	0.75	0.35	0.43	0.19	0.38	0.16	0.43	0.17
44	0.53	0.35	0.55	0.32	0.50	0.29	0.53	0.33	0.69	0.39	0.66	0.46	0.35	0.03	0.62	0.39	0.36	0.20
45	0.53	0.33	0.56	0.37	0.71	0.40	0.44	0.27	0.54	0.28	0.62	0.38	0.43	0.27	0.52	0.32	0.30	0.16
46	0.59	0.46	0.65	0.38	0.49	0.36	0.78	0.36	0.65	0.39	0.46	0.28	0.45	0.25	0.37	0.07	0.55	0.40
47	0.64	0.43	0.67	0.31	0.35	0.24	0.58	0.38	0.53	0.40	0.56	0.39	0.49	0.38	0.45	0.22	0.41	0.24
48	0.63	0.50	0.50	0.35	0.62	0.38	0.76	0.49	0.76	0.45	0.61	0.46	0.41	0.21	0.51	0.26	0.43	0.28
49	.	.	.	.	.	.	0.71	0.45	0.77	0.43	0.73	0.33	0.45	0.32	0.41	0.28	0.40	0.18
50	.	.	.	.	.	.	0.64	0.35	0.55	0.33	0.62	0.36	0.56	0.38	0.35	0.16	0.41	0.16
51	.	.	.	.	.	.	0.56	0.30	0.59	0.36	0.70	0.42	0.31	0.13	0.46	0.29	0.52	0.36
52	.	.	.	.	.	.	0.54	0.38	0.46	0.31	0.70	0.41	0.51	0.27	0.52	0.37	0.55	0.36
53	.	.	.	.	.	.	0.50	0.27	0.60	0.36	0.47	0.40	0.47	0.28	0.55	0.40	0.40	0.38
54	.	.	.	.	.	.	0.57	0.37	0.42	0.24	0.74	0.38	0.46	0.32	0.57	0.39	0.59	0.40
55	.	.	.	.	.	.	.	.	.	.	.	.	0.54	0.35	0.56	0.36	0.40	0.22
56	.	.	.	.	.	.	.	.	.	.	.	.	0.33	0.06	0.35	-.01	0.32	0.08
57	.	.	.	.	.	.	.	.	.	.	.	.	0.53	0.32	0.37	0.22	0.45	0.29
58	.	.	.	.	.	.	.	.	.	.	.	.	0.43	0.24	0.41	0.28	0.39	0.20
59	.	.	.	.	.	.	.	.	.	.	.	.	0.37	0.15	0.55	0.36	0.41	0.19
60	.	.	.	.	.	.	.	.	.	.	.	.	0.38	0.16	0.46	0.27	0.34	0.12

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

Item-by-item *p*-value and Point-Biserial for Mathematics														
CMA	**Grade 3**		**Grade 4**		**Grade 5**		**Grade 6**		**Grade 7**		**Algebra I**		**Geometry**	
Items	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	***p*-value**	**Pt-Bis**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
1	0.51	0.37	0.81	0.39	0.81	0.44	0.48	0.24	0.69	0.14	0.59	0.23	0.70	0.25
2	0.77	0.31	0.62	0.46	0.80	0.36	0.71	0.29	0.44	0.27	0.61	0.29	0.54	0.35
3	0.70	0.46	0.82	0.43	0.66	0.40	0.49	0.33	0.31	0.26	0.42	0.15	0.55	0.35
4	0.59	0.48	0.80	0.45	0.73	0.40	0.31	0.08	0.27	0.14	0.63	0.41	0.56	0.25
5	0.60	0.34	0.63	0.41	0.91	0.23	0.53	0.35	0.34	0.17	0.50	0.42	0.63	0.16
6	0.41	0.34	0.49	0.44	0.53	0.18	0.66	0.27	0.53	0.16	0.62	0.37	0.50	0.30
7	0.53	0.43	0.57	0.46	0.66	0.41	0.57	0.37	0.28	0.15	0.59	0.39	0.52	0.36
8	0.45	0.39	0.43	0.28	0.64	0.41	0.66	0.30	0.45	0.21	0.45	0.22	0.52	0.33
9	0.73	0.45	0.45	0.27	0.75	0.29	0.42	0.30	0.62	0.21	0.42	0.28	0.47	0.32
10	0.67	0.46	0.39	0.22	0.59	0.42	0.54	0.39	0.53	0.29	0.60	0.47	0.50	0.25
11	0.55	0.37	0.39	0.26	0.83	0.39	0.52	0.21	0.35	0.15	0.63	0.37	0.39	0.15
12	0.69	0.48	0.79	0.36	0.44	0.37	0.50	0.24	0.49	0.19	0.50	0.34	0.50	0.25
13	0.55	0.36	0.56	0.34	0.57	0.29	0.57	0.29	0.24	0.23	0.57	0.45	0.34	0.18
14	0.44	0.38	0.74	0.37	0.61	0.41	0.61	0.29	0.44	0.20	0.65	0.39	0.58	0.39
15	0.43	0.25	0.61	0.32	0.58	0.38	0.44	0.23	0.60	0.32	0.53	0.27	0.38	0.19
16	0.58	0.44	0.65	0.43	0.69	0.51	0.59	0.33	0.43	0.20	0.45	0.27	0.46	0.18
17	0.64	0.33	0.55	0.37	0.72	0.47	0.60	0.31	0.64	0.37	0.43	0.29	0.50	0.22
18	0.61	0.30	0.84	0.40	0.50	0.19	0.54	0.28	0.62	0.26	0.45	0.26	0.54	0.30
19	0.67	0.45	0.52	0.32	0.80	0.48	0.56	0.34	0.44	0.24	0.59	0.27	0.69	0.43
20	0.73	0.49	0.64	0.44	0.67	0.42	0.39	0.26	0.57	0.36	0.49	0.18	0.37	0.14
21	0.65	0.54	0.80	0.41	0.66	0.46	0.50	0.36	0.45	0.24	0.59	0.20	0.36	0.24
22	0.64	0.50	0.83	0.35	0.42	0.25	0.73	0.40	0.33	0.02	0.41	0.22	0.50	0.34
23	0.51	0.28	0.81	0.43	0.80	0.31	0.56	0.31	0.46	0.17	0.51	0.27	0.47	0.37
24	0.67	0.49	0.59	0.31	0.72	0.46	0.45	0.17	0.57	0.26	0.49	0.28	0.50	0.39
25	0.79	0.44	0.46	0.33	0.56	0.52	0.59	0.46	0.71	0.33	0.40	0.23	0.59	0.40
26	0.61	0.33	0.49	0.29	0.67	0.46	0.56	0.40	0.37	0.39	0.42	0.24	0.54	0.34
27	0.64	0.39	0.57	0.44	0.65	0.50	0.49	0.27	0.28	0.15	0.57	0.34	0.34	0.16
28	0.77	0.48	0.46	0.32	0.69	0.53	0.73	0.44	0.48	0.33	0.48	0.30	0.54	0.31
29	0.50	0.32	0.60	0.40	0.45	0.29	0.58	0.35	0.38	0.27	0.52	0.33	0.50	0.32
30	0.61	0.30	0.45	0.28	0.73	0.45	0.44	0.26	0.47	0.27	0.40	0.22	0.51	0.33
31	0.67	0.36	0.34	0.05	0.70	0.49	0.55	0.38	0.44	0.37	0.34	0.11	0.44	0.26
32	0.73	0.43	0.61	0.42	0.55	0.38	0.60	0.37	0.58	0.34	0.56	0.40	0.50	0.30
33	0.82	0.35	0.70	0.46	0.46	0.32	0.31	0.11	0.65	0.29	0.55	0.40	0.46	0.34
34	0.79	0.43	0.64	0.32	0.47	0.29	0.76	0.36	0.48	0.33	0.41	0.17	0.50	0.41
35	0.64	0.27	0.83	0.31	0.39	0.38	0.56	0.27	0.52	0.31	0.46	0.31	0.40	0.20
36	0.71	0.45	0.53	0.27	0.41	0.11	0.68	0.37	0.38	0.29	0.56	0.44	0.27	0.21
37	0.65	0.40	0.47	0.31	0.34	0.24	0.77	0.41	0.45	0.38	0.38	0.12	0.46	0.26
38	0.77	0.27	0.63	0.42	0.62	0.44	0.40	0.24	0.40	0.27	0.41	0.18	0.44	0.12

Item-by-item *p*-value and Point-Biserial for Mathematics														
CMA	**Grade 3**		**Grade 4**		**Grade 5**		**Grade 6**		**Grade 7**		**Algebra I**		**Geometry**	
Items	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	***p*-value**	**Pt-Bis**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
39	0.82	0.42	0.29	0.10	0.38	0.12	0.55	0.36	0.52	0.23	0.44	0.18	0.36	0.25
40	0.67	0.47	0.42	0.27	0.72	0.35	0.39	0.06	0.45	0.25	0.37	0.17	0.49	0.39
41	0.43	0.35	0.57	0.34	0.71	0.37	0.47	0.18	0.54	0.31	0.42	0.12	0.37	0.19
42	0.85	0.39	0.57	0.28	0.52	0.29	0.45	0.19	0.47	0.28	0.51	0.30	0.37	0.19
43	0.52	0.31	0.54	0.33	0.64	0.31	0.52	0.35	0.16	-.09	0.49	0.32	0.70	0.31
44	0.59	0.49	0.52	0.22	0.76	0.44	0.56	0.26	0.28	0.06	0.55	0.32	0.32	0.13
45	0.59	0.47	0.72	0.43	0.74	0.46	0.54	0.26	0.25	0.09	0.38	0.13	0.52	0.29
46	0.53	0.47	0.56	0.31	0.67	0.41	0.44	0.22	0.45	0.37	0.39	0.20	0.44	0.20
47	0.71	0.44	0.58	0.36	0.58	0.38	0.46	0.29	0.48	0.32	0.54	0.36	0.57	0.32
48	0.56	0.43	0.44	0.17	0.53	0.38	0.46	0.22	0.31	0.11	0.44	0.27	0.62	0.39
49	.	.	.	.	.	.	0.64	0.35	0.62	0.34	0.48	0.29	0.39	0.19
50	.	.	.	.	.	.	0.78	0.36	0.61	0.34	0.28	0.02	0.46	0.28
51	.	.	.	.	.	.	0.39	0.09	0.56	0.31	0.63	0.36	0.56	0.34
52	.	.	.	.	.	.	0.53	0.29	0.56	0.32	0.28	0.06	0.46	0.22
53	.	.	.	.	.	.	0.36	0.16	0.47	0.27	0.42	0.19	0.47	0.29
54	.	.	.	.	.	.	0.47	0.37	0.58	0.25	0.51	0.33	0.42	0.26
55	.	.	.	.	.	.	.	.	.	.	0.42	0.20	0.50	0.38
56	.	.	.	.	.	.	.	.	.	.	0.39	0.24	0.50	0.27
57	.	.	.	.	.	.	.	.	.	.	0.33	0.14	0.38	0.16
58	.	.	.	.	.	.	.	.	.	.	0.40	0.23	0.36	0.24
59	.	.	.	.	.	.	.	.	.	.	0.50	0.25	0.41	0.21
60	.	.	.	.	.	.	.	.	.	.	0.48	0.21	0.39	0.20

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

Item-by-item *p*-value and Point-Biserial for Science						
CMA	**Grade 5**		**Grade 8**		**Grade 10**	
Items	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
1	0.70	0.34	0.78	0.34	0.59	0.15
2	0.59	0.27	0.77	0.29	0.50	0.28
3	0.44	0.29	0.65	0.39	0.53	0.34
4	0.61	0.34	0.44	0.28	0.41	0.19
5	0.55	0.30	0.68	0.32	0.35	0.13
6	0.49	0.27	0.52	0.27	0.33	0.06
7	0.52	0.27	0.60	0.29	0.41	0.23
8	0.72	0.45	0.63	0.39	0.41	0.21
9	0.83	0.28	0.88	0.38	0.43	0.24
10	0.29	0.08	0.59	0.35	0.37	0.23
11	0.50	0.35	0.65	0.37	0.53	0.30
12	0.56	0.40	0.40	0.16	0.57	0.29
13	0.47	0.34	0.61	0.42	0.55	0.26
14	0.63	0.26	0.61	0.38	0.48	0.26
15	0.48	0.08	0.63	0.29	0.35	0.12
16	0.76	0.38	0.48	0.22	0.55	0.30
17	0.60	0.47	0.67	0.31	0.56	0.35
18	0.70	0.31	0.58	0.31	0.44	0.28
19	0.57	0.32	0.60	0.23	0.47	0.28
20	0.45	0.28	0.56	0.38	0.52	0.30
21	0.60	0.36	0.67	0.38	0.58	0.40
22	0.47	0.32	0.51	0.34	0.49	0.25
23	0.42	0.28	0.53	0.35	0.68	0.37
24	0.63	0.31	0.56	0.28	0.58	0.36
25	0.64	0.32	0.44	0.32	0.51	0.39
26	0.63	0.47	0.45	0.32	0.59	0.43
27	0.82	0.38	0.53	0.36	0.50	0.31
28	0.54	0.38	0.76	0.37	0.68	0.41
29	0.71	0.44	0.57	0.42	0.63	0.46
30	0.63	0.39	0.55	0.39	0.60	0.38
31	0.60	0.42	0.66	0.42	0.61	0.46
32	0.62	0.33	0.67	0.46	0.44	0.34
33	0.71	0.40	0.44	0.25	0.49	0.35
34	0.42	0.29	0.49	0.23	0.54	0.36
35	0.69	0.26	0.54	0.32	0.47	0.28
36	0.53	0.35	0.40	0.18	0.50	0.37
37	0.51	0.34	0.51	0.34	0.43	0.24
38	0.70	0.41	0.54	0.31	0.46	0.25
39	0.50	0.30	0.57	0.36	0.64	0.42
40	0.55	0.19	0.80	0.39	0.63	0.39
41	0.63	0.41	0.59	0.25	0.32	0.14
42	0.43	0.25	0.71	0.35	0.51	0.29
43	0.55	0.36	0.60	0.39	0.61	0.49
44	0.84	0.39	0.49	0.38	0.39	0.24
45	0.62	0.39	0.38	0.22	0.50	0.37
46	0.56	0.33	0.51	0.27	0.64	0.41
47	0.54	0.33	0.42	0.28	0.33	0.24
48	0.75	0.35	0.48	0.44	0.47	0.38
49	.	.	0.40	0.16	0.42	0.24
50	.	.	0.67	0.44	0.37	0.25
51	.	.	0.36	0.15	0.59	0.35
52	.	.	0.35	0.15	0.44	0.31
53	.	.	0.63	0.33	0.65	0.45
54	.	.	0.62	0.41	0.56	0.38
55	.	.	.	.	0.37	0.22
56	.	.	.	.	0.29	0.06
57	.	.	.	.	0.39	0.22
58	.	.	.	.	0.33	0.15
59	.	.	.	.	0.59	0.39
60	.	.	.	.	0.60	0.30

Table 8.A.4 Item-by-item *p*-value and Point-Biserial for Grade-specific CMA

Item-by-item *p*-value and Point-Biserial for Grade-specific CMA				
CMA	**Algebra I (Grade 8)**		**Geometry (Grade 9)**	
Items	***p*-value**	**Pt-Bis**	***p*-value**	**Pt-Bis**
1	0.60	0.24	0.72	0.21
2	0.60	0.28	0.57	0.42
3	0.42	0.16	0.58	0.38
4	0.59	0.40	0.60	0.20
5	0.47	0.42	0.57	0.22
6	0.62	0.37	0.52	0.36
7	0.57	0.39	0.59	0.33
8	0.45	0.22	0.53	0.33
9	0.41	0.27	0.54	0.31
10	0.56	0.49	0.45	0.35
11	0.61	0.37	0.37	0.19
12	0.49	0.33	0.48	0.32
13	0.54	0.45	0.36	0.17
14	0.63	0.40	0.62	0.30
15	0.51	0.27	0.39	0.23
16	0.45	0.27	0.41	0.24
17	0.43	0.31	0.52	0.27
18	0.46	0.29	0.52	0.41
19	0.57	0.25	0.68	0.44
20	0.48	0.19	0.35	0.21
21	0.61	0.18	0.40	0.32
22	0.43	0.22	0.55	0.33
23	0.52	0.29	0.49	0.40
24	0.50	0.28	0.51	0.38
25	0.40	0.23	0.59	0.44
26	0.43	0.27	0.51	0.44
27	0.57	0.33	0.37	0.18
28	0.50	0.31	0.56	0.31
29	0.51	0.30	0.50	0.38
30	0.38	0.25	0.56	0.39
31	0.35	0.12	0.41	0.33
32	0.55	0.39	0.49	0.38
33	0.54	0.40	0.49	0.35
34	0.43	0.19	0.50	0.47
35	0.48	0.33	0.43	0.20
36	0.53	0.44	0.31	0.31
37	0.37	0.15	0.52	0.22
38	0.43	0.18	0.40	0.12
39	0.43	0.16	0.38	0.21
40	0.39	0.19	0.48	0.42
41	0.44	0.12	0.40	0.27
42	0.55	0.32	0.38	0.26
43	0.50	0.33	0.71	0.24
44	0.58	0.32	0.36	0.12
45	0.36	0.13	0.50	0.34
46	0.41	0.21	0.47	0.25
47	0.57	0.38	0.59	0.41
48	0.43	0.28	0.62	0.38
49	0.51	0.32	0.42	0.23
50	0.28	0.04	0.57	0.24
51	0.64	0.35	0.58	0.35
52	0.28	0.08	0.47	0.19
53	0.43	0.19	0.48	0.36
54	0.49	0.36	0.40	0.23
55	0.44	0.22	0.54	0.46
56	0.38	0.28	0.53	0.31
57	0.33	0.15	0.47	0.19
58	0.39	0.24	0.35	0.26
59	0.52	0.24	0.38	0.20
60	0.47	0.19	0.41	0.27

Table 8.A.5 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	2.71	0.47	2.24	1.75	0.01	0.94	0.01	0.58	2.14
1	16.55	4.16	12.39	8.55	0.13	7.82	0.03	2.83	13.71
2	49.27	15.46	33.81	26.73	0.46	21.85	0.24	11.25	38.01
3	27.95	10.51	17.44	16.17	0.43	11.2	0.16	8.03	19.94
4	3.52	1.72	1.8	2.37	0.06	1.05	0.04	1.5	2.01
Total*	100	32.32	67.68	55.57	1.09	42.86	0.48	24.19	75.81

Score	American Indian	Asian	Pacific Islander	Filipino	Hispanic	African American	White	Autism	Deafness
0	0.05	0.12	0.01	0.05	1.5	0.36	0.63	0.35	0.04
1	0.25	0.62	0.06	0.21	10.71	1.91	2.82	1.47	0.09
2	0.44	1.58	0.23	0.55	32.04	4.66	9.81	2.78	0.13
3	0.28	0.95	0.17	0.28	17.08	2.41	6.69	0.96	0.04
4	0.03	0.15	0.01	0.03	1.79	0.22	1.31	0.17	0
Total*	1.05	3.42	0.48	1.12	63.12	9.56	21.26	5.73	0.3

Score	Emotional Dist.	Hard of Hearing	Mental Retard.	Mult. Disab.	Orthoped. Impair.	Other Health Impair.	Specific Learning Disab.	Speech or Lang. Disab.	Traumatic Brain Injury	Visual Impair.
0	0.15	0.02	0.15	0	0.02	0.24	1.31	0.45	0.01	0.02
1	0.41	0.11	0.53	0.01	0.15	1.38	10.03	2.47	0.02	0.05
2	0.7	0.45	0.51	0.08	0.4	4.36	31.96	7.64	0.1	0.07
3	0.36	0.25	0.11	0.01	0.14	2.66	18.57	4.65	0.04	0.07
4	0.07	0.05	0.01	0	0.02	0.35	2.2	0.59	0	0.01
Total*	1.69	0.88	1.31	0.1	0.73	8.99	64.07	15.8	0.17	0.22

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

Table 8.A.6 Distribution of Essay Scores for ELA Grade Seven—Overall and by Subgroup (all %)

Score	Total	Female	Male	English only	I-FEP	EL	R-FEP	Not Econ Disadv.	Econ Disadv.
0	1.23	0.25	0.97	0.78	0.04	0.4	0.01	0.3	0.93
1	5.49	1.38	4.11	3.07	0.04	2.26	0.12	1.18	4.3
2	38.97	12.06	26.92	19.99	0.88	17.22	0.86	7.85	31.1
3	47.03	17.01	30.02	25.74	1.29	18.38	1.64	11.96	35.09
4	7.28	2.84	4.44	4.82	0.22	1.84	0.4	2.69	4.6
Total*	100	33.54	66.46	54.4	2.47	40.1	3.03	23.98	76.02

Score	American Indian	Asian	Pacific Islander	Filipino	Hispanic	African American	White	Autism	Deafness
0	0.03	0.03	0	0.01	0.68	0.18	0.29	0.16	0.01
1	0.09	0.22	0.01	0.09	3.37	0.68	1.03	0.73	0.09
2	0.41	1.25	0.19	0.35	25.57	4.51	6.68	2	0.18
3	0.42	1.19	0.26	0.51	30.2	4.6	9.88	1.59	0.1
4	0.1	0.25	0.06	0.06	3.98	0.61	2.2	0.25	0
Total*	1.05	2.94	0.52	1.02	63.8	10.58	20.08	4.73	0.38

Score	Emotional Dist.	Hard of Hearing	Mental Retard.	Mult. Disab.	Orthoped. Impair.	Other Health Impair.	Specific Learning Disab.	Speech or Lang. Disab.	Traumatic Brain Injury	Visual Impair.
0	0.14	0.01	0.04	0	0	0	0.66	0.08	0.01	0
1	0.25	0.08	0.49	0.03	0.09	0.44	2.89	0.37	0.01	0
2	1.02	0.35	1.02	0.05	0.27	3.28	27.2	3.48	0.1	0.08
3	1	0.42	0.4	0.06	0.27	4.15	35.12	3.68	0.13	0.1
4	0.22	0.05	0.03	0	0.01	0.88	5.23	0.52	0.01	0.01
Total*	2.63	0.91	1.98	0.14	0.64	8.75	71.1	8.13	0.26	0.19

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

Table 8.A.7 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
17,406	2.13	5,625	2.27	11,781	2.06	9,662	2.16	189	2.37	7,451	2.08	83	2.39	4,201	2.29	13,172	2.08

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
178	2	581	2.12	81	2.22	190	2.03	10,753	2.11	1,628	2.02	3,623	2.25	960	1.85	48	1.56

Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disabilities		Orthopedic Impair.		Other Health Impair.		Specific Learning Disability		Speech or Lang. Impair.		Traumatic Brain Injury	
N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
283	1.88	147	2.22	220	1.47	18	2	123	1.98	1,507	2.17	10,733	2.16	2,645	2.16	29	2

Visual Imp.	
N	Mean
35	1.91

Table 8.A.8 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
20,863	2.54	6,996	2.62	13,866	2.49	11,333	2.57	514	2.65	8,354	2.47	632	2.76	4,991	2.65	15,827	2.5

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
214	2.45	603	2.48	107	2.69	210	2.5	13,048	2.52	2,161	2.45	4,107	2.63	962	2.22	79	1.97

Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disabilities		Orthopedic Impair.		Other Health Impair.		Specific Learning Disability		Speech or Lang. Impair.		Traumatic Brain Injury	
N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
534	2.35	186	2.45	403	1.95	29	2.21	132	2.31	1,800	2.59	14,448	2.58	1,653	2.51	54	2.46

Visual Imp.	
N	Mean
40	2.68

Table 8.A.9 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
4	–0.26	0.26	–0.25	0.10	–0.27	0.37	–0.03	–0.39

	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.
4	0.29	0.15	0.03	0.25	0.17	0.27	–0.14	–0.26	–0.03	–0.14	–0.02
	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.	
4	–0.12	0.10	0.01	0.12	0.23	0.14	0.24	–0.10	0.01	0.11	

	Disability	
	SLD- Disab Not Rptd	SLI-Disab Not Rptd
4	–0.11	–0.11

Table 8.A.10 Effect Sizes for ELA Grade Seven Essay—by Subgroup

	Gender	Econ. Status	English-language Fluency					
	(M-F)	(No-Yes)	EO–I-FEP	EO-EL	EO–R-FEP	I-FEP–EL	I-FEP–R-FEP	EL–R-FEP
7	–0.17	0.20	–0.10	0.13	–0.24	0.25	–0.15	–0.40

	Primary Ethnicity										
	W-Am. Ind	W-Asian	W-Pac. Isl.	W-Filipino	W-Hisp.	W-Af. Am.	Am. Ind.-Asian	Am. Ind.-Pac. Isl.	Am. Ind.-Filipino	Am. Ind.-Hisp.	Am. Ind.-Af. Am.
7	0.22	0.19	–0.08	0.16	0.15	0.23	–0.04	–0.29	–0.06	–0.09	0.00
	Asian-Pac. Isl.	Asian-Filipino	Asian-Hisp.	Asian-Af. Am.	Pac. Isl.-Filipino	Pac. Isl. -Hisp.	Pac. Isl. -Af. Am.	Filipino-Hispanic	Filipino -Af. Am.	Hisp. -Af. Am.	
7	–0.27	–0.03	–0.05	0.04	0.25	0.23	0.31	–0.03	0.06	0.09	

	Disability	
	SLD- Disab Not Rptd	SLI-Disab Not Rptd
7	0.00	–0.09

Appendix 8.B—Reliability Analyses

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	0.71	0.73	1.62
2. Reading for Understanding	17	0.68	1.00	0.66	0.73	1.83
3. Language	17	0.71	0.66	1.00	0.74	1.83
Grade 4		**1.**	**2.**	**3.**		
1. Vocabulary	11	1.00	0.57	0.58	0.56	1.52
2. Reading for Understanding	16	0.57	1.00	0.60	0.62	1.85
3. Language	21	0.58	0.60	1.00	0.72	2.09
Grade 5		**1.**	**2.**	**3.**		
1. Vocabulary	8	1.00	0.54	0.56	0.57	1.17
2. Reading for Understanding	18	0.54	1.00	0.61	0.66	2.00
3. Language	22	0.56	0.61	1.00	0.77	2.02
Grade 6		**1.**	**2.**	**3.**		
1. Vocabulary	9	1.00	0.57	0.51	0.57	1.33
2. Reading for Understanding	22	0.57	1.00	0.59	0.64	2.16
3. Language	23	0.51	0.59	1.00	0.71	2.18
Grade 7		**1.**	**2.**	**3.**		
1. Vocabulary	8	1.00	0.59	0.50	0.54	1.21
2. Reading for Understanding	22	0.59	1.00	0.62	0.79	2.08
3. Language	24	0.50	0.62	1.00	0.71	2.27
Grade 8		**1.**	**2.**	**3.**		
1. Vocabulary	6	1.00	0.55	0.53	0.55	0.97
2. Reading for Understanding	24	0.55	1.00	0.60	0.66	2.28
3. Language	24	0.53	0.60	1.00	0.74	2.24
Grade 9		**1.**	**2.**	**3.**		
1. Vocabulary	7	1.00	0.49	0.38	0.38	1.26
2. Reading for Understanding	27	0.49	1.00	0.57	0.72	2.44
3. Language	26	0.38	0.57	1.00	0.63	2.42

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.**		
1. Number Sense	24	1.00	0.66	0.61	0.81	2.17
2. Algebra and Data Analysis	13	0.66	1.00	0.63	0.72	1.56
3. Measurement and Geometry	11	0.61	0.63	1.00	0.63	1.36
Grade 4		**1.**	**2.**	**3.**		
1. Number Sense	23	1.00	0.61	0.47	0.77	2.04
2. Algebra and Data Analysis	15	0.61	1.00	0.46	0.58	1.81
3. Measurement and Geometry	10	0.47	0.46	1.00	0.49	1.45
Grade 5		**1.**	**2.**	**3.**		
1. Number Sense	21	1.00	0.68	0.49	0.76	1.94
2. Algebra and Data Analysis	17	0.68	1.00	0.51	0.77	1.77
3. Measurement and Geometry	10	0.49	0.51	1.00	0.45	1.46

Subscore Reliabilities and Intercorrelations for Mathematics						
Subscore Area	**No. of items**	**Intercorrelations**			***Reliab.***	***SEM***
Grade 6		**1.**	**2.**	**3.**		
1. Number Sense	21	1.00	0.58	0.35	0.62	2.16
2. Algebra and Data Analysis	25	0.58	1.00	0.37	0.69	2.30
3. Measurement and Geometry	8	0.35	0.37	1.00	0.30	1.37
Grade 7		**1.**	**2.**	**3.**		
1. Number Sense	18	1.00	0.45	0.28	0.38	2.00
2. Algebra and Data Analysis	25	0.45	1.00	0.36	0.64	2.37
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	0.39	0.44	0.68	1.78
2. Graphing and Systems of Linear Equations	14	0.39	1.00	0.38	0.52	1.79
3. Quadratics and Polynomials	19	0.44	0.38	1.00	0.52	2.09
4. Functions and Rational Expressions	12	0.35	0.29	0.37	0.30	1.65

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	0.56	0.51	N/A	0.55	1.85
2. Life Sciences	16	0.56	1.00	0.59	N/A	0.69	1.79
3. Earth Sciences	16	0.51	0.59	1.00	N/A	0.64	1.81
Grade 8		**1.**	**2.**	**3.**	**4.**		
1. Motion	19	1.00	0.57	0.47	0.53	0.65	1.96
2. Matter	23	0.57	1.00	0.51	0.51	0.68	2.25
3. Earth Science	7	0.47	0.51	1.00	0.41	0.47	1.19
4. Investigation and Experimentation	5	0.53	0.51	0.41	1.00	0.42	1.00
Grade 10		**1.**	**2.**	**3.**	**4.**		
1. Cell Biology and Genetics	22	1.00	0.54	0.54	0.38	0.57	2.24
2. Evolution and Ecology	22	0.54	1.00	0.59	0.45	0.65	2.18
3. Physiology	10	0.54	0.59	1.00	0.43	0.63	1.43
4. Investigation and Experimentation	6	0.38	0.45	0.43	1.00	0.34	1.17

Table 8.B.4 Subscore Reliabilities and Intercorrelations for Grade-specific Algebra I – Grade 8

Subscore Area	**N of Items**	**Intercorrelations**				**Reliab.**	**SEM**
Algebra I – 8		**1.**	**2.**	**3.**	**4.**		
1. Number Properties, Operations, and Linear Equations	15	1.00	0.42	0.46	0.38	0.67	1.79
2. Graphing and Systems of Linear Equations	14	0.42	1.00	0.41	0.31	0.52	1.79
3. Quadratics and Polynomials	19	0.46	0.41	1.00	0.40	0.54	2.09
4. Functions and Rational Expressions	12	0.38	0.31	0.40	1.00	0.33	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	11,893	0.89	3.07	5,599	0.89	3.05	117	0.90	3.03
	4**	16,843	0.84	3.20	8,119	0.83	3.17	7	0.84	3.28
	5	18,295	0.85	3.12	9,251	0.85	3.05	31	0.76	3.31
	6	17,290	0.83	3.38	8,758	0.82	3.31	11	0.86	3.37
	7**	16,282	0.87	3.34	8,097	0.86	3.30	13	0.86	3.38
	8	15,446	0.84	3.37	7,493	0.83	3.32	81	0.84	3.38
	9	10,804	0.82	3.67	5,398	0.81	3.67	67	0.73	3.73
	10	8,478	0.80	3.66	4,338	0.79	3.64	55	0.79	3.66
	11	5,945	0.75	3.70	3,133	0.72	3.68	17	0.83	3.68
Mathematics	3	10,052	0.89	3.01	5,146	0.88	3.03	98	0.87	3.11
	4	13,798	0.84	3.11	7,169	0.83	3.09	7	0.78	3.27
	5	15,594	0.87	3.04	8,419	0.86	3.00	31	0.79	3.24
	6	15,916	0.80	3.45	8,479	0.78	3.45	9	0.81	3.50
	7	15,539	0.72	3.47	8,229	0.70	3.45	16	0.71	3.49
	Algebra I	14,828	0.79	3.70	8,030	0.76	3.70	77	0.82	3.69
	Geometry	2,968	0.81	3.68	1,683	0.74	3.70	10	0.66	3.67
Science	5	16,639	0.83	3.15	8,554	0.80	3.19	30	0.74	3.32
	8	14,048	0.85	3.36	6,981	0.80	3.42	77	0.82	3.41
	10 Life Science	7,039	0.84	3.64	3,702	0.80	3.66	45	0.80	3.69
Grade-Specific	Algebra I – Grade 8	3,615	0.80	3.70	1,858	0.77	3.70	14	0.91	3.56
	Geometry – Grade 9	185	0.85	3.65	96	0.79	3.69	0	–	–

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

** MC only

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	13,099	0.88	3.10	3,780	0.89	2.95	730	0.89	3.07
	4**	19,153	0.83	3.21	5,728	0.85	3.10	88	0.82	3.25
	5	21,125	0.85	3.12	6,323	0.86	2.99	129	0.84	3.19
	6	20,074	0.82	3.38	5,888	0.84	3.27	97	0.81	3.44
	7**	18,400	0.86	3.36	5,873	0.87	3.24	119	0.87	3.36
	8	17,267	0.83	3.37	5,387	0.85	3.30	366	0.85	3.34
	9	11,606	0.80	3.69	4,489	0.84	3.64	174	0.80	3.71
	10	9,027	0.78	3.67	3,685	0.82	3.62	159	0.82	3.64
	11	6,245	0.72	3.69	2,755	0.78	3.68	95	0.79	3.68
Mathematics	3	11,427	0.88	3.03	3,191	0.89	2.96	678	0.89	3.01
	4	16,314	0.83	3.12	4,590	0.84	3.05	70	0.85	3.18
	5	18,446	0.86	3.04	5,478	0.87	2.99	120	0.84	3.17
	6	18,668	0.79	3.46	5,639	0.80	3.42	97	0.77	3.50
	7	17,745	0.70	3.47	5,914	0.74	3.46	125	0.69	3.48
	Algebra I	16,354	0.77	3.71	6,279	0.79	3.69	302	0.79	3.70
	Geometry	3,305	0.76	3.70	1,319	0.82	3.66	37	0.85	3.59
Science	5	19,320	0.82	3.19	5,782	0.83	3.09	121	0.82	3.23
	8	15,808	0.83	3.40	4,961	0.85	3.31	337	0.82	3.40
	10 Life Science	7,557	0.81	3.67	3,092	0.85	3.61	137	0.84	3.65
Grade-Specific	Algebra I – Grade 8	4,147	0.78	3.70	1,241	0.80	3.68	99	0.82	3.68
	Geometry – Grade 9	217	0.79	3.69	64	0.89	3.56	0	–	–

