SC EDUCATION OVERSIGHT COMMITTEE
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AGENDA

Academic Standards and Assessments Subcommittee Meeting
Monday, May 19, 2008
10:00 AM
Room 215, Blatt Building

I.	Welcome and Introductions	Mr. Tom DeLoach
II.	Approval of the March 24, 2008 Meeting Minutes	Mr. Tom DeLoach
III.	Action: Review of the SC-Alternate Science Assessment	Mr. David Potter
IV.	Information: Review of Mathematics Academic Standards	Dr. John Holton, SCDE Dr. Paul Horne
V.	Information: EOC Activities Regarding Adoption of New PACT Replacement Assessment and Modification Of School and District Rating System	Dr. Jo Anne Anderson
VI.	Other Business	Mr. Tom DeLoach
Adjournment		Mr. Tom DeLoach

<u>Academic Standards and Assessments Subcommittee Members:</u>

Mr. Tom DeLoach, Chairman
Mike Fair
Wes Hayes
Buffy Murphy
Joe Neal
Bob Walker
Kristi Woodall

SOUTH CAROLINA EDUCATION OVERSIGHT COMMITTEE
Subcommittee on Academic Standards and Assessments

Minutes of the Meeting
March 24, 2008
10:00 AM, Room 215 Blatt Building

Subcommittee Members Present:	Tom DeLoach, Mike Fair, Wes Hayes, Buffy Murphy, Robert Walker, Kristi Woodall
Other EOC Members Present:	Bill Cotty, Barbara Hairfield
EOC Staff Present:	Jo Anne Anderson, Katrina Greene, Paul Horne, David Potter, Dana Yow

Welcome and Introductions
Mr. DeLoach welcomed members and guests to the meeting.

Minutes
The minutes from the January 22, 2008 meeting were approved as written.

Action: ELA Academic Standards
Dr. Paul Horne presented information on the English Language Arts (ELA) Academic Standards amended and given first reading approval by the State Board of Education on March, 12, 2008. Changes made to the document since approval by the full Education Oversight Committee (EOC) in April 2007 included greater specificity in the area of grammar; the addition of appendixes on Greek and Latin Roots and Affixes, High Frequency Words, and Suggested Reading Lists; the addition of a Glossary; and greater clarity on the verbs used in the writing of the indicators. After a brief discussion, the subcommittee approved the recommendation of the amended ELA Standards for approval by the full EOC.

Action: Recommendations of the High School Graduation Rate Goal Advisory Panel
David Potter presented the recommendations from the High School Graduation Rate Goal Advisory Panel. This panel was convened to provide advice to the EOC regarding the partial fulfillment of EOC Objective 1 for 2007-2008: "establishing a goal for high school graduation to include reporting data for different student groups and the inclusion of fifth year graduates." The advisory panel met twice in February 2008 and generated two goal recommendations, one setting the high school graduation rate goal of 88.3% to be achieved by 2014, and a second goal for a statewide success rate for preparation for post-secondary education and employment of 95% by 2018. The advisory panel generated six additional recommendations regarding the collection, analysis, and reporting of graduation rate data, including data from students graduating in five years. Finally, the panel also offered four recommendations for program improvement for further study

Subcommittee members discussed each recommendation and made editorial changes to some recommendations. After lengthy discussion, the Subcommittee adopted the modified recommendations for submission to the full EOC for approval.

Action: Career and Technology Education Center Ratings
Dr. Paul Horne presented proposed changes to the criteria for calculating school report card ratings for Career and Technology Education (CATE) centers. The ratings criteria for these schools have been under study for some time as the Federal Perkins Act accountability expectations for CATE centers have been modified and finalized, with the expectation that the

state and federal accountability requirements for these schools would be aligned. Based on current guidance regarding Federal requirements, two of the current report card rating criteria (Field Placement and Graduation Rate) are congruent with Perkins requirements, but the third criterion (Mastery of Core Competencies) must be modified to include results from student performance on "technical skill assessments" to be aligned with Perkins.

Based on study and advice from an advisory panel and discussion with personnel from the SC Department of Education, the CATE center report card ratings criteria were recommended to be modified to use the scores on the certification or licensure examinations taken by CATE center students as the basis for the Mastery of Core Competencies criterion; for students who currently do not have certification or licensure exams in their vocational area, the GPA measure presently in the Mastery criterion will continue to be used until appropriate technical skill exams are available. Also based on currently available data, new values of the Mastery criterion for assignment of point values in the calculation of the report card ratings were recommended. Following discussion, the Subcommittee adopted the recommendations for consideration by the full EOC.

Information: Study of the Sensitivity of the Elementary and Middle School Absolute Ratings
David Potter presented results from a study of the sensitivity of the report card ratings to different levels of PACT performance; this study is part of a continuing series of studies of the rating system. The study revealed that the methodology used in the study to enhance the sensitivity of PACT performance differences did not result in substantial changes in ratings compared to the current system for calculating the ratings. One finding of interest, however, was the descriptive information that, based on 2007 ratings and PACT data, less than 10% of students tested in schools rated Excellent scored Below Basic on PACT ELA or Math, while nearly 50% (46% in ELA and 47% in math) of students tested in schools rated Unsatisfactory scored Below Basic.

There being no further business, the subcommittee adjourned.

EDUCATION OVERSIGHT COMMITTEE

Subcommittee: Academic Standards and Assessments

Date: May 19, 2008

REPORT/RECOMMENDATION
Review of SC-Alternate Science Assessment

PURPOSE/AUTHORITY
ection 59-18-320. (A) After the first statewide field test of the assessment program in each of the four academic areas, and after the field tests of the end of course assessments of benchmark courses, the Education Oversight Committee, established in Section 59-6-10, 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. The review will be provided to the State Board of Education, the State Department of Education, the Governor, the Senate Education Committee, and the House Education and Public Works Committee as soon as feasible after the field tests. The Department of Education will then report to the Education Oversight Committee no later than one month after receiving the reports on the changes made to the assessments to comply with the recommendations.

CRITICAL FACTS
The SC-Alternate Science field test was first administered Spring 2006 and revised for the Spring 2007 administration. Recommendations regarding the test following the EOC review must be communicated to the SC State Department of Education, which must respond within one month. State assessments must be reviewed and approved by the Education Oversight Committee.

TIMELINE/REVIEW PROCESS
The SC-Alternate assessment in Science is intended for administration to students having such severe disabilities that they cannot participate in the PACT or HSAP testing programs. The assessments are administered individually and are designed to assess a broad range of skills expected in the special student population. The SC-Alternate assessment alignment with the academic standards appropriate for students having severe disabilities was assessed by an independent group of experts at the University of North Carolina-Charlotte and at Western Carolina University. The technical aspects of the assessments were evaluated by a measurement expert at the University of South Carolina.

ECONOMIC IMPACT

Cost:

Fund/Source:

ACTION REQUEST

☒ **For approval** ☐ **For information**

ACTION TAKEN

☐ **Approved**

☐ **Amended**

☐ **Not Approved**

☐ **Action deferred (explain)**

Review of the SC-Alt Science Assessment
May 19, 2008

Recommendations

1. The South Carolina Department of Education (SCDE) should review the alignment of the SC-Alt Science items to the grade-level standards, identify items needing revision, and document the revisions of items made to improve the overall alignment of the assessment.
2. The SCDE should review the SC-Alt Science Assessment Standards and Measurement Guidelines (ASMG) and the SC-Alt Science assessment for inconsistencies between the grade level academic standards and indicators actually assessed and the standards and indicators designated for assessment in the ASMG and revise either the assessment or the ASMG or both, as appropriate, to ensure that information about the assessment provided to educators and parents is accurate and complete.
3. The SCDE should review the SC-Alt Science items which were “flagged” for their statistical values, especially those items flagged for Differential Item Functioning, to identify reasons for the statistical aberrations observed and revise or eliminate the items having substantive problems.

DRAFT

REVIEW OF THE

SOUTH CAROLINA ALTERNATE SCIENCE ASSESSMENT

SC EDUCATION
OVERSIGHT COMMITTEE

PO Box 11867 | 227 Blatt Building | Columbia SC 29211 | WWW.SCEOC.ORG

DRAFT

Review of the SC-Alternate Science Assessment
Executive Summary

This report summarizes the results from studies of the South Carolina Alternate Assessment (SC-Alt) Science field test administered in Fall 2006 and the revised assessments administered in Spring 2007. The studies were conducted under the auspices of the Education Oversight Committee (EOC) as part of its responsibilities listed in the Education Accountability Act of 1998 (EAA):

> After the first statewide field test of the assessment program in each of the four academic areas, and after the field tests of the end of course assessments of benchmark courses, the Education Oversight Committee, established in Section 59-6-10, 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. The review will be provided to the State Board of Education, the State Department of Education, the Governor, the Senate Education Committee, and the House Education and Public Works Committee as soon as feasible after the field tests. The Department of Education will then report to the Education Oversight Committee no later than one month after receiving the reports on the changes made to the assessments to comply with the recommendations. (Section 59-18-320 A)

The report describes the SC-Alt Science assessment, describes the studies conducted for this review, presents the findings from the studies, and makes recommendations regarding the assessments.

The SC-Alt Science assessment is designed for administration to students with significant cognitive disabilities. Students with significant cognitive disabilities function below grade level expectations and have levels of disabilities such that they cannot participate in the regular administrations of the Palmetto Achievement Challenge Tests (PACT) or the High School Assessment Program (HSAP) assessments, even with test accommodations or modifications. Federal No Child Left Behind (NCLB) and Individuals with Disabilities Education Act (IDEA) legislation require that all students be tested and require that states provide an alternate assessment for students with significant cognitive disabilities. The students tested with the SC-Alt Science assessment represent approximately 0.5% of the total student population in the grade levels tested. The majority of the students to whom the SC-Alt is administered have disabilities classified as Moderate Mental Disability, Mild Mental Disability, Severe Mental Disability, or Autism.

The SC-Alt assessment is needed because of changes and clarifications in NCLB regulatory guidance and the reauthorization of IDEA. These changes to federal legislation regarding students with significant cognitive disabilities require that instruction and assessment for these students be based on the grade level academic standards for the grade in which the student is enrolled, although they may be at less complex levels or may have an emphasis on prerequisite skills. NCLB guidance also allows for assessments to be linked to grade bands as these students do not typically make the same level of progress from year to year as students in the general assessment.

The SC-Alt Science assessment is individually administered to students by teachers during a six- to seven-week window during the Spring of the school year. Each SC-Alt Science test form consists of twelve performance tasks containing four to six test items each. There are three forms of the test: one for administration to students aged 8 to 10 years (elementary school

grades 3 through 8); one for students aged 11 to 13 years (middle school grades 6 through 8), and one for students aged 15 years (high school grade 10). The test questions are scripted for standardization of administration and administered and scored by the student's teacher; a trained adult monitor unrelated to the student is also present during the test administration.

Two sets of studies were analyzed for the review of the SC-Alt Science field test:

- studies of the alignment between the SC-Alt Science assessment and the state academic standards conducted by University of North Carolina-Charlotte and Western Carolina University professors of curriculum and special education, in cooperation with the South Carolina State Department of Education (SDE) and the National Alternate Assessment Center (Flowers, Browder, Wakeman, & Karvonen, December 2006; January 2007; December 2007);
- a technical review of the task and item data from the 2007 test administration conducted by a professor of educational research and assessment at the University of South Carolina.

In addition, EOC staff reviewed and analyzed information and documentation provided by the South Carolina Department of Education (SCDE) about the SC-Alt Science assessment.

Conclusions

The studies conducted in this review identified a number of strengths of the SC-Alt Science alternate assessment:

- ✓ The assessment provides accountability and information for instructional improvement for students with significant cognitive disabilities who would not otherwise be assessed in the state testing programs, even with test accommodations and modifications;
- ✓ The assessment is intended to be aligned with the same grade level academic standards as for all students, although at levels of complexity appropriate for the diversity of cognitive functioning observed among students with significant cognitive disabilities;
- ✓ The assessment is individually administered by the students' teachers in the familiar context of the classroom;
- ✓ The assessment format allows students to respond to the items using the communication modes the student uses during instruction, such as oral response, pointing, use of eye gaze, use of a response card, sign language, or an augmentative communication device;
- ✓ The assessment is scripted, the administration and scoring is observed by monitors, and the teachers and monitors administering the assessment undergo training to ensure that the assessment administration is standardized and the results are valid measures of the student's ability;
- ✓ The assessment is administered over a six- to seven-week period, providing flexibility and opportunities for maintaining student motivation and interest and reducing student fatigue;
- ✓ The procedures for placing the student at the appropriate level for beginning each assessment reduces student fatigue and maximizes students' opportunities to show their highest performance;
- ✓ The assessment is intended to address increasingly complex and more difficult skills across student age levels and has been designed to provide a vertical scale to measure growth;
- ✓ The items in the assessment have a wide range of difficulty and the test is moderately able to discriminate between high and low levels of performance.

Some concerns were also identified through this review:

- ✓ The alignment between the SC-Alt Science assessment items and the science grade level academic standards needs to be improved;
  - o The items were found to be approximately 78% aligned to the grade level standards; the target for alignment is that 90% or more of the items should be aligned;
  - o Of the 12 performance tasks in each of the grade-band forms, the items in 1 task on the elementary, in 5 tasks on the middle, and in 4 tasks on the high school grade-band form were found to be non-aligned or partially-aligned with the grade-level standards;
- ✓ The SC-Alt Science Assessment Standards and Measurement Guidelines, a publication to provide guidelines to test developers and teachers for the development of assessments and implementation of classroom instruction, does not fully reflect the standards and indicators actually assessed in the SC-Alt Science assessment;
- ✓ The analysis of the technical quality of the assessment revealed that approximately one-fourth of the items were "flagged" for having statistical values outside the expected range, although most of the flags were for relatively minor statistical differences;
  - o However, 5 items were flagged for Differential Item Functioning on the high school form, a measure which suggests that an item's wording or content may confer an advantage to one subgroup of test-takers compared to another subgroup.

