

Technical Brief

October 16, 2014

**Grades 3-8 End-of-Grade (EOG) Assessments of
English Language Arts/Reading, Edition 4**

**Grades 3-8 End-of-Grade (EOG) Assessments of
Mathematics, Edition 4**

**Grades 5 & 8 End-of-Grade (EOG) Assessments of
Science, Edition 2**

**End-of-Course (EOC) Assessments of
English II Edition 1, Math I Edition 2, and Biology Edition 2**

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Introduction

In June 2010, the North Carolina State Board of Education (SBE) adopted the Common Core State Standards (CCSS) in Mathematics and English Language Arts/Reading (ELA) and the North Carolina Essential Standards in Science. These standards were implemented in the 2012–13 school year, and assessments aligned to the content standards were subsequently developed and operationalized in 2012–13. The assessments were developed by the North Carolina Department of Public Instruction (NCDPI), and as with previous editions, the alignment of the assessment items to the content standards was emphasized throughout the test development process. As required by the content standards, the purpose of these assessments is to prepare students to be college and career ready at the completion of their K-12 education. To provide reporting consistent with the purpose, the SBE adopted college and career ready aligned academic achievement standards and descriptors in October 2013, which were effective with the initial year of implementation of the assessments. In summary, following is the development timeline:

- June 2010: North Carolina SBE adoption of the CCSS
- 2010–2011: Item development for Edition 4 assessments
- 2011–2012: Administration of stand-alone field tests of Edition 4 assessments
- 2012–2013: Initial administration of general assessments aligned to grade-level content standards, modified assessments aligned to grade-level content standards for eligible students with disabilities (*NCEXTEND2*), and alternate assessments aligned to extended grade-level content standards for students with the most significant cognitive disabilities (*NCEXTEND1*).

This narrative addresses the development process utilized to ensure these assessments are of high quality and measure college and career readiness.

Assessment Development

Test Specifications

With adopted college and career readiness content standards in place, the NCDPI initiated the first step in the development of aligned assessments. The Test Development Section, with cooperation and support from the NCDPI-curriculum staff, facilitated test specification panels comprised of mathematics and ELA teachers in fall 2010. The panelists collaborated and developed recommendations for a prioritization of the standards indicating the relative importance of each standard, the anticipated instructional time, and the appropriateness of the standard for a multiple-choice item format. Subsequently, curriculum and test development staff from the NCDPI met to review the results from the teacher panels and to develop weight distributions across the domains for each grade level.

As it considered test development for Edition 4 of the assessments, the NCDPI recognized the importance of considering all item types in the assessment design. Having depended on all multiple-choice assessments since the early 1990s, with the exception of writing assessments at grades 4, 7, and 10 that were eliminated in recent years, North Carolina evaluated the inclusion of constructed-response items for Edition 4 development. In the test specification discussions, the teachers were asked to consider what item type would best assess a content standard. Not surprisingly, the value of constructed-response items was noted, particularly for the ELA assessments. When the test specification meetings were held, it was the intention of North Carolina to transition to the Smarter Balanced Assessment Consortium in 2014–15, which does include not only constructed-response items but also performance tasks. Viewing the Edition 4 assessments as a transition to Smarter Balanced, and to more fully assess the content standards in ELA, the NCDPI decided to include constructed-response items on the English II End-of-Course (EOC) Test. However, constructed-response items were not included on the grades 3–8 End-of-Grade (EOG) ELA assessments primarily due to cost and to a commitment to immediate score turn-around, which is negatively impacted by scoring constructed-response items.

As a means to include an open-ended response item on the mathematics assessments, the NCDPI (with input from the test specifications panelists) included gridded response items on the mathematics grades 5–8 EOGs and Math I EOC assessments. These items comprise approximately 20 percent of the test items on a form. Input from teachers suggested students were able to back-work mathematics' items, especially with a calculator, and select the correct answer of a multiple-choice item when they had not mastered a content standard. Gridded response items were judiciously used with those standards that needed more than simple multiple-choice item types to measure complex knowledge in an applied manner.

In addition to constructed or open-ended response items, some of the assessments include technology-enhanced items. These items require the student to indicate multiple responses, rather than to select one answer from four options. For example, the drag-and-drop item requires students to select, drag, and drop objects (e.g., words) into empty cells in a table or matrix. This item type requires students to apply their knowledge in a new way that goes beyond traditional multiple choice. The technology-enhanced items are accessible only on the online forms of the tests, so inclusion is limited to the assessments that were developed with online as the primary delivery format (i.e., the English II EOC and the *NCEXTEND2* EOG modified alternate assessments of Science at grades 5 and 8).

Not only does the inclusion of these new item types more fully assess the content standards, they also impact instruction because teachers are aware their students will have to provide responses that go beyond the knowledge and skills necessary for a multiple-choice assessment. Another decision that demands more from students and impacts instruction is the decision to require a calculator inactive section on all of the mathematics assessments. One-third to one-half of the grades 3–8 assessments are comprised of calculator-inactive items; approximately one-third of the high school assessments are calculator inactive. Again, it was input from mathematics teachers, and only those who participated in the test specification meetings, who shared concern about their students being able to back-work items without really knowing the concepts.

Another consideration, also related to the impending transition to Smarter Balanced, was integrating online assessments into the testing program. North Carolina has administered online assessments for many years, but it has been and continues to be voluntary. However, English II EOC, *NCEXTEND 2* EOG at grades 3–8, and all EOC and EOG science assessments have been positioned as highly recommended to be administered online. All assessments are available in paper/pencil format, and of course, the comparability of the assessments is evaluated after each assessment cycle. The online assessments support the delivery of technology-enhanced items and decrease the score turn-around time for constructed-response items. More importantly, it proactively positions North Carolina to be ready for online assessments in the coming years.

Mathematics Test Specifications

The Mathematics CCSS consist of a set of content standards for each grade. Assessments were developed and implemented that assess those standards at the end of each grade 3–8. For high school, the CCSS group the standards by conceptual categories rather than by grade or course. The CCSS suggest a course sequence for teaching standards by each pathway, traditional or integrated. However, the CCSS allow states to create their own sequence as long as the full set of standards is completed by the third year. North Carolina taught and assessed a common set of standards for the first-year high school course of mathematics. For the second and third high school years, schools or districts followed either a traditional or integrated pathway. In addition to the content standards, the CCSS include eight Standards for Mathematical Practice that cross domains, grade levels, and high school courses. Assessment items that are written for specific content standards link to one or more of the CCSS mathematical practices.

Table 1 Weight Distributions for Grades 3–5 Mathematics

Domain	Grade 3	Grade 4	Grade 5
Operations and Algebraic Thinking	30–35%	12–17%	5–10%
Number and Operations in Base Ten	5–10%	22–27%	22–27%
Number and Operations—Fractions	20–25%	27–32%	47–52%
Measurement and Data	22–27%	12–17%	10–15%
Geometry	10–15%	12–17%	2–7%
Total	100%	100%	100%

Table 2 Weight Distributions for Grades 6–8 Mathematics

Domain	Grade 6	Grade 7	Grade 8
Ratios and Proportional Relationships	12–17%	22–27%	NA
The Number System	27–32%	7–12%	2–7%
Expressions and Equations	27–32%	22–27%	27–32%
Functions	NA	NA	22–27%
Geometry	12–17%	22–27%	20–25%
Statistics and Probability	7–12%	12–17%	15–20%
Total	100%	100%	100%

Table 3 Weight Distributions for Math I

Conceptual Category	Math I
Number and Quantity	5–10%
Algebra	25–31%
Functions	35–40%
Geometry	10–15%
Statistics and Probability	15–20%
Total	100%

English Language Arts/Reading Test Specifications

The English Language Arts/Reading CCSS consist of a set of content standards for each grade. Assessments were developed and implemented that assess those standards at the end of each grade 3–8. The CCSS are divided into strands which address a specific set of College and Career Readiness Anchor Standards. These strands are reading, writing, speaking, listening, and language. North Carolina will not assess speaking or listening because of the multiple-choice format of the assessment. North Carolina will teach and assess a common set of standards for the second-year high school course of English language arts.

Table 3 Weight Distributions for Grades 3--5 ELA

Domain	Grade 3	Grade 4	Grade 5
Reading for Literature	32–37%	30–34%	36–40%
Reading for Information	41–45%	45–49%	37–41%
Reading Foundation Skills	NA	NA	NA
Writing	NA	NA	NA
Speaking and Listening	NA	NA	NA
Language	20–24%	19–21%	21–25%
Total	100%	100%	100%

Table 4 Weight Distributions for Grades 6–8 ELA

Standard	Grade 6	Grade 7	Grade 8
Reading for Literature	32–36%	34–38%	31–35%
Reading for Information	41–45%	41–45%	42–46%
Writing	NA	NA	NA
Speaking and Listening	NA	NA	NA
Language	21–25%	19–23%	20–24%
Total	100%	100%	100%

Table 5 Weight Distributions for High School English II

Standard	English II
Reading for Literature	30–34%
Reading for Information	32–38%
Writing	14–18%
Speaking and Listening	NA
Language	14–18%
Total	100%

Item and Form Development

The NCDPI has a test development contract with the Technical Outreach for Public Schools (TOPS) at North Carolina State University. TOPS adheres to the test development process adopted by SBE. After item writing, which is done by teachers across the state, this process is anchored by a series of item reviews by teachers, content experts (NCDPI curriculum staff, TOPS content staff, and external content experts), students with disabilities experts, ELL experts, item development experts, and item editors. This process has been the standard for North Carolina since it began developing assessments in the early 1990s; however, with the intent to continually improve (particularly alignment to the content standards), the NCDPI routinely reviews the process and makes adjustments.

The purpose of the process is to make certain the items are designed, developed, and classified to ensure the cognitive rigor of the operational test forms align to the cognitive complexity and demands of the content standards. In mathematics, these items will require students to not only recall information, but also apply concepts and skills and make decisions. In ELA, these items will require students to not only recall information, but also apply concepts and skills, make decisions, and explain or justify their thinking. As discussed previously, the inclusion of constructed-response, open-ended response, and technology-enhanced items has facilitated the ability of the assessments to assess students at a more complex level than multiple-choice items.

A critical piece of test development is the alignment of the tests to the content standards. Based on experiences with development of previous test editions, and particularly feedback on alignment studies, the NCDPI committed to reviewing the alignment process prior to beginning the test development process for Edition 4. The result was a re-designed alignment process to ensure inter-reviewer agreement. Briefly, the goal was confirmation of the item writer's designation of the content standard and the depth of knowledge by the NCDPI curriculum staff (who has the primary responsibility of ensuring the content standards) are fulfilled as intended, not only on the assessments, but also in the classroom. When there was non-agreement between the two, a reconciliation step was inserted to allow resolution. As this process was developed, the test development staff consulted with the North Carolina Technical Advisors for assurance of its validity.

Alignment Studies

To obtain external validation of the alignment of the assessments to the content standards, alignment studies are currently in the final stages of being planned for fall 2014. The NCDPI is finalizing a contract with the Wisconsin Center for Education Research to conduct the studies and to provide the results in late fall 2014. In addition to the studies, there will be a teacher survey of instructional delivery of the standards in spring 2015. The information from the alignment study and the teacher survey will be shared at a series of workshops for district staff in summer 2015. This model is best known as Surveys of the Enacted Curriculum and is useful in addressing the alignment of the standards, the assessments, and the instruction.

At the conclusion of item development, field tests were administered in 2011–12 for all content areas and for all grade levels/courses. The field tests were administered as stand-alone due to the vast differences in the newly adopted content standards. Though the current operational assessments had an embedded design, utilizing the embedded slots for the field test items potentially may have impacted student performance on the operational items. With stakes for

student performance, particularly the EOC tests which counted a minimum of 25 percent of the student’s final grade in a course, and the use of test results in teachers’ and principals’ evaluations, the decision was not to embed the field test items in the operational assessments.

Using the field test item-level data, operational assessments were built and administered in the 2012–13 school year. Table 6 displays the internal reliability estimates (coefficient alpha) and average proportion correct (difficulty) for all the assessments. The reliabilities range from 0.88 to 0.93. Mathematics tended to have the highest reliabilities. The reliabilities across forms and across modes of a test were highly consistent. The average proportion correct or *p*-value of an item is often used as measure of item difficulty in classical test theory. The difficulties in Table 6 range from 0.46 to 0.74, with the highest values (easiest items) at the lower grades. The average difficulty of the tests increases (*p*-value decreases) as grade level increases. This progression in difficulty reflects the increasing difficulty of the CCSS in mathematics and ELA.

Table 6. Internal Reliabilities (Coefficient Alpha) and Average Proportion Correct by Assessment by Form and by Mode

PAPER FORMS						
Grade	Form A Reliability	Form A Difficulty	Form B Reliability	Form B Difficulty	Form C Reliability	Form C Difficulty
ELA 3	0.91	0.71	0.92	0.74	0.91	0.74
ELA 4	0.89	0.71	0.9	0.72	0.88	0.73
ELA 5	0.9	0.69	0.88	0.7	0.89	0.69
ELA 6	0.89	0.68	0.91	0.69	0.89	0.69
ELA 7	0.89	0.69	0.9	0.68	0.89	0.68
ELA 8	0.88	0.64	0.88	0.64	0.88	0.64
English II	0.89	0.65	0.89	0.62	0.89	0.64
Math 3	0.91	0.64	0.92	0.64	0.91	0.62
Math 4	0.92	0.61	0.92	0.58	0.92	0.59
Math 5	0.91	0.56	0.92	0.58	0.91	0.57
Math 6	0.93	0.52	0.93	0.51	0.93	0.52
Math 7	0.93	0.5	0.93	0.5	0.93	0.5
Math 8	0.92	0.5	0.92	0.48	0.92	0.5
Math I	0.91	0.47	0.91	0.47	No Paper Form	
ONLINE FORMS						
	Form M Reliability	Form M Difficulty	Form N Reliability	Form N Difficulty	Form O Reliability	Form O Difficulty
English II	0.89	0.64	0.9	0.6	0.89	0.62
Math I	0.9	0.46	0.9	0.46	No Online Form	

Assessment Administration

State and federal laws require that all students participate in the statewide testing program. A local procedure must be established in the LEA to ensure all students participate in the standard administration of a North Carolina test and (2) if eligible, receive appropriate accommodation(s) during the administration of a North Carolina test.

