Virginia Board of Education Agenda Item

Agenda Item: F **Date:** May 24, 2012

Title	Final Review of Recommended Cut Scores for the Virginia Modified Achievement Standards Tests (VMAST) for Grades 3-8 Mathematics and Algebra I		
Presenter	Mrs. Shelley Loving-Ryder, Assistant Superintendent, Division of Student Assessment and School Improvement		
E-mail	Shelley.Loving-Ryder@doe.virginia.gov	**Phone**	804-225-2102

Purpose of Presentation:
Action required by Board of Education regulation.

Previous Review or Action:
Previous review and action. Specify date and action taken below:
Date: April 26, 2012
Action: First Review of Recommended Cut Scores for the Virginia Modified Achievement Standards Tests (VMAST) for Grades 3-8 Mathematics and Algebra I

Action Requested:
Final review: Action requested at this meeting.

Alignment with Board of Education Goals: Please indicate (X) all that apply:

	Goal 1: Expanded Opportunities to Learn
X	Goal 2: Accountability of Student Learning
	Goal 3: Nurturing Young Learners
X	Goal 4: Strong Literacy and Mathematics Skills
	Goal 5: Highly Qualified and Effective Teachers and Administrators
	Goal 6: Sound Policies for Student Success
	Goal 7: Safe and Secure Schools
	Other Priority or Initiative. Specify:

Background Information and Statutory Authority:
Goal 2: The approval of cut scores on the new Virginia Modified Achievement Standards Tests (VMAST) for grades 3-8 and Algebra I will help schools and school divisions increase the academic success of students with disabilities.

Goal 4: The approval of a cut score on the new VMAST assessments for grades 3-8 and Algebra I will support the development of numeracy skills of students with disabilities.

The VMAST is an alternate assessment in which research-based supports and simplifications have been applied to existing online test items to make them more accessible to eligible students with disabilities

who are instructed in grade level content but are not likely to achieve proficiency in the same time frame as their non-disabled peers. VMAST assessments for grades 3-8 mathematics and Algebra I based on the 2009 mathematics SOL are being administered for the first time in spring 2012.

Because these are new assessments, cut scores for the achievement levels of fail/basic, pass/proficient and pass/advanced must be adopted by the Board. Consistent with the process used for the SOL assessments, committees of educators were convened in March 2012 to recommend to the Board of Education (BOE) minimum cut scores for the achievement levels of *fail/basic, pass/proficient,* and *pass/advanced* for the grades 3-8 mathematics tests. More information about the process used by the committee of educators to develop the recommended cut scores may be found in Attachment A.

Summary of Important Issues:
Information about the cut scores recommended by the committees for the achievement levels of *fail/basic, pass/proficient,* and *pass/advanced* for the grades 3-8 and Algebra I VMAST assessments is included in Attachment B.

The Board is asked to adopt "cut" scores for the achievement levels of *fail/basic, pass/proficient,* and *pass/advanced* for the grades 3-8 and Algebra I VMAST mathematics assessments.

Impact on Fiscal and Human Resources:
N/A

Timetable for Further Review/Action:
Upon approval by the Board of Education, this information will be disseminated to the school divisions via a Superintendent's Memorandum.

Superintendent's Recommendation:
The Superintendent of Public Instruction recommends that the Board of Education adopt "cut" scores for the achievement levels of *fail/basic, pass/proficient,* and *pass/advanced* for the grades 3-8 and Algebra I VMAST mathematics assessments as follows:

- Grade 3: 9 out of 32 for fail/basic, 22 out of 32 for pass/proficient, and 29 out of 32 for pass/advanced
- Grade 4: 9 out of 40 for fail/basic, 23 out of 40 for pass/proficient, and 36 out of 40 for pass/advanced
- Grade 5: 13 out of 40 for fail/basic, 28 out of 40 for pass/proficient, and 36 out of 40 for pass/advanced
- Grade 6: 10 out of 40 for fail/basic, 26 out of 40 for pass/proficient, and 36 out of 40 for pass/advanced
- Grade 7: 11 out of 40 for fail/basic, 26 out of 40 for pass/proficient, and 36 out of 40 for pass/advanced
- Grade 8: 10 out of 40 for fail/basic, 27 out of 40 for pass/proficient, and 36 out of 40 for pass/advanced
- Algebra I: 24 out of 40 for pass/proficient, and 36 out of 40 for pass/advanced

Standard Setting
Modified-Angoff Procedure

Standard setting is a systematic way of making a professional judgment on the number of questions on a test that must be answered correctly to signify that a student's achievement is at the *fail/basic*, *pass*/*proficient*, or *pass*/*advanced* achievement level. The number of questions that a student must answer correctly to be classified as "basic," "proficient" or "advanced" is called a "cut score." In the case of the Virginia Modified Achievement Standards Test (VMAST) mathematics assessments for grades 3-8, four performance level categories have been established:

Pass/Advanced
Pass/Proficient
Fail/Basic
Fail/Below Basic

One cut score will distinguish *Fail/Basic* from *Fail/Below Basic.* A second cut score will distinguish *Pass/Proficient* from *Fail/Basic* and a third cut score will distinguish *Pass/Advanced* from *Pass/Proficient*.

