TECHNICAL REPORT
PROFICIENCY ASSESSMENTS FOR WYOMING STUDENTS (PAWS)

MATHEMATICS AND READING: GRADES 3 – 8 AND 11
SCIENCE: GRADES 4, 8, AND 11

2012 ADMINISTRATION

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This report was prepared by the Assessment Team at the Wyoming Department of Education and the contractor, Pearson.

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1. OVERVIEW OF THE 2012 PAWS

1.1 Introduction

This report describes the technical characteristics of the Proficiency Assessments for Wyoming Students (PAWS) for the 2011-2012 school year. Beginning with the spring 2006 administration, PAWS became the official statewide assessment used to measure individual student achievement against the Wyoming Content and Performance Standards in reading, writing, and mathematics (the writing test was discontinued beginning with the 2012 administration and will be administered separately from the PAWS beginning in 2013), replacing the Wyoming Comprehensive Assessment System (WyCAS). In 2008 a science assessment was implemented at grades 4, 8, and 11. Primary purposes of the PAWS include supporting individual student proficiency and fostering program improvement at the school, district, and state levels in support of the teaching and learning in Wyoming public classrooms. The PAWS mathematics and reading tests are administered at grades 3–8 and 11 and meet all requirements of the No Child Left Behind Act of 2001 (NCLB). In this Chapter, the policy decisions leading to the PAWS are described, followed by brief descriptions of the PAWS as it was administered during the 2011–2012 school year.

Following this overview chapter, technical information is provided in subsequent chapters on the following aspects of PAWS:

- Test Design and Development
- Test Administration
- Processing and Scoring
- Linking, Equating, and Scaling Procedures
- Reporting
- Reliability
- Validity
- Statistical Summaries
- Quality Control Procedures

Finally, the Technical Manual concludes with a list of references and a glossary of terms. The Appendices are contained in a separate document.

1.2 Background of PAWS

In the spring of 2006, the Proficiency Assessments for Wyoming Students (PAWS) in reading, writing and mathematics were administered for the first time to Wyoming students in grades 3–8 and 11. Wyoming statute requires that a statewide assessment system shall be “substantially aligned with the uniform education program and student content and performance standards imposed by law and by board rule and regulation” (§21-2-304 (a)(v)(A)).

In early 2003, the Wyoming State Legislature established the Wyoming Statewide Task Force on Student Assessment and Education Accountability and provided two central charges to this group. The legislature asked that the Task Force:

1. Recommend modifications, if necessary, to Wyoming's statewide assessment system to improve teaching and learning and foster school improvement; and
2. Recommend an accountability system with consequences that will assist in meeting NCLB's accountability requirements while maintaining uniformity and quality of state standards.

Staff of the Wyoming Department of Education (WDE) served in an advisory capacity to this group. The 13-member Task Force included one district superintendent; five administrators; two members of the Wyoming legislature; two teachers; a parent; and the editor of the *Casper Star Tribune* newspaper. The October 2003 *The Wyoming Statewide Task Force on Student Assessment and Education Accountability Report and Recommendations* set forth various suggestions to the WDE for consideration as the new assessment system was designed.

The task force recommended a statewide assessment system that would include, among other things, the following:

- A summative assessment that would maintain some, but not all, of the features of the Wyoming Comprehensive Assessment System (WyCAS) and that would satisfy the core requirements of the NCLB related to standards, assessments, and accountability;
- Comparability of scores *across* grades to allow for meaningful evaluation of individual student performance and progress as that student moves from grade to grade while also allowing for meaningful within-grade comparisons from year to year;
- Embedded tools and assessments in reading, writing, and mathematics (and possibly science) that would: be developed and implemented over time; be based on ongoing research and evaluation; fit within existing district assessment systems; be administered periodically during the school year preceding the summative assessment; inform instructional strategies; assist in improving student learning during the year; and supplement summative assessment results;
- Use of The *National Assessment of Educational Progress* (NAEP) results for the state to provide national comparison data; and
- Timely and meaningful feedback to educators, parents, and students regarding student, school, district, and state performance, which could improve teaching and learning over the course of the school year.

As a result, PAWS replaced WyCAS as the statewide accountability assessment. The WyCAS was initially designed to comply with the provisions of the 1994 reauthorization of the ESEA, the *Improving America's Schools Act (IASA)*. With the introduction of the PAWS, the WDE has not only implemented an assessment system that meets the

accountability requirements of NCLB, but one that also provides the data necessary to inform instructional decision-making by Wyoming classroom teachers to address the specific academic needs of students.

In response to the statutory and regulatory requirements and the recommendations of the task force, the PAWS state-level assessments are aligned with the Wyoming Content and Performance[1] Standards in Reading and Mathematics in grades 3 through 8 & 11 and Science at grades 4, 8, & 11. PAWS is designed to provide information for use as federal, state, and local indicators of the extent to which students satisfy academic performance requirements. PAWS results provide reliable information which can be used as a basis for drawing valid inferences that enable:

- students to know the extent to which they have mastered expected knowledge and skills in the Standards;
- parents to know if their children are acquiring the knowledge and skills aligned with the Wyoming Content and Performance Standards in Reading, Science, and Mathematics;
- teachers to know if their students have mastered grade-level knowledge and skills in the Standards and, if not, what weaknesses need to be addressed; and
- community leaders and lawmakers to know if students in Wyoming schools are improving their performance over time.

1.3 Overview of PAWS Test Components

The entire assessment program administered in 2011–2012 consisted of the following components:

- PAWS mathematics, reading, and science assessments
- PAWS Alternate Assessment mathematics, reading, and science assessments

The test design for the spring 2012 administration of the PAWS included content area assessments in reading, mathematics, and science. For reading, mathematics, and science, each test had two to three sessions. All item types (multiple choice and two and four point constructed response) were administered via pencil and paper in a consumable test booklet (i.e., students marked their responses in the booklet itself; a separate answer sheet was not used).

1.4 Overview of the PAWS Design

As stated above, the intent of the PAWS assessment is not only to meet the accountability requirements of NCLB, but also to inform instructional decision-making by Wyoming classroom teachers to address the specific academic needs of students.

[1] Wyoming uses the term “performance” to describe the characteristics of student achievement of mastery of the content of Wyoming’s Standards whereas; NCLB describes this measure as “achievement.”

Therefore, PAWS was conceptually constructed around an instructionally supportive design to include clear targets for instruction, and informative reporting categories.

The Wyoming Content and Performance Standards are organized by academic content area standards followed by benchmark statements.[2] Benchmarks are derived from the given content standards and specify skills within that content standard that students are expected to be able to demonstrate at the end of each grade level. Because NCLB makes the state assessment system central to holding schools and districts accountable for student achievement, content standards and benchmarks, while useful in guiding item development, are not immediately useful for interpretation of results because of the wide variety of types of information and varying levels of specificity they encompass.

A student's schema for organizing content knowledge is usually hierarchical with major concepts and principles subsuming more specific facts. To render the *results* of PAWS assessments more instructionally useful to Wyoming teachers for addressing the academic needs of students, a delineation of more precise elements of knowledge and skills within each content standard at each grade level was needed. To this end, the Wyoming Assessment Descriptions were developed, drawing on the full range of the Wyoming Content and Performance Standards. These provide skill level descriptions or topics which rely on the structure of the discipline in order to *organize instruction*. A skill can be defined as somewhere between the breadth of a content standard and the specificity of a benchmark.[3] Thus, in the context of Wyoming Assessment Descriptions, skills:

- organize the information in the standards into categories of knowledge that are highly related in terms of their use; and
- lend themselves to a variety of instructional strategies by Wyoming teachers.

Subject matter is too often taught as a series of isolated facts, and students are unable to develop either an accurate schema or, a sense of the discipline (Rutherford & Ahlgren, 1989). While teachers need to break apart big ideas (standards) in order to teach some of the foundational concepts, they and their students gain a depth of understanding by developing a sense of the organizing framework of the discipline. The concepts and skills can be more readily called upon for later use. Designing assessments that measure integrated concepts and skills is more demanding, but such assessments can better promote student learning of challenging academic content (WDE Assessment Handbook, 2001).

Thus, the PAWS serves two major purposes. First, it provides information about student attainment of Wyoming Content and Performance Standards in reading, mathematics, and science over time. Second, and equally important, it provides additional skill-level reporting categories aligned to the Wyoming Content and Performance Standards as

[2] For more information regarding Wyoming Content and Performance Standards and Benchmarks, refer to the Wyoming Content and Performance Standards (http://edu.wyoming.gov/default.aspx)
[3] See Reading Specifications Interpretive Guide.

organized by the Wyoming Assessment Descriptions to assist teachers in interpreting and addressing specific academic needs of students.

Assessment results provide important information to all facets of the school community. Policymakers, administrators, teachers, students, and parents all use assessment information for a variety of purposes. Collectively, these users make decisions about how well students are achieving, whether schools are functioning effectively for each child, and whether they are functioning well for all children collectively.

After each administration, the WDE empanels groups of experienced Wyoming teachers to engage in a systematic review of the item level performance within each skill reporting category in order to formulate “peer-to-peer” instructional suggestions related to the tested content standards. The guidance at the skill-reporting category is simplified to three color-coded levels: “Green—No additional instruction on this skill category seems needed”; “Yellow—Additional instruction on this skill category may be needed”; and “Red—additional instruction on this skill category definitely seems needed” (Forte and Popham, 2006).

This skill-based reporting of student performance is intended to be interpreted independently of the proficiency and scale scores. Furthermore, this reporting mechanism is intended to apply only to the specific set of items within a skill category and to provide a peer-based means of identifying skill-based performance in need of instructional attention. As these scores are based only on the subject/grade specific test, there is no intended comparison to other administrations (either across grades or across years). Hence, these item clusters are not equated. Traffic Signal results are reported to schools separately from the general PAWS results. They are not included in Student and Home reports.

PAWS results are particularly intended to help educators make informed decisions about curriculum and instruction. Since PAWS is aligned to academic content and student performance standards, its results can reveal weaknesses and strengths in curricula or instructional methodology. Thus, it can also help educators target specific areas necessary for school and district improvement. The use of assessment results to support informed decision-making for improved teaching and learning in Wyoming schools is an expectation of the PAWS design approach (see Figure 1).

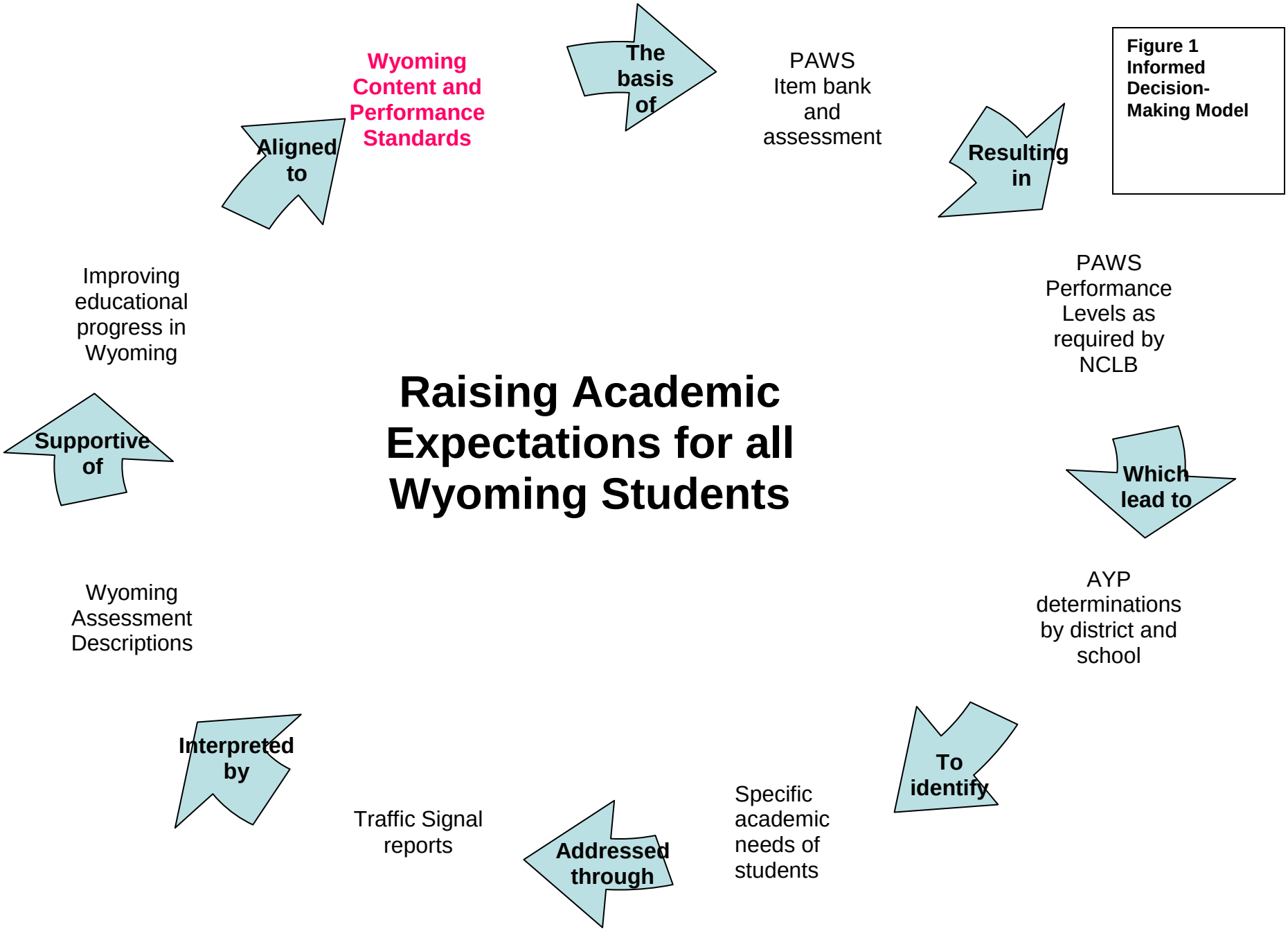

Figure 1 Informed Decision-Making Model

1.5 State Policy on Student Participation

With two exceptions, all students in grades 3 through 8 and 11 must participate in the regular PAWS tests if they receive any instruction on Wyoming state academic standards. The only exceptions are for students with significant cognitive disabilities who meet Wyoming Alternate Assessment participation guidelines and ELL students who have been in the United States for less than a full year. The exemption for ELL students is only for the reading component of PAWS. They are required to take the mathematics and science portions of PAWS, but may take the Wyoming ELL assessment as a substitution for the ELA portions of PAWS.

Students with significant cognitive disabilities are required to take the Proficiency Assessments for Wyoming Students - Alternate (PAWS-ALT). All students will participate in the state accountability assessment program in one of three ways:

- Participation in PAWS regular assessment without accommodation
- Participation in PAWS regular assessment with accommodation
- Participation in PAWS-ALT

1.5.1 Students with Disabilities, 504 Plans, and English Language Learners

Following are procedures and practices related to the participation in the statewide assessments of students with disabilities, students who have 504 plans, and students with limited English proficiency in the statewide assessments:
Students with disabilities participate with appropriate accommodations based on each student's Individualized Education Program (IEP) committee's recommendation. Students with 504 Plans and English Language Learners (ELL) also take the PAWS. Some students with disabilities, for whom even the PAWS with accommodations is inappropriate, participate in the PAWS-ALT as provided for by a student's IEP. The PAWS is intended to include all of the public school students in Wyoming. However, students with the most significant cognitive disabilities are exempted from the PAWS under the Individuals with Disabilities Education Act or Section 504 of the Rehabilitation Act. These students are assessed using the PAWS-ALT. The decision for exemption from the PAWS is made on an individual basis according to professional judgments of the IEP team. Corresponding documentation for any exemption is required.
School districts may not exempt ELL students from the assessment, except for students who are in their first year in the United States. Only students who are in their first year may take the Wyoming ELL assessment instead of the reading component of PAWS, but are not exempt from the mathematics and science tests. The Wyoming ELL assessment measures English language academic readiness.
The following tables provide data on the numbers of students tested in 2012. Additional information can be found on the WDE website: http://edu.wyoming.gov/default.aspx

Table 1.1 Statewide Participation in Mathematics PAWS and PAWS-ALT

Subgroup	Enrolled	Tested (PAWS Alt)	Tested (PAWS)	Tested (Total)	Not Tested	Participation Rate	Exempt (Total)
All Students	46899	428	46292	46720	171	99.64%	8
English Language Learner	1352	8	1339	1347	5	99.63%	0
Free/Reduced Lunch	17501	220	17199	17419	79	99.55%	3
Individual Education Plan	6743	420	6259	6679	56	99.17%	8
American Indian/Alaska Native	1448	12	1421	1433	15	98.96%	0
Asian	358	0	356	356	2	99.44%	0
Black	510	2	506	508	2	99.61%	0
Hispanic	5921	64	5837	5901	18	99.70%	2
Native Hawaiian/ Pacific Islander	67	1	66	67	0	100.00%	0
Two or More Races	838	11	826	837	1	99.88%	0
White	37757	338	37280	37618	133	99.65%	6

Note: There were no students exempted due to being expelled. Students who are ELL cannot be exempted from the mathematics assessment, so all exempted students were exempted for medical reasons.

Table 1.2 Statewide Participation in Reading PAWS and PAWS-ALT

Subgroup	Enrolled	Tested (PAWS Alt)	Tested (PAWS)	Tested (Total)	Not Tested	Participation Rate	Exempt (ELL)	Exempt (Medical)	Exempt (Total)
All Students	46903	429	46256	46685	167	99.64%	43	8	51
English Language Learner	1356	8	1303	1311	4	99.69%	41	0	41
Free/Reduced Lunch	17503	220	17173	17393	72	99.59%	35	3	38
Individual Education Plan	6743	421	6255	6676	58	99.14%	1	8	9
American Indian/Alaska Native	1448	12	1426	1438	10	99.31%	0	0	0
Asian	359	0	352	352	2	99.43%	5	0	5
Black	511	2	506	508	2	99.61%	1	0	1
Hispanic	5921	64	5807	5871	18	99.69%	30	2	32
Native Hawaiian/ Pacific Islander	67	1	66	67	0	100.00%	0	0	0
Two or More Races	838	11	826	837	1	99.88%	0	0	0
White	37759	339	37273	37612	134	99.64%	7	6	13

Note: There were no students exempted due to being expelled.

Table 1.3 Statewide Participation in Science PAWS and PAWS-ALT

Subgroup	Enrolled	Tested (PAWS Alt)	Tested (PAWS)	Tested (Total)	Not Tested	Participation Rate	Exempt (Total)
All Students	19467	190	19092	19282	177	99.09%	8
English Language Learner	453	2	448	450	3	99.34%	0
Free/Reduced Lunch	6688	92	6516	6608	77	98.85%	3
Individual Education Plan	2651	188	2418	2606	37	98.60%	8
American Indian/Alaska Native	574	6	558	564	10	98.26%	0
Asian	151	0	150	150	1	99.34%	0
Black	205	1	200	201	4	98.05%	0
Hispanic	2361	27	2302	2329	30	98.73%	2
Native Hawaiian/ Pacific Islander	30	1	29	30	0	100.00%	0
Two or More Races	313	5	305	310	3	99.04%	0
White	15833	150	15548	15698	129	99.18%	6

Note: There were no students exempted due to being expelled. Students who are ELL cannot be exempted from the science assessment, so all exempted students were exempted for medical reasons.

2. PAWS TEST DESIGN AND DEVELOPMENT

2.1 Overview

The Wyoming PAWS statewide assessment adheres to the principles of sound and ethical test construction set forth in the *Standards for Educational and Psychological Testing* (1985, 1999). The assessment complies with the requirements of NCLB (P.L. 107–110).and was designed to provide teachers with information to improve instruction based on the Wyoming Content and Performance Standards.

2.2 Test Design and Blueprints

Purpose

Standards-based educational reform began in Wyoming in 1997–98, with adoption of rigorous academic content standards in language arts,[4] mathematics, science, and social studies.[5] Wyoming educators have continued the earlier efforts of others to implement standards-based curriculum and assessment to meet the goals of improving teaching and the academic achievement of all of our students.

In 2004, the Wyoming Legislature passed a law describing the purpose and implementation of a statewide assessment system (§21-2-304) in order to meet the requirements of NCLB.[6] As a result, PAWS became the official instrument for measuring individual student achievement. Results of student achievement are reported at the student level and aggregated at the classroom, school, district, and state levels. As previously noted, the primary purpose of the PAWS is to foster program improvement at the school, district, and state levels that supports the teaching and learning that takes place in Wyoming public classrooms. The construction of PAWS also ensures that it meets NCLB requirements. Improvement of teaching and learning in schools and fostering school program improvement are the primary purposes of statewide assessment of student performance in Wyoming.

To achieve these goals, the first step taken by the WDE in early 2004, was to contract Dr. Robert Marzano to evaluate the Wyoming Content and Performance Standards with the intent of developing an organizing framework for reading, writing, and mathematics content. The second step was to empanel content experts from around the state to review and revise Dr. Marzano's work. The major purpose of this exercise was the support of an assessment design which measured integrated concepts and skills. The WDE undertook this challenging task in order to better promote student learning of clear and rigorous content.

[4] As previously noted, Wyoming tests only the reading Language Arts Standards.
[5] Social studies is not presently tested in the PAWS assessments.
[6] Based on the recommendations of the Wyoming Statewide Task Force on Student Assessment and Education Accountability

The documents were open to public comment during the fall of 2004. From these documents arose the guiding principle of the design of PAWS as an assessment focused on powerful, content-subsuming cognitive skills and not on isolated collections of information. Thus, the knowledge, skills and the expectation of Wyoming student performance as envisioned by Wyoming teachers and the Wyoming Content and Performance Standards led to the development of the PAWS blueprints and specifications.

Plan

The first step in test development is to create item and test specifications. WDE's test specifications reflect skill expectations that are outlined in Wyoming's Content and Performance Standards. These item specifications established guidelines for selecting test content and writing test items. For PAWS, the specifications determined both the composition of the item pool and the rules for item selection.

The academic content and skills measured by a test and distributions of emphasis are set forth in the test blueprints and test specifications along with the number of points possible in each category. The test blueprints and test specifications were developed by content specialists of the Wyoming Department of Education and staff at Pearson, based on the Wyoming Content and Performance Standards.

Wyoming considers a test blueprint to be a detailed plan for building test forms. The blueprint and specifications include:

- Knowledge and skills as specified in the Reading, Science, and Mathematics standards to be tested
- Number of items and points per test form
- Percentage and/or number of items and points per content standard
- Distribution of multiple item types (multiple choice and constructed response)
- Proposed distribution of items by cognitive complexity, i.e., percentage of items with low, moderate, or high levels of cognitive complexity
- Approximate time requirements for each assessment

2.3 Types of Items Used in PAWS

Consistent with Wyoming State law, the PAWS reading, mathematics and science tests contain both multiple-choice items and constructed-response items (legislation passed in 2011 [Enrolled Act 90, The Wyoming Accountability in Education Act] modified this requirement; beginning with the 2013 administration, the PAWS assessments will be composed of only multiple choice items). Each item measures a single skill-reporting category within a content standard. Multiple-choice items have four response options and do not use "none of the above" or "all of the above" as response options. All three subjects used "short response" constructed response items which are worth two points and typically can be answered with a few sentences or a short paragraph. All grades of the science tests and the reading tests beginning with grade 5 also included "extended

response" constructed response items which were worth four points and required that the student provide a longer response or respond to a multi-part question. From year to year, the constructed-response item positions are rotated among the content standards in mathematics or text type in reading to ensure equal coverage. Item types do not rotate in the science tests. Reading and science items are grouped together into item sets that refer to a common passage.

The Wyoming Content and Performance Standards identify knowledge and skills students are expected to acquire at each grade in order to succeed in school and at work. It is important to develop items that elicit the complexity of knowledge required to meet these objectives. The degree of challenge on PAWS items is categorized based on Dr. Norman Webb's work with "Depth of Knowledge" levels. The categories, *low complexity*, *moderate complexity*, and *high complexity* form an ordered description of the cognitive load involved in responding to the item.

PAWS Reading Tests

The Wyoming Language Arts Content and Performance Standards include an expectation that all students will become effective readers, writers, listeners, and speakers. However, due to the limitations of large-scale testing and the desire to minimize student time spent on testing, the Wyoming legislature determined that only reading will be assessed by PAWS (beginning in 2013, a reconfigured writing test will be administered apart from the PAWS assessment). The WDE provides ongoing technical support and guidance for schools and districts to include instruction and monitoring of student achievement in the areas of listening, speaking, and writing, but these measures are not included in the state's determinations of adequate yearly progress (AYP) under NCLB.

The PAWS reading assessment is designed to measure the reading content standard requiring that "students use the reading process to apply a variety of comprehension strategies and demonstrate an understanding of literary and informational text." Testing of Wyoming students' reading comprehension skills relative to the reading proficiency goals required to meet the standards is one component of the PAWS. Students were tested in reading at grades 3 through 8 and grade 11. Reading concepts were measured by requiring students to examine texts with accuracy, to make relevant connections, and to support their inferences.

The structure of the operational 2012 PAWS Reading test was based on the 2012 PAWS Reading Blueprint (Tables 2.1 – 2.8). The content of the test is aligned to the Reading content standards of the Wyoming Language Arts Content and Performance Standards. Because functional, expository, and narrative types of texts are read for different purposes, the PAWS assessment is designed to assess overall literacy skills in the following skill-reporting categories:

- Determine information's relevance and importance, and select and apply information for a task within a functional text;

- Understand main points and supporting details, recognize expositional organization and its use, and see relationship of text's content to broader issues/topics within an expository text; and

- Identify the development of basic story elements, understand a story's plot development, and identify a story's theme(s) and its (their) development within a narrative text.

Three types of reading passages—functional, expository, and literary/narrative—were used in the reading assessment. The specific Wyoming Reading Benchmarks are organized and assessed within eight skill categories. Below each type of reading passage, the benchmarks and skill categories are indicated as follows.

Functional and expository passages assessed the skills of *Relevance and Importance*, *Major Points and Detail*, and *Information Relationships* at all grade levels, with *Selection and Application* added at Grade 5 and *Organization* added at Grade 7. Narrative passages assessed *Story Elements* and *Plots* at all levels, with *Theme* added at Grade 6. Each skill assessed was addressed by at least seven score points. In addition, each grade had three 2-point items and grades 5 and above included one or two 4-point items. Normally, operational passages were associated with no more than one constructed response item; depending on the grade level there were between three and five constructed response items present on the test.

The approximate percentages of questions on the test at each grade level that assessed each skill reporting category are provided in Table 2.1. The 2011–2012 PAWS Reading blueprints and reporting categories for each of the grade levels are provided in Tables 2.2 through 2.8. As noted in the tables below, the percentage of assessment coverage of text type reflects the emphasis of instruction in Wyoming classrooms across grades. For example, at the high school level, the emphasis is placed upon functional and expository texts.

Table 2.1 Percentages of Test Items Assessing each Skill-Reporting Category for 2012 PAWS Reading

Grade	Functional Text		Expository Text			Literary/Narrative Text		
	Relevance and Importance	Selection and Application	Major Points and Details	Organization	Information Relationships	Story Elements	Plot	Theme
Grade 3	17%		15-20%		15-20%	24-26%	24-26%	
Grade 4	17%		15-20%		15-20%	24-26%	24-26%	
Grade 5	12-15%	12-15%	14-15%		12-21%	21-23%	21-23%	
Grade 6	13-15%	13-15%	13-15%		13-15%	13-15%	13-15%	13-15%
Grade 7	11-15%	11-15%	11-17%	11-17%	7-11%	11-17%	11-17%	7-11%
Grade 8	11-15%	11-15%	11-17%	11-17%	7-11%	11-17%	11-17%	7-11%
Grade 11	11-15%	11-15%	11-17%	11-17%	7-11%	11-17%	11-17%	7-11%

Table 2.2 Paws 2012 Reading Test Blueprints Grade 3

Standard	Skill	Total Points per Standard	Total Points per Skill	Percentage of Test Items per Skill	Point Distribution		
					Multiple Choice (1pt)	Short Response (2 pt)	Extended Response (4 pt)
One Functional	Relevance and Importance	9	9	17%	7	2	
Two Expository	Major Points and Details	17	7-10	15-20%	7-8	0-2	
	Information Relationships		7-10	15-20%	7-8	0-2	
Three Narrative	Story Elements	24	11-13	24-26%	10-12	0-2	
	Plot		11-13	24-26%	10-12	0-2	
Total Points:		**50**			44	6	0

Table 2.3 Paws 2012 Reading Test Blueprints Grade 4

Standard	Skill	Total Points per Standard	Total Points per Skill	Percentage of Test Items per Skill	Point Distribution		
					Multiple Choice (1pt)	Short Response (2 pt)	Extended Response (4 pt)
One Functional	Relevance and Importance	9	9	19%	7	2	
Two Expository	Major Points and Details	17	7-10	15-20%	7-8	0-2	
	Information Relationships		7-10	15-20%	7-8	0-2	
Three Narrative	Story Elements	24	11-13	24-26%	10-12	0-2	
	Plot		11-13	24-26%	10-12	0-2	
Total Points:		**50**			44	6	0

Table 2.4 Paws 2012 Reading Test Blueprints Grade 5

Standard	Skill	Total Points per Standard	Total Points per Skill	Percentage of Test Items per Skill	Point Distribution		
					Multiple Choice (1pt)	Short Response (2 pt)	Extended Response (4 pt)
Two Functional	Relevance and Importance	14	6-8	12-15%	6	0-2	
	Selection and Application		6-8	12-15%	6	0-2	
Two Expository	Major Points and Details	18	8	14-15%	6	2	
	Information Relationships		6-10	12-21%	6		4
Three Narrative	Story Elements	22	10-12	21-23%	10	0-2	
	Plot		10-12	21-23%	10	0-2	
Total Points:		**54**			44	6	4

Table 2.5 Paws 2012 Reading Test Blueprints Grade 6

Standard	Skill	Total Points per Standard	Total Points per Skill	Percentage of Test Items per Skill	Point Distribution		
					Multiple Choice (1pt)	Short Response (2 pt)	Extended Response (4 pt)
Two Functional	Relevance and Importance	14 or 18	6-8	13-15%	6	0-2	
	Selection and Application		8-10	13-15%	6	0-2	0-4
Two Expository	Major Points and Details	14 or 18	6-8	13-15%	6	0-2	
	Information Relationships		8-10	13-15%	6	0-2	0-4
Three Narrative	Story Elements	20 or 24	6-8	13-15%	6	0-2	
	Plot		6-8	13-15%	6	0-2	
	Theme		8-10	13-15%	6	0-2	0-4
Total Points:		**56**			42	6	8

Table 2.6 Paws 2012 Reading Test Blueprints Grade 7

Standard	Skill	Total Points per Standard	Total Points per Skill	Percentage of Test Items per Skill	Point Distribution		
					Multiple Choice (1pt)	Short Response (2 pt)	Extended Response (4 pt)
Two Functional	Relevance and Importance	14 or 16	6-8	11-15%	4-6	0-2	
	Selection and Application		8-10	11-15%	4-6	0-2	0-4
Three Expository	Major Points and Details	19 or 21	6-8	11-17%	4-8	0-2	
	Organization		6-8	11-17%	4-8	0-2	
	Information Relationships		6-8	7-11%	2-4	0-2	0-4
Three Narrative	Story Elements	19 or 21	6-8	11-17%	4-8	0-2	
	Plot		6-8	11-17%	4-8	0-2	
	Theme		6-8	7-11%	2-4	0-2	0-4
Total Points:		**56**			42	6	8

Table 2.7 Paws 2012 Reading Test Blueprints Grade 8

Standard	Skill	Total Points per Standard	Total Points per Skill	Percentage of Test Items per Skill	Point Distribution		
					Multiple Choice (1pt)	Short Response (2 pt)	Extended Response (4 pt)
Two Functional	Relevance and Importance	14 or 16	6-8	11-15%	4-6	0-2	
	Selection and Application		8-10	11-15%	4-6	0-2	0-4
Three Expository	Major Points and Details	19 or 21	6-8	11-17%	4-8	0-2	
	Organization		6-8	11-17%	4-8	0-2	
	Information Relationships		6-8	7-11%	2-4	0-2	0-4
Three Narrative	Story Elements	19 or 21	6-8	11-17%	4-8	0-2	
	Plot		6-8	11-17%	4-8	0-2	
	Theme		6-8	7-11%	2-4	0-2	0-4
Total Points:		**56**			42	6	8

Table 2.8 Paws 2012 Reading Test Blueprints Grade 11

Standard	Skill	Total Points per Standard	Total Points per Skill	Percentage of Test Items per Skill	Point Distribution		
					Multiple Choice (1pt)	Short Response (2 pt)	Extended Response (4 pt)
Two Functional	Relevance and Importance	14 or 16	6-8	11-15%	4-6	0-2	
	Selection and Application		8-10	11-15%	4-6	0-2	0-4
Three Expository	Major Points and Details	19 or 21	6-8	11-17%	4-8	0-2	
	Organization		6-8	11-17%	4-8	0-2	
	Information Relationships		6-8	7-11%	2-4	0-2	0-4
Three Narrative	Story Elements	19 or 21	6-8	11-17%	4-8	0-2	
	Plot		6-8	11-17%	4-8	0-2	
	Theme		6-8	7-11%	2-4	0-2	0-4
Total Points:		**56**			42	6	8

PAWS Mathematics Tests

In the area of mathematics, the focus is on the ability of students to demonstrate basic computational skills along with the higher-level thinking skills of reasoning and problem solving. To achieve this end, the PAWS mathematics assessment is designed to measure whether students have acquired the skills to analyze, reason, and communicate ideas effectively as they pose, formulate, solve, and interpret mathematical problems in a variety of real-world situations. Because of this, Wyoming's framework for assessing mathematics is based upon mathematical problem solving. To assess higher-level thinking skills while maintaining measurement precision the PAWS mathematics assessment uses both multiple-choice and constructed-response item formats.

The structure of the operational 2012 PAWS Mathematics test is explicated in the 2012 PAWS Mathematics Blueprints (Tables 2.10 – 2.16). The content of the test is aligned to the five content standards within the Wyoming Mathematics Content and Performance Standards:

1. Number Operations and Concepts
2. Geometry
3. Measurement
4. Algebraic Concepts and Relationships
5. Data Analysis and Probability

The benchmarks within each content standard are organized into skill-reporting categories.

- Within the Number Operations and Concepts Content standard are:
  - Number Representation, and Number Operations;
- Within the Geometry Content standard are:
  - Spatial Relationships, 2-D/3-D Shapes, and Transformations/Symmetry;
- Within the Measurement Content standard are:
  - Measurement Systems and Perimeter/Area/Volume;
- Within the Algebraic Concepts and Relationships Content standard are:
  - Patterns/Relations/Functions and Mathematical Representation; and
- Within the Data Analysis and Probability Content standard are:
  - Collect/Analyze Data and Inferences/Predictions.

At each grade, the full PAWS mathematics assessment includes five short-response items (two points each), and 50–63 multiple-choice items (one point each with the count depending on the grade level).

The approximate percentage of test questions on the test at each grade level that assess each skill reporting category are provided in Table 2.9. The 2012 PAWS Mathematics blueprints and reporting categories for each of the grade levels are provided in Tables 2.10 through 2.16. As noted in the table below, the percentage of assessment coverage of each content standard reflects the emphasis of instruction in Wyoming classrooms across grades. For example, at the high school level the emphasis is placed upon Algebraic Concepts and Relationships. Calculator use is not permitted for items that are in the Number Operations and Concepts standard for grades 4-8. Calculator use is not permitted at all for the grade 3 assessment, and is permitted for all items on the grade 11 assessment.

Table 2.9 Percentage of Test Items Assessing each Content Standard of Mathematics

Grade	Number Operations and Concepts		Algebraic Concepts and Relationships		Geometry			Measurement		Data Analysis and Probability	
	Number Representation	Number Operations	Patterns, Relations, & Functions	Mathematical Relationships	Spatial Relationships	2-D/3-D Shapes	Transformations & Symmetry	Measurement Systems	Perimeter, Area, & Volume	Collect & Analyze Data	Inferences & Predictions
3	7%-9%	15%-16%	16%			11%-13%	11%-13%	11%-13%	7%-9%	7%-9%	7%-9%
4	7%-8%	13%-15%	18%		7%-8%	7%-8%	7%-8%	13%-15%	7%-8%	7%-8%	7%-8%
5	7%-8%	12%-13%	12%-13%	7%-8%	7%-8%	7%-8%	7%-8%	13%-15%	7%-8%	7%-8%	7%-8%
6	7%-8%	10%-12%	10%-12%	10%-12%	8%-10%	8%-10%	10%-12%	7%-8%	7%-8%	7%-8%	7%-8%
7	7%-8%	7%-8%	11%-13%	15%-16%	11%-13%	7%-8%	7%-8%	7%-8%	7%-8%	7%-8%	7%-8%
8	6%-8%	6%-8%	14%-15%	14%-15%	17%-18%		11%-12%	6%-8%	6%-8%	6%-8%	6%-8%
11	6%-7%	6%-7%	16%-18%	16%-18%	10%-12%		9%-10%	7%-9%	7%-9%	7%-9%	7%-9%

Table 2.10 Paws 2012 Mathematics Test Blueprints Grade 3

Standard	Skill	Item and point counts				Percent of test items	Percent distribution of cognitive complexity		
		MC items	SR items	All items	Points		Low	Medium	High
Number Operations and Concepts	Number Representation	3-5	0-1	4-5	5	7%-9%	10-25	50-70	10-25
	Number Operations	7-9	0-1	8-9	9	15%-16%			
Algebraic Concepts and Relationships	Patterns, Relations, & Functions	8	1	9	10	16%			
Geometry	2-D/3-D Shapes	5-7	0-1	6-7	7	11%-13%			
	Transformations & Symmetry	5-7	0-1	6-7	7	11%-13%			
Measurement	Measurement Systems	5-7	0-1	6-7	7	11%-13%			
	Perimeter, Area, & Volume	3-5	0-1	4-5	5	7%-9%			
Data Analysis and Probability	Collect & Analyze Data	3-5	0-1	4-5	5	7%-9%			
	Inferences & Predictions	3-5	0-1	4-5	5	7%-9%			
Totals:		50	5	55	60				

Table 2.11 Paws 2012 Mathematics Test Blueprints Grade 4

Standard	Skill	Item and point counts				Percent of test items	Percent distribution of cognitive complexity		
		MC items	SR items	All items	Points		Low	Medium	High
Number Operations and Concepts	Number Representation	3-5	0-1	4-5	5	7%-8%	10-25	50-70	10-25
	Number Operations	7-9	0-1	8-9	9	13%-15%			
Algebraic Concepts and Relationships	Patterns, Relations, & Functions	10	1	11	12	18%			
Geometry	Spatial Relationships	3-5	0-1	4-5	5	7%-8%			
	2-D/3-D Shapes	3-5	0-1	4-5	5	7%-8%			
	Transformations & Symmetry	3-5	0-1	4-5	5	7%-8%			
Measurement	Measurement Systems	7-9	0-1	8-9	9	13%-15%			
	Perimeter, Area, & Volume	3-5	0-1	4-5	5	7%-8%			
Data Analysis and Probability	Collect & Analyze Data	3-5	0-1	4-5	5	7%-8%			
	Inferences & Predictions	3-5	0-1	4-5	5	7%-8%			
Totals:		55	5	60	65				

Table 2.12 Paws 2012 Mathematics Test Blueprints Grade 5

Standard	Skill	Item and point counts				Percent of test items	Percent distribution of cognitive complexity		
		MC items	SR items	All items	Points		Low	Medium	High
Number Operations and Concepts	Number Representation	3-5	0-1	4-5	5	7%-8%	10-25	50-70	10-25
	Number Operations	6-8	0-1	7-8	8	12%-13%			
Algebraic Concepts and Relationships	Patterns, Relations, & Functions	6-8	0-1	7-8	8	12%-13%			
	Mathematical Relationships	3-5	0-1	4-5	5	7%-8%			
Geometry	Spatial Relationships	3-5	0-1	4-5	5	7%-8%			
	2-D/3-D Shapes	3-5	0-1	4-5	5	7%-8%			
	Transformations & Symmetry	3-5	0-1	4-5	5	7%-8%			
Measurement	Measurement Systems	7-9	0-1	8-9	9	13%-15%			
	Perimeter, Area, & Volume	3-5	0-1	4-5	5	7%-8%			
Data Analysis and Probability	Collect & Analyze Data	3-5	0-1	4-5	5	7%-8%			
	Inferences & Predictions	3-5	0-1	4-5	5	7%-8%			
Totals:		55	5	60	65				

Table 2.13 Paws 2012 Mathematics Test Blueprints Grade 6

Standard	Skill	Item and point counts				Percent of test items	Percent distribution of cognitive complexity		
		MC items	SR items	All items	Points		Low	Medium	High
Number Operations and Concepts	Number Representation	3-5	0-1	4-5	5	7%-8%	10-25	50-70	10-25
	Number Operations	5-7	0-1	6-7	7	10%-12%			
Algebraic Concepts and Relationships	Patterns, Relations, & Functions	5-7	0-1	6-7	7	10%-12%			
	Mathematical Relationships	5-7	0-1	6-7	7	10%-12%			
Geometry	Spatial Relationships	4-6	0-1	5-6	6	8%-10%			
	2-D/3-D Shapes	4-6	0-1	5-6	6	8%-10%			
	Transformations & Symmetry	5-7	0-1	6-7	7	10%-12%			
Measurement	Measurement Systems	3-5	0-1	4-5	5	7%-8%			
	Perimeter, Area, & Volume	3-5	0-1	4-5	5	7%-8%			
Data Analysis and Probability	Collect & Analyze Data	3-5	0-1	4-5	5	7%-8%			
	Inferences & Predictions	3-5	0-1	4-5	5	7%-8%			
Totals:		55	5	60	65				

Table 2.14 Paws 2012 Mathematics Test Blueprints Grade 7

Standard	Skill	Item and point counts				Percent of test items	Percent distribution of cognitive complexity		
		MC items	SR items	All items	Points		Low	Medium	High
Number Operations and Concepts	Number Representation	3-5	0-1	4-5	5	7%-8%	10-25	50-70	10-25
	Number Operations	3-5	0-1	4-5	5	7%-8%			
Algebraic Concepts and Relationships	Patterns, Relations, & Functions	6-8	0-1	7-8	8	11%-13%			
	Mathematical Relationships	8-10	0-1	9-10	10	15%-16%			
Geometry	Spatial Relationships	6-8	0-1	7-8	8	11%-13%			
	2-D/3-D Shapes	3-5	0-1	4-5	5	7%-8%			
	Transformations & Symmetry	3-5	0-1	4-5	5	7%-8%			
Measurement	Measurement Systems	3-5	0-1	4-5	5	7%-8%			
	Perimeter, Area, & Volume	3-5	0-1	4-5	5	7%-8%			
Data Analysis and Probability	Collect & Analyze Data	3-5	0-1	4-5	5	7%-8%			
	Inferences & Predictions	3-5	0-1	4-5	5	7%-8%			
Totals:		56	5	61	66				

Table 2.15 Paws 2012 Mathematics Test Blueprints Grade 8

Standard	Skill	Item and point counts				Percent of test items	Percent distribution of cognitive complexity		
		MC items	SR items	All items	Points		Low	Medium	High
Number Operations and Concepts	Number Representation	3-5	0-1	4-5	5	6%-8%	10-25	50-70	10-25
	Number Operations	3-5	0-1	4-5	5	6%-8%			
Algebraic Concepts and Relationships	Patterns, Relations, & Functions	8-10	0-1	9-10	10	14%-15%			
	Mathematical Relationships	8-10	0-1	9-10	10	14%-15%			
Geometry	Spatial Relationships	10-12	0-1	11-12	12	17%-18%			
	Transformations & Symmetry	6-8	0-1	7-8	8	11%-12%			
Measurement	Measurement Systems	3-5	0-1	4-5	5	6%-8%			
	Perimeter, Area, & Volume	3-5	0-1	4-5	5	6%-8%			
Data Analysis and Probability	Collect & Analyze Data	3-5	0-1	4-5	5	6%-8%			
	Inferences & Predictions	3-5	0-1	4-5	5	6%-8%			
Totals:		60	5	65	70				

Table 2.16 Paws 2012 Mathematics Test Blueprints Grade 11

Standard	Skill	Item and point counts				Percent of test items	Percent distribution of cognitive complexity		
		MC items	SR items	All items	Points		Low	Medium	High
Number Operations and Concepts	Number Representation	3-5	0-1	4-5	5	6%-7%	10-25	50-70	10-25
	Number Operations	3-5	0-1	4-5	5	6%-7%			
Algebraic Concepts and Relationships	Patterns, Relations, & Functions	10-12	0-1	11-12	12	16%-18%			
	Mathematical Relationships	10-12	0-1	11-12	12	16%-18%			
Geometry	Spatial Relationships	6-8	0-1	7-8	8	10%-12%			
	Transformations & Symmetry	5-7	0-1	6-7	7	9%-10%			
Measurement	Measurement Systems	4-6	0-1	5-6	6	7%-9%			
	Perimeter, Area, & Volume	4-6	0-1	5-6	6	7%-9%			
Data Analysis and Probability	Collect & Analyze Data	4-6	0-1	5-6	6	7%-9%			
	Inferences & Predictions	4-6	0-1	5-6	6	7%-9%			
Totals:		63	5	68	73				

PAWS Science Tests

The Wyoming Science Content and Performance Standards specify that all students should understand science concepts and processes, scientific inquiry, and the history and nature of science. Because of the constraints of space available on the assessment and the desire to limit testing time, the WDE determined that only the skills of science concepts and processes and scientific inquiry will be assessed by PAWS, as these skills allow students to process, apply, and effectively communicate scientific knowledge. The WDE provides support and guidance for schools and districts to ensure that instruction and monitoring of student achievement in the areas of the history and nature of science takes place at the local level, but these measures are not assessed by the PAWS at present.

In order to accurately reflect the expectations of the Wyoming Science Content and Performance Standards, the PAWS Science assessments for grades 4, 8, and 11 are designed to measure students' abilities to connect science knowledge with science process. The Wyoming Performance Standards instruct teachers to judge where students are performing in relation to the benchmarks, and ultimately, the standards. To evaluate student mastery against the Wyoming Performance Level Descriptors, teachers are required to measure each student's ability to "make connections among concepts and processes and apply scientific information as the criteria for determining

performance levels (advanced, proficient, basic, and below basic)." As stated in the Wyoming Science Content and Performance Standards, "students develop an understanding of scientific content through inquiry." Therefore, when considering the appropriateness of the PAWS science tests, careful consideration was given to the relevant criterion intended to be measured and the alignment to the intent of the Wyoming Science Content and Performance Standards—notably, the science performance inferences to be drawn from the results.

Based on this design, the PAWS Science assessment items are written to measure students' mastery of science inquiry skills within the context of the benchmarks from Standard I. The items are distributed equally among the physical science, life science, and earth/space science benchmarks. Over the course of a two-year cycle, each of the inquiry skills is assessed within the context of each benchmark in Standard I Concepts and Processes. All too often, student understanding of core concepts and scientific theories is measured without careful attention to how students internalize core assumptions, apply important ideas, or make connections to relevant everyday experiences. Without measurement of such epistemological standards, teachers will not know whether students have a firm foundation on which to base scientific arguments. The design of both the Wyoming Science Content and Performance Standards and the PAWS Science assessments is based on a view of proficiency in science that values students' understanding of science concepts and their ability to think critically and apply scientific logic and reasoning, rather than simply memorizing and recalling science facts. Students were tested in science at grades 4, 8, and 11. Science concepts and inquiry skills were measured by requiring students to examine scientific investigations accurately, to make relevant connections, and to support their inferences.

The structure of the operational 2012 PAWS Science test was based on the 2011–2012 PAWS Science Blueprint (Table 2.17). The content of the test is aligned to the Science as Inquiry content standard of the Wyoming Science Content and Performance Standards. Because scientific inquiry involves many processes, the PAWS assessment is designed to assess inquiry skills overall in the following skill reporting categories:

- Use observation to pose questions that can be addressed through a scientific investigation;
- Design and conduct a scientific investigation;
- Organize and represent data; and
- Draw conclusions and make connections with concepts and knowledge

The content of the test is aligned to the three content areas within the Wyoming Science Content and Performance Standard I: Concepts and Processes, and a score analysis is reported in each of the following areas:

- Life Science;
- Physical Science; and
- Earth/Space Science

The approximate percentages of questions on the test at each grade level that assessed each skill-reporting category are provided in Table 2.17. The number of items assessing each skill-reporting category and content standard is constant across all grade levels.

Table 2.17 PAWS 2009 -2011 Science Test Blueprints Grades 4, 8, and 11

Standard	Skill							Total Points	Percent Test Items	Percent Distribution of Cognitive Complexity (%)		
	Life Science		Physical Science			Earth/Space Science						
	MC Items	ER Items	MC Items	SR Items	ER Items	MC Items	ER Items			Low	Medium	High
Observe and Question	2		2	1		2		8	17.5%	10-20	70-85	5-10
Design and Conduct a Scientific Investigation	4	1	4			4		16	32.5%			
Organize and Represent Data	2		2		1	2		10	17.5%			
Draw Conclusions and Make Connections	4		4			4	1	16	32.5%			
Item Count	12	1	12	1	1	12	1	40				
Point Count	12	4	12	2	4	12	4	50				
Point Total	16		18			16						

2.4 PAWS Test Development Process

A state committee, consisting of regional representatives, utilized national and regional documents to establish that the rigor of the Wyoming Language Arts standards is consistent with these documents, and adjustments were made as deemed appropriate by the state committees.[7] The Wyoming Language Arts Content and Performance Standards address three content standards: (1) Reading, (2) Writing and (3) Speaking and Listening. Content standards 2 & 3,"Writing" and "Speaking and Listening", are not currently assessed by PAWS. Two types of items, multiple choice and constructed response, were used on the reading portions of the PAWS. The constructed-response items were classified as either short-response or extended response on the basis of the length of the response expected from the student and differed in point value. Responses to short response items were expected to require no more than a half of a page (8½" x 11") and had a maximum possible score of two points (valid score points of 0, 1, and 2), and extended response item responses could require up to a full page and had a maximum possible score of four points.

The Wyoming Mathematics Content and Performance Standards are consistent with those of the National Council of Teachers of Mathematics (NCTM) as they are written in *Principles and Standards for School Mathematics* (April 2000). The Wyoming Mathematics Standards address five content standards: (1) Number Operations and Concepts, (2) Geometry, (3) Measurement, (4) Algebraic Concepts and Relationships, and (5) Data Analysis and Probability. Two types of items, multiple choice and constructed response, were used on the mathematics portions of the PAWS. All constructed-response items were short response items with a maximum possible score of two points.

The Wyoming Science Content and Performance Standards address three content standards: (1) Concepts and Processes, (2) Science as Inquiry and (3) History and Nature of Science in Personal and Social Decisions. Content standard 3, History and Nature of Science in Personal and Social Decisions is not assessed by PAWS. Two types of items, multiple choice and constructed response, were used on the science portions of the PAWS. Both short and extended response items were used, with the same point values and expected response lengths as in the reading test.

Initial creation of blueprints, item and passage specifications, and assessment descriptions took place in the fall of 2004. Development of these documents has been an ongoing process, and they guided the development, review, and field testing of items for use on the PAWS assessments.

[7] These documents included the following publications: National Council of Teachers of English and International Reading Association, Standards for the English Language Arts; National Center on Education and the Economy, New Standards Performance Standards; Speech Communication Association, Speaking, Listening, and Media Literacy Standards for K through 12 Education and Guidelines for Assessing Communication in Primary and Secondary Education; the Colorado Model Content Standards for Reading and Writing; and the Standards of Learning for Virginia Public Schools.

The 2012 administration is the final year that will be handled by the current contractor (Pearson). Transition to the new contractor (ETS) is taking place during the spring and summer of 2012. As such, item development activities by Pearson ceased after item review meetings in July of 2011 and became the responsibility of the new contractor. All items in development were transferred from the old to the new contractor during the course of the transition, and the new contractor will continue with their development.

Item development was a cooperative effort involving WDE and Pearson content staff as well as Wyoming teachers. All items were authored by Pearson content staff and reviewed by and revised at the direction of WDE content staff. After items were approved by WDE, they were then reviewed by committees of WY educators (see Section 2.6 Item Review). Items approved at item review then became eligible for field testing, after which they were evaluated in the light of their statistics from field testing (see Section 2.7.4, Data Review). Items approved at data review then were eligible for use as operational items.

The PAWS tests were constructed to produce assessments that are psychometrically sound, measure the academic content outlined in Wyoming's grade-level content standards and described in the test specifications, and to interest and engage students. WDE content staff and Pearson content specialists and psychometricians collaborated to choose items for use on the 2012 forms considering both the content and psychometric properties of each item selected.

2.5 Item and Test Form Development

In this section the general process for item development is described. Using the Wyoming Content and Performance Standards as a foundation, test blueprints were developed by the WDE setting forth the number of items for each reading, science, or mathematics content standard. These blueprints were initially developed in the fall of 2004 and have been refined during the course of the program, balancing the need to provide a high level of information about student ability in order to inform instruction against the desire to impinge upon instructional time as little as possible

Wyoming's item development procedures are consistent with industry practice and take approximately two years, including writing, review, and field-testing before an item is eligible for inclusion in the item pool.

Item Specifications

Test items were created by Pearson item writers (Wyoming educators are involved in the item review process) who are selected for their academic content and grade-level experience, and who are experienced in the development of statewide assessments. Item writers selected to write items for the PAWS were then trained on PAWS specific requirements, including the WY Content and Performance Standards for their specific grade and subject and style guidelines for the PAWS. These PAWS specific requirements were collected in an "Item Specifications" document. All items were

written to measure specific content standards at a variety of specified levels of cognitive complexity as developed from Webb's "Depth of Knowledge" levels.

For example, the mathematics Item Specifications were intended to accomplish two purposes: (1) to provide both general and specific guidelines for development of all test items at the grade levels assessed by PAWS Mathematics, and (2) to describe the test items and prompt types to be developed for the PAWS mathematics assessments. Within the specifications document are sections dedicated to information about item contexts, cognitive task levels, use of graphics, item style and format, and general content limits by grade. Comparable information was provided for PAWS reading and science items.

Item Difficulty Requirements

The Rasch measurement model was used to develop the scale for each of the Wyoming reading, science, and mathematics assessments. The Rasch model is robust and is used for many large-scale, high stakes assessment programs. In general, the Rasch model assumes that the probability that a student will answer an item correctly is a function of the latent trait that underlies performance on the assessment and the difficulty of the item. This underlying trait, usually referred to as ability, is nothing more than what the assessment is designed to measure (e.g., mathematics, reading, or science). See chapter 5 for further detail on the Rasch model.

Item Graphics Requirements

Many items contain graphics. For example, mathematics items frequently contain charts, spinners, box-and-whisker plots, line graphics, clocks, and geometric shapes. WDE reviewed all test items and forms to ensure an appropriate use and balance of these types of graphics.

2.6 Item Review

Items accepted from Pearson item writers for consideration by the PAWS program are reviewed against WDE-established criteria (i.e., alignment with Wyoming Content Standards, grade-level appropriateness, cognitive demand, appropriate item type, bias, etc.) by Pearson assessment specialists and content specialists at the WDE. Pearson and the WDE collaborate to consider and implement WDE-proposed revisions to the items. Items passing this review phase become eligible for external review by Wyoming teachers.

Annually, an external review of items is completed by a panel of experienced teachers at each grade level selected by the WDE. Each panel has approximately 10–15 members. Panel members committed up to two weeks of service during the summer and were compensated for their service. Items field tested during the current administration were reviewed by this committee during meetings held in July 2011.

Most members of these panels are classroom teachers. University of Wyoming and district curriculum personnel have also participated. Criteria for the panel selection include the following:

- Knowledge of the Wyoming Content and Performance Standards and expertise in the subject area
- Teaching experience at the grade level to which the individual will be assigned
- Geographical location to ensure all regions of Wyoming are represented

All reviewers first received training in how to effectively evaluate items, including strategies for examining the overall technical qualities of all items, such as language clarity, readability, plausibility of options, parallel structure of response options, significance and suitability of subject content, lack of bias, veracity of the correct answer, proper level of difficulty, and alignment to Wyoming Content and Performance Standards.

The evaluations and recommendations of the educators for each item were evaluated by Pearson and WDE. All of the feedback generated by the reviewers was utilized to make final decisions on which items to accept and what revisions to include in the version of the item that was field tested. Only the items that measure grade-level expectations are carried forward to the field-test stage.

The criteria used for item review are listed below.

1. Conceptual criteria:

    - Grade-level appropriateness
    - Thinking skill match
    - Lack of bias
    - Clear statement
    - One best answer
    - Each distractor credible
    - Meets all technical criteria for item parameters

2. Language criteria:

    - Appropriate for age
    - Correct punctuation
    - Spelling and grammar
    - Lack of excess words
    - No stem/foil clues

3. Format criteria:

    - Logical order of distractors

- Familiar presentation style, print size, and type
- Correct mechanics and appearance
- Equal-length distractors

4. Graphic stimuli criteria:

- Necessary
- Clean
- Relevant
- Unbiased

The item review panel also provided input on potential bias and/or sensitivity in the test content. With regard to fairness and content, panelists suggested revision or deletion of items as they deemed necessary. Any items that survived this rigorous examination became part of the pool of items eligible for field testing.

2.7 Field Testing

During the 2012 PAWS administration, mathematics, science, and reading field test items were embedded within the operational forms. In 2012 there were six field test forms for each grade in reading and math, and eight in all grades of science. Since field test items could appear on multiple forms within a grade level and the numbers of students per grade varied, the numbers of examinees attempting each field test item also varied. Science field test items were responded to by between 650 and 2000 students, and reading and math items were responded to by between 1000 and 2600 students, depending on subject, grade level, and number of field test forms the item appeared on. Student responses to the FT items did not affect their scores. Data on the FT items was used only in data review as an aid in determining whether the item was suitable for use and will be used for equating future test forms on which they are used as operational items.

Field test forms were created to have the same length and same item types (multiple choice or constructed response) in the same relative positions across forms. They were spiraled within classroom and school in order that randomly equivalent samples of students would receive each of the forms. The WDE reviewed the assembled field test forms for clarity, correctness, potential bias, and curricular appropriateness. Field test items were indistinguishable from operational items so that the students' motivation in responding to them would be at the same level as their motivation in responding to operational items.

All field test items underwent comprehensive statistical analysis to provide the WDE with the information necessary to make informed decisions about the likelihood of each item providing reliable information that could be used in drawing valid inferences concerning student performance. The following analyses were conducted on the field test items (processes and findings are discussed below):

- Classical item analyses
- Differential Item Functioning (DIF) analyses
- Rasch Item Response Theory (IRT) analyses

2.7.1 Classical Item Statistics

Classical item statistics were computed for all field test items in mathematics, reading, and science. For each item, the following statistics were computed:

- n-counts for each statistic;
- item difficulty (or average item score);
- item discrimination;
- multiple choice item distractor discrimination;
- multiple choice item response and constructed response score distributions (total and broken out by high, medium, and low scores by form); and
- DIF statistics (Mantel and Haenszel , 1959) and standardized mean difference (SMD) by gender, ethnicity, LEP, IEP, and free/reduced lunch.

Item Difficulty

Item difficulty is typically defined as the average of scores for a given item. For multiple choice items, this value (commonly referred to as a p-value) ranged from 0 to 1, for short response constructed response items, this value ranged from 0 to 2, and for extended response constructed response items, this value ranged from 0 to 4.

Item Discrimination

Item discrimination is defined here as the correlation between a score on a given test question and the overall operational raw test score. These correlations are Pearson correlation coefficients. For multiple-choice items, it is also known as the point biserial correlation. The discrimination for multiple choice distractors (incorrect answer options) was also computed. The operational test score used in calculating this coefficient did not include field test item scores.

2.7.2 Differential Item Functioning

DIF occurs when members of a particular group have a different probability of success than members of another group with the same level of ability for reasons unrelated to the academic skill or construct being measured. For example, items testing English grammar skills may be more difficult for LEP students as opposed to non-LEP students, but such differences are likely due to the fact that the item measures an academic skill related to English language proficiency. Such items would not be considered to be functioning differentially. Comparisons of interest in Wyoming included females vs. males, Hispanic vs. Caucasian, Native American vs. Caucasian, LEP vs. non-LEP,

SPED vs. non-SPED, and low SES vs. high SES (using eligibility for free or reduced lunch as a proxy variable).

DIF procedures used consisted of Mantel's (1963) extension of the Mantel-Haenszel procedure (the Mantel chi-square) for the CR items and the Mantel-Haenszel procedure for the MC items (Mantel & Haenszel, 1959). For CR items, the Mantel statistic was used in conjunction with the standardized mean difference (SMD). These statistics and the criteria for determining the level of DIF that an item displays are described in Appendix C.

All items were independently evaluated for bias in language and DIF during both item and data review. Items not flagged during these reviews were deemed free of any explicit bias from a content perspective, whether or not it has DIF flags from the FT or from any subsequent operational uses.

All items (both FT and operational) are analyzed for statistical DIF at the conclusion of every administration. DIF results for the items used on the PAWS 2012 operational tests are presented in Appendix D and the results for the field test items in Appendix E.

It should be noted that DIF flags are considered during test construction. Though items with flags that were accepted at data review are eligible for use on future assessments, if an item with flags is being considered for use on a test form and an equivalent item without DIF flags is available, the item without flags will generally be chosen. In order for DIF statistics to be reliable, each group being compared should have at least 300 members—if either group being compared had less than this number, no comparison was made.

2.7.3 Item Response Theory (IRT) Analysis

Rasch IRT was used to scale the PAWS. IRT is widely used because it allows for invariant estimation of item and ability parameters. Regardless of the distribution of the sample, the parameter estimates will be linearly related to the parameters estimated from another sample drawn from the same population apart from random measurement error. IRT allows the comparison of two students' levels of ability even though they may have taken different sets of items. An important characteristic of IRT is its item-level orientation. IRT expresses the probability of a student answering a particular item correctly in terms of the student's ability (i.e., the student's level of achievement) and the item difficulty. The probability of a correct response to an item increases as the student's ability increases. See chapter 5 for further details on the Rasch model.

2.7.4 Data Review Procedures

Following the spring 2012 PAWS administration the statistics discussed above were computed for each item field tested. These statistics will be compiled into books along with images of the items for use in data review meetings. Each item will appear on one page of the data review book with its statistics on the opposite page. An item with any

statistics with values outside pre-established limits will have an appropriate annotation on its statistics page.

Field test items are evaluated by panels of Wyoming state educators selected by the WDE. Each data review panel consists of 8–12 educators with experience in the target grade and subject. Items field tested during the 2012 administration will be reviewed in July 2012 by a panel in Casper WY.

In addition to judgments of content relevance, panelists evaluate the technical quality of items, checking each field test item (including those with "appropriate" statistics) for such flaws as:

1. inappropriate readability level
2. ambiguities in the questions or answer options
3. cluing within the body of the item
4. keyed answers that were partially or wholly incorrect
5. distractors that were partially or wholly correct
6. unclear instructions
7. factual inaccuracy
8. any other concrete and material flaws

All items, statistics, and comments will be reviewed by the WDE which will determine the final disposition of all FT items. Items found by the WDE to be inappropriate for curricular or psychometric reasons will be removed from the pool of items eligible for use in future PAWS assessments.

The data review meetings begin with a training session led by a Pearson psychometrician. This session covers the statistics that the panelists will be using as they evaluate each item, the meaning of each in the context of evaluating item quality and suitability for use on future operational exam forms, and the role of the panelists' expertise in the data review process.

Panelists will be provided with measures of item difficulty (item mean score) and discrimination (item score-test score correlation). They will also be given response or score distributions both for all examinees and broken down by score level (e.g., for low, mid, and high scoring students). In addition for multiple choice items they will receive distractor discrimination values. This information will be presented in both tabular format and graphically in the form of charts. Items with low or negative discrimination and/or with distractors with positive discriminations will be called out in a "Notes" section on the page, along with items flagged for possible DIF.

Panelists will be instructed that the statistics and notes were supplemental to their experience as Wyoming educators in recommending acceptance or rejection of the items being reviewed. That is, they could indicate possible locations of flaws in the item (for example, a distractor with a positive discrimination could indicate that an item actually has two correct options). However, panelists will be asked to use their

professional experience in educating and working with Wyoming students when deciding to recommend that an item should be rejected.

Items that appear to be “bad” based on their statistics may actually address areas about which students had misconceptions or where they had not received effective or sufficient instruction. Such items could be helpful in highlighting areas where instruction can be improved. Similarly, “good” items may contain flaws and might need to be rejected. Panelists will be asked not to blindly recommend acceptance or rejection based solely on an item’s statistics, but rather to carefully consider each item in light of their expertise, using the statistical information to supplement their professional judgment. Only items with concrete and identifiable flaws should be recommended for rejection. Panelists will be reminded in particular that items should not be rejected simply because they are deemed to be “too hard” or “too easy”, and that items of all difficulty levels are needed to effectively assess the entire range of student abilities within Wyoming.

The results of the Rasch IRT analyses of the field test items can be found in Appendix A, and the classical analysis results appear in Appendix B. Items accepted at data review from the 2012 administration are eligible for use as operational items beginning with the spring 2013 administration.

2.8 Test Form Construction

After each administration, analyses were conducted by the Pearson psychometrician to determine the statistical properties of all items that were present on any of the forms (both operational items and field test items). This includes estimation of Rasch difficulty parameters on the current scale for all items. Thus, all items that have been field tested or used operationally were equated to the original scales and have known Rasch difficulty and step parameters. Therefore, when forms were constructed for the 2012 administration it was possible to create test forms that were targeted to not only meet content and blueprint specifications, but also to match statistical characteristics of the 2011 base PAWS tests, as test characteristic and information curves (TCCs & TICs) could be evaluated to help ensure statistical comparability.

Construction of the Reading, Mathematics, and Science Forms

Pearson proprietary test construction software was used for the construction of the 2012 forms. The Pearson psychometrician entered the content blueprint for the test and the statistical targets into a configuration file for each grade and subject test that was being constructed. The blueprints were unchanged from 2011 and can be found in Chapter 2. The TCCs and TICs from the 2011 administration constituted the statistical targets for the 2012 forms.

In addition, the software also had targets for key balance (for multiple choice items, ~25% for each of options A-D), proportion of items from the 2011 operational forms (~30% of the test) and proportion of items that had previously been used operationally

versus those that had only been field tested (between 40% and 60% of each). In addition, limits were set based on the year an item had been field tested to maximize the use of newer items as much as possible.

The software automatically assembled a draft form conforming to the blueprint and statistical targets which was then reviewed and edited first by the content specialists and then by the psychometrician. The test construction software provided real-time feedback on the psychometric properties of the form which allowed the psychometrician and content staff to immediately see the results of a proposed change in the items on the form. In addition, the software assisted the content staff and psychometrician in identifying the best alternatives to items that needed to be removed from the draft forms. Finally, the software sorted the items to minimize the difference between the item's position on the 2012 form and its position on the form from its most recent use.

Content specialists focused on the content of the form, including checking that the items conformed to the blueprint, that there was balance across the items and passages (for example, there should be a balance in gender and ethnic representation across items and passages—a reading test where all passages were about females playing sports would lack balance, as would a math test where all the items referenced Cartesian graphs), that the items did not provide clues to the correct answers of other items, and other similar content-based issues.

The psychometrician checked the conformance of the test to its statistical targets and blueprint, key balance (i.e., that approximately the same number of multiple choice items were keyed to each of the possible answer options ["A", "B", "C", and "D"] and that the same key occurred no more than three times in a row), and that the other statistical properties of the items and forms were within desired limits.

Changes in the composition of the forms (either in the items themselves or the ordering of the items) by either the content specialist or psychometrician had to be approved by the opposite party. Once a form had been approved by both the content specialist and the psychometrician it was sent to the WDE for their review and approval.

Final Review of Assembled Operational Tests

Once the forms were assembled to meet test specifications and statistical targets, WDE content specialists reviewed the assembled forms. The criteria for evaluating each group of forms included the following:

- The content of the test forms should reflect the goals and objectives of the Wyoming Content and Performance Standards (curricular validity);
- The content of test forms should reflect the knowledge and skills as taught in Wyoming Schools (instructional validity);
- Items should be clearly and concisely written and the vocabulary appropriate to the target age level (item quality); and

- Content of the test forms should be balanced in relation to ethnicity, gender, socioeconomic status, and geographic district of the state (free from test/item bias).

After any changes as a result of the WDE review had been completed, Pearson staff (test development staff members, content specialists and editors) conducted a final review including a content and grammar check. The WDE then completed their final review and provided approval and sign-off for each PAWS operational test form.

3. TEST ADMINISTRATION

3.1 Test Materials

Test materials were sent to each Wyoming Building PAWS Coordinator in shrink-wrapped packages within boxes that included school inventories. All students in grades 3–8 and grade 11 received scorable test booklets.

Building test coordinators were responsible for distributing the materials to test administrators. Materials were color-coded by grade and were printed with student identification and demographic codes. Materials distributed each day were limited to those needed for testing on that particular day. When not in use, materials were locked in secure storage.

3.2 Materials Return

Once test administrations were completed, materials were collected and tabulated by Building PAWS Coordinators. In addition, the demographic information was hand gridded on the Test and Answer books if it was not pre-printed. The documents were then packaged together and locked in secure storage until they shipment to Pearson. Each box was labeled with a unique tracking number by the shipping carrier. The tracking numbers were recorded on a Bill of Lading (included in the *2011-2012 Test Coordinator's Manual*) that was faxed to Pearson after pickup by the carrier.

3.2 Directions for Administering and Training

The *PAWS Directions for Administration Manual* and *PAWS Test Coordinators Manual* provided the guidelines for planning and managing the PAWS administration for district and school administrators. The *PAWS Directions for Administration Manual* by grade and test provided specific directions for test administrators from scheduling and timing for sessions and preparing students to testing students from special populations. Two half-day and two web-based comprehensive training sessions conducted jointly by the WDE and Pearson were held in December 2011 prior to the spring 2012 testing window. In addition, several test administrator training videos were posted to the Pearson Access webpage. All test administrators around the state were required to view the Test Administrator training video before the test window opened. Building principals required test administrators as well as anyone handling test materials to sign off after viewing the training video. These certification documents were retained in the school and were available to the WDE upon request.

The PAWS tests were administered under untimed testing conditions. Grades 3-6 of reading were administered in four untimed sessions. Grades 7, 8, and 11 of reading were administered in three untimed sessions. Grades 3 and 11 of mathematics were administered in two untimed sessions (these were the only grades which did not have separate calculator and non-calculator sessions). Grades 4-8 of mathematics were administered in three untimed sessions, one non-calculator and two calculator sessions

All grades of science (4, 8, and 11) were administered in two untimed sessions. The expected time for testing was provided by grade and content area in the *PAWS Directions for Administration Manual*, but students could take more time if needed.

Allowed Student Manipulatives

The use of a calculator for mathematics was not restricted for the 11th grade PAWS administration. Calculators were not allowed on the Number Operations and Concepts portions of the PAWS (session 1) in grades 4–8. Calculators were not permitted for the 3rd grade PAWS. In addition, a *PAWS 2012 Allowable Resources* document was posted to the WDE webpage to assist test administrators in administering PAWS in a standardized manner.

Test Security

PAWS test security guidelines strictly prohibit the photocopying of all or any part of a test booklet, and require that all violations of the Wyoming Department of Education's regulations be reported to the WDE immediately. Under state law, violations were dealt with at the school district level. The reporting of violations to the WDE ensured that test scores could be invalidated if necessary. All test booklets were considered secure materials. The PAWS Test Coordinators were required to document the receipt of secure materials, check the lists of students, and return all test materials to Pearson for scoring.