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

** MC only

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	9,558	0.89	3.04	178	0.89	3.00	7,407	0.88	3.11	49	0.91	2.95	417	0.88	3.06
	4**	13,732	0.84	3.17	267	0.85	3.13	10,800	0.82	3.21	118	0.83	3.07	52	0.84	3.25
	5	14,821	0.86	3.06	518	0.87	2.98	11,904	0.83	3.14	264	0.86	2.94	70	0.87	3.16
	6	14,033	0.84	3.33	549	0.84	3.28	10,932	0.80	3.41	469	0.85	3.19	76	0.81	3.44
	7**	13,449	0.87	3.30	595	0.87	3.26	9,532	0.85	3.39	727	0.87	3.14	89	0.87	3.40
	8	12,241	0.85	3.34	417	0.84	3.30	9,249	0.81	3.39	799	0.86	3.18	314	0.85	3.33
	9	8,969	0.83	3.66	379	0.82	3.65	6,112	0.76	3.71	676	0.84	3.60	133	0.77	3.72
	10	7,207	0.81	3.65	397	0.80	3.64	4,677	0.75	3.68	484	0.84	3.57	106	0.82	3.66
	11	5,084	0.76	3.69	260	0.80	3.67	3,338	0.66	3.70	333	0.77	3.66	80	0.77	3.69
Mathematics	3	8,249	0.89	3.02	141	0.89	2.95	6,493	0.88	3.01	43	0.91	2.87	370	0.89	3.01
	4	11,623	0.83	3.11	201	0.83	3.03	9,013	0.83	3.10	92	0.87	2.97	45	0.82	3.23
	5	13,159	0.87	3.04	424	0.87	2.94	10,165	0.86	3.02	229	0.87	2.89	67	0.83	3.18
	6	13,550	0.80	3.45	503	0.79	3.42	9,848	0.78	3.46	429	0.82	3.35	74	0.79	3.49
	7	13,513	0.72	3.47	562	0.73	3.47	8,911	0.69	3.47	704	0.74	3.44	94	0.67	3.47
	Algebra I	12,895	0.78	3.70	598	0.78	3.69	8,203	0.77	3.71	1,009	0.81	3.63	230	0.79	3.70
	Geometry	2,398	0.82	3.67	149	0.79	3.70	1,829	0.72	3.71	254	0.77	3.66	31	0.80	3.66
Science	5	13,616	0.83	3.13	458	0.83	3.04	10,826	0.80	3.21	257	0.83	3.06	66	0.83	3.23
	8	11,246	0.85	3.36	379	0.85	3.29	8,443	0.80	3.43	743	0.83	3.24	295	0.84	3.39
	10 Life Science	6,001	0.84	3.64	354	0.83	3.64	3,913	0.79	3.68	431	0.86	3.55	87	0.84	3.64
Grade-Specific	Algebra I – Grade 8	2,977	0.78	3.70	111	0.73	3.71	2,086	0.80	3.70	241	0.81	3.63	72	0.84	3.66
	Geometry – Grade 9	132	0.87	3.60	6	0.87	3.68	126	0.70	3.73	17	0.80	3.61	0	–	–

[1] Initially Fluent English Proficient

[2] Reclassified Fluent English Proficient

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

** MC only

Table 8.B.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	1,612	0.88	3.11	170	0.89	3.03	529	0.88	2.99	182	0.85	3.06	10,739	0.88	3.09	94	0.87	3.10	3,558	0.89	2.97	725	0.89	3.03
	4**	2,575	0.83	3.22	258	0.85	3.18	806	0.85	3.15	264	0.82	3.16	15,457	0.83	3.21	107	0.84	3.21	4,933	0.85	3.11	569	0.86	3.14
	5	2,874	0.85	3.14	247	0.86	3.06	872	0.86	3.03	300	0.82	3.07	17,212	0.84	3.12	155	0.81	3.11	5,353	0.87	2.99	564	0.86	3.06
	6	2,947	0.83	3.38	238	0.83	3.34	775	0.83	3.32	282	0.80	3.32	16,255	0.82	3.38	121	0.81	3.38	4,975	0.85	3.28	466	0.85	3.33
	7**	2,697	0.86	3.37	259	0.87	3.31	693	0.87	3.28	241	0.86	3.29	15,009	0.86	3.36	130	0.88	3.31	4,829	0.87	3.23	534	0.87	3.31
	8	2,701	0.83	3.39	208	0.84	3.38	704	0.83	3.33	206	0.84	3.31	14,038	0.83	3.37	110	0.86	3.30	4,444	0.86	3.30	609	0.85	3.34
	9	1,768	0.79	3.69	168	0.82	3.67	426	0.79	3.67	148	0.83	3.62	9,944	0.80	3.69	44	0.78	3.71	3,390	0.85	3.62	381	0.83	3.66
	10	1,412	0.76	3.67	156	0.82	3.62	328	0.80	3.64	118	0.76	3.63	7,715	0.78	3.66	52	0.75	3.67	2,803	0.82	3.63	287	0.82	3.63
	11	1,060	0.71	3.69	98	0.73	3.72	264	0.75	3.67	104	0.70	3.66	5,365	0.71	3.70	41	0.79	3.65	2,006	0.80	3.68	157	0.75	3.69
Mathematics	3	1,514	0.87	3.10	148	0.88	3.02	469	0.90	2.90	165	0.89	2.98	9,384	0.88	3.02	91	0.88	3.02	2,900	0.89	2.96	625	0.88	3.01
	4	2,418	0.82	3.17	217	0.84	3.12	623	0.87	3.05	213	0.85	3.06	13,020	0.83	3.11	96	0.86	3.06	3,927	0.84	3.07	460	0.83	3.09
	5	2,746	0.85	3.12	212	0.87	3.06	701	0.89	2.91	264	0.85	2.99	14,873	0.86	3.02	138	0.83	3.07	4,603	0.87	3.01	507	0.86	3.06
	6	2,907	0.78	3.48	224	0.74	3.47	664	0.83	3.39	246	0.81	3.43	14,921	0.79	3.46	113	0.71	3.50	4,860	0.81	3.42	469	0.82	3.43
	7	2,768	0.68	3.47	266	0.69	3.48	609	0.79	3.43	232	0.74	3.45	14,323	0.70	3.47	123	0.74	3.48	4,918	0.75	3.46	545	0.72	3.47
	Algebra I	2,837	0.73	3.72	247	0.76	3.71	566	0.82	3.63	200	0.80	3.67	13,832	0.78	3.71	101	0.83	3.65	4,643	0.79	3.68	509	0.77	3.70
	Geometry	594	0.74	3.71	37	0.75	3.70	118	0.83	3.64	45	0.84	3.58	2,884	0.75	3.71	25	0.68	3.68	884	0.85	3.62	74	0.79	3.68
Science	5	2,673	0.82	3.21	209	0.85	3.12	783	0.84	3.14	284	0.81	3.15	15,703	0.81	3.19	138	0.79	3.22	4,896	0.84	3.06	537	0.83	3.15
	8	2,494	0.81	3.44	197	0.81	3.38	616	0.84	3.34	188	0.83	3.36	12,833	0.82	3.40	99	0.85	3.33	4,109	0.86	3.29	570	0.83	3.37
	10 Life Science	1,210	0.78	3.69	149	0.84	3.62	281	0.83	3.62	106	0.84	3.61	6,425	0.81	3.67	55	0.78	3.68	2,309	0.86	3.59	251	0.84	3.64
Grade-Specific	Algebra I – 8	834	0.73	3.73	41	0.82	3.71	145	0.81	3.65	47	0.85	3.64	3,349	0.79	3.70	29	0.80	3.68	916	0.80	3.68	126	0.80	3.70
	Geometry – 9	43	0.70	3.73	2	0.17	3.87	7	0.82	3.52	5	0.86	3.72	177	0.77	3.70	2	–0.51	3.47	44	0.91	3.47	1	–	–

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

** MC only

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	230	0.90	3.04	37	0.87	2.95	209	0.87	2.91	89	0.87	3.04	1,230	0.89	2.99	21	0.84	3.16	1,753	0.89	2.90	211	0.87	2.95
	4**	427	0.85	3.16	70	0.85	3.13	322	0.85	3.09	150	0.82	3.14	1,875	0.84	3.14	27	0.86	3.12	2,633	0.85	3.06	224	0.85	3.10
	5	519	0.86	3.07	74	0.87	2.97	338	0.86	2.95	171	0.82	3.06	2,073	0.86	3.03	39	0.77	3.12	2,893	0.87	2.94	216	0.85	3.04
	6	565	0.85	3.32	70	0.83	3.30	289	0.83	3.27	164	0.79	3.33	2,021	0.84	3.29	39	0.84	3.32	2,577	0.85	3.23	163	0.84	3.26
	7**	574	0.87	3.30	79	0.88	3.30	282	0.87	3.21	146	0.84	3.29	2,039	0.87	3.27	37	0.89	3.18	2,521	0.87	3.19	195	0.88	3.25
	8	539	0.84	3.35	50	0.79	3.33	253	0.82	3.30	115	0.85	3.25	1,906	0.85	3.32	36	0.85	3.35	2,321	0.85	3.27	167	0.86	3.29
	9	502	0.80	3.68	62	0.82	3.68	148	0.80	3.65	87	0.82	3.60	1,712	0.82	3.67	19	0.85	3.58	1,824	0.85	3.60	135	0.85	3.62
	10	363	0.81	3.64	67	0.80	3.62	121	0.82	3.60	63	0.80	3.60	1,342	0.81	3.63	21	0.78	3.63	1,609	0.82	3.62	99	0.84	3.58
	11	335	0.72	3.69	35	0.71	3.73	117	0.79	3.65	61	0.73	3.67	1,000	0.72	3.70	12	0.71	3.68	1,148	0.81	3.67	47	0.71	3.70
Mathematics	3	216	0.88	3.06	36	0.82	3.04	189	0.90	2.85	81	0.91	2.92	1,087	0.88	2.98	22	0.85	3.03	1,395	0.90	2.93	165	0.89	2.94
	4	405	0.84	3.12	58	0.80	3.13	245	0.88	2.96	121	0.87	3.02	1,525	0.84	3.07	27	0.84	3.04	2,040	0.84	3.03	169	0.84	3.03
	5	506	0.86	3.07	67	0.85	3.03	265	0.88	2.85	154	0.87	2.98	1,789	0.87	2.99	34	0.87	3.03	2,471	0.87	2.98	192	0.86	3.01
	6	559	0.80	3.46	66	0.69	3.48	245	0.84	3.35	139	0.80	3.43	1,910	0.78	3.44	37	0.70	3.50	2,520	0.81	3.39	163	0.82	3.39
	7	597	0.70	3.48	85	0.69	3.49	247	0.79	3.42	137	0.76	3.44	2,027	0.71	3.46	33	0.73	3.46	2,589	0.76	3.45	199	0.73	3.47
	Algebra I	754	0.76	3.71	91	0.78	3.69	234	0.83	3.59	113	0.79	3.67	2,346	0.78	3.70	41	0.81	3.65	2,525	0.80	3.67	175	0.74	3.71
	Geometry	145	0.74	3.72	18	0.76	3.65	46	0.79	3.65	27	0.84	3.55	471	0.77	3.70	9	0.45	3.65	581	0.85	3.61	22	0.78	3.68
Science	5	491	0.84	3.16	61	0.84	3.13	302	0.84	3.07	165	0.80	3.16	1,903	0.82	3.13	35	0.79	3.11	2,616	0.83	3.03	209	0.84	3.13
	8	507	0.84	3.40	49	0.84	3.31	230	0.83	3.28	106	0.80	3.33	1,769	0.83	3.37	29	0.79	3.40	2,118	0.86	3.25	153	0.85	3.30
	10 Life Science	306	0.80	3.68	65	0.85	3.60	93	0.85	3.58	59	0.84	3.61	1,154	0.82	3.64	24	0.80	3.66	1,302	0.87	3.56	89	0.87	3.57
Grade-Specific	Algebra I – 8	158	0.74	3.72	13	0.73	3.72	55	0.81	3.62	28	0.80	3.66	466	0.80	3.69	11	0.84	3.65	473	0.81	3.66	37	0.71	3.72
	Geometry – 9	9	0.86	3.68	0	–	–	3	0.75	3.74	3	0.84	3.72	19	0.84	3.61	1	–	–	29	0.91	3.44	0	–	–

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

** MC only

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	1,308	0.88	3.12	126	0.89	3.06	291	0.88	3.03	82	0.84	3.07	9,208	0.88	3.11	71	0.88	3.08	1,690	0.88	3.04	323	0.89	3.09
	4**	2,138	0.83	3.24	188	0.85	3.19	479	0.83	3.20	114	0.83	3.19	13,549	0.82	3.22	80	0.83	3.24	2,279	0.84	3.17	326	0.86	3.16
	5	2,344	0.84	3.16	173	0.86	3.10	531	0.85	3.08	126	0.83	3.08	15,088	0.84	3.13	116	0.82	3.10	2,434	0.86	3.04	313	0.86	3.06
	6	2,370	0.83	3.40	167	0.83	3.37	483	0.83	3.35	118	0.82	3.31	14,199	0.82	3.39	81	0.78	3.41	2,375	0.84	3.33	281	0.84	3.35
	7**	2,108	0.85	3.38	176	0.87	3.31	407	0.86	3.33	94	0.88	3.28	12,926	0.86	3.37	92	0.87	3.35	2,285	0.87	3.28	312	0.86	3.36
	8	2,130	0.82	3.40	154	0.85	3.39	444	0.84	3.34	85	0.82	3.37	12,037	0.83	3.38	74	0.87	3.28	2,080	0.85	3.33	263	0.83	3.38
	9	1,251	0.78	3.69	103	0.82	3.66	274	0.79	3.68	61	0.84	3.66	8,178	0.79	3.69	25	0.67	3.77	1,541	0.84	3.64	173	0.81	3.67
	10	1,040	0.74	3.68	89	0.84	3.62	206	0.76	3.66	54	0.70	3.67	6,313	0.77	3.67	31	0.73	3.70	1,167	0.81	3.64	127	0.79	3.65
	11	719	0.70	3.69	63	0.74	3.72	145	0.71	3.68	42	0.64	3.65	4,345	0.70	3.69	29	0.77	3.64	831	0.78	3.69	71	0.75	3.68
Mathematics	3	1,222	0.87	3.11	107	0.89	3.01	249	0.89	2.94	73	0.87	3.03	8,016	0.88	3.03	67	0.89	3.02	1,395	0.89	2.99	298	0.88	3.06
	4	2,004	0.82	3.18	159	0.85	3.11	373	0.87	3.09	92	0.83	3.12	11,469	0.83	3.11	69	0.86	3.07	1,873	0.83	3.10	275	0.82	3.12
	5	2,229	0.85	3.13	145	0.87	3.08	433	0.89	2.94	107	0.81	3.00	13,039	0.86	3.02	104	0.81	3.08	2,109	0.87	3.05	280	0.85	3.09
	6	2,335	0.77	3.49	157	0.75	3.46	417	0.83	3.40	107	0.82	3.43	12,980	0.78	3.46	75	0.73	3.50	2,313	0.80	3.44	284	0.81	3.44
	7	2,155	0.67	3.47	177	0.68	3.48	357	0.79	3.43	94	0.71	3.46	12,251	0.69	3.47	89	0.74	3.49	2,306	0.73	3.47	316	0.71	3.48
	Algebra I	2,056	0.72	3.73	153	0.76	3.72	328	0.82	3.65	86	0.81	3.67	11,377	0.77	3.71	59	0.84	3.65	2,071	0.79	3.69	224	0.77	3.71
	Geometry	447	0.74	3.70	19	0.70	3.71	70	0.86	3.63	18	0.82	3.64	2,398	0.74	3.71	16	0.75	3.69	297	0.85	3.64	40	0.69	3.69
Science	5	2,171	0.81	3.23	148	0.85	3.12	478	0.83	3.18	116	0.80	3.14	13,754	0.81	3.19	103	0.78	3.25	2,255	0.84	3.10	295	0.83	3.14
	8	1,957	0.81	3.45	145	0.80	3.41	380	0.84	3.37	77	0.84	3.39	10,981	0.82	3.41	70	0.87	3.29	1,952	0.86	3.32	246	0.83	3.40
	10 Life Science	896	0.77	3.69	83	0.83	3.64	187	0.81	3.63	46	0.84	3.61	5,221	0.80	3.67	31	0.74	3.71	982	0.85	3.63	111	0.77	3.68
Grade-Specific	Algebra I – 8	664	0.72	3.73	27	0.85	3.68	90	0.82	3.67	18	0.89	3.56	2,836	0.79	3.70	17	0.76	3.68	435	0.79	3.69	60	0.81	3.70
	Geometry – 9	34	0.60	3.73	2	0.17	3.87	4	0.62	3.36	2	0.77	3.70	158	0.75	3.71	1	–	–	15	0.91	3.50	1	–	–

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

** MC only

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	8,805	0.88	3.11	4,263	0.88	3.08	31	0.90	3.09	2,652	0.89	2.96	1,117	0.89	2.93	11	0.92	2.84
	4**	12,867	0.83	3.22	6,286	0.82	3.19	0	–	–	3,915	0.85	3.11	1,813	0.84	3.07	0	–	–
	5	13,945	0.84	3.14	7,174	0.84	3.08	6	0.80	3.32	4,269	0.86	3.03	2,051	0.86	2.91	3	0.75	3.50
	6	13,252	0.82	3.41	6,818	0.82	3.33	4	0.93	3.30	3,977	0.85	3.29	1,910	0.84	3.22	1	–	–
	7**	12,180	0.86	3.37	6,218	0.86	3.33	2	–6.11	3.77	4,027	0.87	3.25	1,846	0.87	3.19	0	–	–
	8	11,553	0.83	3.39	5,702	0.83	3.34	12	0.77	3.45	3,689	0.85	3.32	1,697	0.85	3.25	1	–	–
	9	7,641	0.80	3.69	3,943	0.79	3.68	22	0.62	3.74	3,065	0.84	3.64	1,415	0.83	3.63	9	0.78	3.66
	10	5,839	0.78	3.67	3,164	0.77	3.66	24	0.79	3.65	2,544	0.82	3.63	1,131	0.82	3.60	10	0.84	3.66
	11	4,022	0.72	3.70	2,217	0.71	3.68	6	0.84	3.61	1,860	0.79	3.69	895	0.75	3.67	0	–	–
Mathematics	3	7,519	0.89	3.03	3,883	0.88	3.04	25	0.83	3.23	2,124	0.89	2.95	1,060	0.89	2.96	7	0.90	3.10
	4	10,709	0.83	3.13	5,604	0.82	3.11	1	–	–	3,039	0.84	3.06	1,551	0.84	3.02	0	–	–
	5	11,924	0.87	3.06	6,515	0.86	3.01	7	0.81	3.37	3,596	0.87	3.00	1,880	0.86	2.96	2	0.84	3.43
	6	12,138	0.80	3.46	6,527	0.77	3.46	3	0.93	3.40	3,714	0.81	3.41	1,924	0.78	3.42	1	–	–
	7	11,554	0.71	3.48	6,189	0.69	3.46	2	0.50	3.50	3,911	0.75	3.46	2,003	0.72	3.45	0	–	–
	Algebra I	10,460	0.78	3.70	5,862	0.75	3.71	32	0.78	3.70	4,193	0.80	3.68	2,079	0.77	3.69	7	0.84	3.69
	Geometry	2,101	0.79	3.70	1,198	0.72	3.71	6	0.66	3.70	843	0.85	3.64	474	0.76	3.69	2	–0.64	3.62
Science	5	12,705	0.83	3.17	6,610	0.79	3.21	5	0.82	3.43	3,861	0.84	3.07	1,918	0.81	3.11	3	0.09	3.31
	8	10,525	0.84	3.38	5,272	0.79	3.44	11	0.85	3.50	3,338	0.86	3.29	1,622	0.82	3.35	1	–	–
	10 Life Science	4,874	0.83	3.66	2,662	0.78	3.67	21	0.74	3.75	2,084	0.86	3.60	1,000	0.83	3.62	8	0.82	3.69
Grade-Specific	Algebra I – 8	2,741	0.79	3.70	1,402	0.76	3.70	4	0.90	3.67	814	0.81	3.68	427	0.79	3.68	0	–	–
	Geometry – 9	143	0.81	3.68	74	0.74	3.72	0	–	–	42	0.91	3.54	22	0.80	3.58	0	–	–

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

** MC only

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

Content Area	CMA*	Autism			Deaf-Blindness			Deafness			Emotional Dist.			Hard of Hearing			Mental Retard.			Mult. Disab.		
		N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM	N	Rel	SEM
English–Language Arts	3	1,248	0.89	3.03	2	0.92	3.59	105	0.83	3.24	285	0.91	2.97	145	0.89	3.08	319	0.82	3.27	19	0.80	3.30
	4**	1,473	0.85	3.15	4	0.94	3.06	105	0.76	3.28	456	0.86	3.16	216	0.83	3.15	398	0.73	3.32	24	0.85	3.20
	5	1,377	0.86	3.09	1	–	–	127	0.72	3.26	622	0.88	3.09	237	0.85	3.06	441	0.76	3.29	35	0.72	3.29
	6	1,221	0.85	3.33	1	–	–	102	0.76	3.45	672	0.86	3.34	225	0.80	3.37	423	0.72	3.49	39	0.83	3.45
	7**	1,134	0.88	3.29	1	–	–	110	0.79	3.48	720	0.89	3.27	206	0.87	3.32	466	0.76	3.50	36	0.91	3.32
	8	882	0.86	3.34	1	–	–	125	0.73	3.44	732	0.88	3.32	211	0.83	3.32	493	0.68	3.48	36	0.83	3.44
	9	536	0.86	3.61	1	–	–	109	0.70	3.69	577	0.87	3.61	143	0.81	3.67	366	0.59	3.70	28	0.86	3.69
	10	392	0.84	3.62	3	–2.35	3.81	109	0.52	3.66	443	0.84	3.63	119	0.74	3.67	299	0.60	3.69	19	0.82	3.65
	11	286	0.80	3.66	1	–	–	110	0.34	3.65	320	0.82	3.67	86	0.78	3.63	234	0.45	3.68	21	0.56	3.73
Mathematics	3	1,259	0.90	2.99	2	0.78	2.97	88	0.85	3.09	264	0.89	3.05	138	0.88	2.99	324	0.82	3.22	21	0.84	3.19
	4	1,345	0.85	3.11	3	0.92	3.33	97	0.84	3.12	427	0.84	3.15	184	0.85	3.04	394	0.70	3.30	22	0.81	3.16
	5	1,278	0.88	3.06	1	–	–	119	0.88	3.03	619	0.86	3.15	200	0.88	2.96	431	0.80	3.26	35	0.88	3.15
	6	1,178	0.83	3.43	1	–	–	92	0.81	3.45	684	0.82	3.45	208	0.75	3.46	417	0.62	3.52	40	0.71	3.53
	7	1,130	0.76	3.47	1	–	–	100	0.72	3.42	772	0.73	3.47	190	0.75	3.43	467	0.41	3.48	34	0.73	3.45
	Algebra I	736	0.84	3.63	1	–	–	104	0.76	3.65	823	0.77	3.70	187	0.83	3.63	457	0.62	3.71	40	0.86	3.64
	Geometry	149	0.87	3.59	1	–	–	15	0.87	3.57	109	0.79	3.70	50	0.82	3.67	40	0.70	3.69	5	0.84	3.63
Science	5	1,303	0.85	3.14	1	–	–	126	0.79	3.24	596	0.86	3.16	216	0.79	3.22	417	0.75	3.28	33	0.69	3.31
	8	870	0.87	3.32	1	–	–	115	0.77	3.44	659	0.86	3.37	194	0.82	3.37	469	0.67	3.52	37	0.87	3.35
	10 Life Science	338	0.87	3.56	3	0.29	3.90	105	0.59	3.72	370	0.87	3.60	93	0.78	3.66	255	0.63	3.71	11	0.92	3.45
Grade-Specific	Algebra I – 8	209	0.86	3.61	0	–	–	17	0.63	3.76	179	0.72	3.73	53	0.78	3.69	105	0.48	3.71	11	0.91	3.57
	Geometry – 9	14	0.90	3.57	0	–	–	2	–	–	12	0.80	3.67	5	–	–	2	–	–	1	–	–

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

** MC only

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	120	0.89	3.07	1,474	0.89	3.00	9,621	0.89	3.08	3,043	0.88	3.05	36	0.89	3.16	49	0.91	3.01	1,143	0.89	3.03
	4	186	0.87	3.15	2,086	0.85	3.14	14,539	0.83	3.20	3,665	0.82	3.17	45	0.87	3.14	46	0.87	3.19	1,726	0.82	3.19
	5	203	0.87	3.06	2,406	0.86	3.04	17,212	0.85	3.09	3,272	0.84	3.08	61	0.87	3.12	80	0.89	3.01	1,503	0.84	3.10
	6	176	0.86	3.30	2,196	0.84	3.30	17,154	0.83	3.36	2,447	0.81	3.36	54	0.83	3.44	72	0.87	3.32	1,277	0.82	3.36
	7**	155	0.87	3.34	2,132	0.87	3.25	16,431	0.86	3.34	1,882	0.84	3.34	59	0.86	3.37	48	0.87	3.26	1,012	0.86	3.32
	8	182	0.85	3.35	2,025	0.85	3.31	15,752	0.83	3.36	1,443	0.81	3.36	56	0.85	3.36	63	0.86	3.29	1,019	0.85	3.36
	9	131	0.85	3.64	1,214	0.84	3.63	11,186	0.80	3.68	789	0.79	3.69	40	0.85	3.61	40	0.82	3.66	1,109	0.81	3.68
	10	109	0.81	3.62	1,005	0.82	3.62	9,046	0.79	3.66	608	0.76	3.65	42	0.70	3.71	32	0.81	3.60	645	0.78	3.66
	11	70	0.84	3.67	752	0.79	3.69	6,515	0.73	3.69	435	0.70	3.69	31	0.75	3.69	16	0.83	3.66	218	0.72	3.70
Mathematics	3	123	0.89	3.10	1,333	0.89	3.00	8,230	0.88	3.02	2,645	0.89	2.98	36	0.83	3.21	48	0.90	3.00	785	0.88	3.02
	4	181	0.85	3.16	1,802	0.83	3.11	12,039	0.82	3.11	2,969	0.85	3.07	40	0.88	3.10	39	0.78	3.21	1,432	0.83	3.08
	5	211	0.89	3.08	2,194	0.86	3.04	14,728	0.86	3.02	2,749	0.87	3.00	52	0.86	3.17	75	0.85	3.12	1,352	0.85	3.01
	6	181	0.83	3.44	2,247	0.80	3.44	15,748	0.79	3.45	2,213	0.78	3.45	54	0.75	3.50	73	0.82	3.40	1,268	0.76	3.46
	7	171	0.73	3.47	2,257	0.73	3.47	15,690	0.71	3.47	1,800	0.71	3.45	58	0.69	3.49	51	0.77	3.45	1,063	0.71	3.47
	Algebra I	173	0.76	3.71	2,017	0.78	3.69	15,939	0.77	3.70	1,066	0.79	3.68	61	0.72	3.73	49	0.78	3.72	1,282	0.78	3.71
	Geometry	38	0.83	3.67	373	0.82	3.67	3,527	0.78	3.70	165	0.76	3.69	14	0.73	3.75	13	0.89	3.55	162	0.78	3.69
Science	5	197	0.83	3.19	2,212	0.83	3.13	15,586	0.82	3.16	2,997	0.80	3.19	56	0.83	3.21	77	0.80	3.18	1,406	0.80	3.18
	8	183	0.82	3.42	1,869	0.85	3.34	14,330	0.83	3.38	1,335	0.81	3.40	50	0.85	3.40	56	0.85	3.36	938	0.83	3.39
	10 Life Science	90	0.78	3.67	834	0.86	3.61	7,551	0.82	3.65	498	0.79	3.66	31	0.76	3.74	28	0.89	3.56	579	0.83	3.66
Grade-Specific	Algebra I – 8	36	0.75	3.70	509	0.77	3.71	3,743	0.79	3.70	288	0.80	3.68	16	0.78	3.68	9	0.82	3.77	312	0.80	3.69
	Geometry – 9	2	–	–	25	0.89	3.60	196	0.82	3.67	6	–	–	2	–	–	0	–	–	14	0.87	3.60

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

** MC only

Table 8.B.14 Overall Subgroup Reliabilities

		Gender		*Econ. Dis.*		*Language Fluency*			
Content Area	**CMA***	**Male**	**Female**	**No**	**Yes**	**EO**	**I-FEP**	**EL**	**R-FEP**
English–Language Arts	3	0.89	0.89	0.89	0.88	0.89	0.89	0.88	0.91
	4**	0.84	0.83	0.85	0.83	0.84	0.85	0.82	0.83
	5	0.85	0.85	0.86	0.85	0.86	0.87	0.83	0.86
	6	0.83	0.82	0.84	0.82	0.84	0.84	0.80	0.85
	7**	0.87	0.86	0.87	0.86	0.87	0.87	0.85	0.87
	8	0.84	0.83	0.85	0.83	0.85	0.84	0.81	0.86
	9	0.82	0.81	0.84	0.80	0.83	0.82	0.76	0.84
	10	0.80	0.79	0.82	0.78	0.81	0.80	0.75	0.84
	11	0.75	0.72	0.78	0.72	0.76	0.80	0.66	0.77
Mathematics	3	0.89	0.88	0.89	0.88	0.89	0.89	0.88	0.91
	4	0.84	0.83	0.84	0.83	0.83	0.83	0.83	0.87
	5	0.87	0.86	0.87	0.86	0.87	0.87	0.86	0.87
	6	0.80	0.78	0.80	0.79	0.80	0.79	0.78	0.82
	7	0.72	0.70	0.74	0.70	0.72	0.73	0.69	0.74
	Algebra I	0.79	0.76	0.79	0.77	0.78	0.78	0.77	0.81
	Geometry	0.81	0.74	0.82	0.76	0.82	0.79	0.72	0.77
Science	5	0.83	0.80	0.83	0.82	0.83	0.83	0.80	0.83
	8	0.85	0.80	0.85	0.83	0.85	0.85	0.80	0.83
	10 Life Science	0.84	0.80	0.85	0.81	0.84	0.83	0.79	0.86
Grade-Specific	Algebra I – 8	0.80	0.77	0.80	0.78	0.78	0.73	0.80	0.81
	Geometry – 9	0.85	0.79	0.89	0.79	0.87	0.87	0.70	0.80

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

** MC only

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

		Primary Ethnicity						
Content Area	**CMA***	**African American**	**American Indian**	**Asian**	**Filipino**	**Hispanic**	**Pacific Islander**	**White**
English–Language Arts	3	0.88	0.89	0.88	0.85	0.88	0.87	0.89
	4**	0.83	0.85	0.85	0.82	0.83	0.84	0.85
	5	0.85	0.86	0.86	0.82	0.84	0.81	0.87
	6	0.83	0.83	0.83	0.80	0.82	0.81	0.85
	7**	0.86	0.87	0.87	0.86	0.86	0.88	0.87
	8	0.83	0.84	0.83	0.84	0.83	0.86	0.86
	9	0.79	0.82	0.79	0.83	0.80	0.78	0.85
	10	0.76	0.82	0.80	0.76	0.78	0.75	0.82
	11	0.71	0.73	0.75	0.70	0.71	0.79	0.80
Mathematics	3	0.87	0.88	0.90	0.89	0.88	0.88	0.89
	4	0.82	0.84	0.87	0.85	0.83	0.86	0.84
	5	0.85	0.87	0.89	0.85	0.86	0.83	0.87
	6	0.78	0.74	0.83	0.81	0.79	0.71	0.81
	7	0.68	0.69	0.79	0.74	0.70	0.74	0.75
	Algebra I	0.73	0.76	0.82	0.80	0.78	0.83	0.79
	Geometry	0.74	0.75	0.83	0.84	0.75	0.68	0.85
Science	5	0.82	0.85	0.84	0.81	0.81	0.79	0.84
	8	0.81	0.81	0.84	0.83	0.82	0.85	0.86
	10 Life Science	0.78	0.84	0.83	0.84	0.81	0.78	0.86
Grade-Specific	Algebra I – 8	0.73	0.82	0.81	0.85	0.79	0.80	0.80
	Geometry – 9	0.70	0.17	0.82	0.86	0.77	–0.51	0.91

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

** MC only

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

Content Area	CMA*	*Ethnicity*						
		African American	American Indian	Asian	Filipino	Hispanic	Pacific Islander	White
English–Language Arts	3	0.90	0.87	0.87	0.87	0.89	0.84	0.89
	4**	0.85	0.85	0.85	0.82	0.84	0.86	0.85
	5	0.86	0.87	0.86	0.82	0.86	0.77	0.87
	6	0.85	0.83	0.83	0.79	0.84	0.84	0.85
	7**	0.87	0.88	0.87	0.84	0.87	0.89	0.87
	8	0.84	0.79	0.82	0.85	0.85	0.85	0.85
	9	0.80	0.82	0.80	0.82	0.82	0.85	0.85
	10	0.81	0.80	0.82	0.80	0.81	0.78	0.82
	11	0.72	0.71	0.79	0.73	0.72	0.71	0.81
Mathematics	3	0.88	0.82	0.90	0.91	0.88	0.85	0.90
	4	0.84	0.80	0.88	0.87	0.84	0.84	0.84
	5	0.86	0.85	0.88	0.87	0.87	0.87	0.87
	6	0.80	0.69	0.84	0.80	0.78	0.70	0.81
	7	0.70	0.69	0.79	0.76	0.71	0.73	0.76
	Algebra I	0.76	0.78	0.83	0.79	0.78	0.81	0.80
	Geometry	0.74	0.76	0.79	0.84	0.77	0.45	0.85
Science	5	0.84	0.84	0.84	0.80	0.82	0.79	0.83
	8	0.84	0.84	0.83	0.80	0.83	0.79	0.86
	10 Life Science	0.80	0.85	0.85	0.84	0.82	0.80	0.87
Grade-Specific	Algebra I – 8	0.74	0.73	0.81	0.80	0.80	0.84	0.81
	Geometry – 9	0.86	–	0.75	0.84	0.84	–	0.91

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

** MC only

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

		Primary Ethnicity						
Content Area	**CMA***	**African American**	**American Indian**	**Asian**	**Filipino**	**Hispanic**	**Pacific Islander**	**White**
English–Language Arts	3	0.88	0.89	0.88	0.84	0.88	0.88	0.88
	4**	0.83	0.85	0.83	0.83	0.82	0.83	0.84
	5	0.84	0.86	0.85	0.83	0.84	0.82	0.86
	6	0.83	0.83	0.83	0.82	0.82	0.78	0.84
	7**	0.85	0.87	0.86	0.88	0.86	0.87	0.87
	8	0.82	0.85	0.84	0.82	0.83	0.87	0.85
	9	0.78	0.82	0.79	0.84	0.79	0.67	0.84
	10	0.74	0.84	0.76	0.70	0.77	0.73	0.81
	11	0.70	0.74	0.71	0.64	0.70	0.77	0.78
Mathematics	3	0.87	0.89	0.89	0.87	0.88	0.89	0.89
	4	0.82	0.85	0.87	0.83	0.83	0.86	0.83
	5	0.85	0.87	0.89	0.81	0.86	0.81	0.87
	6	0.77	0.75	0.83	0.82	0.78	0.73	0.80
	7	0.67	0.68	0.79	0.71	0.69	0.74	0.73
	Algebra I	0.72	0.76	0.82	0.81	0.77	0.84	0.79
	Geometry	0.74	0.70	0.86	0.82	0.74	0.75	0.85
Science	5	0.81	0.85	0.83	0.80	0.81	0.78	0.84
	8	0.81	0.80	0.84	0.84	0.82	0.87	0.86
	10 Life Science	0.77	0.83	0.81	0.84	0.80	0.74	0.85
Grade-Specific	Algebra I – 8	0.72	0.85	0.82	0.89	0.79	0.76	0.79
	Geometry – 9	0.60	0.17	0.62	0.77	0.75	–	0.91