Assessments were developed to assess all students: general assessments with or without accommodations, modified assessments with or without accommodations, and alternate assessments with or without accommodations. North Carolina policy requires all students to be assessed and for decisions on the use of an alternate assessment or accommodations to be documented in an Individualized Education Program (IEP), a Limited English Proficiency Plan, or a Section 504 Plan. The following sections address the alternate assessments and the requirements for students with disabilities and limited English proficient (LEP) students to ensure all students are assessed appropriately.

Alternate Assessments

The Individuals with Disabilities Education Act (IDEA) and the ESEA require students with disabilities to participate in alternate assessments if they do not participate in a general statewide test administration with or without accommodations. For a student with a disability to participate in a North Carolina alternate assessment, the student must meet the eligibility criteria established by the NCDPI, and the decision to participate in the alternate assessment must be documented in the current IEP. Students with only Section 504 Plans are not eligible to participate in alternate assessments.

IDEA mandates that all students with disabilities be provided access to the general curriculum. For students with the most significant cognitive disabilities, access is provided through the North Carolina Extended Content Standards for the CCSS for English Language Arts and Mathematics. The NCDPI developed the *NCEXTEND1* alternate assessment, which is based on extended content standards for mathematics and ELA, for students who are significantly cognitively disabled. These assessments consist of fifteen performance-based, multiple-choice items administered by a teacher to an individual student.

A modified assessment, *NCEXTEND2*, was developed for students who were on-grade level but had difficulty demonstrating proficiency on the general assessment with accommodations; however, this assessment was only administered for 2012–13 and 2013–14. Effective with the 2014–15 school year, *NCEXTEND2* is not available and students will participate in the general assessment most likely with accommodations.

Assessing Students with Disabilities

Standardized test procedures for students with disabilities require testing accommodations and corresponding administrative procedures be developed and implemented to ensure individual student needs are met, and at the same time maintain sufficient uniformity of the test administration to guarantee test validity and fulfill the requirements of testing for accountability. One of the functions of state tests is to generate information for the purpose of accountability. State tests are not designed to provide comprehensive diagnostic information at the individual student level. Among the accommodations students with disabilities may need are (a) special

print versions, (b) assistive technology devices/special test arrangements, and/or (c) a special test environment. A student may require the use of any number of these accommodations in order to obtain access to a given test. Accommodations designated for the tests should be consistent with the accommodations used routinely during classroom instruction and similar classroom assessments. It is vital for students with disabilities to receive accommodations on state-mandated tests that allow them to demonstrate their true abilities; however, students must not receive unnecessary, inappropriate, or unfamiliar accommodations.

For any state-mandated test, the accommodation must (1) be documented in the student's current IEP or Section 504 Plan and (2) the documentation must reflect routine use during instruction and similar classroom assessments that measure the same construct. If a student has inappropriately not received the accommodations documented on the IEP or Section 504 Plan during instruction, the student is still to receive the accommodations specified in the current IEP or Section 504 Plan for the state-mandated tests. However, the use of testing accommodations that were not routinely used during instruction or similar classroom assessments may constitute a misadministration and result in an invalid test score. If an accommodation is provided that has not been routinely used during instruction, student performance could be adversely affected since the student may not have been familiar with the accommodation(s) before testing. In such cases, a local investigation must be conducted to determine if the student was adversely affected by the provision of the accommodation, and to determine if a misadministration should be declared.

Accommodations that alter the content of the test, interfere with the measurement of the construct, or provide inappropriate assistance to the student within the context of the test, invalidate the results of the test. The NCDPI annually audits randomly selected schools to review the use of accommodations for students with disabilities.

There are some students with disabilities who are also identified as LEP. All testing accommodations for these students (including those related to the students' LEP needs) must be recorded in the students' IEPs or Section 504 Plans. The testing accommodations related to the LEP needs of these students should also be maintained in their LEP plans/documentation, along with the other pertinent information required within their plans. These students are required to participate in the state testing program. LEP students in their first year in U.S. schools scoring below Level 4.0 Expanding on the reading subtest of the WIDA ACCESS Placement Test (W-APT™) are not eligible to be assessed on the state mandated test of ELA (i.e., READY EOG English Language Arts/Reading assessment and READY EOC English II assessment). These students are required to participate in the administration of all other state-mandated tests.

Assessing Students Identified as Limited English Proficient (LEP)

Per State Board of Education policy GCS-C-021, all students identified as LEP must participate in the statewide testing program (i.e., standard test administration or standard test administration with accommodations) with the exception of students identified as LEP who score below Level 4.0 Expanding on the reading subtest of the W-APT and are in their first year in U.S. schools. These students are exempt from being assessed on the READY EOG English Language Arts/Reading assessment, the READY EOC English II assessment, or any associated alternate assessments that measure reading comprehension.

Per State Board of Education policy GCS-A-011, to be identified as LEP, students must be assessed using the W-APT at initial enrollment. Thereafter, all students identified as LEP must be annually assessed using the ACCESS for ELLs (the state-identified English language proficiency test) administered to satisfy ESEA Title III requirements during the state-designated testing window. If a student identified as LEP scores below Level 5.0 Bridging on the reading subtest of the W-APT/ACCESS for ELLs, the student is eligible to receive state-approved LEP testing accommodations on all state tests. If the LEP student scores Level 5.0 Bridging or above on the reading subtest of the W-APT/ACCESS for ELLs, or exits LEP identification, the student must participate in all state tests without accommodations.

The Alternate ACCESS for ELLs is an option for the administration of the ACCESS for ELLs test to eligible students in grades 1–12 who are classified as ELLs and have significant cognitive disabilities that prevent their meaningful participation in the ACCESS for ELLs assessment. The Alternate ACCESS for ELLs is designed for only a small population of ELLs who meet the following eligibility criteria:

- The student has a current IEP.
- The student participates in the general education curriculum through the Extended Content Standards.
- The student has a significant cognitive disability (i.e., exhibits severe and pervasive delays in ALL areas of conceptual, linguistic, and academic development and also in adaptive behavior areas, such as communication, daily living skills, and self-care).
- The student's prior year ACCESS for ELLs scores yielded NA across any and/or all domains or yielded a composite score of less than 2.0. If scores are 2.0 or above, the student does not qualify for the Alternate ACCESS for ELLs and must continue to take the regular ACCESS for ELLs.

Standard Setting

At the conclusion of the first administration in 2012–13, scores were not immediately provided to students for any assessment because it was necessary to conduct standard setting procedures to establish Academic Achievement Levels and Academic Level Descriptors (ALDs) and subsequently to present the standards to the SBE for approval.

At the conclusion of all test administrations, the NCDPI psychometricians conducted the appropriate data analysis in preparation for the standard setting process, which is the research-based method of determining the Achievement Level Standards (cut scores) and the Achievement Level Descriptors for each assessment. The cut scores define the required achievement for students to be identified as one of four achievement levels: Level 1, Level 2, Level 3, or Level 4; and the descriptors provide information on what students at each level know and are able to do. This information provides students, parents, teachers, principals, and other education administrators and policy leaders with data on the degree to which students have learned the content specified in the content standards and the extended content standards.

To ensure objectivity of the standard setting process, an external contractor was selected to facilitate the work with the teacher panels. Through a competitive bidding process, Pearson Educational Measurement was selected to conduct standard setting for the general assessments and the modified assessments, and Alpine Testing Solutions was selected for the extended content standards assessments. As specified in the Request for Proposals, Pearson committed to utilizing item mapping, a research-based standard setting methodology used previously for North Carolina assessments as well as for other states' assessments. Alpine committed to using the Extended Angoff method, also a research-based standard setting methodology best suited for the *NCEXTEND1* test structure which is different from the general and *NCEXTEND2* assessments.

North Carolina teachers (approximately 207) were selected to ensure representation of the assessed grade levels, the ethnic/geographic diversity of the state, students with disabilities, and ELLs. Additionally, for the EOC tests, college professors from the higher education community participated in the standard setting panels. Approximately twenty-two participants were chosen as Table Leaders and were given the additional responsibility of facilitating small group discussion and participating in an additional step, vertical articulation, at the end of the process.

The first task of the teacher panels was to review the standards for their content area and to draft the ALDs, the definition of what a student should know and be able to do for each of the four achievement levels (Level 1, Level 2, Level 3, and Level 4). Pearson and Alpine facilitated the discussions on the ALDs and stressed the linkage between the ALDs and the content standards, meaning the text in the ALDs must be supported by what is stated in the content standards. In order to anchor judgments on the cut scores, the standard setting participants also discussed and refined the definition of the “just barely” qualified student (i.e., the student just over the cut score threshold).

With the ALDs drafted, the teacher panelists then individually reviewed and responded to the items in the ordered item booklet, a sample of items presented from easiest to hardest and representative of the content standards assessed on the 2012–13 tests. For the general standards setting, the ordered item booklet (item mapping) was approximately twice the length of any one test form. The *NCEXTEND1* standard setting used the actual *NCEXTEND1* assessments

(extended Angoff) for the process. This activity provided the teacher panels with an understanding of the content of the assessments and affirmed alignment to the content standards. Having reviewed the content standards, drafted ALDs, “just barely” descriptors, and the ordered item booklets, the teacher panels completed the actual standard setting process.

In the item mapping process, the facilitators directed the teacher panelists to review the ordered item booklets and to determine which item would most likely be answered correctly by a just barely Level 2 student but not a Level 1 student. This was repeated to identify the item most likely answered by a just barely Level 3 student but not a Level 2 student and by a just barely Level 4 student but not a Level 3 student. In technical documentation of standard setting, this is referred to as “placing the cuts.” Each teacher panelist placed a cut, a mark in the ordered item booklet to identify the last item students at a specified achievement level would most likely answer correctly. This activity was done by each panelist independently three times, or three rounds. After all of the teacher panelists had placed their cuts for each round, the individual teacher cuts were shared with all of the panelists for discussion and reflection. The individual teacher cuts were reported anonymously to ensure teachers were comfortable placing their individual cuts as supported by their professional judgment and experience.

In the extended Angoff process, panelists are presented with the assessment just as students would see it and are asked to make item-level judgments. For each item, they are asked to imagine the “target student” and make their best judgment as to what score the student would likely achieve on each item (0 points, 1 point, 2 points). In this application, there were three groups of target students: the student that is barely level 2, the student that is barely level 3, and the student that is barely level 4.

By focusing on the transition points between the achievement levels (e.g., barely level 3 differentiates between levels 2 and 3), panelists demonstrate their expectations for students who represent the minimum level of knowledge and skills at each of the upper achievement levels. These expectations are then used to represent the minimum score required for each of the upper achievement levels (i.e., the cut scores).

For both the item mapping and the extended Angoff process, panelists recorded their judgments on specially designed rating forms which the facilitator collected and used to compute the panel-level statistics. Rating forms that included their individual recommended cut scores were returned to panelists. The facilitator also shared with the panelists the group median cut scores, the range of cut scores across the panel (including a graphical representation of the distribution), the estimated impact if the median cut scores were used (i.e., what percent of students would be classified at or above each achievement level), and the average item score from the spring 2013 administration year. In addition, the group discussed two items for each assessment—one that was generally easier for students and one that was more difficult—to help with the understanding of how to apply the ALDs to the rating task. After explaining this feedback, the facilitator instructed the panelists to review their first round of ratings and make any modifications they felt necessary in their second round of ratings.

The second round ratings were used to compute the final recommended cut scores for the *NCEXTENDI* assessments. However, in the item mapping process for the general assessments, a third round was held.

A major part of the standard setting process is the discussion that the contractor facilitates among the teacher panelists between each of the three rounds for general and two rounds for the *NCEXTENDI*. The teacher panelists were asked to discuss the placement of the cuts and how the items around the cuts reflected differences in what students should be able to do as specified in the ALDs. In these discussions, it was emphasized that standard setting is about what students **SHOULD** be able to do, not what they **CAN** do. This distinction is critical to setting standards for assessments and supports the content standards as the anchor for our expectations of students.

The discussion between rounds also included discussion of external impact data, specifically judgments of students' anticipated achievement levels, as indicated by their teachers during the 2012–13 test administrations. North Carolina teachers code this information on the students' answer documents, which is then scanned and collected by the NCDPI. Also, for grades 3–8, the NCDPI provided information from an analysis of North Carolina's administration of the ACT Explore (Grade 8) assessment and the implications of students being on track for college and career readiness.

At the conclusion of the judgment rounds, the teacher panelists were dismissed with the exception of the Table Leaders who remained for the final activity: vertical articulation. The discussion in vertical articulation centered on reasons a particular grade level may have either a dip or a sharp increase in student performance. The contractor's psychometrician facilitated this discussion, encouraging the Table Leaders to reflect on the teacher panelists' discussions. In this process, the cuts may be adjusted by the Table Leaders; however, the adjustment cannot exceed one standard deviation of the ratings provided by the larger group for general or below the lowest cut in the *NCEXTENDI* standard setting.

At the conclusion of vertical articulation, the contractors provided the standard setting data to the NCDPI psychometricians who then placed the values on the assessment scales. The summary of the standard setting results were prepared for presentation to the SBE for adoption. Prior to presentation to the SBE, the ALDs, cut scores, and the impact of the cut scores were presented to internal agency staff representing curriculum and instruction, exceptional children, and English as a Second Language (ESL). The NCDPI presented the recommended Academic Achievement Levels and ALDs to the SBE in September 2013, and both were adopted by the SBE in October 2013.

Reporting

After adopting college-and-career readiness Academic Achievement Standards and ALDs for the EOG and EOC tests and their alternate assessments at the October SBE meeting and after considering much input on the importance of having more definitive discrimination for student achievement reporting, the SBE adopted at its March 2014 meeting a methodology to add a new achievement level. With this additional achievement level, North Carolina will report five levels as follows:

Revised Achievement Level	Meets On-Grade-Level Proficiency Standard	Meets College-and-Career Readiness Standard
Level 5 denotes Superior Command of knowledge and skills	Yes	Yes
Level 4 denotes Solid Command of knowledge and skills	Yes	Yes
Level 3 denotes Sufficient Command of knowledge and skills	Yes	No
Level 2 denotes Partial Command of knowledge and skills	No	No
Level 1 denotes Limited Command of knowledge and skills	No	No

The new achievement Level 3 identifies students who are prepared for the next grade but do not meet the college-and-career readiness standard. Level 3 students have a sufficient command of grade-level knowledge and skills, but they may need academic support to engage successfully in this content area in the next grade level. They are prepared for the next grade level but are not yet on track for college-and-career readiness without additional academic support. This distinction assists schools in the delivery of differentiated instruction that best meets the needs of the individual student.