The specific procedures that were to be followed during any test administration and used in the handling of documentation were outlined in the *2012 PAWS Directions for Administration Manual*.

Persons designated to administer the PAWS tests were expected to:

- Keep all test materials in locked storage.
- Not reproduce any test materials in any manner.
- Not disclose any actual test items to students prior to testing.
- Not provide answers to any test items to any students.
- Not change or otherwise alter a student's answer.
- Follow the suggested time periods as closely as possible in order to maintain uniformity in the test administration. (Note: PAWS is an untimed test.)
- Follow the *Directions for Administration* manual explicitly.
- Follow all Ethics and Security Requirements as outlined in the *2012 PAWS Directions for Administration Manual*. If there is a violation, the students' materials *will not be scored* and the school will not be able to count the student(s) for participation.

In addition, financial rewards related to test performance were strongly discouraged.

PAWS test administrators (teachers) were instructed to immediately report any loss of test materials or other testing irregularities to the school principal or Building PAWS Coordinator. The District PAWS Coordinator subsequently reported all irregularities to the WDE Standards, Assessment and Accountability Unit.

3.3 Student Participation

As noted previously, all Wyoming students in grades 3 through 8 and 11 were required to participate in the regular PAWS tests, the PAWS with appropriate accommodations, or the PAWS-ALT (for students with the most significant cognitive disabilities). Federal and state law (i.e., the Individuals with Disabilities Act of 1997 and W.S. 21-9-101 (c)(i)) did not exempt any student from participating in the statewide assessments. Students with disabilities, who were on a 504 Plan, or who were English Language Learners (ELL) were allowed to be provided with standard accommodations during the administration of PAWS consistent with guidance provided by the Wyoming Department of Education. Students with significant cognitive disabilities were required to take the Proficiency Assessments for Wyoming Students - Alternate (PAWS-ALT) as determined by their IEP teams.

All students participated in the state accountability assessment program in one of three ways:

- Participation in PAWS regular assessment without accommodation;
- Participation in PAWS regular assessment with standard accommodation;
- Participation in PAWS-ALT

Students in grade 10 were allowed the option to take the grade 11 reading and mathematics tests. The results for grade 10 students who took the test would then be "banked" and counted in their school's accountability calculations for the school year in which they were grade 11 students. A student who took either test as a grade 10 student in 2011 and achieved a performance level of Proficient or Advanced was not required to take the test again in 2012. Grade 12 students could also take the PAWS math and reading tests, but their results had no effect on their school's accountability status.

Only grade 11 students were allowed to take the science test. Since grade 10 students could not take the science test nor bank science scores, this restriction effectively meant that all grade 11 students were required to take the science test.

3.4 PAWS Standard Accommodations

Accommodations are practices and procedures in the areas of presentation, response, setting, and timing/scheduling that provide equitable access for students during instruction and assessment. Accommodations changed the way a test was administered or the way a student responded to test questions to reduce or eliminate the effects of a student's disability or lack of proficiency in English, but did not reduce learning

expectations. Allowable accommodations on PAWS did not change the construct being tested nor did they affect the psychometric characteristics of the assessment.

Standard accommodations were allowed on the PAWS for students with disabilities, for students on a 504 Plan, and English Language Learners (ELL). The WDE recognizes that the proper administration of standard accommodations allows these students access to the test, resulting in the students' ability to demonstrate their knowledge and skills consistent with the measured test constructs in each content area. Often the conditions under which the test was standardized differ from those present when accommodations were used. These differences, in some cases, reached a level sufficient to jeopardize the validity of interpretations. However, based on available evidence, the standard accommodations listed below were considered "incidental to the construct intended to be measured by the test" (Standards for Educational and Psychological Testing, 1999, p.101) by the WDE. Thus, students using accommodations received scores on PAWS that are considered valid and were aggregated with those of other students. WDE and Pearson staff paid careful attention to the potential effects of testing conditions on test score interpretations and adhered to the Standards for Educational and Psychological Testing (1999).

The administration of standard accommodations during PAWS has potential implications for the validity of resulting scores. Therefore, it was necessary for Test Administrators and Access Assistants to be trained annually and to be familiar with updated standard accommodations documents related to the selection, administration and evaluation of standard accommodations.

In January 2006, the *Wyoming Accommodations Manual for Instruction and Assessment; How to Select, Administer, and Evaluate Use of Accommodations for Instruction and Assessment of Students with Disabilities* was developed by the Wyoming Department of Education in conjunction with the CCSSO State Collaborative on Assessment and Student Standards Assessing Special Education Students (SCASS-ASES). Information in the manual guides the selection, administration and evaluation of accommodations to ensure that the validity and comparability of resulting scores are preserved. It is available along with other documents related to PAWS standard accommodations on the WDE website.

In November 2006, the Standards, Assessment and Accountability and Special Programs Units provided state-wide training for school district personnel representing every school district in the state on the selection, administration, and evaluation of accommodations to further standardize the use of accommodations in the PAWS administration. Training materials provided by CCSSO / SCASS-ASES were adapted, utilized, and distributed. Training materials were made available on CD and were sent to all districts that were not able to attend the training. Additionally, a presentation was made by WIND, the Wyoming Institute for Disabilities (WIND) of the University of Wyoming on assistive technology and augmentative devices. Based on feedback provided during the 2005 - 2006 administration and the November 2006 training and recommendations made by the Wyoming Technical Advisory Committee, revisions were

made and are reflected in the approved list of PAWS Standard Accommodations (see *2012 PAWS Directions for Administration Manual*) to improve clarity and ensure the standard use of accommodations.

Additionally each year, a required Standard Accommodations Online Training is provided and notice of this training is provided through a Superintendent's Memo. The purpose of the Standard Accommodations Online Training is to ensure that test administrators and access assistants are trained on the guidelines and requirements to select, administer and evaluate standard accommodations for the current administration to all three eligible student groups.

This required training provides information regarding the following topics: students eligible to receive standard accommodations, persons eligible to administer standard accommodations, standard and nonstandard accommodations, 2012 PAWS standard accommodations, English Language Learners (ELL) standard accommodations, the selection, administration, and evaluation of accommodations, special test forms, documentation of accommodations, and participation exemption from state assessment. Verification of completion of this training by Test Administrators and Access Assistants must be provided to the building principal or the District or Building PAWS Coordinator using the 2012 Proficiency Assessments for Wyoming Students Test Administrators Verification Form found at the WDE website.

Two addendums related to the administration of standard accommodations were distributed through Superintendent's Memo and postings on the WDE website including the *Wyoming Statewide Assessment System 2012 PAWS Standard Accommodations* and the *2012 PAWS Standard Accommodations Frequently Asked Questions (FAQ)*. The *Wyoming Statewide Assessment System 2012 PAWS Standard Accommodations* document provides information about the administration of standard accommodations and also identifies the allowable standard accommodations, divided into four categories (presentation, response, setting, and timing & scheduling). The FAQ document provides information about the administration and documentation of standard accommodations as well as detailed information regarding specific accommodations including the administration of standard accommodations for ELL students, best practices associated with the selection and administration of accommodations, and a specific list of standard accommodations for ELL students.

Students Eligible for Test Accommodations

The right to receive accommodations on state assessment is guaranteed by law to a student with a disability. The process of making decisions about accommodations is one in which members of the IEP team facilitate participation of students with disabilities in general state assessments. Students eligible for accommodations also include those students with a 504 Plan and English Language Learners (ELL).

Requirements for Use of Test Accommodations

For students with disabilities, the selection of accommodations for the general assessment was the responsibility of a student's IEP team or 504 plan committee. Guidance was provided in the *Wyoming Accommodations Manual for Instruction and Assessment; How to Select, Administer, and Evaluate Use of Accommodations for Instruction and Assessment of Students with Disabilities* (January 2006). Currently permitted standard accommodations for students with disabilities, 504 Plans or who were ELL were listed in the *2012 Directions for Administration Manual* (DFA). Accommodations were matched to an individual student's needs and were only provided when all of the following conditions were met:

1. The accommodations were documented on the student's IEP or 504 Plan.
2. The accommodations for ELL were determined at the local level.
3. The selection and administration of accommodations were consistent with the 2012 PAWS standard accommodations.
4. Standard accommodations were administered as described in the *Wyoming Statewide Assessment System 2012 PAWS Standard Accommodations* and the *Wyoming Accommodations Manual for Instruction and Assessment*.
5. The accommodations provided were effective in providing access to the test and had been regularly used by the student during instruction and classroom assessment.
6. The accommodations were administered by a trained Test Administrator or access assistant who was familiar to the student.

Accommodations could not:

1. Result in adverse consequences;
2. Alter the construct being tested; or
3. Provide additional information, prompting or cluing to suggest or support the selection of correct answers.

Standard accommodations must have been used consistently for instruction and assessment prior to the test administration. Accommodations were not allowed for any student without an IEP or 504 Plan or non-ELL students. Accommodations were administered by a trained certified teacher, certified staff member or access assistant. A certified teacher, certified staff member or access assistant was qualified to administer accommodations if he:

1. Understands the procedures for administering standard accommodations; and
2. Has effectively administered the accommodation(s) to the student during instruction and/or assessment; and
3. Has attended a 2012 PAWS Training or has viewed the 2012 PAWS Training online and submitted record of the training to the building principal; and
4. Has completed the 2012 PAWS Accommodations Training online and submitted record of the training to the building principal.

PAWS administrations were un-timed for all students. Large print, audio, and Braille versions of PAWS were available for all grade levels and content areas.

3.4.1 Description of Standard Accommodations for Students with Disabilities

As mentioned above, the types of standard and allowable accommodations used with PAWS were grouped into four categories:

- presentation (visual, tactile, auditory, and multi-sensory),
- response,
- setting, and
- timing/scheduling.

Appropriate documentation and monitoring of the standardized use of accommodations was required of test administrators, test coordinators, and/or principals. Monitoring of the selection, administration, and evaluation of accommodations by school personnel was provided by the Wyoming Department of Education and occurred during the administration of the tests as well as following the administration of the PAWS. Additionally, the Special Programs Unit reviewed documentation of accommodations during on-site monitoring visits. The following assessment accommodations were allowable for students with an IEP or 504 plan:

PRESENTATION ACCOMMODATIONS

1. Student uses a Braille Special Test Form.
2. Student uses a Large Print Special Test Form.
3. Student uses an Audio Special Test Form.
4. Student uses magnification devices.
5. Student uses color overlays to reduce glare or enhance text.
6. Student uses templates to reduce the amount of visible print.
7. Student uses tactile graphics.
8. Sign language interpreter signs directions in all content areas and/or signs test questions as written in all content areas EXCEPT reading. The interpreter may not clarify, interpret, define word meanings, elaborate, or provide assistance to students. Readers need to be familiar with the terminology and symbols specific to the content. It is recommended that one interpreter be provided for each individual student.
9. A certified staff member or access assistant provides visual cues to students who are deaf or hard of hearing.
10. A certified staff member or access assistant reads directions word-for-word as written in all content areas and/or reads or re-reads test questions word-for-word as written in all content areas EXCEPT reading. Readers may not clarify, interpret, define word meanings, elaborate, or provide assistance to students. It is recommended that one reader be provided for each individual student.
11. Student asks for clarification of directions (not test questions or answer choices).

12. Student uses audio amplification devices, including and/or in addition to hearing aids to increase clarity.
13. Student uses text-to-speech software in all content areas EXCEPT reading.

RESPONSE ACCOMMODATIONS

14. A certified staff member or access assistant scribes what a student dictates through alternate augmentative communications (AAC), pointing, sign language, or speech. The scribe may not edit or alter the student's work in any way and must record, word for word, exactly what the student has dictated. A scribe must allow the student to review and edit what he or she has written. The student's final response must be transcribed by a certified staff member or access assistant into the Student Test and Answer Book on the pages that the student's response is to be written.
15. A student types responses using a word processor. Dictionary and synonym/thesaurus devices MUST be disabled. The margins for word-processed documents should match the same space as is allowed in the Student Test and Answer Book. A certified staff member or access assistant transcribes verbatim the student's work into the Student Test and Answer Book on the pages that the student's response is to be written.
16. Student uses speech-to-text conversion or voice recognition in all content areas. The margins for this document should match as closely as possible the same space as is allowed in the Student Test and Answer Book. A certified staff member or access assistant transcribes verbatim the student's work into the Student Test and Answer Book on the pages that the student's response is to be written.
17. Student uses a Brailler. A certified staff member or access assistant transcribes verbatim the student's work into the Student Test and Answer Book on the pages that the student's response is to be written.
18. Student uses a tape recorder to record test responses rather than writing on a paper. A certified staff member or access assistant transcribes verbatim the student's work into the Student Test and Answer Book on the pages that the student's response is to be written.
19. A certified staff member or access assistant monitors the placement of student responses on the Student Test and Answer Book.
20. Student uses visual organizers including graph paper, place markers, and templates. Student uses a pencil to underline text. Highlighters CANNOT be used in the Student Test and Answer Book.

SETTING ACCOMMODATIONS

21. Student takes the test in a different building location in a small group or individually. Changes can also be made to a student's location within a room to reduce distractions to the student or to other students, to increase physical access, or enable the use of special equipment. Students must be monitored by a certified staff member.

TIMING AND SCHEDULING ACCOMMODATIONS

22. Student is provided with extended time to complete the assessment.
23. Student is provided with multiple, individual breaks as needed, monitored by a teacher or access assistant.
24. Student takes the tests at the time of day when he or she is most likely to demonstrate peak performance.

3.4.2 Description of Standard Accommodations for English Language Learners (ELL)

Schools could not exempt ELL students from the PAWS content assessments. The only exception to this policy was that students who were enrolled in U.S. schools for less than one year as of March 31, 2012 could be waived from taking the reading PAWS content assessments with an exemption approved by the Wyoming Department of Education. Students who received this exemption took the Wyoming ELL assessment instead of the Reading portion of PAWS, but were not exempted from the Mathematics and Science portions of PAWS.

ELL students could be provided with accommodations during PAWS as long as they met eligibility criteria. In addition, students who no longer meet the eligibility criteria as ELL and were identified as proficient or transitional could also receive standard accommodations for a period of up to two academic years when appropriate. These accommodations have been demonstrated to be effective in providing access to the test and should have been used regularly by the student during instruction and assessment prior to the 2012 administration.

PRESENTATION ACCOMMODATIONS

25. A certified staff member or access assistant translates written directions to the student.
26. A certified staff member or access assistant re-reads, simplifies, or clarifies directions in English or in the student's primary language (NOT test questions or answer choices) without clueing correct responses.
27. A certified staff member or access assistant reads and/or re-reads test questions in English, word-for-word, exactly as written in all content areas EXCEPT reading. Readers may not clarify, interpret, define word meanings, elaborate, or provide assistance to students. Readers need to be familiar with the terminology and symbols specific to the content. It is recommended that one reader be provided for each individual student.
28. Student uses a bilingual dictionary provided by the school.

SETTING ACCOMMODATIONS

29. Student takes the test in a different building location in a small group or individually. Changes can also be made to a student’s location within a room to

reduce distractions to the student or to other students, to increase physical access, or enable the use of special equipment. Students must be monitored by a certified staff member.

TIMING AND SCHEDULING ACCOMMODATIONS

30. Student is provided with multiple, individual breaks as needed.
31. Student is allowed to complete the test over multiple days.

3.4.3 PAWS 2012 Monitoring of Appropriate Accommodations

Through its Continuous Improvement Focused Monitoring process, the WDE Special Programs Division monitors the appropriate selection and use of accommodations for both instruction and assessment. Each school year, Special Programs staff members visit at least 16% of Wyoming districts to investigate potential noncompliance within the priority areas of Free and Appropriate Public Education in the Least Restrictive Environment (FAPE in the LRE), Postsecondary Transition, Child Find, Disproportionality, and other procedural areas.

While on-site in school districts, WDE staff members review Individual Education Program (IEP) files looking for evidence that IEP teams have made sound accommodations decisions to enable students with disabilities to gain access to instructional content and assessment measures. In addition, general and special education teachers, administrators, and service providers are interviewed to provide further information about school and district practices regarding accommodations. Failure to provide accommodations listed in a student's IEP or failure to thoughtfully consider accommodations for a student or students may contribute to a finding of noncompliance, thus requiring the district to address the issue through the creation and implementations of a Corrective Action Plan (CAP). Monitoring of standard accommodations for ELL's was provided by the Local Education Agency.

Empirical Analysis of Accommodations

IEP and 504 plan students comprised approximately 11% - 14% of students at each grade level, with between 60%-80% receiving testing accommodations (depending on grade and subject). In general, IEP students who did not receive accommodations had higher mean scale scores. Mean scale scores for IEP and 504 plan students broken down by accommodation status are presented in Appendix F.

While Wyoming allows 31 specific accommodations on PAWS as described herein, the overwhelming majority across all content areas were provided as auditory presentations (e.g., reading directions, reading questions, clarifying directions, or the audio form), setting accommodations (i.e., testing in a separate location), or an accommodation in timing/scheduling (e.g., extended time, multiple breaks, test over multiple days). This breakdown by specific accommodation also provides a baseline for monitoring accommodations in future years. Frequency tables for accommodations provided during

the 2012 PAWS for mathematics, reading, and science in grades three through eight and eleven are presented in Appendix G.

3.4.4 Selection and Administration of Accommodations

An important question regarding the use of accommodation in large-scale assessment is whether the resultant student scores mean the same thing as scores resulting from non-accommodated assessment (Kim, Wang, Zhao, & Li, 2006). In other words, do the accommodations yield meaningful, valid scores of the level of a student's subject mastery? It is also imperative to know the effect of including scores of accommodated students in test calibration[8], specifically in terms of item parameters and resulting test scores (Karkee, Lewis, & Barton, 2005). Wyoming recognizes the need to examine the data associated with the administration of standard accommodations for students with disabilities, students with 504 plans, and English language learners and the continued evaluation of the standard accommodations with regard to current research.

Standard accommodations were implemented for students with disabilities, students with 504 Plans, and the English Language Learners (ELL's) participating in the PAWS testing. In providing for the use of accommodations, the State recognized that it is important to ensure that accommodated testing conditions did not change the construct being tested nor affect the psychometric characteristics of the assessments. Pearson and WDE will continue to monitor the appropriate use of accommodations for students that require them. Special attention will be given to ensure that the use of accommodations does not negatively affect the validity of the test results for such students or for students who did not require accommodations.

To ensure the appropriate selection and administration of standard accommodations for the 2012 PAWS administration, the Standards and Assessment Division provided training required of all Test Administrators and Access Assistants responsible for administering accommodations. Additionally, updated guidance on the 2012 PAWS Standard Accommodations and 2012 PAWS Standard Accommodations FAQ were distributed via a Superintendent's Memo.

The training provided critical information regarding students eligible to receive standard accommodations, persons eligible to administered standard accommodations, standard and nonstandard accommodations, 2012 PAWS standard accommodations, ELL standard accommodations, the selection, administration, and evaluation of accommodations, special test forms (Braille, Large Print, Audio), documentation of accommodations, and participation exemption from state assessment. Verification of completion of this training was required by Test Administrators and Access Assistants and was provided to the building principal or the District or Building PAWS Coordinator

[8] Note that responses to Braille, audio, and large print forms were excluded from calibration, scaling, and equating analyses, but are included in all descriptive statistics reported in this technical manual except those that come directly from the calibration, scaling, and equating analyses (such as Rasch item difficulties). Responses to the regular forms from students who received accommodations were included in the calibration, scaling, and equating analyses.

using the 2012 PAWS Test Administrator Training Verification Form. All training materials and documents were available on the WDE website.

4. PROCESSING AND SCORING OF ITEMS

4.1 Overview

This chapter describes the receipt control, scanning, and scoring procedures used at Pearson for the 2012 PAWS including details of the hand-scoring of the constructed-response items.

At the close of testing, the PAWS Student Test and Answer Books were returned to Pearson. Upon receipt, they were scanned into Pearson's electronic imaging system. Subsequent processing of student responses necessary to score those responses and to produce reports used these images rather than the paper documents. After scanning the physical documents were put into archival storage.

Student responses to PAWS multiple-choice test items were machine-scored. Student responses to constructed-response test items were individually read and evaluated by scorers employed by Pearson. The WDE had upfront oversight and control of training materials and audited scorer trainings at their discretion. For 2012, operational PAWS hand-scored items were scored at the following sites: Virginia Beach, VA; Columbus, OH; and Auburn, WA.

4.1.1 Multiple Choice Items

Multiple-choice items were used on all tests. Correct answers were assigned a score of one point and incorrect answers were assigned a score of zero points.

4.1.2 Constructed Response Items

The scanning of student test and answer books into the electronic imaging system allowed student responses to constructed-response items to be scored online at all scoring sites while maintaining the original documents at a central facility. The imaging system randomly distributed responses, ensuring that no one reader scored a disproportionate number of responses from any one school. The online scoring system maintained a database of actual student responses and the scores associated with those responses. The system also provided continuous up-to-date monitoring of all scoring activities.

4.2 Receipt Control, Processing, Scanning, Editing

Pearson's Operations Center was responsible for the processing of documents received from Wyoming for each individual student's work. The team consisted of software and process engineers, management professionals, systems and requirements analysts, and customer service specialists. The receiving staff accepted and counted PAWS cartons that were returned to Pearson, confirming shipments from districts. The editing staff captured and verified customer information via the Header Sheet to compare number of documents scanned to number indicated as being returned on the Header

Sheet. The Document Staging department ensured that that box contents matched the information provided on the Header Sheet. This step linked every document to the proper scannable scoring order number (batch number) that was utilized throughout the remaining steps of the scanning and scoring process. The scanning process captured data from student test and answer books, school headers, and order headers for scoring.
Within each functional area specific tasks were accomplished and quality checks were performed both within and across functional areas. The quality checks performed were documented in the custom program specifications.

4.2.1 Receipt Control

Receipt control began when the receiving staff accepted and counted cartons as they were delivered, sorting them by district into scoreable and non-scoreable queues. The first quality checkpoint was a comparison of what was received against what was expected to be received. This check was performed utilizing the tracking system to flag any anomalies in the shipment and to begin immediate investigation of any such. The process was utilized to produce a daily report listing districts for which materials have not arrived. Information about schools for which receipts were incomplete or not received was communicated to the WDE by Pearson's program manager.

Pearson and WDE have established rules for handling issues encountered while processing the answer documents. These were located in the program specifications.

4.2.2 Processing

Pearson used Header Sheets to capture and verify customer information to ensure that complete results were delivered to the proper location. The information that was verified included the returned scoreable document n-count, grade and subject for each returned scoreable document, building name and number, district name, and a space to notate if any audio, large print or Braille returned scoreable documents were present.,

To minimize or eliminate student coding errors on the student answer document demographic page, Pearson provided a pre-identification service to the WDE. This service was utilized to provide student demographic data that was printed on pre-ID labels which were scanned during processing.
During the staging process, Pearson staff removed the documents from the boxes and arranged them on carts. A preprinted scannable scoring order number (batch number) was matched to each cart. Each Header Sheet was matched to a specific batch number that was placed with the documents so that when it was scanned the batch number was associated with those documents. This step is important because it linked every individual document to the proper order number throughout the remaining steps in the scoring and reporting process.

4.2.3 Scanning

In the scanning stage, Pearson captured all the data from the student response forms, school headers, and order headers that were created during the staging process. All scannable documents were processed in a temperature-controlled environment. This allowed the paper to normalize and eliminated paper distortion caused by the environment. Properly stabilized paper improved scan reliability and quality. Prior to scanning, the spines of multiple-page documents were cut to create single sheets that were then scanned.

Pearson utilized image-scanning technology to capture information from all scannable documents. A scanner diagnostic test was executed prior to scanning the documents on each cart, and a calibration check was performed to validate that the scanner was imaging properly. The calibration check ensured that the scanner was accurately capturing the range of darkness of the written and gridded responses. This was critical to the post-processing that occurred in editing and scoring.

The images produced by the scanner included document identification and all information gridded by the test-taker and were stored as 8-bit (256 level) grayscale images. The scanning program checked the validity of the document identification using optical mark recognition (OMR), skunk codes, and optical character recognition (OCR) module codes to ensure that the booklet that was being scanned was the correct booklet. The scanning program also compared the actual number of pages scanned to the number of pages expected for the document according to its identification. These two checks ensured that the correct document was being imaged and that the entire document was imaged. Finally, the skunk and module codes acted as reference points indicating the orientation of the document as it moved through the scanner.

Scanned documents were sent to databases where images were distributed to editors and/or scorers based upon rules established for the program. The data collected from the image scanners was stored in a scan file, which was used to generate an edit report. When this was completed, the cart containing the scanned documents was logged out of the scanning workstation.

Constructed-response image files were distributed to Pearson's Performance Scoring Center (PSC) for human scoring, while images of selected responses and demographic data were made available to scoring editing for human review. PSC was responsible for all activities related to the scoring of constructed-response assessments. The PSC maintains a large pool of qualified, trained, professional scorers who are experienced in scoring a wide range of open-ended assessments in reading, mathematics, science, social science, and other subjects. Scorers for the PAWS were drawn from this pool and received additional PAWS-specific training prior to their scoring the assessment.

4.2.4 Editing

The first step in the editing process was to electronically compare each student's scanned data to the business rules established by WDE for processing the student's information. The results of this comparison were used to generate an edit report listing documents requiring correction or validation. This report included all documents with a

data field that did not match program specifications. A scoring editor reviewed every flag by referencing the source document and validating or correcting the field. Data items edited included the student id, name, and date of birth. The edits that were applied to the student's scanned data were also applied when registering the student online. In the online system, edits were applied immediately and data was not accepted into the system if invalid.

Another step in the paper editing process is n-count verification. The number of documents scanned was compared to the number of documents recorded on the Header Sheet and collected in the structure definition. When the n-counts did not match, the paper documents for that batch were manually counted, and based on the business rule variance, an alert was issued for document n-count discrepancies. When all edits were resolved any corrections were incorporated into the file containing student records. Once all corrections were made, the edit routine was rerun to ensure data validity. When no fields were flagged as suspect, all the records for that order were considered clean and the tracking system moved the order to job submission. The physical documents were no longer needed in the scoring process and were moved to the archiving workstation.

4.3 Qualification and Training

Scorers for PAWS hand-scored items were recruited and trained by Pearson and were required to have at least a four-year college degree. All applicants for scorer positions were required to provide resumes and documentation of completed higher education. Scoring Supervisors were recruited from the pool of scorers who had successfully completed other large-scale assessment projects and were therefore familiar with Pearson's processes and expectations.
Scoring Directors were selected from among those who had successfully served as Scoring Supervisors for other large-scale assessments. They were chosen based on their demonstrated ability to monitor scorers' accuracy and consistency and to provide appropriate feedback.

4.3.1 Scorer Training

Scorers trained online, using WDE-approved training materials. For math, science, and reading short response (0-2 point) items, scorer training took approximately four hours. Science and reading scorers trained for approximately six hours on extended-response (0-4 point) items. Scoring Directors and Supervisors were available to respond to scorer questions throughout the training process.

Online training began with an overview of the item and scoring rubric. For tests with passages (reading and science), the initial training stage included reading and becoming familiar with the passage.
Scorers then reviewed the student responses in the anchor set. In this set, the scores were identified on the student responses. Annotations detailed how the responses differed from one another in quality, how each response reflected the rubric description

of its score point, and how each reflected the WDE's standard for application of each score point.
Once scorers felt comfortable with the anchor set, they scored the first practice set, consisting of previously scored student responses arranged in random order. Each scorer independently read and scored the responses in the practice set. After the scorers had finished scoring the practice set the WDE-approved scores and annotations were provided. The same format was followed for each practice set. During this process, the scorer's job was to internalize the WDE scale and to adjust his/her individual scoring to conform to that scale. Once all the practice papers were scored and all annotations were reviewed, scorers began the qualifying process.
To qualify to score short response (0-2 point) items in math, science, and reading, scorers took three qualifying sets and qualified on at least one of them with a passing score of 80% perfect agreement. Scorers who failed to pass after having attempted all three sets were dismissed from scoring the item.
To qualify to score extended-response (0-4 point) items in science and reading, scorers took three qualifying sets and qualified on at least one of them with a passing score of 70% perfect agreement. Scorers who failed to pass after having attempted all three sets were dismissed and were not allowed to score the item.

4.3.2 Scoring Supervisor Training

Scoring Supervisor training was conducted in the days immediately preceding scoring. Scoring Supervisors were trained to monitor scorers, backread, and provide appropriate feedback. All Scoring Supervisors were required to meet the qualifying standards for the specific piece being scored.

4.4 Rangefinding

Prior to the 2012 PAWS Administration, student responses to field-tested constructed-response items from previous administrations were selected by Scoring Directors who reviewed and scored these responses based on state-approved scoring rubrics. The responses were then arranged into sets for rangefinding committees to review. As much as possible, responses were selected to span the full range of quality as described in the rubric. Rangefinding meetings were facilitated by Scoring Directors and monitored by WDE and Pearson Content Specialists.

A committee of experienced Wyoming teachers came to consensus on scores for the rangefinding sets at each grade level for each subject. Committee members committed up to one week of service in San Antonio during fall 2011.

Members of these rangefinding committees were classroom teachers or district curriculum personnel. Criteria for panel selection included the following:

- Knowledge of the Wyoming Content and Performance Standards and expertise in the subject area.

- Teaching experience at the grade level to which the individual would be assigned.
- Geographical location (to ensure all regions of Wyoming were represented).
- Thorough knowledge of the scoring rubrics.

Three Wyoming educators from each content area and each grade level working with Pearson Scoring Directors read responses in the rangefinding sets, scored them, and suggested papers to be used as anchors. Remaining papers in the rangefinding sets were used in the development of practice and qualifying sets. Comments given by the Wyoming educators during the selection of papers were used to help develop the annotations included with the sets of training materials. These sets were reviewed and approved by WDE Content Specialists.

4.5 Methodology for Scoring Constructed-Response Items

During both training and scoring, each content area and grade level had a Scoring Director to monitor scoring activities. The Scoring Director worked closely with Scoring Supervisors to ensure that scorers became experts in their specific item assignments. The Scoring Director was also responsible for the quality of the scoring for his or her assigned items.

4.6 Backreading

Pearson's electronic scoring system allowed Scoring Supervisors, Scoring Directors, and Content Specialists to conduct backreading as an additional monitoring method. When conducting backreading, the Scoring Supervisor, Scoring Director, or Content Specialist reviewed images of student responses and the scores assigned by the original scorer. Responses selected for backreading were either randomly selected or were targeted to review a specific scorer's work or a specific score point. Backreading was useful in tracking specific areas of confusion for a given scorer or group of scorers and assisted the Scoring Director in knowing how to direct retraining activities. For operational items the backreading rate was 20%, and 10% of FT item responses were backread.

4.7 Validity Papers

Validity papers are student responses that are pre-scored according to rangefinding standards and have not been previously seen by scorers. They were used to monitor consistency in scoring throughout the duration of the project. Validity responses were interspersed within the stream of operational responses during the scoring process and were indistinguishable from regular student responses. "True" scores (e.g., scores assigned by expert readers) for these papers were loaded into the electronic scoring system, and a report was regularly run that documented the percentage of accuracy of scorers on validity papers versus the true score on those papers. Validity papers were used as a check to ensure that scorers and Scoring Supervisors were not drifting from the rubric and were continuing to score accurately.

On extended-response items, scorers were expected to maintain at least 70% validity agreement. Scorers on short-response items were expected to meet a minimum validity agreement standard of 80%. If scorers did not meet the validity standard for the item to which they were assigned, they were given a targeted calibration set and expected to pass the set at 70% agreement for extended-response items and 80% for short-response items. Scorers who did not pass the targeted calibration set were dismissed. Scorers who passed the targeted calibration set were allowed to remain on the project, providing they achieved the minimum validity agreement standard within an established timeframe.

4.8 Inter-Rater Reliability

Pearson's online scoring system generated many different kinds of internal monitoring reports that enabled Pearson and WDE Content Specialists, Scoring Directors, and Scoring Supervisors to monitor the accuracy of scoring. These reports listed all of a team's scorers and provided the results of their scoring on an ongoing basis. Information on these reports included the number of responses read by the scorers, the number and percent of invalid (blank, foreign language, etc.) responses scored, and the number of responses that received second scores.

The second scores provided data on the percent of perfect agreement between first and second scorers, percent of responses on which the first scorer was a point higher or lower than the second scorer, and the number and percent of responses differing by more than one point (non-adjacent scores).

All PAWS operational constructed-response items received a single reading with 20% of the responses randomly routed by Pearson's on-line system for a reading by a second scorer to monitor inter-rater reliability. Non-adjacent scores received a third score or resolution score performed by a Supervisor, Scoring Director, or Content Specialist which was used as the operational score for the student's response (i.e., the resolution score overrode both the initial and backread scores).

Scorers were expected to maintain a minimum cumulative perfect agreement rate of 70% agreement for extended-response items. For short-response items, scorers were expected to maintain 80% agreement. Scorers who fell below this standard were targeted for additional training and backreading.

Section 7.3 presents the overall inter-rater reliability information for the 2012 PAWS mathematics, reading, and science items. These are presented in terms of the percentage of responses scored by PSC that were exact matches, the percentage that were adjacent (+/- one score point), and the percentage of responses that received non-adjacent scores.

PAWS field test items received a single score with 10% of the daily scoring output randomly routed by Pearson's on-line system for a second score. Non-adjacent scores received a third score or resolution score performed by a Supervisor, Scoring Director,

or Content Specialist which was used as the operational score for that item. The second scoring was used for inter-rater monitoring purposes only.

4.9 Monitoring Reports

The Frequency Distribution report documented the percentage of responses to which a scorer awarded each score point. This showed the degree to which an individual's scores were consistent with the group overall. This report was generated and reviewed daily and cumulatively for the project. Other reports used to track scorer performance included the Daily/Cumulative Inter-rater Reliability Summary and Daily/Cumulative Validity Summary.

4.10 Calibration and Scorer Intervention

Scoring Directors conducted group calibration as necessary throughout scoring. Individual scorers also received intervention during scoring as deemed necessary by the Scoring Supervisor's and Scoring Director's observations and the results of the daily and cumulative reports.

Calibration is a form of training which promotes consensus and accuracy within the scoring pool. It was used to maintain consistency within the group of scorers. Calibration sets focused on particular scoring issues including clarifying a scoring line, a response that was unusual or problematic to score, or review of a range of responses for a particular score point. In addition, they could focus on responses that were not accounted for in the anchors or training materials. Calibration training generally was scheduled following a break in scoring, such as after a weekend, when retraining was needed, or even on a daily basis for items with a complex rubric.

Targeted calibration papers (selected "line" papers – papers that differentiate between score points) were used to retrain individual scorers if their performance fell below standards. The need for individual intervention was determined by any of the following: a high number of non-adjacent scores; low validity agreement; low or irregular calibration scores; below-average perfect inter-rater agreement rates; or other problems detected via backreading. When intervention was required, a Scoring Supervisor or Scoring Director documented issues in an Intervention Log. The scorer was required to review the log and the proposed action plan and to initial it to indicate that he or she was aware of the issue(s) and the plan to address them. Several techniques were used to improve individual scorer accuracy:

- Discussion with the Scoring Supervisor or Scoring Director of the specific response(s) involved in a validity or calibration anomaly.
- Discussion of specific papers identified in the backreading process.
- Review of anchors.

Scorers whose performance remained below the standards for the particular item that was being scored were dismissed from further scoring.

4.11 Blanks and Invalid Responses for Constructed-Response Items

The WDE and Pearson developed rules concerning certain types of responses to reading, science, and mathematics constructed-response items that should be scored as blank or invalid. For purposes of scoring and item and test statistics, blank and invalid responses were treated as zeroes.

Available condition codes for blank and invalid responses included Blank (BL), Copy of the Prompt (CP), Foreign Language (FL), Illegible (IL), Incomprehensible (IN), Off-Topic (OT), and Refusal (RF).

Condition codes could only be assigned by a Scoring Supervisor or Director (with the exception that a condition code of "Blank" could only be assigned by a Scoring Director and required a second reading to confirm it as such). Scorers forwarded papers that they identified as blank or invalid to the review queue for review by a Scoring Supervisor or Director. If the Supervisor or Director determined that a condition code was appropriate then he or she scored it as such. If the Supervisor or Director determined that a condition code was not appropriate, the paper was returned to the scoring queue.

4.11.1 Blank (BL):

- A blank page was one that contained no writing or markings at all.
- A response with complete erasure was a Blank—the scorer was able to determine by the presence of smudges that the student had written and then erased something, but was unable to read any words or letters.
- A response with an incomplete erasure, where words and/or parts of words were still readable but it was obvious the student intended to erase the entire response was also scored as a Blank.
- A response was crossed out, but where the response was still readable was also scored as a Blank.

4.11.2 Copy of Prompt (CP):

- To receive a score of CP, the student's response consisted only of a word-for-word repetition of the test item or a substantial portion of it.
- A response that consisted of a word-for-word repetition of portions of the text was not a Copy of the Prompt but was a valid response and was scorable.

4.11.3 Foreign Language (FL):

- If ALL of the response was in a foreign language, the response was sent to the Review queue to be given an FL by a Scoring Supervisor, Scoring Director, or Content Specialist.
- If portions of a response were in a foreign language, scorers disregarded those portions and evaluated and scored what was written in English.

4.11.4 Illegible (IL):

- A response was Illegible only if all or a substantial portion of it was so illegible that the response could not be read. Scorers sent potentially illegible responses to a Review queue, where a Scoring Supervisor, Scoring Director, or Content Specialist determined whether the response was truly illegible. (Experienced scoring staff is often able to read responses that at first appear to be illegible.)
- A response was not considered to be illegible just because the student's handwriting was poor or sloppy.

4.11.5 Incomprehensible (IN):

- In an Incomprehensible response, a scorer was able to read words and/or letters but unable to make sense of them.
- Some students wrote responses in which all or a substantial portion of the words were misspelled. Before assigning an invalid score of Incomprehensible, every effort was made to decode the response. Students often write like they speak, so scorers tried to read it phonetically, and "hear" what they were attempting to say.

4.11.6 Off-topic (OT):

- The response bore no relationship or connection whatsoever to the prompt, nor was it a response to another prompt in the grade level. A response that is irrelevant is not necessarily Off-Topic. An Off-Topic response is usually considered "blue sky", and well removed from being merely irrelevant.

4.11.7 Refusal (RF):

- Statements such as "I refuse to answer," "No," "I hate this test," "I don't care", "I don't know," "I wasn't taught this," "X" (large X on the page), and "?" (question mark).were all considered to be refusals.
- Any artwork (pictures, doodles, etc.) was considered to be a refusal
- A student may have written a refusal and then went on to provide additional writing that was not a refusal. In this case, scorers disregarded the invalid refusal portion and evaluated and scored the remainder of the response. If any portion of a response was scorable then the entire response was fully scorable.

4.12 Reporting of "PSC Alerts"

Students' responses occasionally contained what is termed a "PSC Alert"—that is, some responses stated or implied threats of violence to self or others or possible cases of abuse or neglect.

Copies of responses demonstrating potential irregularities (i.e., writings on suicide, abuse, neglect, or possibly indicating teacher interference) were provided to the WDE by Pearson. PSC staff forwarded copies of papers to the Program Manager who forwarded the copies to the WDE.

4.12.1 Policy on the Reporting of Alerts

Pearson's scorers were instructed to forward student responses that contain one or more of the following elements to a Review queue.

1. Statement of intent to inflict serious and imminent physical harm to self.
2. Statement of intent to inflict serious and imminent physical harm to others.
3. Statement reporting past or current child abuse or neglect.

The scorers were not instructed to flag and report any statements beyond the above three categories. The scorers were instructed, however, that they could at their discretion flag and report any other material that they believed may reflect a serious situation requiring action.

4.12.2 Reporting Procedure

When a scorer identified a response containing a "PSC Alert" in one or more of the categories listed above, the following procedure was followed:
The scorer forwarded the response to "Review." The Scoring Director reviewed the response to determine whether it fit the criteria of an alert. The WY PSC Content Specialist was consulted if needed. If the determination was that the response did not contain alert content, no report was made. If the response contained content of a possible alert, a copy of the student's response with a completed project alert form was posted to the Pearson State Services Program Team who contacted the WDE.
If Pearson referred a student's test to WDE, it did so without making any assessment or recommendation other than to make note of the "PSC Alert." Due to the nature of the material and lack of appropriate context, Pearson was not in a position to determine whether threats or other statements contained in test responses were serious or joking, real or imaginary.

5. LINKING, EQUATING, AND SCALING PROCEDURES

5.1 Overview

This chapter covers:

- the equating of the 2012 PAWS mathematics, reading, and science tests;
- translation of raw scores to scale scores along with descriptive statistics for all of the 2012 PAWS scales;

The equating analyses were carried out under the supervision of Pearson's lead psychometrician for the WY PAWS assessment project, who conducted all of the primary analyses documented in this chapter. All analyses were independently replicated by a second Pearson psychometrician, with supporting activities and analyses from a Pearson Research Associate. After all analyses were concluded and documented, preliminary results (statewide mean scores, performance level percentages, and pass rates) were calculated over the student data sample used for equating (all grades and subjects had responses from > 99% of the population of Wyoming students in the sample). Documentation of the analyses and the preliminary statewide results were presented to the WDE assessment leadership team for their review and approval by Pearson's lead psychometrician via conference call and WebEx prior to the release of the scoring tables for production of reports. Scoring tables were released and production activities commenced after Pearson received written approval of the results by the WDE assessment leadership.

5.2 Item and Forms Development

Kolen and Brennan (2004, p.3) state that, "Equating adjusts for differences in difficulty, not for differences in content." Properly, then, a discussion of the equating of the PAWS assessment begins by noting that the development of the items and forms for the PAWS began in 2005 and has been an ongoing process. Items have been developed to the same style guide since 2005 (with minor updates throughout), and tests have used comparable blueprints since the first operational administration in 2006 for reading and mathematics and in 2008 for science. It should be noted that the writing assessment was discontinued as a component of PAWS beginning with the 2012 administration. Feedback from the school districts within the state in the early years of the program indicated that the test required too much time, and so the number of items and points on the reading and mathematics tests were reduced at several points from 2007 to 2009, but care was taken to ensure that the proportion of items and points addressing each of the standards and skills covered by the tests remained unchanged. The blueprints for the science tests are the same as they were in 2008 (the first operational year of administration). Finally, a printing error on one form of the grade 5 reading assessment resulted in the invalidation of one operational item for 2012.

As a consequence of the problems experienced during the 2010 administration of the PAWS (see the 2010 Technical Report for details), the WDE decided to move from the hybrid computer and pencil and paper administration model used in 2010 and earlier (where the multiple choice items were administered via computer and the constructed response items were administered via paper and pencil) to an exclusively paper-based test. The WDE (after consultation with the TAC) decided to maintain the year-to-year scaling across this change in administration mode. Meta-analyses by Wang, Jiao, Young, Brooks & Olson (2007, 2008) have found that administration mode generally does not result in any statistically significant differences in reading or mathematics achievement scores of students, suggesting that the equating should not be affected by the change in administration mode from 2010 to 2011. There were no changes in administration mode or in the test blueprints (apart from the loss of the grade 5 reading item) between the 2011 and 2012 administrations.

5.3 IRT Models and Calibrations

The Item Response Theory (IRT) models used to calibrate the 2012 Wyoming PAWS reading, science, and mathematics assessments were the *Rasch model* (Rasch, 1980) for dichotomous items and its polytomous extension, the *Partial Credit model* (PCM) (Masters, 1982). These measurement models are used regularly to construct test forms, for scaling and equating, and to develop and maintain large item banks. All test analyses, including item model fit analysis, preliminary equating, diagnosis, and performance prediction were accomplished within this framework. The statistical software used to calibrate the PAWS operational and field test items that were used in the spring 2012 administration was *Winsteps Version 3.64.2* (Linacre, 2007).

The most basic expression of the Rasch model is in the Item Characteristic Curve (ICC). It conceptualizes the probability of a correct response to an item as a function of the ability level. The probability of a correct response is bounded by “1” (certainty of a correct response) and “0” (certainty of an incorrect response). The ability scale is theoretically unbounded. In practice, the ability scale ranges from approximately -4 to +4 logits for heterogeneous ability groups. The relationship between examinee ability θ, item difficulty D_i, and probability of answering the item correctly P_i is shown in the equation below:

$$P(\theta) = \frac{\exp\,(\theta - D_i)}{1 + \exp\,(\theta - D_i)}$$

The PCM is a direct extension of the dichotomous one-parameter IRT model above. For an item/task involving *m* score categories, the general expression for the probability of scoring *x* on the item/task is given by

$$P_x(\theta) = \frac{\exp[\sum_{k=0}^{x}(\theta - D_k)]}{\sum_{h=0}^{m}\exp[\sum_{k=0}^{h}(\theta - D_k)]}$$

where

$$b_0 \equiv 0.0$$

In the above equation, *Px* is the probability of achieving a score of *x* given an ability of θ, *m* is the number of achievable score points minus one (note that the subscript *k* runs from 0 to *m*), and D_k is the step parameter for step *k*. The steps are numbered from 0 to the number of achievable score points minus 1, and step 0 (D_0) is defined as being equal to zero (Masters, 1982).

According to this model, the probability of an examinee scoring in a particular category (step) is the sum of the logit (log-odds) differences between θ and D_k of all the completed steps, divided by the sum of the differences of all the steps of a task. Thissen and Steinberg (1986) refer to this model as a divide-by-total model. The parameters estimated by this model are (1) an ability estimate for each person (or ability estimate at each raw-score level) and (2) m_i -1 threshold (difficulty) estimates for each task with m_i score categories. The mean of these threshold estimates provides a single overall difficulty estimate for polytomous items and is used as an overall summary of the polytomous item's difficulty.

As an example, consider Figure 5.1, in which the response probability curve for a dichotomous item is depicted with a Rasch difficulty (D_i) of 0.85. When a person answers a dichotomous item with a difficulty that is at the same level as their ability (ability is represented by θ in the equation above), then that person has a 50% chance of answering the item correctly. Another way of expressing this is that if we have a group of 100 people, all of whom have an ability of 0.85, we would expect about 50% of them to answer the item correctly. A person whose ability was above 0.85 would have a higher probability of a correct answer, while a person whose ability is below 0.85 would have a lower probability. This makes intuitive sense and is the basic formulation of Rasch measurement for test items having only two possible scores (i.e., wrong or right).

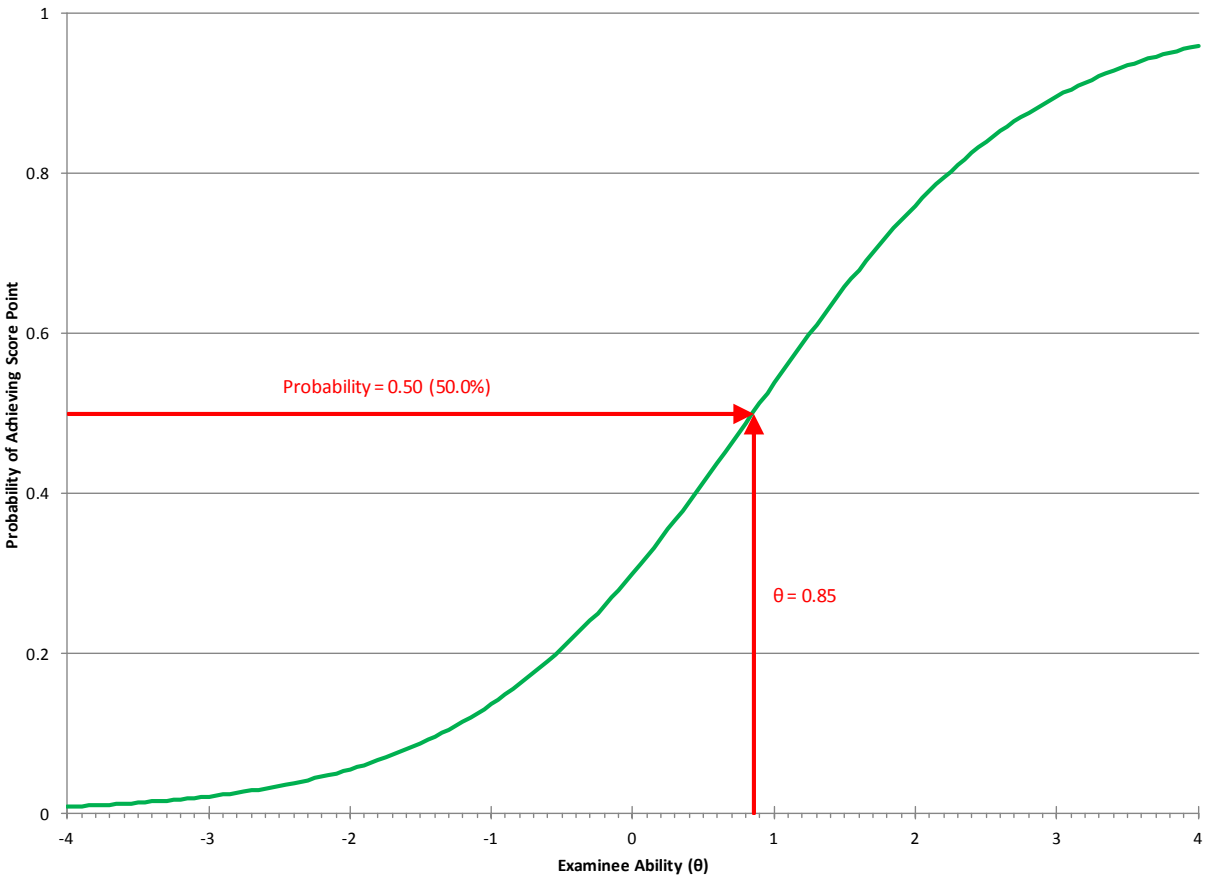

Figure 5.1 Sample item characteristic curve.

This formulation is extended in Figure 5.2 to show the probabilities of obtaining a wrong answer or a right answer. The curve on the left (the blue line) shows the probability of getting a score of “0” while the curve on the right (the green line) shows the probability of getting a score of “1.” The point at which the two curves cross indicates the transition point on the ability scale where the most likely response changes from a “0” to a “1”. Here, the probability of answering the item correctly is 0.50 or 50% (as it is for all dichotomous items).

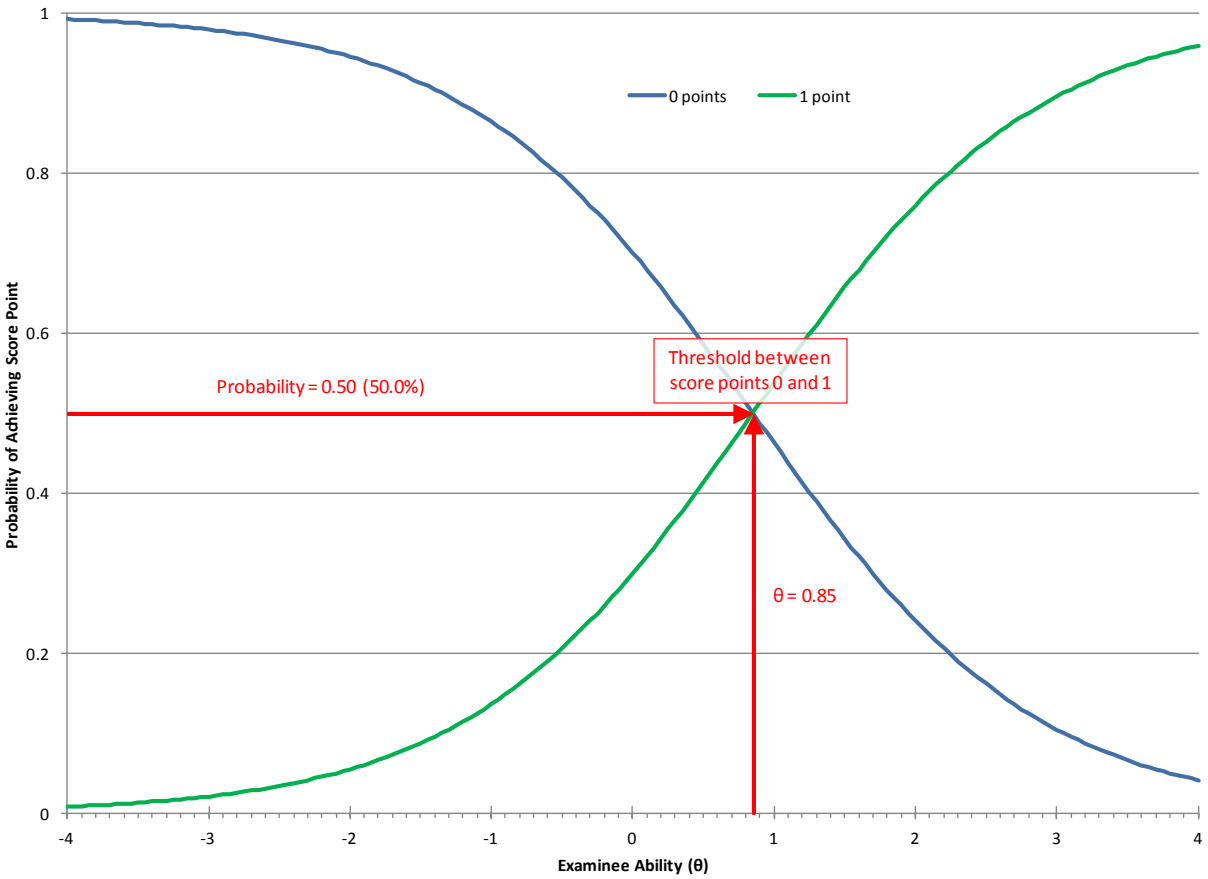

Figure 5.2 Category response curves for a one-step item.

The curves depicted in Figure 5.2 show that a dichotomous item can be treated as an item with two possible scores (0 and 1). Being able to calculate the probability of a correct response gives us the ability to also calculate the probability of an incorrect response. For an item with two achievable score points, the probability of an incorrect response (0) is equal to one minus the probability of a correct response (1). Thus, for a dichotomous item, the point on the ability scale where a correct response becomes more likely than an incorrect response corresponds to the 50% probability level.

Now, consider an item with three achievable scores (0, 1, and 2). There will be one probability curve for each achievable score point. Since score points on a typical test item are at least ordinal data (that is, higher scores represent higher levels of the ability measured by the item), the curve for the lowest score point is highest towards the low end of the ability continuum and declines as ability increases, curves for scores in the middle have their lowest probability at both the low and high ends of the range, and the curve for the highest achievable score has its lowest probability at the low end of the scale, and is monotonically increasing as ability increases. Curves for a sample two-point item are depicted in Figure 5.3.

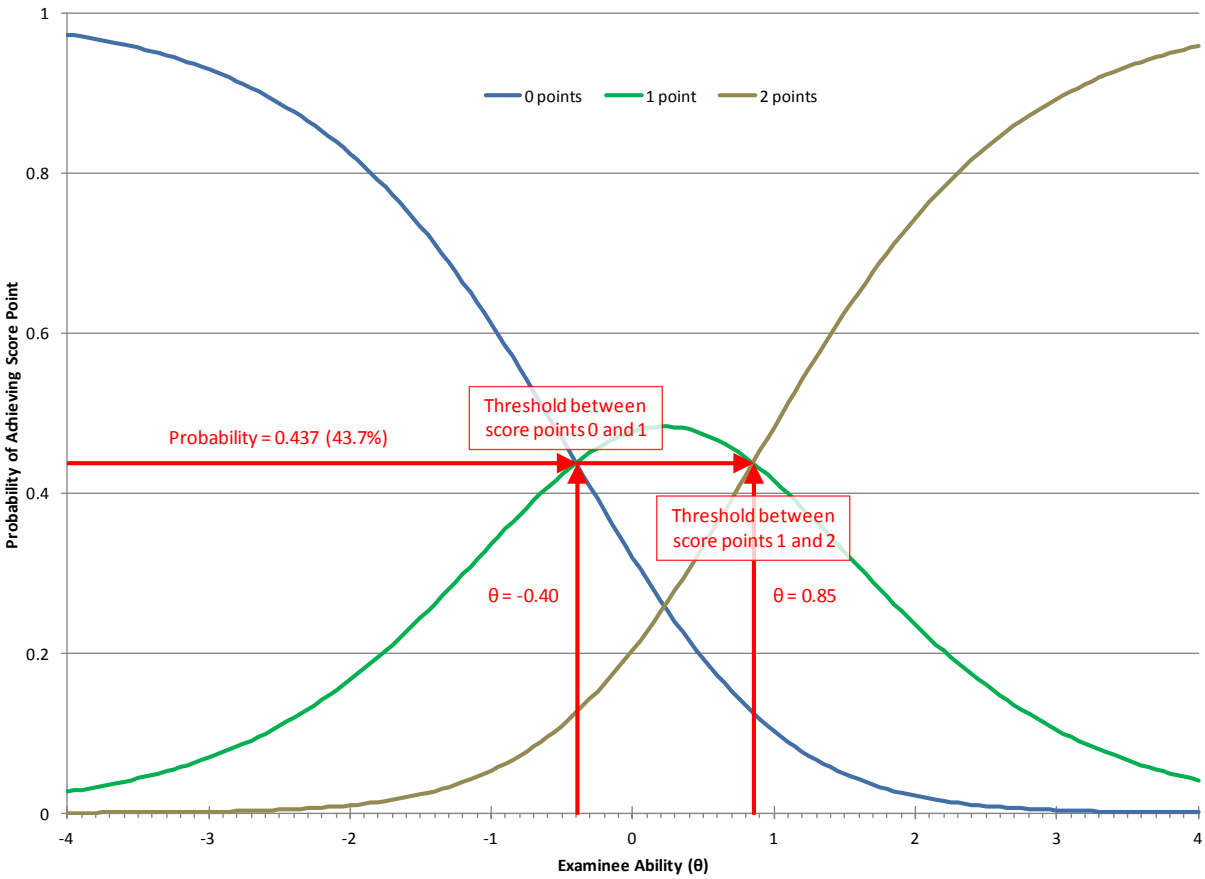

Figure 5.3 Category response curves for a two-step item.

The blue, green, and brown curves represent the probabilities of earning a score of zero, one, and two points respectively for this sample item across the continuum of ability (θ). Examinees with an ability level that is less than -0.40 are most likely to achieve a score of zero points, examinees with ability levels between -0.40 and 0.85 will most likely be able to earn a score of one point, while examinees with an ability level greater than 0.85 will most likely achieve a score of two points. Note that in even though one of the score points is always the most likely point for any value of θ, the probabilities that examinees with that level of ability will be able to achieve the other less likely score points is never equal to zero (an examinee with an ability level of -4 has a 3%-4% chance of being able to score one point and a very small but non-zero chance of scoring two points on the sample item represented in Figure 5.3, for example). The points where the curves for adjacent score points cross each other (and thus the higher score point becomes more likely than the lower one) can be thought of as the thresholds between adjacent score points and have the same interpretation as does the single difficulty parameter (D_i) of the dichotomous Rasch model. These thresholds are also referred to as item step or item step difficulty parameters.

The forgoing discussion demonstrates that the dichotomous Rasch model is a special case of the more general Rasch PCM applied to items with two achievable score points. Because both dichotomous and polytomous items are being calibrated and equated

using the same IRT model, the analyses for the calibration and equating can be performed over all items simultaneously rather than separately for the two item types.

One important property of the Rasch model is its ability to separate the estimation of item/task parameters from the person parameters. With the Rasch model the total raw score is a sufficient statistic for estimating the person's ability (i.e., no additional information is necessary to derive an estimate of the person's level of ability). The total number of responses across examinees in a particular category is a sufficient statistic for estimating the step difficulty for that category. Thus with the Rasch model, the same total score will yield the same ability estimate for different examinees, regardless of which *particular* items within the form they answered correctly.

5.4 Fit Statistics for the Rasch Model

Fit statistics are used for evaluating the goodness-of-fit of a model to the data. Fit statistics are calculated by comparing the observed and expected trace lines obtained for an item after parameter estimates are obtained using a particular model. *WINSTEPS* provides two kinds of fit statistics called *mean-squares* that show to what degree the observed data follows the pattern of responses that would be predicted by the model. This indicates how appropriately the model is describing the statistical behavior of the item.

Outfit mean-squares are influenced by outliers and are usually easy to diagnose and remedy. *Infit* mean-squares, on the other hand, are influenced by response patterns and are harder to diagnose and remedy. Table 5.1 presents guidelines for evaluating mean-square fit statistics (Linacre, 2007).

Table 5.1 Criteria to Evaluate Mean-Square Fit Statistics

Mean-Square	Interpretation
> 2.0	Distorts or degrades the measurement system
1.5 – 2.0	Unproductive for construction of measurement, but not degrading
0.5 – 1.5	Productive for measurement
< 0.5	Unproductive for measurement, but not degrading. May produce misleadingly good reliabilities and separations

In general, mean-squares near 1.0 indicate little distortion of the measurement system, while values less than 1.0 indicate observations are too predictable (redundancy, model overfit). Values greater than 1.0 indicate unpredictability (unmodeled noise, model underfit).

Appendix H provides Rasch difficulty estimates, standard errors, and infit and outfit statistics for 2012 PAWS reading, mathematics, and science operational items. Fit statistics for all but one of the science items were within the range of 0.5 to 1.5. No operational items exceeded the 2.0 threshold. These results confirm that the Rasch

model was appropriate for scaling the 2012 PAWS operational mathematics, reading, and science tests. Classical item statistics are presented in Appendix I.

Appendix A provides IRT statistics and n-counts for items field-tested in 2012. Two grades and subjects (mathematics and science grade 11) had ~88% of their items fall within the range of productive measurement (0.5-1.5). Mathematics grades 5 and 6 had more than 90% of their items in the desirable range, while the other grades and subjects saw 96% or more of their field-tested items fall within the range of productive measurement. One item at each of reading grade 5, science grade 4, and science grade 8 had an outfit in excess of 2.0, as did three science grade 11 items. Item fit is a factor that is considered during test construction, and items with less than optimal fit statistics that survive data review are not likely to be used on future PAWS forms.

5.5 Equating Analyses

As was previously mentioned, the PAWS reading, mathematics, and science tests for 2012 were post-equated, meaning that the item and test statistics used to generate the scoring tables (i.e., tables explicating the relationship between specific raw scores and scale scores for a particular grade level and subject) came from the present (spring 2012) administration. All tests were equated to the pre-existing scale, and so scale scores on the 2012 administration use the same metric as scale scores for the same grade level and subject from previous administrations of the PAWS.

It should also be noted that for grades 3 through 8 of reading and mathematics, the Rasch statistical parameters of the item pools are vertically scaled. The science tests were only given at grades 4, 8, and 11, and therefore are not vertically scaled.

According to Young (2004), vertical scales have several important features. These include:

- The monitoring of student progress over time within a content area;
- Analyzing the growth patterns for individual students or groups of students in terms of changes in performance and variability from grade to grade;
- Checking on the consistency of achievement-level expectations across grade levels.

It is important to note that vertical scaling produces scales that are *linked* across adjacent grades as opposed to scales that are *equated*. Linked scales are comparable, but have a weaker relationship than do equated scales. This relationship is strongest across adjacent grades and weakens as the gap between the grades being compared widens. This is due to the fact that the tests from adjacent grades cover different subject matter that is specific to their targeted grades. For an equating relationship to exist, the test forms that are being equated should cover the same subject matter. Thus, test forms from the same grade and subject are equated from year to year while test forms from adjacent grades (within grades 3 to 8) and the same subject are linked via the vertical scale.

The vertical scales for Reading and Mathematics were developed in 2005 using the initial standalone field test for the PAWS assessments. Field test forms were designed so that they contained two kinds of linking items: Items that were common from one form to another at the same grade level ("horizontal linking items") and items that were the same across forms form two adjacent grade levels ("vertical linking items"). Calibration of the item pool began by first calibrating items using the horizontal linking items to link the field test forms within each grade. This established a series of grade-by-grade item pools, each of which consisted of all of the field test items for a given content area. At this stage, all of the items within a grade and content area were on the same measurement scale; however, the measurement scales were not related across grade levels. This was addressed in the second stage of the item pool calibration when the vertical linking items were used to link the grade-level item pools. As a result, reading and mathematics test scores in grades 3–8 are directly comparable across adjacent grades.

5.5.1 Calibration and Equating Process for the 2012 administration

The procedures for scaling and equating the 2012 forms of the reading, mathematics, and science forms to the preexisting scales were similar to those used in 2011. To establish a strong relationship between the 2011 and 2012 forms, each 2012 form had approximately 30% of its items drawn from the set of 2011 operational items. Other items were drawn from the item bank which was comprised of all items used operationally from 2006-2010 (with the exception of those items released publicly as sample PAWS items), and items field tested and accepted at data review from 2005 through 2011.

The tests were equated via common item equating to a calibrated item pool (Kolen and Brennan, 2004). While there was a core of items drawn from the immediately previous year's administration present on each form, *all* items (with a few exceptions) were potential linking items, with their parameters being drawn from their most recent use (either as an operational or field test item).

There were some items that were identified as possibly having unreliable statistics from their most recent use—such items were removed from being linking items. These items included items that were most recently used in the initial standalone field tests for PAWS (2005 for math and reading and 2007 for science). Since the students taking the standalone field tests knew that there were no consequences tied to performance on these tests and that they would not receive any scores from the standalone field test administrations, they likely had less motivation to perform well than do students taking operational tests. Thus, items with statistics derived from these administrations were not used as linking items. In addition, a few items that were most recently used as operational items in the spring 2007 administration were identified as having possibly drifted during follow up analyses after the administration (the 2007 administrations were preequated so only follow up analyses were possible) and were also excluded as linking items. Finally, some items had been modified since their most recent use (mostly older items modified to bring them in line with current PAWS item style guidelines), which

could mean that their statistics might not be valid for the "new" modified version of the item. This set of items was removed from the linking set. It should be noted that this set included all constructed response reading items, meaning that no constructed response items remained in the linking sets for the reading forms. All items that were not used as linking items had their parameters freely estimated with respect to the parameters of the remaining anchor items.

Though Rasch (and in general IRT) parameters are theoretically invariant across different samples of students, in practice it is possible for "parameter drift" to occur over time. Such drift can be the result of shifting emphases in instruction over time, changes in item position from the previous use of the item, contextual effects, or simply random measurement error. Because of this, multiple analyses of the linking items were carried out prior to the final calibration analysis to identify any items whose parameters had drifted (i.e., items whose Rasch difficulties estimated from the 2012 administration data differed significantly from their "known" values used for linking). It should be noted that student growth (for example, if grade 3 students in 2012 were more able than grade 3 students in 2011) affects all items within a subject equally; only items with changes in difficulty that differed from the overall pattern across all items were flagged and removed from being linking items.

Three separate rounds of analyses were conducted to identify items that were not suitable for use as linking items. The first round used the Robust-Z statistic (Huynh and Meyer, 2010) to identify items that exhibited item parameter instability in their Rasch difficulties (multiple choice items) or step threshold difficulty values (polytomous constructed response items) for the 2012 calibration as compared to their parameters from their most recent use.

The first step in computing Robust-Z is to run two separate Winsteps calibrations, one with all items unanchored ("free" calibration), and the second with all items designated as linking items anchored to their parameter values from their most recent use. Nonlinking items are allowed to freely calibrate to their best values, but are not used in any other way in the stability analyses.

Robust-Z is defined as

$$\mathrm{Z} = \frac{d - MDN(d)}{0.74 * IQR(d)}$$

where *d* is the difference between the Rasch parameters that the items in the linking set were anchored to and those estimated in the free calibration, *MDN(d)* is the median of *d*, and *IQR(d)* is the interquartile range of *d*. Huynh and Meyer (2010) describe the use of the median and interquartile range as a "robustification" of the traditional *z*-statistic and *z*-test. In the above formula, "Rasch parameters" includes both the Rasch difficulty for multiple choice items (one parameter per item) and the step threshold difficulty parameters for multipoint items (with the number of parameters equaling the number of

achievable score points minus one). If any threshold parameter of an item was flagged then the entire item was removed from being a linking item.

Items with a robust Z that exceeded 1.645 were deemed to have drifted and were eliminated from the linking set. Because the linking set made up most or all of the operational test, no limitation was placed on the number of items that could be eliminated from the linking set with the exception that no more than 50% of the items addressing any standard could be dropped from the linking set in the first round in order to maintain representation of all content areas on the linking form. No forms reached this limit, so all items flagged by the Robust Z procedure were eliminated from the linking sets for all grades and subjects. The number of items flagged ranged from four items for grade 3 reading, grade 7 mathematics, and grade 8 science, to ten items for grade 11 mathematics.

After the items identified as having drifted by the robust Z analyses had been eliminated from the linking sets a second calibration was run with the reduced linking set. One of the statistics reported by the Winsteps software for all items is "displacement". Linacre (2007, p. 362) describes this statistic as:

> …the size of the change in the parameter estimate that would be observed in the next estimation iteration if this parameter was free (unanchored) and all other parameter estimates were anchored at their current values. For a parameter (item or person) that is anchored in the main estimation, (the displacement value) indicates the size of disagreement between an estimate based on the current data and the anchor value.

The remaining anchored items' displacement values were examined, and any item with a displacement whose absolute value was greater than or equal to 0.5 was flagged as having drifted and was removed from the linking set. Four items (one from each of grades 5 and 7 reading and two from grade 3 math) were flagged for high displacements and dropped from their respective linking sets.

The third round of analyses involved examining groups of items for displacements in the same direction, even if those displacements did not individually exceed the threshold value of 0.5 in the second round. This mainly applied to the reading and science tests which had groups of items tied to passages, but mathematics tests were examined as well. If a group of items with something in common (such as a common passage or content area) were all influenced in some way that affected their overall group difficulty in the same way, the cumulative effect of that group on the overall test (specifically, the relationship between raw and scale scores) can be large enough to introduce a significant amount of systematic error into the equating. In other words, a group of items that was systematically affected in some way such that the items were all either less or more could in effect "pull" the curve relating raw to scale scores in one direction or another such that students' scale scores would either be higher or lower than their "true" ability levels. An example would be a reading passage that was at the very end of the test last year but that appeared first on this year's test (care was taken in

constructing forms to place items and passages as close as possible to their ordinal position when they were last used as possible, but other constraints sometimes made this impossible). The difficulty of the items for this hypothetical reading passage would likely be a little lower (the items would be easier) for this year as compared to last year since the students would be less fatigued in responding to the items this year when it's the first set of items versus last year when it was the last set. Common factors that were looked at included passage (for reading and science), content strand, item type, and the most recent administration. In addition, items with high degrees of misfit had their fit statistics compared with the items' fit statistics from the free calibration used in the first round to determine if the misfit was being caused by the item being anchored to an inappropriate anchor value. Items with significantly improved fit from the second anchored run to the free run were also removed from the linking set.

Two items were removed from the grade 3 mathematics linking set and one item from the grade 4 reading linking set during this round of analyses. The items were all dropped due to high anchoring-induced misfits. Table 5.2 summarizes the number of items on the tests, in the initial linking sets, and remaining in the reduced linking sets after each round of the stability analyses.

Table 5.2 PAWS Mathematics, Science, and Reading Item Counts for the Total Test and Total and Reduced Linking Sets.