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

** MC only

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	0.88	0.88	0.89	0.89
	4**	0.83	0.82	0.85	0.84
	5	0.84	0.84	0.86	0.86
	6	0.82	0.82	0.85	0.84
	7**	0.86	0.86	0.87	0.87
	8	0.83	0.83	0.85	0.85
	9	0.80	0.79	0.84	0.83
	10	0.78	0.77	0.82	0.82
	11	0.72	0.71	0.79	0.75
Mathematics	3	0.89	0.88	0.89	0.89
	4	0.83	0.82	0.84	0.84
	5	0.87	0.86	0.87	0.86
	6	0.80	0.77	0.81	0.78
	7	0.71	0.69	0.75	0.72
	Algebra I	0.78	0.75	0.80	0.77
	Geometry	0.79	0.72	0.85	0.76
Science	5	0.83	0.79	0.84	0.81
	8	0.84	0.79	0.86	0.82
	10 Life Science	0.83	0.78	0.86	0.83
Grade-Specific	Algebra I – 8	0.79	0.76	0.81	0.79
	Geometry – 9	0.81	0.74	0.91	0.80

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

** MC only

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

Content Area	CMA*	Autism	Deaf-Blindness	Deafness	Emotional Dist.	Hard of Hearing	Mental Retard.	Mult. Disab.
English–Language Arts	3	0.89	0.92	0.83	0.91	0.89	0.82	0.80
	4	0.85	0.94	0.76	0.86	0.83	0.73	0.85
	5	0.86	–	0.72	0.88	0.85	0.76	0.72
	6	0.85	–	0.76	0.86	0.80	0.72	0.83
	7**	0.88	–	0.79	0.89	0.87	0.76	0.91
	8	0.86	–	0.73	0.88	0.83	0.68	0.83
	9	0.86	–	0.70	0.87	0.81	0.59	0.86
	10	0.84	–2.35	0.52	0.84	0.74	0.60	0.82
	11	0.80	–	0.34	0.82	0.78	0.45	0.56
Mathematics	3	0.90	0.78	0.85	0.89	0.88	0.82	0.84
	4	0.85	0.92	0.84	0.84	0.85	0.70	0.81
	5	0.88	–	0.88	0.86	0.88	0.80	0.88
	6	0.83	–	0.81	0.82	0.75	0.62	0.71
	7	0.76	–	0.72	0.73	0.75	0.41	0.73
	Algebra I	0.84	–	0.76	0.77	0.83	0.62	0.86
	Geometry	0.87	–	0.87	0.79	0.82	0.70	0.84
Science	5	0.85	–	0.79	0.86	0.79	0.75	0.69
	8	0.87	–	0.77	0.86	0.82	0.67	0.87
	10 Life Science	0.87	0.29	0.59	0.87	0.78	0.63	0.92
Grade-Specific	Algebra I – 8	0.86	–	0.63	0.72	0.78	0.48	0.91
	Geometry – 9	0.90	–	–28.5	0.80	0.75	0.33	–

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

** MC only

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	0.89	0.89	0.89	0.88	0.89	0.91
	4**	0.87	0.85	0.83	0.82	0.87	0.87
	5	0.87	0.86	0.85	0.84	0.87	0.89
	6	0.86	0.84	0.83	0.81	0.83	0.87
	7**	0.87	0.87	0.86	0.84	0.86	0.87
	8	0.85	0.85	0.83	0.81	0.85	0.86
	9	0.85	0.84	0.80	0.79	0.85	0.82
	10	0.81	0.82	0.79	0.76	0.70	0.81
	11	0.84	0.79	0.73	0.70	0.75	0.83
Mathematics	3	0.89	0.89	0.88	0.89	0.83	0.90
	4	0.85	0.83	0.82	0.85	0.88	0.78
	5	0.89	0.86	0.86	0.87	0.86	0.85
	6	0.83	0.80	0.79	0.78	0.75	0.82
	7	0.73	0.73	0.71	0.71	0.69	0.77
	Geometry	0.76	0.78	0.77	0.79	0.72	0.78
	Algebra I	0.83	0.82	0.78	0.76	0.73	0.89
Science	5	0.83	0.83	0.82	0.80	0.83	0.80
	8	0.82	0.85	0.83	0.81	0.85	0.85
	10 Life Science	0.78	0.86	0.82	0.79	0.76	0.89
Grade-Specific	Algebra I – 8	0.75	0.77	0.79	0.80	0.78	0.82
	Geometry – 9	0.54	0.89	0.82	0.60	0.89	–

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

** MC only

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	Male		Female		Not Econ. Dis.		Econ. Dis.	
	Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Vocabulary	14	0.73	1.61	0.71	1.62	0.73	1.54	0.72	1.64
2. Reading for Understanding	17	0.73	1.84	0.74	1.82	0.75	1.77	0.72	1.85
3. Language	17	0.74	1.84	0.74	1.81	0.75	1.77	0.74	1.85
Grade 4									
1. Vocabulary	11	0.56	1.52	0.55	1.52	0.56	1.49	0.55	1.53
2. Reading for Understanding	16	0.63	1.85	0.61	1.84	0.65	1.80	0.61	1.86
3. Language	21	0.72	2.10	0.71	2.07	0.73	2.03	0.70	2.11
Grade 5									
1. Vocabulary	8	0.58	1.18	0.55	1.17	0.56	1.10	0.57	1.20
2. Reading for Understanding	18	0.66	2.00	0.66	1.99	0.70	1.95	0.64	2.01
3. Language	22	0.76	2.05	0.76	1.96	0.78	1.95	0.76	2.04
Grade 6									
1. Vocabulary	9	0.58	1.33	0.56	1.32	0.59	1.26	0.55	1.35
2. Reading for Understanding	22	0.64	2.17	0.63	2.13	0.67	2.11	0.62	2.17
3. Language	23	0.71	2.20	0.69	2.14	0.72	2.13	0.70	2.20
Grade 7									
1. Vocabulary	8	0.55	1.21	0.51	1.21	0.52	1.16	0.53	1.23
2. Reading for Understanding	22	0.79	2.08	0.78	2.07	0.80	2.01	0.78	2.10
3. Language	24	0.71	2.28	0.70	2.24	0.74	2.21	0.70	2.28
Grade 8									
1. Vocabulary	6	0.55	0.98	0.55	0.96	0.54	0.91	0.54	0.99
2. Reading for Understanding	24	0.66	2.29	0.65	2.26	0.69	2.26	0.64	2.29
3. Language	24	0.74	2.25	0.73	2.21	0.76	2.20	0.73	2.25
Grade 9									
1. Vocabulary	7	0.40	1.25	0.34	1.26	0.41	1.24	0.35	1.26
2. Reading for Understanding	27	0.73	2.44	0.70	2.44	0.75	2.41	0.70	2.45
3. Language	26	0.62	2.43	0.64	2.41	0.66	2.41	0.61	2.43

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	Male		Female		Not Econ. Dis.		Econ. Dis.	
	Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Number Sense	24	0.82	2.16	0.80	2.18	0.82	2.13	0.81	2.18
2. Algebra and Data Analysis	13	0.73	1.55	0.71	1.56	0.73	1.53	0.72	1.56
3. Measurement and Geometry	11	0.64	1.36	0.62	1.36	0.65	1.33	0.63	1.37
Grade 4									
1. Number Sense	23	0.78	2.05	0.76	2.03	0.78	1.99	0.76	2.06
2. Algebra and Data Analysis	15	0.59	1.81	0.57	1.81	0.61	1.79	0.57	1.82
3. Measurement and Geometry	10	0.49	1.45	0.48	1.43	0.49	1.44	0.49	1.45
Grade 5									
1. Number Sense	21	0.76	1.95	0.75	1.92	0.77	1.91	0.76	1.95
2. Algebra and Data Analysis	17	0.77	1.78	0.76	1.76	0.77	1.75	0.76	1.78
3. Measurement and Geometry	10	0.47	1.46	0.42	1.45	0.46	1.45	0.45	1.46
Grade 6									
1. Number Sense	21	0.63	2.16	0.60	2.17	0.64	2.14	0.61	2.17
2. Algebra and Data Analysis	25	0.70	2.30	0.67	2.29	0.70	2.27	0.68	2.31
3. Measurement and Geometry	8	0.32	1.36	0.25	1.38	0.30	1.36	0.29	1.37
Grade 7									
1. Number Sense	18	0.40	2.00	0.35	2.00	0.42	2.00	0.36	2.00
2. Algebra and Data Analysis	25	0.65	2.37	0.62	2.35	0.66	2.35	0.63	2.37
3. Measurement and Geometry	11	0.30	1.54	0.29	1.53	0.34	1.53	0.27	1.54
Algebra I									
1. Number Properties, Operations, and Linear Equations	15	0.69	1.78	0.66	1.78	0.70	1.75	0.68	1.79
2. Graphing and Systems of Linear Equations	14	0.55	1.78	0.47	1.79	0.54	1.78	0.51	1.79
3. Quadratics and Polynomials	19	0.53	2.09	0.49	2.09	0.52	2.09	0.51	2.09
4. Functions and Rational Expressions	12	0.31	1.65	0.29	1.65	0.32	1.65	0.30	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	Male		Female		Not Econ. Dis.		Econ. Dis.	
	Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 5 Science									
1. Physical Sciences	16	0.57	1.84	0.50	1.88	0.57	1.82	0.54	1.86
2. Life Sciences	16	0.70	1.78	0.66	1.80	0.70	1.73	0.68	1.80
3. Earth Sciences	16	0.65	1.81	0.62	1.82	0.66	1.77	0.63	1.82
Grade 8 Science									
1. Motion	19	0.68	1.94	0.60	2.00	0.67	1.92	0.64	1.98
2. Matter	23	0.70	2.25	0.63	2.27	0.71	2.22	0.66	2.26
3. Earth Science	7	0.52	1.18	0.36	1.21	0.51	1.16	0.46	1.20
4. Investigation and Experimentation	5	0.44	0.99	0.37	1.01	0.43	0.97	0.41	1.01
Grade 10 Life Science									
1. Cell Biology and Genetics	22	0.59	2.24	0.53	2.24	0.61	2.22	0.55	2.24
2. Evolution and Ecology	22	0.67	2.18	0.60	2.19	0.69	2.16	0.63	2.19
3. Physiology	10	0.65	1.42	0.60	1.45	0.67	1.39	0.61	1.45
4. Investigation and Experimentation	6	0.36	1.17	0.29	1.18	0.40	1.16	0.30	1.18

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	Male		Female		Not Econ. Dis.		Econ. Dis.	
	Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – Grade 8									
1. Number Properties, Operations, and Linear Equations	15	0.68	1.79	0.65	1.79	0.70	1.76	0.66	1.80
2. Graphing and Systems of Linear Equations	14	0.54	1.79	0.47	1.80	0.52	1.79	0.51	1.79
3. Quadratics and Polynomials	19	0.55	2.08	0.51	2.09	0.53	2.09	0.54	2.09
4. Functions and Rational Expressions	12	0.35	1.64	0.31	1.65	0.35	1.64	0.32	1.64

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

Subscore Reliabilities and SEM for ELA by *English-language Fluency*									
		English Learner		English Only		I-FEP		R-FEP	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Vocabulary	14	0.71	1.65	0.74	1.60	0.72	1.58	0.79	1.53
2. Reading for Understanding	17	0.71	1.86	0.75	1.81	0.73	1.80	0.73	1.80
3. Language	17	0.74	1.84	0.75	1.82	0.73	1.80	0.77	1.80
Grade 4									
1. Vocabulary	11	0.56	1.53	0.56	1.52	0.56	1.49	0.53	1.46
2. Reading for Understanding	16	0.58	1.87	0.65	1.83	0.61	1.84	0.62	1.81
3. Language	21	0.70	2.11	0.73	2.07	0.73	2.05	0.70	2.00
Grade 5									
1. Vocabulary	8	0.56	1.21	0.58	1.15	0.59	1.11	0.52	1.08
2. Reading for Understanding	18	0.61	2.02	0.69	1.98	0.70	1.94	0.72	1.93
3. Language	22	0.75	2.05	0.78	2.00	0.79	1.94	0.77	1.91
Grade 6									
1. Vocabulary	9	0.51	1.38	0.59	1.29	0.57	1.27	0.56	1.26
2. Reading for Understanding	22	0.59	2.18	0.66	2.14	0.65	2.13	0.70	2.06
3. Language	23	0.68	2.20	0.72	2.17	0.71	2.13	0.73	2.06
Grade 7									
1. Vocabulary	8	0.52	1.24	0.54	1.19	0.55	1.16	0.48	1.13
2. Reading for Understanding	22	0.76	2.13	0.80	2.05	0.81	2.02	0.78	1.95
3. Language	24	0.68	2.30	0.73	2.25	0.71	2.24	0.75	2.15
Grade 8									
1. Vocabulary	6	0.52	1.02	0.56	0.94	0.51	0.91	0.56	0.84
2. Reading for Understanding	24	0.60	2.29	0.68	2.27	0.70	2.26	0.69	2.21
3. Language	24	0.71	2.26	0.75	2.23	0.74	2.21	0.77	2.11
Grade 9									
1. Vocabulary	7	0.29	1.28	0.41	1.25	0.40	1.25	0.40	1.24
2. Reading for Understanding	27	0.65	2.47	0.75	2.42	0.71	2.43	0.74	2.38
3. Language	26	0.57	2.43	0.65	2.42	0.67	2.39	0.69	2.38

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

Subscore Reliabilities and SEM for Mathematics by *English-language Fluency*									
		English Learner		English Only		I-FEP		R-FEP	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3									
1. Number Sense	24	0.81	2.16	0.81	2.17	0.81	2.13	0.85	2.09
2. Algebra and Data Analysis	13	0.71	1.56	0.72	1.55	0.76	1.48	0.83	1.42
3. Measurement and Geometry	11	0.63	1.36	0.64	1.36	0.59	1.36	0.69	1.27
Grade 4									
1. Number Sense	23	0.77	2.04	0.77	2.05	0.75	1.97	0.78	1.92
2. Algebra and Data Analysis	15	0.57	1.81	0.58	1.81	0.59	1.78	0.69	1.74
3. Measurement and Geometry	10	0.51	1.44	0.47	1.45	0.44	1.44	0.53	1.43
Grade 5									
1. Number Sense	21	0.75	1.93	0.76	1.95	0.77	1.87	0.76	1.83
2. Algebra and Data Analysis	17	0.77	1.76	0.76	1.78	0.76	1.73	0.78	1.68
3. Measurement and Geometry	10	0.46	1.46	0.44	1.46	0.53	1.43	0.46	1.45
Grade 6									
1. Number Sense	21	0.60	2.17	0.63	2.16	0.65	2.13	0.66	2.11
2. Algebra and Data Analysis	25	0.67	2.31	0.70	2.30	0.68	2.27	0.71	2.20
3. Measurement and Geometry	8	0.27	1.37	0.31	1.36	0.27	1.37	0.38	1.35
Grade 7									
1. Number Sense	18	0.35	2.00	0.40	2.00	0.42	2.00	0.34	2.00
2. Algebra and Data Analysis	25	0.63	2.37	0.64	2.36	0.65	2.36	0.68	2.32
3. Measurement and Geometry	11	0.25	1.54	0.32	1.54	0.28	1.55	0.32	1.53
Algebra I									
1. Number Properties, Operations, and Linear Equations	15	0.68	1.79	0.68	1.78	0.69	1.75	0.70	1.71
2. Graphing and Systems of Linear Equations	14	0.50	1.79	0.53	1.79	0.47	1.80	0.54	1.78
3. Quadratics and Polynomials	19	0.52	2.09	0.51	2.09	0.55	2.08	0.58	2.07
4. Functions and Rational Expressions	12	0.29	1.65	0.30	1.65	0.36	1.65	0.44	1.61

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

Subscore Reliabilities and SEM for Science by *English-language Fluency*									
		English Learner		English Only		I-FEP		R-FEP	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 5									
1. Physical Sciences	16	0.52	1.87	0.56	1.84	0.59	1.79	0.61	1.80
2. Life Sciences	16	0.65	1.82	0.70	1.76	0.71	1.69	0.68	1.73
3. Earth Sciences	16	0.61	1.83	0.66	1.80	0.63	1.76	0.62	1.76
Grade 8									
1. Motion	19	0.62	2.00	0.67	1.94	0.66	1.89	0.58	1.87
2. Matter	23	0.62	2.28	0.70	2.24	0.70	2.22	0.70	2.18
3. Earth Science	7	0.42	1.21	0.50	1.18	0.47	1.16	0.46	1.13
4. Investigation and Experimentation	5	0.35	1.02	0.45	0.99	0.45	0.96	0.45	0.92
Grade 10 Life Science									
1. Cell Biology and Genetics	22	0.52	2.25	0.59	2.23	0.56	2.24	0.61	2.20
2. Evolution and Ecology	22	0.59	2.20	0.68	2.18	0.64	2.17	0.71	2.13
3. Physiology	10	0.57	1.47	0.66	1.42	0.64	1.42	0.69	1.35
4. Investigation and Experimentation	6	0.27	1.18	0.36	1.17	0.27	1.19	0.46	1.13

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*									
		English Learner		English Only		I-FEP		R-FEP	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – 8									
1. Number Properties, Operations, and Linear Equations	15	0.67	1.79	0.67	1.79	0.64	1.78	0.70	1.71
2. Graphing and Systems of Linear Equations	14	0.53	1.79	0.51	1.79	0.43	1.81	0.51	1.78
3. Quadratics and Polynomials	19	0.57	2.08	0.51	2.09	0.43	2.09	0.59	2.06
4. Functions and Rational Expressions	12	0.34	1.65	0.32	1.64	0.22	1.67	0.38	1.62

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

		Subscore Reliabilities and SEM for ELA by *Primary Ethnicity*													
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3															
1. Vocabulary	14	0.72	1.64	0.75	1.59	0.73	1.54	0.72	1.55	0.72	1.64	0.71	1.61	0.73	1.56
2. Reading for Understanding	17	0.73	1.85	0.75	1.80	0.72	1.82	0.62	1.88	0.72	1.85	0.72	1.84	0.75	1.77
3. Language	17	0.74	1.85	0.73	1.82	0.73	1.78	0.68	1.82	0.74	1.84	0.66	1.89	0.75	1.79
Grade 4															
1. Vocabulary	11	0.56	1.54	0.55	1.53	0.59	1.50	0.50	1.53	0.56	1.52	0.46	1.55	0.55	1.50
2. Reading for Understanding	16	0.62	1.87	0.65	1.86	0.64	1.84	0.59	1.85	0.60	1.86	0.63	1.87	0.66	1.79
3. Language	21	0.72	2.11	0.76	2.07	0.73	2.05	0.71	2.04	0.70	2.10	0.74	2.09	0.73	2.04
Grade 5															
1. Vocabulary	8	0.58	1.19	0.62	1.13	0.59	1.12	0.49	1.15	0.57	1.20	0.50	1.17	0.57	1.10
2. Reading for Understanding	18	0.64	2.01	0.67	1.98	0.66	2.00	0.63	2.01	0.64	2.01	0.59	2.02	0.71	1.94
3. Language	22	0.76	2.07	0.78	2.00	0.78	1.96	0.72	1.99	0.76	2.04	0.74	2.01	0.79	1.95
Grade 6															
1. Vocabulary	9	0.58	1.33	0.55	1.30	0.57	1.33	0.49	1.32	0.54	1.35	0.38	1.33	0.60	1.25
2. Reading for Understanding	22	0.64	2.17	0.66	2.15	0.65	2.15	0.62	2.13	0.62	2.17	0.62	2.18	0.67	2.12
3. Language	23	0.70	2.21	0.69	2.19	0.70	2.13	0.68	2.16	0.69	2.19	0.67	2.21	0.73	2.14
Grade 7															
1. Vocabulary	8	0.54	1.22	0.50	1.21	0.47	1.20	0.42	1.21	0.53	1.22	0.58	1.20	0.54	1.16
2. Reading for Understanding	22	0.78	2.10	0.81	2.04	0.80	2.07	0.79	2.07	0.78	2.10	0.81	2.06	0.80	2.00
3. Language	24	0.70	2.29	0.73	2.26	0.72	2.22	0.72	2.22	0.70	2.28	0.73	2.26	0.74	2.22
Grade 8															
1. Vocabulary	6	0.55	0.98	0.54	0.99	0.49	1.00	0.58	0.97	0.54	0.99	0.54	0.86	0.55	0.90
2. Reading for Understanding	24	0.64	2.29	0.65	2.30	0.68	2.27	0.69	2.26	0.64	2.29	0.71	2.26	0.70	2.25
3. Language	24	0.72	2.27	0.75	2.24	0.72	2.20	0.73	2.18	0.73	2.25	0.78	2.22	0.77	2.21
Grade 9															
1. Vocabulary	7	0.35	1.26	0.44	1.24	0.29	1.27	0.33	1.26	0.33	1.27	0.32	1.27	0.47	1.22
2. Reading for Understanding	27	0.70	2.45	0.75	2.42	0.67	2.46	0.72	2.42	0.70	2.45	0.56	2.51	0.77	2.39
3. Language	26	0.59	2.43	0.60	2.43	0.62	2.40	0.69	2.37	0.60	2.43	0.69	2.40	0.68	2.40

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

		Subscore Reliabilities and SEM for Mathematics by *Primary Ethnicity*													
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Grade 3															
1. Number Sense	24	0.79	2.22	0.82	2.17	0.83	2.06	0.81	2.13	0.81	2.17	0.83	2.13	0.82	2.14
2. Algebra and Data Analysis	13	0.70	1.60	0.68	1.57	0.73	1.54	0.73	1.55	0.72	1.56	0.65	1.61	0.73	1.52
3. Measurement and Geometry	11	0.63	1.41	0.59	1.36	0.65	1.32	0.65	1.34	0.63	1.36	0.65	1.32	0.66	1.33
Grade 4															
1. Number Sense	23	0.77	2.11	0.77	2.07	0.83	1.98	0.79	2.00	0.76	2.04	0.79	2.02	0.78	2.00
2. Algebra and Data Analysis	15	0.56	1.83	0.57	1.81	0.64	1.79	0.63	1.78	0.57	1.81	0.63	1.76	0.60	1.79
3. Measurement and Geometry	10	0.44	1.47	0.46	1.46	0.54	1.43	0.48	1.45	0.50	1.44	0.57	1.43	0.47	1.44
Grade 5															
1. Number Sense	21	0.75	2.01	0.72	1.99	0.79	1.85	0.74	1.91	0.76	1.93	0.71	1.98	0.77	1.93
2. Algebra and Data Analysis	17	0.75	1.84	0.79	1.78	0.79	1.70	0.72	1.77	0.76	1.77	0.72	1.82	0.77	1.76
3. Measurement and Geometry	10	0.41	1.48	0.44	1.48	0.50	1.44	0.49	1.44	0.46	1.46	0.32	1.47	0.44	1.46
Grade 6															
1. Number Sense	21	0.59	2.18	0.56	2.16	0.69	2.13	0.65	2.16	0.61	2.17	0.44	2.20	0.64	2.14
2. Algebra and Data Analysis	25	0.69	2.32	0.60	2.32	0.75	2.22	0.71	2.26	0.68	2.31	0.65	2.33	0.70	2.27
3. Measurement and Geometry	8	0.30	1.36	0.25	1.37	0.26	1.38	0.29	1.37	0.29	1.37	0.17	1.39	0.31	1.36
Grade 7															
1. Number Sense	18	0.35	2.00	0.33	2.01	0.50	1.99	0.48	1.99	0.36	2.00	0.46	2.01	0.43	2.00
2. Algebra and Data Analysis	25	0.59	2.37	0.62	2.37	0.72	2.32	0.65	2.35	0.63	2.37	0.64	2.36	0.67	2.35
3. Measurement and Geometry	11	0.26	1.54	0.37	1.54	0.36	1.54	0.27	1.54	0.26	1.54	0.51	1.53	0.35	1.53
Algebra I															
1. Number Properties, Operations, and Linear Equations	15	0.65	1.81	0.70	1.77	0.71	1.69	0.71	1.74	0.68	1.79	0.74	1.72	0.70	1.76
2. Graphing and Systems of Linear Equations	14	0.47	1.80	0.50	1.79	0.57	1.77	0.57	1.78	0.51	1.79	0.55	1.78	0.57	1.78
3. Quadratics and Polynomials	19	0.48	2.09	0.51	2.09	0.60	2.06	0.53	2.08	0.52	2.09	0.64	2.05	0.52	2.09
4. Functions and Rational Expressions	12	0.23	1.66	0.16	1.67	0.41	1.63	0.27	1.65	0.30	1.65	0.48	1.62	0.34	1.64

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

		Subscore Reliabilities and SEM for Science by *Primary Ethnicity*													
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Science Grade 5															
1. Physical Sciences	16	0.53	1.87	0.60	1.82	0.56	1.84	0.52	1.84	0.53	1.87	0.55	1.86	0.57	1.80
2. Life Sciences	16	0.68	1.82	0.74	1.75	0.73	1.77	0.68	1.78	0.67	1.81	0.66	1.82	0.71	1.72
3. Earth Sciences	16	0.64	1.85	0.66	1.81	0.66	1.80	0.62	1.80	0.62	1.82	0.59	1.85	0.68	1.76
Science Grade 8															
1. Motion	19	0.63	2.00	0.65	1.94	0.63	1.96	0.61	1.97	0.64	1.98	0.66	1.90	0.68	1.89
2. Matter	23	0.64	2.27	0.62	2.27	0.71	2.22	0.65	2.25	0.65	2.27	0.69	2.23	0.73	2.21
3. Earth Science	7	0.44	1.22	0.40	1.21	0.42	1.18	0.52	1.15	0.45	1.20	0.55	1.17	0.53	1.14
4. Investigation and Experimentation	5	0.39	1.02	0.39	1.00	0.42	0.97	0.34	1.00	0.40	1.01	0.45	0.99	0.47	0.96
Grade 10 Life Science															
1. Cell Biology and Genetics	22	0.53	2.25	0.53	2.24	0.59	2.21	0.61	2.20	0.54	2.24	0.60	2.23	0.63	2.22
2. Evolution and Ecology	22	0.58	2.21	0.67	2.17	0.67	2.15	0.68	2.17	0.62	2.19	0.50	2.22	0.72	2.15
3. Physiology	10	0.56	1.48	0.67	1.39	0.57	1.45	0.63	1.41	0.61	1.45	0.65	1.41	0.70	1.37
4. Investigation and Experimentation	6	0.23	1.18	0.49	1.13	0.33	1.17	0.38	1.15	0.30	1.18	0.04	1.23	0.41	1.15

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*													
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Algebra I – 8															
1. Number Properties, Operations, and Linear Equations	15	0.62	1.82	0.72	1.79	0.65	1.74	0.76	1.71	0.67	1.79	0.76	1.71	0.70	1.76
2. Graphing and Systems of Linear Equations	14	0.43	1.80	0.61	1.78	0.59	1.76	0.64	1.76	0.52	1.79	0.57	1.78	0.54	1.79
3. Quadratics and Polynomials	19	0.47	2.10	0.53	2.11	0.61	2.07	0.64	2.06	0.55	2.08	0.59	2.07	0.52	2.09
4. Functions and Rational Expressions	12	0.20	1.65	0.09	1.67	0.42	1.64	0.34	1.65	0.34	1.65	0.32	1.65	0.38	1.63

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**	**Am. Ind.**		**Asian**		**Pac. Island**		**Filipino**		**Hispanic**		**African Am.**		**White**	
	Items	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**
Grade 3															
1. Vocabulary	14	0.75	1.59	0.67	1.54	0.68	1.49	0.75	1.52	0.72	1.57	0.65	1.60	0.74	1.51
2. Reading for Understanding	17	0.76	1.81	0.74	1.79	0.72	1.78	0.64	1.89	0.74	1.79	0.63	1.93	0.76	1.73
3. Language	17	0.76	1.83	0.68	1.76	0.72	1.72	0.73	1.79	0.75	1.79	0.56	1.94	0.75	1.75
Grade 4															
1. Vocabulary	11	0.61	1.50	0.49	1.53	0.62	1.46	0.55	1.51	0.55	1.50	0.57	1.50	0.54	1.48
2. Reading for Understanding	16	0.67	1.83	0.65	1.82	0.67	1.81	0.61	1.84	0.62	1.82	0.58	1.85	0.67	1.76
3. Language	21	0.74	2.06	0.76	2.04	0.73	2.00	0.71	2.02	0.72	2.05	0.76	2.03	0.73	2.00
Grade 5															
1. Vocabulary	8	0.60	1.13	0.42	1.10	0.60	1.05	0.50	1.15	0.56	1.13	0.21	1.15	0.55	1.07
2. Reading for Understanding	18	0.69	1.98	0.72	1.94	0.67	1.98	0.62	2.01	0.68	1.98	0.55	2.01	0.72	1.92
3. Language	22	0.78	2.02	0.80	1.93	0.77	1.90	0.74	1.97	0.77	1.97	0.74	2.04	0.79	1.92
Grade 6															
1. Vocabulary	9	0.60	1.29	0.33	1.31	0.54	1.30	0.44	1.32	0.58	1.28	0.38	1.31	0.60	1.22
2. Reading for Understanding	22	0.68	2.14	0.65	2.13	0.68	2.13	0.62	2.14	0.66	2.13	0.71	2.12	0.68	2.09
3. Language	23	0.73	2.17	0.73	2.14	0.70	2.09	0.65	2.17	0.71	2.14	0.63	2.22	0.73	2.11
Grade 7															
1. Vocabulary	8	0.54	1.19	0.57	1.19	0.48	1.16	0.31	1.21	0.53	1.17	0.56	1.14	0.51	1.13
2. Reading for Understanding	22	0.80	2.06	0.82	2.03	0.81	2.02	0.77	2.07	0.79	2.04	0.79	1.98	0.79	1.97
3. Language	24	0.74	2.25	0.76	2.24	0.71	2.17	0.69	2.22	0.73	2.23	0.73	2.22	0.74	2.19
Grade 8															
1. Vocabulary	6	0.54	0.95	0.51	0.89	0.53	0.95	0.54	0.97	0.55	0.94	0.49	0.89	0.53	0.87
2. Reading for Understanding	24	0.68	2.27	0.61	2.28	0.67	2.26	0.73	2.22	0.68	2.27	0.73	2.29	0.70	2.24
3. Language	24	0.74	2.24	0.67	2.23	0.70	2.18	0.72	2.14	0.75	2.21	0.68	2.27	0.77	2.18
Grade 9															
1. Vocabulary	7	0.30	1.27	0.53	1.23	0.30	1.26	0.29	1.26	0.32	1.27	–0.59	1.36	0.51	1.20
2. Reading for Understanding	27	0.71	2.44	0.74	2.44	0.70	2.44	0.70	2.41	0.73	2.43	0.71	2.41	0.78	2.37
3. Language	26	0.60	2.43	0.60	2.44	0.60	2.40	0.72	2.33	0.64	2.42	0.77	2.30	0.68	2.40

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**	**Am. Ind.**		**Asian**		**Pac. Island**		**Filipino**		**Hispanic**		**African Am.**		**White**	
	Items	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**	**Rel.**	**SEM**
Grade 3															
1. Number Sense	24	0.80	2.18	0.77	2.20	0.84	2.01	0.84	2.08	0.81	2.15	0.78	2.10	0.82	2.12
2. Algebra and Data Analysis	13	0.71	1.59	0.62	1.55	0.76	1.50	0.74	1.55	0.71	1.54	0.68	1.58	0.74	1.51
3. Measurement and Geometry	11	0.60	1.41	0.46	1.36	0.65	1.31	0.73	1.28	0.64	1.33	0.65	1.39	0.66	1.31
Grade 4															
1. Number Sense	23	0.77	2.06	0.62	2.10	0.84	1.89	0.82	1.95	0.77	2.00	0.82	1.94	0.78	1.97
2. Algebra and Data Analysis	15	0.61	1.81	0.57	1.82	0.69	1.74	0.67	1.76	0.58	1.80	0.68	1.74	0.60	1.77
3. Measurement and Geometry	10	0.51	1.44	0.42	1.46	0.50	1.43	0.52	1.43	0.50	1.44	0.48	1.44	0.48	1.43
Grade 5															
1. Number Sense	21	0.75	1.97	0.70	1.95	0.78	1.80	0.75	1.93	0.76	1.91	0.79	1.90	0.77	1.90
2. Algebra and Data Analysis	17	0.76	1.80	0.76	1.76	0.81	1.65	0.76	1.74	0.77	1.75	0.74	1.83	0.77	1.74
3. Measurement and Geometry	10	0.48	1.46	0.42	1.48	0.48	1.42	0.58	1.42	0.46	1.45	0.44	1.47	0.45	1.45
Grade 6															
1. Number Sense	21	0.61	2.17	0.57	2.15	0.70	2.11	0.65	2.16	0.62	2.16	0.44	2.20	0.66	2.13
2. Algebra and Data Analysis	25	0.72	2.30	0.57	2.33	0.75	2.18	0.71	2.25	0.68	2.28	0.62	2.32	0.71	2.25
3. Measurement and Geometry	8	0.32	1.36	0.18	1.38	0.32	1.37	0.27	1.38	0.28	1.37	0.32	1.37	0.31	1.36
Grade 7															
1. Number Sense	18	0.40	2.00	0.37	1.99	0.40	2.00	0.48	1.98	0.37	2.00	0.18	2.06	0.44	2.00
2. Algebra and Data Analysis	25	0.61	2.37	0.59	2.39	0.72	2.31	0.66	2.35	0.64	2.36	0.69	2.31	0.68	2.34
3. Measurement and Geometry	11	0.25	1.55	0.35	1.55	0.42	1.53	0.39	1.52	0.26	1.53	0.50	1.51	0.37	1.53
Algebra I															
1. Number Properties, Operations, and Linear Equations	15	0.67	1.79	0.78	1.71	0.71	1.64	0.70	1.73	0.69	1.77	0.75	1.70	0.70	1.74
2. Graphing and Systems of Linear Equations	14	0.51	1.79	0.57	1.77	0.61	1.75	0.60	1.76	0.52	1.79	0.49	1.78	0.56	1.78
3. Quadratics and Polynomials	19	0.52	2.09	0.46	2.09	0.57	2.06	0.51	2.09	0.51	2.09	0.64	2.05	0.52	2.09
4. Functions and Rational Expressions	12	0.26	1.66	0.07	1.68	0.43	1.63	0.24	1.67	0.27	1.66	0.45	1.63	0.36	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	Am. Ind.		Asian		Pac. Island		Filipino		Hispanic		African Am.		White	
	Items	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM
Grade 5 Science															
1. Physical Sciences	16	0.59	1.84	0.63	1.81	0.56	1.81	0.54	1.84	0.55	1.84	0.41	1.81	0.56	1.79
2. Life Sciences	16	0.71	1.79	0.69	1.79	0.74	1.72	0.68	1.80	0.68	1.77	0.69	1.73	0.70	1.69
3. Earth Sciences	16	0.67	1.82	0.67	1.80	0.63	1.77	0.59	1.81	0.62	1.79	0.57	1.82	0.67	1.74
Grade 8 Science															
1. Motion	19	0.64	1.98	0.75	1.85	0.60	1.93	0.52	1.97	0.66	1.95	0.62	1.91	0.67	1.88
2. Matter	23	0.70	2.24	0.62	2.27	0.68	2.20	0.64	2.23	0.67	2.25	0.48	2.32	0.73	2.19
3. Earth Science	7	0.45	1.20	0.45	1.17	0.36	1.15	0.41	1.14	0.48	1.18	0.56	1.19	0.53	1.12
4. Investigation and Experimentation	5	0.45	1.00	0.47	0.93	0.36	0.96	0.39	0.98	0.41	0.99	0.15	1.04	0.44	0.94
Grade 10 Life Science															
1. Cell Biology and Genetics	22	0.53	2.25	0.57	2.24	0.66	2.19	0.62	2.20	0.55	2.24	0.65	2.22	0.65	2.20
2. Evolution and Ecology	22	0.61	2.20	0.71	2.14	0.71	2.13	0.65	2.18	0.65	2.18	0.54	2.23	0.72	2.14
3. Physiology	10	0.56	1.46	0.63	1.40	0.63	1.40	0.65	1.40	0.65	1.42	0.71	1.32	0.70	1.34
4. Investigation and Experimentation	6	0.37	1.16	0.46	1.14	0.30	1.17	0.41	1.15	0.33	1.17	0.22	1.21	0.43	1.15

