

**Technical Documentation for the
2010 Palmetto Assessment of State Standards
of Writing, English Language Arts, Mathematics,
Science, and Social Studies**



South Carolina
Department of Education

Together, we can.

Issued by the
South Carolina Department of Education

**Office of Assessment
Division of Accountability**

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State Superintendent of Education**

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GENERAL INTRODUCTION

PALMETTO ASSESSMENT OF STATE STANDARDS

The South Carolina Palmetto Assessment of State Standards (PASS) tests are designed to measure the academic performance of charter and public school students in the content areas of writing, English language arts (ELA), mathematics, science, and social studies. The PASS replaced the Palmetto Achievement Challenge Tests (PACT), which had been used in the state since 1999. All students in grades 3 through 8 are required to take this assessment except those who qualify for the South Carolina Alternate Assessment (SC-Alt), which assesses students with significant cognitive disabilities.

In spring 2010, PASS assessments in writing, ELA, and mathematics were administered to all students in grades 3 to 8. The science and social studies tests were administered to all students in grades four and seven. In grades 3, 5, 6, and 8 students were randomly assigned to be tested in either science or social studies. The writing tests were administered over two days in March. The ELA, mathematics, science, and social studies tests were administered in May. All operational forms had embedded field test items.

This document has two distinct parts. The first section (chapters 1 through 4) provides an introduction to the history and development of the PASS as well as the administration and scoring of the tests. The second section (chapters 5 through 9) documents the technical characteristics of test items, cut scores, reliability and standard error of measurement, and validity.

CHAPTER 1

HISTORY AND OVERVIEW

1.1 THE PALMETTO ACHIEVEMENT CHALLENGE TESTS

The Education Accountability Act (EAA) of 1998, Chapter 18 of Title 59 of the 1976 South Carolina Code of Laws, provided for the establishment of a performance-based accountability system. The State Board of Education was required to develop a statewide assessment program to measure student performance on state standards. The PACT assessment program was developed in accordance with this legislation. English language arts (ELA) and mathematics tests were administered the first time in April 1999 to all students in grades 3 through 8. In 2001 and 2002, science and social studies field tests, respectively, were added to the statewide program. In 2003, PACT included as operational tests all four subject areas – ELA, mathematics, science, social studies – for all students in grades 3-8. Effective with the 2007 administration, only students in grades 4 and 7 were administered both the science and the social studies tests. Students in grades 3, 5, 6, and 8 were randomly assigned to take either the science or the social studies test. All students in grades 3 through 8 participated in the ELA and mathematics tests. The last administration of the PACT was in spring 2008.

1.2 RECOMMENDATIONS FOR CHANGE IN THE ASSESSMENT PROGRAM

In February 2005, the South Carolina Task Force on Testing submitted recommendations for changes in the statewide assessment program to the Education Oversight Committee and the South Carolina Department of Education. Recommendations included reducing the amount of testing and providing more information on student performance to schools and teachers.

The South Carolina General Assembly also held a series of meetings during 2005 to discuss these recommendations. In March 2006, the General Assembly amended Section 59-18-320(B) of the EAA.

1.3 THE EDUCATION ACCOUNTABILITY ACT OF 2008

On May 29, 2008, the General Assembly ratified a bill to amend the EAA. This bill revised the manner in which students, schools, and districts are assessed and how school academic performance is designated. The General Assembly noted that the PACT “no longer meets the requirements” of the amended legislation.

As stated in Section 59-18-100, the purpose of the revised EAA legislation is “to establish a performance based accountability system for public education which focuses on improving teaching and learning so that students are equipped with a strong academic foundation.” The legislation in Section 59-18-100 states in part that the accountability system must:

- (1) use academic achievement standards to push schools and students toward higher performance by aligning the state assessment to those standards and

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- linking policies and criteria for performance standards, accreditation, reporting, school rewards, and targeted assistance;
 - (2) provide an annual report card with a performance indicator system that is logical, reasonable, fair, challenging, and technically defensible, which furnishes clear and specific information about school and district academic performance and other performance to parents and the public;
 - (3) require all districts to establish local accountability systems to stimulate quality teaching and learning practices and target assistance to low performing schools;
 - (4) provide resources to strengthen the process of teaching and learning in the classroom to improve student performance and reduce gaps in performance;
 - (5) support professional development as integral to improvement and to the actual work of teachers and school staff; and
 - (6) expand the ability to evaluate the system to conduct in-depth studies on implementation, efficiency, and the effectiveness of academic improvement efforts.

Section 59-18-310 of the EAA requires the Department of Education to develop or adopt a statewide assessment program to promote student learning and to measure student performance on state standards and:

- (1) identify areas in which students, schools, or school districts need additional support;
- (2) indicate the academic achievement for schools, districts, and the State;
- (3) satisfy federal reporting requirements; and
- (4) provide professional development to educators.

The EAA also mandated a standards-based assessment in which “an individual’s performance is compared to specific performance standards and not to the performance of other students.” The new assessment must be an “objective and reliable statewide assessment” meaning that the assessment yields “consistent results” and measures “the cognitive knowledge and skills specified in the state-approved academic standards...” According to this legislation, a student’s score on this assessment may not be the sole criterion for placing the student on academic probation, retaining the student in his current grade, or requiring the student to attend summer school.

In accordance with this legislation, the Palmetto Assessment of State Standards (PASS) was developed to achieve these goals. Beginning with the 2008–09 school year, PASS test results were used for school, district, and state accountability purposes.

1.4 COMPARISON OF THE PACT AND THE PASS

Although there are some similarities, PASS has specific design differences from the PACT. Like PACT, all PASS items are aligned with the South Carolina Academic Standards. Tests in both programs are untimed. A difference between the two is the administration in PASS of a separate writing test over two days in March. This change provides students with writing scores distinct from those for the remaining ELA standards. The earlier administration of the

writing test assists with the SCDE’s goal of providing student scores to the schools and districts in a more timely manner.

Like PACT, the PASS writing assessment contains one extended-response item for students in grades 3 through 8. While PACT included a few multiple-choice writing items, the PASS writing test contains a greater number of multiple-choice items, including items that require students to edit writing passages and stand-alone sentences. Another addition to the PASS writing assessment is the inclusion of the scoring rubric in the student’s answer document. The scoring rubric, used to grade the student’s composition, was updated in 2008.

The remaining four tests (English language arts, mathematics, science, and social studies) are administered during one week in May. As mandated by the EAA, these PASS tests do not include constructed-response items, which were a component of some PACT tests.

Another difference between PACT and PASS assessments is the discontinuation of the “read aloud” administration of the grade three tests. In addition, oral administration of ELA and the use of a calculator are allowed for students with disabilities for grades 5-8, effective 2009. In grades 3 and 4, both oral administration and calculator use remain non-standard accommodations.

1.5 GROUPS INVOLVED WITH THE PASS

The SCDE developed the PASS both directly and through private contractors. In addition, the SCDE manages the yearly administration of the PASS and disseminates the results to the schools and to the public.

Education Oversight Committee

The EOC was established through Section 56-6-10 of the South Carolina Code of Laws. According to the mandate of the Education Accountability Act of 1998, “the Education Oversight Committee . . . will review the state assessment program and the course assessments for alignment with the state standards, level of difficulty and validity, and for the ability to differentiate levels of achievement, and will make recommendations for needed changes, if any” (S.C. Code Ann. § 59-18-320(A)). The EOC is composed of eighteen members from state government, business, and education. The EOC was charged to set achievement standards for the PASS.

Technical Advisory Committee

The Technical Advisory Committee (TAC) makes recommendations to the SCDE on issues regarding field-test design, item analysis, linking issues, the item response theory (IRT) model for data analysis, procedures for standards setting and data reporting, and other relevant psychometric issues. Experts from national, state, and local organizations are included in the membership of the TAC.

Contractors and Other Groups

In addition to SCDE staff members, contractors and SC educators were involved in PASS development and administration. Pearson was contracted to develop items and test forms. Data Recognition Corporation (DRC) was contracted to provide test administration, scoring, and reporting services. MetaMetrics, Inc., provided Lexile reading measures.

1.6 SOUTH CAROLINA ACADEMIC STANDARDS AND INDICATORS

South Carolina academic standards consist of statements indicating the most important and consensually determined expectations for student learning in a particular discipline. They indicate what schools are expected to teach and what students are expected to learn. In accordance with the EAA, the purpose of academic standards is to provide the basis for the development of local curricula and statewide assessments. Further, the standards are to promote the goals of providing every student with the competencies to:

- (1) read, view, and listen to complex information in the English language;
- (2) write and speak effectively in the English language;
- (3) solve problems by applying mathematics;
- (4) conduct research and communicate findings;
- (5) understand and apply scientific concepts;
- (6) obtain a working knowledge of world, United States, and South Carolina history, government, economics, and geography; and
- (7) use information to make decisions.

As emphasized by the Education Accountability Act (S.C. Code Ann. § 59-18), the standards

must be reflective of the highest level of academic skills with the rigor necessary to improve the curriculum and instruction in South Carolina's schools so that students are encouraged to learn at unprecedented levels and must be reflective of the highest level of academic skills at each grade level.

The South Carolina standards also include multiple indicators for each standard. Indicators are specific statements of the cognitive processes and the content knowledge and skills that students must demonstrate in order to meet the standard. The main verb in each indicator specifies the particular aspect of the particular cognitive processes that are described in the revised Bloom's taxonomy. Use of the taxonomic verbs will allow teachers to identify the kind of knowledge addressed by an indicator and therefore enable them to teach the content in an effective manner.

The following is an example of a standard and an indicator for English language arts.

Grade 4 – Standard 1: The student will read and comprehend a variety of literary texts in print and nonprint formats.

Indicator 1.1: Analyze literary texts to draw conclusions and make inferences.

The academic standards and supporting documents are available on the South Carolina Department of Education Web site at <http://www.ed.sc.gov/agency/offices/cso/standards/>.

The academic standards for each subject are not presented in an instructional sequence. All of the standards and their indicators carry equal weight and should be taught in an integrated manner.

The South Carolina academic standards are reviewed on a cyclical basis using procedures agreed upon by the SCDE and the EOC. Procedures for the review of all newly revised South Carolina academic standards are published in the document *Procedures for the Cyclical Review of Current South Carolina K–12 Academic Standards and for the Development of New Academic Standards*.

The Science and Social Studies standards were reviewed, revised, and approved by the State Board of Education in 2005. They will be reviewed again in 2011. The mathematics standards were updated in 2007 and the ELA standards were reviewed and revised in 2008.

1.7 ALIGNMENT OF SOUTH CAROLINA STANDARDS WITH OTHER STANDARDS

Efforts were made to align South Carolina standards with the national standards of the National Assessment of Educational Progress (NAEP), the National Council of Teachers of Mathematics (NCTM), the National Council of Teachers of English (NCTE), and the Third International Mathematics and Science Standards (TIMSS).

More specifically, resources used by each subject are provided in the following paragraphs.

ELA and Writing

The SCDE, in consultation with Mid-continent Research for Education and Learning (McREL), developed the English language arts standards and indicators utilizing a number of resources. Important among them are the ELA standards documents of several other states as well as the national standards document *Standards for the English Language Arts*, published jointly in 1996 by the National Council of Teachers of English and the International Reading Association. The following publications and resources were also utilized:

- *Media Literacy* (a Web page written by South Carolina media consultant Frank Baker that features descriptions of and links to recommended texts and videos providing background and basic understanding of media literacy).
http://www.frankwbaker.com/media_literacy.htm
- *Reading Framework for the 2009 National Assessment of Educational Progress* (Washington, DC: American Institutes for Research, 2005—prepublication edition).
<http://www.nagb.org/frameworks/fw.html>

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- *The State of State English Standards*, by Sandra Stotsky (Washington, DC: Thomas Fordham Foundation, 2005).
<http://www.edexcellence.net/doc/FullReport%5B01-03-05%5D.pdf>
 - *Report of the National Reading Panel: Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction* (Washington, DC: National Institute of Child Health and Human Development, 2000).
http://www.nichd.nih.gov/publications/nrp/upload/report_pdf.pdf
 - *Understanding University Success* (Eugene, OR: Center for Educational Policy Research, 2003).
http://www.pewtrusts.com/pdf/education_understanding_success.pdf

Mathematics

The mathematics standards set forth in *South Carolina Mathematics Curriculum Standards 2000* were aligned with the national standards published in 2000 by the National Council of Teachers of Mathematics (NCTM) in the document *Principles and Standards for School Mathematics* (available online at <http://standards.nctm.org/document/index.htm>). Those national standards have also served as a guide for this 2007 edition of the South Carolina academic standards for mathematics and the supporting indicators. The academic standards documents of a number of states as well as the following publications were also utilized:

- *Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics* (Reston, VA: NCTM, 2006).
<http://www.nctm.org/focalpoints/downloads.asp>
- *Mathematics Assessment and Exercise Specifications for the National Assessment of Educational Progress*, developed by the Council of Chief State School Officers, NAEP Mathematics Consensus Project (Washington, DC: National Assessment Governing Board, U.S. Department of Education, n.d.).
- *Mathematics Framework for the 2005 National Assessment of Educational Progress*, developed by the Council of Chief State School Officers, NAEP Mathematics Project (Washington, DC: National Assessment Governing Board, U.S. Department of Education, n.d.).

Science

The SCDE, in partnership with McREL, developed the academic standards and indicators for science utilizing a number of resources. Central among these resources were the *South Carolina Science Curriculum Standards*, published by the SCDE in 2000, and the 2004 recommendations of the State Science Panel and the Education Oversight Committee (EOC) panel on science.

The *National Science Education Standards*, produced by the National Research Council and published in 1996 by the National Academy Press in Washington, DC (available at <http://www.nap.edu/readingroom/books/nse/html>) was the foundation of the 2000 South Carolina science standards and continues as the primary basis for the 2005 standards and the supporting indicators. The following national documents were utilized in addition:

- *Atlas of Science Literacy*, produced by Project 2061 and the National Science Teachers Association (Washington, DC: American Association for the Advancement of Science, 2001).
- *Benchmarks for Science Literacy*, produced by Project 2061 and the American Association for the Advancement of Science (New York: Oxford University Press, 1993).
- *Content Knowledge: A Compendium of Standards and Benchmarks for K–12 Education*, by John S. Kendall and Robert J. Marzano. 3rd ed. (Aurora, CO: Mid-continent Regional Educational Laboratory, 2000).
- *NSTA Pathways to the Science Standards*, edited by Lawrence F. Lowery. Elementary School Edition (Arlington VA: National Science Teachers Association, 1998).
- *NSTA Pathways to the Science Standards: Guidelines for Moving the Vision into Practice*, edited by Steven J. Rakow. Middle School Edition (Arlington, VA: National Science Teachers Association, 1998).
- *NSTA Pathways to the Science Standards*, edited by Juliana Texley and Ann Wild. High School Edition (Arlington, VA: National Science Teachers Association, 1998).
- *Science Assessment and Exercise Specifications for the National Assessment of Educational Progress*, developed by the Council of Chief State School Officers, NAEP Science Consensus Project (Washington, DC: National Assessment Governing Board, U.S. Department of Education, n.d.).
- *Science Framework for the 1996 and 2000 National Assessment of Educational Progress*, developed by the Council of Chief State School Officers with the National Center for Improving Science Education and the American Institutes for Research; edited by Mark D. Musick (Washington, DC: National Assessment Governing Board, U.S. Department of Education, 1999).
<http://www.nagb.org/pubs/96-2000science/toc.html>.

Social Studies

The SCDE in partnership with McREL developed these social studies standards and the indicators utilizing the following sources:

- *South Carolina Social Studies Curriculum Standards*, published by the SCDE in 2000.

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- The national standards documents for social studies, geography, political science, history, and economics:
 - *Expectations of Excellence: Curriculum Standards for Social Studies*. Washington, DC: National Council for the Social Studies, 1994.
 - *Geography for Life: National Geography Standards*. Washington, DC: National Geographic Research and Exploration, 1994.
 - *National Standards for Civics and Government*. Calabasas, CA: Center for Civic Education, 1994.
 - *National Standards for History*. Los Angeles, CA: National Center for History in the Schools, 1996.
 - *Voluntary National Content Standards in Economics*. New York: National Council on Economic Education, 1997.
 - The published social studies standards of other states, including Alabama and New York.

1.8 DATA REPORTING

The PASS student data are reported using a horizontal (within-grade) score system. Students are placed into one of three ordinal achievement level categories: Not Met, Met, and Exemplary. Students also receive a scale score for each subject tested. The same scale range is used for every grade, in all subjects. Scale scores range from 300 to 900. The minimum scale score necessary to reach the Met achievement level is 600 in every case; the minimum scale score needed to reach the Exemplary level varies among grades and subjects. The scales were constructed so that the standard deviations of scale scores in the initial year of testing were 50. In subsequent years, standard deviations may vary. In addition to the subject-total scale scores, students' performance on every standard (or domain, for writing) is described by one of three ordinal categories: those who show weakness and a need for further instruction in the standard/domain, those who may benefit from additional activities that focus on the standard/domain, and those who show strength in the standard/domain. These categories do not correspond to the total-test performance levels of Not Met, Met, and Exemplary. See Section 7.7 for a full explanation.

CHAPTER 2

TEST DEVELOPMENT

2.1 TYPES OF ITEMS

Two types of items—multiple-choice and extended-response—were used on PASS tests. All PASS test forms for ELA, mathematics, science, and social studies contained only multiple-choice items, in numbers varying according to the blueprint specifications. The writing test forms included one extended-response and twenty-five multiple-choice items.

Multiple-Choice Items

Multiple-choice items required students to select a correct answer from several alternatives: usually four, but occasionally only three if a logical fourth alternative was not available. Three-alternative items are exceptions to the item development rules below.

Extended-Response Items

Extended-response items required students to compose a narrative in response to a writing prompt. The student response was scored on four domains: content and development, organization, voice, and conventions. Trained scorers evaluated each response against a scoring rubric which included specific indicators for each domain.

2.2 ITEM DEVELOPMENT

Pearson was contracted to develop the items for all PASS tests from 2009-2014. The SCDE's Request for Proposals (RFP) specified the following guidelines.

