

**OFFICE OF CHIEF OF RESEARCH AND DEVELOPMENT**  
**Summary of State Board of Education Agenda Items**  
**August 20, 2015**

**OFFICE OF STUDENT ASSESSMENT**

8. Approval of the recommended cut score for Mississippi Alternate Assessment of Extended Science Frameworks (MAAESF) [Goal 1 - MDE Strategic Plan]

**Executive Summary**

Standard Setting for the Mississippi Alternate Assessment of Extended Science Frameworks (MAAESF) was completed on June 2-3, 2015. The Standard Setting process is designed to establish the cut scores required to meet the Standards for Educational and Psychological Testing as well as corresponding to the identified performance levels. The Standard Setting Committee consisted of thirty-two (32) members, which included elementary, middle, and high school special education teachers, content teachers, district administrators, and superintendents.

The MAAESF Body of Work Standard Setting meeting was conducted in Jackson, MS from June 2-3, 2015. During the Standard Setting process, the panelists completed three rounds of independent review and subsequent discussion in order to define the cut scores to correspond to the identified performance levels that serves as the top and bottom range of each performance level.

Recommendation: Approval

Back-up material attached

MAAESF Standard Setting Results  
June 2-3, 2015

The MAAESF Body of Work Standard Setting meeting was conducted in Jackson, MS from June 2-June 3, 2015. Thirty-one panelists were recruited to perform the Standard Setting, with 10 setting standards for Grade 5, 11 setting standards for Grade 8, and 10 setting Standards for High School. The demographic characteristics for the three groups are presented in Table 1.

Table 1: Demographic Information for Panelists

	Grade		
	5	8	HS
<b>Gender</b>			
<b>Male</b>	2	3	4
<b>Female</b>	8	8	6
<b>Race/Ethnicity</b>			
<b>White</b>	6	7	6
<b>Black</b>	4	4	3
<b>Hispanic</b>	0	0	0
<b>Asian</b>	0	0	0
<b>Pacific Islander</b>	0	0	1
<b>American Indian</b>	0	0	0
<b>Years of Educational Experience</b>			
<b>0-5</b>	0	2	0
<b>5-10</b>	1	2	2
<b>10-15</b>	2	2	2
<b>More than 15</b>	7	5	6
<b>Educational Experience</b>			
<b>Students with disabilities</b>	5	6	6
<b>Students with limited English proficiency</b>	2	2	1
<b>Economically Disadvantaged Students</b>	6	7	5
<b>Gifted and Talented Students</b>	2	3	2
<b>General Education</b>	7	8	7

The score ranges that resulted from the three rounds of standard setting are presented in Table 2 for all three grades.

Table 2: Score Ranges for Each Performance Level: Committee Results

	Minimal		Basic		Proficient		Advanced	
	First	Last	First	Last	First	Last	First	Last
<b>5</b>	0	98	99	115	116	146	147	175
<b>8</b>	0	64	65	98	99	129	130	175
<b>HS</b>	0	73	74	101	102	129	130	175