<u>Recommendations</u>

1. The South Carolina Department of Education (SCDE) should review the alignment of the SC-Alt Science items to the grade-level standards, identify items needing revision, and document the revisions of items made to improve the overall alignment of the assessment.
2. The SCDE should review the SC-Alt Science Assessment Standards and Measurement Guidelines (ASMG) and the SC-Alt Science assessment for inconsistencies between the grade level academic standards and indicators actually assessed and the standards and indicators designated for assessment in the ASMG and revise either the assessment or the ASMG or both, as appropriate, to ensure that information about the assessment provided to educators and parents is accurate and complete.
3. The SCDE should review the SC-Alt Science items which were "flagged" for their statistical values, especially those items flagged for Differential Item Functioning, to identify reasons for the statistical aberrations observed and revise or eliminate the items having substantive problems.

Introduction

This report summarizes the results from studies of the South Carolina Alternate Assessment (SC-Alt) Science field test administered in Fall 2006 and the revised assessment administered in Spring 2007. The studies were conducted under the auspices of the Education Oversight Committee (EOC) as part of its responsibilities listed in the Education Accountability Act of 1998 (EAA):

> After the first statewide field test of the assessment program in each of the four academic areas, and after the field tests of the end of course assessments of benchmark courses, the Education Oversight Committee, established in Section 59-6-10, 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. The review will be provided to the State Board of Education, the State Department of Education, the Governor, the Senate Education Committee, and the House Education and Public Works Committee as soon as feasible after the field tests. The Department of Education will then report to the Education Oversight Committee no later than one month after receiving the reports on the changes made to the assessments to comply with the recommendations. (Section 59-18-320 A)

The report describes the SC-Alt Science assessment, describes the studies conducted for this review, presents the findings from the studies, and makes recommendations regarding the assessment.

Development of SC-Alt Science Assessment

The SC-Alt Science assessment is intended for administration to students with significant cognitive disabilities. These students, who are functioning below grade level expectations, have levels of disabilities such that they cannot participate in the regular administrations of the Palmetto Achievement Challenge Tests (PACT) or the High School Assessment Program (HSAP) assessments, even with accommodations or modifications. Federal No Child Left Behind (NCLB) and Individuals with Disabilities Education Act (IDEA) legislation require that all students be tested and require that states provide an alternate assessment for students with significant cognitive disabilities.

In 2007-2008 the SC-Alt English Language Arts (ELA) and mathematics assessments replaced current PACT-Alternate assessments (for grades 3 through 8) and the HSAP-Alternate assessment (for grade 10). In addition to ELA and mathematics, alternate assessments in science and in social studies are also under development to meet the requirements for the state and federal accountability programs. The SC-Alt assessments are needed to replace PACT-Alt and HSAP-Alt because of changes and clarifications in NCLB regulatory guidance and the reauthorization of IDEA. These changes to federal legislation regarding students with significant cognitive disabilities require that instruction and assessment for these students be based on the grade level academic standards for the grade in which the student is enrolled, although they may be at less complex levels or may have an emphasis on prerequisite skills. NCLB guidance also allows for assessments to be linked to grade bands as these students do not typically make the same level of progress from year to year as students participating in the general assessment. The federal changes have also led to changes in goals for Individualized Education Programs (IEPs) for students with disabilities from individual objectives to include objectives based on the state academic standards as well as functional objectives. To meet federal requirements, the assessments for students with significant cognitive disabilities needed to be revised, and SC-Alt has resulted from those revisions.

Alternate assessments such as SC-Alt are based on state grade level academic standards, but at lower levels of complexity or with greater focus on introductory or prerequisite skills. In 2005 committees composed of science content specialists, experts in the instruction of significantly cognitively disabled students, and staff from the South Carolina State Department of Education (SCDE) and its testing contractor, the American Institutes for Research (AIR), reviewed the academic science standards to identify the "standards they felt based on professional judgment were the most important to the population now and in the future" (Overview of the SC-Alt Technical Documentation Presented to the National Alternate Assessment Center, March 16, 2007, p. 6). Following their identification of the priority standards for students with significant cognitive disabilities, these committees developed Assessment Standards and Measurement Guidelines (ASMG) in each subject area to guide instruction and the construction of SC-Alt (the ASMGs are available at http://ed.sc.gov/agency/offices/assessment/programs/SWD/SC-AltAssessmentStandardsandMeasurementGuidelines.html). The SC-Alt ELA and Mathematics assessments are based on the corresponding ASMG, providing a link from the assessment to the state grade level academic standards. Although an ASMG was developed and published for science, the SC-Alt Science assessment was developed based directly on the 2005 SC Science academic grade-level standards and indicators for grades 3-8 for the elementary and middle school forms and on the high school Physical Science course academic standards for the high school form.

Description of the SC-Alt Science Assessment

The SC-Alt is individually administered to each student, generally by the teacher who has provided instruction to that student. In addition to the teacher administering the assessment, a trained monitor unrelated to the student must be present during the test administration. The monitor is required to ensure that the assessment is administered and scored properly. The assessment is administered during a 6-7 week window starting in March. The student may complete the assessment for each subject area in one session or, if the student tires or is non-attentive, the assessment may be administered over several days.

The SC-Alt Science assessment is designed for administration to three age grade bands commensurate with the age ranges of students typically enrolled in those grades. An "elementary" form is intended for use with students aged 8-10 by September 1 of the school year of testing (corresponding to the grade band 3 through 5). The "middle school" form is administered to students aged 11-13, corresponding to grade band 6 through 8, and the "high school" form is administered to students aged 15 (the age when most students are classified as 10th graders). The SC-Alt is designed to provide a continuous scale of increasing difficulty for students aged 8 through 13 and age 15, with the content of the test appropriate for students aged 8 through 15. This design is intended to provide appropriate age-related content to maintain interest and motivation on the part of the student being tested.

Each SC-Alt Science grade-band form consists of 12 performance tasks, with each task containing 4 to 6 items. The performance task format was chosen for the SC-Alt based on the advice of special education advisory committees. The portfolio format previously used for PACT-Alt and HSAP-Alt was criticized by educators because of paperwork loads and concerns about the subjectivity of portfolios and their scoring.

The SC-Alt assessment is scripted, with specific directions to the teacher for administration and scoring of the assessment (see Figure 1 for descriptive information about the SC-Alt tasks and items).

Figure 1
SC-Alt Tasks and Items

A task is a set of four to eight related activities, called items. The responses to the items provide evidence of what students know and can do.

- ✓ Each task begins with an introductory statement that establishes the context for what the student will be doing. There is a clear progression within each task from one activity to another.
- ✓ The teacher uses scripted directions to pose specifically worded questions and prompts to the student.
- ✓ The student responds by using the mode of communication that he or she uses during instruction. These response modes include but are not limited to an oral response, pointing, use of eye gaze, a response card, sign language, or an augmentative communication device.
- ✓ The test administrator will use various materials to administer a task or an item to help a student respond. Some of the materials are provided with each task, and some materials that are readily available at the school are provided by the test administrator.
- ✓ The materials may include poster, charts, tables, schedules, and signs that the administrator reads aloud and manipulatives such as checkers, balls, and geometric shapes.
- ✓ Unless the task is presented entirely through the use of concrete objects, resources will also include a set of response cards for each item to facilitate a student's response.
- ✓ Each task addresses one or more of the assessment standards or measurement guidelines.
- ✓ The SC-Alt assesses selected standards or measurement guidelines. Individual students are assessed on a sample of standards and guidelines.

Scripted items:

- ✓ Each item begins with a scripted opening statement in Say/Do format. For example, "Say: Here is a …," or, "Say: Look at/touch the …"
- ✓ The opening statement is followed by a directive for the student to tell or show the teacher which one of several response options is correct. For example, "Say: Tell (show) me what the boy in the story did when he got home."

(Sources: Spring 2006 and Spring 2007 Test Administration Manuals.)

The tasks are ordered in difficulty, with the least complex task appropriate for the student administered first, and, as the student successfully answers the items in each successive task, the testing session is continued through the more complex tasks until the student fails to correctly answer or respond to a specified number of items. Prior to the administration of the SC-Alt for each content area, each student's ability in that content area is evaluated by the teacher using the Student Placement Questionnaire (SPQ) (SCDE, 2008) to determine the student's entry into the test form (e.g., the first task which will be administered to the student). The teacher's evaluation of the student on the SPQ instrument is based on the teacher's experience during the year of instruction he or she has provided the student. Based on the teacher's evaluation of the student's ability using the SPQ, the student may start the test with the first task, or, if the student has higher levels of cognitive functioning, at task 3 or task 6, as

appropriate. This adaptation of the test to the student's abilities is intended to increase the accuracy of the student's test score by only administering appropriately challenging items to the student. The use of the SPQ is also intended to avoid excessively tiring the student and to maintain the student's interest and motivation by avoiding items that are well below the student's ability level. If the teacher finds that the beginning task suggested by the SPQ is too challenging for the student, the teacher chooses a lower level task based on the criteria listed in the administration directions. Regardless of the student's entry point into the assessment, each student must complete at least 5 tasks, but may respond to more than 5 tasks if the student's performance meets the criteria for continuing.

The student's response to each question on the assessment is recorded and scored by the teacher administering the assessment. The test administrators and monitors must receive professional development on the administration and scoring of the assessment. The scoring of each item may be "scaffolded" if the student provides an incorrect answer or does not respond. For example, if an item has three answer options, only one of which is correct, and the student fails to choose the correct answer on the first try, on the student's second try the teacher may restate the question but provide only two responses, eliminating the incorrect answer chosen initially by the student. If the student again fails to choose the correct answer (or does not respond to the question), then the teacher records a "0" or "No Response" and moves on to the next item. If the student correctly responds when only two choices are given rather than three choices, the student is awarded fewer points than if he or she had correctly answered the item on the first try. This scaffolding of the scoring provides for a level of success for the student and allows the identification of the student's partial level of skill or knowledge in the standard assessed by the item.

Studies Conducted of SC-Alt Science Assessment

The SC-Alt Science assessment was initially field tested in Fall 2006. The tasks and items in the initial field test were selected for further use, revised, or eliminated following reviews by content area committees, reviews of data from the technical analyses of the task and item data, reviews of the results of the study of the task and item alignment with the academic standards, and reviews of comments from teachers who had administered the field tests. Following this review, three grade-band forms (grades 3-5, grades 6-8, and grade 10) were created using the revised tasks and items from the 2006 field test for administration in Spring 2007. The studies conducted for this review are based on data from the 2006 field test and from the 2007 administration of the revised tasks and items.

Studies of the alignment between the SC-Alt Science assessment and the state academic standards were conducted by University of North Carolina-Charlotte and Western Carolina University professors of curriculum and special education, in cooperation with the SDE and the National Alternate Assessment Center (Flowers, et al, December 2006; Flowers, et al, January 2007; Flowers, et al, December 2007). The studies were part of a project to develop and pilot alignment procedures designed for evaluating tests for students with significant cognitive disabilities. The alignment studies were conducted in November 2006 and revised in January 2007 and December 2007.

A technical review of the task and item data from the 2007 test administration was conducted by a professor of educational research and assessment at the University of South Carolina. In addition, EOC staff reviewed and analyzed information and documentation provided by the SCDE about the SC-Alt Science assessment.

Findings

Numbers of Students Assessed and Numbers of Tasks and Items Administered

The numbers and the disability classifications of students participating in the 2007 administration of SC-Alt Science assessment are listed in Table 1. The eligibility of students to participate in the SC-Alt assessments is based upon meeting the criteria listed in Appendix 1. Students eligible to participate in the SC-Alt assessments have significant cognitive disabilities and represent approximately 0.5% of all students enrolled in grades 3 through 8 and grade 10, and approximately 4% of all special education students.

Table 1
Numbers of Students Tested and Their Disabilities,
2007 Administration of SC-Alt Science Assessment

Disability Classification	Number Students Participating in 2007 Administration (%)
Moderate Mental Disability	980 (40.1)
Autism	403 (16.5)
Severe Mental Disability	269 (11.0)
Mild Mental Disability	540 (22.1)
Other*	253 (10.3)
Totals	2,445 (100)

Note: Totals may not equal 100% due to rounding.
Includes categories: Multiple Disability; Other Health Impaired; Traumatic Brain Injury; Hearing, Visual, Speech, or Language Disabled; Orthopedically Impaired; Learning Disability; Unknown.
Source: AIR, 2008

Some of the tasks and items administered in the Fall 2006 field test were revised or eliminated based on the academic standard alignment studies and the review of the technical characteristics of the items, so the data from the Spring 2007 administration of the SC-Alt Science assessment were used for the technical analysis of the assessment items in this review. The numbers of tasks and items administered in Spring 2007 and reviewed in this report are listed in Table 2.

Table 2
Numbers of Tasks and Items By Grade Band Form
SC-Alt Science 2007 Administration

Content Area	Grade Band 3-5 Form		Grade Band 6-8 Form		Grade 10 Form		Total No. Tasks	Total No. Items
	No. of Tasks	No. of Items	No. of Tasks	No. of Items	No. of Tasks	No. of Items		
Science	12	58	12	60	12	56	36	174

Study of the Alignment of the SC-Alt Items to the State Academic Standards

In 2006 and 2007 the SC-Alt Science field test tasks and items were reviewed by a group of experts at the University of North Carolina-Charlotte and at Western Carolina University in partnership with the National Alternate Assessment Center (Flowers, et al., December 2006; January 2007; December 2007). The alignment evaluators issued one report in December 2006, followed by two addendum reports reflecting changes by the test developers to the intended science academic standards and indicators specified for a group of tasks and the subsequent reanalysis of the alignments of the items to the standards by Fowler, et al. The purpose of the review was to evaluate the alignment of the assessment items with the state academic standards using a set of criteria for evaluating the alignment of assessments intended for use with students with significant cognitive disabilities. The review results were also used by the SCDE and its contractor, the American Institute for Research (AIR) in the evaluation of the field test items for future use on the operational forms of SC-Alt.

Seven alignment criteria were developed by a team of content experts, special educators, and measurement experts. The alignment criteria were similar to other criteria for evaluating the alignment of test items to academic standards, but included three additional criteria (criteria 5-7) designed to apply to assessments intended for students with significant cognitive disabilities. The alignment criteria used in the study are listed in Table 3.

