

# **California Department of Education Standards and Assessment Division**



## **Standards-based Tests in Spanish Technical Report Spring 2008 Administration**

**March 2009  
Educational Testing Service  
Contract No. 5417**



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**Acronyms and Initialisms Used in the *Standards-based Tests in Spanish Technical Report***

ARP	Assessment Review Panel
API	Academic Performance Index
Aprenda 3	La prueba de logros en español, Tercera edición
AYP	adequate yearly progress
CAHSEE	California High School Exit Examination
CI	confidence interval
CAPA	California Alternate Performance Assessment
CAT/6 Survey	California Achievement Tests, Sixth Edition Survey
CDE	California Department of Education
CMA	California Modified Assessment
CSTs	California Standards Tests
CTB/McGraw-Hill	California Testing Bureau/McGraw Hill
DIF	differential item functioning
DPLT	designated primary language test
EL	English learner
ELA	English–language arts
EM	expectation maximization
ETS	Educational Testing Service
FTP	file transfer protocol
GENASYS	Generalized Analysis System
ICC	item characteristic curve
IEP	individualized education program
IRT	item response theory
MH DIF	Mantel-Haenszel DIF
NCLB	No Child Left Behind Act of 2001
NSLP	National School Lunch Program
OTI	Office of Testing Integrity
$p$ -value	item proportion correct
PSAA	Public School Accountability Act
Pt-Rbis	point-biserial correlations
RACF	Random Access Control Facility
RLA	reading/language arts
SBE	State Board of Education
SD	standard deviation
SEM	standard error of measurement
SPAR	Statewide Pupil Assessment Review
STAR	Standardized Testing and Reporting
STS	Standards-based Tests in Spanish
WRMSD	weighted root-mean-square differences

# Chapter 1: Introduction

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## Background

In 1997 and 1998, the California State Board of Education (SBE) adopted rigorous content standards in four major content areas: English–language arts (ELA), mathematics, history–social science, and science. These standards were designed to guide instruction and learning for all students in the state and to bring California students to world-class levels of achievement.

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

The primary goal of the STAR Program is to help measure how well students are mastering these content standards. During its 2008 administration, the STAR Program had six components:

- California Standards Tests (CSTs), produced for California public schools
- California Modified Assessment (CMA), an assessment of students' achievement of California's content standards for English–language arts, mathematics, and science, developed for students with disabilities who meet the CMA eligibility criteria approved by the SBE (In 2008, the CMA was administered to students in grades three, four, and five.)
- California Achievement Tests, Sixth Edition Survey (CAT/6 Survey), given in grades three and seven and published by CTB/McGraw-Hill
- California Alternate Performance Assessment (CAPA), produced for students with significant cognitive disabilities who are not able to take the CSTs, the CMA, or the CAT/6 Survey
- 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) (In 2008, the STS was administered to students in grades two through seven.)
- Aprenda: La prueba de logros en español, Tercera edición (Aprenda 3), given in grades eight and eleven and published by Harcourt Assessment Inc. (The STS replaced the Aprenda 3 as the DPLT in grades two through seven in 2008.)

### **Education Code Section 60602: Legislative Intent**

The results for tests within the STAR Program are used for three primary purposes, described as follows (excerpted from California *Education Code* Section 60602, <http://leginfo.legislature.ca.gov/faces/codes.xhtml>).

“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 state and federal accountability purposes.

## **Standards-based Tests in Spanish**

### ***STS Legislative Intent***

According to the California *Education Code* Section 60640 (<http://leginfo.legislature.ca.gov/faces/codes.xhtml>)

“60640. (f) (1) ... pupils with limited English proficiency who are enrolled in any of grades 2 to 11, inclusive, may take a second achievement test in their primary language. Primary language tests administered pursuant to this subdivision and subdivision (g) shall be subject to the requirements of subdivision (a) of Section 60641. These primary language tests shall produce individual pupil scores that are valid and reliable.”

The purpose of the STS program is to permit students to demonstrate achievement of the California content standards in reading/language arts (RLA) and mathematics through a primary language test in Spanish. These content standards, approved by the SBE, describe what students should know and be able to do at each grade level. The STS test results are not part of the accountability system in California.

### ***Target Population***

STS tests are targeted toward Spanish-speaking English learners who have been in U.S. schools less than a year or who receive instruction in Spanish. However, all students who are English learners and whose primary language is Spanish are eligible to take the STS. The two distinct STS populations are the “target” and “nontarget/optional” students. The target population consists of students receiving instruction in Spanish or students who have been in U.S. schools less than 12 months. These are cumulative, not necessarily consecutive, months. The optional population consists of students who receive instruction in English and who have been in U.S. schools longer than 12 cumulative months.

The STS in 2008 included RLA and mathematics for eligible students in grades two through seven. Between 2,900 and 18,000 students took each STS in 2008; approximately two-thirds of the test takers belonged to the STS target population. The numbers were smaller for higher-grade STS tests than for lower-grade tests. The details on these statistics for each STS are presented later in this report.

### ***Test Description***

All STS tests contain four-option multiple-choice items and include a set of six field-test items which are not counted toward students' scores. The grade-level STS consists of several versions, each of which contains a different set of six field-test items.

The STS is administered at different times depending on the progression of the school year within each particular district. Specifically, schools must administer the CSTs, the CMA, the CAT/6 Survey, the CAPA, and the STS within a 21-day window which begins ten days before and ends ten days after the day on which 85 percent of the instructional year is completed.

The STS tests are administered in an untimed fashion. California Department of Education (CDE) guidelines for the time within which most students would be expected to finish the STS by test and grade level can be found in Appendix 1.A—2008 STS Item and Estimated Time Chart.

Results of the STS are reported using percent correct scores. The STS score report information includes percent correct scores at both the test level and the reporting cluster level.

## **Significant Development in 2008: Grade Levels Tested**

2008 is the first year in which the STS for RLA and Mathematics tests were administered to eligible students in grades five through seven. Before 2008, the STS tests were only administered to eligible students in grades two to four.

## **Overview of the Technical Report**

This technical report contains seven additional chapters, as follows:

- Chapter 2 describes the procedures followed in the development of valid STS items and in the construction of the STS test forms for 2008. In addition, characteristics of the constructed 2008 test forms are presented in Chapter 2.
- Chapter 3 documents the STS calibration steps and describes the procedures followed to prepare for equating and scaling the STS in future years. The raw-to-theta conversions are presented for each STS and are included in Chapter 3.
- Chapter 4 details the evidence supporting the validity aspect of the STS.
- Chapter 5 describes the kinds of score reports that are produced at the end of each administration of the STS. It also summarizes the test-level analyses performed on scores obtained during the spring 2008 administration of the tests.
- Chapter 6 highlights the importance of maintaining fairness in the STS for various subgroups. It summarizes demographic differences in performance, describes accommodations and modifications, and reports on analyses of differential item functioning (DIF). Chapter 6 also includes a section describing procedures that were followed by Educational Testing Service (ETS) to ensure test security.
- Chapter 7 discusses the various types of evidence collected to ensure the acceptable quality of operational and field-test items. Summaries of classical item analysis

statistics, Rasch difficulty estimates, and evaluations of the Rasch model-data fit are included in Chapter 7.

- Chapter 8 summarizes the reliability analyses, including test reliability, accuracy, and intercorrelations of reporting cluster scores. Some of these analyses are also replicated for various subsections of the test-taking population in order to look at reliabilities at subgroup levels.

Each chapter contains summary tables in the body of the text. However, extended appendixes that report technical data for the different STS tests are listed at the end of the relevant chapters.

## Appendix 1.A—2008 STS Item and Estimated Time Chart

Standards-based Tests in Spanish	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	Total No. of Items	Time *										
<b>Reading/Language Arts</b>		<b>150</b>		<b>150</b>		<b>170</b>		<b>170</b>		<b>170</b>		<b>170</b>
Part 1	<b>71</b>	50	<b>71</b>	50	<b>81</b>	85	<b>81</b>	85	<b>81</b>	85	<b>81</b>	85
Part 2		50		50		85		85		85		
Part 3 (grades 2 and 3 only)		50		50		–		–		–		
<b>Mathematics</b>		<b>150</b>		<b>150</b>		<b>150</b>		<b>150</b>	<b>71</b>	<b>150</b>		<b>150</b>
Part 1	<b>71</b>	50	<b>71</b>	50	<b>71</b>	75	<b>71</b>	75		75	<b>71</b>	75
Part 2		50		50		75		75	75			
Part 3 (grades 2 and 3 only)		50		50		–		–	–			

\* Time is expressed in minutes.

## Chapter 2: STS Development Procedures

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The STS is constructed to measure students' achievement of the California content standards as well as to meet psychometric criteria for test validity, difficulty, and reliability. The psychometric criteria were evaluated using projections on the basis of item statistics from field-testing or previous operational administrations.

### Test Assembly Procedures

One of the first steps in the development of a standardized test is the creation of the test blueprint. As with the other components of the STAR Program, the STS test blueprints were proposed by ETS, reviewed and recommended by the respective Assessment Review Panels (ARPs), reviewed and approved by the CDE, and presented to the SBE for adoption.

For each STS test, the California content standards were used as the basis for choosing test items. Additional technical targets (for example, difficulty and discrimination) for test construction were established for the STS for grades two to four on the basis of past characteristics of the tests, with the goals of having the test difficulty match the target population and maintaining parallel forms. For the STS for grades five to seven, the 2007 fall field-test did not produce sufficient sample sizes for item analysis; therefore, no statistical targets were established for these tests and the forms were built primarily using content expertise.

### Test Specifications

#### *Statistical Specifications*

The primary statistical targets used to assemble the STS grades two to four tests in 2008 were the test information function on the basis of the item response theory (IRT) item parameters and an average point-biserial correlation. When using the Rasch model, the target information function makes it possible to choose items to produce a test that has the desired precision of measurement at all ability levels. The target mean and standard deviation of item  $b$ -values consistent with the information curves were also provided to test development staff to help with the test construction process. The point-biserial correlation is a measure of how well the items discriminate among test takers and is related to the overall reliability of the test.

These specifications were developed from the analyses of the test forms for grades two through four administered in 2007 and items field-tested in the fall of 2006; the target values and ranges for the specifications are presented in Table 2.1, on the next page. The minimum target value for an item point biserial was set at 0.14 for each test.

Assembly targets included the total test target and (reporting) cluster score targets. The latter was used to stabilize cluster score performance across years. The target mean and standard deviations of the IRT  $b$ -values for the clusters are presented in Table 2.C.1 and Table 2.C.2 in Appendix 2.C, starting on page 21. Because the cluster scores include far fewer items than the total test, greater variability between the target and the constructed curves for the cluster scores are expected.

Meeting the target for the total test was of primary importance. The graphics for the information curve of the total test for the RLA and mathematics tests are presented in Figure 2.B.1 and Figure 2.B.2, starting on page 19. These curves present the target test information curves in comparison with the projected test features for the total for each test.

Figure 2.C.1 through Figure 2.C.6, starting on page 22, present similar information for the cluster scores for the RLA and mathematics tests, respectively.

### Content Specifications

ETS developed all STS test items to conform to the SBE-approved content standards and test blueprints. The content blueprints for the STS can be found on the CDE STAR STS Blueprints Web page at <http://www.cde.ca.gov/ta/tg/sr/stsblueprints.asp>. Although the test blueprints called for distributions of items at the individual standard level, for reporting purposes, the content for each STS was aggregated across standards into subcontent areas, referred to as “reporting clusters.” For each STS reporting cluster, the percentage of questions correctly answered by students was reported. A description of the STS reporting clusters and the standards that compose the reporting clusters is provided in Appendix 2.A—Reporting Clusters starting on page 15.

**Table 2.1 Target Statistical Specifications for the STS**

Subject	STS	Target Mean b	Target SD b	Min p-value	Max p-value	Mean Point Biserial	Min Point Biserial
<i>Reading/Language Arts</i>	2	-0.44	0.91	0.20	0.95	> 0.37	0.14
	3	-0.46	0.88	0.20	0.95	> 0.37	0.14
	4	-0.45	0.71	0.20	0.95	> 0.37	0.14
<i>Mathematics</i>	2	-0.75	0.94	0.20	0.95	0.39 – 0.45	0.14
	3	-0.58	0.88	0.20	0.95	0.39 – 0.45	0.14
	4	-0.49	0.65	0.20	0.95	0.39 – 0.45	0.14

An important part of the STS specifications for STS is that all items are written in Spanish, rather than translated or trans-adapted from English. In addition, all commissioned reading passages and all previously published reading passages were originally written in Spanish.

### Item Development

ETS senior content staff led the item writers in the item development and review process. In addition, experienced ETS content specialists and assessment editors reviewed each item during the forms construction process. The lead assessment specialist for each content area worked directly with the other ETS assessment specialists to carefully review and edit each item for technical characteristics like quality (for example, one right answer, clearly stated stem, absence of clueing, plausibility of, distractors), match to standard, and conformity with California-approved item-writing practices.

ETS maintains item specifications for each STS test. ETS followed the approved Item Utilization Plan found in the STAR contract to guide the development of the quantity of items for each subject area. This plan includes strategies for continued coverage of all appropriate standards for all tests in each content area and at each grade level. Item specification documents for 2008 included the constructs to be measured and the California content standards included in the test blueprints.

The item specifications help ensure that the STS tests consistently match the content standards from year to year. Item writing emphasis is determined in consultation with the CDE. The item specifications also provide specific and important guidance to item writers and ensure that items are consistent in approach and written to measure students' achievement of the standards. The item specifications describe the general characteristics of the items for each content standard, indicate item types, or content to be avoided, and define the content limits for the items. In summary, the specifications include the following:

- A statement of the strand or topic for the standard
- A full statement of the academic content standard, as found in each STS blueprint
- The construct(s) appropriately measured by the standard
- A description of the kinds of stems appropriate for multiple-choice items for the standard
- A set of sample stems that appropriately measure a given standard
- A description of the kinds of distracters appropriate for multiple-choice items for the standard
- A description of specific kinds of items to be avoided, if any (such as RLA items about insignificant details)
- A description of appropriate stimuli (such as charts, tables, graphs, or other illustrations) for mathematics items
- The content limits for the standard (such as one or two variables, maximum place values of numbers) for mathematics items
- A description of appropriate reading passages (if applicable) for RLA items

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

- A list of topics to be avoided
- The acceptable ranges for passage length
- The expected distribution of passages by genre
- Guidelines for readability and concept load, using standards agreed to by the CDE and ETS
- Expected use of illustrations
- The target number of items attached to each reading passage and each writing passage

According to the No Child Left Behind Act of 2001 (NCLB), universally designed assessments are those that are “designed from the beginning to be accessible and valid with respect to the widest possible range of students, including students with disabilities and students with limited English proficiency” (NCLB, 34 *CFR*, Part 200.2[b][2]). ETS followed the principles of universal design in developing items and reading passages for the STS.

## **Item Review Process**

The items selected for each STS undergo an extensive item review process that is designed to provide all California students with the best standards-based tests possible. This section summarizes the various reviews that contributed to the validity of 2008 STS items and test forms.

### ***Internal Reviews***

After the items have been written, ETS employs a series of internal reviews. The reviews establish the criteria used to judge the content validity of an item, making sure 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 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 content

area assessment specialists review each item before it is brought to the CDE and the ARP and, later, Statewide Pupil Assessment Review (SPAR) panels.

The ETS review process for the STS included the following:

1. Internal content review
2. Internal editorial review
3. Internal sensitivity review (including U.S. and all Spanish speaking countries' bias and sensitivity issues)

Throughout this multistep item review process, the lead content area assessment specialists and development team members continually evaluate the relevance of the information being assessed, its relevance to the California content standards, its match to the test and item specifications, and its appropriateness to the population being assessed. Items that are only peripherally related to the test and item specifications, that do not measure core outcomes reflected in the California content standards, or that are not developmentally appropriate are eliminated early in this rigorous review process.

### **1. Internal Content Review**

Test items and materials undergo three reviews from the content area assessment specialists which include a senior content review. 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 on the basis of the following criteria:

- Relevance of each item as the item relates to the purpose of the test
- Match of each item to the item specifications
- Match of each item to the principles of quality item development
- Match of each item to the identified standard
- 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, figures, or other illustrations

The assessment specialists also check all items against their classification codes, both to evaluate the correctness of the classification and to ensure that a given task is of a type appropriate to the outcome it was intended to measure. The reviewers accept the item and classification as written, suggest revisions, or recommend that the item be discarded. These steps occurred prior to the CDE's review.

### **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 questions 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 it is prepared for the CDE and ARP review. In addition, 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

### **Assessment Review Panels (ARPs)**

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

### **ARP Meetings for Review of STS Items**

The ETS content-area assessment specialists facilitate the STS ARP meetings. Each meeting began 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 STS
- Overview of the STS's test design specifications and blueprints
- Analysis of the STS's item specifications
- Overview of criteria for evaluating multiple-choice test items
- Overview of universally accessible Spanish language used to develop multiple-choice test items.
- Review and evaluation of items for bias and sensitivity issues

The criteria for evaluating multiple-choice items included:

- 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 distracters
- Bias and sensitivity factors

Criteria also include more global issues, including—for RLA—the appropriateness, difficulty, and readability of reading passages. The ARPs also were trained on how to make

recommendations for revising items. Guidelines for reviewing items were provided by ETS and approved by the CDE. The set of guidelines for reviewing items is summarized 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 served to identify potential bias and sensitivity factors that the ARP consider as a part of its item reviews.

Depending on CDE approval and the numbers of items still to be reviewed, some ARPs are further divided into smaller groups. These smaller groups are facilitated by the content area assessment specialists as well.

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

### ***Statewide Pupil Assessment Review (SPAR) Panel***

The SPAR panel is responsible for reviewing all questions to be field-tested for use in future operational assessments 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 *Education Code* Section 60614. If the SPAR panel recommends the rejection of specific items, the items are not included in the field test sample. For the SPAR panel meeting, the

item development coordinator or an ETS content specialist is available by phone to respond to any questions during the course of the meeting.

## Technical Characteristics of the Assembled Tests

Technical characteristics of the assembled tests prior to the 2008 administration were estimated using Gulliksen's (1987) formula for estimating test reliability from item  $p$ -values and item point-biserial correlations:

$$r_{xx} = \left( \frac{K}{K-1} \right) \left( 1 - \frac{\sum_{g=1}^K s_g^2}{\left( \sum_{g=1}^K r_{xg} s_g \right)^2} \right), \quad (2.1)$$

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 means are calculated by summing the item  $p$ -values and estimated standard deviations are calculated by summing the item reliability indices. Table 2.B.1 on page 18 presents these summary values by subject area for STS grades two to four. For STS grades five to seven, such analyses were not conducted as the 2007 fall field-test did not produce sufficient sample sizes for item analysis.

In general, the projected reliabilities of the STS were at or above the levels considered acceptable for such tests, ranging from 0.90 to 0.93. It should be noted that the projected reliabilities in Table 2.B.1 were based on item  $p$ -values and point-biserial correlations that, for some of the items, were based on external field-testing using samples of students that were not fully representative of the state. Chapters 7 and 8 present item  $p$ -values, point-biserial correlations, and test reliability estimates based on the data from the 2008 STS administration.

Table 2.B.2 on page 18 shows the mean observed statistics based on field-test statistics for the STS tests. These values can be compared to the target values in Table 2.1 on page 7. This suggests that the test forms of RLA for grades three and four, based on field-test statistics, were slightly more difficult than the target specifications, and all other test forms were slightly easier than the target specifications. The discrepancy between the difficulty level of the constructed forms and the target is due to the limitation of the item pool for the STS tests. The spread of item difficulties was in line with specifications. The field-test-based projected mean point-biserial correlation exceeded the target in almost all cases. The RLA grade four form did not meet the minimum point biserial target due to the limitations of the item pool.

The graphics in Figure 2.B.1 and Figure 2.B.2 for the total test, and Figure 2.C.1 through Figure 2.C.6, for the cluster scores, show the comparisons of the target test information function and the projected test information function based on field test item parameter estimates for each of the STS tests. Because 2008 is only the second operational year for STS grades two through four, not all test forms have projected test information curves that

are exceptionally close to the target curves. It is anticipated that, over the next few administrations, the field testing of more items will continue to adjust the overall difficulty of this test and reduce the gap between the projected test information curve and the target curve.

## References

Gulliksen, H. 1987. *Theory of Mental Tests*. Hillsdale, NJ: Erlbaum.

No Child Left Behind Act of 2001, 20 U.S.C. 6301 et seq.

## Appendix 2.A—Reporting Clusters

### Reading/Language Arts

#### Grade Two Reading/Language Arts Standards Test

##### *Reading*

Word Analysis and Vocabulary Development	22 items
Reading Comprehension	15 items
Literary Response and Analysis	6 items

##### *Writing*

Written Conventions	14 items
Writing Strategies	8 items

#### Grade Three Reading/Language Arts Standards Test

##### *Reading*

Word Analysis and Vocabulary Development	20 items
Reading Comprehension	15 items
Literary Response and Analysis	8 items

##### *Writing*

Written Conventions	13 items
Writing Strategies	9 items

#### Grade Four Reading/Language Arts Standards Test

##### *Reading*

Word Analysis and Vocabulary Development	18 items
Reading Comprehension	15 items
Literary Response and Analysis	9 items

##### *Writing*

Written Conventions	18 items
Writing Strategies	15 items

#### Grade Five Reading/Language Arts Standards Test

##### *Reading*

Word Analysis and Vocabulary Development	14 items
Reading Comprehension	16 items
Literary Response and Analysis	12 items

##### *Writing*

Written Conventions	17 items
Writing Strategies	16 items

**Grade Six Reading/Language Arts Standards Test**

<i>Reading</i>	
Word Analysis and Vocabulary Development	13 items
Reading Comprehension	17 items
Literary Response and Analysis	12 items
<i>Writing</i>	
Written Conventions	16 items
Writing Strategies	17 items

**Grade Seven Reading/Language Arts Standards Test**

<i>Reading</i>	
Word Analysis and Vocabulary Development	11 items
Reading Comprehension	18 items
Literary Response and Analysis	13 items
<i>Writing</i>	
Written Conventions	16 items
Writing Strategies	17 items

**Mathematics****Grade Two Mathematics Standards Test**

<i>Number Sense</i>	
Place Value, Addition, and Subtraction	15 items
Multiplication, Division, and Fractions	23 items
<i>Algebra and Functions</i>	
	6 items
<i>Measurement and Geometry</i>	
	14 items
<i>Statistics, Data Analysis, and Probability</i>	
	7 items

**Grade Three Mathematics Standards Test**

<i>Number Sense</i>	
Place Value, Fractions, and Decimals	16 items
Addition, Subtraction, Multiplication, Division	16 items
<i>Algebra and Functions</i>	
	12 items
<i>Measurement and Geometry</i>	
	16 items
<i>Statistics, Data Analysis, and Probability</i>	
	5 items

**Grade Four Mathematics Standards Test**

<i>Number Sense</i>	
Decimals, Fractions, and Negative Numbers	17 items
Operations and Factoring	14 items
<i>Algebra and Functions</i>	18 items
<i>Measurement and Geometry</i>	12 items
<i>Statistics, Data Analysis, and Probability</i>	4 items

**Grade Five Mathematics Standards Test**

<i>Number Sense</i>	
Estimation, Percents, and Factoring	12 items
Operations with Fractions and Decimals	17 items
<i>Algebra and Functions</i>	17 items
<i>Measurement and Geometry</i>	15 items
<i>Statistics, Data Analysis, and Probability</i>	4 items

**Grade Six Mathematics Standards Test**

<i>Number Sense</i>	
Ratios, Proportions, Percentages, and Negative Numbers	15 items
Operations with Problem Solving with Fractions	10 items
<i>Algebra and Functions</i>	19 items
<i>Measurement and Geometry</i>	10 items
<i>Statistics, Data Analysis, and Probability</i>	11 items

**Grade Seven Mathematics Standards Test**

<i>Number Sense</i>	
Rational Numbers	14 items
Exponents, Powers, and Roots	8 items
<i>Quantitative Relationships and Evaluating Expressions</i>	10 items
<i>Multistep Problems, Graphing, and Functions</i>	15 items
<i>Measurement and Geometry</i>	13 items
<i>Statistics, Data Analysis, and Probability</i>	5 items

## Appendix 2.B—Technical Characteristics Tables and Plots

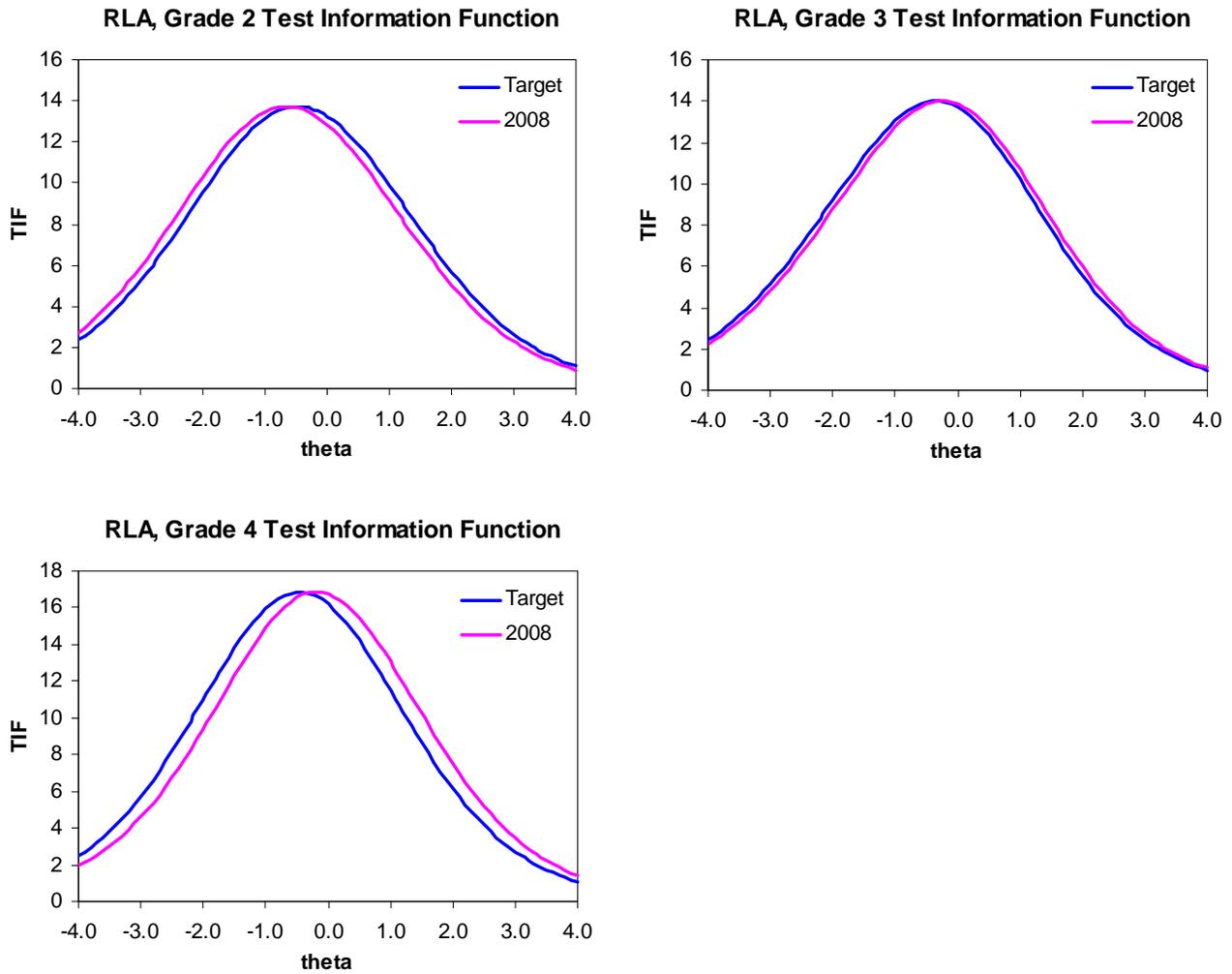
Table 2.B.1 Summary of 2008 STS Projected Technical Characteristics

Subject	STS	Number of Items	Mean Raw Score	Standard Deviation of Raw Scores	Reliability
<i>Reading/Language Arts</i>	2	65	40.81	12.03	0.92
	3	65	37.08	11.34	0.90
	4	75	40.45	13.54	0.92
<i>Mathematics</i>	2	65	44.85	11.32	0.92
	3	65	43.70	12.55	0.93
	4	65	39.92	12.50	0.92

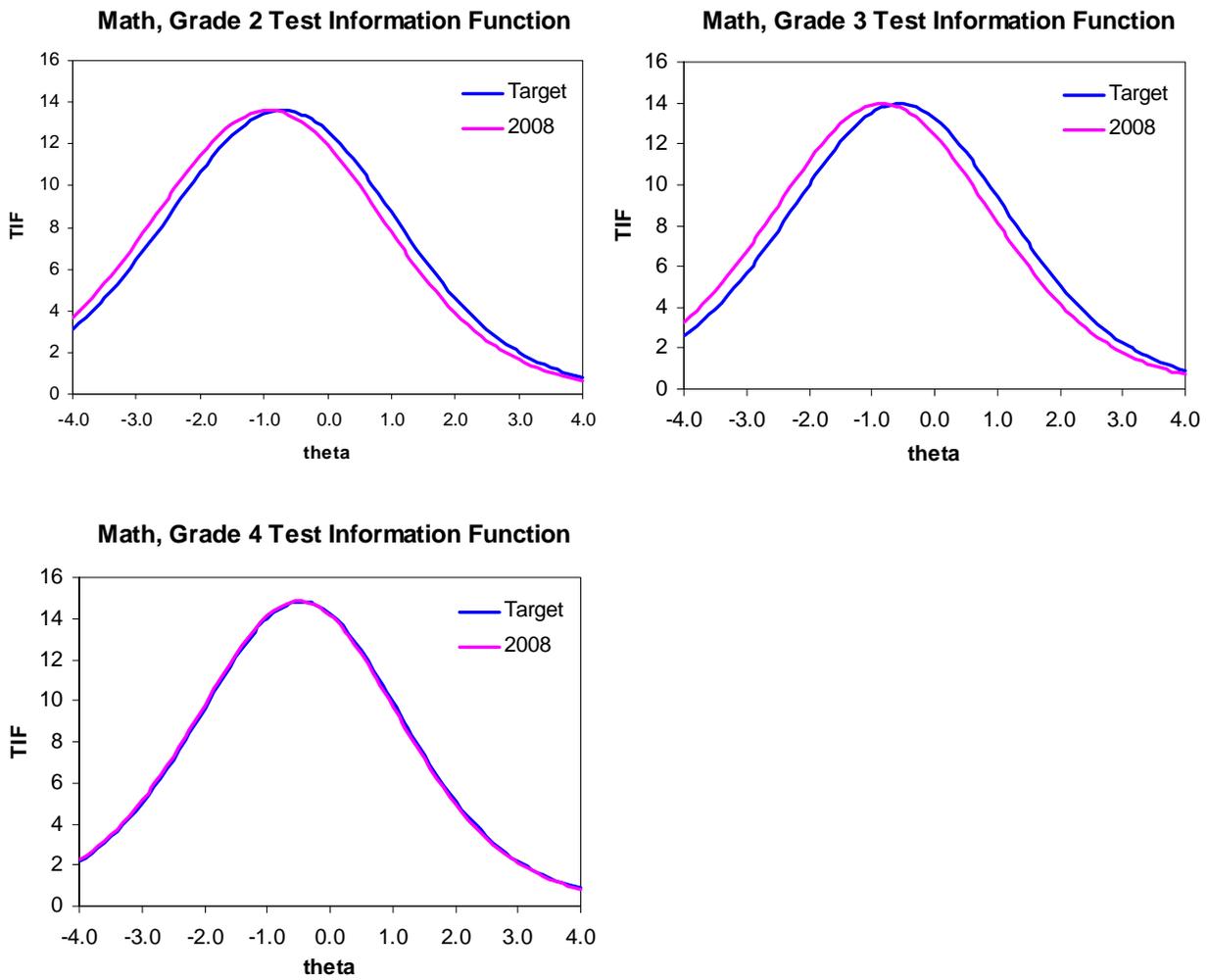
Table 2.B.2 Summary of 2008 STS Projected Statistical Attributes

Subject	STS	Mean b	SD b	Mean <i>p</i> -value	Min <i>p</i> -value	Max <i>p</i> -value	Mean Point Biserial	Min Point Biserial
<i>Reading/Language Arts</i>	2	-0.62	0.90	0.63	0.28	0.90	0.41	0.17
	3	-0.36	0.87	0.57	0.26	0.92	0.37	0.14
	4	-0.18	0.71	0.54	0.20	0.86	0.38	0.06
<i>Mathematics</i>	2	-0.96	0.93	0.69	0.38	0.95	0.40	0.21
	3	-0.85	0.87	0.67	0.31	0.94	0.43	0.25
	4	-0.52	0.65	0.61	0.36	0.86	0.42	0.27

**Figure 2.B.1 Comparison Plots for Target Information Function and Projected Test Information for Reading/Language Arts**



**Figure 2.B.2 Comparison Plots for Target Information Function and Projected Test Information for Mathematics**



## Appendix 2.C—Cluster Targets

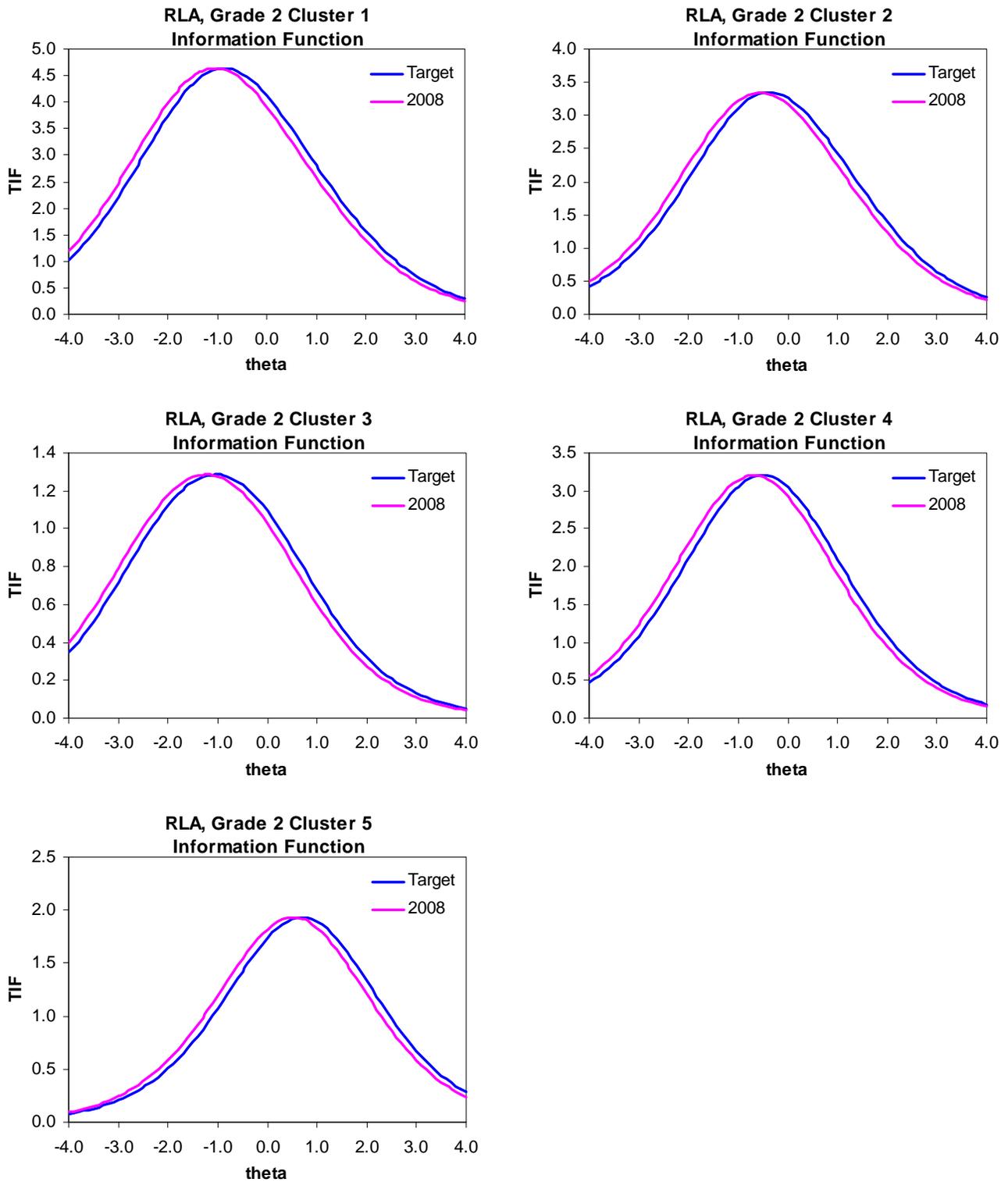
**Table 2.C.1 Target Cluster IRT *b*-values for Reading/Language Arts (Grades Two to Four)**