The new Level 3 minimum scale score was created by subtracting one conditional standard error of measurement (CSEM) from the original Level 3 scale score. The new Level 2 range of scores for many of the math assessments became too small relative to the CSEM to support reliable classification decisions. To improve classification consistency and vertical alignment across grades, a new Level 2 scale score was created for each math assessment by subtracting one CSEM from the prior scale score.

North Carolina will report the percent of students who meet the college-and-career readiness standard (Level 4 and above) and the percent of students who meet grade-level proficiency (Level 3 and above). The READY accountability reports and the NC Report Card will report both measures, emphasizing the importance of preparing students to be college-and-career ready.

The college-and-career readiness standard (Level 4 and above) will be used for the Annual Measureable Objectives (AMOs). AMOs were set in 2012–13 using the college-and-career readiness standard; therefore, targets will not be redefined.

Achievement level ranges and a complete list of achievement level descriptors are available by test at <http://www.ncpublicschools.org/accountability/testing/shared/achievelevel/>. Raw score ranges by achievement level are available by test at <http://www.ncpublicschools.org/accountability/testing/shared/achievelevel/>.

Conversion of Raw Scores

Scale scores are derived from a raw score or “number right” score for the test. Each test has a translation table that provides a scale score for each raw test score. Scale scores are advantageous in reporting because:

- scale scores are interchangeable across multiple forms of a test;
- scale scores can be used to compare the results of tests that measure the same content area but are composed of items presented in different formats; and
- scale scores adjust for small differences in form difficulty improving the equivalence and accuracy of scores.

Software developed at the L.L. Thurstone Psychometric Laboratory at the University of North Carolina at Chapel Hill converts raw scores (total number of items answered correctly) to scale scores using the IRT three parameter model (threshold, slope, and asymptote) for each item. The software implements the algorithm described by Thissen and Orlando (2001, pp. 119–130). Because multiple equivalent forms of each assessment are administered, unique score conversion tables are produced for each form of the assessment for each grade or subject area. For example, grade 3 has three EOG Assessment of Mathematics forms. Therefore, the scanning and reporting program developed and distributed by the NCDPI uses scale-score conversion tables, one for each equivalent form. Each scale score has a conditional standard error of measurement associated with it. The raw-to-scale score conversion tables are provided in Appendices A-C. Thissen, D., & Orlando, M. (2001). Item response theory for items scored in two categories. In D. Thissen & H. Wainer (Eds), *Test Scoring*. Hillsdale, NJ: Lawrence Erlbaum Associates. (Ch. 3)

Using Data for Measuring Growth

Using assessment data, the NCDPI provides growth information for teachers and administrators as part of the Educator Evaluation system. Teachers with EOG and EOC test scores receive a growth rating as one of six measures in the evaluation system. Principals' ratings are based on all assessments administered in the school including the EOG and EOC test scores. The growth data is reported in EVAAS, a value-added metric calculated by the SAS Institute.

To support the use of the EVAAS data, SAS provides educators with a Decision Dashboard, which is a consolidated report that combines the valuable information contained in the school value-added reports with the student grouping information from diagnostic reports. The Decision Dashboard enables teachers to see value-added and diagnostic growth measures for all grades and subjects on one page, and it allows teachers to see trends across grades and subjects for diagnostic groups.

Also available to educators are scatterplots, interactive graphs that allow teachers to visualize the impact of various progress metrics and the students who are served. For example, student achievement or growth can be compared to a variety of socioeconomic and demographic variables to ensure that all subgroups experience optimum educational outcomes. This feature allows users to drill down to detailed performance information at the district- and school-level, as well as zoom into any area within the scatterplot for further analysis. Teachers can customize the x and y axes by plotting state-, district-, or school-level metrics against a variety of other metrics including any of the following:

- Value-Added Measure
- Average Achievement
- Percent Proficient
- Percent Tested Economic Disadvantaged
- Percent Tested Limited English Proficiency
- Percent Tested Exceptional Children

Appendix A
Raw to Scale Score Conversion Tables
End-of-Grade (EOG) Assessments of English Language Arts/Reading

Raw to Scale Score Conversion Table
Grade 3 EOG Assessment of English Language Arts/Reading
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
3	A	0	406	5
3	A	1	407	5
3	A	2	408	5
3	A	3	409	5
3	A	4	410	5
3	A	5	411	5
3	A	6	412	5
3	A	7	413	5
3	A	8	414	5
3	A	9	415	5
3	A	10	416	5
3	A	11	418	5
3	A	12	419	4
3	A	13	420	4
3	A	14	421	4
3	A	15	423	4
3	A	16	424	4
3	A	17	425	4
3	A	18	426	3

3	A	19	427	3
3	A	20	428	3
3	A	21	429	3
3	A	22	430	3
3	A	23	431	3
3	A	24	432	3
3	A	25	433	3
3	A	26	434	3
3	A	27	434	3
3	A	28	435	3
3	A	29	436	3
3	A	30	437	3
3	A	31	438	3
3	A	32	439	3
3	A	33	440	3
3	A	34	442	3
3	A	35	443	3
3	A	36	444	3
3	A	37	445	3
3	A	38	447	3
3	A	39	448	4
3	A	40	450	4
3	A	41	452	4
3	A	42	455	5

3	A	43	458	5
3	A	44	462	6

Raw to Scale Score Conversion Table
Grade 3 End-of-Grade Assessment of English Language Arts/Reading
Form B

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
3	B	0	406	5
3	B	1	407	5
3	B	2	407	5
3	B	3	408	5
3	B	4	409	5
3	B	5	410	5
3	B	6	411	5
3	B	7	412	5
3	B	8	413	5
3	B	9	415	5
3	B	10	416	5
3	B	11	417	4
3	B	12	418	4
3	B	13	419	4
3	B	14	421	4
3	B	15	422	4
3	B	16	423	3
3	B	17	424	3

3	B	18	425	3
3	B	19	426	3
3	B	20	427	3
3	B	21	428	3
3	B	22	428	3
3	B	23	429	3
3	B	24	430	3
3	B	25	431	3
3	B	26	432	3
3	B	27	433	3
3	B	28	434	3
3	B	29	435	3
3	B	30	436	3
3	B	31	437	3
3	B	32	438	3
3	B	33	439	3
3	B	34	440	3
3	B	35	441	3
3	B	36	442	3
3	B	37	444	3
3	B	38	445	4
3	B	39	447	4
3	B	40	449	4
3	B	41	451	4

3	B	42	454	5
3	B	43	457	6
3	B	44	461	6

**Raw to Scale Score Conversion Table
Grade 3 End-of-Grade Assessment of English Language Arts/Reading
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
3	C	0	406	5
3	C	1	406	5
3	C	2	407	5
3	C	3	408	5
3	C	4	409	5
3	C	5	410	5
3	C	6	411	5
3	C	7	412	5
3	C	8	413	5
3	C	9	414	5
3	C	10	415	4
3	C	11	417	4
3	C	12	418	4
3	C	13	419	4
3	C	14	420	4
3	C	15	421	4
3	C	16	422	3

3	C	17	423	3
3	C	18	424	3
3	C	19	425	3
3	C	20	426	3
3	C	21	427	3
3	C	22	428	3
3	C	23	429	3
3	C	24	430	3
3	C	25	431	3
3	C	26	432	3
3	C	27	433	3
3	C	28	434	3
3	C	29	435	3
3	C	30	436	3
3	C	31	437	3
3	C	32	438	3
3	C	33	439	3
3	C	34	440	3
3	C	35	441	3
3	C	36	442	3
3	C	37	444	3
3	C	38	445	3
3	C	39	447	4
3	C	40	449	4

3	C	41	451	4
3	C	42	454	5
3	C	43	457	5
3	C	44	461	6

Raw to Scale Score Conversion Table
Grade 4 End-of-Grade Assessment of English Language Arts/Reading
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
4	A	0	412	5
4	A	1	413	5
4	A	2	414	5
4	A	3	415	5
4	A	4	416	5
4	A	5	417	5
4	A	6	418	5
4	A	7	419	5
4	A	8	420	5
4	A	9	421	5
4	A	10	422	5
4	A	11	423	4
4	A	12	425	4
4	A	13	426	4
4	A	14	427	4
4	A	15	428	4
4	A	16	429	4
4	A	17	430	4
4	A	18	431	3
4	A	19	432	3
4	A	20	434	3

4	A	21	435	3
4	A	22	436	3
4	A	23	437	3
4	A	24	438	3
4	A	25	439	3
4	A	26	440	3
4	A	27	441	3
4	A	28	442	3
4	A	29	443	3
4	A	30	444	3
4	A	31	445	3
4	A	32	446	3
4	A	33	447	3
4	A	34	448	3
4	A	35	450	3
4	A	36	451	3
4	A	37	452	4
4	A	38	454	4
4	A	39	456	4
4	A	40	458	4
4	A	41	460	4
4	A	42	462	5
4	A	43	465	5
4	A	44	468	6

Raw to Scale Score Conversion Table
Grade 4 End-of-Grade Assessment of English Language Arts/Reading
Form B

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
4	B	0	412	5
4	B	1	413	5
4	B	2	414	5
4	B	3	415	5
4	B	4	416	5
4	B	5	417	5
4	B	6	418	5
4	B	7	419	5
4	B	8	420	5
4	B	9	421	5
4	B	10	422	5
4	B	11	423	5
4	B	12	424	4
4	B	13	426	4
4	B	14	427	4
4	B	15	428	4
4	B	16	429	4
4	B	17	430	4
4	B	18	431	4
4	B	19	432	3
4	B	20	433	3

4	B	21	434	3
4	B	22	435	3
4	B	23	436	3
4	B	24	437	3
4	B	25	438	3
4	B	26	439	3
4	B	27	440	3
4	B	28	441	3
4	B	29	442	3
4	B	30	443	3
4	B	31	444	3
4	B	32	445	3
4	B	33	446	3
4	B	34	447	3
4	B	35	449	3
4	B	36	450	3
4	B	37	451	4
4	B	38	453	4
4	B	39	455	4
4	B	40	457	4
4	B	41	459	5
4	B	42	461	5
4	B	43	464	6
4	B	44	468	6

Raw to Scale Score Conversion Table
Grade 4 End-of-Grade Assessment of English Language Arts/Reading
Form C

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
4	C	0	412	5
4	C	1	412	5
4	C	2	413	5
4	C	3	414	5
4	C	4	415	5
4	C	5	415	5
4	C	6	416	5
4	C	7	417	5
4	C	8	419	5
4	C	9	420	5
4	C	10	421	5
4	C	11	422	4
4	C	12	423	4
4	C	13	424	4
4	C	14	426	4
4	C	15	427	4
4	C	16	428	4
4	C	17	429	4
4	C	18	430	4
4	C	19	431	4
4	C	20	432	3

4	C	21	433	3
4	C	22	434	3
4	C	23	435	3
4	C	24	436	3
4	C	25	437	3
4	C	26	438	3
4	C	27	439	3
4	C	28	441	3
4	C	29	442	3
4	C	30	443	3
4	C	31	444	3
4	C	32	445	3
4	C	33	446	3
4	C	34	448	4
4	C	35	449	4
4	C	36	451	4
4	C	37	452	4
4	C	38	454	4
4	C	39	456	4
4	C	40	458	5
4	C	41	461	5
4	C	42	464	5
4	C	43	468	6

Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of English Language Arts/Reading
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	A	0	419	5
5	A	1	420	5
5	A	2	421	5
5	A	3	421	5
5	A	4	422	5
5	A	5	423	5
5	A	6	424	5
5	A	7	425	5
5	A	8	426	5
5	A	9	427	5
5	A	10	428	4
5	A	11	430	4
5	A	12	431	4
5	A	13	432	4
5	A	14	433	4
5	A	15	434	4
5	A	16	435	3
5	A	17	436	3
5	A	18	437	3
5	A	19	438	3
5	A	20	439	3

5	A	21	440	3
5	A	22	441	3
5	A	23	442	3
5	A	24	443	3
5	A	25	444	3
5	A	26	445	3
5	A	27	446	3
5	A	28	447	3
5	A	29	448	3
5	A	30	449	3
5	A	31	450	3
5	A	32	451	3
5	A	33	452	3
5	A	34	453	3
5	A	35	454	3
5	A	36	456	3
5	A	37	457	3
5	A	38	459	4
5	A	39	460	4
5	A	40	462	4
5	A	41	464	4
5	A	42	467	5
5	A	43	469	5
5	A	44	472	6

Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of English Language Arts/Reading
Form B

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	B	0	419	5
5	B	1	419	5
5	B	2	420	5
5	B	3	421	5
5	B	4	421	5
5	B	5	422	5
5	B	6	423	5
5	B	7	424	5
5	B	8	425	5
5	B	9	426	5
5	B	10	427	5
5	B	11	428	5
5	B	12	429	5
5	B	13	430	4
5	B	14	432	4
5	B	15	433	4
5	B	16	434	4
5	B	17	435	4
5	B	18	436	4
5	B	19	437	4
5	B	20	438	3

5	B	21	439	3
5	B	22	440	3
5	B	23	441	3
5	B	24	442	3
5	B	25	443	3
5	B	26	444	3
5	B	27	446	3
5	B	28	447	3
5	B	29	448	3
5	B	30	449	3
5	B	31	450	3
5	B	32	451	3
5	B	33	452	3
5	B	34	453	3
5	B	35	455	3
5	B	36	456	4
5	B	37	458	4
5	B	38	460	4
5	B	39	461	4
5	B	40	464	5
5	B	41	466	5
5	B	42	469	5
5	B	43	472	6

Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of English Language Arts/Reading
Form C

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	C	0	418	5
5	C	1	419	5
5	C	2	420	5
5	C	3	420	5
5	C	4	421	5
5	C	5	422	5
5	C	6	423	5
5	C	7	424	5
5	C	8	425	5
5	C	9	426	4
5	C	10	427	4
5	C	11	429	4
5	C	12	430	4
5	C	13	431	4
5	C	14	432	4
5	C	15	433	4
5	C	16	434	3
5	C	17	435	3
5	C	18	436	3
5	C	19	437	3
5	C	20	438	3

5	C	21	439	3
5	C	22	440	3
5	C	23	441	3
5	C	24	442	3
5	C	25	443	3
5	C	26	444	3
5	C	27	445	3
5	C	28	446	3
5	C	29	447	3
5	C	30	448	3
5	C	31	449	3
5	C	32	451	3
5	C	33	452	3
5	C	34	453	3
5	C	35	454	3
5	C	36	456	3
5	C	37	457	3
5	C	38	459	4
5	C	39	460	4
5	C	40	462	4
5	C	41	464	4
5	C	42	467	5
5	C	43	469	5
5	C	44	473	6

