**Standard Setting**

**Description of Angoff Procedure**

**November 2019**

Standard setting is a systematic way of making a professional judgment on the level of achievement required to signify that a student’s performance is at a particular performance level (e.g., *proficient* or *advanced).* In the case of the grades 3-8 *Standards of Learning (SOL) Assessments* in reading, four performance level categories have been established:

*Advanced Attainment of the Standards* (Pass)

*Proficient in the Standards* (Pass)

*Basic* (Fail)

*Below Basic (Fail)*

In the case of the *End-of-Course SOL reading* test, three performance level categories have been established:

*Advanced Attainment of the Standards* (Pass)

*Proficient in the Standards* (Pass)

*Does Not Meet the Standard* (Fail)

The procedure used for standard setting for the SOL tests is known as the Angoff procedure. This procedure has been widely used on tests for a number of years and has been used with the SOL Assessments since 1998. Steps used in the procedure are described below.

1. Panelists receive training in the standard-setting process.
2. Panelists discuss the performance level descriptor for each achievement level (i.e., Below Basic, Basic, Proficient, and Advanced for grades 3-8 reading). An example of a performance level descriptor for the “proficient” achievement level for the Grade 3 reading test is shown below.

A student performing at the proficient level should be able to:

* Read with accuracy.
* Identify homophones.
* Use roots or affixes to expand vocabulary.
* Identify synonyms and antonyms.
* Use context to choose correct meaning of vocabulary.
* Apply information from word-reference materials.
* Make and confirm predictions based on textual evidence.
* Identify literary elements.
* Retell plot events in a logical sequence.
* Locate information from texts to ask and answer questions.
* Draw conclusions and make inferences based on textual evidence.
* Explain the characteristics of fiction and nonfiction.
* Identify the author’s purpose for including specific information.
* Use text features to aid in comprehension.
* Summarize information.
* Identify main idea or supporting details.

Panelists then discuss the characteristics of students who just make it into an achievement level: those who are “just proficient” and “just advanced,” to further define the particular knowledge and skills that separate those students in one achievement level from those in the others.

1. ***Round 1 Ratings***:

Panelists independently examine each question on the test, thinking of students who are “just” *proficient* and estimating whether or not these students would answer each item correctly MOST of the time (2/3 of the time). Panelists use the same procedure for the *basic* and *advanced* categories. When Round 1 is completed, each panelist has recorded “yes” or “no” for each question on the test for “proficient,” “advanced,” and “basic.” Each panelist’s ratings on the questions are converted to a cut score. A cut score is defined as the number of questions that a student must answer correctly to be classified in a particular performance category.

The grades 3-8 SOL reading tests are computer adaptive. A computer adaptive testing (CAT) model uses a computer algorithm to customize the items administered to each student. The first test question a student encounters is generally of average difficulty. If the student answers the item correctly, then a more difficult item is presented. If the student answers incorrectly, then an item with a lower difficulty value is presented.

Because the CAT algorithm selects items for students, there is not a single set of items for the standard setting committee to review. To facilitate the work of the standard setting committee, a set of items that matched the test blueprint was prepared for the committee members to use in making their judgments. This test form had slightly more test items than a student would encounter when taking the reading tests in the CAT format to ensure that committee member had the opportunity to review items with a greater range of difficulty.

1. ***Round 2 Ratings***:

Panelists are provided with a table of each panelist’s ratings from Round 1, discuss the results, refine the definitions and descriptors, and repeat the process used in Round 1.

1. ***Round 3 Ratings***:

Panelists are provided with a table of each panelist’s ratings from Round 2, discuss the results, and make any changes to their recommended cut scores.

**Articulation Committee**:

 After the work of the standard setting committees has been completed, a smaller group of educators composed of two or three members from each of the standard setting committees is convened to review the results of round 3 for each test. In the case of the reading tests, the purpose of this “articulation committee” will be to review the round 3 results for the tests to determine the reasonableness of the recommended cut scores in light of the performance level descriptors and estimated impact data. The impact data reviewed by the articulation committee provided estimates of the number of students who would fall into each achievement level if the recommended cut scores were adopted. Based on their review, the articulation committee may recommend adjustments to the cut scores for some of the tests.

**Recommendation Presented to the Board of Education:**

 The results of the standard setting committees and the articulation committee are presented as recommendations to the Board of Education. For each test and each achievement level, the Board is provided with background information, including the cut score on the previous version of the test and an estimate of what the cut score on the new test would be if the same level of rigor required on the old test were maintained. In addition, the “round 3” cut score for the standard setting committee is provided as well as the recommendation from the articulation committee. Finally the superintendent’s recommendation for the cut score for each level is provided. The Board of Education is asked to consider this information and to adopt cut scores for each SOL test. Examples of the information provided to the Board for the adoption of cut scores on the mathematics SOL tests in 2012 and in 2019 are provided on the next few pages.