Table 3
Criteria for Judging the Alignment of Assessment Items and Academic Standards

1. The content is academic and includes the major domains/strands of the content area as reflected in state and national standards as defined by the National Science Education Standards.
2. The content is referenced to the student's assigned grade level (based on chronological age).
3. The achievement expectation is linked to the grade level content, but differs in depth or complexity; it is not grade level achievement. It may focus on prerequisite skills or those learned at earlier grades, but with applications to the grade level content. When applied to state level alternate assessments, these priorities are accessible to IEP planning teams.
4. There is some differentiation in achievement across grade levels or grade bands.
5. The focus of achievement promotes access to the activities, materials, and settings typical of the grade level but with the accommodations, adaptations, and supports needed for individualization.
6. The focus of achievement maintains fidelity with the content of the original grade level standards (content centrality) and when possible, the specified performance (category of knowledge).
7. Multiple levels of access to the general curriculum are planned so that students with different levels of symbolic communication can demonstrate learning. (Flowers, et al., December 2006, p. 11)

Using these seven criteria, a team composed of two science experts, two experts in the education of students with significant cognitive disabilities, and two experts in educational measurement evaluated the 36 science tasks consisting of 174 items used in the Fall 2006 SC-

Alt Science field test. These tasks and items provided the basis for the creation of 2007 forms for grade bands 3 through 5, 6 through 8, and grade 10.

Following training in the seven alignment criteria, the evaluators achieved approximately 89% inter-rater agreement for the science items, suggesting that the criteria were clear and that the alignment evaluations provided through the process were reliable.

With regard to Criterion 1, all but 10 of the science items were found to be assessing academic skills; these 10 items were eliminated from further consideration, leaving 164 science items in the study. The items judged non-academic were the first items administered at the beginning of the least complex tasks and served either to introduce the topic of the task or to identify the student's engagement in the assessment activity.

Since the test developers listed multiple inquiry and content standard indicators for each item, in their initial alignment analysis for Criterion 2 the alignment evaluators chose only the first two standard indicators for each item for review. Reviewing the item: standard alignment when multiple standard indicators were listed for each item was not feasible, but the arbitrary choice of only two standards for each item for review did not provide a comprehensive or accurate picture of the relationships between the assessment and the content standards. The test developers subsequently prioritized the content standards believed to be assessed by each item so only 1-2 inquiry standard indicators and 1-3 content standard indicators were listed for each item for further review. The alignment evaluators did not report studies for Criterion 2 based on the revised item standard designations, but did conduct and report alignment studies for Criterion 6 based on the revised item information in their December 2007 addendum to the report (Flowers, et al, December 2007).

Regarding alignment Criterion 3, the alignment evaluators found that there was variability among the grade band forms in the degree to which sufficient numbers of items (6 or more) were aligned to the four domains of science (Table 4).

Table 4
Alignment with Science Domains
SC-Alt Science Assessment

Domain of Science	Sufficient Number of Items in Domain (6 or more) – Yes or No		
	Elementary (Grades 3-5)	Middle (Grades 6-8)	High (Grade 10)
Scientific Inquiry	Yes	Yes	Yes
Life Science	Yes	No	No
Earth Science	Yes	Yes	No
Physical Science	No	Yes	Yes

This finding reflects the proportional representation of the standards and indicators listed in the SC-Alt Science ASMG, which in turn reflects the science curriculum domain emphasis adopted by the ASMG development committee. The SC-Alt Science high school form addresses only one content area, physical science, because this form is intended to assess the same grade-level standards as are required for all other tenth grade students. NCLB requires a science assessment to be administered at the high school level, and the Physical Science End of Course test has been selected by the SCDE to fulfill that requirement. The grade 10 SC-Alt Science assessment was chosen to fulfill the NCLB requirement for high school aged students

with severe cognitive disabilities. The lack of assessment of Life Science in the SC-Alt Science middle school form may be problematic in the future, however, as steps are taken over the next few years to eliminate use of the Physical Science high school assessment for NCLB compliance and replace it with the Biology End of Course test. This may require the development of a new form of the SC-Alt Science assessment assessing biology at the high school level, with a concurrent need to adjust the domain emphases in the middle grade form.

Further analysis regarding alignment Criterion 3 revealed that 90% of the SC-Alt Science items assess at the Memorize/Recall cognitive level. The SC-Alt ASMG calls for approximately 70% of the items to assess at the Memorize/Recall level, with remaining items to assess at higher cognitive levels (in order of increasing complexity, the cognitive levels defined by the alignment evaluators are Attention, Memorize/Recall, Performance, Comprehension, Application, and Analysis/Synthesis/Evaluation). This is in contrast with the grade-level academic standards, wherein most cognitive-level expectations lie at the Comprehension level or above: 12.4% of the content standards are at the Memorize/Recall level in the items on the elementary grade form, 7.4% in the middle grades, and 1.4% in the high school form (Fowler, et al, December 2007). The inconsistency between the cognitive levels expected in the grade level content standards and the cognitive levels of the assessment items probably reflects the emphasis on prerequisite skills and lower levels of complexity in the instruction and assessment of students with severe cognitive disabilities.

The alignment evaluators found that there was no change in the depth of knowledge assessed by SC-Alt Science items across the grade level forms (Criterion 4). However, the content emphasis changed across the grade level forms from an emphasis on Earth Science on the elementary grade form, an emphasis on both Earth Science and Physical Science on the middle grade form, and an emphasis on Physical Science on the high school form. The evaluators point out that differentiation in the depth of knowledge in a content area may not be necessary in alternate assessments and that differentiation in the content covered across grade levels, as in SC-Alt Science, is an optional way to accomplish the assessment of differential achievement across grade bands. It would also seem to be particularly difficult to measure increasing depth of knowledge in a particular content area, such as Life Science, across grade bands if the content area is not assessed at each grade band level.

With regard to Criterion 5, the evaluators found that the science tasks and items were appropriate for the target group of students and that the items, as intended, were appropriate for either younger or older students.

As indicated earlier in the discussion of studies conducted for alignment Criterion 3, multiple inquiry and content standard indicators were initially identified by the test developers for many of the SC-Alt Science items. The alignment evaluators found it was not feasible to evaluate the alignment of the items to the academic standards when so many standards were indicated for each item. The test developers resubmitted the items and the standards the items were designated as addressing after prioritizing the standards assigned to the items and reducing the number of standards designated for many items. The evaluators then reanalyzed the data and reported it in an addendum to their report (Flowers, et al, December 2007). In the data resubmitted for analysis, each item was designated by the test developers as assessing 1-2 science inquiry standard indicators and 1-3 content standard indicators.

The evaluators independently examined each item to determine the science inquiry and content standards and standard indicators it assessed. This determination was compared to the inquiry and content standards and indicators designated by the test developers as being assessed by

the item. The number and percentage of times the standard indicators determined by the evaluators were closely ("near" alignment) or remotely ("far" alignment) aligned, or not aligned at all to the item's content was designated and reported as the "content centrality" measure of alignment (Webb, 1997) (see Table 5).

Table 5
Centrality of Alignment Between Academic Science Standards and Indicators And SC-Alt Science Assessment Items

Science Standards	Degree of Centrality (Alignment)	Number of Items	Percentage
Inquiry Standards*	Not Aligned	7	4.0
	Far Alignment	30	17.2
	Near Alignment	137	78.7
Content Standards**	Not Aligned	55	21.7
	Far Alignment	113	44.7
	Near Alignment	85	33.6

* Eleven items were linked to 2 inquiry standard indicators, with the remaining items linked to 1 inquiry standard indicator each.
** Most of the 163 items were each linked to more than 1 content standard indicator.
Source: Flowers, et al, December 2007

As indicated in Table 5, 96% of the items had either a near or far alignment with the inquiry standard indicators, while 78.3% of the items had a near or far alignment with the content standard indicators. The criterion for successful alignment established by the evaluators is that 90% or more of the items should have either a near or far alignment to the academic standards being assessed (National Alternate Assessment Center, November 2007). The SC-Alt Science items meet that criterion for the inquiry standards, but not for the content standards.

To further explore the extent of item and standards alignment, the EOC staff reviewed the alignment data provided by Flowers, et al and information provided by the SCDE. In this extended study the information from the SC-Alt Science Elaborated Blueprints provided by the SCDE on the standards intended to be assessed by each item was compiled and reported in the tables in Appendix 2. These tables also list the number of standards found by Flowers, et al to be aligned with each item.

Items which were found not to be aligned with inquiry or content standard indicators and items which were found to be aligned with at least one but not all the standard indicators specified by the test developers are highlighted in the tables in Appendix 2. The tables reveal that items which are not aligned or are partially aligned with the intended grade level standards tend to be clustered in specific tasks rather than randomly distributed across tasks (partially aligned items are aligned with at least one standard but not with all the standards intended to be assessed by the item). The tasks in which significant proportions of items are not aligned or are partially aligned are listed in Table 6

Table 6
SC-Alt Science Assessment Tasks Not Aligned
Or Partially Aligned With Grade Level Academic Standards

Grade-Band Form	Task(s) Not Aligned or Partially Aligned
Elementary (Grades 3-5)	Task 4
Middle (Grades 6-8)	Task 1
	Task 4
	Task 5
	Task 9
	Task 11
High (Grade 10)	Task 3
	Task 6
	Task 9
	Task 12

The middle grade-band form has the largest number of non-aligned or partially-aligned tasks (5 of 12 tasks), followed closely by the high school form (4 of 12 tasks). The relatively large proportions of non-aligned or partially-aligned tasks in the middle and high school grade-band forms raise a concern about the accuracy of the interpretation of student test performance in science.

The review of items and the specific standard indicators to which they were found to be aligned revealed that some of the items were aligned to grade level standard indicators which were not listed in the SC-Alt Science ASMG. This was found for 15 of the elementary form items, 18 of the middle form items, and 20 of the high school form items. The grade level inquiry and content standard indicators found to be aligned with the items but not included in the ASMG are listed in Table 7.

Table 7
Standard Indicators Not Listed in *Assessment Standards and Measurement Guidelines* Which Are Assessed By SC-Alternate Science Assessment Items

Inquiry Standard Indicators:

K-1.1 Identify observed objects or events by using the senses.
K-1.3 Predict and explain information or events based on observation or previous experience.
K-1.4 Compare objects by using nonstandard units of measurement.
2-1.1 Carry out simple scientific investigations to answer questions about familiar objects and events.
2-1.2 Use tools (including thermometers, rain gauges, balances, and measuring cups) safely, accurately, and appropriately when gathering specific data in US customary (English) and metric units of measurement.
2-1.3 Represent and communicate simple data and explanations through drawings, tables, pictographs, bar graphs, and oral and written language.
2-1.4 Infer explanations regarding scientific observations and experiences.

Content Standard Indicators:

K-2.2 Identify examples of organisms and nonliving things.
1-2.3 Classify plants according to their characteristics (including what specific type of environment they live in, whether they have edible parts, and what particular kinds of physical traits they have).
2-2.2 Classify animals (including mammals, birds, amphibians, reptiles, fish, and insects) according to their physical characteristics.
4-2.3 Explain how humans and other animals use their senses and sensory organs to detect signals from the environment and how their behaviors are influenced by these signals.
4-3.4 Explain how the tilt of Earth's axis and the revolution around the Sun results in the seasons of the year.
4-5.6 Summarize the functions of the components of complete circuits (including wire, switch, battery, and light bulb).
6-2.4 Summarize the basic functions of the structures of a flowering plant for defense, survival, and reproduction.
6-3.6 Summarize how the internal stimuli (including hunger, thirst, and sleep) of animals ensure their survival.
6-4.7 Explain how solar energy affects Earth's atmosphere and surface (land and water).
6-5.1 Identify the sources and properties of heat, solar, chemical, mechanical, and electrical energy.
8-5.5 Analyze the resulting effect of balanced and unbalanced forces on an object's motion in terms of magnitude and direction.
8-5.6 Summarize and illustrate the concept of inertia.
8-6.3 Summarize factors that influence the basic properties of waves (including frequency, amplitude, wavelength, and speed).
PS-3.1 Distinguish chemical properties of matter (including reactivity) from physical properties of matter (including boiling point, freezing/melting point, density [with density calculations], solubility, viscosity, and conductivity).
PS-3.7 Explain the processes of phase change in terms of temperature, heat transfer, and particle arrangement.
PS-5.1 Explain the relationship among distance, time, direction, and the velocity of an object.

The SC-Alt Science assessments were found in this analysis to be assessing components of the science academic standards and indicators which were not identified by the committee which developed the SC-Alt Science ASMG as key content standards "that are meaningful now and in the future for students with significant cognitive disabilities" (SCDE, no date, p. 2). The

relationships among the content standard indicators in the 2005 Science Academic Standards, the content standard indicators designated in the SC-Alt Science ASMG, and the content standard indicators assessed in the SC-Alt Science assessment are illustrated in Figure 2. In Figure 2, 59 of the SC Science Academic Standard Indicators are listed in the ASMG and 22 of the indicators listed in the ASMG are assessed in the SC-Alt Science assessment. However, 16 indicators assessed in the SC-Alt Science assessment are not listed in the ASMG, although these indicators are listed in the SC science academic standards.

This inconsistency between the SC-Alt Science assessment and the ASMG raises two questions: should the assessment be revised to assess only those standards and indicators designated in the ASMG; or should the ASMG be reviewed and revised to include the 16 additional standards and indicators? Based on the standards and indicators assessed in SC-Alt Science, the ASMG in its present published form is not appropriate to provide guidelines to teachers with "the specificity necessary to translate the standards into assessment tasks and classroom instruction and assessments" (SCDE, 2008, p. 2).