Raw to Scale Score Conversion Table
Grade 6 End-of-Grade Assessment of English Language Arts/Reading
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
6	A	0	418	6
6	A	1	418	6
6	A	2	419	6
6	A	3	420	6
6	A	4	421	6
6	A	5	422	6
6	A	6	423	6
6	A	7	424	6
6	A	8	425	5
6	A	9	426	5
6	A	10	427	5
6	A	11	428	5
6	A	12	429	5
6	A	13	431	5
6	A	14	432	5
6	A	15	433	5
6	A	16	434	4
6	A	17	435	4
6	A	18	437	4
6	A	19	438	4
6	A	20	439	4

6	A	21	440	4
6	A	22	441	4
6	A	23	442	4
6	A	24	443	3
6	A	25	444	3
6	A	26	445	3
6	A	27	446	3
6	A	28	447	3
6	A	29	448	3
6	A	30	449	3
6	A	31	450	3
6	A	32	451	3
6	A	33	452	3
6	A	34	453	3
6	A	35	454	3
6	A	36	455	3
6	A	37	457	3
6	A	38	458	4
6	A	39	459	4
6	A	40	461	4
6	A	41	462	4
6	A	42	464	4
6	A	43	466	4
6	A	44	468	4

6	A	45	470	5
6	A	46	472	5
6	A	47	475	6
6	A	48	478	6

**Raw to Scale Score Conversion Table
Grade 6 End-of-Grade Assessment of English Language Arts/Reading
Form B**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
6	B	0	419	5
6	B	1	420	5
6	B	2	421	5
6	B	3	421	5
6	B	4	422	5
6	B	5	423	5
6	B	6	424	5
6	B	7	425	5
6	B	8	426	5
6	B	9	427	5
6	B	10	428	5
6	B	11	429	5
6	B	12	430	5
6	B	13	431	5
6	B	14	432	5
6	B	15	433	5

6	B	16	434	4
6	B	17	436	4
6	B	18	437	4
6	B	19	438	4
6	B	20	439	4
6	B	21	440	4
6	B	22	441	3
6	B	23	442	3
6	B	24	443	3
6	B	25	444	3
6	B	26	445	3
6	B	27	446	3
6	B	28	447	3
6	B	29	448	3
6	B	30	449	3
6	B	31	449	3
6	B	32	450	3
6	B	33	451	3
6	B	34	452	3
6	B	35	453	3
6	B	36	455	3
6	B	37	456	3
6	B	38	457	3
6	B	39	458	3

6	B	40	459	3
6	B	41	461	4
6	B	42	462	4
6	B	43	464	4
6	B	44	466	4
6	B	45	468	5
6	B	46	471	5
6	B	47	474	6
6	B	48	478	6

**Raw to Scale Score Conversion Table
Grade 6 End-of-Grade Assessment of English Language Arts/Reading
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
6	C	0	416	5
6	C	1	417	5
6	C	2	418	6
6	C	3	419	6
6	C	4	420	5
6	C	5	421	5
6	C	6	422	5
6	C	7	423	5
6	C	8	424	5
6	C	9	425	5
6	C	10	426	5

6	C	11	428	5
6	C	12	429	5
6	C	13	430	5
6	C	14	431	5
6	C	15	433	4
6	C	16	434	4
6	C	17	435	4
6	C	18	436	4
6	C	19	437	4
6	C	20	438	4
6	C	21	439	4
6	C	22	440	4
6	C	23	441	3
6	C	24	442	3
6	C	25	443	3
6	C	26	444	3
6	C	27	445	3
6	C	28	446	3
6	C	29	447	3
6	C	30	448	3
6	C	31	449	3
6	C	32	450	3
6	C	33	451	3
6	C	34	453	3

6	C	35	454	3
6	C	36	455	3
6	C	37	456	3
6	C	38	457	4
6	C	39	459	4
6	C	40	460	4
6	C	41	462	4
6	C	42	463	4
6	C	43	465	4
6	C	44	467	5
6	C	45	469	5
6	C	46	472	5
6	C	47	475	6
6	C	48	478	6

Raw to Scale Score Conversion Table
Grade 7 End-of-Grade Assessment of English Language Arts/Reading
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
7	A	0	419	6
7	A	1	420	6
7	A	2	421	6
7	A	3	422	6
7	A	4	422	6
7	A	5	423	5
7	A	6	424	5
7	A	7	426	5
7	A	8	427	5
7	A	9	428	5
7	A	10	429	5
7	A	11	430	5
7	A	12	432	5
7	A	13	433	5
7	A	14	434	5
7	A	15	435	4
7	A	16	436	4
7	A	17	438	4
7	A	18	439	4
7	A	19	440	4
7	A	20	441	4

7	A	21	442	4
7	A	22	443	4
7	A	23	444	4
7	A	24	445	4
7	A	25	446	3
7	A	26	447	3
7	A	27	448	3
7	A	28	449	3
7	A	29	450	3
7	A	30	451	3
7	A	31	453	3
7	A	32	454	3
7	A	33	455	3
7	A	34	456	3
7	A	35	457	4
7	A	36	458	4
7	A	37	460	4
7	A	38	461	4
7	A	39	462	4
7	A	40	464	4
7	A	41	465	4
7	A	42	467	4
7	A	43	469	5
7	A	44	471	5

7	A	45	474	5
7	A	46	476	6
7	A	47	479	6
7	A	48	482	6

Raw to Scale Score Conversion Table
Grade 7 End-of-Grade Assessment of English Language Arts/Reading
Form B

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
7	B	0	420	6
7	B	1	421	6
7	B	2	422	6
7	B	3	423	6
7	B	4	424	6
7	B	5	425	6
7	B	6	426	6
7	B	7	427	5
7	B	8	428	5
7	B	9	429	5
7	B	10	430	5
7	B	11	431	5
7	B	12	432	5
7	B	13	433	5
7	B	14	435	5
7	B	15	436	5

7	B	16	437	4
7	B	17	438	4
7	B	18	439	4
7	B	19	440	4
7	B	20	442	4
7	B	21	443	4
7	B	22	444	4
7	B	23	445	3
7	B	24	446	3
7	B	25	447	3
7	B	26	448	3
7	B	27	449	3
7	B	28	450	3
7	B	29	451	3
7	B	30	452	3
7	B	31	453	3
7	B	32	454	3
7	B	33	455	3
7	B	34	456	3
7	B	35	457	3
7	B	36	459	3
7	B	37	460	3
7	B	38	461	4
7	B	39	463	4

7	B	40	464	4
7	B	41	466	4
7	B	42	467	4
7	B	43	469	4
7	B	44	471	5
7	B	45	473	5
7	B	46	476	5
7	B	47	479	6
7	B	48	482	6

Raw to Scale Score Conversion Table
Grade 7 End-of-Grade Assessment of English Language Arts/Reading
Form C

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
7	C	0	421	5
7	C	1	421	5
7	C	2	422	5
7	C	3	423	5
7	C	4	424	5
7	C	5	425	5
7	C	6	425	5
7	C	7	426	5
7	C	8	427	5
7	C	9	429	5
7	C	10	430	5

7	C	11	431	5
7	C	12	432	5
7	C	13	433	5
7	C	14	435	5
7	C	15	436	4
7	C	16	437	4
7	C	17	438	4
7	C	18	439	4
7	C	19	440	4
7	C	20	442	4
7	C	21	443	4
7	C	22	444	4
7	C	23	445	4
7	C	24	446	4
7	C	25	447	3
7	C	26	448	3
7	C	27	449	3
7	C	28	450	3
7	C	29	451	3
7	C	30	452	3
7	C	31	453	3
7	C	32	454	3
7	C	33	455	3
7	C	34	457	3

7	C	35	458	3
7	C	36	459	3
7	C	37	460	4
7	C	38	462	4
7	C	39	463	4
7	C	40	465	4
7	C	41	466	4
7	C	42	468	4
7	C	43	470	4
7	C	44	472	5
7	C	45	474	5
7	C	46	477	5
7	C	47	480	6
7	C	48	483	6

Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of English Language Arts/Reading
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	A	0	422	6
8	A	1	423	6
8	A	2	424	6
8	A	3	425	6
8	A	4	426	6
8	A	5	427	6
8	A	6	428	6
8	A	7	430	6
8	A	8	431	6
8	A	9	432	6
8	A	10	433	6
8	A	11	435	5
8	A	12	436	5
8	A	13	437	5
8	A	14	439	5
8	A	15	440	5
8	A	16	441	5
8	A	17	442	5
8	A	18	444	4
8	A	19	445	4
8	A	20	446	4

8	A	21	447	4
8	A	22	448	4
8	A	23	449	4
8	A	24	451	4
8	A	25	452	4
8	A	26	453	4
8	A	27	454	4
8	A	28	455	4
8	A	29	456	4
8	A	30	457	4
8	A	31	458	4
8	A	32	459	4
8	A	33	461	4
8	A	34	462	4
8	A	35	463	4
8	A	36	464	4
8	A	37	466	4
8	A	38	467	4
8	A	39	469	4
8	A	40	470	4
8	A	41	472	4
8	A	42	474	5
8	A	43	476	5
8	A	44	478	5

8	A	45	480	5
8	A	46	483	6
8	A	47	487	6

Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of English Language Arts/Reading
Form B

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	B	0	422	6
8	B	1	423	6
8	B	2	424	6
8	B	3	425	6
8	B	4	426	6
8	B	5	427	6
8	B	6	428	6
8	B	7	429	6
8	B	8	430	6
8	B	9	432	5
8	B	10	433	5
8	B	11	434	5
8	B	12	436	5
8	B	13	437	5
8	B	14	438	5
8	B	15	440	5
8	B	16	441	5

8	B	17	442	4
8	B	18	443	4
8	B	19	445	4
8	B	20	446	4
8	B	21	447	4
8	B	22	448	4
8	B	23	449	4
8	B	24	450	4
8	B	25	452	4
8	B	26	453	4
8	B	27	454	4
8	B	28	455	4
8	B	29	456	4
8	B	30	457	4
8	B	31	458	4
8	B	32	460	4
8	B	33	461	4
8	B	34	462	4
8	B	35	463	4
8	B	36	464	4
8	B	37	466	4
8	B	38	467	4
8	B	39	469	4
8	B	40	470	4

8	B	41	472	4
8	B	42	473	4
8	B	43	475	5
8	B	44	477	5
8	B	45	480	5
8	B	46	482	6
8	B	47	485	6
8	B	48	488	6

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of English Language Arts/Reading
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	C	0	423	6
8	C	1	424	6
8	C	2	424	6
8	C	3	425	6
8	C	4	426	6
8	C	5	427	6
8	C	6	428	6
8	C	7	429	6
8	C	8	431	6
8	C	9	432	6
8	C	10	433	6
8	C	11	434	6

8	C	12	436	6
8	C	13	437	6
8	C	14	438	5
8	C	15	440	5
8	C	16	441	5
8	C	17	442	5
8	C	18	443	5
8	C	19	445	5
8	C	20	446	4
8	C	21	447	4
8	C	22	448	4
8	C	23	450	4
8	C	24	451	4
8	C	25	452	4
8	C	26	453	4
8	C	27	454	4
8	C	28	455	4
8	C	29	456	4
8	C	30	457	4
8	C	31	458	4
8	C	32	460	4
8	C	33	461	3
8	C	34	462	4
8	C	35	463	4

8	C	36	464	4
8	C	37	465	4
8	C	38	467	4
8	C	39	468	4
8	C	40	470	4
8	C	41	471	4
8	C	42	473	4
8	C	43	475	4
8	C	44	476	5
8	C	45	479	5
8	C	46	481	5
8	C	47	484	6
8	C	48	487	6

Appendix B
Raw to Scale Score Conversion Tables
End-of-Grade (EOG) Assessments of Mathematics

Raw to Scale Score Conversion Table
Grade 3 End-of-Grade Assessment of Mathematics
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
3	A	0	422	5
3	A	1	422	5
3	A	2	423	5
3	A	3	424	5
3	A	4	425	5
3	A	5	426	5
3	A	6	426	5
3	A	7	428	5
3	A	8	429	5
3	A	9	430	5
3	A	10	431	5
3	A	11	432	5
3	A	12	433	4
3	A	13	435	4
3	A	14	436	4
3	A	15	437	4
3	A	16	438	4
3	A	17	439	3
3	A	18	440	3

3	A	19	441	3
3	A	20	442	3
3	A	21	443	3
3	A	22	444	3
3	A	23	445	3
3	A	24	446	3
3	A	25	447	3
3	A	26	448	3
3	A	27	449	3
3	A	28	449	3
3	A	29	450	3
3	A	30	451	3
3	A	31	452	3
3	A	32	453	3
3	A	33	454	3
3	A	34	455	3
3	A	35	456	3
3	A	36	457	3
3	A	37	458	3
3	A	38	459	3
3	A	39	461	3
3	A	40	462	3
3	A	41	464	4
3	A	42	466	4

3	A	43	469	4
3	A	44	472	5

**Raw to Scale Score Conversion Table
Grade 3 End-of-Grade Assessment of Mathematics
Form B**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
3	B	0	421	5
3	B	1	422	5
3	B	2	422	5
3	B	3	423	5
3	B	4	424	5
3	B	5	425	5
3	B	6	426	5
3	B	7	428	5
3	B	8	429	5
3	B	9	430	5
3	B	10	431	5
3	B	11	432	5
3	B	12	434	4
3	B	13	435	4
3	B	14	436	4
3	B	15	437	4
3	B	16	438	4
3	B	17	439	3

3	B	18	440	3
3	B	19	441	3
3	B	20	442	3
3	B	21	443	3
3	B	22	444	3
3	B	23	445	3
3	B	24	446	3
3	B	25	447	3
3	B	26	448	3
3	B	27	449	2
3	B	28	449	2
3	B	29	450	2
3	B	30	451	2
3	B	31	452	2
3	B	32	453	2
3	B	33	454	2
3	B	34	455	3
3	B	35	456	3
3	B	36	457	3
3	B	37	458	3
3	B	38	459	3
3	B	39	460	3
3	B	40	462	3
3	B	41	464	4