**Example from 2012 Presentation to the Board**

**Summary and Background Information on Proposed Cut Scores
for the Mathematics Tests for Grades 3-8 Based on the 2009 Standards of Learning**

|  |  |  |
| --- | --- | --- |
|  | **Pass/Proficient** | **Pass/Advanced** |
| **Background** **Information** | **Standard Setting Summary** | **Background** **Information** | **Standard Setting Summary** |
| **Test****Name\*** | Pass/Proficient Cut Score for Previous Mathematics Test**\*\*** | Pass/Proficient Cut Score for New Test to Maintain Previous Level of Rigor | Articulation CommitteeRec. | Supt.’s Rec. | Pass/Advanced Cut Scorefor Previous MathematicsTest\*\* | Pass/Advanced Cut Score for New Test to Maintain Previous Level of Rigor | Articulation CommitteeRec. | Supt.’s Rec. |
| Grade 3 | 35 out of 50 | 16 out of 40 | 26 out of 40 | 26 out of 40 | 45 out of 50 | 28 out of 40 | 36 out of 40 | 36 out of 40 |
| Grade 4 | 31 out of 50 | 20 out of 50 (-11) | 31 out of 50 | 31 out of 50 | 43 out of 50 | 34 out of 50 (-9) | 45 out of 50 | 45 out of 50 |
| Grade 5 | 35 out of 50 | 22 out of 50 (-13) | 28 out of 50 | 31 out of 50 | 44 out of 50 | 34 out of 50(-10) | 45 out of 50 | 45 out of 50 |
| Grade 6 | 34 out of 50 | 24 out of 50 (-10) | 28 out of 50 | 28 out of 50 | 44 out of 50 | 35 out of 50 (-9) | 45 out of 50 | 45 out of 50 |
| Grade 7 | 31 out of 50 | 23 out of 50 (-8) | 31 out of 50 | 31 out of 50 | 42 out of 50 | 35 out of 50 (-7) | 45 out of 50 | 45 out of 50 |
| Grade 8 | 32 out of 50 | 23 out of 50 (-9) | 31 out of 50 | 31 out of 50 | 42 out of 50 | 33 out of 50 (-9) | 46 out of 50 | 46 out of 50 |

\* All tests based on the 2009 SOL have 50 items except for grade 3 which has 40 items

 **\*\*** Test based on the 2001 Mathematics Standards of Learning

**Example from March 2019 Presentation to the Board**

**Summary and Background Information on Proposed Cut Scores
for the Mathematics Tests for Grades 3-8 Based on the 2016 Standards of Learning**

| **Test****Name** | **Pass/Proficient** | **Pass/Advanced** |
| --- | --- | --- |
| **Background** **Information** | **Standard Setting Summary** | **Background** **Information** | **Standard Setting Summary** |
| Pass/Proficient Cut Score for Previous Mathematics Test\* | Pass/Proficient Cut Score for New Test to Maintain Previous Level of Rigor | Round 3 Median for Proficient\* | Articulation CommitteeRec. | Supt.’s Rec. | Pass/Advanced Cut Scorefor Previous MathematicsTest\* | Pass/Advanced Cut Score for New Test to Maintain Previous Level of Rigor | Round 3 Median for Advanced | Articulation CommitteeRec. | Supt.’s Rec. |
| Grade 3 | 26 out of 40 | 26 out of 40 | 20 out of 40 | 20 out of 40 | 21out of 40 | 36 out of 40 | 36 out of 40 | 35 out of 40 | 36 out of 40 | 36 out of 40 |
| Grade 4 | 31 out of 50 | 29 out of 50  | 20 out of 50 | 25 out of 50 | 26 out of 50 | 45 out of 50 | 44 out of 50 | 45 out of50 | 45 out of 50 | 45 out of 50 |
| Grade 5 | 31 out of 50 | 28 out of 50  | 21 out of 50 | 25 out of 50 | 25 out of 50 | 45 out of 50 | 43 out of 50 | 44 out of 50 | 44 out of 50 | 44 out of 50 |
| Grade 6 | 28 out of 50 | 26 out of 50  | 28 out of 50 | 26 out of 50 | 26 out of 50 | 45 out of 50 | 45 out of 50 | 45 out of 50 | 45 out of 50 | 45 out of 50 |
| Grade 7 | 31 out of 50 | 29 out of 50  | 24 out of 50 | 25 out of 50 | 25 out of 50 | 45 out of 50 | 45 out of 50 | 42 out of 50 | 44 out of 50 | 44 out of 50 |
| Grade 8 | 31 out of 50 | 28 out of 50  | 30 out of 50 | 26 out of 50 | 26 out of 50 | 46 out of 50 | 46 out of 50 | 46 out of 50 | 45 out of 50 | 45 out of 50 |

**\*** Test based on the 2009 Mathematics Standards of Learning