Clusters	Grade 2			Grade 3			Grade 4		
	N	Mean	Stdev	N	Mean	Stdev	N	Mean	Stdev
1	22	-0.74	0.97	20	-1.08	0.98	18	-0.75	0.61
2	15	-0.29	0.76	15	-0.10	0.67	15	-0.25	0.63
3	6	-1.05	0.87	8	-0.35	1.18	9	0.09	0.78
4	14	-0.51	0.66	13	-0.26	0.32	18	-0.70	0.67
5	8	0.67	0.41	9	-0.05	0.55	15	-0.33	0.73

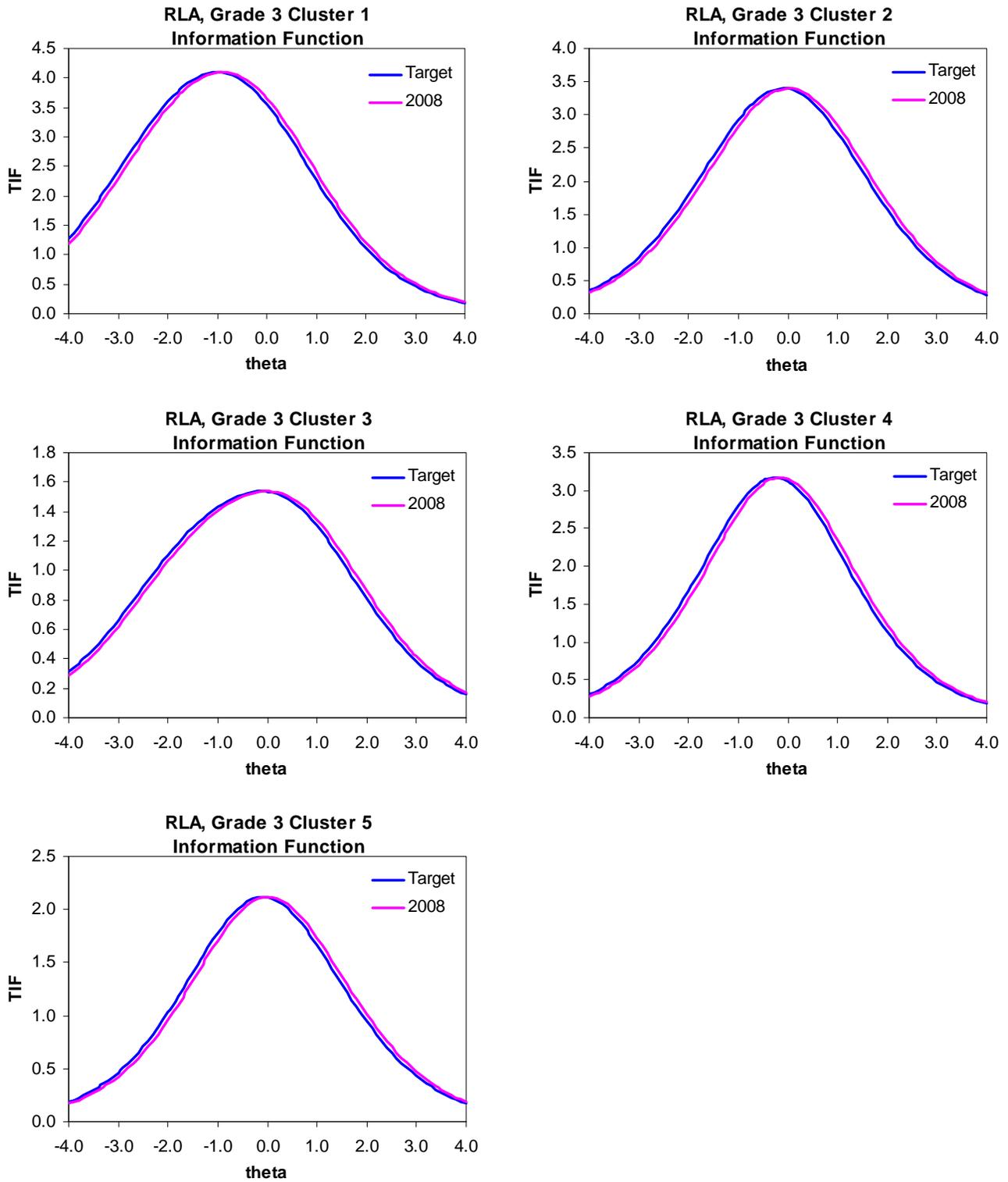
**Table 2.C.2 Target Cluster IRT *b*-values for Mathematics (Grades Two to Four)**

Clusters	Grade 2			Grade 3			Grade 4		
	N	Mean	Stdev	N	Mean	Stdev	N	Mean	Stdev
1	15	-0.65	0.88	16	-0.42	0.88	17	-0.72	0.74
2	23	-0.67	1.15	16	-0.63	0.88	14	-0.24	0.69
3	6	-0.37	0.60	12	-0.24	0.84	18	-0.56	0.44
4	14	-1.09	0.75	16	-0.80	0.94	12	-0.47	0.66
5	7	-0.87	0.87	5	-1.05	0.55	4	-0.09	0.71

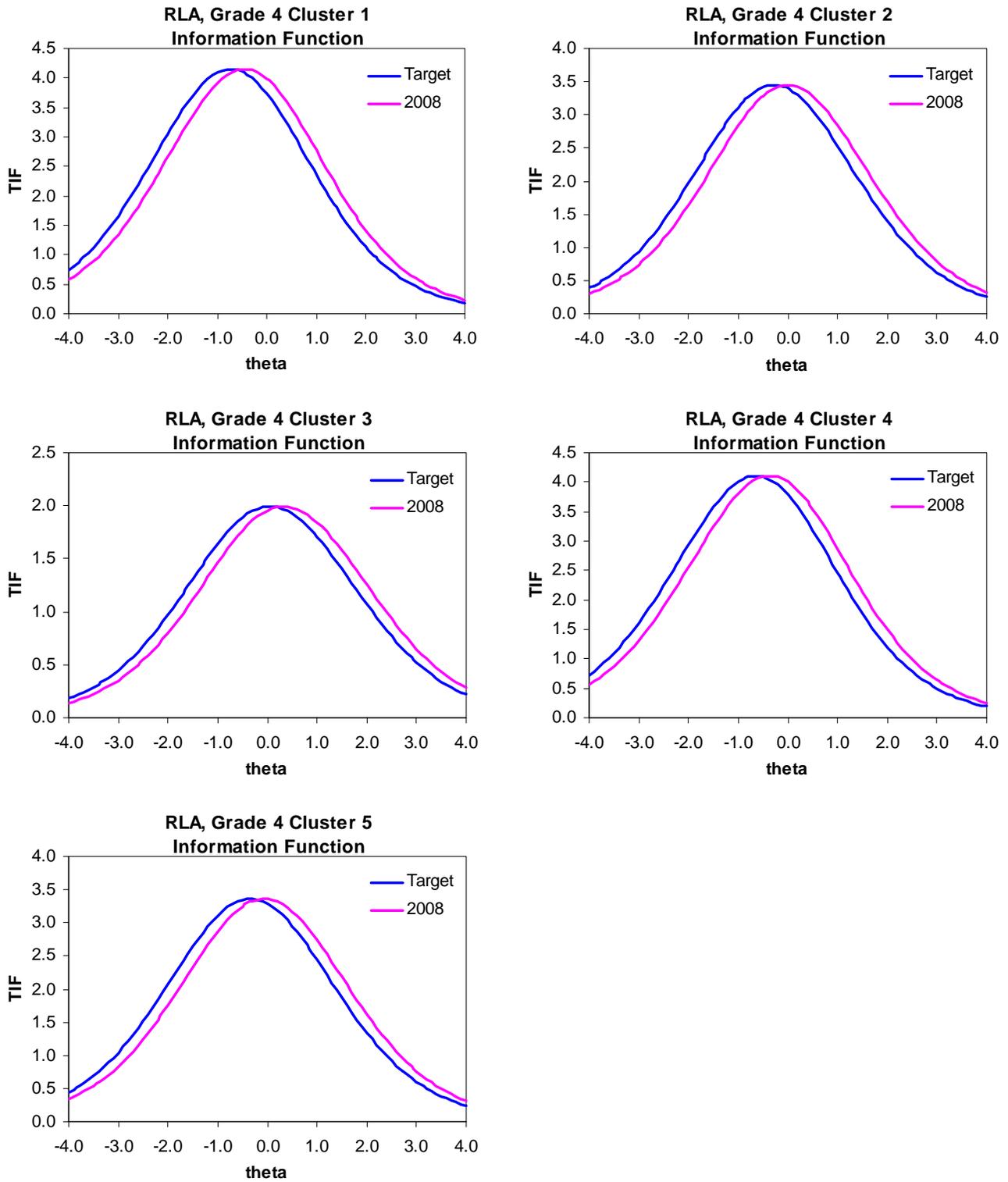
**Figure 2.C.1 Comparison Plots for Target Cluster Information Function and Projected Cluster Information for Reading/Language Arts Grade Two**



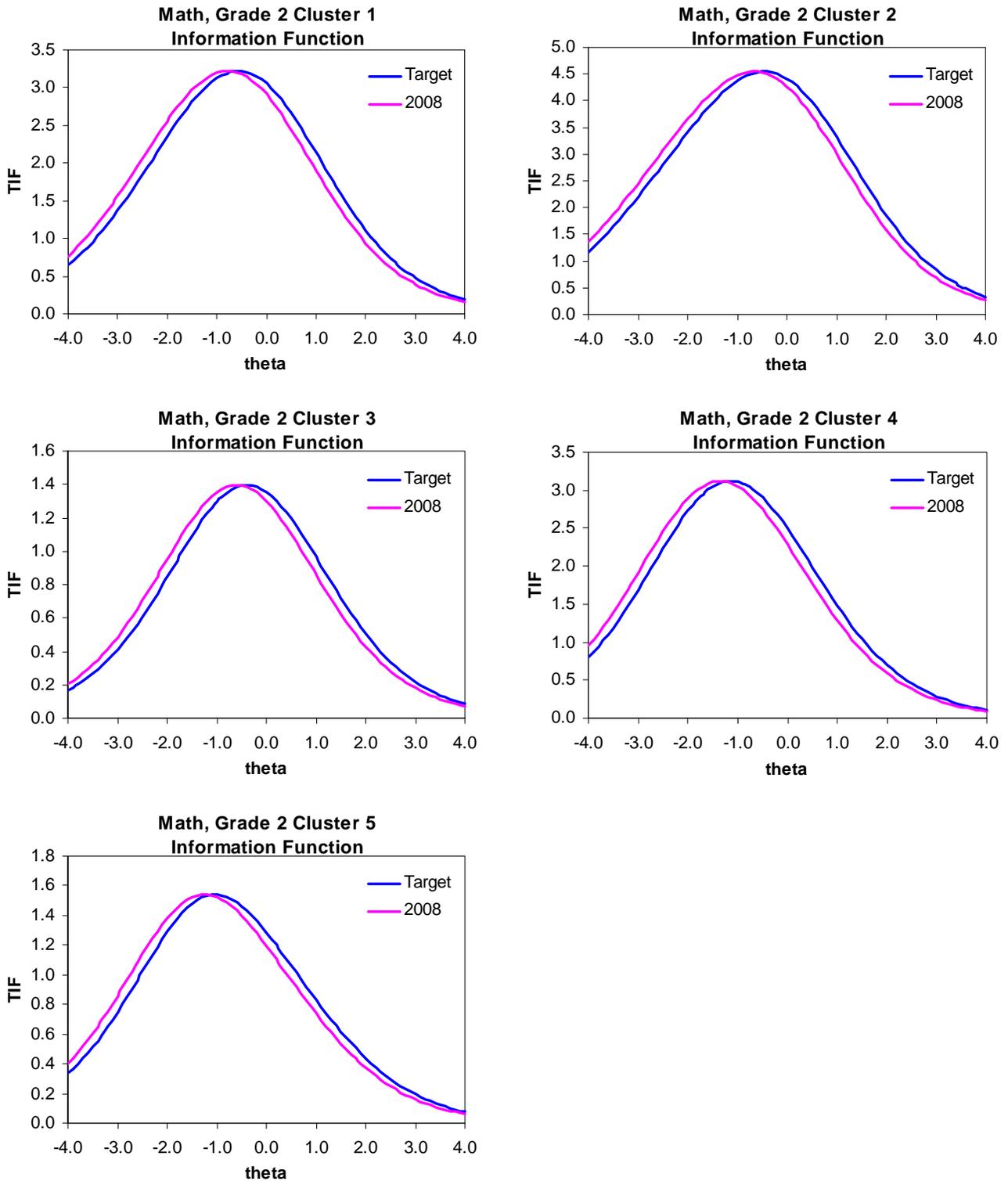
**Figure 2.C.2 Comparison Plots for Target Cluster Information Function and Projected Cluster Information for Reading/Language Arts Grade Three**



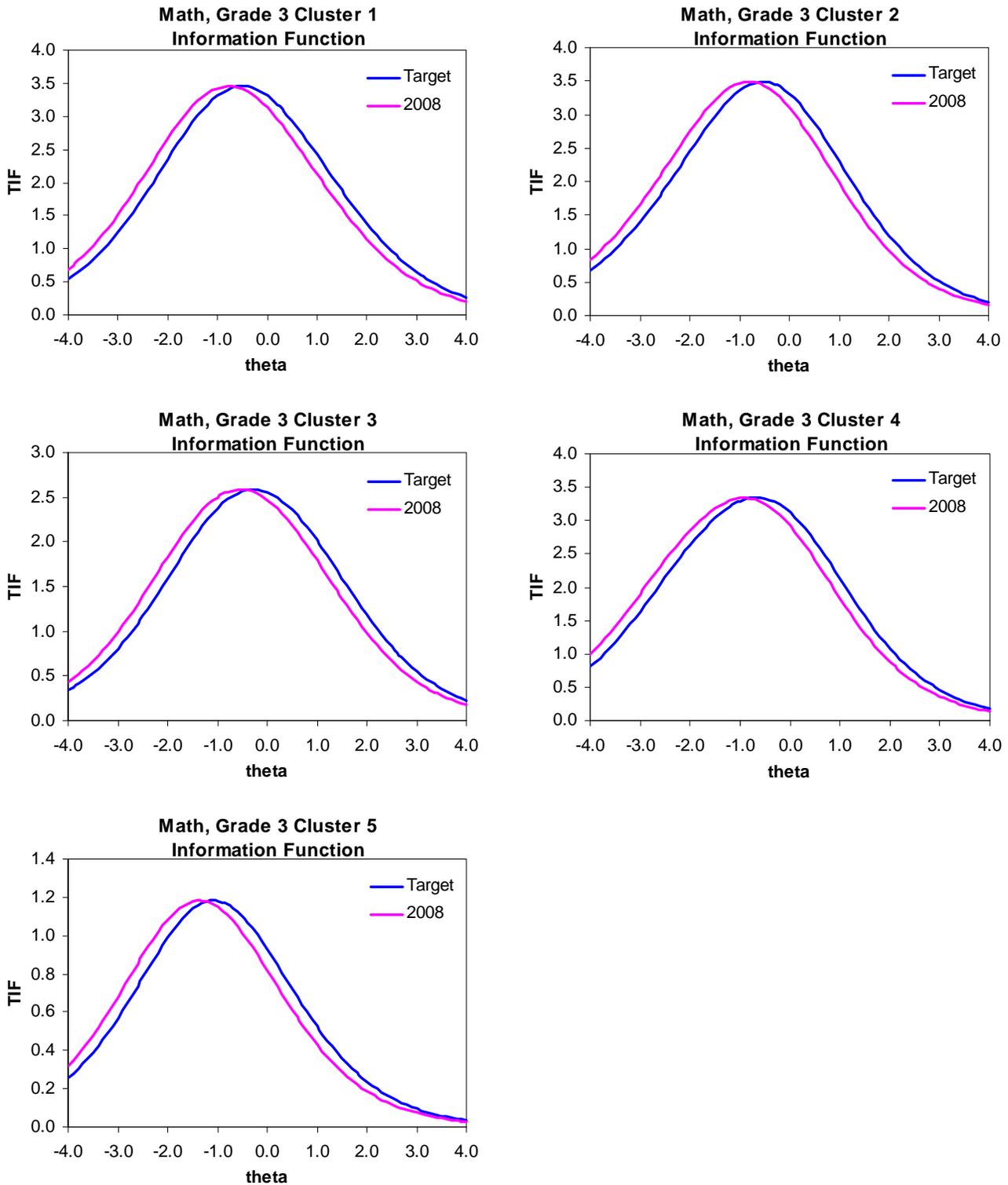
**Figure 2.C.3 Comparison Plots for Target Cluster Information Function and Projected Cluster Information for Reading/Language Arts Grade Four**



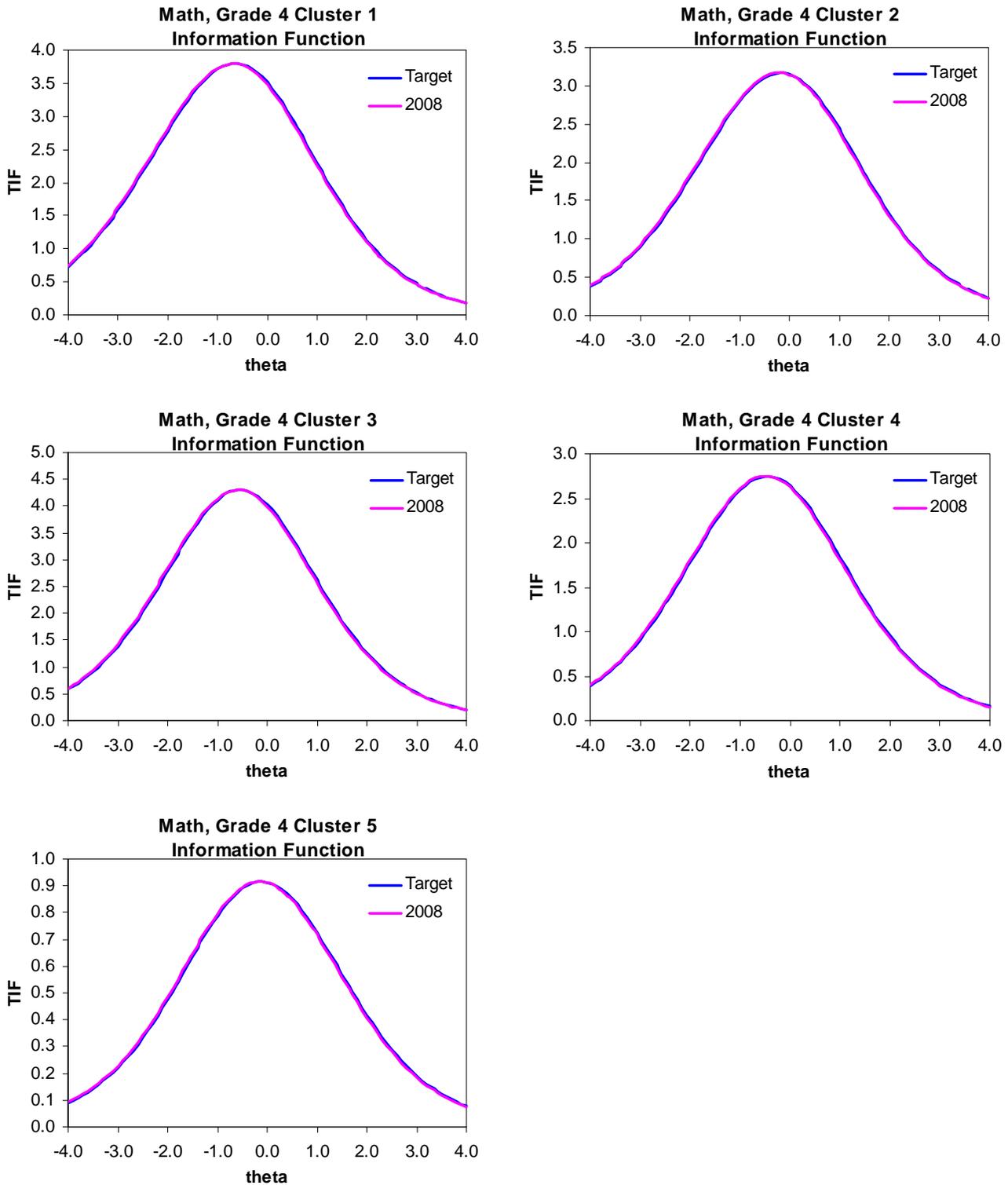
**Figure 2.C.4 Comparison Plots for Target Cluster Information Function and Projected Cluster Information for Mathematics Grade Two**



**Figure 2.C.5 Comparison Plots for Target Cluster Information Function and Projected Cluster Information for Mathematics Grade Three**



**Figure 2.C.6 Comparison Plots for Target Cluster Information Function and Projected Cluster Information for Mathematics Grade Four**



## Chapter 3: STS Equating and Scaling Procedures

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When test forms are created, two primary criteria must be simultaneously satisfied. The first is content-based; test items must be distributed according to content specifications. The second is statistical; the items must have a specified distribution of difficulty or specified average difficulty and a specified average discrimination (correlation between the item score and the test score). These criteria help ensure that all forms of a test are parallel (equally reliable and measure the same construct). However, despite the efforts taken when a test is constructed, forms of a test will still differ in difficulty to a small degree. The equating process is used to adjust for these small differences in difficulty so that test takers can be fairly compared regardless of the test form they take. However, because no scale scores are currently being reported for STS tests and no proficiency levels have been established, there is no need for the equating procedure. Only item calibration steps were conducted and are described in this chapter.

### Test Construction and Review

The STS grades two through four tests were assembled to both content and statistical specifications. For the 2008 tests, target test information curves were specified to which the test developers assembled forms; see Figure 2.B.1 and Figure 2.B.2 in Chapter 2 for the relationship between the target and assembled forms. For STS grades five to seven, the 2007 fall field test did not produce sufficient sample sizes for item analysis; therefore the forms were assembled primarily using content expertise.

### Post-Administration Operational Calibration

Currently for STS tests, only percent correct scores are reported. No scale scores or performance levels are being reported so no equating was conducted in 2008. Post-administration operational equating is planned for future test forms using a common-item nonequivalent groups design and methods based on item response theory.

The procedures that will be used for equating the future STS test forms will involve three steps: item calibration, item parameter scaling, and true score equating. ETS uses a computer system called the Generalized Analysis System (GENASYS) for the IRT item calibration and equating work. As part of this system, a proprietary version of the PARSCALE computer program (Muraki and 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, and Julian 2002).

Because no true score equating was needed for STS in 2008, only the first two steps (that is, item calibration and item parameter scaling) were conducted for the STS grades two to four tests, and these two steps are described below. These steps were conducted in order to place the field-test item parameters onto the base scale. Only the first step (that is, item calibration) was conducted for STS grades five to seven, because 2008 was the first operational year for these tests.

### Calibration

For the item calibrations, the PARSCALE program 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. For the purpose of score 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 of estimation, normal constraints were imposed on the 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 parameters.

## Scaling

Calibrations of the 2008 grades two to four forms were scaled to the previously obtained reference scale estimates using the Stocking and Lord (1983) procedure. In the case of 1-parameter model calibrations, this procedure is equivalent to setting the mean of the new item parameter estimates for the common items equal to the mean of the previously scaled estimates. As is commonly done in this approach, the linking process was carried out iteratively by inspecting differences between the transformed new and old (reference) estimates for the linking items and removing items for which the item difficulty estimates changed significantly. Items with large weighted root-mean-square differences (WRMSD) between item characteristic curves (ICCs) based on the old and new difficulty estimates were removed from the linking set. The differences were calculated using the following formula:

$$WRMSD = \sqrt{\sum_{j=1}^{61} w_j [P_n(\theta_j) - P_r(\theta_j)]^2} , \quad (3.1)$$

where,

$\theta_j$  ranges from -3.0 to 3.0 by increments of 0.1,

$w_j$  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 level  $j$ , and

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

On the basis of 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.

Table 3.1 presents, for the STS grades two to four tests, the number of common items between the 2008 (new) and the 2007 test form to which it was linked (reference); the numbers of items removed from the common item sets; the correlation between the final set of new and reference difficulty estimates for the linking items; and the average WRMSD statistic (see equation 3.1) across the final set of common items.

The results indicate that the new and old difficulty estimates were highly correlated (close to 1.00 for all) and similar in magnitude (all WRMSD values about 0.01).

**Table 3.1 Evaluation of Common Items between New and Reference Test Forms**

Subject	STS	No. of Linking Items	Linking Items Removed	Final Correlation	WRMSD *
<i>Reading/Language Arts</i>	2	59	0	1.00	0.01
	3	57	0	1.00	0.01
	4	75	0	1.00	0.01
<i>Mathematics</i>	2	65	0	1.00	0.01
	3	64	0	1.00	0.01
	4	65	0	1.00	0.01

\* Average over retained items

Complete raw-to-theta score conversion tables for the 2008 STS are presented in the tables in Appendix 3.A—Raw to Theta Conversion Tables starting on page 32. For grades two to four, these tables were based on item parameter estimates that have been scaled to the base scale. For grades five to seven, 2008 was the first operational year and the results in the table were based on item parameter estimates from the IRT calibration step. These conversion tables were not used in 2007 for operational scoring, but they are presented here to show the relationship of raw scores to thetas. Also, these tables, together with the standard-setting results, will be used for equating purposes in future operational years.

## Calibration Samples

This section describes characteristics of the samples included in the post-administration operational calibration in 2008.

There are two distinct populations that are funded by the CDE to take the STS. The first population is a set of students who are required to take the test, referred to as the “target population.” The second population is a set of students who may optionally take the test and are funded by the CDE to do so. The “target population” consists of Spanish-speaking English learners receiving instruction in Spanish, or Spanish-speaking English learners who have been in U.S. schools less than 12 cumulative (not consecutive) months. The “optional population” consists of the Spanish-speaking English learners receiving instruction in English who have been in U.S. schools more than 12 cumulative (not consecutive) months. All STS item analyses, scaling, and form equating will make use of the target population, which is the population for whom the STS tests are intended. Specifically, students included in all analyses are students who describe themselves as English learners, describe their primary language to be Spanish, have been in U.S. schools for less than 12 months, or are receiving instructions in Spanish.

Table 3.2 presents the number of students included in the calibration analysis. The numbers presented in the tables can be different from the overall number of target examinees that appear in other summary tables in later sections of this technical report. The samples in calibration are strictly limited to students whose self-description on the answer document or submitted during Pre-ID conforms to the target STS population definition. Target sample sizes in other summary tables also contain students who left the field of “primary language” as blank but who conform to all other definitions of the STS target population on the assumption that all English learners who take STS tests have Spanish as their primary language.

**Table 3.2 STS Sample Sizes for the Calibration**

Grades	Reading/Language Arts	Mathematics
2	11,686	11,674
3	7,606	7,595
4	3,966	3,958
5	2,857	2,864
6	1,928	1,926
7	1,695	1,686

## References

Muraki, E. and R. D. Bock 1995. *PARSCALE: Parameter Scaling of Rating Data* (Version 2.2). Chicago, IL: Scientific Software, Inc.

Way, W. D.; A. T. Kubiak; D. Henderson; and M. W. Julian 2002, April. "Accuracy and Stability of Calibrations for Mixed-Item-Format Tests Using the 1-Parameter and Generalized Partial Credit Models." Paper presented at the annual meeting of the National Council on Measurement in Education, New Orleans, LA.

## Appendix 3.A—Raw to Theta Conversion Tables

Table 3.A.1 2008 Raw to Theta Conversions for Reading/Language Arts, Grades Two, Three, and Four

Grade 2				Grade 3				Grade 4			
Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta
0	N/A	41	0.0115	0	N/A	41	0.2914	0	N/A	41	0.0307
1	-5.1579	42	0.0906	1	-4.9787	42	0.3674	1	-4.7320	42	0.0910
2	-4.4366	43	0.1711	2	-4.2455	43	0.4446	2	-4.0171	43	0.1517
3	-4.0026	44	0.2532	3	-3.8004	44	0.5233	3	-3.5896	44	0.2129
4	-3.6861	45	0.3372	4	-3.4737	45	0.6037	4	-3.2799	45	0.2745
5	-3.4339	46	0.4234	5	-3.2120	46	0.6860	5	-3.0346	46	0.3369
6	-3.2224	47	0.5120	6	-2.9917	47	0.7706	6	-2.8301	47	0.4000
7	-3.0388	48	0.6033	7	-2.8000	48	0.8578	7	-2.6537	48	0.4639
8	-2.8756	49	0.6978	8	-2.6294	49	0.9480	8	-2.4978	49	0.5289
9	-2.7279	50	0.7958	9	-2.4749	50	1.0416	9	-2.3576	50	0.5949
10	-2.5925	51	0.8981	10	-2.3331	51	1.1393	10	-2.2296	51	0.6622
11	-2.4668	52	1.0052	11	-2.2017	52	1.2416	11	-2.1116	52	0.7310
12	-2.3491	53	1.1179	12	-2.0787	53	1.3496	12	-2.0017	53	0.8013
13	-2.2381	54	1.2374	13	-1.9630	54	1.4642	13	-1.8987	54	0.8733
14	-2.1328	55	1.3650	14	-1.8534	55	1.5867	14	-1.8014	55	0.9474
15	-2.0322	56	1.5023	15	-1.7490	56	1.7189	15	-1.7090	56	1.0237
16	-1.9358	57	1.6518	16	-1.6490	57	1.8632	16	-1.6209	57	1.1026
17	-1.8429	58	1.8169	17	-1.5531	58	2.0230	17	-1.5364	58	1.1843
18	-1.7531	59	2.0023	18	-1.4606	59	2.2031	18	-1.4552	59	1.2694
19	-1.6659	60	2.2157	19	-1.3711	60	2.4111	19	-1.3768	60	1.3581
20	-1.5811	61	2.4697	20	-1.2842	61	2.6596	20	-1.3009	61	1.4511
21	-1.4984	62	2.7878	21	-1.1998	62	2.9724	21	-1.2273	62	1.5491
22	-1.4174	63	3.2237	22	-1.1174	63	3.4027	22	-1.1556	63	1.6529
23	-1.3379	64	3.9466	23	-1.0368	64	4.1202	23	-1.0856	64	1.7635
24	-1.2598	65	N/A	24	-0.9579	65	N/A	24	-1.0173	65	1.8823
25	-1.1828			25	-0.8803			25	-0.9502	66	2.0111
26	-1.1068			26	-0.8040			26	-0.8845	67	2.1523
27	-1.0316			27	-0.7288			27	-0.8198	68	2.3091
28	-0.9570			28	-0.6545			28	-0.7560	69	2.4866
29	-0.8830			29	-0.5809			29	-0.6931	70	2.6922
30	-0.8094			30	-0.5080			30	-0.6310	71	2.9386
31	-0.7360			31	-0.4355			31	-0.5694	72	3.2495
32	-0.6627			32	-0.3634			32	-0.5084	73	3.6781
33	-0.5895			33	-0.2915			33	-0.4479	74	4.3945
34	-0.5161			34	-0.2197			34	-0.3877	75	N/A
35	-0.4425			35	-0.1478			35	-0.3277		
36	-0.3686			36	-0.0758			36	-0.2680		
37	-0.2941			37	-0.0035			37	-0.2083		
38	-0.2190			38	0.0692			38	-0.1487		
39	-0.1432			39	0.1425			39	-0.0891		
40	-0.0664			40	0.2165			40	-0.0293		

**Table 3.A.2 2008 Raw to Theta Conversions for Reading/Language Arts, Grades Five, Six, and Seven**

Grade 5				Grade 6				Grade 7			
Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta
0	N/A	41	0.4086	0	N/A	41	0.2545	0	N/A	41	0.0715
1	-4.2224	42	0.4659	1	-4.4972	42	0.3143	1	-4.7507	42	0.1334
2	-3.5123	43	0.5235	2	-3.7821	43	0.3745	2	-4.0340	43	0.1957
3	-3.0894	44	0.5816	3	-3.3546	44	0.4351	3	-3.6050	44	0.2583
4	-2.7841	45	0.6402	4	-3.0449	45	0.4963	4	-3.2937	45	0.3216
5	-2.5430	46	0.6993	5	-2.7997	46	0.5582	5	-3.0470	46	0.3854
6	-2.3426	47	0.7593	6	-2.5952	47	0.6208	6	-2.8411	47	0.4500
7	-2.1702	48	0.8200	7	-2.4189	48	0.6842	7	-2.6633	48	0.5155
8	-2.0182	49	0.8816	8	-2.2631	49	0.7487	8	-2.5061	49	0.5819
9	-1.8817	50	0.9444	9	-2.1230	50	0.8142	9	-2.3646	50	0.6494
10	-1.7574	51	1.0083	10	-1.9952	51	0.8810	10	-2.2353	51	0.7181
11	-1.6429	52	1.0736	11	-1.8774	52	0.9492	11	-2.1160	52	0.7882
12	-1.5366	53	1.1404	12	-1.7677	53	1.0190	12	-2.0048	53	0.8599
13	-1.4369	54	1.2089	13	-1.6649	54	1.0905	13	-1.9004	54	0.9333
14	-1.3430	55	1.2793	14	-1.5678	55	1.1641	14	-1.8018	55	1.0086
15	-1.2539	56	1.3520	15	-1.4756	56	1.2399	15	-1.7080	56	1.0862
16	-1.1689	57	1.4271	16	-1.3878	57	1.3182	16	-1.6185	57	1.1663
17	-1.0877	58	1.5049	17	-1.3036	58	1.3995	17	-1.5327	58	1.2492
18	-1.0096	59	1.5860	18	-1.2226	59	1.4839	18	-1.4501	59	1.3353
19	-0.9343	60	1.6706	19	-1.1446	60	1.5722	19	-1.3703	60	1.4251
20	-0.8615	61	1.7595	20	-1.0690	61	1.6647	20	-1.2929	61	1.5191
21	-0.7909	62	1.8531	21	-0.9956	62	1.7622	21	-1.2178	62	1.6181
22	-0.7222	63	1.9525	22	-0.9243	63	1.8656	22	-1.1447	63	1.7227
23	-0.6552	64	2.0585	23	-0.8547	64	1.9758	23	-1.0732	64	1.8342
24	-0.5898	65	2.1727	24	-0.7866	65	2.0944	24	-1.0033	65	1.9538
25	-0.5257	66	2.2967	25	-0.7200	66	2.2229	25	-0.9348	66	2.0833
26	-0.4628	67	2.4328	26	-0.6545	67	2.3639	26	-0.8675	67	2.2251
27	-0.4010	68	2.5844	27	-0.5902	68	2.5207	27	-0.8012	68	2.3825
28	-0.3402	69	2.7564	28	-0.5268	69	2.6981	28	-0.7359	69	2.5604
29	-0.2802	70	2.9565	29	-0.4643	70	2.9040	29	-0.6715	70	2.7664
30	-0.2209	71	3.1971	30	-0.4026	71	3.1508	30	-0.6077	71	3.0131
31	-0.1623	72	3.5019	31	-0.3414	72	3.4625	31	-0.5446	72	3.3243
32	-0.1042	73	3.9243	32	-0.2808	73	3.8922	32	-0.4820	73	3.7530
33	-0.0465	74	4.6338	33	-0.2207	74	4.6098	33	-0.4199	74	4.4695
34	0.0108	75	N/A	34	-0.1609	75	N/A	34	-0.3580	75	N/A
35	0.0678			35	-0.1013			35	-0.2965		
36	0.1247			36	-0.0420			36	-0.2352		
37	0.1814			37	0.0172			37	-0.1739		
38	0.2381			38	0.0764			38	-0.1127		
39	0.2948			39	0.1356			39	-0.0514		
40	0.3516			40	0.1949			40	0.0100		

