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Paolo DeMaria, Superintendent of Public Instruction

**DATE:** February 29, 2020  
**TO:** Interested Parties and Stakeholders  
**FROM:** Paolo DeMaria, Superintendent of Public Instruction  
**SUBJECT:** "COMPETENCY SCORE" DETERMINATION

As part of the recently enacted biennial budget bill (Am. Sub. H.B. 166), the General Assembly enacted new, permanent high school graduation requirements for the graduating class of 2023 and beyond (which are also applicable to the 2021 and 2022 classes). As part of those changes, section 3301.0712 (B)(10) of the Revised Code states:

*(10) Not later than March 1, 2020, the department, in consultation with the chancellor and the governor's office of workforce transformation, shall determine a competency score for both of the Algebra I and English language arts II end-of-course examinations for the purpose of graduation eligibility.*

This memo establishes the competency score and provides relevant background context.

## COMPETENCY SCORE

After careful consideration and consultation with the Chancellor and the Governor's Office of Workforce Transformation, the Department has determined that the **competency cut score shall be 684 for both the Algebra I and English language arts II end-of-course examinations.**<sup>1</sup>

## BACKGROUND CONTEXT

Determining a competency score was approached with due consideration to a variety of factors and issues discussed below.

### Ohio's Approach to Determining Performance Levels (Setting Cut Scores) on State Tests:

Determining a "competency score" must take place in the context of *performance levels* that have already been established pursuant to Ohio law. It is important to understand the details of those performance levels and the process used to set the scores that reflect them.

- **Five performance levels.** Ohio law<sup>2</sup> specifies that each state assessment have at least five performance levels, as follows:
  - *Limited;*
  - *Basic;*
  - *Proficient;*
  - *Accelerated; and*
  - *Advanced.*

<sup>1</sup> This same competency score would apply to the Integrated Math I end-of-course exam.

<sup>2</sup> ORC 3301.0712 (A)(5)(a) for high school end-of-course exams; ORC 3301.0710 (A)(2) for other state tests.

- **Four cut scores.** Five performance levels require the identification of four cut scores, one each at the beginning of the *Basic*, *Proficient*, *Accelerated* and *Advanced* ranges. The following table shows the cut scores (denoted by the *first italicized number* in each range) and the score ranges for the state’s Algebra I and English language arts II end-of-course examinations:

Performance Level	Algebra I Range	English Language Arts II Range
<i>Limited</i>	< 682	<679
<i>Basic</i>	682-699	679-699
<i>Proficient</i>	700-724	700-724
<i>Accelerated</i>	725-753	725-741
<i>Advanced</i>	>753	>741

- **Performance level descriptors drive cut score setting.** Cut scores are established based on specifications known as **performance level descriptors**. (*Performance level descriptors for the [Algebra I](#) and [English language arts II](#) end-of-course examinations can be found on the Department’s website.*) Performance level descriptors are statements of expectations for what students at each of the five levels should know and be able to do. The descriptors are developed by teams of Ohio teachers and college faculty and reflect the state’s adopted learning standards in the relevant content area.<sup>3</sup>

Establishing five performance level descriptors is already challenging to those who do the work. Consider the words used to reflect the high-level **meaning** of each of the five performance levels: the descriptor for Limited (both for Algebra I and English language arts) talks about students demonstrating a “minimal command of Ohio’s Learning Standards,” at Basic, students demonstrate a “partial command of Ohio’s Learning Standards” and at Proficient, students demonstrate an “appropriate command of Ohio’s Learning Standards.” At Accelerated, students demonstrate a “strong command of Ohio’s Learning Standards,” and at Advanced, students demonstrate a “distinguished command of Ohio’s Learning Standards.”

- **Test questions are arrayed and bookmarked to establish cut scores.** The performance level descriptors are used to support a cut score setting process known as the bookmark method. For the bookmark method, the state’s test vendor develops a sample test based on the test blueprint developed by the state. The test items are ordered in a booklet from the easiest to most challenging. Using the performance level descriptors as a guide, teams of teachers and faculty “bookmark” the question that reflects a student “barely” meeting a particular level. For example, the first test question that represents “barely” meeting the *Basic* performance-level descriptor serves as the cut score reflecting the low end of the *Basic* range. The first question that represents “barely” meeting the *Proficient* performance-level descriptor serves as the cut score for the low end of the *Proficient* range, and so forth.

Ohio’s process for setting scores has been carefully established and executed for the many years that statewide standardized assessments have been in place. Grounded in industry standards for educational assessment and also utilized in many other state testing programs, this process is considered appropriate and valid, especially in light of the deep participation by classroom teachers.