1. The contractor must supply items that will validly assess student achievement on the skills/knowledge defined in the standards for each assessment.
2. The items should represent the breadth of content at the grade level and should address appropriate taxonomic levels. The most recently revised standards have been developed using the revision to Bloom's taxonomy (Anderson and Krathwohl 2001). This document should be used to guide item alignment and new item development.
3. The Department shall maintain sole rights to any and all products produced under the terms of this contract.
4. In the case of all items, it will be the Contractor's responsibility to submit the following with the initial submission of items to the Department:
 - a. reference sources for content passages which state the author, title of work, publisher, and year;
 - b. documentation of permission to use any copyrighted material which will allow use for a minimum of ten years; and,
 - c. rationales for distractors, such as statements explaining why each option is a good choice for the particular item.
5. The items must meet the following criteria established by the Department.
 - a. The items will

-
- 1) be congruent with the knowledge and skills specified in the South Carolina Academic Standards;
 - 2) represent an appropriate level of difficulty for the intended examinees;
 - 3) require a level of reading skill appropriate to the examinees;
 - 4) not provide clues to the answer for any other items;
 - 5) not depend on any other items for the correct answer; and,
 - 6) be free from bias (e.g., race, gender, ethnicity, socioeconomic status, culture, or geographic region).
- b. Item stems will
- 1) adequately present the problem to be addressed,
 - 2) contain only necessary information,
 - 3) contain only positive wording (with rare exceptions), and
 - 4) contain clear and concise wording.
- c. Options will be
- 1) free of repetitive wording that could be placed in the stem,
 - 2) reasonably parallel in structure and length,
 - 3) grammatically consistent with the stem,
 - 4) non-overlapping,
 - 5) clearly and concisely worded,
 - 6) free of options such as “all of the above” and “none of the above”,
 - 7) arranged in a logical order,
 - 8) plausible,
 - 9) free of cues that would indicate the correct answer,
 - 10) free of absolute wording such as “always” and “never”,
 - 11) accompanied by an explanation of how each option was formulated, and
 - 12) appropriately keyed with only one correct or best answer.
- d. The graphs and illustrations will
- 1) depict all necessary information,
 - 2) have all labels typeset consistent with typeface and size specified by the Department, and
 - 3) be of professional quality.
6. Multiple-choice items will present four options.
 7. The items submitted must be representative of a broad range of skills and content.
 8. Multiple items may not be generated through trivial variations in wording.
 9. When extended text (a passage) is used as the basis for items, the text must be substantive enough to support at least (5) items that meet quality control criteria through field-testing.

Additional item writing requirements specified that Pearson must

1. obtain and train item writers who are highly knowledgeable about the relevant content area;
2. ensure that the test items are aligned to the South Carolina Academic Standards;
3. ensure that each test item meets the item development requirements of this RFP and all item specifications;

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4. ensure that each test item will, to the extent possible, be free from bias with respect to race, gender, ethnicity, socioeconomic status, culture, and geographic region; and
 5. ensure that each test item and all stimulus material will, to the extent possible, be free of content that would be offensive to any cultural, religious, or ethnic group.

2.3 ITEM REVIEW REQUIREMENTS

The SCDE requires multiple reviews of the items before they are placed on an operational form. All test items are reviewed by SCDE staff, Content Review Committees, and a Sensitivity Review Committee.

Proposed reading passages for ELA and writing, accompanied by copyright information, must be submitted for SCDE review and approval prior to the development of items relating to those passages. In addition, the passages are reviewed by the Bias/Sensitivity Review Committee prior to initiation of any item development.

After developing items to meet the test specifications and RFP requirements, Pearson submitted items to SCDE staff for review. Items could be approved, rejected, or returned for a rewrite. When reviewed, all items had content/identification codes and a rationale for each incorrect option.

After initial SCDE approval of items, Pearson arranged for reviews of the items by the Content Review Committees and the Sensitivity Review Committee. Pearson was responsible for providing item notebooks for participants, conducting the meetings, and documenting all decisions, changes, and concerns during the meetings. SCDE staff and Pearson staff were present at all meetings.

Following the committee meetings, Pearson compiled committee comments and sent a documented set of items for final consideration by SCDE staff. SCDE final decisions were transmitted to Pearson, where the final changes were made.

2.4 REVIEW COMMITTEES

The SCDE convened two committees to assist in the review of test items: a content review committee (CRC) and a sensitivity review committee (SRC). CRC members are content teachers or curriculum specialists, representing each subject and grade tested. The CRC reviewed items for content, alignment to the standards, and appropriateness at the intended grade level. The SRC reviewed items for cultural, religious, or geographical bias and for content of a sensitive nature. SRC committees are made up of professionals in social service agencies and educators with expertise in guidance or counseling. The SCDE provided Pearson with recommendations for participants for both sets of committees.

A third group, known collectively as the rangefinding committees, were composed of teachers and coordinators from around the state, as selected by SCDE staff. Rangefinding committees identified sets of papers to be used in the scoring of writing. These sets, known as exemplar papers, represented each possible score level at every grade. They were used in the

training and qualifying of the raters used by DRC in scoring writing extended-response items.

2.5 REVIEW PROCESS

Following Pearson's development of the items to meet the RFP requirements, the items were submitted to the SCDE staff for review. The SCDE staff focused on the alignment of the items to the academic standards, associated support documents, the range of difficulty, and the range of topics addressed in the items. Once SCDE staff approved the items for field testing, they were reviewed by the CRC and the SRC. Participants for the committees were selected by Pearson with recommendations from the SCDE.

Content Review

The participants in the CRC are content-specific teachers or curriculum specialists. The CRC is divided into subject and grade-specific groups. After a general training session, conducted by Pearson, the CRC reviewed the items appropriate to their group. A secure binder containing the items to be reviewed was provided for each committee member along with a content review checklist.

The content leader discussed the items in sets, grouped by standard or domain, using the measurement guidelines and test/item specifications. Participants voted individually to keep, revise, or reject each item. Once all votes were registered, the group leader led discussion on those items for which consensus had not been reached and recorded committee members' recommendations.

Sensitivity Review

SRC participants are made up of social service agency staff or are educators with expertise in guidance or counseling. The SRC met immediately following the CRC. Participants were provided copies of the items from the CRC (as revised) so that the most current versions of the items were utilized. Participants received a bias review checklist to use during the meeting.

Pearson staff again conducted a general training session, outlining the purpose of the meeting and discussing the review guidelines. They demonstrated the review process using a few of the test items with the committee members before asking them to review the remaining items on their own. Committee members were reminded to concentrate on bias/sensitivity rather than subject-matter content. After the committee members had completed their individual reviews, they convened to discuss any items they identified as potentially problematic. The committee reached consensus on deletion or revisions (e.g., change of context or simplification of sentence structure/language for clarity), and leaders recorded comments and recommendations through the meeting. Following the committee meetings, Pearson content specialists worked with the SCDE to revise and prepare items for field testing.

2.6 TEST SPECIFICATIONS

The South Carolina test blueprints specify the item types and the number of items for each grade level standard. The test blueprints are specific to each grade and subject. The approximate number of items tested within subject and grade level standards is published in the PASS blueprint documents. The blueprints are located on the PASS Web page under the link for the subject: <http://www.ed.sc.gov/agency/Accountability/Assessment/PASS.html>.

Because of embedded field test items, the tests for 2010 contained more total items than specified in the blueprint. The additional items were for test development purposes only and were not included in the calculation of student scores.

Each PASS ELA test has four standards, or content areas: literary text, information text, vocabulary, and research. Each mathematics test has five standards: number and operations, algebra, geometry, measurement, and data analysis and probability. Writing has four domains: content and development, organization, voice, and conventions. These standards/domains are assessed across all grades. For science and social studies, the number and organization of standards vary across grades. See Appendix A for a complete list.

The SCDE provided Pearson with an item specifications document in August 2008. This document specified the number of items required for each assessed indicator and the necessary number of items per test form in the SC writing, ELA, mathematics, science, and social studies academic standards. The specifications provided an acceptable range for the number of items for each indicator as well as the necessary number of items per test form for each standard. While it is acceptable for test forms to vary slightly at the indicator level, all assessments must contain the specified number of items at the standard level.

2.7 FIELD TESTING

Multiple forms of all tests were developed. Every subject- and grade-level-specific form shared a set of operational items, but differed in the embedded field test items included. Six field test items were included on all tests except customized forms.

2.8 ANALYSIS OF FIELD-TEST DATA

Pearson and DRC provided the SCDE with detailed item analyses of all embedded field test items. These analyses included classical item difficulties, item discrimination indices, the proportions of students selecting each option on multiple-choice items, option-criterion correlations, and levels of ethnic and gender differential item functioning (DIF). The statistics were reviewed by SCDE content and technical staff. Items were then accepted for PASS items banks, rejected as unsatisfactory, or set aside for possible editing and re-fieldtesting.

CHAPTER 3

TEST ADMINISTRATION

3.1 OVERVIEW

The PASS writing, ELA, mathematics, science, and social studies tests were administered to students in grades 3 through 8. Numerous DRC, state, district, and school personnel participated in the PASS administration. A hierarchical organization beginning with DRC and SCDE personnel, one district test coordinator (DTC) per district, one school test coordinator (STC) per school, and test administrators (TAs) for each classroom promoted training efficiency, facilitated test administration, and streamlined the distribution of secure materials. The use of test monitors in every classroom was recommended. DRC distributed all required testing materials to the DTCs, who in turn forwarded the materials throughout their districts.

3.2 ADMINISTRATOR TRAINING

DTCs are required to participate in pretest workshops presented by DRC and SCDE. The workshops were conducted via WebEx sessions during February (for March Writing) and March (for the May assessment). During the training sessions, DRC and SCDE staff guided the DTCs through the Test Administration Manual (TAM) and the District Test Coordinator's Supplement (SCDE 2010a, 2010b). The TAM contains, among other things, test security requirements, SCDE testing policies and procedures (including student participation guidelines, materials provided to schools, calculator and electronic devices policies, etc.) and procedures for the distribution and return of all types of test materials. DTCs must read and understand all of the policies and procedures given in the TAM and the Supplement. DTCs must provide each STC and all TAs with a TAM prior to the testing window so that they have the opportunity to become knowledgeable of all policies and procedures.

The DTCs must conduct training sessions for all STCs. Special Education Coordinators and Coordinators of programs for Limited English Proficient students are encouraged to participate in these training sessions so that they are aware of test security laws and regulation in addition to the PASS administration policies and procedures applying to all students and special procedures impacting their populations. DTCs have multiple resources available for use in their training sessions including an electronic version of the pretest workshop WebEx PowerPoint, the TAM, and the STC and TA Training Tool. DTCs and STCs are required to sign an Agreement to Maintain Test Security and Confidentiality form.

After their training, STCs hold training sessions for the TAs and the monitors. A section of the TAM is designated for the TAs (pages 43-50) and Appendix F is written especially for monitors. TAs must be certified employees of the school district or approved by the DTC. STCs may also use the TAM, the STC/TA Training Tool, or the pretest workshop PowerPoint when training the TAs and monitors. All TAs and monitors who have access to PASS secure test materials are required to read and sign the appropriate Agreement to

Maintain Test Security and Confidentiality form found in Appendix B of the TAM. The STCs train testing monitors in ways to assist the TAs and to increase test security. The STCs are also responsible for monitoring the test administration and adherence to security guidelines within their schools.

3.3 TIMELINE

All students in grades 3 through 8 took the PASS writing, ELA, and mathematics tests. All students in grades 4 and 7 took both the science and social studies tests. Students in grades 3, 5, 6, and 8 were randomly assigned to either the science or the social studies test, with approximately half of the students in each of those grades taking each test. The writing test was administered in March, while the ELA, mathematics, science, and social studies tests were administered in May. See table 3.1 for this year’s specific testing schedule.

TABLE 3.1
PASS Administration Schedule, Spring 2010

| Dates | Administration |
|-------------------|------------------------------------|
| March 16 | Writing, Day 1 (extended-response) |
| March 17 | Writing, Day 2 (multiple-choice) |
| March 18,19,22,23 | Make-up tests for Writing |
| May 11 | ELA (Reading and Research) |
| May 12 | Mathematics |
| May 13 | Science or Social Studies |
| May 14 | Social Studies |
| May 17-20 | Make-up Tests |

3.4 MATERIALS DISTRIBUTION AND RETURN

Test materials were sent to the DTCs in shrink-wrapped packages within boxes that included district and school inventories. All grades received non-scorable test booklets and scannable answer documents. Once the materials were accounted for and any missing materials reported to the DRC, the DTCs delivered the materials to the appropriate schools. The DRC, which was notified of any missing materials, subsequently provided procedures for documenting the discrepancies.

STCs were responsible for conducting an inventory of their test materials by comparing the ranges of security numbers on the security range sheets, which are visible through the shrinkwrap, with those listed on the security checklist and packing lists. STCs notified the DTC if any secure materials were damaged, missing, or if the school needed additional materials.

Test booklets, answer documents and other related test materials were color-coded by grade and precoded (i.e., student identification and demographic codes were printed on the materials) before delivery to the districts. Districts received extra materials for students not

included in the precoding process; these materials were hand-coded at the school level. Each day of test administration, secure test materials were signed out and in using school security checklists to keep track of this exchange of materials. Materials distributed each day were limited to those needed for testing on that particular day. Secure materials were locked in storage when not in use. Once test administrations were completed, the STC collected all test materials, accounting for each on the School Security Checklist. The scorable and nonscorable documents were then packaged and locked in storage until they were shipped to DRC.

Following the return of materials, DRC generated a missing document report, listing the identification numbers of any unreturned secure materials. The report was used to notify districts of missing materials. A toll-free telephone line was manned to answer questions regarding missing documents, and follow-up procedures were employed until all materials were accounted for. Subsequently, the districts located and returned the materials or sent signed statements indicating that all secure materials had been returned.

3.5 TEST SECURITY

Test Security Laws and Regulations

Test security is an important issue before, during, and following test administration. The specific procedures used during the test administration are outlined in the TAM. Reprinted in the manual are an excerpt from Section 59-1-445 (2004) of the South Carolina Code of Laws, an excerpt from Section 59-1-447 (2004) of the Code of Laws, and the entirety of 24 S.C. Code Ann. Regs. 43-100 (Supp. 2008).

Section 59-1-445 (2004) states in part:

It is unlawful for anyone knowingly and wilfully [sic] to violate security procedures regulations promulgated by the State Board of Education for mandatory tests administered by or through the State Board of Education to students or educators, or knowingly and wilfully to:

- (a) Give examinees access to test questions prior to testing;
- (b) Copy, reproduce, or use in any manner inconsistent with test security regulations all or any portion of any secure test booklet;
- (c) Coach examinees during testing or alter or interfere with examinees' responses in any way;
- (d) Make answer keys available to examinees;
- (e) Fail to follow security regulations for distribution and return of secure test [materials] as directed, or fail to account for all secure test materials before, during, and after testing;
- (f) Participate in, direct, aid, counsel, assist in, encourage, or fail to report any of the acts prohibited in this section.

Section 59-1-447 (2004) of the Code of Laws mandates:

Any person violating the provisions of this section or regulations issued hereunder is guilty of a misdemeanor and upon conviction must be fined not more than one thousand dollars or be imprisoned for not more than ninety days, or both. Upon conviction, the State Board of

Education may suspend or revoke the administrative or teaching credentials, or both, of the person convicted.

Regulation 43-100 (Supp. 2008) mandates:

Each local school board must develop and adopt a district test security policy. The policy must provide for the security of the materials during testing and the storage of all secure tests and test materials, before, during, and after testing. Before and after testing all materials must be stored at a location(s) in the district under lock and key.

This regulation further requires:

Each District Superintendent must designate annually one individual in each district for each mandated assessment who will be the sole individual in the district authorized to procure test instruments that are utilized in testing programs administered by or through the State Board of Education.

Regulation 43-100 (Supp. 2008) also lists specific actions that are viewed as security violations that could result in criminal prosecution and/or disciplinary action to an educator's professional certificate.

Reporting Test Security Violations

All suspected test security violations, as defined in S.C. Code Ann. § 59-1-445 (2004) or 24 S.C. Code Ann. Regs. 43-100 (Supp. 2008), must be reported to the South Carolina Department of Education. Following an internal review of the circumstances and the gravity of an alleged violation, the SCDE reports the incident to the South Carolina Law Enforcement Division (SLED) in one of two ways: (1) for investigation or (2) for information. The district involved is notified by SCDE when the report is forwarded to SLED and when the SCDE receives a final report from SLED. Test security violation reports may serve as a basis for initiating the invalidation of test scores or other actions by the Certification Review committee or the State Board of Education. Procedures for reporting test security violations and more specific information are provided in the TAM.

Test Security Agreement Forms

All school and district personnel who have access to secure test materials are required to read and sign the appropriate Agreement to Maintain Test Security and Confidentiality form. The agreement forms are provided in Appendix B of the TAM. The DTC is responsible for collecting and storing the forms for three years.

Secure Materials

Secure materials include all test booklets and answer documents, all customized test booklets, Oral Administration Scripts, Audio CD-ROMS, American Sign Language DVDs, Braille Oral Administration Scripts, rough drafts, typed responses, Braille responses, and science and social studies assignment lists. Test materials, including all test booklets, answer documents, and customized test materials, are assigned a human- and machine-readable

security identification number. Secure materials are locked in storage until the day of the test administration. They are signed out on the day of testing and are signed in when returned, using the School Security Checklist. These materials are not to be left unattended at any time.

3.6 STUDENT PARTICIPATION

With few exceptions, all students in grades 3 through 8 attending South Carolina public schools are required to participate in either the PASS or the South Carolina Alternate Assessment (SC-Alt) to fulfill the mandates of federal and state law (i.e., the No Child Left Behind Act of 2001, the Individuals with Disabilities Education Act of 1997, and the South Carolina Education Accountability Act of 1998, amended in 2008). This testing requirement includes all students with IEPs or 504 Plans, suspended students, home school students who are registered through the district or local school board, homebound students, and homebased students. Also included are ESOL/LEP students, charter school students, and students who are incarcerated.

Students who are not tested include the following:

1. students who are expelled (unless the student has an IEP);
2. homebound students for whom the district has documentation indicating that the student is not physically and/or mentally able to take the tests;
3. home school students who are registered through one of the professional home school organizations; and
4. students who attend a private school.

Students with Disabilities and Students with Limited English Proficiency

Students with disabilities are included in PASS test administrations with appropriate standard and/or non-standard accommodations based upon recommendations by each student's individualized education program (IEP) committee. Students with 504 accommodation plans and limited-English-proficient (LEP) students are also included in PASS testing. (A limited number of LEP students are exempt from PASS testing. Guidelines are given in the TAM.) Some students with severe cognitive disabilities, for whom PASS testing is inappropriate, participate in the SC-Alt.

On the following pages, tables 3.2 through 3.7 present demographic summary information for those students who participated in the PASS. In these tables, rows labeled *Unknown* pertain to students on whom no data are available. For *Ethnicity*, the student databases in the schools use eleven classifications: "African American," "African American/American Indian," "American Indian," "Asian," "Hawaiian-Pacific Islander," "Hispanic," "White," "White/African American," "White/American Indian," "White/Asian," and "Other." Classifications that use the slash indicate mixed heritage. These were the only categories available for preprinting test documents with student identification and demographic codes. However, if a student did not have preprinted test documents, he or she was required to provide data by hand-coding the document being used instead. State demographic reports condense Ethnicity into the seven categories that appear in the tables below: "White," "African American," "Hispanic," "Asian/Pacific Islander," "American Indian," "Other," and "Unknown." Asians and Hawaiian-Pacific Islanders are grouped together as "Asian/Pacific

Islander.” The category “Other” includes students who are of mixed race (i.e., African American/American Indian, white/African American, white/American Indian, or white/Asian) as well as students who indicated “Other” as their ethnicity.