3	B	42	466	4
3	B	43	469	4
3	B	44	472	5

**Raw to Scale Score Conversion Table
Grade 3 End-of-Grade Assessment of Mathematics
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
3	C	0	422	5
3	C	1	422	5
3	C	2	423	5
3	C	3	424	5
3	C	4	425	5
3	C	5	426	5
3	C	6	427	5
3	C	7	428	5
3	C	8	429	5
3	C	9	430	5
3	C	10	431	5
3	C	11	433	5
3	C	12	434	5
3	C	13	435	4
3	C	14	436	4
3	C	15	438	4
3	C	16	439	4

3	C	17	440	4
3	C	18	441	3
3	C	19	442	3
3	C	20	443	3
3	C	21	444	3
3	C	22	445	3
3	C	23	446	3
3	C	24	447	3
3	C	25	448	3
3	C	26	449	3
3	C	27	449	3
3	C	28	450	3
3	C	29	451	3
3	C	30	452	3
3	C	31	453	3
3	C	32	454	3
3	C	33	455	3
3	C	34	456	3
3	C	35	457	3
3	C	36	458	3
3	C	37	459	3
3	C	38	460	3
3	C	39	462	3
3	C	40	463	3

3	C	41	465	4
3	C	42	467	4
3	C	43	470	4
3	C	44	473	5

**Raw to Scale Score Conversion Table
Grade 4 End-of-Grade Assessment of Mathematics
Form A**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
4	A	0	424	5
4	A	1	424	5
4	A	2	425	5
4	A	3	426	5
4	A	4	427	5
4	A	5	428	5
4	A	6	429	5
4	A	7	430	5
4	A	8	431	5
4	A	9	432	5
4	A	10	433	5
4	A	11	435	4
4	A	12	436	4
4	A	13	437	4
4	A	14	438	4
4	A	15	439	3
4	A	16	440	3
4	A	17	441	3
4	A	18	442	3
4	A	19	443	3
4	A	20	444	3

4	A	21	445	3
4	A	22	446	3
4	A	23	447	2
4	A	24	447	2
4	A	25	448	2
4	A	26	449	2
4	A	27	450	2
4	A	28	451	2
4	A	29	452	2
4	A	30	452	2
4	A	31	453	2
4	A	32	454	2
4	A	33	455	2
4	A	34	456	3
4	A	35	457	3
4	A	36	458	3
4	A	37	459	3
4	A	38	460	3
4	A	39	462	3
4	A	40	463	3
4	A	41	465	4
4	A	42	467	4
4	A	43	470	5
4	A	44	473	5

**Raw to Scale Score Conversion Table
Grade 4 End-of-Grade Assessment of Mathematics
Form B**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
4	B	0	424	5
4	B	1	425	5
4	B	2	426	5
4	B	3	426	5
4	B	4	427	5
4	B	5	428	5
4	B	6	429	5
4	B	7	430	5
4	B	8	432	5
4	B	9	433	5
4	B	10	434	5
4	B	11	435	4
4	B	12	437	4
4	B	13	438	4
4	B	14	439	4
4	B	15	440	4
4	B	16	441	3
4	B	17	442	3
4	B	18	443	3
4	B	19	444	3
4	B	20	445	3

4	B	21	446	3
4	B	22	447	3
4	B	23	448	3
4	B	24	449	3
4	B	25	449	3
4	B	26	450	2
4	B	27	451	2
4	B	28	452	2
4	B	29	453	2
4	B	30	454	2
4	B	31	455	2
4	B	32	455	2
4	B	33	456	2
4	B	34	457	3
4	B	35	458	3
4	B	36	459	3
4	B	37	461	3
4	B	38	462	3
4	B	39	463	3
4	B	40	465	3
4	B	41	467	4
4	B	42	469	4
4	B	43	472	5
4	B	44	475	5

**Raw to Scale Score Conversion Table
Grade 4 End-of-Grade Assessment of Mathematics
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
4	C	0	425	5
4	C	1	425	5
4	C	2	426	5
4	C	3	427	5
4	C	4	427	5
4	C	5	428	5
4	C	6	429	5
4	C	7	430	5
4	C	8	431	5
4	C	9	433	5
4	C	10	434	5
4	C	11	435	5
4	C	12	436	4
4	C	13	437	4
4	C	14	439	4
4	C	15	440	4
4	C	16	441	3
4	C	17	442	3
4	C	18	443	3
4	C	19	444	3
4	C	20	445	3

4	C	21	446	3
4	C	22	446	3
4	C	23	447	3
4	C	24	448	2
4	C	25	449	2
4	C	26	450	2
4	C	27	451	2
4	C	28	451	2
4	C	29	452	2
4	C	30	453	2
4	C	31	454	2
4	C	32	455	2
4	C	33	456	2
4	C	34	456	2
4	C	35	457	3
4	C	36	458	3
4	C	37	460	3
4	C	38	461	3
4	C	39	462	3
4	C	40	464	3
4	C	41	465	3
4	C	42	467	4
4	C	43	470	4
4	C	44	473	5

Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Mathematics
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	A	0	426	5
5	A	1	426	5
5	A	2	427	5
5	A	3	428	5
5	A	4	428	5
5	A	5	429	5
5	A	6	430	5
5	A	7	431	5
5	A	8	432	5
5	A	9	433	5
5	A	10	435	5
5	A	11	436	5
5	A	12	437	5
5	A	13	438	4
5	A	14	440	4
5	A	15	441	4
5	A	16	442	4
5	A	17	443	3
5	A	18	444	3
5	A	19	445	3
5	A	20	446	3

5	A	21	447	3
5	A	22	448	3
5	A	23	449	3
5	A	24	450	3
5	A	25	451	2
5	A	26	451	2
5	A	27	452	2
5	A	28	453	2
5	A	29	454	2
5	A	30	455	2
5	A	31	455	2
5	A	32	456	2
5	A	33	457	2
5	A	34	458	2
5	A	35	459	2
5	A	36	460	3
5	A	37	461	3
5	A	38	462	3
5	A	39	464	3
5	A	40	465	3
5	A	41	467	3
5	A	42	469	4
5	A	43	471	4
5	A	44	475	5

**Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Mathematics
Form B**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	B	0	424	5
5	B	1	425	5
5	B	2	426	5
5	B	3	426	5
5	B	4	427	5
5	B	5	428	5
5	B	6	429	5
5	B	7	430	5
5	B	8	431	5
5	B	9	433	5
5	B	10	434	5
5	B	11	435	5
5	B	12	436	4
5	B	13	438	4
5	B	14	439	4
5	B	15	440	4
5	B	16	441	4
5	B	17	442	3
5	B	18	443	3
5	B	19	444	3
5	B	20	445	3

5	B	21	446	3
5	B	22	447	3
5	B	23	448	3
5	B	24	449	3
5	B	25	450	3
5	B	26	451	2
5	B	27	451	2
5	B	28	452	2
5	B	29	453	2
5	B	30	454	2
5	B	31	455	2
5	B	32	456	2
5	B	33	456	2
5	B	34	457	2
5	B	35	458	2
5	B	36	459	3
5	B	37	460	3
5	B	38	462	3
5	B	39	463	3
5	B	40	464	3
5	B	41	466	3
5	B	42	468	4
5	B	43	470	4
5	B	44	474	5

Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Mathematics
Form C

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	C	0	424	5
5	C	1	425	5
5	C	2	426	5
5	C	3	426	5
5	C	4	427	5
5	C	5	428	5
5	C	6	429	5
5	C	7	430	5
5	C	8	432	5
5	C	9	433	5
5	C	10	434	5
5	C	11	435	5
5	C	12	436	5
5	C	13	438	4
5	C	14	439	4
5	C	15	440	4
5	C	16	441	4
5	C	17	443	3
5	C	18	444	3
5	C	19	445	3
5	C	20	446	3

5	C	21	447	3
5	C	22	447	3
5	C	23	448	3
5	C	24	449	3
5	C	25	450	3
5	C	26	451	2
5	C	27	452	2
5	C	28	453	2
5	C	29	453	2
5	C	30	454	2
5	C	31	455	2
5	C	32	456	2
5	C	33	457	2
5	C	34	458	2
5	C	35	459	2
5	C	36	460	3
5	C	37	461	3
5	C	38	462	3
5	C	39	463	3
5	C	40	465	3
5	C	41	466	3
5	C	42	468	4
5	C	43	471	4
5	C	44	474	5

Raw to Scale Score Conversion Table
Grade 6 End-of-Grade Assessment of Mathematics
Form A

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
6	A	0	428	5
6	A	1	429	5
6	A	2	429	5
6	A	3	430	5
6	A	4	430	5
6	A	5	431	5
6	A	6	432	5
6	A	7	433	5
6	A	8	433	5
6	A	9	434	5
6	A	10	435	5
6	A	11	437	5
6	A	12	438	5
6	A	13	439	5
6	A	14	440	4
6	A	15	441	4
6	A	16	442	4
6	A	17	443	3
6	A	18	444	3
6	A	19	445	3
6	A	20	446	3

6	A	21	447	3
6	A	22	448	3
6	A	23	449	2
6	A	24	449	2
6	A	25	450	2
6	A	26	451	2
6	A	27	451	2
6	A	28	452	2
6	A	29	453	2
6	A	30	453	2
6	A	31	454	2
6	A	32	455	2
6	A	33	455	2
6	A	34	456	2
6	A	35	457	2
6	A	36	457	2
6	A	37	458	2
6	A	38	459	2
6	A	39	460	2
6	A	40	460	2
6	A	41	461	2
6	A	42	462	2
6	A	43	463	2
6	A	44	464	3

6	A	45	465	3
6	A	46	467	3
6	A	47	468	3
6	A	48	470	4
6	A	49	472	4
6	A	50	476	5

**Raw to Scale Score Conversion Table
Grade 6 End-of-Grade Assessment of Mathematics
Form B**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
6	B	0	427	5
6	B	1	428	5
6	B	2	429	5
6	B	3	429	5
6	B	4	430	5
6	B	5	431	5
6	B	6	431	5
6	B	7	432	5
6	B	8	433	5
6	B	9	434	5
6	B	10	436	5
6	B	11	437	5
6	B	12	438	5
6	B	13	439	5

6	B	14	440	4
6	B	15	442	4
6	B	16	443	4
6	B	17	444	3
6	B	18	445	3
6	B	19	446	3
6	B	20	447	3
6	B	21	448	3
6	B	22	448	3
6	B	23	449	2
6	B	24	450	2
6	B	25	451	2
6	B	26	451	2
6	B	27	452	2
6	B	28	453	2
6	B	29	453	2
6	B	30	454	2
6	B	31	455	2
6	B	32	455	2
6	B	33	456	2
6	B	34	457	2
6	B	35	457	2
6	B	36	458	2
6	B	37	459	2

6	B	38	459	2
6	B	39	460	2
6	B	40	461	2
6	B	41	462	2
6	B	42	463	2
6	B	43	464	2
6	B	44	465	2
6	B	45	466	3
6	B	46	467	3
6	B	47	469	3
6	B	48	471	3
6	B	49	473	4
6	B	50	476	5

**Raw to Scale Score Conversion Table
Grade 6 End-of-Grade Assessment of Mathematics
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
6	C	0	427	5
6	C	1	427	5
6	C	2	428	5
6	C	3	428	5
6	C	4	429	5
6	C	5	430	5
6	C	6	431	5

6	C	7	432	5
6	C	8	433	5
6	C	9	434	5
6	C	10	435	5
6	C	11	436	5
6	C	12	437	5
6	C	13	439	4
6	C	14	440	4
6	C	15	441	4
6	C	16	442	4
6	C	17	443	3
6	C	18	444	3
6	C	19	445	3
6	C	20	446	3
6	C	21	447	3
6	C	22	448	3
6	C	23	449	3
6	C	24	449	2
6	C	25	450	2
6	C	26	451	2
6	C	27	451	2
6	C	28	452	2
6	C	29	453	2
6	C	30	454	2

6	C	31	454	2
6	C	32	455	2
6	C	33	456	2
6	C	34	456	2
6	C	35	457	2
6	C	36	458	2
6	C	37	458	2
6	C	38	459	2
6	C	39	460	2
6	C	40	461	2
6	C	41	462	2
6	C	42	463	2
6	C	43	464	2
6	C	44	465	3
6	C	45	466	3
6	C	46	467	3
6	C	47	469	3
6	C	48	471	4
6	C	49	473	4
6	C	50	476	5

**Raw to Scale Score Conversion Table
Grade 7 End-of-Grade Assessment of Mathematics
Form A**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
7	A	0	428	5
7	A	1	429	5
7	A	2	429	5
7	A	3	430	5
7	A	4	431	5
7	A	5	431	5
7	A	6	432	5
7	A	7	433	5
7	A	8	434	5
7	A	9	435	5
7	A	10	436	5
7	A	11	438	5
7	A	12	439	5
7	A	13	440	4
7	A	14	441	4
7	A	15	443	4
7	A	16	444	3
7	A	17	445	3
7	A	18	446	3
7	A	19	447	3
7	A	20	447	3

7	A	21	448	2
7	A	22	449	2
7	A	23	450	2
7	A	24	450	2
7	A	25	451	2
7	A	26	452	2
7	A	27	452	2
7	A	28	453	2
7	A	29	454	2
7	A	30	454	2
7	A	31	455	2
7	A	32	456	2
7	A	33	456	2
7	A	34	457	2
7	A	35	458	2
7	A	36	458	2
7	A	37	459	2
7	A	38	460	2
7	A	39	461	2
7	A	40	461	2
7	A	41	462	2
7	A	42	463	2
7	A	43	464	2
7	A	44	465	2

7	A	45	466	3
7	A	46	467	3
7	A	47	469	3
7	A	48	471	3
7	A	49	473	4
7	A	50	476	5

**Raw to Scale Score Conversion Table
Grade 7 End-of-Grade Assessment of Mathematics
Form B**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
7	B	0	428	5
7	B	1	429	5
7	B	2	430	5
7	B	3	430	5
7	B	4	431	5
7	B	5	432	5
7	B	6	432	5
7	B	7	433	5
7	B	8	434	5
7	B	9	435	5
7	B	10	436	5
7	B	11	437	5
7	B	12	438	5
7	B	13	440	5

7	B	14	441	4
7	B	15	442	4
7	B	16	443	4
7	B	17	444	3
7	B	18	445	3
7	B	19	446	3
7	B	20	447	3
7	B	21	448	3
7	B	22	449	2
7	B	23	449	2
7	B	24	450	2
7	B	25	451	2
7	B	26	452	2
7	B	27	452	2
7	B	28	453	2
7	B	29	454	2
7	B	30	454	2
7	B	31	455	2
7	B	32	456	2
7	B	33	456	2
7	B	34	457	2
7	B	35	458	2
7	B	36	458	2
7	B	37	459	2