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	Am. Ind.		Asian		Pac. Island		Filipino		Hispanic		African Am.		White	
	Items	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM
Algebra I – 8															
1. Number Properties, Operations, and Linear Equations	15	0.65	1.81	0.75	1.74	0.65	1.67	0.70	1.72	0.70	1.77	0.76	1.71	0.71	1.74
2. Graphing and Systems of Linear Equations	14	0.45	1.80	0.74	1.71	0.59	1.76	0.63	1.73	0.52	1.79	0.48	1.79	0.53	1.79
3. Quadratics and Polynomials	19	0.47	2.09	0.16	2.14	0.50	2.10	0.59	2.06	0.55	2.08	0.75	1.98	0.51	2.09
4. Functions and Rational Expressions	12	0.22	1.66	–1.13	1.69	0.54	1.61	0.40	1.66	0.30	1.66	0.39	1.69	0.42	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—Economically Disadvantaged*															
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3															
1. Vocabulary	14	0.72	1.65	0.76	1.61	0.74	1.56	0.67	1.59	0.72	1.65	0.73	1.62	0.72	1.60
2. Reading for Understanding	17	0.72	1.87	0.76	1.81	0.71	1.84	0.60	1.87	0.72	1.86	0.75	1.81	0.74	1.80
3. Language	17	0.74	1.86	0.73	1.85	0.71	1.81	0.65	1.84	0.74	1.85	0.68	1.87	0.74	1.83
Grade 4															
1. Vocabulary	11	0.55	1.54	0.56	1.53	0.57	1.53	0.44	1.55	0.55	1.53	0.38	1.57	0.55	1.52
2. Reading for Understanding	16	0.61	1.88	0.65	1.86	0.62	1.86	0.57	1.87	0.59	1.87	0.64	1.87	0.65	1.83
3. Language	21	0.71	2.12	0.76	2.08	0.73	2.08	0.70	2.08	0.70	2.11	0.72	2.11	0.72	2.08
Grade 5															
1. Vocabulary	8	0.57	1.21	0.65	1.15	0.57	1.17	0.48	1.15	0.56	1.21	0.55	1.17	0.58	1.14
2. Reading for Understanding	18	0.63	2.01	0.65	2.00	0.63	2.01	0.65	2.00	0.63	2.01	0.60	2.02	0.69	1.97
3. Language	22	0.75	2.08	0.77	2.03	0.78	1.99	0.70	2.02	0.75	2.05	0.75	2.00	0.78	1.99
Grade 6															
1. Vocabulary	9	0.58	1.34	0.60	1.30	0.57	1.34	0.56	1.30	0.53	1.36	0.33	1.35	0.60	1.28
2. Reading for Understanding	22	0.63	2.18	0.66	2.16	0.64	2.16	0.62	2.13	0.61	2.17	0.55	2.21	0.66	2.14
3. Language	23	0.70	2.22	0.67	2.21	0.70	2.16	0.71	2.14	0.69	2.20	0.69	2.20	0.73	2.17
Grade 7															
1. Vocabulary	8	0.54	1.23	0.46	1.22	0.46	1.22	0.49	1.22	0.53	1.23	0.57	1.22	0.55	1.18
2. Reading for Understanding	22	0.78	2.12	0.81	2.04	0.79	2.10	0.80	2.06	0.78	2.11	0.80	2.08	0.80	2.03
3. Language	24	0.69	2.30	0.71	2.27	0.70	2.25	0.74	2.22	0.69	2.29	0.72	2.28	0.73	2.25
Grade 8															
1. Vocabulary	6	0.55	0.99	0.54	1.02	0.46	1.03	0.60	0.97	0.54	1.00	0.57	0.85	0.56	0.93
2. Reading for Understanding	24	0.63	2.29	0.67	2.30	0.68	2.27	0.59	2.32	0.63	2.29	0.70	2.25	0.69	2.26
3. Language	24	0.71	2.28	0.77	2.24	0.71	2.22	0.72	2.22	0.72	2.25	0.81	2.20	0.76	2.23
Grade 9															
1. Vocabulary	7	0.36	1.26	0.37	1.26	0.27	1.27	0.38	1.26	0.33	1.27	0.55	1.21	0.41	1.24
2. Reading for Understanding	27	0.70	2.45	0.77	2.39	0.65	2.46	0.74	2.44	0.69	2.46	0.33	2.55	0.76	2.40
3. Language	26	0.58	2.43	0.62	2.42	0.63	2.40	0.64	2.41	0.59	2.43	0.60	2.46	0.67	2.41

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

Subscore Reliabilities and SEM for Mathematics by *Ethnicity—Economically Disadvantaged*															
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3															
1. Number Sense	24	0.78	2.23	0.83	2.16	0.82	2.09	0.77	2.18	0.81	2.17	0.85	2.14	0.82	2.16
2. Algebra and Data Analysis	13	0.69	1.61	0.69	1.57	0.70	1.56	0.72	1.57	0.72	1.56	0.64	1.62	0.73	1.53
3. Measurement and Geometry	11	0.63	1.41	0.65	1.34	0.64	1.32	0.51	1.41	0.63	1.37	0.65	1.31	0.66	1.34
Grade 4															
1. Number Sense	23	0.76	2.12	0.80	2.05	0.82	2.03	0.75	2.07	0.76	2.05	0.78	2.05	0.77	2.04
2. Algebra and Data Analysis	15	0.55	1.83	0.57	1.81	0.60	1.81	0.57	1.81	0.57	1.82	0.61	1.78	0.59	1.80
3. Measurement and Geometry	10	0.42	1.47	0.47	1.46	0.56	1.43	0.43	1.48	0.49	1.44	0.60	1.42	0.47	1.45
Grade 5															
1. Number Sense	21	0.75	2.02	0.72	2.00	0.80	1.87	0.73	1.88	0.76	1.94	0.68	2.00	0.77	1.96
2. Algebra and Data Analysis	17	0.74	1.84	0.80	1.79	0.78	1.72	0.62	1.80	0.76	1.77	0.71	1.81	0.77	1.78
3. Measurement and Geometry	10	0.39	1.48	0.42	1.48	0.50	1.45	0.27	1.48	0.46	1.46	0.28	1.45	0.43	1.47
Grade 6															
1. Number Sense	21	0.58	2.19	0.55	2.17	0.67	2.15	0.66	2.15	0.61	2.17	0.45	2.20	0.63	2.15
2. Algebra and Data Analysis	25	0.68	2.33	0.60	2.32	0.75	2.24	0.71	2.27	0.67	2.31	0.67	2.33	0.69	2.30
3. Measurement and Geometry	8	0.30	1.37	0.28	1.36	0.22	1.38	0.33	1.37	0.29	1.37	0.06	1.40	0.31	1.36
Grade 7															
1. Number Sense	18	0.33	2.00	0.32	2.02	0.54	1.97	0.47	1.99	0.35	2.00	0.52	2.00	0.40	2.00
2. Algebra and Data Analysis	25	0.59	2.37	0.63	2.36	0.73	2.32	0.63	2.35	0.62	2.37	0.61	2.37	0.66	2.36
3. Measurement and Geometry	11	0.26	1.54	0.35	1.53	0.31	1.55	0.02	1.56	0.26	1.54	0.52	1.54	0.31	1.54
Algebra I															
1. Number Properties, Operations, and Linear Equations	15	0.64	1.81	0.65	1.80	0.71	1.71	0.73	1.74	0.68	1.79	0.73	1.74	0.69	1.78
2. Graphing and Systems of Linear Equations	14	0.46	1.80	0.45	1.80	0.54	1.78	0.54	1.79	0.51	1.79	0.56	1.79	0.57	1.78
3. Quadratics and Polynomials	19	0.46	2.10	0.54	2.10	0.61	2.06	0.55	2.08	0.52	2.09	0.63	2.05	0.50	2.09
4. Functions and Rational Expressions	12	0.21	1.66	0.18	1.65	0.40	1.64	0.31	1.64	0.30	1.65	0.50	1.61	0.30	1.65

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

Subscore Reliabilities and SEM for Science by *Ethnicity—Economically Disadvantaged*															
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Science Grade 5															
1. Physical Sciences	16	0.52	1.88	0.59	1.83	0.55	1.86	0.49	1.85	0.53	1.87	0.56	1.88	0.57	1.82
2. Life Sciences	16	0.67	1.83	0.76	1.74	0.70	1.79	0.68	1.75	0.66	1.81	0.61	1.85	0.71	1.74
3. Earth Sciences	16	0.63	1.85	0.65	1.81	0.66	1.82	0.63	1.80	0.61	1.83	0.60	1.86	0.68	1.78
Science Grade 8															
1. Motion	19	0.62	2.01	0.61	1.97	0.64	1.97	0.69	1.96	0.64	1.98	0.67	1.90	0.69	1.91
2. Matter	23	0.62	2.28	0.63	2.27	0.71	2.23	0.65	2.28	0.64	2.27	0.74	2.19	0.72	2.23
3. Earth Science	7	0.44	1.22	0.40	1.22	0.42	1.20	0.58	1.16	0.45	1.20	0.54	1.16	0.52	1.17
4. Investigation and Experimentation	5	0.38	1.02	0.34	1.02	0.45	0.97	0.28	1.03	0.39	1.01	0.54	0.97	0.47	0.97
Grade 10 Life Science															
1. Cell Biology and Genetics	22	0.52	2.25	0.50	2.25	0.56	2.23	0.62	2.20	0.54	2.24	0.53	2.25	0.60	2.23
2. Evolution and Ecology	22	0.57	2.21	0.62	2.19	0.65	2.15	0.69	2.18	0.61	2.20	0.43	2.24	0.71	2.16
3. Physiology	10	0.56	1.48	0.69	1.40	0.52	1.48	0.61	1.42	0.60	1.46	0.55	1.46	0.68	1.40
4. Investigation and Experimentation	6	0.18	1.19	0.51	1.12	0.33	1.17	0.37	1.15	0.29	1.18	–0.10	1.23	0.37	1.16

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 *Ethnicity—Economically Disadvantaged*															
		African American		American Indian		Asian		Filipino		Hispanic		Pacific Islander		White	
Subscore Area	No. of 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	0.61	1.82	0.69	1.80	0.63	1.78	0.82	1.65	0.67	1.80	0.72	1.72	0.68	1.79
2. Graphing and Systems of Linear Equations	14	0.43	1.80	0.53	1.81	0.60	1.76	0.69	1.77	0.51	1.79	0.56	1.77	0.54	1.79
3. Quadratics and Polynomials	19	0.47	2.10	0.62	2.08	0.66	2.05	0.68	2.04	0.54	2.08	0.44	2.11	0.53	2.09
4. Functions and Rational Expressions	12	0.19	1.65	0.33	1.65	0.32	1.66	0.29	1.59	0.34	1.64	0.29	1.63	0.34	1.64

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

Subscore Reliabilities and SEM for ELA by *Disability*													
		Autism		Deafness		Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disability	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3													
1. Vocabulary	14	0.74	1.56	0.65	1.74	0.79	1.54	0.71	1.65	0.62	1.76	0.66	1.76
2. Reading for Understanding	17	0.71	1.85	0.62	1.93	0.79	1.77	0.72	1.85	0.61	1.95	0.55	1.97
3. Language	17	0.76	1.80	0.61	1.93	0.79	1.79	0.78	1.80	0.63	1.94	0.57	1.95
Grade 4													
1. Vocabulary	11	0.59	1.52	0.30	1.60	0.56	1.52	0.55	1.52	0.40	1.59	0.44	1.58
2. Reading for Understanding	16	0.66	1.84	0.46	1.89	0.71	1.80	0.63	1.82	0.42	1.92	0.61	1.87
3. Language	21	0.74	2.04	0.68	2.14	0.76	2.07	0.72	2.05	0.59	2.17	0.77	2.06
Grade 5													
1. Vocabulary	8	0.55	1.18	0.50	1.32	0.63	1.14	0.56	1.21	0.50	1.32	0.41	1.34
2. Reading for Understanding	18	0.65	2.00	0.15	2.04	0.72	1.97	0.65	2.00	0.39	2.03	0.54	1.96
3. Language	22	0.78	2.01	0.65	2.15	0.80	2.05	0.74	1.97	0.67	2.21	0.48	2.26
Grade 6													
1. Vocabulary	9	0.52	1.35	0.47	1.40	0.59	1.29	0.52	1.38	0.40	1.42	0.48	1.43
2. Reading for Understanding	22	0.69	2.15	0.44	2.23	0.69	2.14	0.60	2.17	0.43	2.22	0.66	2.19
3. Language	23	0.73	2.14	0.61	2.23	0.76	2.18	0.66	2.15	0.56	2.28	0.68	2.25
Grade 7													
1. Vocabulary	8	0.57	1.19	0.42	1.34	0.60	1.15	0.52	1.24	0.38	1.34	0.50	1.25
2. Reading for Understanding	22	0.80	2.09	0.63	2.18	0.82	2.03	0.80	2.09	0.64	2.20	0.83	2.10
3. Language	24	0.74	2.21	0.58	2.36	0.77	2.24	0.71	2.24	0.52	2.36	0.80	2.25
Grade 8													
1. Vocabulary	6	0.57	1.01	0.42	1.14	0.60	0.94	0.48	1.04	0.34	1.14	0.41	1.10
2. Reading for Understanding	24	0.70	2.28	0.46	2.30	0.73	2.25	0.69	2.25	0.42	2.30	0.61	2.32
3. Language	24	0.75	2.20	0.60	2.27	0.80	2.22	0.67	2.21	0.54	2.33	0.73	2.28
Grade 9													
1. Vocabulary	7	0.50	1.23	0.30	1.26	0.49	1.22	0.38	1.26	0.22	1.27	0.41	1.26
2. Reading for Understanding	27	0.77	2.40	0.54	2.45	0.80	2.38	0.69	2.46	0.48	2.47	0.78	2.46
3. Language	26	0.70	2.38	0.49	2.44	0.70	2.40	0.68	2.39	0.34	2.44	0.70	2.43

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

Subscore Reliabilities and SEM for ELA by *Disability* (continued)													
		Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3													
1. Vocabulary	14	0.75	1.59	0.73	1.57	0.72	1.63	0.72	1.60	0.68	1.71	0.76	1.58
2. Reading for Understanding	17	0.71	1.85	0.75	1.79	0.74	1.83	0.70	1.84	0.79	1.85	0.80	1.77
3. Language	17	0.75	1.84	0.75	1.80	0.74	1.84	0.74	1.81	0.71	1.90	0.74	1.83
Grade 4													
1. Vocabulary	11	0.61	1.52	0.58	1.49	0.56	1.52	0.53	1.52	0.63	1.49	0.68	1.50
2. Reading for Understanding	16	0.67	1.84	0.64	1.82	0.62	1.85	0.60	1.85	0.65	1.86	0.66	1.87
3. Language	21	0.77	2.05	0.74	2.06	0.71	2.10	0.71	2.06	0.81	2.00	0.79	2.05
Grade 5													
1. Vocabulary	8	0.66	1.15	0.58	1.11	0.57	1.18	0.54	1.17	0.68	1.16	0.65	1.13
2. Reading for Understanding	18	0.65	1.99	0.70	1.97	0.66	2.00	0.63	2.01	0.68	1.99	0.69	1.97
3. Language	22	0.79	2.01	0.78	1.99	0.76	2.02	0.75	2.00	0.77	2.08	0.80	1.97
Grade 6													
1. Vocabulary	9	0.59	1.32	0.58	1.26	0.57	1.33	0.53	1.35	0.62	1.37	0.58	1.32
2. Reading for Understanding	22	0.69	2.13	0.68	2.13	0.63	2.16	0.60	2.16	0.61	2.20	0.71	2.16
3. Language	23	0.74	2.14	0.73	2.16	0.70	2.19	0.67	2.16	0.72	2.22	0.75	2.15
Grade 7													
1. Vocabulary	8	0.57	1.22	0.55	1.13	0.53	1.22	0.45	1.22	0.56	1.25	0.56	1.17
2. Reading for Understanding	22	0.80	2.10	0.79	2.04	0.79	2.08	0.76	2.10	0.78	2.12	0.77	2.02
3. Language	24	0.69	2.27	0.74	2.23	0.71	2.27	0.66	2.27	0.68	2.27	0.74	2.24
Grade 8													
1. Vocabulary	6	0.54	0.98	0.53	0.90	0.54	0.97	0.54	0.99	0.58	1.02	0.60	0.90
2. Reading for Understanding	24	0.67	2.28	0.69	2.26	0.65	2.28	0.61	2.29	0.69	2.28	0.72	2.22
3. Language	24	0.74	2.23	0.76	2.22	0.73	2.24	0.70	2.23	0.70	2.25	0.74	2.23
Grade 9													
1. Vocabulary	7	0.39	1.25	0.43	1.24	0.36	1.26	0.30	1.28	0.20	1.27	0.40	1.24
2. Reading for Understanding	27	0.77	2.41	0.76	2.40	0.71	2.44	0.68	2.46	0.81	2.37	0.76	2.43
3. Language	26	0.68	2.41	0.68	2.40	0.62	2.42	0.59	2.43	0.69	2.36	0.51	2.44

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

Subscore Reliabilities and SEM for Mathematics by *Disability*													
		Autism		Deafness		Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disability	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3													
1. Number Sense	24	0.84	2.14	0.78	2.20	0.81	2.21	0.79	2.14	0.68	2.28	0.79	2.18
2. Algebra and Data Analysis	13	0.74	1.55	0.68	1.59	0.75	1.54	0.68	1.57	0.56	1.69	0.62	1.67
3. Measurement and Geometry	11	0.67	1.36	0.60	1.41	0.70	1.37	0.60	1.37	0.58	1.50	0.47	1.56
Grade 4													
1. Number Sense	23	0.80	2.04	0.78	2.05	0.78	2.09	0.79	1.96	0.65	2.25	0.72	2.08
2. Algebra and Data Analysis	15	0.62	1.80	0.56	1.84	0.61	1.81	0.56	1.81	0.38	1.86	0.66	1.79
3. Measurement and Geometry	10	0.48	1.45	0.46	1.44	0.44	1.48	0.49	1.44	0.23	1.52	0.58	1.46
Grade 5													
1. Number Sense	21	0.80	1.95	0.78	1.94	0.76	2.05	0.76	1.90	0.70	2.13	0.82	2.04
2. Algebra and Data Analysis	17	0.77	1.80	0.78	1.79	0.77	1.84	0.77	1.74	0.65	1.92	0.75	1.88
3. Measurement and Geometry	10	0.48	1.47	0.50	1.45	0.42	1.49	0.49	1.43	0.28	1.51	0.49	1.45
Grade 6													
1. Number Sense	21	0.64	2.17	0.63	2.15	0.64	2.16	0.51	2.18	0.40	2.19	0.44	2.23
2. Algebra and Data Analysis	25	0.74	2.27	0.72	2.30	0.74	2.31	0.65	2.29	0.52	2.39	0.66	2.36
3. Measurement and Geometry	8	0.35	1.36	0.23	1.39	0.32	1.36	0.33	1.37	0.09	1.36	0.52	1.29
Grade 7													
1. Number Sense	18	0.45	2.00	0.30	1.99	0.44	2.00	0.40	1.99	0.15	2.02	0.37	1.98
2. Algebra and Data Analysis	25	0.67	2.35	0.63	2.34	0.63	2.38	0.67	2.33	0.33	2.37	0.69	2.35
3. Measurement and Geometry	11	0.31	1.56	0.12	1.55	0.33	1.54	0.35	1.53	0.12	1.54	0.28	1.55
Algebra I													
1. Number Properties, Operations, and Linear Equations	15	0.74	1.71	0.69	1.73	0.68	1.78	0.75	1.68	0.51	1.84	0.77	1.71
2. Graphing and Systems of Linear Equations	14	0.60	1.77	0.40	1.81	0.57	1.78	0.49	1.79	0.47	1.78	0.46	1.80
3. Quadratics and Polynomials	19	0.63	2.06	0.47	2.07	0.46	2.09	0.58	2.07	0.38	2.08	0.64	2.08
4. Functions and Rational Expressions	12	0.42	1.62	0.31	1.61	0.27	1.64	0.37	1.63	–0.02	1.65	0.51	1.63

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

Subscore Reliabilities and SEM for Mathematics by *Disability* (continued)													
		Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Grade 3													
1. Number Sense	24	0.80	2.23	0.83	2.15	0.80	2.17	0.82	2.14	0.69	2.32	0.81	2.15
2. Algebra and Data Analysis	13	0.71	1.60	0.73	1.54	0.71	1.55	0.72	1.55	0.65	1.64	0.72	1.58
3. Measurement and Geometry	11	0.67	1.40	0.62	1.36	0.61	1.35	0.64	1.35	0.47	1.48	0.70	1.35
Grade 4													
1. Number Sense	23	0.77	2.13	0.78	2.05	0.76	2.04	0.79	2.01	0.84	2.05	0.63	2.17
2. Algebra and Data Analysis	15	0.67	1.78	0.59	1.81	0.56	1.81	0.60	1.80	0.70	1.76	0.40	1.86
3. Measurement and Geometry	10	0.47	1.47	0.47	1.45	0.49	1.44	0.49	1.44	0.53	1.45	0.54	1.46
Grade 5													
1. Number Sense	21	0.82	1.99	0.76	1.96	0.75	1.93	0.77	1.91	0.74	2.09	0.75	2.00
2. Algebra and Data Analysis	17	0.77	1.82	0.76	1.78	0.76	1.76	0.76	1.76	0.74	1.87	0.75	1.84
3. Measurement and Geometry	10	0.43	1.48	0.44	1.46	0.46	1.46	0.45	1.46	0.51	1.44	0.37	1.50
Grade 6													
1. Number Sense	21	0.69	2.15	0.62	2.16	0.62	2.16	0.60	2.17	0.61	2.18	0.66	2.12
2. Algebra and Data Analysis	25	0.74	2.29	0.71	2.29	0.68	2.30	0.66	2.29	0.63	2.35	0.70	2.28
3. Measurement and Geometry	8	0.35	1.35	0.31	1.36	0.30	1.37	0.25	1.38	0.03	1.40	0.32	1.36
Grade 7													
1. Number Sense	18	0.43	2.00	0.39	2.01	0.37	2.00	0.39	1.99	0.40	2.01	0.41	2.01
2. Algebra and Data Analysis	25	0.66	2.34	0.65	2.36	0.64	2.37	0.63	2.35	0.60	2.37	0.74	2.32
3. Measurement and Geometry	11	0.33	1.56	0.33	1.54	0.29	1.54	0.27	1.54	–0.02	1.60	0.34	1.55
Algebra I													
1. Number Properties, Operations, and Linear Equations	15	0.68	1.78	0.69	1.76	0.68	1.78	0.70	1.75	0.65	1.81	0.76	1.73
2. Graphing and Systems of Linear Equations	14	0.47	1.80	0.52	1.79	0.51	1.79	0.51	1.79	0.37	1.83	0.55	1.77
3. Quadratics and Polynomials	19	0.43	2.11	0.51	2.09	0.51	2.09	0.55	2.08	0.50	2.08	0.43	2.14
4. Functions and Rational Expressions	12	0.28	1.64	0.32	1.65	0.29	1.65	0.32	1.64	0.30	1.66	0.42	1.65

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

Subscore Reliabilities and SEM for Science by *Disability*													
		Autism		Deafness		Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disability	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Science Grade 5													
1. Physical Sciences	16	0.56	1.85	0.47	1.89	0.61	1.85	0.46	1.89	0.48	1.89	0.01	1.94
2. Life Sciences	16	0.75	1.77	0.62	1.84	0.76	1.76	0.66	1.83	0.60	1.88	0.47	1.90
3. Earth Sciences	16	0.68	1.79	0.58	1.89	0.71	1.82	0.60	1.83	0.49	1.90	0.56	1.90
Grade 8													
1. Motion	19	0.68	1.96	0.57	2.05	0.67	1.97	0.64	1.96	0.43	2.09	0.72	1.94
2. Matter	23	0.74	2.21	0.60	2.25	0.73	2.24	0.65	2.26	0.44	2.30	0.76	2.23
3. Earth Science	7	0.54	1.14	0.17	1.23	0.60	1.17	0.37	1.19	0.25	1.27	0.50	1.19
4. Investigation and Experimentation	5	0.46	0.97	0.26	1.02	0.49	0.99	0.52	0.93	0.15	1.06	0.41	0.98
Grade 10 Life Science													
1. Cell Biology and Genetics	22	0.66	2.20	0.32	2.27	0.63	2.22	0.50	2.24	0.37	2.25	0.80	2.06
2. Evolution and Ecology	22	0.71	2.13	0.41	2.23	0.74	2.14	0.48	2.21	0.32	2.23	0.75	2.19
3. Physiology	10	0.66	1.39	0.21	1.52	0.71	1.39	0.48	1.49	0.41	1.51	0.71	1.40
4. Investigation and Experimentation	6	0.49	1.12	0.23	1.16	0.48	1.14	0.27	1.17	–0.07	1.21	0.58	1.05

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

Subscore Reliabilities and SEM for Science by *Disability* (continued)													
		Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Science Grade 5													
1. Physical Sciences	16	0.51	1.87	0.56	1.84	0.55	1.85	0.51	1.87	0.44	1.91	0.48	1.86
2. Life Sciences	16	0.69	1.80	0.71	1.76	0.68	1.79	0.64	1.81	0.76	1.78	0.69	1.79
3. Earth Sciences	16	0.68	1.83	0.67	1.79	0.64	1.81	0.61	1.82	0.57	1.85	0.58	1.83
Science Grade 8													
1. Motion	19	0.63	2.01	0.68	1.93	0.64	1.96	0.59	1.99	0.69	1.99	0.75	1.92
2. Matter	23	0.68	2.26	0.71	2.23	0.67	2.26	0.64	2.27	0.75	2.22	0.71	2.22
3. Earth Science	7	0.54	1.17	0.52	1.17	0.46	1.19	0.44	1.18	0.47	1.20	0.19	1.26
4. Investigation and Experimentation	5	0.22	1.05	0.45	0.99	0.41	1.00	0.38	1.00	0.26	1.03	0.58	0.93
Grade 10 Life Science													
1. Cell Biology and Genetics	22	0.46	2.26	0.64	2.22	0.56	2.24	0.50	2.25	0.41	2.28	0.71	2.17
2. Evolution and Ecology	22	0.58	2.19	0.71	2.16	0.65	2.19	0.57	2.19	0.51	2.27	0.78	2.13
3. Physiology	10	0.70	1.39	0.71	1.37	0.63	1.44	0.59	1.45	0.48	1.50	0.62	1.42
4. Investigation and Experimentation	6	–0.05	1.23	0.38	1.16	0.33	1.17	0.28	1.17	0.21	1.19	0.34	1.19

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

Subscore Reliabilities and SEM for Grade-specific CMA by *Disability*													
		Autism		Deafness		Emotional Disturbance		Hard of Hearing		Mental Retardation		Multiple Disability	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – 8													
1. Number Properties, Operations, and Linear Equations	15	0.75	1.71	0.52	1.83	0.66	1.81	0.74	1.75	0.42	1.83	0.81	1.66
2. Graphing and Systems of Linear Equations	14	0.61	1.76	0.30	1.85	0.46	1.81	0.22	1.83	0.38	1.79	0.31	1.81
3. Quadratics and Polynomials	19	0.69	2.04	0.23	2.15	0.40	2.09	0.47	2.09	0.39	2.07	0.79	2.02
4. Functions and Rational Expressions	12	0.45	1.62	0.29	1.61	0.19	1.66	0.39	1.62	0.18	1.63	0.76	1.53

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)													
		Orthopedic Impairment		Other Health Impairment		Specific Learning Disability		Speech or Language Impairment		Traumatic Brain Injury		Visual Impairment	
Subscore Area	No. of Items	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
Algebra I – 8													
1. Number Properties, Operations, and Linear Equations	15	0.64	1.81	0.69	1.77	0.67	1.80	0.69	1.77	0.69	1.79	0.85	1.67
2. Graphing and Systems of Linear Equations	14	0.46	1.81	0.51	1.79	0.51	1.79	0.56	1.77	–0.34	1.88	0.79	1.68
3. Quadratics and Polynomials	19	0.42	2.10	0.50	2.10	0.53	2.09	0.55	2.08	0.62	2.00	0.26	2.18
4. Functions and Rational Expressions	12	0.19	1.62	0.31	1.65	0.34	1.64	0.29	1.65	0.43	1.65	–1.07	1.76

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	41 – 48	0.10	0.03	0.00	0.00	0.00	0.14
	37 – 40	0.02	0.07	0.05	0.01	0.00	0.15
	30 – 36	0.00	0.03	0.17	0.04	0.00	0.24
All-forms	18 – 29	0.00	0.00	0.05	0.30	0.02	0.36
Average	0 – 17	0.00	0.00	0.00	0.04	0.07	0.11
Estimated Proportion Correctly Classified: Total = 0.71, Proficient & Above = 0.91							
Decision Consistency	41 – 48	0.10	0.03	0.01	0.00	0.00	0.14
	37 – 40	0.03	0.05	0.05	0.01	0.00	0.15
	30 – 36	0.01	0.04	0.14	0.06	0.00	0.24
Alternate Form	18 – 29	0.00	0.00	0.06	0.26	0.04	0.36
	0 – 17	0.00	0.00	0.00	0.04	0.07	0.11
Estimated Proportion Consistently Classified: Total = 0.61, Proficient & Above = 0.88							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	37 – 48	0.12	0.05	0.00	0.00	0.00	0.17
	31 – 36	0.03	0.15	0.06	0.00	0.00	0.25
	25 – 30	0.00	0.05	0.16	0.05	0.00	0.26
All-forms Average	18 – 24	0.00	0.00	0.06	0.16	0.02	0.24
	0 – 17	0.00	0.00	0.00	0.04	0.05	0.09
Estimated Proportion Correctly Classified: Total = 0.64, Proficient & Above = 0.89							
Decision Consistency	37 – 48	0.12	0.05	0.01	0.00	0.00	0.17
	31 – 36	0.05	0.12	0.06	0.01	0.00	0.25
	25 – 30	0.01	0.06	0.12	0.06	0.00	0.26
Alternate Form	18 – 24	0.00	0.01	0.06	0.13	0.04	0.24
	0 – 17	0.00	0.00	0.01	0.04	0.04	0.09
Estimated Proportion Consistently Classified: Total = 0.53, Proficient & Above = 0.84							

Table 8.B.51 Reliability of Classification for ELA, Grade Four (Reading and Writing)

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	40 – 52	0.06	0.05	0.01	0.00	0.00	0.12
	34 – 39	0.02	0.10	0.08	0.01	0.00	0.21
	27 – 33	0.00	0.04	0.17	0.06	0.00	0.27
All-forms Average	20 – 26	0.00	0.00	0.08	0.15	0.02	0.25
	0 – 19	0.00	0.00	0.01	0.07	0.07	0.15
Estimated Proportion Correctly Classified: Total = 0.55, Proficient & Above = 0.85							
Decision Consistency	40 – 52	0.06	0.04	0.02	0.00	0.00	0.12
	34 – 39	0.04	0.08	0.07	0.02	0.00	0.21
	27 – 33	0.01	0.06	0.12	0.07	0.01	0.27
Alternate Form	20 – 26	0.00	0.02	0.08	0.11	0.05	0.25
	0 – 19	0.00	0.00	0.02	0.05	0.07	0.15
Estimated Proportion Consistently Classified: Total = 0.44, Proficient & Above = 0.80							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	38 – 48	0.13	0.04	0.00	0.00	0.00	0.18
	33 – 37	0.03	0.11	0.05	0.00	0.00	0.19
	27 – 32	0.00	0.04	0.15	0.05	0.00	0.25
All-forms Average	17 – 26	0.00	0.00	0.06	0.25	0.01	0.32
	0 – 16	0.00	0.00	0.00	0.04	0.02	0.06
Estimated Proportion Correctly Classified: Total = 0.66, Proficient & Above = 0.89							
Decision Consistency	38 – 48	0.12	0.04	0.01	0.00	0.00	0.18
	33 – 37	0.05	0.08	0.06	0.01	0.00	0.19
	27 – 32	0.01	0.05	0.11	0.07	0.00	0.25
Alternate Form	17 – 26	0.00	0.01	0.07	0.21	0.03	0.32
	0 – 16	0.00	0.00	0.00	0.03	0.03	0.06
Estimated Proportion Consistently Classified: Total = 0.55, Proficient & Above = 0.85							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	40 – 54	0.10	0.04	0.01	0.00	0.00	0.15
	36 – 39	0.03	0.07	0.05	0.01	0.00	0.15
	31 – 35	0.00	0.04	0.11	0.06	0.00	0.21
All-forms Average	23 – 30	0.00	0.00	0.05	0.21	0.04	0.30
	0 – 22	0.00	0.00	0.00	0.06	0.13	0.19
Estimated Proportion Correctly Classified: Total = 0.62, Proficient & Above = 0.89							
Decision Consistency	40 – 54	0.10	0.04	0.01	0.00	0.00	0.15
	36 – 39	0.04	0.05	0.04	0.02	0.00	0.15
	31 – 35	0.02	0.04	0.08	0.06	0.00	0.21
Alternate Form	23 – 30	0.00	0.01	0.06	0.17	0.06	0.30
	0 – 22	0.00	0.00	0.01	0.06	0.12	0.19
Estimated Proportion Consistently Classified: Total = 0.52, Proficient & Above = 0.85							

Table 8.B.54 Reliability of Classification for ELA, Grade Seven (Reading Only)

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	44 – 54	0.08	0.04	0.00	0.00	0.00	0.12
	38 – 43	0.03	0.13	0.05	0.00	0.00	0.21
	32 – 37	0.00	0.04	0.13	0.05	0.00	0.22
All-forms Average	23 – 31	0.00	0.00	0.05	0.21	0.03	0.29
	0 – 22	0.00	0.00	0.00	0.05	0.12	0.17
Estimated Proportion Correctly Classified: Total = 0.67, Proficient & Above = 0.90							
Decision Consistency	44 – 54	0.07	0.04	0.00	0.00	0.00	0.12
	38 – 43	0.04	0.10	0.05	0.01	0.00	0.21
	32 – 37	0.01	0.05	0.10	0.06	0.00	0.22
Alternate Form	23 – 31	0.00	0.01	0.06	0.17	0.05	0.29
	0 – 22	0.00	0.00	0.00	0.05	0.11	0.17
Estimated Proportion Consistently Classified: Total = 0.56, Proficient & Above = 0.87							