Subject	Counts	Grade						
		3	4	5	6	7	8	11
Reading	Total Items	47	47	47	47	47	47	47
	Linking Set	44	42	43	42	42	42	42
	Round 1 Reduced Set (Robust-Z)	40	34	37	37	37	37	35
	Round 2 Reduced Set (Winsteps Displacement)	40	34	36	37	36	37	35
	Round 3 Reduced Set (Group Effects or Item Misfit)	40	33	36	37	36	37	35
Mathematics	Total Items	55	60	60	60	61	65	68
	Linking Set	51	56	58	57	59	63	64
	Round 1 Reduced Set (Robust-Z)	46	49	50	49	55	57	54
	Round 2 Reduced Set (Winsteps Displacement)	44	49	50	49	55	57	54
	Round 3 Reduced Set (Group Effects or Item Misfit)	42	49	50	49	55	57	54
Science	Total Items		40				40	40
	Linking Set		39				38	36
	Round 1 Reduced Set (Robust-Z)		31				34	27
	Round 2 Reduced Set (Winsteps Displacement)		31				34	27
	Round 3 Reduced Set (Group Effects or Item Misfit)		31				34	27

The final calibration run of the Winsteps software produced as one of its output files a file that explicated the correspondence between raw scores on the test and theta scores (a measure of student ability; see section 5.2). The theta equivalents for each raw score point were determined iteratively by solving the following equation.

$$True\,Score = \sum_{i=1}^{I} \sum_{j=0}^{m_i} j \cdot P_{ij}(\theta)$$

where

$P_{ij}(\theta)$ = the probability of a correct response for each of the i = 1, ... , I items given that the item categories are numbered $0, ..., m_i$., and

True score is set to each achievable raw score point to find its theta equivalent.

These theta scores were then scaled via constants to the reporting metric. According to Lord and Wingersky (1984), the procedure applied to true scores can be transferred to observed raw scores without any major anomalies in the resulting outcomes.

5.6 Translating Raw Scores to Scaled Scores and Performance Levels

Scale scores on the PAWS reading, mathematics, and science tests ranged generally from 300 to 990 for grades 3–8 and from 50–250 for grade 11; the specific minimum and maximum possible scale scores varied by grade and subject and are shown in table 5.3. As was discussed previously, the reading and mathematics scales for grades 3-8 were common and comparable across grades, while the grade 11 scales were separate as were the scales used for all grades of science. Appendix J provides scale score descriptive statistics for the 2012 PAWS operational reading, science, and mathematics tests.

The following formulae were used to convert the underlying PAWS IRT mathematics, reading, and science scales to the PAWS reporting scale:

$$PAWS\ Scaled\ Score = \theta\ x\ Slope + Intercept$$

$$PAWS\ Scaled\ SEM = SEM_{\theta}\ x\ Slope$$

where θ was the *IRT* ability estimate, and SEM_{θ} was the conditional *SEM* of the ability estimate θ.

Table 5.3 also contains the slope and intercept for the PAWS mathematics, science, and reading scales. All subjects in grades 3-8 used a common slope and intercept, and grade 11 used a different set designed to emphasize the separate nature of the grade 11 scale from the vertical scale used in the lower grades. Science used the same constants as were used for the other subjects at the same grade level (4, 8, or 11) to avoid confusion stemming from different scale metrics for different subjects at the same grade level.

The raw score to scale score conversion tables for the 2012 PAWS reading, mathematics, and science tests can be found in Appendix K. Conditional standard errors for the scale scores are also included in these tables.

Table 5.3 PAWS Mathematics, Science, and Reading Scaling Constants, Lowest Obtainable Scale Scores, and Highest Obtainable Scale Scores

Subject	Grade	Slope	Intercept	Lowest Obtainable Scale Score	Highest Obtainable Scale Score
Mathematics	3	48.21	637.5	361	842
	4			377	865
	5			413	904
	6			434	916
	7			467	946
	8			485	965
	11	16.67	150	71	239
Reading	3	48.21	637.5	337	804
	4			389	867
	5			390	912
	6			407	928
	7			427	934
	8			447	939
	11	16.67	150	70	245
Science	4	48.21	637.5	407	882
	8			410	876
	11	16.67	150	72	228

6. PAWS REPORTING

6.1 Overview

A thorough understanding of the results of the PAWS assessment is essential for all members of the school community (parents, teachers, administrators, and students) to be able to hold students accountable for individual learning progress and delivering targeted intervention as needed to help all students to meet grade level expectations. This level of assessment literacy is only possible if professional educators are well-versed in assessment practice and assessment results are presented clearly. The WDE has worked with Pearson to make the results of the PAWS assessment readily accessible to all members of the school community. Sample student, school, and district reports are located in Appendix M.
Following this Overview, the following reporting information is provided:

- Scale Scores
- Performance Levels
- Raw and Scale Scores
- Skill-Reporting Categories
- Production of PAWS Score Reports

6.2 Scale Scores

The PAWS reading and mathematics tests were designed to be comparable across grade levels (vertically) for grades 3–8. The vertical scale scores generally range from 300 to 990 for both mathematics and reading. Care was taken in crafting the assessment system so that the skills and abilities captured by each grade level assessment (within subject) reflected the same fundamental set of skills. This is the intent of a vertical scaling system. In essence, each PAWS vertical scale reflects a single general underlying construct (e.g., mathematics ability).

While this is common practice in educational assessment, there are limits to the interpretations based on such scales (Kolen and Brennan, 2004). Where each grade level test is based on a common blueprint design, the grade-level specifics from instruction as reflected in the test questions differs from grade to grade. These differences are naturally greater as one compares over wider grade spans. It is thus important to take these underlying factors into consideration when interpreting student performance across grade levels, remembering that the scales for adjacent grades are linked rather than equated. Comparisons across adjacent grades are the most meaningful.

The grade 11 mathematics and reading tests are not included in the PAWS vertical scales used for the lower grades. Scores on the grade 11 tests were created to allow for comparisons across administrations (horizontally). The grade 11 scale scores range from 50 to 250 so as not to suggest an implicit alignment with the scale of the lower grades.

6.3 Performance Levels

Performance classifications are determined by applying the appropriate scale score cuts established from the PAWS standard setting activities described in the 2006 (reading and mathematics) and 2008 (science) PAWS Technical Manuals. Tables 6.1 to 6.3 provide the scale score ranges for the PAWS mathematics, reading, and science tests.

Table 6.1 Proficiency Level Ranges for Grades 3 – 8, and 11 Mathematics

Grade	Below Basic	Basic	Proficient	Advanced
3	557 and lower	558 - 599	600 – 679	680 and higher
4	583 and lower	584 - 619	620 – 697	698 and higher
5	606 and lower	607 - 644	645 – 720	721 and higher
6	631 and lower	632 - 662	663 – 740	741 and higher
7	652 and lower	653 - 686	687 – 757	758 and higher
8	675 and lower	676 - 705	706 – 776	777 and higher
11	132 and lower	133 - 147	148 – 175	176 and higher

Table 6.2 Proficiency Level Ranges for Grades 3 – 8, and 11 Reading

Grade	Below Basic	Basic	Proficient	Advanced
3	519 and lower	520 - 583	584 - 660	661 and higher
4	569 and lower	570 - 633	634 - 699	700 and higher
5	586 and lower	587 - 638	639 - 706	707 and higher
6	593 and lower	594 - 649	650 - 717	718 and higher
7	609 and lower	610 - 667	668 - 745	746 and higher
8	623 and lower	624 - 675	676 - 748	749 and higher
11	144 and lower	145 - 158	159 - 177	178 and higher

Table 6.3 Proficiency Level Ranges for Grades 4, 8, and 11 Science

Grade	Below Basic	Basic	Proficient	Advanced
4	611 and lower	612 - 665	666 – 725	726 and higher
8	605 and lower	606 - 653	654 - 713	714 and higher
11	140 and lower	141 - 156	157 - 174	175 and higher

Descriptions of each performance level provide specific information about the skills and abilities that students at that performance level are typically capable of demonstrating. The performance-level descriptions for mathematics, reading, and science are included on the parent report.

Percentages of students classified into each of the four performance levels can be found in Appendix L. Percentages for all Wyoming students as well as for selected demographic subgroups are given.

6.4 Content Standard-Level Raw and Scale Scores

Content standard-level scores (by text type for reading and skill for science) are provided in the form of scale and raw scores. The content standard-level scores were produced in the same way as the overall test scale scores—a raw score to scale score table for each content standard within a particular form/grade/content area combination was derived using the Rasch IRT parameters of the items that mapped to that standard.

The standard-level scale scores and associated error ranges (student scale score +/- one SEM) are graphically presented on the parent report. The probability that student's "true" score will be in the range indicated by the error bar is approximately 68%. For mathematics, scale scores are provided for Numbers, Operations, and Concepts; Algebra; Geometry; Measurement; and Data Analysis and Probability. For reading, scale scores are provided by passage type: Functional Texts; Expository Texts; and Narrative Texts. For science, scale scores are given by skill type: Observe and Question, Design and Conduct a Scientific Investigation, Organize and Represent Data, and Draw Conclusions and Make Connections. Since measurement error is related to the number of items making up the measure (more items = less error), the error ranges for the standard level scores will generally be larger than those for the overall subject-level scale score.

When comparing subscale scores, users should remember that the comparison is affected by measurement error present in both subscales. Generally, the difference between any two subscale scores has a lower level of reliability and a larger SEM than those of the subscales that are being compared. Any decisions based on the comparison between two or more subscale scores should be made with an appropriate degree of caution.

Raw score points earned for each skill-reporting category are also provided relative to total points possible. Skill-reporting categories for mathematics, reading, and science can be found in the blueprints in Chapter 2.

6.5 Skill-Reporting Categories

In its "Traffic Signal Report," the WDE provides guidance at the skill-reporting category level when reporting PAWS results. This skill-based reporting of student performance is intended to be interpreted independently of the proficiency and scale scores. Furthermore, this reporting mechanism is intended to apply only to the specific set of items within a skill-reporting category and to provide a peer-based means of identifying student performance in need of instructional attention. These skill-reporting categories are not formally equated across years. The Traffic Signal information is not connected to the student's performance level; rather, Traffic Signal information is meant to provide suggestions for where a student might or might not need additional instruction. Traffic Signal results are reported separately from the PAWS results to prevent confusion with performance level information. The Student and Home reports provide information for students at the individual skill level, but this information is reported as points possible

and points earned. Because the Traffic Signal results focus on areas where students may need additional instruction, the WDE determined that the audience for the Traffic Signal information is teachers and schools. Class Roster reports and School reports included Traffic Signal information; Student and Home reports did not.

The Traffic Signal Project takes place at the end of each test administration. The WDE selects panelists to participate and provides facilitators. Pearson provides the printed materials. Criteria for the panel selection include the following:

- Knowledge of the Wyoming Content and Performance Standards and Wyoming Assessment Descriptions
- Teaching experience at the grade level to which the individual will be assigned, and expertise in the subject area

In 2012, panels met for two days to review the items alongside the assessment descriptions to generate instructional suggestions for their peers. These suggestions were based on the number of points a student would need to earn for each skill category in order for that student to earn a green light, meaning that no additional instruction on a given skill seems to be needed. All reviewers first receive training from the WDE in how to effectively evaluate sets of items during the Traffic Signal project. Training includes:

- reviewing the assessment descriptions for each skill category and the number of points available for the each skill-reporting category on that grade's PAWS test;
- judging the overall level of difficulty of the item set; and
- developing suitable guidance for Wyoming teachers regarding how to respond instructionally to their students' PAWS scores.

The panelists' suggestions were color-coded recommendations on the Student report as follows:

- Green: No additional instruction on the skill seems needed.
- Yellow: Additional instruction on this skill may be needed.
- Red: Additional instruction on this skill definitely seems needed.

Each group of panelists worked in separate rooms and participated in the following five-step process for each skill category within the content standard that was assessed.

Step 1: The facilitator asks the panelists to review the assessment descriptions for a particular skill category and the set of items used to assess that skill. Then, panelists are asked to make an independent judgment as to how many points they would tell their fellow teachers a student would need to earn in order to receive a green light. For example, if there are 10 points possible for the skill, the panelists each would make an independent judgment as to how many points they think a student would need to earn in order to have a green light, meaning, no additional instruction on the skill seems needed.

Step 2: Next, the facilitator asks each panelist to share his or her point value with the group without any further comment, to avoid influencing any other panelists. After all panelists share their point values, they take turns defending and explaining why they chose their point value for the green light band.

Step 3: Based on the discussion that takes place during the second step, the panelists make a second independent judgment during this stage.

Step 4: The facilitator asks the panelists to report to the group their second independent judgment. The facilitator conducts a consensus discussion, and the group arrives at its decision for the green band for the Traffic Signal report.

Step 5: Finally, panelists come to a consensus on where they will place the yellow band (and, by process of elimination, where the red band will lie). For the example above, the group might say that, of 10 points possible for a particular skill, a student would need to earn 9 points to be coded as green, and 7 or 8 to be coded as yellow, with 6 points or less earning a red light.

This process is followed for each skill category that is associated with each content standard assessed on the test and the skill's corresponding set of items.

6.6 Production of Printed Score Reports for PAWS

In final preparation for the production and printing of PAWS score reports, the following steps took place at Pearson. In the job submission workstation, district orders were submitted in batches for reporting. Upon completion of these jobs, the next step in the process was the production of pilot reports.

The pilot reports allowed the testing and verification of all reporting processes against program reporting requirements. These pilot reports were carefully reviewed by representatives from the following Pearson departments: Scoring Operations, Quality Assurance, IT Requirements, IT Scoring Programming and Contract Testing Program Management. Extensive data checks were performed to verify the validity of reported scores. After verification and sign-off from all concerned parties, production reporting commenced.

Paper and PDF reports were generated for distribution to WDE schools, districts and state. The reports included individual student reports, school rosters, district rosters, and demographic reports. In addition, a student data file containing student demographic information, item response data, and domain scores was provided to the WDE for Adequate Yearly Progress (AYP) reporting via a secure FTP site. For security purposes, Pearson used data encryption methods (e.g., 256-bit) appropriate to the sensitivity of the data being transmitted. Pearson provided secure user IDs and passwords to access the FTP site. The student report was generated on paper and all other reports were created as PDF files and posted to the secure FTP site.

In the pre-mailing workstation, printed student reports were assembled and packed in color-keyed folders. Packers visually checked print and form quality during assembly. The reports then moved to pre-ship quality control, where the order received a final

quality check prior to shipping. This was the final n-count verification checkpoint where the number of students reported was compared to the information recorded on the MFS and in the database. Results were compared against the reporting requirements to verify correct application of the scoring tables and to ensure that all deliverables were present. Each order was then released to shipping.

6.7 PAWS Interpretative Guide

The interpretive guide for the 2012 administration of the PAWS was an online-only version that could be printed by users if desired. It contained explanations of the features and data contained in the PAWS reports. It was available on both the WDE and Pearson Access websites, and was intended for use by all users of the data from the PAWS assessment.

7. RELIABILITY

7.1 Overview

Reliability is the degree to which scores remain consistent over an assessment procedure (Nitko, 2004). Further defined, reliability is the degree to which students' assessment results are consistent when:

- they complete the same task on one, two, or more occasions;
- two or more raters evaluate their performance on the same task; or
- they complete two or more parallel tasks on one or more occasions.

Consistency of scores over repeated assessment and/or with different raters is the underlying feature of reliability.
This chapter describes the reliability analyses of the 2012 PAWS operational mathematics, reading, and science tests. Internal consistency and inter-rater reliabilities, classical and conditional standard errors of measurement, and accuracy and consistency results are included.

7.2 Internal Consistency Reliability

As a means of gauging score stability, internal consistency reliabilities were computed. Several methods can be used to estimate the internal consistency of a test.
The internal consistency of a test investigates the stability of scores from one sample of content to another. One approach is to split all test questions into two groups and then correlate student scores on the two half-tests. This is known as a split-half estimate of reliability. This method avoids the implications of any changes in the individual by administering only a single test. If scores have a high rate of correlation on the two half-tests, it can be concluded that the test questions complement one another, function well as a group, and measure similar concepts. This also suggests that measurement error is minimal. The split-half method's decision about which questions contribute to each half-test's score can have an impact on the resulting correlation.
As one index of internal consistency, Pearson uses Cronbach's coefficient alpha statistic (Cronbach, 1951). The coefficient alpha is the average split-half correlation based on all possible divisions of a test into two parts. Coefficient Alpha is computed using the following formula:

$$\alpha = \frac{I}{I-1}\left(1 - \frac{\sum s_i^2}{S_X^2}\right)$$

where:

I is the number of items on the test,

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

S_X^2 is the total test variance.

Because unique variance due to item type is important to consider, another measure of internal consistency that accounts for this is often examined. Stratified Cronbach Alpha takes this factor into account and is computed in the following manner:

$$\textit{Stratified } a = 1 - \frac{\sum \sigma_i^2 (1 - \rho_{ii'})}{\sigma_t^2}$$

where

σ_i^2 = variance of score on cluster *i*,

σ_t^2 = variance of total score, and

$\rho_{ii'}$ = reliability coefficient of score on cluster *i*.

Stratified Cronbach alpha was computed for all PAWS reading, mathematics, and science tests. Alpha was also computed based only on MC and CR item types. While these results offer further insight into the reliability of each item type within an overall test, they are expected to be lower due to the fact that they are based on fewer items. This is particularly true of the constructed response items and should not be interpreted as reflecting some flaw in the overall test reliability.
Overall alpha statistics suggest reasonable internal consistency reliability for reading, mathematics, and science at all grades based on the total test. Alphas were mostly above 0.88 and never lower than 0.83 for any grade/subject combination. These observed reliabilities meet generally accepted industry levels and benchmarks for large-scale assessments. Complete results for reading, mathematics, and science are given in Appendix N, including all variants of coefficient alpha and the standard error of measurement for all examinees, both for the group as a whole and broken down by selected demographic subgroups.

7.3 Inter-Rater Reliability

Measurement error can also arise from the evaluation of student work. Inter-rater reliability investigates the extent to which examinees would obtain the same score if the assessment task were scored two or more times by the same rater or different raters. One way to estimate this type of reliability is to have two raters score each student's paper and then obtain the correlation. In this case, consistency is defined as similarity of students' rank orderings by two raters.

Another way to obtain evidence of inter-rater reliability is to calculate the percent agreement between raters. If raters always agree in their assignment of scores, there is 100% agreement. If raters never agree in their assignment of scores, there is 0% agreement. The choice between using a correlation coefficient or percent agreement depends upon whether students' absolute (actual) or relative (rank order) score level is important for a particular interpretation and use. In this case (looking at the degree of consistency between raters), the absolute differences are the most salient; thus, the percent agreement between raters was used.

Table 7.1 presents inter-rater reliabilities for PAWS mathematics, reading, and science for the 2012 administration. These are presented in terms of the percentage of items scored by PSC that received a second read, the percentage of exact matches, the percentage that were exact matches or were assigned adjacent scores (exact matches and adjacent scores were considered to be acceptable, larger differences went through a resolution process to determine the final score for the item), and the percentage of items that were more than one score point different (i.e., those that were unacceptably far apart). For math items, at least 98.0% of check scores either matched or were adjacent to that assigned by the rater, for reading items check scores were either adjacent to or matched the rater's score at least 92.0% of the time, for science at least 93.0% of the check scores were adjacent to or matched the score assigned by the rater.

In addition, validity rates are also included in table 7.1 (percent exact agreement). Validity papers are student responses that have been scored by expert readers that are randomly presented to readers during the course of their regular work to ensure that they are adhering to the established standards for scoring responses to a particular question and are not becoming more rigorous or lenient across time. A reader's score is defined as "valid" if it the same as or adjacent to the expert's score on the validity paper. A scorer who was out of sync with validity paper scores was retrained. Repeated departures from the scores on validity papers after retraining resulted in the reader being dismissed from the project.

Table 7.1 PAWS 2012 Overall Inter-Rater Reliability for Mathematics, Reading, and Science

Subject	Grade	Percent 2nd read			Percent Perfect			Percent Perfect + Adjacent			Percent Disagree>1			Validity Percent Agree		
		Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Math	3	20.5	20.4	20.7	92.4	90.0	96.0	99.4	98.0	100	0.6	0.0	2.0	97.8	96.0	99.0
	4	20.5	20.4	20.7	91.4	91.0	93.0	99.6	99.0	100	0.0	0.0	0.0	95.2	93.0	97.0
	5	20.6	20.3	20.7	92.6	85.0	98.0	99.8	99.0	100	0.0	0.0	0.1	96.0	92.0	98.0
	6	20.5	20.3	20.7	94.0	91.0	98.0	100	100	100	0.0	0.0	0.0	97.4	96.0	99.0
	7	21.0	20.5	21.6	90.4	88.0	92.0	99.6	99.0	100	0.6	0.0	1.0	94.8	92.0	99.0
	8	21.3	20.4	22.3	92.0	87.0	96.0	99.4	99.0	100	0.2	0.0	1.0	96.6	94.0	99.0
	11	23.8	22.1	26.8	90.0	83.0	97.0	99.2	99.0	100	1.0	1.0	1.0	92.4	89.0	97.0
Reading	3	20.4	20.4	20.5	83.0	77.0	86.0	99.0	99.0	99.0	0.6	0.0	1.0	92.0	91.0	93.0
	4	20.4	20.4	20.5	83.7	80.0	87.0	99.7	99.0	100	0.3	0.0	1.0	90.7	88.0	96.0
	5	20.4	20.3	20.4	82.0	74.0	86.0	100	100	100	0.3	0.0	1.0	91.3	92.0	97.0
	6	20.5	20.4	20.6	77.6	65.0	88.0	99.4	98.0	100	0.6	0.0	2.0	85.4	75.0	97.0
	7	20.7	20.4	21.0	75.2	72.0	85.0	98.4	96.0	100	1.2	0.0	4.0	87.6	75.0	95.0
	8	20.7	20.4	21.0	80.6	66.0	88.0	98.2	92.0	100	1.8	0.0	8.0	89.2	77.0	98.0
	11	22.0	20.9	22.7	80.8	71.0	86.0	98.8	97.0	100	0.8	0.0	3.0	92.2	80.0	96.0
Science	4	21.0	20.6	22.0	73.3	66.0	85.0	95.3	93.0	99.0	4.0	1.0	7.0	88.0	85.0	94.0
	8	22.9	21.5	25.8	74.8	65.0	87.0	96.5	93.0	99.0	3.5	1.0	6.0	85.8	81.0	94.0
	11	22.7	22.2	23.5	80.3	77.0	83.0	99.8	96.0	99.0	2.0	1.0	4.0	86.8	80.0	93.0

7.4 Classical and Conditional Standard Errors of Measurement

Because no assessment measures ability with perfect consistency, it is useful to take into account the likely size of measurement errors. One way to describe the inconsistency of assessment results is administer the same assessment to a student on multiple occasions and note how much the resulting scores vary. If a student could be assessed on multiple occasions without practice effects, a collection of the student's obtained scores could be compiled. These scores would cluster around an average value. The standard deviation, or spread, of these scores is known as the standard error of measurement (SEM).

The SEM is another index of reliability and provides an estimate of the amount of error in an individual's observed test score. The individual's observed total score is considered an estimate of the person's true score. Because the standard error of measurement is inversely related to the reliability of a test, the higher the reliability, the lower the standard error of measurement and the more confidence one may have in the accuracy, or precision, of the observed test score. The measurement error is commonly expressed in terms of standard deviation units; that is, the standard error of measurement is the standard deviation of the measurement error distribution. The standard error of measurement is calculated with the following equation:

$$SEM = SD\sqrt{1 - r_{xx}}$$

where *SEM* is the standard error of measurement, *SD* is the standard deviation, and r_{xx} is the reliability coefficient for the test. The SEM is calculated and expressed in terms of the raw score metric.

IRT provides an alternative definition of the SEM. Unlike the classical test theory SEM, the IRT Conditional Standard Error of Measurement (CSEM) varies as a function of ability. For example, scores at the ends of the ability continuum typically have larger CSEMs than do scores near the center of the ability continuum. This implies that the standard error of measurement depends on the total score (Andrich & Luo, 2004).

Under the Rasch model, the CSEM for each person is represented by the following formula:

$$CSEM(\theta) = \frac{1}{\sqrt{I(\theta)}}$$

where

$$I(\theta) = \sum I_j(\theta)$$

and

$$I_j(\theta) = \sum_{k=0}^{m} T_k^2 P_k(\theta) - \left[\sum_{k=0}^{m} T_k P_k(\theta)\right]^2$$

where $I(\theta)$ is the test information function at θ, $I_j(\theta)$ is the item information function for the j^{th} item at θ, m is the number of achievable score points minus one, T_k is the score value for the k^{th} score point, and $P_k(\theta)$ is the probability of achieving the k^{th} score point at θ.

A confidence band can be used in interpreting the ability estimate. For example, an approximate 68% confidence interval for θ is given by:

$$\theta \pm CSEM$$

Note that the standard error for item difficulty is smallest when the probability of passing is close to the probability of failing. That is, when an item is near the threshold level for many persons in the sample, the standard error is small (Embretson & Reise, 2000).

Overall Alpha and SEM results are presented in Table 7.2. Appendix N presents these results for all examinees, broken down by selected demographic subgroups. Conditional SEMs for all achievable scores on the assessment are included with the raw score to scale score tables in Appendix K for reading, mathematics, and science.

Table 7.2 Summary Reliabilities, Standard Errors of Measurement, and Descriptive Statistics

Grade	Content	N	Points Possible	RS Mean	RS SD	Alpha	SEM
03	Mathematics	7088	60	43.87	10.71	0.91	3.18
	Reading	7124	50	31.60	9.15	0.89	3.07
04	Mathematics	6750	65	43.80	11.88	0.91	3.48
	Reading	6829	50	34.15	8.66	0.89	2.94
	Science	6747	50	29.41	8.28	0.83	3.37
05	Mathematics	6707	65	41.34	12.66	0.92	3.50
	Reading	6779	53	33.73	8.59	0.88	2.98
06	Mathematics	6698	65	42.73	12.89	0.93	3.48
	Reading	6801	56	35.51	8.59	0.87	3.13
07	Mathematics	6719	66	37.21	13.78	0.93	3.67
	Reading	6822	56	32.71	9.46	0.88	3.32
08	Mathematics	6644	70	38.32	14.37	0.93	3.88
	Reading	6771	56	32.32	9.80	0.88	3.46
	Science	6619	50	25.34	8.89	0.86	3.29
11	Mathematics	7810	73	33.41	15.25	0.93	3.91
	Reading	7338	56	31.82	9.10	0.87	3.26
	Science	5806	50	27.37	9.68	0.87	3.47

7.5 Accuracy and Consistency of Classifications

While it is always important to know the reliability of student scores in any examination, it is of even greater importance to assess the reliability of the decisions based on these scores. Evaluation of the reliability of classification decisions is performed through estimation of the probabilities of correct and consistent classification of student performance. Procedures from Livingston and Lewis (1995) were applied to the PAWS assessments to derive measures of the accuracy and consistency of the classifications. Brief descriptions of the procedures used and results obtained are presented here.

The accuracy of decisions is the extent to which decisions would agree with those that would be made if each student could somehow be tested with all possible forms of the assessment. The consistency of decisions is the extent to which decisions would agree with the decisions that would have been made if the students had taken a parallel test form, equal in difficulty and covering the same content as the form they actually took. These ideas are shown schematically in Figures 7.1 and 7.2 (adapted from Young and Yoon, 1998).

		Decision made on a form actually taken	
		Does Not Achieve Proficiency	*Achieves Proficiency*
True status made on all-forms average	*Does Not Achieve Proficiency*	Correct Classification	Misclassification
	Achieves Proficiency	Misclassification	Correct Classification

**Achieves Proficiency* refers to the *Proficient* and *Advanced* Performance Levels

Figure 7.1 Classification Accuracy

		Decision made on the 2nd form taken	
		Does Not Achieve Proficiency	*Achieves Proficiency*
Decision made on the 1st form taken	*Does Not Achieve Proficiency*	Correct Classification	Misclassification
	Achieves Proficiency	Misclassification	Correct Classification

Figure 7.2 Classification Consistency

Figure 7.1 shows that accurate classifications occur when the decision made on the basis of the all-forms average (or true score) agrees with the decision made on the basis of the form actually taken. Misclassifications occur, for example, when a student who actually accomplished *Does Not Achieve Proficiency* on the basis of his or her all-forms average is classified incorrectly as accomplishing *Achieves Proficiency*. Consistent classification occurs when two forms agree on the classification of a student

as either *Achieves Proficiency* or *Does Not Achieve Proficiency* (see Figure 7.2). Inconsistent classification occurs when the decisions made by the forms differ.

These analyses make use of the techniques outlined and implemented by Harvill (1991), Haertel (1996), Livingston and Lewis (1995), and Young and Yoon (1998). Estimates of decision accuracy and consistency were made for all cut points on total scores reported in reading, mathematics, and science.

Tables 7.3 through 7.19 present the results of the decision accuracy and consistency of the PAWS cut scores for mathematics, reading and science. The following information is presented:

- Accuracy classifications;
- False Positives;
- False Negatives; and
- Consistency classifications.

It should be noted that the sum of values of Accuracy, False Positive, and False Negative is equal to 1, but due to rounding errors the sum of the table values may not equal 1. False Positive and False Negative classifications refer to the mismatch between student true scores and observed scores. The False Positive value is the proportion of student scores misclassified to the category *Achieves Proficiency* when student scores do not meet proficiency. The False Negative value is the proportion of student scores misclassified to the category *Does Not Achieve Proficiency* when student scores actually do meet proficiency.

Overall accuracy and consistency ratings range from 0.83 to 0.99, with most results above .90. All false negative and false positive results are at or below 0.06. These results suggest acceptable levels of reliability at the cut points for all PAWS mathematics, reading, and science tests. In the following tables “BB:B” denotes the cut between the Below Basic and Basic performance levels, “B:P”: denotes the cut between the Basic and Proficient performance levels, and “P:A” denotes the cut between the Proficient and Advanced performance levels.

Table 7.3 PAWS 2012 Decision Accuracy and Consistency Indices: Math Grade 3

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.99	0.00	0.01	0.99
B : P	0.95	0.02	0.03	0.93
P : A	0.91	0.05	0.04	0.88

Table 7.4 PAWS 2012 Decision Accuracy and Consistency Indices: Math Grade 4

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.97	0.01	0.02	0.96
B : P	0.93	0.03	0.04	0.90
P : A	0.93	0.04	0.03	0.90

Table 7.5 PAWS 2012 Decision Accuracy and Consistency Indices: Math Grade 5

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.98	0.01	0.02	0.97
B : P	0.93	0.03	0.04	0.90
P : A	0.93	0.04	0.03	0.90

Table 7.6 PAWS 2012 Decision Accuracy and Consistency Indices: Math Grade 6

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.97	0.01	0.02	0.95
B : P	0.93	0.03	0.04	0.90
P : A	0.94	0.04	0.03	0.91

Table 7.7 PAWS 2012 Decision Accuracy and Consistency Indices: Math Grade 7

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.96	0.01	0.02	0.95
B : P	0.92	0.03	0.04	0.89
P : A	0.94	0.03	0.03	0.91

Table 7.8 PAWS 2012 Decision Accuracy and Consistency Indices: Math Grade 8

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.95	0.02	0.03	0.93
B : P	0.92	0.03	0.05	0.89
P : A	0.95	0.03	0.02	0.92

Table 7.9 PAWS 2012 Decision Accuracy and Consistency Indices: Math Grade 11

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.93	0.02	0.05	0.90
B : P	0.91	0.05	0.04	0.87
P : A	0.97	0.02	0.01	0.96

Table 7.10 PAWS 2012 Decision Accuracy and Consistency Indices: Reading Grade 3

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.98	0.01	0.02	0.97
B : P	0.91	0.04	0.06	0.87
P : A	0.94	0.03	0.02	0.92

Table 7.11 PAWS 2012 Decision Accuracy and Consistency Indices: Reading Grade 4

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.99	0.00	0.01	0.99
B : P	0.93	0.03	0.04	0.90
P : A	0.90	0.05	0.05	0.86

Table 7.12 PAWS 2012 Decision Accuracy and Consistency Indices: Reading Grade 5

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.98	0.01	0.01	0.98
B : P	0.93	0.03	0.04	0.90
P : A	0.90	0.06	0.04	0.86

Table 7.13 PAWS 2012 Decision Accuracy and Consistency Indices: Reading Grade 6

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.99	0.00	0.01	0.99
B : P	0.93	0.03	0.04	0.90
P : A	0.90	0.06	0.04	0.86

Table 7.14 PAWS 2012 Decision Accuracy and Consistency Indices: Reading Grade 7

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.98	0.01	0.01	0.97
B : P	0.91	0.04	0.05	0.88
P : A	0.94	0.04	0.02	0.91

Table 7.15 PAWS 2012 Decision Accuracy and Consistency Indices: Reading Grade 8

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.98	0.00	0.01	0.98
B : P	0.92	0.03	0.05	0.89
P : A	0.92	0.05	0.03	0.89

Table 7.16 PAWS 2012 Decision Accuracy and Consistency Indices: Reading Grade 11

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.95	0.02	0.03	0.93
B : P	0.89	0.05	0.06	0.85
P : A	0.92	0.05	0.03	0.89

Table 7.17 PAWS 2012 Decision Accuracy and Consistency Indices: Science Grade 4

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.97	0.01	0.02	0.95
B : P	0.88	0.06	0.06	0.83
P : A	0.93	0.04	0.03	0.90

Table 7.18 PAWS 2012 Decision Accuracy and Consistency Indices: Science Grade 8

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.93	0.03	0.05	0.90
B : P	0.88	0.06	0.06	0.83
P : A	0.95	0.04	0.02	0.93

Table 7.19 PAWS 2012 Decision Accuracy and Consistency Indices: Science Grade 11

PL Cut	Accuracy	False Positive	False Negative	Consistency
BB : B	0.92	0.03	0.05	0.89
B : P	0.89	0.06	0.06	0.84
P : A	0.94	0.03	0.02	0.92

8. VALIDITY

8.1 Overview

As noted in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 1999), "validity is the most important consideration in test evaluation."

Messick (1989) defined validity as:

> …[A]n integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment. (p.5)

This definition implies that test validation is the process of accumulating evidence to support intended use of test scores. As such, test validation is a series of ongoing and independent processes that are essentially independent investigations of the appropriate use or interpretation of test scores from a particular measurement procedure (Suen, 1990). In addition, test validation embraces all of the experimental, statistical, and philosophical means by which hypotheses and scientific theories can be evaluated. This is the reason that validity has come to be recognized as a unitary concept (Messick, 1989).

To investigate the validity evidence of the PAWS assessment system, content-related evidence, evidence of internal structure, and evidence of fairness (see section 2.7.2 on differential item functioning) were collected.

8.2 Content-related Validity Evidence

Content validity is frequently defined in terms of the sampling adequacy of test items. That is, content validity is the extent to which the items in a test adequately represent the domain of items or the construct of interest (Suen, 1990). In this capacity content validity provides judgmental evidence in support of domain relevance and representativeness of the content in a given test (Messick, 1989).

A clear path from the Wyoming Content and Performance Standards in Reading, Mathematics, and Science to the present test has been laid out in the preceding chapters of this report. When the PAWS assessments were inaugurated, the structure of the tests (e.g., the blueprints) were based on the standards and skills explicated within the content and performance standards, including appropriate levels of emphasis of each based on what Wyoming students are expected to be able to know and do within each subject at each grade level (for example, the Number Operations and Concepts standard forms 23% of the grade 3 mathematics test but only 13% of the grade 11 test, reflecting the different levels of importance of this [and other] standards at the different grades). These proportional emphases have been maintained through the present administration, and are strong evidence for the validity of the present assessment.

Additional evidence for the validity of the test in assessing Wyoming students in particular is the involvement of Wyoming teachers (who have extensive expertise in working with Wyoming students) in the multiple levels of review of the items before they are eligible for use as operational items (and thus will be used to measure in part the proficiency of the students taking the PAWS assessment). Their expert review of the items for alignment to the state standards, grade level appropriateness, bias, and other problems before the items are field tested, and their final review of the items after field testing in the light of the items' statistical properties contribute to the maintenance of a high-quality pool of items from which each year's forms are constructed. The effort that goes into the authoring and revision of items is another strong set of evidence in support of the validity of the exam.

To summarize, the clear connection between the present assessment and the state standards and the extensive involvement of Wyoming educators at all stages of the item development and revision process argue that the resulting tests are valid measures of what Wyoming students are expected to know and to be able to do in the domains of reading and mathematics at grades 3-8 and 11, and in science at grades 4, 8, and 11.

PAWS Independent Alignment Studies

Because a purpose of PAWS is also to provide evidence from which valid inferences can be made about students' levels of proficiency with regard to the Wyoming Content and Performance Standards, one key component of a validity argument related to PAWS is the assembly of content-related evidence of validity. This validity evidence must take two links into consideration. First, it must be established that the PAWS skill reporting categories are appropriately representative of the Wyoming Content and Performance Standards. Second, it must be established that the items are satisfactorily aligned with the Wyoming Content and Performance Standards. Evidence bearing on both of these issues has been assembled through the conduct of independent alignment studies (Ely, 2006, Webb, 2011).

Alignment studies for the PAWS reading, science and mathematics assessments were completed in years previous to the present administration and recommendations from those studies incorporated into current item and test development processes (for details please refer to past years' editions of the PAWS technical manuals).

8.3 Construct-Related Validity Evidence

Nitko (2004) identifies several examples of questions associated with gathering validity evidence. For exploring convergent and discriminant evidence, he offers two questions that can be used to guide the formation of research efforts (p. 44):

- Are the results of this assessment consistent with the results of other similar assessments for these students?
- How well does performance on this assessment procedure reflect the quality or trait that is measured by other tests?

An assessment procedure should not be a random collection of assessment tasks or test questions. Each task in the assessment should contribute positively to the total result. The relationships among the tasks on an assessment can be defined as the internal structure of the assessment. In general, we expect skill areas within a given subject test to be moderately to strongly related (i.e., as indicated by a correlation coefficient). Table 8.1 presents cross-subject results comparing mathematics, reading, and science scale scores.

Table 8.1 PAWS 2011 Subject Area Correlation

Grade	Subject	Reading	Math	Science
03	Reading	1	0.723	
	Math	0.723	1	
04	Reading	1	0.731	0.768
	Math	0.731	1	0.762
	Science	0.768	0.762	1
05	Reading	1	0.728	
	Math	0.728	1	
06	Reading	1	0.735	
	Math	0.735	1	
07	Reading	1	0.730	
	Math	0.730	1	
08	Reading	1	0.754	0.780
	Math	0.754	1	0.794
	Science	0.780	0.794	1
11	Reading	1	0.732	0.769
	Math	0.732	1	0.769
	Science	0.769	0.769	1

There are strong relationships between the reading, mathematics, and science scaled scores. In the grades where science was tested, it tended to be more strongly related to both reading and mathematics than reading was to mathematics, though the average difference was small. For reading, this was probably due to the fact that the science items were tied to common passages rather than being discrete and independent items, thus requiring more reading ability. For mathematics, science items often involve mathematical functions or terms, thus giving students with higher levels of mathematical ability an advantage in answering them. The strong relationships between the scaled scores for reading, mathematics, and science support the validity of the PAWS assessments. Taken together, they can be seen as measuring scholarship or academic achievement, and they tend to covary together as would be expected.

Table 8.2 PAWS 2012 Reading Subscale Correlations

Grade	Subject	Functional Texts	Expository Texts	Narrative Texts
3	Functional Texts	1	0.627	0.632
	Expository Texts	0.627	1	0.707
	Narrative Texts	0.632	0.707	1
4	Functional Texts	1	0.594	0.620
	Expository Texts	0.594	1	0.678
	Narrative Texts	0.620	0.678	1
5	Functional Texts	1	0.634	0.628
	Expository Texts	0.634	1	0.682
	Narrative Texts	0.628	0.682	1
6	Functional Texts	1	0.630	0.624
	Expository Texts	0.630	1	0.666
	Narrative Texts	0.624	0.666	1
7	Functional Texts	1	0.617	0.647
	Expository Texts	0.617	1	0.680
	Narrative Texts	0.647	0.680	1
8	Functional Texts	1	0.643	0.615
	Expository Texts	0.643	1	0.674
	Narrative Texts	0.615	0.674	1
11	Functional Texts	1	0.613	0.621
	Expository Texts	0.613	1	0.692
	Narrative Texts	0.621	0.692	1

Table 8.3 PAWS 2012 Mathematics Subscale Correlations

Grade	Subject	Num Operations & Concepts	Algebra	Geometry	Measure-ment	Data Analysis and Probability
03	Num Operations & Concepts	1	0.676	0.569	0.672	0.633
	Algebra	0.676	1	0.558	0.651	0.621
	Geometry	0.569	0.558	1	0.573	0.576
	Measurement	0.672	0.651	0.573	1	0.641
	Data Analysis and Probability	0.633	0.621	0.576	0.641	1
04	Num Operations & Concepts	1	0.658	0.571	0.690	0.629
	Algebra	0.658	1	0.573	0.643	0.598
	Geometry	0.571	0.573	1	0.601	0.555
	Measurement	0.690	0.643	0.601	1	0.630
	Data Analysis and Probability	0.629	0.598	0.555	0.630	1
05	Num Operations & Concepts	1	0.693	0.639	0.681	0.602
	Algebra	0.693	1	0.653	0.682	0.627
	Geometry	0.639	0.653	1	0.658	0.601
	Measurement	0.681	0.682	0.658	1	0.602
	Data Analysis and Probability	0.602	0.627	0.601	0.602	1
06	Num Operations & Concepts	1	0.702	0.647	0.660	0.650
	Algebra	0.702	1	0.675	0.691	0.698
	Geometry	0.647	0.675	1	0.674	0.643
	Measurement	0.660	0.691	0.674	1	0.658
	Data Analysis and Probability	0.650	0.698	0.643	0.658	1
07	Num Operations & Concepts	1	0.687	0.634	0.620	0.645
	Algebra	0.687	1	0.719	0.686	0.706
	Geometry	0.634	0.719	1	0.673	0.652
	Measurement	0.620	0.686	0.673	1	0.640
	Data Analysis and Probability	0.645	0.706	0.652	0.640	1
08	Num Operations & Concepts	1	0.686	0.637	0.614	0.622
	Algebra	0.686	1	0.715	0.695	0.705
	Geometry	0.637	0.715	1	0.677	0.654
	Measurement	0.614	0.695	0.677	1	0.632
	Data Analysis and Probability	0.622	0.705	0.654	0.632	1
11	Num Operations & Concepts	1	0.698	0.661	0.624	0.629
	Algebra	0.698	1	0.745	0.688	0.717
	Geometry	0.661	0.745	1	0.682	0.679
	Measurement	0.624	0.688	0.682	1	0.631
	Data Analysis and Probability	0.629	0.717	0.679	0.631	1

Table 8.4 PAWS 2012 Science Subscale Correlations

Grade	Subject	Life Science	Physical Science	Earth and Space Science
04	Life Science	1	0.632	0.611
	Physical Science	0.632	1	0.594
	Earth and Space Science	0.611	0.594	1
08	Life Science	1	0.676	0.628
	Physical Science	0.676	1	0.639
	Earth and Space Science	0.628	0.639	1
11	Life Science	1	0.707	0.634
	Physical Science	0.707	1	0.677
	Earth and Space Science	0.634	0.677	1

Tables 8.2–8.4 present the intercorrelations for the subscales within the reading, mathematics, and science tests respectively. All can be seen to have strong relationships with the other subscales within each of the subjects, indicating that the subscales are measuring different yet related areas of knowledge.

8.4 Evidence of Unidimensionality

Measurement using IRT implies order and magnitude on a single dimension (Andrich, 1989). Consequently, in the case of scholastic achievement, this requires a linear scale to reflect this idea of measurement. Such a test is considered to be unidimensional (Andrich, 1988, 1989). However, unidimensionality cannot be strictly met in a real testing situation because students' cognitive, personality, and test-taking factors usually have a unique influence on their test performance to some level (Andrich, 1988; Hambleton, Swaminathan, & Rogers, 1991). Consequently, what is required for unidimensionality to be met is an investigation of the presence of a dominant factor that influences test performance. If present, this dominant factor can be considered to be the ability measured by the test (Andrich, 1988; Hambleton et al., 1991; Ryan, 1983).
To assess the unidimensionality of an assessment form, Hattie (1985) suggested using the difference of eigenvalues between the first factor and the second factor divided by the difference of eigenvalues between the second factor and the third to evaluate unidimensionality. If the ratio is large (i.e., larger than 3), then the first factor is relatively strong. To check the unidimensionality of the PAWS Reading and Mathematics tests, unrotated principle components analyses were performed at the item level to determine eigenvalues. The first three were then used to produce the ratio described above.
Table 8.6 presents results of the 2012 PAWS reading, mathematics, and science dimensionality analyses. The ratios range from 12.11 for grade 4 reading to 438.54 for grade 6 mathematics. All ratios far exceed the criterion ration value of 3 and confirm that the PAWS mathematics, science, and reading assessments can be considered to be unidimensional.

Table 8.6 Ratios of Differences Between the First and Second and the Second and Third Eigenvalues for the PAWS 2012 Reading, Mathematics, and Science assessments

Subject	Grade	First Eigenvalue	Second Eigenvalue	Third Eigenvalue	Ratio of Differences
Math	03	10.03	1.42	1.30	76.08
	04	10.38	1.48	1.28	43.69
	05	11.47	1.60	1.46	69.08
	06	11.83	1.38	1.36	438.54
	07	12.09	1.49	1.29	54.14
	08	12.11	1.39	1.30	120.49
	11	12.82	1.48	1.30	62.30
Reading	03	8.21	1.20	1.14	131.87
	04	8.07	1.70	1.18	12.11
	05	7.70	1.35	1.20	42.03
	06	7.08	1.30	1.24	111.58
	07	7.66	1.28	1.21	86.72
	08	7.69	1.34	1.13	30.66
	11	7.51	1.38	1.23	42.90
Science	04	6.03	1.23	1.09	34.94
	08	6.84	1.36	1.16	28.25
	11	7.44	1.32	1.11	28.88

It should be noted that while unidimensionality is a fundamental assumption in support of the use of IRT scaling, it is not necessarily a direct expectation of the PAWS assessment system. The PAWS is designed not only to provide an overall measure of student ability by subject, but also to be instructionally informative at the skill category level. The levels of intercorrelations between the standard-level subscale scores (Tables 8.2-8.4) provide evidence that this design goal has been met.

9. QUALITY CONTROL PROCEDURES

Extensive quality control procedures are used throughout the entire process for developing, scoring, and reporting the PAWS. A standard quality procedure at Pearson is to create a test deck for all programs. The test deck begins when Quality Assurance enters mock data into the enrollment system, which is transferred to the materials requisition system. The order is packaged by the Pearson Distribution Center, and shipped to the Quality Assurance Department. Pearson then reviews the packing list against the data entered, the materials algorithms applied, the materials packaged against the packing list, and the actual packaging of the documents. These documents are then used to create a test deck of mock data along with advance copies of all test forms that are received from the printer. Advance test forms are randomly selected throughout the print run to maximize the breadth of the document sample. The PAWS test deck was a comprehensive set of all procedures that include:

For Paper-and-Pencil Documents:

- Verified scan positions, scanning setup, scan densities, and zoning of image
- Verified all constructed-response score points, reader scoring, reader resolution, and reader check scores
- Verified the handling of blank documents through the system
- Tested all item edits
- Verified pre-identification bar code read, match, and no-match
- Verified duplicate student handling (same test duplicate, different test duplicate)
- Verified pre-identification matching and application to student record
- Verified various raw score points and access to dummy and live scoring tables
- Verified cut scores applied
- Verified valid multiple-choice and invalid constructed-response
- Verified valid constructed-response and invalid multiple-choice
- Verified all special scoring rules
- Verified all summary programs for rounding
- Verified summary inclusions and exclusions
- Verified each scoring level for group reporting
- Verified all reporting programs for accuracy in all text and data presented
- Verified school, district, and state summary data
- Verified all data file programs to assure valid information in every field
- Verified data descriptions for accuracy against data file
- Created compare programs to allow for update of files

For On-Line Reports

- Insured accuracy of all Wyoming's specifications and requirements
- Verified online reports for accuracy of multiple-choice and open-ended scores obtained

The PAWS test deck was used to verify all aspects of scanning, editing, scoring, and reporting. A range of cases (e.g., all correct answers, all incorrect answers, all blanks, etc) were included in the test deck to fully test all processes. Processing live orders did not proceed until each phase of the testing was run and approved by the Pearson Quality Assurance Department. An Issues Log with sign-off approvals was utilized to ensure that any issues that arose during the processing and review of the test deck data across all functional groups at Pearson were addressed.

Prior to the commencement of analyses, a preliminary scored file was used for key check analyses to verify that all scoring keys were correct and had been applied accurately. Any test items that were not performing as expected were flagged and reviewed by Pearson content specialists and psychometricians.

For paper reports, a pilot district of live data was used to run initial reports and evaluate results to determine accuracy of reporting specifications. The pilot district included multiple buildings and all grade levels for comprehensiveness. A formal pilot review was conducted with expert Pearson staff prior to the release of the information to the WDE.

After the completion and delivery of the state student data file to WDE, Pearson divides the file by districts. The district-level student data files are then validated before being released for delivery to the districts. These validations include but are not limited to:

- Statewide Duplicate Students
- Statewide frequency distributions of Demographic Variables
- District/Building/N-Counts
- Statewide RS/SS/Cut Score tables
- Proc Means to verify summary statistics
- Item Response listings to verify all constructed-responses were scored and within the valid ranges
- Normative data checks for all raw scores
- Reader Resolution reports to verify all readings and resolution combinations

In addition to the routine procedures of the Pearson Quality Assurance Department (described above), Pearson Psychometric & Research Services has a Ph.D. level research scientist independently replicate all analyses leading to the generation of the raw score to scale score (RS-SS) conversion tables for the Wyoming PAWS assessments. The primary and replicating research scientists crosscheck their work at multiple stages during the course of the analyses, and all discrepancies must be resolved before the analyses can be finalized.

The Quality Assurance steps taken in the various aspects of the Wyoming program are displayed in Tables 9.1 through 9.8

Table 9.1 – Test Development Integrated Design Key Quality Checks

Test Development Integrated Design Key Quality Checks

Form Construction	Item Development	Form Construction	Create Test Map (Item Keys)
- Content lead or senior assessment specialist and customer review for - Alignment to content standards - Content coverage - Appropriate difficulty - Breadth of coverage of content standards - Appropriate item type - Cluster by skill category - Creation of passage map	- Alignment item to content standards - Review artwork to item - Review originality of material - Review passage map to items - Check for clueing - Check for one correct answer per item - - Verify final item content ingestion into digital asset management system	- Verify target match - Check item keys - Check key balance - Check placement of embedded items - Cross check test booklets, directions for administration, and answer sheets - Utilize PDF compare feature to review changes on copy following initial review	- Verify item key to test item - Verify reporting category to item - Verify CID codes

Table 9.2 – Production and Printing Integrated Design Key Quality Checks

Production and Printing Integrated Design Key Quality Checks

Composition	Printing of Non-scannable Materials	Collation and Binding	Printing of Scannable Materials
- Create specifications binder/templates for composition vendor - Pearson and composition vendor review manuscript, book map, pull list, art to ensure specs followed - Produce sample pages before composition begins - Pearson Editorial, Production, and WDE review composed pages - Press Ready file approved by Scanning and Pearson Editorial - Confirm color, booklet pagination, and content placement - Review pre-flight press-optimized PDF from compo-sition vendor to ensure integrity of file for print	For both scannable and nonscannable items: - Check ink density and consistency and color accuracy - Check page collation - Check trim accuracy - Check stability of bind - Pull and inspect booklets from *throughout* the bindery run (number pulled depends on quantity printed; printers provide certificates stating how many booklets inspected, and problems found) - Pull one sheet out of every 1000 off press to inspect against the approved proof	For both scannable and nonscannable items: - PIC (Project Identifier Code) is placed by Composition on all titles to assist printer in ensuring proper signature set up - As part of Pearson's Standard Operating Procedures, bindery area is cleared of all previous materials prior to beginning any job so that signatures will not be mixed - Randomly pull and inspect booklets from press run (quantity inspected depends on quantity printed) - Print vendors use either a barcode reader system or unique character recognition system on their saddle stitch and perfect binders to eliminate mis-collations, duplicate and missing signatures	- Advance copies of printed documents reviewed by Content Expert, Manufacturing buyer, scanning, and Quality Assurance prior to release of documents for packaging (also on nonscannables, except for QA check) - Check paper tolerance for scanability and durability - Signatures pulled off binder are inspected to ensure proper fold tolerances are adhered to. - Visually inspect registration response patterns - Check correct sequence of pages (also nonscannables) - Simulate test taking experience with advance DFAs, test booklets, and answer documents (also for nonscannables)

Table 9.3 – Scoring Integrated Design Key Quality Checks

Scoring Integrated Design Key Quality Checks

Enrollment Collection	Pre-Identification	Serialization and Security	Scanning
- Verify grades - Verify enrollment to projections - Verify overage algorithms - Verify distribution and sampling plan - Verify testing date against school calendar	- Verify file layouts for completeness of all required information - Verify Pre-ID edits applied - Verify label scanability - Verify label print quality	- Verify serialization process - Verify scanability of barcodes applied - Verify download to security checklist database - Verify pack list to security checklist - Scan booklets twice upon return - Verify resolution report	- Verify all scan positions - Verify readability of barcodes

Table 9.4 – Scoring Integrated Design Key Quality Checks (Continued)

Scoring Integrated Design Key Quality Checks (continued)

Performance Assessment Scoring	Editing System	Scoring System	Summary System
- Verify valid score points and zoning on all pages - Perform check scoring and verify reader reports - Verify all reader options/redirects - Train and qualify readers to scoring rubrics and WDE-approved Training Materials - Monitor readers'-Inter and Intra-rater reliability - Require papers for scoring per WDE specifications	- Obtain WDE approval on editing specifications - Verify all student demographic edits flagged and corrected accurately - Verify all light marks, multiple marks, omits, and reliability options - Verify all attemptedness checks on all tests and forms - Verify *n*-counts of documents recorded on master file sheet to documents received - Apply edit rules to test deck according to WDE specifications	- Verify all correct at every level and form - Verify accommodations applied - Verify cluster and strand rollups - Verify appropriate totals and combined scores - Verify students at specific cut scores - Verify exclusion flags - Verify Braille and large-print documents are processed accurately - Verify standard and non-standard scoring	- Verify appropriate exclusion rules are applied - Verify summary rollups for class, schools, and district - Verify mean, median and all other summary level scores

Table 9.5 – Scoring Services Operations Integrated Design Key Quality Checks

Scoring Services Operations Integrated Design Key Quality Checks

Reporting System	Electronic Data Files	Pilot Review

- Verify reports meet specifications design
- Verify all reporting literals
- Verify all scores reported on each report
- Verify system security
	- Verify data description positions to file
	- Verify each variable listed on the data description on the data file
	- Compare independent programmer to production code to verify:
	  - All demographic fields
	  - All item-response values
	  - All score totals
	  - All district and school *n*-counts
	  - Duplicate records
	  - All psychometric and normative tables applied
	  - Impact data from year to year at state, district, and school level, including score data and demographic data
	- Approval by Quality Review Board
		- Verify report packaging against report matrix
		- Verify *n*-counts on reports to Master File sheet
		- reports using independent SAS reports
		- Verify any special demographic breakdowns using independent SAS reports
		- Review demographic changes from year to year
		- Verify all report variables
		- Verify shipping address to address on file
		- Utilize district expert review process for district review of data prior to release of system

Table 9.6 – Scoring Services Operations Integrated Design Key Quality Checks (Continue)

Scoring Service Operations Integrated Design Key Quality Checks (continue)

Scoring Operations

- Assign unique order number to each order to track the order through all workstations
- Check shipment number for complete documentation (Master File Sheet, Materials Tracking Form) and account for all boxes
- Verify information on master file sheet to data pre-loaded in LADS file
- Verify services against scoring specifications matrix
- Verify the number of groups recorded on master file sheet to SSID groups
- Record number of documents and groups submitted
- Alert discrepancies and contact district and WDE
- Apply edit rules and make corrections
- Run edit routine to verify all corrections complete
- Archive documents for easy retrieval
- Check printed report forms against the packing list as they are printed
- Post files to SFTP site and check for readability
- Verify paper reports for print quality, report to specification, application of scoring tables, *n*-counts, and building counts
- Inspect first and last report for each district prior to shipping
- Compare shipping address label to LADS shipping address
- Number boxes to allow tracking of order

Table 9.7 – Shipping and Pickup of Test Materials Key Quality Checks

Shipping and Pickup of Test Materials Key Quality Checks
Packing and Distribution System Warehouse Management System - Verify packing list summary against materials quantities - Verify packing list configurations - Verify packaging algorithms - Track orders throughout the process - Run pack lists against inventory - System automatically triggered to replenish stock to ensure materials are available - Record order picker, date, and time of pick - Scan all items as picked - Track orders to manifest - Track order to the destination point

Table 9.8 – Technical and Statistical Services Integrated Design Key Quality Checks

Technical and Statistical Services Integrated Design Key Quality Checks

Psychometric Analyses

- Run test deck through programs to check preparedness for live processing
- Generate parameter files
- Perform independent replication analysis
- Verify key checks to test map
- Run key check analyses on preliminary data file
- Compare equating table results to previous years
- Review impact data
- Compute and compare mean and standard deviation of scaled scores to previous administrations
- Review data with senior staff prior to release of psychometric analyses

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11. GLOSSARY OF TERMS

The terms below are defined by their application in this document and their common uses in the Wyoming PAWS technical manual. Some of the terms refer to complex statistical procedures used in the process of test development. In an effort to avoid the use of excessive technical jargon, definitions have been simplified; however, they should not be considered exhaustive.

Accommodations - Changes made in the format or administration of the test to provide options to test takers who are unable to take the original test under standard test conditions.

Achievement levels - Descriptions of a test taker's competency in a particular area of knowledge or skill, usually defined as ordered categories on a continuum classified by broad ranges of performance.

Assessment Descriptions - These provide skill level descriptions or topics which rely on the structure of the discipline in order to organize instruction. A skill can be defined as somewhere between the breadth of a content standard and the specificity of a benchmark.

Alternate Assessment - An assessment that is administered to students for whom the regular assessment with or without an accommodation is inappropriate. It is only used with students who have an individualized education program (IEP) and are unable to respond to accommodated versions of the standard test materials. Wyoming's alternate assessments include reading, math, and science administered by the teacher.

Alignment - Alignment procedures examine the agreement or match between educational components such as test items and academic standards. To the extent that test items are aligned with academic standards, they are considered to be valid measures of those standards.

Anchor Sets - Anchor sets are responses to constructed-response items that best match the criteria on the scoring rubrics. They are selected and assembled during Range Finding. These examples of student work are used to "anchor" the scoring of the constructed items in the PAWS. The use of anchor sets helps scorers assign scores consistently.

Answer Document - The form or document on which a student records answers to constructed response questions. Usually these are scannable and have grids for recording student name and demographic information.

Benchmarks- These statements specify what students are expected to know and be able to do at the end of each of the benchmark grade levels—in this document, grades 3 through 8, and grade 11. These benchmarks specify the skills and content students must master along the way in order to reach the content standards by the time they graduate.

Blueprint (Test Blueprint) - Tests are built to specifications, sometimes called a blueprint, in the same way that a house is built to a blueprint. The blueprint specifies such things as reporting categories, number of items for each category, and the number of operational and field test items on the test.

Common Items - Test questions that are contained on all test forms and administered to all students in the assessment group.

Constructed Response Item - An item for which the student is required to write or draw a response. Such an item must be scored manually.

Content Area - Subject area; for example, reading, mathematics, or science.

Content Standards - These statements define what students are expected to know and be able to do by the time they graduate. They do not dictate what methodology or instructional materials should be used, nor how the material is delivered.

Criterion Referenced Test (CRT) - A customized achievement test that describes student performance in terms of a specific standard. Typically, criterion-referenced testing has been associated with classroom testing where instructional objectives are used. In recent years, standardized testing has moved towards customized criterion-referenced testing in order to provide testing instruments that better align with state and local educational objectives.

Cut scores - A specific point on a score scale, such that scores at or above that point are interpreted or acted upon differently from scores below that point.

Differential Item Functioning (DIF) – Is a procedure for helping detect if an item is unfair toward a particular group of test takers. In other words, DIF helps determine if members of a particular group have difficulty with an item, not because they know less but because they have different cultural experiences or assumptions. Members of the Item Review panel look at items marked by the DIF procedure and judge whether the there was something about the item that was unfair to the group identified.

Dimensionality - The extent to which a test item measures more than one ability.

Embedded Test Model - Using an operational test to field-test new items or sections. The new items or sections are “embedded” into the new test and appear to examinees as being indistinguishable from the operational test.

Equating - A psychometric process that ensures comparability of scores from one test form to another (e.g., from year to year or from form to form). Equating produces a Raw Score-to-Scale Score conversion table.

Equivalent forms - Statistically insignificant differences between forms (i.e., the B form is not harder).

Exemplar - A response to a constructed-response item that is an ideal example of a particular score point of a rubric. Also referred to as an "anchor" response.

504 Plan - An official educational document that may specify a special testing condition (e.g., accommodation) for a student taking an NCLB-related test. In some cases an IEP may specify an alternate assessment or other sources of data related to a student's achievement.

Field Test - A collection of items to approximate how a test form will work. Statistics produced will be used in interpreting item behavior/performance and allow for the calibration of item parameters used in equating tests.

Instructionally Supportive Assessment - Assessment intended to promote more effective classroom instruction.

Inter-Rater Reliability - A method of measuring the agreement among readers scoring the same responses. Computer programs compare the scores assigned by one reader to those of another for the same student. Reports showing reliability are used to monitor reader performance.

Item - A test question. Examples of formats are multiple choice, open-ended (constructed response), and extended response.

Item Analysis - Statistical analysis that provides measurement and bias information about items. This information is used for item reviews, test construction, technical reports, and other psychometric documentation. Item analysis may also refer to a quality control step to verify/check answer keys. The item or foil analysis report shows the number and percent of students responding to each answer choice as well as p-values, point-biserials, logit difficulties, theta, and DIF statistics for the items.

Item Bank - An item bank is a collection of test items in various stages of review, along with associated material (e.g., reading passages, reviewer's comments) and item statistics. Test items that have passed all reviews are eligible to be put on an operational test.

Item Calibration - A process of evaluating item functioning using one an Item Response Theory (IRT) model (see description below). The results of item calibration are various item parameters.

Item Difficulty - A number that indicates how easy or hard an item is with regard to its intended use. Item difficulty is typically displayed as a p-value, the proportion of examinees choosing the correct answer. It can also be displayed as a value obtained from an Item Response Theory procedure such as the Rasch “logit difficulty” or the 3PL “theta.”

Item Discrimination - A number that indicates how well an item differentiates students who know the content measured by the item from those who do not know the content. It is also used for indicating how well an item differentiates the more able students from the less able students. Item discrimination is typically displayed as a correlation coefficient with larger positive numbers indicating better discrimination (e.g., .42).

Item Response Theory - A method of test item analysis that takes into account the ability of the examinee, and determines characteristics of the item relative to other items in the test.

Item Specifications - Item specifications specify the language and format item writers must follow when constructing items.

Mantel-Haenszel - A statistical procedure that examines the differential item functioning (DIF) or the relationship between a score on an item and the different groups answering the item (e.g. gender, race). This procedure is used to identify individual items for further bias review.

Operational Test - Test is administered statewide with standardized procedures and full reporting of scores, and stakes for examinees and schools.

p-value - Difficulty of an item defined by using the proportion of examinees who answered an item correctly.

Parallel Forms - Covers the same curricular material as other forms

Percentile - The score on a test below which a given percentage of scores fall.

Performance Level Descriptors - These statements describe how well students must perform the benchmark standards. The “proficient” level is required to meet the standards. These descriptors help teachers to judge how students are performing in relation to meeting the standards.

Rangefinding - The process of selecting responses that exemplify particular score points. The set of responses is used in scoring guides and other training materials that prepare readers for scoring.

Rasch Model - A psychometric model from the IRT family of models that permits objective comparisons of individuals, items, etc. Rasch provides both estimates of item difficulty (logit difficulty) as well as person ability (logit ability). It is used for scaling and equating test forms as well as producing item analysis.

Raw Score - The unadjusted score on a test determined by counting the number of correct answers.

Reliability - The extent to which test scores are reproducible. If a class of students theoretically took the same test twice in one day and each student's score was the same on the second administration of the test as on the first, the test would be perfectly reliable (1.00). Of course, perfection is not possible and reliabilities in the .90's are considered good. In handscoring, reliability refers to agreement between readers when assigning scores. Handscoring quality control reports help monitor reader reliability.

Rollup – a compilation of individual scores for students into class, school, district, region and/or state level summary reports.

Rubric - The criteria used to rate student responses to constructed-response items. Rubrics vary according to the type of item and the goals of the testing program.

Scale Score - A score to which raw scores are converted by numerical transformation. Scale scores allow for comparison of different forms of the test using the same scale.

Standard Deviation - A measure of variability, expressed in the same metric as the score. It indicates the dispersion of test scores around the mean. If you know the mean and standard deviation of a distribution, you can determine what proportion of scores falls within one standard deviation of the mean.

Standard Error of Measurement - The standard deviation of an individual's observed scores, usually estimated from group data.

Test Development - The process of constructing a test. It includes writing the items or test questions, and selecting the good items and organizing them into test forms.

Test Map – a master document containing a detailed breakdown of a test's specifications by item, objective, cluster, subtest, and all roll-ups involved with each level of reporting category on each testing program. It is considered the master source for information about a test.

Test Specifications - Test specifications are the specific rules and characteristics that guide the development of a test. Adherence to test specs ensures that equal test forms are developed annually. Test specifications refer to the overall characteristics of the test content and format that must be followed when constructing tests.

Traffic Signal Report – Teachers receive per-skill category mastery reports for each of the Wyoming Content Standards in reading, science, and mathematics. Therefore, teachers are able to discern the extent to which students have mastered all aspects of the Wyoming Content and Performance Standards.

Validity - The appropriateness or correctness of inferences, decisions or descriptions made about individuals, groups or institutions from test results. There is no such thing as a generically valid test. Validity must be considered in terms of the correctness of a particular inference.