TABLE 3.2
Grade 3: Summary of Student Demographics

| Demographics | Writing | | ELA | | Mathematics | | Science | | Social Studies | |
|-------------------------------------|---------|--------|--------|--------|-------------|--------|---------|--------|----------------|--------|
| | N | % | N | % | N | % | N | % | N | % |
| All Students | 54,565 | 100.00 | 54,464 | 100.00 | 54,799 | 100.00 | 27,535 | 100.00 | 27,347 | 100.00 |
| Gender | | | | | | | | | | |
| Male | 27,759 | 50.87 | 27,681 | 50.82 | 27,888 | 50.89 | 13,895 | 50.46 | 14,035 | 51.32 |
| Female | 26,777 | 49.07 | 26,728 | 49.07 | 26,854 | 49.00 | 13,605 | 49.41 | 13,291 | 48.60 |
| Unknown | 29 | 0.05 | 55 | 0.10 | 57 | 0.10 | 35 | 0.13 | 21 | 0.08 |
| Ethnicity | | | | | | | | | | |
| White | 28,928 | 53.02 | 28,952 | 53.16 | 29,034 | 52.98 | 14,557 | 52.87 | 14,511 | 53.06 |
| African American | 19,399 | 35.55 | 19,249 | 35.34 | 19,435 | 35.47 | 9,813 | 35.64 | 9,668 | 35.35 |
| Hispanic | 3,477 | 6.37 | 3,484 | 6.40 | 3,517 | 6.42 | 1,794 | 6.52 | 1,727 | 6.32 |
| Asian/Pacific Islander | 768 | 1.41 | 762 | 1.40 | 783 | 1.43 | 377 | 1.37 | 403 | 1.47 |
| American Indian | 118 | 0.22 | 118 | 0.22 | 118 | 0.22 | 71 | 0.26 | 48 | 0.18 |
| Other | 1,842 | 3.38 | 1,850 | 3.40 | 1,861 | 3.40 | 893 | 3.24 | 970 | 3.55 |
| Unknown | 33 | 0.06 | 49 | 0.09 | 51 | 0.09 | 30 | 0.11 | 20 | 0.07 |
| Lunch Program | | | | | | | | | | |
| Free meals | 28,629 | 52.47 | 28,316 | 51.99 | 28,561 | 52.12 | 14,392 | 52.27 | 14,228 | 52.03 |
| Reduced meals | 4,027 | 7.38 | 4,023 | 7.39 | 4,044 | 7.38 | 1,994 | 7.24 | 2,054 | 7.51 |
| No F/R meals / unknown | 21,909 | 40.15 | 22,125 | 40.62 | 22,194 | 40.50 | 11,149 | 40.49 | 11,065 | 40.46 |
| IEP | | | | | | | | | | |
| Yes | 7,573 | 13.88 | 7,308 | 13.42 | 7,557 | 13.79 | 3,742 | 13.59 | 3,848 | 14.07 |
| No or unknown | 46,992 | 86.12 | 47,156 | 86.58 | 47,242 | 86.21 | 23,793 | 86.41 | 23,499 | 85.93 |
| Gifted | | | | | | | | | | |
| Academic only | 6,030 | 11.05 | 6,006 | 11.03 | 6,008 | 10.96 | 3,031 | 11.01 | 2,980 | 10.90 |
| Artistic only | 294 | 0.54 | 293 | 0.54 | 294 | 0.54 | 160 | 0.58 | 134 | 0.49 |
| Both | 123 | 0.23 | 123 | 0.23 | 123 | 0.22 | 57 | 0.21 | 66 | 0.24 |
| No or unknown | 48,118 | 88.18 | 48,042 | 88.21 | 48,374 | 88.28 | 24,287 | 88.20 | 24,167 | 88.37 |
| 504 Plan | | | | | | | | | | |
| Yes | 349 | 0.64 | 345 | 0.63 | 348 | 0.64 | 171 | 0.62 | 177 | 0.65 |
| No or unknown | 54,216 | 99.36 | 54,119 | 99.37 | 54,451 | 99.36 | 27,364 | 99.38 | 27,170 | 99.35 |
| English Proficiency | | | | | | | | | | |
| Parent waiver | 38 | 0.07 | 38 | 0.07 | 38 | 0.07 | 25 | 0.09 | 13 | 0.05 |
| Pre-functional – Advanced | 2,746 | 5.03 | 2,735 | 5.02 | 2,801 | 5.11 | 1,422 | 5.16 | 1,376 | 5.03 |
| Initially English proficient | 661 | 1.21 | 660 | 1.21 | 660 | 1.20 | 308 | 1.12 | 352 | 1.29 |
| Title III exited | 1 | 0.00 | 2 | 0.00 | 2 | 0.00 | 1 | 0.00 | 1 | 0.00 |
| English Speaker I | 41 | 0.08 | 42 | 0.08 | 44 | 0.08 | 24 | 0.09 | 20 | 0.07 |
| English Speaker II | 50,687 | 92.89 | 50,280 | 92.32 | 50,534 | 92.22 | 25,340 | 92.03 | 25,280 | 92.44 |
| All others | 391 | 0.72 | 707 | 1.30 | 720 | 1.31 | 415 | 1.51 | 305 | 1.12 |
| Migrant | | | | | | | | | | |
| Yes | 24 | 0.04 | 26 | 0.05 | 27 | 0.05 | 14 | 0.05 | 13 | 0.05 |
| No or unknown | 54,541 | 99.96 | 54,438 | 99.95 | 54,772 | 99.95 | 27,521 | 99.95 | 27,334 | 99.95 |
| Alternative School | | | | | | | | | | |
| Yes | 22 | 0.04 | 21 | 0.04 | 21 | 0.04 | 11 | 0.04 | 10 | 0.04 |
| No or unknown | 54,543 | 99.96 | 54,443 | 99.96 | 54,778 | 99.96 | 27,524 | 99.96 | 27,337 | 99.96 |
| Customized Material | | | | | | | | | | |
| Braille | 4 | 0.01 | 3 | 0.01 | 4 | 0.01 | 1 | 0.00 | 3 | 0.01 |
| Sign Language | 2 | 0.00 | 8 | 0.01 | 1 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Sign Language signed administration | 8 | 0.01 | 0 | 0.00 | 8 | 0.01 | 5 | 0.02 | 6 | 0.02 |
| Large print | 22 | 0.04 | 37 | 0.07 | 22 | 0.04 | 10 | 0.04 | 13 | 0.05 |
| Loose leaf | 13 | 0.02 | 34 | 0.06 | 11 | 0.02 | 8 | 0.03 | 6 | 0.02 |
| Form A oral administration | 2,914 | 5.34 | 0 | 0.00 | 3,696 | 6.74 | 1,777 | 6.45 | 1,897 | 6.94 |
| Total | 2,963 | 5.43 | 82 | 0.15 | 3,742 | 6.83 | 1,801 | 6.54 | 1,925 | 7.04 |

Note: N = All students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing.

Source: Data Recognition Corporation

TABLE 3.3
Grade 4: Summary of Student Demographics

| Demographics | Writing | | ELA | | Mathematics | | Science | | Social Studies | |
|-------------------------------------|--------------|-------------|-----------|-------------|--------------|-------------|--------------|-------------|----------------|-------------|
| | N | % | N | % | N | % | N | % | N | % |
| All Students | 54,869 | 100.00 | 54,659 | 100.00 | 54,990 | 100.00 | 55,013 | 100.00 | 54,979 | 100.00 |
| Gender | | | | | | | | | | |
| Male | 27,888 | 50.83 | 27,720 | 50.71 | 27,944 | 50.82 | 27,962 | 50.83 | 27,941 | 50.82 |
| Female | 26,966 | 49.15 | 26,874 | 49.17 | 26,979 | 49.06 | 26,984 | 49.05 | 26,971 | 49.06 |
| Unknown | 15 | 0.03 | 65 | 0.12 | 67 | 0.12 | 67 | 0.12 | 67 | 0.12 |
| Ethnicity | | | | | | | | | | |
| White | 29,390 | 53.56 | 29,321 | 53.64 | 29,407 | 53.48 | 29,414 | 53.47 | 29,404 | 53.48 |
| African American | 19,550 | 35.63 | 19,392 | 35.48 | 19,567 | 35.58 | 19,582 | 35.60 | 19,575 | 35.60 |
| Hispanic | 3,227 | 5.88 | 3,220 | 5.89 | 3,264 | 5.94 | 3,265 | 5.93 | 3,256 | 5.92 |
| Asian/Pacific Islander | 749 | 1.37 | 744 | 1.36 | 758 | 1.38 | 758 | 1.38 | 753 | 1.37 |
| American Indian | 116 | 0.21 | 116 | 0.21 | 117 | 0.21 | 117 | 0.21 | 117 | 0.21 |
| Other | 1,823 | 3.32 | 1,808 | 3.31 | 1,818 | 3.31 | 1,818 | 3.30 | 1,815 | 3.30 |
| Unknown | 14 | 0.03 | 58 | 0.11 | 59 | 0.11 | 59 | 0.11 | 59 | 0.11 |
| Lunch Program | | | | | | | | | | |
| Free meals | 28,158 | 51.32 | 27,829 | 50.91 | 28,081 | 51.07 | 28,102 | 51.08 | 28,083 | 51.08 |
| Reduced meals | 4,217 | 7.69 | 4,203 | 7.69 | 4,225 | 7.68 | 4,224 | 7.68 | 4,224 | 7.68 |
| No F/R meals / unknown | 22,494 | 41.00 | 22,627 | 41.40 | 22,684 | 41.25 | 22,687 | 41.24 | 22,672 | 41.24 |
| IEP | | | | | | | | | | |
| Yes | 7,414 | 13.51 | 7,124 | 13.03 | 7,392 | 13.44 | 7,417 | 13.48 | 7,408 | 13.47 |
| No or unknown | 47,455 | 86.49 | 47,535 | 86.97 | 47,598 | 86.56 | 47,596 | 86.52 | 47,571 | 86.53 |
| Gifted | | | | | | | | | | |
| Academic only | 6,486 | 11.82 | 6,474 | 11.84 | 6,473 | 11.77 | 6,472 | 11.76 | 6,471 | 11.77 |
| Artistic only | 1,110 | 2.02 | 1,106 | 2.02 | 1,108 | 2.01 | 1,108 | 2.01 | 1,108 | 2.02 |
| Both | 493 | 0.90 | 491 | 0.90 | 491 | 0.89 | 491 | 0.89 | 491 | 0.89 |
| No or unknown | 46,780 | 85.26 | 46,588 | 85.23 | 46,918 | 85.32 | 46,942 | 85.33 | 46,909 | 85.32 |
| 504 Plan | | | | | | | | | | |
| Yes | 460 | 0.84 | 457 | 0.84 | 461 | 0.84 | 462 | 0.84 | 462 | 0.84 |
| No or unknown | 54,409 | 99.16 | 54,202 | 99.16 | 54,529 | 99.16 | 54,551 | 99.16 | 54,517 | 99.16 |
| English Proficiency | | | | | | | | | | |
| Parent waiver | 57 | 0.10 | 55 | 0.10 | 55 | 0.10 | 55 | 0.10 | 55 | 0.10 |
| Pre-functional – Advanced | 2,960 | 5.39 | 2,937 | 5.37 | 3,001 | 5.46 | 3,001 | 5.46 | 2,984 | 5.43 |
| Initially English proficient | 65 | 0.12 | 65 | 0.12 | 65 | 0.12 | 65 | 0.12 | 65 | 0.12 |
| Title III exited | 120 | 0.22 | 118 | 0.22 | 118 | 0.21 | 118 | 0.21 | 118 | 0.21 |
| English Speaker I | 37 | 0.07 | 35 | 0.06 | 36 | 0.07 | 36 | 0.07 | 36 | 0.07 |
| English Speaker II | 51,283 | 93.46 | 50,858 | 93.05 | 51,111 | 92.95 | 51,132 | 92.95 | 51,117 | 92.98 |
| All others | 347 | 0.63 | 591 | 1.08 | 604 | 1.10 | 606 | 1.10 | 604 | 1.10 |
| Migrant | | | | | | | | | | |
| Yes | 24 | 0.04 | 26 | 0.05 | 26 | 0.05 | 26 | 0.05 | 26 | 0.05 |
| No or unknown | 54,845 | 99.96 | 54,633 | 99.95 | 54,964 | 99.95 | 54,987 | 99.95 | 54,953 | 99.95 |
| Alternative School | | | | | | | | | | |
| Yes | 25 | 0.05 | 24 | 0.04 | 24 | 0.04 | 24 | 0.04 | 24 | 0.04 |
| No or unknown | 54,844 | 99.95 | 54,635 | 99.96 | 54,966 | 99.96 | 54,989 | 99.96 | 54,955 | 99.96 |
| Customized Material | | | | | | | | | | |
| Braille | 3 | 0.01 | 3 | 0.01 | 3 | 0.01 | 4 | 0.01 | 4 | 0.01 |
| Sign Language | 2 | 0.00 | 5 | 0.01 | 1 | 0.00 | 2 | 0.00 | 2 | 0.00 |
| Sign Language signed administration | 23 | 0.04 | 0 | 0.00 | 18 | 0.03 | 19 | 0.03 | 19 | 0.03 |
| Large print | 20 | 0.04 | 41 | 0.08 | 14 | 0.03 | 13 | 0.02 | 13 | 0.02 |
| Loose leaf | 13 | 0.02 | 35 | 0.06 | 17 | 0.03 | 12 | 0.02 | 14 | 0.03 |
| Form A oral administration | 3,076 | 5.61 | 0 | 0.00 | 3,857 | 7.01 | 3,850 | 7.00 | 3,822 | 6.95 |
| Total | 3,137 | 5.72 | 84 | 0.15 | 3,910 | 7.11 | 3,900 | 7.09 | 3,874 | 7.05 |

Note: N = All students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing.

Source: Data Recognition Corporation

TABLE 3.4
Grade 5: Summary of Student Demographics

| Demographics | Writing | | ELA | | Mathematics | | Science | | Social Studies | |
|-------------------------------------|---------|--------|--------|--------|-------------|--------|---------|--------|----------------|--------|
| | N | % | N | % | N | % | N | % | N | % |
| All Students | 53,362 | 100.00 | 53,519 | 100.00 | 53,568 | 100.00 | 26,882 | 100.00 | 26,727 | 100.00 |
| Gender | | | | | | | | | | |
| Male | 27,259 | 51.08 | 27,349 | 51.10 | 27,375 | 51.10 | 13,673 | 50.86 | 13,727 | 51.36 |
| Female | 26,079 | 48.87 | 26,122 | 48.81 | 26,145 | 48.81 | 13,186 | 49.05 | 12,975 | 48.55 |
| Unknown | 24 | 0.04 | 48 | 0.09 | 48 | 0.09 | 23 | 0.09 | 25 | 0.09 |
| Ethnicity | | | | | | | | | | |
| White | 29,299 | 54.91 | 29,379 | 54.89 | 29,380 | 54.85 | 14,759 | 54.90 | 14,642 | 54.78 |
| African American | 18,773 | 35.18 | 18,837 | 35.20 | 18,840 | 35.17 | 9,411 | 35.01 | 9,456 | 35.38 |
| Hispanic | 2,854 | 5.35 | 2,854 | 5.33 | 2,880 | 5.38 | 1,481 | 5.51 | 1,393 | 5.21 |
| Asian/Pacific Islander | 680 | 1.27 | 680 | 1.27 | 696 | 1.30 | 344 | 1.28 | 350 | 1.31 |
| American Indian | 115 | 0.22 | 112 | 0.21 | 112 | 0.21 | 56 | 0.21 | 56 | 0.21 |
| Other | 1,611 | 3.02 | 1,610 | 3.01 | 1,613 | 3.01 | 807 | 3.00 | 807 | 3.02 |
| Unknown | 30 | 0.06 | 47 | 0.09 | 47 | 0.09 | 24 | 0.09 | 23 | 0.09 |
| Lunch Program | | | | | | | | | | |
| Free meals | 26,876 | 50.37 | 26,839 | 50.15 | 26,870 | 50.16 | 13,492 | 50.19 | 13,401 | 50.14 |
| Reduced meals | 4,167 | 7.81 | 4,185 | 7.82 | 4,186 | 7.81 | 2,154 | 8.01 | 2,034 | 7.61 |
| No F/R meals / unknown | 22,319 | 41.83 | 22,495 | 42.03 | 22,512 | 42.03 | 11,236 | 41.80 | 11,292 | 42.25 |
| IEP | | | | | | | | | | |
| Yes | 6,686 | 12.53 | 6,711 | 12.54 | 6,712 | 12.53 | 3,422 | 12.73 | 3,298 | 12.34 |
| No or unknown | 46,676 | 87.47 | 46,808 | 87.46 | 46,856 | 87.47 | 23,460 | 87.27 | 23,429 | 87.66 |
| Gifted | | | | | | | | | | |
| Academic only | 9,660 | 18.10 | 9,636 | 18.00 | 9,635 | 17.99 | 4,826 | 17.95 | 4,814 | 18.01 |
| Artistic only | 1,279 | 2.40 | 1,273 | 2.38 | 1,273 | 2.38 | 647 | 2.41 | 628 | 2.35 |
| Both | 892 | 1.67 | 892 | 1.67 | 892 | 1.67 | 457 | 1.70 | 436 | 1.63 |
| No or unknown | 41,531 | 77.83 | 41,718 | 77.95 | 41,768 | 77.97 | 20,952 | 77.94 | 20,849 | 78.01 |
| 504 Plan | | | | | | | | | | |
| Yes | 585 | 1.10 | 577 | 1.08 | 578 | 1.08 | 294 | 1.09 | 284 | 1.06 |
| No or unknown | 52,777 | 98.90 | 52,942 | 98.92 | 52,990 | 98.92 | 26,588 | 98.91 | 26,443 | 98.94 |
| English Proficiency | | | | | | | | | | |
| Parent waiver | 42 | 0.08 | 42 | 0.08 | 42 | 0.08 | 23 | 0.09 | 19 | 0.07 |
| Pre-functional – Advanced | 2,436 | 4.57 | 2,431 | 4.54 | 2,482 | 4.63 | 1,269 | 4.72 | 1,203 | 4.50 |
| Initially English proficient | 81 | 0.15 | 85 | 0.16 | 85 | 0.16 | 41 | 0.15 | 44 | 0.16 |
| Title III exited | 305 | 0.57 | 304 | 0.57 | 304 | 0.57 | 149 | 0.55 | 155 | 0.58 |
| English Speaker I | 32 | 0.06 | 35 | 0.07 | 35 | 0.07 | 14 | 0.05 | 21 | 0.08 |
| English Speaker II | 50,153 | 93.99 | 50,032 | 93.48 | 50,030 | 93.40 | 25,042 | 93.16 | 25,034 | 93.67 |
| All others | 313 | 0.59 | 590 | 1.10 | 590 | 1.10 | 344 | 1.28 | 251 | 0.94 |
| Migrant | | | | | | | | | | |
| Yes | 14 | 0.03 | 16 | 0.03 | 16 | 0.03 | 4 | 0.01 | 12 | 0.04 |
| No or unknown | 53,348 | 99.97 | 53,503 | 99.97 | 53,552 | 99.97 | 26,878 | 99.99 | 26,715 | 99.96 |
| Alternative School | | | | | | | | | | |
| Yes | 59 | 0.11 | 60 | 0.11 | 60 | 0.11 | 28 | 0.10 | 32 | 0.12 |
| No or unknown | 53,303 | 99.89 | 53,459 | 99.89 | 53,508 | 99.89 | 26,854 | 99.90 | 26,695 | 99.88 |
| Customized Material | | | | | | | | | | |
| Braille | 4 | 0.01 | 5 | 0.01 | 5 | 0.01 | 2 | 0.01 | 3 | 0.01 |
| Sign Language | 1 | 0.00 | 3 | 0.01 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Sign Language signed administration | 9 | 0.02 | 8 | 0.01 | 11 | 0.02 | 6 | 0.02 | 5 | 0.02 |
| Large print | 17 | 0.03 | 23 | 0.04 | 21 | 0.04 | 15 | 0.06 | 9 | 0.03 |
| Loose leaf | 9 | 0.02 | 20 | 0.04 | 17 | 0.03 | 5 | 0.02 | 6 | 0.02 |
| Form A oral administration | 3,270 | 6.13 | 2,304 | 4.31 | 3,935 | 7.35 | 1,939 | 7.21 | 1,918 | 7.18 |
| Total | 3,310 | 6.20 | 2,363 | 4.42 | 3,989 | 7.45 | 1,967 | 7.32 | 1,941 | 7.26 |

Note: N = All students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing.