<sup>3</sup> Algebra I standards can be found [here](#). English language arts II standards are reflected in the grades 9-10 portion of the Ohio Learning Standards: English Language Arts found [here](#).

## Other Considerations:

In addition to understanding Ohio's current five statutorily required performance levels and the process by which they are established, the determination of the competency score should be informed by several other considerations.

- **Current performance percentages:** On the most recent state report card, 64.1 percent of students taking the Algebra I exam scored *Proficient* or better, and 86 percent scored *Basic* or better. Also, 67.1 percent of students taking the English language arts II exam scored *Proficient* or better and 88.9 percent scored *Basic* or better.<sup>4</sup> Intervention and retesting typically lead to modest increases in the overall achievement percentages at each level for any particular class of students at the end of four years. Determining a competency score should be sensitive to the current performance of students. The education system is committed to continuing to improve academic outcomes for students at all levels, and it must prioritize attention on those students with the greatest need.
- **Cut scores do not establish a bright line definition for what students know.** Students can reach a particular score on a standardized test through many different combinations of correct responses. Consequently, achieving a certain score level does not mean that all students at that level have mastered the same knowledge and skills. It is overly simplistic to assume that all students scoring at a particular level (e.g., "Basic" or "Proficient") have mastered a common set of knowledge and skills. Cut scores are not bright line demarcations of what a student knows or does not know.

In fact, research in higher education has shown that students are frequently over diagnosed as underprepared when there is strict adherence to a "college ready" score on a placement test. Many students deemed to need remediation have a high probability of success when taking a college level course.<sup>5</sup> Similarly in the world of work, there is little reliance on test scores as indicators of specific student knowledge. Employers typically have other formal or informal methods for assessing entry-level reading and math skills. (In my own experience, I have yet to interact with a business person who asks an applicant what score they received on a state test.)

- **Students must score at the competency level on both tests to meet the new graduation criteria.** The way in which the "competency" requirement is specified, students must score competent on both tests (Algebra I and English language arts II) in order to meet the requirement for graduation. The law provides no option for a student who might be strong in math, but weaker in English, or strong in English and weaker in math to pursue a different approach for the weaker subject. Determining the competency score should be sensitive to the reality that students must score competent on both tests, regardless of how strong they may be on each subject area individually.
- **Graduation rates vary significantly among various categories of students.** There are significant graduation gaps among various categories of students. For the Class of 2019 cohort, the overall graduation rate was 82%. However, the rate for students with disabilities was only 48%, for economically disadvantaged students 71%, for black students 69.4%, for Hispanic students 73.4% and for English learners 65.2%. Clearly, these metrics illustrate the need to prioritize support for students in these categories to reach the state's definition of graduation.

<sup>4</sup> These numbers represent first time test takers. Many students improve their scores after taking the test again.

<sup>5</sup> <https://www.brookings.edu/research/evidence-based-reforms-in-college-remediation-are-gaining-steam-and-so-far-living-up-to-the-hype/>

- **Limitation on Required Retesting.** H.B. 166 included statutory language (ORC 3301.0711 (B)(11)(c)) that places a limitation on the retesting of students who in 8<sup>th</sup> grade or prior achieve a competency score or a proficient level or higher. Specifically, the statute says:

*“A student shall not be required to retake the Algebra I end-of-course examination or the English language arts II end-of-course examination prescribed under division (B)(2) of section 3301.0712 of the Revised Code in grades nine through twelve if the student demonstrates at least a proficient level of skill, as prescribed under division (B)(5)(a) of that section, or achieves a competency score, as prescribed under division (B)(10) of that section, in an administration of the examination prior to grade nine.”*

It is notable that no mention is made of the “Basic” level as being a part of this limitation which reinforces the idea that the intention was for the competency score to be above the “Basic” level.

## REFLECTION AND ANALYSIS

The statutory directive to determine a “competency score” provides little guiding information about what competency should represent. Given this lack of guidance, some reflection is appropriate.

