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## MEMORANDUM

**TO:** District School Superintendents

**FROM:** Kris Ellington

**DATE:** April 6, 2011

**SUBJECT:** Applying 2011 Algebra 1 End-of-Course (EOC) Assessment Student Results

In May, all students enrolled in Algebra 1 or an equivalent course will participate in the first administration of the Algebra 1 EOC Assessment. Student results from the 2011 administration will be reported as scale scores on a special scale known as a T-score scale. On this scale, a score of 50 is at the statewide mean, with all scores ranging from 20 to 80. Since the mean is anchored at 50 and no achievement levels are available, this year's scale is norm-referenced only. Achievement Levels will be determined through a standard-setting process in fall 2011. Prior to standard-setting, each district must determine the T-score range that will be associated with a particular exam letter grade or percent score. Once this determination is made, performance on the Algebra 1 EOC Assessment must constitute 30% of the final course grade for those students who entered grade 9 during the 2010-2011 school year.

This memorandum provides examples to school districts of possible strategies for assigning meaning to the Algebra 1 EOC Assessment T scores, so that these scores may be used to calculate students' course grades. The first example provided uses statewide data to describe one possible strategy. Additional examples provided here reflect ideas submitted to the Department by school districts.

### **Example 1: Statewide Data**

This example is based on an assumption that the 2011 levels of success on the Algebra 1 EOC Assessment should reflect typical performance on other similar measures. While similar measures could include other assessments, this example uses student Algebra 1 course grades to define typical performance. To illustrate this example, we have provided a simulated Algebra 1 EOC Assessment T-score frequency distribution and the Algebra 1 (including all equivalents) statewide course grade distribution for the 2009-10 school year.

Table 1 shows a simulated frequency distribution for the state-level Algebra 1 EOC Assessment T scores. This simulated frequency distribution provides the percent of students at each T score and the cumulative percent up to the highest T score possible.

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**Table 1. Simulated Algebra 1 EOC Assessment Frequency Distribution**

T score	%	Cumulative %	T score	%	Cumulative %
20	0.2	0.2	51	3.9	56.0
21	0.1	0.3	52	3.9	59.8
22	0.1	0.3	53	3.8	63.6
23	0.1	0.4	54	3.7	67.3
24	0.1	0.6	55	3.5	70.8
25	0.2	0.7	56	3.3	74.2
26	0.2	1.0	57	3.2	77.3
27	0.3	1.2	58	2.8	80.2
28	0.4	1.6	59	2.7	82.8
29	0.4	2.0	60	2.4	85.2
30	0.5	2.5	61	2.2	87.4
31	0.6	3.2	62	1.9	89.3
32	0.8	4.0	63	1.8	91.1
33	1.0	5.0	64	1.5	92.6
34	1.1	6.1	65	1.3	93.9
35	1.2	7.3	66	1.1	95.0
36	1.5	8.8	67	1.0	96.0
37	1.7	10.5	68	0.8	96.8
38	2.0	12.5	69	0.7	97.4
39	2.2	14.7	70	0.5	97.9
40	2.4	17.1	71	0.5	98.4
41	2.7	19.8	72	0.4	98.8
42	2.8	22.6	73	0.3	99.1
43	3.2	25.7	74	0.2	99.3
44	3.3	29.0	75	0.2	99.5
45	3.4	32.4	76	0.1	99.6
46	3.7	36.2	77	0.1	99.7
47	3.9	40.0	78	0.1	99.8
48	3.9	44.0	79	0.0	99.8
49	4.1	48.0	80	0.2	100.0
50	4.0	52.0			

Table 2 provides the actual percentage of students at each course grade for all Algebra 1 and equivalent courses, statewide. In this example, these data are being used to define typical levels of achievement on a measure (success with coursework) of Algebra 1 content. Again, both the percent and the cumulative percent are provided.