The procedure used for standard setting for the VMAST mathematics assessments is known as the modified-Angoff procedure. This procedure has been widely used on tests for a number of years. Steps used in the procedure are described below.

1. Judges receive training in the standard-setting process and complete a simulation activity.

2. Judges review the test on which cut scores are to be set to simulate the experience of the students who have taken the test.

3. Judges discuss the performance level descriptor for each achievement level (i.e., Fail/Below Basic, Fail/Basic, Pass/Proficient, and Pass/Advanced). An example of a performance level descriptor for the "pass/proficient" achievement level for the grade 7 VMAST mathematics assessment is shown below.

   With supports and simplifications, a student performing at this level should be able to:

   - Write a power of 10 with a negative exponent in decimal form.
   - Compare and order fractions, decimals, percents, and numbers written in scientific notation.
   - Determine the square root of perfect squares less than or equal to 144.
   - Use the number line to demonstrate the absolute value of a rational number.
   - Extend arithmetic and geometric sequences using the common difference or common ratio.
   - Add, subtract, multiply, and divide integers.
   - Use proportional reasoning to solve single and multistep practical problems.

Judges then discuss the characteristics of students who just make it into an achievement level: those who are "just basic," "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.

4. ***Round 1 Ratings***:
Judges 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). (Note: Judges are instructed to determine what students *should* do, rather than what they *can* now do.) Judges use the same procedure for the *basic* and *advanced* categories. When Round 1 is completed, each judge has recorded "yes" or "no" for each question on the test for "basic," "proficient," and "advanced." Each judge's ratings on the questions are converted to a cut score.

5. ***Round 2 Ratings***:
Judges are provided with a table of each judge's ratings from Round 1, refine the definitions and descriptors, and repeat the process used in Round 1.

6. ***Round 3 Ratings***:
Judges are provided with a table of each judge's ratings from Round 2, refine the definitions and descriptors, and repeat the process used in Round 2.

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 VMAST mathematics assessment, the purpose of this "articulation committee" was to review the round 3 results for each of the tests to determine the reasonableness of the recommended cut scores in light of the performance level descriptors. Based on their review, the articulation committee recommended adjustments to the cut scores for some of the mathematics 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 as part of first review. On final review, the Board of Education is asked to adopt cut scores on each VMAST mathematics assessment.

Summary and Background Information on Proposed Cut Scores for the VMAST Mathematics Assessments for Grades 3-8 and Algebra I

	Fail/Basic			
	Background Information	**Standard Setting Summary**		
Test Name *	Fail/Basic Cut Score for the SOL Mathematics Test Based on the 2009 SOL	Round 3 Median	Articulation Committee Recommendation	Superintendent's Recommendation
Grade 3	16 out of 40	9 out of 32	9 out of 32	9 out of 32
Grade 4	17 out of 50	7 out of 40	9 out of 40	9 out of 40
Grade 5	18 out of 50	15 out of 40	13 out of 40	13 out of 40
Grade 6	16 out of 50	8 out of 40	10 out of 40	10 out of 40
Grade 7	17 out of 50	11 out of 40	11 out of 40	11 out of 40
Grade 8	17 out of 50	9 out of 40	10 out of 40	10 out of 40
Algebra I	n/a	n/a	n/a	n/a

* The VMAST assessments are based on blueprints that are derived from the SOL blueprints. However, the VMAST assessments have 20% fewer items than the SOL tests on which they are based. All VMAST mathematics tests have 40 items except for grade 3 which has 32 items.

Summary and Background Information on Proposed Cut Scores for the VMAST Mathematics Assessments for Grades 3-8 and Algebra I

	Pass/Proficient				Pass/Advanced			
	Background Information	Standard Setting Summary			Background Information	Standard Setting Summary		
Test Name *	Pass/Proficient Cut Score for SOL Mathematics Test Based on the 2009 SOL	Round 3 Median for Proficient	Articulation Committee Recommendation	Superintendent's Recommendation	Pass/Advanced Cut Score for SOL Mathematics Test Based on the 2009 SOL	Round 3 Median for Advanced	Articulation Committee Recommendation	Superintendent's Recommendation
Grade 3	26 out of 40	22 out of 32	22 out of 32	22 out of 32	36 out of 40	29 out of 32	29 out of 32	29 out of 32
Grade 4	31 out of 50	23 out of 40	23 out of 40	23 out of 40	45 out of 50	36 out of 40	36 out of 40	36 out of 40
Grade 5	31 out of 50	28 out of 40	28 out of 40	28 out of 40	45 out of 50	36 out of 40	36 out of 40	36 out of 40
Grade 6	28 out of 50	26 out of 40	26 out of 40	26 out of 40	45 out of 50	36 out of 40	36 out of 40	36 out of 40
Grade 7	31 out of 50	27 out of 40	26 out of 40	26 out of 40	45 out of 50	36 out of 40	36 out of 40	36 out of 40
Grade 8	31 out of 50	27 out of 40	27 out of 40	27 out of 40	46 out of 50	37 out of 40	36 out of 40	36 out of 40
Algebra I	25 out of 50	24 out of 40	24 out of 40	24 out of 40	45 out of 50	37 out of 40	36 out of 40	36 out of 40

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