TECHNICAL REPORT—APPENDICES
PROFICIENCY ASSESSMENTS FOR WYOMING STUDENTS (PAWS)

MATHEMATICS AND READING: GRADES 3 – 8 AND 11
SCIENCE: GRADES 4, 8, AND 11

2012 ADMINISTRATION

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Appendix A—Rasch Difficulty, Standard Error, Fit Statistics, and N-Counts for 2012 Field Test Items

Grade 3 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000525290	MC	1127	-3.480	0.115	0.890	0.680
100000525291	MC	1457	-3.385	0.093	0.870	0.620
100000525292	MC	1457	-1.314	0.059	1.170	1.240
100000525293	MC	1127	-2.062	0.076	0.920	0.850
100000525294	MC	1127	-2.340	0.081	0.980	0.960
100000525295	MC	1457	-2.306	0.069	0.920	0.860
100000525297	MC	1457	-2.393	0.070	0.870	0.790
100000525298	MC	1127	-0.358	0.065	1.110	1.190
100000525299	MC	1457	-2.373	0.070	0.880	0.780
100000525300	MC	1457	-1.020	0.058	1.130	1.170
100000525301	MC	1127	-2.294	0.080	0.920	0.860
100000525302	MC	1127	-0.400	0.065	1.040	1.050
100000525311	MC	1147	-2.604	0.085	0.900	0.770
100000525312	MC	1137	-0.870	0.065	0.950	0.950
100000525313	MC	1147	-1.342	0.067	0.960	0.970
100000525314	MC	1137	-0.542	0.064	1.040	1.030
100000525315	MC	1147	-0.175	0.066	1.080	1.120
100000525316	MC	1147	-0.683	0.064	1.000	1.030
100000525317	MC	1137	-1.391	0.067	1.060	1.050
100000525318	MC	1137	-1.132	0.066	0.930	0.900
100000525319	MC	1147	-3.321	0.107	0.940	0.790
100000525320	MC	1137	-0.362	0.065	1.250	1.390
100000525321	MC	1137	-2.025	0.075	0.990	0.910
100000525322	MC	1147	-1.962	0.073	0.980	1.010
100000525347	MC	1136	-2.644	0.087	0.920	0.780
100000525348	MC	1136	-0.113	0.066	1.030	1.090
100000525349	MC	1120	-2.538	0.085	0.850	0.680
100000525350	MC	1136	-1.839	0.072	0.920	0.860
100000525351	MC	1120	-2.037	0.075	0.960	0.910
100000525352	MC	1136	-1.802	0.072	0.950	0.900
100000525353	MC	1136	-1.040	0.066	1.020	1.030
100000525354	MC	1120	-1.576	0.070	0.990	0.980
100000525355	MC	1136	0.243	0.069	1.150	1.330
100000525356	MC	1120	-1.824	0.073	0.960	0.960
100000525357	MC	1120	-1.372	0.068	0.880	0.820
100000525358	MC	1120	0.563	0.073	1.330	1.920

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000525304	SR	2584	-1.088	0.030	1.220	1.260
100000525305	SR	2584	-0.554	0.032	1.060	1.060
100000525323	SR	2284	-0.168	0.040	0.990	0.990
100000525324	SR	2284	-0.263	0.029	1.040	1.050
100000525359	SR	2256	0.368	0.041	1.000	0.990
100000525360	SR	2256	-0.004	0.036	0.990	1.000

Grade 4 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000525363	MC	1394	0.006	0.063	0.940	0.910
100000525364	MC	1093	0.080	0.070	1.090	1.120
100000525365	MC	1394	-0.444	0.067	1.030	1.020
100000525366	MC	1093	0.134	0.070	0.920	0.890
100000525367	MC	1394	0.468	0.060	0.980	0.990
100000525368	MC	1093	-1.898	0.113	0.880	0.620
100000525370	MC	1394	0.056	0.062	1.040	1.040
100000525372	MC	1093	-0.096	0.072	0.880	0.810
100000525373	MC	1394	0.525	0.060	0.920	0.900
100000525374	MC	1093	0.540	0.067	1.000	1.000
100000525375	MC	1093	-1.248	0.092	0.830	0.600
100000525376	MC	1394	0.178	0.061	1.030	1.030
100000526835	MC	1092	-1.100	0.088	0.880	0.710
100000526836	MC	1081	-0.495	0.078	0.990	0.880
100000526837	MC	1081	-0.069	0.072	0.870	0.790
100000526838	MC	1081	-0.321	0.075	0.960	0.920
100000526839	MC	1092	1.269	0.067	1.080	1.160
100000526840	MC	1081	-0.355	0.075	1.120	1.270
100000526841	MC	1092	-0.101	0.071	0.930	0.880
100000526842	MC	1092	1.942	0.072	1.240	1.750
100000526843	MC	1092	-0.944	0.085	0.830	0.650
100000526844	MC	1081	-2.556	0.150	0.920	0.790
100000526845	MC	1081	-0.728	0.082	0.930	0.830
100000526846	MC	1092	0.217	0.069	1.030	1.050
100000526878	MC	1088	-0.995	0.088	1.000	0.970
100000526879	MC	1088	-0.506	0.078	1.030	1.000
100000526880	MC	1078	-0.814	0.084	0.980	0.890
100000526881	MC	1088	-0.912	0.086	0.900	0.800
100000526882	MC	1088	0.077	0.071	1.060	1.040

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000526883	MC	1088	-1.181	0.092	0.890	0.730
100000526884	MC	1078	-1.766	0.110	0.930	0.900
100000526885	MC	1078	1.292	0.068	1.020	1.120
100000526886	MC	1088	-1.042	0.089	0.950	0.920
100000526887	MC	1078	-1.519	0.102	0.990	0.900
100000526888	MC	1078	-1.108	0.090	0.900	0.710
100000526889	MC	1078	-1.791	0.111	0.910	0.780
100000525377	SR	2487	0.799	0.041	0.960	0.960
100000525378	SR	2487	0.773	0.035	0.980	0.970
100000526847	SR	2173	0.643	0.033	1.030	1.040
100000526848	SR	2173	0.580	0.031	1.000	1.010
100000526890	SR	2166	0.435	0.039	1.140	1.150
100000526891	SR	2166	0.539	0.033	1.000	0.990

Grade 5 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000525024	MC	1083	0.263	0.069	1.020	1.000
100000525025	MC	1083	-2.283	0.132	0.880	0.560
100000525026	MC	1083	1.646	0.070	1.160	1.380
100000525027	MC	1083	-1.734	0.108	0.940	0.790
100000525028	MC	1083	0.734	0.067	1.140	1.180
100000525029	MC	1083	0.668	0.067	0.970	0.960
100000525030	MC	1083	-0.815	0.082	0.900	0.800
100000525031	MC	1083	1.659	0.070	0.980	1.100
100000525032	MC	1083	-1.377	0.095	0.940	0.820
100000525034	MC	1083	-1.149	0.089	0.900	0.800
100000525035	MC	1083	-2.120	0.124	0.920	0.640
100000525036	MC	1083	-0.332	0.075	0.980	0.930
100000525075	MC	1369	-0.584	0.068	0.970	0.960
100000525076	MC	1084	-1.219	0.089	0.880	0.730
100000525077	MC	1369	-1.465	0.084	0.920	0.850
100000525078	MC	1084	-0.265	0.072	0.900	0.840
100000525079	MC	1084	-1.599	0.100	1.040	1.170
100000525080	MC	1369	-0.139	0.063	0.870	0.810
100000525082	MC	1084	0.637	0.066	1.220	1.280
100000525083	MC	1369	-0.285	0.064	1.150	1.190
100000525084	MC	1084	-3.326	0.198	0.940	0.550
100000525086	MC	1369	1.086	0.060	1.000	1.060
100000525087	MC	1369	-0.830	0.071	0.950	0.860

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000525088	MC	1084	-0.317	0.073	0.950	0.890
100000525423	MC	1081	-0.047	0.071	0.910	0.860
100000525424	MC	1081	-0.017	0.071	0.930	0.870
100000525425	MC	1079	-0.439	0.076	0.890	0.820
100000525426	MC	1079	-0.685	0.080	0.970	1.000
100000525427	MC	1079	1.579	0.069	0.990	1.100
100000525428	MC	1081	0.083	0.070	1.140	1.200
100000525429	MC	1079	-0.333	0.074	0.870	0.790
100000525430	MC	1081	0.579	0.067	1.010	1.020
100000525431	MC	1079	1.286	0.067	1.050	1.130
100000525433	MC	1079	0.412	0.068	1.090	1.120
100000525434	MC	1081	0.665	0.067	1.000	1.000
100000525435	MC	1081	3.454	0.108	1.050	2.410
100000525021	SR	2166	0.707	0.033	0.920	0.890
100000525022	SR	2166	0.738	0.037	0.870	0.860
100000525089	SR	1369	0.163	0.053	0.920	0.920
100000525090	SR	1084	0.422	0.058	0.900	0.900
100000525420	SR	2160	0.435	0.042	1.040	1.040
100000525421	SR	2160	0.402	0.040	0.980	0.980
100000525091	ER	1369	0.977	0.039	0.950	0.960
100000525092	ER	1084	0.980	0.042	1.140	1.170

Grade 6 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000526945	MC	1091	0.280	0.069	0.950	0.920
100000526946	MC	1081	1.206	0.066	1.150	1.220
100000526947	MC	1081	-0.288	0.077	1.010	0.980
100000526948	MC	1091	0.825	0.065	0.970	0.960
100000526950	MC	1081	-0.246	0.077	0.880	0.770
100000526951	MC	1091	2.114	0.071	1.070	1.130
100000526952	MC	1091	2.478	0.076	1.250	1.700
100000526953	MC	1081	-1.367	0.105	0.950	0.860
100000526954	MC	1081	0.548	0.068	0.900	0.860
100000526955	MC	1081	0.847	0.067	0.960	0.950
100000526956	MC	1091	-0.832	0.088	0.950	0.910
100000526957	MC	1091	-0.160	0.074	0.980	0.960
100000526973	MC	1098	-1.379	0.105	0.870	0.570
100000526975	MC	1098	-1.008	0.093	0.930	0.780
100000526976	MC	1100	-0.331	0.078	0.850	0.730
100000526977	MC	1098	-1.556	0.113	0.920	0.690

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000526978	MC	1100	0.071	0.072	0.910	0.820
100000526979	MC	1100	0.429	0.068	0.990	0.950
100000526980	MC	1100	0.685	0.067	0.960	0.950
100000526982	MC	1100	-0.067	0.074	0.900	0.840
100000526983	MC	1098	1.301	0.065	1.040	1.080
100000526984	MC	1098	1.871	0.068	1.070	1.220
100000526985	MC	1100	1.255	0.066	0.990	1.020
100000526986	MC	1098	4.642	0.158	0.990	1.320
100000526999	MC	1091	-0.150	0.076	0.870	0.780
100000527000	MC	1091	-1.027	0.096	0.970	0.960
100000527001	MC	1091	-1.183	0.101	0.850	0.580
100000527003	MC	1340	0.010	0.066	0.880	0.790
100000527004	MC	1340	-0.199	0.068	0.950	0.880
100000527005	MC	1340	0.929	0.060	1.000	1.020
100000527006	MC	1340	0.107	0.064	0.980	0.950
100000527007	MC	1340	0.850	0.060	1.090	1.100
100000527008	MC	1340	0.707	0.060	0.980	0.990
100000527009	MC	1091	-2.213	0.149	0.960	0.980
100000527011	MC	1091	0.265	0.071	0.930	0.890
100000527012	MC	1091	1.072	0.066	1.020	1.020
100000526942	SR	1091	2.175	0.053	1.130	1.170
100000526943	SR	1081	1.349	0.074	0.990	0.970
100000526971	SR	1100	1.958	0.047	0.970	0.940
100000526972	SR	1098	1.270	0.050	1.170	1.180
100000526997	SR	1340	1.223	0.048	0.920	0.910
100000526998	SR	1091	2.554	0.058	0.970	0.960
100000526958	ER	2172	2.036	0.034	1.000	1.000
100000526987	ER	2198	1.356	0.031	0.970	0.970
100000526996	ER	2431	1.740	0.032	0.890	0.880

Grade 7 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000526922	MC	1336	-1.427	0.094	0.850	0.670
100000526923	MC	1336	-1.349	0.092	0.840	0.590
100000526925	MC	1093	0.272	0.071	0.970	0.940
100000526926	MC	1093	0.607	0.068	1.020	1.030
100000526927	MC	1093	-0.638	0.086	0.920	0.900
100000526928	MC	1336	0.617	0.061	0.980	0.990
100000526930	MC	1336	0.291	0.063	1.130	1.160
100000526931	MC	1093	-0.923	0.093	0.930	0.750

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000526932	MC	1093	-0.631	0.085	1.070	1.270
100000526933	MC	1336	-0.954	0.082	0.900	0.920
100000526935	MC	1336	1.703	0.061	1.140	1.300
100000526936	MC	1093	-0.660	0.086	0.870	0.680
100000529364	MC	1098	-0.777	0.088	0.910	0.760
100000529365	MC	1100	-0.874	0.091	0.920	0.750
100000529366	MC	1098	0.189	0.071	1.010	1.000
100000529367	MC	1098	-0.914	0.091	0.950	0.890
100000529369	MC	1100	-0.362	0.079	0.930	0.870
100000529370	MC	1100	0.524	0.068	0.960	0.940
100000529371	MC	1098	0.904	0.066	0.860	0.820
100000529372	MC	1098	1.849	0.068	0.930	0.990
100000529373	MC	1100	0.450	0.068	0.950	0.900
100000529374	MC	1098	0.605	0.068	0.980	0.970
100000529389	MC	1097	1.584	0.066	1.290	1.420
100000529390	MC	1098	0.666	0.067	0.900	0.870
100000529391	MC	1097	-2.133	0.144	0.900	0.660
100000529392	MC	1097	-2.242	0.151	0.920	0.690
100000529393	MC	1098	-0.713	0.087	0.840	0.690
100000529394	MC	1097	-1.373	0.108	0.850	0.570
100000529395	MC	1098	-1.123	0.099	0.960	0.870
100000529397	MC	1098	0.170	0.072	0.940	0.900
100000529399	MC	1098	2.656	0.077	0.950	1.100
100000529400	MC	1097	0.766	0.066	1.140	1.180
100000529401	MC	1098	-0.767	0.089	0.950	0.890
100000529402	MC	1097	-1.373	0.108	0.960	0.910
100000544115	MC	1100	3.234	0.090	1.020	1.300
100000544116	MC	1100	0.988	0.065	1.010	1.020
100000526918	SR	1336	0.030	0.046	0.980	0.990
100000526919	SR	1093	1.527	0.069	0.960	0.960
100000529378	SR	1098	0.978	0.056	0.990	0.980
100000529379	SR	1100	1.623	0.050	1.050	1.040
100000529403	SR	1098	0.950	0.056	1.080	1.080
100000529404	SR	1097	2.112	0.051	1.040	1.080
100000526921	ER	2429	2.263	0.027	0.860	0.850
100000529380	ER	2198	1.510	0.030	0.950	0.950
100000529405	ER	2195	1.391	0.028	0.960	0.970

Grade 8 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000525183	MC	1069	2.119	0.068	1.160	1.290
100000525184	MC	1069	2.208	0.069	1.170	1.320
100000525185	MC	1069	0.707	0.069	0.960	0.930
100000525186	MC	1069	1.793	0.067	0.970	0.970
100000525187	MC	1069	0.487	0.071	1.120	1.180
100000525188	MC	1069	0.714	0.069	0.800	0.740
100000525189	MC	1069	-0.563	0.091	0.970	0.890
100000525190	MC	1069	-0.382	0.086	0.950	0.880
100000525191	MC	1069	0.754	0.069	1.040	1.090
100000525192	MC	1069	-0.195	0.082	0.970	0.900
100000525194	MC	1069	-0.135	0.081	0.940	0.870
100000525195	MC	1069	-1.233	0.113	0.980	0.890
100000525202	MC	1090	0.552	0.071	1.080	1.070
100000525203	MC	1090	3.302	0.085	1.110	1.850
100000525204	MC	1074	1.046	0.067	0.930	0.900
100000525205	MC	1090	1.691	0.066	0.890	0.880
100000525206	MC	1074	0.431	0.072	0.870	0.810
100000525207	MC	1074	1.144	0.067	0.930	0.920
100000525208	MC	1090	1.300	0.066	1.120	1.130
100000525209	MC	1074	-1.112	0.106	0.900	0.690
100000525210	MC	1090	-0.961	0.103	0.820	0.540
100000525211	MC	1074	1.967	0.068	0.960	0.980
100000525214	MC	1090	-1.849	0.143	0.900	0.510
100000525215	MC	1074	0.301	0.073	1.010	1.050
100000525244	MC	1097	-1.097	0.109	0.870	0.630
100000525245	MC	1372	-0.507	0.078	0.790	0.580
100000525246	MC	1097	0.694	0.069	1.100	1.120
100000525247	MC	1372	-0.018	0.069	0.930	0.870
100000525249	MC	1372	-1.086	0.092	0.810	0.570
100000525251	MC	1372	-0.625	0.080	0.790	0.600
100000525252	MC	1097	0.986	0.067	1.140	1.190
100000525253	MC	1097	1.811	0.065	1.110	1.190
100000525255	MC	1372	-0.606	0.080	0.890	0.770
100000525256	MC	1097	-0.026	0.079	0.990	0.940
100000525257	MC	1097	2.167	0.067	1.190	1.260
100000525258	MC	1372	-0.071	0.070	0.940	0.880
100000525180	SR	1069	2.204	0.047	1.230	1.340
100000525181	SR	1069	2.211	0.044	1.030	1.020
100000525200	SR	1090	2.997	0.055	0.980	0.970

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000525201	SR	1074	1.111	0.047	0.900	0.890
100000525241	SR	1097	2.255	0.065	0.920	0.920
100000525242	SR	1097	2.200	0.050	1.330	1.380
100000525243	SR	1372	1.116	0.056	0.910	0.900
100000525179	ER	2138	1.796	0.032	0.920	0.920
100000525199	ER	2164	0.948	0.022	1.110	1.110
100000525240	ER	1372	1.769	0.032	0.960	0.960

Grade 11 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000526789	MC	1158	1.682	0.067	1.170	1.210
100000526790	MC	1598	-0.634	0.064	0.900	0.810
100000526791	MC	1598	-0.957	0.069	0.780	0.600
100000526792	MC	1158	0.181	0.066	0.970	0.990
100000526794	MC	1598	1.451	0.056	1.000	1.090
100000526795	MC	1158	-1.196	0.088	0.950	0.960
100000526797	MC	1598	-0.387	0.061	0.960	0.910
100000526798	MC	1158	-0.153	0.069	1.100	1.270
100000526799	MC	1598	-1.180	0.074	0.890	0.720
100000526800	MC	1158	0.521	0.064	0.900	0.880
100000526801	MC	1158	0.888	0.063	0.980	0.980
100000526803	MC	1598	-0.881	0.068	0.970	0.960
100000526820	MC	1146	-0.702	0.079	0.910	0.820
100000526821	MC	1146	0.728	0.064	1.070	1.080
100000526822	MC	1122	-1.313	0.093	0.920	0.770
100000526823	MC	1146	-0.252	0.071	0.910	0.840
100000526824	MC	1122	0.789	0.065	0.900	0.880
100000526826	MC	1122	-1.682	0.105	0.870	0.720
100000526828	MC	1146	1.511	0.066	1.040	1.100
100000526829	MC	1122	1.277	0.066	1.040	1.070
100000526830	MC	1146	-0.206	0.071	0.960	0.950
100000526831	MC	1146	-0.132	0.070	0.830	0.760
100000526832	MC	1122	0.809	0.065	1.040	1.040
100000526833	MC	1122	0.227	0.067	1.120	1.150
100000526864	MC	1154	2.041	0.071	1.170	1.330
100000526865	MC	1160	-1.102	0.084	0.920	0.840
100000526868	MC	1160	2.944	0.091	1.130	1.960
100000526869	MC	1154	-0.751	0.079	0.810	0.640
100000526870	MC	1160	-0.119	0.068	0.940	0.870
100000526871	MC	1154	-1.360	0.094	0.860	0.640

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000526872	MC	1160	-0.717	0.076	0.840	0.710
100000526873	MC	1154	-0.168	0.070	1.040	1.090
100000526875	MC	1154	0.933	0.064	1.040	1.070
100000539509	MC	1154	0.080	0.067	0.920	0.870
100000539510	MC	1160	0.472	0.064	1.060	1.070
100000539511	MC	1160	-0.648	0.075	1.010	1.030
100000526786	SR	1158	0.696	0.047	0.950	0.950
100000526787	SR	1598	1.021	0.054	0.940	0.930
100000526788	SR	1158	-0.306	0.053	0.850	0.850
100000526817	SR	1122	0.842	0.053	0.910	0.910
100000526818	SR	1146	0.326	0.061	0.930	0.920
100000526859	SR	2314	0.687	0.044	0.890	0.890
100000526785	ER	1598	1.255	0.031	0.860	0.860
100000526819	ER	2268	1.433	0.030	1.160	1.160
100000526861	ER	2314	0.858	0.024	0.990	0.990

Grade 3 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508542	MC	1438	0.473	0.059	0.980	0.980
100000508545	MC	1116	0.475	0.067	0.980	1.000
100000508546	MC	1130	-0.675	0.074	0.870	0.780
100000508551	MC	1438	-2.999	0.130	1.020	1.190
100000508552	MC	1132	0.162	0.067	1.080	1.100
100000508560	MC	1438	0.645	0.059	1.060	1.120
100000508562	MC	1123	-1.254	0.084	1.030	0.960
100000508564	MC	1132	-4.024	0.241	0.980	0.640
100000508565	MC	1123	-0.294	0.070	1.080	1.120
100000508566	MC	1124	-2.860	0.148	0.930	0.880
100000508567	MC	1132	-1.523	0.092	0.880	0.730
100000508569	MC	1130	-1.312	0.085	1.020	1.050
100000508570	MC	1132	-2.159	0.112	0.950	0.790
100000508572	MC	1123	-1.371	0.087	0.860	0.670
100000508576	MC	1116	-4.248	0.272	0.960	0.920
100000508577	MC	1130	-1.833	0.099	1.010	0.880
100000508578	MC	1438	-1.061	0.071	1.020	1.000
100000508584	MC	1124	-0.161	0.070	1.200	1.360
100000508586	MC	1116	-1.864	0.103	0.920	0.920
100000508588	MC	1124	0.307	0.067	0.950	0.970
100000508589	MC	1123	1.040	0.067	1.120	1.220
100000508590	MC	1116	-2.843	0.147	1.010	0.960

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508591	MC	1130	-0.873	0.077	1.030	1.000
100000508593	MC	1124	-1.244	0.086	0.970	0.920
100000426348	SR	1438	-0.508	0.048	1.140	1.190
100000426358	SR	1438	-1.312	0.053	0.920	0.960
100000426403	SR	1123	0.780	0.058	1.000	1.010
100000426423	SR	1124	0.220	0.043	0.870	0.790
100000468240	SR	1124	0.997	0.042	1.000	0.930
100000508547	SR	1130	-0.469	0.047	1.200	1.290
100000508548	SR	1130	0.230	0.055	1.110	1.110
100000508555	SR	1132	1.220	0.042	1.090	1.230
100000508556	SR	1132	-0.556	0.051	0.950	1.000
100000508557	SR	1116	-0.626	0.050	1.050	1.110
100000508574	SR	1123	0.551	0.047	1.130	1.170
100000508581	SR	1116	0.883	0.046	1.030	1.040

Grade 4 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508222	MC	1372	-0.507	0.065	0.890	0.840
100000508226	MC	1083	-1.520	0.094	0.910	0.790
100000508233	MC	1372	-0.085	0.062	1.000	0.960
100000508242	MC	1083	-1.156	0.085	1.020	1.010
100000508243	MC	1372	-1.390	0.079	0.910	0.850
100000515145	MC	1083	-1.639	0.097	0.940	0.940
100000515146	MC	1076	-0.370	0.073	1.010	1.080
100000515147	MC	1074	-0.370	0.072	0.860	0.760
100000515148	MC	1068	-1.547	0.095	0.930	0.740
100000515149	MC	1372	0.055	0.061	1.160	1.220
100000515152	MC	1072	1.092	0.069	1.090	1.160
100000515153	MC	1074	-1.792	0.101	0.990	0.900
100000515154	MC	1076	-0.876	0.080	0.950	0.840
100000515159	MC	1083	0.112	0.068	0.930	0.900
100000515160	MC	1074	0.038	0.069	0.910	0.870
100000515161	MC	1076	-0.504	0.074	0.930	0.900
100000515163	MC	1068	-0.829	0.079	0.980	0.990
100000515164	MC	1068	1.763	0.074	1.210	1.640
100000515167	MC	1074	-1.722	0.099	1.100	1.360
100000533111	MC	1072	-0.884	0.079	0.920	0.800
100000533112	MC	1068	-0.631	0.076	0.960	0.880
100000533113	MC	1076	-1.576	0.097	0.950	0.840
100000533114	MC	1072	-0.237	0.071	0.960	0.980

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000533116	MC	1072	0.831	0.068	1.060	1.110
100000426439	SR	1074	-0.107	0.043	0.950	1.030
100000426446	SR	1074	0.290	0.047	1.170	1.270
100000426451	SR	1372	0.054	0.039	0.890	0.980
100000426455	SR	1372	-0.288	0.043	1.060	1.170
100000426460	SR	1083	-0.354	0.051	1.070	1.240
100000426467	SR	1083	0.065	0.044	0.940	0.950
100000426470	SR	1076	-0.003	0.049	0.970	0.970
100000426482	SR	1068	0.622	0.055	0.870	0.860
100000508229	SR	1072	0.257	0.046	1.340	1.500
100000508231	SR	1072	0.755	0.046	1.090	1.070
100000515157	SR	1076	0.098	0.049	1.010	1.080
100000515170	SR	1068	-0.295	0.047	1.170	1.270

Grade 5 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508633	MC	1060	0.338	0.072	1.040	1.000
100000508635	MC	1355	0.552	0.062	0.960	0.910
100000508636	MC	1072	-0.227	0.077	0.910	0.810
100000508637	MC	1070	0.142	0.073	0.860	0.770
100000508638	MC	1070	-1.503	0.112	0.970	0.830
100000508640	MC	1065	-1.080	0.096	1.160	1.560
100000508647	MC	1072	-0.343	0.079	0.880	0.800
100000508648	MC	1070	0.795	0.069	0.990	1.060
100000508649	MC	1355	1.997	0.064	1.180	1.450
100000508650	MC	1079	-1.555	0.112	1.040	1.530
100000508653	MC	1065	0.687	0.069	1.140	1.240
100000508654	MC	1060	-0.394	0.081	1.000	0.930
100000508655	MC	1070	-0.582	0.085	1.020	0.910
100000508657	MC	1065	0.748	0.069	1.080	1.120
100000508658	MC	1079	1.670	0.069	0.910	0.900
100000508659	MC	1355	-0.942	0.081	0.890	0.820
100000508666	MC	1065	1.255	0.068	0.850	0.810
100000508667	MC	1079	-1.173	0.098	0.960	0.950
100000508669	MC	1079	0.403	0.070	1.010	0.990
100000508671	MC	1060	0.475	0.071	1.150	1.150
100000508672	MC	1355	0.193	0.064	0.970	0.980
100000508685	MC	1072	1.852	0.070	1.130	1.190
100000508686	MC	1060	-1.669	0.117	0.990	0.900
100000508690	MC	1072	-0.929	0.091	1.110	1.380

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000427589	SR	1060	0.831	0.045	1.110	1.180
100000427596	SR	1079	0.779	0.043	0.940	0.940
100000427633	SR	1070	2.543	0.054	1.160	1.170
100000427634	SR	1065	1.853	0.046	1.190	1.370
100000508644	SR	1060	1.365	0.044	1.120	1.300
100000508645	SR	1070	2.262	0.049	1.020	1.010
100000508652	SR	1065	-0.038	0.051	0.930	0.890
100000508674	SR	1079	3.270	0.064	1.070	1.080
100000508675	SR	1355	2.618	0.049	0.990	0.940
100000508676	SR	1072	2.764	0.057	1.320	1.510
100000508682	SR	1072	0.776	0.044	1.160	1.300
100000508683	SR	1355	1.576	0.047	1.080	1.080

Grade 6 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508694	MC	1068	0.333	0.077	0.950	0.900
100000508695	MC	1070	0.565	0.073	0.870	0.840
100000508696	MC	1071	0.015	0.082	0.860	0.690
100000508698	MC	1320	0.939	0.063	0.950	0.940
100000508701	MC	1070	1.559	0.069	1.180	1.260
100000508703	MC	1073	-1.271	0.117	1.040	1.080
100000508707	MC	1320	0.055	0.072	0.860	0.730
100000508708	MC	1071	1.455	0.069	1.010	0.990
100000508711	MC	1070	-0.877	0.101	0.900	0.750
100000508714	MC	1068	0.807	0.072	0.970	0.980
100000508716	MC	1320	0.742	0.065	0.890	0.810
100000508719	MC	1071	-2.072	0.164	1.030	1.710
100000508726	MC	1086	1.128	0.068	0.970	0.940
100000508727	MC	1073	-0.074	0.082	0.970	0.830
100000508729	MC	1068	2.584	0.073	1.050	1.140
100000508739	MC	1086	1.072	0.068	1.030	1.040
100000508741	MC	1073	1.017	0.070	0.990	0.960
100000508743	MC	1071	-1.050	0.110	0.900	0.770
100000508744	MC	1086	2.818	0.076	1.200	1.440
100000508748	MC	1320	1.141	0.063	1.030	1.050
100000508749	MC	1070	0.691	0.072	1.130	1.240
100000508751	MC	1086	-1.294	0.116	0.880	0.610
100000508752	MC	1073	-0.047	0.082	1.110	1.300
100000539745	MC	1068	-1.324	0.123	0.900	0.540
100000427694	SR	1320	1.105	0.047	1.020	1.030

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000427712	SR	1068	1.226	0.046	1.080	1.140
100000427718	SR	1320	1.674	0.043	1.060	1.070
100000427730	SR	1073	2.373	0.052	1.020	1.020
100000427731	SR	1071	1.295	0.052	1.240	1.270
100000427736	SR	1070	-0.185	0.058	1.140	1.710
100000427741	SR	1086	1.428	0.046	1.080	1.060
100000508706	SR	1086	1.426	0.045	1.100	1.100
100000508721	SR	1071	1.019	0.044	1.080	1.040
100000508742	SR	1073	1.886	0.047	1.020	1.040
100000508754	SR	1068	0.339	0.053	1.070	1.090
100000508755	SR	1070	1.175	0.045	0.880	0.840

Grade 7 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508295	MC	1322	2.215	0.062	1.000	0.990
100000508296	MC	1076	1.832	0.068	1.080	1.130
100000508297	MC	1073	1.879	0.068	0.950	0.950
100000508298	MC	1086	2.151	0.068	1.020	1.030
100000508299	MC	1076	2.455	0.070	1.240	1.370
100000508300	MC	1073	-0.285	0.093	0.950	0.940
100000508304	MC	1073	2.045	0.068	1.180	1.260
100000508309	MC	1322	2.234	0.063	1.040	1.050
100000508310	MC	1087	1.863	0.068	1.270	1.320
100000508311	MC	1086	2.566	0.070	1.090	1.170
100000508313	MC	1087	1.382	0.069	0.990	0.970
100000508317	MC	1076	1.476	0.068	0.920	0.880
100000508320	MC	1322	1.026	0.063	1.160	1.300
100000508321	MC	1086	2.463	0.070	0.940	0.950
100000508324	MC	1087	2.703	0.072	1.030	1.090
100000508325	MC	1073	0.626	0.076	0.920	0.850
100000508328	MC	1086	0.482	0.076	0.950	0.880
100000508330	MC	1087	0.275	0.080	0.900	0.760
100000508333	MC	1076	2.565	0.071	1.030	1.060
100000508334	MC	1073	2.648	0.071	1.000	1.140
100000508335	MC	1073	2.062	0.068	1.100	1.170
100000508339	MC	1322	0.031	0.074	0.960	0.940
100000508342	MC	1073	2.357	0.069	0.960	0.930
100000508346	MC	1073	1.975	0.068	1.110	1.180
100000427187	SR	1087	1.435	0.044	0.850	0.790
100000427188	SR	1073	1.912	0.044	1.090	1.150

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000427191	SR	1086	1.939	0.046	0.920	0.890
100000427453	SR	1322	4.156	0.067	1.250	1.300
100000427454	SR	1073	4.954	0.093	1.100	0.980
100000427481	SR	1076	1.105	0.048	0.950	0.900
100000427482	SR	1073	1.062	0.048	1.130	1.350
100000427487	SR	1076	2.932	0.051	1.000	0.910
100000427488	SR	1322	1.232	0.038	1.130	1.210
100000427489	SR	1087	1.579	0.042	0.960	0.880
100000508312	SR	1086	4.133	0.069	1.050	0.930
100000508337	SR	1073	2.314	0.044	0.990	0.960

Grade 8 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508354	MC	1347	3.172	0.067	0.990	1.080
100000508355	MC	1058	1.911	0.068	1.180	1.440
100000508356	MC	1055	2.917	0.071	0.910	0.910
100000508357	MC	1060	1.785	0.068	0.960	0.970
100000508359	MC	1054	1.787	0.068	1.090	1.120
100000508360	MC	1058	2.359	0.068	1.090	1.090
100000508364	MC	1347	2.758	0.063	1.110	1.230
100000508367	MC	1055	2.708	0.070	1.130	1.160
100000508373	MC	1058	1.640	0.068	0.960	0.940
100000508377	MC	1068	0.345	0.083	0.830	0.660
100000508378	MC	1054	2.106	0.068	1.060	1.080
100000508381	MC	1347	2.451	0.061	0.990	1.010
100000508415	MC	1068	1.807	0.068	1.010	0.990
100000508416	MC	1068	3.096	0.074	1.220	1.390
100000508420	MC	1054	1.718	0.068	1.030	1.040
100000508423	MC	1060	2.791	0.070	1.060	1.090
100000508426	MC	1054	2.106	0.068	1.090	1.140
100000508427	MC	1055	1.908	0.068	0.970	0.980
100000508428	MC	1060	2.625	0.069	0.960	0.940
100000508430	MC	1055	2.379	0.068	0.970	0.970
100000508433	MC	1347	0.947	0.065	0.870	0.790
100000508440	MC	1068	2.969	0.072	1.040	1.090
100000508441	MC	1060	2.263	0.068	1.070	1.060
100000508443	MC	1058	4.535	0.104	1.130	1.970
100000425580	SR	1055	2.546	0.043	1.070	1.030
100000425599	SR	1054	1.791	0.048	0.830	0.830
100000425789	SR	1054	2.386	0.047	0.840	0.810

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000425800	SR	1055	3.013	0.048	0.930	0.860
100000426926	SR	1068	3.122	0.048	1.170	1.130
100000426939	SR	1068	3.356	0.053	0.870	0.780
100000508368	SR	1347	2.433	0.038	0.960	0.850
100000508369	SR	1058	4.304	0.076	0.950	0.790
100000508379	SR	1058	2.717	0.045	0.940	0.840
100000508424	SR	1347	2.505	0.046	0.870	0.800
100000508438	SR	1060	1.593	0.050	0.790	0.770
100000508439	SR	1347	3.299	0.047	0.880	0.700

Grade 11 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508445	MC	1229	-0.171	0.063	1.070	1.040
100000508447	MC	1692	0.152	0.053	1.110	1.110
100000508454	MC	1209	-0.376	0.064	0.950	0.920
100000508456	MC	1229	-0.469	0.064	1.060	1.080
100000508458	MC	1231	-1.277	0.073	0.960	0.940
100000508459	MC	1210	1.732	0.077	0.910	0.950
100000508460	MC	1692	0.702	0.056	1.290	1.370
100000508462	MC	1229	1.952	0.080	1.100	1.420
100000508464	MC	1237	0.218	0.063	1.070	1.100
100000508465	MC	1210	2.504	0.095	1.200	1.780
100000508468	MC	1209	0.163	0.063	1.090	1.090
100000508469	MC	1231	0.740	0.065	1.330	1.420
100000508472	MC	1692	0.264	0.054	1.030	1.020
100000508475	MC	1231	-0.785	0.067	0.870	0.760
100000508476	MC	1210	0.174	0.063	1.020	1.010
100000508477	MC	1209	-0.607	0.066	1.010	0.980
100000508481	MC	1692	0.498	0.055	1.110	1.140
100000508484	MC	1231	0.376	0.063	0.780	0.720
100000508502	MC	1210	0.262	0.063	0.990	0.970
100000508508	MC	1209	1.197	0.069	1.460	1.650
100000508509	MC	1229	1.478	0.073	1.220	1.370
100000425909	SR	1210	1.453	0.051	1.260	1.510
100000426944	SR	1231	1.347	0.048	0.830	0.650
100000426945	SR	1692	1.273	0.043	0.820	0.710
100000426960	SR	1209	1.262	0.047	0.930	0.750
100000426968	SR	1692	-0.271	0.032	0.850	0.870
100000470025	SR	1229	1.700	0.053	1.040	0.900
100000508449	SR	1210	1.772	0.056	0.750	0.590

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000508470	SR	1229	0.795	0.049	1.050	1.040
100000508496	SR	1231	0.010	0.038	1.260	1.760
100000508497	SR	1209	1.085	0.045	0.870	0.780

Grade 4 Science

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000506927	MC	798	0.822	0.076	1.120	1.160
100000506928	MC	803	-0.606	0.090	1.010	1.030
100000506929	MC	803	-0.222	0.084	0.930	0.870
100000506930	MC	798	0.857	0.076	1.040	1.050
100000506931	MC	798	-0.060	0.082	0.940	0.910
100000506932	MC	803	1.950	0.084	1.070	1.220
100000506986	MC	803	1.065	0.076	1.090	1.090
100000506987	MC	798	-0.385	0.087	0.990	1.000
100000506989	MC	798	-0.638	0.092	0.880	0.770
100000506990	MC	803	0.836	0.076	0.960	0.940
100000506991	MC	798	0.436	0.077	0.920	0.880
100000506992	MC	803	0.146	0.079	0.970	0.930
100000507052	MC	809	0.658	0.075	1.050	1.050
100000507053	MC	805	1.258	0.077	1.220	1.290
100000507054	MC	809	2.954	0.109	1.140	1.820
100000507055	MC	805	0.039	0.080	1.000	0.980
100000507056	MC	805	0.804	0.076	1.020	1.030
100000507057	MC	809	1.111	0.076	1.030	1.080
100000507068	MC	817	0.801	0.075	1.020	1.030
100000507069	MC	1107	0.754	0.065	0.970	0.970
100000507070	MC	817	1.893	0.081	1.040	1.140
100000507071	MC	817	1.165	0.075	1.080	1.120
100000507072	MC	1107	1.925	0.072	1.060	1.100
100000507073	MC	1107	0.708	0.065	1.180	1.240
100000507123	MC	803	0.009	0.080	1.020	1.010
100000507124	MC	805	-0.169	0.083	0.950	0.880
100000507125	MC	803	2.342	0.091	1.160	1.460
100000507126	MC	803	-1.067	0.102	0.950	0.900
100000507127	MC	805	-0.466	0.088	0.950	0.990
100000507128	MC	805	0.870	0.076	1.080	1.110
100000507137	MC	805	0.011	0.081	0.900	0.840
100000507138	MC	803	3.363	0.125	1.180	2.660
100000507139	MC	803	0.915	0.076	1.000	1.010
100000507140	MC	805	-0.718	0.093	0.940	0.840

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000507141	MC	805	-0.977	0.100	0.850	0.680
100000507142	MC	803	0.841	0.076	0.870	0.860
100000507236	MC	817	1.284	0.076	1.040	1.090
100000507237	MC	1107	0.796	0.065	1.080	1.110
100000507238	MC	1107	0.691	0.065	1.030	1.040
100000507239	MC	817	0.622	0.075	1.040	1.030
100000507240	MC	817	0.323	0.077	0.990	0.980
100000507241	MC	1107	0.072	0.068	1.010	0.970
100000507244	MC	809	0.805	0.075	1.090	1.110
100000507245	MC	805	0.603	0.076	1.020	1.010
100000507247	MC	809	0.154	0.078	0.950	0.920
100000507248	MC	809	0.748	0.075	1.040	1.040
100000507249	MC	805	0.464	0.077	0.970	0.960
100000507250	MC	805	0.274	0.078	0.970	0.940
100000507129	SR	1608	0.220	0.037	1.020	1.030
100000507246	SR	1614	1.790	0.039	1.160	1.190
100000506988	ER	1601	1.435	0.030	1.040	1.050
100000519342	ER	1924	3.164	0.033	0.900	0.890

Grade 8 Science

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000506937	MC	1073	0.265	0.066	1.070	1.080
100000506938	MC	795	0.706	0.077	0.940	0.950
100000506939	MC	1073	0.093	0.066	0.950	0.950
100000506940	MC	1073	-0.344	0.068	0.890	0.850
100000506941	MC	795	0.219	0.077	0.930	0.920
100000506942	MC	795	1.310	0.082	0.970	1.030
100000506944	MC	803	2.093	0.095	1.110	1.380
100000506945	MC	783	0.552	0.077	1.140	1.180
100000506947	MC	783	-0.074	0.079	0.920	0.890
100000506948	MC	783	-2.629	0.156	0.920	0.560
100000506949	MC	803	1.512	0.084	1.210	1.350
100000506950	MC	803	-1.187	0.094	0.920	0.860
100000506996	MC	803	1.242	0.081	1.060	1.120
100000506997	MC	783	1.598	0.086	1.010	1.030
100000506998	MC	783	0.522	0.077	1.130	1.150
100000506999	MC	803	0.832	0.078	1.100	1.130
100000507001	MC	1586	0.171	0.055	1.010	1.030
100000507003	MC	1073	0.952	0.069	1.220	1.340
100000507004	MC	795	1.002	0.079	1.160	1.250

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000507006	MC	1073	0.817	0.068	1.380	1.490
100000507007	MC	795	1.788	0.089	1.210	1.470
100000507008	MC	795	-0.581	0.083	0.860	0.780
100000507009	MC	1073	-0.120	0.067	0.950	0.930
100000507091	MC	795	-0.801	0.086	0.950	0.890
100000507092	MC	789	1.488	0.085	1.070	1.160
100000507093	MC	789	0.619	0.078	1.000	1.020
100000507094	MC	795	0.918	0.078	1.030	1.070
100000507095	MC	795	0.611	0.077	1.140	1.180
100000507096	MC	789	0.601	0.078	1.050	1.070
100000507174	MC	792	-0.674	0.084	1.010	1.060
100000507175	MC	789	-0.167	0.079	1.200	1.270
100000507176	MC	792	0.135	0.077	0.970	0.960
100000507177	MC	792	-1.074	0.091	0.840	0.700
100000507178	MC	789	3.016	0.129	1.150	2.190
100000507179	MC	789	0.343	0.077	1.020	1.070
100000507220	MC	789	0.632	0.077	1.250	1.320
100000507221	MC	792	0.106	0.078	1.120	1.130
100000507222	MC	1581	-0.406	0.057	1.070	1.180
100000507224	MC	792	1.109	0.081	1.020	1.060
100000507225	MC	789	1.762	0.089	1.240	1.480
100000507299	MC	795	-0.096	0.078	1.000	0.980
100000507300	MC	789	0.535	0.077	1.050	1.060
100000507301	MC	795	1.677	0.087	1.040	1.230
100000507302	MC	795	1.176	0.080	1.040	1.130
100000507303	MC	789	0.619	0.078	1.060	1.070
100000507304	MC	789	-0.352	0.080	0.900	0.860
100000506946	ER	783	1.032	0.042	1.030	1.020
100000507180	ER	1581	1.616	0.031	0.990	0.990
100000507305	ER	789	2.073	0.050	0.910	0.890
100000525437	ER	1073	0.813	0.038	1.030	1.020
100000525438	ER	795	1.129	0.040	1.190	1.200
100000525898	ER	795	1.262	0.041	1.050	1.050
100000540676	ER	803	0.995	0.038	1.200	1.200

Grade 11 Science

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000506953	MC	687	0.044	0.084	1.030	1.040
100000506954	MC	674	2.418	0.115	1.160	1.800
100000506956	MC	674	2.353	0.112	0.910	1.170
100000506957	MC	687	1.023	0.086	1.060	1.110
100000506958	MC	674	1.018	0.086	1.140	1.210
100000506959	MC	687	-0.222	0.086	1.070	1.140
100000506969	MC	690	3.420	0.158	1.080	2.450
100000506970	MC	679	0.452	0.083	1.020	1.020
100000506972	MC	690	1.423	0.089	1.010	1.140
100000506973	MC	679	2.779	0.126	1.170	2.080
100000506974	MC	690	-1.042	0.098	0.890	0.870
100000506975	MC	679	2.845	0.129	1.130	2.110
100000506977	MC	1020	1.434	0.076	1.260	1.580
100000506978	MC	682	-0.228	0.086	0.920	0.890
100000506980	MC	1020	-0.922	0.077	0.870	0.770
100000506981	MC	682	0.681	0.083	1.200	1.260
100000506983	MC	1702	1.171	0.056	1.120	1.250
100000507020	MC	691	1.548	0.092	1.000	1.100
100000507021	MC	683	1.387	0.089	1.110	1.230
100000507023	MC	691	-0.163	0.085	1.000	0.980
100000507024	MC	683	1.309	0.088	1.240	1.430
100000507025	MC	691	1.296	0.089	1.150	1.280
100000507026	MC	683	1.911	0.098	1.180	1.360
100000507101	MC	1020	-0.281	0.070	0.900	0.840
100000507102	MC	682	-0.190	0.086	0.920	0.870
100000507104	MC	1020	-1.399	0.085	0.910	0.830
100000507105	MC	682	0.633	0.083	0.980	0.990
100000507106	MC	1020	0.457	0.068	1.040	1.060
100000507107	MC	682	1.087	0.086	1.000	1.080
100000507260	MC	690	-0.796	0.093	0.950	0.940
100000507261	MC	679	0.724	0.084	1.160	1.240
100000507263	MC	690	1.843	0.097	1.220	1.640
100000507264	MC	679	1.559	0.092	1.110	1.210
100000507265	MC	690	0.706	0.083	1.000	1.020
100000507266	MC	679	-0.220	0.086	1.010	0.990
100000507268	MC	683	0.421	0.083	1.050	1.050
100000507269	MC	691	1.669	0.094	0.990	1.100
100000507270	MC	691	-0.134	0.085	1.030	1.000
100000507271	MC	683	0.324	0.083	1.000	0.990

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000507272	MC	691	-1.059	0.098	0.930	0.920
100000507273	MC	683	1.719	0.094	1.130	1.350
100000507275	MC	674	0.952	0.085	1.110	1.170
100000507276	MC	687	-0.020	0.084	0.940	0.910
100000507277	MC	674	0.590	0.084	1.050	1.050
100000507278	MC	687	-0.170	0.085	1.010	1.010
100000507279	MC	674	1.276	0.089	1.160	1.250
100000507280	MC	687	-0.902	0.095	0.780	0.660
100000506955	SR	1361	-0.019	0.041	1.130	1.190
100000507103	ER	1702	1.022	0.029	1.010	0.990
100000511972	ER	1369	1.529	0.032	1.110	1.110
100000538911	ER	1374	1.883	0.033	1.070	1.030

APPENDIX B—CLASSICAL ITEM STATISTICS FOR 2012 FIELD TEST ITEMS

Grade 3 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000525290	MC	1127	0.92	0.37	-0.31	-0.15	-0.13	0.37	
100000525291	MC	1457	0.91	0.40	-0.26	0.40	-0.24	-0.16	
100000525292	MC	1457	0.62	0.19	-0.21	-0.19	0.19	0.03	
100000525293	MC	1127	0.77	0.43	-0.18	-0.26	0.43	-0.25	
100000525294	MC	1127	0.81	0.34	-0.14	0.34	-0.22	-0.20	
100000525295	MC	1457	0.79	0.42	-0.31	-0.19	-0.19	0.42	
100000525297	MC	1457	0.80	0.47	0.47	-0.26	-0.30	-0.24	
100000525298	MC	1127	0.44	0.22	-0.04	-0.05	0.22	-0.19	
100000525299	MC	1457	0.80	0.46	-0.27	-0.14	0.46	-0.32	
100000525300	MC	1457	0.56	0.24	-0.19	0.24	0.04	-0.23	
100000525301	MC	1127	0.80	0.41	0.41	-0.23	-0.21	-0.23	
100000525302	MC	1127	0.45	0.29	-0.16	-0.25	0.02	0.29	
100000525311	MC	1147	0.84	0.40	0.40	-0.25	-0.19	-0.20	
100000525312	MC	1137	0.54	0.38	-0.22	-0.21	0.38	-0.09	
100000525313	MC	1147	0.64	0.39	-0.15	-0.21	0.39	-0.21	
100000525314	MC	1137	0.47	0.29	-0.15	-0.15	-0.10	0.29	
100000525315	MC	1147	0.40	0.24	-0.10	-0.17	-0.07	0.24	
100000525316	MC	1147	0.50	0.34	-0.15	-0.18	0.34	-0.23	
100000525317	MC	1137	0.65	0.28	0.28	-0.26	-0.17	-0.07	
100000525318	MC	1137	0.60	0.42	-0.17	-0.25	0.42	-0.22	
100000525319	MC	1147	0.91	0.31	0.31	-0.19	-0.18	-0.17	
100000525320	MC	1137	0.43	0.05	0.12	0.05	-0.18	-0.16	
100000525321	MC	1137	0.76	0.32	-0.19	0.32	-0.12	-0.22	
100000525322	MC	1147	0.75	0.34	-0.12	0.34	-0.23	-0.17	
100000525347	MC	1136	0.84	0.39	0.39	-0.29	-0.14	-0.19	
100000525348	MC	1136	0.39	0.29	-0.13	0.29	-0.18	-0.06	
100000525349	MC	1120	0.83	0.49	-0.28	-0.20	-0.31	0.49	
100000525350	MC	1136	0.73	0.44	-0.28	-0.17	-0.23	0.44	
100000525351	MC	1120	0.76	0.38	0.38	-0.19	-0.23	-0.19	
100000525352	MC	1136	0.72	0.40	-0.21	-0.29	-0.18	0.40	
100000525353	MC	1136	0.58	0.33	-0.21	0.33	-0.11	-0.15	
100000525354	MC	1120	0.68	0.37	-0.10	0.37	-0.27	-0.17	
100000525355	MC	1136	0.32	0.15	0.16	-0.31	0.15	-0.25	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000525356	MC	1120	0.72	0.39	-0.25	-0.16	-0.23	0.39	
100000525357	MC	1120	0.64	0.49	-0.33	0.49	-0.26	-0.18	
100000525358	MC	1120	0.26	-0.11	0.18	-0.15	-0.11	-0.02	
100000525304	SR	2584	1.16	0.34	22	38	39		1
100000525305	SR	2584	0.94	0.41	28	48	23		0
100000525323	SR	2284	0.86	0.39	24	65	11		1
100000525324	SR	2284	0.78	0.44	50	20	29		2
100000525359	SR	2256	0.72	0.39	34	59	6		1
100000525360	SR	2256	0.76	0.43	36	49	14		1

Grade 4 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000525363	MC	1395	0.67	0.42	-0.26	0.42	-0.24	-0.19	
100000525364	MC	1093	0.66	0.28	-0.15	0.28	-0.22	-0.16	
100000525365	MC	1395	0.74	0.33	-0.28	-0.09	0.33	-0.30	
100000525366	MC	1093	0.65	0.43	-0.29	-0.17	0.43	-0.19	
100000525367	MC	1395	0.58	0.39	-0.16	0.39	-0.22	-0.19	
100000525368	MC	1093	0.91	0.40	-0.27	0.40	-0.12	-0.25	
100000525370	MC	1395	0.66	0.34	-0.23	-0.13	-0.19	0.34	
100000525372	MC	1093	0.69	0.47	0.47	-0.29	-0.26	-0.17	
100000525373	MC	1395	0.57	0.45	-0.12	0.45	-0.31	-0.30	
100000525374	MC	1093	0.57	0.34	0.34	-0.14	-0.15	-0.27	
100000525375	MC	1093	0.86	0.48	-0.27	-0.30	-0.23	0.48	
100000525376	MC	1395	0.63	0.35	-0.24	-0.11	-0.22	0.35	
100000526835	MC	1092	0.84	0.45	-0.13	-0.30	0.45	-0.29	
100000526836	MC	1082	0.77	0.33	-0.14	0.33	-0.26	-0.15	
100000526837	MC	1082	0.70	0.48	-0.24	-0.18	0.48	-0.32	
100000526838	MC	1082	0.74	0.37	0.37	-0.25	-0.17	-0.19	
100000526839	MC	1092	0.42	0.25	-0.01	0.25	-0.18	-0.17	
100000526840	MC	1082	0.74	0.19	-0.14	-0.02	-0.18	0.19	
100000526841	MC	1092	0.69	0.42	-0.08	-0.20	0.42	-0.37	
100000526842	MC	1092	0.29	0.01	0.08	0.01	-0.15	-0.04	
100000526843	MC	1092	0.82	0.51	-0.35	-0.21	-0.25	0.51	
100000526844	MC	1082	0.95	0.28	-0.12	-0.15	0.28	-0.21	
100000526845	MC	1082	0.80	0.38	-0.16	-0.24	-0.21	0.38	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000526846	MC	1092	0.63	0.32	-0.32	-0.02	-0.21	0.32	
100000526878	MC	1088	0.84	0.31	-0.21	0.31	-0.15	-0.16	
100000526879	MC	1088	0.77	0.30	0.30	-0.17	-0.06	-0.26	
100000526880	MC	1079	0.81	0.36	-0.22	0.36	-0.21	-0.19	
100000526881	MC	1088	0.83	0.42	-0.30	-0.21	0.42	-0.15	
100000526882	MC	1088	0.67	0.29	-0.22	-0.05	-0.15	0.29	
100000526883	MC	1088	0.86	0.42	-0.19	-0.22	-0.27	0.42	
100000526884	MC	1079	0.91	0.32	-0.11	-0.22	-0.21	0.32	
100000526885	MC	1079	0.42	0.31	0.31	-0.21	0.00	-0.26	
100000526886	MC	1088	0.84	0.35	-0.26	0.35	-0.16	-0.16	
100000526887	MC	1079	0.89	0.29	-0.18	-0.17	0.29	-0.13	
100000526888	MC	1079	0.84	0.43	0.43	-0.33	-0.20	-0.17	
100000526889	MC	1079	0.91	0.35	-0.23	-0.23	0.35	-0.15	
100000525377	SR	2488	1.01	0.43	14	70	16		0
100000525378	SR	2488	1.03	0.47	20	56	23		0
100000526847	SR	2174	1.10	0.44	24	41	34		0
100000526848	SR	2174	1.15	0.48	28	29	43		0
100000526890	SR	2167	1.15	0.32	13	58	28		0
100000526891	SR	2167	1.17	0.48	24	36	40		0

Grade 5 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000525024	MC	1083	0.62	0.34	-0.10	0.34	-0.24	-0.23		
100000525025	MC	1083	0.94	0.37	0.37	-0.28	-0.21	-0.10		
100000525026	MC	1083	0.34	0.14	-0.28	-0.22	0.14	0.08		
100000525027	MC	1083	0.90	0.33	-0.27	-0.16	0.33	-0.12		
100000525028	MC	1083	0.53	0.21	-0.19	0.02	-0.18	0.21		
100000525029	MC	1083	0.54	0.38	-0.26	0.38	-0.11	-0.15		
100000525030	MC	1083	0.81	0.44	0.44	-0.19	-0.23	-0.29		
100000525031	MC	1083	0.34	0.30	-0.18	-0.06	-0.18	0.30		
100000525032	MC	1083	0.87	0.35	-0.21	-0.18	-0.19	0.35		
100000525034	MC	1083	0.84	0.39	-0.24	-0.23	0.39	-0.18		
100000525035	MC	1083	0.93	0.34	0.34	-0.19	-0.21	-0.19		
100000525036	MC	1083	0.73	0.36	-0.22	0.36	-0.19	-0.14		
100000525075	MC	1369	0.75	0.38	-0.24	-0.20	-0.21	0.38		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000525076	MC	1084	0.85	0.43	-0.17	0.43	-0.25	-0.27		
100000525077	MC	1369	0.86	0.37	-0.17	-0.29	-0.16	0.37		
100000525078	MC	1084	0.71	0.45	-0.26	-0.18	0.45	-0.29		
100000525079	MC	1084	0.88	0.19	0.19	-0.14	-0.21	-0.00		
100000525080	MC	1369	0.67	0.51	-0.30	-0.18	0.51	-0.27		
100000525082	MC	1084	0.53	0.11	0.01	0.02	-0.24	0.11		
100000525083	MC	1369	0.70	0.21	0.21	-0.17	-0.17	-0.08		
100000525084	MC	1084	0.98	0.23	0.23	-0.13	-0.09	-0.17		
100000525086	MC	1369	0.43	0.35	0.35	-0.16	-0.17	-0.14		
100000525087	MC	1369	0.79	0.39	0.39	-0.12	-0.13	-0.33		
100000525088	MC	1084	0.72	0.40	-0.24	-0.21	0.40	-0.18		
100000525423	MC	1081	0.69	0.45	-0.22	-0.17	-0.28	0.45		
100000525424	MC	1081	0.68	0.43	-0.14	-0.35	0.43	-0.16		
100000525425	MC	1079	0.75	0.46	-0.18	-0.38	0.46	-0.12		
100000525426	MC	1079	0.78	0.35	0.35	-0.25	-0.15	-0.16		
100000525427	MC	1079	0.35	0.31	-0.13	-0.09	-0.25	0.31		
100000525428	MC	1081	0.66	0.21	-0.03	0.21	-0.17	-0.25		
100000525429	MC	1079	0.73	0.48	-0.23	-0.25	-0.28	0.48		
100000525430	MC	1081	0.56	0.35	0.35	-0.12	-0.19	-0.22		
100000525431	MC	1079	0.41	0.26	0.01	0.26	-0.19	-0.17		
100000525433	MC	1079	0.59	0.26	0.02	-0.14	0.26	-0.29		
100000525434	MC	1081	0.55	0.36	0.36	-0.22	-0.32	-0.08		
100000525435	MC	1081	0.10	0.01	-0.05	0.25	0.01	-0.23		
100000525021	SR	2166	1.06	0.52	27	39	34			0
100000525022	SR	2166	1.04	0.54	20	55	24			1
100000525089	SR	1369	1.14	0.47	10	65	24			0
100000525090	SR	1084	1.09	0.46	13	65	22			0
100000525420	SR	2160	1.11	0.33	11	67	22			0
100000525421	SR	2160	1.13	0.41	12	60	26			1
100000525091	ER	1369	1.87	0.53	7	17	59	13	3	1
100000525092	ER	1084	1.87	0.37	9	15	61	11	4	0

Grade 6 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000526945	MC	1091	0.67	0.36	-0.21	0.36	-0.18	-0.18		
100000526946	MC	1081	0.49	0.16	-0.19	0.01	0.01	0.16		
100000526947	MC	1081	0.77	0.29	-0.20	0.29	-0.17	-0.18		
100000526948	MC	1091	0.56	0.33	-0.22	-0.17	0.33	-0.17		
100000526950	MC	1081	0.77	0.45	-0.27	-0.23	0.45	-0.22		
100000526951	MC	1091	0.29	0.17	-0.07	-0.11	0.17	0.02		
100000526952	MC	1091	0.23	-0.11	-0.00	-0.19	-0.11	0.16		
100000526953	MC	1081	0.90	0.29	-0.17	-0.20	-0.15	0.29		
100000526954	MC	1081	0.62	0.44	-0.23	-0.14	-0.29	0.44		
100000526955	MC	1081	0.56	0.37	-0.18	0.37	-0.20	-0.15		
100000526956	MC	1091	0.85	0.30	0.30	-0.17	-0.17	-0.15		
100000526957	MC	1091	0.75	0.29	-0.14	0.29	-0.14	-0.18		
100000526973	MC	1098	0.90	0.42	-0.27	0.42	-0.19	-0.24		
100000526975	MC	1098	0.87	0.34	-0.18	-0.19	0.34	-0.19		
100000526976	MC	1100	0.78	0.49	-0.21	-0.35	-0.19	0.49		
100000526977	MC	1098	0.92	0.33	-0.14	-0.20	0.33	-0.21		
100000526978	MC	1100	0.72	0.43	0.43	-0.23	-0.15	-0.27		
100000526979	MC	1100	0.65	0.34	0.34	-0.11	-0.24	-0.16		
100000526980	MC	1100	0.60	0.38	-0.34	-0.15	0.38	-0.04		
100000526982	MC	1100	0.74	0.43	-0.27	-0.24	0.43	-0.20		
100000526983	MC	1098	0.46	0.24	-0.07	-0.15	0.24	-0.16		
100000526984	MC	1098	0.34	0.18	-0.18	-0.14	-0.00	0.18		
100000526985	MC	1100	0.48	0.31	-0.15	0.31	-0.14	-0.13		
100000526986	MC	1098	0.04	0.10	-0.07	-0.23	0.15	0.10		
100000526999	MC	1091	0.77	0.46	0.46	-0.27	-0.23	-0.22		
100000527000	MC	1091	0.88	0.29	0.29	-0.12	-0.24	-0.13		
100000527001	MC	1091	0.89	0.43	-0.18	0.43	-0.24	-0.30		
100000527003	MC	1340	0.73	0.46	-0.23	-0.27	-0.23	0.46		
100000527004	MC	1340	0.76	0.36	0.36	-0.17	-0.18	-0.24		
100000527005	MC	1340	0.54	0.34	-0.23	-0.15	0.34	-0.15		
100000527006	MC	1340	0.71	0.35	-0.04	0.35	-0.09	-0.32		
100000527007	MC	1340	0.56	0.23	0.23	-0.14	-0.08	-0.16		
100000527008	MC	1340	0.59	0.35	0.35	-0.20	-0.16	-0.20		
100000527009	MC	1091	0.96	0.20	-0.16	-0.11	0.20	-0.09		
100000527011	MC	1091	0.69	0.40	0.40	-0.24	-0.16	-0.21		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000527012	MC	1091	0.53	0.32	0.32	-0.01	-0.19	-0.26		
100000526942	SR	1091	0.61	0.21	47	45	8			0
100000526943	SR	1081	0.96	0.32	11	81	8			0
100000526971	SR	1100	0.63	0.44	54	29	17			0
100000526972	SR	1098	0.95	0.24	26	53	21			0
100000526997	SR	1340	0.96	0.48	21	59	19			1
100000526998	SR	1091	0.62	0.39	42	53	5			0
100000526958	ER	2172	1.62	0.41	7	29	58	5	0	1
100000526987	ER	2198	1.90	0.47	5	20	57	15	3	0
100000526996	ER	2431	1.76	0.52	6	21	63	8	1	1

Grade 7 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000526922	MC	1336	0.90	0.40	-0.20	-0.23	-0.25	0.40		
100000526923	MC	1336	0.89	0.43	-0.21	-0.20	0.43	-0.30		
100000526925	MC	1093	0.69	0.38	-0.20	-0.22	-0.17	0.38		
100000526926	MC	1093	0.62	0.33	0.33	-0.11	-0.21	-0.19		
100000526927	MC	1093	0.83	0.39	-0.25	0.39	-0.24	-0.21		
100000526928	MC	1336	0.60	0.38	-0.17	-0.22	-0.15	0.38		
100000526930	MC	1336	0.66	0.19	-0.09	0.19	-0.12	-0.10		
100000526931	MC	1093	0.86	0.38	-0.19	-0.26	0.38	-0.21		
100000526932	MC	1093	0.83	0.20	-0.06	-0.15	0.20	-0.13		
100000526933	MC	1336	0.85	0.36	-0.24	-0.20	0.36	-0.16		
100000526935	MC	1336	0.37	0.15	0.15	-0.03	-0.29	0.04		
100000526936	MC	1093	0.83	0.46	-0.26	-0.26	-0.24	0.46		
100000529364	MC	1098	0.84	0.38	-0.16	-0.30	0.38	-0.13		
100000529365	MC	1100	0.86	0.37	-0.24	0.37	-0.19	-0.20		
100000529366	MC	1098	0.70	0.32	-0.21	-0.14	-0.13	0.32		
100000529367	MC	1098	0.86	0.32	0.32	-0.25	-0.19	-0.09		
100000529369	MC	1100	0.79	0.37	-0.23	-0.20	0.37	-0.16		
100000529370	MC	1100	0.64	0.37	-0.20	-0.20	0.37	-0.15		
100000529371	MC	1098	0.56	0.50	-0.24	-0.23	-0.24	0.50		
100000529372	MC	1098	0.36	0.38	0.38	-0.13	-0.15	-0.18		
100000529373	MC	1100	0.66	0.38	-0.19	-0.16	-0.23	0.38		
100000529374	MC	1098	0.62	0.37	-0.22	0.37	-0.18	-0.15		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000529389	MC	1097	0.42	-0.04	-0.03	-0.21	-0.04	0.15		
100000529390	MC	1098	0.61	0.44	-0.25	0.44	-0.26	-0.12		
100000529391	MC	1097	0.95	0.27	-0.20	0.27	-0.11	-0.14		
100000529392	MC	1097	0.96	0.26	-0.14	-0.11	-0.19	0.26		
100000529393	MC	1098	0.84	0.47	0.47	-0.23	-0.33	-0.22		
100000529394	MC	1097	0.91	0.41	-0.23	-0.24	-0.23	0.41		
100000529395	MC	1098	0.88	0.31	-0.11	-0.21	0.31	-0.21		
100000529397	MC	1098	0.71	0.39	-0.18	-0.18	-0.25	0.39		
100000529399	MC	1098	0.22	0.29	-0.16	-0.14	-0.13	0.29		
100000529400	MC	1097	0.59	0.17	0.17	-0.19	-0.07	-0.11		
100000529401	MC	1098	0.85	0.34	-0.12	0.34	-0.22	-0.25		
100000529402	MC	1097	0.91	0.25	0.25	-0.14	-0.16	-0.12		
100000544115	MC	1100	0.14	0.17	-0.29	0.17	0.19	-0.08		
100000544116	MC	1100	0.54	0.30	0.30	-0.15	-0.16	-0.10		
100000526918	SR	1336	1.43	0.45	12	33	55			0
100000526919	SR	1093	0.93	0.37	14	77	8			0
100000529378	SR	1098	1.06	0.42	15	63	22			0
100000529379	SR	1100	0.84	0.35	32	51	17			1
100000529403	SR	1098	1.07	0.29	15	63	22			0
100000529404	SR	1097	0.65	0.33	45	43	11			0
100000526921	ER	2429	1.51	0.60	17	23	49	9	1	1
100000529380	ER	2198	1.75	0.49	5	32	46	13	3	1
100000529405	ER	2195	1.80	0.50	5	33	41	17	4	1

Grade 8 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000525183	MC	1069	0.36	0.09	-0.06	0.09	-0.01	-0.04		
100000525184	MC	1069	0.34	0.08	0.08	0.01	-0.05	-0.09		
100000525185	MC	1069	0.66	0.37	-0.23	-0.26	0.37	-0.08		
100000525186	MC	1069	0.43	0.35	-0.02	0.35	-0.19	-0.23		
100000525187	MC	1069	0.70	0.17	-0.08	-0.07	0.17	-0.11		
100000525188	MC	1069	0.65	0.55	-0.33	-0.23	-0.28	0.55		
100000525189	MC	1069	0.86	0.30	-0.18	0.30	-0.15	-0.17		
100000525190	MC	1069	0.83	0.32	0.32	-0.19	-0.22	-0.10		
100000525191	MC	1069	0.65	0.26	-0.29	0.26	-0.12	0.00		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000525192	MC	1069	0.81	0.32	-0.24	0.32	-0.18	-0.13		
100000525194	MC	1069	0.80	0.36	-0.18	-0.26	0.36	-0.13		
100000525195	MC	1069	0.92	0.24	0.24	-0.09	-0.17	-0.13		
100000525202	MC	1090	0.69	0.25	0.25	-0.17	-0.19	-0.09		
100000525203	MC	1090	0.17	0.02	0.06	-0.17	0.02	0.02		
100000525204	MC	1074	0.58	0.41	-0.18	-0.17	0.41	-0.24		
100000525205	MC	1090	0.46	0.45	-0.18	-0.32	-0.07	0.45		
100000525206	MC	1074	0.70	0.46	0.46	-0.20	-0.29	-0.25		
100000525207	MC	1074	0.56	0.41	-0.21	-0.21	-0.18	0.41		
100000525208	MC	1090	0.54	0.20	-0.09	0.20	-0.09	-0.13		
100000525209	MC	1074	0.90	0.35	-0.26	0.35	-0.13	-0.19		
100000525210	MC	1090	0.90	0.46	-0.29	-0.22	-0.27	0.46		
100000525211	MC	1074	0.38	0.36	-0.18	-0.27	0.36	0.05		
100000525214	MC	1090	0.95	0.32	-0.17	0.32	-0.23	-0.15		
100000525215	MC	1074	0.72	0.30	-0.28	-0.18	-0.07	0.30		
100000525244	MC	1097	0.91	0.38	-0.24	0.38	-0.20	-0.19		
100000525245	MC	1372	0.84	0.51	-0.23	-0.32	-0.28	0.51		
100000525246	MC	1097	0.67	0.20	0.20	-0.11	-0.12	-0.08		
100000525247	MC	1372	0.77	0.41	-0.27	-0.18	0.41	-0.18		
100000525249	MC	1372	0.90	0.43	-0.25	-0.24	0.43	-0.23		
100000525251	MC	1372	0.85	0.49	-0.27	0.49	-0.26	-0.28		
100000525252	MC	1097	0.61	0.15	-0.14	-0.18	0.15	-0.03		
100000525253	MC	1097	0.43	0.18	-0.18	0.18	-0.06	-0.15		
100000525255	MC	1372	0.85	0.40	0.40	-0.20	-0.21	-0.24		
100000525256	MC	1097	0.79	0.31	0.31	-0.14	-0.21	-0.14		
100000525257	MC	1097	0.36	0.09	-0.17	-0.23	0.12	0.09		
100000525258	MC	1372	0.78	0.38	-0.24	-0.26	-0.17	0.38		
100000525180	SR	1069	0.66	0.24	50	33	17			1
100000525181	SR	1069	0.60	0.40	61	18	21			0
100000525200	SR	1090	0.41	0.36	65	29	6			0
100000525201	SR	1074	1.12	0.52	22	42	35			0
100000525241	SR	1097	0.84	0.42	21	72	6			1
100000525242	SR	1097	0.73	0.11	40	46	14			1
100000525243	SR	1372	1.06	0.46	10	71	17			1
100000525179	ER	2138	1.76	0.49	4	28	55	10	2	1

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000525199	ER	2164	2.41	0.53	7	17	27	20	28	1
100000525240	ER	1372	1.69	0.57	13	28	35	15	6	2

Grade 11 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000526789	MC	1158	0.33	0.12	0.12	-0.17	-0.18	0.10		
100000526790	MC	1598	0.78	0.41	-0.27	0.41	-0.12	-0.27		
100000526791	MC	1598	0.82	0.52	-0.24	-0.31	-0.28	0.52		
100000526792	MC	1158	0.65	0.33	-0.09	0.33	-0.28	-0.19		
100000526794	MC	1598	0.37	0.32	-0.21	-0.15	-0.07	0.32		
100000526795	MC	1158	0.86	0.27	0.27	-0.20	-0.15	-0.07		
100000526797	MC	1598	0.74	0.37	-0.18	-0.13	0.37	-0.27		
100000526798	MC	1158	0.71	0.15	0.01	0.15	-0.17	-0.15		
100000526799	MC	1598	0.85	0.40	-0.23	-0.20	0.40	-0.22		
100000526800	MC	1158	0.58	0.44	-0.18	-0.26	0.44	-0.18		
100000526801	MC	1158	0.50	0.34	-0.09	0.34	-0.18	-0.25		
100000526803	MC	1598	0.81	0.30	0.30	-0.18	-0.17	-0.15		
100000526820	MC	1146	0.81	0.37	-0.21	-0.17	-0.27	0.37		
100000526821	MC	1146	0.54	0.25	-0.16	-0.09	-0.15	0.25		
100000526822	MC	1122	0.87	0.33	-0.14	-0.25	0.33	-0.16		
100000526823	MC	1146	0.73	0.41	-0.20	0.41	-0.26	-0.20		
100000526824	MC	1122	0.52	0.45	-0.27	-0.25	0.45	-0.08		
100000526826	MC	1122	0.91	0.34	-0.12	0.34	-0.29	-0.14		
100000526828	MC	1146	0.37	0.25	-0.15	0.25	-0.32	0.19		
100000526829	MC	1122	0.41	0.27	0.27	-0.14	-0.12	-0.14		
100000526830	MC	1146	0.73	0.35	-0.25	-0.23	-0.14	0.35		
100000526831	MC	1146	0.71	0.50	0.50	-0.31	-0.21	-0.28		
100000526832	MC	1122	0.51	0.29	-0.17	0.29	-0.17	-0.06		
100000526833	MC	1122	0.64	0.19	-0.09	-0.08	-0.12	0.19		
100000526864	MC	1154	0.27	0.08	-0.08	-0.08	0.07	0.08		
100000526865	MC	1160	0.84	0.35	-0.16	0.35	-0.17	-0.27		
100000526868	MC	1160	0.13	-0.01	-0.21	0.15	-0.01	-0.01		
100000526869	MC	1154	0.81	0.51	-0.25	-0.32	-0.26	0.51		
100000526870	MC	1160	0.69	0.40	-0.25	0.40	-0.23	-0.16		
100000526871	MC	1154	0.88	0.40	-0.26	-0.23	0.40	-0.15		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000526872	MC	1160	0.79	0.47	-0.13	-0.31	-0.29	0.47		
100000526873	MC	1154	0.72	0.24	0.24	-0.10	-0.18	-0.10		
100000526875	MC	1154	0.49	0.28	-0.06	-0.07	0.28	-0.24		
100000539509	MC	1154	0.67	0.40	-0.26	-0.26	-0.12	0.40		
100000539510	MC	1160	0.57	0.27	0.27	-0.22	-0.04	-0.10		
100000539511	MC	1160	0.78	0.27	0.27	-0.05	-0.27	-0.20		
100000526786	SR	1158	1.06	0.45	21	49	29			2
100000526787	SR	1598	0.95	0.40	13	74	10			3
100000526788	SR	1158	1.38	0.51	6	48	45			1
100000526817	SR	1122	1.00	0.47	18	61	20			1
100000526818	SR	1146	1.13	0.41	7	70	21			1
100000526859	SR	2314	1.03	0.45	9	73	15			2
100000526785	ER	1598	1.71	0.60	10	25	43	15	4	3
100000526819	ER	2268	1.49	0.35	7	41	42	4	3	3
100000526861	ER	2314	1.84	0.54	6	32	36	13	11	3

Grade 3 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508542	MC	1446	0.52	0.41	-0.16	0.41	-0.20	-0.21	
100000508545	MC	1120	0.54	0.39	-0.11	0.39	-0.27	-0.21	
100000508546	MC	1134	0.74	0.51	-0.27	-0.28	0.51	-0.24	
100000508551	MC	1446	0.96	0.20	0.20	-0.11	-0.11	-0.12	
100000508552	MC	1135	0.60	0.31	-0.06	-0.13	0.31	-0.24	
100000508560	MC	1446	0.49	0.34	-0.19	-0.09	0.34	-0.17	
100000508562	MC	1126	0.82	0.32	-0.18	-0.17	0.32	-0.21	
100000508564	MC	1135	0.98	0.18	-0.11	-0.10	0.18	-0.10	
100000508565	MC	1126	0.68	0.31	-0.15	-0.15	-0.21	0.31	
100000508566	MC	1127	0.96	0.29	0.29	-0.12	-0.23	-0.12	
100000508567	MC	1135	0.86	0.47	-0.22	-0.27	-0.28	0.47	
100000508569	MC	1134	0.84	0.31	-0.17	-0.21	0.31	-0.18	
100000508570	MC	1135	0.92	0.34	-0.22	0.34	-0.10	-0.25	
100000508572	MC	1126	0.84	0.49	0.49	-0.28	-0.28	-0.26	
100000508576	MC	1120	0.99	0.16	0.16	-0.16	-0.07	-0.04	
100000508577	MC	1134	0.89	0.28	-0.23	-0.05	-0.13	0.28	
100000508578	MC	1446	0.79	0.36	0.36	-0.30	-0.19	-0.02	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508584	MC	1127	0.66	0.19	0.19	-0.12	-0.10	-0.08	
100000508586	MC	1120	0.89	0.39	0.39	-0.28	-0.17	-0.23	
100000508588	MC	1127	0.58	0.44	-0.11	-0.31	-0.23	0.44	
100000508589	MC	1126	0.42	0.26	-0.24	0.05	-0.21	0.26	
100000508590	MC	1120	0.96	0.21	-0.08	0.21	-0.14	-0.14	
100000508591	MC	1134	0.77	0.32	-0.25	0.32	-0.07	-0.21	
100000508593	MC	1127	0.83	0.38	0.38	-0.24	-0.20	-0.21	
100000426348	SR	1446	1.35	0.40	10	45	45		0
100000426358	SR	1446	1.72	0.50	7	14	79		0
100000426403	SR	1126	0.96	0.45	19	65	15		0
100000426423	SR	1127	1.22	0.62	28	21	50		0
100000468240	SR	1127	0.84	0.52	49	17	33		0
100000508547	SR	1134	1.51	0.42	18	13	69		0
100000508548	SR	1134	1.11	0.38	15	59	26		0
100000508555	SR	1135	0.70	0.43	60	10	30		0
100000508556	SR	1135	1.48	0.53	11	29	59		0
100000508557	SR	1120	1.61	0.49	15	10	75		0
100000508574	SR	1126	1.02	0.42	29	40	31		0
100000508581	SR	1120	0.91	0.49	37	36	28		0