- Ohio has already established five performance levels for each state test. The law, however, calls for a new score level to be determined, and does not reference the existing levels. This means the “competency score” is different from these other scores – it should not be set as equivalent to “Basic” nor should it be set as equivalent to “Proficient.” The law could have easily required such equivalencies – and not introduced the new concept of “competency.”
- Knowing how the performance level descriptors and cut scores are carefully set, it is not reasonable to expect a committee of teachers and faculty members to be convened to differentiate one more performance level beyond the five that already exist. In other words, attempting to write a brand-new performance level descriptor for “competency” that would be meaningfully different from *Basic* (“*partial* command of Ohio’s Learning Standards”) or *Proficient* (“*appropriate* command of Ohio’s Learning standards”) would be exceedingly difficult to accomplish and would take significant time to accomplish (likely beyond March 2020).
- Under the state’s previous system of graduation requirements (which included a path that requires students to accumulate at least 18-points among the seven high school end-of-course exams<sup>6</sup>), students could graduate without scoring higher than the *Basic* level for the Algebra I and the English II tests (assuming the student earned sufficiently high scores on other tests to meet the overall 18 point requirement, as well as the content-level subscore requirements<sup>7</sup>).

From these points, one can conclude that the “competency score” should not be set using a performance descriptor approach, but rather be set somewhere within the *Basic* range at a point that represents more than just “barely Basic.”

<sup>6</sup> The 18-point path was based on points earned from performance levels on each of the seven high school end-of-course tests -- 5 points for scoring Advanced, 4 points for Accelerated, 3 points for Proficient, 2 points for Basic, and 1 point for Limited.

<sup>7</sup> The subscore requirements were that students needed to score at least 4 points cumulative between the Algebra I and Geometry tests, and 4 points between the English I and English II tests.

## WORKING DEFINITIONS

Rather than approach defining “competency” as relative to a student’s understanding of Algebra I or English II, it was determined that the basis for setting the competency score should be calibrated to job requirements as specified by businesses. In other words, competency should reflect the level of understanding such that a student can perform the mathematics and English language requirements of a job that requires nothing more than a high school diploma. This means that the definition is driven more by business specifications for these lower level jobs than from the standards themselves.

Some jobs that only require a high school diplomas include the following:

- Receptionist/Administrative Assistant
- Customer Service Rep/Salesperson/Cashier
- Truck Driver
- Warehouse/Shipping Worker
- Maintenance Technician
- Groundskeeper
- Personal Care/Home Health Aide
- Food Service/Hospitality Worker
- Job Site/Farm Laborer
- Security Guard

The *working* definitions that informed the Department’s work are as follows:

### For Algebra I:

“Competency” means that the student has a sufficient understanding of, and ability to use mathematics such that he/she can **perform or learn** most of the required mathematics for **a job that generally requires only a high school diploma.**

The student can:

- Use and understand numbers and mathematical concepts;
- Perform basic arithmetic computations and apply mathematics to construct simple models and solve problems;
- Understand basic statistics and data representations
- Reason quantitatively and communicate precisely in the language of mathematics.

### For English Language Arts II:

“Competency” means that the student has a sufficient ability to read, write and use the English language such that he/she can read and understand most basic documents, clearly communicate or write basic information, and **continue to learn** appropriate vocabulary and communication skills as may be **required for a job that generally requires only a high school diploma.**

Further clarifying these definitions, it is important to understand the following:

- “Competency” is **not** college ready (College ready is at the “accelerated” level). At no time has Ohio’s graduation requirement been set at a level considered college ready.
- “Competency” is **not** career ready – although students at this level should be able to engage in the job training that can lead to advancement.

- Most students will far exceed – just as they currently do – the bare minimum for graduation. There is no evidence for any assertion that students or schools/districts will migrate to the lowest level expected.
- Some students will still struggle to complete required high school credits. Not completing required course credits is most common reason for not graduating from high school.

## COMPETENCY SCORE

The department has determined that a cut score of 684 meets the working definition for competency. This determination was made based on discussions with individuals who supervise or have knowledge of employees for which only a high school diploma is required to perform the job and the specific mathematics and English competencies required.

- The score is above the bottom of the Basic score range.
- The score reflects the need for Ohio’s education system to focus improvement efforts on the achievement of student groups who graduate at significantly lower levels than average. For these students we must identify and promote practices that improve academic outcomes, as well as promote paths to graduation that may better allow students to demonstrate their knowledge and skills.

The table below is based on the 2019 graduation cohort. It shows the percentages for all students as well as other major student categories, that score – on both the Algebra I and English Language Arts II end-of-course exams – at Basic and above, 684 and above, and proficient and above. For informational purposes, the table also shows the graduation rate for each category. (NOTE: Test achievement percentages cannot be used to predict a graduation rate.) This table shows that about 77.3% of all students in the Class of 2019 cohort were able to score at the competency score or better on both tests.<sup>8</sup> The competency attainment rate for various categories of students ranges from 30.5% for students with disabilities, to 67.2% for Hispanic students.