Table 8.B.55 Reliability of Classification for ELA, Grade Seven (Reading and Writing)

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	47 – 58	0.05	0.05	0.00	0.00	0.00	0.11
	41 – 46	0.03	0.11	0.05	0.01	0.00	0.19
	35 – 40	0.00	0.05	0.11	0.06	0.00	0.21
All-forms Average	26 – 34	0.00	0.00	0.05	0.19	0.04	0.29
	0 – 25	0.00	0.00	0.00	0.06	0.15	0.21
Estimated Proportion Correctly Classified: Total = 0.60, Proficient & Above = 0.89							
Decision Consistency	47 – 58	0.05	0.04	0.01	0.00	0.00	0.11
	41 – 46	0.04	0.08	0.05	0.02	0.00	0.19
	35 – 40	0.01	0.05	0.08	0.06	0.01	0.21
Alternate Form	26 – 34	0.00	0.01	0.06	0.15	0.07	0.29
	0 – 25	0.00	0.00	0.01	0.07	0.13	0.21
Estimated Proportion Consistently Classified: Total = 0.49, Proficient & Above = 0.84							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	42 – 54	0.07	0.04	0.00	0.00	0.00	0.11
	36 – 41	0.02	0.11	0.05	0.00	0.00	0.19
	30 – 35	0.00	0.04	0.13	0.06	0.00	0.23
All-forms Average	22 – 29	0.00	0.00	0.05	0.22	0.04	0.31
	0 – 21	0.00	0.00	0.00	0.06	0.11	0.17
Estimated Proportion Correctly Classified: Total = 0.64, Proficient & Above = 0.90							
Decision Consistency	42 – 54	0.07	0.03	0.01	0.00	0.00	0.11
	36 – 41	0.04	0.09	0.05	0.01	0.00	0.19
	30 – 35	0.01	0.05	0.10	0.07	0.00	0.23
Alternate Form	22 – 29	0.00	0.01	0.07	0.17	0.06	0.31
	0 – 21	0.00	0.00	0.00	0.06	0.10	0.17
Estimated Proportion Consistently Classified: Total = 0.53, Proficient & Above = 0.86							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	45 – 60	0.03	0.02	0.00	0.00	0.00	0.05
	38 – 44	0.01	0.07	0.04	0.00	0.00	0.13
	31 – 37	0.00	0.03	0.12	0.06	0.00	0.21
All-forms Average	23 – 30	0.00	0.00	0.05	0.24	0.07	0.36
	0 – 22	0.00	0.00	0.00	0.08	0.17	0.25
Estimated Proportion Correctly Classified: Total = 0.63, Proficient & Above = 0.93							
Decision Consistency	45 – 60	0.03	0.02	0.00	0.00	0.00	0.05
	38 – 44	0.02	0.06	0.04	0.01	0.00	0.13
	31 – 37	0.00	0.04	0.10	0.07	0.01	0.21
Alternate Form	23 – 30	0.00	0.01	0.07	0.19	0.10	0.36
	0 – 22	0.00	0.00	0.01	0.09	0.15	0.25
Estimated Proportion Consistently Classified: Total = 0.52, Proficient & Above = 0.90							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	43 – 48	0.05	0.03	0.00	0.00	0.00	0.08
	35 – 42	0.02	0.21	0.05	0.00	0.00	0.28
	28 – 34	0.00	0.04	0.16	0.04	0.00	0.24
All-forms Average	17 – 27	0.00	0.00	0.04	0.26	0.02	0.32
	0 – 16	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	43 – 48	0.05	0.04	0.00	0.00	0.00	0.08
	35 – 42	0.04	0.18	0.06	0.00	0.00	0.28
	28 – 34	0.00	0.05	0.13	0.06	0.00	0.24
Alternate Form	17 – 27	0.00	0.00	0.06	0.22	0.04	0.32
	0 – 16	0.00	0.00	0.00	0.04	0.03	0.07
Estimated Proportion Consistently Classified: Total = 0.61, Proficient & Above = 0.88							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	38 – 48	0.09	0.04	0.00	0.00	0.00	0.13
	31 – 37	0.02	0.18	0.06	0.01	0.00	0.27
	27 – 30	0.00	0.05	0.09	0.05	0.00	0.19
All-forms Average	18 – 26	0.00	0.01	0.05	0.26	0.02	0.33
	0 – 17	0.00	0.00	0.00	0.04	0.04	0.08
Estimated Proportion Correctly Classified: Total = 0.65, Proficient & Above = 0.88							
Decision Consistency	38 – 48	0.08	0.04	0.00	0.00	0.00	0.13
	31 – 37	0.04	0.15	0.06	0.02	0.00	0.27
	27 – 30	0.00	0.06	0.06	0.06	0.00	0.19
Alternate Form	18 – 26	0.00	0.02	0.06	0.21	0.04	0.33
	0 – 17	0.00	0.00	0.00	0.04	0.04	0.08
Estimated Proportion Consistently Classified: Total = 0.54, Proficient & Above = 0.84							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	39 – 48	0.13	0.04	0.00	0.00	0.00	0.17
	32 – 38	0.03	0.20	0.05	0.00	0.00	0.29
	26 – 31	0.00	0.04	0.14	0.04	0.00	0.23
All-forms Average	17 – 25	0.00	0.00	0.05	0.19	0.01	0.26
	0 – 16	0.00	0.00	0.00	0.03	0.02	0.05
Estimated Proportion Correctly Classified: Total = 0.68, Proficient & Above = 0.89							
Decision Consistency	39 – 48	0.12	0.05	0.00	0.00	0.00	0.17
	32 – 38	0.06	0.16	0.06	0.01	0.00	0.29
	26 – 31	0.00	0.06	0.11	0.06	0.00	0.23
Alternate Form	17 – 25	0.00	0.01	0.06	0.16	0.03	0.26
	0 – 16	0.00	0.00	0.00	0.03	0.02	0.05
Estimated Proportion Consistently Classified: Total = 0.58, Proficient & Above = 0.86							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	40 – 54	0.06	0.04	0.00	0.00	0.00	0.10
	33 – 39	0.02	0.14	0.06	0.01	0.00	0.23
	28 – 32	0.00	0.04	0.12	0.06	0.00	0.23
All-forms Average	21 – 27	0.00	0.01	0.06	0.21	0.03	0.31
	0 – 20	0.00	0.00	0.00	0.07	0.07	0.14
Estimated Proportion Correctly Classified: Total = 0.60, Proficient & Above = 0.88							
Decision Consistency	40 – 54	0.06	0.03	0.00	0.00	0.00	0.10
	33 – 39	0.04	0.11	0.06	0.02	0.00	0.23
	28 – 32	0.00	0.06	0.09	0.07	0.01	0.23
Alternate Form	21 – 27	0.00	0.02	0.07	0.16	0.06	0.31
	0 – 20	0.00	0.00	0.01	0.06	0.07	0.14
Estimated Proportion Consistently Classified: Total = 0.48, Proficient & Above = 0.83							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	37 – 54	0.03	0.02	0.00	0.00	0.00	0.05
	30 – 36	0.01	0.10	0.06	0.02	0.00	0.18
	26 – 29	0.00	0.03	0.08	0.07	0.01	0.19
All-forms Average	21 – 25	0.00	0.01	0.06	0.18	0.07	0.31
	0 – 20	0.00	0.00	0.01	0.09	0.16	0.26
Estimated Proportion Correctly Classified: Total = 0.55, Proficient & Above = 0.89							
Decision Consistency	37 – 54	0.03	0.02	0.00	0.00	0.00	0.06
	30 – 36	0.02	0.08	0.05	0.03	0.00	0.18
	26 – 29	0.00	0.05	0.06	0.06	0.02	0.19
Alternate Form	21 – 25	0.00	0.03	0.06	0.12	0.09	0.31
	0 – 20	0.00	0.00	0.02	0.09	0.15	0.26
Estimated Proportion Consistently Classified: Total = 0.45, Proficient & Above = 0.84							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	47 – 60	0.01	0.01	0.00	0.00	0.00	0.02
	39 – 46	0.00	0.06	0.04	0.00	0.00	0.10
	31 – 38	0.00	0.02	0.16	0.08	0.00	0.26
All-forms Average	23 – 30	0.00	0.00	0.05	0.27	0.06	0.39
	0 – 22	0.00	0.00	0.00	0.09	0.14	0.23
Estimated Proportion Correctly Classified: Total = 0.65, Proficient & Above = 0.94							
Decision Consistency	47 – 60	0.01	0.01	0.00	0.00	0.00	0.02
	39 – 46	0.01	0.05	0.04	0.00	0.00	0.10
	31 – 38	0.00	0.04	0.13	0.08	0.01	0.26
Alternate Form	23 – 30	0.00	0.00	0.08	0.21	0.09	0.39
	0 – 22	0.00	0.00	0.01	0.09	0.13	0.23
Estimated Proportion Consistently Classified: Total = 0.53, Proficient & Above = 0.91							

Table 8.B.64 Reliability of Classification for Science, Grade Five

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	37 – 48	0.10	0.05	0.00	0.00	0.00	0.15
	30 – 36	0.03	0.20	0.07	0.00	0.00	0.30
	23 – 29	0.00	0.06	0.20	0.04	0.00	0.30
All-forms Average	15 – 22	0.00	0.00	0.06	0.15	0.00	0.22
	0 – 14	0.00	0.00	0.00	0.03	0.01	0.03
Estimated Proportion Correctly Classified: Total = 0.66, Proficient & Above = 0.87							
Decision Consistency	37 – 48	0.10	0.05	0.00	0.00	0.00	0.15
	30 – 36	0.06	0.16	0.08	0.01	0.00	0.30
	23 – 29	0.00	0.07	0.16	0.06	0.00	0.30
Alternate Form	15 – 22	0.00	0.01	0.07	0.12	0.02	0.22
	0 – 14	0.00	0.00	0.00	0.02	0.01	0.03
Estimated Proportion Consistently Classified: Total = 0.54, Proficient & Above = 0.82							

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

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	41 – 54	0.10	0.04	0.00	0.00	0.00	0.14
	34 – 40	0.02	0.15	0.06	0.00	0.00	0.23
	28 – 33	0.00	0.04	0.15	0.05	0.00	0.25
All-forms Average	23 – 27	0.00	0.00	0.05	0.10	0.04	0.20
	0 – 22	0.00	0.00	0.01	0.05	0.12	0.18
Estimated Proportion Correctly Classified: Total = 0.62, Proficient & Above = 0.89							
Decision Consistency	41 – 54	0.09	0.04	0.00	0.00	0.00	0.14
	34 – 40	0.04	0.12	0.06	0.01	0.00	0.23
	28 – 33	0.00	0.06	0.11	0.06	0.02	0.25
Alternate Form	23 – 27	0.00	0.01	0.06	0.08	0.05	0.20
	0 – 22	0.00	0.00	0.02	0.05	0.11	0.18
Estimated Proportion Consistently Classified: Total = 0.51, Proficient & Above = 0.85							

Table 8.B.66 Reliability of Classification for Life Science (Grade 10)

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	48 – 60	0.02	0.01	0.00	0.00	0.00	0.04
	39 – 47	0.01	0.09	0.04	0.00	0.00	0.14
	31 – 38	0.00	0.02	0.16	0.06	0.00	0.24
All-forms Average	23 – 30	0.00	0.00	0.05	0.24	0.06	0.36
	0 – 22	0.00	0.00	0.00	0.07	0.15	0.22
Estimated Proportion Correctly Classified: Total = 0.66, Proficient & Above = 0.93							
Decision Consistency	48 – 60	0.02	0.01	0.00	0.00	0.00	0.04
	39 – 47	0.01	0.08	0.04	0.01	0.00	0.14
	31 – 38	0.00	0.04	0.13	0.07	0.01	0.24
Alternate Form	23 – 30	0.00	0.00	0.07	0.19	0.09	0.36
	0 – 22	0.00	0.00	0.01	0.09	0.13	0.22
Estimated Proportion Consistently Classified: Total = 0.55, Proficient & Above = 0.90							

Table 8.B.67 Reliability of Classification for Algebra I – Grade 8

	Placement Score	Advanced	Proficient	Basic	Below Basic	Far Below Basic	Category Total
Decision Accuracy	47 – 60	0.02	0.01	0.00	0.00	0.00	0.03
	39 – 46	0.00	0.06	0.04	0.00	0.00	0.10
	31 – 38	0.00	0.02	0.15	0.07	0.00	0.24
All-forms Average	23 – 30	0.00	0.00	0.05	0.27	0.07	0.40
	0 – 22	0.00	0.00	0.00	0.09	0.14	0.23
Estimated Proportion Correctly Classified: Total = 0.64, Proficient & Above = 0.94							
Decision Consistency	47 – 60	0.02	0.01	0.00	0.00	0.00	0.03
	39 – 46	0.01	0.05	0.03	0.00	0.00	0.10
	31 – 38	0.00	0.04	0.12	0.08	0.01	0.24
Alternate Form	23 – 30	0.00	0.01	0.08	0.21	0.10	0.40
	0 – 22	0.00	0.00	0.01	0.10	0.13	0.23
Estimated Proportion Consistently Classified: Total = 0.53, Proficient & Above = 0.92							

Table 8.B.68 Interrater Agreement Analyses for ELA, Grade Four

		Rater 1								
		1	%	2	%	3	%	4	%	Total
	1	189	11.00%	88	5.12%	4	0.23%	0	0.00%	281
	2	85	4.95%	630	36.67%	149	8.67%	9	0.52%	873
	3	2	0.12%	163	9.49%	306	17.81%	31	1.80%	502
Rater 2	4	0	0.00%	4	0.23%	31	1.80%	27	1.57%	62
	Total	276	16.07%	885	51.51%	490	28.52%	67	3.90%	1718

Percent Exact = 67.05%
Percent Adjacent = 31.83%
Exact + Adjacent = 98.88%
Kappa = 0.47
Weighted Kappa =0.57

Table 8.B.69 Interrater Agreement Analyses for ELA, Grade Seven

		Rater 1								
		1	%	2	%	3	%	4	%	Total
	1	73	3.52%	36	1.73%	0	0.00%	0	0.00%	109
	2	33	1.59%	607	29.24%	171	8.24%	2	0.10%	813
	3	0	0.00%	179	8.62%	761	36.66%	71	3.42%	1011
Rater 2	4	0	0.00%	0	0.00%	66	3.18%	77	3.71%	143
	Total	106	5.11%	822	39.60%	998	48.07%	150	7.23%	2076

Percent Exact = 73.12%
Percent Adjacent = 26.78%
Percent Exact + Adjacent = 99.90%
Kappa = 0.55
Weighted Kappa =0.63

Table 8.B.70 Descriptive Statistics for the Ratings by the Two Raters, Grade Four

N*	Rater 1		Rater 2		
	Mean	Std	Mean	Std	Pearson Correlation
1718	2.20	0.75	2.20	0.75	0.68

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

Table 8.B.71 Descriptive Statistics for the Ratings by the Two Raters, Grade Seven

N*	Rater 1		Rater 2		
	Mean	Std	Mean	Std	Pearson Correlation
2076	2.57	0.70	2.57	0.70	0.72

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

Table 8.B.72 Generalizability Analyses for Grade Four Essay—[(Person: Essay) x Rater)]

Effect	Degrees of Freedom	Sum of Squares	Mean Squares	Estimated Variance Components	Percentage of Total Variance
E	1	0.89601	0.89601	0.00254	0.51
P:E	1716	1456.777	0.84894	0.35631	71.49
R	1	0.0291	0.0291	0.00327	0.66
ER	1	0.04212	0.04212	0	0
PR:E	1716	233.9288	0.13632	0.13632	27.35
Note: E = Essay Prompt, P = Person, and R = Rater				**G-Coefficient= 0.84**	

Table 8.B.73 Generalizability Analyses for Grade Seven Essay—[(Person: Essay) x Rater)]

Effect	Degrees of Freedom	Sum of Squares	Mean Squares	Estimated Variance Components	Percentage of Total Variance
E	1	0.00719	0.00719	0	0
P:E	2074	1749.735	0.84365	0.35384	70.3
R	1	0.00385	0.00385	0.0135	2.68
ER	1	0.00001	0.00001	0	0
PR:E	2074	281.9961	0.13597	0.13597	27.02
Note: E = Essay Prompt, P = Person, and R = Rater				**G-Coefficient= 0.83**	

Appendix 8.C—Validity Analyses

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

		Male				Female				Gender Unknown			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**11,893**	0.62			**5,599**	0.62			**117**	0.64		
	2. Mathematics	9,321	**10,052**			4,695	**5,146**			88	**98**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**16,843**	0.58			**8,119**	0.59			**7**	—		
	2. Mathematics	13,245	**13,798**			6,752	**7,169**			6	**7**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**18,295**	0.52	0.64		**9,251**	0.56	0.66		**31**	0.43	0.60	
	2.Mathematics	14,811	**15,594**	0.53		7,851	**8,419**	0.53		30	**31**	0.56	
	3. Science	16,323	14,212	**16,639**		8,333	7,577	**8,554**		30	29	**30**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**17,290**	0.58			**8,758**	0.55			**11**	—		
	2. Mathematics	14,831	**15,916**			7,733	**8,479**			8	**9**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**16,282**	0.54	0.34		**8,097**	0.53	0.49		**13**	0.52	N/A	
	2. Mathematics	14,388	**15,539**	N/A		7,377	**8,229**	N/A		13	**16**	N/A	
	3. Algebra I	26	0	**29**		22	0	**25**		0	0	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**15,446**	0.49	—	0.64	**7,493**	0.52	—	0.65	**81**	—	N/A	0.56
	2. Algebra I	3,237	**3,615**	N/A	0.54	1,623	**1,858**	N/A	0.57	10	**14**	N/A	—
	3. Geometry	2	0	**2**	—	1	0	**1**	—	0	0	**0**	N/A
	4. Science	13,456	3,015	2	**14,048**	6,590	1,545	1	**6,981**	68	10	0	**77**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**10,804**	0.46	0.66		**5,398**	0.45	0.52		**67**	0.18	N/A	
	2. Algebra I	4,183	**4,760**	N/A		2,280	**2,638**	N/A		24	**31**	N/A	
	3. Geometry	162	0	**185**		79	0	**96**		0	0	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**8,478**	0.42	0.50	0.62	**4,338**	0.43	0.51	0.61	**55**	0.74	—	0.71
	2. Algebra I	3,524	**4,238**	N/A	0.44	1,832	**2,284**	N/A	0.42	23	**25**	N/A	0.79
	3. Geometry	1,281	0	**1,503**	0.53	683	0	**856**	0.53	8	0	**9**	—
	4. Life Science	6,522	3,101	1,133	**7,039**	3,363	1,649	628	**3,702**	43	19	9	**45**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**5,945**	0.34	0.47		**3,133**	0.33	0.36		**17**	—	N/A	
	2. Algebra I	1,742	**2,186**	N/A		952	**1,225**	N/A		5	**7**	N/A	
	3. Geometry	992	0	**1,278**		527	0	**730**		0	0	**1**	

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**	**170**	0.58			**529**	0.62			**94**	0.71		
	2. Mathematics	138	**148**			420	**469**			85	**91**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**258**	0.61			**806**	0.64			**107**	0.70		
	2. Mathematics	210	**217**			594	**623**			90	**96**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**247**	0.55	0.67		**872**	0.55	0.66		**155**	0.50	0.55	
	2. Mathematics	193	**212**	0.54		657	**701**	0.56		131	**138**	0.46	
	3. Science	203	185	**209**		766	630	**783**		136	122	**138**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**238**	0.59			**775**	0.60			**121**	0.48		
	2. Mathematics	206	**224**			617	**664**			101	**113**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**259**	0.52	N/A		**693**	0.59	—		**130**	0.50	—	
	2. Mathematics	236	**266**	N/A		565	**609**	N/A		115	**123**	N/A	
	3. Algebra I	0	0	**0**		2	0	**2**		1	0	**1**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**208**	0.35	N/A	0.51	**704**	0.42	N/A	0.66	**110**	0.64	N/A	0.64
	2. Algebra I	35	**41**	N/A	0.60	134	**145**	N/A	0.56	23	**29**	N/A	0.55
	3. Geometry	0	0	**0**	N/A	0	0	**0**	N/A	0	0	**0**	N/A
	4. Science	182	33	0	**197**	600	115	0	**616**	96	22	0	**99**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**168**	0.60	—		**426**	0.37	—		**44**	0.64	—	
	2. Algebra I	59	**69**	N/A		137	**169**	N/A		12	**16**	N/A	
	3. Geometry	2	0	**2**		7	0	**7**		1	0	**2**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**156**	0.32	0.08	0.57	**328**	0.51	0.34	0.65	**52**	0.07	—	0.45
	2. Algebra I	66	**88**	N/A	0.41	127	**147**	N/A	0.57	29	**38**	N/A	0.41
	3. Geometry	17	0	**20**	0.57	50	0	**62**	0.53	8	0	**13**	—
	4. Life Science	127	67	13	**149**	254	115	44	**281**	47	30	9	**55**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**98**	0.18	—		**264**	0.47	0.35		**41**	0.40	—	
	2. Algebra I	41	**49**	N/A		80	**103**	N/A		13	**17**	N/A	
	3. Geometry	8	0	**15**		37	0	**49**		6	0	**10**	

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**	**182**	0.62			**10,739**	0.62			**1,612**	0.63		
	2. Mathematics	149	**165**			8,769	**9,384**			1,393	**1,514**		
Grade		**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**264**	0.65			**15,457**	0.57			**2,575**	0.57		
	2. Mathematics	198	**213**			12,562	**13,020**			2,293	**2,418**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**300**	0.46	0.65		**17,212**	0.53	0.62		**2,874**	0.56	0.62	
	2. Mathematics	239	**264**	0.52		14,262	**14,873**	0.53		2,559	**2,746**	0.54	
	3. Science	270	240	**284**		15,434	13,611	**15,703**		2,604	2,467	**2,673**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**282**	0.62			**16,255**	0.56			**2,947**	0.60		
	2. Mathematics	230	**246**			142,117	**14,921**			2,700	**2,907**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**241**	0.53	N/A		**15,009**	0.53	0.59		**2,697**	0.52	—	
	2. Mathematics	216	**232**	N/A		13,448	**14,323**	N/A		2,512	**2,768**	N/A	
	3. Algebra I	0	0	**0**		26	0	**29**		8	0	**10**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**206**	0.52	N/A	0.71	**14,038**	0.51	N/A	0.63	**2,701**	0.47	—	0.62
	2. Algebra I	39	**47**	N/A	0.75	3,031	**3,349**	N/A	0.56	750	**834**	N/A	0.51
	3. Geometry	0	0	**0**	N/A	0	0	**0**	N/A	1	0	**1**	—
	4. Science	175	35	0	**188**	12,353	2,849	0	**12,833**	2,389	701	1	**2,494**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**148**	0.56	—		**9,944**	0.45	0.64		**1,768**	0.48	0.49	
	2. Algebra I	51	**61**	N/A		4,164	**4,643**	N/A		778	**899**	N/A	
	3. Geometry	5	0	**5**		156	0	**177**		39	0	**43**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**118**	0.47	0.51	0.66	**7,715**	0.43	0.49	0.60	**1,412**	0.42	0.56	0.58
	2. Algebra I	46	**54**	N/A	0.41	3,291	**3,865**	N/A	0.42	574	**701**	N/A	0.42
	3. Geometry	17	0	**20**	0.56	1,275	0	**1,468**	0.52	262	0	**317**	0.48
	4. Life Science	94	42	15	**106**	5,966	2,873	1,148	**6,425**	1,110	522	238	**1,210**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**104**	0.20	0.51		**5,365**	0.34	0.40		**1,060**	0.23	0.47	
	2. Algebra I	31	**38**	N/A		1,590	**1,946**	N/A		307	**393**	N/A	
	3. Geometry	12	0	**20**		965	0	**1,239**		189	0	**233**	

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

		White				Unknown			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**3,558**	0.61			**725**	0.62		
	2. Mathematics	2,575	**2,900**			575	**625**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**4,933**	0.59			**569**	0.62		
	2. Mathematics	3,620	**3,927**			436	**460**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**5,353**	0.54	0.65		**564**	0.59	0.66	
	2. Mathematics	4,189	**4,603**	0.54		462	**507**	0.56	
	3. Science	4,751	4,106	**4,896**		522	457	**537**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**4,975**	0.56			**466**	0.58		
	2. Mathematics	4,189	**4,860**			412	**469**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**4,829**	0.54	—		**534**	0.51	—	
	2. Mathematics	4,206	**4,918**	N/A		480	**545**	N/A	
	3. Algebra I	10	0	**11**		1	0	**1**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**4,444**	0.46	—	0.63	**609**	0.52	N/A	0.64
	2. Algebra I	747	**916**	N/A	0.54	111	**126**	N/A	0.52
	3. Geometry	2	0	**2**	—	0	0	**0**	N/A
	4. Science	3,785	710	2	**4,109**	534	105	0	**570**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**3,390**	0.47	0.56		**381**	0.47	—	
	2. Algebra I	1,157	**1,407**	N/A		129	**165**	N/A	
	3. Geometry	30	0	**44**		1	0	**1**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**2,803**	0.40	0.52	0.64	**287**	0.48	0.49	0.62
	2. Algebra I	1,125	**1,504**	N/A	0.44	121	**150**	N/A	0.64
	3. Geometry	307	0	**423**	0.51	36	0	**45**	0.45
	4. Life Science	2,099	1,006	269	**2,309**	231	114	34	**251**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**2,006**	0.38	0.45		**157**	0.43	0.47	
	2. Algebra I	587	**805**	N/A		50	**67**	N/A	
	3. Geometry	281	0	**415**		21	0	**28**	

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**	**9,558**	0.62			**178**	0.62			**7,407**	0.62		
	2. Mathematics	7,491	**8,249**			136	**141**			6,092	**6,493**		
Grade		**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**13,732**	0.59			**267**	0.52			**10,800**	0.58		
	2. Mathematics	10,948	**11,623**			184	**201**			8,743	**9,013**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**14,821**	0.55	0.65		**518**	0.49	0.59		**11,904**	0.53	0.61	
	2. Mathematics	12,182	**13,159**	0.55		392	**424**	0.55		9,853	**10,165**	0.53	
	3. Science	13,252	11,803	**13,616**		447	368	**458**		10,681	9,377	**10,826**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**14,033**	0.59			**549**	0.58			**10,932**	0.54		
	2. Mathematics	12,186	**13,550**			448	**503**			9,497	**9,848**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**13,449**	0.54	0.46		**595**	0.49	—		**9,532**	0.53	0.11	
	2. Mathematics	12,042	**13,513**	N/A		510	**562**	N/A		8,533	**8,911**	N/A	
	3. Algebra I	28	0	**33**		5	0	**5**		15	0	**16**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**12,241**	0.48	—	0.64	**417**	0.46	N/A	0.64	**9,249**	0.52	N/A	0.61
	2. Algebra I	2,578	**2,977**	N/A	0.54	98	**111**	N/A	0.52	1,939	**2,086**	N/A	0.56
	3. Geometry	3	0	**3**	—	0	0	**0**	N/A	0	0	**0**	N/A
	4. Science	10,586	2,434	3	**11,246**	360	89	0	**379**	8,213	1,795	0	**8,443**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**8,969**	0.49	0.62		**379**	0.36	—		**6,112**	0.43	0.53	
	2. Algebra I	3,451	**4,078**	N/A		156	**182**	N/A		2,516	**2,726**	N/A	
	3. Geometry	107	0	**132**		6	0	**6**		115	0	**126**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**7,207**	0.42	0.52	0.62	**397**	0.52	0.36	0.61	**4,677**	0.41	0.50	0.56
	2. Algebra I	2,978	**3,777**	N/A	0.44	171	**205**	N/A	0.43	1,983	**2,241**	N/A	0.41
	3. Geometry	953	0	**1,220**	0.53	64	0	**77**	0.64	844	0	**913**	0.50
	4. Life Science	5,483	2,658	851	**6,001**	322	160	59	**354**	3,679	1,722	761	**3,913**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**5,084**	0.30	0.47		**260**	0.42	0.40		**3,338**	0.40	0.38	
	2. Algebra I	1,563	**2,030**	N/A		69	**95**	N/A		952	**1,134**	N/A	
	3. Geometry	742	0	**1,043**		49	0	**66**		664	0	**790**	

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**	**49**	0.71			**417**	0.62		
	2. Mathematics	35	**43**			350	**370**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**118**	0.60			**52**	0.63		
	2. Mathematics	84	**92**			44	**45**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**264**	0.56	0.65		**70**	0.58	0.72	
	2. Mathematics	203	**229**	0.53		62	**67**	0.64	
	3. Science	242	210	**257**		64	60	**66**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**469**	0.63			**76**	0.65		
	2. Mathematics	372	**429**			69	**74**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**727**	0.60	N/A		**89**	0.55	N/A	
	2. Mathematics	609	**704**	N/A		84	**94**	N/A	
	3. Algebra I	0	0	**0**		0	0	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**799**	0.44	N/A	0.64	**314**	0.58	N/A	0.59
	2. Algebra I	193	**241**	N/A	0.54	62	**72**	N/A	0.68
	3. Geometry	0	0	**0**	N/A	0	0	**0**	N/A
	4. Science	678	194	0	**743**	277	58	0	**295**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**676**	0.45	0.67		**133**	0.19	N/A	
	2. Algebra I	308	**372**	N/A		56	**71**	N/A	
	3. Geometry	13	0	**17**		0	0	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**484**	0.44	0.36	0.73	**106**	0.39	0.12	0.52
	2. Algebra I	200	**269**	N/A	0.51	47	**55**	N/A	0.68
	3. Geometry	96	0	**136**	0.52	15	0	**22**	0.24
	4. Life Science	366	186	84	**431**	78	43	15	**87**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**333**	0.33	0.21		**80**	0.42	—	
	2. Algebra I	90	**127**	N/A		25	**32**	N/A	
	3. Geometry	59	0	**101**		5	0	**9**	

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**	**3,780**	0.64			**13,099**	0.61			**730**	0.60		
	2. Mathematics	2,781	**3,191**			10,688	**11,427**			635	**678**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**5,728**	0.58			**19,153**	0.57			**88**	0.63		
	2. Mathematics	4,236	**4,590**			15,698	**16,314**			69	**70**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**6,323**	0.55	0.65		**21,125**	0.53	0.62		**129**	0.46	0.66	
	2. Mathematics	4,945	**5,478**	0.55		17,630	**18,446**	0.52		117	**120**	0.52	
	3. Science	5,588	4,866	**5,782**		18,981	16,839	**19,320**		117	113	**121**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**5,888**	0.59			**20,074**	0.56			**97**	0.63		
	2. Mathematics	4,895	**5,639**			17,590	**18,668**			87	**97**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**5,873**	0.55	–0.09		**18,400**	0.52	0.57		**119**	0.57	N/A	
	2. Mathematics	5,111	**5,914**	N/A		16,553	**17,745**	N/A		114	**125**	N/A	
	3. Algebra I	14	0	**17**		34	0	**36**		0	0	**1**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**5,387**	0.45	—	0.63	**17,267**	0.51	—	0.63	**366**	0.56	N/A	0.61
	2. Algebra I	1,042	**1,241**	N/A	0.54	3,740	**4,147**	N/A	0.54	88	**99**	N/A	0.63
	3. Geometry	1	0	**1**	—	2	0	**2**	—	0	0	**0**	N/A
	4. Science	4,598	979	1	**4,961**	15,196	3,508	2	**15,808**	320	83	0	**337**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**4,489**	0.47	0.63		**11,606**	0.45	0.60		**174**	0.32	N/A	
	2. Algebra I	1,568	**1,914**	N/A		4,856	**5,436**	N/A		63	**79**	N/A	
	3. Geometry	49	0	**64**		192	0	**217**		0	0	**0**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**3,685**	0.43	0.43	0.63	**9,027**	0.41	0.52	0.60	**159**	0.36	0.62	0.59
	2. Algebra I	1,553	**2,009**	N/A	0.47	3,749	**4,454**	N/A	0.42	77	**84**	N/A	0.50
	3. Geometry	471	0	**639**	0.51	1,484	0	**1,705**	0.53	17	0	**24**	0.75
	4. Life Science	2,795	1,387	422	**3,092**	7,006	3,314	1,332	**7,557**	127	68	16	**137**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**2,755**	0.32	0.44		**6,245**	0.34	0.42		**95**	0.47	—	
	2. Algebra I	826	**1,098**	N/A		1,841	**2,281**	N/A		32	**39**	N/A	
	3. Geometry	418	0	**615**		1,092	0	**1,381**		9	0	**13**	

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

		Autism				Mental Retardation				Specific Learning Disability			
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
3	**1. ELA**	**1,248**	0.69			**319**	0.61			**9,621**	0.60		
	2. Mathematics	1,123	**1,259**			317	**324**			7,706	**8,230**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**1,473**	0.63			**398**	0.56			**14,539**	0.55		
	2. Mathematics	1,261	**1,345**			390	**394**			11,566	**12,039**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**1,377**	0.53	0.72		**441**	0.54	0.57		**17,212**	0.52	0.62	
	2. Mathematics	1,196	**1,278**	0.56		427	**431**	0.53		13,996	**14,728**	0.51	
	3. Science	1,263	1,167	**1,303**		415	409	**417**		15,303	13,330	**15,586**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**1,221**	0.61			**423**	0.51			**17,154**	0.56		
	2. Mathematics	1,081	**1,178**			413	**417**			14,716	**15,748**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**1,134**	0.56	–		**466**	0.34	–		**16,431**	0.53	0.59	
	2. Mathematics	1,019	**1,130**	N/A		459	**467**	N/A		14,539	**15,690**	N/A	
	3. Algebra I	4	0	**4**		1	0	**1**		31	0	**33**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**882**	0.46	N/A	0.71	**493**	0.30	N/A	0.47	**15,752**	0.49	–	0.62
	2. Algebra I	177	**209**	N/A	0.54	104	**105**	N/A	0.19	3,356	**3,743**	N/A	0.55
	3. Geometry	0	0	**0**	N/A	0	0	**0**	N/A	2	0	**2**	–
	4. Science	801	178	0	**870**	461	103	0	**469**	13,718	3,119	2	**14,330**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**536**	0.49	0.82		**366**	0.42	–		**11,186**	0.45	0.60	
	2. Algebra I	190	**228**	N/A		109	**114**	N/A		4,661	**5,259**	N/A	
	3. Geometry	11	0	**14**		2	0	**2**		174	0	**196**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**392**	0.43	0.37	0.71	**299**	0.40	0.30	0.46	**9,046**	0.42	0.51	0.59
	2. Algebra I	146	**190**	N/A	0.54	134	**152**	N/A	0.42	3,773	**4,530**	N/A	0.43
	3. Geometry	61	0	**75**	0.51	14	0	**14**	0.44	1,512	0	**1,792**	0.53
	4. Life Science	303	133	53	**338**	239	127	12	**255**	6,964	3,331	1,359	**7,551**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**286**	0.46	0.27		**234**	0.15	0.41		**6,515**	0.33	0.43	
	2. Algebra I	80	**105**	N/A		79	**85**	N/A		1,891	**2,374**	N/A	
	3. Geometry	42	0	**60**		21	0	**24**		1,185	0	**1,537**	