**Table 3.A.3 Raw to Theta Conversions for Mathematics, Grades Two, Three, and Four**

Grade 2				Grade 3				Grade 4			
Raw Score	Theta	Raw Score	Theta								
0	N/A	41	-0.3122	0	N/A	41	-0.2119	0	N/A	41	0.0722
1	-5.5682	42	-0.2338	1	-5.3893	42	-0.1345	1	-4.9145	42	0.1445
2	-4.8387	43	-0.1540	2	-4.6630	43	-0.0557	2	-4.1955	43	0.2182
3	-4.3974	44	-0.0727	3	-4.2248	44	0.0246	3	-3.7640	44	0.2934
4	-4.0744	45	0.0103	4	-3.9047	45	0.1068	4	-3.4502	45	0.3703
5	-3.8164	46	0.0953	5	-3.6494	46	0.1911	5	-3.2009	46	0.4493
6	-3.5996	47	0.1826	6	-3.4353	47	0.2777	6	-2.9923	47	0.5305
7	-3.4112	48	0.2724	7	-3.2495	48	0.3670	7	-2.8119	48	0.6143
8	-3.2437	49	0.3653	8	-3.0845	49	0.4595	8	-2.6520	49	0.7012
9	-3.0921	50	0.4617	9	-2.9353	50	0.5556	9	-2.5077	50	0.7915
10	-2.9529	51	0.5621	10	-2.7986	51	0.6559	10	-2.3758	51	0.8859
11	-2.8239	52	0.6672	11	-2.6719	52	0.7610	11	-2.2537	52	0.9851
12	-2.7032	53	0.7778	12	-2.5534	53	0.8718	12	-2.1398	53	1.0898
13	-2.5894	54	0.8951	13	-2.4418	54	0.9894	13	-2.0326	54	1.2011
14	-2.4815	55	1.0202	14	-2.3360	55	1.1151	14	-1.9312	55	1.3204
15	-2.3785	56	1.1551	15	-2.2351	56	1.2508	15	-1.8347	56	1.4494
16	-2.2798	57	1.3021	16	-2.1385	57	1.3987	16	-1.7424	57	1.5906
17	-2.1847	58	1.4644	17	-2.0455	58	1.5623	17	-1.6537	58	1.7471
18	-2.0930	59	1.6471	18	-1.9557	59	1.7465	18	-1.5682	59	1.9239
19	-2.0040	60	1.8576	19	-1.8687	60	1.9588	19	-1.4854	60	2.1288
20	-1.9175	61	2.1087	20	-1.7841	61	2.2120	20	-1.4050	61	2.3742
21	-1.8331	62	2.4239	21	-1.7016	62	2.5297	21	-1.3268	62	2.6837
22	-1.7506	63	2.8563	22	-1.6210	63	2.9652	22	-1.2504	63	3.1108
23	-1.6697	64	3.5764	23	-1.5420	64	3.6882	23	-1.1757	64	3.8245
24	-1.5903	65	N/A	24	-1.4643	65	N/A	24	-1.1024	65	N/A
25	-1.5121			25	-1.3880			25	-1.0303		
26	-1.4350			26	-1.3126			26	-0.9592		
27	-1.3588			27	-1.2381			27	-0.8891		
28	-1.2834			28	-1.1643			28	-0.8197		
29	-1.2085			29	-1.0912			29	-0.7509		
30	-1.1342			30	-1.0184			30	-0.6826		
31	-1.0601			31	-0.9460			31	-0.6147		
32	-0.9864			32	-0.8738			32	-0.5470		
33	-0.9127			33	-0.8017			33	-0.4794		
34	-0.8390			34	-0.7295			34	-0.4118		
35	-0.7652			35	-0.6571			35	-0.3441		
36	-0.6911			36	-0.5844			36	-0.2761		
37	-0.6166			37	-0.5113			37	-0.2078		
38	-0.5416			38	-0.4377			38	-0.1389		
39	-0.4660			39	-0.3633			39	-0.0694		
40	-0.3896			40	-0.2881			40	0.0009		

**Table 3.A.4 2008 Raw to Theta Conversions for Mathematics, Grades Five, Six, and Seven**

Grade 5				Grade 6				Grade 7			
Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta	Raw Score	Theta
0	N/A	41	0.5767	0	N/A	41	0.6165	0	N/A	41	0.8531
1	-4.3248	42	0.6475	1	-4.3271	42	0.6882	1	-4.0847	42	0.9244
2	-3.6094	43	0.7195	2	-3.6098	43	0.7613	2	-3.3658	43	0.9970
3	-3.1813	44	0.7931	3	-3.1801	44	0.8358	3	-2.9347	44	1.0712
4	-2.8709	45	0.8684	4	-2.8681	45	0.9121	4	-2.6216	45	1.1471
5	-2.6248	46	0.9457	5	-2.6205	46	0.9903	5	-2.3730	46	1.2250
6	-2.4193	47	1.0252	6	-2.4136	47	1.0709	6	-2.1655	47	1.3052
7	-2.2418	48	1.1074	7	-2.2348	48	1.1540	7	-1.9861	48	1.3881
8	-2.0847	49	1.1925	8	-2.0764	49	1.2402	8	-1.8274	49	1.4740
9	-1.9432	50	1.2812	9	-1.9337	50	1.3299	9	-1.6843	50	1.5635
10	-1.8139	51	1.3739	10	-1.8032	51	1.4236	10	-1.5537	51	1.6570
11	-1.6944	52	1.4713	11	-1.6826	52	1.5221	11	-1.4330	52	1.7552
12	-1.5829	53	1.5742	12	-1.5700	53	1.6261	12	-1.3205	53	1.8591
13	-1.4782	54	1.6837	13	-1.4642	54	1.7367	13	-1.2148	54	1.9696
14	-1.3791	55	1.8012	14	-1.3641	55	1.8552	14	-1.1148	55	2.0880
15	-1.2848	56	1.9284	15	-1.2688	56	1.9834	15	-1.0198	56	2.2163
16	-1.1946	57	2.0677	16	-1.1776	57	2.1238	16	-0.9289	57	2.3566
17	-1.1080	58	2.2223	17	-1.0901	58	2.2796	17	-0.8417	58	2.5125
18	-1.0245	59	2.3973	18	-1.0057	59	2.4557	18	-0.7576	59	2.6887
19	-0.9437	60	2.6002	19	-0.9240	60	2.6597	19	-0.6763	60	2.8928
20	-0.8653	61	2.8434	20	-0.8446	61	2.9042	20	-0.5974	61	3.1375
21	-0.7890	62	3.1512	21	-0.7674	62	3.2129	21	-0.5206	62	3.4464
22	-0.7145	63	3.5761	22	-0.6920	63	3.6390	22	-0.4457	63	3.8729
23	-0.6416	64	4.2884	23	-0.6181	64	4.3525	23	-0.3724	64	4.5865
24	-0.5700	65	N/A	24	-0.5457	65	N/A	24	-0.3004	65	N/A
25	-0.4997			25	-0.4745			25	-0.2297		
26	-0.4304			26	-0.4043			26	-0.1601		
27	-0.3619			27	-0.3350			27	-0.0913		
28	-0.2942			28	-0.2664			28	-0.0232		
29	-0.2271			29	-0.1984			29	0.0443		
30	-0.1605			30	-0.1308			30	0.1112		
31	-0.0942			31	-0.0636			31	0.1779		
32	-0.0281			32	0.0034			32	0.2443		
33	0.0379			33	0.0702			33	0.3107		
34	0.1039			34	0.1371			34	0.3771		
35	0.1700			35	0.2042			35	0.4436		
36	0.2364			36	0.2715			36	0.5104		
37	0.3032			37	0.3392			37	0.5776		
38	0.3704			38	0.4074			38	0.6453		
39	0.4384			39	0.4762			39	0.7137		
40	0.5071			40	0.5459			40	0.7829		

## Chapter 4: Validity

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This chapter summarizes evidence supporting the content and convergent validity of the Standards-based Tests in Spanish. Content validity evidence is based on the spring 2008 test assembly process. The convergent validity is based on a study relating the CSTs and the STS using the 2008 data.

### Validity Evidence Based on Test Content

Content validity refers to the degree to which the content of a test is congruent with the purpose of testing, as determined by subject matter experts. STS items were developed to align with the content standards that are representative of the broader content domains: reading/language arts and mathematics. Thus, the content-related evidence of validity concerns the extent to which the test items represent these specified content domains and cognitive dimensions.

Content validity also provides information about how well an item measures its intended construct. Such validity is determined by a critical review of the items by experts in the field. For the STS, these reviews are conducted by experts in their designated areas from both the CDE and ETS. For these reviews, ETS senior content staff work directly with CDE content consultants.

The CDE content consultants each have extensive experience in K–12 assessments, particularly in their subject of expertise, and many are former teachers. At minimum, each CDE content consultant holds a bachelor's degree; most have an advanced degree in their area of expertise. All ETS content and test development staff have extensive experience with K–12 assessments, experience in teaching students with a broad range of abilities, and an understanding of the California content standards. Minimally, they each hold a bachelor's degree; most ARP members have an advanced degree in their area of expertise.

After the STS items had been written by ETS-trained bilingual/biliterate item writers in Spanish and English, a series of reviews, including reviews by ETS content assessment specialists and the external ARPs, were conducted to ensure that each item was measuring the appropriate California content standard and was matched to the item specifications. A description of the STS reporting clusters and the standards associated with each reporting cluster is provided in Appendix 2.A in Chapter 2, which begins on page 15.

### **STS Assessment Review Panel (ARP)**

In addition to the thorough content reviews completed by ETS content-area experts and the CDE content consultants, all STS items are reviewed by a content-area ARP. All of the ARP content-area reviewers are bilingual and biliterate in Spanish and English. The ARPs are advisory panels to the CDE and ETS on areas related to item development for the STS. Their credentials are presented in Table 4.1 on page 38.

#### **Purpose**

As described in Chapter 2, ETS is responsible for working with ARPs as items are developed for the STS tests. For the 2008 development cycle, the ARPs were responsible for reviewing all newly developed items for alignment to the California content standards. The ARPs also reviewed the items for accuracy of content, clarity of phrasing, and quality. ETS provided the ARPs with the opportunity to review the items with the applicable field-test statistics and to make recommendations for the use of items in subsequent test forms. The

ARPs may raise concerns in their examination of test items related to age/grade appropriateness and to gender, racial/ethnic, and socioeconomic bias.

Because the ARPs are responsible for reviewing the newly developed items for alignment to the California content standards, they determine whether the items are:

- Measuring the California standards as appropriate for the STS testing population
- Free of bias
- Interesting and appropriate to students tested at any particular grade/course level

### **Composition**

The ARPs are composed 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 STS ARPs, including the following:

- Three or more years of general teaching experience in grades kindergarten through grade twelve and in the content areas (reading/language arts or mathematics)
- Possession of a bachelor's or higher degree in a grade or subject area related to reading/language arts or mathematics
- Knowledge and experience with the California content standards for reading/language arts or mathematics

School administrators, district/county content/program specialists, and university educators serving on the STS 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 reading/language arts or mathematics
- Possession of a bachelor's or higher degree in a grade-specific or subject area related to reading/language arts or mathematics
- Knowledge of and experience with the California content standards for reading/language arts or mathematics

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 were recruited through an application process. Recommendations were solicited from districts and county offices of education as well as from CDE and SBE staff. Applications were received and reviewed throughout the year. They were reviewed by the ETS assessment directors, who confirmed that the applicant's qualifications met the specified criteria. Applicants who met the criteria were forwarded to CDE and SBE staff for review and agreement on ARP membership. Upon approval, the applicant was notified that he or she had been selected to serve on the ARP committee.

Currently, there are no term limits for ARP members. While most members serve on only one panel, some members serve on more than one to encourage consistency among the STAR testing programs. ETS and the CDE review the ARP membership annually for active participation. Members who have not attended a meeting within the past two years are notified that their invitation to participate may be withdrawn because of their lack of attendance.

Table 4.1, below, shows the educational qualifications, present occupation and credentials of the current STS ARP members.

**Table 4.1 STS ARP Member Qualifications, by Subject and Total**

	<b>RLA</b>	<b>Math</b>	<b>Grand Total</b>
<b>Total</b>	<b>22</b>	<b>19</b>	<b>41</b>
<b>Occupation (Members may teach multiple levels.)</b>			
Teacher or Program Specialist, Elementary/Middle School	8	7	15
Teacher or Program Specialist, High School	0	4	4
Teacher or Program Specialist, K–12	2	2	4
University Personnel	2	5	7
Other District Personnel (e.g., Director of Special Services, etc.)	9	2	11
<b>Highest Degree Earned</b>			
Bachelor’s Degree	6	5	11
Master’s Degree	9	7	16
Doctorate	7	7	14
<b>Credential (Members may hold multiple credentials.)</b>			
Elementary Teaching (Multiple Subjects)	18	6	14
Secondary Teaching (Single Subject)	2	11	13
Special Education	0	0	0
Reading Specialist	1	0	1
English Learner (CLAD, BCLAD)	12	6	18
Administrative	10	3	13
Other	13	3	16
None (teaching at university level)	2	5	7

### **STS Item Writers**

The items selected for each STS test are written by special panels of item writers with expertise in the California content standards. Applicants for item writing were screened by senior ETS content staff. Only applicants with strong content and teaching backgrounds were approved. Thus, participants were particularly experienced in writing to the standards assessed on STS. All item writers met the following minimum qualifications:

- The minimum of a bachelor’s degree in the relevant content area or in the field of Education with special focus on a particular content area of interest. (An advanced degree in the relevant content area is desirable.)
- At least three years of classroom teaching experience at the appropriate grade level
- 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 STS grades and/or courses
- Familiarity, understanding, and support of the California content standards
- Bilingual and biliterate in Spanish and English

Item writer training was conducted over two days in Long Beach, California, in July 2008 at which participants attended a general STS item development training session and then were given specific subject-area training. Participants attended a general STS item development training session, and then were given specific subject-area training. After viewing multiple examples of previously written STS items, participants were given item writing assignments. ETS facilitators provided feedback, and peer review methods were employed to ensure the quality of the items.

An effort was made to recruit participants who are bilingual/biliterate to participate in STS training. At this session, ETS test development specialists trained attendees in the basics of item writing. They also reviewed items that participants created during the training, offering feedback in both group and individual settings.

The development of new items during this cycle was limited to a level that would allow for replacement of items no longer available for use on operational forms. All item writers met the following minimum qualifications:

- Possession of a bachelor’s degree in the relevant content area or in the field of Education with a special focus on a particular content of interest (An advanced degree in the relevant content area is desirable.)
- Writers have at least three years of classroom teaching experience at the appropriate grade level
- 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 STS grades and/or courses
- Familiarity, understanding, and support of the California content standards

All STS writers are bilingual and biliterate in Spanish and English.

## **Validity Evidence Based on Relations to Other Variables**

Analyses of the relationship of test scores to variables external to the test provide an important source of validity evidence. The analyses address questions about the degree to which these relationships are consistent with the construct underlying the proposed test interpretations. Relationships between test scores and other measures intended to measure similar constructs provide convergent validity evidence. For STS reading/language arts and mathematics, the convergent evidence can be collected through examining the relationship between the STS tests and their CST counterparts.

CSTs assess students in English–language arts, mathematics, history–social science, and science. All students who take the STS are also required to take the CSTs at their grade level. CST and STS tests measure the same California content standards except that they are given in different languages. The STS mathematics tests are expected to relate closely to the CST mathematics tests as they are intended to measure the same construct of mathematics ability. The STS RLA tests should relate somewhat to the CST ELA, because both measure the construct of reading ability. However, given that STS RLA measures reading in Spanish and the CST ELA measures reading in English, the correlation will be limited. Two groups of correlations were examined:

- Correlations between STS mathematics tests and CST mathematics tests; and
- Correlations between STS RLA tests and CST ELA tests.

Table 4.A.1 and Table 4.A.2 on page 42 present correlations between 2008 CST and STS test scores on the basis of the matched observations of students who obtained valid scores on both the STS and the CSTs. Over 92 percent of the STS examinees were able to be matched to their CST records. Most of the cases were matched on the basis of the unique student ID. A few were matched on the basis of student name and 14-digit school code.

Correlations were computed on the basis of both the overall STS population and the STS target population. For each correlation index, the total STS sample size before matching and the matched sample size—based on which correlation was computed—are provided immediately before the correlation in the tables. The results showed that the STS mathematics scores correlated highly with the CST test scores, with correlations consistently at or above .75 across all grades. The STS RLA scores exhibited a moderately high correlation with the CST ELA test scores for the corresponding grades, with correlations ranging from 0.45 to 0.70. This result was expected, because the CSTs for ELA and the STS for RLA were designed to measure reading in different languages, and students were not expected to be equally proficient in those two languages. It is also noted that the STS scores and the CST scores correlate more highly at the lower grade levels than at the higher grade levels.

## References

American Educational Research Association, American Psychological Association, and National Council on Measurement in Education 1999. *Standards for Educational and Psychological Testing*. Washington, D.C.: American Psychological Association.

Sireci, S. G. 2002. "Validity," *Encyclopedia of Psychological Assessment*. London: Sage Publications.

Wainer, H. and H. I. Braun 1998. *Test Validity*. Mahwah, NJ: Lawrence Erlbaum Associates.

## Appendix 4.A—Test Correlations Tables

**Table 4.A.1 Correlations Between the STS Reading/Language Arts Tests and the CST English—Language Arts Tests**

Grades	Overall STS Population			Target STS Population		
	Total No. of Examinees	No. of Examinees Matched	RLA (STS)/ ELA (CST)	Total No. of Examinees	No. of Examinees Matched	RLA (STS)/ ELA (CST)
2	17,464	17,115	0.70	14,374	14,061	0.69
3	11,536	11,209	0.70	9,479	9,197	0.69
4	6,879	6,613	0.65	5,466	5,229	0.63
5	5,324	5,165	0.57	4,114	3,972	0.56
6	3,396	3,263	0.55	2,866	2,751	0.56
7	3,063	2,843	0.45	2,443	2,246	0.50

**Table 4.A.2 Correlations Between the STS Mathematics Tests and the CST Mathematics Tests**

Grades	Overall STS Population			Target STS Population		
	Total No. of Examinees	No. of Examinees Matched	Math (STS)/ Math (CST)	Total No. of Examinees	No. of Examinees Matched	Math (STS)/ Math (CST)
2	17,455	17,128	0.85	14,358	14,065	0.85
3	11,528	11,218	0.86	9,466	9,202	0.86
4	6,859	6,642	0.86	5,449	5,258	0.86
5	5,325	5,193	0.83	4,119	4,003	0.83
6	3,388	3,286	0.81	2,863	2,776	0.81
7	2,948	2,566	0.75	2,430	2,082	0.75

## Chapter 5: Score Reports

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This chapter describes the score reporting procedures and score-level analyses obtained for the spring 2008 administration of the Standards-based Tests in Spanish. The first section of the chapter describes the score scales, followed by a discussion on the types and purposes of score reports that are relevant to STS and the related STAR components. The second section focuses on summaries of scores obtained on the spring 2008 administration of the STS. Following the pattern of previous chapters, the results are reported for each subject area and for each grade within a subject area. The numbers in the summary tables may not match exactly to the results reported on the CDE Web site, as there may be slight differences in the samples used to compute the statistics. Students testing with invalid scores were excluded from the summary analyses.

### Descriptions of Scores

#### **Raw Score**

For all of the tests the raw score is simply the sum of correct responses on the test items.

#### **Percent Correct Score**

Percent correct scores are raw scores divided by the total number of items on the test.

### Score Reporting

#### **Purposes of Score Reporting**

The tests that make up the STAR Program provide results or score summaries that are reported 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
4. Providing data for state and federal school accountability programs

#### **Score Report Applications**

STAR Program results provide parents and guardians with information about their children's progress. The results are a tool for increasing communication and collaboration between parents, guardians, and teachers. Along with teacher report cards and information from school and classroom tests, the STAR Student Reports can be used by parents and guardians to talk with teachers about ways to improve their children's achievement of the California content standards. Any discrepancies between performance reported on report cards and the scores reported on the STAR Student Report should also be discussed.

Schools can use the STAR Program results to help make decisions about how best to support student achievement. STAR Program results, however, should never be used as the only source of information to make important decisions about a student's education.

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

- Instructional areas that can be improved for better student achievement
- The extent to which students are learning the academic standards

- Teaching strategies that can be developed to address the needs of students
- Decisions about how to use funds to ensure that students achieve the standards

The results from the STAR program, except for the STS, are used for state and federal accountability programs to monitor each school's progress toward achieving established goals. STAR Program results are used to calculate each school's Academic Performance Index (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 that have similar characteristics (e.g., size and ethnic makeup), identify low-performing and high-priority schools, and set yearly targets for academic growth.

STAR Program results, except for the STS test results, also are used to comply with federal NCLB 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. The information that forms the basis for AYP participation rate and percent proficient calculations comes from assessment results of the STAR Program and the California High School Exit Examination (CAHSEE).

### ***Contents of the Score Reports***

The individual STAR Student Reports provide overall percent correct, the number-correct, and the percent correct in each reporting cluster (subscore) for each STS test taken by the student for RLA and mathematics. The overall percent correct indicates how well a student is achieving the California content standards tested. In addition, STS results are reported in clusters that describe how a student performs on a set of state content standards. Reporting cluster results compare an individual student's percent correct score to the average percent correct for the state, as a whole, and for the district where a student attends school.

Scores for students who use accommodations or modifications are reported in the same way as for nonaccommodated or nonmodified tests.

In addition to individual student reports, several other reports are provided to different groups of stakeholders. A description of those reports is provided in Appendix 5.A—Types of Score Reports.

### **Score Distributions and Summary Statistics**

This section summarizes and reports the score level analyses including descriptive statistics on raw and percent correct scores, and the distribution of examinees in various raw score ranges. The analyses were performed on the sets of valid scores for both the overall population and the target population on each STS. Target students constitute about 80 percent of the overall STS population. Just as all the score reports are based only on the operational items (i.e., scores on field-test items are not included), the statistics reported in this chapter are based solely on the operational items.

The descriptive information including number of items on each STS, number of examinees taking the STS, and the corresponding means and standard deviations of raw and percent correct scores for each STS are presented in Table 5.1 to Table 5.3 for the overall, target, and optional population respectively.

Table 5.1 Mean and Standard Deviation of Raw and Percent Correct Scores for STS Overall Population

Subject	STS	No. of Items	Overall Population				
			No. of Examinees	Raw Score		Percent Correct Score	
				Mean	Std. Dev.	Mean	Std. Dev.
<i>Reading/Language Arts</i>	2	65	17,464	41.23	11.96	63.43	18.39
	3	65	11,536	37.91	11.45	58.32	17.61
	4	75	6,879	41.81	13.58	55.74	18.11
	5	75	5,324	33.56	11.86	44.74	15.81
	6	75	3,396	36.05	11.61	48.06	15.48
	7	75	3,063	38.56	11.98	51.41	15.97
	<i>Mathematics</i>	2	65	17,455	44.69	11.41	68.75
3		65	11,528	44.06	12.52	67.78	19.27
4		65	6,859	40.86	13.03	62.87	20.05
5		65	5,325	32.17	10.63	49.49	16.35
6		65	3,388	31.05	11.38	47.76	17.51
7		65	2,948	27.55	9.43	42.38	14.50

Table 5.2 Mean and Standard Deviation of Raw and Percent Correct Scores for STS Target Population

Subject	STS	No. of Items	Target Population				
			No. of Examinees	Raw Score		Percent Correct Score	
				Mean	Std. Dev.	Mean	Std. Dev.
<i>Reading/Language Arts</i>	2	65	14,374	41.15	11.99	63.30	18.45
	3	65	9,479	37.81	11.49	58.17	17.67
	4	75	5,466	41.48	13.51	55.31	18.01
	5	75	4,114	33.70	11.88	44.93	15.84
	6	75	2,866	36.25	11.52	48.34	15.36
	7	75	2,443	39.46	11.93	52.61	15.90
	<i>Mathematics</i>	2	65	14,358	44.70	11.43	68.78
3		65	9,466	44.08	12.56	67.82	19.33
4		65	5,449	40.24	13.04	61.90	20.06
5		65	4,119	31.95	10.67	49.16	16.41
6		65	2,863	31.09	11.40	47.84	17.53
7		65	2,430	27.74	9.50	42.67	14.61

Table 5.3 Mean and Standard Deviation of Raw and Percent Correct Scores for STS Optional Population

Subject	STS	No. of Items	Optional Population				
			No. of Examinees	Raw Score		Percent Correct Score	
				Mean	Std. Dev.	Mean	Std. Dev.
<i>Reading/Language Arts</i>	2	65	3,090	41.63	11.78	64.05	18.12
	3	65	2,057	38.37	11.26	59.03	17.32
	4	75	1,413	43.06	13.81	57.42	18.41
	5	75	1,210	33.08	11.77	44.11	15.70
	6	75	530	34.93	12.06	46.57	16.08
	7	75	620	35.01	11.53	46.68	15.37
	<i>Mathematics</i>	2	65	3,097	44.60	11.28	68.61
3		65	2,062	43.94	12.35	67.60	19.00
4		65	1,410	43.28	12.71	66.59	19.56
5		65	1,206	32.90	10.47	50.61	16.10
6		65	525	30.80	11.30	47.38	17.38
7		65	518	26.64	9.04	40.99	13.91

Table 5.B.1 and Table 5.B.2 in Appendix 5.B on page 48 show the distributions of raw scores by STS for the overall and target population respectively. The tables show the distribution of examinees within each 5 point raw score interval for the 12 STS tests. The raw scores range from 0 to 75 for RLA grades four to seven, resulting in 15 score intervals. For all other STS tests, raw scores range from 0 to 65, resulting in 13 score intervals.

## Reference

California Department of Education 2008. "2008 STAR CST-CAT/6 Survey, CAPA, and STS Printed Reports," <http://www.startest.org/pdfs/STAR.reports.2008.pdf>.

## Appendix 5.A—Types of Score Reports

2008 STAR STS PRINTED REPORTS	
DESCRIPTION	DISTRIBUTION
<b>The STS Student Report</b>	
<p>This report provides parents/guardians and teachers with the student's results in tables and graphs. It includes:</p> <ul style="list-style-type: none"> <li>• Overall percent correct for each content area</li> <li>• Number and percent correct in each reporting cluster for each content area for grades two through four</li> </ul>	<p>This report includes individual student results and is not distributed beyond parents/guardians and the student's school. Two color copies of this report are provided for each student: One is for the student's current teacher, and one is to be distributed to parents/guardians by the district.</p>
<b>Student Record Label</b>	
<p>These reports are printed on adhesive labels to be affixed to the student's permanent school records. Each pupil shall have an individual record of accomplishment; that includes STAR testing results (see <i>California Education Code Section 60607(a)</i>). Significant information includes overall percent correct for each content area.</p>	<p>This report includes individual student results and is not distributed beyond the student's school.</p>
<b>Student Master List</b>	
<p>This report is an alphabetical roster of individual student results. It includes:</p> <ul style="list-style-type: none"> <li>• Overall percent correct for each content area</li> <li>• Number and percent correct in each reporting cluster for each content area for grades two through four</li> </ul>	<p>This report provides administrators and teachers with a quick reference to all students' results within each grade or within each grade and year-round schedule at a school.</p> <p>This report includes individual student results and is not distributed beyond the student's school.</p>

<b>2008 STAR STS PRINTED REPORTS</b>	
<b>DESCRIPTION</b>	<b>DISTRIBUTION</b>
<b>Student Master List Summary</b>	
<p>This report summarizes student results at the school, district, county, and state level for each grade. It does <i>not</i> include any individual student information. The following data is summarized by subject:</p> <ul style="list-style-type: none"> <li>• Number of students enrolled, number and percent of students tested, and number and percent of valid scores</li> <li>• Mean percent correct, and standard deviation for each subject area tested</li> <li>• The number of items and the mean percent correct for each reporting cluster for grades two through four</li> </ul>	<p>This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is sent to the school and one to the district. This report is also produced for districts, counties, and the state.</p> <p><b>Note:</b> 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.</p>
<b>Subgroup Summary</b>	
<p>This set of reports disaggregates and reports results by the following subgroups:</p> <ul style="list-style-type: none"> <li>• All students</li> <li>• Disability status</li> <li>• Economic status</li> <li>• Gender</li> <li>• English proficiency</li> <li>• Primary ethnicity</li> </ul> <p>These reports contain no individual student-identifying information and are aggregated at the school, district, county, and state levels.</p> <p>For each subgroup within a report, and for the total number of students, the following are included:</p> <ul style="list-style-type: none"> <li>• Total number tested in the subgroup</li> <li>• Percent tested in subgroup as a percent of all students tested</li> <li>• Number and percent of valid scores</li> <li>• Number tested who received scores</li> <li>• Percent correct for each subject</li> </ul>	<p>This report is a resource for evaluators, researchers, teachers, parents/guardians, community members, and administrators. One copy is sent to the school and one copy to the district. This report is also produced for districts, counties, and the state.</p> <p><b>Note:</b> 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.</p>

## Appendix 5.B—Raw Score Distribution Tables

**Table 5.B.1 Distribution of Raw Scores for STS Overall Population**

Raw Score	Reading/Language Arts						Mathematics					
	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7
71 – 75	N/A	N/A	6	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
66 – 70	N/A	N/A	110	8	10	11	N/A	N/A	N/A	N/A	N/A	N/A
61 – 65	238	100	427	60	48	91	1,088	937	342	25	15	1
56 – 60	1,502	595	743	171	124	175	2,420	1,589	739	95	72	15
51 – 55	2,746	1,120	864	307	254	288	2,730	1,682	869	195	137	40
46 – 50	3,018	1,520	825	417	343	394	2,727	1,557	798	375	213	104
41 – 45	2,600	1,675	805	547	424	383	2,408	1,401	816	474	293	165
36 – 40	2,038	1,596	721	653	479	408	2,151	1,317	789	728	360	252
31 – 35	1,701	1,584	694	747	482	413	1,646	1,099	789	863	491	392
26 – 30	1,350	1,455	673	822	499	419	1,166	875	708	953	577	557
21 – 25	1,077	1,099	569	839	456	329	722	602	559	884	547	684
16 – 20	844	616	355	604	228	131	328	367	331	575	492	561
11 – 15	318	169	77	140	47	19	65	92	108	150	173	162
06 – 10	31	7	10	9	2	2	4	10	11	8	18	13
00 – 05	1	0	0	0	0	0	0	0	0	0	0	2

**Table 5.B.2 Distribution of Raw Scores for STS Target Population**

Raw Score	Reading/Language Arts						Mathematics					
	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7
71 – 75	N/A	N/A	4	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
66 – 70	N/A	N/A	83	7	9	10	N/A	N/A	N/A	N/A	N/A	N/A
61 – 65	198	82	320	49	38	82	908	779	246	19	14	1
56 – 60	1,231	481	578	136	112	147	1,987	1,319	536	73	64	10
51 – 55	2,232	921	672	244	211	255	2,267	1,380	683	150	112	38
46 – 50	2,464	1,244	642	313	297	334	2,247	1,273	614	281	177	91
41 – 45	2,160	1,365	640	434	363	328	1,951	1,132	655	366	247	146
36 – 40	1,680	1,306	594	504	406	325	1,758	1,063	622	548	312	208
31 – 35	1,410	1,292	564	571	415	312	1,340	910	641	651	422	315
26 – 30	1,109	1,186	563	644	419	313	970	737	598	734	485	467
21 – 25	878	941	450	649	376	232	601	490	460	699	451	561
16 – 20	701	510	287	454	185	89	271	300	291	471	412	448
11 – 15	282	144	60	101	34	14	56	76	93	120	150	134
06 – 10	28	7	9	8	1	2	2	7	10	7	17	9
00 – 05	1	0	0	0	0	0	0	0	0	0	0	2

## Chapter 6: Test Fairness

In order to ensure equity among various subpopulations, comprehensive analyses were conducted after test administration of the Standards-based Tests in Spanish. This chapter summarizes the subgroup analyses performed at the test level. Detailed item level analyses were also conducted when sufficient sample sizes were available for a subgroup. In addition, analyses are presented related to students with physical and learning disabilities who took the test under standard or modified conditions.

The chapter is, therefore, divided into two major sections. The first section presents the summary of statistics obtained on various demographic indicators, while the second section discusses the distributions of examinees grouped by accommodation provisions. Following the pattern of previous chapters, all analyses are replicated for each grade within a subject area.

Because assuring test security is crucial in the sustenance of a fair test, the chapter also briefly describes procedures for ensuring test security.

### Demographic Distributions

Table 6.1 presents a listing of various subgroups included in this chapter, along with their definitions. Summary statistics for all students, and for subgroups on the basis of the demographic variables presented in Table 6.1, are discussed in this section. The demographic variables examined included gender, country of origin, economic status, enrollment in U.S. schools, English learner (EL) program participation, and special education programs.

The results of the demographic-based analyses are presented in Table 6.A.1 through Table 6.A.24 for the 12 STS tests. Two summary tables are provided for each STS test on the basis of the overall and target population respectively. The tables include number of students tested for whom valid scores were available, mean number-correct raw scores, and standard deviation of number-correct raw scores, as well as mean percent correct scores within each reporting cluster. The statistics in these tables were based only on valid scores. For demographic groups of fewer than 11 examinees, no summary statistics on the number-correct raw score or cluster scores are presented.

**Table 6.1 Subgroup Definitions**

Subgroup	Definition
Gender	<ul style="list-style-type: none"> <li>• Female</li> <li>• Male</li> </ul>
Country of Origin	<ul style="list-style-type: none"> <li>• United States</li> <li>• Mexico</li> <li>• Spain</li> <li>• Puerto Rico</li> <li>• Cuba</li> <li>• Guatemala</li> <li>• El Salvador</li> <li>• Columbia</li> <li>• Brazil</li> <li>• Ecuador</li> <li>• Venezuela</li> <li>• Peru</li> <li>• Bolivia</li> <li>• Chile</li> </ul>

Subgroup	Definition
	<ul style="list-style-type: none"> <li>• Paraguay</li> <li>• Argentina</li> <li>• Uruguay</li> <li>• Panama</li> <li>• Costa Rica</li> <li>• Other</li> </ul>
Economic Status	<ul style="list-style-type: none"> <li>• Economically Disadvantaged (NSLP)</li> <li>• Non-Economically Disadvantaged</li> </ul>
Enrollment in U.S. Schools	<ul style="list-style-type: none"> <li>• Less than 12 months</li> <li>• 12 months or more</li> </ul>
EL Program Participation	<ul style="list-style-type: none"> <li>• English Learner (EL) in English Language Development (ELD)</li> <li>• EL in ELD and specially designed academic instruction in English (SDAIE)</li> <li>• EL in ELD and SDAIE with Primary Language Support</li> <li>• EL in ELD and Academic Subjects through Primary Language</li> <li>• Other EL services</li> <li>• None (EL only)</li> </ul>
Special Education Services	<ul style="list-style-type: none"> <li>• Special education services</li> <li>• No special education services</li> </ul>

## Test Variations, Accommodations, and Modifications

STS test-takers include students with disabilities. Most students with disabilities take the STS tests under standard conditions. Some students with disabilities, however, may need assistance when taking the STS tests. This assistance takes the form of test variations, accommodations, or modifications. All students in these categories may have test administration directions simplified or clarified. In addition, all eligible students may have test variations if they are regularly used in the classroom. They also must be allowed to use the accommodations and modifications that are specified in each student's individualized education program (IEP) plan or Section 504 Plan. These accommodations and/or modifications must match the one(s) used for classroom work throughout the year.

Test variations, accommodations, and modifications for the statewide assessments, including the STS Program, are defined in the next sections.

### Category 1: Test Variations

Eligible students may have test variations if regularly used in the classroom. For example, students may be tested in a smaller group or individually, have special lighting or adaptive furniture, or use magnifying equipment.

### Category 2: Accommodations

Eligible students are permitted to take the STS with accommodations if specified in the student's IEP or Section 504 Plan for use on the STS or for use during classroom instruction and assessment. Examples of accommodations are large-print or braille versions of the STS or providing more than one day for a test designed for a single sitting.

### Category 3: Modifications

Eligible students are permitted to take the STS with modifications if specified in the student's IEP or Section 504 Plan for use on the STS or for use during classroom instruction and assessment. Examples of modifications include an examiner's reading the test to the student or a student's using a calculator to perform computations on the mathematics test.

Appendix 6.B presents the 2008 Matrix of Test Variations, Accommodations, and Modifications for Administration of the California Standards-based Tests in Spanish. The

matrix provides a complete list of the variations, accommodations, and modifications that were allowed under the STAR STS Program in 2008.

Accommodations change the way the test is given but do not change what is tested. Modifications fundamentally change what is being tested. The purpose of test variations, accommodations, and modifications is to enable the students to take the STS, not to give them an advantage over other students or to improve their scores.

## Accommodation Summaries

The percentage of students using various testing accommodations during the 2008 administration of all 12 STS tests is presented in Appendix 6.C. The data is organized into five sections within each table. The first section presents the percentages of students for the total testing population. The second section presents the results for target and nontarget STS takers. The third section presents the results for special education and non-special education students. The fourth section presents the results for students who are in U.S. schools less than 12 months and students who are in U.S. schools more than 12 months. The final section presents the results for various categories on the basis of EL program participation. Most accommodations are common across different STS tests. Additional accommodations were included for the STS for mathematics comprising of the use of calculators, arithmetic tables, and mathematics manipulatives.

Examinees who used various accommodations, modifications, and variations constituted less than one percent of the overall examinee population. As expected, a significantly large percentage of special education students made use of the accommodations regardless of the grade and STS administered as compared to the non-special education students. Also, except for the grade seven STS tests, students in U.S. schools more than 12 months used these services more frequently than students in U.S. schools less than 12 months.