Source: Data Recognition Corporation

TABLE 3.5
Grade 6: Summary of Student Demographics

| Demographics | Writing | | ELA | | Mathematics | | Science | | Social Studies | |
|-------------------------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|----------------|-------------|
| | N | % | N | % | N | % | N | % | N | % |
| All Students | 52,809 | 100.00 | 53,011 | 100.00 | 53,040 | 100.00 | 26,555 | 100.00 | 26,496 | 100.00 |
| Gender | | | | | | | | | | |
| Male | 27,071 | 51.26 | 27,180 | 51.27 | 27,195 | 51.27 | 13,516 | 50.90 | 13,682 | 51.64 |
| Female | 25,710 | 48.68 | 25,769 | 48.61 | 25,783 | 48.61 | 13,010 | 48.99 | 12,782 | 48.24 |
| Unknown | 28 | 0.05 | 62 | 0.12 | 62 | 0.12 | 29 | 0.11 | 32 | 0.12 |
| Ethnicity | | | | | | | | | | |
| White | 28,813 | 54.56 | 28,898 | 54.51 | 28,897 | 54.48 | 14,433 | 54.35 | 14,465 | 54.59 |
| African American | 19,069 | 36.11 | 19,125 | 36.08 | 19,120 | 36.05 | 9,646 | 36.32 | 9,488 | 35.81 |
| Hispanic | 2,726 | 5.16 | 2,744 | 5.18 | 2,768 | 5.22 | 1,334 | 5.02 | 1,433 | 5.41 |
| Asian/Pacific Islander | 591 | 1.12 | 601 | 1.13 | 610 | 1.15 | 307 | 1.16 | 301 | 1.14 |
| American Indian | 163 | 0.31 | 166 | 0.31 | 166 | 0.31 | 94 | 0.35 | 72 | 0.27 |
| Other | 1,415 | 2.68 | 1,421 | 2.68 | 1,423 | 2.68 | 713 | 2.68 | 710 | 2.68 |
| Unknown | 32 | 0.06 | 56 | 0.11 | 56 | 0.11 | 28 | 0.11 | 27 | 0.10 |
| Lunch Program | | | | | | | | | | |
| Free meals | 25,809 | 48.87 | 25,811 | 48.69 | 25,830 | 48.70 | 12,955 | 48.79 | 12,880 | 48.61 |
| Reduced meals | 4,280 | 8.10 | 4,290 | 8.09 | 4,289 | 8.09 | 2,166 | 8.16 | 2,128 | 8.03 |
| No F/R meals / unknown | 22,720 | 43.02 | 22,910 | 43.22 | 22,921 | 43.21 | 11,434 | 43.06 | 11,488 | 43.36 |
| IEP | | | | | | | | | | |
| Yes | 6,536 | 12.38 | 6,614 | 12.48 | 6,608 | 12.46 | 3,420 | 12.88 | 3,200 | 12.08 |
| No or unknown | 46,273 | 87.62 | 46,397 | 87.52 | 46,432 | 87.54 | 23,135 | 87.12 | 23,296 | 87.92 |
| Gifted | | | | | | | | | | |
| Academic only | 8,608 | 16.30 | 8,598 | 16.22 | 8,597 | 16.21 | 4,236 | 15.95 | 4,366 | 16.48 |
| Artistic only | 1,114 | 2.11 | 1,112 | 2.10 | 1,112 | 2.10 | 558 | 2.10 | 554 | 2.09 |
| Both | 811 | 1.54 | 813 | 1.53 | 813 | 1.53 | 384 | 1.45 | 428 | 1.62 |
| No or unknown | 42,276 | 80.05 | 42,488 | 80.15 | 42,518 | 80.16 | 21,377 | 80.50 | 21,148 | 79.82 |
| 504 Plan | | | | | | | | | | |
| Yes | 594 | 1.12 | 590 | 1.11 | 590 | 1.11 | 287 | 1.08 | 303 | 1.14 |
| No or unknown | 52,215 | 98.88 | 52,421 | 98.89 | 52,450 | 98.89 | 26,268 | 98.92 | 26,193 | 98.86 |
| English Proficiency | | | | | | | | | | |
| Parent waiver | 44 | 0.08 | 44 | 0.08 | 44 | 0.08 | 26 | 0.10 | 18 | 0.07 |
| Pre-functional – Advanced | 1,931 | 3.66 | 1,942 | 3.66 | 1,977 | 3.73 | 965 | 3.63 | 1,011 | 3.82 |
| Initially English proficient | 55 | 0.10 | 56 | 0.11 | 56 | 0.11 | 23 | 0.09 | 33 | 0.12 |
| Title III exited | 521 | 0.99 | 521 | 0.98 | 521 | 0.98 | 247 | 0.93 | 274 | 1.03 |
| English Speaker I | 101 | 0.19 | 103 | 0.19 | 103 | 0.19 | 48 | 0.18 | 55 | 0.21 |
| English Speaker II | 49,804 | 94.31 | 49,798 | 93.94 | 49,790 | 93.87 | 24,951 | 93.96 | 24,850 | 93.79 |
| All others | 353 | 0.67 | 547 | 1.03 | 549 | 1.04 | 295 | 1.11 | 255 | 0.96 |
| Migrant | | | | | | | | | | |
| Yes | 22 | 0.04 | 23 | 0.04 | 23 | 0.04 | 8 | 0.03 | 15 | 0.06 |
| No or unknown | 52,787 | 99.96 | 52,988 | 99.96 | 53,017 | 99.96 | 26,547 | 99.97 | 26,481 | 99.94 |
| Alternative School | | | | | | | | | | |
| Yes | 400 | 0.76 | 399 | 0.75 | 399 | 0.75 | 192 | 0.72 | 205 | 0.77 |
| No or unknown | 52,409 | 99.24 | 52,612 | 99.25 | 52,641 | 99.25 | 26,363 | 99.28 | 26,291 | 99.23 |
| Customized Material | | | | | | | | | | |
| Braille | 3 | 0.01 | 4 | 0.01 | 4 | 0.01 | 3 | 0.01 | 1 | 0.00 |
| Sign Language | 6 | 0.01 | 1 | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Sign Language signed administration | 9 | 0.02 | 18 | 0.03 | 19 | 0.04 | 15 | 0.06 | 4 | 0.02 |
| Large print | 17 | 0.03 | 18 | 0.03 | 19 | 0.04 | 11 | 0.04 | 6 | 0.02 |
| Loose leaf | 8 | 0.02 | 12 | 0.02 | 9 | 0.02 | 8 | 0.03 | 2 | 0.01 |
| Form A oral administration | 2,833 | 5.36 | 2,509 | 4.73 | 3,530 | 6.66 | 1,833 | 6.90 | 1,712 | 6.46 |
| Total | 2,876 | 5.45 | 2,562 | 4.83 | 3,581 | 6.75 | 1,870 | 7.04 | 1,725 | 6.51 |

Note: N = All students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing.

Source: Data Recognition Corporation

TABLE 3.6
Grade 7: Summary of Student Demographics

| Demographics | Writing | | ELA | | Mathematics | | Science | | Social Studies | |
|-------------------------------------|---------|--------|--------|--------|-------------|--------|---------|--------|----------------|--------|
| | N | % | N | % | N | % | N | % | N | % |
| All Students | 52,172 | 100.00 | 52,162 | 100.00 | 52,211 | 100.00 | 52,197 | 100.00 | 52,148 | 100.00 |
| Gender | | | | | | | | | | |
| Male | 26,769 | 51.31 | 26,728 | 51.24 | 26,750 | 51.23 | 26,740 | 51.23 | 26,715 | 51.23 |
| Female | 25,358 | 48.60 | 25,364 | 48.63 | 25,390 | 48.63 | 25,386 | 48.63 | 25,362 | 48.63 |
| Unknown | 45 | 0.09 | 70 | 0.13 | 71 | 0.14 | 71 | 0.14 | 71 | 0.14 |
| Ethnicity | | | | | | | | | | |
| White | 28,737 | 55.08 | 28,717 | 55.05 | 28,719 | 55.01 | 28,708 | 55.00 | 28,692 | 55.02 |
| African American | 18,764 | 35.97 | 18,732 | 35.91 | 18,729 | 35.87 | 18,726 | 35.88 | 18,711 | 35.88 |
| Hispanic | 2,523 | 4.84 | 2,524 | 4.84 | 2,556 | 4.90 | 2,556 | 4.90 | 2,544 | 4.88 |
| Asian/Pacific Islander | 625 | 1.20 | 632 | 1.21 | 646 | 1.24 | 646 | 1.24 | 642 | 1.23 |
| American Indian | 143 | 0.27 | 144 | 0.28 | 144 | 0.28 | 144 | 0.28 | 144 | 0.28 |
| Other | 1,333 | 2.56 | 1,338 | 2.57 | 1,340 | 2.57 | 1,340 | 2.57 | 1,338 | 2.57 |
| Unknown | 47 | 0.09 | 75 | 0.14 | 77 | 0.15 | 77 | 0.15 | 77 | 0.15 |
| Lunch Program | | | | | | | | | | |
| Free meals | 24,684 | 47.31 | 24,551 | 47.07 | 24,574 | 47.07 | 24,566 | 47.06 | 24,535 | 47.05 |
| Reduced meals | 4,124 | 7.90 | 4,117 | 7.89 | 4,120 | 7.89 | 4,119 | 7.89 | 4,115 | 7.89 |
| No F/R meals / unknown | 23,364 | 44.78 | 23,494 | 45.04 | 23,517 | 45.04 | 23,512 | 45.04 | 23,498 | 45.06 |
| IEP | | | | | | | | | | |
| Yes | 6,196 | 11.88 | 6,197 | 11.88 | 6,202 | 11.88 | 6,196 | 11.87 | 6,183 | 11.86 |
| No or unknown | 45,976 | 88.12 | 45,965 | 88.12 | 46,009 | 88.12 | 46,001 | 88.13 | 45,965 | 88.14 |
| Gifted | | | | | | | | | | |
| Academic only | 8,660 | 16.60 | 8,636 | 16.56 | 8,637 | 16.54 | 8,636 | 16.55 | 8,633 | 16.55 |
| Artistic only | 1,336 | 2.56 | 1,340 | 2.57 | 1,340 | 2.57 | 1,340 | 2.57 | 1,339 | 2.57 |
| Both | 1,069 | 2.05 | 1,067 | 2.05 | 1,067 | 2.04 | 1,066 | 2.04 | 1,066 | 2.04 |
| No or unknown | 41,107 | 78.79 | 41,119 | 78.83 | 41,167 | 78.85 | 41,155 | 78.85 | 41,110 | 78.83 |
| 504 Plan | | | | | | | | | | |
| Yes | 667 | 1.28 | 654 | 1.25 | 652 | 1.25 | 651 | 1.25 | 652 | 1.25 |
| No or unknown | 51,505 | 98.72 | 51,508 | 98.75 | 51,559 | 98.75 | 51,546 | 98.75 | 51,496 | 98.75 |
| English Proficiency | | | | | | | | | | |
| Parent waiver | 66 | 0.13 | 65 | 0.12 | 65 | 0.12 | 65 | 0.12 | 65 | 0.12 |
| Pre-functional – Advanced | 2,039 | 3.91 | 2,044 | 3.92 | 2,100 | 4.02 | 2,100 | 4.02 | 2,081 | 3.99 |
| Initially English proficient | 23 | 0.04 | 28 | 0.05 | 28 | 0.05 | 28 | 0.05 | 27 | 0.05 |
| Title III exited | 223 | 0.43 | 223 | 0.43 | 223 | 0.43 | 223 | 0.43 | 223 | 0.43 |
| English Speaker I | 107 | 0.21 | 113 | 0.22 | 113 | 0.22 | 113 | 0.22 | 113 | 0.22 |
| English Speaker II | 49,309 | 94.51 | 49,101 | 94.13 | 49,091 | 94.02 | 49,081 | 94.03 | 49,049 | 94.06 |
| All others | 405 | 0.78 | 588 | 1.13 | 591 | 1.13 | 587 | 1.12 | 590 | 1.13 |
| Migrant | | | | | | | | | | |
| Yes | 13 | 0.02 | 13 | 0.02 | 14 | 0.03 | 14 | 0.03 | 13 | 0.02 |
| No or unknown | 52,159 | 99.98 | 52,149 | 99.98 | 52,197 | 99.97 | 52,183 | 99.97 | 52,135 | 99.98 |
| Alternative School | | | | | | | | | | |
| Yes | 680 | 1.30 | 634 | 1.22 | 631 | 1.21 | 633 | 1.21 | 631 | 1.21 |
| No or unknown | 51,492 | 98.70 | 51,528 | 98.78 | 51,580 | 98.79 | 51,564 | 98.79 | 51,517 | 98.79 |
| Customized Material | | | | | | | | | | |
| Braille | 8 | 0.02 | 5 | 0.01 | 5 | 0.01 | 5 | 0.01 | 5 | 0.01 |
| Sign Language | 2 | 0.00 | 1 | 0.00 | 1 | 0.00 | 1 | 0.00 | 2 | 0.00 |
| Sign Language signed administration | 16 | 0.03 | 18 | 0.03 | 20 | 0.04 | 19 | 0.04 | 18 | 0.03 |
| Large print | 18 | 0.03 | 16 | 0.03 | 16 | 0.03 | 15 | 0.03 | 15 | 0.03 |
| Loose leaf | 10 | 0.02 | 8 | 0.02 | 8 | 0.02 | 7 | 0.01 | 7 | 0.01 |
| Form A oral administration | 2,632 | 5.04 | 2,584 | 4.95 | 3,155 | 6.04 | 3,250 | 6.23 | 3,193 | 6.12 |
| Total | 2,686 | 5.15 | 2,632 | 5.05 | 3,205 | 6.14 | 3,297 | 6.32 | 3,240 | 6.21 |

Note: N = All students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing.