Finally, with regard to Criterion 7, the alignment evaluators found that the tasks and items address the full range of student communication skills. The items were evaluated for the levels of communication skills students needed to respond successfully to the items. The evaluators identified three levels of communication skills among students with significant cognitive disabilities:

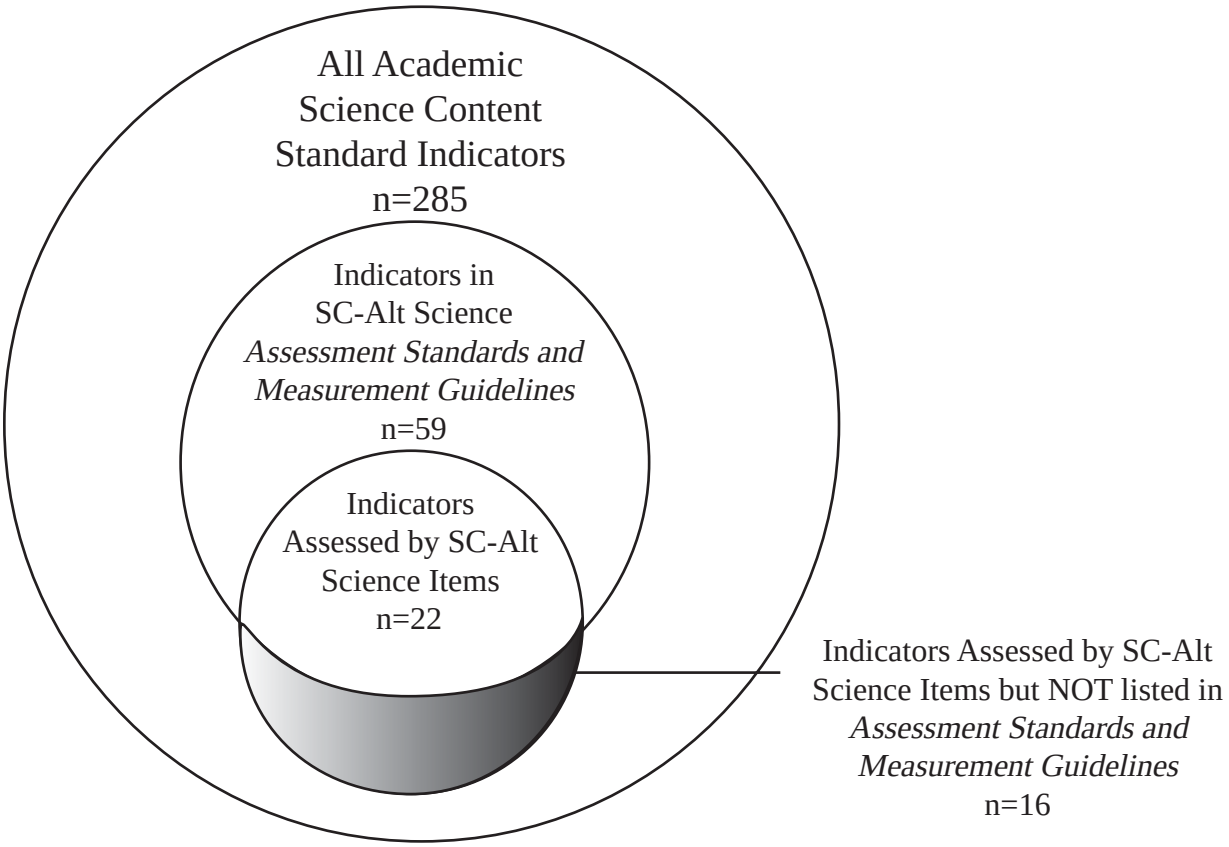
1. Pre-symbolic: student communicates with gestures, eye gaze, purposeful moving to object, sounds; has no clear response and no objective in communication.
2. Early Symbolic: student begins to use pictures or other symbols (less than 10) to communicate within a limited vocabulary.
3. Symbolic: student speaks or has vocabulary of signs, pictures to communicate. Recognizes some sight words, numbers, etc. (Flowers, et al., December 2006, p. 19)

The evaluators found sufficient variability among the items in communication skills needed and "some alternate assessment items were accessible to students at all levels of symbolic communication" (Flowers, et al, December 2006, p. 19).

Overall, the evaluators judged that the strength of the SC-Alt Science assessment was that "nearly all of the content was academic science content" (Flowers, et al., December 2006, p. 4). The evaluators noted that the alignment between the items and the grade level standards was lower for SC-Alt Science than for the SC-Alt ELA and mathematics assessments. Regarding the development of alternate assessments in science, Flowers et al noted:

> "Our work with other states suggests that science may typically be the area rated as having the weakest alignment. This may be true because while there is some research and resources on reading and math for this population, albeit limited to a few strands, there is almost no research on science and few resources describing science applications. We also are finding that "common knowledge" from which professionals not trained in science may operate in extending science standards can sometimes include misconceptions (e.g., that condensation on a glass is due to the glass "sweating" versus the collection of moisture from the air). For these reasons, the target for alignment in the first iteration of science alternate assessments may need to be more flexible." (Flowers, et al, December 2006, p. 4)

Figure 2
Science Content Standard Indicators
Assessed by SC-Alt Science Assessment



Technical Analysis of Test Forms, Tasks, and Items

A professor of educational research and measurement at the University of South Carolina, Dr. Christine DiStefano, reviewed the technical characteristics of the SC-Alt Science assessment. Dr. DiStefano's studies focused on the evidence provided from the technical data which informed the requirement in the Education Accountability Act (Section 59-18-320A) that the assessments be reviewed for their "level of difficulty and validity" and "the ability to differentiate levels of achievement." Her report is included in Appendix 3 of this report.

Dr. DiStefano stated that a strength of the SC-Alt was the use of multiple measures both to identify students for administration of the SC-Alt (the student participation guidelines) and to determine the starting point among the assessment tasks for individual students (the Student Placement Questionnaire). She also noted that the training provided for test administrators on placement of students on the test and scoring of their responses helped to ensure the validity of the test scores.

Dr. DiStefano found that the SC-Alt Science assessment item statistics were within acceptable ranges for the intended use of the tests. The increase in item difficulty from the lower to the upper grade levels previously observed in studies of the SC-Alt ELA and mathematics assessments were thought to reflect an increase in the complexity of the skills taught and assessed across the grades. The item difficulties in the SC-Alt Science assessment were found to be at similar levels across all three grade level forms, however. This finding may reflect similar levels across the grades in the complexity of the science skills taught to students with severe cognitive disabilities, or it may reflect a lack of differentiation in the complexity of the skills assessed across the grade levels.

Overall, the assessment was of moderate difficulty, with students answering approximately 60% of the items correctly, with a range of difficulty from moderately difficult to moderately easy. The item statistics indicated that the items, based on the point biserial values, are moderate in their ability to differentiate between students of higher and lower ability. The author noted regarding the item discrimination statistics:

> "One note was that the test was not overly discriminating as seen by lower adjusted point biserial values. The information suggests that the test is not maximally discriminating between students of higher and lower abilities; however, this may be acceptable given the requirement of the SC-Alt testing program." (DiStephano, 2008, p. 20)

The technical analysis revealed that approximately one-fourth of the test items were "flagged" for having technical statistics which exceeded the expected ranges. Most of the "flags" were considered to be for rather minor departures from the technical expectations, but 5 items on the high school form showed Differential Item Functioning (DIF) statistics possibly indicating that some characteristics of the items enabled one demographic group to score higher on the items than another demographic group even though members of both groups demonstrated similar overall levels of ability on the total test. Dr. DiStefano indicated that this potential "bias" of the item toward one group in favor of another should be investigated by reviewing the item statistics and the wording and content of the items to identify potential reasons for the DIF flag. All of the items chosen for the test forms were reviewed and approved by a "bias review committee," but the empirical DIF statistics suggest there may some unanticipated explanation for the differential performance of subgroups. Dr. DiStefano also pointed out that the item statistics may have been affected by the small sample sizes, especially with the grade 10 form; smaller sample

sizes for calculating the statistics increase the size of the margins of error in estimating the true values of the statistics.

Finally, Dr. DiStefano recommended that the outcomes from the SC-Alt Science assessment be reviewed when impact data are available to evaluate the overall difficulty of the operational assessments and the rigor of the performance standards. Based on the data available at this time, however, she found that the SC-Alt Science assessment appears to perform adequately to assess South Carolina's students with significant cognitive disabilities.

Conclusions and Recommendations

The studies conducted in this review identified a number of strengths of the SC-Alt Science alternate assessment:

- ✓ The assessment provides accountability and information for instructional improvement for students with significant cognitive disabilities who would not otherwise be assessed in the state testing programs, even with test accommodations and modifications;
- ✓ The assessment is intended to be aligned with the same grade level academic standards as for all students, although at levels of complexity appropriate for the diversity of cognitive functioning observed among students with significant cognitive disabilities;
- ✓ The assessment is individually administered by the students' teachers in the familiar context of the classroom;
- ✓ The assessment format allows students to respond to the items using the communication modes the student uses during instruction, such as oral response, pointing, use of eye gaze, use of a response card, sign language, or an augmentative communication device;
- ✓ The assessment is scripted, the administration and scoring is observed by monitors, and the teachers and monitors administering the assessment undergo training to ensure that the assessment administration is standardized and the results are valid measures of the student's ability;
- ✓ The assessment is administered over a six- to seven-week period, providing flexibility and opportunities for maintaining student motivation and interest and reducing student fatigue;
- ✓ The procedures for placing the student at the appropriate level for beginning each assessment reduces student fatigue and maximizes students' opportunities to show their highest performance;
- ✓ The assessment is intended to address increasingly complex and more difficult skills across student age levels and has been designed to provide a vertical scale to measure growth;
- ✓ The items in the assessment have a wide range of difficulty and the test is moderately able to discriminate between high and low levels of performance.

Some concerns were also identified through this review:

- ✓ The alignment between the SC-Alt Science assessment items and the science grade level academic standards needs to be improved;
  - o The items were found to be approximately 78% aligned to the grade level standards; the target for alignment is that 90% or more of the items should be aligned;
  - o Of the 12 performance tasks in each of the grade-band forms, the items in 1 task on the elementary, in 5 tasks on the middle, and in 4 tasks on the high school grade-

band form were found to be non-aligned or partially-aligned with the grade-level standards;

- ✓ The SC-Alt Science Assessment Standards and Measurement Guidelines, a publication to provide guidelines to test developers and teachers for the development of assessments and implementation of classroom instruction, does not fully reflect the standards and indicators actually assessed in the SC-Alt Science assessment;
- ✓ The analysis of the technical quality of the assessment revealed that approximately one-fourth of the items were "flagged" for having statistical values outside the expected range, although most of the flags were for relatively minor statistical differences;
  - o However, 5 items were flagged for Differential Item Functioning on the high school form, a measure which suggests that an item's wording or content may confer an advantage to one subgroup of test-takers compared to another subgroup.

<u>Recommendations</u>

4. The South Carolina Department of Education (SCDE) should review the alignment of the SC-Alt Science items to the grade-level standards, identify items needing revision, and document the revisions of items made to improve the overall alignment of the assessment.
5. The SCDE should review the SC-Alt Science Assessment Standards and Measurement Guidelines (ASMG) and the SC-Alt Science assessment for inconsistencies between the grade level academic standards and indicators actually assessed and the standards and indicators designated for assessment in the ASMG and revise either the assessment or the ASMG or both, as appropriate, to ensure that information about the assessment provided to educators and parents is accurate and complete.
6. The SCDE should review the SC-Alt Science items which were "flagged" for their statistical values, especially those items flagged for Differential Item Functioning, to identify reasons for the statistical aberrations observed and revise or eliminate the items having substantive problems.

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APPENDIX 1

Participation Guidelines for Alternate Assessment

The decision about a student's participation in required statewide assessments is made by the student's individualized education program (IEP) team and documented in the IEP. To document that the alternate assessment is appropriate for an individual student, the IEP team should review all important information about the student over multiple school years and multiple instructional settings (e.g., school, home, community) and determine that the student meets **all** of the following criteria:

- The student demonstrates a significant cognitive disability and adaptive skills that result in performance that is substantially below grade-level achievement expectations even with the use of accommodations and modifications;

- The student accesses the state approved curriculum standards at less complex levels and with extensively modified instruction;

- The student has current adaptive skills requiring extensive direct instruction and practice in multiple settings to accomplish the application and transfer of skills necessary for application in school, work, home, and community environments;

- The student is unable to apply or use academic skills across natural settings when instructed solely or primarily through classroom instruction; and

- The student's inability to achieve the state grade level achievement expectations is not the result of excessive or extended absences or social, cultural, or economic differences.

APPENDIX 2

SC-Alt Science Assessment Item Alignment
Elementary, Middle, and High School Grade Band Forms

Grade-Band Form: Elementary, Grades 3-5

Task Number	Item Number	# Inquiry Standards Listed in Elaborated Blueprint	# Inquiry Standards Aligned	# Aligned Inquiry Standards NOT in ASMG*	# Content Standards Listed in Elaborated Blueprint	# Content Standards Aligned	# Aligned Content Standards NOT in ASMG*
1: Identifying Weather	1**	1	NA	NA	1	NA	NA
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
	5	1	1	0	1	1	0
2: Growth Over Time	1**	1	NA	NA	1	NA	NA
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
	5	1	1	0	1	1	0
3: Position of Objects	1**	1	NA	NA	1	NA	NA
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
	5	1	1	0	1	1	0
4: Day & Night	1**	1	NA	NA	1	NA	NA
	2	2	1	1	2	0	0
	3	2	1	1	2	0	0
	4	2	2	1	1	0	0
	5	2	2	1	2	0	0
	6	1	1	0	1	0	0
5: Properties of Matter	1	1	1	1	1	1	0
	2	1	1	1	1	1	0
	3	1	1	1	1	1	0
	4	1	1	1	1	1	0
	5	1	1	0	1	1	0
6: Solid & Liquid	1	1	1	0	1	1	0
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
7: Major Organs	1	1	1	0	1	1	1
	2	1	1	0	1	1	1
	3	1	1	0	3	3	1
	4	1	1	0	3	3	1
	5	1	1	0	2	2	1
	6	1	1	0	1	1	0

*ASMG = Assessment Standards and Measurement Guidelines
** = Non-academic item; standards alignment not determined

Grade-Band Form: Elementary, Grades 3-5 (Continued)