The most frequently used modifications or accommodations were the use of supervised breaks, administration of the test at the most beneficial time of day, and having examiners read the questions aloud to the student for both RLA and mathematics. Students at the lower grade levels also frequently used the accommodation of being tested over more than one day.

The use of any modification, accommodation, or variation was less frequent for RLA than for mathematics. For mathematics, there were considerably more students who had the examiners read the questions aloud than for RLA, especially at the lower grade levels.

Of all students making use of the accommodations or modifications, the largest percentage used IEP accommodations or modifications.

## Differential Item Functioning (DIF) Analyses

DIF analyses measure differences in item performance between different demographic groups of students who have similar overall test performance.

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

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

$$\alpha_{MH} = \frac{\left( \sum_m R_{rm} \frac{W_{fm}}{N_{tm}} \right)}{\left( \sum_m R_{fm} \frac{W_{rm}}{N_{tm}} \right)} \tag{6.1}$$

$$MH\ D - DIF = -2.35 \ln[\alpha_{MH}] \tag{6.2}$$

where,

- R = number right,
- W = number wrong,
- N = total in:
- fm = focal group at ability level m,
- rm = reference group at ability level m, and
- tm = total group at ability level 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 all 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)	MH D-DIF is not significantly different from zero, or has an absolute value less than one.
B (moderate)	MH D-DIF is significantly different from zero, and is either (1) less than 1.5; or (2) not significantly different from one.
C (large)	MH D-DIF is significantly different from one, and has an absolute value greater than 1.5.

The groups studied for DIF were based on gender; the sample sizes for other groups were too small to conduct dependable analyses. The minimum required sample sizes for conducting DIF analyses were 100 examinees in the reference as well as the focal group and 400 examinees combining reference and focal group. The results of the DIF analyses are presented in Appendix 6.D. In these tables, classifications of A-, B-, or C- indicate DIF against the focal group (for example, the female group) and classifications of A+, B+, and C+ indicate DIF in favor of the focal group.

Table 6.D.1 represents the operational items exhibiting significant DIF (that is, items classified as “C-” or “C+” DIF). There are two operational items in total that were identified as exhibiting significant male-female DIF. Table 6.D.2 represents the same results for the field-test items. There is only one field-test item that is classified as a DIF item. Test developers have been instructed to avoid selecting field-test items flagged as having shown DIF that disadvantage a focal group (C-DIF) for future operational test forms unless their inclusion is deemed essential to meeting test-content specifications.

Table 6.D.3 and Table 6.D.4 summarize the DIF category classifications for operational items in each STS test on the basis of the A, B, or C classifications. Table 6.D.5 and Table 6.D.6 summarize the DIF category classifications for the field-test items. Both tables are presented for all six content area STS tests. Most operational and field-test items are classified into A- and A+ categories. For grade four RLA and mathematics, DIF analyses were not conducted for any of the field-test items because of small sample sizes. This situation is expected to improve in 2009 when the number of forms drops from 12 to 9 for grade four STS tests so that each field-test item can be administered to more examinees.

## Test Security and Confidentiality

All tests within the STAR Program are secure documents. For the 2008 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 student data. To ensure security for all the tests that ETS develops or handles, ETS maintains an Office of Testing Integrity (OTI), that provides quality assurance and resides in the ETS Legal Department. The Quality Assurance division publishes and maintains *ETS Standards for Quality and Fairness*, which supports 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:

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

OTI helps prevent misconduct on the part of test-takers and administrators, detect potential misconduct through empirically established indicators, and resolve situations in a fair and balanced way that reflects the laws and professional standards governing the integrity of testing.

## Test Development

During the test development process, ETS staff members consistently follow these established security procedures:

- Only authorized individuals have access to test content during any step in the development, review, and data analysis processes.
- Test developers keep all hardcopy 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 for the development process.
- Test developers take further security measures whenever they share items outside of ETS, including using registered, secure mail, and express delivery and tracking records of the sending and receipt of any test materials.

## Item Review by ARPs

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

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

### ***Item Bank***

Once the ARP review is complete, the items are placed in the item bank along with their corresponding review information. ETS then delivers the items to the CDE via a delivery of the STAR electronic item bank. Subsequent updates to items are based on field-test and operational use of the items. However, only the latest version of the item is in the bank at any time, along with the administration 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 ensuring the security of electronic files include the following:

- Electronic forms of test content, documentation, and item banks are backed up electronically, with the backups kept offsite, to prevent loss from a system breakdown or a natural disaster.
- The off-site 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 authorize access to the database or designated portions of the database. In addition, only users authorized to access the specific SQL database will be able to use the electronic item banking system. A designated administrator at the CDE and at ETS authorize the users.

### ***Transfer of Forms and Items to the CDE***

ETS shares a file transfer protocol (FTP) site with the CDE. FTP is a standard method for exclusive routing of files. It is a password-protected server that only authorized users can access. On that site, ETS posts Word, PDF, and other document files for the CDE to review. ETS sends an e-mail to the CDE to notify CDE staff that files are posted. Item data are always transmitted in an encrypted format to the FTP site, never via e-mail.

### **Firewall**

A firewall is software that prevents entry to files, e-mail, and other organization-specific programs by unauthorized users or computers. All ETS data exchange and internal e-mails remain within the ETS firewall at all ETS locations, from Princeton, New Jersey, to San Antonio, Texas, to Sacramento, California. The CDE has and will continue to view and approve ETS-developed applications such as those on the STAR Management System at ETS's Sacramento office because the applications remain behind ETS's firewall before release. No hacker has ever broken into ETS's firewall.

### **Printing**

After items and test forms are approved, the files, on a CD, are sent for printing via a secure courier system, such as Federal Express. According to established procedures, the OTI pre-approves all printing vendors before they can work on secured confidential and proprietary test material. The printing vendor must submit a completed ETS Printing Plan and Typesetting Facility Security Plan that documents security procedures, access to test

materials, work in progress, personnel procedures, and access to the facilities by the employees and visitors. After reviewing the completed plan, members of the OTI visit the printing vendor to conduct an on-site inspection. The secured printing vendor packs and ships printed test booklets to Pearson Educational Measurement for packaging and distribution in a tight and precise way to prevent boxes from opening.

### ***Test Delivery***

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

### ***Test Administration***

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 test 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 coordinator, who is responsible for returning them to the STAR Scoring and Processing Centers. More specifically:

- District STAR coordinators must 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 may ship any testing materials to the school district.
- Test site coordinators must 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 may be delivered to the school/test site.
- Anyone requesting access to the test 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 and will be asked to follow up with a written explanation of the violation or suspected violation.
- Any irregularities in test security may result in invalidation of student test results.

### ***Processing and Scoring***

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

- There is controlled access to the facility.
- No test materials 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 then stored in secure warehouses. The only time they are touched then is if there is a dispute of a score. For example, school districts or parents may request the rescoring of a student's test. In such a case, a grade two or three test booklet or grade four through eleven answer document is removed from storage, copied, and sent securely to the ETS facility in Concord, California, for hand scoring, after which the copy is destroyed. No school or district personnel are allowed to look at the completed answer documents unless necessary for the purpose of transcription or to investigate irregular cases.

All answer documents and test booklets are destroyed after October 31 of each year.

### ***Transfer of Scores via Secure Data Exchange***

After scoring is completed, Pearson sends files to ETS and follows secure data exchange procedures. 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 used. Upon entering the facilities, all Pearson employees are required to display their identification badge, which must be worn at all times while in the facility. Visitors must sign in and out, are assigned a visitor badge, and are escorted by Pearson personnel while at the facility. Access to the Data Center is further controlled by the computerized badge-reading system that allows entrance only to 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, each of which is done in a strictly controlled Configuration Management environment.

For mainframe processes, Pearson uses 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.

ETS and Pearson have implemented procedures and systems to provide the efficient coordination of secure data exchange, including the established secure FTP site that is used for secure data transfers between ETS and Pearson. These well-established procedures provide the timely, efficient, and secure transfer of data. Access to the STAR data files is limited to appropriate personnel who have direct project responsibilities.

## **Statistical Analysis**

ETS systems loads the Pearson files in a database. The Data Quality Services area at ETS extracts the data from the database and performs quality-control procedures before passing files to the ETS Statistical Analysis group. The Statistical Analysis group then keeps the files on secure servers and adheres to the ETS Code of Ethics to prevent any unauthorized access.

## **Reporting and Posting Results**

After statistical analysis has been completed for student results, the files flow in three directions. Paper reports, some with individual student results and others with summary results, are produced. Encrypted files of summary results are also sent to the CDE via FTP. Any summary results for fewer than ten students are not reported. Third, the statistics from the results are also entered into the ETS item bank in San Antonio.

## **Student Confidentiality**

To meet NCLB and state requirements, school districts must collect demographic data about students, such as ethnicity, parent education, disabilities, whether the student qualifies for the National School Lunch Program (NSLP), and so forth. In addition, students may reveal other information about themselves through the essays they write. ETS takes precautions to prevent any of this information becoming public or being used for anything other than testing purposes. Such measures are applicable to all documents in which these data may appear, including in Pre-ID files and reports.

## **Test Results**

ETS also has security measures for files and reports that show students' scores and performance levels. ETS is committed to safeguarding this information from unauthorized access, disclosure, modification, or destruction. ETS has strict information security policies in place to protect the confidentiality of ETS and client data. Access by ETS staff access to production databases is very limited. 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 an off-site storage facility for safekeeping to permit continued operation in the case of a disaster.

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

ETS protects the test results individual student in electronic files and on paper reports during:

- Scoring
- Transfer of scores via secure data exchange
- Reporting
- Erasure marks
- Internet postings
- 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 an ETS-contracted test, such as a STAR exam. The ETS Office of Testing Integrity verifies that these standards are followed throughout the organization, including conducting periodic on-site security audits of departments, and preparing follow-up reports containing recommendations for improvement.

## References

- Holland, P. W. and D. T. Thayer 1985. "An Alternative Definition of the ETS Delta Scale of Item Difficulty." RR-85-43.
- Dorans, N.J. and P. W. Holland 1993. "DIF Detection and Description: Mantel-Haenszel and Standardization." In P. W. Holland and H. Wainer (Eds.), *Differential Item Functioning* (pp. 35-66). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Mantel, N. and W. Haenszel 1959. Statistical Aspects of the Analyses of Data from Retrospective Studies of Disease. *Journal of the National Cancer Institute*, 22: pp. 719-48.

## Appendix 6.A—Demographic Summary Tables

**Table 6.A.1 Demographic Summary for Reading/Language Arts, Grade Two (Overall Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Overall Population Valid Scores	17,464	41	12	69%	61%	74%	65%	43%
Female	8,770	43	12	71%	65%	77%	68%	44%
Male	8,665	39	12	66%	57%	71%	63%	41%
Gender Unknown	29	41	11	71%	55%	70%	67%	41%
Argentina	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	49	39	12	65%	60%	70%	59%	41%
Mexico	1,484	37	13	63%	56%	68%	57%	39%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	74	38	14	63%	59%	68%	56%	40%
United States	2,487	42	12	69%	61%	75%	66%	43%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	47	37	14	62%	57%	69%	57%	38%
Country Unknown	13,273	42	12	69%	62%	75%	66%	43%
Not in NSLP	1,825	41	13	68%	61%	74%	65%	44%
In NSLP	15,557	41	12	69%	61%	74%	65%	43%
NSLP Unknown	82	36	14	59%	54%	65%	53%	38%
In U.S. Schools >= 12 Months	15,022	42	11	70%	63%	76%	68%	44%
In U.S. Schools < 12 Months	2,442	34	13	58%	52%	62%	51%	36%
EL in ELD	514	36	14	61%	53%	67%	56%	40%
EL in ELD and SDAIE	1,182	34	13	57%	51%	62%	51%	35%
EL in ELD and SDAIE with Primary Language Support	1,905	39	13	65%	58%	70%	60%	40%
EL in ELD and Academic Subjects through Primary Language	12,578	43	11	71%	63%	76%	68%	44%
Other EL Instructional Services	153	38	13	63%	56%	67%	60%	40%
None (EL only)	104	35	12	61%	52%	60%	53%	37%
Program Participation Unknown	1,028	42	12	69%	61%	74%	67%	43%
No Special Education	16,642	42	12	69%	62%	75%	66%	43%
Special Education	818	33	12	57%	48%	61%	52%	35%
Special Education Unknown	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.2 Demographic Summary for Reading/Language Arts, Grade Two (Target Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Target Population Valid Scores	14,374	41	12	68%	61%	74%	65%	43%
Female	7,241	43	12	71%	65%	76%	68%	44%
Male	7,126	39	12	66%	57%	71%	62%	41%
Gender Unknown	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	41	39	13	65%	60%	71%	60%	42%
Mexico	1,266	38	13	63%	57%	68%	57%	39%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	68	38	14	63%	60%	69%	57%	42%
United States	1,969	42	11	69%	61%	75%	66%	44%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	38	37	14	62%	58%	70%	57%	37%
Country Unknown	10,950	41	12	69%	62%	74%	66%	43%
Not in NSLP	1,534	41	13	68%	61%	74%	65%	43%
In NSLP	12,776	41	12	68%	61%	74%	65%	43%
NSLP Unknown	64	36	14	60%	56%	65%	56%	38%
In U.S. Schools >= 12 Months	11,932	43	11	71%	63%	76%	68%	44%
In U.S. Schools < 12 Months	2,442	34	13	58%	52%	62%	51%	36%
EL in ELD	282	31	12	52%	45%	58%	45%	35%
EL in ELD and SDAIE	744	31	12	53%	48%	57%	45%	33%
EL in ELD and SDAIE with Primary Language Support	655	32	12	54%	49%	58%	46%	34%
EL in ELD and Academic Subjects through Primary Language	12,578	43	11	71%	63%	76%	68%	44%
Other EL Instructional Services	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
None (EL only)	58	33	12	57%	50%	57%	49%	34%
Program Participation Unknown	47	35	12	59%	51%	68%	54%	35%
No Special Education	13,708	41	12	69%	62%	74%	66%	43%
Special Education	666	34	12	58%	49%	62%	53%	35%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.3 Demographic Summary for Reading/Language Arts, Grade Three (Overall Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Overall Population Valid Scores	11,536	38	11	69%	52%	56%	55%	51%
Female	5,775	39	11	71%	55%	58%	58%	54%
Male	5,742	36	11	67%	49%	54%	53%	49%
Gender Unknown	19	35	11	67%	46%	54%	55%	41%
Argentina	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	56	35	13	64%	48%	54%	47%	46%
Mexico	1,173	35	11	66%	49%	54%	50%	46%
Panama	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	11	44	13	78%	61%	65%	68%	58%
Puerto Rico	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	95	36	13	66%	50%	56%	50%	47%
United States	1,715	38	11	68%	52%	56%	56%	52%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	30	35	12	66%	46%	56%	48%	46%
Country Unknown	8,422	38	11	70%	52%	56%	56%	52%
Not in NSLP	1,303	38	12	70%	53%	57%	56%	51%
In NSLP	10,161	38	11	69%	52%	56%	56%	51%
NSLP Unknown	72	34	13	63%	48%	54%	46%	43%
In U.S. Schools >= 12 Months	9,465	39	11	70%	53%	57%	58%	53%
In U.S. Schools < 12 Months	2,071	33	12	63%	46%	53%	46%	42%
EL in ELD	457	36	11	67%	49%	53%	50%	47%
EL in ELD and SDAIE	1,113	35	12	64%	48%	53%	49%	45%
EL in ELD and SDAIE with Primary Language Support	1,383	35	12	65%	49%	54%	50%	46%
EL in ELD and Academic Subjects through Primary Language	7,758	39	11	71%	53%	57%	58%	53%
Other EL Instructional Services	127	35	12	62%	49%	53%	52%	49%
None (EL only)	96	35	11	65%	46%	51%	52%	45%
Program Participation Unknown	602	38	11	69%	52%	56%	57%	53%
No Special Education	10,983	38	11	70%	53%	56%	56%	52%
Special Education	551	30	11	54%	41%	45%	44%	40%
Special Education Unknown	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.4 Demographic Summary for Reading/Language Arts, Grade Three (Target Population)**

	Number Tested	Mean Number-correct Score	Std. Dev. of Number-correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Target Population Valid Scores	9,479	38	11	69%	52%	56%	55%	51%
Female	4,749	39	11	71%	55%	58%	58%	53%
Male	4,718	36	11	67%	49%	54%	53%	49%
Gender Unknown	12	36	10	69%	47%	56%	53%	43%
Argentina	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	51	34	12	64%	48%	54%	46%	45%
Mexico	948	35	11	66%	49%	55%	49%	46%
Panama	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	86	37	13	68%	52%	57%	51%	49%
United States	1,280	38	11	69%	53%	56%	57%	52%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	23	34	12	65%	43%	53%	49%	47%
Country Unknown	7,052	38	11	69%	52%	56%	56%	52%
Not in NSLP	1,071	38	12	70%	53%	57%	55%	51%
In NSLP	8,358	38	11	69%	52%	56%	55%	51%
NSLP Unknown	50	32	13	61%	45%	52%	43%	38%
In U.S. Schools >= 12 Months	7,408	39	11	71%	53%	57%	58%	54%
In U.S. Schools < 12 Months	2,071	33	12	63%	46%	53%	46%	42%
EL in ELD	223	32	10	62%	43%	51%	44%	40%
EL in ELD and SDAIE	712	33	11	62%	45%	51%	45%	41%
EL in ELD and SDAIE with Primary Language Support	687	32	11	60%	44%	51%	44%	40%
EL in ELD and Academic Subjects through Primary Language	7,758	39	11	71%	53%	57%	58%	53%
Other EL Instructional Services	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
None (EL only)	43	31	12	58%	41%	48%	44%	37%
Program Participation Unknown	47	32	12	62%	45%	51%	41%	39%
No Special Education	9,031	38	11	70%	52%	56%	56%	52%
Special Education	448	30	11	55%	41%	45%	45%	39%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.5 Demographic Summary for Reading/Language Arts, Grade Four (Overall Population)**

	Number Tested	Mean Number-correct Score	Std. Dev. of Number-correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Overall Population Valid Scores	6,879	42	14	62%	52%	45%	60%	53%
Female	3,390	44	13	65%	55%	48%	64%	56%
Male	3,476	39	14	59%	49%	42%	57%	50%
Gender Unknown	13	40	17	62%	52%	44%	58%	47%
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	44	39	12	60%	51%	42%	55%	49%
Mexico	971	40	14	60%	50%	44%	58%	52%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	13	46	13	71%	55%	51%	64%	56%
Puerto Rico	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	74	38	12	54%	49%	45%	55%	49%
United States	1,109	42	14	62%	52%	44%	61%	53%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	39	40	14	57%	53%	43%	58%	52%
Country Unknown	4,601	42	14	63%	53%	45%	61%	53%
Not in NSLP	822	43	14	63%	54%	47%	61%	54%
In NSLP	6,001	42	14	62%	52%	45%	60%	53%
NSLP Unknown	56	40	13	58%	51%	44%	58%	52%
In U.S. Schools >= 12 Months	4,891	43	14	63%	53%	46%	62%	54%
In U.S. Schools < 12 Months	1,988	39	13	58%	49%	43%	56%	50%
EL in ELD	321	40	14	61%	50%	46%	57%	51%
EL in ELD and SDAIE	949	40	14	59%	50%	43%	56%	50%
EL in ELD and SDAIE with Primary Language Support	969	40	13	59%	50%	43%	58%	51%
EL in ELD and Academic Subjects through Primary Language	3,701	43	13	63%	53%	45%	62%	54%
Other EL Instructional Services	442	43	14	64%	54%	46%	62%	54%
None (EL only)	73	40	13	59%	50%	47%	56%	50%
Program Participation Unknown	424	43	14	63%	55%	48%	62%	54%
No Special Education	6,573	42	13	63%	53%	45%	61%	53%
Special Education	299	32	13	46%	39%	35%	46%	41%
Special Education Unknown	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.6 Demographic Summary for Reading/Language Arts, Grade Four (Target Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Target Population Valid Scores	5,466	41	14	61%	52%	44%	60%	53%
Female	2,679	44	13	64%	55%	47%	64%	56%
Male	2,778	39	14	59%	49%	42%	56%	50%
Gender Unknown	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	39	38	12	59%	49%	41%	53%	47%
Mexico	822	41	13	60%	51%	44%	58%	52%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	67	38	12	55%	49%	45%	54%	49%
United States	863	42	13	63%	53%	45%	62%	54%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	34	39	14	56%	52%	42%	56%	51%
Country Unknown	3,606	42	14	62%	52%	44%	60%	53%
Not in NSLP	684	42	14	62%	53%	46%	61%	54%
In NSLP	4,747	41	14	61%	51%	44%	60%	53%
NSLP Unknown	35	41	13	60%	54%	45%	59%	52%
In U.S. Schools >= 12 Months	3,478	43	14	63%	53%	45%	62%	54%
In U.S. Schools < 12 Months	1,988	39	13	58%	49%	43%	56%	50%
EL in ELD	211	38	13	58%	48%	44%	53%	49%
EL in ELD and SDAIE	738	39	13	58%	49%	42%	55%	49%
EL in ELD and SDAIE with Primary Language Support	703	39	13	58%	50%	42%	56%	50%
EL in ELD and Academic Subjects through Primary Language	3,701	43	13	63%	53%	45%	62%	54%
Other EL Instructional Services	30	40	16	58%	49%	41%	55%	55%
None (EL only)	49	39	13	57%	50%	44%	56%	50%
Program Participation Unknown	34	35	12	50%	44%	42%	48%	43%
No Special Education	5,241	42	13	62%	52%	45%	60%	53%
Special Education	224	32	13	46%	40%	35%	47%	42%
Special Education Unknown	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.7 Demographic Summary for Reading/Language Arts, Grade Five (Overall Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Overall Population Valid Scores	5,324	34	12	45%	42%	43%	50%	44%
Female	2,613	35	12	47%	44%	46%	53%	46%
Male	2,695	32	12	43%	40%	40%	47%	41%
Gender Unknown	16	35	11	47%	42%	52%	46%	49%
Argentina	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	37	35	14	47%	43%	48%	49%	45%
Mexico	910	34	13	45%	42%	44%	50%	45%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	82	33	12	41%	40%	45%	48%	43%
United States	753	32	11	43%	40%	40%	49%	41%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	35	29	10	41%	35%	39%	41%	37%
Country Unknown	3,472	34	12	45%	42%	43%	50%	44%
Not in NSLP	681	36	12	47%	45%	47%	52%	47%
In NSLP	4,588	33	12	45%	41%	42%	50%	43%
NSLP Unknown	55	30	12	39%	40%	41%	45%	37%
In U.S. Schools $\geq$ 12 Months	3,609	33	12	45%	42%	42%	51%	43%
In U.S. Schools $<$ 12 Months	1,715	34	12	45%	42%	45%	49%	45%
EL in ELD	273	34	12	45%	42%	45%	50%	43%
EL in ELD and SDAIE	914	34	12	45%	42%	45%	48%	45%
EL in ELD and SDAIE with Primary Language Support	750	33	12	44%	41%	43%	49%	45%
EL in ELD and Academic Subjects through Primary Language	2,562	34	12	45%	42%	42%	51%	43%
Other EL Instructional Services	369	32	12	43%	40%	39%	50%	41%
None (EL only)	57	35	12	47%	45%	45%	49%	46%
Program Participation Unknown	399	33	12	45%	41%	42%	50%	43%
No Special Education	5,081	34	12	45%	42%	43%	51%	44%
Special Education	243	25	9	34%	30%	30%	38%	34%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.8 Demographic Summary for Reading/Language Arts, Grade Five (Target Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Target Population Valid Scores	4,114	34	12	45%	42%	43%	50%	44%
Female	2,029	36	12	47%	44%	46%	53%	46%
Male	2,072	32	12	44%	40%	40%	47%	42%
Gender Unknown	13	32	9	45%	38%	49%	40%	45%
Argentina	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	32	36	14	48%	44%	47%	51%	47%
Mexico	761	34	13	45%	43%	45%	50%	46%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	75	33	12	41%	41%	46%	48%	43%
United States	528	32	11	43%	40%	40%	49%	41%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	32	29	10	41%	35%	38%	41%	38%
Country Unknown	2,655	34	12	46%	42%	43%	50%	44%
Not in NSLP	550	36	12	48%	45%	47%	52%	48%
In NSLP	3,523	33	12	45%	41%	43%	50%	43%
NSLP Unknown	41	30	12	39%	40%	40%	43%	36%
In U.S. Schools >= 12 Months	2,399	34	12	45%	42%	42%	51%	43%
In U.S. Schools < 12 Months	1,715	34	12	45%	42%	45%	49%	45%
EL in ELD	193	33	12	45%	42%	45%	48%	43%
EL in ELD and SDAIE	684	34	13	45%	42%	46%	48%	45%
EL in ELD and SDAIE with Primary Language Support	561	33	12	45%	41%	43%	48%	44%
EL in ELD and Academic Subjects through Primary Language	2,562	34	12	45%	42%	42%	51%	43%
Other EL Instructional Services	27	37	11	48%	46%	54%	54%	46%
None (EL only)	47	36	12	49%	46%	47%	52%	48%
Program Participation Unknown	40	32	11	41%	39%	38%	47%	46%
No Special Education	3,956	34	12	46%	42%	44%	50%	44%
Special Education	158	25	9	35%	30%	29%	38%	34%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.9 Demographic Summary for Reading/Language Arts, Grade Six (Overall Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Overall Population Valid Scores	3,396	36	12	44%	49%	49%	55%	43%
Female	1,653	38	11	46%	51%	52%	58%	46%
Male	1,735	34	12	43%	47%	47%	51%	41%
Gender Unknown	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	11	41	11	51%	61%	60%	55%	50%
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	46	32	12	40%	41%	47%	47%	39%
Mexico	775	36	11	44%	48%	49%	53%	43%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	11	47	12	61%	63%	58%	73%	55%
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	76	33	11	43%	46%	44%	48%	39%
United States	394	33	11	40%	47%	45%	52%	38%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	28	37	12	44%	51%	51%	56%	44%
Country Unknown	2,038	37	12	45%	50%	50%	56%	44%
Not in NSLP	519	38	12	47%	51%	52%	57%	45%
In NSLP	2,827	36	11	44%	49%	49%	54%	43%
NSLP Unknown	50	37	12	47%	50%	51%	55%	45%
In U.S. Schools >= 12 Months	1,716	36	12	43%	48%	49%	55%	42%
In U.S. Schools < 12 Months	1,680	36	12	46%	50%	50%	54%	44%
EL in ELD	281	36	12	46%	48%	49%	54%	43%
EL in ELD and SDAIE	822	37	12	46%	50%	50%	54%	44%
EL in ELD and SDAIE with Primary Language Support	734	36	11	45%	49%	48%	53%	43%
EL in ELD and Academic Subjects through Primary Language	1,280	36	11	44%	49%	49%	56%	43%
Other EL Instructional Services	71	31	12	37%	45%	41%	45%	37%
None (EL only)	48	36	13	43%	49%	51%	54%	44%
Program Participation Unknown	160	36	11	45%	48%	46%	56%	45%
No Special Education	3,266	36	12	45%	49%	50%	55%	44%
Special Education	130	27	10	32%	38%	36%	41%	31%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.10 Demographic Summary for Reading/Language Arts, Grade Six (Target Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Target Population Valid Scores	2,866	36	12	45%	49%	50%	55%	43%
Female	1,404	38	11	46%	51%	52%	58%	46%
Male	1,457	35	11	43%	47%	47%	51%	41%
Gender Unknown	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	40	30	11	38%	39%	44%	43%	37%
Mexico	654	36	11	45%	48%	49%	53%	43%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	69	34	11	43%	47%	44%	50%	40%
United States	309	34	11	40%	48%	46%	53%	39%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	23	36	11	41%	49%	51%	54%	42%
Country Unknown	1,738	37	12	45%	50%	51%	56%	44%
Not in NSLP	435	38	12	47%	52%	52%	58%	46%
In NSLP	2,393	36	11	44%	49%	49%	54%	43%
NSLP Unknown	38	39	11	49%	51%	52%	58%	47%
In U.S. Schools >= 12 Months	1,186	36	11	43%	49%	49%	56%	43%
In U.S. Schools < 12 Months	1,680	36	12	46%	50%	50%	54%	44%
EL in ELD	217	36	12	45%	48%	49%	53%	43%
EL in ELD and SDAIE	673	37	12	46%	50%	50%	54%	44%
EL in ELD and SDAIE with Primary Language Support	588	37	11	46%	50%	50%	54%	44%
EL in ELD and Academic Subjects through Primary Language	1,280	36	11	44%	49%	49%	56%	43%
Other EL Instructional Services	19	34	9	40%	47%	47%	50%	42%
None (EL only)	30	35	14	43%	48%	48%	52%	44%
Program Participation Unknown	59	33	10	39%	44%	43%	52%	42%
No Special Education	2,776	37	11	45%	50%	50%	55%	44%
Special Education	90	27	10	32%	37%	38%	40%	32%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.11 Demographic Summary for Reading/Language Arts, Grade Seven (Overall Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Overall Population Valid Scores	3,063	39	12	62%	46%	50%	53%	50%
Female	1,412	40	12	64%	48%	52%	57%	53%
Male	1,635	37	12	60%	44%	48%	51%	48%
Gender Unknown	16	36	9	58%	47%	44%	49%	46%
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	52	35	12	58%	43%	45%	47%	46%
Mexico	776	38	12	62%	46%	50%	53%	50%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	111	37	12	60%	43%	47%	51%	49%
United States	198	38	11	59%	44%	49%	54%	48%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	26	40	10	64%	46%	54%	54%	54%
Country Unknown	1,861	39	12	62%	46%	50%	54%	50%
Not in NSLP	589	40	12	64%	48%	52%	56%	52%
In NSLP	2,394	38	12	61%	45%	49%	53%	50%
NSLP Unknown	80	40	11	66%	46%	52%	55%	51%
In U.S. Schools $\geq$ 12 Months	1,093	37	12	57%	43%	49%	52%	47%
In U.S. Schools $<$ 12 Months	1,970	40	12	64%	47%	51%	54%	52%
EL in ELD	331	37	12	59%	44%	49%	49%	47%
EL in ELD and SDAIE	841	39	12	62%	46%	50%	53%	51%
EL in ELD and SDAIE with Primary Language Support	860	38	12	63%	45%	50%	52%	50%
EL in ELD and Academic Subjects through Primary Language	719	40	12	63%	47%	52%	57%	52%
Other EL Instructional Services	49	34	12	54%	41%	41%	47%	44%
None (EL only)	39	36	10	58%	42%	42%	52%	46%
Program Participation Unknown	224	39	12	61%	46%	51%	54%	50%
No Special Education	3,011	39	12	62%	46%	50%	54%	50%
Special Education	52	29	10	42%	33%	37%	42%	39%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.12 Demographic Summary for Reading/Language Arts, Grade Seven (Target Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Word Analysis and Vocabulary Development	Reading Comprehension	Literary Response and Analysis	Written Conventions	Writing Strategies
Target Population Valid Scores	2,443	39	12	63%	46%	51%	55%	52%
Female	1,123	41	12	65%	48%	53%	58%	54%
Male	1,310	38	12	62%	45%	49%	52%	49%
Gender Unknown	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	46	35	12	58%	43%	45%	47%	46%
Mexico	632	39	12	63%	46%	50%	53%	50%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	95	36	12	59%	42%	46%	49%	49%
United States	131	37	11	58%	43%	48%	52%	47%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	24	40	10	64%	45%	54%	54%	54%
Country Unknown	1,482	40	12	64%	47%	52%	56%	53%
Not in NSLP	488	41	12	66%	48%	52%	56%	53%
In NSLP	1,903	39	12	63%	46%	50%	54%	51%
NSLP Unknown	52	40	12	67%	46%	52%	56%	53%
In U.S. Schools >= 12 Months	473	39	11	59%	45%	50%	56%	49%
In U.S. Schools < 12 Months	1,970	40	12	64%	47%	51%	54%	52%
EL in ELD	225	38	12	63%	45%	50%	51%	50%
EL in ELD and SDAIE	659	40	12	64%	48%	51%	55%	53%
EL in ELD and SDAIE with Primary Language Support	701	39	12	63%	45%	50%	53%	51%
EL in ELD and Academic Subjects through Primary Language	719	40	12	63%	47%	52%	57%	52%
Other EL Instructional Services	31	34	13	57%	43%	43%	45%	44%
None (EL only)	29	35	9	59%	42%	41%	50%	45%
Program Participation Unknown	79	41	12	68%	49%	54%	57%	53%
No Special Education	2,411	40	12	64%	47%	51%	55%	52%
Special Education	32	31	10	44%	36%	40%	45%	40%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.13 Demographic Summary for Mathematics, Grade Two (Overall Population)**

	Number Tested	Mean Number-correct Score	Std. Dev. of Number-correct Score	Mean Percent Correct in Content Area				
				Place Value, Addition, and Subtraction	Multiplication, Division, and Fractions	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Overall Population Valid Scores	17,455	45	11	68%	66%	64%	74%	72%
Female	8,767	45	11	68%	67%	63%	74%	72%
Male	8,658	45	12	67%	65%	65%	75%	72%
Gender Unknown	30	47	11	72%	70%	69%	76%	70%
Argentina	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	50	43	13	64%	63%	63%	73%	69%
Mexico	1,483	42	12	62%	63%	61%	71%	64%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	11	44	13	66%	64%	76%	74%	64%
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	72	41	13	60%	61%	58%	68%	66%
United States	2,489	45	11	69%	67%	65%	75%	73%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	47	42	12	64%	64%	55%	73%	63%
Country Unknown	13,264	45	11	68%	66%	64%	75%	73%
Not in NSLP	1,818	45	12	69%	68%	65%	76%	72%
In NSLP	15,555	45	11	68%	66%	64%	74%	72%
NSLP Unknown	82	43	13	63%	65%	63%	74%	65%
In U.S. Schools >= 12 Months	15,017	46	11	70%	67%	66%	75%	74%
In U.S. Schools < 12 Months	2,438	39	12	57%	59%	56%	68%	61%
EL in ELD	508	41	14	61%	62%	60%	69%	65%
EL in ELD and SDAIE	1,186	39	12	58%	59%	57%	68%	61%
EL in ELD and SDAIE with Primary Language Support	1,909	42	12	64%	63%	61%	71%	68%
EL in ELD and Academic Subjects through Primary Language	12,566	46	11	70%	68%	66%	76%	74%
Other EL Instructional Services	153	42	12	63%	62%	58%	72%	66%
None (EL only)	103	43	11	64%	63%	62%	73%	64%
Program Participation Unknown	1,030	44	11	67%	65%	63%	74%	72%
No Special Education	16,622	45	11	68%	67%	65%	75%	73%
Special Education	829	38	12	56%	55%	54%	65%	61%
Special Education Unknown	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.14 Demographic Summary for Mathematics, Grade Two (Target Population)

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Place Value, Addition, and Subtraction	Multiplication, Division, and Fractions	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Target Population Valid Scores	14,358	45	11	68%	66%	64%	75%	72%
Female	7,237	45	11	68%	67%	63%	74%	72%
Male	7,114	45	12	67%	66%	65%	75%	72%
Gender Unknown	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	42	43	13	64%	64%	64%	73%	70%
Mexico	1,263	42	12	62%	63%	61%	71%	65%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	67	41	13	59%	62%	58%	68%	66%
United States	1,969	45	11	69%	68%	65%	75%	73%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	38	41	12	63%	63%	51%	72%	64%
Country Unknown	10,937	45	11	68%	66%	64%	75%	73%
Not in NSLP	1,524	45	12	68%	67%	65%	75%	72%
In NSLP	12,770	45	11	68%	66%	64%	74%	72%
NSLP Unknown	64	44	12	65%	66%	63%	75%	65%
In U.S. Schools >= 12 Months	11,920	46	11	70%	68%	66%	76%	74%
In U.S. Schools < 12 Months	2,438	39	12	57%	59%	56%	68%	61%
EL in ELD	277	37	12	52%	55%	52%	65%	55%
EL in ELD and SDAIE	750	37	12	54%	56%	54%	66%	56%
EL in ELD and SDAIE with Primary Language Support	652	37	12	54%	56%	52%	65%	57%
EL in ELD and Academic Subjects through Primary Language	12,566	46	11	70%	68%	66%	76%	74%
Other EL Instructional Services	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
None (EL only)	57	41	12	62%	61%	58%	70%	63%
Program Participation Unknown	46	40	12	60%	59%	59%	71%	59%
No Special Education	13,683	45	11	68%	67%	65%	75%	72%
Special Education	675	38	12	57%	55%	54%	66%	62%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.15 Demographic Summary for Mathematics, Grade Three (Overall Population)