Grade 4 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508222	MC	1374	0.71	0.49	0.49	-0.25	-0.16	-0.34	
100000508226	MC	1083	0.87	0.40	-0.23	-0.18	-0.24	0.40	
100000508233	MC	1374	0.64	0.39	-0.23	-0.18	0.39	-0.20	
100000508242	MC	1083	0.82	0.30	-0.17	0.30	-0.20	-0.21	
100000508243	MC	1374	0.84	0.42	-0.23	0.42	-0.13	-0.31	
100000515145	MC	1083	0.88	0.34	-0.22	-0.15	0.34	-0.18	
100000515146	MC	1076	0.71	0.34	-0.28	-0.20	0.34	-0.05	
100000515147	MC	1076	0.69	0.51	-0.26	-0.33	-0.19	0.51	
100000515148	MC	1068	0.87	0.38	-0.27	-0.19	0.38	-0.17	
100000515149	MC	1374	0.61	0.24	-0.19	-0.05	-0.11	0.24	
100000515152	MC	1073	0.41	0.29	0.29	-0.15	-0.09	-0.12	
100000515153	MC	1076	0.89	0.28	-0.15	0.28	-0.23	-0.07	
100000515154	MC	1076	0.79	0.39	-0.24	-0.18	0.39	-0.21	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000515159	MC	1083	0.61	0.45	0.45	-0.25	-0.23	-0.17	
100000515160	MC	1076	0.62	0.47	-0.35	-0.17	0.47	-0.16	
100000515161	MC	1076	0.74	0.42	0.42	-0.28	-0.20	-0.17	
100000515163	MC	1068	0.78	0.37	-0.33	-0.04	-0.15	0.37	
100000515164	MC	1068	0.29	0.10	0.04	-0.19	0.10	0.10	
100000515167	MC	1076	0.88	0.13	-0.02	0.13	-0.12	-0.07	
100000533111	MC	1073	0.78	0.43	-0.30	-0.12	0.43	-0.25	
100000533112	MC	1068	0.75	0.39	0.39	-0.24	-0.23	-0.15	
100000533113	MC	1076	0.88	0.33	-0.27	-0.10	0.33	-0.15	
100000533114	MC	1073	0.67	0.41	-0.25	-0.26	-0.11	0.41	
100000533116	MC	1073	0.46	0.31	-0.20	0.31	-0.17	-0.06	
100000426439	SR	1076	1.38	0.57	27	8	65		0
100000426446	SR	1076	1.14	0.42	25	35	39		0
100000426451	SR	1374	1.26	0.62	27	19	54		0
100000426455	SR	1374	1.37	0.48	16	29	54		1
100000426460	SR	1083	1.40	0.42	12	35	53		0
100000426467	SR	1083	1.29	0.56	25	21	54		0
100000426470	SR	1076	1.28	0.50	16	38	45		1
100000426482	SR	1068	1.02	0.54	20	59	22		0
100000508229	SR	1073	1.17	0.32	26	31	43		0
100000508231	SR	1073	0.94	0.46	35	34	30		0
100000515157	SR	1076	1.24	0.47	17	41	41		0
100000515170	SR	1068	1.47	0.42	19	15	66		1

Grade 5 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508633	MC	1062	0.66	0.36	-0.16	-0.24	0.36	-0.18	
100000508635	MC	1355	0.61	0.45	-0.22	-0.30	-0.20	0.45	
100000508636	MC	1072	0.76	0.46	0.46	-0.20	-0.18	-0.34	
100000508637	MC	1073	0.71	0.52	-0.15	0.52	-0.43	-0.20	
100000508638	MC	1073	0.91	0.28	-0.17	0.28	-0.19	-0.11	
100000508640	MC	1065	0.87	0.08	0.08	-0.04	-0.05	-0.08	
100000508647	MC	1072	0.78	0.47	-0.18	-0.30	-0.26	0.47	
100000508648	MC	1073	0.59	0.41	-0.10	-0.33	0.41	-0.17	
100000508649	MC	1355	0.33	0.18	0.06	0.18	-0.25	-0.23	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508650	MC	1080	0.92	0.14	-0.14	0.14	-0.00	-0.06	
100000508653	MC	1065	0.60	0.26	-0.13	-0.13	-0.14	0.26	
100000508654	MC	1062	0.79	0.37	-0.20	-0.24	0.37	-0.13	
100000508655	MC	1073	0.82	0.32	0.32	-0.19	-0.20	-0.13	
100000508657	MC	1065	0.58	0.31	0.31	-0.06	-0.17	-0.22	
100000508658	MC	1080	0.40	0.48	-0.28	-0.22	0.48	-0.05	
100000508659	MC	1355	0.85	0.42	0.42	-0.22	-0.18	-0.32	
100000508666	MC	1065	0.48	0.54	-0.37	-0.18	-0.13	0.54	
100000508667	MC	1080	0.88	0.31	-0.22	0.31	-0.10	-0.19	
100000508669	MC	1080	0.66	0.36	-0.11	-0.22	-0.22	0.36	
100000508671	MC	1062	0.64	0.26	-0.11	0.26	-0.07	-0.21	
100000508672	MC	1355	0.68	0.43	-0.21	-0.20	-0.30	0.43	
100000508685	MC	1072	0.36	0.28	-0.02	-0.25	0.28	-0.19	
100000508686	MC	1062	0.92	0.27	-0.16	0.27	-0.19	-0.08	
100000508690	MC	1072	0.86	0.16	0.16	-0.07	-0.13	-0.07	
100000427589	SR	1062	1.16	0.52	31	21	48		0
100000427596	SR	1080	1.18	0.57	29	22	48		1
100000427633	SR	1073	0.47	0.39	63	24	11		2
100000427634	SR	1065	0.66	0.43	59	17	24		0
100000508644	SR	1062	0.90	0.53	47	16	37		0
100000508645	SR	1073	0.51	0.48	66	16	18		0
100000508652	SR	1065	1.50	0.53	12	25	63		0
100000508674	SR	1080	0.38	0.40	65	32	3		0
100000508675	SR	1355	0.41	0.47	68	21	10		0
100000508676	SR	1072	0.27	0.30	85	4	11		0
100000508682	SR	1072	1.18	0.47	30	21	49		0
100000508683	SR	1355	0.85	0.44	32	51	17		0

Grade 6 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508694	MC	1069	0.75	0.42	-0.24	0.42	-0.25	-0.21	
100000508695	MC	1071	0.69	0.52	-0.38	-0.30	0.52	-0.12	
100000508696	MC	1073	0.79	0.50	0.50	-0.30	-0.28	-0.23	
100000508698	MC	1324	0.64	0.46	-0.36	0.46	-0.17	-0.12	
100000508701	MC	1071	0.50	0.26	-0.14	-0.13	-0.13	0.26	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508703	MC	1074	0.92	0.18	0.18	-0.07	-0.14	-0.07	
100000508707	MC	1324	0.79	0.50	-0.15	-0.38	-0.23	0.50	
100000508708	MC	1073	0.54	0.41	0.41	-0.21	-0.22	-0.13	
100000508711	MC	1071	0.89	0.38	-0.27	-0.21	0.38	-0.14	
100000508714	MC	1069	0.67	0.42	0.42	-0.21	-0.22	-0.29	
100000508716	MC	1324	0.67	0.50	-0.28	-0.38	0.50	-0.06	
100000508719	MC	1073	0.96	0.09	-0.08	-0.03	0.00	0.09	
100000508726	MC	1087	0.59	0.43	-0.11	-0.40	-0.10	0.43	
100000508727	MC	1074	0.80	0.38	-0.13	0.38	-0.24	-0.22	
100000508729	MC	1069	0.33	0.32	0.32	-0.12	-0.18	-0.08	
100000508739	MC	1087	0.60	0.37	-0.25	-0.21	0.37	-0.05	
100000508741	MC	1074	0.62	0.42	-0.37	-0.22	0.42	-0.07	
100000508743	MC	1073	0.91	0.38	-0.12	-0.25	0.38	-0.25	
100000508744	MC	1087	0.27	0.17	0.17	0.17	-0.19	-0.26	
100000508748	MC	1324	0.60	0.38	0.38	-0.17	-0.25	-0.20	
100000508749	MC	1071	0.67	0.27	-0.20	0.27	-0.14	-0.06	
100000508751	MC	1087	0.92	0.38	-0.24	-0.19	0.38	-0.21	
100000508752	MC	1074	0.80	0.22	-0.07	0.22	-0.20	-0.08	
100000539745	MC	1069	0.93	0.37	-0.22	-0.24	0.37	-0.17	
100000427694	SR	1324	1.18	0.49	17	47	36		1
100000427712	SR	1069	1.21	0.52	27	25	48		0
100000427718	SR	1324	0.98	0.52	32	36	31		1
100000427730	SR	1074	0.72	0.50	42	42	15		0
100000427731	SR	1073	1.13	0.36	19	48	33		0
100000427736	SR	1071	1.73	0.34	8	9	82		1
100000427741	SR	1087	1.05	0.49	30	35	35		0
100000508706	SR	1087	1.06	0.50	33	27	39		0
100000508721	SR	1073	1.32	0.54	29	9	61		0
100000508742	SR	1074	0.88	0.56	39	34	27		0
100000508754	SR	1069	1.54	0.45	11	23	65		0
100000508755	SR	1071	1.17	0.64	30	20	48		1

Grade 7 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508295	MC	1322	0.40	0.40	0.40	-0.16	-0.17	-0.17	
100000508296	MC	1076	0.50	0.33	-0.08	-0.24	0.33	-0.11	
100000508297	MC	1073	0.49	0.44	-0.35	0.44	-0.10	-0.10	
100000508298	MC	1086	0.44	0.38	-0.15	0.38	-0.24	-0.08	
100000508299	MC	1076	0.38	0.19	-0.10	-0.12	0.19	-0.04	
100000508300	MC	1073	0.87	0.31	0.31	-0.19	-0.17	-0.17	
100000508304	MC	1073	0.47	0.25	0.03	0.25	-0.20	-0.14	
100000508309	MC	1322	0.39	0.36	-0.17	0.36	-0.22	-0.12	
100000508310	MC	1089	0.50	0.18	-0.20	0.18	-0.01	0.06	
100000508311	MC	1086	0.36	0.30	-0.17	-0.06	0.30	-0.12	
100000508313	MC	1089	0.60	0.42	-0.22	0.42	-0.23	-0.17	
100000508317	MC	1076	0.58	0.48	-0.21	0.48	-0.27	-0.20	
100000508320	MC	1322	0.64	0.21	-0.14	-0.18	0.21	0.01	
100000508321	MC	1086	0.38	0.45	-0.20	-0.27	-0.10	0.45	
100000508324	MC	1089	0.34	0.37	0.37	-0.26	-0.26	0.10	
100000508325	MC	1073	0.74	0.44	-0.12	0.44	-0.31	-0.26	
100000508328	MC	1086	0.76	0.39	-0.22	-0.21	0.39	-0.22	
100000508330	MC	1089	0.79	0.45	-0.25	-0.27	0.45	-0.20	
100000508333	MC	1076	0.36	0.37	-0.27	-0.09	-0.10	0.37	
100000508334	MC	1073	0.35	0.36	-0.12	0.36	-0.20	-0.14	
100000508335	MC	1073	0.46	0.30	-0.14	0.30	-0.25	-0.07	
100000508339	MC	1322	0.81	0.34	-0.21	0.34	-0.21	-0.17	
100000508342	MC	1073	0.41	0.45	-0.34	-0.19	-0.18	0.45	
100000508346	MC	1073	0.48	0.29	-0.18	-0.16	0.29	-0.03	
100000427187	SR	1089	1.20	0.65	30	18	51		0
100000427188	SR	1073	0.96	0.50	38	25	35		1
100000427191	SR	1086	0.95	0.59	34	35	30		0
100000427453	SR	1322	0.20	0.26	82	14	3		0
100000427454	SR	1073	0.12	0.28	89	10	1		0
100000427481	SR	1076	1.32	0.55	18	31	50		0
100000427482	SR	1073	1.34	0.40	18	29	52		0
100000427487	SR	1076	0.54	0.56	60	23	16		1
100000427488	SR	1322	1.24	0.47	30	14	55		1
100000427489	SR	1089	1.14	0.61	38	9	52		0

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508312	SR	1086	0.25	0.39	77	18	3		1
100000508337	SR	1073	0.79	0.58	52	16	31		0

Grade 8 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508354	MC	1347	0.28	0.35	-0.03	0.35	-0.11	-0.22	
100000508355	MC	1059	0.54	0.19	-0.18	-0.17	0.19	0.08	
100000508356	MC	1055	0.34	0.46	-0.28	-0.20	0.46	-0.01	
100000508357	MC	1060	0.56	0.43	-0.21	0.43	-0.30	-0.11	
100000508359	MC	1055	0.56	0.28	-0.20	-0.16	0.28	-0.09	
100000508360	MC	1059	0.45	0.30	-0.11	0.30	-0.09	-0.17	
100000508364	MC	1347	0.35	0.24	-0.17	0.03	0.24	-0.17	
100000508367	MC	1055	0.38	0.26	-0.07	-0.31	0.00	0.26	
100000508373	MC	1059	0.60	0.41	-0.14	-0.20	0.41	-0.27	
100000508377	MC	1068	0.82	0.49	-0.37	0.49	-0.20	-0.19	
100000508378	MC	1055	0.50	0.31	0.31	-0.21	-0.12	-0.10	
100000508381	MC	1347	0.41	0.41	0.41	-0.19	-0.27	-0.04	
100000508415	MC	1068	0.55	0.38	-0.25	-0.14	0.38	-0.14	
100000508416	MC	1068	0.30	0.15	0.04	0.15	-0.08	-0.14	
100000508420	MC	1055	0.58	0.34	0.34	-0.14	-0.12	-0.23	
100000508423	MC	1060	0.36	0.32	0.01	-0.15	-0.32	0.32	
100000508426	MC	1055	0.49	0.29	-0.15	-0.14	-0.12	0.29	
100000508427	MC	1055	0.55	0.42	-0.28	0.42	-0.18	-0.13	
100000508428	MC	1060	0.39	0.44	-0.28	-0.21	-0.07	0.44	
100000508430	MC	1055	0.45	0.41	0.41	-0.18	-0.20	-0.15	
100000508433	MC	1347	0.71	0.49	-0.29	0.49	-0.27	-0.21	
100000508440	MC	1068	0.32	0.34	0.34	-0.01	-0.22	-0.17	
100000508441	MC	1060	0.47	0.33	0.33	-0.08	-0.18	-0.18	
100000508443	MC	1059	0.11	0.06	0.06	-0.05	0.12	-0.15	
100000425580	SR	1055	0.77	0.52	50	15	31		4
100000425599	SR	1055	1.11	0.61	22	43	34		1
100000425789	SR	1055	0.86	0.62	37	38	24		1
100000425800	SR	1055	0.58	0.56	59	21	19		2
100000426926	SR	1068	0.47	0.47	72	7	20		1
100000426939	SR	1068	0.44	0.57	68	18	13		1

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508368	SR	1347	0.76	0.59	53	13	32		2
100000508369	SR	1059	0.16	0.38	88	6	5		2
100000508379	SR	1059	0.67	0.58	58	15	26		1
100000508424	SR	1060	0.81	0.62	45	27	27		1
100000508438	SR	1060	1.20	0.64	18	44	38		0
100000508439	SR	1347	0.41	0.57	69	14	13		3

Grade 11 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000508445	MC	1229	0.58	0.31	-0.22	-0.14	0.31	-0.16	
100000508447	MC	1693	0.47	0.28	-0.12	0.28	-0.16	-0.10	
100000508454	MC	1209	0.62	0.41	-0.19	0.41	-0.28	-0.13	
100000508456	MC	1229	0.63	0.29	-0.17	-0.12	0.29	-0.14	
100000508458	MC	1232	0.78	0.33	-0.22	0.33	-0.17	-0.14	
100000508459	MC	1210	0.21	0.44	0.44	-0.22	-0.02	-0.17	
100000508460	MC	1693	0.36	0.10	0.16	-0.18	0.10	-0.15	
100000508462	MC	1229	0.19	0.22	0.02	-0.22	0.22	-0.10	
100000508464	MC	1237	0.50	0.32	-0.31	-0.05	0.32	-0.05	
100000508465	MC	1210	0.13	0.08	0.08	-0.25	-0.06	0.18	
100000508468	MC	1209	0.51	0.30	-0.17	0.30	-0.16	-0.07	
100000508469	MC	1232	0.39	0.10	-0.18	0.10	0.08	-0.04	
100000508472	MC	1693	0.45	0.36	-0.11	-0.25	0.36	-0.08	
100000508475	MC	1232	0.70	0.47	0.47	-0.31	-0.24	-0.16	
100000508476	MC	1210	0.50	0.36	-0.17	-0.17	-0.15	0.36	
100000508477	MC	1209	0.67	0.33	-0.19	-0.19	0.33	-0.17	
100000508478	MC	1237	0.40	0.33	0.33	-0.07	-0.27	-0.08	
100000508481	MC	1693	0.40	0.28	0.10	0.28	-0.20	-0.24	
100000508484	MC	1232	0.46	0.62	-0.31	-0.26	-0.25	0.62	
100000508501	MC	1237	0.55	0.45	0.45	-0.24	-0.20	-0.20	
100000508502	MC	1210	0.48	0.39	-0.15	0.39	-0.21	-0.16	
100000508508	MC	1209	0.31	-0.04	0.23	-0.16	-0.04	-0.07	
100000508509	MC	1229	0.26	0.19	-0.00	-0.07	0.19	-0.13	
100000508510	MC	1237	0.38	0.23	-0.16	-0.17	0.23	0.07	
100000425909	SR	1210	0.39	0.43	72	11	14		3
100000425924	SR	1237	0.38	0.58	69	8	15		8

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000426944	SR	1232	0.48	0.67	62	18	15		5
100000426945	SR	1693	0.47	0.65	59	23	12		6
100000426960	SR	1209	0.48	0.62	62	14	17		6
100000426968	SR	1693	1.14	0.58	32	9	52		7
100000470025	SR	1229	0.41	0.52	63	22	9		6
100000508449	SR	1210	0.34	0.65	71	15	9		5
100000508450	SR	1237	0.53	0.56	58	19	17		6
100000508470	SR	1229	0.80	0.46	30	50	15		6
100000508496	SR	1232	1.07	0.41	36	10	48		5
100000508497	SR	1209	0.55	0.64	58	14	21		8

Grade 4 Science

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000506927	MC	798	0.52	0.17	0.03	-0.10	-0.17	0.17		
100000506928	MC	803	0.79	0.24	-0.06	-0.17	0.24	-0.19		
100000506929	MC	803	0.72	0.37	0.37	-0.21	-0.21	-0.20		
100000506930	MC	798	0.50	0.26	-0.01	0.26	-0.20	-0.16		
100000506931	MC	798	0.70	0.38	-0.26	-0.20	0.38	-0.18		
100000506932	MC	803	0.28	0.16	-0.14	0.05	0.16	-0.12		
100000506986	MC	803	0.46	0.20	-0.06	0.00	-0.22	0.20		
100000506987	MC	798	0.75	0.28	-0.03	-0.20	0.28	-0.24		
100000506989	MC	798	0.79	0.42	-0.18	0.42	-0.20	-0.29		
100000506990	MC	803	0.50	0.35	-0.15	-0.22	-0.14	0.35		
100000506991	MC	798	0.59	0.42	-0.24	-0.12	0.42	-0.25		
100000506992	MC	803	0.65	0.34	0.34	-0.15	-0.17	-0.19		
100000507052	MC	809	0.54	0.24	0.24	-0.04	-0.16	-0.15		
100000507053	MC	805	0.41	0.02	-0.04	0.02	-0.10	0.08		
100000507054	MC	809	0.13	-0.07	-0.07	0.05	-0.12	0.13		
100000507055	MC	805	0.67	0.32	-0.17	-0.16	-0.15	0.32		
100000507056	MC	805	0.51	0.27	0.27	-0.12	-0.22	-0.08		
100000507057	MC	809	0.44	0.25	-0.22	-0.03	-0.07	0.25		
100000507068	MC	817	0.52	0.27	-0.11	-0.07	-0.20	0.27		
100000507069	MC	1107	0.51	0.35	-0.14	-0.16	-0.18	0.35		
100000507070	MC	817	0.29	0.19	-0.16	-0.08	0.03	0.19		
100000507071	MC	817	0.44	0.19	0.19	-0.14	-0.13	0.02		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000507072	MC	1107	0.27	0.21	-0.10	-0.12	0.00	0.21		
100000507073	MC	1107	0.52	0.12	0.00	-0.08	0.12	-0.11		
100000507123	MC	803	0.67	0.28	-0.05	0.28	-0.23	-0.16		
100000507124	MC	805	0.71	0.36	0.36	-0.17	-0.23	-0.15		
100000507125	MC	803	0.21	0.02	0.08	0.02	-0.07	-0.06		
100000507126	MC	803	0.85	0.31	-0.16	-0.16	0.31	-0.21		
100000507127	MC	805	0.76	0.33	-0.12	-0.21	0.33	-0.20		
100000507128	MC	805	0.50	0.21	-0.10	-0.14	-0.05	0.21		
100000507137	MC	805	0.68	0.42	0.42	-0.25	-0.20	-0.20		
100000507138	MC	803	0.09	-0.21	0.15	-0.21	0.09	-0.11		
100000507139	MC	803	0.49	0.30	-0.06	-0.16	-0.23	0.30		
100000507140	MC	805	0.80	0.36	-0.25	0.36	-0.19	-0.16		
100000507141	MC	805	0.84	0.46	-0.32	-0.20	-0.22	0.46		
100000507142	MC	803	0.50	0.47	-0.24	0.47	-0.17	-0.24		
100000507236	MC	817	0.41	0.23	-0.28	0.23	-0.07	0.03		
100000507237	MC	1107	0.50	0.23	-0.18	-0.12	-0.01	0.23		
100000507238	MC	1107	0.52	0.29	-0.15	-0.07	0.29	-0.18		
100000507239	MC	817	0.56	0.24	-0.10	0.24	-0.23	0.00		
100000507240	MC	817	0.62	0.30	-0.04	-0.11	0.30	-0.31		
100000507241	MC	1107	0.65	0.31	-0.16	-0.13	-0.17	0.31		
100000507244	MC	809	0.50	0.18	-0.11	0.18	-0.10	-0.04		
100000507245	MC	805	0.55	0.28	-0.13	-0.19	0.28	-0.10		
100000507247	MC	809	0.64	0.36	-0.23	-0.19	0.36	-0.13		
100000507248	MC	809	0.52	0.26	-0.07	-0.13	0.26	-0.15		
100000507249	MC	805	0.58	0.35	-0.20	0.35	-0.22	-0.11		
100000507250	MC	805	0.62	0.34	0.34	-0.10	-0.17	-0.22		
100000507129	SR	1608	1.31	0.41	20	30	50			0
100000507246	SR	1614	0.54	0.26	60	26	14			0
100000506988	ER	1601	1.71	0.46	18	15	47	17	3	0
100000519342	ER	1924	0.71	0.50	49	31	17	2	0	1

Grade 8 Science

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000506937	MC	1073	0.51	0.25	-0.20	0.25	-0.20	0.01		
100000506938	MC	795	0.44	0.39	0.39	-0.18	-0.23	-0.09		
100000506939	MC	1073	0.55	0.38	-0.18	-0.16	0.38	-0.20		
100000506940	MC	1073	0.65	0.45	-0.18	-0.26	0.45	-0.25		
100000506941	MC	795	0.55	0.42	-0.18	-0.23	-0.20	0.42		
100000506942	MC	795	0.32	0.33	-0.07	-0.13	-0.16	0.33		
100000506944	MC	803	0.19	0.12	0.12	-0.10	0.08	-0.12		
100000506945	MC	783	0.48	0.17	-0.18	0.17	-0.01	-0.10		
100000506947	MC	783	0.62	0.41	-0.27	0.41	-0.20	-0.20		
100000506948	MC	783	0.95	0.29	-0.14	0.29	-0.20	-0.14		
100000506949	MC	803	0.29	0.07	0.02	-0.06	0.07	-0.03		
100000506950	MC	803	0.81	0.36	-0.20	0.36	-0.21	-0.20		
100000506996	MC	803	0.34	0.26	-0.10	-0.09	-0.11	0.26		
100000506997	MC	783	0.27	0.29	-0.14	0.00	-0.23	0.29		
100000506998	MC	783	0.49	0.17	-0.18	0.17	-0.08	0.01		
100000506999	MC	803	0.42	0.24	0.03	0.24	-0.13	-0.24		
100000507001	MC	1586	0.57	0.32	-0.20	-0.01	0.32	-0.25		
100000507003	MC	1073	0.36	0.07	-0.25	0.07	-0.14	0.20		
100000507004	MC	795	0.38	0.13	0.07	-0.13	0.13	-0.15		
100000507006	MC	1073	0.39	-0.09	-0.03	0.14	-0.09	-0.04		
100000507007	MC	795	0.24	0.02	0.18	-0.14	-0.18	0.02		
100000507008	MC	795	0.71	0.46	-0.17	-0.30	-0.22	0.46		
100000507009	MC	1073	0.58	0.38	-0.19	-0.14	0.38	-0.23		
100000507091	MC	795	0.75	0.34	0.34	-0.21	-0.14	-0.22		
100000507092	MC	789	0.28	0.22	0.22	-0.13	-0.04	-0.07		
100000507093	MC	789	0.46	0.33	0.33	0.01	-0.27	-0.21		
100000507094	MC	795	0.40	0.28	-0.07	-0.06	-0.25	0.28		
100000507095	MC	795	0.47	0.17	-0.24	0.17	-0.16	0.07		
100000507096	MC	789	0.46	0.28	-0.03	0.28	-0.23	-0.12		
100000507174	MC	792	0.71	0.29	-0.11	-0.16	-0.19	0.29		
100000507175	MC	789	0.62	0.06	0.00	-0.15	0.06	0.08		
100000507176	MC	792	0.55	0.38	-0.23	-0.14	0.38	-0.17		
100000507177	MC	792	0.78	0.48	0.48	-0.30	-0.28	-0.16		
100000507178	MC	789	0.09	-0.11	0.16	-0.25	-0.11	0.11		
100000507179	MC	789	0.52	0.30	-0.10	0.30	-0.14	-0.18		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000507220	MC	789	0.46	0.02	-0.14	0.02	0.11	-0.09		
100000507221	MC	792	0.56	0.20	-0.09	0.20	-0.15	-0.04		
100000507222	MC	1581	0.67	0.19	-0.08	-0.07	-0.15	0.19		
100000507224	MC	792	0.35	0.29	0.29	-0.15	-0.27	0.02		
100000507225	MC	789	0.24	-0.04	-0.04	-0.09	0.15	-0.03		
100000507299	MC	795	0.61	0.32	-0.19	0.32	-0.18	-0.14		
100000507300	MC	789	0.47	0.28	0.28	-0.06	-0.22	-0.12		
100000507301	MC	795	0.25	0.22	-0.05	0.22	-0.12	-0.09		
100000507302	MC	795	0.34	0.27	-0.18	-0.10	0.27	-0.04		
100000507303	MC	789	0.45	0.27	0.27	-0.18	-0.15	-0.08		
100000507304	MC	789	0.65	0.43	0.43	-0.17	-0.30	-0.16		
100000506946	ER	783	1.53	0.50	17	32	35	11	5	1
100000507180	ER	1581	0.97	0.52	40	29	21	6	2	3
100000507305	ER	789	0.72	0.54	47	33	12	3	1	4
100000525437	ER	1073	1.47	0.50	8	49	22	13	4	3
100000525438	ER	795	1.53	0.42	22	24	33	16	4	2
100000525898	ER	795	1.33	0.50	25	28	31	10	4	4
100000540676	ER	803	1.51	0.47	26	24	26	15	7	1

Grade 11 Science

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000506953	MC	687	0.58	0.31	-0.11	0.31	-0.16	-0.19		
100000506954	MC	674	0.15	-0.01	0.12	-0.01	-0.18	0.01		
100000506956	MC	674	0.15	0.30	-0.04	-0.08	-0.12	0.30		
100000506957	MC	687	0.37	0.26	-0.10	-0.10	-0.11	0.26		
100000506958	MC	674	0.37	0.18	0.18	0.00	-0.18	-0.06		
100000506959	MC	687	0.63	0.26	-0.15	0.26	-0.07	-0.19		
100000506969	MC	690	0.07	-0.01	-0.01	-0.06	0.12	-0.09		
100000506970	MC	679	0.50	0.32	-0.06	-0.23	0.32	-0.14		
100000506972	MC	690	0.30	0.27	-0.17	-0.06	0.27	-0.07		
100000506973	MC	679	0.11	-0.06	0.16	-0.13	-0.05	-0.06		
100000506974	MC	690	0.79	0.42	-0.18	0.42	-0.25	-0.24		
100000506975	MC	679	0.11	-0.06	-0.14	-0.06	-0.26	0.32		
100000506977	MC	1020	0.28	0.01	-0.06	0.02	0.01	0.03		
100000506978	MC	682	0.64	0.41	-0.12	-0.29	-0.24	0.41		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000506980	MC	1020	0.74	0.46	0.46	-0.22	-0.33	-0.15		
100000506981	MC	682	0.46	0.12	-0.02	-0.01	-0.14	0.12		
100000506983	MC	1702	0.34	0.19	-0.06	0.19	-0.07	-0.08		
100000507020	MC	691	0.28	0.30	0.30	-0.16	-0.04	-0.15		
100000507021	MC	683	0.32	0.18	0.18	0.06	-0.29	-0.21		
100000507023	MC	691	0.62	0.36	-0.13	0.36	-0.24	-0.17		
100000507024	MC	683	0.33	0.04	-0.07	-0.08	0.04	0.06		
100000507025	MC	691	0.33	0.17	-0.03	0.17	-0.12	-0.05		
100000507026	MC	683	0.23	0.09	0.09	-0.08	0.07	-0.09		
100000507101	MC	1020	0.62	0.46	0.46	-0.29	-0.30	-0.11		
100000507102	MC	682	0.64	0.43	-0.15	-0.22	-0.27	0.43		
100000507104	MC	1020	0.81	0.38	-0.13	-0.24	0.38	-0.27		
100000507105	MC	682	0.46	0.35	0.35	-0.31	-0.07	-0.13		
100000507106	MC	1020	0.47	0.31	0.31	-0.09	-0.20	-0.13		
100000507107	MC	682	0.37	0.31	-0.10	0.31	-0.14	-0.15		
100000507260	MC	690	0.74	0.36	-0.19	-0.25	-0.15	0.36		
100000507261	MC	679	0.44	0.16	-0.09	0.16	-0.18	-0.00		
100000507263	MC	690	0.23	0.01	-0.07	0.01	0.04	-0.02		
100000507264	MC	679	0.28	0.19	0.08	-0.09	-0.16	0.19		
100000507265	MC	690	0.44	0.33	-0.12	-0.05	0.33	-0.25		
100000507266	MC	679	0.63	0.34	-0.15	-0.23	0.34	-0.16		
100000507268	MC	683	0.52	0.30	0.30	-0.15	-0.19	-0.09		
100000507269	MC	691	0.26	0.30	0.30	-0.05	-0.22	-0.11		
100000507270	MC	691	0.61	0.32	-0.17	-0.24	0.32	-0.07		
100000507271	MC	683	0.54	0.35	-0.08	-0.23	0.35	-0.21		
100000507272	MC	691	0.78	0.36	-0.23	0.36	-0.17	-0.19		
100000507273	MC	683	0.26	0.14	-0.02	0.14	-0.11	-0.02		
100000507275	MC	674	0.39	0.18	0.03	-0.23	0.18	-0.17		
100000507276	MC	687	0.59	0.41	0.41	-0.24	-0.27	-0.14		
100000507277	MC	674	0.46	0.27	-0.27	-0.25	0.27	0.04		
100000507278	MC	687	0.62	0.32	-0.12	-0.23	0.32	-0.16		
100000507279	MC	674	0.32	0.12	-0.01	0.12	-0.15	0.02		
100000507280	MC	687	0.76	0.55	0.55	-0.27	-0.34	-0.25		
100000506955	SR	1361	1.19	0.36	20	37	41			3
100000507103	ER	1702	1.50	0.56	16	35	26	15	4	4

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000511972	ER	1369	1.12	0.49	33	35	19	10	3	1
100000538911	ER	1374	0.67	0.50	60	13	15	4	3	5

APPENDIX C—MANTEL HAENSZEL AND STANDARDIZED MEAN DIFFERENCE (SMD) DIF SCREENING PROCEDURES

The Mantel Chi-Square and Standardized Mean Difference

The Mantel χ^2 is a conditional mean comparison of the ordered response categories for reference and focal groups combined over values of the matching variable score. "Ordered" means that a response earning a score of "1" on an item is better than a response earning a score of "0" or "2" is better than "1,"and so on. "Conditional," on the other hand, refers to the comparison of members from the two groups who received the same score on the matching variable, i.e., the total test score in our analysis.

Group	Item Score				Total
	y_1	y_2	…	y_T	
Reference	n_{R1k}	n_{R2k}	…	n_{Rtk}	n_{R+k}
Focal	$n_{F1}k$	n_{F2k}	…	n_{Ftk}	n_{F+k}
Total	n_{+1k}	n_{+2k}	…	n_{+tk}	n_{++k}

Figure C.1 2 x t Contingency Table at the kth Level[9]

Figure C.1 shows a 2 × *t* contingency table at the k^{th} of *K* levels, where *t* represents the number of response categories and *k* represents the number of levels of the matching variable. The values $y_1, y_2, \ldots, y_T$ represent the *t* scores that can be gained on the item. The values n_{Ftk} and n_{Rtk} represent the numbers of focal and reference groups who are at the k^{th} level of the matching variable and gain an item score of y_t. The "+" indicates the total number over a particular index (Zwick, Donoghue, & Grima, 1993).

The Mantel statistic is defined as the following formula:

$$Mantel\,\chi^2 = \frac{\left(\sum_k F_k - \sum_k E(F_k)\right)^2}{\sum_k Var(F_k)}$$

in which F_k represents the sum of scores for the focal group at the k^{th} level of the matching variable and is defined as follows:

$$F_k = \sum_t y_t n_{Ftk}$$

The expectation of F_k under the null hypothesis is

$$E(F_k) = \frac{n_{F+k}}{n_{++k}} \sum_t y_t n_{Ftk}$$

[9] Zwick, et al. (1993)

The variance of F_k under the null hypothesis is as follows:

$$Var(F_k) = \frac{n_{R+k} n_{F+k}}{n_{++k}^2 (n_{++k} - 1)} \left[(n_{++k} \sum_t y_t^2 n_{+tk}) - (\sum_t y_t n_{+tk})^2 \right]$$

Under *H0*, the Mantel statistic has a chi-square distribution with one degree of freedom. In DIF applications, rejecting *H0* suggests that the students of the reference and focal groups who are similar in overall test performance tend to differ in their mean performance on the item. For dichotomous items the statistic is identical to the Mantel-Haenszel (1959) statistic without the continuity correction (Zwick, et al., 1993).

A summary statistic to accompany the Mantel approach is the standardized mean difference (*SMD*) between the reference and focal groups proposed by Dorans and Schmitt (1991). This statistic compares the means of the reference and focal groups, adjusting for differences in the distribution of the reference and focal group members across the values of the matching variable. The *SMD* has the following form:

$$SMD = \sum_k p_{Fk} m_{Fk} - \sum_k p_{Fk} m_{Rk}$$

in which

$$p_{Fk} = \frac{n_{F+k}}{n_{F++}}$$

is the proportion of the focal group members who are at the k^{th} level of the matching variable;

$$m_{Fk} = \frac{1}{n_{F+k} \sum_t y_t n_{Ftk}}$$

is the mean item score of the focal group members at the k^{th} level; and m_{Rk} is the analogous value for the reference group. As can be seen from the equation above, the *SMD* is the difference between the unweighted item mean of the focal group and the weighted item mean of the reference group. The weights for the reference group are applied to make the weighted number of the reference-group students the same as in the focal group within the same level of ability. A negative *SMD* value implies that the focal group has a lower mean item score than the reference group, conditional on the matching variable.

DIF classification for CR items

The *SMD* is divided by the total group item standard deviation to obtain an effect-size value for the *SMD*. This effect-size *SMD* is then examined in conjunction with the Mantel χ^2 to obtain *DIF* classifications as depicted in Table C.1 below.

Table C.1 DIF Classification for CR Items

Category	Description	Criterion
AA	No *DIF*	Non-significant Mantel χ^2 or |SMD/STANDARD DEVIATION| ≤ 0.17
BB	Moderate *DIF*	Significant Mantel χ^2 and 0.17 < |SMD/STANDARD DEVIATION| ≤ 0.25
CC	Strong *DIF*	Significant Mantel χ^2 and 0.25 < |SMD/STANDARD DEVIATION|

Note. STANDARD DEVIATION is the total group standard deviation of the item score in its original metric.

Multiple-Choice Items

For the MC items, the Mantel-Haenszel Chi-square (M-Hχ^2) is used in conjunction with the M-H odds ratio (converted to the ETS delta scale [D]).

The Odds Ratio

The odds of a correct response (proportion passing divided by proportion failing) are *P/Q* or *P/(1-P)*. The *odds ratio* is the odds of a correct response of the reference group divided by the odds of a correct response of the focal group. For a given item, the odds ratio is defined as follows:

$$\alpha_{M-H} = \frac{P_r / Q_r}{P_f / Q_f}$$

And, the corresponding null hypothesis is that the odds of getting the item correct are equal for the two groups. Thus, the odds ratio is equal to 1:

$$\alpha_{M-H} = \frac{P_r / Q_r}{P_f / Q_f} = 1$$

The Delta Scale

To make the odds ratio symmetrical around zero with its range being in the interval $-\infty$ to $+\infty$ the odds ratio is transformed into a log odds ratio according to this equation:

$$\beta_{M-H} = \ln(\alpha_{M-H})$$

This simple natural logarithm transformation of the odds ratio is symmetrical around zero. This *DIF* measure is a signed index; a positive value signifies *DIF* in favor of the reference group, a negative value indicates *DIF* in favor of the focal group, and zero has the interpretation of equal odds of success on the item. β_{M-H} also has the advantage of a linear relationship to other interval scale metrics (Camilli & Shepard, 1994). β_{M-H} is placed on the ETS delta scale (D) using the following equation:

$$D = -2.35\beta_{M-H}.$$

DIF classification for MC items

Table C.2 depicts *DIF* classifications for MC items. Classification depends on the M-H χ^2 and delta scale (D) values.

Table C.2 DIF Classification for MC Items

Category	Description	Criterion
A	No *DIF*	Non-significant Mantel χ^2 or $\lvert D \rvert \leq 1.0$
B	Moderate *DIF*	Not otherwise A or C
C	Strong *DIF*	Significant Mantel χ^2 and $\lvert D \rvert \geq 1.5$

APPENDIX D—DIF RESULTS FOR OPERATIONAL 2012 ITEMS

Subject	Grade	Male vs. Female			Non-Limited English Proficient vs. Limited English Proficient			High SES vs. Low SES (via eligibility for free/reduced lunch)			Non-Special Education vs. Special Education			Caucasian vs. Native American			Caucasian vs. Hispanic		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Mathematics	03	55			52	3		55			53	2					55		
	04	59	1					60			57	3					60		
	05	59	1					60			58	2					60		
	06	57	3					60			59	1					59	1	
	07	61						61			61						61		
	08	61	4					65			65						65		
	11	66	2					68			66	2					68		
Reading	03	46	1		46	1		47			47						47		
	04	43	4					47			47						47		
	05	47						47			47						47		
	06	45	2					47			47						47		
	07	45	2					47			47						47		
	08	43	3	1				47			47						47		
	11	46	1					47			46	1					47		
Science	04	40						40			38	2					40		
	08	34	5	1				40			39	1					40		
	11	39		1				40			39						39	1	

Empty cells in the table indicate counts of zero. Analyses were only performed when both groups being compared had at least 300 members. When there were too few examinees for a comparison to be made, all cells (A, B, and C) are blank.

APPENDIX E—DIF RESULTS FOR FIELD TEST 2012 ITEMS

Subject	Grade	Male vs. Female			Non-Limited English Proficient vs. Limited English Proficient			High SES vs. Low SES (via eligibility for free/reduced lunch)			Non-Special Education vs. Special Education			Caucasian vs. Native American			Caucasian vs. Hispanic		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Mathematics	03	33	2	1				35	1										
	04	36						36											
	05	36						36											
	06	33	2	1				36											
	07	34	2					36											
	08	32	3	1				36											
	11	33	2	1				36											
Reading	03	41	1					42			5	1					4		
	04	35	6	1				41	1		5	1					2		
	05	38	6					43	1		4								
	06	34	8	3				43	1	1	3								
	07	36	8	1				44	1		1						1		
	08	34	7	5				45	1			1							
	11	35	7	3				24	1										
Science	04	48	4					39	1										
	08	50	2	1				10											
	11	46	4	1				5											

Empty cells in the table indicate counts of zero. Analyses were only performed when both groups being compared had at least 300 members. When there were too few examinees for a comparison to be made, all cells (A, B, and C) are blank.

APPENDIX F—MEAN SCALE SCORES, COUNTS, AND SCALE SCORE STANDARD DEVIATIONS FOR IEP STUDENTS BY ACCOMMODATION STATUS

Reading

Grade	Accommodated	N	Mean Scale Score	Std Dev Scale Score
03	No	431	589.18	46.93
	Yes	617	552.72	43.14
04	No	307	664.92	53.75
	Yes	720	626.07	44.47
05	No	242	651.88	50.60
	Yes	725	623.01	39.39
06	No	192	665.54	43.48
	Yes	755	644.99	37.72
07	No	132	665.99	43.54
	Yes	770	646.35	39.56
08	No	109	666.76	38.73
	Yes	785	658.05	36.00
10	No	64	151.31	13.40
	Yes	290	149.37	12.44
11	No	127	150.83	13.82
	Yes	378	149.63	12.39

Mathematics

Grade	Accommodated	N	Mean Scale Score	Std Dev Scale Score
03	No	431	657.12	53.96
	Yes	617	624.95	49.09
04	No	306	656.88	57.20
	Yes	719	624.41	43.66
05	No	245	672.68	57.73
	Yes	724	645.12	44.21
06	No	193	689.55	53.89
	Yes	755	667.08	41.88
07	No	131	697.33	50.80
	Yes	770	677.63	40.65
08	No	108	705.03	44.50
	Yes	784	686.53	33.87
10	No	70	143.79	18.52
	Yes	291	137.83	9.58
11	No	124	138.98	12.21
	Yes	390	138.05	9.77

Science

Grade	Accommodated	N	Mean Scale Score	Std Dev Scale Score
04	No	306	667.93	44.88
	Yes	721	646.80	38.13
08	No	109	623.66	38.32
	Yes	782	614.95	33.83
11	No	132	143.70	14.73
	Yes	410	141.14	12.59

APPENDIX G—FREQUENCY OF INDIVIDUAL ACCOMMODATIONS FOR 2012 PAWS TESTS

All Subjects

Students received the same accommodations for all subjects (reading, mathematics, and science). The only exceptions are for those accommodations shaded in yellow which were not allowed for the reading test.

IEP STUDENT'S STANDARD ACCOMMODATIONS								
PRESENTATION ACCOMMODATIONS								
ACCOMMODATION	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 10**	**Grade 11**
Student uses Braille Special Test Form			1		2	1		
Student uses Large Print Special Test Form of the test	4	8	8	7	7	5	3	2
Student uses Audio Special Test Form (Not allowed for reading)	47	83	72	115	107	134	37	57
Student uses magnification devices	6	3	7	6	2	5	5	
Student uses color overlays to reduce glare or enhance text	16	20	14	18	8	8	2	2
Student uses a template to reduce amount of visible print	20	32	19	21	14	12	1	
Student uses tactile graphics		1	1	2	2	1	1	
Sign language interpreter signs directions and/or test questions verbatim	1	1	1	3	6	2	2	2
A certified staff member or access assistant provides visual cues for students who are are deaf or hard of hearing	2	3	4	4	5	2	5	7
A certified staff member or access assistant reads directions and/or test questions verbatim	535	614	590	586	555	480	144	236
Student may ask for clarification of directions	491	607	581	606	655	633	208	271
Student uses audio amplification devices	3	9	14	22	24	27	11	6
Student uses text-to-speech (Not allowed for reading).	5	7	4	7	25	32	24	31

IEP STUDENTS STANDARD ACCOMMODATIONS								
RESPONSE ACCOMMODATIONS								
ACCOMMODATION	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 10**	**Grade 11**
A certified staff member or access assistant scribes or writes what the student dictates through communication devices, pointing, sign language, or speech	144	158	152	159	134	96	22	41
Student uses word processor.	16	39	51	55	76	112	48	52
Student uses speech-to-text conversion or voice recognition	5	3	5	13	12	24	5	5
Student uses a Brailler	1		1		1	1		
Student uses a tape recorder to record responses	2	10	6	5	4	13		4
Certified staff member or access assistant monitors the placement of student responses	178	182	165	119	78	71	7	19
Student uses visual organizers	164	193	206	240	220	155	31	39

IEP STUDENTS STANDARD ACCOMMODATIONS								
SETTING ACCOMMODATIONS								
ACCOMMODATION	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 10**	**Grade 11**
Student takes test in a different location individually or in a small group	593	677	676	709	711	694	246	380

IEP STUDENTS STANDARD ACCOMMODATIONS								
TIMING AND SCHEDULING ACCOMMODATIONS								
ACCOMMODATION	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 10**	**Grade 11**
Student is provided with extended time to complete the assessment	546	669	696	660	701	701	278	415
Student is provided with multiple, individual breaks as needed	466	536	519	458	452	333	112	184
Student tests at a time of day to demonstrate peak performance and/or is allowed to test over multiple days	200	251	234	185	141	117	34	72

ENGLISH LANGUAGE LEARNERS STANDARD ACCOMMODATIONS								
PRESENTATION ACCOMMODATIONS								
ACCOMMODATION	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 10**	**Grade 11**
A certified staff member or access assistant translates written directions to the student	140	129	76	58	42	46	15	9
A certified staff member or access assistant reads, simplifies, or clarifies directions	254	271	216	125	71	79	39	50
A certified staff member or access assistant reads/re-reads test questions in English verbatim (Not allowed for reading)	259	221	183	106	75	61	20	40
Student uses a bilingual dictionary provided by the school	99	89	50	61	48	47	23	23

ENGLISH LANGUAGE LEARNERS STANDARD ACCOMMODATIONS								
SETTING ACCOMMODATIONS								
ACCOMMODATION	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 10**	**Grade 11**
Student takes test in a different or individual location, or in a small group	285	304	244	149	102	89	46	66

ENGLISH LANGUAGE LEARNERS STANDARD ACCOMMODATIONS								
TIMING AND SCHEDULING ACCOMMODATIONS								
ACCOMMODATION	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 10**	**Grade 11**
Student is provided with multiple, individual breaks as needed	269	260	195	99	71	67	24	41
Student is allowed to complete the test over multiple days	195	218	159	62	68	68	30	46

APPENDIX H—RASCH DIFFICULTY, STANDARD ERROR, AND FIT STATISTICS FOR 2012 OPERATIONAL ITEMS

Grade 3 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000023202	MC	7122	-1.472	0.027	1.030	1.040
100000023203	MC	7122	-2.144	0.031	1.030	1.020
100000023205	MC	7122	-1.505	0.027	1.120	1.200
100000023206	MC	7122	-0.690	0.026	1.080	1.110
100000023208	MC	7122	-1.149	0.027	1.060	1.080
100000023210	MC	7122	-1.544	0.028	1.160	1.230
100000023211	MC	7122	0.184	0.028	1.100	1.290
100000023212	MC	7122	-2.576	0.034	1.050	0.870
100000128240	MC	7122	-1.255	0.027	1.120	1.150
100000128242	MC	7122	-1.139	0.026	0.950	0.920
100000128243	MC	7122	-0.776	0.026	1.030	1.050
100000128245	MC	7122	-0.949	0.026	1.020	1.020
100000128247	MC	7122	-1.509	0.027	0.970	0.930
100000128248	MC	7122	-2.324	0.032	0.740	0.590
100000128249	MC	7122	-1.348	0.027	0.860	0.800
100000282427	MC	7122	-2.350	0.032	0.890	0.770
100000282428	MC	7122	-1.874	0.029	0.790	0.690
100000282430	MC	7122	-1.216	0.027	1.150	1.190
100000282433	MC	7122	-1.361	0.027	0.930	0.890
100000282434	MC	7122	-1.442	0.027	1.140	1.160
100000282435	MC	7122	-1.611	0.028	0.910	0.850
100000282437	MC	7122	-1.058	0.026	0.900	0.860
100000458190	MC	7122	-1.902	0.029	0.840	0.760
100000458191	MC	7122	-0.903	0.026	0.900	0.890
100000458193	MC	7122	-2.197	0.031	0.820	0.750
100000458196	MC	7122	-3.495	0.045	0.750	0.440
100000458199	MC	7122	-1.673	0.028	1.060	1.120
100000458200	MC	7122	-1.281	0.027	1.070	1.060
100000458201	MC	7122	-0.628	0.026	1.020	1.030
100000458203	MC	7122	-0.835	0.026	1.210	1.280
3413287	MC	7122	-0.472	0.026	1.080	1.120
3413290	MC	7122	-0.502	0.026	1.180	1.270
3413292	MC	7122	-1.150	0.027	1.130	1.170
3413295	MC	7122	-1.511	0.027	0.860	0.820
3413298	MC	7122	-1.408	0.027	1.010	1.010
3413300	MC	7122	-2.077	0.030	0.930	0.910

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3413301	MC	7122	-1.758	0.028	1.000	1.000
3523170	MC	7122	-2.610	0.034	0.930	0.790
3523172	MC	7122	-1.430	0.027	0.950	0.900
3523174	MC	7122	-0.809	0.026	0.960	0.960
3523175	MC	7122	-1.159	0.027	1.040	1.040
3523176	MC	7122	-1.733	0.028	0.940	0.880
3523177	MC	7122	-1.893	0.029	1.260	1.380
3523180	MC	7122	-1.346	0.027	1.040	1.070
100000128238	SR	7122	-0.581	0.020	1.080	1.080
3413303	SR	7122	-0.823	0.018	0.980	0.970
3525585	SR	7122	-1.247	0.020	0.950	0.950

Grade 4 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000028768	MC	6817	-0.419	0.030	0.810	0.710
100000028769	MC	6817	-0.546	0.031	1.070	1.000
100000028770	MC	6817	-2.005	0.047	0.940	0.810
100000028771	MC	6817	-0.995	0.035	0.980	0.970
100000028772	MC	6817	0.018	0.028	1.100	1.070
100000028774	MC	6817	0.338	0.027	0.970	0.930
100000028775	MC	6817	0.900	0.027	1.040	1.060
100000454804	MC	6817	-1.508	0.040	0.830	0.650
100000454805	MC	6817	-0.140	0.029	1.060	1.080
100000454806	MC	6817	-0.920	0.034	0.760	0.610
100000454808	MC	6817	-0.029	0.029	0.990	0.980
100000454809	MC	6817	0.560	0.027	1.030	1.040
100000454811	MC	6817	-0.235	0.029	1.040	1.060
100000454812	MC	6817	1.449	0.027	1.100	1.220
100000458211	MC	6817	0.190	0.028	1.050	1.060
100000458214	MC	6817	0.881	0.027	1.010	1.030
100000458215	MC	6817	0.866	0.027	1.180	1.250
100000458219	MC	6817	0.841	0.027	0.990	1.030
100000458220	MC	6817	-0.562	0.031	0.880	0.820
100000458221	MC	6817	0.577	0.027	1.000	1.010
100000458222	MC	6817	0.577	0.027	1.030	1.040
100000458223	MC	6817	0.333	0.027	0.900	0.870
3336564	MC	6817	-1.420	0.039	0.660	0.500
3336565	MC	6817	-0.804	0.033	1.020	1.110
3336566	MC	6817	-0.060	0.029	1.140	1.280
3336567	MC	6817	-0.872	0.034	0.990	1.030

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3336568	MC	6817	-0.589	0.031	1.140	1.250
3336572	MC	6817	-2.402	0.055	0.740	0.410
3336573	MC	6817	-0.815	0.033	0.960	0.960
3336576	MC	6817	-1.976	0.047	0.840	0.530
3521500	MC	6817	-1.032	0.035	0.970	0.950
3521502	MC	6817	-0.228	0.029	1.100	1.120
3521504	MC	6817	0.196	0.028	1.090	1.110
3521507	MC	6817	0.280	0.028	1.200	1.330
3521508	MC	6817	0.323	0.027	1.000	1.020
3521509	MC	6817	0.888	0.027	0.940	0.950
3525958	MC	6817	-1.009	0.035	0.710	0.570
3525960	MC	6817	-0.866	0.033	1.020	1.120
3525962	MC	6817	1.122	0.027	1.010	1.040
3525963	MC	6817	-0.716	0.032	0.810	0.670
3525966	MC	6817	0.205	0.028	0.940	0.890
3525967	MC	6817	0.686	0.027	1.020	1.040
3525969	MC	6817	0.475	0.027	1.040	1.050
3528025	MC	6817	0.692	0.027	1.070	1.130
100000028779	SR	6817	-0.039	0.021	0.990	1.000
3521513	SR	6817	0.159	0.019	1.130	1.150
3525970	SR	6817	-0.001	0.022	1.020	1.020

Grade 5 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000027907	MC	6777	-0.770	0.032	0.750	0.600
100000027910	MC	6777	0.169	0.028	0.900	0.850
100000027911	MC	6777	1.201	0.027	1.150	1.240
100000027913	MC	6777	0.502	0.027	0.970	0.960
100000027914	MC	6777	-0.629	0.031	0.990	0.970
100000030968	MC	6777	-1.112	0.035	0.840	0.710
100000030969	MC	6777	0.433	0.027	0.970	0.950
100000030972	MC	6777	-1.152	0.035	1.090	1.180
100000030973	MC	6777	-0.106	0.029	1.080	1.090
100000030974	MC	6777	-0.086	0.028	1.150	1.220
100000030975	MC	6777	0.308	0.027	1.120	1.140
100000144430	MC	6777	1.067	0.027	1.120	1.200
100000455129	MC	6777	0.056	0.028	1.010	0.990
100000455130	MC	6777	-0.534	0.031	1.100	1.180
100000455133	MC	6777	0.826	0.027	1.010	1.020
100000455137	MC	6777	-0.313	0.029	0.940	0.880

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000455139	MC	6777	-0.382	0.030	0.880	0.780
100000455141	MC	6777	0.227	0.027	1.150	1.280
3410275	MC	6777	-0.827	0.033	0.950	0.920
3410284	MC	6777	-0.377	0.030	0.780	0.690
3410289	MC	6777	0.753	0.027	1.040	1.070
3410290	MC	6777	-0.850	0.033	0.940	0.890
3410292	MC	6777	0.278	0.027	1.110	1.130
3410294	MC	6777	-1.660	0.041	1.010	1.180
3410298	MC	6777	-2.579	0.058	0.910	0.620
3413818	MC	6777	-0.024	0.028	0.840	0.790
3413819	MC	6777	0.369	0.027	1.140	1.180
3413821	MC	6777	-0.946	0.034	1.170	1.180
3413822	MC	6777	1.059	0.027	1.150	1.220
3413823	MC	6777	-0.045	0.028	0.940	0.890
3413824	MC	6777	-1.151	0.035	0.950	0.910
3413827	MC	6777	-1.233	0.036	1.010	1.080
3520319	MC	6777	1.026	0.027	0.950	0.950
3520320	MC	6777	1.051	0.027	0.990	1.000
3520321	MC	6777	1.042	0.027	0.920	0.930
3520323	MC	6777	-0.562	0.031	0.820	0.760
3520325	MC	6777	-0.341	0.030	0.990	0.960
3520326	MC	6777	-0.207	0.029	0.920	0.870
3522537	MC	6777	0.466	0.027	0.980	0.980
3522538	MC	6777	-0.538	0.031	0.930	0.900
3522542	MC	6777	0.708	0.027	0.900	0.890
3522543	MC	6777	1.233	0.027	1.130	1.230
3522545	MC	6777	0.969	0.027	1.040	1.050
100000027905	SR	6777	0.013	0.023	1.160	1.150
100000455144	SR	6777	1.652	0.025	0.980	0.970
3522570	SR	6777	-0.444	0.021	0.940	0.940
3520336	ER	6777	1.026	0.021	0.980	0.980

Grade 6 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000023009	MC	6801	0.001	0.029	0.970	0.950
100000023011	MC	6801	1.144	0.026	1.120	1.160
100000023013	MC	6801	0.307	0.028	1.100	1.140
100000023018	MC	6801	0.862	0.026	1.070	1.080
100000023019	MC	6801	0.696	0.027	0.850	0.810
100000125754	MC	6801	0.185	0.028	0.980	0.940

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000125755	MC	6801	0.596	0.027	0.880	0.850
100000125758	MC	6801	1.314	0.026	1.040	1.080
100000125760	MC	6801	0.810	0.027	1.070	1.120
100000125762	MC	6801	0.403	0.028	1.130	1.200
100000125763	MC	6801	-0.187	0.030	0.910	0.810
100000454785	MC	6801	1.393	0.026	1.110	1.160
100000454786	MC	6801	0.523	0.027	1.030	1.050
100000454790	MC	6801	1.364	0.026	1.100	1.160
100000454791	MC	6801	-0.239	0.031	0.930	0.940
100000454792	MC	6801	-0.739	0.035	0.950	0.990
100000454794	MC	6801	0.490	0.027	0.970	0.970
100000454795	MC	6801	-0.024	0.029	0.820	0.760
100000455513	MC	6801	0.609	0.027	0.980	0.980
100000455514	MC	6801	1.018	0.026	0.940	0.930
100000455515	MC	6801	0.732	0.027	1.060	1.070
100000455517	MC	6801	1.119	0.026	0.950	0.940
100000455519	MC	6801	0.362	0.028	0.980	0.970
100000455520	MC	6801	0.470	0.027	1.020	1.030
100000455522	MC	6801	-0.416	0.032	1.010	1.050
100000455625	MC	6801	0.919	0.026	1.010	1.000
100000455629	MC	6801	0.294	0.028	0.950	0.910
100000455631	MC	6801	0.115	0.029	0.930	0.870
100000455632	MC	6801	0.778	0.027	1.160	1.190
100000455634	MC	6801	0.079	0.029	1.040	1.010
3521547	MC	6801	0.279	0.028	1.010	0.980
3521548	MC	6801	0.413	0.027	1.180	1.270
3521549	MC	6801	-1.029	0.038	1.050	0.940
3521553	MC	6801	0.281	0.028	0.980	0.960
3521589	MC	6801	0.011	0.029	0.940	0.880
3521590	MC	6801	-1.125	0.039	0.850	0.700
3521591	MC	6801	-2.339	0.061	0.930	0.710
3521593	MC	6801	0.182	0.028	0.980	0.970
3521599	MC	6801	-0.588	0.033	0.900	0.800
3529926	MC	6801	0.042	0.029	1.080	1.120
3530931	MC	6801	-0.087	0.030	0.860	0.830
3530932	MC	6801	-1.300	0.041	0.900	0.780
100000125750	SR	6801	1.154	0.022	0.990	0.990
100000455509	SR	6801	0.658	0.020	0.920	0.910
100000455640	SR	6801	1.788	0.021	0.920	0.910
100000143751	ER	6801	1.295	0.018	0.990	0.990
3521562	ER	6801	0.571	0.018	1.000	1.000

Grade 7 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000011706	MC	6821	0.887	0.027	1.010	1.020
100000011720	MC	6821	0.767	0.027	1.150	1.200
100000011723	MC	6821	0.089	0.029	1.100	1.120
100000011726	MC	6821	0.478	0.027	1.080	1.100
100000011729	MC	6821	-0.478	0.033	0.950	0.890
100000028681	MC	6821	1.430	0.026	1.180	1.250
100000028684	MC	6821	1.317	0.026	0.950	0.950
100000028687	MC	6821	0.594	0.027	0.920	0.900
100000028690	MC	6821	0.477	0.027	1.000	0.990
100000283666	MC	6821	-1.043	0.038	0.800	0.640
100000283669	MC	6821	0.128	0.029	1.030	1.050
100000283676	MC	6821	1.635	0.027	0.910	0.920
100000313210	MC	6821	1.277	0.026	1.200	1.280
100000455106	MC	6821	1.005	0.026	0.960	0.940
100000455107	MC	6821	0.024	0.029	1.110	1.070
100000455108	MC	6821	0.115	0.029	1.010	0.980
100000455114	MC	6821	0.786	0.027	0.960	0.940
100000455115	MC	6821	0.618	0.027	1.120	1.150
100000455151	MC	6821	0.324	0.028	0.890	0.840
100000455152	MC	6821	-1.631	0.047	0.900	0.680
100000455156	MC	6821	1.211	0.026	0.920	0.920
100000455157	MC	6821	0.373	0.028	1.000	0.990
100000455159	MC	6821	0.612	0.027	0.940	0.910
100000455162	MC	6821	0.314	0.028	1.100	1.110
100000461244	MC	6821	0.891	0.026	1.060	1.080
3414088	MC	6821	1.497	0.027	1.100	1.130
3414089	MC	6821	-0.321	0.031	0.900	0.800
3414090	MC	6821	-1.009	0.038	0.890	0.740
3414094	MC	6821	0.278	0.028	0.890	0.840
3414095	MC	6821	-0.103	0.030	0.940	0.910
3414103	MC	6821	1.363	0.026	1.010	1.020
3522512	MC	6821	-0.554	0.033	1.110	1.130
3522514	MC	6821	0.762	0.027	1.030	1.040
3522516	MC	6821	1.018	0.026	1.190	1.240
3522517	MC	6821	-0.003	0.029	0.850	0.770
3522518	MC	6821	0.281	0.028	1.020	0.990
3523897	MC	6821	1.084	0.026	0.950	0.940
3523898	MC	6821	1.068	0.026	0.990	0.990
3523899	MC	6821	1.326	0.026	1.130	1.170

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3523902	MC	6821	0.105	0.029	1.040	1.070
3523905	MC	6821	0.645	0.027	0.990	0.990
3523907	MC	6821	1.128	0.026	1.090	1.120
100000011679	SR	6821	1.094	0.020	1.020	1.020
100000455163	SR	6821	1.416	0.018	1.160	1.170
3531277	SR	6821	0.807	0.021	1.020	1.020
100000028701	ER	6821	1.821	0.015	1.000	1.010
100000283662	ER	6821	1.796	0.015	0.920	0.910

Grade 8 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000011300	MC	6770	0.192	0.030	1.200	1.270
100000011301	MC	6770	1.358	0.026	1.080	1.110
100000011305	MC	6770	1.280	0.026	0.970	0.960
100000011306	MC	6770	1.096	0.027	0.920	0.910
100000011308	MC	6770	1.087	0.027	0.920	0.910
100000028065	MC	6770	1.003	0.027	0.980	0.970
100000028069	MC	6770	-0.263	0.033	0.960	0.890
100000028071	MC	6770	-0.031	0.031	1.000	0.920
100000028076	MC	6770	1.544	0.026	1.190	1.260
100000128726	MC	6770	1.524	0.026	0.990	0.990
100000128728	MC	6770	0.764	0.027	0.990	0.970
100000128731	MC	6770	0.453	0.029	0.920	0.870
100000128734	MC	6770	0.499	0.028	0.960	0.960
100000283755	MC	6770	1.267	0.026	0.970	0.970
100000283759	MC	6770	1.267	0.026	1.010	1.010
100000283761	MC	6770	0.721	0.028	1.170	1.320
100000283765	MC	6770	-0.751	0.038	1.010	1.040
100000301224	MC	6770	0.197	0.030	1.290	1.470
100000301225	MC	6770	1.516	0.026	1.050	1.060
100000455190	MC	6770	0.648	0.028	0.940	0.900
100000455191	MC	6770	1.013	0.027	1.020	1.020
100000455195	MC	6770	1.818	0.027	0.990	1.010
100000455196	MC	6770	1.284	0.026	0.920	0.900
100000455197	MC	6770	0.913	0.027	1.050	1.070
100000455200	MC	6770	0.885	0.027	1.160	1.210
100000455427	MC	6770	0.974	0.027	0.900	0.880
100000455430	MC	6770	-0.260	0.033	0.940	0.860
100000455434	MC	6770	0.360	0.029	0.980	0.920
100000455436	MC	6770	0.946	0.027	1.080	1.110

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000455437	MC	6770	1.675	0.026	1.050	1.100
100000455438	MC	6770	0.704	0.028	0.900	0.880
3419221	MC	6770	1.494	0.026	0.970	0.970
3419222	MC	6770	1.054	0.027	0.960	0.940
3419223	MC	6770	1.225	0.027	1.100	1.110
3419225	MC	6770	1.443	0.026	1.190	1.240
3419232	MC	6770	-0.030	0.031	1.140	1.310
3419234	MC	6770	0.320	0.029	0.910	0.840
3522668	MC	6770	0.909	0.027	0.930	0.910
3522701	MC	6770	0.798	0.027	0.950	0.930
3522703	MC	6770	0.306	0.029	0.890	0.840
3522704	MC	6770	0.012	0.031	1.060	0.980
3522705	MC	6770	0.675	0.028	0.920	0.890
100000011323	SR	6770	3.005	0.025	1.000	1.000
100000455440	SR	6770	0.845	0.020	1.040	1.040
3522709	SR	6770	1.392	0.020	0.960	0.950
100000058606	ER	6770	1.849	0.014	1.100	1.130
100000128724	ER	6770	1.647	0.012	1.080	1.070

Grade 11 Reading

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000010128	MC	7337	1.280	0.026	0.940	0.980
100000010129	MC	7337	0.701	0.025	0.820	0.790
100000010134	MC	7337	0.273	0.026	1.070	1.100
100000010135	MC	7337	0.498	0.026	0.970	0.970
100000010138	MC	7337	0.027	0.027	1.170	1.340
100000010139	MC	7337	0.458	0.026	1.150	1.180
100000018487	MC	7337	-0.179	0.028	1.080	1.080
100000018489	MC	7337	-0.081	0.027	1.040	1.050
100000018492	MC	7337	0.526	0.026	1.230	1.290
100000018494	MC	7337	-0.050	0.027	1.020	1.040
100000127615	MC	7337	-0.572	0.030	1.000	0.950
100000127616	MC	7337	-0.197	0.028	1.010	1.030
100000127619	MC	7337	-1.207	0.035	0.870	0.710
100000127620	MC	7337	-1.058	0.034	0.890	0.730
100000127621	MC	7337	0.866	0.025	1.150	1.190
100000127622	MC	7337	0.166	0.026	1.050	1.090
100000455406	MC	7337	0.904	0.025	0.960	0.960
100000455407	MC	7337	0.145	0.026	0.970	0.970
100000455412	MC	7337	1.835	0.027	1.090	1.200

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000455419	MC	7337	0.458	0.026	0.970	0.960
100000457955	MC	7337	0.810	0.025	1.000	1.000
100000457957	MC	7337	-0.473	0.029	1.060	1.070
100000457958	MC	7337	-0.478	0.029	0.970	0.930
100000457960	MC	7337	0.221	0.026	0.960	0.960
100000457962	MC	7337	0.379	0.026	0.970	0.960
100000457965	MC	7337	0.708	0.025	1.080	1.100
3412948	MC	7337	0.518	0.026	1.150	1.210
3412949	MC	7337	0.697	0.025	0.940	0.930
3412956	MC	7337	-0.494	0.029	1.010	1.050
3412958	MC	7337	1.228	0.026	1.080	1.120
3412959	MC	7337	0.360	0.026	0.990	0.990
3420947	MC	7337	0.564	0.026	0.930	0.920
3420950	MC	7337	0.541	0.026	0.980	0.960
3420954	MC	7337	0.832	0.025	0.970	0.960
3420956	MC	7337	1.714	0.027	1.120	1.220
3420959	MC	7337	0.856	0.025	0.890	0.880
3522805	MC	7337	-1.369	0.037	0.880	0.680
3522806	MC	7337	-1.090	0.034	0.920	0.850
3522810	MC	7337	0.376	0.026	1.000	0.990
3522811	MC	7337	0.990	0.025	0.970	0.990
3531038	MC	7337	0.271	0.026	0.940	0.930
3531040	MC	7337	0.402	0.026	1.080	1.120
3412966	SR	7337	2.023	0.019	0.850	0.790
3420969	SR	7337	0.575	0.020	0.890	0.880
3532411	SR	7337	0.152	0.019	0.970	0.980
100000018485	ER	7337	1.082	0.019	1.040	1.040
100000455404	ER	7337	1.089	0.015	0.960	0.960

Grade 3 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000006851	MC	7048	0.056	0.027	1.020	1.010
100000006862	MC	7048	-0.316	0.028	1.040	1.080
100000006866	MC	7048	-1.903	0.041	1.290	1.300
100000006888	MC	7048	0.034	0.027	1.050	1.060
100000035866	MC	7048	-0.843	0.031	1.000	1.020
100000035875	MC	7048	-0.429	0.029	1.000	0.970
100000101293	MC	7048	-0.103	0.028	0.940	0.920
100000101301	MC	7048	-0.221	0.028	0.950	0.930
100000152876	MC	7048	-0.497	0.029	1.070	1.090

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000273175	MC	7048	-0.428	0.029	1.120	1.160
100000273323	MC	7048	0.113	0.027	0.970	0.960
100000273331	MC	7048	-0.592	0.029	1.040	1.140
100000273337	MC	7048	-1.630	0.037	0.830	0.700
100000273339	MC	7048	-0.398	0.029	0.970	0.910
100000292216	MC	7048	-0.553	0.029	1.010	1.020
100000292221	MC	7048	0.140	0.027	1.060	1.070
100000292223	MC	7048	-0.811	0.031	0.990	0.970
100000292224	MC	7048	0.120	0.027	0.970	0.950
100000426350	MC	7048	-1.584	0.037	1.070	0.990
100000426386	MC	7048	-1.318	0.034	0.990	0.930
100000426390	MC	7048	-1.444	0.036	1.000	1.290
100000426404	MC	7048	-0.544	0.029	0.860	0.820
100000426411	MC	7048	-1.340	0.035	0.850	0.780
100000426417	MC	7048	-1.610	0.037	0.820	0.740
3337611	MC	7048	-0.145	0.028	1.030	1.010
3337612	MC	7048	-1.574	0.037	1.020	1.100
3337629	MC	7048	-0.812	0.031	0.830	0.750
3337631	MC	7048	-0.343	0.028	1.000	1.020
3337645	MC	7048	-1.157	0.033	1.220	1.500
3337835	MC	7048	-0.940	0.031	1.120	1.110
3337973	MC	7048	-1.329	0.034	1.020	1.020
3373142	MC	7048	-2.706	0.054	0.770	0.750
3373144	MC	7048	-2.447	0.049	1.020	1.100
3373151	MC	7048	-0.951	0.032	0.960	0.980
3415315	MC	7048	0.340	0.027	1.040	1.070
3416709	MC	7048	-0.348	0.028	0.910	0.890
3416720	MC	7048	-0.713	0.030	1.070	1.220
3417124	MC	7048	-1.697	0.038	0.940	0.810
3417131	MC	7048	-2.383	0.048	0.990	1.010
3417231	MC	7048	-0.562	0.029	0.960	0.960
3508942	MC	7048	0.346	0.027	0.930	0.920
3508947	MC	7048	-0.663	0.030	0.860	0.790
3508955	MC	7048	-1.474	0.036	0.740	0.560
3508990	MC	7048	-0.922	0.031	0.970	0.940
3509044	MC	7048	-1.399	0.035	1.150	1.170
3509084	MC	7048	-0.503	0.029	0.910	0.850
3509086	MC	7048	-0.194	0.028	0.990	0.970
3509088	MC	7048	-0.940	0.031	1.040	1.000
3556080	MC	7048	-0.710	0.030	1.140	1.180
3556373	MC	7048	0.449	0.027	0.970	0.980