Task Number	Item Number	# Inquiry Standards Listed in Elaborated Blueprint	# Inquiry Standards Aligned	# Aligned Inquiry Standards NOT in ASMG*	# Content Standards Listed in Elaborated Blueprint	# Content Standards Aligned	# Aligned Content Standards NOT in ASMG*
8: Thermometer	1	1	1	1	2	2	0
	2	1	1	1	2	2	0
	3	1	1	1	2	2	0
	4	1	1	1	2	2	0
9: Living Things	1	1	1	0	1	1	1
	2	1	1	0	1	1	1
	3	1	1	0	2	2	1
	4	2	2	1	1	1	0
	5	1	1	0	1	1	0
10: Earth's Resources	1	1	1	0	0	0	0
	2	1	1	0	1	1	1
	3	1	1	0	1	1	1
	4	1	1	0	1	1	1
11: Fossil Fuels	1	1	1	0	1	1	0
	2	1	1	0	2	1	0
	3	1	1	0	2	2	0
	4	1	1	0	2	2	0
	5	1	1	0	1	1	0
12: Effect of Sun on Earth	1	1	1	1	2	2	1
	2	1	1	1	2	1	1
	3	1	1	1	2	2	1
	4	1	1	1	2	2	1
Totals, Academic Items	54	59	57	17	73	63	15
Totals, All Items	58	63	NA	NA	77	NA	NA

*ASMG = Assessment Standards and Measurement Guidelines
** = Non-academic item; standards alignment not determined

Grade-Band Form: Middle, Grades 6-8

Task Number	Item Number	# Inquiry Standards Listed in Elaborated Blueprint	# Inquiry Standards Aligned	# Aligned Inquiry Standards NOT in ASMG*	# Content Standards Listed in Elaborated Blueprint	# Content Standards Aligned	# Aligned Content Standards NOT in ASMG*
1: Movement & Rest	1**	1	NA	NA	0	NA	NA
	2	1	1	0	2	2	2
	3	1	1	0	2	1	1
	4	1	0	0	2	1	1
	5	1	0	0	2	1	1
	6	1	1	0	3	3	1
2: Physical Structures	1**	1	NA	NA	1	1	0
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	1	1	1	0
	5	1	1	0	1	1	0
3: Metal or Nonmetal	1	1	1	0	1	1	0
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
	5	1	1	0	1	1	0
	6	1	1	0	1	1	0
4: Day & Night	1**	1	NA	NA	1	NA	NA
	2	2	1	1	2	0	0
	3	2	1	1	2	0	0
	4	2	2	1	1	0	0
	5	2	2	1	2	0	0
	6	2	2	1	1	0	0
5: Falling Objects	1**	1	NA	NA	1	NA	NA
	2	1	1	0	2	1	1
	3	1	1	0	0	0	0
	4	1	0	0	2	0	0
	5	1	1	0	2	2	0
6: Electrical Energy	1	1	1	0	2	2	1
	2	1	1	0	2	2	2
	3	1	1	0	2	2	2
	4	1	1	0	3	3	2
	5	1	1	0	3	3	2

* ASMG = Assessment Standards and Measurement Guidelines

** = Non-academic item; standards alignment not determined

Grade-Band Form: Middle, Grades 6-8 (Continued)

Task Number	Item Number	# Inquiry Standards Listed in Elaborated Blueprint	# Inquiry Standards Aligned	# Aligned Inquiry Standards NOT in ASMG*	# Content Standards Listed in Elaborated Blueprint	# Content Standards Aligned	# Aligned Content Standards NOT in ASMG*
7: Seeds	1	1	1	1	1	1	1
	2	1	1	0	1	1	0
	3	2	2	0	1	1	0
	4	1	1	0	1	1	0
8: Major Organs	1	1	1	0	1	1	0
	2	1	1	0	1	1	0
	3	1	1	0	3	3	1
	4	1	1	0	3	3	1
	5	1	1	0	2	2	1
	6	1	1	0	1	1	0
9: Thermometer	1	1	1	1	2	0	0
	2	1	1	1	2	1	0
	3	1	1	1	2	1	0
	4	1	1	1	2	1	0
10: Simple Machines	1	1	1	0	1	1	0
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
11: Fossil Fuels	1	1	1	0	1	1	0
	2	1	1	0	2	0	0
	3	1	1	0	2	1	0
	4	1	1	0	2	1	0
	5	1	1	0	1	1	0
12: Effect of Sun on Earth	1	1	1	1	2	2	1
	2	1	1	1	2	2	1
	3	1	1	1	2	2	0
	4	1	1	1	2	2	1
Totals, Academic Items	56	62	57	15	90	67	18
Totals, All Items	60	66	NA	NA	93	NA	NA

* ASMG = Assessment Standards and Measurement Guidelines

** = Non-academic item; standards alignment not determined

Grade-Band Form: High, Grade 10

Task Number	Item Number	# Inquiry Standards Listed in Elaborated Blueprint	# Inquiry Standards Aligned	# Aligned Inquiry Standards NOT in ASMG*	# Content Standards Listed in Elaborated Blueprint	# Content Standards Aligned	# Aligned Content Standards NOT in ASMG*
1: Movement & Rest	1**	1	NA	NA	0	NA	NA
	2	1	1	0	2	0	2
	3	1	1	0	2	1	1
	4	1	1	0	2	2	1
	5	1	1	0	2	2	1
	6	1	1	0	3	3	1
2: Falling Objects	1**	1	NA	NA	0	NA	NA
	2	1	1	0	2	1	1
	3	1	1	0	1	1	0
	4	1	1	0	2	0	0
	5	1	1	0	2	2	1
3: Magnets	1	1	1	0	1	0	0
	2	1	1	0	0	0	0
	3	1	1	1	1	0	0
	4	1	1	0	0	0	0
	5	1	1	0	0	0	0
4: Electricity	1	1	1	0	1	1	0
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
	5	1	1	0	1	1	0
5: Electrical Energy	1	1	1	0	1	1	0
	2	1	1	0	2	2	1
	3	1	1	0	2	2	1
	4	1	1	0	2	2	1
	5	1	1	0	2	2	1
6: Loud & Soft	1	1	1	0	2	0	0
	2	1	1	0	2	0	0
	3	1	1	0	2	0	0
	4	1	1	0	2	1	1
7: Force & Motion	1	1	1	0	3	3	1
	2	1	1	0	2	2	0
	3	1	1	0	2	2	0
	4	1	1	0	3	1	0
	5	1	1	0	3	3	0

* ASMG = Assessment Standards and Measurement Guidelines

** = Non-academic item; standards alignment not determined

Grade-Band Form: High, Grade 10 (Continued)

Task Number	Item Number	# Inquiry Standards Listed in Elaborated Blueprint	# Inquiry Standards Aligned	# Aligned Inquiry Standards NOT in ASMG*	# Content Standards Listed in Elaborated Blueprint	# Content Standards Aligned	# Aligned Content Standards NOT in ASMG*
8: Force	1	1	1	0	3	3	1
	2	1	1	0	2	2	0
	3	1	1	0	2	2	0
	4	1	1	1	1	1	1
	5	1	1	1	3	3	1
9: Surface & Motion	1	1	1	0	2	1	0
	2	1	1	0	2	1	0
	3	1	1	0	2	1	0
	4	1	1	0	2	1	0
10: Simple Machines	1	1	1	0	1	1	0
	2	1	1	0	1	1	0
	3	1	1	0	1	1	0
	4	1	1	0	1	1	0
11: Changing States of Water	1	1	1	0	1	1	1
	2	1	1	0	1	1	1
	3	1	1	0	1	1	1
	4	1	1	0	1	1	1
12: Friction & Gravity	1	1	1	0	2	1	0
	2	1	1	0	2	2	0
	3	1	1	0	2	1	0
	4	1	1	0	2	1	0
Totals, Academic Items	54	54	54	3	90	66	20
Totals, All Items	56	56	NA	NA	90	NA	NA

* ASMG = Assessment Standards and Measurement Guidelines
** = Non-academic item; standards alignment not determined

DRAFT

APPENDIX 3

South Carolina Alternate Assessment: Science Test

Technical Evaluation of Operational Test Data From the Spring 2007 Administration

A Report to the Educational Oversight Committee

Christine DiStefano
University of South Carolina
April 2008

South Carolina Alternate Assessment
Technical Evaluation of Test Data From the
Spring 2007 Administration:

Science

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Description of the South Carolina Alternate Assessment Program

As part of South Carolina's state Accountability Program, students attending public schools take yearly standardized assessments to gauge student progress and relay information about school performance. Every student in the public schools is required to participate in the state testing program. This mandate also extends to students with cognitive disabilities. As stated on the SC Department of Education website (www.ed.sc.gov):

> "All students with disabilities must be included in statewide or district-wide assessments and if necessary, must have accommodations or modifications, or must participate in an alternate assessment."

An alternate assessment program has been developed to meet the needs of students with significant cognitive disabilities who are unable to participate in the general Palmetto Achievement Challenge Tests (PACT) or High School Assessment Program (HSAP) testing programs, even with accommodations and/or modifications. The SC assessment program for these students is the South Carolina Alternate Assessment (SC-Alt). The SC-Alt is an assessment for students with significant cognitive disabilities; these students are assessed against alternate achievement standards.

This report summarizes technical information from test data of the South Carolina Alternate Assessment (SC-Alt) in the area of science. Data for this report were collected as part of the 2007 operational administration of the SC-Alt. The Education Oversight Committee (EOC) supported the current study as part of its responsibilities listed in the Education Accountability Act of 1988:

> Section 59-18-320. (A) After the first statewide field test of the assessment program in each of the four academic areas, and after the field tests of the end of course assessments of benchmark courses, the Education Oversight Committee established in Section 59-6-10, 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 the needed changes, if any. The review will be provided to the State Board of Education, the State Department of Education, the Governor, the Senate Education Committee, and the House Education and Public Works Committee as soon as feasible after the field tests. The Department of Education will then report to the Education Oversight Committee no later than one month after receiving the reports on the changes made to the assessments to comply with the recommendations.

SC-Alt Population

The SC-Alt serves students with significant cognitive disabilities. Thus, students must meet eligibility criteria to be allowed to participate in the SC-Alt instead of the regular PACT or HSAP testing programs. To determine if a student is eligible for the SC-Alt, multiple sources of data are evaluated where the data are collected over a period of several years. Input from multiple sources and multiple time periods ensures that students who require additional assistance are eligible to take the SC-Alt.

The participation guidelines stated below are taken directly from the State Department of Education (SDE) website (www.ed.sc.gov):

The decision about a student's participation in assessment is made by the student's Individual Education Plan (IEP) team and documented in the IEP. To document that alternate assessment is appropriate for an individual student, the IEP team should review all important information about the student over multiple school years and multiple instructional settings (e.g., school, home, community) and determine that the student meets **all** of the following criteria:

- The student demonstrates a significant cognitive disability and adaptive skills, which result in performance that is substantially below grade-level achievement expectations even with the use of accommodations and modifications;
- The student accesses the state approved curriculum standards at less complex levels and with extensively modified instruction;
- The student has current adaptive skills requiring extensive direct instruction and practice in multiple settings to accomplish the application and transfer of skills necessary for application in school, work, home, and community environments;
- The student is unable to apply or use academic skills across natural settings when instructed solely or primarily through classroom instruction; and
- The student's inability to achieve the state grade level achievement expectations is not the result of excessive or extended absences or social, cultural, or economic differences.

Instead of following grade level requirements for testing, the SC-Alt is administered to students who have been determined by the IEP team to meet all of the participation criteria for alternate assessment and who are between the ages of 8-13 or are 15 years old as of September 1 of the current assessment year. The SC-Alt is organized into three test booklets based on grade level bands. The three forms are defined as:

- Elementary school form: covering grades 3 through 5 and appropriate for students between the ages of 8 - 10 as of September 1 of the current assessment year
- Middle school form: covering grades 6 through 8 and appropriate for students between the ages of 11 - 13 as of September 1 of the current assessment year
- High school form: covering grade 10 and appropriate for students 15 years of age as of September 1 of the current assessment year

The age bands were constructed for SC-Alt testing in lieu of following the students' stated grade level because students with significant cognitive disabilities may not make academic progress in the same manner as mainstream students.

SC-Alt: Test Development

Alignment of Test Content to Curriculum Standards

SC-Alt has been designed to meet all federal and state regulations concerning the test content. The content domains of the SC-Alt tests are aligned with alternative curriculum standards approved by the South Carolina State Board of Education. Alternative achievement standards are aligned with South Carolina achievement standards for mainstream students; however, the alternative achievement standards differ in the expectations of student performance as that they differ in complexity level. Curriculum standards for content areas covered by the SC-Alt are available on the SDE website (http://ed.sc.gov/agency/offices/assessment/programs/swd/SC-Alt AssessmentStandardsandMeasurementGuidelines.html). The SC-Alt Assessment Standards and Measurement Guidelines were developed in compliance with the Individuals with Disabilities Education Act (IDEA) and the No Child Left Behind Act (NCLB) requirements that the alternate assessment must link to the grade-level content standards, although at less complex and prerequisite skill levels. More information about the link between the alternate curriculum standards and the SC-Alt test content is provided in the alignment study review (Flowers, Browder, Wakeman, & Karvonen, 2006).

Test Design

SC-Alt replaces the previous alternate assessments, the PACT-Alt and the HSAP-Alt. The structure of the SC-Alt consists of a series of performance tasks in which students are required to demonstrate their understanding of the content. The SC-Alt tasks were developed by the testing contractor, American Institutes for Research (AIR), utilizing collaborative teams of experienced assessment writers with expertise in both the content areas and the learning characteristics of students with significant cognitive disabilities. The SC-Alt Assessment Standards and Measurement Guidelines provided the assessment teams with the ability to translate the standards into assessment tasks. The Content, Bias, and Accessibility Review Committee reviewed tasks prior to inclusion in the SC-Alt. The tasks were revised using input from small scale tryouts, focus groups discussions, and piloting and field testing to create the operational forms of the SC-Alt.

Each SC-Alt test form consists of twelve tasks. A task is a set of four to eight related activities or items and responses to the items provide evidence of what students know and can do in a given content area. Each test should have a sufficient number of items to provide a clear picture of student ability (Crocker & Algina, 1986) without overwhelming or fatiguing students.

While 12 tasks are included on each SC-Alt test form, the total number of items included on a test varies across the three grade band forms. For the operational forms of the 2007 spring administration of the SC-Alt, the numbers of items per form are provided below. Each form has a sufficient number of items included on each form to provide evidence of students' ability in a given content area.