Source: Data Recognition Corporation

TABLE 3.7
Grade 8: Summary of Student Demographics

| Demographics | Writing | | ELA | | Mathematics | | Science | | Social Studies | |
|-------------------------------------|---------|--------|--------|--------|-------------|--------|---------|--------|----------------|--------|
| | N | % | N | % | N | % | N | % | N | % |
| All Students | 51,387 | 100.00 | 51,404 | 100.00 | 51,433 | 100.00 | 25,805 | 100.00 | 25,663 | 100.00 |
| Gender | | | | | | | | | | |
| Male | 26,271 | 51.12 | 26,295 | 51.15 | 26,311 | 51.16 | 13,164 | 51.01 | 13,168 | 51.31 |
| Female | 25,065 | 48.78 | 25,045 | 48.72 | 25,057 | 48.72 | 12,606 | 48.85 | 12,463 | 48.56 |
| Unknown | 51 | 0.10 | 64 | 0.12 | 65 | 0.13 | 35 | 0.14 | 32 | 0.12 |
| Ethnicity | | | | | | | | | | |
| White | 28,788 | 56.02 | 28,816 | 56.06 | 28,807 | 56.01 | 14,395 | 55.78 | 14,426 | 56.21 |
| African American | 18,256 | 35.53 | 18,231 | 35.47 | 18,230 | 35.44 | 9,192 | 35.62 | 9,060 | 35.30 |
| Hispanic | 2,409 | 4.69 | 2,413 | 4.69 | 2,430 | 4.72 | 1,212 | 4.70 | 1,216 | 4.74 |
| Asian/Pacific Islander | 629 | 1.22 | 629 | 1.22 | 644 | 1.25 | 338 | 1.31 | 305 | 1.19 |
| American Indian | 133 | 0.26 | 134 | 0.26 | 134 | 0.26 | 70 | 0.27 | 64 | 0.25 |
| Other | 1,114 | 2.17 | 1,111 | 2.16 | 1,116 | 2.17 | 560 | 2.17 | 558 | 2.17 |
| Unknown | 58 | 0.11 | 70 | 0.14 | 72 | 0.14 | 38 | 0.15 | 34 | 0.13 |
| Lunch Program | | | | | | | | | | |
| Free meals | 23,358 | 45.46 | 23,321 | 45.37 | 23,327 | 45.35 | 11,809 | 45.76 | 11,533 | 44.94 |
| Reduced meals | 4,146 | 8.07 | 4,134 | 8.04 | 4,136 | 8.04 | 2,071 | 8.03 | 2,065 | 8.05 |
| No F/R meals / unknown | 23,883 | 46.48 | 23,949 | 46.59 | 23,970 | 46.60 | 11,925 | 46.21 | 12,065 | 47.01 |
| IEP | | | | | | | | | | |
| Yes | 6,126 | 11.92 | 6,159 | 11.98 | 6,156 | 11.97 | 3,103 | 12.02 | 3,054 | 11.90 |
| No or unknown | 45,261 | 88.08 | 45,245 | 88.02 | 45,277 | 88.03 | 22,702 | 87.98 | 22,609 | 88.10 |
| Gifted | | | | | | | | | | |
| Academic only | 9,171 | 17.85 | 9,169 | 17.84 | 9,169 | 17.83 | 4,503 | 17.45 | 4,666 | 18.18 |
| Artistic only | 1,354 | 2.63 | 1,348 | 2.62 | 1,349 | 2.62 | 697 | 2.70 | 655 | 2.55 |
| Both | 1,271 | 2.47 | 1,270 | 2.47 | 1,270 | 2.47 | 642 | 2.49 | 637 | 2.48 |
| No or unknown | 39,591 | 77.04 | 39,617 | 77.07 | 39,645 | 77.08 | 19,963 | 77.36 | 19,705 | 76.78 |
| 504 Plan | | | | | | | | | | |
| Yes | 662 | 1.29 | 660 | 1.28 | 660 | 1.28 | 330 | 1.28 | 330 | 1.29 |
| No or unknown | 50,725 | 98.71 | 50,744 | 98.72 | 50,773 | 98.72 | 25,475 | 98.72 | 25,333 | 98.71 |
| English Proficiency | | | | | | | | | | |
| Parent waiver | 51 | 0.10 | 51 | 0.10 | 52 | 0.10 | 22 | 0.09 | 30 | 0.12 |
| Pre-functional – Advanced | 1,821 | 3.54 | 1,818 | 3.54 | 1,857 | 3.61 | 920 | 3.57 | 933 | 3.64 |
| Initially English proficient | 15 | 0.03 | 16 | 0.03 | 16 | 0.03 | 11 | 0.04 | 5 | 0.02 |
| Title III exited | 151 | 0.29 | 153 | 0.30 | 153 | 0.30 | 73 | 0.28 | 80 | 0.31 |
| English Speaker I | 166 | 0.32 | 175 | 0.34 | 175 | 0.34 | 84 | 0.33 | 91 | 0.35 |
| English Speaker II | 48,718 | 94.81 | 48,599 | 94.54 | 48,590 | 94.47 | 24,377 | 94.47 | 24,243 | 94.47 |
| All others | 465 | 0.90 | 592 | 1.15 | 590 | 1.15 | 318 | 1.23 | 281 | 1.09 |
| Migrant | | | | | | | | | | |
| Yes | 9 | 0.02 | 10 | 0.02 | 10 | 0.02 | 3 | 0.01 | 7 | 0.03 |
| No or unknown | 51,378 | 99.98 | 51,394 | 99.98 | 51,423 | 99.98 | 25,802 | 99.99 | 25,656 | 99.97 |
| Alternative School | | | | | | | | | | |
| Yes | 995 | 1.94 | 972 | 1.89 | 974 | 1.89 | 502 | 1.95 | 466 | 1.82 |
| No or unknown | 50,392 | 98.06 | 50,432 | 98.11 | 50,459 | 98.11 | 25,303 | 98.05 | 25,197 | 98.18 |
| Customized Material | | | | | | | | | | |
| Braille | 1 | 0.00 | 4 | 0.01 | 3 | 0.01 | 3 | 0.01 | 0 | 0.00 |
| Sign Language | 1 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | 0.00 | 0 | 0.00 |
| Sign Language signed administration | 18 | 0.04 | 20 | 0.04 | 20 | 0.04 | 9 | 0.03 | 12 | 0.05 |
| Large print | 18 | 0.04 | 18 | 0.04 | 16 | 0.03 | 10 | 0.04 | 5 | 0.02 |
| Loose leaf | 6 | 0.01 | 8 | 0.02 | 4 | 0.01 | 3 | 0.01 | 1 | 0.00 |
| Form A oral administration | 2,339 | 4.55 | 2,438 | 4.74 | 2,858 | 5.56 | 1,496 | 5.80 | 1,424 | 5.55 |
| Total | 2,383 | 4.64 | 2,488 | 4.84 | 2,901 | 5.64 | 1,522 | 5.90 | 1,442 | 5.62 |

Note: N = All students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing.

Source: Data Recognition Corporation

3.7 STANDARD AND NON-STANDARD ACCOMMODATIONS

Supplemental information regarding the administration of the PASS to students with disabilities is provided in Appendix C of the TAM (SCDE 2010b). That appendix—which provides guidelines for IEP teams in making decisions regarding testing students with disabilities—outlines specific information regarding testing accommodations, test forms and materials, and administration procedures.

Standard Accommodations

For South Carolina assessment programs, the term *standard accommodation* refers to any change in the testing environment, procedures, or presentation that does not alter in any significant way what the test measures. Accordingly, a standard accommodation has no effect on the comparability of scores. The purpose of such accommodations is to enable students to participate in an assessment in a way that allows knowledge and skills, rather than disabilities, to be assessed. Testing accommodations should be those typically used during routine instruction and assessment. Accommodations address areas such as setting, timing, scheduling, alternate response options, and presentation. Besides the specific accommodations listed in the TAM, others that are determined necessary by the IEP team can be used.

Non-Standard Accommodations

The term *non-standard accommodation* refers to any change in the testing process that compromises the validity of the results by altering the meaning and/or the comparability of test scores. Non-standard accommodations are appropriate only for those students with disabilities who, owing to the nature of their disabilities, are otherwise unable to take the PASS. Such accommodations should be the same as those used by the student in routine instruction and assessment.

Examples of non-standard accommodations allowed during the PASS administration are the use of spell checker and grammar checker for extended-response items, oral or signed administration of ELA (grades 3 and 4 only), and use of a calculator on the mathematics assessment (grades 3 and 4 only). Individual score reports for students with non-standard PASS administrations were documented as not comparable with other scores.

3.8 TEST LENGTH

The PASS is untimed. Students who finish the test before the rest of their classmates are allowed to read materials unrelated to the subject being tested, or they can leave the classroom if the school has made provisions for their supervision.

For each day, the start and stop times (within fifteen-minute intervals) were collected from each student's test booklet or answer document. Information on the amount of time spent in test administration each day can be used with other data to determine the structure and length of future tests. Table 5.3 describes the test times for the writing, ELA, mathematics, science, and social studies assessments. It includes the 25th percentile, the average, and the 75th percentile of the amount of time the students took to complete the assessments.

TABLE 3.8
Structure of Test Forms and Amount of Time for Administration

| Grade | Content | Number of Items | Time in Minutes | | |
|---------|----------------|-----------------|--------------------------------|--------|--------------------------------|
| | | | 25 th Percentile | Median | 75 th Percentile |
| Grade 3 | Writing Day 1 | 1 (30 points) | 45 | 60 | 90 |
| | Writing Day 2 | 25 | 45 | 45 | 60 |
| | ELA | | 60 | 75 | 105 |
| | Math | | 60 | 75 | 105 |
| | Science | | 45 | 60 | 75 |
| | Social Studies | | 45 | 60 | 75 |
| Grade 4 | Writing Day 1 | 1 (30 points) | 60 | 75 | 105 |
| | Writing Day 2 | 25 | 45 | 45 | 60 |
| | ELA | | 60 | 75 | 90 |
| | Math | | 60 | 75 | 105 |
| | Science | | 45 | 60 | 75 |
| | Social Studies | | 45 | 60 | 75 |
| Grade 5 | Writing Day 1 | 1 (30 points) | 60 | 75 | 105 |
| | Writing Day 2 | 25 | 45 | 45 | 60 |
| | ELA | | 60 | 75 | 90 |
| | Math | | 75 | 90 | 120 |
| | Science | | 60 | 60 | 90 |
| | Social Studies | | 45 | 60 | 90 |
| Grade 6 | Writing Day 1 | 1 (30 points) | 60 | 75 | 90 |
| | Writing Day 2 | 25 | 30 | 45 | 60 |
| | ELA | | 45 | 60 | 75 |
| | Math | | 60 | 90 | 105 |
| | Science | | 45 | 60 | 75 |
| | Social Studies | | 45 | 60 | 75 |
| Grade 7 | Writing Day 1 | 1 (30 points) | 60 | 75 | 90 |
| | Writing Day 2 | 25 | 30 | 45 | 60 |
| | ELA | | 60 | 75 | 105 |
| | Math | | 60 | 75 | 105 |
| | Science | | 45 | 60 | 60 |
| | Social Studies | | 45 | 60 | 75 |
| Grade 8 | Writing Day 1 | 1 (30 points) | 45 | 60 | 90 |
| | Writing Day 2 | 25 | 30 | 45 | 45 |
| | ELA | | 60 | 75 | 105 |
| | Math | | 75 | 90 | 105 |
| | Science | | 45 | 60 | 75 |
| | Social Studies | | 45 | 60 | 75 |

Source: SCDE

CHAPTER 4

SCORING

Scoring of items was completed using keys for multiple-choice items and a scoring rubric for extended-response items. This chapter describes the types of items used on the PASS as well as the scoring procedures.

4.1 TYPES OF ITEMS

On the PASS, all ELA, mathematics, science, and social studies items were multiple-choice. For writing, each grade-level exam contained both multiple-choice items and an extended-response item.

Multiple-Choice Items

These items required students to select a correct answer from several alternatives, generally four, although a few items had only three. Each correct multiple-choice item had a value of 1 point. Missing responses (items that a student did not answer) and multiple responses had a value of zero.

Extended-Response Items

These items, found only on the writing test, required a lengthy written response from students. The student was to write a full composition based on a prompt. Students were provided two pages on which to write a response.

Scoring Rubrics

Papers were scored using a modified holistic domain rubric. A student could earn as many as 15 points for each extended-response item. The total score was a composite of scores earned on four domains: content and development, organization, voice, and conventions. Each domain had a maximum score of 4 points, except voice, which had a maximum score of 3 points.

4.2 SCORING PROCESS

The DRC was responsible for the scoring, analyzing, and reporting of the PASS. Students responded in scannable answer documents. Multiple-choice items were scored electronically by the DRC's scanning system. Responses to multiple-choice items were recorded as correct, incorrect, omitted, or having multiple marks. Apparent erasures were also recorded.

Extended-response items were scored at a DRC scoring site outside of South Carolina. SCDE personnel were present on site for training and during the initial phases of scoring and

remained in contact as needed until scoring was complete. DRC staff conducted systematic reviews and analyses of student data on the extended-response items to help ensure accurate scoring.

Prior to scoring the PASS, student responses to extended-response items from previous field tests were submitted to range-finding committees of South Carolina educators who reviewed, scored, and agreed upon scores for “consensus sets” of papers based on state-approved scoring rubrics. Papers from these sets were used to construct training, qualifying, and recalibration sets that were used during scoring.

Training sets were used for initial rater training. Qualifying sets were used to establish the eligibility of an individual as a rater in the scoring process. To qualify as a rater for the extended-response items, an individual must demonstrate a rate of at least 70 percent exact agreement and 85 percent adjacent (i.e., within one point) agreement with the consensus scores for each domain on two out of three sets of twenty papers each.

4.3 QUALITY CONTROL FOR RATER ACCURACY

DRC is responsible for monitoring rater accuracy and implementing corrective measures as needed. Throughout the extended-response scoring, a rater must maintain at least 70 percent exact agreement on validity checks for each domain scored. Any rater who falls below the 70 percent rate on any domain can no longer score in that domain until retrained and re-qualified. All papers scored by that rater since the last acceptable validity check must be re-scored in that domain.

Throughout handscoring, daily calculations of inter-rater agreement must be provided to the SCDE. The minimum requirement for rater accuracy is an average inter-rater agreement of 70 percent. Overall inter-rater reliability must be maintained at 70 percent exact agreement. Scoring cannot be considered completed if the agreement rate is below this level.

CHAPTER 5

TECHNICAL CHARACTERISTICS OF THE 2010 PASS ITEMS

As noted previously, the PASS assessments are comprised of multiple-choice and (for writing only) extended-response items. This section documents the technical characteristics of these items.

5.1 MULTIPLE-CHOICE ITEMS

Item analyses were performed by Pearson for ELA, mathematics, science, and social studies and by DRC for writing. For each multiple-choice item, the analyses provided traditional item indices such as item difficulty (p -value), item discrimination (item/criterion point-biserial correlation), the proportion of examinees choosing each response, and option/criterion point-biserial correlations. The criterion variable for item discrimination was the raw score excluding the item under consideration. Mean p -values for all grades and subjects were in the vicinity of 0.60. Median point-biserials ranged from approximately 0.30 to 0.40. Table 5.1 provides a summary of the difficulty and discrimination indices for the multiple-choice items.

TABLE 5.1
Summary of Major Indices for Multiple-Choice Items

| Grade | Content | N of Items | Mean <i>p</i>-value | Median Point-Biserial |
|--------------|----------------|-------------------|----------------------------|------------------------------|
| Grade 3 | Writing | 25 | 0.588 | 0.340 |
| | ELA | 36 | 0.582 | 0.412 |
| | Math | 50 | 0.651 | 0.388 |
| | Science | 45 | 0.609 | 0.351 |
| | Social Studies | 45 | 0.581 | 0.379 |
| Grade 4 | Writing | 25 | 0.653 | 0.338 |
| | ELA | 36 | 0.688 | 0.413 |
| | Math | 56 | 0.622 | 0.392 |
| | Science | 45 | 0.636 | 0.366 |
| | Social Studies | 50 | 0.554 | 0.372 |
| Grade 5 | Writing | 25 | 0.634 | 0.326 |
| | ELA | 37 | 0.653 | 0.355 |
| | Math | 56 | 0.579 | 0.401 |
| | Science | 50 | 0.587 | 0.312 |
| | Social Studies | 50 | 0.578 | 0.367 |
| Grade 6 | Writing | 25 | 0.639 | 0.348 |
| | ELA | 40 | 0.685 | 0.398 |
| | Math | 61 | 0.598 | 0.420 |
| | Science | 55 | 0.603 | 0.358 |
| | Social Studies | 55 | 0.544 | 0.350 |
| Grade 7 | Writing | 25 | 0.647 | 0.359 |
| | ELA | 44 | 0.664 | 0.380 |
| | Math | 61 | 0.559 | 0.373 |
| | Science | 55 | 0.587 | 0.351 |
| | Social Studies | 60 | 0.546 | 0.386 |
| Grade 8 | Writing | 25 | 0.646 | 0.346 |
| | ELA | 50 | 0.668 | 0.401 |
| | Math | 63 | 0.549 | 0.384 |
| | Science | 59 | 0.587 | 0.368 |
| | Social Studies | 60 | 0.534 | 0.350 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing. Students who used Braille or sign language test booklets were also excluded since some items on these tests may differ from Form A.

Source: Data Recognition Corporation

5.2 EXTENDED-RESPONSE ITEMS

As with multiple-choice items, the characteristics of the extended-response items are reported in terms of p -value and item/criterion point-biserial correlation. While each writing form contained a single extended-response item, the item was scored on four domains, with each domain receiving a separate score. For ER items, p -value is the ratio of the item mean to the item maximum possible score (MPS). The discrimination index is the domain score-criterion correlation, with the criterion being the total raw score, excluding the domain under consideration. ER items had higher mean p -values and median discrimination indices than did MC items. Table 5.2 reports a summary of the major characteristics of the extended-response items.

TABLE 5.2
Summary of Major Indices for Extended-Response Items

| Grade | Subject | Number of Scores | Mean p-value | Median Discrimination |
|--------------|----------------|-------------------------|----------------------------------|------------------------------|
| 3 | WRITING | 4 | 0.650 | 0.768 |
| 4 | WRITING | 4 | 0.698 | 0.772 |
| 5 | WRITING | 4 | 0.714 | 0.733 |
| 6 | WRITING | 4 | 0.730 | 0.711 |
| 7 | WRITING | 4 | 0.700 | 0.689 |
| 8 | WRITING | 4 | 0.734 | 0.677 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who received an incomplete in writing. Students who used Braille or sign language test booklets were also excluded since some items on these tests may differ from Form A.

Source: Data Recognition Corporation

CHAPTER 6

SETTING PERFORMANCE STANDARDS

The Education Accountability Act of 2008, described in section 1.3, assigned the responsibility for setting achievement standards on PASS tests to the South Carolina Education Oversight Committee (EOC). In turn, the EOC contracted with DRC to conduct the standard-setting process. Committees of South Carolina educators were selected and met in Columbia, SC August 2-7, 2009. DRC processed the committees' recommendations and presented those results in a report to the EOC (Data Recognition Corporation 2010). After a series of public hearings, the EOC announced the final PASS standards and delivered them to SCDE.

6.1 METHOD OF SETTING CUT SCORES

To set performance standards for the PASS test, the EOC and DRC jointly decided on the Bookmark method (Lewis, Mitzel, and Green 1996). The Bookmark process uses an IRT framework to create an ordered item booklet (OIB), a document that contains a series of test items in order of increasing difficulty. The items reflect the expected range of abilities of students being tested. The OIB is presented to the standard-setting committee. Committee members are given descriptions of the performance levels for which standards are to be set. Members then review the OIB items and determine which items will be successfully completed at a specified response probability (RP) by students performing at the minimal level consistent with the performance level descriptions. (For PASS tests, an RP of 0.67 (Huynh 1994) was used.) Committee members place bookmarks between the items that, in their judgment, separate two adjacent achievement levels. Committees make several rounds of judgments, with intervening group discussions. Additional data on the impact of possible standards is also given to the committees.

Since PASS tests are administered in grades 3 through 8, it is reasonable to expect a degree of consistency in test results across grades. Following the initial committee meetings, panels were selected from the various subject-area committees to examine proposed standards across grades and recommend possible adjustments. After the committee meetings, DRC used an analytical smoothing function to better articulate the committees' recommendations for grade-by-grade standards. Based on this process and input from various groups at public hearings, the EOC then established the final PASS achievement standards.

6.2 POLICY DEFINITIONS

The following verbal descriptions of PASS achievement levels were given in Article 9 of the EAA (2008):

Not Met – the student did not meet the grade level standard,

Met – the student met the grade level standard, and

Exemplary – the student demonstrated exemplary performance in meeting the grade level standard.

These descriptions provided the starting point for the standard-setting process. Although the EAA called for three performance levels, the EOC determined a total of five performance levels, dividing the Not Met and Exemplary categories into two parts each (known as Not Met 1, Not Met 2 and Exemplary 4, Exemplary 5, respectively) for use with state accountability procedures.

6.3 IMPLEMENTATION

The standard setting process, as conducted by DRC, was based on free (unanchored) Rasch calibrations of all subjects. Only this free calibration was available for writing. For the other subjects, test forms were calibrated by Pearson with item difficulty values anchored to the existing PACT scales. The table of cut scores provided to the SCDE by the EOC contained values based on DRC's free calibrations. It was necessary for SCDE staff to translate these cut scores (except for writing) to the anchored scale used by Pearson. The two scales were highly correlated ($\geq .97$) in every case. Since Rasch abilities are one-to-one with raw scores, the cut scores from both scales identified exactly the same sets of students at each performance level.

6.4 CUT SCORES

Table 6.1 provides the cut scores in terms of the Rasch ability and scale score. ELA, mathematics, science, and social studies cuts are on the anchored scale, while writing cuts are on the free-calibration scale.