7	B	38	460	2
7	B	39	460	2
7	B	40	461	2
7	B	41	462	2
7	B	42	463	2
7	B	43	464	2
7	B	44	465	3
7	B	45	466	3
7	B	46	467	3
7	B	47	469	3
7	B	48	471	4
7	B	49	473	4
7	B	50	476	5

**Raw to Scale Score Conversion Table
Grade 7 End-of-Grade Assessment of Mathematics
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
7	C	0	429	5
7	C	1	429	5
7	C	2	430	5
7	C	3	430	5
7	C	4	431	5
7	C	5	432	5
7	C	6	433	5

7	C	7	434	5
7	C	8	435	5
7	C	9	436	5
7	C	10	437	5
7	C	11	438	5
7	C	12	439	5
7	C	13	440	4
7	C	14	442	4
7	C	15	443	4
7	C	16	444	3
7	C	17	445	3
7	C	18	446	3
7	C	19	447	3
7	C	20	448	3
7	C	21	448	2
7	C	22	449	2
7	C	23	450	2
7	C	24	450	2
7	C	25	451	2
7	C	26	452	2
7	C	27	452	2
7	C	28	453	2
7	C	29	454	2
7	C	30	454	2

7	C	31	455	2
7	C	32	456	2
7	C	33	456	2
7	C	34	457	2
7	C	35	457	2
7	C	36	458	2
7	C	37	459	2
7	C	38	459	2
7	C	39	460	2
7	C	40	461	2
7	C	41	462	2
7	C	42	463	2
7	C	43	464	2
7	C	44	465	2
7	C	45	466	3
7	C	46	467	3
7	C	47	469	3
7	C	48	470	3
7	C	49	473	4
7	C	50	476	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Mathematics
Form A**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	A	0	426	5
8	A	1	427	5
8	A	2	427	5
8	A	3	428	5
8	A	4	429	5
8	A	5	430	5
8	A	6	431	5
8	A	7	432	5
8	A	8	433	5
8	A	9	434	5
8	A	10	435	5
8	A	11	437	5
8	A	12	438	5
8	A	13	439	5
8	A	14	440	4
8	A	15	442	4
8	A	16	443	4
8	A	17	444	4
8	A	18	445	3
8	A	19	446	3
8	A	20	447	3

8	A	21	448	3
8	A	22	448	3
8	A	23	449	3
8	A	24	450	2
8	A	25	451	2
8	A	26	451	2
8	A	27	452	2
8	A	28	453	2
8	A	29	453	2
8	A	30	454	2
8	A	31	455	2
8	A	32	455	2
8	A	33	456	2
8	A	34	457	2
8	A	35	457	2
8	A	36	458	2
8	A	37	459	2
8	A	38	460	2
8	A	39	461	2
8	A	40	461	2
8	A	41	462	2
8	A	42	463	3
8	A	43	464	3
8	A	44	465	3

8	A	45	467	3
8	A	46	468	3
8	A	47	470	4
8	A	48	472	4
8	A	49	474	4
8	A	50	477	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Mathematics
Form B**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	B	0	427	5
8	B	1	427	5
8	B	2	428	5
8	B	3	429	6
8	B	4	430	6
8	B	5	431	6
8	B	6	431	6
8	B	7	432	6
8	B	8	433	6
8	B	9	435	6
8	B	10	436	5
8	B	11	437	5
8	B	12	438	5
8	B	13	440	5

8	B	14	441	5
8	B	15	442	4
8	B	16	443	4
8	B	17	444	4
8	B	18	446	4
8	B	19	447	3
8	B	20	448	3
8	B	21	449	3
8	B	22	450	3
8	B	23	450	3
8	B	24	451	3
8	B	25	452	3
8	B	26	453	2
8	B	27	454	2
8	B	28	454	2
8	B	29	455	2
8	B	30	456	2
8	B	31	456	2
8	B	32	457	2
8	B	33	458	2
8	B	34	458	2
8	B	35	459	2
8	B	36	460	2
8	B	37	461	2

8	B	38	461	2
8	B	39	462	2
8	B	40	463	2
8	B	41	464	2
8	B	42	465	2
8	B	43	466	2
8	B	44	467	3
8	B	45	468	3
8	B	46	469	3
8	B	47	471	3
8	B	48	473	4
8	B	49	475	4
8	B	50	478	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Mathematics
Form C**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	C	0	427	5
8	C	1	427	5
8	C	2	428	5
8	C	3	429	5
8	C	4	429	5
8	C	5	430	5
8	C	6	431	5

8	C	7	432	5
8	C	8	433	5
8	C	9	434	5
8	C	10	435	5
8	C	11	437	5
8	C	12	438	5
8	C	13	439	5
8	C	14	440	4
8	C	15	442	4
8	C	16	443	4
8	C	17	444	4
8	C	18	445	3
8	C	19	446	3
8	C	20	447	3
8	C	21	448	3
8	C	22	449	3
8	C	23	450	3
8	C	24	450	2
8	C	25	451	2
8	C	26	452	2
8	C	27	453	2
8	C	28	453	2
8	C	29	454	2
8	C	30	455	2

8	C	31	455	2
8	C	32	456	2
8	C	33	457	2
8	C	34	457	2
8	C	35	458	2
8	C	36	459	2
8	C	37	459	2
8	C	38	460	2
8	C	39	461	2
8	C	40	462	2
8	C	41	462	2
8	C	42	463	2
8	C	43	464	3
8	C	44	465	3
8	C	45	467	3
8	C	46	468	3
8	C	47	470	3
8	C	48	472	4
8	C	49	474	4
8	C	50	477	5

Appendix C
Raw to Scale Score Conversion Tables
End-of-Grade (EOG) Assessments of Science

Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Science
Form M (online format)

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	M	0	217	5
5	M	1	218	5
5	M	2	218	5
5	M	3	219	5
5	M	4	220	5
5	M	5	220	5
5	M	6	221	5
5	M	7	222	5
5	M	8	223	5
5	M	9	224	5
5	M	10	225	5
5	M	11	226	5
5	M	12	227	5
5	M	13	228	5
5	M	14	229	5
5	M	15	230	5
5	M	16	231	5
5	M	17	232	4
5	M	18	233	4

5	M	19	234	4
5	M	20	235	4
5	M	21	236	4
5	M	22	237	4
5	M	23	238	4
5	M	24	239	4
5	M	25	240	3
5	M	26	241	3
5	M	27	242	3
5	M	28	243	3
5	M	29	243	3
5	M	30	244	3
5	M	31	245	3
5	M	32	246	3
5	M	33	247	3
5	M	34	247	3
5	M	35	248	3
5	M	36	249	3
5	M	37	250	3
5	M	38	251	3
5	M	39	251	3
5	M	40	252	3
5	M	41	253	3
5	M	42	254	3

5	M	43	255	3
5	M	44	255	3
5	M	45	256	3
5	M	46	257	3
5	M	47	258	3
5	M	48	259	3
5	M	49	260	3
5	M	50	261	3
5	M	51	262	3
5	M	52	264	3
5	M	53	265	3
5	M	54	266	4
5	M	55	268	4
5	M	56	270	4
5	M	57	271	4
5	M	58	273	5
5	M	59	276	5
5	M	60	278	5

**Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Science
Form N (online format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	N	0	220	5
5	N	1	220	5

5	N	2	221	5
5	N	3	221	5
5	N	4	222	5
5	N	5	222	5
5	N	6	223	5
5	N	7	224	5
5	N	8	224	5
5	N	9	225	5
5	N	10	226	5
5	N	11	227	5
5	N	12	228	5
5	N	13	229	5
5	N	14	229	5
5	N	15	230	5
5	N	16	231	5
5	N	17	232	5
5	N	18	233	4
5	N	19	235	4
5	N	20	236	4
5	N	21	237	4
5	N	22	237	4
5	N	23	238	4
5	N	24	239	4
5	N	25	240	3

5	N	26	241	3
5	N	27	242	3
5	N	28	243	3
5	N	29	244	3
5	N	30	245	3
5	N	31	245	3
5	N	32	246	3
5	N	33	247	3
5	N	34	248	3
5	N	35	249	3
5	N	36	249	3
5	N	37	250	3
5	N	38	251	3
5	N	39	252	3
5	N	40	253	3
5	N	41	253	3
5	N	42	254	3
5	N	43	255	3
5	N	44	256	3
5	N	45	257	3
5	N	46	258	3
5	N	47	259	3
5	N	48	260	3
5	N	49	261	3

5	N	50	262	3
5	N	51	263	3
5	N	52	264	3
5	N	53	266	4
5	N	54	267	4
5	N	55	269	4
5	N	56	270	4
5	N	57	272	4
5	N	58	274	5
5	N	59	276	5
5	N	60	279	5

**Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Science
Form O (online format)**

Grade Level	Form*	Raw Score	Scale Score	Standard Deviation
5	O	0	217	5
5	O	1	217	5
5	O	2	218	5
5	O	3	218	5
5	O	4	219	5
5	O	5	220	5
5	O	6	220	5
5	O	7	221	5
5	O	8	222	5

5	O	9	222	5
5	O	10	223	5
5	O	11	224	5
5	O	12	225	5
5	O	13	226	5
5	O	14	227	5
5	O	15	228	5
5	O	16	229	5
5	O	17	230	4
5	O	18	231	4
5	O	19	232	4
5	O	20	233	4
5	O	21	234	4
5	O	22	234	4
5	O	23	235	4
5	O	24	236	4
5	O	25	237	3
5	O	26	238	3
5	O	27	239	3
5	O	28	240	3
5	O	29	241	3
5	O	30	241	3
5	O	31	242	3
5	O	32	243	3

5	O	33	244	3
5	O	34	245	3
5	O	35	246	3
5	O	36	246	3
5	O	37	247	3
5	O	38	248	3
5	O	39	249	3
5	O	40	250	3
5	O	41	251	3
5	O	42	251	3
5	O	43	252	3
5	O	44	253	3
5	O	45	254	3
5	O	46	255	3
5	O	47	256	3
5	O	48	257	3
5	O	49	258	3
5	O	50	259	3
5	O	51	261	3
5	O	52	262	3
5	O	53	263	4
5	O	54	265	4
5	O	55	266	4
5	O	56	268	4

5	O	57	270	4
5	O	58	272	5
5	O	59	274	5
5	O	60	277	5

**Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Science
Form A (paper format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	A	0	217	5
5	A	1	218	5
5	A	2	218	5
5	A	3	219	5
5	A	4	220	5
5	A	5	220	5
5	A	6	221	5
5	A	7	222	5
5	A	8	223	5
5	A	9	224	5
5	A	10	224	5
5	A	11	225	5
5	A	12	226	5
5	A	13	227	5
5	A	14	228	5
5	A	15	229	5

5	A	16	230	5
5	A	17	231	5
5	A	18	232	5
5	A	19	233	4
5	A	20	234	4
5	A	21	235	4
5	A	22	236	4
5	A	23	237	4
5	A	24	238	4
5	A	25	239	4
5	A	26	240	4
5	A	27	241	3
5	A	28	242	3
5	A	29	243	3
5	A	30	244	3
5	A	31	245	3
5	A	32	245	3
5	A	33	246	3
5	A	34	247	3
5	A	35	248	3
5	A	36	249	3
5	A	37	249	3
5	A	38	250	3
5	A	39	251	3

5	A	40	252	3
5	A	41	253	3
5	A	42	254	3
5	A	43	254	3
5	A	44	255	3
5	A	45	256	3
5	A	46	257	3
5	A	47	258	3
5	A	48	259	3
5	A	49	260	3
5	A	50	261	3
5	A	51	262	3
5	A	52	264	3
5	A	53	265	3
5	A	54	266	4
5	A	55	268	4
5	A	56	269	4
5	A	57	271	4
5	A	58	273	5
5	A	59	276	5
5	A	60	278	5

**Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Science
Form B (paper format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	B	0	220	5
5	B	1	220	5
5	B	2	221	5
5	B	3	221	5
5	B	4	222	5
5	B	5	222	5
5	B	6	223	5
5	B	7	224	5
5	B	8	224	5
5	B	9	225	5
5	B	10	226	5
5	B	11	227	5
5	B	12	227	5
5	B	13	228	5
5	B	14	229	5
5	B	15	230	5
5	B	16	231	5
5	B	17	232	5
5	B	18	233	5
5	B	19	234	4
5	B	20	235	4

5	B	21	236	4
5	B	22	237	4
5	B	23	238	4
5	B	24	239	4
5	B	25	240	4
5	B	26	241	3
5	B	27	242	3
5	B	28	243	3
5	B	29	243	3
5	B	30	244	3
5	B	31	245	3
5	B	32	246	3
5	B	33	247	3
5	B	34	247	3
5	B	35	248	3
5	B	36	249	3
5	B	37	250	3
5	B	38	251	3
5	B	39	251	3
5	B	40	252	3
5	B	41	253	3
5	B	42	254	3
5	B	43	255	3
5	B	44	256	3

5	B	45	257	3
5	B	46	257	3
5	B	47	258	3
5	B	48	259	3
5	B	49	260	3
5	B	50	262	3
5	B	51	263	3
5	B	52	264	3
5	B	53	265	4
5	B	54	267	4
5	B	55	268	4
5	B	56	270	4
5	B	57	272	4
5	B	58	274	5
5	B	59	276	5
5	B	60	279	5

**Raw to Scale Score Conversion Table
Grade 5 End-of-Grade Assessment of Science
Form C (paper format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
5	C	0	217	5
5	C	1	217	5
5	C	2	218	5
5	C	3	218	5

5	C	4	219	5
5	C	5	220	5
5	C	6	220	5
5	C	7	221	5
5	C	8	222	5
5	C	9	222	5
5	C	10	223	5
5	C	11	224	5
5	C	12	225	5
5	C	13	226	5
5	C	14	227	5
5	C	15	228	5
5	C	16	228	5
5	C	17	229	4
5	C	18	230	4
5	C	19	231	4
5	C	20	232	4
5	C	21	233	4
5	C	22	234	4
5	C	23	235	4
5	C	24	236	4
5	C	25	237	3
5	C	26	238	3
5	C	27	239	3

5	C	28	240	3
5	C	29	241	3
5	C	30	241	3
5	C	31	242	3
5	C	32	243	3
5	C	33	244	3
5	C	34	245	3
5	C	35	245	3
5	C	36	246	3
5	C	37	247	3
5	C	38	248	3
5	C	39	249	3
5	C	40	249	3
5	C	41	250	3
5	C	42	251	3
5	C	43	252	3
5	C	44	253	3
5	C	45	254	3
5	C	46	255	3
5	C	47	256	3
5	C	48	257	3
5	C	49	258	3
5	C	50	259	3
5	C	51	260	3