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**	**3,043**	0.64			**1,474**	0.62		
	2. Mathematics	2,426	**2,645**			1,202	**1,333**		
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
4	**1. ELA**	**3,665**	0.61			**2,086**	0.62		
	2. Mathematics	2,849	**2,969**			1,700	**1,802**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
5	**1. ELA**	**3,272**	0.54	0.63		**2,406**	0.56	0.65	
	2. Mathematics	2,638	**2,749**	0.54		2,019	**2,194**	0.56	
	3. Science	2,955	2,571	**2,997**		2,150	1,951	**2,212**	
Grade	**CMA**	**1.**	**2.**			**1.**	**2.**		
6	**1. ELA**	**2,447**	0.55			**2,196**	0.58		
	2. Mathematics	2,083	**2,213**			1,957	**2,247**		
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
7	**1. ELA**	**1,882**	0.51	–		**2,132**	0.56	–	
	2. Mathematics	1,693	**1,800**	N/A		1,931	**2,257**	N/A	
	3. Algebra I	6	0	**7**		3	0	**5**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
8	**1. ELA**	**1,443**	0.48	N/A	0.62	**2,025**	0.49	–	0.63
	2. Algebra I	260	**288**	N/A	0.58	424	**509**	N/A	0.52
	3. Geometry	0	0	**0**	N/A	1	0	**1**	–
	4. Science	1,290	249	0	**1,335**	1,730	399	1	**1,869**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
9	**1. ELA**	**789**	0.48	–		**1,214**	0.50	0.79	
	2. Algebra I	243	**278**	N/A		472	**592**	N/A	
	3. Geometry	5	0	**6**		20	0	**25**	
Grade	**CMA**	**1.**	**2.**	**3.**	**4.**	**1.**	**2.**	**3.**	**4.**
10	**1. ELA**	**608**	0.46	0.56	0.64	**1,005**	0.39	0.57	0.65
	2. Algebra I	270	**315**	N/A	0.53	450	**600**	N/A	0.43
	3. Geometry	65	0	**75**	0.56	134	0	**187**	0.57
	4. Life Science	468	221	55	**498**	744	394	120	**834**
Grade	**CMA**	**1.**	**2.**	**3.**		**1.**	**2.**	**3.**	
11	**1. ELA**	**435**	0.26	0.43		**752**	0.36	0.58	
	2. Algebra I	148	**178**	N/A		231	**311**	N/A	
	3. Geometry	67	0	**84**		105	0	**160**	

Appendix 8.D—IRT Analyses

Table 8.D.1 IRT Model Data Fit Distribution for ELA, Grades Three Through Eleven

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Grade 8		Grade 9		Grade 10		Grade 11	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	24	50	22	45	21	44	25	46	19	35	25	46	33	55	26	43	29	48
B	18	38	11	22	15	31	10	19	17	31	19	35	15	25	13	22	18	30
C	6	13	16	33	12	25	19	35	19	35	9	17	11	18	18	30	12	20
D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	1	2
F	0	0	0	0	0	0	0	0	0	0	1	2	1	2	1	2	0	0
Total	48	100	49	100	48	100	54	100	55	100	54	100	60	100	60	100	60	100

Table 8.D.2 IRT Model Data Fit Distribution for Mathematics, Grade Three Through Geometry

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Algebra I		Geometry	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	20	42	20	42	19	40	30	56	33	61	32	53	29	48
B	17	35	15	31	11	23	14	26	13	24	11	18	19	32
C	11	23	11	23	17	35	9	17	6	11	16	27	12	20
D	0	0	2	4	1	2	1	2	2	4	1	2	0	0
F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	48	100	48	100	48	100	54	100	54	100	60	100	60	100

Table 8.D.3 IRT Model Data Fit Distribution for Science, Grades Five, Eight, and Ten

Items	Grade 5		Grade 8		Grade 10	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	29	60	28	52	21	35
B	10	21	15	28	21	35
C	7	15	11	20	16	27
D	2	4	0	0	2	3
F	0	0	0	0	0	0
Total	48	100	54	100	60	100

Table 8.D.4 IRT Model Data Fit Distribution for ELA, Grades Three Through Eleven (field-test items)

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Grade 8		Grade 9		Grade 10		Grade 11	
Flag	**N**	**Pct.**	**N**	Pct.	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	10	20	8	19	16	31	7	19	8	22	8	24	15	41	17	45	19	49
B	6	12	9	21	16	31	11	31	9	25	12	35	8	22	13	34	10	26
C	25	49	22	51	15	29	12	33	18	50	11	32	11	30	5	13	10	26
D	8	16	2	5	3	6	4	11	1	3	3	9	3	8	2	5	0	0
F	2	4	2	5	1	2	2	6	0	0	0	0	0	0	1	3	0	0
Total	51	100	43	100	51	100	36	100	36	100	34	100	37	100	38	100	39	100

Table 8.D.5 IRT Model Data Fit Distribution for Mathematics, Grade Three Through Geometry (field-test items)

Items	Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		Algebra I		Geometry	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	11	20	7	16	12	22	9	25	14	39	10	25	16	40
B	5	9	14	31	14	26	6	17	14	39	13	33	7	18
C	32	59	21	47	22	41	20	56	8	22	15	38	15	38
D	5	9	2	4	5	9	0	0	0	0	1	3	2	5
F	1	2	1	2	1	2	1	3	0	0	1	3	0	0
Total	54	100	45	100	54	100	36	100	36	100	40	100	40	100

Table 8.D.6 IRT Model Data Fit Distribution for Science, Grades Five, Eight, and Ten (field-test items)

Items	Grade 5		Grade 8		Grade 10	
Flag	**N**	**Pct.**	**N**	**Pct.**	**N**	**Pct.**
A	20	37	17	31	10	28
B	17	31	16	30	8	22
C	13	24	17	31	15	42
D	3	6	3	6	3	8
F	1	2	1	2	0	0
Total	54	100	54	100	36	100

Table 8.D.7 IRT *b*-values for ELA, Grade Three

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	14	–0.60	0.42	–1.63	0.04
Reading for Understanding	17	–0.43	0.48	–1.25	0.48
Language	17	–0.41	0.44	–1.09	0.62
All operational items	48	–0.47	0.45	–1.63	0.62
Field-test items	51	0.29	0.62	–0.97	1.65

Table 8.D.8 IRT *b*-values for ELA, Grade Four

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	11	–0.25	0.41	–0.85	0.45
Reading for Understanding	16	–0.16	0.48	–0.85	0.65
Language	21	–0.22	0.50	–1.18	0.64
Writing Applications	1	2.13	–	–	–
All operational items	49	–0.20	0.46	–1.18	0.65
Field-test items	43	0.47	0.44	–0.86	1.22

Table 8.D.9 IRT *b*-values for ELA, Grade Five

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	8	–0.93	0.41	–1.67	–0.45
Reading for Understanding	18	0.01	0.30	–0.78	0.38
Language	22	–0.58	0.69	–1.80	0.84
All operational items	48	–0.42	0.63	–1.80	0.84
Field-test items	51	0.19	0.62	–2.06	1.20

Table 8.D.10 IRT *b*-values for ELA, Grade Six

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	9	–0.62	0.49	–1.27	0.37
Reading for Understanding	22	–0.13	0.72	–1.06	1.56
Language	23	–0.41	0.62	–1.81	0.86
All operational items	54	–0.33	0.66	–1.81	1.56
Field-test items	36	0.29	0.58	–0.95	1.56

Table 8.D.11 IRT *b*-values for ELA, Grade Seven

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	8	–0.83	0.63	–1.83	–0.16
Reading for Understanding	22	–0.45	0.51	–1.36	0.44
Language	24	–0.32	0.46	–1.28	0.39
Writing Applications	1	–0.27	–	–	–
All operational items	55	–0.45	0.52	–1.83	0.44
Field-test items	36	0.04	0.60	–1.52	0.96

Table 8.D.12 IRT *b*-values for ELA, Grade Eight

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	6	–1.16	0.41	–1.78	–0.68
Reading for Understanding	24	–0.05	0.60	–1.33	0.98
Language	24	–0.25	0.53	–1.16	0.49
All operational items	54	–0.26	0.64	–1.78	0.98
Field-test items	34	0.07	0.73	–1.92	1.45

Table 8.D.13 IRT *b*-values for ELA, Grade Nine

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Vocabulary	7	–0.07	0.29	–0.58	0.38
Reading for Understanding	27	–0.02	0.42	–0.90	0.62
Language	26	0.18	0.41	–0.85	0.91
All operational items	60	0.06	0.41	–0.90	0.91
Field-test items	37	0.33	0.40	–0.63	1.12

Table 8.D.14 IRT *b*-values for Mathematics, Grade Three

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	24	–0.25	0.51	–1.16	0.66
Algebra and Data Analysis	13	–0.48	0.47	–1.32	0.19
Measurement and Geometry	11	–0.84	0.75	–1.86	0.54
All operational items	48	–0.45	0.60	–1.86	0.66
Field-test items	54	0.43	0.82	–1.06	2.10

Table 8.D.15 IRT *b*-values for Mathematics, Grade Four

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	23	–0.63	0.78	–1.84	0.60
Algebra and Data Analysis	15	–0.07	0.49	–0.98	0.87
Measurement and Geometry	10	–0.13	0.70	–1.60	1.11
All operational items	48	–0.35	0.72	–1.84	1.11
Field-test items	45	0.31	0.76	–2.57	1.70

Table 8.D.16 IRT *b*-values for Mathematics, Grade Five

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	21	–0.55	0.69	–2.26	0.63
Algebra and Data Analysis	17	–0.31	0.59	–1.26	0.77
Measurement and Geometry	10	0.23	0.71	–0.77	1.11
All operational items	48	–0.30	0.71	–2.26	1.11
Field-test items	54	0.52	0.81	–1.22	1.90

Table 8.D.17 IRT *b*-values for Mathematics, Grade Six

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	21	–0.11	0.43	–0.96	0.97
Algebra and Data Analysis	25	–0.24	0.63	–1.42	0.88
Measurement and Geometry	8	0.11	0.32	–0.24	0.57
All operational items	54	–0.14	0.53	–1.42	0.97
Field-test items	36	0.41	0.58	–1.15	1.09

Table 8.D.18 IRT *b*-values for Mathematics, Grade Seven

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Sense	18	0.16	0.61	–0.88	1.16
Algebra and Data Analysis	25	0.03	0.47	–1.02	1.03
Measurement and Geometry	11	0.37	0.69	–0.64	1.70
All operational items	54	0.14	0.57	–1.02	1.70
Field-test items	36	0.47	0.44	–0.44	1.46

Table 8.D.19 IRT *b*-values for Algebra I

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Number Properties, Operations, and Linear Equations	15	–0.26	0.35	–0.76	0.34
Graphing and Systems of Linear Equations	14	0.04	0.28	–0.40	0.45
Quadratics and Polynomials	19	0.20	0.31	–0.27	0.71
Functions and Rational Expressions	12	0.31	0.47	–0.58	1.04
All operational items	60	0.07	0.40	–0.76	1.04
Field-test items	40	0.44	0.42	–0.56	1.20

Table 8.D.20 IRT *b*-values for Science, Grade Five

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Physical Sciences	16	–0.15	0.63	–1.57	1.15
Life Sciences	16	–0.40	0.54	–1.58	0.46
Earth Sciences	16	–0.34	0.57	–1.65	0.48
All operational items	48	–0.29	0.58	–1.65	1.15
Field-test items	54	0.20	0.70	–1.67	1.74

Table 8.D.21 IRT *b*-values for Science, Grade Eight

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Motion	19	–0.53	0.60	–2.09	0.51
Matter	23	0.06	0.44	–0.72	0.70
Earth Science	7	–0.46	0.52	–1.44	0.05
Investigation and Experimentation	5	–0.48	0.50	–1.18	0.14
All operational items	54	–0.26	0.58	–2.09	0.70
Field-test items	54	0.26	0.64	–1.19	1.85

Table 8.D.22 IRT *b*-values for Life Science (Grade 10)

Content Area	Number of items	Mean	Standard Deviation	Minimum	Maximum
Cell Biology and Genetics	22	0.03	0.42	–0.82	0.77
Evolution and Ecology	22	0.09	0.55	–0.66	0.99
Physiology	10	–0.26	0.34	–0.82	0.24
Investigation and Experimentation	6	0.07	0.21	–0.26	0.30
All operational items	60	0.01	0.46	–0.82	0.99
Field-test items	36	0.24	0.43	–1.03	0.92

Table 8.D.23 Distribution of IRT *b*-values for ELA

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11
>=3.5	0	0	0	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0	0	0	0
2.0 < 2.5	0	0	0	0	0	0	0	0	0
1.5 < 2.0	0	0	0	1	0	0	0	0	0
1.0 < 1.5	0	0	0	1	0	0	0	2	0
0.5 < 1.0	1	4	1	4	0	5	8	11	15
0.0 < 0.5	5	16	17	7	12	17	28	21	26
–0.5 < 0.0	18	12	10	19	21	13	16	20	16
–1.0 < –0.5	19	16	12	14	13	10	8	4	3
–1.5 < –1.0	4	1	5	7	8	8	0	1	0
–2.0 < –1.5	1	0	3	1	1	1	0	1	0
–2.5 < –2.0	0	0	0	0	0	0	0	0	0
–3.0 < –2.5	0	0	0	0	0	0	0	0	0
–3.5 < –3.0	0	0	0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0	0	0	0
Total	48	49	48	54	55	54	60	60	60

Table 8.D.24 Distribution of IRT *b*-values for ELA (field-test items)

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11
>=3.5	0	0	0	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0	0	0	0
2.0 < 2.5	0	0	0	0	0	0	0	0	0
1.5 < 2.0	2	0	0	1	0	0	0	0	0
1.0 < 1.5	6	3	4	2	0	3	2	2	0
0.5 < 1.0	11	19	12	11	9	8	10	7	8
0.0 < 0.5	16	16	19	12	13	8	17	21	21
–0.5 < 0.0	10	3	11	6	6	8	7	7	10
–1.0 < –0.5	6	2	3	4	5	5	1	1	0
–1.5 < –1.0	0	0	1	0	2	1	0	0	0
–2.0 < –1.5	0	0	0	0	1	1	0	0	0
–2.5 < –2.0	0	0	1	0	0	0	0	0	0
–3.0 < –2.5	0	0	0	0	0	0	0	0	0
–3.5 < –3.0	0	0	0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0	0	0	0
Total	51	43	51	36	36	34	37	38	39

Table 8.D.25 Distribution of IRT *b*-values for Mathematics

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Algebra I	Geometry
>=3.5	0	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0	0
2.0 < 2.5	0	0	0	0	0	0	0
1.5 < 2.0	0	0	0	0	1	0	0
1.0 < 1.5	0	1	1	0	3	1	1
0.5 < 1.0	5	3	6	5	10	5	11
0.0 < 0.5	7	10	10	17	20	28	22
–0.5 < 0.0	14	20	13	22	13	20	21
–1.0 < –0.5	14	4	11	5	6	6	5
–1.5 < –1.0	5	5	6	5	1	0	0
–2.0 < –1.5	3	5	0	0	0	0	0
–2.5 < –2.0	0	0	1	0	0	0	0
–3.0 < –2.5	0	0	0	0	0	0	0
–3.5 < –3.0	0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0	0
Total	48	48	48	54	54	60	60

Table 8.D.26 Distribution of IRT *b*-values for Mathematics (field–test items)

IRT *b*-value	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Algebra I	Geometry
>=3.5	0	0	0	0	0	0	0
3.0 < 3.5	0	0	0	0	0	0	0
2.5 < 3.0	0	0	0	0	0	0	0
2.0 < 2.5	1	0	0	0	0	0	0
1.5 < 2.0	4	1	7	0	0	0	1
1.0 < 1.5	9	3	11	2	3	1	2
0.5 < 1.0	12	18	9	20	12	22	11
0.0 < 0.5	11	13	11	7	17	10	21
–0.5 < 0.0	10	4	9	2	4	5	5
–1.0 < –0.5	5	2	5	4	0	2	0
–1.5 < –1.0	2	3	2	1	0	0	0
–2.0 < –1.5	0	0	0	0	0	0	0
–2.5 < –2.0	0	0	0	0	0	0	0
–3.0 < –2.5	0	1	0	0	0	0	0
–3.5 < –3.0	0	0	0	0	0	0	0
< –3.5	0	0	0	0	0	0	0
Total	54	45	54	36	36	40	40

Table 8.D.27 Distribution of IRT *b*-values for Science

IRT *b*-value	Grade 5	Grade 8	Grade 10
>=3.5	0	0	0
3.0 < 3.5	0	0	0
2.5 < 3.0	0	0	0
2.0 < 2.5	0	0	0
1.5 < 2.0	0	0	0
1.0 < 1.5	1	0	0
0.5 < 1.0	0	5	10
0.0 < 0.5	14	12	19
–0.5 < 0.0	21	21	23
–1.0 < –0.5	7	11	8
–1.5 < –1.0	2	4	0
–2.0 < –1.5	3	0	0
–2.5 < –2.0	0	1	0
–3.0 < –2.5	0	0	0
–3.5 < –3.0	0	0	0
< –3.5	0	0	0
Total	48	54	60

Table 8.D.28 Distribution of IRT *b*-values for Science (field-test items)

IRT *b*-value	Grade 5	Grade 8	Grade 10
>=3.5	0	0	0
3.0 < 3.5	0	0	0
2.5 < 3.0	0	0	0
2.0 < 2.5	0	0	0
1.5 < 2.0	1	2	0
1.0 < 1.5	5	5	0
0.5 < 1.0	14	11	12
0.0 < 0.5	16	20	16
–0.5 < 0.0	10	9	6
–1.0 < –0.5	4	6	1
–1.5 < –1.0	3	1	1
–2.0 < –1.5	1	0	0
–2.5 < –2.0	0	0	0
–3.0 < –2.5	0	0	0
–3.5 < –3.0	0	0	0
< –3.5	0	0	0
Total	54	54	36

Table 8.D.29 New Conversions for ELA, Grade Three

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.3874	272	Below Basic
1	–4.4139	150		26	–0.2999	278	
2	–3.6954	150		27	–0.2118	285	
3	–3.2639	150		28	–0.1228	291	
4	–2.9497	150		29	–0.0326	298	
5	–2.6996	150		30	0.0592	304	Basic
6	–2.4897	150		31	0.1530	311	
7	–2.3074	150		32	0.2493	318	
8	–2.1452	150		33	0.3485	325	
9	–1.9982	157		34	0.4513	332	
10	–1.8629	166		35	0.5584	340	
11	–1.7371	175		36	0.6706	348	
12	–1.6188	184		37	0.7890	356	Proficient
13	–1.5067	192		38	0.9151	365	
14	–1.3998	200		39	1.0505	375	
15	–1.2971	207		40	1.1978	386	
16	–1.1980	214		41	1.3602	397	Advanced
17	–1.1018	221		42	1.5426	410	
18	–1.0081	228	Below Basic	43	1.7527	425	
19	–0.9163	234		44	2.0031	443	
20	–0.8261	241		45	2.3176	466	
21	–0.7372	247		46	2.7492	497	
22	–0.6492	253		47	3.4680	548	
23	–0.5617	260		48	N/A	600	
24	–0.4745	266					

Table 8.D.30 New Conversions for ELA, Grade Four (with Essay)

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	27	–0.1176	300	Basic
1	–4.2818	150		28	–0.0337	308	
2	–3.5646	150		29	0.0507	316	
3	–3.1341	150		30	0.1360	323	
4	–2.8207	150		31	0.2222	331	
5	–2.5712	150		32	0.3099	339	
6	–2.3619	150		33	0.3992	348	
7	–2.1801	150		34	0.4905	356	Proficient
8	–2.0183	150		35	0.5843	365	
9	–1.8717	150		36	0.6809	374	
10	–1.7368	151		37	0.7809	383	
11	–1.6114	162		38	0.8849	393	
12	–1.4936	173		39	0.9937	403	
13	–1.3821	183		40	1.1082	413	Advanced
14	–1.2759	193		41	1.2294	424	
15	–1.1741	202		42	1.3591	436	
16	–1.0759	212		43	1.4989	449	
17	–0.9809	220		44	1.6515	463	
18	–0.8885	229		45	1.8205	479	
19	–0.7983	237		46	2.0110	497	
20	–0.7099	245	Below Basic	47	2.2310	517	
21	–0.6230	253		48	2.4937	541	
22	–0.5373	261		49	2.8236	572	
23	–0.4525	269		50	3.2753	600	
24	–0.3684	277		51	4.0198	600	
25	–0.2847	285		52	N/A	600	
26	–0.2012	292					

Table 8.D.31 New Conversions for ELA, Grade Four (MC Only)

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.1188	300	Basic
1	–4.1530	150		26	–0.0308	308	
2	–3.4345	150		27	0.0577	316	
3	–3.0031	150		28	0.1472	324	
4	–2.6888	150		29	0.2379	333	
5	–2.4386	150		30	0.3301	341	
6	–2.2286	150		31	0.4243	350	Proficient
7	–2.0462	150		32	0.5210	359	
8	–1.8837	150		33	0.6206	368	
9	–1.7364	151		34	0.7238	378	
10	–1.6009	163		35	0.8312	388	
11	–1.4747	175		36	0.9437	398	
12	–1.3561	186		37	1.0625	409	Advanced
13	–1.2436	196		38	1.1887	421	
14	–1.1363	206		39	1.3244	433	
15	–1.0332	215		40	1.4718	447	
16	–0.9336	225		41	1.6344	462	
17	–0.8370	234		42	1.8169	479	
18	–0.7428	242	Below Basic	43	2.0271	498	
19	–0.6506	251		44	2.2775	521	
20	–0.5600	259		45	2.5919	550	
21	–0.4705	267		46	3.0235	590	
22	–0.3820	276		47	3.7417	600	
23	–0.2941	284		48	N/A	600	
24	–0.2064	292					

Table 8.D.32 New Conversions for ELA, Grade Five

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.3194	286	Below Basic
1	–4.4552	150		26	–0.2280	294	
2	–3.7316	150		27	–0.1361	302	Basic
3	–3.2952	150		28	–0.0433	310	
4	–2.9760	150		29	0.0507	318	
5	–2.7209	150		30	0.1461	326	
6	–2.5062	150		31	0.2436	334	
7	–2.3191	150		32	0.3433	343	
8	–2.1521	150		33	0.4460	351	Proficient
9	–2.0003	150		34	0.5522	360	
10	–1.8604	156		35	0.6625	370	
11	–1.7298	167		36	0.778	379	
12	–1.6069	177		37	0.8995	390	
13	–1.4902	187		38	1.0286	401	Advanced
14	–1.3787	197		39	1.1670	412	
15	–1.2716	206		40	1.3171	425	
16	–1.1680	214		41	1.4823	439	
17	–1.0674	223	Below Basic	42	1.6674	455	
18	–0.9693	231		43	1.8801	473	
19	–0.8732	239		44	2.1331	494	
20	–0.7788	247		45	2.4499	521	
21	–0.6856	255		46	2.8839	558	
22	–0.5934	263		47	3.6048	600	
23	–0.5018	271		48	N/A	600	
24	–0.4106	279					

Table 8.D.33 New Conversions for ELA, Grade Six

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.2580	276	Below Basic
1	–4.4825	150		29	–0.1767	286	
2	–3.7636	150		30	–0.0949	296	
3	–3.3318	150		31	–0.0124	306	Basic
4	–3.0175	150		32	0.0710	316	
5	–2.7673	150		33	0.1556	326	
6	–2.5576	150		34	0.2417	336	
7	–2.3757	150		35	0.3296	347	
8	–2.2139	150		36	0.4195	358	Proficient
9	–2.0675	150		37	0.5119	369	
10	–1.9331	150		38	0.6072	380	
11	–1.8082	150		39	0.7059	392	
12	–1.6910	150		40	0.8086	405	Advanced
13	–1.5804	150		41	0.9160	418	
14	–1.4750	150		42	1.0289	431	
15	–1.3742	150		43	1.1485	446	
16	–1.2771	153		44	1.2762	461	
17	–1.1833	165		45	1.4136	478	
18	–1.0922	176		46	1.5634	496	
19	–1.0034	186		47	1.7288	516	
20	–0.9165	197		48	1.9147	538	
21	–0.8313	207		49	2.1288	564	
22	–0.7474	217		50	2.3839	595	
23	–0.6645	227	Below Basic	51	2.7035	600	
24	–0.5825	237		52	3.1411	600	
25	–0.5010	247		53	3.8660	600	
26	–0.4199	257		54	N/A	600	
27	–0.3390	266					

Table 8.D.34 New Conversions for ELA, Grade Seven (with Essay)

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	30	–0.3915	266	Below Basic
1	–4.6666	150		31	–0.3155	273	
2	–3.9576	150		32	–0.2393	281	
3	–3.5345	150		33	–0.1625	289	
4	–3.2275	150		34	–0.0851	297	
5	–2.9835	150		35	–0.0068	305	Basic
6	–2.7790	150		36	0.0727	313	
7	–2.6014	150		37	0.1534	321	
8	–2.4433	150		38	0.2358	329	
9	–2.3000	150		39	0.3200	338	
10	–2.1682	150		40	0.4064	347	
11	–2.0456	150		41	0.4955	356	Proficient
12	–1.9305	150		42	0.5875	365	
13	–1.8217	150		43	0.6830	375	
14	–1.7182	150		44	0.7826	385	
15	–1.6192	150		45	0.8871	395	
16	–1.5239	150		46	0.9973	407	
17	–1.4320	160		47	1.1143	419	Advanced
18	–1.3430	169		48	1.2397	431	
19	–1.2564	178		49	1.3751	445	
20	–1.1720	186		50	1.5232	460	
21	–1.0894	195		51	1.6874	477	
22	–1.0083	203		52	1.8727	496	
23	–0.9286	211		53	2.0872	517	
24	–0.8501	219		54	2.3436	543	
25	–0.7724	227		55	2.6662	576	
26	–0.6955	235	Below Basic	56	3.1088	600	
27	–0.6191	242		57	3.8416	600	
28	–0.5431	250		58	N/A	600	
29	–0.4673	258					

Table 8.D.35 New Conversions for ELA, Grade Seven (MC Only)

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.3647	268	Below Basic
1	–4.5544	150		29	–0.2857	276	
2	–3.8363	150		30	–0.2063	284	
3	–3.4053	150		31	–0.1263	292	
4	–3.0918	150		32	–0.0454	301	Basic
5	–2.8425	150		33	0.0365	309	
6	–2.6336	150		34	0.1197	317	
7	–2.4526	150		35	0.2045	326	
8	–2.2918	150		36	0.2913	335	
9	–2.1463	150		37	0.3804	344	
10	–2.0128	150		38	0.4722	353	Proficient
11	–1.8889	150		39	0.5671	363	
12	–1.7729	150		40	0.6659	373	
13	–1.6633	150		41	0.7691	383	
14	–1.5591	150		42	0.8776	394	
15	–1.4594	157		43	0.9926	406	
16	–1.3636	167		44	1.1152	419	Advanced
17	–1.2711	176		45	1.2474	432	
18	–1.1814	185		46	1.3914	447	
19	–1.0940	194		47	1.5508	463	
20	–1.0086	203		48	1.7302	481	
21	–0.9250	211		49	1.9374	502	
22	–0.8427	220		50	2.1849	527	
23	–0.7615	228	Below Basic	51	2.4965	559	
24	–0.6813	236		52	2.9254	600	
25	–0.6017	244		53	3.6412	600	
26	–0.5225	252		54	N/A	600	
27	–0.4436	260					

Table 8.D.36 New Conversions for ELA, Grade Eight

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.1743	287	Below Basic
1	–4.4212	150		29	–0.0931	295	
2	–3.7010	150		30	–0.0116	303	Basic
3	–3.2680	150		31	0.0706	311	
4	–2.9524	150		32	0.1536	320	
5	–2.7010	150		33	0.2377	328	
6	–2.4900	150		34	0.3230	337	
7	–2.3069	150		35	0.4100	345	
8	–2.1439	150		36	0.4990	354	Proficient
9	–1.9964	150		37	0.5902	363	
10	–1.8608	150		38	0.6841	373	
11	–1.7348	150		39	0.7813	382	
12	–1.6166	150		40	0.8822	393	
13	–1.5049	154		41	0.9876	403	
14	–1.3986	164		42	1.0984	414	Advanced
15	–1.2968	174		43	1.2155	426	
16	–1.1989	184		44	1.3404	438	
17	–1.1042	194		45	1.4748	452	
18	–1.0124	203		46	1.6211	466	
19	–0.9229	212		47	1.7826	483	
20	–0.8354	221		48	1.9643	501	
21	–0.7495	229		49	2.1738	522	
22	–0.6651	238	Below Basic	50	2.4237	547	
23	–0.5818	246		51	2.7376	578	
24	–0.4994	254		52	3.1689	600	
25	–0.4177	262		53	3.8873	600	
26	–0.3364	271		54	N/A	600	
27	–0.2553	279					

Table 8.D.37 New Conversions for ELA, Grade Nine

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	31	0.1323	300	Basic
1	–4.0990	150		32	0.2018	307	
2	–3.3859	150		33	0.2715	314	
3	–2.9599	150		34	0.3417	321	
4	–2.6514	150		35	0.4125	328	
5	–2.4071	150		36	0.4840	335	
6	–2.2033	150		37	0.5565	343	
7	–2.0274	150		38	0.6302	350	Proficient
8	–1.8717	150		39	0.7052	357	
9	–1.7314	150		40	0.7818	365	
10	–1.6031	150		41	0.8603	373	
11	–1.4846	150		42	0.9409	381	
12	–1.3739	150		43	1.0241	389	
13	–1.2698	159		44	1.1101	398	
14	–1.1712	169		45	1.1996	407	Advanced
15	–1.0773	179		46	1.2930	416	
16	–0.9874	188		47	1.3910	426	
17	–0.9009	196		48	1.4945	437	
18	–0.8173	205		49	1.6046	448	
19	–0.7363	213		50	1.7224	460	
20	–0.6574	221		51	1.8500	472	
21	–0.5805	228		52	1.9895	486	
22	–0.5052	236		53	2.1445	502	
23	–0.4313	243	Below Basic	54	2.3196	519	
24	–0.3586	251		55	2.5226	540	
25	–0.2869	258		56	2.7659	564	
26	–0.2160	265		57	3.0736	595	
27	–0.1457	272		58	3.4986	600	
28	–0.0758	279		59	4.2107	600	
29	–0.0063	286		60	N/A	600	
30	0.0630	293					

Table 8.D.38 New Conversions for Mathematics, Grade Three

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.3540	285	Below Basic
1	–4.4669	150		26	–0.2635	291	
2	–3.7441	150		27	–0.1723	297	
3	–3.3085	150		28	–0.0804	304	Basic
4	–2.9902	150		29	0.0128	310	
5	–2.7360	150		30	0.1076	316	
6	–2.5221	150		31	0.2044	323	
7	–2.3360	150		32	0.3036	330	
8	–2.1699	160		33	0.4057	337	
9	–2.0191	170		34	0.5113	344	
10	–1.8801	180		35	0.6212	352	Proficient
11	–1.7506	189		36	0.7362	360	
12	–1.6286	197		37	0.8574	368	
13	–1.5130	205		38	0.9862	377	
14	–1.4025	213		39	1.1244	386	
15	–1.2964	220		40	1.2743	396	
16	–1.1938	227		41	1.4394	408	
17	–1.0943	234	Below Basic	42	1.6244	421	
18	–0.9972	241		43	1.8371	435	Advanced
19	–0.9021	247		44	2.0901	452	
20	–0.8086	254		45	2.4071	474	
21	–0.7165	260		46	2.8410	504	
22	–0.6252	266		47	3.5624	553	
23	–0.5346	272		48	N/A	600	
24	–0.4443	279					

Table 8.D.39 New Conversions for Mathematics, Grade Four

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.2461	289	Below Basic
1	–4.4553	150		26	–0.1527	299	
2	–3.7279	150		27	–0.0588	309	Basic
3	–3.2876	150		28	0.0358	319	
4	–2.9647	150		29	0.1316	329	
5	–2.7058	150		30	0.2289	339	
6	–2.4873	150		31	0.3281	350	Proficient
7	–2.2965	150		32	0.4296	361	
8	–2.1259	150		33	0.5340	372	
9	–1.9705	150		34	0.6418	383	
10	–1.8271	150		35	0.7539	395	
11	–1.6932	150		36	0.8710	407	
12	–1.5670	150		37	0.9942	420	
13	–1.4471	162		38	1.1250	434	Advanced
14	–1.3326	174		39	1.2651	449	
15	–1.2224	186		40	1.4170	465	
16	–1.1160	197		41	1.5840	482	
17	–1.0127	208		42	1.7709	502	
18	–0.9119	219	Below Basic	43	1.9855	525	
19	–0.8133	229		44	2.2404	552	
20	–0.7164	240		45	2.5592	585	
21	–0.6208	250		46	2.9953	600	
22	–0.5264	260		47	3.7182	600	
23	–0.4326	270		48	N/A	600	
24	–0.3393	279					

Table 8.D.40 New Conversions for Mathematics, Grade Five

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	24	–0.3014	289	Below Basic
1	–4.3912	150		25	–0.2087	297	
2	–3.6632	150		26	–0.1157	305	Basic
3	–3.2228	150		27	–0.0220	314	
4	–2.9003	150		28	0.0725	322	
5	–2.6423	150		29	0.1683	330	
6	–2.4249	150		30	0.2656	338	
7	–2.2355	150		31	0.3650	347	
8	–2.0664	150		32	0.4669	356	Proficient
9	–1.9127	150		33	0.5717	365	
10	–1.7709	162		34	0.6801	374	
11	–1.6387	174		35	0.7928	384	
12	–1.5142	184		36	0.9107	394	
13	–1.3961	195		37	1.0348	405	
14	–1.2832	204		38	1.1665	416	
15	–1.1747	214		39	1.3077	429	Advanced
16	–1.0697	223		40	1.4606	442	
17	–0.9678	232		41	1.6287	456	
18	–0.8684	240	Below Basic	42	1.8169	473	
19	–0.7710	249		43	2.0328	491	
20	–0.6752	257		44	2.2890	514	
21	–0.5807	265		45	2.6092	541	
22	–0.4871	273		46	3.0467	579	
23	–0.3941	281		47	3.7709	600	
				48	N/A	600	

Table 8.D.41 New Conversions for Mathematics, Grade Six

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.0553	308	Basic
1	–4.2427	150		29	0.0236	318	
2	–3.5245	150		30	0.1029	328	
3	–3.0936	150		31	0.1828	338	
4	–2.7801	150		32	0.2635	348	
5	–2.5307	150		33	0.3453	358	Proficient
6	–2.3219	150		34	0.4284	369	
7	–2.1408	150		35	0.5132	380	
8	–1.9800	150		36	0.5999	390	
9	–1.8346	150		37	0.6889	402	
10	–1.7012	150		38	0.7806	413	
11	–1.5774	150		39	0.8755	425	
12	–1.4614	150		40	0.9742	438	Advanced
13	–1.3519	150		41	1.0774	450	
14	–1.2478	158		42	1.1860	464	
15	–1.1482	171		43	1.3009	479	
16	–1.0525	183		44	1.4236	494	
17	–0.9601	194		45	1.5559	511	
18	–0.8705	206		46	1.7000	529	
19	–0.7833	217		47	1.8594	549	
20	–0.6980	227		48	2.0391	571	
21	–0.6145	238	Below Basic	49	2.2464	597	
22	–0.5324	248		50	2.4941	600	
23	–0.4514	258		51	2.8059	600	
24	–0.3712	268		52	3.2352	600	
25	–0.2918	278		53	3.9515	600	
26	–0.2128	288		54	N/A	600	
27	–0.1340	298					