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Place Value, Fractions, and Decimals	Addition, Subtraction, Multiplication, Division	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Overall Population Valid Scores	11,528	44	13	66%	69%	62%	70%	76%
Female	5,769	44	12	65%	70%	61%	70%	78%
Male	5,740	44	13	67%	68%	63%	71%	75%
Gender Unknown	19	43	13	65%	66%	57%	70%	76%
Argentina	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	56	39	14	59%	62%	54%	60%	64%
Mexico	1,171	40	13	60%	63%	55%	64%	68%
Panama	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	11	52	10	80%	86%	77%	74%	84%
Puerto Rico	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	96	39	13	57%	63%	55%	65%	68%
United States	1,717	45	12	67%	70%	64%	72%	79%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	31	37	15	56%	54%	54%	61%	65%
Country Unknown	8,412	45	12	67%	70%	63%	71%	77%
Not in NSLP	1,303	44	13	66%	68%	62%	70%	76%
In NSLP	10,155	44	12	66%	69%	62%	71%	76%
NSLP Unknown	70	39	14	59%	63%	56%	61%	63%
In U.S. Schools >= 12 Months	9,464	45	12	68%	70%	64%	73%	80%
In U.S. Schools < 12 Months	2,064	38	14	56%	61%	53%	60%	60%
EL in ELD	459	40	13	60%	65%	57%	63%	67%
EL in ELD and SDAIE	1,111	40	13	59%	64%	56%	62%	65%
EL in ELD and SDAIE with Primary Language Support	1,384	40	13	59%	64%	55%	65%	65%
EL in ELD and Academic Subjects through Primary Language	7,750	46	12	68%	71%	64%	73%	80%
Other EL Instructional Services	127	41	15	61%	62%	56%	66%	75%
None (EL only)	96	40	12	57%	65%	53%	64%	68%
Program Participation Unknown	601	44	12	67%	69%	62%	70%	78%
No Special Education	10,973	44	12	66%	70%	63%	71%	77%
Special Education	553	36	13	53%	54%	50%	59%	65%
Special Education Unknown	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.16 Demographic Summary for Mathematics, Grade Three (Target Population)

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Place Value, Fractions, and Decimals	Addition, Subtraction, Multiplication, Division	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Target Population Valid Scores	9,466	44	13	66%	69%	62%	71%	76%
Female	4,741	44	12	65%	70%	62%	70%	78%
Male	4,713	44	13	67%	68%	63%	71%	74%
Gender Unknown	12	42	13	64%	65%	57%	71%	72%
Argentina	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	51	38	14	59%	61%	52%	59%	62%
Mexico	946	40	13	59%	63%	55%	63%	67%
Panama	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	87	40	13	59%	64%	55%	67%	69%
United States	1,278	45	12	67%	70%	64%	72%	80%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	23	36	16	53%	52%	54%	60%	64%
Country Unknown	7,042	45	12	67%	70%	63%	71%	77%
Not in NSLP	1,071	44	13	66%	69%	62%	70%	76%
In NSLP	8,347	44	13	66%	69%	62%	71%	76%
NSLP Unknown	48	37	14	56%	59%	53%	59%	58%
In U.S. Schools >= 12 Months	7,402	46	12	69%	71%	65%	73%	81%
In U.S. Schools < 12 Months	2,064	38	14	56%	61%	53%	60%	60%
EL in ELD	224	36	13	52%	60%	51%	57%	58%
EL in ELD and SDAIE	711	37	13	55%	61%	52%	58%	59%
EL in ELD and SDAIE with Primary Language Support	682	36	13	54%	58%	50%	59%	56%
EL in ELD and Academic Subjects through Primary Language	7,750	46	12	68%	71%	64%	73%	80%
Other EL Instructional Services	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
None (EL only)	43	36	13	51%	62%	50%	57%	58%
Program Participation Unknown	47	36	15	52%	59%	51%	59%	54%
No Special Education	9,017	44	12	66%	70%	63%	71%	77%
Special Education	449	37	13	54%	55%	51%	60%	65%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.17 Demographic Summary for Mathematics, Grade Four (Overall Population)

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Decimals, Fractions, and Negative Numbers	Operations and Factoring	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Overall Population Valid Scores	6,859	41	13	67%	59%	65%	62%	56%
Female	3,380	41	13	66%	60%	66%	64%	57%
Male	3,467	40	13	67%	57%	63%	61%	55%
Gender Unknown	12	40	15	67%	62%	62%	55%	65%
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	44	37	13	60%	54%	57%	56%	48%
Mexico	965	37	13	60%	53%	57%	58%	50%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	13	49	11	73%	78%	82%	73%	65%
Puerto Rico	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	74	34	13	58%	48%	51%	56%	40%
United States	1,106	42	13	70%	60%	66%	64%	58%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	38	38	14	63%	58%	57%	61%	51%
Country Unknown	4,592	42	13	67%	60%	66%	63%	57%
Not in NSLP	821	41	14	66%	59%	63%	62%	56%
In NSLP	5,982	41	13	67%	59%	65%	63%	56%
NSLP Unknown	56	35	13	54%	50%	57%	57%	51%
In U.S. Schools >= 12 Months	4,884	43	12	70%	61%	69%	65%	59%
In U.S. Schools < 12 Months	1,975	36	13	58%	52%	55%	56%	49%
EL in ELD	319	38	14	63%	55%	58%	57%	52%
EL in ELD and SDAIE	943	37	13	60%	54%	56%	56%	52%
EL in ELD and SDAIE with Primary Language Support	964	38	13	61%	54%	59%	59%	50%
EL in ELD and Academic Subjects through Primary Language	3,697	43	12	69%	60%	68%	65%	59%
Other EL Instructional Services	442	44	13	71%	65%	71%	67%	61%
None (EL only)	73	37	12	60%	55%	57%	57%	51%
Program Participation Unknown	421	42	13	68%	62%	66%	64%	57%
No Special Education	6,549	41	13	67%	59%	65%	63%	57%
Special Education	303	34	12	56%	47%	52%	53%	47%
Special Education Unknown	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.18 Demographic Summary for Mathematics, Grade Four (Target Population)

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Decimals, Fractions, and Negative Numbers	Operations and Factoring	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Target Population Valid Scores	5,449	40	13	66%	57%	63%	62%	55%
Female	2,670	41	13	65%	58%	65%	63%	56%
Male	2,771	40	13	66%	56%	62%	60%	55%
Gender Unknown	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	39	36	14	60%	53%	55%	55%	47%
Mexico	816	37	13	59%	53%	57%	58%	50%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	67	34	13	57%	47%	51%	55%	40%
United States	861	42	13	70%	59%	66%	64%	59%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	33	38	15	61%	56%	57%	59%	52%
Country Unknown	3,599	41	13	66%	58%	65%	62%	56%
Not in NSLP	683	40	13	65%	58%	62%	61%	55%
In NSLP	4,731	40	13	66%	57%	64%	62%	55%
NSLP Unknown	35	35	13	55%	49%	55%	58%	51%
In U.S. Schools >= 12 Months	3,474	43	12	70%	60%	68%	65%	59%
In U.S. Schools < 12 Months	1,975	36	13	58%	52%	55%	56%	49%
EL in ELD	210	35	13	59%	52%	52%	53%	47%
EL in ELD and SDAIE	734	35	13	58%	52%	54%	54%	51%
EL in ELD and SDAIE with Primary Language Support	697	35	13	57%	51%	55%	57%	47%
EL in ELD and Academic Subjects through Primary Language	3,697	43	12	69%	60%	68%	65%	59%
Other EL Instructional Services	30	40	15	64%	57%	65%	59%	58%
None (EL only)	49	35	13	56%	54%	54%	55%	48%
Program Participation Unknown	32	30	11	51%	45%	42%	47%	42%
No Special Education	5,220	41	13	66%	58%	64%	62%	56%
Special Education	228	34	12	56%	47%	52%	52%	46%
Special Education Unknown	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.19 Demographic Summary for Mathematics, Grade Five (Overall Population)**

	Number Tested	Mean Number-correct Score	Std. Dev. of Number-correct Score	Mean Percent Correct in Content Area				
				Estimation, Percents, and Factoring	Operations with Fractions and Decimals	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Overall Population Valid Scores	5,325	32	11	50%	45%	54%	47%	53%
Female	2,610	33	10	50%	46%	57%	48%	54%
Male	2,699	32	11	51%	44%	52%	47%	53%
Gender Unknown	16	30	8	46%	46%	47%	47%	42%
Argentina	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	38	28	11	47%	42%	43%	41%	43%
Mexico	906	31	11	48%	45%	49%	45%	51%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	82	27	11	45%	37%	42%	39%	49%
United States	754	33	11	51%	45%	56%	48%	54%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	34	25	9	44%	31%	43%	39%	40%
Country Unknown	3,476	33	10	51%	45%	56%	48%	54%
Not in NSLP	681	32	11	50%	46%	55%	48%	53%
In NSLP	4,589	32	11	50%	45%	54%	47%	53%
NSLP Unknown	55	27	9	46%	39%	41%	40%	47%
In U.S. Schools >= 12 Months	3,609	34	11	52%	46%	58%	49%	55%
In U.S. Schools < 12 Months	1,716	29	10	47%	43%	46%	44%	49%
EL in ELD	271	31	11	51%	44%	48%	47%	50%
EL in ELD and SDAIE	916	30	11	48%	44%	48%	45%	49%
EL in ELD and SDAIE with Primary Language Support	751	30	10	47%	44%	49%	45%	51%
EL in ELD and Academic Subjects through Primary Language	2,568	34	11	51%	46%	59%	49%	56%
Other EL Instructional Services	368	33	11	51%	45%	57%	48%	53%
None (EL only)	57	29	10	46%	42%	48%	43%	54%
Program Participation Unknown	394	32	10	52%	45%	55%	46%	53%
No Special Education	5,078	32	11	50%	46%	55%	48%	54%
Special Education	246	27	9	44%	36%	46%	42%	46%
Special Education Unknown	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.20 Demographic Summary for Mathematics, Grade Five (Target Population)

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Estimation, Percents, and Factoring	Operations with Fractions and Decimals	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Target Population Valid Scores	4,119	32	11	50%	45%	54%	47%	53%
Female	2,028	32	10	49%	46%	56%	48%	53%
Male	2,078	32	11	50%	44%	52%	47%	53%
Gender Unknown	13	30	9	46%	44%	48%	48%	40%
Argentina	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	33	29	11	47%	44%	44%	42%	42%
Mexico	759	31	11	48%	45%	48%	45%	51%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	75	26	10	44%	37%	41%	39%	50%
United States	529	32	11	50%	45%	56%	47%	53%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	31	25	9	42%	32%	43%	40%	41%
Country Unknown	2,661	33	10	50%	45%	56%	48%	54%
Not in NSLP	550	32	11	50%	46%	54%	48%	53%
In NSLP	3,528	32	11	50%	45%	54%	47%	53%
NSLP Unknown	41	27	9	45%	38%	41%	39%	47%
In U.S. Schools >= 12 Months	2,403	34	11	52%	46%	59%	50%	56%
In U.S. Schools < 12 Months	1,716	29	10	47%	43%	46%	44%	49%
EL in ELD	191	29	10	47%	42%	44%	43%	47%
EL in ELD and SDAIE	685	29	11	47%	43%	46%	44%	47%
EL in ELD and SDAIE with Primary Language Support	562	29	10	45%	43%	46%	44%	50%
EL in ELD and Academic Subjects through Primary Language	2,568	34	11	51%	46%	59%	49%	56%
Other EL Instructional Services	26	35	12	57%	52%	52%	52%	56%
None (EL only)	47	29	10	44%	42%	48%	44%	56%
Program Participation Unknown	40	26	8	43%	40%	38%	40%	49%
No Special Education	3,957	32	11	50%	45%	54%	48%	53%
Special Education	161	28	10	43%	38%	46%	41%	47%
Special Education Unknown	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.21 Demographic Summary for Mathematics, Grade Six (Overall Population)**

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Ratios, Proportions, Percentages, and Negative Numbers	Operations with Problem Solving with Fractions	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Overall Population Valid Scores	3,388	31	11	54%	52%	51%	37%	39%
Female	1,653	31	11	55%	52%	51%	37%	40%
Male	1,727	31	12	54%	52%	51%	37%	38%
Gender Unknown	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	11	29	7	52%	48%	44%	38%	42%
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	46	24	10	42%	39%	39%	27%	31%
Mexico	772	29	10	51%	48%	48%	34%	36%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	11	41	12	69%	73%	69%	51%	46%
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	76	25	10	44%	38%	41%	31%	32%
United States	394	31	11	55%	53%	50%	39%	40%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	28	26	10	44%	49%	43%	30%	31%
Country Unknown	2,034	32	12	56%	54%	53%	38%	41%
Not in NSLP	516	32	12	56%	54%	52%	37%	41%
In NSLP	2,822	31	11	54%	52%	51%	37%	39%
NSLP Unknown	50	28	9	51%	48%	47%	31%	32%
In U.S. Schools >= 12 Months	1,709	33	11	56%	56%	54%	39%	41%
In U.S. Schools < 12 Months	1,679	29	11	53%	48%	48%	34%	37%
EL in ELD	281	30	11	54%	49%	48%	34%	37%
EL in ELD and SDAIE	821	30	12	54%	50%	50%	36%	37%
EL in ELD and SDAIE with Primary Language Support	733	29	11	53%	48%	48%	35%	37%
EL in ELD and Academic Subjects through Primary Language	1,278	33	11	57%	57%	55%	40%	42%
Other EL Instructional Services	70	26	11	42%	42%	44%	30%	33%
None (EL only)	48	30	13	52%	51%	52%	33%	39%
Program Participation Unknown	157	31	11	53%	53%	52%	38%	39%
No Special Education	3,257	31	11	55%	52%	51%	37%	39%
Special Education	131	25	9	46%	43%	41%	33%	31%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.22 Demographic Summary for Mathematics, Grade Six (Target Population)

	Number Tested	Mean Number -correct Score	Std. Dev. of Number -correct Score	Mean Percent Correct in Content Area				
				Ratios, Proportions, Percentages, and Negative Numbers	Operations with Problem Solving with Fractions	Algebra and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Target Population Valid Scores	2,863	31	11	55%	52%	51%	37%	39%
Female	1,405	31	11	55%	51%	51%	37%	40%
Male	1,453	31	12	54%	52%	51%	37%	38%
Gender Unknown	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	40	22	10	41%	36%	36%	27%	28%
Mexico	654	29	11	52%	48%	48%	35%	36%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	69	25	10	45%	40%	42%	31%	33%
United States	309	31	11	55%	52%	50%	38%	40%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	23	25	9	41%	49%	41%	29%	29%
Country Unknown	1,736	32	12	57%	54%	53%	38%	41%
Not in NSLP	433	32	12	56%	53%	52%	38%	41%
In NSLP	2,392	31	11	54%	52%	51%	37%	39%
NSLP Unknown	38	29	9	54%	48%	48%	30%	33%
In U.S. Schools >= 12 Months	1,184	33	11	57%	57%	55%	40%	42%
In U.S. Schools < 12 Months	1,679	29	11	53%	48%	48%	34%	37%
EL in ELD	218	29	11	53%	47%	47%	33%	36%
EL in ELD and SDAIE	673	30	12	53%	49%	49%	35%	37%
EL in ELD and SDAIE with Primary Language Support	588	29	11	53%	48%	48%	35%	37%
EL in ELD and Academic Subjects through Primary Language	1,278	33	11	57%	57%	55%	40%	42%
Other EL Instructional Services	19	26	11	46%	44%	43%	28%	31%
None (EL only)	30	29	14	49%	49%	49%	33%	38%
Program Participation Unknown	57	27	9	50%	46%	44%	33%	32%
No Special Education	2,772	31	11	55%	52%	51%	37%	39%
Special Education	91	26	10	48%	43%	42%	33%	31%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 6.A.23 Demographic Summary for Mathematics, Grade Seven (Overall Population)**

	Number Tested	Mean Number-correct Score	Std. Dev. of Number-correct Score	Mean Percent Correct in Content Area					
				Rational Numbers	Exponents, Powers, and Roots	Quantitative Relationships and Evaluating Expressions	Multistep Problems, Graphing, and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Overall Population Valid Scores	2,948	28	9	43%	36%	43%	44%	42%	47%
Female	1,351	28	9	42%	36%	44%	43%	42%	48%
Male	1,581	27	10	43%	36%	42%	44%	42%	46%
Gender Unknown	16	25	8	46%	34%	41%	40%	34%	35%
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	52	23	6	37%	27%	36%	36%	33%	40%
Mexico	772	27	9	41%	34%	42%	43%	42%	45%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	111	23	7	34%	30%	41%	34%	36%	38%
United States	198	28	9	44%	38%	44%	47%	43%	49%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	26	26	9	35%	33%	49%	37%	41%	43%
Country Unknown	1,752	28	10	44%	38%	44%	45%	43%	48%
Not in NSLP	574	28	10	44%	36%	43%	45%	43%	47%
In NSLP	2,295	27	9	42%	37%	43%	44%	41%	46%
NSLP Unknown	79	27	8	40%	34%	44%	43%	41%	47%
In U.S. Schools >= 12 Months	989	28	9	44%	40%	44%	44%	40%	46%
In U.S. Schools < 12 Months	1,959	27	9	42%	35%	43%	43%	43%	47%
EL in ELD	279	27	9	42%	32%	43%	43%	40%	47%
EL in ELD and SDAIE	792	28	10	42%	36%	43%	44%	43%	48%
EL in ELD and SDAIE with Primary Language Support	855	26	9	41%	34%	42%	41%	41%	43%
EL in ELD and Academic Subjects through Primary Language	714	29	10	46%	41%	45%	47%	44%	50%
Other EL Instructional Services	48	27	10	42%	40%	40%	43%	40%	42%
None (EL only)	39	26	9	43%	33%	47%	38%	39%	43%
Program Participation Unknown	221	28	9	43%	38%	45%	44%	41%	46%
No Special Education	2,898	28	9	43%	36%	43%	44%	42%	47%
Special Education	50	23	8	35%	34%	35%	37%	31%	39%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.A.24 Demographic Summary for Mathematics, Grade Seven (Target Population)

	Number Tested	Mean Number-correct Score	Std. Dev. of Number-correct Score	Mean Percent Correct in Content Area					
				Rational Numbers	Exponents, Powers, and Roots	Quantitative Relationships and Evaluating Expressions	Multistep Problems, Graphing, and Functions	Measurement and Geometry	Statistics, Data Analysis, and Probability
Target Population Valid Scores	2,430	28	9	43%	36%	43%	44%	43%	47%
Female	1,119	28	9	42%	36%	45%	44%	43%	48%
Male	1,301	28	10	44%	36%	42%	44%	42%	47%
Gender Unknown	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Argentina	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bolivia	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Brazil	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colombia	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Costa Rica	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cuba	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ecuador	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guatemala	46	23	6	36%	28%	36%	36%	33%	41%
Mexico	629	27	9	40%	34%	42%	43%	42%	46%
Panama	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peru	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paraguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
El Salvador	95	22	7	33%	29%	40%	32%	34%	36%
United States	131	27	9	42%	36%	42%	45%	41%	47%
Uruguay	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other	24	26	9	37%	32%	49%	36%	41%	45%
Country Unknown	1,474	29	10	45%	38%	44%	45%	44%	49%
Not in NSLP	488	28	10	44%	36%	43%	44%	43%	47%
In NSLP	1,890	28	10	43%	36%	44%	44%	42%	47%
NSLP Unknown	52	27	8	39%	34%	44%	42%	41%	46%
In U.S. Schools >= 12 Months	471	29	10	46%	43%	45%	46%	42%	48%
In U.S. Schools < 12 Months	1,959	27	9	42%	35%	43%	43%	43%	47%
EL in ELD	224	27	9	42%	32%	43%	43%	41%	48%
EL in ELD and SDAIE	657	28	10	42%	36%	44%	45%	44%	49%
EL in ELD and SDAIE with Primary Language Support	698	26	8	40%	33%	41%	41%	41%	43%
EL in ELD and Academic Subjects through Primary Language	714	29	10	46%	41%	45%	47%	44%	50%
Other EL Instructional Services	30	28	10	45%	40%	40%	45%	43%	41%
None (EL only)	29	25	9	42%	29%	46%	36%	38%	40%
Program Participation Unknown	78	28	10	40%	36%	46%	44%	43%	46%
No Special Education	2,398	28	10	43%	36%	43%	44%	43%	47%
Special Education	32	23	7	36%	37%	36%	37%	30%	39%
Special Education Unknown	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Appendix 6.B—Test Variations, Accommodations, and Modifications

Test Variation (1) / Accommodation (2) / Modification (3) *		Provision
A.	Test administration directions that are simplified or clarified (does not apply to test questions)	All
	Test students in a small group setting	All
	Test individual student separately, provided that a test examiner directly supervises the student	1
	Visual magnifying equipment	1
	Audio amplification equipment	1
	Noise buffers (e.g. individual carrel or study enclosure)	1
	Special lighting or acoustics; special or adaptive furniture	1
	Colored overlay, mask, or other means to maintain visual attention	1
B. Student marks responses in test booklet and responses are transferred to a scorable answer document by an employee of the school, district, or nonpublic school		2
C. Responses dictated [orally, or in Manually Coded English or American Sign Language] to a scribe for selected-response items (multiple-choice questions)		2
F. Assistive device that does not interfere with the independent work of the student		2
G. Braille transcriptions provided by the test contractor		2
H. Large-print versions [Test items enlarged if font larger than required on large-print versions]		2
J. Test over more than one day for a test or test part to be administered in a single sitting		2
K. Supervised breaks within a section of the test		2
L. Administration of the test at the most beneficial time of day to the student		2
M. Test administered at home or in hospital by a test examiner		2
N. Dictionary		3
Q. Calculators on the mathematics test		3
R. Arithmetic table on the mathematics test		3
S. Math manipulatives on the mathematics tests		3
V. Assistive device that interferes with the independent work of the student on the multiple-choice		3
W. Used an unlisted modification		3
X. Used an unlisted accommodation		2
Y. Leave blank		
Z. Test questions read aloud to student		2 (Mathematics) 3 (Reading, Language, Spelling)

\* All = These test variations may be provided to all students.

Test Variation (1) = Eligible students may have testing variations if regularly used in the classroom.

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

Modification (3) = Eligible students shall be permitted to take the tests with modifications if specified in the eligible student's IEP or Section 504 Plan.

## Appendix 6.C — Accommodation Summary Tables<sup>1</sup>

Table 6.C.1 Accommodation Summary for Reading/Language Arts Grades Two to Seven

	Accommodation Summary for Reading/Language Arts Grades Two to Seven											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total
<b>All Students Tested</b>												
B: Marked in test booklet	3	0.02%	1	0.01%	5	0.07%	8	0.15%	1	0.03%	1	0.03%
C: Dictated responses to a scribe	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	5	0.03%	1	0.01%	1	0.01%	0	0.00%	0	0.00%	1	0.03%
J: Tested over more than one day	10	0.06%	8	0.07%	5	0.07%	3	0.06%	2	0.06%	2	0.06%
K: Had supervised breaks	30	0.17%	31	0.27%	15	0.22%	11	0.21%	2	0.06%	2	0.06%
L: Most beneficial time of day	16	0.09%	7	0.06%	7	0.10%	2	0.04%	2	0.06%	2	0.06%
M: Administered at home or in a hospital	2	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	3	0.02%	5	0.04%	3	0.04%	1	0.02%	2	0.06%	0	0.00%
Y: Leave blank	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	15	0.09%	3	0.03%	1	0.01%	5	0.09%	1	0.03%	0	0.00%
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.01%	3	0.06%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	48	0.27%	29	0.25%	26	0.38%	22	0.41%	4	0.12%	1	0.03%
Any Accommodation or Modification	54	0.31%	41	0.35%	28	0.41%	25	0.47%	6	0.18%	3	0.10%
No Accommodation or Modification	17,559	99.69%	11,557	99.65%	6,881	99.59%	5,319	99.53%	3,397	99.82%	3,074	99.90%

<sup>1</sup> The sum of the numbers of students across subgroups may not match exactly to the total testing population. For example, Students in Special Education + Students not in Special Education ≠ All Tested for the provision of an accommodation. This occurred due to the fact that only valid Primary Disability codes were chosen to identify those subgroups.

Accommodation Summary for Reading/Language Arts Grades Two to Seven												
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	Count	Pct. of Total										
<b>Target Students Tested</b>												
B: Marked in test booklet	2	0.01%	0	0.00%	5	0.09%	8	0.19%	1	0.03%	1	0.04%
C: Dictated responses to a scribe	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	4	0.03%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.04%
J: Tested over more than one day	6	0.04%	5	0.05%	0	0.00%	1	0.02%	2	0.07%	2	0.08%
K: Had supervised breaks	23	0.16%	26	0.27%	7	0.13%	9	0.22%	2	0.07%	2	0.08%
L: Most beneficial time of day	10	0.07%	3	0.03%	0	0.00%	1	0.02%	2	0.07%	2	0.08%
M: Administered at home or in a hospital	2	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.02%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	3	0.02%	4	0.04%	3	0.05%	1	0.02%	2	0.07%	0	0.00%
Y: Leave blank	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	15	0.10%	2	0.02%	1	0.02%	4	0.10%	1	0.03%	0	0.00%
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.02%	3	0.07%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	38	0.26%	23	0.24%	15	0.27%	18	0.44%	4	0.14%	1	0.04%
Any Accommodation or Modification	44	0.30%	33	0.35%	17	0.31%	21	0.51%	6	0.21%	3	0.12%
No Accommodation or Modification	14,451	99.70%	9,494	99.65%	5,476	99.69%	4,110	99.49%	2,867	99.79%	2,452	99.88%
<b>Non-Target (Optional) Students Tested</b>												
B: Marked in test booklet	1	0.03%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	1	0.03%	1	0.05%	1	0.07%	0	0.00%	0	0.00%	0	0.00%
J: Tested over more than one day	4	0.13%	3	0.14%	5	0.35%	2	0.16%	0	0.00%	0	0.00%
K: Had supervised breaks	7	0.22%	5	0.24%	8	0.56%	2	0.16%	0	0.00%	0	0.00%
L: Most beneficial time of day	6	0.19%	4	0.19%	7	0.49%	1	0.08%	0	0.00%	0	0.00%
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Accommodation Summary for Reading/Language Arts Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	1	0.05%	0	0.00%	1	0.08%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	10	0.32%	6	0.29%	11	0.78%	4	0.33%	0	0.00%	0	0.00%	
Any Accommodation or Modification	10	0.32%	8	0.39%	11	0.78%	4	0.33%	0	0.00%	0	0.00%	
No Accommodation or Modification	3,108	99.68%	2,063	99.61%	1,405	99.22%	1,209	99.67%	530	100.00%	622	100.00%	
<b>Students Not in Special Education</b>													
B: Marked in test booklet	1	0.01%	0	0.00%	1	0.02%	3	0.06%	0	0.00%	0	0.00%	
C: Dictated responses to a scribe	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	0	0.00%	2	0.02%	0	0.00%	0	0.00%	2	0.06%	2	0.07%	
K: Had supervised breaks	6	0.04%	8	0.07%	1	0.02%	0	0.00%	2	0.06%	2	0.07%	
L: Most beneficial time of day	0	0.00%	1	0.01%	0	0.00%	0	0.00%	2	0.06%	2	0.07%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	1	0.01%	1	0.01%	0	0.00%	1	0.02%	0	0.00%	0	0.00%	

Accommodation Summary for Reading/Language Arts Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.02%	3	0.06%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	6	0.04%	6	0.05%	1	0.02%	1	0.02%	0	0.00%	0	0.00%	
Any Accommodation or Modification	9	0.05%	11	0.10%	2	0.03%	4	0.08%	2	0.06%	2	0.07%	
No Accommodation or Modification	16,763	99.95%	11,028	99.90%	6,597	99.97%	5,093	99.92%	3,270	99.94%	3,022	99.93%	
<b>Students in Special Education</b>													
B: Marked in test booklet	2	0.24%	1	0.18%	4	1.32%	5	2.03%	1	0.76%	1	1.89%	
C: Dictated responses to a scribe	1	0.12%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	1	0.18%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	4	0.48%	1	0.18%	1	0.33%	0	0.00%	0	0.00%	1	1.89%	
J: Tested over more than one day	9	1.08%	5	0.90%	4	1.32%	3	1.22%	0	0.00%	0	0.00%	
K: Had supervised breaks	23	2.75%	22	3.95%	10	3.30%	11	4.47%	0	0.00%	0	0.00%	
L: Most beneficial time of day	15	1.79%	6	1.08%	4	1.32%	2	0.81%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	2	0.24%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.33%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	3	0.36%	4	0.72%	3	0.99%	1	0.41%	2	1.53%	0	0.00%	
Y: Leave blank	0	0.00%	1	0.18%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	14	1.67%	2	0.36%	1	0.33%	3	1.22%	1	0.76%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	41	4.90%	23	4.13%	21	6.93%	20	8.13%	4	3.05%	1	1.89%	
Any Accommodation or Modification	44	5.26%	29	5.21%	22	7.26%	20	8.13%	4	3.05%	1	1.89%	
No Accommodation or Modification	793	94.74%	528	94.79%	281	92.74%	226	91.87%	127	96.95%	52	98.11%	
<b>Students in U.S. Schools &lt; 12 Months</b>													
B: Marked in test booklet	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.05%	
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	

Accommodation Summary for Reading/Language Arts Grades Two to Seven														
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7			
	Count	Pct. of Total												
H: Used large-print test	2	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.05%
J: Tested over more than one day	0	0.00%	2	0.10%	0	0.00%	0	0.00%	0	0.00%	2	0.12%	2	0.10%
K: Had supervised breaks	0	0.00%	2	0.10%	0	0.00%	0	0.00%	0	0.00%	2	0.12%	2	0.10%
L: Most beneficial time of day	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	2	0.12%	2	0.10%
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Y: Leave blank	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	2	0.08%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.05%
Any Accommodation or Modification	3	0.12%	3	0.14%	0	0.00%	0	0.00%	0	0.00%	2	0.12%	3	0.15%
No Accommodation or Modification	2,484	99.88%	2,085	99.86%	1,997	100.00%	1,723	100.00%	1,684	99.88%	1,976	99.85%		
<b>Students in U.S. Schools &gt;= 12 Months</b>														
B: Marked in test booklet	2	0.01%	1	0.01%	5	0.10%	8	0.22%	1	0.06%	0	0.00%	0	0.00%
C: Dictated responses to a scribe	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	3	0.02%	1	0.01%	1	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
J: Tested over more than one day	10	0.07%	6	0.06%	5	0.10%	3	0.08%	0	0.00%	0	0.00%	0	0.00%
K: Had supervised breaks	30	0.20%	29	0.30%	15	0.31%	11	0.30%	0	0.00%	0	0.00%	0	0.00%
L: Most beneficial time of day	16	0.11%	6	0.06%	7	0.14%	2	0.06%	0	0.00%	0	0.00%	0	0.00%
M: Administered at home or in a hospital	2	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Accommodation Summary for Reading/Language Arts Grades Two to Seven												
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	Count	Pct. of Total										
X: Used an unlisted accommodation	3	0.02%	5	0.05%	3	0.06%	1	0.03%	2	0.12%	0	0.00%
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	14	0.09%	3	0.03%	1	0.02%	5	0.14%	1	0.06%	0	0.00%
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.02%	3	0.08%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	46	0.30%	28	0.29%	26	0.53%	22	0.61%	4	0.23%	0	0.00%
Any Accommodation or Modification	51	0.34%	38	0.40%	28	0.57%	25	0.69%	4	0.23%	0	0.00%
No Accommodation or Modification	15,075	99.66%	9,472	99.60%	4,884	99.43%	3,596	99.31%	1,713	99.77%	1,098	100.00%
<b>EL Program: EL in ELD</b>												
B: Marked in test booklet	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	0	0.00%	0	0.00%	1	0.31%	0	0.00%	0	0.00%	0	0.00%
J: Tested over more than one day	0	0.00%	2	0.44%	0	0.00%	0	0.00%	2	0.71%	2	0.60%
K: Had supervised breaks	0	0.00%	2	0.44%	0	0.00%	0	0.00%	2	0.71%	2	0.60%
L: Most beneficial time of day	0	0.00%	1	0.22%	0	0.00%	0	0.00%	2	0.71%	2	0.60%
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	0	0.00%	1	0.22%	1	0.31%	0	0.00%	0	0.00%	0	0.00%
Any Accommodation or Modification	0	0.00%	2	0.44%	1	0.31%	0	0.00%	2	0.71%	2	0.60%
No Accommodation or Modification	518	100.00%	457	99.56%	321	99.69%	273	100.00%	279	99.29%	331	99.40%

Accommodation Summary for Reading/Language Arts Grades Two to Seven														
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7			
	Count	Pct. of Total												
<b>EL Program: EL in ELD and SDAIE</b>														
B: Marked in test booklet	1	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	1	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
J: Tested over more than one day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
K: Had supervised breaks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
L: Most beneficial time of day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Y: Leave blank	0	0.00%	1	0.09%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	1	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Any Accommodation or Modification	1	0.08%	1	0.09%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Accommodation or Modification	1,208	99.92%	1,122	99.91%	955	100.00%	916	100.00%	825	100.00%	844	100.00%		
<b>EL Program: EL in ELD and SDAIE with Primary Language Support</b>														
B: Marked in test booklet	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
J: Tested over more than one day	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
K: Had supervised breaks	1	0.05%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
L: Most beneficial time of day	0	0.00%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Accommodation Summary for Reading/Language Arts Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	1	0.05%	1	0.07%	0	0.00%	1	0.13%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	2	0.10%	1	0.07%	0	0.00%	1	0.13%	0	0.00%	0	0.00%	
Any Accommodation or Modification	3	0.16%	2	0.14%	0	0.00%	1	0.13%	0	0.00%	0	0.00%	
No Accommodation or Modification	1,926	99.84%	1,395	99.86%	972	100.00%	755	99.87%	736	100.00%	861	100.00%	
<b>EL Program: EL in ELD and Academic Subjects through Primary Language</b>													
B: Marked in test booklet	1	0.01%	0	0.00%	5	0.13%	8	0.31%	1	0.08%	0	0.00%	
C: Dictated responses to a scribe	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	3	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	6	0.05%	4	0.05%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	
K: Had supervised breaks	23	0.18%	25	0.32%	7	0.19%	9	0.35%	0	0.00%	0	0.00%	
L: Most beneficial time of day	10	0.08%	2	0.03%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	2	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.03%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	3	0.02%	4	0.05%	3	0.08%	1	0.04%	2	0.16%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	14	0.11%	2	0.03%	1	0.03%	4	0.16%	1	0.08%	0	0.00%	

Accommodation Summary for Reading/Language Arts Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.04%	1	0.03%	3	0.12%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	37	0.29%	22	0.28%	15	0.40%	18	0.70%	4	0.31%	0	0.00%	
Any Accommodation or Modification	42	0.33%	31	0.40%	17	0.46%	21	0.82%	4	0.31%	0	0.00%	
No Accommodation or Modification	12,617	99.67%	7,759	99.60%	3,704	99.54%	2,553	99.18%	1,277	99.69%	723	100.00%	
<b>EL Program: Other EL Instructional Services</b>													
B: Marked in test booklet	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	1.96%	
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	1.96%	
J: Tested over more than one day	0	0.00%	0	0.00%	3	0.68%	0	0.00%	0	0.00%	0	0.00%	
K: Had supervised breaks	0	0.00%	0	0.00%	3	0.68%	0	0.00%	0	0.00%	0	0.00%	
L: Most beneficial time of day	1	0.65%	1	0.78%	5	1.13%	1	0.27%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	1	0.65%	1	0.78%	5	1.13%	1	0.27%	0	0.00%	1	1.96%	
Any Accommodation or Modification	1	0.65%	1	0.78%	5	1.13%	1	0.27%	0	0.00%	1	1.96%	
No Accommodation or Modification	152	99.35%	127	99.22%	437	98.87%	368	99.73%	71	100.00%	50	98.04%	
<b>EL Program: None (EL only)</b>													
B: Marked in test booklet	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	

Accommodation Summary for Reading/Language Arts Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
H: Used large-print test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
K: Had supervised breaks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
L: Most beneficial time of day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Any Accommodation or Modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
No Accommodation or Modification	104	100.00%	96	100.00%	73	100.00%	57	100.00%	49	100.00%	41	100.00%	