5	C	52	262	4
5	C	53	263	4
5	C	54	265	4
5	C	55	266	4
5	C	56	268	4
5	C	57	270	4
5	C	58	272	5
5	C	59	275	5
5	C	60	277	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Science
Form M (online format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	M	0	221	5
8	M	1	222	5
8	M	2	222	5
8	M	3	223	5
8	M	4	223	5
8	M	5	224	5
8	M	6	225	5
8	M	7	226	5
8	M	8	226	5
8	M	9	227	5
8	M	10	228	5
8	M	11	229	5
8	M	12	230	5
8	M	13	231	5
8	M	14	232	5
8	M	15	233	5
8	M	16	234	5
8	M	17	235	4
8	M	18	236	4
8	M	19	237	4
8	M	20	238	4

8	M	21	239	4
8	M	22	240	4
8	M	23	241	3
8	M	24	242	3
8	M	25	243	3
8	M	26	244	3
8	M	27	244	3
8	M	28	245	3
8	M	29	246	3
8	M	30	247	3
8	M	31	248	3
8	M	32	248	3
8	M	33	249	3
8	M	34	250	3
8	M	35	251	3
8	M	36	251	3
8	M	37	252	3
8	M	38	253	3
8	M	39	254	3
8	M	40	254	3
8	M	41	255	3
8	M	42	256	3
8	M	43	257	3
8	M	44	257	3

8	M	45	258	3
8	M	46	259	3
8	M	47	260	3
8	M	48	261	3
8	M	49	262	3
8	M	50	263	3
8	M	51	264	3
8	M	52	265	3
8	M	53	266	3
8	M	54	267	3
8	M	55	268	3
8	M	56	270	3
8	M	57	271	4
8	M	58	273	4
8	M	59	276	4
8	M	60	278	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Science
Form N (online format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	N	0	221	5
8	N	1	221	5
8	N	2	222	5
8	N	3	222	5

8	N	4	223	5
8	N	5	224	5
8	N	6	225	5
8	N	7	225	5
8	N	8	226	5
8	N	9	227	5
8	N	10	228	5
8	N	11	229	5
8	N	12	230	5
8	N	13	230	5
8	N	14	231	5
8	N	15	232	5
8	N	16	233	5
8	N	17	235	5
8	N	18	236	4
8	N	19	237	4
8	N	20	238	4
8	N	21	239	4
8	N	22	240	4
8	N	23	241	4
8	N	24	241	4
8	N	25	242	3
8	N	26	243	3
8	N	27	244	3

8	N	28	245	3
8	N	29	246	3
8	N	30	247	3
8	N	31	247	3
8	N	32	248	3
8	N	33	249	3
8	N	34	250	3
8	N	35	250	3
8	N	36	251	3
8	N	37	252	3
8	N	38	252	3
8	N	39	253	3
8	N	40	254	3
8	N	41	255	3
8	N	42	255	3
8	N	43	256	3
8	N	44	257	3
8	N	45	258	3
8	N	46	259	3
8	N	47	259	3
8	N	48	260	3
8	N	49	261	3
8	N	50	262	3
8	N	51	263	3

8	N	52	264	3
8	N	53	266	3
8	N	54	267	3
8	N	55	268	3
8	N	56	270	4
8	N	57	272	4
8	N	58	273	4
8	N	59	276	5
8	N	60	278	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Science
Form O (online format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	O	0	221	5
8	O	1	222	5
8	O	2	222	5
8	O	3	223	5
8	O	4	223	5
8	O	5	224	5
8	O	6	225	5
8	O	7	225	5
8	O	8	226	5
8	O	9	227	5
8	O	10	227	5

8	O	11	228	5
8	O	12	229	5
8	O	13	230	5
8	O	14	231	5
8	O	15	232	5
8	O	16	233	5
8	O	17	234	5
8	O	18	235	4
8	O	19	236	4
8	O	20	237	4
8	O	21	238	4
8	O	22	239	4
8	O	23	240	4
8	O	24	241	4
8	O	25	242	3
8	O	26	243	3
8	O	27	244	3
8	O	28	244	3
8	O	29	245	3
8	O	30	246	3
8	O	31	247	3
8	O	32	247	3
8	O	33	248	3
8	O	34	249	3

8	O	35	250	3
8	O	36	251	3
8	O	37	251	3
8	O	38	252	3
8	O	39	253	3
8	O	40	254	3
8	O	41	254	3
8	O	42	255	3
8	O	43	256	3
8	O	44	257	3
8	O	45	258	3
8	O	46	258	3
8	O	47	259	3
8	O	48	260	3
8	O	49	261	3
8	O	50	262	3
8	O	51	263	3
8	O	52	264	3
8	O	53	266	3
8	O	54	267	3
8	O	55	268	3
8	O	56	270	4
8	O	57	272	4
8	O	58	274	4

8	O	59	276	5
8	O	60	279	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Science
Form A (paper format)**

Grade Level	Form*	Raw Score	Scale Score	Standard Deviation
8	A	0	221	5
8	A	1	222	5
8	A	2	222	5
8	A	3	223	5
8	A	4	223	5
8	A	5	224	5
8	A	6	225	5
8	A	7	225	5
8	A	8	226	5
8	A	9	227	5
8	A	10	228	5
8	A	11	229	5
8	A	12	229	5
8	A	13	230	5
8	A	14	231	5
8	A	15	232	5
8	A	16	233	5
8	A	17	235	5

8	A	18	236	4
8	A	19	237	4
8	A	20	238	4
8	A	21	239	4
8	A	22	240	4
8	A	23	241	4
8	A	24	241	3
8	A	25	242	3
8	A	26	243	3
8	A	27	244	3
8	A	28	245	3
8	A	29	246	3
8	A	30	246	3
8	A	31	247	3
8	A	32	248	3
8	A	33	249	3
8	A	34	249	3
8	A	35	250	3
8	A	36	251	3
8	A	37	252	3
8	A	38	252	3
8	A	39	253	3
8	A	40	254	2
8	A	41	255	2

8	A	42	255	2
8	A	43	256	2
8	A	44	257	2
8	A	45	258	3
8	A	46	259	3
8	A	47	259	3
8	A	48	260	3
8	A	49	261	3
8	A	50	262	3
8	A	51	263	3
8	A	52	264	3
8	A	53	265	3
8	A	54	266	3
8	A	55	268	3
8	A	56	269	3
8	A	57	271	4
8	A	58	273	4
8	A	59	275	4
8	A	60	278	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Science
Form B (paper format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	B	0	221	5
8	B	1	222	5
8	B	2	222	5
8	B	3	223	5
8	B	4	223	5
8	B	5	224	5
8	B	6	225	5
8	B	7	225	5
8	B	8	226	5
8	B	9	227	5
8	B	10	228	5
8	B	11	228	5
8	B	12	229	5
8	B	13	230	5
8	B	14	231	5
8	B	15	232	5
8	B	16	233	5
8	B	17	234	5
8	B	18	235	5
8	B	19	236	4
8	B	20	237	4

8	B	21	238	4
8	B	22	239	4
8	B	23	240	4
8	B	24	241	4
8	B	25	242	3
8	B	26	243	3
8	B	27	244	3
8	B	28	245	3
8	B	29	246	3
8	B	30	246	3
8	B	31	247	3
8	B	32	248	3
8	B	33	249	3
8	B	34	249	3
8	B	35	250	3
8	B	36	251	3
8	B	37	251	3
8	B	38	252	3
8	B	39	253	3
8	B	40	254	3
8	B	41	254	3
8	B	42	255	3
8	B	43	256	3
8	B	44	257	3

8	B	45	257	3
8	B	46	258	3
8	B	47	259	3
8	B	48	260	3
8	B	49	261	3
8	B	50	262	3
8	B	51	263	3
8	B	52	264	3
8	B	53	265	3
8	B	54	266	3
8	B	55	268	3
8	B	56	269	4
8	B	57	271	4
8	B	58	273	4
8	B	59	275	5
8	B	60	278	5

**Raw to Scale Score Conversion Table
Grade 8 End-of-Grade Assessment of Science
Form C (paper format)**

Grade Level	Form	Raw Score	Scale Score	Standard Deviation
8	C	0	221	5
8	C	1	222	5
8	C	2	222	5
8	C	3	223	5

8	C	4	223	5
8	C	5	224	5
8	C	6	224	5
8	C	7	225	5
8	C	8	226	5
8	C	9	226	5
8	C	10	227	5
8	C	11	228	5
8	C	12	229	5
8	C	13	230	5
8	C	14	231	5
8	C	15	232	5
8	C	16	233	5
8	C	17	234	5
8	C	18	235	5
8	C	19	236	4
8	C	20	237	4
8	C	21	238	4
8	C	22	238	4
8	C	23	239	4
8	C	24	240	4
8	C	25	241	3
8	C	26	242	3
8	C	27	243	3

8	C	28	244	3
8	C	29	245	3
8	C	30	245	3
8	C	31	246	3
8	C	32	247	3
8	C	33	248	3
8	C	34	248	3
8	C	35	249	3
8	C	36	250	3
8	C	37	251	3
8	C	38	251	3
8	C	39	252	3
8	C	40	253	3
8	C	41	254	3
8	C	42	255	3
8	C	43	255	3
8	C	44	256	3
8	C	45	257	3
8	C	46	258	3
8	C	47	259	3
8	C	48	260	3
8	C	49	261	3
8	C	50	262	3
8	C	51	263	3

8	C	52	264	3
8	C	53	265	3
8	C	54	266	3
8	C	55	268	3
8	C	56	269	4
8	C	57	271	4
8	C	58	273	4
8	C	59	275	5
8	C	60	278	5

Appendix D
Raw to Scale Score Conversion Tables
End-of-Course (EOC) Assessments of English II, Math I, and Biology

Raw to Scale Score Conversion Table
End-of-Course Assessment of English II
Form M (online format)

Form	Raw Score	Scale Score	Standard Deviation
M	0	118	5
M	1	119	5
M	2	119	5
M	3	120	5
M	4	121	5
M	5	122	5
M	6	122	5
M	7	123	5
M	8	124	5
M	9	125	5
M	10	126	5
M	11	128	5
M	12	129	5
M	13	130	4
M	14	131	4
M	15	132	4
M	16	133	4
M	17	134	4
	18	135	4

M	19	136	4
M	20	137	4
M	21	138	4
M	22	139	3
M	23	140	3
M	24	141	3
M	25	142	3
M	26	143	3
M	27	144	3
M	28	145	3
M	29	146	3
M	30	147	3
M	31	147	3
M	32	148	3
M	33	149	3
M	34	150	3
M	35	151	3
M	36	152	3
M	37	153	3
M	38	154	3
M	39	155	3
M	40	156	3
M	41	157	3
M	42	158	3

M	43	159	3
M	44	160	3
M	45	161	3
M	46	162	3
M	47	163	3
M	48	164	3
M	49	166	4
M	50	167	4
M	51	169	4
M	52	170	4
M	53	172	4
M	54	174	5
M	55	177	5
M	56	179	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of English II
Form N (online format)**

Form*	Raw Score	Scale Score	Standard Deviation
N	0	121	5
N	1	122	5
N	2	122	5
N	3	123	5
N	4	124	5
N	5	125	5

N	6	125	5
N	7	126	5
N	8	127	5
N	9	128	5
N	10	129	5
N	11	130	5
N	12	131	5
N	13	132	5
N	14	134	5
N	15	135	4
N	16	136	4
N	17	137	4
N	18	138	4
N	19	139	4
N	20	140	4
N	21	141	4
N	22	142	3
N	23	143	3
N	24	144	3
N	25	145	3
N	26	146	3
N	27	146	3
N	28	147	3
N	29	148	3

N	30	149	3
N	31	150	3
N	32	151	3
N	33	151	3
N	34	152	3
N	35	153	3
N	36	154	3
N	37	155	3
N	38	156	3
N	39	157	3
N	40	157	3
N	41	158	3
N	42	159	3
N	43	160	3
N	44	161	3
N	45	162	3
N	46	164	3
N	47	165	4
N	48	166	4
N	49	168	4
N	50	169	4
N	51	171	4
N	52	172	5
N	53	174	5

N	54	176	5
N	55	179	5

Raw to Scale Score Conversion Table
End-of-Course Assessment of English II
Form O (online format)

Form	Raw Score	Scale Score	Standard Deviation
O	0	119	5
O	1	120	5
O	2	120	5
O	3	121	5
O	4	122	5
O	5	123	5
O	6	124	5
O	7	125	5
O	8	126	5
O	9	127	5
O	10	128	5
O	11	129	5
O	12	130	5
O	13	131	5
O	14	132	5
O	15	133	4
O	16	134	4
O	17	135	4

O	18	136	4
O	19	137	4
O	20	138	4
O	21	139	4
O	22	140	4
O	23	141	3
O	24	142	3
O	25	143	3
O	26	144	3
O	27	145	3
O	28	146	3
O	29	147	3
O	30	147	3
O	31	148	3
O	32	149	3
O	33	150	3
O	34	151	3
O	35	152	3
O	36	152	3
O	37	153	3
O	38	154	3
O	39	155	3
O	40	156	3
O	41	157	3

O	42	158	3
O	43	159	3
O	44	160	3
O	45	161	3
O	46	162	3
O	47	163	3
O	48	165	4
O	49	166	4
O	50	167	4
O	51	169	4
O	52	171	4
O	53	173	4
O	54	175	5
O	55	177	5
O	56	179	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of English II
Form A (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
A	0	118	5
A	1	118	5
A	2	119	5
A	3	120	5
A	4	121	5

A	5	121	5
A	6	122	5
A	7	123	5
A	8	124	5
A	9	125	5
A	10	126	5
A	11	127	5
A	12	128	5
A	13	129	5
A	14	131	4
A	15	132	4
A	16	133	4
A	17	134	4
A	18	135	4
A	19	136	4
A	20	137	4
A	21	138	4
A	22	139	4
A	23	140	3
A	24	141	3
A	25	142	3
A	26	143	3
A	27	144	3
A	28	144	3