**Table 2. 2009-10 Percentage of Students at Each Course Grade for All Algebra 1 Courses**

Course Grade	F	D	C	B	A
<b>Course Grade Percentage</b>	14.6%	15.3%	27.7%	27.4%	15.1%
<b>Cumulative Percentage</b>	14.6%	29.9% (D + F)	57.6% (C + D + F)	84.9% (B + C + D + F)	100.0% (A + B + C + D + F)

With this information, it is now possible to determine cut points on the T-score scale for the Algebra 1 EOC Assessment. As Table 2 indicates, approximately 15% of students received a course grade of an A in 2009-10. Using this information, we can then find the top 15 percent of students' Algebra 1 EOC Assessment scores and assign an A for the T scores in that range. In this case, T scores in the range of 62-80 would be assigned an A. The same process can be used to determine the cut points on the T-score scale for each letter grade, as provided in Table 3.

**Table 3. Sample Algebra 1 EOC Assessment Scale Score Cut Points\***

D/F	C/D	B/C	A/B
40	45	52	61

\*A minimum scale score to receive an upper letter grade

For districts that use a percentage score in the grade calculations, the letter grade can be transformed to a percentage score (i.e., A = 100 percent), and this can then be factored as 30 percent of the student's final course grade. It is important to note that the percentage score for each letter grade should be decided by the district. One possible transformation is provided in Table 4.

**Table 4. Sample Algebra 1 EOC Assessment Percentage Scores**

ALG1 Scale Score Range	Letter Grade	Percentage Score	% of Students
20 – 39	F	59%	14.7%
40 – 44	D	69%	14.3%
45 – 51	C	79%	26.9%
52 – 60	B	89%	29.2%
61 – 80	A	100%	14.8%

Using Table 4, either the letter grade or percentage score can then be used to factor the EOC assessment results as 30 percent of the student's final course grade.

In summary, the steps for implementing this strategy are as follows:

1. Generate a frequency distribution based on the Algebra 1 EOC Assessment T scores.
2. Obtain the most recent course grade distribution. State results provided here could be used.
3. Determine cut points on the Algebra 1 EOC Assessment score scale for each letter grade.
4. Assign a letter grade and transform the letter grade to a percentage score if needed.
5. Factor the grade or percentage score as 30 percent of the student's final grade.

**Example 2: District Strategy**

Similar to Example 1, this approach uses the most recent student course grades in Algebra 1 to determine the meaning of the T-score scale. However, in this example, the decisions would be course specific. There would be different sets of cut scores for students enrolled in Algebra 1, Algebra 1 Honors, and Algebra 1B. Therefore, steps 1-5 in Example 1 would be repeated for each cohort of students enrolled in a specific course. While this approach is more complex, it would result in a more consistent application of scores within each course.

**Example 3: District Strategy**

Another strategy is to use the normative properties of the T-score scale to identify typical performance. Because the mean on the T-score scale is 50 and the standard deviation is 10, average student performance statewide will be around 50. In fact, approximately 68% of Florida students will score between a 40 and a 60. Scores around 60 could be considered above average, and scores around 40 could be considered below average. Similarly, scores around 70 could be considered superior, and scores around 30 could be considered inferior.

This approach uses the properties of the T-score scale to identify a range of T scores for each percentage score or letter grade. In this case, a common standard is implemented district-wide, independent of the course. Once the results are received, adjustments to the score ranges can be made if needed. For those districts with student populations similar to Florida’s total population, fewer adjustments should be required. Table 5 provides an example of possible score ranges and the conversion to report card percentages and letter grades.

**Table 5. Sample Algebra 1 EOC Assessment Grade Derived From T Score**

<b>T-Score Range</b>	<b>Letter Grade</b>	<b>Percentage Score</b>
80-72	A	100%
71-63	A	95%
62-60	B	89%
59-57	B	85%
56-50	C	79%
49-43	C	75%
42-40	D	69%
39-37	D	65%
36-20	F	59%

Again, the examples in this memorandum are intended to provide school districts with possible strategies for assigning meaning to the Algebra 1 EOC Assessment T scores, so that these scores may be used to calculate students’ course grades. These examples are not intended to suggest one strategy over another. There are many more strategies for applying these scores to meet the requirement that they be used in student course grades. If you have questions about the examples provided in this memorandum, or if you would like to discuss an alternative strategy, please feel free to contact me or Dr. Sharon Koon at [Sharon.Koon@fldoe.org](mailto:Sharon.Koon@fldoe.org) or (850) 245-9566.