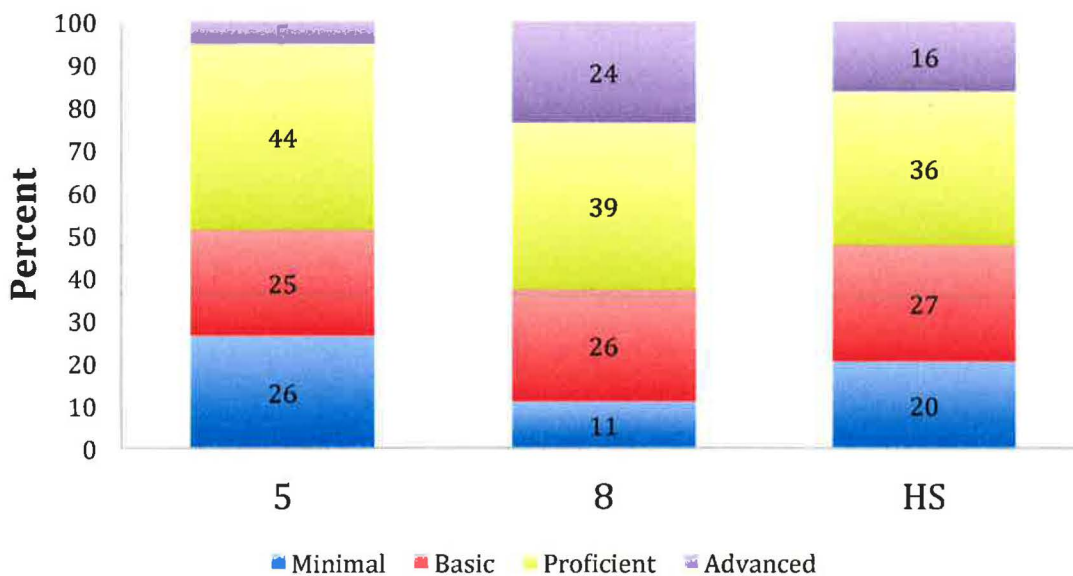
To interpret this table, for grade 5, scores in the “Minimal” category ranged from 0 to 98, scores in the “Basic” category ranged from 99 to 115, scores in the “Proficient” category ranged from 116 to 146, and scores in the “Advanced” category ranged from 147 to 175. The results for grades 8 and HS can be interpreted similarly.

Of note in this table is that the fifth grade cut scores were higher than the other two grades. The effect of this can be observed when the percent of students classified into each category is examined. This information is presented in Table 3, and graphically in Figure 1.

Table 3: Percent of Students in Each Performance Level: Committee Results

	Minimal	Basic	Proficient	Advanced
<b>5</b>	26	25	44	5
<b>8</b>	11	26	39	24
<b>HS</b>	20	27	36	16

Figure 1: Percent of Students in Each Performance Level: Committee Results



Due to the large discrepancies between fifth grade and the other two grades, the scores were examined. There was less consistency among the raters in the fifth grade group,

than in the other two groups. In an attempt to smooth the results to make them more comparable across grade levels, the cut scores were adjusted. This was accomplished by adjusting the scores by the standard deviation of the cut scores.

For the first cut score (Minimal/Basic), the standard deviation was 6.7 points. Therefore, an adjustment of 1 to 2 standard deviations (6.7 to 13.4 points) would be a reasonable value of the cut score. The goal was to make the adjustment as small as possible to result in cut scores that were more comparable across the grades, with the maximum adjustment to be 12 points. The cut was adjusted by 9 points, or slightly less than 1.5 standard deviations.

The other cut of concern was the top cut score (Proficient/Advanced). In this case, the standard deviation of the cut scores was smaller, about 2.5 points. Following the idea of staying within two standard deviations, there was an initial adjustment of 5 points, however, the difference across the cut scores was still quite large. This difference was due to the fact that this committee had a more stringent standard than the other two committees. The initial smoothed result was determined to still be discrepant. Therefore, in order to obtain the final smoothed result, the differences between the original cut (146) and the other two grades (130) was computed (16 points) and the difference between the original cut and the first smoothed cut (141) was found (5 points). The average of these two differences was taken as a compromise between the original cut score obtained by the panelists, and the cut score determined by the other two grade level panels. The resulting smoothed score was determined to be 135. This compromise resulted in a cut score more in line with the other two grades. The score ranges based on these new cuts are provided in Table 4.