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000006843	SR	7048	-0.222	0.019	1.130	1.190
100000273172	SR	7048	-0.334	0.018	1.080	1.200
100000273191	SR	7048	0.149	0.018	1.220	1.330
100000273336	SR	7048	-0.076	0.018	0.980	1.010
100000292218	SR	7048	0.150	0.020	0.920	0.930

Grade 4 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000006783	MC	6737	-0.517	0.030	1.000	1.020
100000006794	MC	6737	-0.523	0.030	0.940	0.960
100000006797	MC	6737	-0.623	0.030	1.170	1.280
100000006801	MC	6737	-0.626	0.030	1.090	1.190
100000006821	MC	6737	-2.340	0.049	1.130	1.330
100000035908	MC	6737	-0.044	0.028	0.920	0.870
100000035931	MC	6737	-1.029	0.033	0.900	0.930
100000101333	MC	6737	-1.070	0.033	1.000	0.920
100000101342	MC	6737	0.383	0.027	0.910	0.880
100000101352	MC	6737	0.750	0.027	0.910	0.900
100000167537	MC	6737	-0.171	0.028	1.200	1.320
100000273131	MC	6737	0.253	0.027	1.180	1.240
100000273136	MC	6737	-0.212	0.028	1.040	1.050
100000273141	MC	6737	-0.530	0.030	1.000	0.960
100000273144	MC	6737	0.712	0.027	0.960	0.940
100000273155	MC	6737	-1.203	0.034	1.100	1.150
100000273166	MC	6737	0.097	0.028	1.120	1.150
100000273389	MC	6737	-0.433	0.029	1.010	0.950
100000273390	MC	6737	0.203	0.027	1.030	1.000
100000426433	MC	6737	-0.553	0.030	0.830	0.770
100000426440	MC	6737	-1.896	0.042	1.300	1.420
100000426447	MC	6737	0.063	0.028	1.030	1.040
100000426448	MC	6737	-1.248	0.035	0.880	0.770
100000426478	MC	6737	-0.786	0.031	1.070	1.070
100000426479	MC	6737	-1.006	0.033	1.160	1.220
100000426484	MC	6737	-0.118	0.028	0.840	0.780
100000468177	MC	6737	-1.409	0.036	0.970	0.850
100000468647	MC	6737	-0.316	0.029	0.880	0.850
100000468754	MC	6737	-0.562	0.030	1.130	1.180
100000470046	MC	6737	0.635	0.027	0.910	0.890
3337253	MC	6737	-0.542	0.030	1.100	1.130
3339248	MC	6737	-0.137	0.028	1.050	1.090

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3339343	MC	6737	0.017	0.028	0.930	0.910
3339350	MC	6737	-0.760	0.031	0.940	0.930
3339418	MC	6737	-0.164	0.028	0.990	1.020
3339450	MC	6737	-0.930	0.032	0.900	0.820
3339690	MC	6737	0.236	0.027	1.040	1.060
3341575	MC	6737	-0.131	0.028	0.920	0.890
3341583	MC	6737	0.194	0.027	1.040	1.070
3341714	MC	6737	-0.619	0.030	0.810	0.750
3341739	MC	6737	0.222	0.027	1.140	1.180
3373642	MC	6737	-1.346	0.036	1.010	0.980
3416341	MC	6737	-0.261	0.029	1.130	1.200
3416424	MC	6737	-1.488	0.037	0.900	0.830
3417147	MC	6737	-0.773	0.031	0.900	0.840
3509144	MC	6737	-0.173	0.028	1.010	0.960
3509152	MC	6737	-0.144	0.028	0.900	0.850
3509159	MC	6737	-0.190	0.028	1.070	1.060
3509165	MC	6737	-0.081	0.028	0.950	0.910
3509174	MC	6737	0.821	0.027	0.930	0.910
3509176	MC	6737	-1.881	0.042	0.910	0.700
3509218	MC	6737	0.693	0.027	1.080	1.120
3509219	MC	6737	0.315	0.027	1.070	1.070
3556385	MC	6737	0.148	0.027	1.030	1.040
3556390	MC	6737	0.534	0.027	0.890	0.860
100000006827	SR	6737	-0.883	0.022	1.080	1.180
100000035942	SR	6737	0.631	0.021	1.070	1.080
100000101316	SR	6737	0.217	0.017	1.010	1.060
100000101339	SR	6737	0.947	0.017	1.090	1.100
3341591	SR	6737	-0.289	0.019	1.100	1.200

Grade 5 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000008172	MC	6692	-1.529	0.044	0.840	0.750
100000008199	MC	6692	0.407	0.028	0.800	0.710
100000029803	MC	6692	-0.605	0.034	0.960	0.870
100000029808	MC	6692	-0.280	0.031	0.960	0.840
100000029809	MC	6692	1.455	0.028	1.070	1.110
100000029814	MC	6692	0.521	0.028	1.020	1.010
100000102367	MC	6692	-1.325	0.041	1.110	1.240
100000102384	MC	6692	2.034	0.029	0.940	1.010
100000102396	MC	6692	-0.399	0.032	1.040	1.040

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000102447	MC	6692	1.433	0.028	1.060	1.090
100000169267	MC	6692	-0.151	0.031	1.080	1.100
100000274210	MC	6692	0.470	0.028	0.840	0.760
100000274217	MC	6692	0.726	0.028	1.010	1.010
100000274218	MC	6692	0.796	0.028	1.130	1.200
100000274220	MC	6692	1.825	0.028	0.950	0.980
100000274341	MC	6692	-0.634	0.034	0.870	0.680
100000274346	MC	6692	0.342	0.029	1.050	1.040
100000274349	MC	6692	-0.131	0.031	0.830	0.740
100000427584	MC	6692	1.098	0.027	1.000	1.000
100000427586	MC	6692	1.224	0.027	1.030	1.070
100000427594	MC	6692	0.603	0.028	0.950	0.890
100000427595	MC	6692	0.310	0.029	1.080	1.060
100000427604	MC	6692	1.495	0.028	0.940	0.940
100000427605	MC	6692	0.024	0.030	0.970	0.960
100000427606	MC	6692	-0.111	0.030	1.140	1.160
100000427612	MC	6692	0.050	0.030	1.040	1.080
100000427613	MC	6692	0.328	0.029	0.890	0.830
100000427624	MC	6692	-0.452	0.032	1.100	1.240
100000427625	MC	6692	1.993	0.029	0.980	0.970
100000427626	MC	6692	0.611	0.028	0.910	0.900
100000427627	MC	6692	1.428	0.028	1.280	1.380
100000427637	MC	6692	0.532	0.028	1.150	1.320
100000470077	MC	6692	-0.121	0.030	0.930	0.850
3337682	MC	6692	-0.214	0.031	0.840	0.750
3337734	MC	6692	0.542	0.028	0.970	0.970
3337746	MC	6692	2.009	0.029	1.080	1.160
3337753	MC	6692	0.118	0.029	0.990	1.050
3337759	MC	6692	0.321	0.029	0.940	0.910
3337929	MC	6692	0.989	0.027	0.890	0.860
3337933	MC	6692	0.075	0.030	0.990	0.970
3337935	MC	6692	0.823	0.027	0.850	0.800
3415362	MC	6692	-0.595	0.034	0.900	0.710
3415367	MC	6692	1.365	0.027	1.030	1.040
3415371	MC	6692	0.227	0.029	1.090	1.100
3415376	MC	6692	0.842	0.027	0.960	0.950
3415407	MC	6692	-0.421	0.032	1.010	0.940
3415574	MC	6692	0.920	0.027	0.990	0.980
3415594	MC	6692	-0.193	0.031	1.100	1.180
3509194	MC	6692	0.605	0.028	0.920	0.880
3509213	MC	6692	0.497	0.028	0.940	0.910

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3509251	MC	6692	-0.760	0.035	0.990	0.980
3509266	MC	6692	1.174	0.027	1.050	1.070
3509271	MC	6692	1.419	0.028	1.130	1.170
3556085	MC	6692	0.818	0.027	1.090	1.120
3556409	MC	6692	0.783	0.028	1.010	1.020
100000029777	SR	6692	0.140	0.019	0.970	1.080
100000029786	SR	6692	0.182	0.020	1.200	1.380
100000102378	SR	6692	-0.070	0.021	1.130	1.210
100000102445	SR	6692	0.367	0.019	0.970	1.020
100000102449	SR	6692	0.943	0.018	1.070	1.090

Grade 6 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000008365	MC	6683	1.503	0.028	0.940	0.910
100000008366	MC	6683	1.492	0.028	1.000	0.980
100000008375	MC	6683	1.651	0.028	1.140	1.200
100000008395	MC	6683	1.166	0.028	1.120	1.160
100000008399	MC	6683	-0.164	0.034	0.970	1.110
100000008418	MC	6683	0.457	0.030	0.880	0.800
100000008438	MC	6683	-0.991	0.043	0.940	0.840
100000008700	MC	6683	0.586	0.029	1.070	1.090
100000008702	MC	6683	0.062	0.032	0.920	0.800
100000032128	MC	6683	0.646	0.029	0.930	0.850
100000102473	MC	6683	1.787	0.028	1.070	1.110
100000102489	MC	6683	1.169	0.028	1.070	1.130
100000102501	MC	6683	0.901	0.028	0.830	0.750
100000274392	MC	6683	1.116	0.028	1.020	1.040
100000274397	MC	6683	0.796	0.029	0.890	0.850
100000274398	MC	6683	1.273	0.028	0.940	0.900
100000274407	MC	6683	0.033	0.032	1.000	0.910
100000274420	MC	6683	0.461	0.030	0.940	0.910
100000274428	MC	6683	-0.398	0.036	1.110	1.020
100000274433	MC	6683	0.629	0.029	1.180	1.320
100000274434	MC	6683	0.307	0.031	1.150	1.340
100000274435	MC	6683	-0.167	0.034	1.070	1.060
100000274444	MC	6683	1.152	0.028	1.160	1.290
100000427692	MC	6683	1.098	0.028	0.910	0.860
100000427693	MC	6683	0.614	0.029	0.960	0.940
100000427701	MC	6683	0.751	0.029	1.040	1.050
100000427704	MC	6683	1.503	0.028	1.020	1.030

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000427720	MC	6683	1.104	0.028	1.040	1.030
100000427726	MC	6683	1.185	0.028	1.020	1.020
100000427738	MC	6683	0.912	0.028	0.890	0.860
100000427747	MC	6683	0.781	0.029	1.050	1.030
100000427750	MC	6683	0.330	0.030	0.890	0.820
100000427752	MC	6683	-0.218	0.034	0.900	0.880
100000427755	MC	6683	0.288	0.031	0.950	0.880
3337183	MC	6683	1.194	0.028	0.950	0.950
3337184	MC	6683	0.189	0.031	0.960	0.940
3337197	MC	6683	0.968	0.028	1.020	1.000
3337212	MC	6683	0.428	0.030	0.930	0.870
3337243	MC	6683	0.191	0.031	1.120	1.140
3337407	MC	6683	1.171	0.028	1.050	1.070
3337458	MC	6683	1.146	0.028	1.020	1.020
3337707	MC	6683	0.732	0.029	0.910	0.870
3376499	MC	6683	0.782	0.029	1.080	1.110
3376501	MC	6683	1.103	0.028	1.260	1.370
3415168	MC	6683	0.524	0.030	1.010	0.980
3415188	MC	6683	1.105	0.028	1.120	1.170
3415194	MC	6683	0.571	0.029	0.960	0.900
3415322	MC	6683	0.096	0.032	1.030	1.110
3508707	MC	6683	0.599	0.029	1.040	1.070
3508718	MC	6683	0.609	0.029	1.130	1.190
3508721	MC	6683	2.122	0.028	1.050	1.120
3508723	MC	6683	0.503	0.030	0.800	0.690
3508737	MC	6683	0.948	0.028	0.880	0.830
3508757	MC	6683	1.613	0.028	1.020	1.020
3558672	MC	6683	0.359	0.030	0.980	0.940
100000032138	SR	6683	1.152	0.021	0.990	1.020
100000102468	SR	6683	0.480	0.021	0.850	0.830
100000102505	SR	6683	1.795	0.019	0.940	0.910
3415189	SR	6683	0.866	0.019	1.040	1.090
3415206	SR	6683	0.587	0.019	1.150	1.330

Grade 7 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000008876	MC	6713	2.833	0.029	1.130	1.280
100000008882	MC	6713	2.233	0.028	1.110	1.150
100000008889	MC	6713	1.869	0.027	0.980	0.970
100000008890	MC	6713	2.087	0.027	1.080	1.120

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000008929	MC	6713	0.667	0.030	1.080	1.150
100000030531	MC	6713	1.054	0.028	1.200	1.350
100000030535	MC	6713	0.555	0.030	1.100	1.220
100000030543	MC	6713	2.134	0.028	1.080	1.100
100000030551	MC	6713	1.260	0.028	1.150	1.240
100000030557	MC	6713	1.338	0.028	1.040	1.030
100000102516	MC	6713	1.689	0.027	1.100	1.130
100000102519	MC	6713	1.661	0.027	1.020	1.030
100000102527	MC	6713	0.715	0.029	0.910	0.860
100000102528	MC	6713	0.707	0.029	0.920	0.890
100000169299	MC	6713	1.964	0.027	1.060	1.090
100000274511	MC	6713	1.257	0.028	1.130	1.220
100000274513	MC	6713	1.092	0.028	0.910	0.850
100000274515	MC	6713	1.880	0.027	1.050	1.060
100000274521	MC	6713	1.765	0.027	0.990	0.960
100000274543	MC	6713	1.848	0.027	1.010	1.010
100000274545	MC	6713	1.316	0.028	0.810	0.750
100000274546	MC	6713	1.892	0.027	0.890	0.860
100000274553	MC	6713	1.744	0.027	1.030	1.040
100000274557	MC	6713	1.548	0.027	0.870	0.830
100000274567	MC	6713	2.093	0.027	1.010	1.020
100000274575	MC	6713	1.412	0.027	0.830	0.770
100000274588	MC	6713	2.211	0.028	1.050	1.080
100000427202	MC	6713	1.163	0.028	1.120	1.210
100000427461	MC	6713	0.819	0.029	0.860	0.760
100000427486	MC	6713	1.343	0.028	0.890	0.850
100000427490	MC	6713	0.615	0.030	1.100	1.110
100000427492	MC	6713	1.863	0.027	1.150	1.240
100000427494	MC	6713	-0.037	0.034	0.970	0.870
3337269	MC	6713	1.380	0.028	1.030	1.030
3339583	MC	6713	1.463	0.027	1.050	1.050
3339585	MC	6713	0.894	0.029	0.940	0.870
3339667	MC	6713	0.350	0.031	1.100	1.130
3340404	MC	6713	2.055	0.027	0.960	0.970
3340733	MC	6713	1.926	0.027	1.020	1.030
3340995	MC	6713	0.956	0.029	1.060	1.170
3341639	MC	6713	2.360	0.028	0.980	1.020
3414984	MC	6713	1.844	0.027	1.020	1.010
3415309	MC	6713	0.786	0.029	1.160	1.330
3415324	MC	6713	1.323	0.028	0.930	0.910
3415511	MC	6713	1.458	0.027	0.900	0.870

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3415513	MC	6713	1.549	0.027	0.990	0.990
3415525	MC	6713	-0.389	0.038	0.800	0.630
3415527	MC	6713	1.286	0.028	0.940	0.900
3415533	MC	6713	1.425	0.027	0.980	0.980
3415537	MC	6713	0.622	0.030	0.950	0.870
3508695	MC	6713	1.964	0.027	1.070	1.100
3508889	MC	6713	1.442	0.027	1.000	1.000
3508904	MC	6713	1.783	0.027	0.910	0.870
3508920	MC	6713	1.901	0.027	1.050	1.070
3556420	MC	6713	0.982	0.028	0.790	0.730
3558673	MC	6713	1.964	0.027	0.920	0.910
100000274548	SR	6713	1.557	0.018	1.060	1.090
100000274560	SR	6713	0.377	0.021	1.000	1.240
100000274585	SR	6713	2.439	0.019	0.920	0.860
100000274593	SR	6713	1.994	0.017	1.040	1.110
3459553	SR	6713	2.724	0.019	1.070	1.030

Grade 8 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000008450	MC	6638	1.402	0.028	0.970	0.910
100000008451	MC	6638	2.034	0.027	1.110	1.130
100000008461	MC	6638	2.002	0.027	0.860	0.820
100000008463	MC	6638	2.002	0.027	1.120	1.150
100000008469	MC	6638	1.964	0.027	1.120	1.160
100000008485	MC	6638	1.682	0.027	0.920	0.900
100000008491	MC	6638	1.226	0.028	1.050	1.070
100000008494	MC	6638	1.589	0.027	1.210	1.300
100000008519	MC	6638	1.430	0.028	0.910	0.850
100000026508	MC	6638	1.549	0.028	1.050	1.080
100000026511	MC	6638	0.959	0.029	0.990	0.940
100000026516	MC	6638	1.848	0.027	1.140	1.170
100000026531	MC	6638	1.052	0.029	0.960	0.910
100000026549	MC	6638	1.422	0.028	0.870	0.800
100000026550	MC	6638	1.874	0.027	0.860	0.810
100000103190	MC	6638	2.138	0.027	0.970	0.950
100000273004	MC	6638	2.444	0.027	1.010	1.010
100000273007	MC	6638	1.922	0.027	1.090	1.090
100000273012	MC	6638	1.568	0.027	0.890	0.830
100000273017	MC	6638	3.177	0.030	1.000	1.070
100000273019	MC	6638	1.512	0.028	0.920	0.890

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000273031	MC	6638	2.026	0.027	1.020	1.030
100000273047	MC	6638	1.988	0.027	1.040	1.040
100000273050	MC	6638	0.519	0.032	0.850	0.820
100000273062	MC	6638	1.976	0.027	1.050	1.100
100000425582	MC	6638	1.996	0.027	1.190	1.260
100000425587	MC	6638	2.005	0.027	1.080	1.100
100000425600	MC	6638	1.736	0.027	0.990	0.980
100000425790	MC	6638	1.874	0.027	0.920	0.870
100000425796	MC	6638	2.924	0.029	1.110	1.200
100000425798	MC	6638	2.371	0.027	1.040	1.070
100000426919	MC	6638	1.852	0.027	0.870	0.840
100000426920	MC	6638	2.057	0.027	0.880	0.850
100000426931	MC	6638	1.875	0.027	1.000	0.990
100000470398	MC	6638	3.194	0.030	0.880	0.830
3340315	MC	6638	1.540	0.028	1.060	1.090
3340765	MC	6638	2.273	0.027	0.860	0.840
3376932	MC	6638	1.738	0.027	0.970	0.980
3416633	MC	6638	1.580	0.027	0.950	0.900
3416635	MC	6638	1.673	0.027	1.000	1.030
3417171	MC	6638	1.927	0.027	0.920	0.890
3417174	MC	6638	1.268	0.028	1.040	1.070
3417180	MC	6638	1.734	0.027	1.060	1.100
3417204	MC	6638	1.379	0.028	1.050	1.080
3417206	MC	6638	1.116	0.029	1.060	1.070
3425527	MC	6638	1.770	0.027	1.160	1.200
3431491	MC	6638	2.122	0.027	0.970	0.970
3431514	MC	6638	2.312	0.027	1.160	1.200
3509025	MC	6638	2.540	0.028	1.050	1.070
3509028	MC	6638	1.933	0.027	0.940	0.920
3509029	MC	6638	1.837	0.027	0.940	0.920
3509033	MC	6638	0.800	0.030	0.800	0.700
3509060	MC	6638	1.778	0.027	1.160	1.300
3510273	MC	6638	1.771	0.027	1.080	1.080
3512029	MC	6638	1.406	0.028	0.970	0.950
3512914	MC	6638	2.522	0.028	1.040	1.060
3512920	MC	6638	1.339	0.028	1.060	1.120
3512922	MC	6638	0.602	0.032	0.880	0.810
3514758	MC	6638	1.559	0.027	1.060	1.110
3549541	MC	6638	1.730	0.027	0.940	0.920
100000008481	SR	6638	1.688	0.016	1.100	1.260
100000008514	SR	6638	1.923	0.019	0.850	0.850

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000273042	SR	6638	2.317	0.018	0.950	0.950
100000273061	SR	6638	2.315	0.018	0.990	0.960
3417213	SR	6638	2.211	0.017	1.020	1.000

Grade 11 Mathematics

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000008608	MC	7805	0.664	0.026	1.180	1.230
100000008621	MC	7805	0.895	0.026	1.160	1.240
100000008634	MC	7805	-0.229	0.025	0.920	0.900
100000008639	MC	7805	0.497	0.025	0.870	0.830
100000008662	MC	7805	0.185	0.025	0.850	0.810
100000008670	MC	7805	1.476	0.029	1.070	1.130
100000012387	MC	7805	0.158	0.025	0.980	0.970
100000012389	MC	7805	0.382	0.025	1.000	1.000
100000012393	MC	7805	0.126	0.025	0.960	0.920
100000026573	MC	7805	-0.389	0.025	0.990	0.970
100000026606	MC	7805	-0.041	0.025	0.890	0.840
100000026617	MC	7805	0.410	0.025	1.000	0.990
100000103066	MC	7805	-0.519	0.026	0.960	0.980
100000103077	MC	7805	-0.140	0.025	0.960	0.930
100000103107	MC	7805	0.257	0.025	1.130	1.190
100000272892	MC	7805	0.608	0.026	1.070	1.090
100000272893	MC	7805	0.753	0.026	1.050	1.100
100000272898	MC	7805	-0.223	0.025	0.980	0.990
100000272909	MC	7805	1.105	0.027	1.270	1.370
100000272960	MC	7805	0.833	0.026	0.890	0.900
100000425868	MC	7805	-0.575	0.026	0.970	0.970
100000425871	MC	7805	1.173	0.027	0.990	1.060
100000425873	MC	7805	1.158	0.027	0.910	0.900
100000425906	MC	7805	-0.628	0.026	1.010	1.110
100000425917	MC	7805	0.579	0.026	0.990	0.980
100000425918	MC	7805	0.693	0.026	1.120	1.140
100000425921	MC	7805	0.395	0.025	1.050	1.040
100000426949	MC	7805	0.948	0.027	1.070	1.100
100000426953	MC	7805	-0.917	0.027	0.920	0.850
100000426963	MC	7805	-0.430	0.025	0.980	0.950
100000470028	MC	7805	0.561	0.026	0.990	1.010
3338078	MC	7805	0.553	0.026	0.890	0.860
3338098	MC	7805	-0.308	0.025	1.020	1.060
3338128	MC	7805	-0.147	0.025	1.080	1.100

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3338157	MC	7805	0.307	0.025	1.050	1.050
3338164	MC	7805	-0.846	0.026	1.030	1.090
3338189	MC	7805	0.884	0.026	1.140	1.210
3338198	MC	7805	0.227	0.025	0.980	0.960
3338203	MC	7805	-0.047	0.025	0.980	1.010
3370356	MC	7805	0.709	0.026	1.050	1.060
3416535	MC	7805	0.239	0.025	1.020	1.020
3416540	MC	7805	1.022	0.027	1.200	1.280
3416543	MC	7805	0.331	0.025	0.930	0.930
3416547	MC	7805	0.096	0.025	1.070	1.080
3416759	MC	7805	0.163	0.025	1.020	1.030
3416893	MC	7805	-0.089	0.025	1.020	1.010
3416897	MC	7805	0.413	0.025	0.960	0.950
3417013	MC	7805	0.242	0.025	1.100	1.120
3417056	MC	7805	0.282	0.025	1.050	1.050
3417068	MC	7805	0.675	0.026	0.950	0.940
3417080	MC	7805	0.272	0.025	1.060	1.070
3431522	MC	7805	-0.022	0.025	0.890	0.860
3457883	MC	7805	0.220	0.025	0.930	0.900
3457884	MC	7805	-0.003	0.025	0.970	0.960
3457886	MC	7805	-0.520	0.026	0.880	0.870
3457904	MC	7805	0.605	0.026	1.050	1.070
3457926	MC	7805	-0.191	0.025	1.160	1.270
3509065	MC	7805	-0.316	0.025	1.170	1.280
3509073	MC	7805	-0.249	0.025	0.930	0.910
3509114	MC	7805	0.824	0.026	0.960	0.950
3509428	MC	7805	0.152	0.025	0.900	0.870
3510184	MC	7805	0.965	0.027	1.110	1.140
3513029	MC	7805	1.249	0.028	1.110	1.120
100000103115	SR	7805	0.876	0.018	0.860	0.780
100000272940	SR	7805	0.416	0.016	0.890	0.840
3416509	SR	7805	-0.127	0.017	0.940	0.980
3417043	SR	7805	0.896	0.017	0.960	0.870
3431530	SR	7805	1.368	0.019	0.810	0.650

Grade 4 Science

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000031577	MC	6747	0.320	0.027	1.000	0.990
100000031579	MC	6747	-1.240	0.037	0.900	0.840
100000031582	MC	6747	-0.032	0.028	1.000	1.000
100000033306	MC	6747	-0.165	0.029	0.920	0.870
100000033308	MC	6747	0.740	0.026	0.990	0.990
100000033310	MC	6747	-0.205	0.029	0.930	0.880
100000113005	MC	6747	-0.117	0.028	0.890	0.830
100000113006	MC	6747	-0.588	0.031	0.970	0.990
100000113009	MC	6747	0.033	0.028	1.040	1.050
100000278741	MC	6747	0.273	0.027	0.920	0.880
100000278744	MC	6747	1.003	0.026	1.020	1.030
100000278745	MC	6747	1.471	0.027	0.990	1.010
100000278913	MC	6747	0.343	0.027	1.020	1.020
100000278917	MC	6747	0.264	0.027	0.970	0.950
100000278919	MC	6747	-0.050	0.028	1.060	1.080
100000278926	MC	6747	0.990	0.026	1.000	1.010
100000278927	MC	6747	0.423	0.027	1.030	1.030
100000278928	MC	6747	-0.707	0.032	0.900	0.810
100000424511	MC	6747	-0.014	0.028	0.940	0.900
100000424513	MC	6747	-2.067	0.049	1.130	1.120
100000424514	MC	6747	1.092	0.026	1.050	1.060
100000440890	MC	6747	-1.409	0.039	0.920	0.840
100000440893	MC	6747	0.400	0.027	1.100	1.120
100000440894	MC	6747	0.568	0.026	1.020	1.020
100000440899	MC	6747	-0.322	0.029	1.040	1.050
100000440903	MC	6747	-0.303	0.029	1.110	1.140
100000440904	MC	6747	-0.949	0.034	0.800	0.700
100000440909	MC	6747	0.877	0.026	0.980	1.000
100000440910	MC	6747	0.606	0.026	1.050	1.060
100000440912	MC	6747	0.960	0.026	1.000	1.010
3517047	MC	6747	-2.329	0.055	0.950	0.870
3528050	MC	6747	0.860	0.026	0.980	0.980
3528053	MC	6747	-1.556	0.041	0.930	0.760
3528056	MC	6747	-0.497	0.030	0.910	0.830
3537171	MC	6747	-0.250	0.029	1.020	0.970
3547721	MC	6747	0.255	0.027	1.010	1.020
100000278743	SR	6747	0.312	0.017	1.110	1.150
100000278916	ER	6747	1.388	0.013	0.920	0.910

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000440901	ER	6747	1.208	0.013	1.250	1.300
3517056	ER	6747	1.591	0.013	1.400	1.530

Grade 8 Science

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000113682	MC	6619	-0.017	0.027	1.030	1.030
100000113685	MC	6619	-0.274	0.028	1.020	1.020
100000113686	MC	6619	-0.198	0.027	0.980	0.960
100000120218	MC	6619	-0.757	0.030	0.880	0.820
100000120220	MC	6619	-1.074	0.032	0.950	0.910
100000120222	MC	6619	-0.877	0.030	1.010	1.000
100000278733	MC	6619	-0.285	0.028	1.010	1.020
100000278735	MC	6619	-0.053	0.027	0.930	0.900
100000278738	MC	6619	0.388	0.027	1.100	1.130
100000278806	MC	6619	0.037	0.027	1.000	1.000
100000278809	MC	6619	0.813	0.027	1.120	1.170
100000278811	MC	6619	0.872	0.027	0.820	0.790
100000278862	MC	6619	0.180	0.027	0.930	0.930
100000278863	MC	6619	-0.023	0.027	1.080	1.110
100000278864	MC	6619	-0.631	0.029	0.960	0.920
100000424618	MC	6619	1.363	0.029	1.040	1.120
100000424620	MC	6619	-0.134	0.027	0.910	0.870
100000424624	MC	6619	0.027	0.027	0.950	0.930
100000424652	MC	6619	0.592	0.027	1.070	1.090
100000424654	MC	6619	1.336	0.029	0.990	1.030
100000424657	MC	6619	0.593	0.027	1.120	1.170
100000440923	MC	6619	-0.106	0.027	0.840	0.790
100000440924	MC	6619	0.181	0.027	1.000	1.000
100000440927	MC	6619	1.513	0.030	1.110	1.280
100000440933	MC	6619	0.766	0.027	1.070	1.110
100000462513	MC	6619	-0.072	0.027	1.100	1.140
100000462515	MC	6619	0.534	0.027	0.920	0.920
100000462517	MC	6619	0.278	0.027	1.070	1.080
100000462524	MC	6619	0.438	0.027	0.970	0.970
100000462528	MC	6619	-0.293	0.028	0.970	0.960
100000482660	MC	6619	-1.865	0.039	0.910	0.750
100000482662	MC	6619	-0.166	0.027	1.120	1.190
100000482663	MC	6619	-0.202	0.028	1.040	1.050
3521149	MC	6619	0.686	0.027	1.110	1.140
3521151	MC	6619	-0.363	0.028	0.940	0.930

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3521152	MC	6619	-0.967	0.031	0.930	0.870
100000278805	SR	6619	0.824	0.020	0.950	0.920
100000113680	ER	6619	1.014	0.013	1.010	1.030
100000120217	ER	6619	1.598	0.014	1.270	1.230
100000482667	ER	6619	0.117	0.017	1.120	1.140

Grade 11 Science

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
100000035013	MC	5803	0.289	0.029	1.010	1.010
100000035016	MC	5803	-0.913	0.033	0.950	0.840
100000035018	MC	5803	0.838	0.029	0.980	0.990
100000119925	MC	5803	-0.705	0.032	0.870	0.820
100000119929	MC	5803	-0.590	0.031	0.870	0.780
100000119931	MC	5803	0.067	0.029	0.910	0.880
100000278461	MC	5803	-0.461	0.030	0.940	0.920
100000278464	MC	5803	0.238	0.029	1.050	1.040
100000278466	MC	5803	-1.976	0.044	0.890	0.630
100000278527	MC	5803	-1.518	0.038	0.940	0.740
100000278532	MC	5803	-0.347	0.030	0.940	0.890
100000278534	MC	5803	0.404	0.029	1.050	1.050
100000278550	MC	5803	-0.469	0.030	1.040	1.030
100000278554	MC	5803	0.635	0.029	1.130	1.190
100000278555	MC	5803	1.045	0.030	1.020	1.030
100000278895	MC	5803	-0.498	0.031	0.960	0.970
100000278898	MC	5803	1.126	0.030	1.110	1.240
100000278899	MC	5803	0.699	0.029	0.960	0.970
100000424717	MC	5803	0.709	0.029	0.980	1.000
100000424720	MC	5803	1.120	0.030	1.070	1.120
100000424721	MC	5803	0.444	0.029	1.040	1.060
100000440869	MC	5803	-0.507	0.031	0.950	0.950
100000440871	MC	5803	0.320	0.029	0.920	0.910
100000440873	MC	5803	0.057	0.029	0.990	0.970
100000440983	MC	5803	0.778	0.029	0.950	0.970
100000440986	MC	5803	0.341	0.029	0.980	0.980
100000440987	MC	5803	0.194	0.029	1.030	1.040
3515001	MC	5803	-0.772	0.032	0.950	0.920
3515003	MC	5803	-1.257	0.035	0.920	0.880
3515009	MC	5803	0.230	0.029	1.020	1.030
3525234	MC	5803	-0.757	0.032	1.090	1.100
3525358	MC	5803	-0.409	0.030	1.030	1.050

CID	Type	N	Rasch Difficulty	Rasch SE	Infit	Outfit
3525363	MC	5803	0.357	0.029	0.970	0.960
3526904	MC	5803	-0.558	0.031	1.000	1.030
3526908	MC	5803	-0.120	0.029	1.140	1.190
3526910	MC	5803	-0.514	0.031	1.050	1.100
100000035012	SR	5803	0.243	0.018	0.970	0.970
100000119927	ER	5803	0.050	0.014	1.090	1.100
100000424715	ER	5803	1.236	0.014	0.980	0.930
3525368	ER	5803	0.908	0.014	1.430	1.480

APPENDIX I—CLASSICAL ITEM STATISTICS FOR 2012 OPERATIONAL ITEMS

Grade 3 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000023202	MC	7123	0.67	0.36	0.36	-0.19	-0.20	-0.20	
100000023203	MC	7123	0.75	0.41	-0.26	-0.24	-0.16	0.41	
100000023205	MC	7123	0.59	0.40	-0.20	0.40	-0.18	-0.23	
100000023206	MC	7123	0.52	0.33	-0.25	-0.10	-0.11	0.33	
100000023208	MC	7123	0.61	0.33	-0.15	0.33	-0.19	-0.16	
100000023210	MC	7123	0.62	0.33	0.33	-0.16	-0.23	-0.21	
100000023211	MC	7123	0.33	0.25	0.25	-0.16	-0.11	-0.08	
100000023212	MC	7123	0.79	0.54	-0.28	-0.28	-0.32	0.54	
100000128240	MC	7123	0.59	0.32	-0.12	-0.21	-0.26	0.32	
100000128242	MC	7123	0.59	0.46	-0.30	0.46	-0.23	-0.19	
100000128243	MC	7123	0.48	0.37	-0.18	-0.21	0.37	-0.10	
100000128245	MC	7123	0.55	0.38	0.38	-0.25	-0.12	-0.19	
100000128247	MC	7123	0.64	0.48	-0.32	-0.18	0.48	-0.19	
100000128248	MC	7123	0.83	0.52	-0.30	-0.22	-0.33	0.52	
100000128249	MC	7123	0.71	0.47	-0.25	0.47	-0.29	-0.19	
100000282427	MC	7123	0.80	0.49	-0.30	-0.28	-0.23	0.49	
100000282428	MC	7123	0.77	0.53	-0.31	-0.25	0.53	-0.31	
100000282430	MC	7123	0.55	0.31	-0.33	-0.23	-0.05	0.31	
100000282433	MC	7123	0.70	0.41	-0.21	0.41	-0.20	-0.22	
100000282434	MC	7123	0.60	0.34	0.34	-0.19	-0.17	-0.14	
100000282435	MC	7123	0.68	0.51	-0.31	-0.25	0.51	-0.20	
100000282437	MC	7123	0.63	0.48	-0.26	-0.23	-0.24	0.48	
100000458190	MC	7123	0.78	0.44	-0.27	0.44	-0.13	-0.29	
100000458191	MC	7123	0.58	0.50	-0.30	-0.25	-0.18	0.50	
100000458193	MC	7123	0.83	0.39	-0.30	-0.21	-0.15	0.39	
100000458196	MC	7123	0.93	0.45	-0.21	-0.31	0.45	-0.22	
100000458199	MC	7123	0.69	0.34	-0.23	-0.10	0.34	-0.23	
100000458200	MC	7123	0.59	0.38	0.38	-0.25	-0.22	-0.13	
100000458201	MC	7123	0.43	0.37	-0.22	0.37	-0.20	-0.09	
100000458203	MC	7123	0.50	0.20	0.20	-0.02	-0.10	-0.16	
3413287	MC	7123	0.55	0.36	-0.27	0.36	-0.02	-0.19	
3413290	MC	7123	0.55	0.25	0.25	-0.12	-0.09	-0.17	
3413292	MC	7123	0.59	0.28	-0.14	-0.20	-0.12	0.28	
3413295	MC	7123	0.75	0.43	-0.21	0.43	-0.25	-0.23	
3413298	MC	7123	0.65	0.40	-0.19	-0.24	0.40	-0.17	
3413300	MC	7123	0.76	0.45	-0.28	-0.22	0.45	-0.20	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
3413301	MC	7123	0.71	0.40	0.40	-0.23	-0.32	-0.11	
3523170	MC	7123	0.82	0.49	0.49	-0.35	-0.25	-0.20	
3523172	MC	7123	0.64	0.48	0.48	-0.26	-0.18	-0.27	
3523174	MC	7123	0.49	0.45	-0.36	-0.07	-0.19	0.45	
3523175	MC	7123	0.57	0.39	-0.18	-0.30	0.39	-0.07	
3523176	MC	7123	0.71	0.45	-0.27	-0.22	0.45	-0.22	
3523177	MC	7123	0.65	0.32	-0.23	-0.06	-0.20	0.32	
3523180	MC	7123	0.66	0.33	-0.29	-0.18	0.33	-0.11	
100000128238	SR	7123	0.96	0.44	25	53	22		0
3413303	SR	7123	1.06	0.55	27	39	33		0
3525585	SR	7123	1.19	0.54	14	52	34		0

Grade 4 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000028768	MC	6829	0.80	0.44	-0.29	-0.23	-0.21	0.44	
100000028769	MC	6829	0.72	0.46	0.46	-0.22	-0.32	-0.18	
100000028770	MC	6829	0.92	0.37	-0.23	0.37	-0.19	-0.23	
100000028771	MC	6829	0.83	0.38	-0.15	-0.25	0.38	-0.26	
100000028772	MC	6829	0.63	0.38	-0.25	-0.13	0.38	-0.19	
100000028774	MC	6829	0.63	0.43	-0.30	-0.16	-0.19	0.43	
100000028775	MC	6829	0.50	0.36	0.36	-0.14	-0.17	-0.24	
100000454804	MC	6829	0.89	0.44	0.44	-0.25	-0.25	-0.24	
100000454805	MC	6829	0.68	0.39	-0.20	0.39	-0.19	-0.28	
100000454806	MC	6829	0.85	0.49	-0.25	-0.21	-0.33	0.49	
100000454808	MC	6829	0.68	0.43	-0.15	-0.24	-0.27	0.43	
100000454809	MC	6829	0.55	0.40	-0.19	-0.25	-0.14	0.40	
100000454811	MC	6829	0.71	0.38	-0.13	-0.18	0.38	-0.26	
100000454812	MC	6829	0.43	0.33	0.33	-0.22	-0.29	-0.06	
100000458211	MC	6829	0.65	0.34	-0.18	-0.18	-0.16	0.34	
100000458214	MC	6829	0.52	0.40	-0.19	-0.24	-0.17	0.40	
100000458215	MC	6829	0.47	0.24	-0.23	0.24	-0.09	-0.04	
100000458219	MC	6829	0.55	0.41	-0.30	-0.23	0.41	-0.12	
100000458220	MC	6829	0.80	0.44	-0.22	-0.23	0.44	-0.27	
100000458221	MC	6829	0.56	0.41	-0.20	-0.22	0.41	-0.17	
100000458222	MC	6829	0.59	0.37	-0.15	-0.20	0.37	-0.19	
100000458223	MC	6829	0.64	0.49	-0.34	0.49	-0.22	-0.18	
3336564	MC	6829	0.91	0.46	0.46	-0.22	-0.31	-0.26	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
3336565	MC	6829	0.81	0.35	-0.30	-0.26	0.35	-0.11	
3336566	MC	6829	0.69	0.27	-0.20	0.27	-0.24	-0.09	
3336567	MC	6829	0.81	0.37	0.37	-0.32	-0.17	-0.20	
3336568	MC	6829	0.75	0.33	0.33	-0.14	-0.17	-0.22	
3336572	MC	6829	0.95	0.42	-0.24	0.42	-0.20	-0.26	
3336573	MC	6829	0.81	0.40	-0.27	-0.19	-0.22	0.40	
3336576	MC	6829	0.92	0.46	-0.31	-0.22	0.46	-0.24	
3521500	MC	6829	0.83	0.39	-0.24	-0.21	-0.20	0.39	
3521502	MC	6829	0.68	0.38	0.38	-0.28	-0.13	-0.21	
3521504	MC	6829	0.60	0.37	-0.25	-0.20	0.37	-0.08	
3521507	MC	6829	0.55	0.30	-0.25	-0.13	0.30	-0.07	
3521508	MC	6829	0.54	0.48	-0.22	0.48	-0.25	-0.22	
3521509	MC	6829	0.50	0.46	-0.27	0.46	-0.18	-0.17	
3525958	MC	6829	0.87	0.46	0.46	-0.31	-0.25	-0.24	
3525960	MC	6829	0.81	0.34	-0.25	-0.21	-0.13	0.34	
3525962	MC	6829	0.53	0.43	-0.36	-0.21	-0.10	0.43	
3525963	MC	6829	0.81	0.51	-0.19	-0.25	0.51	-0.36	
3525966	MC	6829	0.62	0.49	-0.29	0.49	-0.25	-0.19	
3525967	MC	6829	0.55	0.39	0.39	-0.07	-0.28	-0.20	
3525969	MC	6829	0.55	0.39	-0.20	-0.28	-0.16	0.39	
3528025	MC	6829	0.54	0.35	-0.18	-0.21	-0.13	0.35	
100000028779	SR	6829	1.35	0.54	12	40	48		0
3521513	SR	6829	1.31	0.48	18	32	49		0
3525970	SR	6829	1.28	0.48	10	52	38		0

Grade 5 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000027907	MC	6777	0.83	0.52	-0.24	0.52	-0.25	-0.34		
100000027910	MC	6777	0.60	0.55	-0.30	-0.24	-0.27	0.55		
100000027911	MC	6777	0.44	0.25	-0.03	-0.18	-0.13	0.25		
100000027913	MC	6777	0.60	0.42	-0.23	-0.20	0.42	-0.19		
100000027914	MC	6777	0.76	0.42	-0.22	-0.22	-0.26	0.42		
100000030968	MC	6777	0.85	0.45	-0.18	0.45	-0.21	-0.34		
100000030969	MC	6777	0.58	0.44	-0.15	-0.25	-0.30	0.44		
100000030972	MC	6777	0.82	0.37	-0.10	-0.25	-0.29	0.37		
100000030973	MC	6777	0.64	0.39	-0.25	0.39	-0.19	-0.15		
100000030974	MC	6777	0.64	0.32	-0.15	-0.20	0.32	-0.14		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000030975	MC	6777	0.59	0.30	0.30	-0.17	-0.18	-0.12		
100000144430	MC	6777	0.47	0.28	-0.14	0.28	-0.19	-0.08		
100000455129	MC	6777	0.67	0.37	-0.20	0.37	-0.16	-0.28		
100000455130	MC	6777	0.71	0.40	-0.26	0.40	-0.17	-0.23		
100000455133	MC	6777	0.51	0.39	0.39	-0.24	-0.16	-0.20		
100000455137	MC	6777	0.73	0.42	-0.19	-0.20	0.42	-0.28		
100000455139	MC	6777	0.73	0.52	-0.32	-0.23	0.52	-0.26		
100000455141	MC	6777	0.59	0.28	0.28	-0.11	-0.15	-0.17		
3410275	MC	6777	0.82	0.35	0.35	-0.24	-0.20	-0.17		
3410284	MC	6777	0.80	0.46	-0.33	0.46	-0.18	-0.21		
3410289	MC	6777	0.49	0.35	-0.11	0.35	-0.20	-0.17		
3410290	MC	6777	0.80	0.43	0.43	-0.20	-0.21	-0.29		
3410292	MC	6777	0.57	0.33	-0.23	-0.21	0.33	-0.16		
3410294	MC	6777	0.90	0.26	-0.17	-0.19	-0.11	0.26		
3410298	MC	6777	0.95	0.33	-0.18	0.33	-0.17	-0.21		
3413818	MC	6777	0.72	0.49	-0.16	-0.26	-0.32	0.49		
3413819	MC	6777	0.53	0.32	-0.16	0.32	-0.17	-0.18		
3413821	MC	6777	0.77	0.37	-0.20	-0.17	0.37	-0.23		
3413822	MC	6777	0.37	0.21	0.21	-0.18	-0.05	-0.12		
3413823	MC	6777	0.67	0.47	-0.30	-0.24	0.47	-0.18		
3413824	MC	6777	0.84	0.39	0.39	-0.21	-0.23	-0.21		
3413827	MC	6777	0.85	0.30	-0.22	-0.19	-0.08	0.30		
3520319	MC	6777	0.48	0.46	-0.26	-0.14	0.46	-0.26		
3520320	MC	6777	0.44	0.40	-0.12	0.40	-0.20	-0.24		
3520321	MC	6777	0.45	0.47	-0.29	-0.18	0.47	-0.18		
3520323	MC	6777	0.81	0.42	-0.17	0.42	-0.26	-0.26		
3520325	MC	6777	0.70	0.45	-0.14	-0.20	-0.33	0.45		
3520326	MC	6777	0.72	0.44	0.44	-0.15	-0.19	-0.33		
3522537	MC	6777	0.62	0.40	0.40	-0.30	-0.26	-0.16		
3522538	MC	6777	0.76	0.45	-0.25	-0.27	-0.18	0.45		
3522542	MC	6777	0.61	0.50	-0.32	-0.19	0.50	-0.28		
3522543	MC	6777	0.41	0.25	0.25	-0.21	0.03	-0.17		
3522545	MC	6777	0.48	0.36	-0.30	0.00	-0.32	0.36		
100000027905	SR	6777	1.23	0.32	9	59	32			0
100000455144	SR	6777	0.80	0.45	26	67	7			0
3522570	SR	6777	1.48	0.54	9	33	58			0
3520336	ER	6777	1.93	0.49	3	16	69	11	1	0

Grade 6 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000023009	MC	6801	0.75	0.33	0.33	-0.21	-0.12	-0.19		
100000023011	MC	6801	0.48	0.25	-0.20	-0.08	-0.16	0.25		
100000023013	MC	6801	0.67	0.26	-0.18	0.26	-0.05	-0.18		
100000023018	MC	6801	0.57	0.30	0.30	-0.14	-0.11	-0.21		
100000023019	MC	6801	0.62	0.53	0.53	-0.30	-0.31	-0.16		
100000125754	MC	6801	0.67	0.44	-0.18	0.44	-0.18	-0.29		
100000125755	MC	6801	0.67	0.46	0.46	-0.28	-0.24	-0.18		
100000125758	MC	6801	0.40	0.29	-0.20	-0.08	-0.12	0.29		
100000125760	MC	6801	0.54	0.32	-0.17	-0.21	0.32	-0.11		
100000125762	MC	6801	0.59	0.33	-0.32	-0.21	0.33	-0.03		
100000125763	MC	6801	0.75	0.50	-0.22	-0.27	-0.29	0.50		
100000454785	MC	6801	0.42	0.24	-0.04	0.24	-0.14	-0.20		
100000454786	MC	6801	0.61	0.37	-0.21	-0.17	0.37	-0.23		
100000454790	MC	6801	0.40	0.23	-0.04	0.23	-0.18	-0.08		
100000454791	MC	6801	0.78	0.37	0.37	-0.21	-0.22	-0.22		
100000454792	MC	6801	0.84	0.34	-0.22	-0.16	-0.25	0.34		
100000454794	MC	6801	0.68	0.35	-0.31	0.35	-0.13	-0.09		
100000454795	MC	6801	0.77	0.46	-0.22	-0.26	-0.27	0.46		
100000455513	MC	6801	0.64	0.37	-0.21	-0.23	0.37	-0.14		
100000455514	MC	6801	0.50	0.45	-0.21	-0.22	-0.18	0.45		
100000455515	MC	6801	0.59	0.30	-0.18	0.30	-0.11	-0.16		
100000455517	MC	6801	0.56	0.44	-0.30	0.44	-0.18	-0.13		
100000455519	MC	6801	0.68	0.36	-0.20	-0.13	-0.24	0.36		
100000455520	MC	6801	0.64	0.35	-0.19	0.35	-0.13	-0.20		
100000455522	MC	6801	0.80	0.26	-0.16	-0.14	0.26	-0.16		
100000455625	MC	6801	0.59	0.35	-0.13	-0.19	-0.18	0.35		
100000455629	MC	6801	0.71	0.36	0.36	-0.14	-0.22	-0.21		
100000455631	MC	6801	0.70	0.46	-0.25	0.46	-0.25	-0.20		
100000455632	MC	6801	0.55	0.22	0.22	-0.12	-0.03	-0.17		
100000455634	MC	6801	0.71	0.32	0.32	-0.16	-0.18	-0.16		
3521547	MC	6801	0.63	0.45	-0.25	-0.25	0.45	-0.21		
3521548	MC	6801	0.61	0.24	-0.08	0.24	-0.23	-0.10		
3521549	MC	6801	0.85	0.40	-0.25	-0.24	-0.18	0.40		
3521553	MC	6801	0.68	0.39	0.39	-0.20	-0.25	-0.16		
3521589	MC	6801	0.71	0.48	0.48	-0.24	-0.17	-0.33		
3521590	MC	6801	0.89	0.38	-0.21	0.38	-0.22	-0.20		
3521591	MC	6801	0.96	0.28	-0.18	-0.17	0.28	-0.13		
3521593	MC	6801	0.70	0.39	-0.20	-0.24	-0.20	0.39		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
3521599	MC	6801	0.82	0.44	-0.21	-0.24	0.44	-0.27		
3529926	MC	6801	0.72	0.26	-0.12	-0.18	0.26	-0.12		
3530931	MC	6801	0.79	0.37	-0.12	-0.24	0.37	-0.23		
3530932	MC	6801	0.90	0.34	0.34	-0.27	-0.14	-0.16		
100000125750	SR	6801	0.99	0.45	19	62	18			0
100000455509	SR	6801	1.17	0.55	16	50	34			0
100000455640	SR	6801	0.77	0.52	35	51	13			0
100000143751	ER	6801	1.99	0.53	5	15	57	20	3	0
3521562	ER	6801	2.46	0.52	1	9	37	48	5	0

Grade 7 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000011706	MC	6821	0.51	0.40	-0.24	-0.16	-0.14	0.40		
100000011720	MC	6821	0.58	0.22	-0.06	-0.22	-0.19	0.22		
100000011723	MC	6821	0.67	0.37	-0.28	0.37	-0.17	-0.16		
100000011726	MC	6821	0.58	0.39	0.39	-0.27	-0.19	-0.14		
100000011729	MC	6821	0.81	0.41	-0.19	-0.27	0.41	-0.23		
100000028681	MC	6821	0.45	0.19	0.19	-0.17	-0.01	-0.05		
100000028684	MC	6821	0.46	0.43	-0.15	-0.16	-0.26	0.43		
100000028687	MC	6821	0.67	0.42	-0.24	-0.16	-0.25	0.42		
100000028690	MC	6821	0.59	0.45	-0.34	-0.25	0.45	-0.06		
100000283666	MC	6821	0.89	0.43	0.43	-0.23	-0.31	-0.17		
100000283669	MC	6821	0.69	0.37	-0.22	0.37	-0.14	-0.25		
100000283676	MC	6821	0.45	0.50	0.50	-0.21	-0.27	-0.19		
100000313210	MC	6821	0.48	0.16	0.16	-0.16	0.00	-0.13		
100000455106	MC	6821	0.56	0.43	-0.15	-0.21	-0.26	0.43		
100000455107	MC	6821	0.68	0.40	-0.22	0.40	-0.24	-0.19		
100000455108	MC	6821	0.68	0.44	-0.24	0.44	-0.23	-0.23		
100000455114	MC	6821	0.59	0.42	-0.28	-0.18	0.42	-0.15		
100000455115	MC	6821	0.54	0.34	0.34	-0.28	-0.19	-0.08		
100000455151	MC	6821	0.67	0.50	-0.32	-0.22	-0.21	0.50		
100000455152	MC	6821	0.92	0.37	0.37	-0.22	-0.20	-0.21		
100000455156	MC	6821	0.54	0.47	-0.22	-0.27	0.47	-0.20		
100000455157	MC	6821	0.69	0.34	-0.22	0.34	-0.19	-0.09		
100000455159	MC	6821	0.64	0.43	-0.15	-0.19	0.43	-0.28		
100000455162	MC	6821	0.64	0.35	-0.13	-0.23	-0.19	0.35		
100000461244	MC	6821	0.57	0.32	0.32	-0.22	-0.05	-0.26		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
3414088	MC	6821	0.40	0.25	-0.05	0.25	-0.16	-0.18		
3414089	MC	6821	0.78	0.46	-0.27	-0.27	0.46	-0.21		
3414090	MC	6821	0.87	0.42	-0.23	-0.24	-0.23	0.42		
3414094	MC	6821	0.73	0.42	-0.18	-0.29	0.42	-0.25		
3414095	MC	6821	0.75	0.43	0.43	-0.18	-0.18	-0.30		
3414103	MC	6821	0.56	0.41	-0.22	-0.28	0.41	-0.09		
3522512	MC	6821	0.78	0.38	-0.20	0.38	-0.20	-0.23		
3522514	MC	6821	0.58	0.35	-0.25	-0.10	0.35	-0.25		
3522516	MC	6821	0.53	0.18	-0.12	-0.14	-0.01	0.18		
3522517	MC	6821	0.77	0.46	-0.22	-0.29	0.46	-0.22		
3522518	MC	6821	0.65	0.43	-0.17	0.43	-0.26	-0.20		
3523897	MC	6821	0.57	0.43	-0.19	0.43	-0.22	-0.20		
3523898	MC	6821	0.60	0.39	-0.25	-0.13	-0.23	0.39		
3523899	MC	6821	0.40	0.22	0.22	-0.22	-0.24	0.04		
3523902	MC	6821	0.73	0.29	-0.19	0.29	-0.22	-0.05		
3523905	MC	6821	0.61	0.39	0.39	-0.19	-0.25	-0.13		
3523907	MC	6821	0.59	0.29	-0.23	-0.11	0.29	-0.08		
100000011679	SR	6821	1.03	0.48	23	51	26			0
100000455163	SR	6821	0.89	0.40	35	40	25			0
3531277	SR	6821	1.12	0.46	16	54	29			1
100000028701	ER	6821	1.53	0.57	14	42	24	18	3	0
100000283662	ER	6821	1.77	0.64	14	17	47	20	2	1

Grade 8 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000011300	MC	6771	0.68	0.32	-0.16	-0.17	-0.17	0.32		
100000011301	MC	6771	0.50	0.30	-0.20	-0.14	0.30	-0.05		
100000011305	MC	6771	0.55	0.41	-0.24	-0.25	-0.13	0.41		
100000011306	MC	6771	0.58	0.48	-0.25	-0.28	0.48	-0.22		
100000011308	MC	6771	0.64	0.43	-0.23	-0.23	-0.21	0.43		
100000028065	MC	6771	0.61	0.39	0.39	-0.26	-0.16	-0.14		
100000028069	MC	6771	0.81	0.40	0.40	-0.20	-0.20	-0.25		
100000028071	MC	6771	0.76	0.44	0.44	-0.25	-0.25	-0.23		
100000028076	MC	6771	0.53	0.19	-0.11	0.19	-0.03	-0.14		
100000128726	MC	6771	0.49	0.39	-0.22	-0.13	-0.20	0.39		
100000128728	MC	6771	0.62	0.43	-0.32	-0.17	0.43	-0.11		
100000128731	MC	6771	0.73	0.40	-0.19	0.40	-0.25	-0.20		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000128734	MC	6771	0.67	0.45	-0.25	-0.28	0.45	-0.19		
100000283755	MC	6771	0.60	0.40	-0.32	-0.10	0.40	-0.18		
100000283759	MC	6771	0.57	0.36	-0.22	0.36	-0.20	-0.20		
100000283761	MC	6771	0.63	0.21	-0.01	0.21	-0.13	-0.24		
100000283765	MC	6771	0.87	0.27	-0.18	-0.14	-0.15	0.27		
100000301224	MC	6771	0.69	0.20	-0.02	-0.19	0.20	-0.11		
100000301225	MC	6771	0.52	0.34	-0.20	-0.12	0.34	-0.21		
100000455190	MC	6771	0.66	0.45	-0.25	-0.24	-0.23	0.45		
100000455191	MC	6771	0.59	0.37	-0.23	-0.14	0.37	-0.17		
100000455195	MC	6771	0.47	0.42	0.42	-0.22	-0.17	-0.20		
100000455196	MC	6771	0.54	0.47	-0.17	-0.28	-0.24	0.47		
100000455197	MC	6771	0.61	0.33	0.33	-0.05	-0.09	-0.32		
100000455200	MC	6771	0.58	0.25	-0.11	0.25	-0.14	-0.10		
100000455427	MC	6771	0.65	0.45	-0.19	-0.33	-0.20	0.45		
100000455430	MC	6771	0.80	0.44	-0.33	0.44	-0.22	-0.16		
100000455434	MC	6771	0.68	0.48	0.48	-0.31	-0.24	-0.18		
100000455436	MC	6771	0.56	0.35	-0.16	-0.23	0.35	-0.12		
100000455437	MC	6771	0.45	0.32	0.32	-0.15	-0.15	-0.10		
100000455438	MC	6771	0.68	0.45	-0.14	-0.29	-0.24	0.45		
3419221	MC	6771	0.47	0.41	-0.18	-0.15	0.41	-0.21		
3419222	MC	6771	0.60	0.42	-0.21	-0.22	-0.18	0.42		
3419223	MC	6771	0.49	0.31	0.31	-0.14	-0.20	-0.17		
3419225	MC	6771	0.50	0.18	-0.10	-0.24	0.18	-0.02		
3419232	MC	6771	0.78	0.17	0.17	-0.16	-0.15	-0.02		
3419234	MC	6771	0.73	0.47	-0.26	0.47	-0.25	-0.25		
3522668	MC	6771	0.65	0.42	0.42	-0.24	-0.19	-0.20		
3522701	MC	6771	0.67	0.39	-0.30	0.39	-0.15	-0.11		
3522703	MC	6771	0.74	0.47	0.47	-0.28	-0.18	-0.28		
3522704	MC	6771	0.72	0.47	-0.15	-0.29	-0.28	0.47		
3522705	MC	6771	0.66	0.47	-0.26	0.47	-0.31	-0.18		
100000011323	SR	6771	0.63	0.40	39	57	3			1
100000455440	SR	6771	1.22	0.45	14	49	37			0
3522709	SR	6771	1.02	0.52	23	51	25			0
100000058606	ER	6771	1.46	0.53	15	45	25	6	9	0
100000128724	ER	6771	1.72	0.64	22	26	24	10	17	1

Grade 11 Reading

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000010128	MC	7337	0.41	0.41	0.41	-0.14	-0.21	-0.19		
100000010129	MC	7337	0.56	0.57	-0.23	-0.21	-0.39	0.57		
100000010134	MC	7337	0.61	0.31	0.31	-0.22	-0.23	-0.04		
100000010135	MC	7337	0.60	0.39	-0.10	0.39	-0.31	-0.17		
100000010138	MC	7337	0.65	0.19	-0.21	-0.22	-0.01	0.19		
100000010139	MC	7337	0.55	0.23	-0.06	-0.25	0.23	-0.10		
100000018487	MC	7337	0.69	0.31	0.31	-0.24	-0.21	-0.06		
100000018489	MC	7337	0.66	0.38	-0.27	-0.22	0.38	-0.10		
100000018492	MC	7337	0.53	0.15	0.01	-0.07	-0.22	0.15		
100000018494	MC	7337	0.68	0.33	-0.15	-0.21	-0.16	0.33		
100000127615	MC	7337	0.77	0.34	-0.24	0.34	-0.18	-0.17		
100000127616	MC	7337	0.71	0.34	0.34	-0.22	-0.27	-0.06		
100000127619	MC	7337	0.86	0.41	-0.22	-0.25	0.41	-0.21		
100000127620	MC	7337	0.84	0.46	0.46	-0.25	-0.21	-0.29		
100000127621	MC	7337	0.53	0.22	0.22	-0.07	-0.16	-0.06		
100000127622	MC	7337	0.63	0.33	-0.12	-0.26	-0.15	0.33		
100000455406	MC	7337	0.48	0.42	-0.17	0.42	-0.27	-0.12		
100000455407	MC	7337	0.68	0.35	0.35	-0.28	-0.21	-0.09		
100000455412	MC	7337	0.30	0.24	-0.06	-0.13	0.24	-0.12		
100000455419	MC	7337	0.56	0.44	-0.23	-0.14	0.44	-0.25		
100000457955	MC	7337	0.52	0.38	-0.16	-0.31	0.38	-0.02		
100000457957	MC	7337	0.73	0.36	-0.11	-0.23	0.36	-0.27		
100000457958	MC	7337	0.76	0.38	-0.26	0.38	-0.11	-0.21		
100000457960	MC	7337	0.65	0.39	-0.24	0.39	-0.25	-0.14		
100000457962	MC	7337	0.63	0.38	-0.17	-0.22	-0.20	0.38		
100000457965	MC	7337	0.53	0.29	0.29	-0.08	-0.15	-0.22		
3412948	MC	7337	0.55	0.22	-0.15	0.22	-0.06	-0.16		
3412949	MC	7337	0.58	0.44	-0.20	0.44	-0.27	-0.16		
3412956	MC	7337	0.77	0.31	-0.20	-0.23	-0.18	0.31		
3412958	MC	7337	0.37	0.24	0.24	-0.24	-0.25	0.12		
3412959	MC	7337	0.63	0.36	0.36	-0.18	-0.19	-0.20		
3420947	MC	7337	0.54	0.47	-0.14	-0.25	-0.28	0.47		
3420950	MC	7337	0.57	0.40	-0.19	-0.22	0.40	-0.17		
3420954	MC	7337	0.52	0.41	-0.23	0.41	-0.25	-0.12		
3420956	MC	7337	0.32	0.21	-0.00	-0.15	0.21	-0.10		
3420959	MC	7337	0.57	0.50	0.50	-0.22	-0.30	-0.20		
3522805	MC	7337	0.88	0.42	0.42	-0.26	-0.24	-0.20		
3522806	MC	7337	0.85	0.38	-0.21	-0.25	-0.19	0.38		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
3522810	MC	7337	0.59	0.38	-0.13	0.38	-0.25	-0.18		
3522811	MC	7337	0.52	0.42	-0.09	-0.22	0.42	-0.25		
3531038	MC	7337	0.67	0.38	-0.16	-0.18	-0.26	0.38		
3531040	MC	7337	0.55	0.33	-0.11	-0.14	-0.24	0.33		
3412966	SR	7337	0.48	0.56	60	26	11			3
3420969	SR	7337	1.10	0.56	16	54	28			3
3532411	SR	7337	1.26	0.50	12	46	40			2
100000018485	ER	7337	1.82	0.45	2	26	59	11	1	1
100000455404	ER	7337	1.68	0.60	5	44	28	16	5	3

Grade 3 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000006851	MC	7087	0.61	0.42	-0.18	-0.25	-0.20	0.42	
100000006862	MC	7087	0.66	0.43	-0.29	-0.29	0.43	-0.13	
100000006866	MC	7087	0.85	0.38	-0.25	0.38	-0.21	-0.17	
100000006888	MC	7087	0.62	0.39	0.39	-0.22	-0.24	-0.13	
100000035866	MC	7087	0.77	0.40	-0.23	-0.21	-0.21	0.40	
100000035875	MC	7087	0.71	0.43	0.43	-0.25	-0.22	-0.20	
100000101293	MC	7087	0.58	0.57	0.57	-0.25	-0.31	-0.25	
100000101301	MC	7087	0.75	0.40	-0.24	0.40	-0.22	-0.19	
100000152876	MC	7087	0.66	0.46	-0.37	-0.18	-0.12	0.46	
100000273175	MC	7087	0.67	0.37	-0.21	-0.25	-0.15	0.37	
100000273323	MC	7087	0.59	0.47	0.47	-0.14	-0.23	-0.32	
100000273331	MC	7087	0.77	0.28	-0.20	-0.06	-0.17	0.28	
100000273337	MC	7087	0.89	0.43	0.43	-0.22	-0.21	-0.28	
100000273339	MC	7087	0.77	0.32	-0.18	-0.17	-0.17	0.32	
100000292216	MC	7087	0.73	0.41	-0.33	-0.20	0.41	-0.11	
100000292221	MC	7087	0.68	0.33	-0.24	0.33	-0.09	-0.18	
100000292223	MC	7087	0.74	0.51	-0.45	0.51	-0.10	-0.18	
100000292224	MC	7087	0.62	0.45	-0.23	-0.19	-0.24	0.45	
100000426350	MC	7087	0.84	0.44	-0.28	-0.23	-0.20	0.44	
100000426386	MC	7087	0.83	0.42	-0.16	-0.33	0.42	-0.16	
100000426390	MC	7087	0.87	0.24	-0.19	-0.15	0.24	-0.07	
100000426404	MC	7087	0.75	0.50	-0.21	-0.38	-0.17	0.50	
100000426411	MC	7087	0.86	0.41	0.41	-0.21	-0.23	-0.24	
100000426417	MC	7087	0.89	0.37	-0.17	0.37	-0.28	-0.15	
3337611	MC	7087	0.61	0.46	-0.25	-0.28	-0.15	0.46	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
3337612	MC	7087	0.86	0.33	0.33	-0.12	-0.20	-0.22	
3337629	MC	7087	0.80	0.47	-0.25	0.47	-0.22	-0.29	
3337631	MC	7087	0.69	0.42	-0.19	-0.18	-0.34	0.42	
3337645	MC	7087	0.78	0.31	-0.19	0.31	-0.19	-0.17	
3337835	MC	7087	0.74	0.44	0.44	-0.23	-0.21	-0.26	
3337973	MC	7087	0.82	0.42	-0.29	-0.24	0.42	-0.11	
3373142	MC	7087	0.96	0.18	-0.10	-0.10	0.18	-0.11	
3373144	MC	7087	0.93	0.24	-0.09	0.24	-0.18	-0.12	
3373151	MC	7087	0.81	0.34	0.34	-0.23	-0.09	-0.23	
3415315	MC	7087	0.48	0.42	-0.06	-0.09	0.42	-0.36	
3416709	MC	7087	0.75	0.42	-0.31	0.42	-0.15	-0.18	
3416720	MC	7087	0.74	0.36	-0.23	0.36	-0.17	-0.18	
3417124	MC	7087	0.87	0.46	-0.20	0.46	-0.16	-0.36	
3417131	MC	7087	0.93	0.28	-0.21	-0.11	0.28	-0.14	
3417231	MC	7087	0.74	0.43	-0.21	-0.26	0.43	-0.23	
3508942	MC	7087	0.63	0.47	0.47	-0.24	-0.26	-0.19	
3508947	MC	7087	0.78	0.48	-0.38	-0.22	0.48	-0.12	
3508955	MC	7087	0.88	0.50	-0.31	-0.25	-0.29	0.50	
3508990	MC	7087	0.79	0.42	0.42	-0.22	-0.23	-0.22	
3509044	MC	7087	0.81	0.40	-0.16	-0.35	0.40	-0.12	
3509084	MC	7087	0.72	0.51	-0.37	0.51	-0.20	-0.23	
3509086	MC	7087	0.66	0.44	-0.27	-0.20	0.44	-0.19	
3509088	MC	7087	0.76	0.45	-0.27	-0.21	0.45	-0.25	
3556080	MC	7087	0.73	0.32	-0.06	0.32	-0.22	-0.18	
3556373	MC	7087	0.48	0.46	0.46	-0.04	-0.35	-0.28	
100000006843	SR	7087	1.35	0.49	16	31	52		0
100000273172	SR	7087	1.47	0.56	21	12	67		0
100000273191	SR	7087	1.22	0.48	26	26	48		0
100000273336	SR	7087	1.33	0.61	23	22	55		0
100000292218	SR	7087	1.18	0.60	18	45	36		0

Grade 4 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000006783	MC	6750	0.72	0.40	-0.21	-0.25	0.40	-0.17	
100000006794	MC	6750	0.75	0.40	-0.26	-0.22	-0.20	0.40	
100000006797	MC	6750	0.68	0.38	0.38	-0.28	-0.11	-0.19	
100000006801	MC	6750	0.73	0.31	-0.14	0.31	-0.18	-0.19	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000006821	MC	6750	0.92	0.19	-0.12	-0.13	0.19	-0.06	
100000035908	MC	6750	0.65	0.48	-0.24	0.48	-0.28	-0.21	
100000035931	MC	6750	0.83	0.33	-0.22	-0.17	0.33	-0.20	
100000101333	MC	6750	0.79	0.43	-0.34	0.43	-0.15	-0.19	
100000101342	MC	6750	0.55	0.51	-0.35	-0.16	-0.21	0.51	
100000101352	MC	6750	0.48	0.50	-0.43	0.50	-0.03	-0.15	
100000167537	MC	6750	0.61	0.29	-0.21	0.29	-0.15	-0.16	
100000273131	MC	6750	0.56	0.26	-0.11	-0.16	0.26	-0.09	
100000273136	MC	6750	0.66	0.39	-0.13	-0.19	-0.25	0.39	
100000273141	MC	6750	0.71	0.44	-0.20	-0.24	0.44	-0.26	
100000273144	MC	6750	0.53	0.47	-0.27	0.47	-0.25	-0.11	
100000273155	MC	6750	0.81	0.33	-0.20	-0.14	-0.20	0.33	
100000273166	MC	6750	0.62	0.30	-0.19	-0.10	-0.16	0.30	
100000273389	MC	6750	0.68	0.47	0.47	-0.28	-0.21	-0.24	
100000273390	MC	6750	0.61	0.37	0.37	-0.18	-0.07	-0.30	
100000426433	MC	6750	0.77	0.48	0.48	-0.24	-0.21	-0.34	
100000426440	MC	6750	0.88	0.32	0.32	-0.21	-0.19	-0.15	
100000426447	MC	6750	0.62	0.40	-0.15	-0.32	0.40	-0.09	
100000426448	MC	6750	0.85	0.40	-0.20	-0.26	0.40	-0.21	
100000426478	MC	6750	0.76	0.34	0.34	-0.20	-0.16	-0.20	
100000426479	MC	6750	0.77	0.33	0.33	-0.17	-0.22	-0.13	
100000426484	MC	6750	0.69	0.54	-0.35	-0.20	-0.28	0.54	
100000468177	MC	6750	0.85	0.41	-0.19	-0.18	-0.30	0.41	
100000468647	MC	6750	0.75	0.41	0.41	-0.13	-0.21	-0.34	
100000468754	MC	6750	0.70	0.33	-0.20	0.33	-0.20	-0.15	
100000470046	MC	6750	0.51	0.50	-0.49	0.50	-0.04	-0.05	
3337253	MC	6750	0.68	0.42	-0.28	0.42	-0.24	-0.15	
3339248	MC	6750	0.66	0.36	0.36	-0.20	-0.20	-0.16	
3339343	MC	6750	0.68	0.44	-0.31	-0.18	-0.17	0.44	
3339350	MC	6750	0.78	0.39	-0.22	-0.19	-0.22	0.39	
3339418	MC	6750	0.68	0.39	-0.25	0.39	-0.17	-0.18	
3339450	MC	6750	0.79	0.47	-0.35	-0.20	-0.20	0.47	
3339690	MC	6750	0.61	0.38	-0.25	0.38	-0.14	-0.22	
3341575	MC	6750	0.64	0.51	0.51	-0.18	-0.25	-0.32	
3341583	MC	6750	0.59	0.38	0.38	-0.25	-0.17	-0.18	
3341714	MC	6750	0.78	0.49	-0.35	-0.15	0.49	-0.30	
3341739	MC	6750	0.57	0.29	-0.26	0.29	-0.12	-0.10	
3373642	MC	6750	0.84	0.33	0.33	-0.22	-0.17	-0.15	
3416341	MC	6750	0.64	0.35	-0.21	-0.14	-0.18	0.35	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
3416424	MC	6750	0.87	0.34	-0.19	-0.17	0.34	-0.22	
3417147	MC	6750	0.79	0.42	-0.22	0.42	-0.28	-0.19	
3509144	MC	6750	0.62	0.46	-0.19	0.46	-0.21	-0.27	
3509152	MC	6750	0.73	0.42	-0.27	-0.22	0.42	-0.14	
3509159	MC	6750	0.63	0.39	-0.16	-0.23	0.39	-0.20	
3509165	MC	6750	0.70	0.40	-0.21	0.40	-0.27	-0.12	
3509174	MC	6750	0.53	0.52	-0.31	-0.37	0.52	-0.00	
3509176	MC	6750	0.90	0.40	-0.21	-0.23	-0.23	0.40	
3509218	MC	6750	0.42	0.34	-0.20	-0.16	-0.11	0.34	
3509219	MC	6750	0.57	0.35	0.35	-0.22	-0.16	-0.18	
3556385	MC	6750	0.58	0.41	-0.32	0.41	-0.08	-0.15	
3556390	MC	6750	0.56	0.53	0.53	-0.39	-0.18	-0.15	
100000006827	SR	6750	1.58	0.43	7	27	65		0
100000035942	SR	6750	1.01	0.48	23	53	24		0
100000101316	SR	6750	1.22	0.59	31	15	53		0
100000101339	SR	6750	0.84	0.54	47	20	32		0
3341591	SR	6750	1.45	0.51	19	16	64		0