Table 1. Number of Items on the South Carolina Alternate Assessment, Science

Form	Science
Elementary (Grades 3-5)	56
Middle School (Grades 6 – 8)	58
High School (Grade 10)	60
Total	174

Description of Testing Procedures

Given that a student meets the eligibility criteria for the SC-Alt and the correct grade level band is identified, teachers serve as test administrators for the SC-Alt. The test administrator administers the Student Placement Questionnaire (SPQ) to identify an appropriate starting position. The SPQ evaluates a student's ability and is used to determine an appropriate starting point within the test. This is done to avoid students being administered items that are too hard or too easy. Also, the process allows for an accurate assessment of the students' ability without overly fatiguing the student by exposure to unnecessary numbers of test items. Student fatigue is a concern given the dynamics of the SC-Alt population of students. Within a form, students are judged to have high, medium, or lower ability within the test band and the appropriate starting task is determined. Thus, students within the same grade level band may have different starting points within the same form, depending on the student's ability level. Given that students may have different starting points within the same instrument, students may, therefore, complete a different number of tasks. Additional detail about the SPQ and student placement is provided in the Test Administrators' Manual, which is available on the SC Department of Education website (http://ed.sc.gov/agency/offices/assessment/programs/SWD/SouthCarolinaAlternateAssessmentSC-Alt.html).

SC-Alt test administrators undergo training to be familiar with the SPQ and how to interview students. Standardized training ensures that the teachers can gauge accurately an appropriate starting point. Additionally, the training for all test administrators helps to ensure that the starting point judgments are fair and unbiased.

Each item on the SC-Alt has a point worth which may vary from one point to four points, depending on the complexity of the task to be performed. The test administrator scores the SC-Alt assessment as it is administered. To ensure scoring fidelity and scoring standardization across the state, training is required for all teachers who will administer the SC-Alt assessment. Standardized training for every test administrator helps to ensure appropriately administered and scored assessments. Proper test administration and scoring supports the validity of the SC-Alt results used for Adequate Yearly Progress (AYP) ratings and school report card ratings.

Sample Size

The SC-Alt is a specialized instrument, where students must meet pre-specified conditions to be eligible to take this test. The estimated number of students taking the SC-Alt is approximately 0.05% of the student population in SC schools (SC-Alt Technical Manual, March 16, 2007). The SC-Alt Technical Manual states that students with three primary disability

designations accounted for approximately 80% of the participants: trainable mentally disabled students (51.2%), autistic students (14.6%), and profoundly mentally disabled students (14.0%).

The number of students tested in the spring 2007 administration of the SC-Alt assessment was reported in the April, 2008 Summary Tables provided to the SC-Alt Technical Committee (AIR Technical Team, April 2008). Student sample sizes for the spring 2007 administration of the SC-Alt science test are provided in Table 2. Data from the operational samples was used to compute the item statistics evaluated in the current report. The number of students involved with the spring 2007 SC-Alt administration is acceptable for stable item calculations. It is recognized that the sample size for the High School grade band is lower than desired; however, this sample size represents disabled students within the grade band who were eligible to take the SC-Alt science test.

Table 2. Number of Students Tested, 2007 South Carolina Alternate Science Assessment

Form	**Science**
Elementary (Grades 3-5)	1,085
Middle School (Grades 6 – 8)	1,009
High School (Grade 10)	351

Data Analysis Procedures

SC-Alt item statistics were calculated by the SDE/AIR and delivered to the EOC for evaluation. EOC staff provided the SDE data sets to this author. Data sets contained statistical information for the SC-Alt Science Fall 2007 operational administration. Item statistics were calculated using Classical Test Theory (CTT) techniques and Item Response Theory (IRT) techniques where the Rasch model (i.e., one parameter item response theory model) was used. For the technical report, summaries of item statistics (difficulty, average point biserial values) and psychometric characteristics (e.g., Differential Item Functioning, Rasch ability estimates) were summarized for SC-Alt science operational form. It is noted that this technical report consists of evaluation and interpretation of the dataset indices provided to the EOC. Besides calculation of summary statistics (e.g., mean values, standard deviations), no additional estimation procedures (e.g., equating, ability estimates) were conducted. This report is arranged into three sections: a) summary of classical test theory indices, b) summary of item response theory indices, and c) investigation of impact.

Section A: Summary of Classical Test Theory Indices

Two Classical Test Theory (CTT) indices were included on the dataset: item difficulty and adjusted point-biserial. The item difficulty (p) may be defined as the proportion of students out of the total number of examinees answering an item correctly. Higher p values indicate easier items (i.e., a greater number of students selected the correct answer) and low p-values indicate more difficult items. Items which are too difficult or, conversely, too easy, do not differentiate between low performing and high performing students. A difficulty value of p = .5 provides the highest level of differentiation between students (Crocker & Algina, 1986).

The adjusted point biserial r is a measure of association indicating how well an item discriminates between high performing and low performing students. The value is calculated as the correlation between item scores (correct/incorrect) and the total score, with the item in question removed from the total score. The normal range of point biserial scores for items is –1 to +1, with higher values indicating that the item discriminates well between high and low performing students (Crocker & Algina, 1986). Values of the point biserial may be positive, meaning that the item is discriminating appropriately, or negative, indicating that the item is not discriminating as intended. Values that are close to zero or negative may indicate a flawed item. A value of zero means that there is no discrimination between high and low ability test takers; negative values indicate the tendency for high ability students to answer incorrectly and low ability students to answer correctly. A high point-biserial coefficient means that students selecting the correct response are students with higher total scores, and students selecting incorrect responses to an item have lower total scores, meaning the item can discriminate between low-performing examinees and high-performing examinees.

CTT Difficulty

Table 3 provides summary statistics for the difficulty values by SC-Alt Test form and age band and content area. Mean values across the science forms were at least p= .63 meaning that, on average, students answered 63% of the SC-Alt science items correctly. Minimum and maximum p-values showed a range of item difficulty values, ranging from a minimum value of p = .26 (illustrating a difficult item) to p=. 89 (illustrating a relatively easy item). Figure 1 shows that the majority of items are easier for this population of students, with the majority of items reporting a difficulty level of .50 or higher.

Item difficulty values were reviewed to determine the number of science items per form that were challenging for students, where p < .50. On the elementary form, 8 of the 58 science items (14%) had a p-value less than or equal to .50, 14 of 60 items (23%) on the middle school form were challenging for students, and 11 of 56 items (20%) on the high school form were challenging. Thus, the majority of the SC-Alt science items were relatively easy for the population of students.

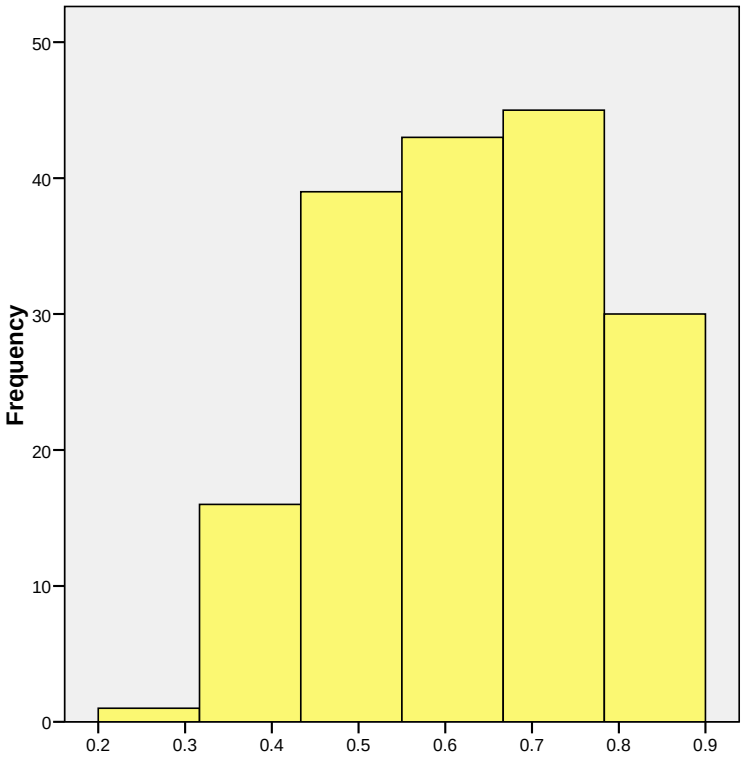

Figure 1. Distribution of item difficulty values, SC-Alt Assessment, Science

For the SC-Alt science tests, the information showed that the tests were approximately of equal difficulty across the three grade bands. Average difficulty values for the three SC-Alt science tests are very close, meaning that no one form reported drastically different values as compared to results for a different grade band. Overall, difficulty values are within an acceptable range, especially given the nature of the population, the use of the SPQ to pinpoint the appropriate student starting point, and the purpose of the SC-Alt instrument. Table 3 reports the CTT difficulty values for each grade band.

Table 3. CTT Difficulty Values, by Form

Form and Age Band	Number of Items	Mean Difficulty	Standard Deviation	Minimum Difficulty	Maximum Difficulty
Science					
Elementary	58	.62	.12	.36	.85
Middle	60	.64	.15	.32	.89
High School	56	.64	.15	.26	.87

CTT Discrimination

Table 4 provides summary statistics for the adjusted point biserial values for the SC-Alt Science test. Mean values across the SC-Alt science forms was at least r_{pb} = 0.40, illustrating that the set of tests are moderately discriminating. The average value means that, generally, SC-Alt students with lower total test scores chose incorrect responses and higher ability students chose correct responses. However, the r_{pb} is lower than .5, showing some inconsistencies. As seen by the mean point biserial value by form, the SC-Alt forms were roughly equivalent in their ability to discriminate between higher and lower ability students; no one form discriminated significantly better (worse) than the other SC-Alt science forms. Figure 2 provides a histogram of the adjusted point biserial values over all three forms of the SC-Alt science test. As shown, many of the items are not overly discriminating and a few items had very low point biserial values. Overall, there are 117 of the total 174 (67.2%) SC-Alt science items that have a point biserial value less than .50. The unique nature of the SC-Alt population may be one reason the item discrimination values are lower than expected. The population may provide inconsistencies in response patterns, relying on factors such as guessing to provide correct answers to the items.

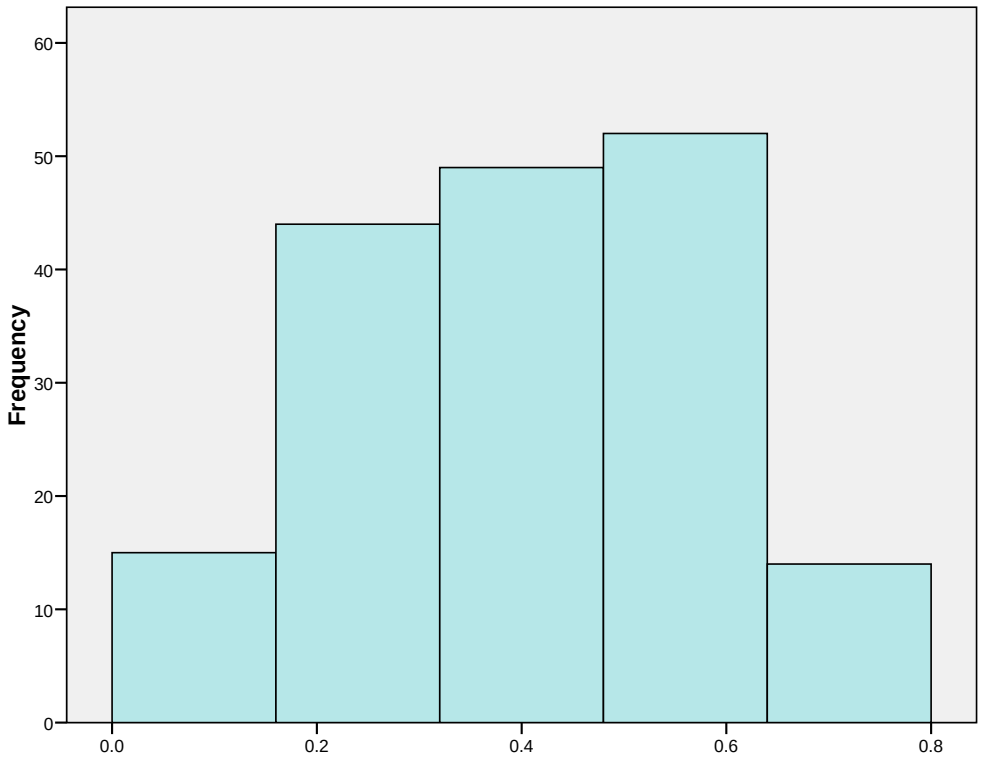

Figure 2. Histogram of Adjusted Point Biserial Values, SC-Alt Assessment, Science

Item point biserial values were reviewed to determine the number of items per form that were able to discriminate between students of high and low ability students, where r_{pb} was greater than or equal to .50. SC-Alt science items were discriminating between students of different ability levels. On the Elementary Form, 15 of the 58 items (26%) had a adjusted point biserial values greater than or equal to .50, 21 of 60 (35%) of Middle School items reported r_{pb} greater than or equal to .50, and 21 of 56 items (38%) on the High School form were above .50.

These values show that the SC-Alt Science test band increases, the test form is including a larger percentage of items which may be able to discriminate between higher and lower ability students.

Based on the point biserial values, the items are moderate in their ability to differentiate between students of higher and lower ability. While the items are not overly discriminating, part of the reason for this may be the population that the SC-Alt serves. Therefore, discrimination information is generally acceptable e given the requirements of the SC-Alt.

Table 4. Adjusted Point Biserial Values, SC-Alt Assessment, Science

Age Band	Number of Items	Mean r_{pb}	Standard Deviation	Minimum r_{pb}	Maximum r_{pb}
Elementary	58	.37	.18	.00	.73
Middle	60	.42	.15	.02	.71
High School	56	.40	.19	.00	.72

Section B: Summary of Item Response Theory Indices

IRT models are represented by statistical functions which relate person and item characteristics to the probability of choosing a correct item response. IRT uses a model based approach to: estimate item parameters, determine how well the data fit the model, and to investigate the psychometric properties of items and tests (Baker, 2001). A one-parameter IRT model, the Rasch model, was applied to the SC-Alt operational test data to obtain item parameters and fit information. Three IRT indices were included on the dataset: Infit and Outfit fit statistics, and Rasch item difficulty. Items were flagged if they exhibited differential performance for one subgroup compared to another. Items exhibiting differential item functioning (DIF) may be easier or more difficult for one demographic group compared to another, and should be examined to rule out the possibility that they may bias the test results.