Table 4: Score Ranges for Each Performance Level: Smoothed Results

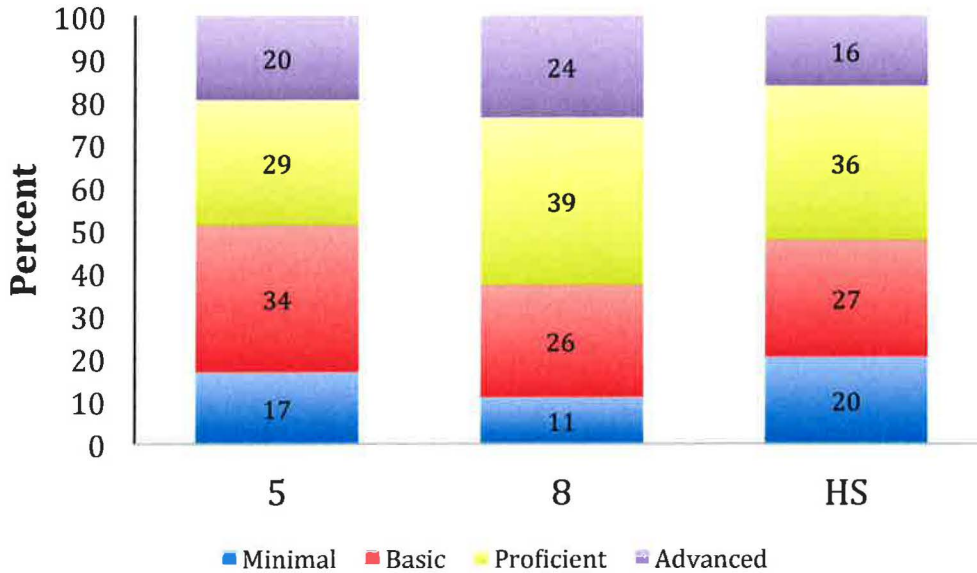
	Minimal		Basic		Proficient		Advanced	
	First	Last	First	Last	First	Last	First	Last
<b>5</b>	0	89	90	115	116	134	135	175
<b>8</b>	0	64	65	98	99	129	130	175
<b>HS</b>	0	73	74	101	102	129	130	175

It can be seen in the table that the score ranges are more similar after smoothing than they were before smoothing. The affect that this has on the percent of students in each performance level is provided in Table 5, and graphically in Figure 2. These new cut scores lead to more consistent results across grades.

Table 5: Percent of Students in Each Performance Level: Smoothed Results

	Minimal	Basic	Proficient	Advanced
<b>5</b>	17	34	29	20
<b>8</b>	11	26	39	24
<b>HS</b>	20	27	36	16

Figure 2: Percent of Students in Each Performance Level: Smoothed Results



As a point of comparison, we can compare these results to those from last year’s assessment. Note that some differences would be expected because the assessment has changed from last year. However, those results can provide a reference point for evaluating the outcomes of the standard setting.

The score ranges for each performance level can be found in Table 6. As you can see, the same cut scores were used in each grade.