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CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000008172	MC	6705	0.92	0.31	-0.26	0.31	-0.12	-0.11	
100000008199	MC	6705	0.68	0.59	-0.19	-0.48	-0.19	0.59	
100000029803	MC	6705	0.81	0.40	-0.24	0.40	-0.10	-0.28	
100000029808	MC	6705	0.74	0.52	-0.28	0.52	-0.22	-0.31	
100000029809	MC	6705	0.44	0.36	-0.19	-0.18	-0.10	0.36	
100000029814	MC	6705	0.62	0.43	-0.20	-0.18	-0.25	0.43	
100000102367	MC	6705	0.89	0.21	-0.11	0.21	-0.16	-0.08	
100000102384	MC	6705	0.28	0.37	0.37	-0.19	-0.11	-0.10	
100000102396	MC	6705	0.78	0.37	-0.15	0.37	-0.24	-0.19	
100000102447	MC	6705	0.45	0.37	0.37	-0.11	-0.28	-0.10	
100000169267	MC	6705	0.74	0.34	-0.24	-0.19	0.34	-0.11	
100000274210	MC	6705	0.69	0.53	-0.32	-0.27	-0.25	0.53	
100000274217	MC	6705	0.57	0.44	-0.33	0.44	-0.18	-0.07	
100000274218	MC	6705	0.60	0.31	-0.26	0.31	-0.20	-0.07	
100000274220	MC	6705	0.35	0.43	-0.13	-0.24	-0.14	0.43	
100000274341	MC	6705	0.82	0.50	-0.29	-0.21	0.50	-0.31	
100000274346	MC	6705	0.65	0.40	-0.17	0.40	-0.17	-0.27	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000274349	MC	6705	0.78	0.47	-0.28	-0.33	0.47	-0.14	
100000427584	MC	6705	0.53	0.43	-0.27	-0.28	0.43	-0.03	
100000427586	MC	6705	0.48	0.39	-0.20	-0.28	0.39	-0.12	
100000427594	MC	6705	0.63	0.46	-0.26	0.46	-0.18	-0.25	
100000427595	MC	6705	0.67	0.35	-0.32	-0.08	-0.07	0.35	
100000427604	MC	6705	0.41	0.47	-0.36	-0.09	0.47	-0.10	
100000427605	MC	6705	0.73	0.42	-0.26	-0.16	0.42	-0.23	
100000427606	MC	6705	0.71	0.34	-0.20	0.34	-0.18	-0.20	
100000427612	MC	6705	0.71	0.37	0.37	-0.22	-0.20	-0.16	
100000427613	MC	6705	0.69	0.51	-0.32	0.51	-0.17	-0.27	
100000427624	MC	6705	0.77	0.36	-0.36	-0.08	0.36	-0.07	
100000427625	MC	6705	0.37	0.47	-0.29	-0.26	-0.12	0.47	
100000427626	MC	6705	0.65	0.49	-0.44	-0.13	0.49	-0.06	
100000427627	MC	6705	0.46	0.20	-0.32	-0.02	0.20	0.05	
100000427637	MC	6705	0.63	0.28	-0.16	-0.24	-0.15	0.28	
100000470077	MC	6705	0.71	0.54	0.54	-0.27	-0.41	-0.15	
3337682	MC	6705	0.76	0.53	-0.46	-0.17	-0.16	0.53	
3337734	MC	6705	0.67	0.41	-0.28	-0.30	-0.09	0.41	
3337746	MC	6705	0.34	0.35	-0.20	-0.17	0.35	-0.20	
3337753	MC	6705	0.73	0.37	0.37	-0.19	-0.20	-0.22	
3337759	MC	6705	0.69	0.44	0.44	-0.29	-0.16	-0.23	
3337929	MC	6705	0.54	0.53	0.53	-0.13	-0.25	-0.34	
3337933	MC	6705	0.67	0.50	-0.18	0.50	-0.23	-0.35	
3337935	MC	6705	0.58	0.57	-0.22	0.57	-0.16	-0.41	
3415362	MC	6705	0.80	0.53	-0.19	-0.37	-0.28	0.53	
3415367	MC	6705	0.46	0.41	0.41	-0.30	-0.16	-0.04	
3415371	MC	6705	0.68	0.33	-0.16	-0.16	-0.18	0.33	
3415376	MC	6705	0.62	0.45	0.45	-0.13	-0.37	-0.13	
3415407	MC	6705	0.76	0.46	0.46	-0.14	-0.31	-0.28	
3415574	MC	6705	0.54	0.45	-0.35	0.45	-0.10	-0.18	
3415594	MC	6705	0.72	0.39	0.39	-0.16	-0.08	-0.32	
3509194	MC	6705	0.61	0.51	-0.22	-0.38	0.51	-0.09	
3509213	MC	6705	0.63	0.48	-0.35	-0.11	-0.23	0.48	
3509251	MC	6705	0.83	0.37	-0.21	-0.28	0.37	-0.08	
3509266	MC	6705	0.49	0.40	-0.33	-0.06	-0.14	0.40	
3509271	MC	6705	0.51	0.35	0.35	-0.08	-0.22	-0.19	
3556085	MC	6705	0.58	0.35	-0.11	-0.23	0.35	-0.15	
3556409	MC	6705	0.53	0.45	-0.19	-0.33	0.45	-0.04	
100000029777	SR	6705	1.49	0.58	19	11	69		0

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000029786	SR	6705	1.35	0.46	17	31	52		0
100000102378	SR	6705	1.46	0.43	10	34	56		0
100000102445	SR	6705	1.35	0.59	19	26	55		0
100000102449	SR	6705	1.10	0.57	32	26	42		0

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CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000008365	MC	6698	0.57	0.50	-0.37	0.50	-0.17	-0.14	
100000008366	MC	6698	0.55	0.44	-0.31	-0.18	0.44	-0.13	
100000008375	MC	6698	0.56	0.32	-0.16	-0.24	-0.04	0.32	
100000008395	MC	6698	0.55	0.36	0.36	-0.24	-0.24	-0.12	
100000008399	MC	6698	0.84	0.26	-0.10	-0.14	-0.18	0.26	
100000008418	MC	6698	0.72	0.52	-0.26	-0.26	0.52	-0.28	
100000008438	MC	6698	0.90	0.35	-0.15	-0.22	0.35	-0.21	
100000008700	MC	6698	0.63	0.49	-0.32	-0.25	0.49	-0.13	
100000008702	MC	6698	0.78	0.46	-0.30	-0.18	-0.25	0.46	
100000032128	MC	6698	0.69	0.49	-0.33	0.49	-0.21	-0.21	
100000102473	MC	6698	0.42	0.37	-0.23	-0.09	0.37	-0.23	
100000102489	MC	6698	0.61	0.37	-0.38	0.37	-0.06	-0.05	
100000102501	MC	6698	0.71	0.52	0.52	-0.16	-0.35	-0.29	
100000274392	MC	6698	0.58	0.43	-0.14	-0.18	-0.29	0.43	
100000274397	MC	6698	0.72	0.46	-0.29	-0.33	-0.04	0.46	
100000274398	MC	6698	0.55	0.51	-0.18	-0.33	0.51	-0.18	
100000274407	MC	6698	0.76	0.49	-0.29	-0.14	-0.32	0.49	
100000274420	MC	6698	0.73	0.45	-0.27	0.45	-0.23	-0.20	
100000274428	MC	6698	0.80	0.45	0.45	-0.15	-0.21	-0.34	
100000274433	MC	6698	0.69	0.24	0.24	-0.15	-0.20	-0.09	
100000274434	MC	6698	0.73	0.28	-0.14	-0.27	0.28	-0.09	
100000274435	MC	6698	0.78	0.43	0.43	-0.34	-0.18	-0.14	
100000274444	MC	6698	0.56	0.33	-0.14	-0.23	-0.22	0.33	
100000427692	MC	6698	0.58	0.55	-0.39	0.55	-0.29	-0.07	
100000427693	MC	6698	0.68	0.48	0.48	-0.18	-0.36	-0.21	
100000427701	MC	6698	0.64	0.44	-0.31	0.44	-0.24	-0.09	
100000427704	MC	6698	0.49	0.43	-0.24	0.43	-0.12	-0.24	
100000427720	MC	6698	0.67	0.35	-0.19	-0.21	0.35	-0.17	
100000427726	MC	6698	0.62	0.41	-0.25	0.41	-0.24	-0.15	
100000427738	MC	6698	0.61	0.56	0.56	-0.19	-0.43	-0.20	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000427747	MC	6698	0.70	0.33	-0.21	-0.13	-0.18	0.33	
100000427750	MC	6698	0.74	0.52	0.52	-0.38	-0.20	-0.20	
100000427752	MC	6698	0.83	0.41	-0.24	-0.26	-0.22	0.41	
100000427755	MC	6698	0.76	0.43	-0.24	0.43	-0.26	-0.19	
3337183	MC	6698	0.55	0.51	0.51	-0.24	-0.15	-0.32	
3337184	MC	6698	0.76	0.43	0.43	-0.21	-0.25	-0.23	
3337197	MC	6698	0.59	0.45	-0.21	-0.25	0.45	-0.18	
3337212	MC	6698	0.73	0.48	-0.24	-0.27	-0.24	0.48	
3337243	MC	6698	0.74	0.34	-0.21	0.34	-0.23	-0.11	
3337407	MC	6698	0.57	0.41	-0.13	-0.17	0.41	-0.27	
3337458	MC	6698	0.60	0.42	-0.25	-0.18	0.42	-0.22	
3337707	MC	6698	0.69	0.49	-0.23	0.49	-0.30	-0.24	
3376499	MC	6698	0.69	0.31	-0.17	-0.20	0.31	-0.13	
3376501	MC	6698	0.54	0.26	0.26	-0.10	-0.13	-0.23	
3415168	MC	6698	0.67	0.48	-0.12	0.48	-0.35	-0.22	
3415188	MC	6698	0.60	0.34	-0.23	-0.20	-0.12	0.34	
3415194	MC	6698	0.67	0.52	-0.30	-0.31	-0.19	0.52	
3415322	MC	6698	0.78	0.34	0.34	-0.20	-0.17	-0.18	
3508707	MC	6698	0.71	0.36	-0.23	-0.19	0.36	-0.14	
3508718	MC	6698	0.69	0.29	-0.19	0.29	-0.16	-0.09	
3508721	MC	6698	0.40	0.38	0.38	-0.16	-0.22	-0.19	
3508723	MC	6698	0.76	0.52	-0.37	0.52	-0.24	-0.19	
3508737	MC	6698	0.69	0.50	-0.19	0.50	-0.31	-0.27	
3508757	MC	6698	0.55	0.43	-0.22	-0.25	0.43	-0.14	
3558672	MC	6698	0.73	0.45	-0.26	-0.21	-0.23	0.45	
100000032138	SR	6698	1.17	0.56	18	47	35		0
100000102468	SR	6698	1.45	0.64	13	29	58		0
100000102505	SR	6698	0.93	0.62	35	37	28		0
3415189	SR	6698	1.33	0.56	20	26	53		0
3415206	SR	6698	1.48	0.50	19	13	67		0

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CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000008876	MC	6719	0.31	0.29	-0.04	0.29	-0.19	-0.09	
100000008882	MC	6719	0.49	0.38	0.38	-0.21	-0.22	-0.09	
100000008889	MC	6719	0.54	0.46	-0.32	-0.30	0.46	0.06	
100000008890	MC	6719	0.45	0.36	-0.06	0.36	-0.30	-0.18	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000008929	MC	6719	0.72	0.31	-0.19	0.31	-0.17	-0.13	
100000030531	MC	6719	0.57	0.34	-0.30	-0.11	0.34	-0.04	
100000030535	MC	6719	0.74	0.29	0.29	-0.24	-0.16	-0.10	
100000030543	MC	6719	0.53	0.42	-0.24	0.42	-0.21	-0.19	
100000030551	MC	6719	0.56	0.34	-0.15	0.34	-0.20	-0.13	
100000030557	MC	6719	0.60	0.40	-0.19	0.40	-0.24	-0.14	
100000102516	MC	6719	0.55	0.34	-0.08	0.34	-0.26	-0.12	
100000102519	MC	6719	0.47	0.44	-0.14	0.44	-0.24	-0.24	
100000102527	MC	6719	0.77	0.41	0.41	-0.22	-0.21	-0.22	
100000102528	MC	6719	0.78	0.34	0.34	-0.18	-0.22	-0.16	
100000169299	MC	6719	0.45	0.38	-0.15	0.38	-0.19	-0.22	
100000274511	MC	6719	0.56	0.36	-0.29	0.36	-0.08	-0.13	
100000274513	MC	6719	0.64	0.52	-0.24	-0.29	0.52	-0.25	
100000274515	MC	6719	0.50	0.39	-0.23	-0.07	-0.26	0.39	
100000274521	MC	6719	0.56	0.45	0.45	-0.39	-0.19	-0.09	
100000274543	MC	6719	0.52	0.43	-0.26	-0.16	0.43	-0.18	
100000274545	MC	6719	0.65	0.57	-0.25	-0.14	0.57	-0.42	
100000274546	MC	6719	0.50	0.54	-0.42	-0.24	0.54	-0.10	
100000274553	MC	6719	0.55	0.41	-0.16	0.41	-0.21	-0.23	
100000274557	MC	6719	0.50	0.58	-0.27	-0.14	-0.35	0.58	
100000274567	MC	6719	0.42	0.42	0.42	-0.17	-0.15	-0.22	
100000274575	MC	6719	0.63	0.57	-0.33	-0.33	0.57	-0.16	
100000274588	MC	6719	0.43	0.40	-0.40	0.40	-0.10	0.05	
100000427202	MC	6719	0.62	0.32	0.32	-0.17	-0.21	-0.14	
100000427461	MC	6719	0.70	0.53	0.53	-0.26	-0.36	-0.18	
100000427486	MC	6719	0.63	0.51	-0.30	-0.15	-0.32	0.51	
100000427490	MC	6719	0.70	0.37	-0.18	-0.25	0.37	-0.12	
100000427492	MC	6719	0.53	0.31	-0.06	-0.16	-0.23	0.31	
100000427494	MC	6719	0.81	0.43	-0.30	-0.19	0.43	-0.20	
3337269	MC	6719	0.51	0.46	-0.28	-0.21	0.46	-0.13	
3339583	MC	6719	0.50	0.44	0.44	-0.21	-0.16	-0.22	
3339585	MC	6719	0.65	0.51	-0.19	-0.36	-0.19	0.51	
3339667	MC	6719	0.73	0.41	0.41	-0.23	-0.24	-0.18	
3340404	MC	6719	0.44	0.47	-0.24	-0.24	0.47	-0.15	
3340733	MC	6719	0.45	0.42	0.42	-0.17	-0.16	-0.22	
3340995	MC	6719	0.67	0.35	-0.20	-0.14	-0.21	0.35	
3341639	MC	6719	0.42	0.46	-0.25	0.46	-0.25	-0.06	
3414984	MC	6719	0.54	0.42	-0.17	-0.25	-0.19	0.42	
3415309	MC	6719	0.64	0.35	0.35	-0.10	-0.25	-0.23	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
3415324	MC	6719	0.68	0.43	-0.37	-0.14	0.43	-0.12	
3415511	MC	6719	0.52	0.56	-0.31	-0.30	-0.19	0.56	
3415513	MC	6719	0.60	0.43	-0.23	-0.21	-0.18	0.43	
3415525	MC	6719	0.89	0.39	0.39	-0.26	-0.19	-0.21	
3415527	MC	6719	0.62	0.48	-0.28	0.48	-0.28	-0.15	
3415533	MC	6719	0.58	0.45	-0.21	-0.28	0.45	-0.18	
3415537	MC	6719	0.73	0.44	-0.35	-0.19	-0.13	0.44	
3508695	MC	6719	0.43	0.36	-0.10	-0.05	-0.31	0.36	
3508889	MC	6719	0.61	0.41	-0.15	-0.27	0.41	-0.21	
3508904	MC	6719	0.59	0.52	-0.21	-0.34	-0.22	0.52	
3508920	MC	6719	0.45	0.39	-0.15	-0.18	-0.18	0.39	
3556420	MC	6719	0.72	0.54	-0.25	0.54	-0.37	-0.20	
3558673	MC	6719	0.50	0.52	-0.25	-0.23	-0.23	0.52	
100000274548	SR	6719	1.12	0.57	32	23	44		0
100000274560	SR	6719	1.67	0.46	12	8	79		0
100000274585	SR	6719	0.67	0.63	56	21	23		0
100000274593	SR	6719	0.87	0.60	46	16	36		2
3459553	SR	6719	0.58	0.56	60	16	21		2

Grade 8 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000008450	MC	6643	0.59	0.49	-0.11	0.49	-0.16	-0.39	
100000008451	MC	6643	0.47	0.31	-0.12	-0.19	0.31	-0.10	
100000008461	MC	6643	0.56	0.56	-0.36	-0.29	0.56	-0.09	
100000008463	MC	6643	0.48	0.30	0.30	-0.15	-0.13	-0.15	
100000008469	MC	6643	0.50	0.31	-0.16	0.31	-0.20	-0.12	
100000008485	MC	6643	0.64	0.45	0.45	-0.20	-0.27	-0.21	
100000008491	MC	6643	0.67	0.32	-0.09	-0.20	0.32	-0.21	
100000008494	MC	6643	0.54	0.25	-0.19	-0.14	-0.03	0.25	
100000008519	MC	6643	0.64	0.49	0.49	-0.31	-0.24	-0.18	
100000026508	MC	6643	0.62	0.34	-0.18	-0.14	-0.18	0.34	
100000026511	MC	6643	0.69	0.46	-0.21	0.46	-0.31	-0.17	
100000026516	MC	6643	0.55	0.27	-0.19	-0.12	0.27	-0.09	
100000026531	MC	6643	0.72	0.39	-0.23	0.39	-0.24	-0.11	
100000026549	MC	6643	0.65	0.52	-0.24	-0.29	-0.26	0.52	
100000026550	MC	6643	0.60	0.54	-0.25	-0.33	0.54	-0.20	
100000103190	MC	6643	0.54	0.46	-0.22	0.46	-0.16	-0.26	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000273004	MC	6643	0.43	0.41	-0.18	0.41	-0.11	-0.26	
100000273007	MC	6643	0.53	0.33	-0.28	-0.15	0.33	-0.04	
100000273012	MC	6643	0.59	0.53	0.53	-0.40	-0.20	-0.13	
100000273017	MC	6643	0.31	0.43	0.43	-0.12	-0.32	0.01	
100000273019	MC	6643	0.63	0.48	-0.20	-0.30	0.48	-0.22	
100000273031	MC	6643	0.53	0.39	-0.20	-0.27	0.39	-0.18	
100000273047	MC	6643	0.51	0.38	-0.13	-0.26	0.38	-0.13	
100000273050	MC	6643	0.81	0.41	-0.20	0.41	-0.28	-0.19	
100000273062	MC	6643	0.52	0.36	-0.37	0.36	0.03	-0.18	
100000425582	MC	6643	0.51	0.23	-0.23	-0.20	-0.03	0.23	
100000425587	MC	6643	0.47	0.35	0.35	-0.18	-0.22	-0.12	
100000425600	MC	6643	0.55	0.43	-0.15	-0.22	-0.23	0.43	
100000425790	MC	6643	0.59	0.48	-0.17	-0.17	0.48	-0.34	
100000425796	MC	6643	0.35	0.31	-0.18	0.31	-0.14	-0.01	
100000425798	MC	6643	0.46	0.39	-0.03	0.39	-0.18	-0.31	
100000426919	MC	6643	0.57	0.54	-0.31	-0.31	-0.16	0.54	
100000426920	MC	6643	0.50	0.53	0.53	-0.25	-0.31	-0.16	
100000426931	MC	6643	0.54	0.42	-0.18	0.42	-0.20	-0.20	
100000470398	MC	6643	0.29	0.52	-0.26	-0.02	-0.24	0.52	
3340315	MC	6643	0.61	0.34	-0.19	-0.17	0.34	-0.17	
3340765	MC	6643	0.49	0.57	0.57	-0.16	-0.23	-0.36	
3376932	MC	6643	0.58	0.43	-0.19	-0.17	-0.29	0.43	
3416633	MC	6643	0.63	0.45	0.45	-0.23	-0.24	-0.19	
3416635	MC	6643	0.58	0.41	0.41	-0.14	-0.23	-0.24	
3417171	MC	6643	0.47	0.52	-0.16	-0.21	-0.30	0.52	
3417174	MC	6643	0.69	0.30	-0.14	-0.16	-0.19	0.30	
3417180	MC	6643	0.59	0.34	-0.37	0.34	-0.14	-0.04	
3417204	MC	6643	0.57	0.44	-0.27	-0.22	-0.15	0.44	
3417206	MC	6643	0.69	0.32	0.32	-0.23	-0.10	-0.16	
3425527	MC	6643	0.50	0.29	-0.23	-0.12	-0.10	0.29	
3431491	MC	6643	0.43	0.44	-0.19	-0.25	-0.13	0.44	
3431514	MC	6643	0.48	0.28	-0.19	0.28	-0.26	-0.04	
3509025	MC	6643	0.41	0.37	-0.16	-0.13	-0.17	0.37	
3509028	MC	6643	0.55	0.47	-0.19	-0.33	0.47	-0.12	
3509029	MC	6643	0.58	0.46	-0.22	-0.27	-0.20	0.46	
3509033	MC	6643	0.79	0.47	-0.29	0.47	-0.30	-0.13	
3509060	MC	6643	0.56	0.25	-0.05	-0.24	0.25	-0.07	
3510273	MC	6643	0.51	0.36	0.36	-0.18	-0.14	-0.20	
3512029	MC	6643	0.68	0.38	-0.21	-0.19	-0.18	0.38	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
3512914	MC	6643	0.40	0.37	0.04	-0.21	0.37	-0.27	
3512920	MC	6643	0.61	0.39	0.39	-0.23	-0.12	-0.21	
3512922	MC	6643	0.78	0.46	-0.11	-0.19	-0.38	0.46	
3514758	MC	6643	0.63	0.32	-0.21	0.32	-0.11	-0.23	
3549541	MC	6643	0.59	0.46	-0.20	0.46	-0.27	-0.20	
100000008481	SR	6643	1.21	0.54	36	7	57		0
100000008514	SR	6643	1.06	0.65	25	40	33		2
100000273042	SR	6643	0.87	0.61	42	25	31		2
100000273061	SR	6643	0.87	0.59	44	22	33		1
3417213	SR	6643	0.92	0.60	45	16	38		1

Grade 11 Mathematics

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000008608	MC	7808	0.41	0.27	-0.19	-0.09	0.27	-0.11	
100000008621	MC	7808	0.40	0.34	-0.04	0.34	-0.24	-0.12	
100000008634	MC	7808	0.57	0.48	-0.26	-0.16	-0.26	0.48	
100000008639	MC	7808	0.44	0.56	0.56	-0.25	-0.13	-0.31	
100000008662	MC	7808	0.49	0.57	0.57	-0.21	-0.17	-0.37	
100000008670	MC	7808	0.24	0.31	-0.20	-0.21	0.31	0.11	
100000012387	MC	7808	0.48	0.44	-0.20	-0.19	-0.20	0.44	
100000012389	MC	7808	0.40	0.41	-0.25	0.41	-0.13	-0.12	
100000012393	MC	7808	0.53	0.46	-0.19	0.46	-0.31	-0.11	
100000026573	MC	7808	0.60	0.41	-0.25	0.41	-0.22	-0.12	
100000026606	MC	7808	0.52	0.53	-0.22	-0.27	0.53	-0.23	
100000026617	MC	7808	0.44	0.43	-0.07	-0.28	0.43	-0.20	
100000103066	MC	7808	0.60	0.47	-0.18	0.47	-0.26	-0.24	
100000103077	MC	7808	0.56	0.45	-0.20	-0.22	-0.21	0.45	
100000103107	MC	7808	0.51	0.30	-0.11	-0.12	-0.17	0.30	
100000272892	MC	7808	0.41	0.37	-0.12	0.37	-0.21	-0.14	
100000272893	MC	7808	0.38	0.38	0.38	-0.21	-0.15	-0.09	
100000272898	MC	7808	0.57	0.42	-0.18	-0.18	-0.24	0.42	
100000272909	MC	7808	0.36	0.25	0.25	-0.06	-0.15	-0.09	
100000272960	MC	7808	0.39	0.55	0.55	-0.19	-0.22	-0.25	
100000425868	MC	7808	0.62	0.44	0.44	-0.20	-0.21	-0.24	
100000425871	MC	7808	0.27	0.36	0.36	-0.10	-0.16	-0.13	
100000425873	MC	7808	0.29	0.49	-0.21	-0.23	-0.12	0.49	
100000425906	MC	7808	0.68	0.31	-0.17	-0.19	-0.12	0.31	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000425917	MC	7808	0.45	0.47	-0.24	-0.27	0.47	-0.07	
100000425918	MC	7808	0.40	0.33	-0.11	-0.26	0.33	-0.03	
100000425921	MC	7808	0.51	0.41	-0.22	-0.23	0.41	-0.12	
100000426949	MC	7808	0.34	0.36	-0.13	0.36	-0.18	-0.10	
100000426953	MC	7808	0.72	0.42	-0.28	0.42	-0.20	-0.18	
100000426963	MC	7808	0.58	0.44	-0.19	-0.19	-0.24	0.44	
100000470028	MC	7808	0.43	0.44	0.44	-0.22	-0.23	-0.09	
3338078	MC	7808	0.37	0.51	-0.22	-0.22	-0.17	0.51	
3338098	MC	7808	0.59	0.36	-0.10	-0.32	0.36	-0.08	
3338128	MC	7808	0.59	0.31	-0.17	-0.23	0.31	-0.08	
3338157	MC	7808	0.47	0.38	-0.16	-0.20	0.38	-0.16	
3338164	MC	7808	0.70	0.33	-0.17	-0.19	0.33	-0.13	
3338189	MC	7808	0.36	0.29	-0.01	0.29	-0.21	-0.15	
3338198	MC	7808	0.46	0.44	-0.21	0.44	-0.23	-0.14	
3338203	MC	7808	0.54	0.42	0.42	-0.27	-0.17	-0.15	
3370356	MC	7808	0.39	0.38	-0.26	-0.23	0.38	0.04	
3416535	MC	7808	0.52	0.41	-0.21	-0.20	0.41	-0.16	
3416540	MC	7808	0.33	0.24	-0.09	0.24	-0.13	-0.08	
3416543	MC	7808	0.50	0.50	-0.13	-0.31	-0.22	0.50	
3416547	MC	7808	0.51	0.35	-0.17	-0.24	0.35	-0.07	
3416759	MC	7808	0.43	0.40	-0.22	-0.24	-0.07	0.40	
3416893	MC	7808	0.56	0.38	-0.22	-0.15	-0.17	0.38	
3416897	MC	7808	0.50	0.49	-0.18	-0.24	-0.24	0.49	
3417013	MC	7808	0.50	0.33	-0.20	0.33	-0.12	-0.18	
3417056	MC	7808	0.50	0.38	-0.14	-0.20	0.38	-0.17	
3417068	MC	7808	0.39	0.48	0.48	-0.25	-0.19	-0.15	
3417080	MC	7808	0.48	0.37	-0.12	0.37	-0.18	-0.23	
3431522	MC	7808	0.47	0.54	0.54	-0.28	-0.26	-0.16	
3457883	MC	7808	0.52	0.50	0.50	-0.23	-0.20	-0.26	
3457884	MC	7808	0.59	0.43	-0.20	0.43	-0.19	-0.23	
3457886	MC	7808	0.68	0.44	-0.15	0.44	-0.28	-0.22	
3457904	MC	7808	0.41	0.39	0.39	-0.24	-0.14	-0.12	
3457926	MC	7808	0.53	0.27	-0.10	-0.24	0.27	-0.01	
3509065	MC	7808	0.54	0.27	-0.04	-0.15	0.27	-0.17	
3509073	MC	7808	0.57	0.47	-0.17	-0.31	0.47	-0.18	
3509114	MC	7808	0.35	0.45	0.45	-0.12	-0.24	-0.19	
3509428	MC	7808	0.47	0.52	0.52	-0.18	-0.19	-0.30	
3510184	MC	7808	0.33	0.31	-0.20	-0.17	-0.04	0.31	
3513029	MC	7808	0.34	0.44	-0.16	-0.27	-0.15	0.44	

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)				
					0/A	1/B	2/C	D	Omit/ Inv
100000103115	SR	7808	0.65	0.68	52	21	22		5
100000272940	SR	7808	0.84	0.67	47	16	34		3
3416509	SR	7808	1.11	0.57	25	35	38		3
3417043	SR	7808	0.59	0.66	63	8	25		3
3431530	SR	7808	0.42	0.68	65	9	16		9

Grade 4 Science

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000031577	MC	6747	0.59	0.39	-0.11	0.39	-0.26	-0.17		
100000031579	MC	6747	0.88	0.32	-0.18	-0.20	0.32	-0.18		
100000031582	MC	6747	0.68	0.35	-0.19	-0.18	-0.20	0.35		
100000033306	MC	6747	0.73	0.40	-0.25	0.40	-0.20	-0.18		
100000033308	MC	6747	0.47	0.39	-0.12	-0.20	0.39	-0.19		
100000033310	MC	6747	0.72	0.44	-0.21	-0.24	-0.26	0.44		
100000113005	MC	6747	0.71	0.46	-0.27	0.46	-0.26	-0.19		
100000113006	MC	6747	0.78	0.33	-0.16	-0.18	0.33	-0.17		
100000113009	MC	6747	0.66	0.33	-0.29	-0.10	-0.20	0.33		
100000278741	MC	6747	0.63	0.45	-0.19	0.45	-0.24	-0.25		
100000278744	MC	6747	0.45	0.34	-0.11	0.34	-0.17	-0.17		
100000278745	MC	6747	0.37	0.36	-0.16	-0.17	-0.09	0.36		
100000278913	MC	6747	0.61	0.34	-0.20	-0.24	-0.14	0.34		
100000278917	MC	6747	0.59	0.44	-0.22	-0.22	0.44	-0.20		
100000278919	MC	6747	0.67	0.31	0.31	-0.13	-0.15	-0.19		
100000278926	MC	6747	0.50	0.38	0.38	-0.16	-0.19	-0.15		
100000278927	MC	6747	0.59	0.34	-0.13	0.34	-0.10	-0.25		
100000278928	MC	6747	0.80	0.45	-0.23	-0.29	0.45	-0.20		
100000424511	MC	6747	0.69	0.42	0.42	-0.24	-0.18	-0.23		
100000424513	MC	6747	0.92	0.24	-0.15	-0.15	-0.11	0.24		
100000424514	MC	6747	0.43	0.30	-0.24	-0.16	-0.05	0.30		
100000440890	MC	6747	0.88	0.33	-0.15	-0.23	0.33	-0.19		
100000440893	MC	6747	0.59	0.25	-0.12	-0.11	-0.12	0.25		
100000440894	MC	6747	0.54	0.36	0.36	-0.18	-0.21	-0.19		
100000440899	MC	6747	0.73	0.31	0.31	-0.09	-0.16	-0.23		
100000440903	MC	6747	0.70	0.31	-0.22	-0.13	0.31	-0.15		
100000440904	MC	6747	0.86	0.38	-0.28	-0.18	0.38	-0.15		
100000440909	MC	6747	0.53	0.39	0.39	-0.22	-0.13	-0.18		
100000440910	MC	6747	0.50	0.34	-0.14	-0.17	0.34	-0.15		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000440912	MC	6747	0.50	0.37	-0.12	-0.19	0.37	-0.19		
3517047	MC	6747	0.95	0.22	0.22	-0.15	-0.13	-0.10		
3528050	MC	6747	0.50	0.39	-0.11	0.39	-0.12	-0.29		
3528053	MC	6747	0.90	0.35	-0.25	0.35	-0.14	-0.18		
3528056	MC	6747	0.77	0.44	-0.20	0.44	-0.31	-0.19		
3537171	MC	6747	0.69	0.42	0.42	-0.14	-0.28	-0.20		
3547721	MC	6747	0.67	0.29	-0.21	0.29	-0.03	-0.24		
100000278743	SR	6747	1.29	0.47	26	18	56			0
100000278916	ER	6747	1.55	0.66	23	27	26	18	6	0
100000440901	ER	6747	1.69	0.56	19	31	18	18	12	2
3517056	ER	6747	1.21	0.44	39	25	18	10	7	0

Grade 8 Science

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000113682	MC	6619	0.55	0.38	0.38	-0.18	-0.15	-0.25		
100000113685	MC	6619	0.66	0.33	-0.14	-0.24	0.33	-0.13		
100000113686	MC	6619	0.61	0.42	-0.21	-0.21	0.42	-0.22		
100000120218	MC	6619	0.76	0.41	-0.17	-0.15	-0.31	0.41		
100000120220	MC	6619	0.80	0.31	0.31	-0.18	-0.18	-0.18		
100000120222	MC	6619	0.79	0.29	-0.20	0.29	-0.06	-0.18		
100000278733	MC	6619	0.63	0.38	0.38	-0.16	-0.21	-0.18		
100000278735	MC	6619	0.59	0.47	0.47	-0.18	-0.26	-0.22		
100000278738	MC	6619	0.43	0.28	0.28	-0.23	-0.00	-0.17		
100000278806	MC	6619	0.53	0.42	-0.23	-0.22	-0.13	0.42		
100000278809	MC	6619	0.41	0.25	-0.15	0.25	-0.15	-0.00		
100000278811	MC	6619	0.39	0.56	0.56	-0.15	-0.22	-0.39		
100000278862	MC	6619	0.54	0.46	-0.18	-0.15	-0.30	0.46		
100000278863	MC	6619	0.55	0.33	-0.21	-0.07	-0.27	0.33		
100000278864	MC	6619	0.69	0.45	0.45	-0.24	-0.27	-0.19		
100000424618	MC	6619	0.33	0.36	-0.12	-0.15	-0.15	0.36		
100000424620	MC	6619	0.63	0.47	-0.29	-0.24	0.47	-0.20		
100000424624	MC	6619	0.56	0.45	0.45	-0.20	-0.26	-0.19		
100000424652	MC	6619	0.50	0.33	-0.15	0.33	-0.20	-0.09		
100000424654	MC	6619	0.34	0.42	-0.14	-0.26	0.42	-0.09		
100000424657	MC	6619	0.43	0.24	-0.18	-0.07	0.24	-0.04		
100000440923	MC	6619	0.66	0.50	-0.19	-0.22	-0.32	0.50		
100000440924	MC	6619	0.58	0.36	0.36	-0.20	-0.23	-0.12		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000440927	MC	6619	0.31	0.27	-0.02	0.27	-0.14	-0.14		
100000440933	MC	6619	0.49	0.37	-0.08	-0.12	0.37	-0.30		
100000462513	MC	6619	0.59	0.28	0.28	-0.24	-0.17	-0.06		
100000462515	MC	6619	0.46	0.47	-0.11	-0.31	-0.25	0.47		
100000462517	MC	6619	0.51	0.32	-0.22	-0.06	0.32	-0.20		
100000462524	MC	6619	0.53	0.43	-0.15	0.43	-0.28	-0.20		
100000462528	MC	6619	0.67	0.37	-0.16	-0.19	0.37	-0.23		
100000482660	MC	6619	0.88	0.38	-0.22	-0.19	-0.22	0.38		
100000482662	MC	6619	0.61	0.25	-0.04	0.25	-0.17	-0.18		
100000482663	MC	6619	0.57	0.40	-0.19	-0.20	-0.18	0.40		
3521149	MC	6619	0.44	0.27	-0.22	-0.13	0.27	-0.11		
3521151	MC	6619	0.66	0.43	-0.16	0.43	-0.22	-0.28		
3521152	MC	6619	0.77	0.40	-0.23	0.40	-0.21	-0.20		
100000278805	SR	6619	0.85	0.60	35	40	22			3
100000113680	ER	6619	1.39	0.66	31	24	23	11	9	2
100000120217	ER	6619	0.81	0.53	51	20	14	5	5	5
100000482667	ER	6619	2.02	0.49	2	22	55	12	9	1

Grade 11 Science

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000035013	MC	5806	0.54	0.39	-0.25	0.39	-0.18	-0.09		
100000035016	MC	5806	0.73	0.50	-0.26	-0.23	-0.29	0.50		
100000035018	MC	5806	0.40	0.40	0.40	-0.28	-0.18	-0.04		
100000119925	MC	5806	0.73	0.47	-0.23	-0.29	-0.23	0.47		
100000119929	MC	5806	0.70	0.52	-0.30	-0.28	0.52	-0.23		
100000119931	MC	5806	0.60	0.49	-0.21	-0.24	-0.24	0.49		
100000278461	MC	5806	0.66	0.47	0.47	-0.27	-0.28	-0.18		
100000278464	MC	5806	0.48	0.37	-0.18	-0.13	-0.18	0.37		
100000278466	MC	5806	0.89	0.43	-0.20	-0.24	0.43	-0.27		
100000278527	MC	5806	0.83	0.48	-0.26	0.48	-0.30	-0.23		
100000278532	MC	5806	0.66	0.45	-0.25	0.45	-0.22	-0.21		
100000278534	MC	5806	0.50	0.35	0.35	-0.12	-0.17	-0.18		
100000278550	MC	5806	0.69	0.33	-0.17	0.33	-0.23	-0.15		
100000278554	MC	5806	0.46	0.26	-0.23	0.26	-0.21	0.01		
100000278555	MC	5806	0.41	0.42	0.42	-0.16	-0.27	-0.09		
100000278895	MC	5806	0.71	0.37	-0.15	-0.26	0.37	-0.19		
100000278898	MC	5806	0.35	0.24	-0.13	0.24	-0.04	-0.15		

CID	Type	N	Mean	Item-Test Corr	Percent Achieving Score (CR)/ Option Discrimination (MC)					
					0/A	1/B	2/C	3/D	4	Omit/ Inv
100000278899	MC	5806	0.44	0.43	-0.15	0.43	-0.19	-0.21		
100000424717	MC	5806	0.41	0.41	0.41	-0.09	-0.22	-0.18		
100000424720	MC	5806	0.38	0.34	-0.15	-0.15	-0.12	0.34		
100000424721	MC	5806	0.50	0.36	0.36	-0.26	-0.12	-0.20		
100000440869	MC	5806	0.71	0.38	-0.22	-0.28	0.38	-0.15		
100000440871	MC	5806	0.52	0.48	-0.24	0.48	-0.26	-0.16		
100000440873	MC	5806	0.58	0.41	-0.26	-0.22	-0.18	0.41		
100000440983	MC	5806	0.46	0.47	0.47	-0.17	-0.28	-0.16		
100000440986	MC	5806	0.52	0.42	-0.23	-0.19	0.42	-0.15		
100000440987	MC	5806	0.56	0.37	-0.14	0.37	-0.24	-0.13		
3515001	MC	5806	0.73	0.42	-0.22	-0.19	-0.24	0.42		
3515003	MC	5806	0.82	0.36	-0.17	-0.17	0.36	-0.24		
3515009	MC	5806	0.56	0.38	0.38	-0.17	-0.20	-0.20		
3525234	MC	5806	0.71	0.32	-0.14	-0.19	0.32	-0.18		
3525358	MC	5806	0.64	0.39	-0.16	-0.24	0.39	-0.21		
3525363	MC	5806	0.51	0.44	0.44	-0.15	-0.27	-0.17		
3526904	MC	5806	0.69	0.37	-0.19	0.37	-0.29	-0.08		
3526908	MC	5806	0.61	0.25	-0.16	-0.20	-0.03	0.25		
3526910	MC	5806	0.69	0.32	-0.23	0.32	-0.24	-0.02		
100000035012	SR	5806	1.09	0.59	32	22	43			3
100000119927	ER	5806	2.39	0.63	8	9	31	25	23	4
100000424715	ER	5806	1.03	0.67	50	20	10	4	13	3
3525368	ER	5806	1.59	0.53	27	18	25	18	9	3

APPENDIX J—SCALE SCORE DESCRIPTIVE STATISTICS BY DEMOGRAPHIC SUBGROUP

Reading—All Examinees

Grade	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	7128	604.07	47.32	666	638	606	575	540	63
04	6837	680.32	50.30	739	714	678	649	618	65
05	6788	676.34	46.85	736	707	678	645	613	62
06	6807	692.20	43.21	748	721	695	664	634	57
07	6829	693.57	43.70	745	724	696	664	635	60
08	6775	706.80	43.41	757	738	708	676	647	62
10	3640	165.28	14.39	184	175	165	156	146	19
11	3694	162.68	15.32	182	173	162	152	143	21

Reading—Gender

Grade	Gender	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	Female	3453	608.13	46.35	666	638	611	579	545	59
	Male	3675	600.26	47.91	658	632	602	571	536	61
04	Female	3299	683.84	49.67	749	714	684	654	622	60
	Male	3538	677.04	50.66	739	707	678	645	613	62
05	Female	3314	682.39	46.74	745	713	683	654	622	59
	Male	3474	670.58	46.23	728	700	673	640	608	60
06	Female	3247	697.44	42.11	748	727	700	668	643	59
	Male	3560	687.42	43.66	740	716	690	660	630	56
07	Female	3263	700.43	42.95	752	729	701	672	643	57
	Male	3566	687.29	43.44	740	719	688	660	630	59
08	Female	3289	713.33	43.48	768	742	716	684	656	58
	Male	3486	700.63	42.44	752	729	704	672	643	57
10	Female	1785	167.03	14.08	184	176	167	158	149	18
	Male	1855	163.60	14.48	182	173	164	155	144	18
11	Female	1741	164.56	15.16	184	175	165	153	146	22
	Male	1953	161.00	15.26	180	171	161	150	143	21

Reading—Free/Reduced Lunch

Grade	Free or Reduced Lunch	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	Free	2166	586.35	45.67	644	616	588	558	526	58
	Reduced	731	599.44	44.25	658	632	602	567	540	65
	Not Free or Reduced	4231	613.94	45.87	666	644	616	584	554	60
04	Free	2084	661.95	48.12	721	695	663	631	599	64
	Reduced	682	676.40	48.07	739	707	678	645	613	62
	Not Free or Reduced	4071	690.38	49.00	749	721	689	659	631	62

Grade	Free or Reduced Lunch	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
05	Free	1981	658.09	45.40	720	689	658	626	598	63
	Reduced	716	671.36	46.97	728	707	673	640	613	67
	Not Free or Reduced	4091	686.05	44.70	745	713	689	658	626	55
06	Free	1900	675.75	40.92	727	705	677	647	621	58
	Reduced	683	683.91	40.41	734	710	686	655	630	55
	Not Free or Reduced	4224	700.93	42.23	755	727	700	672	647	55
07	Free	1901	676.28	42.32	729	705	676	648	621	57
	Reduced	654	689.69	40.59	740	719	692	664	635	55
	Not Free or Reduced	4274	701.85	42.43	752	729	705	676	648	53
08	Free	1771	688.56	41.23	742	720	688	660	633	60
	Reduced	674	700.23	42.27	752	729	704	672	643	57
	Not Free or Reduced	4330	715.28	41.97	768	742	716	688	660	54
10	Free	760	158.61	14.14	176	168	158	149	141	19
	Reduced	310	163.05	12.63	179	171	164	155	146	16
	Not Free or Reduced	2570	167.52	14.01	184	176	168	159	150	17
11	Free	803	156.87	14.23	176	167	156	147	139	20
	Reduced	243	160.15	14.24	178	170	159	149	141	21
	Not Free or Reduced	2648	164.67	15.25	184	175	165	155	144	20

Reading—IEP

Grade	IEP	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	No	6080	610.34	44.25	666	638	611	579	554	59
	Yes	1048	567.72	48.18	632	602	567	531	504	71
04	No	5810	687.86	46.32	749	714	689	659	631	55
	Yes	1027	637.68	50.64	707	673	631	604	572	69
05	No	5821	684.00	42.69	736	713	683	654	626	59
	Yes	967	630.24	44.25	689	658	626	598	578	60
06	No	5860	699.15	39.57	748	727	700	672	647	55
	Yes	947	649.16	39.80	705	672	647	621	603	51
07	No	5927	700.31	40.04	752	729	701	672	648	57
	Yes	902	649.23	40.74	696	676	648	621	594	55
08	No	5881	714.04	39.64	763	742	716	688	660	54
	Yes	894	659.11	36.43	708	684	656	633	617	51
10	No	3286	166.96	13.54	184	176	167	158	150	18
	Yes	354	149.72	12.62	167	158	149	141	136	17
11	No	3189	164.69	14.70	184	175	165	155	146	20
	Yes	505	149.94	12.76	165	158	150	143	134	15

Reading—Ethnicity

Grade	Ethnicity	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	Asian	93	610.27	42.71	658	644	616	584	549	60
	African American	105	598.61	48.39	658	632	602	571	531	61
	Hispanic	920	587.61	45.02	644	616	591	558	526	58
	Native American	325	570.99	46.89	626	602	571	540	510	62
	Hawaiian / Pacific Islander	20	605.15	48.44	660	638	606	584	528	54
	Caucasian	5659	608.66	46.39	666	638	611	579	549	59
04	Asian	78	694.08	47.71	762	721	689	668	636	53
	African American	109	660.51	46.71	714	695	663	627	599	68
	Hispanic	904	660.78	44.67	714	689	663	631	604	58
	Native American	293	649.95	49.86	714	684	654	618	578	66
	Hawaiian / Pacific Islander	21	657.00	49.31	707	701	659	622	594	79
	Caucasian	5427	685.53	49.79	749	714	684	654	622	60
05	Asian	77	695.68	43.45	745	728	694	663	635	65
	African American	117	659.46	44.71	713	689	663	631	588	58
	Hispanic	889	659.94	46.21	720	694	658	626	598	68
	Native American	294	645.83	43.69	700	673	645	613	588	60
	Hawaiian / Pacific Islander	16	655.06	41.89	707	683	666	617	598	66
	Caucasian	5385	680.89	45.86	736	713	683	649	617	64
06	Asian	80	704.74	44.23	755	734	705	675	647	60
	African American	129	680.26	37.86	727	710	681	651	634	59
	Hispanic	873	679.87	40.17	734	705	681	651	626	54
	Native American	274	672.61	40.02	721	700	677	643	617	57
	Hawaiian / Pacific Islander	19	698.16	58.00	784	748	705	639	626	109
	Caucasian	5431	695.25	43.22	748	721	695	668	639	53
07	Asian	81	707.59	48.14	758	745	714	676	652	69
	African American	107	679.70	40.79	729	710	684	652	621	58
	Hispanic	847	678.94	41.69	734	710	680	652	621	58
	Native American	262	668.69	42.27	724	696	668	643	611	53
	Hawaiian / Pacific Islander	11	698.64	47.58	745	740	705	664	656	76
	Caucasian	5514	697.08	43.13	752	729	701	668	639	61
08	Asian	69	715.97	41.04	768	747	720	684	651	63
	African American	110	692.63	40.30	738	725	696	660	638	65
	Hispanic	846	695.00	41.29	747	720	696	664	643	56
	Native American	289	686.72	40.37	738	716	684	660	638	56
	Hawaiian / Pacific Islander	19	690.89	41.01	747	725	684	672	633	53
	Caucasian	5433	709.93	43.34	763	738	712	680	651	58

Grade	Ethnicity	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
10	Asian	61	171.57	14.82	189	182	173	162	153	20
	African American	69	157.94	14.94	175	167	158	147	137	20
	Hispanic	437	160.94	13.80	178	170	162	152	144	18
	Native American	176	157.55	14.78	176	167	159	147	137	20
	Hawaiian / Pacific Islander	5	173.20	20.17	194	194	168	161	149	33
	Caucasian	2888	166.47	14.05	184	176	167	158	149	18
11	Asian	39	167.59	16.14	191	180	168	155	144	25
	African American	52	156.35	17.36	180	167	156	144	136	24
	Hispanic	395	158.26	14.79	178	168	158	149	139	19
	Native American	101	157.02	12.88	175	165	156	147	141	18
	Hawaiian / Pacific Islander	5	160.00	10.20	176	164	156	152	152	12
	Caucasian	3092	163.49	15.24	184	175	164	153	144	22

Reading—English Language Learner

Grade	English Language Learner	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	No	6794	605.75	46.99	666	638	606	575	545	63
	Yes	334	570.00	40.57	621	597	571	540	515	57
04	No	6583	682.41	49.48	739	714	684	649	622	65
	Yes	254	626.25	40.22	678	654	622	599	572	55
05	No	6551	678.13	46.14	736	707	678	649	617	58
	Yes	237	626.83	38.39	683	649	626	603	578	46
06	No	6639	693.45	42.71	748	721	695	664	639	57
	Yes	168	642.76	33.05	690	664	641	617	603	47
07	No	6683	694.56	43.24	752	724	696	668	639	56
	Yes	146	647.92	40.31	701	676	652	616	600	60
08	No	6630	707.68	43.17	763	738	712	680	647	58
	Yes	145	666.46	34.86	716	688	664	643	623	45
10	No	3596	165.51	14.27	184	175	167	156	147	19
	Yes	44	146.75	11.54	161	154	146	140	136	14
11	No	3636	162.92	15.26	184	173	162	152	144	21
	Yes	58	147.52	10.04	161	155	148	141	134	14

Reading—Accommodation Status

Grade	Accommodated	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	No	6289	610.32	44.23	666	638	611	579	554	59
	Yes	839	557.21	43.23	616	588	558	526	504	62
04	No	5923	688.38	46.25	749	714	689	659	631	55
	Yes	914	628.09	43.79	684	659	627	599	572	60
05	No	5909	683.82	43.03	736	713	683	654	626	59
	Yes	879	626.07	40.01	678	649	626	598	578	51

Grade	Accommodated	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
06	No	5936	698.98	39.78	748	727	700	672	647	55
	Yes	871	645.97	36.87	695	668	643	621	603	47
07	No	5944	700.24	40.17	752	729	701	672	648	57
	Yes	885	648.73	39.89	696	676	648	621	600	55
08	No	5892	713.59	40.02	763	742	716	688	660	54
	Yes	883	661.45	37.57	712	688	656	633	617	55
10	No	3309	166.76	13.68	184	176	167	158	149	18
	Yes	331	150.53	12.88	168	159	149	143	136	16
11	No	3263	164.31	14.88	184	175	164	155	146	20
	Yes	431	150.34	12.68	165	158	150	143	134	15

Mathematics—All Examinees

Grade	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	7138	668.15	54.53	738	701	667	631	600	70
04	6838	668.56	51.44	731	700	666	632	606	68
05	6787	694.02	53.83	761	726	690	657	627	69
06	6816	715.53	55.16	790	750	712	676	648	74
07	6822	726.16	52.55	795	760	723	688	660	72
08	6774	737.59	49.52	802	770	735	701	678	69
10	3806	154.81	17.22	179	166	153	141	135	25
11	4081	151.23	17.13	176	160	148	139	132	21

Mathematics—Gender

Grade	Gender	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	Female	3456	666.58	54.04	738	701	667	631	600	70
	Male	3682	669.63	54.96	738	701	672	635	600	66
04	Female	3295	666.99	51.69	740	700	662	629	603	71
	Male	3543	670.01	51.18	731	705	670	636	606	69
05	Female	3315	693.65	53.37	761	726	690	657	627	69
	Male	3472	694.37	54.28	761	726	690	657	627	69
06	Female	3253	715.46	54.46	790	750	712	676	648	74
	Male	3563	715.59	55.79	790	750	712	673	645	77
07	Female	3261	726.68	52.14	795	760	723	688	663	72
	Male	3561	725.68	52.93	795	760	720	688	660	72
08	Female	3291	739.48	48.56	802	770	738	704	678	66
	Male	3483	735.80	50.36	798	767	732	698	675	69
10	Female	1859	154.23	16.30	176	165	153	141	135	24
	Male	1947	155.36	18.03	181	166	153	141	135	25
11	Female	2052	150.26	16.45	173	158	147	138	132	20
	Male	2029	152.21	17.75	177	162	148	139	134	23

Mathematics—Free/Reduced Lunch

Grade	Free or Reduced Lunch	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	Free	2175	649.61	52.99	717	682	650	614	582	68
	Reduced	732	663.80	51.62	726	701	662	628	603	73
	Not Free or Reduced	4231	678.44	53.18	753	708	677	642	614	66
04	Free	2084	651.18	47.78	717	682	649	619	593	63
	Reduced	682	665.36	50.00	731	700	662	629	603	71
	Not Free or Reduced	4072	677.98	51.12	740	711	678	642	616	69
05	Free	1979	674.67	49.13	736	705	673	641	612	64
	Reduced	716	689.63	53.31	754	722	690	654	624	68
	Not Free or Reduced	4092	704.14	53.44	777	736	701	666	637	70
06	Free	1905	694.29	49.30	755	727	692	658	634	69
	Reduced	686	705.92	50.65	774	740	704	667	645	73
	Not Free or Reduced	4225	726.66	55.26	800	761	724	689	658	72
07	Free	1898	705.17	47.62	767	736	701	671	651	65
	Reduced	654	721.28	48.94	785	752	717	685	660	67
	Not Free or Reduced	4270	736.24	52.32	808	771	732	698	671	73
08	Free	1767	716.73	41.85	774	743	713	685	667	58
	Reduced	676	731.59	46.40	793	760	729	700	675	60
	Not Free or Reduced	4331	747.04	50.14	813	777	746	713	685	64
10	Free	779	146.87	15.74	168	155	144	137	131	18
	Reduced	311	151.48	14.24	171	161	149	140	135	21
	Not Free or Reduced	2716	157.46	17.17	181	168	156	145	137	23
11	Free	875	145.21	13.44	165	152	141	137	131	15
	Reduced	284	148.76	15.59	170	156	147	138	131	18
	Not Free or Reduced	2922	153.27	17.80	179	163	150	140	134	23

Mathematics—IEP

Grade	IEP	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	No	6090	673.31	53.02	738	708	672	638	607	70
	Yes	1048	638.18	53.52	708	677	635	600	570	77
04	No	5813	674.63	49.20	740	705	674	639	613	66
	Yes	1025	634.10	50.32	700	666	629	600	569	66
05	No	5818	701.00	51.31	769	731	697	666	637	65
	Yes	969	652.09	49.44	717	680	644	616	596	64
06	No	5868	722.62	53.28	790	755	720	683	658	72
	Yes	948	671.65	45.47	732	699	664	638	623	61
07	No	5921	733.11	50.37	801	767	729	698	671	69
	Yes	901	680.49	42.81	742	704	674	651	633	53
08	No	5882	744.99	47.05	807	774	740	710	688	64
	Yes	892	688.77	35.81	738	710	682	663	649	47

Grade	IEP	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
10	No	3445	156.46	16.83	180	167	155	144	137	23
	Yes	361	138.99	12.05	150	143	137	132	128	11
11	No	3567	153.10	17.11	177	162	150	140	135	22
	Yes	514	138.27	10.40	150	143	137	132	129	11

Mathematics—Ethnicity

Grade	Ethnicity	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	Asian	94	677.28	60.13	753	717	675	631	603	86
	African American	105	659.27	55.34	738	694	658	624	582	70
	Hispanic	927	649.46	52.43	717	682	646	614	585	68
	Native American	325	630.62	54.73	694	667	628	593	557	74
	Hawaiian / Pacific Islander	20	685.95	61.57	746	738	698	654	585	84
	Caucasian	5661	673.34	53.14	738	708	672	638	607	70
04	Asian	79	691.08	52.49	761	724	690	652	623	72
	African American	109	647.81	51.49	717	678	652	613	578	65
	Hispanic	908	648.40	46.18	711	678	645	616	593	62
	Native American	290	641.38	46.55	700	674	639	610	578	64
	Hawaiian / Pacific Islander	21	634.48	57.76	695	682	632	596	574	86
	Caucasian	5426	673.60	51.01	740	705	674	639	610	66
05	Asian	77	721.22	58.72	814	754	713	676	650	78
	African American	117	671.34	47.08	736	701	666	631	616	70
	Hispanic	889	674.06	49.71	736	705	670	641	612	64
	Native American	293	662.47	49.14	722	694	660	627	604	67
	Hawaiian / Pacific Islander	16	672.13	38.30	731	696	666	639	627	57
	Caucasian	5385	699.22	53.28	769	731	697	663	634	68
06	Asian	81	735.60	56.47	790	774	736	702	676	72
	African American	129	690.26	50.01	761	720	680	654	634	66
	Hispanic	885	697.98	49.87	761	732	695	661	641	71
	Native American	273	690.12	47.27	750	724	689	651	634	73
	Hawaiian / Pacific Islander	19	710.26	65.41	812	740	705	670	623	70
	Caucasian	5428	720.00	55.30	790	755	716	680	651	75
07	Asian	81	753.20	58.24	823	795	760	704	663	91
	African American	107	697.57	46.37	767	717	695	660	643	57
	Hispanic	849	707.34	46.91	771	739	704	674	651	65
	Native American	260	696.53	44.30	752	720	691	663	643	57
	Hawaiian / Pacific Islander	11	724.91	45.07	780	771	720	685	678	86
	Caucasian	5508	730.67	52.42	801	763	726	691	667	72

Grade	Ethnicity	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
08	Asian	70	761.74	65.34	870	802	746	707	692	95
	African American	110	717.65	35.70	767	743	710	695	673	48
	Hispanic	845	721.19	42.91	777	749	718	688	671	61
	Native American	289	712.44	42.98	767	738	707	682	663	56
	Hawaiian / Pacific Islander	19	744.42	42.28	798	777	746	718	678	59
	Caucasian	5432	741.57	49.79	807	774	740	707	678	67
10	Asian	64	170.80	20.80	199	183	169	156	147	27
	African American	71	144.03	11.68	163	151	140	137	132	14
	Hispanic	439	148.52	15.70	169	156	146	138	132	18
	Native American	173	145.83	14.36	165	153	143	137	131	16
	Hawaiian / Pacific Islander	5	153.60	26.15	199	149	148	137	135	12
	Caucasian	3050	156.16	17.01	180	167	154	144	136	23
11	Asian	43	160.07	22.05	196	179	154	141	135	38
	African American	66	144.17	12.11	165	148	142	135	131	13
	Hispanic	448	145.47	13.40	163	152	143	137	131	15
	Native American	123	143.72	12.22	159	149	141	135	131	14
	Hawaiian / Pacific Islander	7	147.43	10.80	161	155	149	141	128	14
	Caucasian	3385	152.32	17.49	177	162	149	139	134	23

Mathematics—English Language Learner

Grade	English Language Learner	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	No	6793	670.14	54.08	738	701	672	635	603	66
	Yes	345	629.08	48.42	694	658	628	596	566	62
04	No	6579	670.26	51.09	740	705	670	636	606	69
	Yes	259	625.23	40.21	678	652	619	596	578	56
05	No	6549	695.79	53.44	761	731	694	660	627	71
	Yes	238	645.31	40.28	697	663	643	620	600	43
06	No	6638	716.90	54.82	790	755	716	676	648	79
	Yes	178	664.20	41.27	720	689	661	634	618	55
07	No	6674	727.04	52.45	795	760	723	688	663	72
	Yes	148	686.34	40.48	749	707	678	660	643	47
08	No	6626	738.40	49.46	802	770	735	704	678	66
	Yes	148	701.09	36.94	752	720	695	671	663	49
10	No	3759	155.03	17.18	179	166	153	141	135	25
	Yes	47	137.28	9.58	149	141	135	131	126	10
11	No	4020	151.45	17.15	176	160	148	139	134	21
	Yes	61	136.84	7.45	145	141	135	131	128	10

Mathematics—Accommodation Status

Grade	Accommodated	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
03	No	6292	673.58	53.02	738	708	672	638	607	70
	Yes	846	627.81	48.40	688	662	628	593	566	69
04	No	5922	675.15	49.42	740	705	674	642	616	63
	Yes	916	625.94	43.29	686	652	623	596	574	56
05	No	5908	700.96	51.60	769	731	697	666	637	65
	Yes	879	647.36	44.51	713	670	641	616	591	54
06	No	5941	722.50	53.44	790	755	720	683	658	72
	Yes	875	668.18	41.65	720	692	661	638	623	54
07	No	5935	732.98	50.60	801	767	729	698	671	69
	Yes	887	680.54	41.44	739	704	674	651	633	53
08	No	5890	744.75	47.23	807	774	740	710	688	64
	Yes	884	689.88	36.22	738	712	682	667	649	45
10	No	3471	156.30	16.93	180	167	154	144	137	23
	Yes	335	139.30	11.65	151	144	138	132	129	12
11	No	3632	152.74	17.15	177	162	149	140	134	22
	Yes	449	138.99	10.94	151	143	138	132	129	11

Science—All Examinees

Grade	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
04	6838	677.20	41.20	729	707	679	648	624	59
08	6749	655.49	44.74	717	687	656	622	601	65
11	5849	156.82	16.07	176	168	156	146	136	22

Science—Gender

Grade	Gender	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
04	Female	3297	678.05	41.57	729	707	679	648	624	59
	Male	3541	676.41	40.85	729	707	679	648	624	59
08	Female	3272	657.58	44.39	717	687	656	627	601	60
	Male	3477	653.53	44.99	711	683	651	622	595	61
11	Female	2907	156.42	15.44	176	166	156	146	136	20
	Male	2942	157.21	16.65	178	168	158	146	136	22

Science—Free/Reduced Lunch

Grade	Free or Reduced Lunch	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
04	Free	2086	661.14	39.07	712	688	662	634	614	54
	Reduced	680	673.90	39.21	723	702	675	648	624	54
	Not Free or Reduced	4072	685.98	40.03	735	712	688	662	634	50
08	Free	1755	636.63	40.01	687	665	632	607	589	58
	Reduced	673	648.34	43.68	702	678	646	622	595	56
	Not Free or Reduced	4321	664.27	44.16	722	697	665	632	607	65

Grade	Free or Reduced Lunch	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
11	Free	1072	149.72	14.13	168	161	149	139	132	22
	Reduced	389	153.82	15.54	175	165	153	143	134	22
	Not Free or Reduced	4388	158.82	16.03	178	170	159	147	138	23

Science—IEP

Grade	IEP	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
04	No	5811	681.46	39.68	729	707	684	653	629	54
	Yes	1027	653.09	41.38	707	679	653	624	603	55
08	No	5858	661.50	43.04	717	692	660	632	607	60
	Yes	891	616.02	34.50	660	637	612	595	576	42
11	No	5307	158.35	15.53	178	168	159	147	138	21
	Yes	542	141.77	13.18	159	149	140	134	126	15

Science—Ethnicity

Grade	Ethnicity	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
04	Asian	79	689.04	42.19	742	717	698	657	634	60
	African American	109	662.44	41.18	723	684	662	634	608	50
	Hispanic	909	659.91	39.47	712	688	657	634	614	54
	Native American	291	649.29	37.17	702	675	648	624	603	51
	Hawaiian / Pacific Islander	21	654.62	42.01	702	693	648	629	603	64
	Caucasian	5424	681.81	40.18	729	712	684	657	629	55
08	Asian	70	667.56	46.98	734	697	667	632	607	65
	African American	109	633.83	40.33	687	660	632	607	589	53
	Hispanic	836	638.07	41.89	692	669	637	607	589	62
	Native American	289	632.58	41.81	687	660	632	601	576	59
	Hawaiian / Pacific Islander	19	642.74	45.66	706	678	642	612	561	66
	Caucasian	5417	659.77	44.20	717	692	660	627	601	65
11	Asian	72	163.61	17.79	183	174	163	153	144	22
	African American	80	149.38	14.00	166	159	149	139	132	20
	Hispanic	589	150.94	15.09	171	161	150	139	132	22
	Native American	157	149.82	14.92	168	161	150	139	130	22
	Hawaiian / Pacific Islander	10	157.50	16.93	182	171	155	146	137	25
	Caucasian	4932	157.80	15.95	178	168	158	147	138	21

Science—English Language Learner

Grade	English Language Learner	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
04	No	6577	678.85	40.61	729	707	679	653	624	54
	Yes	261	635.69	33.58	675	657	634	614	597	43
08	No	6601	656.33	44.55	717	687	656	627	601	60
	Yes	148	618.19	36.36	660	642	617	598	576	44
11	No	5787	157.02	16.00	176	168	158	146	136	22
	Yes	62	137.98	10.15	150	144	138	130	128	14

Science—Accommodation Status

Grade	Accommodated	N	Mean	SD	P90	Q3	Median	Q1	P10	IQR
04	No	5919	682.02	39.60	729	712	684	657	629	55
	Yes	919	646.15	37.72	693	670	643	619	597	51
08	No	5868	661.22	43.16	717	692	660	632	607	60
	Yes	881	617.37	35.47	665	637	612	595	576	42
11	No	5370	158.08	15.70	178	168	158	147	138	21
	Yes	479	142.68	13.12	159	150	141	134	128	16

APPENDIX K—RAW SCORE TO SCALE SCORE TABLES

Grade 3 Reading		
Raw Score	**Scaled Score**	**SEM**
0	337	69
1	371	49
2	406	35
3	427	29
4	443	26
5	455	23
6	466	22
7	475	20
8	483	19
9	491	18
10	497	18
11	504	17
12	510	17
13	515	16
14	521	16
15	526	16
16	531	15
17	536	15
18	540	15
19	545	15
20	549	15
21	554	15
22	558	14
23	562	14
24	567	14
25	571	14
26	575	14
27	579	14
28	584	14
29	588	15
30	593	15
31	597	15
32	602	15
33	606	15
34	611	15
35	616	16
36	621	16
37	626	16
38	632	17

Grade 3 Reading		
Raw Score	**Scaled Score**	**SEM**
39	638	17
40	644	18
41	651	18
42	658	19
43	666	20
44	676	22
45	686	23
46	698	26
47	714	29
48	735	35
49	770	49
50	804	69

Grade 4 Reading		
Raw Score	**Scaled Score**	**SEM**
0	389	69
1	423	49
2	459	36
3	481	30
4	497	26
5	509	24
6	520	22
7	530	21
8	538	20
9	546	19
10	553	18
11	560	18
12	566	17
13	572	17
14	578	16
15	583	16
16	589	16
17	594	16
18	599	15
19	604	15
20	608	15
21	613	15
22	618	15
23	622	15

Grade 4 Reading		
Raw Score	**Scaled Score**	**SEM**
24	627	15
25	631	15
26	636	15
27	640	15
28	645	15
29	649	15
30	654	15
31	659	15
32	663	15
33	668	15
34	673	16
35	678	16
36	684	16
37	689	16
38	695	17
39	701	17
40	707	18
41	714	19
42	721	19
43	730	20
44	739	22
45	749	23
46	762	26
47	777	29
48	798	35
49	833	49
50	867	69

Grade 5 Reading		
Raw Score	**Scaled Score**	**SEM**
0	390	69
1	425	49
2	460	36
3	482	30
4	498	26
5	510	24
6	521	22
7	530	21
8	539	20
9	546	19

Grade 5 Reading		
Raw Score	**Scaled Score**	**SEM**
10	553	18
11	560	18
12	566	17
13	572	17
14	578	16
15	583	16
16	588	16
17	593	16
18	598	15
19	603	15
20	608	15
21	613	15
22	617	15
23	622	15
24	626	15
25	631	15
26	635	15
27	640	15
28	645	15
29	649	15
30	654	15
31	658	15
32	663	15
33	668	15
34	673	16
35	678	16
36	683	16
37	689	16
38	694	17
39	700	17
40	707	18
41	713	18
42	720	19
43	728	19
44	736	20
45	745	21
46	755	23
47	766	24
48	779	26
49	794	29

Grade 5 Reading		
Raw Score	**Scaled Score**	**SEM**
50	813	32
51	838	38
52	877	51
53	912	70

Grade 6 Reading		
Raw Score	**Scaled Score**	**SEM**
0	407	69
1	442	49
2	477	35
3	499	29
4	515	26
5	527	24
6	538	22
7	547	20
8	555	19
9	563	19
10	569	18
11	576	17
12	582	17
13	587	16
14	593	16
15	598	16
16	603	15
17	608	15
18	612	15
19	617	15
20	621	15
21	626	14
22	630	14
23	634	14
24	639	14
25	643	14
26	647	14
27	651	14
28	655	14
29	660	14
30	664	14
31	668	14
32	672	14

Grade 6 Reading		
Raw Score	**Scaled Score**	**SEM**
33	677	15
34	681	15
35	686	15
36	690	15
37	695	15
38	700	15
39	705	16
40	710	16
41	716	16
42	721	17
43	727	17
44	734	18
45	740	18
46	748	19
47	755	20
48	764	21
49	774	22
50	784	24
51	797	25
52	811	28
53	829	31
54	853	37
55	892	51
56	928	70

Grade 7 Reading		
Raw Score	**Scaled Score**	**SEM**
0	427	69
1	461	49
2	496	35
3	518	29
4	534	26
5	546	23
6	557	22
7	566	20
8	574	19
9	581	18
10	588	18
11	594	17
12	600	17

Grade 7 Reading		
Raw Score	**Scaled Score**	**SEM**
13	606	16
14	611	16
15	616	15
16	621	15
17	626	15
18	630	15
19	635	15
20	639	14
21	643	14
22	648	14
23	652	14
24	656	14
25	660	14
26	664	14
27	668	14
28	672	14
29	676	14
30	680	14
31	684	14
32	688	14
33	692	14
34	696	14
35	701	14
36	705	15
37	710	15
38	714	15
39	719	15
40	724	15
41	729	16
42	734	16
43	740	17
44	745	17
45	752	18
46	758	18
47	766	19
48	773	20
49	782	21
50	792	23
51	804	25
52	818	27

Grade 7 Reading		
Raw Score	**Scaled Score**	**SEM**
53	836	31
54	860	37
55	898	51
56	934	70