**Table 6.C.2 Accommodation Summary for Mathematics Grades Two to Seven**

	Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7			
	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total	Count	Pct. of Total		
<b>All Students Tested</b>														
B: Marked in test booklet	3	0.02%	1	0.01%	5	0.07%	8	0.15%	1	0.03%	1	0.03%	1	0.03%
C: Dictated responses to a scribe	2	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	5	0.03%	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	1	0.03%
J: Tested over more than one day	9	0.05%	8	0.07%	5	0.07%	3	0.06%	2	0.06%	2	0.07%	2	0.07%
K: Had supervised breaks	30	0.17%	31	0.27%	15	0.22%	11	0.21%	2	0.06%	2	0.07%	2	0.07%
L: Most beneficial time of day	13	0.07%	8	0.07%	7	0.10%	2	0.04%	2	0.06%	2	0.07%	2	0.07%
M: Administered at home or in a hospital	2	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Q: Used a calculator	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
R: Used an arithmetic table	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
S: Used math manipulatives	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	5	0.03%	8	0.07%	3	0.04%	1	0.02%	2	0.06%	2	0.06%	0	0.00%
Y: Leave blank	0	0.00%	2	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	20	0.11%	28	0.24%	20	0.29%	16	0.30%	5	0.15%	0	0.00%	0	0.00%
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.01%	3	0.06%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	50	0.28%	38	0.33%	32	0.46%	27	0.51%	6	0.18%	1	0.03%	1	0.03%
Any Accommodation or Modification	56	0.32%	57	0.49%	38	0.55%	32	0.60%	10	0.29%	3	0.10%	3	0.10%
No Accommodation or Modification	17,529	99.68%	11,529	99.51%	6,858	99.45%	5,307	99.40%	3,388	99.71%	2,961	99.90%	99,90%	

Accommodation Summary for Mathematics Grades Two to Seven												
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	Count	Pct. of Total										
<b>Target Students Tested</b>												
B: Marked in test booklet	2	0.01%	0	0.00%	5	0.09%	8	0.19%	1	0.03%	1	0.04%
C: Dictated responses to a scribe	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	4	0.03%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.04%
J: Tested over more than one day	6	0.04%	5	0.05%	0	0.00%	1	0.02%	2	0.07%	2	0.08%
K: Had supervised breaks	24	0.17%	26	0.27%	7	0.13%	9	0.22%	2	0.07%	2	0.08%
L: Most beneficial time of day	9	0.06%	4	0.04%	0	0.00%	1	0.02%	2	0.07%	2	0.08%
M: Administered at home or in a hospital	2	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.02%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	5	0.03%	6	0.06%	3	0.05%	1	0.02%	2	0.07%	0	0.00%
Y: Leave blank	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	17	0.12%	22	0.23%	13	0.24%	12	0.29%	4	0.14%	0	0.00%
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.02%	3	0.07%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	39	0.27%	30	0.32%	19	0.35%	22	0.53%	5	0.17%	1	0.04%
Any Accommodation or Modification	44	0.30%	46	0.48%	25	0.46%	27	0.65%	9	0.31%	3	0.12%
No Accommodation or Modification	14,427	99.70%	9,469	99.52%	5,458	99.54%	4,099	99.35%	2,861	99.69%	2,440	99.88%
<b>Non-Target (Optional) Students Tested</b>												
B: Marked in test booklet	1	0.03%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
C: Dictated responses to a scribe	1	0.03%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
H: Used large-print test	1	0.03%	1	0.05%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	3	0.10%	3	0.14%	5	0.35%	2	0.16%	0	0.00%	0	0.00%	
K: Had supervised breaks	6	0.19%	5	0.24%	8	0.57%	2	0.16%	0	0.00%	0	0.00%	
L: Most beneficial time of day	4	0.13%	4	0.19%	7	0.50%	1	0.08%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	2	0.10%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	3	0.10%	6	0.29%	7	0.50%	4	0.33%	1	0.19%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	11	0.35%	8	0.39%	13	0.92%	5	0.41%	1	0.19%	0	0.00%	
Any Accommodation or Modification	12	0.39%	11	0.53%	13	0.92%	5	0.41%	1	0.19%	0	0.00%	
No Accommodation or Modification	3,102	99.61%	2,060	99.47%	1,400	99.08%	1,208	99.59%	527	99.81%	521	100.00%	
<b>Students Not in Special Education</b>													
B: Marked in test booklet	1	0.01%	0	0.00%	1	0.02%	3	0.06%	0	0.00%	0	0.00%	
C: Dictated responses to a scribe	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	0	0.00%	2	0.02%	0	0.00%	0	0.00%	2	0.06%	2	0.07%	
K: Had supervised breaks	5	0.03%	8	0.07%	1	0.02%	0	0.00%	2	0.06%	2	0.07%	
L: Most beneficial time of day	0	0.00%	2	0.02%	0	0.00%	0	0.00%	2	0.06%	2	0.07%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	2	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	6	0.05%	2	0.03%	2	0.04%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.02%	3	0.06%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	5	0.03%	7	0.06%	3	0.05%	1	0.02%	0	0.00%	0	0.00%	
Any Accommodation or Modification	8	0.05%	14	0.13%	4	0.06%	5	0.10%	2	0.06%	2	0.07%	
No Accommodation or Modification	16,738	99.95%	11,013	99.87%	6,581	99.94%	5,087	99.90%	3,265	99.94%	2,911	99.93%	
<b>Students in Special Education</b>													
B: Marked in test booklet	2	0.24%	1	0.18%	4	1.32%	5	2.03%	1	0.76%	1	1.96%	
C: Dictated responses to a scribe	1	0.12%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	1	0.18%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	4	0.48%	1	0.18%	1	0.33%	0	0.00%	0	0.00%	1	1.96%	
J: Tested over more than one day	8	0.96%	5	0.90%	4	1.32%	3	1.22%	0	0.00%	0	0.00%	
K: Had supervised breaks	24	2.87%	22	3.95%	10	3.29%	11	4.47%	0	0.00%	0	0.00%	
L: Most beneficial time of day	12	1.44%	6	1.08%	4	1.32%	2	0.81%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	2	0.24%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.33%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	5	0.60%	6	1.08%	3	0.99%	1	0.41%	2	1.53%	0	0.00%	
Y: Leave blank	0	0.00%	1	0.18%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	19	2.28%	21	3.77%	17	5.59%	13	5.28%	5	3.82%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	44	5.27%	31	5.57%	25	8.22%	25	10.16%	6	4.58%	1	1.96%	
Any Accommodation or Modification	47	5.63%	42	7.54%	30	9.87%	26	10.57%	8	6.11%	1	1.96%	
No Accommodation or Modification	788	94.37%	515	92.46%	274	90.13%	220	89.43%	123	93.89%	50	98.04%	
<b>Students in U.S. Schools &lt; 12 Months</b>													
B: Marked in test booklet	1	0.04%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.05%	
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	2	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	0.05%	
J: Tested over more than one day	0	0.00%	2	0.10%	0	0.00%	0	0.00%	2	0.12%	2	0.10%	
K: Had supervised breaks	0	0.00%	3	0.14%	0	0.00%	0	0.00%	2	0.12%	2	0.10%	
L: Most beneficial time of day	0	0.00%	2	0.10%	0	0.00%	0	0.00%	2	0.12%	2	0.10%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	2	0.10%	1	0.05%	2	0.12%	0	0.00%	0	0.00%	

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	2	0.08%	2	0.10%	1	0.05%	1	0.06%	0	0.00%	1	0.05%	
Any Accommodation or Modification	2	0.08%	4	0.19%	1	0.05%	2	0.12%	2	0.12%	3	0.15%	
No Accommodation or Modification	2,472	99.92%	2,077	99.81%	1,987	99.95%	1,718	99.88%	1,681	99.88%	1,966	99.85%	
<b>Students in U.S. Schools &gt;= 12 Months</b>													
B: Marked in test booklet	2	0.01%	1	0.01%	5	0.10%	8	0.22%	1	0.06%	0	0.00%	
C: Dictated responses to a scribe	2	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	3	0.02%	1	0.01%	1	0.02%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	9	0.06%	6	0.06%	5	0.10%	3	0.08%	0	0.00%	0	0.00%	
K: Had supervised breaks	30	0.20%	28	0.29%	15	0.31%	11	0.30%	0	0.00%	0	0.00%	
L: Most beneficial time of day	13	0.09%	6	0.06%	7	0.14%	2	0.06%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	2	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	1	0.01%	1	0.02%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	5	0.03%	8	0.08%	3	0.06%	1	0.03%	2	0.12%	0	0.00%	
Y: Leave blank	0	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	20	0.13%	26	0.27%	19	0.39%	14	0.39%	5	0.29%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.03%	1	0.02%	3	0.08%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	48	0.32%	36	0.38%	31	0.63%	26	0.72%	6	0.35%	0	0.00%	
Any Accommodation or Modification	54	0.36%	53	0.56%	37	0.75%	30	0.83%	8	0.47%	0	0.00%	
No Accommodation or Modification	15,057	99.64%	9,452	99.44%	4,871	99.25%	3,589	99.17%	1,707	99.53%	995	100.00%	

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
<b>EL Program: EL in ELD</b>													
B: Marked in test booklet	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	0	0.00%	0	0.00%	1	0.31%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	0	0.00%	2	0.44%	0	0.00%	0	0.00%	2	0.71%	2	0.71%	
K: Had supervised breaks	0	0.00%	3	0.65%	0	0.00%	0	0.00%	2	0.71%	2	0.71%	
L: Most beneficial time of day	0	0.00%	2	0.44%	0	0.00%	0	0.00%	2	0.71%	2	0.71%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	2	0.44%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	0	0.00%	2	0.44%	1	0.31%	0	0.00%	0	0.00%	0	0.00%	
Any Accommodation or Modification	0	0.00%	3	0.65%	1	0.31%	0	0.00%	2	0.71%	2	0.71%	
No Accommodation or Modification	517	100.00%	456	99.35%	321	99.69%	272	100.00%	279	99.29%	278	99.29%	
<b>EL Program: EL in ELD and SDAIE</b>													
B: Marked in test booklet	1	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
C: Dictated responses to a scribe	1	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	1	0.08%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
J: Tested over more than one day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
K: Had supervised breaks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
L: Most beneficial time of day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	1	0.09%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	0	0.00%	1	0.11%	1	0.11%	1	0.12%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	1	0.08%	0	0.00%	1	0.11%	1	0.11%	1	0.12%	0	0.00%	
Any Accommodation or Modification	2	0.17%	1	0.09%	1	0.11%	1	0.11%	1	0.12%	0	0.00%	
No Accommodation or Modification	1,201	99.83%	1,118	99.91%	948	99.89%	916	99.89%	822	99.88%	794	100.00%	
<b>EL Program: EL in ELD and SDAIE with Primary Language Support</b>													
B: Marked in test booklet	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	1	0.05%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
K: Had supervised breaks	0	0.00%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
L: Most beneficial time of day	0	0.00%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	1	0.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	1	0.05%	1	0.07%	0	0.00%	2	0.27%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	2	0.10%	1	0.07%	0	0.00%	1	0.13%	0	0.00%	0	0.00%	
Any Accommodation or Modification	2	0.10%	2	0.14%	0	0.00%	2	0.27%	0	0.00%	0	0.00%	
No Accommodation or Modification	1,922	99.90%	1,394	99.86%	968	100.00%	752	99.73%	735	100.00%	859	100.00%	
<b>EL Program: EL in ELD and Academic Subjects through Primary Language</b>													
B: Marked in test booklet	1	0.01%	0	0.00%	5	0.13%	8	0.31%	1	0.08%	0	0.00%	
C: Dictated responses to a scribe	1	0.01%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	3	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
J: Tested over more than one day	6	0.05%	4	0.05%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	
K: Had supervised breaks	24	0.19%	24	0.31%	7	0.19%	9	0.35%	0	0.00%	0	0.00%	
L: Most beneficial time of day	9	0.07%	2	0.03%	0	0.00%	1	0.04%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	2	0.02%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	1	0.03%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	5	0.04%	6	0.08%	3	0.08%	1	0.04%	2	0.16%	0	0.00%	

Accommodation Summary for Mathematics Grades Two to Seven													
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7		
	Count	Pct. of Total											
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	17	0.13%	21	0.27%	12	0.32%	10	0.39%	4	0.31%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	1	0.01%	3	0.04%	1	0.03%	3	0.12%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	38	0.30%	28	0.36%	18	0.48%	21	0.82%	5	0.39%	0	0.00%	
Any Accommodation or Modification	43	0.34%	43	0.55%	24	0.65%	25	0.97%	7	0.55%	0	0.00%	
No Accommodation or Modification	12,603	99.66%	7,741	99.45%	3,695	99.35%	2,546	99.03%	1,274	99.45%	720	100.00%	
<b>EL Program: Other EL Instructional Services</b>													
B: Marked in test booklet	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	2.04%	
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
H: Used large-print test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	2.04%	
J: Tested over more than one day	0	0.00%	0	0.00%	3	0.68%	0	0.00%	0	0.00%	0	0.00%	
K: Had supervised breaks	0	0.00%	0	0.00%	3	0.68%	0	0.00%	0	0.00%	0	0.00%	
L: Most beneficial time of day	1	0.65%	1	0.79%	5	1.13%	1	0.27%	0	0.00%	0	0.00%	
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Z: Examiner read test questions aloud	0	0.00%	0	0.00%	5	1.13%	1	0.27%	0	0.00%	0	0.00%	
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
Accom. or Mod. is in IEP	1	0.65%	1	0.79%	7	1.58%	2	0.54%	0	0.00%	1	2.04%	
Any Accommodation or Modification	1	0.65%	1	0.79%	7	1.58%	2	0.54%	0	0.00%	1	2.04%	
No Accommodation or Modification	152	99.35%	126	99.21%	435	98.42%	367	99.46%	71	100.00%	48	97.96%	

Accommodation Summary for Mathematics Grades Two to Seven														
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7			
	Count	Pct. of Total												
<b>EL Program: None (EL only)</b>														
B: Marked in test booklet	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
C: Dictated responses to a scribe	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
F: Used non-interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
G: Used Braille test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
H: Used large-print test	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
J: Tested over more than one day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
K: Had supervised breaks	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
L: Most beneficial time of day	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
M: Administered at home or in a hospital	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
N: Used a dictionary	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
O: Examiner presented with MCE or ASL	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Q: Used a calculator	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
R: Used an arithmetic table	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
S: Used math manipulatives	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
V: Used interfering assistive device	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
W: Used an unlisted modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
X: Used an unlisted accommodation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Y: Leave blank	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Z: Examiner read test questions aloud	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in Section 504 Plan	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Accom. or Mod. is in IEP	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Any Accommodation or Modification	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
No Accommodation or Modification	104	100.00%	96	100.00%	73	100.00%	57	100.00%	48	100.00%	40	100.00%	100.00%	

## Appendix 6.D—DIF Tables

**Note:** “Small n” refers to focal group sample size smaller than 100 or combined focal and reference group sample size smaller than 400. DIF analyses were not performed on items with small sample size.

**Table 6.D.1 Operational Items Exhibiting Significant DIF**

Test	Item Number	Item Seq. No.	Male-Female
MTHMGR05	STM12864	11	C-
MTHMGR07	STM11872	22	C-

**Table 6.D.2 Field-Test Items Exhibiting Significant DIF**

Test	Item Number	Form	Item Seq. No.	Male-Female
MTHMGR02	STM13306	9	16	C-

**Table 6.D.3 Male-Female DIF Classifications for Reading/Language Arts Operational Items**

DIF Category	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	N	Pct.										
C-	0	0	0	0	0	0	0	0	0	0	0	0
B-	0	0	0	0	0	0	1	1	1	1	1	1
A-	38	58	27	42	32	43	38	51	35	47	34	45
A+	26	40	38	58	43	57	36	48	39	52	40	53
B+	1	2	0	0	0	0	0	0	0	0	0	0
C+	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
<b>TOTAL</b>	65	100	65	100	75	100	75	100	75	100	75	100

**Table 6.D.4 Male-Female DIF Classifications for Mathematics Operational Items**

DIF Category	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	N	Pct.										
C-	0	0	0	0	0	0	1	2	0	0	1	2
B-	1	2	3	5	1	2	1	2	3	5	1	2
A-	31	48	29	45	28	43	26	40	27	42	27	42
A+	32	49	33	51	36	55	36	55	35	54	36	55
B+	1	2	0	0	0	0	1	2	0	0	0	0
C+	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
<b>TOTAL</b>	65	100	65	100	65	100	65	100	65	100	65	100

**Table 6.D.5 Male-Female DIF Classifications for Reading/Language Arts Field-Test Items**

DIF Category	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	N	Pct.										
C-	0	0	0	0	0	0	0	0	0	0	0	0
B-	2	3	1	1	0	0	0	0	2	8	1	4
A-	34	55	33	46	0	0	18	51	7	29	4	17
A+	26	42	37	51	0	0	17	49	12	50	1	4
B+	0	0	1	1	0	0	0	0	3	13	0	0
C+	0	0	0	0	0	0	0	0	0	0	0	0
Small N	0	0	0	0	72	100	0	0	0	0	18	75
<b>TOTAL</b>	62	100	72	100	72	100	35	100	24	100	24	100

**Table 6.D.6 Male-Female DIF Classifications for Mathematics Field-Test Items**

<b>DIF Category</b>	<b>Grade 2</b>		<b>Grade 3</b>		<b>Grade 4</b>		<b>Grade 5</b>		<b>Grade 6</b>		<b>Grade 7</b>	
	<b>N</b>	<b>Pct.</b>										
<b>C-</b>	1	1	0	0	0	0	0	0	0	0	0	0
<b>B-</b>	3	4	1	1	0	0	4	11	1	4	0	0
<b>A-</b>	30	42	35	49	0	0	12	33	13	54	2	8
<b>A+</b>	37	51	31	43	0	0	17	47	10	42	4	17
<b>B+</b>	1	1	5	7	0	0	3	8	0	0	0	0
<b>C+</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Small N</b>	0	0	0	0	72	100	0	0	0	0	18	75
<b>TOTAL</b>	72	100	72	100	72	100	36	100	24	100	24	100

## Chapter 7: Item Quality

This chapter summarizes the item-level statistics obtained for the Standards-based Tests in Spanish administered during spring of 2008. This includes STS RLA and Mathematics items for grades two to seven. Each STS was composed of dichotomously scored multiple-choice (MC) items.

The STS tests also included blocks of six field-test items that were embedded in the test and were not included in the operational test scores. Different field-test item sets were presented in each form (version)<sup>1</sup> for the various STS tests. The number of versions varied from grade to grade depending on the examinee population size available for field-test analysis from each grade. For STS grades two to four tests, the items were field-tested in twelve forms. For grades five to seven, the STS tests were administered in forms of six, four and four respectively.

The item-level analysis results presented in this chapter are based on the complete STS data set. All STS students who are English learners, whose primary language is Spanish, and who have been in U.S. schools less than 12 cumulative months or receive instructions in Spanish as indicated on their answer documents or submitted during Pre-ID were included in the item-level analyses. Table 7.1 summarizes information about the test forms and students included in the item analyses, including the numbers of test forms, operational items, field-test items, and the approximate number of target students taking operational and field-test items.

**Table 7.1 Summary of Items and Forms Presented in the 2008 STS**

Subject	STS	Operational		Field Test		
		No. of Items	No. of Examinees	No. of Forms	No. of Items	No. of Examinees per form
<i>Reading/Language Arts</i>	2	65	11,686	12	62	707–1,184
	3	65	7,606	12	72	619–647
	4	75	3,966	12	72	282–322
	5	75	2,857	6	35	423–469
	6	75	1,928	4	24	439–462
	7	75	1,695	4	24	384–418
	<i>Mathematics</i>	2	65	11,674	12	72
3		65	7,595	12	72	617–647
4		65	3,958	12	72	279–321
5		65	2,864	6	36	424–471
6		65	1,926	4	24	439–462
7		65	1,686	4	24	382–417

The statistics presented in this chapter are divided into two sections as follows:

1. Summaries of classical item-level analyses, including item proportion correct ( $p$ -value), point-biserial correlations (Pt-Rbis) for each operational item, and summaries of overall  $p$ -value and point-biserial correlation statistics across operational items. These statistics are presented in Appendix 7.A.

<sup>1</sup> A version of a test is one that has the same operational form of the test with different field-test item sets. These are considered different *forms* of the same test. A form is counted as a field-test form if it contains once or more field-test items.

- Summaries of Rasch model item difficulty statistics (*b*-values) for operational and field-test items, and summaries of item classifications based on the fit of the Rasch model to the data, reported in letter categories of A, B, C, D, and F (IRT flag) for operational and field-test items. These statistics are presented in Appendix 7.B.

DIF analyses were also performed on all operational items and all field-test items for which sufficient student samples were available. Those results are presented earlier, in Appendix 6.D of Chapter 6.

## Item Analyses

This section describes the overall and item-by-item proportion correct indices as well as the point-biserial correlation indices for the operational items. The point-biserial correlation is a special case of the Pearson product-moment correlation used to measure the relationship between two variables, one dichotomous 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:

$$R_{it} = \frac{Cov(i,t)}{\sigma_{xi}\sigma_t} \quad (7.1)$$

where,

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

$\sigma_{xi}$  is the standard deviation for an item *i*

$\sigma_t$  is the standard deviation for *t*

Table 7.2 presents summary indices for each operational test. Both the mean and median are provided. Detailed tables are provided in Appendix 7.A.

The data in Table 7.2 indicate that all STS tests have mean *p*-values between 0.44 and 0.69.<sup>2</sup> The tests that were easiest were mathematics administered at grades two and three (mean *p*-value = 0.69). Generally speaking, the STS tests were relatively more difficult at the higher grade levels (mean *p*-value  $\leq$  0.53 at grades five to seven) for both RLA and mathematics.

The average item-total correlations indicated levels of item discrimination that were similar to expectations. This index was greater than or equal to 0.40 for all STS tests at grades two to four. The index was relatively lower for STS tests administered to grades five to seven examinees as these tests were built primarily on the basis of content expertise. Generally speaking the mathematics tests exhibited higher item-total correlations than the RLA tests.

The item-by-item values for the indices are presented in Table 7.A.1 and Table 7.A.2 which starts on page 117.

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<sup>2</sup> The average *p*-value can differ from one test to another for many reasons. These include the perspective of the ETS Test Development committee, the available items in the assembly pool, changes in the population taking the test from the population used to develop the target, and discrepancies between the target and the assembled test.

Table 7.2 Average and Median Proportion Correct and Point-Biserial

Subject	STS	Number of items	Number of Examinees	Mean		Median	
				<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis
<i>Reading/Language Arts</i>	2	65	11,686	0.64	0.41	0.66	0.43
	3	65	7,606	0.59	0.38	0.57	0.40
	4	75	3,966	0.56	0.38	0.57	0.40
	5	75	2,857	0.45	0.32	0.45	0.33
	6	75	1,928	0.49	0.32	0.49	0.34
	7	75	1,695	0.53	0.34	0.53	0.36
	<i>Mathematics</i>	2	65	11,674	0.69	0.40	0.73
3		65	7,595	0.69	0.43	0.72	0.45
4		65	3,958	0.63	0.42	0.63	0.43
5		65	2,864	0.50	0.33	0.47	0.34
6		65	1,926	0.49	0.36	0.48	0.39
7		65	1,686	0.44	0.31	0.44	0.33

## IRT Analyses

The results of the IRT analyses are presented in Appendix 7.B, which starts on page 121. Table 7.B.1 through Table 7.B.16 present summary univariate statistics (mean, standard deviation, minimum, and maximum) and distributions for the IRT *b*-values after scaling. These statistics are listed for the operational test, by cluster scores, and for the field-test items. Table 7.B.17 through Table 7.B.20 present the results of the IRT model-data fit analyses for the STS.

### Summaries of IRT *b*-values

The summary of IRT *b*-values for the operational and field test items are presented in Table 7.B.1 through Table 7.B.12 in Appendix 7.B. The overall difficulty level of the field-test items was higher than the operational items for all STS tests. The average difficulty level for the operational items ranged from  $-0.96$  for grade two mathematics to  $-0.27$  for grade seven mathematics. The index of average difficulty for the field-test items ranged from  $-0.78$  for grade two mathematics to  $0.83$  for grade six mathematics.

Table 7.B.13 to Table 7.B.16 depict a more detailed presentation of IRT *b*-values for the operational and field-test items. The tables show the distribution of items at 16 IRT *b*-value intervals, where the *b*-values ranged from “less than  $-3.5$ ” to “greater than or equal to  $3.5$ .” These distributions indicated that most of the items had difficulty levels in the range of  $-2.0$  and  $2.0$  for all the STS tests.

### IRT Model-Data Fit Analyses

Because the Rasch model will be used in equating and scaling the STS tests, an important part of IRT item analyses is the assessment of model-data fit. ETS statisticians classified operational and field-test items for the STS into discrete categories on the basis of 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 on the basis of an evaluation of graphical model-data fit information. Descriptors for each category are provided on the next page. As an illustration, the IRT item characteristic curves and empirical data (item-ability regressions) for five CST items field-tested in 2005 are shown in Figure 7.1. These five items represent the various rating categories. The item number in the calibration and ETS

identification number for each item (“accession number”) are listed next to each item as well as the corresponding rating categories.

**Flag A** (CST 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** (CST 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** (CST 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** (CST 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** (CST 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.

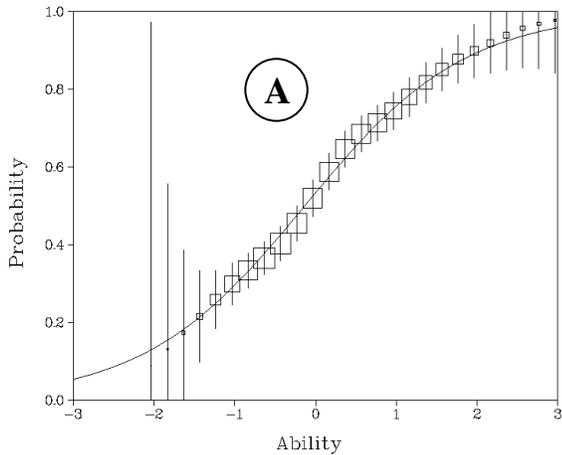
In general, items with flagging categories of A, B, or C are all considered acceptable. Ratings of D are considered questionable—test developers are asked to avoid these items if possible and to carefully review them if they must be used. Test developers are instructed to avoid using items rated F for operational test assembly without a review by a psychometrician.

The results of the IRT model data fit classifications are presented in Table 7.B.17 and Table 7.B.18 for operational items and in Table 7.B.19 and Table 7.B.20 for the field-test items. A few operational items were rated as F items. For RLA, 23 items in total were flagged as F items and for mathematics, 13 items were flagged as F items, which is mostly due to the limitation of the item pool. It should be noted that STS is a very new testing program and all STS tests are still in the process of expanding item pools. It is expected that the number of F items will gradually decrease in future operational administrations.

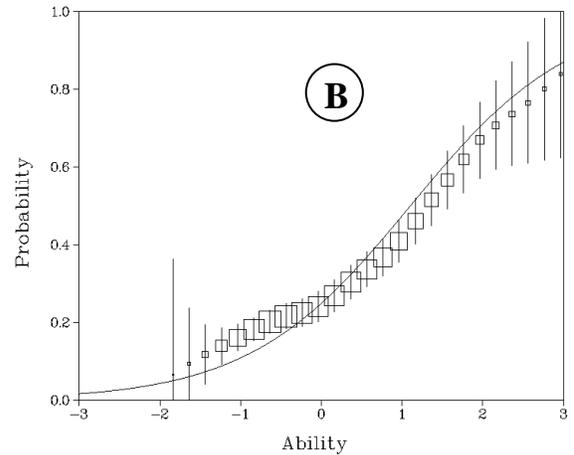
## **Summary of Item-Level Analyses**

The item-level analyses of the 2008 STS tests presented in this chapter included classical item analyses and IRT analyses. Overall, these analyses indicate that the STS tests administered in 2008 meet the technical criteria established in professional standards for statewide standards tests, and that the items field-tested as part of the 2008 administration have statistical characteristics that are appropriate for use in future administrations.

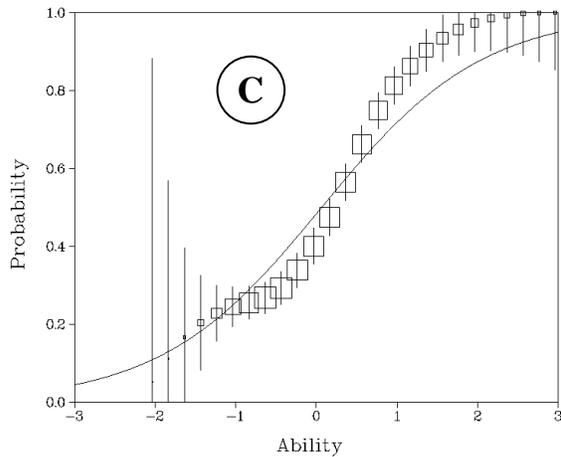
**Figure 7.1 Items from the 2005 CST for History–Social Science Grade 10 Field-Test Calibration**



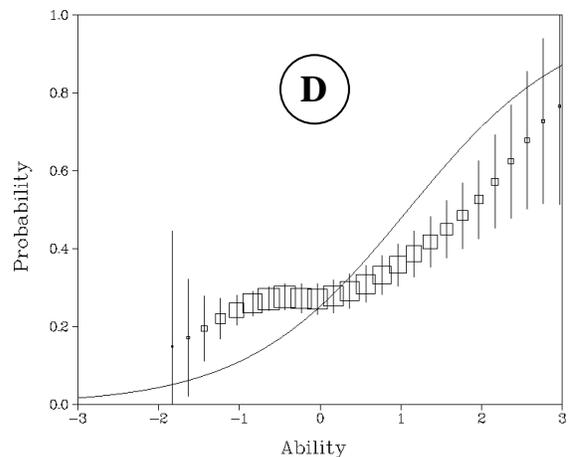
Version 30, Seq 29 (#236) CSV23487 4-Choice  $P+=0.563$   
 $a=0.588$  F,  $b=-0.135$ ,  $c=0.000$  F, CHI = 5.41, N = 5,912



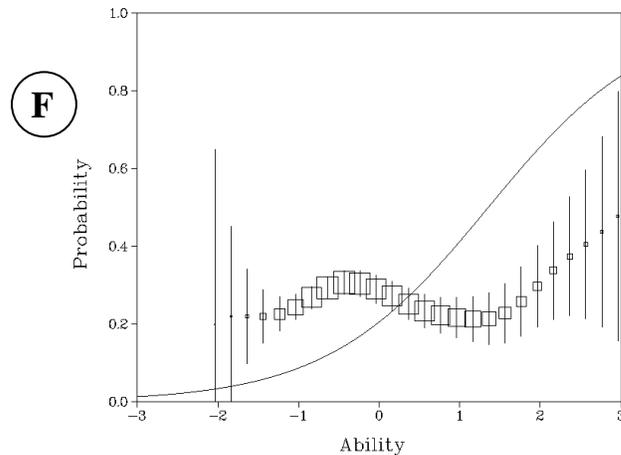
Version 1, Seq 28 (#61) CSV22589 4 Choice  $P+=0.307$   
 $a=0.588$  F,  $b=1.104$ ,  $c=0.000$  F, CHI = 66.70, N = 6,348



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

## References

Holland, P.W. and D. T. Thayer 1985. "An alternative definition of the ETS delta scale of item difficulty." RR-85-43.

Hambleton, R.K. and H. Swaminathan 1985. *Item Response Theory: Principles and Applications*. Boston, MA: Kluwer-Nijhoff.

**Appendix 7.A—Item-by-Item *p*-value and Point-Biserial Tables****Table 7.A.1 Reading/Language Arts Item-by-Item *p*-value and Point-Biserial**

Items	Reading/Language Arts											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis
1	0.88	0.33	0.89	0.23	0.66	0.45	0.59	0.40	0.74	0.34	0.90	0.20
2	0.33	0.24	0.92	0.25	0.59	0.27	0.48	0.35	0.66	0.28	0.60	0.24
3	0.90	0.33	0.70	0.38	0.42	0.34	0.40	0.22	0.69	0.35	0.68	0.41
4	0.72	0.45	0.30	0.26	0.82	0.36	0.35	0.20	0.61	0.14	0.75	0.26
5	0.64	0.31	0.41	0.23	0.50	0.36	0.71	0.33	0.47	0.34	0.49	0.28
6	0.59	0.31	0.82	0.29	0.68	0.36	0.55	0.43	0.45	0.33	0.58	0.39
7	0.82	0.42	0.57	0.43	0.72	0.36	0.68	0.47	0.64	0.40	0.70	0.36
8	0.76	0.52	0.83	0.40	0.73	0.41	0.49	0.47	0.60	0.36	0.27	0.37
9	0.81	0.49	0.85	0.44	0.65	0.32	0.24	0.14	0.10	0.17	0.77	0.41
10	0.67	0.47	0.72	0.47	0.56	0.43	0.60	0.44	0.68	0.44	0.76	0.44
11	0.68	0.53	0.52	0.34	0.36	0.29	0.49	0.35	0.41	0.38	0.45	0.37
12	0.61	0.49	0.58	0.33	0.33	0.29	0.45	0.30	0.36	0.24	0.47	0.35
13	0.70	0.47	0.33	0.19	0.58	0.45	0.47	0.32	0.58	0.48	0.68	0.36
14	0.64	0.37	0.75	0.38	0.72	0.45	0.58	0.43	0.70	0.31	0.51	0.37
15	0.77	0.38	0.53	0.43	0.82	0.45	0.36	0.30	0.48	0.25	0.38	0.33
16	0.63	0.39	0.32	0.23	0.44	0.37	0.49	0.35	0.25	0.12	0.59	0.28
17	0.74	0.54	0.65	0.52	0.63	0.39	0.42	0.43	0.31	0.07	0.47	0.45
18	0.61	0.33	0.74	0.47	0.48	0.37	0.26	0.23	0.47	0.32	0.53	0.28
19	0.32	0.23	0.60	0.42	0.51	0.45	0.61	0.42	0.84	0.44	0.75	0.41
20	0.35	0.20	0.86	0.31	0.25	0.07	0.29	0.08	0.68	0.46	0.43	0.38
21	0.58	0.38	0.60	0.46	0.34	0.20	0.39	0.21	0.47	0.38	0.41	0.16
22	0.28	0.22	0.78	0.47	0.48	0.32	0.43	0.50	0.32	0.24	0.39	0.21
23	0.39	0.34	0.48	0.37	0.45	0.34	0.56	0.48	0.54	0.46	0.71	0.48
24	0.80	0.40	0.88	0.44	0.62	0.18	0.42	0.37	0.65	0.44	0.75	0.50
25	0.87	0.41	0.59	0.44	0.45	0.41	0.42	0.32	0.56	0.42	0.56	0.42
26	0.88	0.41	0.55	0.39	0.67	0.54	0.33	0.31	0.44	0.36	0.43	0.28
27	0.86	0.36	0.43	0.38	0.61	0.49	0.40	0.35	0.55	0.33	0.31	0.25
28	0.64	0.43	0.93	0.34	0.51	0.38	0.43	0.45	0.37	0.29	0.55	0.40
29	0.60	0.46	0.46	0.47	0.59	0.43	0.38	0.36	0.28	0.12	0.15	0.04
30	0.87	0.50	0.37	0.33	0.48	0.37	0.52	0.45	0.56	0.31	0.30	0.19
31	0.63	0.45	0.36	0.29	0.62	0.53	0.37	0.36	0.51	0.37	0.34	0.19
32	0.60	0.46	0.35	0.16	0.49	0.37	0.36	0.22	0.31	0.21	0.57	0.26
33	0.84	0.51	0.53	0.40	0.67	0.44	0.44	0.26	0.47	0.29	0.33	0.25
34	0.39	0.22	0.68	0.48	0.58	0.30	0.26	0.18	0.21	0.10	0.33	0.15
35	0.78	0.51	0.71	0.47	0.27	0.09	0.32	0.23	0.22	0.09	0.62	0.52
36	0.81	0.49	0.45	0.41	0.19	0.10	0.32	0.11	0.29	0.27	0.38	0.22
37	0.73	0.53	0.37	0.43	0.57	0.40	0.36	0.33	0.49	0.34	0.36	0.32
38	0.74	0.55	0.51	0.41	0.88	0.40	0.52	0.42	0.35	0.15	0.46	0.30
39	0.66	0.48	0.66	0.48	0.56	0.27	0.50	0.29	0.49	0.45	0.35	0.17
40	0.75	0.57	0.62	0.40	0.80	0.46	0.51	0.23	0.41	0.28	0.71	0.49
41	0.60	0.50	0.73	0.47	0.71	0.49	0.58	0.32	0.73	0.49	0.45	0.30
42	0.73	0.54	0.55	0.32	0.51	0.40	0.49	0.11	0.65	0.37	0.59	0.44
43	0.56	0.27	0.46	0.26	0.65	0.44	0.47	0.23	0.52	0.37	0.72	0.34
44	0.38	0.20	0.55	0.50	0.75	0.55	0.46	0.29	0.47	0.34	0.75	0.40
45	0.66	0.55	0.58	0.29	0.40	0.14	0.56	0.35	0.53	0.37	0.26	0.18
46	0.48	0.40	0.59	0.43	0.70	0.45	0.36	0.15	0.32	0.09	0.55	0.42