### For Both Algebra I and English Language Arts II End-of-Course Exams

	Basic & Above	684 & Above	Proficient & Above	Graduation Rate
All Students	82.53%	77.28%	53.69%	82.00%
Students with Disabilities	38.07%	30.47%	11.58%	48.00%
Economically Disadvantaged Students	70.61%	63.45%	36.00%	71.00%
Black Students	63.02%	55.10%	27.17%	69.40%
Hispanic Students	73.65%	67.19%	41.37%	73.40%
English Learners	47.14%	37.56%	14.51%	65.20%

## Conclusion

Students understand that the more you know, the better off you will be. Ohio’s strategic plan for education, *Each Child, Our Future*, aspires for every child to be challenged, prepared and empowered to reach future success. This vision demands that we support every student in reaching high levels of academic accomplishment. It also demands that every part of the system commit to continuous improvement in the interest of helping every child realize their fullest potential. Many students reach this goal, but we have more work to do to ensure it for all children.

<sup>8</sup> Reaching the competency score on both tests is the requirements of the law.

Standardized assessments are only one way to gauge what a student knows and it able to do. Fortunately, Ohio’s graduation requirements offer students other options, beside test scores, to demonstrate their acquisition of foundational knowledge and skills.<sup>9</sup> We are fully committed to promoting and supporting these options so that students can identify the best approach that suits their abilities, passions and aspirations. That said, I expect that the state graduation rate will likely experience a modest decline as Ohio transitions from the requirements that apply for the Class of 2020 to those that apply for the Class of 2021.

Determining the competency score is not an exact science. In fact, like many other education policy issues, this determination presents a tension among a range of choices. On the one hand, if the score is set too high, a student who is, in fact, ready for success may not graduate. Set too low, and a diploma may be granted to a student who is not ready to succeed. The objective becomes finding a policy position that reflects a middle ground – knowing that only with more information over time will we know whether we have made the right choice. Consequently, the Department will work to monitor how the use of the competency cut score plays out in practice and, if necessary, make future recommendations to refine it.

<sup>9</sup> <http://education.ohio.gov/getattachment/Topics/Ohio-s-Graduation-Requirements/Sections/Classes-of-2023-and-Beyond-Graduation-Requirements/GradReq2023.pdf.aspx?lang=en-US>

# Appendix A

This is an *illustrative* listing of skills and abilities which minimally reflect what the “competency” score means:

With regard to mathematics, a student can:

- Carry out routine procedures to solve straightforward problems.
- Compute accurately and efficiently with familiar numbers
- Recognize connections between mathematical concepts and use basic mathematical reasoning.
- Identify units in familiar formulas involving whole numbers;
- Identify parts of simple linear expressions: terms, factors and coefficients;
- Solve simple linear equations with integer coefficients and inequalities with whole number coefficients in one variable situations, with integer constants and whole number solutions;
- Solve linear equations in two variables to describe a familiar situation using whole numbers supported by algebra manipulatives or diagrams;
- Find square roots of perfect squares;
- Use algebra manipulatives or diagrams and the relationship of polynomials to whole numbers to add and subtract polynomials with like terms;
- Given a straightforward linear relationship in context, write a function;
- Given a graph of a simple function modeling a linear relationship between two quantities, determine where the function is increasing, decreasing, positive, or negative;
- Graph linear functions and show whole number intercepts;
- Match graphs of linear equations to tables of solutions;
- Describe the comparison of center (median, mean) of two different data sets

When reading informational text, a student can:

- Reference textual evidence to support analysis of what the text says explicitly or support analysis of simple inferences drawn from the text;
- Identify a simple central idea; provide a summary of the text;
- Identify how the author unfolds an analysis or series of ideas or events, including the order of points made and how they are introduced and developed;
- Determine, using textual support, the literal meaning of words and phrases;
- Describe how an author’s ideas or claims are presented by particular sentences, paragraphs, or larger portions of a text;
- Identify an explicit perspective or purpose in a text;
- Describe various accounts of a subject told in different mediums;
- Identify the argument and claims in a text, describing basic reasons and evidence that support the claim;
- Identify basic aspects of seminal U.S. documents of historical and literary significance.

When writing, a student can:

- Reference information that demonstrates a basic understanding of grade-level texts;
- Employ simple organizational structure, sentence construction and word choice;
- Demonstrate a basic command of the conventions of standard English grammar, usage, and mechanics.