Table 8.D.42 New Conversions for Mathematics, Grade Seven

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	0.2192	335	Basic
1	–3.9673	150		29	0.2990	348	
2	–3.2503	150		30	0.3794	361	Proficient
3	–2.8203	150		31	0.4603	374	
4	–2.5077	150		32	0.5422	387	
5	–2.2592	150		33	0.6252	400	
6	–2.0511	150		34	0.7096	414	
7	–1.8707	150		35	0.7957	428	
8	–1.7105	150		36	0.8838	442	
9	–1.5655	150		37	0.9743	456	Advanced
10	–1.4325	150		38	1.0676	471	
11	–1.3090	150		39	1.1641	487	
12	–1.1932	150		40	1.2645	503	
13	–1.0839	150		41	1.3695	520	
14	–0.9798	150		42	1.4799	537	
15	–0.8803	159		43	1.5968	556	
16	–0.7845	175		44	1.7215	576	
17	–0.6919	189		45	1.8559	597	
18	–0.6021	204		46	2.0022	600	
19	–0.5146	218		47	2.1640	600	
20	–0.4289	232		48	2.3460	600	
21	–0.3450	245	Below Basic	49	2.5559	600	
22	–0.2623	258		50	2.8062	600	
23	–0.1807	271		51	3.1209	600	
24	–0.1000	284		52	3.5529	600	
25	–0.0198	297		53	4.2723	600	
26	0.0599	310	Basic	54	N/A	600	
27	0.1395	323					

Table 8.D.43 New Conversions for Algebra I

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	31	0.1394	301	Basic
1	–4.0803	150		32	0.2088	307	
2	–3.3680	150		33	0.2785	313	
3	–2.9428	150		34	0.3487	319	
4	–2.6350	150		35	0.4195	325	
5	–2.3914	150		36	0.4910	332	
6	–2.1882	150		37	0.5635	338	
7	–2.0129	150		38	0.6372	345	
8	–1.8578	150		39	0.7123	351	Proficient
9	–1.7180	150		40	0.7890	358	
10	–1.5903	150		41	0.8675	365	
11	–1.4723	159		42	0.9483	372	
12	–1.3621	169		43	1.0316	379	
13	–1.2584	178		44	1.1178	387	
14	–1.1603	187		45	1.2074	395	
15	–1.0667	195		46	1.3010	403	
16	–0.9772	203		47	1.3992	411	Advanced
17	–0.8910	210		48	1.5029	420	
18	–0.8078	218		49	1.6131	430	
19	–0.7271	225		50	1.7312	441	
20	–0.6485	232		51	1.8590	452	
21	–0.5719	238		52	1.9989	464	
22	–0.4968	245		53	2.1541	478	
23	–0.4231	251	Below Basic	54	2.3295	493	
24	–0.3506	258		55	2.5328	511	
25	–0.2791	264		56	2.7765	532	
26	–0.2083	270		57	3.0845	559	
27	–0.1382	276		58	3.5098	597	
28	–0.0685	283		59	4.2224	600	
29	0.0009	289		60	N/A	600	
30	0.0702	295					

Table 8.D.44 New Conversions for Science, Grade Five

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	25	–0.2004	317	Basic
1	–4.3082	150		26	–0.1105	324	
2	–3.5850	150		27	–0.0201	331	
3	–3.1490	150		28	0.0712	338	
4	–2.8304	150		29	0.1636	344	
5	–2.5760	150		30	0.2577	351	Proficient
6	–2.3620	156		31	0.3536	359	
7	–2.1757	170		32	0.4520	366	
8	–2.0097	183		33	0.5534	373	
9	–1.8589	194		34	0.6582	381	
10	–1.7200	204		35	0.7673	389	
11	–1.5906	214		36	0.8815	398	
12	–1.4688	223		37	1.0020	407	Advanced
13	–1.3534	232		38	1.1300	416	
14	–1.2433	240		39	1.2674	427	
15	–1.1374	248	Below Basic	40	1.4166	438	
16	–1.0353	255		41	1.5809	450	
17	–0.9361	263		42	1.7653	464	
18	–0.8395	270		43	1.9774	479	
19	–0.7449	277		44	2.2298	498	
20	–0.6519	284		45	2.5463	522	
21	–0.5603	291		46	2.9801	554	
22	–0.4697	297		47	3.7008	600	
23	–0.3796	304	Basic	48	N/A	600	
24	–0.2900	311					

Table 8.D.45 New Conversions for Science, Grade Eight

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	28	–0.1775	306	Basic
1	–4.4056	150		29	–0.0978	313	
2	–3.6839	150		30	–0.0178	320	
3	–3.2498	150		31	0.0628	328	
4	–2.9335	150		32	0.1443	335	
5	–2.6816	150		33	0.2268	342	
6	–2.4704	150		34	0.3106	350	Proficient
7	–2.2872	150		35	0.3961	357	
8	–2.1245	150		36	0.4835	365	
9	–1.9773	150		37	0.5731	373	
10	–1.8422	157		38	0.6655	382	
11	–1.7168	168		39	0.7611	390	
12	–1.5994	179		40	0.8605	399	
13	–1.4886	189		41	0.9643	408	Advanced
14	–1.3832	198		42	1.0734	418	
15	–1.2824	207		43	1.1890	428	
16	–1.1856	216		44	1.3123	439	
17	–1.0921	224		45	1.4451	451	
18	–1.0015	232		46	1.5898	464	
19	–0.9132	240		47	1.7497	479	
20	–0.8270	248		48	1.9298	495	
21	–0.7426	255		49	2.1377	513	
22	–0.6595	263		50	2.3859	536	
23	–0.5776	270	Below Basic	51	2.6981	564	
24	–0.4967	278		52	3.1278	600	
25	–0.4164	285		53	3.8444	600	
26	–0.3366	292		54	N/A	600	
27	–0.2570	299					

Table 8.D.46 New Conversions for Life Science (Grade 10)

Raw Score	Theta	Scale Score	Performance Level	Raw Score	Theta	Scale Score	Performance Level
0	N/A	150	Far Below Basic	31	0.0766	300	Basic
1	–4.1613	150		32	0.1468	306	
2	–3.4485	150		33	0.2172	312	
3	–3.0228	150		34	0.2881	318	
4	–2.7145	150		35	0.3596	324	
5	–2.4703	150		36	0.4319	331	
6	–2.2667	150		37	0.5052	337	
7	–2.0908	150		38	0.5796	343	
8	–1.9351	150		39	0.6555	350	Proficient
9	–1.7948	150		40	0.7329	356	
10	–1.6666	151		41	0.8123	363	
11	–1.5480	161		42	0.8938	370	
12	–1.4372	170		43	0.9779	377	
13	–1.3330	179		44	1.0649	385	
14	–1.2342	188		45	1.1553	393	
15	–1.1401	196		46	1.2496	401	
16	–1.0499	204		47	1.3487	409	
17	–0.9632	211		48	1.4532	418	Advanced
18	–0.8793	218		49	1.5642	428	
19	–0.7980	225		50	1.6832	438	
20	–0.7188	232		51	1.8117	449	
21	–0.6415	239		52	1.9523	461	
22	–0.5658	245		53	2.1084	474	
23	–0.4914	251	Below Basic	54	2.2847	489	
24	–0.4183	258		55	2.4888	507	
25	–0.3461	264		56	2.7333	528	
26	–0.2746	270		57	3.0421	554	
27	–0.2038	276		58	3.4682	591	
28	–0.1334	282		59	4.1815	600	
29	–0.0633	288		60	N/A	600	
30	0.0067	294					

Appendix 8.E—DIF Analyses

Table 8.E.1 Operational Items Exhibiting Significant DIF

Content Area	Accession No.	Grade	Item Seq	MHD-DIF	Comparison	In Favor Of
English–Language Arts	VC326712	3	22	–2.17	White/Asian	White
	VC325446	3	45	2.07	White/Asian	Asian
	VC326880	3	3	1.52	SLD/AUT	AUT
	VC326785	3	16	–1.62	SLD/AUT	SLD
	VC325398	4	55	2.41	White/Filipino	Filipino
	VC325392	4	47	1.68	White/CombAsian	CombAsian
	VC325398	4	55	1.74	White/CombAsian	CombAsian
	VC326607	4	2	–1.68	SLD/AUT	SLD
	VC325398	4	55	1.88	SLD/AUT	AUT
	VC744645	4	58	–0.367	SLD/AUT	SLD
	VC744645	4	58	–0.327	SLD/ED	SLD
	VC744645	4	58	–0.510	SLD/MR	SLD
	VC401961	5	38	2.24	White/Filipino	Filipino
	VC401982	5	21	–2.16	SLD/HH	SLD
	VC743442	6	3	–1.71	White/Filipino	White
	VC743579	6	15	–1.87	White/Filipino	White
	VC743514	6	40	2.05	White/Filipino	Filipino
	VC743514	6	40	1.60	White/CombAsian	CombAsian
	VC743443	6	2	–2.06	SLD/AUT	SLD
	VC743514	6	40	2.31	SLD/AUT	AUT
	VC743514	6	40	2.22	SLD/HH	HH
	VE332265	6	6	–1.68	SLD/MR	SLD
	VC743694	7	45	1.79	White/Asian	Asian
	VC743739	7	22	–1.66	SLD/AUT	SLD
	VC743635	7	51	1.56	SLD/AUT	AUT
	VC744648	7	64	–0.387	SLD/AUT	SLD
	VC744648	7	64	–0.284	SLD/ED	SLD
	VC744648	7	64	–0.395	SLD/MR	SLD
	VC743858	8	51	2.53	White/Filipino	Filipino
	VC743883	8	5	–1.80	SLD/AUT	SLD
	VC743916	8	9	–2.63	SLD/AUT	SLD
	VC743816	8	59	1.67	SLD/AUT	AUT
	VC743837	8	61	2.02	SLD/AUT	AUT
	VC743883	8	5	–2.55	SLD/HH	SLD
	VC743993	8	12	–1.97	SLD/HH	SLD
	VC743815	8	50	2.36	SLD/HH	HH
	VC743837	8	61	2.36	SLD/HH	HH
	VC743883	8	5	–2.22	SLD/MR	SLD
	VC743921	8	7	–1.65	SLD/MR	SLD
	VE331908	8	57	1.51	SLD/MR	MR
	VE285895	9	53	1.88	White/Asian	Asian
	VE285895	9	53	1.61	SLD/AUT	AUT
	VE458884	10	6	–1.64	Male/Female	Male
	VE458715	11	2	–1.70	ALD/AUT	SLD
Mathematics	VC325752	4	1	–2.42	SLD/OI	SLD
	VC325917	5	5	–2.17	SLD/OI	OI
	VC744388	7	30	–2.04	SLD/HH	SLD
	VC744361	7	49	1.67	SLD/MR	MR

Content Area	Accession No.	Grade	Item Seq	MHD-DIF	Comparison	In Favor Of
	VC327237	5	20	–1.91	SLD/HH	SLD
	VC744534	8	3	–1.87	SLD/MR	SLD
Science						

Table 8.E.2 Field-test Items Exhibiting Significant DIF

Content Area	Accession No.	Grade	Item Seq	MHD-DIF	Comparison	In Favor Of
	VE456435	5	28	1.56	Male/Female	Female
	VE578503	6	54	2.35	White/CombAsian	CombAsian
	VE578579	6	37	2.04	White/CombAsian	CombAsian
English–Language-Arts	VE458363	7	35	–1.70	SLD/AUT	SLD
	VE579175	8	2	–1.81	White/Asian	White
	VE579175	8	2	–1.77	White/CombAsian	White
	VE579139	10	68	1.80	SLD/AUT	AUT
Mathematics	VE457371	3	28	2.56	SLD/AUT	AUT
Science *	–	–	–	–	–	–

* No field-test items exhibited significant DIF.

Table 8.E.3 DIF Classifications for ELA, Grade Three Operational Items

DIF	M-F		W-AfrA		W-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	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
B+	0	0	0	0	0	0	1	2	1	2	0	0	0	0	1	2	0	0	2	4	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2
A+	28	58	24	50	25	52	25	52	29	60	26	54	0	0	27	56	24	50	23	48	0	0	23	48	0	0	24	50	0	0	0	0	28	58	22	46	0	0	0	0	21	44
A-	19	40	24	50	23	48	17	35	16	33	22	46	0	0	18	38	24	50	17	35	0	0	25	52	0	0	21	44	0	0	0	0	20	42	26	54	0	0	0	0	14	29
B-	1	2	0	0	0	0	3	6	2	4	0	0	0	0	2	4	0	0	4	8	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	8	17
C-	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	48	100	0	0	48	100	48	100	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.4 DIF Classifications for ELA, Grade Four Operational Items

DIF	M-F		W-AfrA		W-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	1	2	0	0	0	0	2	4	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
B+	1	2	0	0	0	0	3	6	4	8	0	0	0	0	1	2	1	2	2	4	0	0	1	2	2	4	0	0	0	0	2	4	0	0	0	0	0	0	0	0	6	12
A+	27	55	26	53	23	47	22	45	16	33	25	51	0	0	19	39	27	55	20	41	0	0	23	47	24	49	21	43	0	0	24	49	25	51	22	45	0	0	0	0	13	27
A-	21	43	23	47	25	51	23	47	24	49	24	49	0	0	27	55	21	43	24	49	0	0	24	49	19	39	27	55	0	0	19	39	24	49	27	55	0	0	0	0	20	41
B-	0	0	0	0	1	2	1	2	4	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	3	6	0	0	0	0	0	0	0	0	6	12
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	4
Small N	0	0	0	0	0	0	0	0	0	0	0	0	49	100	0	0	0	0	0	0	49	100	0	0	1	2	0	0	49	100	1	2	0	0	0	0	49	100	49	100	0	0
TOTAL	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100	49	100

Table 8.E.5 DIF Classifications for ELA, Grade Five Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	1	2	0	0	0	0	2	4	3	6	0	0	0	0	1	2	0	0	1	2	0	0	0	0	3	6	1	2	0	0	1	2	0	0	0	0	0	0	9	19
A+	22	46	28	58	26	54	21	44	20	42	26	54	0	0	25	52	27	56	24	50	0	0	26	54	24	50	21	44	0	0	27	56	26	54	24	50	0	0	15	31
A-	25	52	19	40	22	46	24	50	21	44	22	46	0	0	21	44	20	42	23	48	0	0	21	44	18	38	26	54	0	0	18	38	22	46	24	50	0	0	16	33
B-	0	0	1	2	0	0	1	2	3	6	0	0	0	0	1	2	1	2	0	0	0	0	1	2	2	4	0	0	0	0	2	4	0	0	0	0	0	0	6	13
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.6 DIF Classifications for ELA, Grade Six Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	0	0	1	2	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	0	0	4	7	4	7	0	0	0	0	2	4	0	0	2	4	0	0	0	0	6	11	0	0	0	0	2	4	0	0	1	2	0	0	10	19
A+	26	48	35	65	30	56	21	39	21	39	28	52	0	0	25	46	28	52	23	43	0	0	25	46	17	31	27	50	0	0	26	48	25	46	25	46	0	0	15	28
A-	28	52	19	35	24	44	26	48	20	37	26	48	0	0	23	43	24	44	25	46	0	0	27	50	25	46	23	43	0	0	24	44	29	54	28	52	0	0	16	30
B-	0	0	0	0	0	0	3	6	6	11	0	0	0	0	3	6	2	4	2	4	0	0	2	4	5	9	3	6	0	0	2	4	0	0	0	0	0	0	8	15
C-	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4	7
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.7 DIF Classifications for ELA, Grade Seven Operational 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	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
B+	0	0	0	0	0	0	3	5	2	4	0	0	0	0	2	4	0	0	2	4	0	0	1	2	2	4	1	2	0	0	0	0	1	2	0	0	0	0	0	0	6	11
A+	32	58	30	55	26	47	22	40	25	45	32	58	28	51	28	51	28	51	24	44	0	0	27	49	25	45	24	44	0	0	0	0	23	42	29	53	0	0	0	0	20	36
A-	22	40	25	45	29	53	26	47	26	47	23	42	26	47	25	45	27	49	23	42	0	0	25	45	26	47	29	53	0	0	0	0	31	56	26	47	0	0	0	0	15	27
B-	1	2	0	0	0	0	3	5	2	4	0	0	0	0	0	0	0	0	3	5	0	0	1	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	18
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	4
Small N	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	55	100	0	0	0	0	0	0	55	100	55	100	0	0	0	0	55	100	55	100	0	0
TOTAL	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100	55	100

Table 8.E.8 DIF Classifications for ELA, Grade Eight Operational Items

DIF	M-F		W-AfrA		W-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	1	2	0	0	0	0	0	0	0	0	2	4	0	0	0	0	2	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	5	9
B+	0	0	0	0	1	2	2	4	3	6	0	0	0	0	3	6	0	0	2	4	0	0	0	0	4	7	1	2	0	0	2	4	0	0	2	4	0	0	0	0	5	9
A+	29	54	24	44	26	48	25	46	24	44	28	52	0	0	22	41	30	56	25	46	0	0	26	48	18	33	29	54	0	0	26	48	27	50	27	50	0	0	0	0	22	41
A-	25	46	30	56	27	50	25	46	21	39	26	48	0	0	28	52	24	44	20	37	0	0	28	52	26	48	20	37	0	0	23	43	27	50	24	44	0	0	0	0	13	24
B-	0	0	0	0	0	0	2	4	5	9	0	0	0	0	1	2	0	0	3	6	0	0	0	0	2	4	1	2	0	0	3	6	0	0	1	2	0	0	0	0	5	9
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	2	4	2	4	0	0	0	0	0	0	0	0	0	0	0	0	4	7
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.9 DIF Classifications for ELA, Grade Nine Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	1	2	0	0	0	0	4	7	0	0	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	8
A+	27	45	34	57	35	58	21	35	0	0	36	60	0	0	29	48	33	55	28	47	0	0	27	45	0	0	32	53	0	0	0	0	26	43	31	52	0	0	0	0	23	38
A-	32	53	26	43	24	40	30	50	0	0	24	40	0	0	27	45	27	45	28	47	0	0	33	55	0	0	28	47	0	0	0	0	34	57	29	48	0	0	0	0	23	38
B-	0	0	0	0	1	2	4	7	0	0	0	0	0	0	3	5	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	13
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	60	100	0	0	60	100	0	0	0	0	0	0	60	100	0	0	60	100	0	0	60	100	60	100	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.10 DIF Classifications for ELA, Grade Ten Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	1	2	2	3	0	0	0	0	0	0	1	2	0	0	2	3	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	6	10
A+	31	52	34	57	30	50	30	50	0	0	30	50	0	0	29	48	36	60	30	50	0	0	30	50	0	0	30	50	0	0	0	0	31	52	30	50	0	0	0	0	26	43
A-	28	47	26	43	29	48	23	38	0	0	30	50	0	0	28	47	24	40	24	40	0	0	29	48	0	0	27	45	0	0	0	0	29	48	30	50	0	0	0	0	17	28
B-	0	0	0	0	0	0	5	8	0	0	0	0	0	0	2	3	0	0	4	7	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	10	17
C-	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	60	100	0	0	60	100	0	0	0	0	0	0	60	100	0	0	60	100	0	0	60	100	60	100	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.11 DIF Classifications for ELA, Grade Eleven Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	1	2	0	0	0	0	0	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0	6	10
A+	31	52	31	52	0	0	0	0	0	0	32	53	0	0	27	45	31	52	31	52	0	0	29	48	0	0	25	42	0	0	0	0	27	45	30	50	0	0	0	0	20	33
A-	28	47	29	48	0	0	0	0	0	0	28	47	0	0	31	52	29	48	26	43	0	0	31	52	0	0	28	47	0	0	0	0	33	55	30	50	0	0	0	0	29	48
B-	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0	0	0	0	0	0	4	7
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	60	100	60	100	60	100	0	0	60	100	0	0	0	0	0	0	60	100	0	0	60	100	0	0	60	100	60	100	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.12 DIF Classifications for Mathematics, Grade Three Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	1	2	1	2	0	0	0	0	0	0	0	0	2	4	0	0	1	2	0	0	2	4	0	0	0	0	1	2	0	0	0	0	0	0	7	15
A+	25	52	25	52	26	54	26	54	24	50	22	46	0	0	23	48	26	54	23	48	0	0	24	50	0	0	23	48	0	0	0	0	26	54	21	44	0	0	0	0	19	40
A-	23	48	23	48	22	46	17	35	21	44	26	54	0	0	24	50	22	46	23	48	0	0	22	46	0	0	20	42	0	0	0	0	21	44	27	56	0	0	0	0	13	27
B-	0	0	0	0	0	0	4	8	2	4	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	9	19
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	48	100	0	0	48	100	48	100	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.13 DIF Classifications for Mathematics, Grade Four Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	1	2	3	6	0	0	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	7	15
A+	26	54	25	52	22	46	19	40	28	58	22	46	0	0	21	44	25	52	23	48	0	0	25	52	0	0	25	52	0	0	26	54	27	56	26	54	0	0	0	0	18	38
A-	22	46	23	48	24	50	25	52	20	42	26	54	0	0	26	54	23	48	23	48	0	0	23	48	0	0	22	46	0	0	16	33	21	44	22	46	0	0	0	0	18	38
B-	0	0	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	2	0	0	3	6	0	0	0	0	0	0	0	0	4	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	1	2	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	48	100	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.14 DIF Classifications for Mathematics, Grade Five Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	2	4	0	0	2	4	0	0	0	0	0	0	0	0	7	15
A+	24	50	24	50	23	48	21	44	24	50	28	58	0	0	23	48	25	52	24	50	0	0	24	50	21	44	19	40	0	0	24	50	27	56	19	40	0	0	0	0	18	38
A-	24	50	24	50	24	50	25	52	23	48	20	42	0	0	25	52	23	48	23	48	0	0	24	50	25	52	27	56	0	0	19	40	21	44	29	60	0	0	0	0	18	38
B-	0	0	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	4	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	1	2	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.15 DIF Classifications for Mathematics, Grade Six Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	1	2	0	0	0	0	3	6	4	7	0	0	0	0	1	2	0	0	0	0	0	0	2	4	3	6	1	2	0	0	3	6	0	0	0	0	0	0	0	0	12	22
A+	27	50	28	52	30	56	26	48	24	44	28	52	0	0	27	50	32	59	27	50	0	0	29	54	22	41	24	44	0	0	23	43	26	48	27	50	0	0	0	0	16	30
A-	26	48	25	46	24	44	22	41	22	41	26	48	0	0	25	46	22	41	26	48	0	0	23	43	27	50	28	52	0	0	25	46	28	52	27	50	0	0	0	0	18	33
B-	0	0	1	2	0	0	3	6	4	7	0	0	0	0	1	2	0	0	1	2	0	0	0	0	2	4	1	2	0	0	3	6	0	0	0	0	0	0	0	0	8	15
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.16 DIF Classifications for Mathematics, Grade Seven Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	0	0	2	4	2	4	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	2	4	0	0	2	4	0	0	0	0	0	0	0	0	8	15
A+	27	50	27	50	24	44	22	41	23	43	28	52	0	0	30	56	33	61	24	44	0	0	29	54	23	43	23	43	0	0	30	56	27	50	28	52	0	0	0	0	20	37
A-	27	50	27	50	30	56	29	54	28	52	26	48	0	0	24	44	21	39	29	54	0	0	25	46	28	52	26	48	0	0	18	33	27	50	26	48	0	0	0	0	15	28
B-	0	0	0	0	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	4	0	0	4	7	0	0	0	0	0	0	0	0	9	17
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.17 DIF Classifications for Mathematics, Algebra I Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	2	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	0	0	0	0	0	0	0	0	5	8
A+	36	60	35	58	31	52	30	50	31	52	31	52	0	0	28	47	35	58	30	50	0	0	26	43	32	53	33	55	0	0	30	50	28	47	33	55	0	0	0	0	20	33
A-	24	40	25	42	29	48	27	45	25	42	29	48	0	0	32	53	25	42	30	50	0	0	34	57	26	43	25	42	0	0	27	45	32	53	27	45	0	0	0	0	27	45
B-	0	0	0	0	0	0	1	2	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	3	0	0	2	3	0	0	0	0	0	0	0	0	8	13
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	0	0	0	0	0	0	0	0	60	100	0	0	0	0	0	0	60	100	0	0	0	0	0	0	60	100	0	0	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.18 DIF Classifications for Mathematics, Geometry Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	8
A+	32	53	24	40	0	0	0	0	0	0	26	43	0	0	0	0	34	57	26	43	0	0	0	0	0	0	0	0	0	0	0	0	31	52	0	0	0	0	0	0	25	42
A-	28	47	35	58	0	0	0	0	0	0	34	57	0	0	0	0	26	43	28	47	0	0	0	0	0	0	0	0	0	0	0	0	28	47	0	0	0	0	0	0	27	45
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	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	60	100	60	100	60	100	0	0	60	100	60	100	0	0	0	0	60	100	60	100	60	100	60	100	60	100	60	100	0	0	60	100	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.19 DIF Classifications for Science, Grade Five Operational 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	1	2	2	4	3	6	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	1	2	0	0	3	6	0	0	0	0	0	0	0	0	9	19
A+	24	50	22	46	26	54	23	48	21	44	23	48	0	0	23	48	23	48	29	60	0	0	26	54	25	52	27	56	0	0	23	48	24	50	23	48	0	0	0	0	18	38
A-	24	50	26	54	20	42	20	42	22	46	25	52	0	0	25	52	24	50	16	33	0	0	21	44	20	42	16	33	0	0	19	40	24	50	25	52	0	0	0	0	12	25
B-	0	0	0	0	1	2	3	6	2	4	0	0	0	0	0	0	1	2	2	4	0	0	1	2	1	2	4	8	0	0	3	6	0	0	0	0	0	0	0	0	8	17
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	0	0	0	0	0	0	48	100	48	100	0	0
TOTAL	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100	48	100

Table 8.E.20 DIF Classifications for Science, Grade Eight Operational 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	1	2	4	7	1	2	0	0	0	0	2	4	0	0	0	0	0	0	0	0	1	2	1	2	0	0	2	4	0	0	0	0	0	0	0	0	9	17
A+	29	54	24	44	25	46	22	41	30	56	29	54	0	0	25	46	30	56	30	56	0	0	25	46	25	46	33	61	0	0	27	50	31	57	27	50	0	0	0	0	21	39
A-	23	43	30	56	28	52	22	41	21	39	25	46	0	0	26	48	24	44	22	41	0	0	29	54	25	46	16	30	0	0	22	41	23	43	27	50	0	0	0	0	15	28
B-	2	4	0	0	0	0	6	11	2	4	0	0	0	0	1	2	0	0	2	4	0	0	0	0	3	6	3	6	0	0	3	6	0	0	0	0	0	0	0	0	8	15
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Small N	0	0	0	0	0	0	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	0	0	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.21 DIF Classifications for Science, Grade Ten Life Science Operational Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	5
A+	28	47	33	55	29	48	0	0	0	0	29	48	0	0	31	52	27	45	24	40	0	0	32	53	0	0	31	52	0	0	0	0	30	50	26	43	0	0	0	0	27	45
A-	32	53	27	45	31	52	0	0	0	0	31	52	0	0	27	45	33	55	34	57	0	0	28	47	0	0	28	47	0	0	0	0	30	50	33	55	0	0	0	0	27	45
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	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	0	0	60	100	60	100	0	0	60	100	0	0	0	0	0	0	60	100	0	0	60	100	0	0	60	100	60	100	0	0	0	0	60	100	60	100	0	0
TOTAL	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100	60	100

Table 8.E.22 DIF Classifications for ELA, Grade Three Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10
A+	29	57	28	55	0	0	0	0	0	0	28	55	0	0	2	4	21	41	20	39	0	0	0	0	0	0	0	0	0	0	0	0	22	43	22	43	0	0	0	0	20	39
A-	22	43	23	45	0	0	0	0	0	0	23	45	0	0	1	2	30	59	21	41	0	0	0	0	0	0	0	0	0	0	0	0	29	57	29	57	0	0	0	0	21	41
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	51	100	51	100	51	100	0	0	51	100	48	94	0	0	0	0	51	100	51	100	51	100	51	100	51	100	51	100	0	0	0	0	51	100	51	100	0	0
TOTAL	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100

Table 8.E.23 DIF Classifications for ELA, Grade Four Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	4	9
A+	15	35	15	35	0	0	1	2	0	0	13	30	0	0	6	14	15	35	19	44	0	0	2	5	0	0	1	2	0	0	0	0	23	53	21	49	0	0	0	0	15	35
A-	27	63	28	65	1	2	1	2	0	0	30	70	0	0	9	21	27	63	21	49	0	0	0	0	0	0	0	0	0	0	0	0	20	47	21	49	0	0	0	0	19	44
B-	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	5	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	12
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	42	98	41	95	43	100	0	0	43	100	25	58	0	0	0	0	43	100	41	95	43	100	42	98	43	100	43	100	0	0	0	0	43	100	43	100	0	0
TOTAL	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100	43	100

Table 8.E.24 DIF Classifications for ELA, Grade Five Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
A+	25	49	21	41	0	0	0	0	0	0	22	43	0	0	10	20	25	49	36	71	0	0	1	2	0	0	0	0	0	0	0	0	33	65	31	61	0	0	0	0	29	57
A-	25	49	30	59	0	0	0	0	0	0	29	57	0	0	14	27	26	51	12	24	0	0	2	4	0	0	0	0	0	0	0	0	17	33	20	39	0	0	0	0	16	31
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	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	51	100	51	100	51	100	0	0	51	100	24	47	0	0	0	0	51	100	48	94	51	100	51	100	51	100	51	100	0	0	0	0	51	100	51	100	0	0
TOTAL	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100	51	100

Table 8.E.25 DIF Classifications for ELA, Grade Six Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	2	6	0	0	2	6	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	2	6
A+	18	50	17	47	0	0	0	0	0	0	14	39	0	0	21	58	14	39	19	53	0	0	26	72	0	0	0	0	0	0	0	0	21	58	18	50	0	0	0	0	16	44
A-	18	50	19	53	0	0	0	0	0	0	22	61	0	0	11	31	21	58	15	42	0	0	8	22	0	0	0	0	0	0	0	0	15	42	15	42	0	0	0	0	13	36
B-	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	2	6	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	36	100	36	100	36	100	0	0	36	100	0	0	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.26 DIF Classifications for ELA, Grade Seven Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
A+	23	64	17	47	0	0	0	0	0	0	15	42	0	0	11	31	16	44	11	31	0	0	16	44	0	0	0	0	0	0	0	0	16	44	13	36	0	0	0	0	10	28
A-	12	33	19	53	0	0	0	0	0	0	21	58	0	0	23	64	20	56	20	56	0	0	19	53	0	0	0	0	0	0	0	0	20	56	22	61	0	0	0	0	16	44
B-	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	3	8	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	7	19
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
Small N	0	0	0	0	36	100	36	100	36	100	0	0	36	100	0	0	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.27 DIF Classifications for ELA, Grade Eight Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	1	3
A+	21	62	8	24	0	0	4	12	0	0	8	24	0	0	3	9	12	35	7	21	0	0	11	32	0	0	6	18	0	0	0	0	16	47	9	26	0	0	0	0	10	29
A-	13	38	24	71	1	3	4	12	0	0	25	74	0	0	6	18	21	62	10	29	0	0	7	21	0	0	3	9	0	0	0	0	18	53	21	62	0	0	0	0	17	50
B-	0	0	2	6	0	0	0	0	0	0	1	3	0	0	0	0	1	3	1	3	0	0	0	0	0	0	1	3	0	0	0	0	0	0	3	9	0	0	0	0	5	15
C-	0	0	0	0	0	0	1	3	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
Small N	0	0	0	0	33	97	25	74	34	100	0	0	34	100	24	71	0	0	16	47	34	100	16	47	34	100	24	71	34	100	34	100	0	0	0	0	34	100	34	100	0	0
TOTAL	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100	34	100

Table 8.E.28 DIF Classifications for ELA, Grade Nine Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8	0	0	2	5	0	0	0	0	0	0	0	0	2	5	0	0	0	0	0	0	6	16
A+	18	49	13	35	0	0	0	0	0	0	19	51	0	0	3	8	21	57	7	19	0	0	17	46	0	0	0	0	0	0	0	0	21	57	15	41	0	0	0	0	9	24
A-	19	51	24	65	0	0	0	0	0	0	18	49	0	0	0	0	16	43	10	27	0	0	16	43	0	0	3	8	0	0	0	0	14	38	13	35	0	0	0	0	19	51
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	2	5	0	0	0	0	0	0	0	0	0	0	1	3	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	37	100	37	100	37	100	0	0	37	100	34	92	0	0	16	43	37	100	0	0	37	100	34	92	37	100	37	100	0	0	8	22	37	100	37	100	0	0
TOTAL	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100	37	100

Table 8.E.29 DIF Classifications for ELA, Grade Ten Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
B+	1	3	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	4	11
A+	22	58	18	47	0	0	0	0	0	0	15	39	0	0	5	13	15	39	5	13	0	0	5	13	0	0	0	0	0	0	0	0	22	58	6	16	0	0	0	0	16	42
A-	15	39	20	53	0	0	0	0	0	0	23	61	0	0	4	11	23	61	4	11	0	0	6	16	0	0	1	3	0	0	0	0	16	42	4	11	0	0	0	0	17	45
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	38	100	38	100	38	100	0	0	38	100	28	74	0	0	27	71	38	100	27	71	38	100	37	97	38	100	38	100	0	0	27	71	38	100	38	100	0	0
TOTAL	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100	38	100

Table 8.E.30 DIF Classifications for ELA, Grade Eleven Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A+	27	69	18	46	0	0	0	0	0	0	17	44	0	0	0	0	15	38	1	3	0	0	0	0	0	0	0	0	0	0	0	0	24	62	0	0	0	0	0	0	25	64
A-	12	31	21	54	0	0	0	0	0	0	22	56	0	0	0	0	24	62	0	0	0	0	1	3	0	0	0	0	0	0	0	0	15	38	1	3	0	0	0	0	14	36
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	39	100	39	100	39	100	0	0	39	100	39	100	0	0	38	97	39	100	38	97	39	100	39	100	39	100	39	100	0	0	38	97	39	100	39	100	0	0
TOTAL	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100	39	100

Table 8.E.31 DIF Classifications for Mathematics, Grade Three Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
B+	1	2	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	0	0	6	11
A+	15	28	23	43	0	0	0	0	0	0	17	31	0	0	0	0	20	37	27	50	0	0	0	0	0	0	0	0	0	0	0	0	27	50	24	44	0	0	0	0	21	39
A-	38	70	28	52	0	0	0	0	0	0	34	63	0	0	0	0	34	63	22	41	0	0	0	0	0	0	0	0	0	0	0	0	23	43	30	56	0	0	0	0	19	35
B-	0	0	2	4	0	0	0	0	0	0	2	4	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	7	13
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	0	0	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.32 DIF Classifications for Mathematics, Grade Four Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
A+	23	51	18	40	0	0	0	0	0	0	23	51	0	0	0	0	20	44	22	49	0	0	0	0	0	0	0	0	0	0	0	0	24	53	19	42	0	0	0	0	21	47
A-	22	49	25	56	0	0	0	0	0	0	20	44	0	0	0	0	24	53	22	49	0	0	0	0	0	0	0	0	0	0	0	0	21	47	26	58	0	0	0	0	20	44
B-	0	0	2	4	0	0	0	0	0	0	1	2	0	0	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	45	100	45	100	45	100	0	0	45	100	45	100	0	0	0	0	45	100	45	100	45	100	45	100	45	100	45	100	0	0	0	0	45	100	45	100	0	0
TOTAL	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100	45	100