Items	Reading/Language Arts											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis	<i>p</i> -value	Pt-Rbis
47	0.69	0.36	0.60	0.47	0.73	0.43	0.29	0.16	0.42	0.26	0.54	0.40
48	0.59	0.45	0.55	0.30	0.44	0.32	0.69	0.43	0.37	0.29	0.52	0.48
49	0.37	0.25	0.61	0.42	0.67	0.54	0.32	0.22	0.84	0.42	0.69	0.34
50	0.37	0.19	0.60	0.47	0.59	0.49	0.53	0.28	0.50	0.39	0.25	0.09
51	0.41	0.26	0.48	0.29	0.49	0.38	0.66	0.41	0.51	0.09	0.48	0.34
52	0.39	0.25	0.26	0.15	0.22	0.13	0.47	0.29	0.34	0.41	0.68	0.44
53	0.50	0.37	0.67	0.47	0.46	0.29	0.27	0.14	0.59	0.42	0.77	0.47
54	0.76	0.55	0.65	0.41	0.51	0.46	0.44	0.31	0.49	0.31	0.66	0.32
55	0.41	0.28	0.52	0.32	0.41	0.24	0.63	0.46	0.62	0.48	0.62	0.49
56	0.89	0.42	0.51	0.37	0.64	0.41	0.40	0.36	0.44	0.38	0.37	0.36
57	0.68	0.55	0.57	0.38	0.56	0.44	0.43	0.19	0.56	0.36	0.73	0.41
58	0.61	0.49	0.42	0.29	0.59	0.42	0.41	0.30	0.37	0.14	0.63	0.51
59	0.38	0.21	0.51	0.43	0.38	0.29	0.46	0.25	0.54	0.36	0.67	0.47
60	0.69	0.53	0.55	0.34	0.51	0.44	0.63	0.43	0.50	0.33	0.74	0.42
61	0.66	0.50	0.50	0.52	0.60	0.58	0.53	0.25	0.44	0.32	0.40	0.29
62	0.70	0.60	0.53	0.54	0.56	0.50	0.57	0.50	0.53	0.47	0.49	0.47
63	0.75	0.43	0.65	0.52	0.60	0.49	0.45	0.33	0.32	0.16	0.33	0.18
64	0.71	0.56	0.87	0.44	0.43	0.11	0.48	0.39	0.36	0.37	0.47	0.28
65	0.66	0.53	0.43	0.19	0.48	0.25	0.40	0.45	0.39	0.23	0.51	0.42
66					0.42	0.45	0.32	0.14	0.36	0.32	0.65	0.45
67					0.64	0.49	0.51	0.34	0.64	0.43	0.67	0.45
68					0.68	0.43	0.29	0.30	0.51	0.46	0.75	0.28
69					0.74	0.55	0.49	0.42	0.42	0.31	0.61	0.49
70					0.42	0.28	0.36	0.36	0.59	0.47	0.38	0.24
71					0.61	0.45	0.45	0.40	0.67	0.42	0.48	0.33
72					0.72	0.49	0.29	0.35	0.47	0.32	0.53	0.40
73					0.41	0.25	0.42	0.33	0.57	0.50	0.26	0.16
74					0.64	0.50	0.43	0.38	0.55	0.46	0.25	0.01
75					0.48	0.52	0.59	0.48	0.36	0.20	0.57	0.40

**Table 7.A.2 Mathematics Item-by-item p-value and Point-Biserial**

Items	Mathematics											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	p-value	Pt-Rbis	p-value	Pt-Rbis	p-value	Pt-Rbis	p-value	Pt-Rbis	p-value	Pt-Rbis	p-value	Pt-Rbis
1	0.92	0.30	0.67	0.45	0.52	0.39	0.42	0.39	0.44	0.43	0.36	0.23
2	0.80	0.41	0.68	0.43	0.65	0.39	0.62	0.18	0.78	0.38	0.65	0.33
3	0.50	0.50	0.72	0.32	0.76	0.46	0.80	0.43	0.65	0.40	0.57	0.27
4	0.91	0.30	0.82	0.41	0.66	0.38	0.46	0.22	0.58	0.30	0.32	0.44
5	0.84	0.42	0.62	0.36	0.45	0.36	0.48	0.42	0.59	0.42	0.23	0.21
6	0.71	0.48	0.51	0.48	0.74	0.47	0.42	0.11	0.52	0.48	0.45	0.39
7	0.88	0.30	0.78	0.52	0.54	0.51	0.60	0.38	0.52	0.43	0.35	0.22
8	0.78	0.44	0.63	0.55	0.82	0.37	0.45	0.36	0.53	0.39	0.18	0.20
9	0.73	0.50	0.72	0.57	0.65	0.47	0.24	0.11	0.46	0.39	0.50	0.27
10	0.65	0.45	0.76	0.39	0.63	0.46	0.32	0.45	0.72	0.37	0.45	0.29
11	0.73	0.19	0.62	0.58	0.63	0.39	0.34	0.50	0.64	0.29	0.44	0.46
12	0.67	0.44	0.39	0.51	0.88	0.33	0.63	0.41	0.39	0.11	0.45	0.35
13	0.52	0.41	0.76	0.41	0.52	0.48	0.59	0.46	0.50	0.45	0.79	0.40
14	0.41	0.47	0.73	0.39	0.63	0.48	0.39	0.16	0.53	0.42	0.38	0.28
15	0.57	0.45	0.44	0.52	0.62	0.50	0.33	0.41	0.27	0.14	0.40	0.23
16	0.51	0.41	0.59	0.41	0.88	0.36	0.40	0.34	0.54	0.44	0.34	0.36
17	0.76	0.43	0.80	0.39	0.45	0.38	0.76	0.24	0.55	0.43	0.35	0.20
18	0.55	0.31	0.58	0.51	0.61	0.45	0.43	0.05	0.83	0.41	0.31	0.10
19	0.51	0.49	0.58	0.50	0.72	0.49	0.37	0.30	0.42	0.45	0.51	0.32
20	0.78	0.38	0.88	0.46	0.56	0.36	0.60	0.49	0.50	0.50	0.35	0.28
21	0.61	0.38	0.82	0.38	0.69	0.46	0.42	0.31	0.64	0.42	0.46	0.44
22	0.83	0.33	0.58	0.48	0.88	0.36	0.51	0.12	0.55	0.29	0.31	0.45
23	0.80	0.48	0.60	0.45	0.47	0.35	0.40	0.34	0.60	0.40	0.47	0.23
24	0.49	0.51	0.74	0.50	0.66	0.48	0.56	0.39	0.45	0.44	0.34	0.15
25	0.47	0.46	0.83	0.47	0.75	0.50	0.35	0.36	0.55	0.43	0.31	0.13
26	0.60	0.39	0.95	0.30	0.51	0.45	0.44	0.37	0.53	0.32	0.49	0.31
27	0.70	0.46	0.30	0.36	0.46	0.37	0.37	0.23	0.51	0.29	0.58	0.45
28	0.60	0.40	0.75	0.50	0.45	0.44	0.38	0.12	0.49	0.29	0.43	0.35
29	0.65	0.45	0.79	0.50	0.63	0.51	0.59	0.37	0.39	0.43	0.43	0.38
30	0.55	0.52	0.69	0.49	0.50	0.37	0.53	0.42	0.65	0.47	0.32	0.18
31	0.94	0.36	0.83	0.49	0.45	0.32	0.76	0.39	0.68	0.49	0.41	0.40
32	0.61	0.47	0.62	0.38	0.55	0.35	0.68	0.51	0.48	0.53	0.44	0.45
33	0.96	0.22	0.54	0.41	0.54	0.40	0.47	0.20	0.41	0.32	0.44	0.34
34	0.44	0.37	0.80	0.47	0.79	0.50	0.45	0.40	0.71	0.42	0.64	0.49
35	0.36	0.33	0.49	0.52	0.65	0.46	0.43	0.28	0.41	0.40	0.44	0.36
36	0.77	0.46	0.80	0.45	0.79	0.50	0.54	0.30	0.56	0.43	0.44	-0.07
37	0.52	0.46	0.74	0.50	0.52	0.40	0.65	0.46	0.34	0.30	0.38	0.23
38	0.90	0.37	0.45	0.40	0.65	0.50	0.43	0.37	0.65	0.44	0.31	0.20
39	0.52	0.44	0.62	0.54	0.67	0.50	0.69	0.53	0.37	0.17	0.43	0.33
40	0.50	0.43	0.74	0.48	0.62	0.41	0.58	0.48	0.36	0.30	0.65	0.43
41	0.73	0.31	0.68	0.48	0.70	0.50	0.48	0.24	0.64	0.57	0.31	0.42
42	0.76	0.47	0.51	0.49	0.71	0.55	0.39	0.50	0.69	0.42	0.39	0.21
43	0.73	0.47	0.35	0.27	0.71	0.54	0.65	0.41	0.55	0.54	0.37	0.40
44	0.63	0.43	0.81	0.45	0.71	0.54	0.43	0.32	0.58	0.50	0.29	0.23
45	0.50	0.25	0.72	0.28	0.62	0.52	0.63	0.44	0.29	0.03	0.82	0.31
46	0.76	0.28	0.63	0.39	0.57	0.49	0.57	0.41	0.24	0.03	0.64	0.42
47	0.70	0.31	0.60	0.44	0.60	0.50	0.56	0.22	0.48	0.45	0.34	0.29

<b>Mathematics</b>													
<b>Items</b>	<b>Grade 2</b>		<b>Grade 3</b>		<b>Grade 4</b>		<b>Grade 5</b>		<b>Grade 6</b>		<b>Grade 7</b>		
	<i>p</i> -value	Pt-Rbis											
<b>48</b>	0.79	0.31	0.66	0.34	0.59	0.58	0.45	0.29	0.32	0.18	0.44	0.33	
<b>49</b>	0.54	0.27	0.90	0.41	0.59	0.48	0.53	0.26	0.38	0.21	0.57	0.41	
<b>50</b>	0.85	0.34	0.91	0.26	0.63	0.43	0.54	0.37	0.48	0.25	0.19	0.15	
<b>51</b>	0.82	0.31	0.60	0.40	0.84	0.36	0.41	0.29	0.41	0.36	0.30	0.15	
<b>52</b>	0.90	0.34	0.92	0.37	0.58	0.43	0.41	0.36	0.38	0.38	0.45	0.34	
<b>53</b>	0.80	0.40	0.67	0.46	0.48	0.35	0.61	0.31	0.33	0.39	0.45	0.30	
<b>54</b>	0.74	0.42	0.83	0.38	0.60	0.35	0.40	0.26	0.41	0.30	0.51	0.45	
<b>55</b>	0.87	0.36	0.85	0.39	0.80	0.39	0.45	0.43	0.34	0.36	0.53	0.47	
<b>56</b>	0.58	0.51	0.72	0.28	0.69	0.43	0.42	0.34	0.45	0.42	0.39	0.22	
<b>57</b>	0.78	0.32	0.51	0.34	0.63	0.33	0.70	0.34	0.43	0.48	0.23	0.37	
<b>58</b>	0.86	0.43	0.55	0.51	0.38	0.24	0.42	0.31	0.42	0.38	0.54	0.42	
<b>59</b>	0.84	0.47	0.54	0.29	0.63	0.28	0.50	0.21	0.42	0.34	0.55	0.27	
<b>60</b>	0.65	0.45	0.83	0.25	0.55	0.29	0.38	0.27	0.35	0.31	0.49	0.36	
<b>61</b>	0.77	0.39	0.84	0.48	0.67	0.37	0.42	0.44	0.33	0.23	0.52	0.32	
<b>62</b>	0.80	0.44	0.83	0.52	0.73	0.47	0.50	0.24	0.42	0.33	0.42	0.27	
<b>63</b>	0.84	0.33	0.61	0.48	0.36	0.31	0.48	0.33	0.38	0.25	0.51	0.35	
<b>64</b>	0.77	0.47	0.78	0.36	0.58	0.25	0.69	0.41	0.52	0.44	0.57	0.36	
<b>65</b>	0.41	0.46	0.79	0.44	0.57	0.42	0.48	0.32	0.38	0.23	0.40	0.37	
<b>66</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>67</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>68</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>69</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>70</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>71</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>72</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>73</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>74</b>	–	–	–	–	–	–	–	–	–	–	–	–	
<b>75</b>	–	–	–	–	–	–	–	–	–	–	–	–	

## Appendix 7.B—IRT Tables

**Table 7.B.1 IRT *b*-values for Reading/Language Arts, Grade Two**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Word Analysis and Vocabulary Development	22	-0.92	0.99	-2.46	1.27
Reading Comprehension	15	-0.45	0.77	-1.58	1.06
Literary Response and Analysis	6	-1.26	0.91	-2.16	-0.36
Written Conventions	14	-0.70	0.70	-2.26	0.71
Writing Strategies	8	0.51	0.41	-0.37	0.80
All Operational Items	65	-0.62	0.93	-2.46	1.27
Field-test Items	62	0.17	0.85	-1.84	1.83

**Table 7.B.2 IRT *b*-values for Reading/Language Arts, Grade Three**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Word Analysis and Vocabulary Development	20	-1.00	1.02	-2.83	0.45
Reading Comprehension	15	0.01	0.71	-1.14	1.02
Literary Response and Analysis	8	-0.25	1.21	-1.96	1.09
Written Conventions	13	-0.16	0.30	-0.73	0.31
Writing Strategies	9	0.05	0.58	-0.62	1.34
All Operational Items	65	-0.36	0.91	-2.83	1.34
Field-test Items	72	0.25	0.84	-1.60	2.42

**Table 7.B.3 IRT *b*-values for Reading/Language Arts, Grade Four**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Word Analysis and Vocabulary Development	18	-0.50	0.61	-1.64	0.54
Reading Comprehension	15	0.02	0.67	-1.03	1.38
Literary Response and Analysis	9	0.40	0.79	-0.69	1.76
Written Conventions	18	-0.42	0.69	-2.11	0.49
Writing Strategies	15	-0.04	0.75	-1.16	1.56
All Operational Items	75	-0.18	0.74	-2.11	1.76
Field-test Items	72	0.52	0.75	-1.84	1.94

**Table 7.B.4 IRT *b*-values for Reading/Language Arts, Grade Five**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Word Analysis and Vocabulary Development	14	0.18	0.59	-0.99	0.99
Reading Comprehension	16	0.36	0.57	-0.83	1.25
Literary Response and Analysis	12	0.29	0.43	-0.37	1.15
Written Conventions	17	-0.03	0.39	-0.62	0.63
Writing Strategies	16	0.27	0.55	-0.91	1.09
All Operational Items	75	0.21	0.52	-0.99	1.25
Field-test Items	35	0.28	0.63	-0.87	1.79

**Table 7.B.5 IRT *b*-values for Reading/Language Arts, Grade Six**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Word Analysis and Vocabulary Development	13	0.22	0.54	-0.64	1.03
Reading Comprehension	17	0.02	0.78	-1.14	1.48
Literary Response and Analysis	12	0.02	1.12	-1.77	2.35
Written Conventions	16	-0.27	0.63	-1.79	0.84
Writing Strategies	17	0.27	0.40	-0.41	0.83
All Operational Items	75	0.05	0.72	-1.79	2.35
Field-test Items	24	0.75	0.67	-0.71	2.25

**Table 7.B.6 IRT *b*-values for Reading/Language Arts, Grade Seven**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Word Analysis and Vocabulary Development	11	-0.66	0.60	-1.33	0.51
Reading Comprehension	18	0.15	0.68	-1.30	1.10
Literary Response and Analysis	13	-0.06	1.08	-2.34	1.91
Written Conventions	16	-0.25	0.78	-1.36	1.23
Writing Strategies	17	-0.08	0.77	-1.23	1.26
All Operational Items	75	-0.14	0.81	-2.34	1.91
Field-test Items	24	0.60	0.55	-0.45	1.79

**Table 7.B.7 IRT *b*-values for Mathematics, Grade Two**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Place Value, Addition, and Subtraction	15	-0.90	0.88	-2.76	0.30
Multiplication, Division, and Fractions	23	-0.86	1.17	-3.49	0.85
Algebra and Functions	6	-0.62	0.60	-1.24	0.15
Measurement and Geometry	14	-1.28	0.79	-2.48	0.12
Statistics, Data Analysis, and Probability	7	-1.10	0.85	-1.80	0.59
All Operational Items	65	-0.96	0.95	-3.49	0.85
Field-test Items	72	-0.78	0.98	-3.10	1.32

**Table 7.B.8 IRT *b*-values for Mathematics, Grade Three**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Place Value, Fractions, and Decimals	16	-0.69	0.89	-2.14	1.30
Addition, Subtraction, Multiplication, Division	16	-0.91	0.91	-3.22	0.54
Algebra and Functions	12	-0.48	0.87	-1.56	1.02
Measurement and Geometry	16	-1.06	0.98	-2.73	0.20
Statistics, Data Analysis, and Probability	5	-1.30	0.58	-1.77	-0.32
All Operational Items	65	-0.84	0.90	-3.22	1.30
Field-test Items	72	0.37	1.09	-2.07	2.35

**Table 7.B.9 IRT *b*-values for Mathematics, Grade Four**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Decimals, Fractions, and Negative Numbers	17	-0.74	0.79	-2.19	0.38
Operations and Factoring	14	-0.29	0.68	-1.64	0.42
Algebra and Functions	18	-0.60	0.44	-1.47	0.05
Measurement and Geometry	12	-0.50	0.69	-1.83	0.74
Statistics, Data Analysis, and Probability	4	-0.17	0.80	-1.08	0.87
All Operational Items	65	-0.52	0.67	-2.19	0.87
Field-test Items	72	0.43	0.87	-1.96	2.36

**Table 7.B.10 IRT *b*-values for Mathematics, Grade Five**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Estimation, Percents, and Factoring	12	-0.03	0.76	-1.54	0.83
Operations with Fractions and Decimals	17	0.23	0.52	-0.57	1.25
Algebra and Functions	17	-0.24	0.52	-1.29	0.48
Measurement and Geometry	15	0.08	0.42	-0.95	0.55
Statistics, Data Analysis, and Probability	4	-0.19	0.47	-0.89	0.09
All Operational Items	65	-0.00	0.56	-1.54	1.25
Field-test Items	36	0.66	0.97	-1.35	2.48

**Table 7.B.11 IRT *b*-values for Mathematics, Grade Six**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Ratios, Proportions, Percentages, and Negative Numbers	15	-0.31	0.69	-1.77	1.14
Operations with Problem Solving with Fractions	10	-0.19	0.47	-1.10	0.49
Algebra and Functions	19	-0.13	0.58	-1.04	0.75
Measurement and Geometry	10	0.60	0.40	0.07	1.32
Statistics, Data Analysis, and Probability	11	0.45	0.26	-0.08	0.82
All Operational Items	65	0.03	0.62	-1.77	1.32
Field-test Items	24	0.83	0.97	-1.41	2.62

**Table 7.B.12 IRT *b*-values for Mathematics, Grade Seven**

Content Area	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Rational Numbers	14	0.24	0.42	-0.69	0.85
Exponents, Powers, and Roots	8	0.58	0.94	-1.48	1.62
Quantitative Relationships and Evaluating Expressions	10	0.23	0.81	-1.66	0.86
Multistep Problems, Graphing, and Functions	15	0.21	0.48	-0.67	0.96
Measurement and Geometry	13	0.30	0.61	-0.32	1.59
Statistics, Data Analysis, and Probability	5	0.04	0.32	-0.33	0.43
All Operational Items	65	0.27	0.61	-1.66	1.62
Field-test Items	24	0.80	0.72	-0.70	1.92

**Table 7.B.13 Distribution of IRT *b*-values for Reading/Language Arts Operational Items**

IRT <i>b</i> -value	Reading/Language Arts					
	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
$\geq 3.5$	0	0	0	0	0	0
$3.0 < 3.5$	0	0	0	0	0	0
$2.5 < 3.0$	0	0	0	0	0	0
$2.0 < 2.5$	0	0	0	0	1	0
$1.5 < 2.0$	0	0	2	0	0	1
$1.0 < 1.5$	2	3	2	4	4	5
$0.5 < 1.0$	11	7	7	17	14	13
$0.0 < 0.5$	2	12	21	31	19	14
$-0.5 < 0.0$	12	20	17	15	21	15
$-1.0 < -0.5$	15	9	15	7	11	14
$-1.5 < -1.0$	10	4	6	0	2	11
$-2.0 < -1.5$	6	4	3	0	2	0
$-2.5 < -2.0$	6	3	1	0	0	1
$-3.0 < -2.5$	0	2	0	0	0	0
$-3.5 < -3.0$	0	0	0	0	0	0
$< -3.5$	1	1	1	1	1	1
TOTAL	65	65	75	75	75	75

**Table 7.B.14 Distribution of IRT *b*-values for Mathematics Operational Items**

IRT <i>b</i> -value	Mathematics					
	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
$\geq 3.5$	0	0	0	0	0	0
$3.0 < 3.5$	0	0	0	0	0	0
$2.5 < 3.0$	0	0	0	0	0	0
$2.0 < 2.5$	0	0	0	0	0	0
$1.5 < 2.0$	0	0	0	0	0	2
$1.0 < 1.5$	0	2	0	1	2	2
$0.5 < 1.0$	2	2	2	8	12	18
$0.0 < 0.5$	11	8	12	27	20	23
$-0.5 < 0.0$	9	14	17	15	18	13
$-1.0 < -0.5$	8	10	21	10	8	4
$-1.5 < -1.0$	15	13	7	2	3	1
$-2.0 < -1.5$	11	10	2	1	1	1
$-2.5 < -2.0$	5	2	3	0	0	0
$-3.0 < -2.5$	2	2	0	0	0	0
$-3.5 < -3.0$	1	1	0	0	0	0
$< -3.5$	1	1	1	1	1	1
TOTAL	65	65	65	65	65	65

**Table 7.B.15 Distribution of IRT *b*-values for Reading/Language Arts Field-Test Items**

IRT <i>b</i> -value	Reading/Language Arts					
	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
$\geq 3.5$	0	0	0	0	0	0
$3.0 < 3.5$	0	0	0	0	0	0
$2.5 < 3.0$	0	0	0	0	0	0
$2.0 < 2.5$	0	3	0	0	0	0
$1.5 < 2.0$	3	0	6	1	0	1
$1.0 < 1.5$	8	8	16	4	7	3
$0.5 < 1.0$	13	17	16	6	8	11
$0.0 < 0.5$	13	18	16	12	4	5
$-0.5 < 0.0$	11	11	10	6	3	3
$-1.0 < -0.5$	5	7	5	5	1	0
$-1.5 < -1.0$	6	6	1	0	0	0
$-2.0 < -1.5$	2	1	1	0	0	0
$-2.5 < -2.0$	0	0	0	0	0	0
$-3.0 < -2.5$	0	0	0	0	0	0
$-3.5 < -3.0$	0	0	0	0	0	0
$< -3.5$	1	1	1	1	1	1
TOTAL	62	72	72	35	24	24

**Table 7.B.16 Distribution of IRT *b*-values for Mathematics Field-Test Items**

IRT <i>b</i> -value	Mathematics					
	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
$\geq 3.5$	0	0	0	0	0	0
$3.0 < 3.5$	0	0	0	0	0	0
$2.5 < 3.0$	0	0	0	0	1	0
$2.0 < 2.5$	0	4	2	2	1	0
$1.5 < 2.0$	0	7	5	6	6	4
$1.0 < 1.5$	1	13	9	5	0	7
$0.5 < 1.0$	7	10	20	11	9	5
$0.0 < 0.5$	10	10	13	4	0	3
$-0.5 < 0.0$	11	13	12	2	4	2
$-1.0 < -0.5$	12	8	6	2	1	2
$-1.5 < -1.0$	14	1	3	3	1	0
$-2.0 < -1.5$	11	3	1	0	0	0
$-2.5 < -2.0$	3	2	0	0	0	0
$-3.0 < -2.5$	2	0	0	0	0	0
$-3.5 < -3.0$	0	0	0	0	0	0
$< -3.5$	1	1	1	1	1	1
TOTAL	72	72	72	36	24	24

**Table 7.B.17 IRT Model Data Fit Distribution for Reading/Language Arts Operational Items**

Flag	Reading/Language Arts											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.
A	16	25%	19	29%	19	25%	17	23%	25	33%	17	23%
B	12	18%	17	26%	17	23%	14	19%	15	20%	19	25%
C	27	42%	26	40%	26	35%	34	45%	19	25%	28	37%
D	7	11%	2	3%	7	9%	7	9%	9	12%	8	11%
F	3	5%	1	2%	6	8%	3	4%	7	9%	3	4%
TOTAL	65	100%	65	100%	75	100%	75	100%	75	100%	75	100%

**Table 7.B.18 IRT Model Data Fit Distribution for Mathematics Operational Items**

Flag	Mathematics											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.
A	31	48%	29	45%	17	26%	10	15%	3	5%	15	23%
B	19	29%	10	15%	21	32%	22	34%	28	43%	15	23%
C	13	20%	26	40%	24	37%	22	34%	19	29%	29	45%
D	2	3%	0	0%	3	5%	6	9%	9	14%	4	6%
F	0	0%	0	0%	0	0%	5	8%	6	9%	2	3%
TOTAL	65	100%	65	100%	65	100%	65	100%	65	100%	65	100%

**Table 7.B.19 IRT Model Data Fit Distribution for Reading/Language Arts Field-Test Items**

Flag	Reading/Language Arts											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.
A	15	24%	16	22%	27	38%	18	51%	6	25%	8	33%
B	8	13%	15	21%	12	17%	8	23%	3	13%	3	13%
C	20	32%	21	29%	25	35%	4	11%	10	42%	8	33%
D	7	11%	6	8%	2	3%	1	3%	3	13%	2	8%
F	12	19%	14	19%	6	8%	4	11%	2	8%	3	13%
TOTAL	62	100%	72	100%	72	100%	35	100%	24	100%	24	100%

**Table 7.B.20 IRT Model Data Fit Distribution for Mathematics Field-Test Items**

Flag	Mathematics											
	Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 7	
	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.	N	Pct.
A	22	31%	13	18%	31	43%	12	33%	2	8%	10	42%
B	22	31%	12	17%	9	13%	5	14%	4	17%	6	25%
C	16	22%	26	36%	21	29%	14	39%	10	42%	6	25%
D	8	11%	7	10%	4	6%	1	3%	4	17%	2	8%
F	4	6%	14	19%	7	10%	4	11%	4	17%	0	0%
TOTAL	72	100%	72	100%	72	100%	36	100%	24	100%	24	100%

## Chapter 8: Reliability

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This chapter summarizes the evidence of reliability for the California Standards-based Tests in Spanish for the spring 2008 administration. These analyses were conducted for each of the 12 operational STS tests. The reliability analyses included the computation of overall and subscore reliabilities, standard errors of measurement (SEMs), and intercorrelations of reporting cluster subscores for the target population. Reliability analyses were reported both for the target population and at the subgroup level within the target population.

### Reliability

Reliability focuses on the extent to which differences in test scores reflect true differences in the knowledge, ability, or skill being tested rather than fluctuations due to chance or random factors. The variance in the distributions of test scores—essentially, the differences among individuals—is partly due to real differences in the knowledge, skill, or ability being tested (true score variance) and partly due to random unsystematic errors in the measurement process (error variance). The number used to describe reliability is an estimate of the proportion of the total variance that is true score variance. Several different ways of estimating this proportion exist. The estimates of reliability reported here are internal-consistency measures, which are derived from an 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 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 is measured by coefficient alpha (Cronbach 1951) and is reported below:

$$\alpha = \frac{n}{n-1} \left[ 1 - \frac{\sum_{i=1}^n \sigma_i^2}{\sigma_t^2} \right] \quad (8.1)$$

where,

$n$  is the number of items,

$\sigma_i^2$  is the variance of scores on the  $i$ -th item, and

$\sigma_t^2$  is the variance of the total score (either the total raw score or scale score).

The SEM provides a measure of score instability in the score metric. The SEM was computed as follows:

$$\sigma_e = \sigma_t \sqrt{1 - \alpha} \quad (8.2)$$

where,

$\alpha$  is the reliability estimated using equation 8.1, above, and

$\sigma_t^2$  is the standard deviation of the total raw scores.

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 with  $\pm 1.96$  SEM around the observed score would contain an examinee's true score

(Crocker and 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 ( $15 \pm 3.76$  rounded to the nearest integer).

The reliability analyses were conducted for all valid cases of the target examinee population, including all students who describe themselves as English learners, who are in US schools less than 12 months or receiving instructions in Spanish. Note that more examinees were included in the reliability analyses than in the item-level analyses or IRT calibration as the assumption is made in the reliability analysis that all STS takers who describe themselves as English learners have Spanish as their primary language regardless of how the field of "primary language" was filled in on the answer document or was submitted during Pre-ID. Table 8.1 presents the results of reliability analyses on each of the 12 operational STS tests along with the number of items and examinees upon which those analyses were performed. The results in Table 8.1 indicated that all STS tests were highly reliable, with reliabilities ranging from 0.88 to 0.93. The reliabilities for the higher grade level STS tests were comparatively lower than the lower grade level STS tests, as the grades five to seven STS tests were built primarily on the basis of content expertise.

**Table 8.1 Reliabilities and Standard Errors of Measurement for the STS**

Subject	STS	No. of Items	No. of Examinees	Reliability	Raw Score		
					Mean	Std. Dev.	SEM
<i>Reading/Language Arts</i>	2	65	14,374	0.92	41.15	11.99	3.39
	3	65	9,479	0.91	37.81	11.49	3.45
	4	75	5,466	0.92	41.48	13.51	3.82
	5	75	4,114	0.89	33.70	11.88	3.94
	6	75	2,866	0.88	36.25	11.52	3.99
	7	75	2,443	0.89	39.46	11.93	3.96
	<i>Mathematics</i>	2	65	14,358	0.92	44.70	11.43
3		65	9,466	0.93	44.08	12.56	3.32
4		65	5,449	0.93	40.24	13.04	3.45
5		65	4,119	0.88	31.95	10.67	3.70
6		65	2,863	0.90	31.09	11.40	3.60
7		65	2,430	0.85	27.74	9.50	3.68

## Intercorrelations, Reliabilities, and SEMs for Reporting Clusters

For each STS test, number-correct scores are computed for five to six reporting clusters.<sup>1</sup> Intercorrelations and reliability estimates for the reporting clusters are presented in Table 8.A.1 and Table 8.A.2 for the 12 STS tests. As expected, the reliabilities across reporting clusters varied significantly according to the number of items in each cluster. For example, the reliabilities for the first four reporting clusters in grade four mathematics were moderately high, ranging from 0.67 to 0.85. However, the fifth reporting cluster (Statistics, Data Analysis, and Probability) consisting of only four items had a coefficient alpha of 0.38. Similar results were observed for intercorrelations among reporting clusters, that is, the reporting clusters on the basis of fewer items tended to have lower intercorrelations with the other clusters.

<sup>1</sup> Statistics are presented for reporting clusters with fewer than ten items, however, scores should not be used in making inferences about individual students.

## Subgroup Reliabilities and SEMs

The reliabilities of the 12 operational STS tests were also examined for various subgroups of the examinee population. The subgroups included in these analyses were gender, enrollment in the NSLP, provision of special services, length of attendance in U.S. schools, and EL program participation. For subgroups with fewer than 11 examinees, reliability and SEM results were not presented.

For each subgroup analysis, reliability and SEM information is first reported for the test overall and then at the cluster score level. The tables also include the corresponding sample sizes and the number of items used to compute those reliabilities and errors of measurement. Table 8.A.3 through Table 8.A.7 present the overall reliabilities, while Table 8.A.8 through Table 8.A.13 present the cluster-based reliabilities for the various subgroups. Table 8.A.8 and Table 8.A.9 present the cluster-based reliabilities for the subgroups on the basis of gender and NSLP enrollment. Table 8.A.10 and Table 8.A.11 show the same analyses for the subgroups on the basis of provision of special services and attendance in U.S. schools. The last two tables, Table 8.A.12 and Table 8.A.13, present results for the subgroups on the basis of EL program participation.

## References

Crocker, L. and J. Algina 1986. *Introduction to Classical and Modern Test Theory*. New York: Holt.

Cronbach, L.J. 1951. Coefficient Alpha and the Internal Structure of Tests. *Psychometrika*, 16: pp. 292–334.