Grade 8 Reading		
Raw Score	**Scaled Score**	**SEM**
0	447	69
1	481	49
2	516	35
3	537	29
4	552	26
5	564	23
6	575	21
7	584	20
8	592	19
9	599	18
10	605	18
11	612	17
12	617	16
13	623	16
14	628	16
15	633	15
16	638	15
17	643	15
18	647	15
19	651	14
20	656	14
21	660	14
22	664	14
23	668	14
24	672	14
25	676	14
26	680	14
27	684	14
28	688	14
29	692	14
30	696	14
31	700	14
32	704	14

Grade 8 Reading		
Raw Score	**Scaled Score**	**SEM**
33	708	14
34	712	14
35	716	14
36	720	14
37	725	14
38	729	14
39	733	15
40	738	15
41	742	15
42	747	15
43	752	16
44	757	16
45	763	16
46	768	17
47	775	18
48	781	19
49	789	20
50	798	21
51	808	23
52	821	26
53	837	30
54	860	38
55	901	52
56	939	72

Grade 11 Reading		
Raw Score	**Scaled Score**	**SEM**
0	70	24
1	82	17
2	95	12
3	102	10
4	108	9
5	112	8
6	116	8
7	119	7
8	122	7
9	125	7
10	127	6
11	130	6
12	132	6

Grade 11 Reading		
Raw Score	**Scaled Score**	**SEM**
13	134	6
14	136	6
15	137	5
16	139	5
17	141	5
18	143	5
19	144	5
20	146	5
21	147	5
22	149	5
23	150	5
24	152	5
25	153	5
26	155	5
27	156	5
28	158	5
29	159	5
30	161	5
31	162	5
32	164	5
33	165	5
34	167	5
35	168	5
36	170	5
37	171	5
38	173	5
39	175	5
40	176	5
41	178	6
42	180	6
43	182	6
44	184	6
45	186	6
46	189	6
47	191	7
48	194	7
49	197	7
50	200	8
51	204	8
52	208	9

Grade 11 Reading		
Raw Score	**Scaled Score**	**SEM**
53	214	10
54	221	12
55	234	17
56	245	24

Grade 3 Mathematics		
Raw Score	**Scaled Score**	**SEM**
0	361	69
1	395	49
2	431	35
3	452	29
4	467	26
5	480	23
6	490	22
7	499	20
8	507	19
9	514	18
10	521	18
11	527	17
12	533	16
13	538	16
14	543	16
15	548	15
16	553	15
17	557	15
18	562	14
19	566	14
20	570	14
21	574	14
22	578	14
23	582	13
24	585	13
25	589	13
26	593	13
27	596	13
28	600	13
29	603	13
30	607	13
31	610	13
32	614	13

Grade 3 Mathematics		
Raw Score	**Scaled Score**	**SEM**
33	617	13
34	621	13
35	624	13
36	628	13
37	631	13
38	635	13
39	638	13
40	642	13
41	646	14
42	650	14
43	654	14
44	658	14
45	662	15
46	667	15
47	672	15
48	677	16
49	682	16
50	688	17
51	694	18
52	701	18
53	708	20
54	717	21
55	726	23
56	738	25
57	753	29
58	774	35
59	808	49
60	842	69

Grade 4 Mathematics		
Raw Score	**Scaled Score**	**SEM**
0	377	69
1	411	49
2	446	35
3	467	29
4	482	25
5	494	23
6	504	21
7	513	20
8	521	19

Grade 4 Mathematics		
Raw Score	**Scaled Score**	**SEM**
9	528	18
10	534	17
11	540	17
12	546	16
13	551	16
14	556	15
15	561	15
16	565	15
17	569	14
18	574	14
19	578	14
20	582	14
21	585	13
22	589	13
23	593	13
24	596	13
25	600	13
26	603	13
27	606	13
28	610	13
29	613	13
30	616	13
31	619	12
32	623	12
33	626	12
34	629	12
35	632	12
36	636	12
37	639	13
38	642	13
39	645	13
40	649	13
41	652	13
42	655	13
43	659	13
44	662	13
45	666	13
46	670	13
47	674	14
48	678	14

Grade 4 Mathematics		
Raw Score	**Scaled Score**	**SEM**
49	682	14
50	686	14
51	690	15
52	695	15
53	700	16
54	705	16
55	711	17
56	717	18
57	724	18
58	731	20
59	740	21
60	749	23
61	761	25
62	776	29
63	797	35
64	831	49
65	865	69

Grade 5 Mathematics		
Raw Score	**Scaled Score**	**SEM**
0	413	69
1	447	49
2	482	35
3	503	29
4	518	25
5	530	23
6	540	21
7	549	20
8	557	19
9	564	18
10	570	17
11	576	17
12	581	16
13	586	15
14	591	15
15	596	15
16	600	14
17	604	14
18	608	14
19	612	14

Grade 5 Mathematics		
Raw Score	**Scaled Score**	**SEM**
20	616	13
21	620	13
22	624	13
23	627	13
24	631	13
25	634	13
26	637	13
27	641	13
28	644	13
29	647	13
30	650	12
31	654	12
32	657	12
33	660	12
34	663	12
35	666	12
36	670	13
37	673	13
38	676	13
39	680	13
40	683	13
41	686	13
42	690	13
43	694	13
44	697	13
45	701	14
46	705	14
47	709	14
48	713	14
49	717	14
50	722	15
51	726	15
52	731	16
53	736	16
54	742	17
55	748	17
56	754	18
57	761	19
58	769	20
59	777	21

Grade 5 Mathematics		
Raw Score	**Scaled Score**	**SEM**
60	787	23
61	799	25
62	814	29
63	835	35
64	870	49
65	904	69

Grade 6 Mathematics		
Raw Score	**Scaled Score**	**SEM**
0	434	69
1	468	49
2	503	35
3	523	29
4	538	25
5	550	23
6	560	21
7	569	20
8	576	19
9	583	18
10	589	17
11	595	16
12	600	16
13	605	15
14	610	15
15	614	15
16	618	14
17	623	14
18	627	14
19	630	13
20	634	13
21	638	13
22	641	13
23	645	13
24	648	13
25	651	13
26	654	12
27	658	12
28	661	12
29	664	12
30	667	12

Grade 6 Mathematics		
Raw Score	**Scaled Score**	**SEM**
31	670	12
32	673	12
33	676	12
34	680	12
35	683	12
36	686	12
37	689	12
38	692	12
39	695	13
40	699	13
41	702	13
42	705	13
43	709	13
44	712	13
45	716	13
46	720	13
47	724	14
48	727	14
49	732	14
50	736	15
51	740	15
52	745	15
53	750	16
54	755	16
55	761	17
56	767	18
57	774	19
58	782	20
59	790	21
60	800	23
61	812	25
62	827	29
63	847	35
64	882	49
65	916	69

Grade 7 Mathematics		
Raw Score	**Scaled Score**	**SEM**
0	467	69
1	501	49
2	536	35
3	556	29
4	571	25
5	583	23
6	593	21
7	601	20
8	609	19
9	616	18
10	622	17
11	628	16
12	633	16
13	638	15
14	643	15
15	647	15
16	651	14
17	656	14
18	660	14
19	663	14
20	667	13
21	671	13
22	674	13
23	678	13
24	681	13
25	685	13
26	688	13
27	691	13
28	695	12
29	698	12
30	701	12
31	704	12
32	707	12
33	710	12
34	713	12
35	717	12
36	720	12
37	723	12
38	726	12
39	729	12
40	732	12
41	736	12

Grade 7 Mathematics		
Raw Score	**Scaled Score**	**SEM**
42	739	13
43	742	13
44	745	13
45	749	13
46	752	13
47	756	13
48	760	13
49	763	14
50	767	14
51	771	14
52	776	15
53	780	15
54	785	15
55	790	16
56	795	16
57	801	17
58	808	18
59	815	19
60	823	21
61	833	22
62	844	25
63	858	28
64	879	35
65	913	49
66	946	68

Grade 8 Mathematics		
Raw Score	**Scaled Score**	**SEM**
0	485	69
1	519	49
2	553	35
3	574	29
4	588	25
5	600	23
6	610	21
7	618	19
8	626	18
9	632	17
10	638	17
11	644	16

Grade 8 Mathematics		
Raw Score	**Scaled Score**	**SEM**
12	649	16
13	654	15
14	658	15
15	663	14
16	667	14
17	671	14
18	675	13
19	678	13
20	682	13
21	685	13
22	688	13
23	692	12
24	695	12
25	698	12
26	701	12
27	704	12
28	707	12
29	710	12
30	713	12
31	715	12
32	718	12
33	721	12
34	724	12
35	726	12
36	729	12
37	732	12
38	735	12
39	738	12
40	740	12
41	743	12
42	746	12
43	749	12
44	752	12
45	755	12
46	758	12
47	761	12
48	764	12
49	767	13
50	770	13
51	774	13

Grade 8 Mathematics		
Raw Score	**Scaled Score**	**SEM**
52	777	13
53	781	13
54	785	14
55	789	14
56	793	14
57	798	15
58	802	15
59	807	16
60	813	17
61	819	17
62	825	18
63	832	19
64	841	21
65	850	22
66	862	25
67	877	29
68	897	35
69	931	49
70	965	68

Grade 11 Mathematics		
Raw Score	**Scaled Score**	**SEM**
0	71	24
1	83	17
2	95	12
3	102	10
4	107	9
5	111	8
6	114	7
7	117	7
8	120	6
9	122	6
10	124	6
11	126	6
12	128	5
13	129	5
14	131	5
15	132	5
16	134	5
17	135	5

Grade 11 Mathematics		
Raw Score	**Scaled Score**	**SEM**
18	137	5
19	138	5
20	139	4
21	140	4
22	141	4
23	143	4
24	144	4
25	145	4
26	146	4
27	147	4
28	148	4
29	149	4
30	150	4
31	151	4
32	152	4
33	153	4
34	154	4
35	155	4
36	156	4
37	156	4
38	157	4
39	158	4
40	159	4
41	160	4
42	161	4
43	162	4
44	163	4
45	164	4
46	165	4
47	166	4
48	167	4
49	168	4
50	169	4
51	170	4
52	171	4
53	172	4
54	173	4
55	175	4
56	176	5
57	177	5

Grade 11 Mathematics		
Raw Score	**Scaled Score**	**SEM**
58	179	5
59	180	5
60	181	5
61	183	5
62	185	5
63	187	6
64	189	6
65	191	6
66	193	7
67	196	7
68	199	8
69	203	9
70	208	10
71	215	12
72	227	17
73	239	24

Grade 4 Science		
Raw Score	**Scaled Score**	**SEM**
0	407	69
1	442	50
2	478	36
3	501	30
4	517	27
5	531	24
6	542	23
7	552	21
8	561	20
9	569	19
10	577	19
11	584	18
12	591	18
13	597	17
14	603	17
15	608	16
16	614	16
17	619	16
18	624	16
19	629	15
20	634	15

Grade 4 Science		
Raw Score	**Scaled Score**	**SEM**
21	639	15
22	643	15
23	648	15
24	653	15
25	657	15
26	662	15
27	666	15
28	670	15
29	675	15
30	679	15
31	684	15
32	688	15
33	693	15
34	698	15
35	702	15
36	707	15
37	712	16
38	717	16
39	723	16
40	729	17
41	735	18
42	742	18
43	749	19
44	757	21
45	767	23
46	779	25
47	794	29
48	814	35
49	849	49
50	882	69

Grade 8 Science		
Raw Score	**Scaled Score**	**SEM**
0	410	69
1	445	49
2	480	36
3	502	30
4	519	26
5	532	24
6	543	22

Grade 8 Science		
Raw Score	**Scaled Score**	**SEM**
7	552	21
8	561	20
9	569	19
10	576	18
11	583	18
12	589	17
13	595	17
14	601	17
15	607	16
16	612	16
17	617	16
18	622	16
19	627	15
20	632	15
21	637	15
22	642	15
23	646	15
24	651	15
25	656	15
26	660	15
27	665	15
28	669	15
29	674	15
30	678	15
31	683	15
32	687	15
33	692	15
34	697	15
35	702	15
36	706	15
37	711	16
38	717	16
39	722	16
40	728	17
41	734	17
42	740	18
43	747	19
44	755	20
45	765	22
46	776	24

Grade 8 Science		
Raw Score	**Scaled Score**	**SEM**
47	790	28
48	809	34
49	842	48
50	876	68

Grade 11 Science		
Raw Score	**Scaled Score**	**SEM**
0	72	24
1	84	17
2	96	12
3	104	10
4	109	9
5	113	8
6	117	8
7	120	7
8	123	7
9	126	6
10	128	6
11	130	6
12	132	6
13	134	6
14	136	5
15	138	5
16	139	5
17	141	5
18	143	5
19	144	5
20	146	5
21	147	5
22	149	5
23	150	5
24	152	5
25	153	5
26	155	5
27	156	5
28	158	5
29	159	5
30	161	5
31	162	5
32	163	5

Grade 11 Science		
Raw Score	**Scaled Score**	**SEM**
33	165	5
34	166	5
35	168	5
36	170	5
37	171	5
38	173	5
39	175	5
40	176	6
41	178	6
42	181	6

Grade 11 Science		
Raw Score	**Scaled Score**	**SEM**
43	183	7
44	186	7
45	189	8
46	193	9
47	198	10
48	205	12
49	217	17
50	228	24

APPENDIX L— PERFORMANCE LEVEL PERCENTAGES BY DEMOGRAPHIC SUBGROUP

Grade 3 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	7128	4.46	26.02	59.22	10.30
No Accommodations	6289	2.35	22.77	63.36	11.51
With Accommodations	839	20.26	50.42	28.13	1.19
Not English Language Learner	6794	4.15	24.79	60.29	10.77
English Language Learner	334	10.78	51.20	37.43	0.60
Asian	93	1.08	23.66	66.67	8.60
African American	105	5.71	24.76	60.00	9.52
Hispanic	920	6.85	37.83	49.89	5.43
Native American	325	13.54	46.77	36.92	2.77
Hawaiian/Pacific Islander	20	10.00	10.00	70.00	10.00
Caucasian	5659	3.55	23.03	61.87	11.56
Female	3453	3.50	23.89	61.22	11.38
Male	3675	5.36	28.03	57.33	9.28
Free Lunch	2166	8.17	35.78	51.43	4.62
Reduced Lunch	731	3.69	30.23	59.37	6.70
Not free or reduced lunch	4231	2.69	20.30	63.18	13.83
Not Special Education	6080	2.25	23.09	63.09	11.56
Special Education	1048	17.27	43.03	36.74	2.96

Grade 4 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6837	1.68	15.17	47.43	35.72
No Accommodations	5923	0.57	10.01	49.10	40.32
With Accommodations	914	8.86	48.58	36.65	5.91
Not English Language Learner	6583	1.46	13.79	47.87	36.88
English Language Learner	254	7.48	50.79	36.22	5.51
Asian	78	0.00	8.97	47.44	43.59
African American	109	1.83	29.36	46.79	22.02
Hispanic	904	2.32	24.23	51.88	21.57
Native American	293	5.80	32.08	45.05	17.06
Hawaiian/Pacific Islander	21	4.76	23.81	42.86	28.57
Caucasian	5427	1.35	12.51	46.86	39.29
Female	3299	1.18	13.61	46.86	38.34
Male	3538	2.15	16.62	47.96	33.27
Free Lunch	2084	3.21	23.56	50.48	22.74
Reduced Lunch	682	1.17	18.04	48.24	32.55
Not free or reduced lunch	4071	0.98	10.39	45.74	42.89
Not Special Education	5810	0.55	10.36	49.23	39.86
Special Education	1027	8.08	42.36	37.29	12.27

Grade 5 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6788	3.15	17.78	50.28	28.79
No Accommodations	5909	1.25	13.62	52.53	32.59
With Accommodations	879	15.93	45.73	35.15	3.19
Not English Language Learner	6551	2.79	16.68	50.79	29.74
English Language Learner	237	13.08	48.10	36.29	2.53
Asian	77	0.00	10.39	44.16	45.45
African American	117	8.55	20.51	56.41	14.53
Hispanic	889	4.84	28.01	50.06	17.10
Native American	294	7.48	37.41	45.24	9.86
Hawaiian/Pacific Islander	16	0.00	37.50	43.75	18.75
Caucasian	5385	2.58	14.97	50.58	31.87
Female	3314	2.75	14.60	49.34	33.31
Male	3474	3.54	20.81	51.18	24.47
Free Lunch	1981	5.50	28.02	51.14	15.35
Reduced Lunch	716	3.35	20.39	50.00	26.26
Not free or reduced lunch	4091	1.98	12.37	49.91	35.74
Not Special Education	5821	1.15	13.50	52.84	32.50
Special Education	967	15.20	43.54	34.85	6.41

Grade 6 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6807	1.37	14.82	56.13	27.68
No Accommodations	5936	0.45	9.77	58.46	31.32
With Accommodations	871	7.58	49.25	40.30	2.87
Not English Language Learner	6639	1.22	13.86	56.62	28.30
English Language Learner	168	7.14	52.98	36.90	2.98
Asian	80	1.25	11.25	45.00	42.50
African American	129	1.55	19.38	62.02	17.05
Hispanic	873	1.72	21.31	58.88	18.10
Native American	274	3.28	25.55	59.49	11.68
Hawaiian/Pacific Islander	19	0.00	26.32	26.32	47.37
Caucasian	5431	1.22	13.15	55.64	29.99
Female	3247	0.83	12.07	55.50	31.60
Male	3560	1.85	17.33	56.71	24.10
Free Lunch	1900	2.74	23.63	58.79	14.84
Reduced Lunch	683	0.88	18.74	59.00	21.38
Not free or reduced lunch	4224	0.83	10.23	54.47	34.47
Not Special Education	5860	0.41	9.68	58.55	31.37
Special Education	947	7.29	46.67	41.18	4.86

Grade 7 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6829	3.28	22.13	64.64	9.96
No Accommodations	5944	1.41	17.92	69.38	11.29
With Accommodations	885	15.82	50.40	32.77	1.02
Not English Language Learner	6683	2.98	21.53	65.33	10.16
English Language Learner	146	17.12	49.32	32.88	0.68
Asian	81	3.70	18.52	58.02	19.75
African American	107	2.80	32.71	59.81	4.67
Hispanic	847	5.67	29.63	60.92	3.78
Native American	262	8.40	38.55	49.24	3.82
Hawaiian/Pacific Islander	11	9.09	18.18	63.64	9.09
Caucasian	5514	2.65	20.02	66.18	11.15
Female	3263	1.96	18.39	66.69	12.96
Male	3566	4.49	25.55	62.76	7.21
Free Lunch	1901	6.52	32.51	57.23	3.73
Reduced Lunch	654	1.83	25.84	65.90	6.42
Not free or reduced lunch	4274	2.06	16.94	67.74	13.27
Not Special Education	5927	1.35	18.04	69.34	11.27
Special Education	902	15.96	49.00	33.70	1.33

Grade 8 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6775	3.35	19.56	61.58	15.51
No Accommodations	5892	1.44	15.17	65.75	17.63
With Accommodations	883	16.08	48.81	33.75	1.36
Not English Language Learner	6630	3.17	18.99	61.99	15.85
English Language Learner	145	11.72	45.52	42.76	0.00
Asian	69	1.45	10.14	63.77	24.64
African American	110	5.45	29.09	60.91	4.55
Hispanic	846	4.02	27.54	60.52	7.92
Native American	289	5.54	32.87	57.79	3.81
Hawaiian/Pacific Islander	19	5.26	36.84	52.63	5.26
Caucasian	5433	3.11	17.47	61.94	17.49
Female	3289	2.13	16.75	61.66	19.46
Male	3486	4.50	22.20	61.50	11.79
Free Lunch	1771	5.99	31.45	56.63	5.93
Reduced Lunch	674	3.86	22.40	62.76	10.98
Not free or reduced lunch	4330	2.19	14.25	63.42	20.14
Not Special Education	5881	1.19	15.05	66.01	17.75
Special Education	894	17.56	49.22	32.44	0.78

Grade 10 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	3640	8.63	22.01	49.04	20.33
No Accommodations	3309	5.83	20.37	51.77	22.03
With Accommodations	331	36.56	38.37	21.75	3.32
Not English Language Learner	3596	8.20	21.77	49.44	20.58
English Language Learner	44	43.18	40.91	15.91	0.00
Asian	61	3.28	18.03	40.98	37.70
African American	69	21.74	31.88	37.68	8.70
Hispanic	437	12.81	28.83	47.14	11.21
Native American	176	20.45	28.41	43.75	7.39
Hawaiian/Pacific Islander	5	0.00	20.00	40.00	40.00
Caucasian	2888	7.03	20.39	50.17	22.40
Female	1785	6.67	19.55	50.03	23.75
Male	1855	10.51	24.37	48.09	17.04
Free Lunch	760	17.24	33.16	40.53	9.08
Reduced Lunch	310	8.06	28.71	49.03	14.19
Not free or reduced lunch	2570	6.15	17.90	51.56	24.40
Not Special Education	3286	5.45	20.12	52.19	22.25
Special Education	354	38.14	39.55	19.77	2.54

Grade 11 Reading

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	3694	12.59	27.10	42.56	17.76
No Accommodations	3263	9.87	24.82	45.54	19.77
With Accommodations	431	33.18	44.32	19.95	2.55
Not English Language Learner	3636	12.07	26.90	42.99	18.04
English Language Learner	58	44.83	39.66	15.52	0.00
Asian	39	10.26	20.51	41.03	28.21
African American	52	30.77	23.08	32.69	13.46
Hispanic	395	18.73	32.41	37.97	10.89
Native American	101	18.81	39.60	35.64	5.94
Hawaiian/Pacific Islander	5	0.00	60.00	40.00	0.00
Caucasian	3092	11.25	26.13	43.63	18.98
Female	1741	9.82	25.73	43.42	21.02
Male	1953	15.05	28.32	41.78	14.85
Free Lunch	803	20.05	35.49	36.24	8.22
Reduced Lunch	243	15.64	31.28	41.15	11.93
Not free or reduced lunch	2648	10.05	24.17	44.60	21.19
Not Special Education	3189	8.97	24.74	46.16	20.13
Special Education	505	35.45	41.98	19.80	2.77

Grade 3 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	7138	2.12	7.51	49.40	40.98
No Accommodations	6292	1.37	5.79	48.36	44.49
With Accommodations	846	7.68	20.33	57.09	14.89
Not English Language Learner	6793	1.96	6.77	49.02	42.25
English Language Learner	345	5.22	22.03	56.81	15.94
Asian	94	1.06	6.38	44.68	47.87
African American	105	1.90	14.29	50.48	33.33
Hispanic	927	3.02	12.62	57.17	27.18
Native American	325	11.69	18.46	51.38	18.46
Hawaiian/Pacific Islander	20	0.00	10.00	35.00	55.00
Caucasian	5661	1.45	5.90	48.14	44.52
Female	3456	1.85	7.75	50.93	39.47
Male	3682	2.36	7.28	47.96	42.40
Free Lunch	2175	4.09	12.74	54.71	28.46
Reduced Lunch	732	1.09	7.65	54.10	37.16
Not free or reduced lunch	4231	1.28	4.80	45.85	48.07
Not Special Education	6090	1.28	5.94	48.56	44.22
Special Education	1048	6.97	16.60	54.29	22.14

Grade 4 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6838	4.02	13.79	54.99	27.20
No Accommodations	5922	2.09	10.84	56.69	30.38
With Accommodations	916	16.48	32.86	44.00	6.66
Not English Language Learner	6579	3.68	12.86	55.39	28.07
English Language Learner	259	12.74	37.45	44.79	5.02
Asian	79	0.00	8.86	48.10	43.04
African American	109	10.09	17.43	56.88	15.60
Hispanic	908	6.28	22.36	57.16	14.21
Native American	290	10.69	23.10	54.48	11.72
Hawaiian/Pacific Islander	21	14.29	23.81	52.38	9.52
Caucasian	5426	3.17	11.83	54.74	30.26
Female	3295	3.85	14.87	55.51	25.77
Male	3543	4.18	12.79	54.50	28.54
Free Lunch	2084	7.05	19.82	57.49	15.64
Reduced Lunch	682	4.25	15.84	53.81	26.10
Not free or reduced lunch	4072	2.43	10.36	53.90	33.30
Not Special Education	5813	1.96	11.25	56.87	29.92
Special Education	1025	15.71	28.20	44.29	11.80

Grade 5 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6787	4.08	14.19	50.97	30.76
No Accommodations	5908	2.08	10.90	52.88	34.14
With Accommodations	879	17.52	36.29	38.11	8.08
Not English Language Learner	6549	3.70	13.24	51.41	31.65
English Language Learner	238	14.71	40.34	38.66	6.30
Asian	77	0.00	9.09	44.16	46.75
African American	117	5.13	28.21	49.57	17.09
Hispanic	889	7.54	22.72	50.84	18.90
Native American	293	11.26	28.33	49.15	11.26
Hawaiian/Pacific Islander	16	0.00	31.25	50.00	18.75
Caucasian	5385	3.16	11.72	51.22	33.91
Female	3315	4.07	14.27	51.04	30.62
Male	3472	4.09	14.11	50.89	30.90
Free Lunch	1979	7.07	22.28	52.20	18.44
Reduced Lunch	716	4.05	15.36	54.61	25.98
Not free or reduced lunch	4092	2.64	10.07	49.73	37.56
Not Special Education	5818	1.99	10.95	52.80	34.26
Special Education	969	16.62	33.64	39.94	9.80

Grade 6 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6816	4.97	12.76	52.36	29.90
No Accommodations	5941	3.01	9.83	53.64	33.51
With Accommodations	875	18.29	32.69	43.66	5.37
Not English Language Learner	6638	4.55	12.29	52.55	30.61
English Language Learner	178	20.79	30.34	45.51	3.37
Asian	81	2.47	4.94	46.91	45.68
African American	129	9.30	19.38	58.14	13.18
Hispanic	885	7.01	18.64	56.50	17.85
Native American	273	9.16	24.54	54.21	12.09
Hawaiian/Pacific Islander	19	10.53	10.53	57.89	21.05
Caucasian	5428	4.35	11.16	51.53	32.96
Female	3253	4.83	12.42	53.46	29.30
Male	3563	5.11	13.08	51.36	30.45
Free Lunch	1905	8.50	20.26	55.85	15.38
Reduced Lunch	686	5.83	15.74	55.25	23.18
Not free or reduced lunch	4225	3.24	8.90	50.32	37.54
Not Special Education	5868	2.81	9.83	53.80	33.55
Special Education	948	18.35	30.91	43.46	7.28

Grade 7 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6822	6.61	17.65	49.03	26.71
No Accommodations	5935	3.49	15.11	51.47	29.92
With Accommodations	887	27.51	34.61	32.69	5.19
Not English Language Learner	6674	6.32	17.13	49.42	27.14
English Language Learner	148	19.59	41.22	31.76	7.43
Asian	81	2.47	14.81	32.10	50.62
African American	107	14.95	28.97	43.93	12.15
Hispanic	849	11.31	25.80	48.17	14.72
Native American	260	13.85	31.92	45.38	8.85
Hawaiian/Pacific Islander	11	0.00	36.36	36.36	27.27
Caucasian	5508	5.45	15.47	49.73	29.36
Female	3261	6.16	17.45	49.68	26.71
Male	3561	7.02	17.83	48.44	26.71
Free Lunch	1898	11.91	26.98	47.31	13.80
Reduced Lunch	654	7.03	18.04	52.29	22.63
Not free or reduced lunch	4270	4.19	13.44	49.30	33.07
Not Special Education	5921	3.34	14.95	51.75	29.96
Special Education	901	28.08	35.41	31.19	5.33

Grade 8 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6774	9.86	17.95	51.37	20.81
No Accommodations	5890	5.18	16.06	55.14	23.62
With Accommodations	884	41.06	30.54	26.24	2.15
Not English Language Learner	6626	9.46	17.58	51.77	21.19
English Language Learner	148	27.70	34.46	33.78	4.05
Asian	70	4.29	15.71	41.43	38.57
African American	110	13.64	28.18	50.00	8.18
Hispanic	845	13.49	26.39	49.70	10.41
Native American	289	19.38	28.03	44.64	7.96
Hawaiian/Pacific Islander	19	5.26	15.79	52.63	26.32
Caucasian	5432	8.80	15.92	52.12	23.16
Female	3291	9.21	16.32	52.57	21.91
Male	3483	10.48	19.49	50.24	19.78
Free Lunch	1767	17.49	25.92	46.97	9.62
Reduced Lunch	676	11.09	18.79	53.99	16.12
Not free or reduced lunch	4331	6.56	14.57	52.76	26.11
Not Special Education	5882	4.98	15.96	55.46	23.60
Special Education	892	42.04	31.05	24.44	2.47

Grade 10 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	3806	6.88	30.85	50.03	12.24
No Accommodations	3471	4.84	28.49	53.41	13.25
With Accommodations	335	28.06	55.22	14.93	1.79
Not English Language Learner	3759	6.54	30.57	50.52	12.37
English Language Learner	47	34.04	53.19	10.64	2.13
Asian	64	0.00	10.94	50.00	39.06
African American	71	15.49	54.93	29.58	0.00
Hispanic	439	10.71	42.60	39.86	6.83
Native American	173	13.29	49.71	32.37	4.62
Hawaiian/Pacific Islander	5	0.00	40.00	40.00	20.00
Caucasian	3050	5.93	27.84	53.05	13.18
Female	1859	6.46	30.45	52.66	10.44
Male	1947	7.29	31.23	47.51	13.97
Free Lunch	779	14.76	45.31	33.63	6.29
Reduced Lunch	311	8.04	36.33	51.13	4.50
Not free or reduced lunch	2716	4.49	26.07	54.60	14.84
Not Special Education	3445	4.47	28.45	53.67	13.41
Special Education	361	29.92	53.74	15.24	1.11

Grade 11 Mathematics

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	4081	10.14	39.77	39.40	10.68
No Accommodations	3632	7.76	37.56	42.92	11.76
With Accommodations	449	29.40	57.68	10.91	2.00
Not English Language Learner	4020	9.75	39.53	39.88	10.85
English Language Learner	61	36.07	55.74	8.20	0.00
Asian	43	6.98	27.91	37.21	27.91
African American	66	15.15	51.52	30.30	3.03
Hispanic	448	14.06	50.89	31.25	3.79
Native American	123	16.26	56.10	24.39	3.25
Hawaiian/Pacific Islander	7	14.29	28.57	57.14	0.00
Caucasian	3385	9.31	37.61	41.24	11.85
Female	2052	11.16	40.20	39.33	9.31
Male	2029	9.12	39.33	39.48	12.07
Free Lunch	875	15.77	49.60	30.17	4.46
Reduced Lunch	284	12.68	42.61	38.73	5.99
Not free or reduced lunch	2922	8.21	36.55	42.23	13.00
Not Special Education	3567	6.92	37.43	43.65	12.00
Special Education	514	32.49	56.03	9.92	1.56

Grade 4 Science

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6838	5.62	31.16	51.64	11.58
No Accommodations	5919	3.89	27.91	55.13	13.08
With Accommodations	919	16.76	52.12	29.16	1.96
Not English Language Learner	6577	4.97	30.10	52.90	12.03
English Language Learner	261	21.84	57.85	19.92	0.38
Asian	79	1.27	27.85	49.37	21.52
African American	109	11.93	42.20	37.61	8.26
Hispanic	909	9.46	46.53	39.38	4.62
Native American	291	14.09	54.30	29.55	2.06
Hawaiian/Pacific Islander	21	19.05	42.86	33.33	4.76
Caucasian	5424	4.39	27.16	55.25	13.20
Female	3297	4.97	31.70	50.74	12.59
Male	3541	6.21	30.67	52.47	10.65
Free Lunch	2086	9.78	43.00	42.38	4.84
Reduced Lunch	680	5.59	35.59	49.56	9.26
Not free or reduced lunch	4072	3.49	24.36	56.73	15.42
Not Special Education	5811	3.92	28.64	54.60	12.84
Special Education	1027	15.19	45.47	34.86	4.48

Grade 8 Science

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	6749	12.45	36.88	40.66	10.02
No Accommodations	5868	8.96	35.05	44.56	11.42
With Accommodations	881	35.64	49.04	14.64	0.68
Not English Language Learner	6601	12.06	36.51	41.24	10.20
English Language Learner	148	29.73	53.38	14.86	2.03
Asian	70	8.57	28.57	42.86	20.00
African American	109	23.85	46.79	25.69	3.67
Hispanic	836	19.98	44.14	32.42	3.47
Native American	289	26.64	43.25	26.99	3.11
Hawaiian/Pacific Islander	19	15.79	36.84	42.11	5.26
Caucasian	5417	10.32	35.31	42.94	11.43
Female	3272	11.16	36.25	41.75	10.85
Male	3477	13.66	37.47	39.63	9.23
Free Lunch	1755	21.37	44.79	30.43	3.42
Reduced Lunch	673	13.82	41.60	37.44	7.13
Not free or reduced lunch	4321	8.61	32.93	45.31	13.15
Not Special Education	5858	8.77	34.91	44.83	11.49
Special Education	891	36.59	49.83	13.24	0.34

Grade 11 Science

Group	N	Pct Below Basic	Pct Basic	Pct Proficient	Pct Advanced
All	5849	15.83	34.18	35.61	14.38
No Accommodations	5370	13.09	33.61	37.84	15.46
With Accommodations	479	46.56	40.50	10.65	2.30
Not English Language Learner	5787	15.38	34.15	35.94	14.53
English Language Learner	62	58.06	37.10	4.84	0.00
Asian	72	9.72	25.00	40.28	25.00
African American	80	27.50	41.25	26.25	5.00
Hispanic	589	26.66	38.71	27.16	7.47
Native American	157	26.75	42.68	23.57	7.01
Hawaiian/Pacific Islander	10	10.00	50.00	20.00	20.00
Caucasian	4932	14.01	33.39	37.15	15.45
Female	2907	15.69	35.23	36.22	12.87
Male	2942	15.98	33.14	35.01	15.87
Free Lunch	1072	27.24	41.51	26.87	4.38
Reduced Lunch	389	19.02	39.07	31.62	10.28
Not free or reduced lunch	4388	12.76	31.95	38.10	17.18
Not Special Education	5307	12.34	33.75	38.31	15.60
Special Education	542	50.00	38.38	9.23	2.40

APPENDIX M—SAMPLE PAWS REPORTS

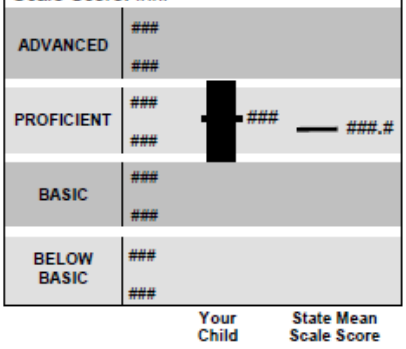
Student Score Report, Grade 4 Math (other grades are similar)

2012 Proficiency Assessments for Wyoming Students (PAWS)

FIRSTNAME's Performance on the PAWS Mathematics Test

YOUR CHILD'S MATHEMATICS SCALE SCORE AND PERFORMANCE LEVEL

Performance Level: *Proficient*
Scale Score: ###



☐ **ADVANCED: Scale Score range: ###-###**
Students performing at an advanced level demonstrate exemplary performance or understanding; use a creative mathematical approach or multiple complex methods of problem solving including interpreting complex information; completing complex tasks involving several processing steps; developing a suitable mathematical representation to produce a solution; applying knowledge in an unfamiliar problem context; displaying generalization, reasoning, and argumentation in communication of results.

☑ **PROFICIENT: Scale Score range: ###-###**
Students performing at a proficient level meet the acceptable standard for the grade by demonstrating solid performance or understanding of problem solving including completing tasks involving more than a single processing step; combining different pieces of information; interpreting different representations; recognizing which elements are important and how they relate to one another; working with given mathematical representations; carrying out sequence of processing steps to produce a solution.

☐ **BASIC: Scale Score range: ###-###**
Students performing at a basic level have not yet met the acceptable standard for the grade. Although errors are being made, performance and understanding are emerging as demonstrated by the use of routine computations and problem solving including solving or using single step processes; recognizing familiar contexts and mathematically well-defined problems; reproducing of facts or processes; applying simple computational skills.

☐ **BELOW BASIC: Scale Score range: ###-###**
The student is not yet meeting the acceptable standard for the grade; errors are being made and there is no evidence of understanding problem solving or computation skills. Students can sometimes use simple computational skills to solve simple problems; perform some basic procedures with inconsistent accuracy; communicate with little use of mathematical language and often includes errors.

YOUR CHILD'S MATHEMATICS SCORE ANALYSIS BY STANDARD

Content Standards/Skills Examples	Scale Score	Scale Score Range ### ### ### ### ###
Number Operations and Concepts – Students use numbers, number sense, and number relationships in a problem-solving situation. **Number Representations** - Simplify $\frac{\sqrt{12}\sqrt{3}}{\sqrt{6}}$ **Number Operations and Concepts** - Simplify $\left(\frac{2x^3y^2}{3x^2}\right)^3$	###	
Geometry – Students apply geometric concepts, properties, and relationships in a problem-solving situation. **Spatial Relationships** - What is the distance between point A (-2, -3) and point B (2, 0)? **Apply Transformations & Symmetry** - Point A (-1, 3) is reflected across the line x = -3. What are the coordinates of the reflected image?	###	
Measurement – Students use a variety of tools and techniques of measurement in a problem-solving situation. **Measurement Systems** - The ratio of an angle to its supplement is 2:3. What is the measure of the angle? **Perimeter, Area & Volume** - The great pyramid of Giza is a square pyramid 230 meters on a side and 142 meters high. Find its volume.	###	
Algebra – Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation. **Patterns, Relations & Functions** - What is the solution set of $4x - 10 \geq -6$? **Mathematical Representation** - The equation $F = \frac{9}{5}C + 32$ Celsius to Fahrenheit temperatures. What does the slope tell you about the two temperatures?	###	
Data Analysis and Probability – Students use data analysis and probability to analyze given situations and the results of experiments. **Collect and Analyze Data** - If the range of the set of numbers {20, 25, 30, 35, 40} was to increase by 1 by changing the value of only 1 element of the set, find one of the two possible new means. **Inferences/Predictions** - If a softball player has a batting average of .400, what is the probability she will get 3 hits in a row in 3 successive at bats?	###	

Quantile® measure = ####Q

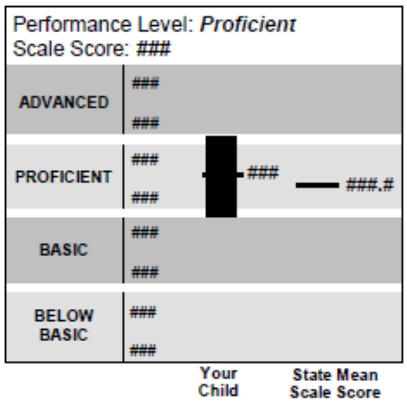
A Quantile® measure is similar to the Lexile and can help you identify math activities to do at home. These activities will help your child practice mathematical skills at an appropriate level, leading to increased mathematical understanding. For more information, visit the "Math at Home" section at **www.Quantiles.com**.

Student Score Report, Grade 4 Reading (other grades are similar)

2012 Proficiency Assessments for Wyoming Students (PAWS)

FIRSTNAME's Performance on the PAWS Language Arts - Reading Test

YOUR CHILD'S READING SCALE SCORE AND PERFORMANCE LEVEL



☐ **ADVANCED: Scale Score range: ###-###**
Students performing at an advanced level demonstrate complete mastery of understanding literary and informational texts and use a creative approach in unfamiliar settings. Students can consistently and independently demonstrate an accurate understanding of literary text; determine information related to and among informational texts; determine relevant information; relate story elements; respond to a variety of literary genres by using details; apply sufficient information to complete a task effectively.

☑ **PROFICIENT: Scale Score range: ###-###**
Students performing at a proficient level meet the standard of understanding literary and informational texts and perform in several familiar settings. Students can consistently show a literal understanding of the text; identify information related to and among informational texts; identify main idea and supporting details; identify story elements; respond to a variety of literary genres by identifying main ideas; provide some information to complete a task satisfactorily.

☐ **BASIC: Scale Score range: ###-###**
Students performing at a basic level are working toward the standard for the grade. Understanding of literary and informational texts is emerging given external support and multiple prompts in limited familiar settings. Students can recognize important information in literary and informational texts given teacher-provided choices; match story elements; respond to or actively attend to familiar genres.

☐ **BELOW BASIC: Scale Score range: ###-###**
There is limited or inconsistent evidence of understanding literary and informational texts given external support and multiple prompts in a structured setting. Students can attend to reading activities involving literary and informational texts; show no understanding of text.

YOUR CHILD'S READING SCORE ANALYSIS BY TEXT TYPE

Content Standards/Skills Description	Scale Score	Scale Score Range ### ### ### ### ###
Functional Texts: These texts include reading materials such as directions, schedules, maps, diagrams, internet websites, electronic databases, and explanations for doing something or getting somewhere. They provide basic information readers need to accomplish day-to-day tasks. **Relevance and Importance** - The reader identifies and locates information from the text and understands how the information is relevant and important for accomplishing a specified task. **Selection and Application** - The reader is presented with a scenario in which information from multiple areas of the text must be identified, located, and used to formulate an answer not explicitly stated within the text.	###	
Expository Texts: These texts include such things as textbooks, encyclopedias, documentaries, speeches, public documents, print news media, the internet, websites, electronic databases, microfiche, almanacs, news, biographies, scientific explanations, and historical and political analyses. **Major Points and Supporting Details** - The reader identifies main ideas from the text and recognizes relevant details which support those main ideas. **Organization** - The reader understands how the organization of the text supports the writer's purpose. **Information Relationships** - The reader understands how information from the text relates to broader topics and issues.	###	
Narrative Texts: These texts include stories, poems, novels, plays, and essays about America and various world cultures that are read to learn about people, to vicariously experience the characters and settings, to escape to imaginary places and times, and to become absorbed in adventure and fictional events, and various problems and solutions that structure the plots of these texts. **Story Elements** - The reader recognizes and understands an author's development of story elements and how those elements contribute to the development of plot and theme. **Plot** - The reader identifies and understands the development of a story's plot, central problem, and resolution. **Theme** - The reader understands how various elements of the story contribute to the development of theme.	###	

Lexile® measure = ####L

A Lexile® measure helps readers select materials at their reading level. The Lexile website helps build a customized list of books that match your child's Lexile level and interests. This list can serve as a guide in selecting books at your school or public library and/or local bookstore. For more information, and to search for books by Lexile measure, visit **www.Lexile.com**.

Student Score Report, Grade 4 Science (other grades are similar)

2012 Proficiency Assessments for Wyoming Students (PAWS)

FIRSTNAME's Performance on the PAWS Science Test

YOUR CHILD'S SCIENCE SCORE ANALYSIS BY CONTENT STANDARD

Content Standard - Concepts and Processes	Scale Score	Scale Score Range ### ### ### ### ###
Life Science - **Cells and Cellular Processes:** Key concepts include living organisms and distinguishing distinct structures and body systems that serve specific functions in growth, reproduction, and survival. **Heredity and Biological Evolution:** Key concepts include the process of how plants and animals progress through life cycles of birth, growth and development, reproduction and death; and the comparison of fossils to one another and to living organisms to observe their similarities and differences. **Interactions and Energy Flow:** A key concept is how unique features of plants and animals help them live in different environments.	###	
Physical Science - **Properties and Changes:** Key concepts include the different states of matter and that each state has distinct physical properties; that some common materials, such as water, can be changed from one state to another by heating or cooling, and the classification of substances by their physical and chemical properties. **Energy Types:** A key concept is the Sun and how it supplies heat and light to Earth. **Forces and Motion:** Key concepts include sound produced by vibrating objects, which can be characterized by pitch and volume; and the change in the position and motion of an object resulting from pushing or pulling.	###	
Earth and Space Science - **Earth's Processes and Features:** Key concepts are the composition and properties of earth materials. **Solar System and Universe:** Key concepts are the basic patterns of movement by objects in the sky.	###	

SKILL – PROCESS AS INQUIRY DESCRIPTIONS

Observe and Question - Recognize and note facts, occurrences, or phenomena in the natural world. Understand the types of questions science can and cannot answer.

Design and Conduct a Scientific Investigation - Identify appropriate and safe methods for collecting fair and adequate data to answer a scientific question. Understand the application of a variety of technologies, including hand tools, measuring instruments, calculators, and computers.

Organize and Represent Data - Demonstrate attention to detail, recognize the need for reproducible results. Choose an appropriate method of data representation. Evaluate the quality and relevance of data to answer a given scientific problem.

Draw Conclusions and Make Connections - Analyze patterns and trends in data, and use them to formulate explanations. Relate observations to knowledge of scientific concepts. Explain, communicate, and support conclusions.

Score Definitions

Score Analysis - The Score Analysis reports the scale scores for each content standard. The cut line reflects the content standard level scale score, while the entire band indicates the standard error of measurement. The vertical line indicates the scale score for that subskill while the entire band indicates the score range that includes one standard error above and below the score. This range will contain the student's "true" score approximately 68% of the time.

Skills - PAWS assesses high-priority skills derived directly from the state's content standards. These skills have been clearly defined as Assessment Descriptions. A complete version of the Proficiency Assessments for Wyoming Students Assessment Descriptions, including grade-level skills information, can be viewed at **edu.wyoming.gov**.

School Report, Reading—Page 1 (Other subjects are similar)

2012 Proficiency Assessments for Wyoming Students (PAWS)

GRADE: 11
DISTRICT: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

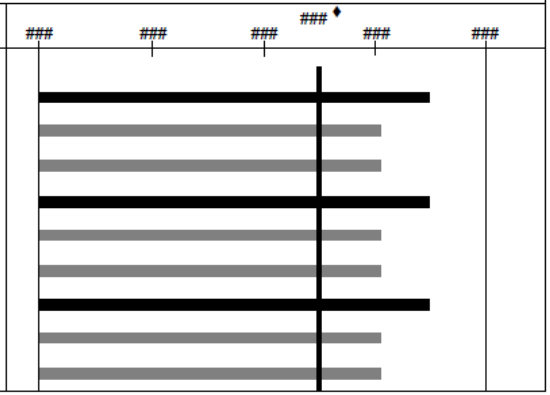
School Summary Report for
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

READING

	Total Number Tested	Mean Scale Score	Standard Deviation	PERFORMANCE LEVEL								Not Tested*	
				Below Basic		Basic		Proficient		Advanced			
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
School	######	###.#	###.#	######	###.#	######	###.#	######	###.#	######	###.#	######	###.#
District	######	###.#	###.#	######	###.#	######	###.#	######	###.#	######	###.#	######	###.#
State	######	###.#	###.#	######	###.#	######	###.#	######	###.#	######	###.#	######	###.#

READING SCORE ANALYSIS BY TEXT TYPE

Content Standard		Mean Scale Score
Functional Texts	School	###.#
	District	###.#
	State	###.#
Expository Texts	School	###.#
	District	###.#
	State	###.#
Narrative Texts	School	###.#
	District	###.#
	State	###.#



♦ = Content Area Proficiency Bar * = Did not participate in 2012 test administration or received Unfair Advantage

Confidential - This report contains information which could compromise student confidentiality if publicized and is intended solely for school and district personnel.

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School Report, Reading—Page 2 (Other subjects are similar)

2012 Proficiency Assessments for Wyoming Students (PAWS)

GRADE: 11
DISTRICT: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

School Summary Report for
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

READING

INSTRUCTIONAL NEEDS

RED = Additional instruction on this skill definitely seems needed
YELLOW = Additional instruction on this skill may be needed
GREEN = No additional instruction on this skill seems needed

SKILLS	Number Tested	INSTRUCTIONAL NEEDS LEVEL RED % School	YELLOW % School	GREEN % School
Functional Texts				
Relevance and Importance -- Read to determine the relevance and importance of functional information.	######	###.#	###.#	###.#
Selection and Application -- Read to select and apply relevant information for a given task.	######	###.#	###.#	###.#
Expository Texts				
Major Points and Details -- Read to understand a text's major points and supporting details.	######	###.#	###.#	###.#
Organization -- Read to understand the text's organization and how that organization serves the writer's purpose.	######	###.#	###.#	###.#
Information Relationships -- Read to understand how the information in the text fits into broader topics and issues.	######	###.#	###.#	###.#
Narrative Texts				
Story Elements -- Read to recognize and understand an author's development of character, symbolism, and mood as basic story elements.	######	###.#	###.#	###.#
Plot -- Read to understand how the plot of a story develops as a series of high points and/or how it can be depicted as a problem and its solution.	######	###.#	###.#	###.#
Theme -- Read to understand the theme of a story and how the author develops it.	######	###.#	###.#	###.#

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District Report, Reading (Other subjects are similar)

2012 Proficiency Assessments for Wyoming Students (PAWS)

GRADE: 11

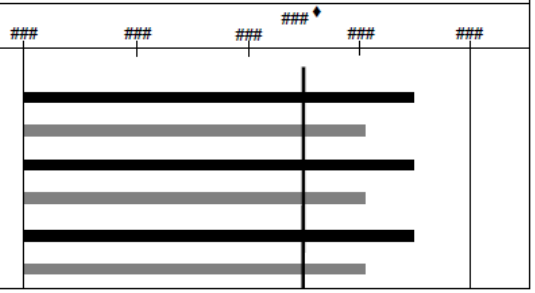
District Summary Report for
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

READING

	Total Number Tested	Mean Scale Score	Standard Deviation	PERFORMANCE LEVEL								Not Tested*	
				Below Basic		Basic		Proficient		Advanced			
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
District	######	###.#	###.#	######	###.#	######	###.#	######	###.#	######	###.#	######	###.#
State	######	###.#	###.#	######	###.#	######	###.#	######	###.#	######	###.#	######	###.#

READING SCORE ANALYSIS BY TEXT TYPE

Content Standard		Mean Scale Score
Functional Texts	District	###.#
	State	###.#
Expository Texts	District	###.#
	State	###.#
Narrative Texts	District	###.#
	State	###.#



♦ = Content Area Proficiency Bar * = Did not participate in 2012 test administration or received Unfair Advantage

Confidential - This report contains information which could compromise student confidentiality if publicized and is intended solely for school and district personnel.

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APPENDIX N—COEFFICIENT ALPHA BY DEMOGRAPHIC SUBGROUP

Grade 3 Reading

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	7124	0.888	0.889	0.877	0.525	3.066
No Accommodations	6289	0.869	0.871	0.857	0.477	3.039
With Accommodations	835	0.870	0.872	0.853	0.567	3.227
Not English Language Learner	6790	0.886	0.888	0.875	0.518	3.055
English Language Learner	334	0.857	0.860	0.838	0.565	3.267
Asian	93	0.872	0.872	0.868	0.262	3.047
African American	105	0.897	0.898	0.882	0.534	3.070
Hispanic	919	0.879	0.881	0.866	0.526	3.183
Native American	325	0.886	0.889	0.871	0.618	3.216
Hawaiian/Pacific Islander	20	0.907	0.907	0.905	0.238	2.921
Caucasian	5656	0.882	0.884	0.871	0.510	3.036
Female	3450	0.883	0.884	0.871	0.505	3.037
Male	3674	0.891	0.892	0.880	0.541	3.089
Free Lunch	2163	0.884	0.885	0.871	0.538	3.174
Reduced Lunch	731	0.876	0.879	0.864	0.542	3.109
Not free or reduced lunch	4230	0.878	0.879	0.866	0.491	2.999
Not Special Education	6080	0.869	0.871	0.857	0.478	3.039
Special Education	1044	0.895	0.897	0.883	0.588	3.191

Grade 4 Reading

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6829	0.885	0.887	0.875	0.530	2.937
No Accommodations	5923	0.856	0.859	0.845	0.470	2.887
With Accommodations	906	0.863	0.866	0.848	0.527	3.211
Not English Language Learner	6575	0.880	0.882	0.870	0.519	2.924
English Language Learner	254	0.843	0.845	0.821	0.502	3.215
Asian	78	0.866	0.867	0.857	0.443	2.824
African American	109	0.880	0.883	0.869	0.532	3.077
Hispanic	903	0.868	0.871	0.854	0.552	3.074
Native American	293	0.895	0.896	0.886	0.507	3.094
Hawaiian/Pacific Islander	21	0.900	0.902	0.896	0.484	3.080
Caucasian	5420	0.880	0.882	0.870	0.516	2.900
Female	3294	0.881	0.883	0.871	0.528	2.903
Male	3535	0.888	0.890	0.879	0.525	2.963
Free Lunch	2083	0.883	0.886	0.872	0.544	3.061
Reduced Lunch	679	0.879	0.881	0.868	0.526	2.973
Not free or reduced lunch	4067	0.873	0.875	0.863	0.496	2.861
Not Special Education	5807	0.857	0.859	0.846	0.466	2.890
Special Education	1022	0.894	0.897	0.883	0.595	3.165

Grade 5 Reading

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6779	0.880	0.882	0.868	0.585	2.979
No Accommodations	870	0.840	0.867	0.841	0.591	3.227
With Accommodations	870	0.840	0.844	0.820	0.591	3.227
Not English Language Learner	237	0.831	0.855	0.863	0.548	3.209
English Language Learner	237	0.831	0.835	0.810	0.548	3.209
Asian	5377	0.874	0.881	0.835	0.577	2.948
African American	77	0.848	0.832	0.862	0.587	2.867
Hispanic	294	0.864	0.872	0.866	0.628	3.150
Native American	10	0.904	0.899	0.847	0.675	3.035
Hawaiian/Pacific Islander	888	0.878	0.879	0.845	0.572	3.080
Caucasian	16	0.869	0.881	0.861	0.534	3.082
Female	3469	0.878	0.886	0.865	0.570	3.012
Male	3469	0.878	0.881	0.868	0.570	3.012
Free Lunch	4087	0.867	0.853	0.862	0.569	2.907
Reduced Lunch	713	0.878	0.880	0.867	0.564	3.019
Not free or reduced lunch	713	0.878	0.888	0.853	0.564	3.019
Not Special Education	960	0.867	0.888	0.839	0.620	3.202
Special Education	960	0.867	0.871	0.852	0.620	3.202

Grade 6 Reading

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6801	0.867	0.872	0.841	0.679	3.129
No Accommodations	5936	0.839	0.845	0.809	0.638	3.083
With Accommodations	865	0.826	0.831	0.787	0.651	3.360
Not English Language Learner	6633	0.864	0.868	0.836	0.675	3.121
English Language Learner	168	0.790	0.796	0.744	0.611	3.385
Asian	80	0.876	0.879	0.856	0.622	2.985
African American	129	0.836	0.841	0.804	0.643	3.225
Hispanic	873	0.853	0.858	0.824	0.654	3.222
Native American	274	0.857	0.860	0.826	0.641	3.258
Hawaiian/Pacific Islander	19	0.926	0.932	0.900	0.826	3.048
Caucasian	5425	0.866	0.871	0.839	0.682	3.105
Female	3245	0.858	0.862	0.831	0.647	3.094
Male	3556	0.872	0.877	0.847	0.689	3.151
Free Lunch	1895	0.858	0.863	0.828	0.679	3.244
Reduced Lunch	683	0.852	0.857	0.820	0.670	3.203
Not free or reduced lunch	4223	0.858	0.863	0.832	0.660	3.058
Not Special Education	5859	0.837	0.843	0.807	0.636	3.083
Special Education	942	0.848	0.853	0.813	0.672	3.343

Grade 7 Reading

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6822	0.877	0.881	0.856	0.634	3.324
No Accommodations	5944	0.854	0.858	0.833	0.581	3.296
With Accommodations	878	0.847	0.852	0.812	0.645	3.397
Not English Language Learner	6677	0.874	0.878	0.854	0.627	3.320
English Language Learner	145	0.857	0.862	0.810	0.696	3.395
Asian	81	0.894	0.898	0.882	0.630	3.271
African American	107	0.866	0.871	0.835	0.672	3.391
Hispanic	846	0.869	0.873	0.843	0.614	3.378
Native American	262	0.868	0.873	0.842	0.655	3.397
Hawaiian/Pacific Islander	11	0.907	0.915	0.875	0.831	3.189
Caucasian	5508	0.873	0.877	0.853	0.625	3.307
Female	3261	0.870	0.874	0.851	0.599	3.291
Male	3561	0.879	0.883	0.858	0.640	3.333
Free Lunch	1900	0.871	0.875	0.845	0.635	3.388
Reduced Lunch	654	0.860	0.865	0.844	0.594	3.356
Not free or reduced lunch	4268	0.868	0.873	0.848	0.613	3.279
Not Special Education	5926	0.853	0.858	0.832	0.579	3.296
Special Education	896	0.853	0.857	0.820	0.652	3.392

Grade 8 Reading

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6771	0.876	0.880	0.860	0.599	3.456
No Accommodations	5892	0.853	0.858	0.835	0.558	3.443
With Accommodations	879	0.839	0.844	0.801	0.621	3.424
Not English Language Learner	6626	0.874	0.878	0.858	0.597	3.453
English Language Learner	145	0.805	0.811	0.749	0.587	3.527
Asian	69	0.862	0.867	0.856	0.543	3.462
African American	110	0.858	0.861	0.841	0.511	3.547
Hispanic	846	0.860	0.864	0.839	0.566	3.506
Native American	289	0.863	0.865	0.848	0.526	3.467
Hawaiian/Pacific Islander	19	0.855	0.865	0.818	0.712	3.648
Caucasian	5429	0.875	0.880	0.859	0.604	3.441
Female	3288	0.872	0.876	0.856	0.579	3.451
Male	3483	0.876	0.880	0.861	0.594	3.433
Free Lunch	1770	0.867	0.870	0.848	0.569	3.486
Reduced Lunch	674	0.869	0.874	0.849	0.603	3.486
Not free or reduced lunch	4327	0.866	0.870	0.849	0.585	3.426
Not Special Education	5881	0.850	0.855	0.832	0.553	3.442
Special Education	890	0.830	0.834	0.794	0.587	3.401

Grade 11 Reading

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	7338	0.871	0.876	0.842	0.673	3.263
No Accommodations	6578	0.861	0.865	0.830	0.653	3.253
With Accommodations	760	0.826	0.830	0.785	0.630	3.288
Not English Language Learner	7236	0.870	0.874	0.841	0.670	3.262
English Language Learner	102	0.753	0.756	0.688	0.557	3.252
Asian	100	0.876	0.881	0.841	0.692	3.218
African American	121	0.884	0.888	0.858	0.686	3.348
Hispanic	833	0.863	0.866	0.833	0.634	3.297
Native American	278	0.858	0.861	0.833	0.617	3.290
Hawaiian/Pacific Islander	10	0.879	0.888	0.821	0.799	3.341
Caucasian	5982	0.868	0.873	0.838	0.673	3.254
Female	3530	0.868	0.871	0.839	0.648	3.241
Male	3808	0.872	0.877	0.843	0.680	3.270
Free Lunch	1570	0.861	0.865	0.829	0.660	3.306
Reduced Lunch	553	0.848	0.851	0.820	0.599	3.291
Not free or reduced lunch	5215	0.867	0.871	0.836	0.667	3.242
Not Special Education	6481	0.857	0.861	0.826	0.645	3.250
Special Education	857	0.826	0.830	0.785	0.630	3.284

Grade 3 Mathematics

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	7088	0.912	0.915	0.900	0.670	3.175
No Accommodations	6292	0.905	0.908	0.892	0.650	3.126
With Accommodations	796	0.908	0.911	0.892	0.688	3.488
Not English Language Learner	6745	0.910	0.913	0.897	0.662	3.158
English Language Learner	343	0.908	0.911	0.893	0.679	3.457
Asian	93	0.915	0.918	0.900	0.699	3.059
African American	103	0.918	0.922	0.905	0.721	3.257
Hispanic	924	0.911	0.914	0.898	0.670	3.343
Native American	322	0.928	0.931	0.915	0.741	3.413
Hawaiian/Pacific Islander	20	0.939	0.943	0.924	0.806	2.927
Caucasian	5620	0.904	0.907	0.891	0.648	3.129
Female	3437	0.911	0.914	0.897	0.670	3.194
Male	3651	0.914	0.917	0.902	0.671	3.155
Free Lunch	2157	0.917	0.920	0.905	0.679	3.333
Reduced Lunch	728	0.902	0.905	0.890	0.629	3.232
Not free or reduced lunch	4203	0.901	0.904	0.886	0.646	3.073
Not Special Education	6089	0.905	0.908	0.891	0.650	3.128
Special Education	999	0.920	0.923	0.908	0.704	3.415

Grade 4 Mathematics

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6750	0.914	0.916	0.904	0.616	3.477
No Accommodations	5922	0.905	0.907	0.894	0.583	3.431
With Accommodations	828	0.899	0.902	0.884	0.634	3.732
Not English Language Learner	6492	0.912	0.914	0.902	0.608	3.464
English Language Learner	258	0.886	0.888	0.866	0.610	3.734
Asian	79	0.907	0.907	0.897	0.476	3.234
African American	109	0.925	0.927	0.915	0.673	3.598
Hispanic	897	0.903	0.905	0.890	0.620	3.657
Native American	285	0.911	0.912	0.898	0.620	3.631
Hawaiian/Pacific Islander	21	0.940	0.940	0.936	0.534	3.575
Caucasian	5354	0.911	0.912	0.900	0.601	3.433
Female	3260	0.915	0.916	0.904	0.624	3.490
Male	3490	0.914	0.916	0.904	0.610	3.459
Free Lunch	2055	0.909	0.911	0.897	0.613	3.620
Reduced Lunch	667	0.913	0.914	0.903	0.603	3.496
Not free or reduced lunch	4028	0.909	0.910	0.898	0.596	3.392
Not Special Education	5805	0.904	0.906	0.893	0.579	3.437
Special Education	945	0.921	0.923	0.909	0.674	3.677

Grade 5 Mathematics

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6707	0.924	0.925	0.915	0.648	3.502
No Accommodations	5908	0.915	0.916	0.906	0.604	3.460
With Accommodations	799	0.904	0.907	0.889	0.656	3.731
Not English Language Learner	6471	0.922	0.923	0.913	0.641	3.491
English Language Learner	236	0.882	0.885	0.861	0.611	3.717
Asian	77	0.925	0.925	0.913	0.620	3.219
African American	117	0.915	0.917	0.903	0.621	3.666
Hispanic	880	0.917	0.919	0.906	0.647	3.632
Native American	290	0.917	0.919	0.905	0.674	3.672
Hawaiian/Pacific Islander	16	0.875	0.875	0.860	0.392	3.737
Caucasian	5317	0.920	0.922	0.911	0.634	3.464
Female	3286	0.924	0.925	0.914	0.661	3.499
Male	3421	0.924	0.925	0.915	0.634	3.501
Free Lunch	1948	0.917	0.919	0.905	0.658	3.645
Reduced Lunch	703	0.922	0.924	0.915	0.604	3.531
Not free or reduced lunch	4056	0.919	0.920	0.910	0.626	3.419
Not Special Education	5814	0.914	0.916	0.905	0.599	3.459
Special Education	893	0.916	0.919	0.904	0.684	3.712

Grade 6 Mathematics

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6698	0.927	0.929	0.915	0.703	3.479
No Accommodations	5941	0.921	0.923	0.908	0.682	3.432
With Accommodations	757	0.895	0.897	0.876	0.653	3.765
Not English Language Learner	6531	0.926	0.928	0.914	0.698	3.469
English Language Learner	167	0.891	0.894	0.865	0.693	3.777
Asian	81	0.927	0.929	0.913	0.725	3.250
African American	128	0.919	0.921	0.908	0.657	3.652
Hispanic	872	0.917	0.919	0.902	0.693	3.643
Native American	269	0.916	0.919	0.897	0.739	3.683
Hawaiian/Pacific Islander	19	0.941	0.941	0.932	0.668	3.472
Caucasian	5328	0.926	0.928	0.915	0.696	3.436
Female	3208	0.926	0.928	0.913	0.703	3.473
Male	3490	0.928	0.930	0.917	0.702	3.479
Free Lunch	1846	0.916	0.918	0.902	0.691	3.654
Reduced Lunch	678	0.921	0.923	0.909	0.680	3.567
Not free or reduced lunch	4174	0.925	0.926	0.913	0.688	3.376
Not Special Education	5865	0.920	0.922	0.908	0.680	3.432
Special Education	833	0.910	0.912	0.894	0.677	3.738

Grade 7 Mathematics

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6719	0.929	0.931	0.919	0.675	3.666
No Accommodations	5935	0.923	0.924	0.912	0.647	3.658
With Accommodations	784	0.897	0.899	0.877	0.647	3.662
Not English Language Learner	6578	0.929	0.930	0.919	0.672	3.663
English Language Learner	141	0.895	0.896	0.874	0.606	3.733
Asian	80	0.941	0.942	0.933	0.703	3.465
African American	105	0.918	0.918	0.904	0.620	3.711
Hispanic	835	0.916	0.917	0.902	0.649	3.740
Native American	258	0.903	0.905	0.884	0.654	3.731
Hawaiian/Pacific Islander	11	0.918	0.919	0.903	0.654	3.657
Caucasian	5424	0.928	0.930	0.919	0.665	3.649
Female	3224	0.928	0.929	0.918	0.661	3.651
Male	3495	0.930	0.932	0.920	0.688	3.674
Free Lunch	1852	0.918	0.919	0.904	0.654	3.721
Reduced Lunch	647	0.921	0.922	0.910	0.631	3.710
Not free or reduced lunch	4220	0.927	0.929	0.917	0.660	3.627
Not Special Education	5915	0.922	0.924	0.911	0.644	3.661
Special Education	804	0.904	0.906	0.886	0.657	3.646

Grade 8 Mathematics

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6644	0.927	0.930	0.915	0.726	3.878
No Accommodations	5890	0.919	0.922	0.906	0.695	3.877
With Accommodations	754	0.887	0.890	0.860	0.701	3.771
Not English Language Learner	6500	0.927	0.929	0.914	0.723	3.876
English Language Learner	144	0.889	0.892	0.858	0.714	3.893
Asian	70	0.949	0.950	0.942	0.726	3.674
African American	107	0.881	0.886	0.850	0.732	3.999
Hispanic	831	0.910	0.913	0.894	0.704	3.942
Native American	283	0.914	0.917	0.896	0.702	3.879
Hawaiian/Pacific Islander	19	0.915	0.917	0.909	0.574	3.871
Caucasian	5325	0.927	0.930	0.915	0.721	3.862
Female	3243	0.926	0.928	0.913	0.714	3.874
Male	3401	0.929	0.931	0.917	0.729	3.868
Free Lunch	1706	0.910	0.912	0.892	0.697	3.934
Reduced Lunch	663	0.920	0.923	0.906	0.708	3.918
Not free or reduced lunch	4275	0.926	0.929	0.914	0.716	3.839
Not Special Education	5880	0.919	0.921	0.905	0.693	3.878
Special Education	764	0.885	0.888	0.858	0.699	3.763

Grade 11 Mathematics

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	7810	0.934	0.937	0.921	0.788	3.906
No Accommodations	7108	0.933	0.936	0.919	0.777	3.918
With Accommodations	702	0.860	0.863	0.819	0.750	3.685
Not English Language Learner	7704	0.934	0.937	0.920	0.786	3.909
English Language Learner	106	0.750	0.750	0.688	0.502	3.580
Asian	107	0.953	0.956	0.944	0.848	3.749
African American	137	0.879	0.883	0.840	0.755	3.866
Hispanic	877	0.912	0.914	0.891	0.755	3.861
Native American	296	0.903	0.905	0.880	0.725	3.806
Hawaiian/Pacific Islander	12	0.928	0.932	0.918	0.807	3.928
Caucasian	6368	0.935	0.938	0.922	0.782	3.914
Female	3885	0.930	0.932	0.915	0.775	3.911
Male	3925	0.939	0.941	0.926	0.801	3.893
Free Lunch	1635	0.913	0.916	0.892	0.763	3.849
Reduced Lunch	585	0.917	0.920	0.898	0.755	3.926
Not free or reduced lunch	5590	0.936	0.939	0.923	0.783	3.913
Not Special Education	7017	0.933	0.935	0.919	0.775	3.922
Special Education	793	0.851	0.853	0.810	0.716	3.656

Grade 4 Science

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6747	0.835	0.844	0.823	0.537	3.367
No Accommodations	5919	0.823	0.832	0.814	0.508	3.355
With Accommodations	828	0.807	0.816	0.780	0.533	3.350
Not English Language Learner	6487	0.830	0.839	0.819	0.524	3.363
English Language Learner	260	0.759	0.769	0.701	0.518	3.300
Asian	79	0.839	0.851	0.826	0.578	3.394
African American	109	0.837	0.846	0.811	0.574	3.399
Hispanic	898	0.827	0.837	0.800	0.577	3.364
Native American	286	0.813	0.823	0.777	0.578	3.297
Hawaiian/Pacific Islander	21	0.852	0.863	0.821	0.656	3.357
Caucasian	5349	0.824	0.833	0.817	0.503	3.359
Female	3261	0.836	0.846	0.822	0.556	3.373
Male	3486	0.834	0.842	0.825	0.516	3.358
Free Lunch	2055	0.824	0.834	0.803	0.548	3.366
Reduced Lunch	665	0.825	0.835	0.808	0.543	3.349
Not free or reduced lunch	4027	0.821	0.830	0.815	0.490	3.350
Not Special Education	5803	0.824	0.833	0.813	0.514	3.357
Special Education	944	0.839	0.847	0.822	0.551	3.363

Grade 8 Science

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	6619	0.863	0.871	0.842	0.621	3.292
No Accommodations	5868	0.854	0.862	0.835	0.594	3.299
With Accommodations	751	0.800	0.805	0.751	0.556	3.107
Not English Language Learner	6475	0.862	0.870	0.841	0.618	3.293
English Language Learner	144	0.788	0.794	0.731	0.556	3.165
Asian	70	0.877	0.887	0.859	0.686	3.317
African American	106	0.824	0.836	0.760	0.666	3.309
Hispanic	822	0.842	0.850	0.810	0.619	3.240
Native American	283	0.849	0.855	0.815	0.605	3.197
Hawaiian/Pacific Islander	19	0.866	0.869	0.869	0.438	3.278
Caucasian	5310	0.860	0.868	0.840	0.611	3.299
Female	3224	0.859	0.868	0.837	0.617	3.314
Male	3395	0.867	0.874	0.848	0.612	3.252
Free Lunch	1694	0.833	0.839	0.798	0.580	3.251
Reduced Lunch	660	0.850	0.858	0.826	0.613	3.293
Not free or reduced lunch	4265	0.860	0.868	0.842	0.610	3.294
Not Special Education	5856	0.854	0.861	0.835	0.590	3.298
Special Education	763	0.786	0.792	0.739	0.550	3.102

Grade 11 Science

Group	Count	Alpha	Strat Alpha	MC Alpha	CR Alpha	SEM
All	5806	0.871	0.881	0.857	0.627	3.473
No Accommodations	5370	0.866	0.875	0.853	0.607	3.464
With Accommodations	436	0.816	0.826	0.765	0.590	3.384
Not English Language Learner	5745	0.870	0.880	0.856	0.623	3.473
English Language Learner	61	0.710	0.716	0.613	0.475	3.190
Asian	72	0.874	0.880	0.867	0.540	3.409
African American	80	0.842	0.850	0.822	0.545	3.459
Hispanic	587	0.862	0.874	0.834	0.668	3.442
Native American	156	0.860	0.870	0.834	0.647	3.427
Hawaiian/Pacific Islander	10	0.884	0.897	0.845	0.733	3.509
Caucasian	4892	0.869	0.878	0.856	0.616	3.473
Female	2889	0.863	0.873	0.847	0.610	3.471
Male	2917	0.879	0.889	0.866	0.646	3.462
Free Lunch	1060	0.846	0.855	0.818	0.606	3.451
Reduced Lunch	385	0.866	0.876	0.846	0.638	3.448
Not free or reduced lunch	4361	0.869	0.878	0.857	0.611	3.468
Not Special Education	5307	0.863	0.873	0.850	0.601	3.465
Special Education	499	0.824	0.831	0.784	0.551	3.324