A characteristic of the Rasch model is that all items are thought to have the same item discrimination, but varying levels of item difficulty. The difficulty parameter is defined as the point on the ability scale at which the probability of correct response to the item is .5, where the slope of the Rasch curve is at a maximum. Typical values are within the range –3 < = *difficulty* < = +3. (Baker, 2001). Item difficulty parameters can be interpreted relative to ability level. As stated in Baker (2001, p. 34-35) " an item whose difficulty is –1 functions among lower ability examinees while an item with a difficulty value of +1 does best to distinguish between examinees functioning at higher ability levels."
Both Infit and Outfit are fit statistics, which indicate in the Rasch context how accurately the data fit to the Rasch model. As stated by Bond & Fox (2001):

> Outfit statistics have more emphasis on unexpected responses far from a person's or item's measure. Infit statistics place more emphasis on unexpected responses near a person's or item's measure.

Stated another way by the Winsteps user's manual (Linacre, 2006, http://www.winsteps.com/winman/diagnosingmisfit.htm**)**

> Outfit measures are more sensitive to unexpected observations by persons on items that are relatively very easy or very hard for them (and vice-versa). Infit measures are more sensitive to unexpected patterns of observations by persons on items that are roughly targeted on them (and vice-versa).

Infit and outfit values can be reported as unstandardized values, standardized values, or mean square values. To be consistent with the infit/outfit item flag information, mean square values will be discussed. Mean square values are computed as the Rasch model chi-square statistic divided by its degrees of freedom (http://www.winsteps.com/winman/diagnosingmisfit.htm). Expected values for the mean squares should approximate 1.0. Values greater than 1 (underfit) indicate unmodeled noise or other source of variance in the data and may degrade measurement. Values less than 1 (overfit) indicate that the model predicts the data too well, and may cause summary statistics to report inflated values.

IRT Based Difficulty

Rasch item parameters provide a modern test theory perspective of item difficulty. Most difficulty values for the SC-Alt operational items are functioning slightly below the mean ability level of 0. The information shows that the items are functioning best for students with slightly lower than average ability levels in this population of students. The SC-Alt science Middle School form was slightly easier for students, as shown by the lowest mean difficulty value.

Difficulty values are negative for the SC-Alt science forms, meaning that the items function best with students who have lower than average ability. The mean difficulty over all forms was -.27. For each SC-Alt science form, most of the difficulty values were less than 0, where 0 is thought of as average ability. For the set of science item statistics, difficulty values appear to be within acceptable ranges. Standard deviation values suggest that the assessments included a reasonable range of item difficulties. Figure 3 illustrates the distribution of difficulty values across the set of SC-Alt items and Table 5 provides summary statistics across the SC-Alt science forms.

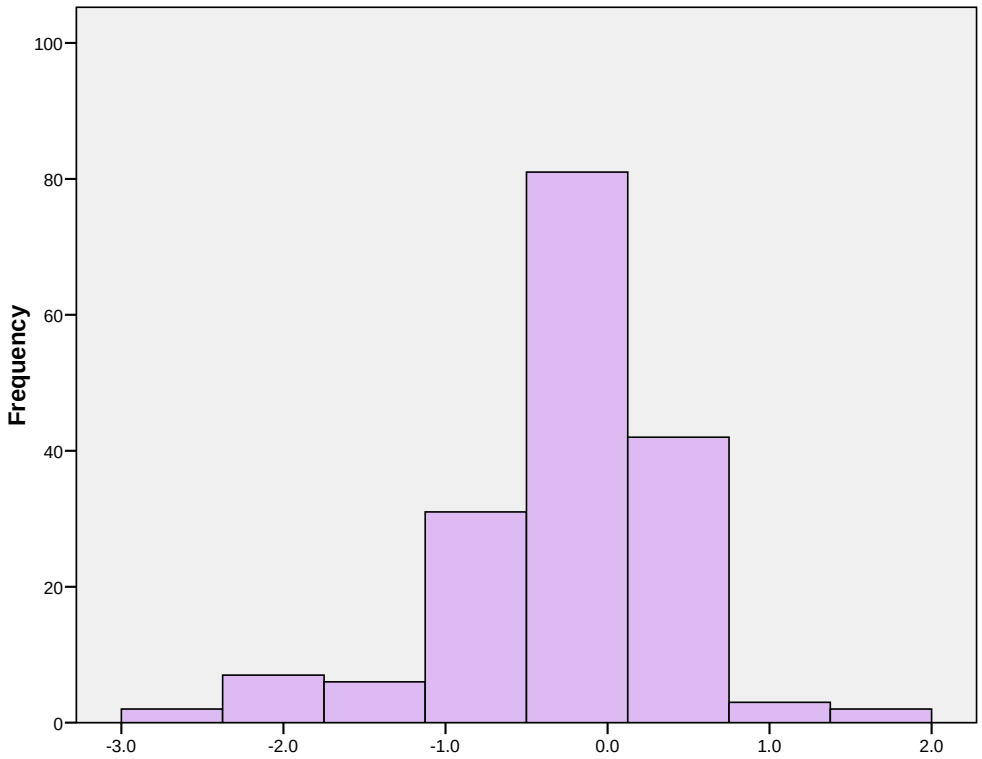

Figure 3. Histogram of IRT Difficulty Values, SC-Alt Science

Table 5. IRT Based Difficulty Values, SC-Alt Assessment, Science

Age Band	Number of Items	Mean Difficulty	Standard Deviation	Minimum Difficulty	Maximum Difficulty
Elementary	58	-.25	.66	-2.16	1.04
Middle	60	-.32	.62	-2.63	.60
High School	56	-.24	.70	-2.63	1.67

Infit and Outfit Measures

Table 6 provides the mean square values for infit and outfit. For both infit and outfit mean square values, mean values suggest adequate fit. All items appear to have average levels of infit/outfit close to the expected value of 1. This indicates that the Rasch model provides an acceptable fit to the operational test data for the SC-Alt science forms.

Table 6. Average Standardized Infit and Outfit Values, SC-Alt Assessment, Science

Operational Form and Age Band	Number of Items	Mean	Standard Deviation	Minimum	Maximum
Infit Measures					
Elementary	58	1.00	.15	.77	1.68
Middle	60	1.01	.14	.81	1.68
High School	56	.99	.15	.82	1.78
Outfit Measures					
Elementary	58	.98	.19	.69	1.78
Middle	60	.99	.21	.56	1.78
High School	56	.95	.24	.66	2.04

Differential Item Functioning

Items on the SC-Alt science tests were examined for differential item functioning (DIF). DIF analyses identify items that do not perform equally across subgroups of the SC-Alt population. Comparisons were made between sex groups (male and female students) and racial groups (Black and Caucasian students). If many items exhibit DIF, the test may give one group an unfair advantage (disadvantage) over other test takers. Here, DIF is discussed in general terms. Specific items that are exhibiting DIF are named in the Item Flags section.

For the SC-Alt science tests, five items reported differential item functioning at severe levels on the high school form. No items exhibiting DIF were found on the SC-Alt science Elementary form or Middle School form. For the items reporting DIF on the high school form, all five items yielded differential functioning depending on student race. These items could be reviewed for problems (such as content, wording, etc.) to try to eliminate DIF in future administrations of the high school form of the SC-Alt science assessment.

Item Flags

A flagged item suggests that the performance may be problematic and the item may need a closer inspection. Items were flagged by the SDE for a variety of performance indicators. While many flags could be noted, the six flags that were present in the SC-Alt dataset are described below. Descriptions of the item flags were taken from the SDE/AIR data codebook:

- Difficulty flags indicated items that were excessively hard ($p < .30$) or too easy ($p > .95$) (P);

- Point biserial flags for low biserial correlations ($r_{pb} < .20$) meaning that the item was not discriminating between students of higher and lower ability levels. (r_{pb});

- Differential item functioning (DIF) illustrates that an item may be easier or more difficult for one demographic group compared to another;

- Fit if infit <.7 or infit >1.3 or outfit <.7 or outfit >1.3 (FIT);

- Omit flags suggest that the item's omit rate is too large, i.e., >.05, meaning that roughly 5% of the students' omitted this item (OMIT);

- CRT (Constructed Response Test score) items were those flagged if the mean total test score of students in a score point category was lower than the mean total test score of students in the next lowest score point category. For example, if students who received 3 points on a constructed response item scored, on average, lower on the total test than students who received 2 points on the item, the item would be flagged. This situation may indicate that the scoring rubric is flawed.

For the SC-Alt science database, all item characteristics were examined. Items were flagged for violating one rule or a combination of the rules stated above.

Information concerning flagged items on the SC-Alt science tests is provided in Table 7. As the table shows, 46 out of 174 science items were flagged for various problems. Stated another way, 26% of the set of SC-Alt science items reported one or more item statistics outside of the stated bounds. The percent of items showing problems was 15 of 58 (26%) of items flagged on the elementary form, 10 of 60 (17%) of items flagged on the middle school form, 21 of 56 (38%) of items flagged on the high school form. The majority of flags were given for infit/outfit statistics being outside of stated boundaries (FIT) or low adjusted point biserial values (r_{pb}). The fit flags suggests that the model is not predicting the data accurately, where unmodeled variance may be present. This variance could be due to other sources such as individual student characteristics, disability type, or even student fatigue. Closer examination of the r_{pb} flags showed that the items were flagged for not being able to discriminate between higher and lower ability students. As stated earlier, the lower discrimination values may be related to the unique characteristics of the SC-Alt population.

Differential item functioning (DIF) is a more serious flag. As discussed earlier, five items exhibiting DIF were found on the high school SC-Alt science test. While DIF indicates differential performance, there are relatively few items out of the entire test that exhibit DIF. Also, it is noted that there are relatively few students in the entire SC-Alt population as compared to the mainstream population of students. Depending on the size of the subgroup, if high numbers of students from a subgroup have problems with an item, the small subgroup sample size could lead to misrepresentation of an item's performance.

Table 7. Item Flags, SC-Alt Assessment, Science

Grade Band	No. Of occurrences	Percent Flagged within Grade Band	Type of Flag(s)	Item numbers
Total Flags	**46**			
Elementary	15 (33%)			
	2	13%	Fit	14, 47
	7	47%	r_{pb}	27, 29, 30, 52, 53, 55, 56
	1	7%	Omit	6
	2	13%	CRT	42, 43
	1	7%	CRT & AB	57
	2	13%	CRT, AB, & Fit	50, 58
Middle	10 (22%)			
	4	40%	Fit	1 , 34, 35, 51
	4	40%	r_{pb}	53, 55, 58, 59
	2	20%	r_{pb}, CRT & Fit	52, 60
High School	21 (46%)			
	3	14%	Fit	1, 29, 39
	4	19%	r_{pb}	32, 48, 50, 56
	6	29%	r_{pb} & Fit	34, 49, 52, 53, 54, 55
	1	5%	DIF	2
	4	19%	DIF & Omit	8, 9, 15, 33
	3	14%	CRT	23, 46, 47

Section C: Estimates of Impact

To judge impact of the SC-Alt science test, the assessments should be able to categorize students into different ability levels, according to the amount of knowledge students possess in science. The SC-Alt assessment categorizes students into one of four achievement levels. The levels are named 1, 2, 3, and 4, where level 1 represents the lowest achievement level and level 4 represents the highest achievement level on the SC-Alt. The descriptions of the SC-Alt achievement levels were created by the SDE and AIR and provide a detailed assessment of student competencies and skills that students must demonstrate to be "graded" at a specific level of performance. Performance descriptors vary by content area and grade level band. While detailed information about the achievement level descriptors is provided in the SC-Alt Standard Setting Technical Report (AIR, September, 2007), a generic description of the achievement levels is provided in Table 9. The generic description shows the increasing performance and knowledge requirements for the science content increase as the achievement level increases from level 1 to 4.

Table 9. Generic Description of SC-Alt Assessment Achievement Levels

Level	Generic description of SC-Alt Assessment Achievement Levels
Level 1	Students performing at level 1 may demonstrate emerging academic skills and competencies in science.
Level 2	Students performing at level 2 demonstrate foundational academic skills and competencies in science.
Level 3	Students performing at level 3 demonstrate increasing academic skills and competencies in science.
Level 4	Students performing at level 4 demonstrate and apply academic skills and competencies in science.

AIR, under contract to the SC SDE, held a workshop to recommend performance standards for the SC-Alt assessments. The workshops were held June 25-27, 2007 and involved 105 educators and non-educators (e.g., parents, curriculum specialists) from across the state. The panel recommended standards to categorize students into levels 2, 3, and 4 on the SC-Alt assessments. The standards were translated into cut points on the SC-Alt tests by AIR.

Using the information from the cut scores, it is of interest to estimate the impact of the SC-Alt assessments by evaluating average student ability estimates for the SC-Alt science assessment. The information provided in Table 10 was taken directly from AIR technical documentation (AIR 2007, 2008). Impact results for the spring 2007 administration of the SC-Alt have not yet been published by the SDE. The information presented in Table 10 allow for an initial investigation of impact; however, additional impact data may be examined and evaluated at a future date.

Table 10 shows the range of ability estimates for each performance level on the SC-Alt Science test. Ability estimates range from negative infinity to positive infinity, thus no minimum for level 1 and maximum for level 4 are needed in the table. As expected, the higher the performance level, the higher the students' estimated ability. Ability estimates were lower than

average (i.e., ability = 0) only for the lowest performance levels, levels 1 and 2. As provided from the AIR documentation (April, 2008), most students were classified into the highest level. Overall, the SC-Alt ability estimates appears to be within adequate ranges and the categorization of students into different performance levels allows for differentiation of students at different ability levels; however, we may want to evaluate the cut points to make sure that the standardized test distributes students more evenly across the four levels.

Table 10. Estimates of Impact by Grade Range, SC Alt Science Assessment

Science Grade Band	Level	Cut Scale Score	Percentage in Level	Minimum Ability Estimate	Maximum Ability Estimate
Grade 3-5	Level 1	—	19.8 %	*	
	Level 2	430	18.2 %		
	Level 3	469	17.5 %		
	Level 4	496	44.5 %		*
Grade 6-8	Level 1	—	22.1 %	*	
	Level 2	447	18.5 %		
	Level 3	489	15.3 %		
	Level 4	514	44.0 %		*
Grade 10	Level 1	—	25.3 %	*	
	Level 2	463	25.0 %		
	Level 3	506	16.1 %		
	Level 4	535	33.6 %		*

Notes: No cut score is needed to categorize students into Level 1.