A	29	145	3
A	30	146	3
A	31	147	3
A	32	148	3
A	33	149	3
A	34	150	3
A	35	151	3
A	36	152	3
A	37	153	3
A	38	154	3
A	39	155	3
A	40	156	3
A	41	157	3
A	42	158	3
A	43	159	3
A	44	160	3
A	45	161	3
A	46	163	3
A	47	164	4
A	48	165	4
A	49	167	4
A	50	168	4
A	51	170	4
A	52	172	4

A	53	174	5
A	54	176	5
A	55	178	5
A	56	181	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of English II
Form B (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
B	0	121	5
B	1	121	5
B	2	122	5
B	3	123	5
B	4	124	5
B	5	125	5
B	6	125	5
B	7	126	5
B	8	127	5
B	9	128	5
B	10	129	5
B	11	130	5
B	12	131	5
B	13	132	5
B	14	134	5
B	15	135	4

B	16	136	4
B	17	137	4
B	18	138	4
B	19	139	4
B	20	140	4
B	21	141	4
B	22	142	3
B	23	143	3
B	24	144	3
B	25	145	3
B	26	146	3
B	27	146	3
B	28	147	3
B	29	148	3
B	30	149	3
B	31	150	3
B	32	151	3
B	33	152	3
B	34	152	3
B	35	153	3
B	36	154	3
B	37	155	3
B	38	156	3
B	39	157	3

B	40	158	3
B	41	159	3
B	42	160	3
B	43	161	3
B	44	162	3
B	45	163	3
B	46	164	4
B	47	166	4
B	48	167	4
B	49	168	4
B	50	170	4
B	51	172	4
B	52	174	5
B	53	176	5
B	54	178	5
B	55	180	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of English II
Form C (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
C	0	119	5
C	1	119	5
C	2	120	5
C	3	121	5

C	4	122	5
C	5	123	5
C	6	123	5
C	7	124	5
C	8	125	5
C	9	126	5
C	10	127	5
C	11	128	5
C	12	129	5
C	13	130	5
C	14	131	5
C	15	133	5
C	16	134	4
C	17	135	4
C	18	136	4
C	19	137	4
C	20	138	4
C	21	139	4
C	22	140	4
C	23	141	4
C	24	142	3
C	25	143	3
C	26	143	3
C	27	144	3

C	28	145	3
C	29	146	3
C	30	147	3
C	31	148	3
C	32	149	3
C	33	150	3
C	34	150	3
C	35	151	3
C	36	152	3
C	37	153	3
C	38	154	3
C	39	155	3
C	40	156	3
C	41	157	3
C	42	158	3
C	43	159	3
C	44	160	3
C	45	161	3
C	46	162	4
C	47	164	4
C	48	165	4
C	49	167	4
C	50	168	4
C	51	170	4

C	52	171	4
C	53	173	5
C	54	175	5
C	55	178	5
C	56	180	6

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Math I
Form M (online format)**

Form	Raw Score	Scale Score	Standard Deviation
M	0	227	5
M	1	228	6
M	2	229	6
M	3	229	6
M	4	230	6
M	5	231	6
M	6	232	6
M	7	233	6
M	8	234	5
M	9	236	5
M	10	237	5
M	11	238	5
M	12	240	5
M	13	241	5
M	14	242	4
M	15	243	4
M	16	245	4
M	17	246	4
M	18	247	3
M	19	248	3
M	20	249	3

M	21	250	3
M	22	251	3
M	23	251	3
M	24	252	3
M	25	253	3
M	26	254	3
M	27	255	3
M	28	255	3
M	29	256	2
M	30	257	2
M	31	258	2
M	32	259	2
M	33	259	2
M	34	260	2
M	35	261	3
M	36	262	3
M	37	263	3
M	38	264	3
M	39	265	3
M	40	266	3
M	41	267	3
M	42	268	3
M	43	269	3
M	44	271	3

M	45	272	4
M	46	274	4
M	47	276	4
M	48	278	4
M	49	280	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Math I
Form N (online format)**

Form	Raw Score	Scale Score	Standard Deviation
N	0	229	5
N	1	229	5
N	2	230	6
N	3	230	6
N	4	231	6
N	5	232	6
N	6	233	6
N	7	234	6
N	8	235	6
N	9	236	5
N	10	237	5
N	11	238	5
N	12	240	5
N	13	241	5
N	14	242	4

N	15	243	4
N	16	245	4
N	17	246	4
N	18	247	3
N	19	248	3
N	20	249	3
N	21	250	3
N	22	251	3
N	23	251	3
N	24	252	3
N	25	253	3
N	26	254	3
N	27	255	3
N	28	256	3
N	29	256	3
N	30	257	3
N	31	258	3
N	32	259	3
N	33	260	3
N	34	260	3
N	35	261	3
N	36	262	3
N	37	263	3
N	38	264	3

N	39	265	3
N	40	266	3
N	41	267	3
N	42	268	3
N	43	270	3
N	44	271	3
N	45	273	4
N	46	275	4
N	47	277	4
N	48	279	5
N	49	281	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Math I
Form A (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
A	0	227	5
A	1	228	6
A	2	228	6
A	3	229	6
A	4	230	6
A	5	231	6
A	6	232	6
A	7	233	6
A	8	234	5

A	9	236	5
A	10	237	5
A	11	238	5
A	12	239	5
A	13	241	5
A	14	242	4
A	15	243	4
A	16	244	4
A	17	246	4
A	18	247	3
A	19	248	3
A	20	249	3
A	21	250	3
A	22	251	3
A	23	251	3
A	24	252	3
A	25	253	3
A	26	254	3
A	27	255	3
A	28	256	3
A	29	256	3
A	30	257	3
A	31	258	3
A	32	259	3

A	33	260	3
A	34	260	3
A	35	261	3
A	36	262	3
A	37	263	3
A	38	264	3
A	39	265	3
A	40	266	3
A	41	267	3
A	42	268	3
A	43	270	3
A	44	271	3
A	45	272	4
A	46	274	4
A	47	276	4
A	48	278	4
A	49	281	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Math I
Form B (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
B	0	229	5
B	1	229	5
B	2	230	6
B	3	230	6
B	4	231	6
B	5	232	6
B	6	233	6
B	7	234	6
B	8	235	6
B	9	236	5
B	10	237	5
B	11	238	5
B	12	240	5
B	13	241	5
B	14	242	4
B	15	243	4
B	16	245	4
B	17	246	4
B	18	247	3
B	19	248	3
B	20	249	3

B	21	250	3
B	22	251	3
B	23	251	3
B	24	252	3
B	25	253	3
B	26	254	3
B	27	255	3
B	28	256	3
B	29	256	3
B	30	257	3
B	31	258	3
B	32	259	3
B	33	260	3
B	34	260	3
B	35	261	3
B	36	262	3
B	37	263	3
B	38	264	3
B	39	265	3
B	40	266	3
B	41	267	3
B	42	268	3
B	43	270	3
B	44	271	3

B	45	273	4
B	46	275	4
B	47	277	4
B	48	279	5
B	49	281	5

Raw to Scale Score Conversion Table
End-of-Course Assessment of Biology
Form M (online format)

Form	Raw Score	Scale Score	Standard Deviation
M	0	218	5
M	1	218	5
M	2	219	5
M	3	220	5
M	4	220	5
M	5	221	5
M	6	222	5
M	7	222	5
M	8	223	5
M	9	224	5
M	10	225	5
M	11	226	5
M	12	227	5
M	13	227	5
M	14	228	5
M	15	229	5
M	16	230	4
M	17	231	4
M	18	232	4
M	19	233	4
M	20	234	4

M	21	235	4
M	22	236	4
M	23	237	3
M	24	238	3
M	25	239	3
M	26	240	3
M	27	241	3
M	28	241	3
M	29	242	3
M	30	243	3
M	31	244	3
M	32	245	3
M	33	245	3
M	34	246	3
M	35	247	3
M	36	247	3
M	37	248	2
M	38	249	2
M	39	250	2
M	40	250	2
M	41	251	2
M	42	252	2
M	43	252	2
M	44	253	2

M	45	254	2
M	46	255	2
M	47	256	2
M	48	256	2
M	49	257	3
M	50	258	3
M	51	259	3
M	52	260	3
M	53	261	3
M	54	263	3
M	55	264	3
M	56	265	3
M	57	267	4
M	58	269	4
M	59	272	5
M	60	275	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Biology
Form N (online format)**

Form	Raw Score	Scale Score	Standard Deviation
N	0	219	5
N	1	219	5
N	2	220	5
N	3	221	5

N	4	221	5
N	5	222	5
N	6	222	5
N	7	223	5
N	8	224	5
N	9	224	5
N	10	225	5
N	11	226	5
N	12	227	5
N	13	228	5
N	14	229	5
N	15	229	5
N	16	230	5
N	17	231	5
N	18	232	5
N	19	233	4
N	20	234	4
N	21	235	4
N	22	236	4
N	23	237	4
N	24	238	4
N	25	239	4
N	26	240	3
N	27	241	3

N	28	241	3
N	29	242	3
N	30	243	3
N	31	244	3
N	32	245	3
N	33	245	3
N	34	246	3
N	35	247	3
N	36	247	3
N	37	248	3
N	38	249	3
N	39	250	2
N	40	250	2
N	41	251	2
N	42	252	2
N	43	253	2
N	44	253	2
N	45	254	2
N	46	255	3
N	47	256	3
N	48	257	3
N	49	257	3
N	50	258	3
N	51	259	3

N	52	260	3
N	53	261	3
N	54	263	3
N	55	264	3
N	56	266	3
N	57	267	4
N	58	269	4
N	59	272	4
N	60	275	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Biology
Form O (online format)**

Form	Raw Score	Scale Score	Standard Deviation
O	0	217	5
O	1	217	5
O	2	218	5
O	3	219	5
O	4	219	5
O	5	220	5
O	6	221	5
O	7	222	5
O	8	223	5
O	9	223	5
O	10	224	5

O	11	225	5
O	12	226	5
O	13	227	5
O	14	228	5
O	15	229	5
O	16	230	5
O	17	231	5
O	18	232	4
O	19	233	4
O	20	234	4
O	21	235	4
O	22	236	4
O	23	237	4
O	24	238	4
O	25	239	3
O	26	240	3
O	27	241	3
O	28	242	3
O	29	243	3
O	30	243	3
O	31	244	3
O	32	245	3
O	33	246	3
O	34	246	3

O	35	247	2
O	36	248	2
O	37	249	2
O	38	249	2
O	39	250	2
O	40	251	2
O	41	251	2
O	42	252	2
O	43	253	2
O	44	254	2
O	45	254	2
O	46	255	2
O	47	256	2
O	48	257	2
O	49	258	3
O	50	259	3
O	51	260	3
O	52	261	3
O	53	262	3
O	54	263	3
O	55	265	3
O	56	267	4
O	57	269	4
O	58	271	5

O	59	274	5
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**Raw to Scale Score Conversion Table
End-of-Course Assessment of Biology
Form A (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
A	0	218	5
A	1	219	5
A	2	219	5
A	3	220	5
A	4	220	5
A	5	221	5
A	6	222	5
A	7	222	5
A	8	223	5
A	9	224	5
A	10	224	5
A	11	225	5
A	12	226	5
A	13	227	5
A	14	228	5
A	15	229	5
A	16	230	5
A	17	231	4
A	18	232	4

A	19	233	4
A	20	234	4
A	21	235	4
A	22	236	4
A	23	237	4
A	24	238	4
A	25	239	3
A	26	239	3
A	27	240	3
A	28	241	3
A	29	242	3
A	30	243	3
A	31	244	3
A	32	244	3
A	33	245	3
A	34	246	3
A	35	247	3
A	36	247	3
A	37	248	3
A	38	249	3
A	39	250	3
A	40	250	3
A	41	251	2
A	42	252	2

A	43	253	2
A	44	253	2
A	45	254	2
A	46	255	2
A	47	256	2
A	48	257	3
A	49	258	3
A	50	258	3
A	51	259	3
A	52	260	3
A	53	262	3
A	54	263	3
A	55	264	3
A	56	266	3
A	57	267	4
A	58	269	4
A	59	272	5
A	60	275	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Biology
Form B (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
B	0	219	5
B	1	220	5

B	2	220	5
B	3	221	5
B	4	221	5
B	5	222	5
B	6	223	5
B	7	223	5
B	8	224	5
B	9	225	5
B	10	225	5
B	11	226	5
B	12	227	5
B	13	228	5
B	14	229	5
B	15	229	5
B	16	230	5
B	17	231	5
B	18	232	5
B	19	233	5
B	20	234	4
B	21	235	4
B	22	236	4
B	23	237	4
B	24	238	4
B	25	239	4

B	26	240	3
B	27	241	3
B	28	241	3
B	29	242	3
B	30	243	3
B	31	244	3
B	32	245	3
B	33	245	3
B	34	246	3
B	35	247	3
B	36	247	3
B	37	248	3
B	38	249	3
B	39	250	2
B	40	250	2
B	41	251	2
B	42	252	2
B	43	253	2
B	44	253	2
B	45	254	3
B	46	255	3
B	47	256	3
B	48	257	3
B	49	257	3

B	50	258	3
B	51	259	3
B	52	260	3
B	53	262	3
B	54	263	3
B	55	264	3
B	56	266	3
B	57	267	4
B	58	269	4
B	59	272	4
B	60	275	5

**Raw to Scale Score Conversion Table
End-of-Course Assessment of Biology
Form C (paper format)**

Form	Raw Score	Scale Score	Standard Deviation
C	0	217	5
C	1	217	5
C	2	218	5
C	3	219	5
C	4	219	5
C	5	220	5
C	6	221	5
C	7	222	5
C	8	223	5

C	9	223	5
C	10	224	5
C	11	225	5
C	12	226	5
C	13	227	5
C	14	228	5
C	15	229	5
C	16	230	5
C	17	231	5
C	18	232	4
C	19	233	4
C	20	234	4
C	21	235	4
C	22	236	4
C	23	237	4
C	24	238	4
C	25	239	3
C	26	240	3
C	27	241	3
C	28	242	3
C	29	242	3
C	30	243	3
C	31	244	3
C	32	245	3

C	33	245	3
C	34	246	3
C	35	247	3
C	36	248	2
C	37	248	2
C	38	249	2
C	39	250	2
C	40	250	2
C	41	251	2
C	42	252	2
C	43	253	2
C	44	253	2
C	45	254	2
C	46	255	2
C	47	256	2
C	48	257	2
C	49	258	3
C	50	259	3
C	51	260	3
C	52	261	3
C	53	262	3
C	54	263	3
C	55	265	3
C	56	267	4

C	57	269	4
C	58	271	5
C	59	274	5