## Appendix 8.A—Reliabilities and SEM Tables

Table 8.A.1 Subscore Reliabilities and Correlations for Reading/Language Arts

Subscore Area	No. of Items	Correlation					Reliab.	SEM
		1	2	3	4	5		
<b>Grade 2</b>								
1. Word Analysis and Vocabulary Development	22	1.00	0.74	0.66	0.75	0.48	0.81	1.86
2. Reading Comprehension	15	0.74	1.00	0.64	0.69	0.49	0.77	1.64
3. Literary Response and Analysis	6	0.66	0.64	1.00	0.61	0.41	0.57	0.93
4. Written Conventions	14	0.75	0.69	0.61	1.00	0.51	0.79	1.54
5. Writing Strategies	8	0.48	0.49	0.41	0.51	1.00	0.39	1.33
<b>Grade 3</b>								
1. Word Analysis and Vocabulary Development	20	1.00	0.68	0.59	0.67	0.62	0.78	1.79
2. Reading Comprehension	15	0.68	1.00	0.58	0.62	0.61	0.68	1.74
3. Literary Response and Analysis	8	0.59	0.58	1.00	0.52	0.50	0.50	1.20
4. Written Conventions	13	0.67	0.62	0.52	1.00	0.63	0.69	1.65
5. Writing Strategies	9	0.62	0.61	0.50	0.63	1.00	0.61	1.35
<b>Grade 4</b>								
1. Word Analysis and Vocabulary Development	18	1.00	0.70	0.51	0.73	0.67	0.77	1.84
2. Reading Comprehension	15	0.70	1.00	0.52	0.66	0.63	0.72	1.73
3. Literary Response and Analysis	9	0.51	0.52	1.00	0.50	0.47	0.42	1.37
4. Written Conventions	18	0.73	0.66	0.50	1.00	0.73	0.79	1.83
5. Writing Strategies	15	0.67	0.63	0.47	0.73	1.00	0.68	1.73
<b>Grade 5</b>								
1. Word Analysis and Vocabulary Development	14	1.00	0.59	0.58	0.55	0.56	0.58	1.72
2. Reading Comprehension	16	0.59	1.00	0.63	0.55	0.57	0.64	1.82
3. Literary Response and Analysis	12	0.58	0.63	1.00	0.55	0.58	0.64	1.58
4. Written Conventions	17	0.55	0.55	0.55	1.00	0.60	0.66	1.93
5. Writing Strategies	16	0.56	0.57	0.58	0.60	1.00	0.63	1.84
<b>Grade 6</b>								
1. Word Analysis and Vocabulary Development	13	1.00	0.58	0.49	0.54	0.54	0.55	1.67
2. Reading Comprehension	17	0.58	1.00	0.54	0.61	0.59	0.63	1.87
3. Literary Response and Analysis	12	0.49	0.54	1.00	0.53	0.52	0.53	1.51
4. Written Conventions	16	0.54	0.61	0.53	1.00	0.64	0.71	1.80
5. Writing Strategies	17	0.54	0.59	0.52	0.64	1.00	0.62	1.92
<b>Grade 7</b>								
1. Word Analysis and Vocabulary Development	11	1.00	0.60	0.55	0.63	0.62	0.68	1.42
2. Reading Comprehension	18	0.60	1.00	0.58	0.56	0.58	0.62	1.95
3. Literary Response and Analysis	13	0.55	0.58	1.00	0.51	0.56	0.54	1.59
4. Written Conventions	16	0.63	0.56	0.51	1.00	0.65	0.71	1.76
5. Writing Strategies	17	0.62	0.58	0.56	0.65	1.00	0.68	1.84

**Table 8.A.2 Subscore Reliabilities and Correlations for Mathematics**

Subscore Area	No. of Items	Correlation					Reliab.	SEM	
		1	2	3	4	5			
<b>Grade 2</b>									
1. Place Value, Addition, and Subtraction	15	1.00	0.75	0.59	0.61	0.63	0.76	1.57	
2. Multiplication, Division, and Fractions	23	0.75	1.00	0.61	0.63	0.63	0.81	1.94	
3. Algebra and Functions	6	0.59	0.61	1.00	0.49	0.51	0.62	1.02	
4. Measurement and Geometry	14	0.61	0.63	0.49	1.00	0.58	0.67	1.46	
5. Statistics, Data Analysis, and Probability	7	0.63	0.63	0.51	0.58	1.00	0.64	1.01	
<b>Grade 3</b>									
1. Place Value, Fractions, and Decimals	16	1.00	0.78	0.73	0.68	0.58	0.79	1.62	
2. Addition, Subtraction, Multiplication, Division	16	0.78	1.00	0.74	0.65	0.56	0.81	1.58	
3. Algebra and Functions	12	0.73	0.74	1.00	0.63	0.56	0.76	1.42	
4. Measurement and Geometry	16	0.68	0.65	0.63	1.00	0.58	0.72	1.61	
5. Statistics, Data Analysis, and Probability	5	0.58	0.56	0.56	0.58	1.00	0.66	0.79	
<b>Grade 4</b>									
1. Decimals, Fractions, and Negative Numbers	17	1.00	0.67	0.70	0.57	0.49	0.79	1.71	
2. Operations and Factoring	14	0.67	1.00	0.70	0.55	0.48	0.78	1.60	
3. Algebra and Functions	18	0.70	0.70	1.00	0.63	0.51	0.85	1.76	
4. Measurement and Geometry	12	0.57	0.55	0.63	1.00	0.43	0.67	1.51	
5. Statistics, Data Analysis, and Probability	4	0.49	0.48	0.51	0.43	1.00	0.38	0.89	
<b>Grade 5</b>									
1. Estimation, Percents, and Factoring	12	1.00	0.55	0.54	0.52	0.34	0.47	1.60	
2. Operations with Fractions and Decimals	17	0.55	1.00	0.59	0.57	0.39	0.67	1.89	
3. Algebra and Functions	17	0.54	0.59	1.00	0.61	0.45	0.77	1.84	
4. Measurement and Geometry	15	0.52	0.57	0.61	1.00	0.41	0.60	1.81	
5. Statistics, Data Analysis, and Probability	4	0.34	0.39	0.45	0.41	1.00	0.38	0.92	
<b>Grade 6</b>									
1. Ratios, Proportions, Percentages, and Negative Numbers	15	1.00	0.59	0.64	0.47	0.53	0.74	1.71	
2. Operations with Problem Solving with Fractions	10	0.59	1.00	0.64	0.42	0.48	0.64	1.43	
3. Algebra and Functions	19	0.64	0.64	1.00	0.48	0.56	0.78	1.94	
4. Measurement and Geometry	10	0.47	0.42	0.48	1.00	0.45	0.40	1.46	
5. Statistics, Data Analysis, and Probability	11	0.53	0.48	0.56	0.45	1.00	0.60	1.51	
<b>Grade 7</b>									
1. Rational Numbers	14	1.00	0.43	0.37	0.54	0.47	0.37	0.57	1.74
2. Exponents, Powers, and Roots	8	0.43	1.00	0.37	0.42	0.36	0.32	0.42	1.21
3. Quantitative Relationships and Evaluating Expressions	10	0.37	0.37	1.00	0.40	0.35	0.31	0.32	1.45
4. Multistep Problems, Graphing, and Functions	15	0.54	0.42	0.40	1.00	0.59	0.44	0.64	1.78
5. Measurement and Geometry	13	0.47	0.36	0.35	0.59	1.00	0.48	0.61	1.64
6. Statistics, Data Analysis, and Probability	5	0.37	0.32	0.31	0.44	0.48	1.00	0.40	1.04

Table 8.A.3 Reliabilities and SEM for the STS by Gender

Subject	STS	Male			Female		
		N	Reliab.	SEM	N	Reliab.	SEM
<i>Reading/Language Arts</i>	2	7,126	0.92	3.43	7,241	0.92	3.28
	3	4,718	0.90	3.62	4,749	0.91	3.40
	4	2,778	0.92	3.86	2,679	0.91	3.89
	5	2,072	0.88	4.02	2,029	0.89	3.95
	6	1,457	0.88	3.97	1,404	0.88	3.91
	7	1,310	0.89	3.92	1,123	0.89	3.92
	<i>Mathematics</i>	2	7,114	0.92	3.28	7,237	0.92
3		4,713	0.94	3.15	4,741	0.93	3.25
4		2,771	0.93	3.56	2,670	0.92	3.56
5		2,078	0.88	3.77	2,028	0.87	3.76
6		1,453	0.90	3.74	1,405	0.89	3.63
7		1,301	0.85	3.76	1,119	0.84	3.71

Table 8.A.4 Reliabilities and SEM for the STS by NSLP

Subject	STS	Not in NSLP			NSLP		
		N	Reliab.	SEM	N	Reliab.	SEM
<i>Reading/Language Arts</i>	2	1,534	0.93	3.38	12,776	0.92	3.36
	3	1,071	0.91	3.47	8,358	0.91	3.44
	4	684	0.92	3.82	4,747	0.92	3.82
	5	550	0.90	3.94	3,523	0.88	4.07
	6	435	0.90	3.90	2,393	0.88	3.93
	7	488	0.90	3.84	1,903	0.89	3.93
	<i>Mathematics</i>	2	1,524	0.92	3.30	12,770	0.92
3		1,071	0.93	3.37	8,347	0.93	3.31
4		683	0.93	3.55	4,731	0.93	3.43
5		550	0.89	3.70	3,528	0.88	3.67
6		433	0.91	3.71	2,392	0.89	3.73
7		488	0.85	3.72	1,890	0.85	3.68

Table 8.A.5 Reliabilities and SEM for the STS by Special Education

Subject	STS	No Special Education			Special Education		
		N	Reliab.	SEM	N	Reliab.	SEM
<i>Reading/Language Arts</i>	2	13,708	0.92	3.36	666	0.91	3.63
	3	9,031	0.91	3.41	448	0.90	3.53
	4	5,241	0.92	3.78	225	0.92	3.81
	5	3,956	0.89	3.93	158	0.79	3.94
	6	2,776	0.88	3.96	90	0.84	3.94
	7	2,411	0.89	3.95	32	0.85	3.95
	<i>Mathematics</i>	2	13,683	0.92	3.20	675	0.92
3		9,017	0.93	3.29	449	0.93	3.46
4		5,220	0.93	3.44	229	0.91	3.69
5		3,957	0.88	3.70	161	0.85	3.74
6		2,772	0.90	3.61	91	0.86	3.66
7		2,398	0.85	3.68	32	0.73	3.68

**Table 8.A.6 Reliabilities and SEM for the STS by Attendance in U.S. Schools**

Subject	STS	In U.S. Schools < 12 Months			In U.S. Schools >= 12 Months		
		N	Reliab.	SEM	N	Reliab.	SEM
<i>Reading/Language Arts</i>	2	2,442	0.93	3.45	11,932	0.91	3.37
	3	2,071	0.91	3.54	7,408	0.90	3.51
	4	1,988	0.91	3.97	3,478	0.92	3.82
	5	1,715	0.89	4.07	2,399	0.88	4.02
	6	1,680	0.89	3.85	1,186	0.88	3.94
	7	1,970	0.90	3.82	473	0.88	3.90
	<i>Mathematics</i>	2	2,438	0.92	3.47	11,920	0.91
3		2,064	0.94	3.32	7,402	0.93	3.09
4		1,975	0.92	3.68	3,474	0.92	3.48
5		1,716	0.86	3.81	2,403	0.88	3.67
6		1,679	0.90	3.59	1,184	0.89	3.65
7		1,959	0.85	3.66	471	0.85	3.70

Table 8.A.7 Reliabilities and SEM for the STS by EL Program Participation

Subject	STS	EL in ELD			EL in ELD and SDAIE			EL in ELD and SDAIE with Primary Language Support			EL in ELD and Academic Subjects through Primary Language			Other EL Instructional Services			None (EL only)			
		N	Rel.	SEM	N	Rel.	SEM	N	Rel.	SEM	N	Rel.	SEM	N	Rel.	SEM	N	Rel.	SEM	
<i>Reading/ Language Arts</i>	<b>2</b>	282	0.92	3.53	744	0.92	3.50	655	0.92	3.51	12,578	0.91	3.38	10	N/A	N/A	58	0.92	3.47	
	<b>3</b>	223	0.88	3.62	712	0.90	3.63	687	0.90	3.61	7,758	0.90	3.53	9	N/A	N/A	43	0.91	3.61	
	<b>4</b>	211	0.91	3.92	738	0.92	3.81	703	0.91	3.85	3,701	0.92	3.82	30	0.94	3.84	49	0.92	3.75	
	<b>5</b>	193	0.89	3.99	684	0.90	3.96	561	0.89	4.05	2,562	0.88	4.03	27	0.88	3.97	47	0.89	4.05	
	<b>6</b>	217	0.90	3.83	673	0.89	3.90	588	0.88	3.96	1,280	0.88	3.93	19	0.81	3.87	30	0.92	3.86	
	<b>7</b>	225	0.90	3.94	659	0.90	3.89	701	0.89	3.86	719	0.89	3.85	31	0.92	3.74	29	0.81	3.99	
			277	0.92	3.50	750	0.91	3.56	652	0.92	3.45	12,566	0.91	3.28	10	N/A	N/A	57	0.92	3.34
<i>Mathematics</i>	<b>3</b>	224	0.92	3.56	711	0.93	3.51	682	0.93	3.48	7,750	0.93	3.12	9	N/A	N/A	43	0.93	3.39	
	<b>4</b>	210	0.92	3.55	734	0.93	3.55	697	0.92	3.59	3,697	0.92	3.50	30	0.95	3.25	49	0.92	3.61	
	<b>5</b>	191	0.86	3.71	685	0.87	3.79	562	0.86	3.71	2,568	0.88	3.68	26	0.92	3.49	47	0.85	3.68	
	<b>6</b>	218	0.89	3.67	673	0.90	3.71	588	0.89	3.66	1,278	0.89	3.67	19	0.90	3.52	30	0.94	3.45	
	<b>7</b>	224	0.84	3.72	657	0.86	3.63	698	0.81	3.69	714	0.86	3.73	30	0.88	3.62	29	0.85	3.65	
			277	0.92	3.50	750	0.91	3.56	652	0.92	3.45	12,566	0.91	3.28	10	N/A	N/A	57	0.92	3.34
			224	0.92	3.56	711	0.93	3.51	682	0.93	3.48	7,750	0.93	3.12	9	N/A	N/A	43	0.93	3.39

**Table 8.A.8 Subscore Reliabilities and SEM for Reading/Language Arts by Gender/NSLP**

Subscore Area	No. of Items	Male		Female		Not in NSLP		NSLP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
<b>Grade 2</b>									
1. Word Analysis and Vocabulary Development	22	0.81	1.91	0.80	1.82	0.83	1.85	0.80	1.87
2. Reading Comprehension	15	0.76	1.68	0.76	1.59	0.79	1.62	0.76	1.64
3. Literary Response and Analysis	6	0.58	0.95	0.56	0.91	0.62	0.92	0.57	0.93
4. Written Conventions	14	0.78	1.57	0.79	1.50	0.80	1.53	0.78	1.54
5. Writing Strategies	8	0.37	1.33	0.40	1.33	0.41	1.33	0.39	1.33
<b>Grade 3</b>									
1. Word Analysis and Vocabulary Development	20	0.78	1.82	0.78	1.75	0.79	1.78	0.78	1.78
2. Reading Comprehension	15	0.68	1.75	0.68	1.73	0.69	1.74	0.68	1.74
3. Literary Response and Analysis	8	0.50	1.21	0.50	1.18	0.51	1.20	0.50	1.20
4. Written Conventions	13	0.68	1.66	0.68	1.63	0.68	1.65	0.69	1.65
5. Writing Strategies	9	0.60	1.36	0.62	1.34	0.63	1.34	0.61	1.35
<b>Grade 4</b>									
1. Word Analysis and Vocabulary Development	18	0.77	1.87	0.77	1.81	0.77	1.82	0.77	1.84
2. Reading Comprehension	15	0.72	1.73	0.70	1.72	0.74	1.70	0.71	1.73
3. Literary Response and Analysis	9	0.42	1.37	0.41	1.37	0.43	1.37	0.42	1.37
4. Written Conventions	18	0.79	1.86	0.77	1.80	0.79	1.83	0.79	1.83
5. Writing Strategies	15	0.68	1.75	0.66	1.72	0.66	1.74	0.68	1.73
<b>Grade 5</b>									
1. Word Analysis and Vocabulary Development	14	0.58	1.72	0.58	1.72	0.62	1.72	0.57	1.72
2. Reading Comprehension	16	0.63	1.82	0.64	1.82	0.66	1.82	0.63	1.82
3. Literary Response and Analysis	12	0.62	1.57	0.64	1.58	0.68	1.57	0.63	1.58
4. Written Conventions	17	0.65	1.93	0.66	1.92	0.69	1.91	0.65	1.93
5. Writing Strategies	16	0.61	1.84	0.64	1.83	0.68	1.83	0.62	1.84

Subscore Area	No. of Items	Male		Female		Not in NSLP		NSLP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
<b>Grade 6</b>									
1. Word Analysis and Vocabulary Development	13	0.53	1.68	0.57	1.66	0.61	1.65	0.54	1.67
2. Reading Comprehension	17	0.63	1.88	0.63	1.86	0.66	1.84	0.63	1.88
3. Literary Response and Analysis	12	0.53	1.54	0.52	1.48	0.50	1.50	0.53	1.51
4. Written Conventions	16	0.71	1.81	0.70	1.78	0.74	1.76	0.71	1.80
5. Writing Strategies	17	0.60	1.92	0.62	1.93	0.68	1.90	0.60	1.93
<b>Grade 7</b>									
1. Word Analysis and Vocabulary Development	11	0.68	1.43	0.68	1.40	0.66	1.41	0.68	1.42
2. Reading Comprehension	18	0.62	1.95	0.61	1.95	0.66	1.93	0.61	1.96
3. Literary Response and Analysis	13	0.51	1.60	0.56	1.58	0.52	1.60	0.55	1.59
4. Written Conventions	16	0.70	1.78	0.71	1.73	0.74	1.73	0.70	1.77
5. Writing Strategies	17	0.67	1.86	0.69	1.81	0.70	1.83	0.68	1.85

**Table 8.A.9 Subscore Reliabilities and SEM for Mathematics by Gender/NSLP**

Subscore Area	No. of Items	Male		Female		Not in NSLP		NSLP	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
<b>Grade 2</b>									
1. Place Value, Addition, and Subtraction	15	0.76	1.57	0.76	1.57	0.77	1.57	0.76	1.57
2. Multiplication, Division, and Fractions	23	0.81	1.95	0.80	1.94	0.81	1.93	0.81	1.94
3. Algebra and Functions	6	0.63	1.01	0.61	1.02	0.65	1.00	0.61	1.02
4. Measurement and Geometry	14	0.68	1.45	0.66	1.48	0.69	1.44	0.67	1.47
5. Statistics, Data Analysis, and Probability	7	0.65	1.01	0.63	1.00	0.66	1.01	0.64	1.01
<b>Grade 3</b>									
1. Place Value, Fractions, and Decimals	16	0.80	1.61	0.79	1.63	0.80	1.61	0.79	1.62
2. Addition, Subtraction, Multiplication, Division	16	0.82	1.59	0.81	1.57	0.81	1.59	0.81	1.58
3. Algebra and Functions	12	0.77	1.41	0.75	1.43	0.76	1.42	0.76	1.42
4. Measurement and Geometry	16	0.74	1.61	0.71	1.61	0.72	1.62	0.72	1.61
5. Statistics, Data Analysis, and Probability	5	0.66	0.81	0.66	0.77	0.69	0.78	0.65	0.80
<b>Grade 4</b>									
1. Decimals, Fractions, and Negative Numbers	17	0.80	1.70	0.77	1.72	0.81	1.70	0.78	1.71
2. Operations and Factoring	14	0.79	1.61	0.78	1.59	0.80	1.59	0.78	1.60
3. Algebra and Functions	18	0.86	1.77	0.85	1.74	0.85	1.77	0.85	1.75
4. Measurement and Geometry	12	0.69	1.52	0.65	1.50	0.68	1.52	0.67	1.51
5. Statistics, Data Analysis, and Probability	4	0.41	0.89	0.35	0.89	0.43	0.89	0.37	0.89
<b>Grade 5</b>									
1. Estimation, Percents, and Factoring	12	0.50	1.60	0.44	1.60	0.49	1.61	0.46	1.60
2. Operations with Fractions and Decimals	17	0.67	1.90	0.67	1.89	0.70	1.90	0.67	1.89
3. Algebra and Functions	17	0.77	1.85	0.77	1.83	0.77	1.83	0.77	1.84
4. Measurement and Geometry	15	0.62	1.81	0.58	1.82	0.62	1.81	0.60	1.82
5. Statistics, Data Analysis, and Probability	4	0.39	0.91	0.37	0.92	0.38	0.92	0.38	0.92
<b>Grade 6</b>									
1. Ratios, Proportions, Percentages, and Negative Numbers	15	0.76	1.70	0.72	1.72	0.77	1.67	0.73	1.71
2. Operations with Problem Solving with Fractions	10	0.66	1.43	0.63	1.43	0.67	1.41	0.64	1.43
3. Algebra and Functions	19	0.79	1.94	0.77	1.94	0.80	1.92	0.78	1.95

Subscore Area	No. of Items	Male		Female		Not in NSLP		NSLP		
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	
4. Measurement and Geometry	10	0.46	1.45	0.34	1.46	0.48	1.45	0.39	1.46	
5. Statistics, Data Analysis, and Probability	11	0.63	1.49	0.57	1.52	0.66	1.49	0.59	1.51	
<b>Grade 7</b>										
1. Rational Numbers	14	0.61	1.73	0.53	1.75	0.60	1.74	0.57	1.74	
2. Exponents, Powers, and Roots	8	0.44	1.22	0.41	1.20	0.41	1.20	0.43	1.22	
3. Quantitative Relationships and Evaluating Expressions	10	0.32	1.45	0.31	1.45	0.25	1.44	0.33	1.45	
4. Multistep Problems, Graphing, and Functions	15	0.64	1.77	0.64	1.78	0.65	1.76	0.64	1.78	
5. Measurement and Geometry	13	0.63	1.63	0.58	1.64	0.62	1.64	0.60	1.64	
6. Statistics, Data Analysis, and Probability	5	0.41	1.04	0.39	1.04	0.43	1.03	0.40	1.04	

**Table 8.A.10 Subscore Reliabilities and SEM for Reading/Language Arts by Special Education/Attendance in U.S. Schools**

Subscore Area	No. of Items	No Special Education		Special Education		In U.S. Schools < 12 Months		In U.S. Schools >= 12 Months	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
<b>Grade 2</b>									
1. Word Analysis and Vocabulary Development	22	0.80	1.86	0.81	2.02	0.82	2.00	0.79	1.83
2. Reading Comprehension	15	0.76	1.63	0.73	1.74	0.79	1.68	0.75	1.62
3. Literary Response and Analysis	6	0.57	0.93	0.52	1.03	0.63	1.02	0.53	0.91
4. Written Conventions	14	0.78	1.53	0.77	1.63	0.77	1.64	0.77	1.51
5. Writing Strategies	8	0.39	1.33	0.28	1.32	0.35	1.30	0.39	1.33
<b>Grade 3</b>									
1. Word Analysis and Vocabulary Development	20	0.78	1.78	0.77	1.94	0.81	1.87	0.77	1.76
2. Reading Comprehension	15	0.68	1.74	0.67	1.75	0.67	1.76	0.68	1.73
3. Literary Response and Analysis	8	0.50	1.19	0.42	1.25	0.57	1.18	0.48	1.20
4. Written Conventions	13	0.69	1.64	0.64	1.67	0.69	1.64	0.67	1.64
5. Writing Strategies	9	0.61	1.35	0.56	1.35	0.56	1.37	0.61	1.34
<b>Grade 4</b>									
1. Word Analysis and Vocabulary Development	18	0.77	1.84	0.77	1.91	0.76	1.83	0.78	1.82
2. Reading Comprehension	15	0.71	1.73	0.72	1.72	0.69	1.72	0.73	1.72
3. Literary Response and Analysis	9	0.42	1.37	0.42	1.35	0.38	1.39	0.45	1.35
4. Written Conventions	18	0.79	1.83	0.78	1.88	0.79	1.86	0.78	1.81
5. Writing Strategies	15	0.68	1.73	0.65	1.77	0.68	1.75	0.68	1.72
<b>Grade 5</b>									
1. Word Analysis and Vocabulary Development	14	0.58	1.72	0.48	1.70	0.63	1.71	0.54	1.73
2. Reading Comprehension	16	0.63	1.82	0.55	1.74	0.63	1.83	0.64	1.80
3. Literary Response and Analysis	12	0.64	1.58	0.34	1.53	0.67	1.56	0.62	1.58
4. Written Conventions	17	0.66	1.93	0.55	1.91	0.69	1.90	0.64	1.93
5. Writing Strategies	16	0.63	1.84	0.44	1.82	0.64	1.84	0.62	1.84

Subscore Area	No. of Items	No Special Education		Special Education		In U.S. Schools < 12 Months		In U.S. Schools >= 12 Months	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
<b>Grade 6</b>									
1. Word Analysis and Vocabulary Development	13	0.55	1.67	0.27	1.63	0.58	1.66	0.50	1.68
2. Reading Comprehension	17	0.63	1.87	0.59	1.86	0.64	1.86	0.62	1.88
3. Literary Response and Analysis	12	0.52	1.51	0.57	1.55	0.50	1.49	0.57	1.53
4. Written Conventions	16	0.71	1.79	0.59	1.84	0.73	1.79	0.69	1.79
5. Writing Strategies	17	0.61	1.93	0.55	1.85	0.60	1.93	0.64	1.92
<b>Grade 7</b>									
1. Word Analysis and Vocabulary Development	11	0.68	1.42	0.44	1.55	0.69	1.40	0.62	1.48
2. Reading Comprehension	18	0.62	1.95	0.46	1.93	0.63	1.95	0.59	1.96
3. Literary Response and Analysis	13	0.54	1.59	0.28	1.62	0.56	1.58	0.47	1.63
4. Written Conventions	16	0.71	1.76	0.66	1.84	0.71	1.76	0.70	1.77
5. Writing Strategies	17	0.68	1.84	0.67	1.84	0.69	1.83	0.63	1.87

**Table 8.A.11 Subscore Reliabilities and SEM for Mathematics by Special Education/Attendance in U.S. Schools**

Subscore Area	No. of Items	No Special Education		Special Education		In U.S. School < 12 Months		In U.S. Schools >= 12 Months	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
<b>Grade 2</b>									
1. Place Value, Addition, and Subtraction	15	0.76	1.57	0.76	1.67	0.76	1.67	0.75	1.55
2. Multiplication, Division, and Fractions	23	0.80	1.94	0.80	2.03	0.80	2.01	0.80	1.93
3. Algebra and Functions	6	0.62	1.01	0.56	1.08	0.61	1.06	0.61	1.01
4. Measurement and Geometry	14	0.67	1.46	0.69	1.59	0.71	1.55	0.65	1.44
5. Statistics, Data Analysis, and Probability	7	0.64	1.01	0.66	1.09	0.64	1.10	0.62	0.99
<b>Grade 3</b>									
1. Place Value, Fractions, and Decimals	16	0.79	1.61	0.79	1.72	0.80	1.70	0.77	1.59
2. Addition, Subtraction, Multiplication, Division	16	0.81	1.57	0.78	1.71	0.82	1.66	0.80	1.56
3. Algebra and Functions	12	0.76	1.42	0.75	1.50	0.76	1.48	0.75	1.41
4. Measurement and Geometry	16	0.72	1.61	0.77	1.70	0.74	1.72	0.69	1.58
5. Statistics, Data Analysis, and Probability	5	0.66	0.79	0.62	0.89	0.64	0.93	0.61	0.75
<b>Grade 4</b>									
1. Decimals, Fractions, and Negative Numbers	17	0.79	1.71	0.79	1.79	0.79	1.76	0.76	1.68
2. Operations and Factoring	14	0.78	1.60	0.72	1.66	0.77	1.63	0.78	1.57
3. Algebra and Functions	18	0.85	1.75	0.81	1.87	0.83	1.86	0.85	1.69
4. Measurement and Geometry	12	0.67	1.51	0.62	1.58	0.64	1.56	0.67	1.48
5. Statistics, Data Analysis, and Probability	4	0.38	0.89	0.26	0.94	0.39	0.91	0.35	0.88
<b>Grade 5</b>									
1. Estimation, Percents, and Factoring	12	0.47	1.60	0.35	1.60	0.46	1.61	0.46	1.58
2. Operations with Fractions and Decimals	17	0.67	1.89	0.56	1.88	0.66	1.90	0.68	1.89
3. Algebra and Functions	17	0.77	1.84	0.74	1.88	0.73	1.87	0.76	1.81
4. Measurement and Geometry	15	0.60	1.81	0.51	1.81	0.55	1.82	0.62	1.81
5. Statistics, Data Analysis, and Probability	4	0.38	0.92	0.41	0.91	0.37	0.92	0.38	0.91

Subscore Area	No. of Items	No Special Education		Special Education		In U.S. School < 12 Months		In U.S. Schools >= 12 Months	
		Reliab.	SEM	Reliab.	SEM	Reliab.	SEM	Reliab.	SEM
<b>Grade 6</b>									
1. Ratios, Proportions, Percentages, and Negative Numbers	15	0.74	1.71	0.68	1.74	0.75	1.71	0.72	1.69
2. Operations with Problem Solving with Fractions	10	0.64	1.43	0.62	1.42	0.63	1.44	0.63	1.41
3. Algebra and Functions	19	0.78	1.94	0.76	1.94	0.79	1.94	0.76	1.93
4. Measurement and Geometry	10	0.41	1.46	0.29	1.45	0.40	1.44	0.39	1.47
5. Statistics, Data Analysis, and Probability	11	0.61	1.51	0.38	1.48	0.58	1.50	0.62	1.51
<b>Grade 7</b>									
1. Rational Numbers	14	0.58	1.74	0.32	1.73	0.57	1.74	0.57	1.74
2. Exponents, Powers, and Roots	8	0.43	1.21	0.15	1.29	0.39	1.21	0.47	1.23
3. Quantitative Relationships and Evaluating Expressions	10	0.32	1.45	0.19	1.44	0.30	1.45	0.39	1.44
4. Multistep Problems, Graphing, and Functions	15	0.64	1.78	0.50	1.76	0.64	1.77	0.63	1.79
5. Measurement and Geometry	13	0.61	1.64	0.47	1.54	0.60	1.64	0.61	1.63
6. Statistics, Data Analysis, and Probability	5	0.40	1.04	0.48	0.99	0.40	1.04	0.39	1.05

**Table 8.A.12 Subscore Reliabilities and SEM for Reading/Language Arts by EL Program Participation**

Subscore Area	No. of Items	EL in ELD		EL in ELD and SDAIE		EL in ELD and SDAIE with Primary Lang. Support		EL in ELD and Academic Subj. through Primary Lang.		Other EL Instructional Services		None (EL only)	
		Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM
<b>Grade 2</b>													
1. Word Analysis and Vocabulary Development													
	22	0.80	2.06	0.79	2.06	0.81	2.04	0.79	1.83	N/A	N/A	0.79	2.03
2. Reading Comprehension													
	15	0.78	1.70	0.77	1.70	0.77	1.70	0.75	1.62	N/A	N/A	0.78	1.69
3. Literary Response and Analysis													
	6	0.60	1.05	0.60	1.06	0.62	1.05	0.53	0.91	N/A	N/A	0.72	0.98
4. Written Conventions													
	14	0.75	1.65	0.73	1.67	0.73	1.67	0.77	1.51	N/A	N/A	0.68	1.69
5. Writing Strategies													
	8	0.37	1.29	0.37	1.27	0.27	1.30	0.39	1.33	N/A	N/A	0.39	1.26
<b>Grade 3</b>													
1. Word Analysis and Vocabulary Development													
	20	0.78	1.88	0.80	1.89	0.79	1.90	0.77	1.76	N/A	N/A	0.82	1.87
2. Reading Comprehension													
	15	0.61	1.77	0.65	1.76	0.66	1.76	0.68	1.73	N/A	N/A	0.64	1.73
3. Literary Response and Analysis													
	8	0.45	1.19	0.55	1.19	0.56	1.18	0.48	1.20	N/A	N/A	0.71	1.11
4. Written Conventions													
	13	0.65	1.64	0.69	1.64	0.65	1.65	0.67	1.64	N/A	N/A	0.73	1.60
5. Writing Strategies													
	9	0.52	1.36	0.52	1.37	0.55	1.36	0.61	1.34	N/A	N/A	0.53	1.35
<b>Grade 4</b>													
1. Word Analysis and Vocabulary Development													
	18	0.76	1.84	0.77	1.83	0.76	1.83	0.77	1.82	0.84	1.73	0.78	1.82
2. Reading Comprehension													
	15	0.71	1.70	0.69	1.72	0.67	1.73	0.73	1.72	0.77	1.65	0.67	1.71
3. Literary Response and Analysis													
	9	0.36	1.39	0.40	1.38	0.37	1.39	0.44	1.35	0.43	1.30	0.35	1.41
4. Written Conventions													
	18	0.79	1.87	0.81	1.85	0.78	1.87	0.78	1.81	0.86	1.77	0.76	1.85
5. Writing Strategies													
	15	0.69	1.74	0.67	1.77	0.68	1.74	0.68	1.72	0.70	1.74	0.74	1.68
<b>Grade 5</b>													
1. Word Analysis and Vocabulary Development													
	14	0.62	1.71	0.63	1.70	0.65	1.69	0.54	1.73	0.53	1.74	0.65	1.71
2. Reading Comprehension													
	16	0.57	1.86	0.66	1.81	0.63	1.83	0.64	1.81	0.61	1.79	0.65	1.82
3. Literary Response and Analysis													
	12	0.66	1.56	0.66	1.56	0.67	1.54	0.62	1.58	0.71	1.53	0.69	1.53
4. Written Conventions													
	17	0.68	1.90	0.70	1.90	0.67	1.89	0.65	1.93	0.54	1.92	0.74	1.88
5. Writing Strategies													
	16	0.61	1.85	0.66	1.83	0.63	1.84	0.62	1.84	0.61	1.82	0.67	1.77

Subscore Area	No. of Items	EL in ELD		EL in ELD and SDAIE		EL in ELD and SDAIE with Primary Lang. Support		EL in ELD and Academic Subj. through Primary Lang.		Other EL Instructional Services		None (EL only)	
		Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM
<b>Grade 6</b>													
1. Word Analysis and Vocabulary Development	13	0.62	1.64	0.55	1.67	0.60	1.66	0.51	1.68	0.13	1.66	0.61	1.61
2. Reading Comprehension	17	0.68	1.84	0.66	1.85	0.62	1.86	0.62	1.88	0.46	1.84	0.75	1.79
3. Literary Response and Analysis	12	0.50	1.50	0.54	1.48	0.46	1.49	0.56	1.53	0.21	1.54	0.51	1.57
4. Written Conventions	16	0.72	1.80	0.74	1.78	0.73	1.78	0.69	1.79	0.60	1.81	0.76	1.76
5. Writing Strategies	17	0.62	1.92	0.61	1.93	0.59	1.92	0.64	1.92	0.48	1.89	0.71	1.85
<b>Grade 7</b>													
1. Word Analysis and Vocabulary Development	11	0.69	1.41	0.70	1.39	0.68	1.42	0.67	1.43	0.70	1.47	0.48	1.54
2. Reading Comprehension	18	0.65	1.94	0.67	1.93	0.57	1.96	0.61	1.95	0.69	1.91	0.43	1.91
3. Literary Response and Analysis	13	0.51	1.60	0.58	1.57	0.55	1.58	0.48	1.62	0.60	1.58	0.30	1.64
4. Written Conventions	16	0.73	1.74	0.72	1.75	0.69	1.78	0.71	1.75	0.80	1.70	0.57	1.82
5. Writing Strategies	17	0.71	1.82	0.71	1.82	0.68	1.85	0.65	1.85	0.70	1.82	0.49	1.90

**Table 8.A.13 Subscore Reliabilities and SEM for Mathematics by EL Program Participation**

Subscore Area	No. of Items	EL in ELD		EL in ELD and SDAIE		EL in ELD and SDAIE with Primary Lang. Support		EL in ELD and Academic Subj. through Primary Lang.		Other EL Instructional Services		None (EL only)	
		Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM
<b>Grade 2</b>													
1. Place Value, Addition, and Subtraction	15	0.76	1.68	0.73	1.69	0.76	1.68	0.75	1.55	N/A	N/A	0.75	1.62
2. Multiplication, Division, and Fractions	23	0.79	2.03	0.79	2.04	0.81	2.02	0.80	1.93	N/A	N/A	0.78	2.00
3. Algebra and Functions	6	0.64	1.05	0.57	1.08	0.58	1.08	0.61	1.01	N/A	N/A	0.68	1.00
4. Measurement and Geometry	14	0.73	1.58	0.71	1.58	0.71	1.59	0.65	1.44	N/A	N/A	0.73	1.51
5. Statistics, Data Analysis, and Probability	7	0.65	1.12	0.60	1.14	0.61	1.13	0.62	0.99	N/A	N/A	0.55	1.12
<b>Grade 3</b>													
1. Place Value, Fractions, and Decimals	16	0.78	1.72	0.78	1.71	0.78	1.74	0.78	1.59	N/A	N/A	0.78	1.70
2. Addition, Subtraction, Multiplication, Division	16	0.77	1.71	0.81	1.67	0.81	1.68	0.80	1.56	N/A	N/A	0.84	1.60
3. Algebra and Functions	12	0.75	1.49	0.74	1.49	0.74	1.50	0.75	1.41	N/A	N/A	0.70	1.53
4. Measurement and Geometry	16	0.70	1.75	0.74	1.72	0.69	1.75	0.69	1.58	N/A	N/A	0.67	1.76
5. Statistics, Data Analysis, and Probability	5	0.62	0.95	0.65	0.93	0.63	0.94	0.62	0.76	N/A	N/A	0.49	0.99
<b>Grade 4</b>													
1. Decimals, Fractions, and Negative Numbers	17	0.78	1.76	0.80	1.76	0.78	1.77	0.76	1.68	0.81	1.71	0.80	1.73
2. Operations and Factoring	14	0.78	1.63	0.79	1.63	0.75	1.65	0.78	1.58	0.88	1.48	0.70	1.68
3. Algebra and Functions	18	0.81	1.88	0.84	1.85	0.83	1.86	0.85	1.70	0.85	1.72	0.85	1.81
4. Measurement and Geometry	12	0.57	1.58	0.67	1.55	0.64	1.55	0.67	1.48	0.66	1.53	0.64	1.55
5. Statistics, Data Analysis, and Probability	4	0.47	0.87	0.38	0.91	0.35	0.92	0.36	0.88	0.41	0.91	0.41	0.89
<b>Grade 5</b>													
1. Estimation, Percents, and Factoring	12	0.40	1.62	0.52	1.59	0.37	1.62	0.47	1.58	0.53	1.58	0.55	1.59
2. Operations with Fractions and Decimals	17	0.67	1.89	0.67	1.89	0.65	1.90	0.67	1.89	0.72	1.84	0.60	1.90
3. Algebra and Functions	17	0.70	1.88	0.74	1.86	0.72	1.87	0.76	1.81	0.85	1.72	0.73	1.83
4. Measurement and Geometry	15	0.52	1.83	0.57	1.81	0.55	1.82	0.62	1.81	0.63	1.77	0.46	1.83
5. Statistics, Data Analysis, and Probability	4	0.42	0.91	0.42	0.91	0.26	0.94	0.38	0.91	0.59	0.82	0.23	0.94

Subscore Area	No. of Items	EL in ELD		EL in ELD and SDAIE		EL in ELD and SDAIE with Primary Lang. Support		EL in ELD and Academic Subj. through Primary Lang.		Other EL Instructional Services		None (EL only)	
		Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM	Rel.	SEM
<b>Grade 6</b>													
1. Ratios, Proportions, Percentages, and Negative Numbers	15	0.75	1.70	0.75	1.71	0.74	1.72	0.72	1.70	0.61	1.76	0.84	1.59
2. Operations with Problem Solving with Fractions	10	0.65	1.42	0.66	1.43	0.60	1.45	0.64	1.41	0.60	1.43	0.70	1.38
3. Algebra and Functions	19	0.78	1.95	0.80	1.93	0.79	1.94	0.76	1.93	0.79	1.89	0.85	1.86
4. Measurement and Geometry	10	0.33	1.44	0.43	1.45	0.37	1.44	0.40	1.47	0.33	1.33	0.58	1.37
5. Statistics, Data Analysis, and Probability	11	0.51	1.52	0.61	1.49	0.55	1.51	0.62	1.51	0.68	1.37	0.71	1.44
<b>Grade 7</b>													
1. Rational Numbers	14	0.53	1.74	0.63	1.72	0.49	1.75	0.58	1.74	0.64	1.70	0.60	1.69
2. Exponents, Powers, and Roots	8	0.33	1.18	0.41	1.22	0.32	1.19	0.48	1.22	0.46	1.21	0.61	1.15
3. Quantitative Relationships and Evaluating Expressions	10	0.29	1.43	0.30	1.45	0.23	1.44	0.41	1.44	0.45	1.39	0.45	1.41
4. Multistep Problems, Graphing, and Functions	15	0.66	1.76	0.64	1.77	0.60	1.77	0.65	1.79	0.72	1.74	0.57	1.70
5. Measurement and Geometry	13	0.61	1.62	0.61	1.64	0.56	1.64	0.63	1.63	0.67	1.59	0.61	1.61
6. Statistics, Data Analysis, and Probability	5	0.45	1.02	0.31	1.06	0.38	1.03	0.44	1.03	0.29	1.05	0.54	0.96