Summary and Recommendations

This report summarizes the results from the spring 2007 operational administration of the South Carolina Alternative Assessment (SC-Alt) in the area of science. The SC-Alt is geared towards students with cognitive deficiencies who are unable to take the regular state assessments, even with modifications. The Education Oversight Committee (EOC) supported the current study as part of its responsibilities listed in the Education Accountability Act of 1988. This study reviewed item and form data from the Science form administered spring 2007. Test information was presented for three age bands: Elementary (3-5), Middle school (6-8) and High School (10). Indices of Classical Test Theory (CTT) and Item Response Theory (IRT) were interpreted by age band. Based on the results, the following evaluations and recommendations are provided.

A strength of the SC-Alt assessment battery is the interrelationship between the components of the assessment system. The SC-Alt tests were revised to include performance tasks, which were thought to better estimate the knowledge and ability of students with significant cognitive disabilities. Also, multiple sources of evidence collected over a long period of time are evaluated to determine if a student is eligible for the SC-Alt instead of the state's mainstream testing program. Using a variety of evidence collected from multiple sources helps ensure that students in need of the alternative program are eligible for the assessment. This helps to provide an accurate reflection of the population of cognitively disabled students across the state. Finally, the standardized training given to test administrators for student placement on the test and scoring of responses helps to ensure that the scores obtained from the SC-Alt are valid measures of student ability and can be trusted to make inferences of student ability.

Overall, the SC-Alt science test appears to be functioning adequately for the three different grade bands studied. It was noted that the sample size used to calculate CTT and IRT statistics with the high school test (Grade 10) was lower than the sample sized used in the other two tests. However, the SC-Alt population is a special needs population where relatively few students across the state fall into this category (estimate of .5% of SC public school students).

The SC-Alt science test generally reported CTT and IRT item statistics which were within acceptable ranges. The Student Placement Questionnaire helps ensure that students gain an optimal starting place to measure their content knowledge. Both CTT and IRT estimates of difficulty reported that the test was performing adequately; for a given form, students answered approximately 60% of items correctly. One note was that the test was not overly discriminating as seen by lower adjusted point biserial values. The information suggests that the test is not maximally discriminating between students of higher and lower abilities; however, this may be acceptable given the requirements of the SC-Alt testing program.

In terms of item performance, roughly 26% of the total SC-Alt science items were flagged due to problematic item statistics. At the elementary and middle school levels, the majority of flags were given for fit statistics out of bounds and low discrimination values. There were no items on these forms exhibiting problems due to differential item functioning (DIF) between subgroups.

The high school form of the SC-Alt science test did show five items that illustrated DIF. In the future, these items may be investigated further to ensure that items do not function differently for subgroups of students. If the items are continually problematic, these items may

be reviewed to see if wording problems are apparent or if increasing item clarity may improve item performance.

The assessment of impact showed that the estimates of student ability were generally as expected where students in lower performance levels yielded lower ability estimates. The percentage of students classified into each performance level (i.e., level 1 through level 4) shows that most students are classified into the highest level, Level 4, of the SC-Alt. It is noted that the impact data were taken from two technical documents provided from AIR. Future investigations may conduct a thorough review of impact by investigating ability estimates by performance level and review of the grading rubrics used to categorize student performance.

In summary, the technical information suggested that the SC-Alt science form is performing acceptably. Selected items showing DIF and performance rubrics for the high school level were suggested for review with data from future operational administrations of the tests. Overall, the SC-Alt science test appears to perform effectively to assess South Carolina's students with significant cognitive disabilities.

Reference List

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EDUCATION OVERSIGHT COMMITTEE

Subcommittee: Academic Standards and Assessments

Date: May 19, 2008

REPORT/RECOMMENDATION
Mathematics Academic Standards Review

PURPOSE/AUTHORITY
Section 59-18-360 of the Education Accountability Act requires the State Board of Education, in consultation with the Education Oversight Committee, to conduct a cyclical review of the state standards in the four academic areas by the year 2005 and at least every seven years thereafter. The review was conducted in the spring of 2006, and a new set of mathematics academic standards was approved in the spring of 2007. A recent report from the National Mathematics Advisory Panel issued on March 13, 2008 prompted the South Carolina Department of Education (SCDE) to conduct this special review of the recently adopted standards.

CRITICAL FACTS
This review of the standards is being conducted to ensure that there is consistency between the National Mathematics Advisory Panel report issued on March 13, 2008 and the South Carolina Mathematics Academic Standards adopted in 2007.

TIMELINE/REVIEW PROCESS
Review Process begins in May 2008. The review will be completed by the end October 2008 with any recommendations for changes to the existing standards and/or professional development opportunities presented in a report released in November 2008.

ECONOMIC IMPACT FOR EOC

Cost: No fiscal impact

Fund/Source:

ACTION REQUEST

___**For approval** X **For information**

ACTION TAKEN

☐ **Approved** ☐ **Amended**

☐ **Not Approved** ☐ **Action deferred (explain)**

Plan for the Review of the *South Carolina Mathematics Academic Standards 2007* for Consistency with *Foundations for Success: Report of the National Mathematics Panel* Recommendations

On March 13, 2008, the National Mathematics Advisory Panel (NMAP) presented its final report, *Foundations for Success: Report of the National Mathematics Advisory Panel* to the President of the United States and the Secretary of Education. Created in 2006 by an executive order of President Bush, the NMAP was charged to examine and summarize the scientific evidence related to the teaching and learning of mathematics, with a specific focus on preparation for and success in learning algebra. The NMAP also analyzed what must be developed in pre-K through grade 8 and identified a set of Critical Foundations and accompanying Benchmarks as essential prerequisites for algebra. Finally, the report identifies the major topics that constitute an "authentic" algebra program and recommends that states' standards for the Algebra 1 and 2 courses include appropriate coverage of these major topics.

To ensure consistency with the NMAP report and the quality of the South Carolina Department of Education (SCDE), in collaboration with the Mathematics and Science Regional Centers, proposes to convene the South Carolina Mathematics Panel (SCMP), which will accomplish the following:

1. compare the grade level expectations for student learning in mathematics detailed in the national report with the state standards and indicators;
2. develop a draft report;
3. disseminate the information statewide;
4. gather input from the field;
5. write a final report concerning the findings; and
6. develop a professional development plan to strengthen the teaching of mathematics in South Carolina and thereby improve student achievement.

May 2008

- Share the plan for the review of the *South Carolina Mathematics Academic Standards 2007* for consistency with *Foundations for Success*: *2007 Report of the National Mathematics Panel Recommendations* with the Standards, Learning and Accountability Committee of the South Carolina Board of Education (SBE); SBE; Academic Standards and Assessment Committee of the Education Oversight Committee (EOC); and the EOC.

- Appoint an outside facilitator and SCDE leadership team, including representatives from the Mathematics and Science Regional Centers, to

    1. review the NMAP report;

2. study national perspectives on the NMAP report recommendations by reviewing expert analyses of the report and attending national meetings that provide related information sessions;

3. develop an overview of the NMAP report for distribution throughout the state; and

4. prepare and finalize the plan for stakeholder involvement in the review of the state math standards and focus areas of the NMAP report.

June 2008

Form the South Carolina Mathematics Panel (SCMP), composed of but not limited to, the following representatives to ensure that all stakeholders are included:

- 1 representative nominated by the South Carolina Leaders of Mathematics Education (SCLME) organization
- 1 representative nominated by the South Carolina Council of Teachers of Mathematics.
- 2 representatives from higher education (one public college or university/one private college or university)
- 2 superintendents nominated by SCASA
- 2 members of the Instructional Leaders Roundtable
- 2 district math supervisors
- 4 grades K–2 mathematics teachers
- 4 grades 3–5 mathematics teachers
- 4 grades 6–8 mathematics teachers
- 4 high school algebra teachers
- 1 elementary mathematics coach from the cadre of coaches participating in the Mathematics and Science Unit Coaching Initiative
- 1 middle school mathematics coach from the cadre of coaches participating in the South Carolina Coalition of Science and Mathematics iCoaching Initiative
- 2 math specialists from the Regional Mathematics and Science Centers (1 elementary/1 middle and high school)
- 2 coordinators from the Mathematics and Science Regional Centers
- 1 SCDE representative

- 1 SBE representative
- 1 EOC representative

July 2008

Convene the SCMP with the following charge:

- Write a preliminary report based on a comparison between the recommendations of the NMAP and the *South Carolina Academic Mathematics Standards 2007*.
- Plan and schedule a series of regional and state meetings for the purposes of sharing the preliminary report and gathering input from the broader education constituency. Each Mathematics and Science Regional Center will host a meeting. Meetings will be held at all state mathematics conferences.

August 2008

Share the preliminary report based on a comparison between the recommendations of the NMAP and the *South Carolina Academic Mathematics Standards 2007* with the SBE, senior SCDE staff, EOC; and State Mathematics Textbook Adoption Panel.

September—November 2008

Conduct regional sessions about the NMAP report and its comparison with the South Carolina mathematics standards, processes, and professional development opportunities.

- The sessions will build awareness of the NMAP report and its implications for South Carolina and elicit input from the attendees.
- At a minimum, sessions will be held in each of the regions represented by the Mathematics and Science Regional Centers and at the following state meetings and conferences: SC Algebra Project (June 9–13, 16–20, 2008); SC Council of Teachers of Mathematics (October 30–31, 2008); and SC Leaders in Mathematics Education (November 13–14, 2008).

December 2008

Write a final report for presentation to the SBE and the EOC.

- This report will include recommendations to ensure that South Carolina's 2007 mathematics standards, processes, and professional development opportunities align with NMAP report.
- The report will include recommendations for professional development opportunities in mathematics for South Carolina teachers.

January 2009

The Office of Academic Standards and the Mathematics and Science Regional Centers will provide supplemental resources, Standards Support Documents and /or Standards Support Institutes for teachers and math content specialists *if needed* based on the review of the *South Carolina Mathematics Academic Standards 2007* for consistency with *Foundations for Success: Report of the National Mathematics Panel* findings.

EDUCATION OVERSIGHT COMMITTEE

Subcommittee: Academic Standards and Assessments

Date: May 19, 2008

REPORT/RECOMMENDATION
EOC Activities Regarding Adoption of New PACT Replacement Assessment and Modification of School and District Rating System

PURPOSE/AUTHORITY
Sections 59-18-300, 59-18-310(A), 59-18-310(B), 59-18-320(A),59-18-320(D), 59-18-360, and 59-18-370 establish the state assessment system and assessments, including reviews of assessments for quality and reporting of student results;
Sections 59-18-900(A), 59-18-900(B), 59-18-900(E), and 59-18-910 establish the school and district ratings and report cards;
Section 59-18-1100 establishes the Palmetto Gold and Silver Awards;
Section 59-18-1560 calls for the development of the public school assistance fund.

CRITICAL FACTS

TIMELINE/REVIEW PROCESS

ECONOMIC IMPACT

Cost: Absorbed in EOC operating budget

Fund/Source:

ACTION REQUEST

☐ **For approval** ☒ **For information**

ACTION TAKEN

☐ **Approved** ☐ **Amended**

☐ **Not Approved** ☐ **Action deferred (explain)**

Implementation of Changes to the Education Accountability Act
As Proposed in H4662, focusing on a 2009 implementation

Code Citation	Administrative Tasks		Decisions	
	SCDE	Division of Accountability	SBE/SCDE	EOC/Accountability Division
59-18-300 The SBE is directed. . . 59-18-320(D) adopted by SBE, through Dept of Education. . .advice and consent of EOC 59-18-360""SBE, in consultation with EOC and after approval of EOC"			May 2008 SBE approves ELA content standards	April 2008 EOC approves ELA content standards
59-18-310 (A) and (B) The SBE, through the Dept. of Education	May 2008 Field test items in reading, math, science and social studies			
59-18-310 (A) and (B) The SBE, through the Dept. of Education 9-18-900(A) The EOC working with the SBE and (B) The oversight committee	July-December 2008 Through contractor develop 2009 item pool	July-December Coordinate development of report card format revisions And focus groups on student performance levels, school ratings and		
59-18-370 The Department of Education, working with the accountability division	---------- Establish format for assessment results			
59-18-900 (A) The SBE, through the Dept. of Education 59-18-320 (A) The EOC		January-2009 Develop proposed format for report card and website Conduct alignment studies of items in 2008 and 2009 pool		
59-18-320 (A) The EOC.		February –March 2009 Administrative report on alignment provided to SDE		February 2009 Approve format for report card

Code Citation	Administrative Tasks		Decisions	
	SCDE	Division of Accountability	SBE/SCDE	EOC/Accountability Division
59-18-310 (A) and (B) The SBE, through the Dept. of Education	March 2009 Administer writing field test			
59-18-310 (A) and (B) The SBE, through the Dept. of Education	May 2009 Field test items in reading, math, science and social studies			
59-18-320 (A) The EOC	June-July Contractor provides item statistics to EOC	June –July Advisory group reviews statistics and develops recommendations		
59-18-320 (A) The EOC	August 2009 SDE responds to recommendations			August 2009- recommendations issued to SDE on tests
59-18-900 (B) The oversight committee, working with the SBE		August 2009 EOC convenes groups to establish student performance levels		September 2009 EOC approves tests EOC sets student performance levels
59-18-370 The Dept. of Education	October 2009 SDE provides schools student score reports	October 2009 EOC uses student scores to simulate school and district ratings		
59-18-900 (B) The oversight committee		November 2009 EOC conducts public hearings		December 2009 EOC sets school and district performance criteria
59-18-1100 The SBE, working with the division and the Dept. of Education . . .criteria established by division	December 2009 SCDE revises criteria for Palmetto Gold and Silver Awards	Develop criteria for Palmetto Gold and Silver	---------- SBE approves criteria for Palmetto Gold and Silver awards	
59-18-900 (E)	January 2010 SDE completes report card calculations and issues report cards as soon as printed			
Long-term Projects				
59-18-1560: Development of Public School Assistance Fund The Board and the EOC				
59-18-910 Cyclical Review of Accountability System The EOC, working with SBE and others				