

ORANGE COUNTY BOARD OF EDUCATION

BOARD AGENDA ITEM

DATE: June 17, 2015

TO: Nina Boyd, Associate Superintendent

FROM: Linda Lindholm, Trustee, District 5
 John Bedell, Trustee, District 4

SUBJECT: Math Standards of the Common Core State Standards

RECOMMENDATION:

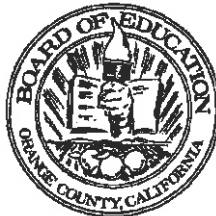
Receive "Statement of Concern and Opinion Regarding the Math Standards of the Common Core State Standards" which was prepared by Linda Lindholm, Trustee, District 5 and John Bedell, Trustee, District 4, Orange County Board of Education.

STATEMENT REGARDING THE COMMON CORE MATH STANDARDS

Orange County Board of Education

Linda Lindholm, District 5 Trustee

John Bedell, District 4 Trustee



6/9/2015

May 1, 2015

Orange County Board of Education members Professor Jack Bedell and Trustee Linda Lindholm have researched concerns regarding the implementation of the Common Core math standards. Specifically, all students should have available to them math pathways that permit access to, and sufficient skills to succeed in, Calculus and other higher math courses in order to maximize their opportunities for admission at the university of their choice. If such pathways are not available, students might not have the opportunity to fulfill their potential, attend the university of their choice, or pursue higher-level STEM careers. If such pathways are available, students who have the work ethic and acquire the math skills necessary will not be disadvantaged.

In addition to current standards for student GPA and SAT and ACT scores, students entering into math, engineering, and physics majors are required to take the Math Placement test after their college acceptance. Not being able to pass that test can result in a student who has already been accepted into a specific major being denied admission into that major. Many majors are highly impacted and acceptance has become very competitive. Concerns have been expressed about how the K-12 math curriculum relates to college preparedness and mathematics dependent professional programs, especially since the proportion of California students requiring math remediation upon reaching college has increased consistently over the years. It is because of these concerns that we have gathered information and prepared this briefing to assist in the decisions students, parents, and teachers make regarding mathematics classes. In a previous draft of this paper, we laid out the concerns in detail. In this draft, we summarize the concerns and detail our findings in response to those concerns.

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Concerns have arisen regarding the implementation of the math standards of the Common Core related to access to the highest levels of high school math. How well does the K-12 curriculum prepare students for college and for mathematics-dependent professional programs? More than 30% of regularly admitted freshmen in the CSU system needed remedial math coursework in Fall 2011, the year prior to the beginning of Common Core implementation in California K-12. Estimates are that more than 80% of incoming community college students require math remediation.

The following concerns have been expressed:

- a. Some districts in California have struggled to implement math pathways that lead to AP or non-AP Calculus in their senior year.
- b. Not having Algebra 2 as juniors would severely limit students' ability to excel in senior year physics and/or chemistry. This could disproportionately impact lower socioeconomic students and further disadvantage their academic progress and entrance into STEM disciplines as well as accredited universities and colleges' business programs that require calculus;
- c. Students who move and transfer to a different district might conceivably be deterred from making academic progress, e.g., if a student is coming from a traditional sequence of Algebra I, Geometry, and Algebra 2, now finds herself in a district with the blended /integrated sequence that started in 8th grade, where is she "put"?

Given these concerns, we researched how Orange County districts are addressing this potential problem and what the Orange County Department of Education (OCDE) can do to support high-quality math education for all students.

A review of Common Core math implementation in Orange County reveals that:

- a. All Orange County districts are implementing Common Core math pathways in such a way that students have access to higher math in their senior year. OCDE's Instructional Services Division provides support to districts in their implementation of these pathways.
- b. Whether Orange County districts adopt the traditional course sequence (twelve districts), or the integrated math sequence (three districts), all lay the foundations in the freshman through junior year courses necessary for a motivated student to proceed to Calculus (AP or non-AP) in their senior year. Under the old California math standards, a student would typically proceed from Algebra II to Pre-Calculus before moving on to Calculus. Under the new California math standards (based on Common Core math standards), the Pre-Calculus content is integrated into the first three years of high school math, so that students have the option of proceeding from either Algebra II (in the traditional title sequence) or Math III (in the integrated math sequence) directly into Calculus (referred to in the California Math Framework, Appendix A, as the Enhanced pathway). Some Orange County districts have created other enhanced or accelerated pathways to Calculus, but all assure that students gain a stronger foundation in the first three years, and avoid a scenario in which they are unable to proceed to Calculus if they choose to do so in their senior year (or are unable to pass a college math course when they move forward).

- c. Transferring districts, and especially transferring states, during a student's high school years has traditionally been a problem in American education. Consistency within the state was enhanced by the adoption of California math standards. Since every state had a different set of math standards, however, moving from one state to another was extremely problematic. The consistency offered by common math standards across more than forty states is a step in the direction of resolving that issue. For students moving from an Orange County district that has chosen a traditional course title track to an Orange County district that has chosen an integrated math track (or vice versa), districts will continue to use a blend of teacher recommendations and the use of diagnostic tools such as district created math placement tests and/or Common Core aligned California State University/University of California's Mathematics Diagnostic Testing Project (MDTP). Districts also have Appendix E: Higher Mathematics Pathways Standards Chart, which clearly outlines the blueprints for both series, making it easier than ever before for districts to identify gaps that may occur; and in turn make the necessary arrangements to support student learning and success.

Recommendations:

1. That the Orange County Department of Education support the work of Orange County districts to ensure full implementation of plans that maximize the math achievement of their students so that more Orange County students are ready for college math without remediation and more Orange County students take and succeed in advanced math courses in high school.
2. That the Orange County Department of Education work to ensure that its own students have access to the most effective math curriculum possible, including advanced math courses that will prepare them for success in college math and STEM careers.