TABLE 6.1
PASS Cut Scores: Scale Score (Rasch Ability)

| ELA | | |
|--------------|--------------------------|------------------|
| Grade | Achievement Level | |
| | Met | Exemplary |
| 3 | 600 (-0.2917) | 643 (0.6651) |
| 4 | 600 (-0.3974) | 649 (0.8841) |
| 5 | 600 (-0.4360) | 661 (0.8523) |
| 6 | 600 (-0.2993) | 648 (0.7320) |
| 7 | 600 (-0.3449) | 644 (0.6214) |
| 8 | 600 (-0.3080) | 649 (0.6943) |

| Mathematics | | |
|--------------------|--------------------------|------------------|
| Grade | Achievement Level | |
| | Met | Exemplary |
| 3 | 600 (-0.2025) | 642 (0.7325) |
| 4 | 600 (-0.1874) | 658 (1.1081) |
| 5 | 600 (-0.1424) | 659 (1.1179) |
| 6 | 600 (-0.1562) | 658 (1.1245) |
| 7 | 600 (-0.0705) | 652 (0.9868) |
| 8 | 600 (-0.1305) | 657 (1.0969) |

| Science | | |
|----------------|--------------------------|------------------|
| Grade | Achievement Level | |
| | Met | Exemplary |
| 3 | 600 (-0.0607) | 649 (0.8536) |
| 4 | 600 (-0.0244) | 674 (1.5273) |
| 5 | 600 (-0.0933) | 676 (1.2051) |
| 6 | 600 (0.0701) | 669 (1.4423) |
| 7 | 600 (-0.0379) | 664 (1.1415) |
| 8 | 600 (-0.0249) | 651 (0.9331) |

| Social Studies | | |
|-----------------------|--------------------------|------------------|
| Grade | Achievement Level | |
| | Met | Exemplary |
| 3 | 600 (0.2612) | 653 (1.3955) |
| 4 | 600 (-0.3052) | 668 (1.0129) |
| 5 | 600 (-0.2394) | 658 (0.8697) |
| 6 | 600 (-0.2674) | 671 (1.0234) |
| 7 | 600 (-0.3974) | 646 (0.5294) |
| 8 | 600 (0.0666) | 656 (0.9925) |

| Writing | | |
|----------------|--------------------------|------------------|
| Grade | Achievement Level | |
| | Met | Exemplary |
| 3 | 600 (-0.0641) | 638 (0.7641) |
| 4 | 600 (0.0956) | 648 (1.2678) |
| 5 | 600 (-0.1297) | 649 (0.9117) |
| 6 | 600 (0.0086) | 651 (1.2008) |
| 7 | 600 (0.2088) | 647 (1.2923) |
| 8 | 600 (0.3667) | 651 (1.4311) |

6.5 DESCRIPTIONS OF ACHIEVEMENT LEVELS

Prior to standard setting, the EOC and DRC developed expanded descriptions of the level of achievement expected of students at each of the performance levels defined in legislation. These are known as Descriptions of Achievement Levels (DALs). The DALs are unique to subject and grade. In some cases, the standard-setting committees made revisions to the DALs. A copy of the DALs can be found in Appendix A of DRC's 2009 PASS standard setting report (Data Recognition Corporation 2010).

6.6 PERCENTAGE OF STUDENTS IN EACH ACHIEVEMENT LEVEL

Table 6.2 provides the distribution of the PASS students in the three achievement levels for each grade and test. The data include all students who took Form A and other special forms, with a few exceptions. Home-schooled students, students with incomplete scores for ELA, and students who took a test using a non-standard accommodation are not included.

TABLE 6.2
Percentage of Students in Each Performance Level

| Grade | Content | N | Percentage in Each Performance Level | | |
|--------------|-----------------------|----------|---|------------|------------------|
| | | | Not Met | Met | Exemplary |
| 3 | Writing | 54,565 | 29.0 | 33.0 | 38.0 |
| | ELA | 54,464 | 19.3 | 26.8 | 53.9 |
| | Mathematics | 54,799 | 30.0 | 31.2 | 38.8 |
| | Science | 27,535 | 44.3 | 33.0 | 22.7 |
| | Social Studies | 27,347 | 26.8 | 41.6 | 31.6 |
| 4 | Writing | 54,869 | 27.7 | 37.8 | 34.4 |
| | ELA | 54,659 | 23.5 | 38.8 | 37.7 |
| | Mathematics | 54,990 | 23.3 | 41.8 | 34.9 |
| | Science | 55,013 | 30.7 | 54.0 | 15.2 |
| | Social Studies | 54,979 | 23.8 | 48.9 | 27.2 |
| 5 | Writing | 53,362 | 25.5 | 37.6 | 36.9 |
| | ELA | 53,519 | 21.9 | 41.4 | 36.7 |
| | Mathematics | 53,568 | 28.7 | 40.1 | 31.2 |
| | Science | 26,882 | 34.0 | 49.6 | 16.4 |
| | Social Studies | 26,727 | 33.9 | 41.7 | 24.4 |
| 6 | Writing | 52,809 | 28.1 | 40.3 | 31.6 |
| | ELA | 53,011 | 27.8 | 36.9 | 35.3 |
| | Mathematics | 53,040 | 29.7 | 39.8 | 30.5 |
| | Science | 26,555 | 39.1 | 46.7 | 14.2 |
| | Social Studies | 26,496 | 20.6 | 51.0 | 28.4 |
| 7 | Writing | 52,172 | 30.3 | 42.0 | 27.7 |
| | ELA | 52,162 | 30.8 | 32.5 | 36.6 |
| | Mathematics | 52,211 | 33.0 | 38.6 | 28.4 |
| | Science | 52,197 | 26.6 | 46.5 | 26.8 |
| | Social Studies | 52,148 | 38.0 | 33.3 | 28.7 |
| 8 | Writing | 51,387 | 28.1 | 41.9 | 30.0 |
| | ELA | 51,404 | 36.3 | 30.4 | 33.3 |
| | Mathematics | 51,433 | 36.6 | 40.4 | 23.0 |
| | Science | 25,805 | 32.3 | 36.0 | 31.7 |
| | Social Studies | 25,663 | 31.2 | 35.7 | 33.1 |

CHAPTER 7

ITEM CALIBRATION AND SCALING

Item calibration, scaling, and linking for PASS assessments are based on item response theory (IRT) models. The one-parameter logistic (1PL or Rasch) model (Rasch 1960) was used for the subjects of ELA, mathematics, science, and social studies. In writing, where test forms contained both multiple-choice items and an extended-response item, a mixed model incorporating the 1PL and the one-parameter partial credit (1PPC) model (Masters 1982) was used.

7.1 OVERVIEW

The PASS item banks incorporate items retained from the state's previous testing program, the PACT, along with additional newly-developed items. The original plan for the development and calibration of PASS test forms called for the development contractor, Pearson, to produce sets of pre-equated forms for all subjects except writing. Forms for writing would be post-equated by DRC due to a known shortage of multiple-choice writing items. However, at the beginning of the program, the numbers of available items proved to be insufficient to produce multiple forms. Instead, it was decided to develop unique forms for each administration. The forms for all subjects would be post-equated.

7.2 ITEM CALIBRATION

Model and Software

DRC performed item calibration for operational items in all subjects and field test items in writing. Pearson calibrated field test items in all other subjects. WINSTEPS software was used for the calibrations by both contractors. Under the IRT models used for calibration, the raw score (total number of points) is the sufficient statistic for achievement. The calibration process yields a value of the Rasch ability measure known as theta for each possible raw score. Pearson-calibrated subjects were anchored using item difficulties from the PACT item bank. In 2009, DRC performed a free (unanchored) calibration for writing, which had not been a separate test subject in PACT. The 2009 administration thus defined the theta scale for writing and provided the anchor for all future test forms. Since theta scores contain negative numbers and decimal fractions, they are typically converted into scale scores for simplicity and ease of interpretation.

7.3 CALIBRATION DATA SETS

DRC conducted item calibrations for writing based on all students who attempted the writing test. In calibrating the four remaining subjects, DRC used samples of 20,000 or more students for the subjects and grades where all students were tested. In the four grades where students were tested in either science or social studies but not both, samples of 10,000 or more students were used. The samples were taken from the first returns from the statewide

test administration. Prior to calibration, demographic characteristics of the samples were compared to statewide values to confirm that the samples were representative of the state as a whole.

7.4 PERFORMANCE LEVELS

PASS results are used to classify students into one of three performance levels: Not Met, Met, or Exemplary. The Met level is used as the proficiency criterion for both state and federal accountability purposes. The Exemplary level provides the level above proficiency as required by federal legislation. A description of the process by which cut scores for these levels were determined is given in Chapter 6.

7.5 SCALING

General Method of Scaling

The structure of the PASS scale score metric was determined by SCDE staff. In consultation with the TAC, it was decided that PASS scores would be reported on within-grade (horizontal) scales. The range of scale scores was set from 300 to 900; any scale score that exceeded these limits would be truncated at the limiting value. For every grade and subject, the scale score of 600 was set to correspond to the theta-scale met cut score, and the standard deviation of scale scores in the initial year was set to 50, when rounded to an integer.

Scalable Students

Ability estimates were obtained for all students who responded to at least one item. Omissions and multiple responses (i.e., more than one response selected, without machine-discernable erasures) were scored as zeros.

Raw Scores

All subjects except writing are composed solely of multiple-choice items, so that the raw score is simply the number of items answered correctly. Writing forms for all grades contain twenty-five multiple-choice items and one extended-response item. The extended-response item is scored on four domains, according to an established scoring rubric, which features maximum scores of 4, 4, 3, and 4 for the four domains of Content and Development, Organization, Voice, and Conventions, respectively. The four extended-response domain scores are summed to get an extended-response total score, worth a maximum of 15 points. This score receives a weight of two in computing writing total scores. Thus, the raw score for writing is the number of multiple-choice items answered correctly, plus twice the extended-response score, for a maximum of 55 points.

Zero and Perfect Scores

In most IRT maximum-likelihood ability estimation methods, zero and perfect scores yield ability estimates of minus and plus infinity. In IRT applications, however, finite ability estimates are required for these scores. For the PASS, WINSTEPS default values were assigned for these extreme scores.

7.6 THE PASS SCALE SCORES

For ease of interpretation, PASS abilities for each grade and subject were converted into scale scores. The anchor point for all scales was the met cut point which was set to a scale score of 600; the standard deviation of scale scores in the initial year was set to 50 for every grade and subject. Decisions on the scale score system were made by SCDE staff in consultation with Huynh Huynh of the TAC.

Calibration of PASS test forms yielded a value of the Rasch ability, theta (θ), corresponding to every possible raw score. Scale scores were calculated for every raw score for each grade and subject using the formula:

$$[\text{unrounded}] \text{ scale score} = 600 + ((\theta_{RS} - \theta_{Met}) / \sigma_{\theta}) * 50, \text{ where}$$

θ_{RS} is the value of theta corresponding to that raw score,

θ_{Met} is the value of theta at the met cutpoint, and

σ_{θ} is the observed standard deviation of theta for the specified grade and subject.

Table 7.1 contains values of θ_{Met} and σ_{θ} for every grade and subject. Values of θ_{Met} were obtained from the PASS standards setting. Values of σ_{θ} were computed based on empirical data from the 2009 PASS administration.

TABLE 7.1
PASS Scaling Coefficients

| Subject | Grade | θ_{Met} | σ_{θ} | |
|----------------|--------------|----------------|-------------------|--------|
| ELA | 3 | -0.2917 | 1.1057 | |
| | 4 | -0.3974 | 1.2851 | |
| | 5 | -0.436 | 1.0475 | |
| | 6 | -0.2993 | 1.0703 | |
| | 7 | -0.3449 | 1.0829 | |
| | 8 | -0.308 | 1.0066 | |
| | Math | 3 | -0.2025 | 1.0996 |
| | | 4 | -0.1874 | 1.1085 |
| 5 | | -0.1424 | 1.0664 | |
| 6 | | -0.1562 | 1.0973 | |
| 7 | | -0.0705 | 1.0131 | |
| 8 | | -0.1305 | 1.0606 | |
| Science | | 3 | -0.0607 | 0.9282 |
| | | 4 | -0.0244 | 1.036 |
| | 5 | -0.0933 | 0.8472 | |
| | 6 | 0.0701 | 0.9822 | |
| | 7 | -0.0379 | 0.921 | |
| | 8 | -0.0249 | 0.9362 | |
| | SocStud | 3 | 0.2612 | 1.0524 |
| | | 4 | -0.3052 | 0.9612 |
| 5 | | -0.2394 | 0.9477 | |
| 6 | | -0.2674 | 0.9046 | |
| 7 | | -0.3974 | 0.9998 | |
| 8 | | 0.0666 | 0.8189 | |
| Writing | | 3 | -0.0641 | 1.0685 |
| | | 4 | 0.0956 | 1.2007 |
| | 5 | -0.1297 | 1.0582 | |
| | 6 | 0.0086 | 1.1519 | |
| | 7 | 0.2088 | 1.145 | |
| | 8 | 0.3667 | 1.0411 | |

Each year, values of θ corresponding to each possible raw score will be determined empirically for each test form. The values of θ_{Met} and σ_{θ} for each grade and subject are constants that do not change from year to year. All scale scores are reported as integers. Unrounded scale score values are rounded down to the next lower integer.

At cut scores that do not translate to integer scale scores, it is possible for a raw score to correspond to a theta below the theta-level cut score yet still translate to a scale score value equal to the scale score cut. In such cases, the reported scale score is reduced by one point to fall below the scale score cut, thereby making the theta and scale score metrics consistent.

7.7 LINKING AND EQUATING

DRC used Rasch equating to link each new PASS test form to the existing scoring scales, which were established following the 2009 PASS administration. SCDE provided DRC with a testmap containing existing item difficulty values for the pool of potential linking items on each form. Potential linking items are multiple-choice items which appear on the current form and have appeared on either of the previous two years' operational forms. Writing test forms contain 13 or more potential linking items. Test forms for other subjects contain 16 or more potential linking items.

After compiling sufficient numbers of student responses, DRC conducted an unanchored (free) calibration of the items on the current form.

Guidelines for a successful equating:

- The correlation of existing and current Rasch difficulties should be equal to or greater than .95.
- The ratio of the standard deviations of existing and current Rasch difficulties should be within the range of 0.90 to 1.10.
- The distribution of students scoring in each achievement level should not vary unusually from year to year.
- The mean PASS scale score should not vary unusually from year to year.
- If more than one potential linking item is deleted in Step 9 below, the items should not come from a single content standard and should vary in difficulty.

Steps in equating:

The following steps were used to perform the Rasch equating:

1. Calculate the mean and standard deviation of the linking pool's existing item difficulties (from the testmap).
2. Calculate the mean and standard deviation of the linking pool's current (unanchored) item difficulties.
3. Calculate the ratio of the two standard deviations (from Steps 1 and 2).
4. Calculate the correlation between the existing and current item difficulties for the items in the linking pool.
5. Calculate the difference between the existing and current item difficulties for each item in the linking pool.
6. Calculate the mean of the differences determined above.

If the set of linking items meets the above guidelines, go to Step 10. Otherwise, determine robust Z statistics as follows:

7. Calculate the median of the differences (m_{diff}).
8. Calculate the interquartile range of the differences (r_{iq}).

-
9. Calculate the robust Z statistic for each item in the linking pool, where the robust Z is defined as the difference between the item's existing (b_e) and current (b_c) item difficulties minus the median of the differences, that quantity divided by the quantity the interquartile range multiplied by 0.74.

$$Z = [(b_e - b_c) - m_{\text{diff}}] / (r_{\text{iq}} * 0.74)$$

Once the above calculations have been made, the following procedure will be used in determining the set of linking items to be used for the Rasch equating:

10. Remove any items with absolute values of the robust Z statistic greater than 1.645 from the pool of potential linkers, unless this would result in more than 20% of potential linking items being deleted. In that case, remove the items with the largest absolute values of Z up to 20% of the items.
11. Repeat Steps 1 through 6.
12. The mean difference of the difficulties of the items currently in the linking pool (from Step 6, above) is the additive constant used for equating the current scale to the existing scale.

DRC provided SCDE with documentation of the above process and its results. Note that SCDE may chose to accept an equating which fails to meet one or more of the above guidelines. DRC and SCDE will keep track of deleted potential linking items across administrations, to insure that deleted items are not selected from one or two specific strands or narrow ranges of difficulty.

7.8 DATA REPORTING BY STANDARDS

General Procedure

Student performance by standard (or domain, in the case of writing) is reported in terms of the student's strengths and weaknesses. Based on their performance, students are placed into one of three categories at the standard or domain level:

1. those who show weakness and a need for further instruction in the standard/domain,
2. those who may benefit from additional activities that focus on the standard/domain, and
3. those who show strength in the standard/domain.

The following steps were utilized to determine the appropriate category for each standard/domain.

Steps in Categorization

The following procedure is used for each test form, by grade and subject:

Step 1: Every item on the form is assigned to a single content standard or domain, creating a subtest for that standard/domain.

Step 2: The calibrated item difficulties from the total form calibration are used to generate values of theta for each possible raw score on the subtest, along with its associated standard error of measurement.

Step 3: The lowest value of theta for the subtest which equals or exceeds the Met cutpoint on the total test is identified.

Step 4: A confidence interval of plus and minus one standard error of measurement is created around the score identified in step 3.

Step 5: The confidence interval is used to place students into one of the three categories:

- Category 1 contains students whose scores are below the confidence interval.
- Category 2 contains students whose scores are within the confidence interval.
- Category 3 contains students whose scores are above the confidence interval.

It should be noted that the standard-level categories 1, 2, and 3 do not correspond to the total-test performance levels Not Met, Met, and Exemplary. Indeed, as can be seen in the procedure described above, neither the Exemplary cut score nor performance level has an impact on standard-level categorizations.

CHAPTER 8

RELIABILITY

This chapter provides reliability indices and both classical standard errors of measurement (SEM) and conditional standard errors of measurement (cSEM) for the PASS assessments. Decision consistency measures for the PASS performance levels are also given.

8.1 RELIABILITY OF RAW SCORES

Reliability indices for the PASS assessments were computed using coefficient alpha (Cronbach 1951) for all tests except writing. The stratified coefficient alpha (Qualls 1995), appropriate for tests with mixed items types, was used for writing.

The stratified coefficient alpha is defined as

$$\text{strat } \alpha \rho_{XX'} = 1 - \frac{\sum \sigma_{Y_j}^2 (1 - \alpha \rho_{Y_j Y_j'})}{\sigma_X^2}, \text{ where}$$

each test-part j is composed of all items of a given type;

σ_X^2 = the total score variance;

$\sigma_{Y_j}^2$ = the score variance for a part-test j ; and

$\alpha \rho_{Y_j Y_j'}$ = the reliability of the part-test j .