Table 6: Score Ranges for Each Performance Level: Previous Year

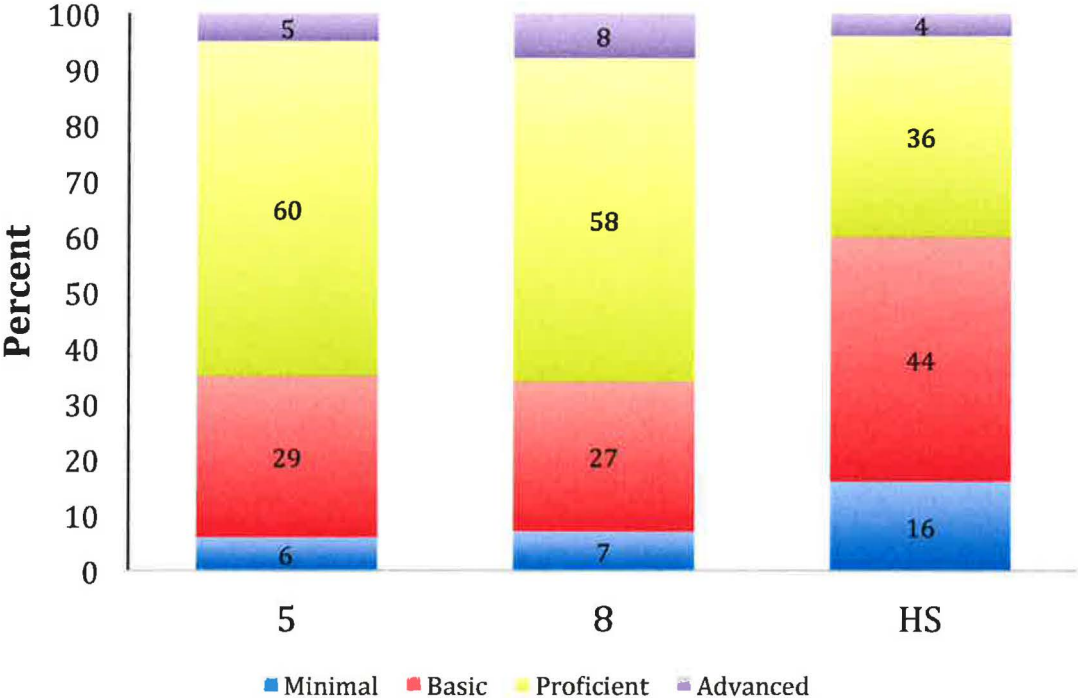
	Minimal		Basic		Proficient		Advanced	
	First	Last	First	Last	First	Last	First	Last
<b>5</b>	0	70	71	104	105	144	145	175
<b>8</b>	0	70	71	104	105	144	145	175
<b>HS</b>	0	70	71	104	105	144	145	175

Based on these cuts, the percent of students at each performance level is provided in Table 7, and graphically in Figure 3.

Table 7: Percent of Students in Each Performance Level: Previous Year

	Minimal	Basic	Proficient	Advanced
<b>5</b>	6	29	60	5
<b>8</b>	7	27	58	8
<b>HS</b>	16	44	36	4

Figure 3: Percent of Students in Each Performance Level: Previous Results



With the new standards, there are slightly fewer students at the Proficient and above levels, however, the differences are not dramatic.

## Mississippi Alternate Assessment of Extended Science Frameworks

### **Standard Setting Process**



### ***Background Information***

The Office of Student Assessment authorized Measured Progress to complete the Standard Setting Process for the Mississippi Alternate Assessment of Extended Science Frameworks (MAAESF).

The Standard Setting Process is used to define the cut scores to correspond to the identified performance levels.

A cut score is the score that serves as the top and bottom range of each performance level.



## Process for the Panelists

To be legally defensible for high stakes assessments and meet the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014), the cut scores must be appropriately set. For that reason, standard setting is a critical component of the test development process.

In this process, the panelists

- participated in discussions.
- listened to and were open to the feedback of others.
- used their background and expertise to utilize the assessment data to establish cut scores.




## Panel Composition

The MAAESF Body of Work Standard Setting meeting was conducted in Jackson, MS on June 2-3, 2015. The panel consisted of


- twelve (12) Content teachers (four at the Elementary level, five at the Middle School level, and three at the High School level),
- fourteen (14) Special Education teachers (five at the Elementary level, four at the Middle School level, and five at the High School level),
- three (3) District Administrators (one at the Elementary level, one at the Middle School level, and one at the High School level), and
- three (3) Superintendents (one at the Elementary level, one at the Middle School level, and one at the High School level).





### Scale Score Ranges for Each Performance Level

Grade	Minimal		Basic		Proficient		Advanced	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
<b>5</b>	0	89	90	115	116	134	135	175
<b>8</b>	0	64	65	98	99	129	130	175
<b>HS</b>	0	73	74	101	102	129	130	175



### Percent of Students in Each Performance Level

Grade	Minimal	Basic	Proficient	Advanced
<b>5</b>	17%	34%	29%	20%
<b>8</b>	11%	26%	39%	24%
<b>HS</b>	20%	27%	36%	16%