Table 8.E.33 DIF Classifications for Mathematics, Grade Five Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6
A+	21	39	22	41	0	0	0	0	0	0	25	46	0	0	0	0	22	41	28	52	0	0	0	0	0	0	0	0	0	0	0	0	30	56	22	41	0	0	0	0	18	33
A-	33	61	31	57	0	0	0	0	0	0	28	52	0	0	0	0	32	59	20	37	0	0	0	0	0	0	0	0	0	0	0	0	24	44	31	57	0	0	0	0	28	52
B-	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	5	9
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	0	0	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.34 DIF Classifications for Mathematics, Grade Six Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
A+	10	28	9	25	0	0	0	0	0	0	15	42	0	0	10	28	19	53	10	28	0	0	16	44	0	0	0	0	0	0	0	0	16	44	14	39	0	0	0	0	6	17
A-	23	64	26	72	0	0	0	0	0	0	21	58	0	0	24	67	17	47	23	64	0	0	19	53	0	0	0	0	0	0	0	0	20	56	21	58	0	0	0	0	23	64
B-	3	8	1	3	0	0	0	0	0	0	0	0	0	0	2	6	0	0	2	6	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	6	17
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	36	100	36	100	36	100	0	0	36	100	0	0	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.35 DIF Classifications for Mathematics, Grade Seven 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	0	0	0	0	1	3	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8
A+	19	53	13	36	0	0	0	0	0	0	20	56	0	0	20	56	20	56	17	47	0	0	14	39	0	0	0	0	0	0	0	0	19	53	12	33	0	0	0	0	12	33
A-	16	44	23	64	0	0	0	0	0	0	16	44	0	0	15	42	16	44	17	47	0	0	20	56	0	0	0	0	0	0	0	0	17	47	24	67	0	0	0	0	18	50
B-	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	1	3	0	0	1	3	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	36	100	36	100	36	100	0	0	36	100	0	0	0	0	0	0	36	100	0	0	36	100	36	100	36	100	36	100	0	0	0	0	36	100	36	100	0	0
TOTAL	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100	36	100

Table 8.E.36 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	1	3	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	3	0	0	0	0	4	10
A+	19	48	19	48	0	0	0	0	0	0	23	58	0	0	16	40	22	55	21	53	0	0	18	45	0	0	0	0	0	0	0	0	24	60	21	53	0	0	0	0	13	33
A-	21	53	21	53	0	0	0	0	0	0	17	43	0	0	23	58	18	45	18	45	0	0	22	55	0	0	0	0	0	0	0	0	15	38	17	43	0	0	0	0	22	55
B-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	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	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	40	100	40	100	40	100	0	0	0	0	40	100	40	100	0	0
TOTAL	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100

Table 8.E.37 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	0	0
B+	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	0	0	0	0	1	3
A+	16	40	1	3	0	0	0	0	0	0	13	33	0	0	0	0	20	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	35
A-	19	48	8	20	0	0	0	0	0	0	27	68	0	0	0	0	20	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	50
B-	4	10	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	0	0	5	13
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	30	75	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	40	100	40	100	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	40	100

Table 8.E.38 DIF Classifications for Science, Grade Five 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	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
A+	20	37	23	43	0	0	0	0	0	0	23	43	0	0	0	0	31	57	25	46	0	0	0	0	0	0	0	0	0	0	0	0	29	54	27	50	0	0	0	0	22	41
A-	34	63	30	56	0	0	0	0	0	0	31	57	0	0	0	0	22	41	24	44	0	0	0	0	0	0	0	0	0	0	0	0	25	46	25	46	0	0	0	0	24	44
B-	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	6	11
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	0	0	54	100	54	100	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.39 DIF Classifications for Science, Grade Eight Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
A+	26	48	14	26	0	0	0	0	0	0	24	44	0	0	0	0	25	46	11	20	0	0	5	9	0	0	0	0	0	0	0	0	35	65	25	46	0	0	0	0	16	30
A-	23	43	39	72	0	0	0	0	0	0	30	56	0	0	0	0	28	52	11	20	0	0	3	6	0	0	0	0	0	0	0	0	19	35	27	50	0	0	0	0	24	44
B-	4	7	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	7	0	0	1	2	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	12	22
C-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	54	100	54	100	54	100	0	0	54	100	54	100	0	0	27	50	54	100	45	83	54	100	54	100	54	100	54	100	0	0	0	0	54	100	54	100	0	0
TOTAL	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100	54	100

Table 8.E.40 DIF Classifications for Science, Grade Ten Life Science Field-test Items

DIF	M-F		W-AfrA		W-AmI		W-Asn		W-Fil		W-His		W-PacI		W-ComA		E-ELnr		SLD-AUT		SLD-Deaf		SLD-ED		SLD-HH		SLD-MR		SLD-MD		SLD-OI		SLD-OHI		SLD-SLI		SLD-TBI		SLD-VI		Total	
category	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct	N	Pct
C+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B+	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	4	11
A+	14	39	17	47	0	0	0	0	0	0	19	53	0	0	0	0	15	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	44	0	0	0	0	0	0	16	44
A-	20	56	18	50	0	0	0	0	0	0	17	47	0	0	0	0	21	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	47	0	0	0	0	0	0	14	39
B-	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	2	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	36	100	0	0	36	100	36	100	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	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. OTI provides quality assurance services for all testing programs administered by ETS. In addition, the Office of Professional Standards Compliance at ETS publishes and maintains the *ETS Standards for Quality and Fairness,* which supports the OTI's goals and activities. The purposes of the *ETS Standards for Quality and Fairness* are to help ETS design, develop, and deliver technically sound, fair, and useful products and services; and to help the public and auditors evaluate those products and services.

In addition, each department at ETS that is involved in the testing cycle designs and implements an independent set of procedures to ensure the quality of their products. In the next sections, these procedures are described.

Quality Control of Item Development

The item development process for the CMA is described in detail in Chapter 3, starting on page 66. The next sections highlight elements of the process devoted specifically to the quality control of item development.

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 of the item development process.

Item Writers

The items for each CMA are written by item writers that have a thorough understanding of the California content standards. The item writers are carefully screened and selected by senior ETS content staff and approved by the CDE. Only those with strong content and teaching backgrounds are invited to participate in an extensive training program for item writers.

Internal Contractor Reviews

Once items have been written, ETS assessment specialists make sure that each item goes through an intensive internal review process. Every step of this process is designed to produce items that exceed industry standards for quality. It includes three rounds of content reviews, two rounds of editorial reviews, an internal fairness review, and a high-level review and approval by a content area director. A carefully designed and monitored workflow and detailed checklists help to ensure that all items meet the specifications for the process.

Content Review

ETS assessment specialists make sure that the test items and related materials comply with ETS's written guidelines for clarity, style, accuracy, and appropriateness and with approved item specifications.

The artwork and graphics for the items are created during the internal content review period so assessment specialists can evaluate the correctness and appropriateness of the art early in the item development process. ETS selects visuals that are relevant to the item content

and that are easily understood so students do not struggle to determine the purpose or meaning of the questions.

Editorial Review

Another step in the ETS internal review process involves a team of specially trained editors who check questions for clarity, correctness of language, grade-level appropriateness of language, adherence to style guidelines, and conformity to acceptable item-writing practices. The editorial review also includes rounds of copyediting and proofreading. ETS takes pride in the typographical integrity of the items presented to our clients and strives for error-free items beginning with the initial rounds of review.

Fairness Review

One of the final steps in the ETS internal review process is to have all items and stimuli reviewed for fairness. Only ETS staff members who have participated in the ETS Fairness Training, a rigorous internal training course, conduct this bias and sensitivity review. These staff members have been trained to identify and eliminate test questions that contain content that could be construed as offensive to, or biased against, members of specific ethnic, racial, or gender groups.

Assessment Director Review

As a final quality control step, the content area's assessment director or another senior-level content reviewer 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 70 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 73 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.

The content experts make recommendations about whether to accept or reject each item for inclusion in the California item bank.

Quality Control of the Item Bank

After the data review, items are placed in the item bank along with their statistics and reviewers' evaluations of their quality. ETS then delivers the items to the CDE through the California electronic item bank. The item bank database is maintained by a staff of application systems programmers, led by the Item Bank Manager, at ETS. All processes are logged; all change requests—including item bank updates for item availability status—are tracked; and all output and California item bank deliveries are quality-controlled for accuracy.

Quality of the item bank and secure transfer of the California item bank to the CDE is very important. The ETS internal item bank database resides on a server within the ETS firewall; access to the SQL Server database is strictly controlled by means of system administration. The electronic item banking application includes a login/password system to authorize access to the database or designated portions of the database. In addition, only users authorized to access the specific database are able to use the item bank. Users are authorized by a designated administrator at the CDE and at ETS.

ETS has extensive experience in accurate and secure data transfer of many types including CDs, secure remote hosting, secure Web access, and secure file transfer protocol (SFTP), which is the current method used to deliver the California electronic item bank to the CDE. In addition, all files posted on the SFTP site by the item bank staff are encrypted with a password.

The measures taken for ensuring the accuracy, confidentiality, and security of electronic files are as follows:

- Electronic forms of test content, documentation, and item banks are backed up electronically, with the backup media kept offsite, to prevent loss from system breakdown or a natural disaster.
- The offsite backup files are kept in secure storage, with access limited to authorized personnel.
- 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. School districts return the CMA writing booklets within two working days after the makeup day for each administration. The freight return kits provided to the districts contain color-coded labels identifying scorable and nonscorable materials and labels with bar-coded information identifying the school and district. The school districts apply the appropriate labels and number the cartons prior to returning the materials to the processing center by means of their assigned carrier. The use of the color-coded labels streamlines the return process.

All scorable materials are delivered to the Pearson scanning and scoring facilities in Iowa City, Iowa. The nonscorable materials, including test booklets, are returned to the Security Processing Department in Pearson's Cedar Rapids, Iowa, facility. ETS and Pearson closely monitor the return of materials. The STAR Technical Assistance Center (TAC) at ETS monitors returns and notifies school districts that do not return their materials in a timely manner. STAR TAC contacts the district STAR coordinators and works with them to facilitate the return of the test materials.

Processing Test Materials

Upon receipt of the test materials, Pearson uses precise inventory and test processing systems, in addition to quality assurance procedures, to maintain an up-to-date accounting of all the testing materials within their facilities. The materials are removed carefully from the shipping cartons and examined for a number of conditions, including physical damage, shipping errors, and omissions. A visual inspection to compare the number of students recorded on the School and Grade Identification (SGID) sheets with the number of answer documents in the stack is also conducted.

Pearson's image scanning process captures security information electronically and compares scorable material quantities reported on the SGIDs to actual documents scanned. School districts are contacted by phone if there are any missing shipments or the quantity of materials returned appears to be less than expected.

Quality Control of Scanning

Before any STAR documents are scanned, Pearson conducts a complete check of the scanning system. ETS and Pearson create test decks for every test and form. Each test deck consists of approximately 25 answer documents marked to cover response ranges, demographic data, blanks, double marks, and other responses. Fictitious students are created to verify that each marking possibility is processed correctly by the scanning program. The output file generated as a result of this activity is thoroughly checked against each answer document after each stage to verify that the scanner is capturing marks correctly. When the program output is confirmed to match the expected results, a scan

program release form is signed and the scan program is placed in the production environment under configuration management.

The intensity levels of each scanner are constantly monitored for quality control purposes. Intensity diagnostics sheets are run before and during each batch to verify that the scanner is working properly. In the event that a scanner fails to properly pick up items on the diagnostic sheets, the scanner is recalibrated to work properly before being allowed to continue processing student documents.

Documents received in poor condition (torn, folded, or water-stained) that could not be fed through the high-speed scanners are either scanned using a flat-bed scanner or keyed into the system manually.

Post-scanning Edits

After scanning, there are three opportunities for demographic data to be edited:

- After scanning, by Pearson online editors
- After Pearson online editing, by district STAR coordinators (demographic edit)
- After paper reporting, by district STAR coordinators

Demographic edits completed by the Pearson editors and by the district STAR 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 sheets and executing subsequent data processing programs, ETS conducts an end-to-end test. As part of this test, ETS prepares approximately 700 test cases covering all tests and many scenarios designed to exercise particular business rule logic. ETS marks answer sheets for those 700 test cases. They are then scanned, scored, and aggregated. The results at various inspection points are checked by psychometricians and Data Quality Services staff. Additionally, a post-scan test file of approximately 50,000 records 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 get the correct scores when the actual scoring process is carried out.

Scoring and Reporting Specifications

ETS develops standardized scoring procedures and specifications so testing materials are processed and scored accurately. These documents include:

- General Reporting Specifications
- Form Planner Specifications
- Aggregation Rules
- ”What If” . . . List
- Edit Specifications
- Reporting Cluster Names and Item Numbers
- CST and CMA Matching Criteria
- Matching Criteria for Multiple-choice and Writing Answer Documents

Each of these documents is explained in detail in Chapter 7, starting on page 117. The scoring specifications are reviewed and revised by the CDE, ETS, and Pearson each year. After a version that all parties endorse is finalized, the CDE issues a formal approval of the scoring and reporting specifications.

Matching Information on CMA Answer Documents

Answer documents are designed to produce a single complete record for each student. This record includes demographic data and scanned responses for each student; once computed, the scored responses and the total test scores for a student are also merged into the same record. All scores must comply with the ETS scoring specifications.

All STAR answer documents contain uniquely numbered lithocodes that are both scannable and eye-readable. The lithocodes allow all pages of the document to be linked throughout processing, even after the documents have been slit into single sheets for scanning. For those students using more than one answer document, lithocodes link their demographics and responses within a document while matching criteria are used to create a single record for all of the student’s documents. The documents are matched within grade using the matching criteria approved by the CDE.

Matching Multiple-choice and Writing Scores for ELA 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 combined to yield a single ELA scale score. Student documents that cannot be matched based on the approved criteria are reported separately.

In addition, school districts receive an unmatched report with their reporting package listing grades four and seven students for whom there is a multiple-choice score but no writing score, and grades four and seven students for whom there is a writing score but no multiple-choice score.

Storing Answer Documents

After the answer documents have been scanned, edited, scored, and cleared the clean-post process, they are palletized and placed in the secure storage facilities at Pearson. The materials are stored until October 31 of each year, after which ETS requests permission to destroy the materials. After receiving CDE approval, the materials are destroyed in a secure manner.

Quality Control of Psychometric Processes

Score Key Verification Procedures

ETS and Pearson take various necessary measures to ascertain that the scoring keys are applied to the student responses as expected and the student scores are computed accurately. Scoring keys, provided in the form planners, are produced by ETS and verified thoroughly by performing multiple quality control checks. The form planners contain the information about an assembled test form; other information in the form planner includes the test name, administration year, subscore identification, and standards and statistics associated with each item. The quality control checks that are performed before keys are finalized are listed on page 119 in Chapter 7.

Quality Control of Item Analyses, DIF, and the Equating Process

The psychometric analyses conducted at ETS undergo comprehensive quality checks by a team of psychometricians and data analysts. Detailed checklists are consulted by members of the team for each of the statistical procedures performed on each CMA. Quality assurance checks also include a comparison of the current year's statistics to statistics from previous years. The results of preliminary classical item analyses that provide a check on scoring keys are also reviewed by a senior psychometrician. The items that are flagged for questionable statistical attributes are sent to test development staff for their review; their comments are reviewed by the psychometricians before items are approved to be included in the equating process.

The results of the equating process are reviewed by a psychometric manager in addition to the aforementioned team of psychometricians and data analysts. If the senior psychometrician and the manager reach a consensus that an equating result does not conform to the norm, special binders are prepared for review by senior psychometric advisors at ETS, along with several pieces of informative analyses to facilitate the process.

A few additional checks are performed for each process, as described below:

Calibrations

During the calibration process, which is described in detail in Chapter 2 starting on page 14, checks are made to ascertain that the correct options for the analyses are selected. Checks

are also made on the number of items, number of examinees with valid scores, IRT Rasch item difficulty estimates, standard errors for the Rasch item difficulty estimates, and the match of selected statistics to the results on the same statistics obtained during preliminary item analyses. Psychometricians also perform detailed reviews of plots and statistics to investigate if the model fits the data.

Scaling

During the scaling process, checks are made to ensure the following:

- Correct-linking items are used;
- Stability analysis and subsequent removal of items from the linking set (if any) during the scaling evaluation process are implemented according to specification (see details in the "Evaluation of Scaling" section in Chapter 8, on page 198); and
- The scaling constants are correctly applied to transform the new item difficulty estimates onto the item bank scale.

Scoring Tables

Once the equating activities are complete and raw-to-scale scoring tables are generated, the psychometricians carry out quality control checks on each scoring table. Scoring tables are checked to verify the following:

- All raw scores are included in the tables;
- Scale scores increase as raw scores increase;
- The minimum reported scale score is 150 and maximum reported scale score is 600; and
- The cut points for the performance levels are correctly identified.

As a check on the reasonableness of the performance levels, psychometricians compare results from the current year with results from the past year at the cut points and the percentage of students in each performance level within the equating samples. After these quality control steps are completed and any differences are resolved, a senior psychometrician inspects the scoring tables as the final step in quality control before ETS delivers them to Pearson.

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 look 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

The statistics based on classical item analyses and the IRT analyses are obtained at two different times in the testing cycle. The first time, the statistics are obtained on the equating samples to ensure the quality of equating and then on larger sample sizes to ensure the stability of the statistics that are to be used for future test assembly. Statistics used to generate DIF flags are also obtained from the larger samples and are provided to test development staff in specially designed Excel spreadsheets called “statistical offloads.” The offloads are thoroughly checked by the psychometric staff before their release for test development review.

Quality Control of Reporting

For the quality control of various STAR student and summary reports, four general areas are evaluated, including the following:

1. Comparing report formats to input sources from the CDE-approved samples
2. Validating and verifying the report data by querying the appropriate student data
3. Evaluating the production print execution performance by comparing the number of report copies, sequence of report order, and offset characteristics to the CDE’s requirements
4. Proofreading reports at the CDE, ETS, and Pearson prior to any school district mailings

All reports are required to include a single, accurate CDS code, a charter school number (if applicable), a school district name, and a school name. All elements conform to the CDE’s official CDS code and naming records. From the start of processing through scoring and reporting, the CDS Master File is used to verify and confirm accurate codes and names. The CDE Master File is provided by the CDE to ETS throughout the year as updates are available.

For students who use more than one answer document, the matching process, as described on page 323, provides for the creation of individual student records from which reports are created.

After the reports are validated against the CDE’s requirements, a set of reports for pilot districts are provided to the CDE and ETS for review and approval. Pearson sends paper reports on the actual report forms, folded as they are expected to look in production. The CDE and ETS review and sign off on the report package after a thorough review.

Upon the CDE’s approval of the reports generated from the pilot test, Pearson proceeds with the first production batch test. The first production batch is selected to validate a subset of school districts that contain examples of key reporting characteristics representative of the state as a whole. The first production batch test incorporates CDE-selected school districts and provides the last check prior to generating all reports and mailing them to the districts.

Excluding Student Scores from Summary Reports

ETS provides specifications to the CDE that document when to exclude student scores from summary reports. These specifications include the logic for handling answer documents that, for example, indicate the student tested but marked no answers, was absent, was not tested due to parent/guardian request, or did not complete the test due to illness. The methods for handling other anomalies (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 and mathematics in grades three through five and science in grade five over the spring 2010 administration, spring 2011 administration and the base year 2009; and for ELA in grades six through eight, mathematics in grades six and seven, and science in grade eight over the spring 2011 administration and the base year 2010.

The indicators of examinee performance include the mean and standard deviation of scale scores, observed score ranges, and the percentage of examinees classified into proficient and advanced performance levels. Test characteristics are compared by looking at the mean proportion correct, overall reliability and SEM, as well as the mean IRT *b*-value for each CMA.

The base year of the CMA refers to the year in which the base score scale was established. Operational forms administered in the years following the base year are linked to the base year score scale using procedures described in Chapter 2.

The 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
Mathematics	3	2009
	4	2009
	5	2009
	6	2010
	7	2010
Science	5	2009
	8	2010

The base years differ over CMAs. Reasons for these differences are as follows:

- In spring 2008, the CMA was 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 was 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 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.

Examinee Performance

Table 10.A.1 and Table 10.A.2 on page 330 contain the number of examinees assessed and the means and standard deviations of examinees' scale scores in the base year (2009 for grade-level tests in grades three through five and 2010 for grade-level tests in grades six through eight), in the non-base year of 2010 for grades three through five only, and in 2011 for grades three through eight for ELA, grades three through seven for mathematics, and grade eight for science grade-level tests. As noted in previous chapters, the CMA reporting scales range from 150 to 600 for all content areas.

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.3 and Table 10.A.4 on page 330; 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.5 through Table 10.A.10 show for each CMA the distribution of scale scores observed in 2009, 2010 and 2011. Frequency counts are provided for each scale score interval of 30. A frequency count of "NA" indicates that there are no obtainable scale scores within that scale score range. For all 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 over-abundance of very difficult items.

Table 10.B.1 and Table 10.B.2 in Appendix 10.B, which starts on page 334, present 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 taking them. Table 10.B.3 and Table 10.B.4 show 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. Pleae note that comparisons of mean b-values should only be made within a given test; they should not be compared across grade levels or content areas.

The average point-biserial correlations for grades three through eight grade-level CMA operational tests are presented in Table 10.B.5 and Table 10.B.6. The reliabilities and standard error of measurement (SEM) expressed in raw score units appear in Table 10.B.7 and Table 10.B.8. 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

Table 10.A.1 Number of Examinees Tested, Scale Score Means and Standard Deviations of CMA Across Base Year (2009), 2010, and 2011, Grades Three Through Five

		Number of Examinees (valid scores)			Scale Score Mean and Standard Deviation					
					Base		2010		2011	
Content Area	CMA	Base	2010	2011	Mean	S.D.	Mean	S.D.	Mean	S.D.
English–Language Arts	3	14,175	15,991	17,609	307	68	307	66	311	71
	4	19,370	22,570	24,969	315	72	320	72	326	73
	5	19,881	23,684	27,577	319	69	322	70	326	75
Mathematics	3	12,075	13,554	15,296	318	70	324	71	327	71
	4	16,462	18,860	20,974	320	80	325	78	328	86
	5	17,591	21,157	24,044	324	77	335	75	347	81
Science	5	18,657	21,955	25,223	335	58	341	56	343	58

Table 10.A.2 Number of Examinees Tested, Scale Score Means and Standard Deviations of CMA for Base Year (2010) and 2011, Grades Six Through Eight

		Number of Examinees (valid scores)		Scale Score Mean and Standard Deviation			
				Base		2011	
Content Area	CMA	Base	2011	Mean	S.D.	Mean	S.D.
English–Language Arts	6	22,755	26,059	307	78	305	88
	7	21,088	24,392	303	76	309	84
	8	19,030	23,020	303	75	309	76
Mathematics	6	21,543	24,404	315	79	320	82
	7	21,000	23,784	294	85	297	86
Science	8	17,606	21,106	320	60	329	68

Table 10.A.3 Percentage of Proficient and Above and Percentage of Advanced Across Base Year (2009), 2010, and 2011, Grades Three Through Five

		% Proficient and Above			% Advanced		
Content Area	CMA	Base	2010	2011	Base	2010	2011
English–Language Arts	3	28%	27%	29%	11%	10%	14%
	4	30%	31%	36%	12%	12%	14%
	5	34%	32%	37%	14%	15%	18%
Mathematics	3	33%	36%	37%	8%	8%	8%
	4	35%	38%	40%	11%	10%	13%
	5	36%	39%	46%	12%	12%	17%
Science	5	42%	44%	45%	14%	13%	15%

Table 10.A.4 Percentage of Proficient and Above and Percentage of Advanced for Base Year (2010) and 2011, Grades Six Through Eight

		% Proficient and Above		% Advanced	
Content Area	CMA	Base	2011	Base	2011
English–Language Arts	6	29%	30%	10%	15%
	7	28%	31%	10%	12%
	8	25%	29%	9%	11%
Mathematics	6	34%	32%	9%	10%
	7	26%	24%	6%	6%
Science	8	31%	37%	10%	14%

Table 10.A.5 Observed Score Distributions of CMA Across Base Year (2009), 2010, and 2011 for ELA, Grades Three through Five

Observed Score Distributions	ELA Grade 3			ELA Grade 4			ELA Grade 5		
	Base	2010	2011	Base	2010	2011	Base	2010	2011
570 – 600	5	3	19	32	34	50	5	62	62
540 – 569	25	14	63	48	54	67	27	NA	113
510 – 539	63	36	N/A	72	91	129	67	98	213
480 – 509	NA	86	147	272	388	183	118	371	304
450 – 479	279	156	241	447	685	656	509	662	977
420 – 449	535	536	812	696	983	1,652	839	1,031	1,418
390 – 419	700	749	1,120	1,293	1,869	2,220	1,907	2,042	2,729
360 – 389	1,361	2,195	1,979	2,183	2,320	2,803	2,467	2,539	3,270
330 – 359	2,038	2,325	2,561	2,759	3,450	3,924	2,679	3,900	3,470
300 – 329	2,447	2,220	2,392	2,533	2,854	3,998	3,487	3,967	4,485
270 – 299	1,878	2,699	2,739	3,042	4,142	2,854	2,451	3,018	4,177
240 – 269	2,464	2,271	2,625	3,386	3,720	3,464	2,695	3,627	2,666
210 – 239	1,616	1,815	1,791	1,766	1,758	2,087	1,800	2,192	2,515
180 – 209	686	771	929	686	644	711	633	505	868
150 – 179	78	122	191	155	145	171	197	91	310

Table 10.A.6 Observed Score Distributions of CMA for Base Year (2010) and 2011 ELA, Grades Six Through Eight

Observed Score Distributions	ELA Grade 6		ELA Grade 7		ELA Grade 8	
	Base	2011	Base	2011	Base	2011
570 – 600	22	64	26	66	36	35
540 – 569	66	60	19	86	52	43
510 – 539	64	266	100	143	75	93
480 – 509	245	235	108	258	208	308
450 – 479	509	664	373	620	378	602
420 – 449	870	1,144	956	1,011	571	825
390 – 419	1,250	2,362	1,455	2,005	1,153	1,747
360 – 389	2,728	1,997	1,942	2,486	1,628	2,203
330 – 359	3,148	3,203	2,346	2,625	2,679	2,578
300 – 329	3,282	3,229	2,982	3,417	2,270	3,556
270 – 299	2,973	3,105	2,937	3,160	3,161	3,729
240 – 269	2,737	2,937	3,077	2,969	3,160	2,622
210 – 239	2,190	2,594	2,726	2,688	1,940	2,904
180 – 209	1,556	2,119	1,303	1,563	1,139	1,209
150 – 179	1,115	2,080	738	1,295	580	566

Table 10.A.7 Observed Score Distributions of CMA Across Base Year (2009), 2010, and 2011 for Mathematics, Grades Three through Five

Observed Score Distributions	Math Grade 3			Math Grade 4			Math Grade 5		
	Base	2010	2011	Base	2010	2011	Base	2010	2011
570 – 600	19	31	28	52	61	168	136	103	246
540 – 569	26	82	90	54	58	163	N/A	147	248
510 – 539	72	N/A	N/A	221	229	235	130	179	349
480 – 509	136	131	167	182	178	655	410	271	495
450 – 479	171	479	596	538	553	426	589	816	1,223
420 – 449	572	317	865	720	1,418	1,721	826	1,165	1,590
390 – 419	797	1,350	1,052	1,383	1,326	1,427	1,031	2,249	2,953
360 – 389	1,795	1,556	2,279	1,854	2,501	2,582	1,874	2,603	3,043
330 – 359	1,309	1,959	2,207	2,231	2,918	1,898	2,801	3,518	3,836
300 – 329	2,165	2,258	2,019	2,448	3,039	2,959	2,887	3,316	2,528
270 – 299	1,505	2,190	2,460	2,440	2,698	3,609	2,161	2,350	3,122
240 – 269	1,816	1,555	2,118	2,091	1,439	2,215	2,559	2,738	2,587
210 – 239	1,145	1,343	1,100	991	1,736	1,191	1,354	1,335	1,242
180 – 209	478	242	293	882	892	1,187	621	554	468
150 – 179	69	61	22	375	346	538	212	152	114

Table 10.A.8 Observed Score Distributions of CMA for Base Year (2010) and 2011 Mathematics, Grades Six and Seven

Observed Score Distributions	Math Grade 6		Math Grade 7	
	Base	2011	Base	2011
570 – 600	75	145	84	119
540 – 569	97	74	111	57
510 – 539	90	300	78	209
480 – 509	294	199	270	354
450 – 479	517	1,114	436	569
420 – 449	820	1,113	646	774
390 – 419	1,908	2,145	969	1,110
360 – 389	2,510	1,831	1,953	2,464
330 – 359	3,019	3,102	1,810	2,062
300 – 329	3,057	3,409	3,391	2,486
270 – 299	3,036	3,460	2,522	4,373
240 – 269	2,711	3,165	2,506	2,912
210 – 239	1,331	2,452	3,359	2,578
180 – 209	1,344	1,295	1,457	1,871
150 – 179	734	600	1,408	1,846

Table 10.A.9 Observed Score Distributions of CMA Across Base Year (2009) and 2011 for Science, Grade Five

Observed Score Distributions	Science Grade 5		
	Base	2010	2011
570 – 600	5	7	12
540 – 569	15	32	39
510 – 539	46	57	76
480 – 509	82	117	104
450 – 479	387	482	892
420 – 449	789	1,370	1,159
390 – 419	2,013	2,604	2,481
360 – 389	2,602	3,026	4,342
330 – 359	3,725	5,437	5,791
300 – 329	4,028	3,690	4,125
270 – 299	2,396	3,547	3,953
240 – 269	1,694	1,569	1,757
210 – 239	731	364	410
180 – 209	123	84	76
150 – 179	21	8	6

Table 10.A.10 Observed Score Distributions of CMA for Base Year (2010) and 2011 Science, Grade Eight

Observed Score Distributions	Science Grade 8	
	Base	2011
570 – 600	18	28
540 – 569	17	40
510 – 539	27	182
480 – 509	110	160
450 – 479	279	745
420 – 449	625	796
390 – 419	1,011	2,186
360 – 389	2,027	2,210
330 – 359	2,780	3,229
300 – 329	4,069	3,503
270 – 299	3,291	4,185
240 – 269	2,333	2,440
210 – 239	759	972
180 – 209	221	362
150 – 179	39	68

Appendix 10.B—Historical Comparisons Tables

Table 10.B.1 Mean Proportion-Correct for Operational Test Items Across Base Year (2009), 2010, and 2011, Grades Three Through Five

		Mean*p*-value		
Content Area	**CMA**	**Base**	**2010**	**2011**
English–Language Arts	**3**	0.56	0.58	0.62
	4	0.53	0.55	0.58
	5	0.60	0.57	0.61
Mathematics	**3**	0.61	0.63	0.63
	4	0.56	0.57	0.59
	5	0.59	0.60	0.63
Science	**5**	0.61	0.60	0.59

Table 10.B.2 Mean Proportion-Correct for Operational Test Items for Base Year (2010) and 2011, Grades Six Through Eight

		Mean *p*-value	
Content Area	**CMA**	**Base**	**2011**
English–Language Arts	**6**	0.56	0.56
	7	0.55	0.60
	8	0.54	0.56
Mathematics	**6**	0.54	0.54
	7	0.47	0.46
Science	**8**	0.53	0.57

Table 10.B.3 Mean IRT *b*-values for Operational Test Items for Base Year (2009), 2010, and 2011, Grades Three Through Five

		Mean IRT *b*-value		
Content Area	**CMA**	**Base**	**2010**	**2011**
English–Language Arts	**3**	–0.35	–0.32	–0.47
	4	–0.12	–0.13	–0.20
	5	–0.45	–0.25	–0.42
Mathematics	**3**	–0.47	–0.47	–0.45
	4	–0.26	–0.25	–0.35
	5	–0.39	–0.28	–0.30
Science	**5**	–0.54	–0.38	–0.29

Table 10.B.4 Mean IRT b-values for Operational Test Items for Base Year (2010) and 2011, Grades Six Through Eight

Content Area	CMA	Mean IRT *b*-value	
		Base	2011
English–Language Arts	6	–0.27	–0.33
	7	–0.29	–0.45
	8	–0.24	–0.26
Mathematics	6	–0.20	–0.14
	7	0.08	0.14
Science	8	–0.18	–0.26

Table 10.B.5 Mean Point-Biserial Correlation for Operational Test Items Across Base Year (2009), 2010, and 2011, Grades Three Through Five

Content Area	CMA	Mean Point-Biserial Correlation		
		Base	2010	2011
English–Language Arts	3	0.37	0.38	0.40
	4	0.34	0.34	0.34
	5	0.35	0.35	0.36
Mathematics	3	0.40	0.40	0.40
	4	0.32	0.31	0.34
	5	0.36	0.36	0.37
Science	5	0.33	0.32	0.33

Table 10.B.6 Mean Point-Biserial Correlation for Operational Test Items for Base Year (2010) and 2011, Grades Six Through Eight

Content Area	CMA	Mean Point-Biserial Correlation	
		Base	2011
English–Language Arts	6	0.29	0.32
	7	0.33	0.35
	8	0.32	0.33
Mathematics	6	0.28	0.29
	7	0.25	0.25
Science	8	0.29	0.32

Table 10.B.7 Score Reliabilities (Cronbach's Alpha) and SEM of CMAs Across Base Year (2009), 2010, and 2011, Grades Three Through Five

		Reliability			SEM		
Content Area	**CMA**	**Base**	**2010**	**2011**	**Base**	**2010**	**2011**
English–Language Arts	**3**	0.87	0.87	0.89	3.14	3.11	3.07
	4	0.83	0.83	0.84	3.20	3.23	3.19
	5	0.84	0.84	0.85	3.08	3.15	3.09
Mathematics	**3**	0.89	0.89	0.89	3.00	3.02	3.02
	4	0.81	0.80	0.83	3.14	3.13	3.11
	5	0.85	0.85	0.87	3.08	3.10	3.03
Science	**5**	0.82	0.81	0.82	3.08	3.16	3.16

Table 10.B.8 Score Reliabilities (Cronbach's Alpha) and SEM of CMAs for Base Year (2010) and 2011, Grades Six Through Eight

		Reliability		SEM	
Content Area	**CMA**	**Base**	**2011**	**Base**	**2011**
English–Language Arts	**6**	0.79	0.83	3.40	3.36
	7	0.84	0.87	3.41	3.33
	8	0.83	0.84	3.38	3.36
Mathematics	**6**	0.78	0.79	3.46	3.45
	7	0.71	0.72	3.50	3.47
Science	**8**	0.80	0.84	3.44	3.38