Table 8.1 provides reliability information on all subjects for the total student population and for students in each gender group and the ethnic groups of African-American, Hispanic, and white students. (The numbers of students in other ethnic groups such as American Indians, Asians, or mixed-race groups were deemed too small for reliability estimation.) Reliabilities were also determined for students with disabilities (SWD) and limited-English proficiency (LEP) students. Reliability data were compiled only for Form A of the assessments. TAC guidelines call for test forms to show reliability indices of at least 0.85.

TABLE 8.1
Classical Reliability Indices (Coefficient Alpha) Based on Raw Scores

| Grade | Subject | Group of Students | | | | | | | |
|-------|-----------|-------------------|--------|-------|------------------|-------|----------|-------|-------|
| | | All | Female | Male | African-American | White | Hispanic | LEP | SWD |
| 3 | Writing | 0.917 | 0.910 | 0.918 | 0.904 | 0.914 | 0.914 | 0.918 | 0.925 |
| | ELA | 0.875 | 0.871 | 0.876 | 0.835 | 0.874 | 0.850 | 0.858 | 0.846 |
| | Math | 0.901 | 0.894 | 0.907 | 0.877 | 0.894 | 0.888 | 0.897 | 0.895 |
| | Science | 0.875 | 0.866 | 0.883 | 0.830 | 0.865 | 0.844 | 0.850 | 0.860 |
| | Soc. Stud | 0.893 | 0.884 | 0.900 | 0.855 | 0.891 | 0.873 | 0.882 | 0.875 |
| 4 | Writing | 0.920 | 0.911 | 0.922 | 0.906 | 0.917 | 0.917 | 0.920 | 0.918 |
| | ELA | 0.886 | 0.875 | 0.892 | 0.864 | 0.875 | 0.882 | 0.880 | 0.877 |
| | Math | 0.920 | 0.914 | 0.925 | 0.891 | 0.917 | 0.905 | 0.911 | 0.900 |
| | Science | 0.881 | 0.871 | 0.890 | 0.848 | 0.865 | 0.865 | 0.866 | 0.871 |
| | Soc. Stud | 0.894 | 0.879 | 0.905 | 0.849 | 0.898 | 0.872 | 0.879 | 0.861 |
| 5 | Writing | 0.910 | 0.901 | 0.912 | 0.898 | 0.905 | 0.903 | 0.910 | 0.910 |
| | ELA | 0.865 | 0.856 | 0.870 | 0.838 | 0.857 | 0.857 | 0.865 | 0.828 |
| | Math | 0.919 | 0.915 | 0.923 | 0.893 | 0.917 | 0.910 | 0.921 | 0.877 |
| | Science | 0.869 | 0.856 | 0.880 | 0.828 | 0.859 | 0.854 | 0.866 | 0.841 |
| | Soc. Stud | 0.881 | 0.868 | 0.892 | 0.854 | 0.879 | 0.861 | 0.871 | 0.839 |
| 6 | Writing | 0.904 | 0.893 | 0.906 | 0.890 | 0.898 | 0.904 | 0.911 | 0.889 |
| | ELA | 0.881 | 0.868 | 0.889 | 0.860 | 0.871 | 0.877 | 0.880 | 0.858 |
| | Math | 0.928 | 0.922 | 0.933 | 0.902 | 0.928 | 0.920 | 0.926 | 0.877 |
| | Science | 0.894 | 0.883 | 0.904 | 0.854 | 0.887 | 0.875 | 0.879 | 0.863 |
| | Soc. Stud | 0.887 | 0.867 | 0.902 | 0.851 | 0.889 | 0.869 | 0.876 | 0.857 |
| 7 | Writing | 0.899 | 0.883 | 0.903 | 0.880 | 0.895 | 0.890 | 0.898 | 0.892 |
| | ELA | 0.889 | 0.878 | 0.897 | 0.868 | 0.882 | 0.874 | 0.883 | 0.852 |
| | Math | 0.913 | 0.905 | 0.920 | 0.867 | 0.915 | 0.893 | 0.904 | 0.818 |
| | Science | 0.895 | 0.879 | 0.908 | 0.862 | 0.891 | 0.884 | 0.895 | 0.850 |
| | Soc. Stud | 0.913 | 0.897 | 0.925 | 0.880 | 0.918 | 0.898 | 0.904 | 0.848 |
| 8 | Writing | 0.887 | 0.874 | 0.889 | 0.867 | 0.879 | 0.891 | 0.895 | 0.876 |
| | ELA | 0.911 | 0.903 | 0.915 | 0.889 | 0.909 | 0.901 | 0.900 | 0.862 |
| | Math | 0.921 | 0.915 | 0.927 | 0.886 | 0.923 | 0.906 | 0.905 | 0.829 |
| | Science | 0.903 | 0.884 | 0.916 | 0.862 | 0.899 | 0.889 | 0.891 | 0.848 |
| | Soc. Stud | 0.892 | 0.877 | 0.903 | 0.852 | 0.894 | 0.869 | 0.862 | 0.825 |

Note: ALL = All students who attempted the test **except:** home school students, students who used non-standard testing accommodations, students who received an incomplete in writing, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

As shown in table 8.1, reliability indices do not change much from the total student population to the students in each gender and ethnicity group. All subsequent data analyses for this section were therefore performed only on the total state student population.

8.2 STANDARD ERROR OF MEASUREMENT

The classical standard error of measurement (SEM) was computed using the traditional formula:

$$SEM = SD\sqrt{1 - reliability}$$

The SEMs are reported in table 8.2.

TABLE 8.2
Classical Standard Errors of Measurement Based on Scale Scores

| Grade | Content | Overall SEM |
|--------------|----------------|--------------------|
| 3 | Writing | 14.9 |
| | ELA | 18.2 |
| | Math | 16.2 |
| | Science | 19.3 |
| | Soc. Stud | 16.8 |
| 4 | Writing | 13.4 |
| | ELA | 16.6 |
| | Math | 15.4 |
| | Science | 17.5 |
| | Soc. Stud | 17.2 |
| 5 | Writing | 16.0 |
| | ELA | 19.6 |
| | Math | 15.0 |
| | Science | 19.5 |
| | Soc. Stud | 17.1 |
| 6 | Writing | 15.1 |
| | ELA | 18.8 |
| | Math | 14.4 |
| | Science | 16.2 |
| | Soc. Stud | 16.8 |
| 7 | Writing | 14.7 |
| | ELA | 17.0 |
| | Math | 15.2 |
| | Science | 17.4 |
| | Soc. Stud | 14.9 |
| 8 | Writing | 17.5 |
| | ELA | 17.6 |
| | Math | 14.0 |
| | Science | 16.4 |
| | Soc. Stud | 17.8 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, students who received an incomplete in writing, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

8.3 CONDITIONAL SEM FOR SCALE SCORES

Conditional standard errors of measurement (cSEM) were computed for all subjects using WINSTEPS. Standard output from this program gives conditional standard errors of measurement for each raw score/theta, on the theta metric. Multiplying these values by the scaling constants from Section 7.5 (50 divided by the standard deviation of theta) gives cSEM on the scale-score metric.

Since scale scores are used for student reporting purposes, it is appropriate to report the scale score cSEM at the two cut scores that define the three performance levels. The resulting cSEM data are reported in table 8.3 for all grades and subjects.

TABLE 8.3
CSEM at PASS Scale Score Cuts

| Grade | Subject | Met | Exemplary |
|--------------|----------------|------------|------------------|
| 3 | Writing | 15.44 | 16.41 |
| | ELA | 16.54 | 16.46 |
| | Math | 13.88 | 15.55 |
| | Science | 17.26 | 20.01 |
| | Soc. Stud | 14.82 | 16.18 |
| 4 | Writing | 13.61 | 15.42 |
| | ELA | 14.17 | 17.23 |
| | Math | 13.09 | 14.75 |
| | Science | 15.44 | 20.56 |
| | Soc. Stud | 15.51 | 16.50 |
| 5 | Writing | 16.14 | 18.14 |
| | ELA | 17.23 | 19.56 |
| | Math | 13.35 | 14.54 |
| | Science | 17.76 | 20.93 |
| | Soc. Stud | 15.73 | 17.66 |
| 6 | Writing | 14.64 | 16.68 |
| | ELA | 16.34 | 19.67 |
| | Math | 12.39 | 13.95 |
| | Science | 14.68 | 18.52 |
| | Soc. Stud | 15.84 | 16.34 |
| 7 | Writing | 14.54 | 16.78 |
| | ELA | 15.09 | 17.36 |
| | Math | 13.53 | 14.37 |
| | Science | 15.62 | 17.25 |
| | Soc. Stud | 13.44 | 14.32 |
| 8 | Writing | 17.13 | 19.51 |
| | ELA | 15.61 | 18.59 |
| | Math | 12.43 | 13.78 |
| | Science | 14.68 | 16.02 |
| | Soc. Stud | 16.75 | 17.13 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, students who received an incomplete in writing, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

8.4 CONSISTENCY OF PERFORMANCE LEVELS

Since it is not feasible to repeat PASS testing to determine the proportion of students who would be classified in the same performance levels, a statistical model needs to be imposed on the data to project the consistency of classifications. Although a number of procedures are available for this task, perhaps the two most well known are the methods developed by Huynh Huynh and Michael J. Subkoviak (Huynh 1976 and 1979; Subkoviak 1976). These two methods are known to yield similar results. However, the beta-binomial model used by Huynh is preferable because of its ability to provide standard errors for the estimates (Huynh and Saunders 1980).

Two indices of classification consistency are reported, the proportion of agreement (p) and kappa (κ). The agreement index is the proportion of students who are consistently classified in the same achievement level on two equivalent administrations of the test. The kappa index, on the other hand, reflects the level of improvement in the consistency of classifications beyond that expected by chance. The computer program RELI (Huynh 1979) was used for computing these consistency indices.

For each grade and subject, both agreement and kappa indices were computed in two ways. The first computation included all three performance levels, providing measures of consistency across all levels. Since the Not Met/Met distinction is important for both federal and state accountability ratings, the second computation combined the categories of Met and Exemplary. This case, using only two categories, offers fewer opportunities for differing classifications and therefore yields higher values of the consistency indices than the case of three categories. Values for both cases of the two consistency indices are shown in table 8.4.

TABLE 8.4
Consistency Indices for Performance Levels

| Grade | Content | Two Achievement Levels | | Three Achievement Levels | |
|-------|-----------|-------------------------|-------|--------------------------|-------|
| | | Proportion of Agreement | Kappa | Proportion of Agreement | Kappa |
| 3 | Writing | 0.857 | 0.653 | 0.700 | 0.547 |
| | ELA | 0.890 | 0.640 | 0.742 | 0.571 |
| | Math | 0.876 | 0.705 | 0.743 | 0.612 |
| | Science | 0.840 | 0.676 | 0.722 | 0.568 |
| | Soc. Stud | 0.880 | 0.693 | 0.753 | 0.622 |
| 4 | Writing | 0.865 | 0.665 | 0.710 | 0.563 |
| | ELA | 0.884 | 0.676 | 0.737 | 0.597 |
| | Math | 0.902 | 0.722 | 0.781 | 0.662 |
| | Science | 0.862 | 0.675 | 0.760 | 0.594 |
| | Soc. Stud | 0.888 | 0.688 | 0.767 | 0.629 |
| 5 | Writing | 0.857 | 0.626 | 0.684 | 0.520 |
| | ELA | 0.875 | 0.634 | 0.715 | 0.558 |
| | Math | 0.892 | 0.733 | 0.782 | 0.668 |
| | Science | 0.847 | 0.659 | 0.743 | 0.578 |
| | Soc. Stud | 0.857 | 0.679 | 0.739 | 0.598 |
| 6 | Writing | 0.856 | 0.644 | 0.697 | 0.540 |
| | ELA | 0.867 | 0.670 | 0.718 | 0.574 |
| | Math | 0.897 | 0.751 | 0.793 | 0.685 |
| | Science | 0.857 | 0.699 | 0.770 | 0.621 |
| | Soc. Stud | 0.892 | 0.668 | 0.765 | 0.618 |
| 7 | Writing | 0.846 | 0.636 | 0.689 | 0.527 |
| | ELA | 0.868 | 0.690 | 0.718 | 0.574 |
| | Math | 0.879 | 0.724 | 0.767 | 0.648 |
| | Science | 0.878 | 0.688 | 0.755 | 0.616 |
| | Soc. Stud | 0.875 | 0.734 | 0.772 | 0.656 |
| 8 | Writing | 0.834 | 0.592 | 0.659 | 0.481 |
| | ELA | 0.873 | 0.726 | 0.754 | 0.631 |
| | Math | 0.883 | 0.745 | 0.792 | 0.679 |
| | Science | 0.874 | 0.709 | 0.752 | 0.627 |
| | Soc. Stud | 0.867 | 0.689 | 0.741 | 0.610 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, students who received an incomplete in writing.

Source: Data Recognition Corporation

CHAPTER 9

VALIDITY

This section reports three types of validity evidence based on (1) test content, (2) internal structure, and (3) relations to other variables. Evidence on content validity is presented in terms of alignment studies comparing the PASS assessments with the state content standards. Internal structure is described by data showing the correlations among strands. This is followed by information regarding DIF with respect to gender and ethnicity.

9.1 ITEM ALIGNMENT WITH STANDARDS

The PASS assessments and item bank were reviewed by the EOC pursuant to the EAA (2008), beginning with a review of entire item banks and technical data which took place before the 2009 test administration. One hundred and forty-five South Carolina educators served as expert judges, evaluating the content tested and the levels of thinking demanded by the items. Following the spring 2009 test administration, the characteristics of the 2009 PASS tests were reviewed by another panel convened by the EOC.

The review of the alignment of the PASS item banks revealed both strengths and weaknesses in each content area. Strengths were observed in every subject area. An identified strength was that the banks included items assessing every academic standard to be tested. Similarly, weaknesses were identified for every subject area reviewed. One concern, observed primarily in ELA and Writing and, to a lesser extent, in Social Studies, was a shortage of items assessing some of the objectives or indicators specified in the state standards. This study is located on the EOC Web page under the link: <http://eoc.sc.gov/NR/rdonlyres/06B20863-D516-4549-BC12-C5A6AA34A041/29057/PASSSubcommitteeDoc9909.pdf>.

Tables 9.1 through 9.5 give the number and percentage of possible points by standard (or domain) for all regular PASS test forms.

TABLE 9.1
Form Composition for ELA

| Grade | Measure | Points per Standard | | | | Total |
|-------|---------|---------------------|-------|-------|-------|--------|
| | | 1 | 2 | 3 | 6 | |
| 3 | Points | 10 | 9 | 8 | 9 | 36 |
| | % | 27.8% | 25.0% | 22.2% | 25.0% | 100.0% |
| 4 | Points | 9 | 10 | 9 | 8 | 36 |
| | % | 25.0% | 27.8% | 25.0% | 22.2% | 100.0% |
| 5 | Points | 10 | 9 | 9 | 9 | 37 |
| | % | 27.0% | 24.3% | 24.3% | 24.3% | 100.0% |
| 6 | Points | 12 | 11 | 9 | 8 | 40 |
| | % | 30.0% | 27.5% | 22.5% | 20.0% | 100.0% |
| 7 | Points | 15 | 12 | 9 | 8 | 44 |
| | % | 34.1% | 27.3% | 20.5% | 18.2% | 100.0% |
| 8 | Points | 15 | 14 | 9 | 12 | 50 |
| | % | 30.0% | 28.0% | 18.0% | 24.0% | 100.0% |

Source: Data Recognition Corporation

TABLE 9.2
Form Composition for Mathematics

| Grade | Measure | Points per Standard | | | | | Total |
|-------|---------|---------------------|-------|-------|-------|-------|--------|
| | | 2 | 3 | 4 | 5 | 6 | |
| 3 | Points | 14 | 8 | 10 | 9 | 9 | 50 |
| | % | 28.0% | 16.0% | 20.0% | 18.0% | 18.0% | 100.0% |
| 4 | Points | 13 | 10 | 10 | 13 | 10 | 56 |
| | % | 23.2% | 17.9% | 17.9% | 23.2% | 17.9% | 100.0% |
| 5 | Points | 13 | 10 | 10 | 13 | 10 | 56 |
| | % | 23.2% | 17.9% | 17.9% | 23.2% | 17.9% | 100.0% |
| 6 | Points | 14 | 11 | 13 | 12 | 11 | 61 |
| | % | 23.0% | 18.0% | 21.3% | 19.7% | 18.0% | 100.0% |
| 7 | Points | 14 | 10 | 14 | 12 | 11 | 61 |
| | % | 23.0% | 16.4% | 23.0% | 19.7% | 18.0% | 100.0% |
| 8 | Points | 13 | 18 | 9 | 11 | 12 | 63 |
| | % | 20.6% | 28.6% | 14.3% | 17.5% | 19.0% | 100.0% |

Source: Data Recognition Corporation

TABLE 9.3
Form Composition for Science

| Grade | Measure | Points per Standard | | | | | | Total |
|-------|---------|---------------------|-------|-------|-------|-------|-------|--------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| 3 | Points | 10 | 10 | 8 | 8 | 9 | 0 | 45 |
| | % | 22.2% | 22.2% | 17.8% | 17.8% | 20.0% | 0.0% | 100.0% |
| 4 | Points | 10 | 9 | 8 | 8 | 10 | 0 | 45 |
| | % | 22.2% | 20.0% | 17.8% | 17.8% | 22.2% | 0.0% | 100.0% |
| 5 | Points | 10 | 10 | 10 | 10 | 10 | 0 | 50 |
| | % | 20.0% | 20.0% | 20.0% | 20.0% | 20.0% | 0.0% | 100.0% |
| 6 | Points | 11 | 11 | 11 | 11 | 11 | 0 | 55 |
| | % | 20.0% | 20.0% | 20.0% | 20.0% | 20.0% | 0.0% | 100.0% |
| 7 | Points | 11 | 12 | 11 | 10 | 11 | 0 | 55 |
| | % | 20.0% | 21.8% | 20.0% | 18.2% | 20.0% | 0.0% | 100.0% |
| 8 | Points | 11 | 9 | 11 | 10 | 8 | 10 | 59 |
| | % | 18.6% | 15.3% | 18.6% | 16.9% | 13.6% | 16.9% | 100.0% |

Source: Data Recognition Corporation

TABLE 9.4
Form Composition for Social Studies

| Grade | Measure | Points per Standard | | | | | | | Total |
|-------|---------|---------------------|-------|-------|-------|-------|-------|-------|--------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 3 | Points | 8 | 8 | 10 | 10 | 9 | 0 | 0 | 45 |
| | % | 17.8% | 17.8% | 22.2% | 22.2% | 20.0% | 0.0% | 0.0% | 100.0% |
| 4 | Points | 8 | 8 | 9 | 8 | 8 | 9 | 0 | 50 |
| | % | 16.0% | 16.0% | 18.0% | 16.0% | 16.0% | 18.0% | 0.0% | 100.0% |
| 5 | Points | 9 | 8 | 8 | 8 | 9 | 8 | 0 | 50 |
| | % | 18.0% | 16.0% | 16.0% | 16.0% | 18.0% | 16.0% | 0.0% | 100.0% |
| 6 | Points | 10 | 10 | 9 | 9 | 9 | 8 | 0 | 55 |
| | % | 18.2% | 18.2% | 16.4% | 16.4% | 16.4% | 14.5% | 0.0% | 100.0% |
| 7 | Points | 8 | 8 | 9 | 9 | 9 | 9 | 8 | 60 |
| | % | 13.3% | 13.3% | 15.0% | 15.0% | 15.0% | 15.0% | 13.3% | 100.0% |
| 8 | Points | 8 | 9 | 9 | 9 | 9 | 8 | 8 | 60 |
| | % | 13.3% | 15.0% | 15.0% | 15.0% | 15.0% | 13.3% | 13.3% | 100.0% |

Source: Data Recognition Corporation

TABLE 9.5
Form Composition for Writing

| Grade | Item Type | Measure | Points per Domain | | | | Total | Grand Total |
|-------|-----------|---------|-------------------|-------|-------|-------|-------|-------------|
| | | | 1 | 2 | 3 | 4 | | |
| 3 | MC | Points | 7 | 6 | 6 | 6 | 25 | |
| | | % | 12.7% | 10.9% | 10.9% | 10.9% | 45.5% | |
| | EW | Points | 8 | 8 | 6 | 8 | 30 | 55 |
| | | % | 14.5% | 14.5% | 10.9% | 14.5% | 54.5% | 100.0% |
| 4 | MC | Points | 7 | 6 | 6 | 6 | 25 | |
| | | % | 12.7% | 10.9% | 10.9% | 10.9% | 45.5% | |
| | EW | Points | 8 | 8 | 6 | 8 | 30 | 55 |
| | | % | 14.5% | 14.5% | 10.9% | 14.5% | 54.5% | 100.0% |
| 5 | MC | Points | 6 | 7 | 6 | 6 | 25 | |
| | | % | 10.9% | 12.7% | 10.9% | 10.9% | 45.5% | |
| | EW | Points | 8 | 8 | 6 | 8 | 30 | 55 |
| | | % | 14.5% | 14.5% | 10.9% | 14.5% | 54.5% | 100.0% |
| 6 | MC | Points | 6 | 7 | 6 | 6 | 25 | |
| | | % | 10.9% | 12.7% | 10.9% | 10.9% | 45.5% | |
| | EW | Points | 8 | 8 | 6 | 8 | 30 | 55 |
| | | % | 14.5% | 14.5% | 10.9% | 14.5% | 54.5% | 100.0% |
| 7 | MC | Points | 6 | 6 | 6 | 7 | 25 | |
| | | % | 10.9% | 10.9% | 10.9% | 12.7% | 45.5% | |
| | EW | Points | 8 | 8 | 6 | 8 | 30 | 55 |
| | | % | 14.5% | 14.5% | 10.9% | 14.5% | 54.5% | 100.0% |
| 8 | MC | Points | 7 | 6 | 6 | 6 | 25 | |
| | | % | 12.7% | 10.9% | 10.9% | 10.9% | 45.5% | |
| | EW | Points | 8 | 8 | 6 | 8 | 30 | 55 |
| | | % | 14.5% | 14.5% | 10.9% | 14.5% | 54.5% | 100.0% |

Note: Percentages were calculated using the grand total.
Source: Data Recognition Corporation

9.2 DIF FOR TEST ITEMS

Overview

One threat to the validity of a test is test bias, the unfair advantage of one group over another on the test. One way to examine for bias is to consider the items separately. DIF statistics focus on item validity as opposed to test validity; DIF occurs when examinees from different demographic groups but of otherwise equal achievement levels have unequal probabilities of success on an item. DIF is one indication of possible item bias. Large numbers of items showing DIF would be a possible indicator of test bias.

DIF for Multiple-Choice Items

All the PASS assessments were subjected to a formal DIF analysis based on the Mantel-Haenszel (MH) procedure. MH has a long tradition in DIF analysis and is considered effective and efficient (Clauser and Mazor 1998; Hills 1989). The MH uses both a statistical significance test and an analysis of the effect size.

In the use of MH for the multiple-choice items, examinees on each test were grouped by raw score (on the entire test) into ten strata with roughly the same number of examinees. Students in each stratum are considered to be equivalent in terms of ability. Then for each item, the students in the “focal” and “reference” groups were compared on the basis of their correct or incorrect responses. The term “focal” refers to the group of interest for DIF—in this case, female or African-American. The comparison or reference group was male or white, depending upon whether the DIF analysis was for gender or ethnicity.

Rules were developed by ETS testing programs to interpret the results of the DIF analyses. Based on MH results, the items were classified as either “A,” “B,” or “C” as follows:

“A” items are those for which MH D-DIF is not significantly different from 0 ($\alpha = .05$) or has an absolute value less than 1. These items are considered to be free of DIF. “B” items are those for which MH D-DIF is significantly different from 0 ($\alpha = .05$) and has either (a) an absolute value at least 1 but less than 1.5 or (b) an absolute value at least 1 but not significantly greater than 1 ($\alpha = .05$). These items may be used, but if there is a choice among otherwise equivalent items, it is considered desirable to select for inclusion in a test those with the smallest absolute value of MH D-DIF. “C” items are those for which the absolute value of MH D-DIF is at least 1.5 and is significantly greater than 1 ($\alpha = .05$). These items are to be selected only if it is essential to meet test specifications. (Zwick and Erikan 1989, 58–59)

Results

Tables 9.6 – 9.10 provide a summary of DIF classifications for all subjects. More than 95% of all multiple-choice items are classified as “A” items, showing little or no DIF. In fact, the numbers of multiple-choice items classified as “C” items for gender and ethnic DIF were smaller than could be expected due to chance alone. The data indicate that the PASS assessments for ELA, mathematics, science, and social studies showed very little DIF for either gender or ethnicity. This is also true for multiple-choice items in writing.

TABLE 9.6

Summary of DIF Classification for ELA Items

| Grade | Reference Group | Focal Group | Total N of Items | DIF Classification | | |
|---------------|-----------------|-------------------------|------------------|--------------------|-----------|----------|
| | | | | A | B | C |
| 3 | Male | Female | 36 | 35 | 0 | 1 |
| | White | African-American | 36 | 35 | 1 | 0 |
| 4 | Male | Female | 36 | 36 | 0 | 0 |
| | White | African-American | 36 | 34 | 1 | 1 |
| 5 | Male | Female | 37 | 36 | 1 | 0 |
| | White | African-American | 37 | 35 | 2 | 0 |
| 6 | Male | Female | 40 | 37 | 3 | 0 |
| | White | African-American | 40 | 39 | 1 | 0 |
| 7 | Male | Female | 44 | 40 | 2 | 2 |
| | White | African-American | 44 | 42 | 1 | 1 |
| 8 | Male | Female | 50 | 44 | 6 | 0 |
| | White | African-American | 50 | 49 | 0 | 1 |
| All | Male | Female | 243 | 228 | 12 | 3 |
| Grades | White | African-American | 243 | 234 | 6 | 3 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.7

Summary of DIF Classification for Mathematics

| Grade | Reference Group | Focal Group | Total N of Items | DIF Classification | | |
|---------------|-----------------|-------------------------|------------------|--------------------|-----------|----------|
| | | | | A | B | C |
| 3 | Male | Female | 50 | 49 | 1 | 0 |
| | White | African-American | 50 | 46 | 3 | 1 |
| 4 | Male | Female | 56 | 54 | 2 | 0 |
| | White | African-American | 56 | 54 | 2 | 0 |
| 5 | Male | Female | 56 | 55 | 1 | 0 |
| | White | African-American | 56 | 53 | 3 | 0 |
| 6 | Male | Female | 61 | 55 | 6 | 0 |
| | White | African-American | 61 | 52 | 9 | 0 |
| 7 | Male | Female | 61 | 60 | 1 | 0 |
| | White | African-American | 61 | 58 | 3 | 0 |
| 8 | Male | Female | 63 | 60 | 3 | 0 |
| | White | African-American | 63 | 61 | 1 | 1 |
| All | Male | Female | 347 | 333 | 14 | 0 |
| Grades | White | African-American | 347 | 324 | 21 | 2 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.8
Summary of DIF Classification for Science

| Grade | Reference Group | Focal Group | Total N of Items | DIF Classification | | |
|-------------------|-----------------|-------------------------|------------------|--------------------|-----------|----------|
| | | | | A | B | C |
| 3 | Male | Female | 45 | 45 | 0 | 0 |
| | White | African-American | 45 | 42 | 3 | 0 |
| 4 | Male | Female | 45 | 45 | 0 | 0 |
| | White | African-American | 45 | 44 | 1 | 0 |
| 5 | Male | Female | 50 | 50 | 0 | 0 |
| | White | African-American | 50 | 48 | 2 | 0 |
| 6 | Male | Female | 55 | 52 | 2 | 1 |
| | White | African-American | 55 | 53 | 1 | 1 |
| 7 | Male | Female | 55 | 52 | 3 | 0 |
| | White | African-American | 55 | 51 | 4 | 0 |
| 8 | Male | Female | 59 | 56 | 1 | 2 |
| | White | African-American | 59 | 54 | 5 | 0 |
| All Grades | Male | Female | 309 | 300 | 6 | 3 |
| | White | African-American | 309 | 292 | 16 | 1 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.9
Summary of DIF Classification for Social Studies

| Grade | Reference Group | Focal Group | Total N of Items | DIF Classification | | |
|-------------------|-----------------|-------------------------|------------------|--------------------|----------|----------|
| | | | | A | B | C |
| 3 | Male | Female | 45 | 45 | 0 | 0 |
| | White | African-American | 45 | 43 | 2 | 0 |
| 4 | Male | Female | 50 | 50 | 0 | 0 |
| | White | African-American | 50 | 50 | 0 | 0 |
| 5 | Male | Female | 50 | 49 | 1 | 0 |
| | White | African-American | 50 | 48 | 2 | 0 |
| 6 | Male | Female | 55 | 55 | 0 | 0 |
| | White | African-American | 55 | 55 | 0 | 0 |
| 7 | Male | Female | 60 | 58 | 2 | 0 |
| | White | African-American | 60 | 60 | 0 | 0 |
| 8 | Male | Female | 60 | 59 | 1 | 0 |
| | White | African-American | 60 | 60 | 0 | 0 |
| All Grades | Male | Female | 320 | 316 | 4 | 0 |
| | White | African-American | 320 | 316 | 4 | 0 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.10
Summary of DIF Classification for Writing

| Grade | Item Type | Reference Group | Focal Group | Total N of Items | DIF Classification | | |
|-------------------|-----------|-----------------|-------------------------|------------------|--------------------|-----------|-----------|
| | | | | | A / AA | B / BB | C / CC |
| 3 | MC | Male | Female | 25 | 25 | 0 | 0 |
| | | White | African-American | 25 | 23 | 2 | 0 |
| | EW | Male | Female | 4 | 0 | 0 | 4 |
| | | White | African-American | 4 | 1 | 3 | 0 |
| 4 | MC | Male | Female | 25 | 25 | 0 | 0 |
| | | White | African-American | 25 | 22 | 3 | 0 |
| | EW | Male | Female | 4 | 0 | 0 | 4 |
| | | White | African-American | 4 | 0 | 0 | 4 |
| 5 | MC | Male | Female | 25 | 24 | 1 | 0 |
| | | White | African-American | 25 | 25 | 0 | 0 |
| | EW | Male | Female | 4 | 0 | 0 | 4 |
| | | White | African-American | 4 | 0 | 2 | 2 |
| 6 | MC | Male | Female | 25 | 25 | 0 | 0 |
| | | White | African-American | 25 | 22 | 3 | 0 |
| | EW | Male | Female | 4 | 0 | 0 | 4 |
| | | White | African-American | 4 | 1 | 2 | 1 |
| 7 | MC | Male | Female | 25 | 25 | 0 | 0 |
| | | White | African-American | 25 | 24 | 1 | 0 |
| | EW | Male | Female | 4 | 0 | 0 | 4 |
| | | White | African-American | 4 | 0 | 3 | 1 |
| 8 | MC | Male | Female | 25 | 25 | 0 | 0 |
| | | White | African-American | 25 | 25 | 0 | 0 |
| | EW | Male | Female | 4 | 0 | 0 | 4 |
| | | White | African-American | 4 | 1 | 2 | 1 |
| All Grades | MC | Male | Female | 150 | 149 | 1 | 0 |
| | | White | African-American | 150 | 141 | 9 | 0 |
| | EW | Male | Female | 24 | 0 | 0 | 24 |
| | | White | African-American | 24 | 3 | 12 | 9 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, students who received an incomplete in writing, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

9.4 CORRELATION AMONG STANDARDS

Tables 9.11 through 9.15 provide a summary of the Pearson product-moment correlations among standards, based on raw scores.

TABLE 9.11

Summary of the Correlations among ELA Standards

| Grade | Smallest | Median | Largest |
|--------------|-----------------|---------------|----------------|
| 3 | 0.573 | 0.614 | 0.670 |
| 4 | 0.602 | 0.631 | 0.698 |
| 5 | 0.562 | 0.595 | 0.616 |
| 6 | 0.562 | 0.626 | 0.696 |
| 7 | 0.593 | 0.658 | 0.679 |
| 8 | 0.639 | 0.687 | 0.742 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.12

Summary of the Correlations among Math Standards

| Grade | Smallest | Median | Largest |
|--------------|-----------------|---------------|----------------|
| 3 | 0.508 | 0.582 | 0.635 |
| 4 | 0.557 | 0.648 | 0.722 |
| 5 | 0.568 | 0.651 | 0.724 |
| 6 | 0.669 | 0.680 | 0.724 |
| 7 | 0.567 | 0.637 | 0.697 |
| 8 | 0.589 | 0.643 | 0.739 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.13
Summary of the Correlations among Science Standards

| Grade | Smallest | Median | Largest |
|--------------|-----------------|---------------|----------------|
| 3 | 0.533 | 0.558 | 0.587 |
| 4 | 0.530 | 0.572 | 0.590 |
| 5 | 0.520 | 0.549 | 0.607 |
| 6 | 0.564 | 0.611 | 0.668 |
| 7 | 0.535 | 0.595 | 0.659 |
| 8 | 0.524 | 0.571 | 0.647 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.14
Summary of the Correlations among Social Studies Standards

| Grade | Smallest | Median | Largest |
|--------------|-----------------|---------------|----------------|
| 3 | 0.562 | 0.593 | 0.650 |
| 4 | 0.500 | 0.554 | 0.620 |
| 5 | 0.391 | 0.523 | 0.628 |
| 6 | 0.466 | 0.547 | 0.651 |
| 7 | 0.504 | 0.563 | 0.659 |
| 8 | 0.395 | 0.536 | 0.609 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

TABLE 9.15
Summary of the Correlations among Writing Domains

| Grade | Smallest | Median | Largest |
|--------------|-----------------|---------------|----------------|
| 3 | 0.685 | 0.712 | 0.798 |
| 4 | 0.680 | 0.722 | 0.809 |
| 5 | 0.664 | 0.697 | 0.793 |
| 6 | 0.656 | 0.684 | 0.772 |
| 7 | 0.658 | 0.661 | 0.773 |
| 8 | 0.599 | 0.644 | 0.776 |

Note: Analyses included all students who attempted the test **except:** home school students, students who used non-standard testing accommodations, students who received an incomplete in writing, and students who used Braille or sign language test booklets.

Source: Data Recognition Corporation

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Appendix A

PASS Standards and Domains

Tables A1–A4 contain the standards for PASS ELA, Mathematics, Science, and Social Studies. Instead of standards, Writing uses four domains: Content and Development, Organization, Voice, and Conventions.

TABLE A1
ELA Standards (All Grades)

| Standard | Description |
|-----------------|------------------------------|
| 1 | Reading: Literary Texts |
| 2 | Reading: Informational Texts |
| 3 | Reading: Building Vocabulary |
| 6 | Researching |

TABLE A2
Mathematics Standards (All Grades)

| Standard | Description |
|-----------------|-----------------------------|
| 2 | Number & Operations |
| 3 | Algebra |
| 4 | Geometry |
| 5 | Measurement |
| 6 | Data Analysis & Probability |

TABLE A3
Science Standards by Grade

| Grade | Standard 1 | Standard 2 | Standard 3 | Standard 4 | Standard 5 | Standard 6 |
|-------|--------------------|--|---|---------------------------------------|-----------------------------------|------------|
| 3 | Scientific Inquiry | Habitats & Adaptation | Earth's Materials & Changes | Heat & Changes in Matter | Motion & Sound | |
| 4 | Scientific Inquiry | Organisms & Their Environments | Astronomy | Weather | Properties of Light & Electricity | |
| 5 | Scientific Inquiry | Ecosystems: Terrestrial & Aquatic | Landforms & Oceans | Properties of Matter | Forces & Motion | |
| 6 | Scientific Inquiry | Plants: Structures, Processes, & Responses | Animals: Structures, Processes, & Responses | Earth's Atmosphere & Weather | Conservation of Energy | |
| 7 | Scientific Inquiry | Cells & Heredity | Human Body Systems & Disease | Ecology: Biotic & Abiotic Environment | Chemical Nature of Matter | |
| 8 | Scientific Inquiry | Earth's Biological History | Earth's Structure & Processes | Astronomy: Earth & Space Systems | Forces & Motion | Waves |

TABLE A4
Social Studies Standards by Grade

| Grade | Standard 1 | Standard 2 | Standard 3 | Standard 4 | Standard 5 | Standard 6 | Standard 7 |
|-------|----------------------------------|---|----------------------------------|--------------------------------|---|-------------------------------------|---|
| 3 | Places, Regions, & Human Systems | Exploration & Settlement | American Revolution & New Nation | Civil War & Reconstruction | Late 19 th & 20 th Century S.C. | | |
| 4 | Exploration | Settlement | Colonial Conflict | A New Nation | Westward Movement | Civil War | |
| 5 | Reconstruction | Westward Expansion | U.S. as a World Power | The 1920s & 1930s | Cold War | Developments Since 1992 | |
| 6 | Cradles of Civilization | Ancient Classical Civilizations | The Middle Ages | Other Pre-Renaissance Cultures | Renaissance & Reformation | European Exploration & Settlement | |
| 7 | European Colonial Expansion | Absolute Monarchies & Constitutional Government | Age of Revolution | Global Imperialism | Early 20 th Century World Conflicts | Post-World War II | 20 th Century (to Present) Changes |
| 8 | Settlement of S.C. & the U.S. | S.C. in the Revolution & New Nation | The Civil War | Reconstruction in S.C. | Late 19 th Century U.S. | Early 20 th Century S.C. | Mid to Late 20 th Century S.C. |