

Frequently Asked Questions about CUSD Secondary Mathematics

In fall 2016, CUSD held presentations for parents and the public to learn more about CUSD's transition to new standards, integrated math courses for both secondary schools, and new curricula for all grades. CUSD received questions and feedback from shareholders at all presentations, and provides the following information as an update:

I. Demographics:

How many secondary districts in San Diego County and/or comparison districts have adopted Integrated Math?

SD County Districts with Integrated Mathematics Course Sequences

- Bonsall Unified School District
- Borrego Springs Unified School District
- Coronado Unified School District 2016
- Escondido Union High School District
- Julian Union High School District
- Momentum Learning (formerly Juvenile Court and Community Schools)
- Mountain Empire Unified School District
- Oceanside Unified School District
- Poway Unified School District
- Ramona Unified School District
- San Diego Unified School District
- San Dieguito Union High School District
- Sweetwater Union High School District
- Vista Unified School District
- Warner Springs Unified School District

SD County Districts with Traditional Mathematics Course Sequences

- Carlsbad Unified School District
- Fallbrook Union High School District
- Grossmont Union High School District (currently in discussions to change to Integrated)
- San Marcos Unified School District
- Valley Center Pauma Unified School District

Are the integrated math courses at CHS approved by UC/CSU?

- CUSD received UC A-G approval for Integrated Math 1, 2, and 3 on 10/7/16.

Do other states from which many of our military-connected students transfer have an integrated math course sequence for high schools?

- Many states have integrated course sequences. Virginia, Texas, Georgia all implement a traditional mathematics pathway.

Are integrated math courses taught in other countries?

- The most current data (2011) Trends in International Math and Science (TIMSS) data shows that Singapore, South Korea, and Taiwan are typically the top three schools in the world in grade 4 and 8 performance. Most of the top performing countries have integrated math and science instruction. More information can be found at: <http://timssandpirls.bc.edu/TIMSS2011/international-results-mathematics.html>

II. Assessment

How and when will student achievement be measured? What will compare it against?

- Grades K-8
 - Formative/Growth: measured by NWEA *Measures of Academic Progress* RIT scores, CUSD Fall, Winter, Spring Local Benchmark Assessments, unit *Ready Common Core* assessments (elementary), and teacher observations
 - Summative: CAASPP/SBAC Math for students in grades 3-8
 - Student performance will be analyzed and compared with current and previous year's grade level performance, grade cohort performance, county and state performance.
- Grades 9-12
 - Formative/Growth: measured by CPM unit assessments and teacher observations
 - Summative: semester grades, PSAT for grades 9-11, and CAASPP/SBAC Math for grade 11
 - Student performance will be analyzed and compared with current and previous year's grade level performance, grade cohort performance, county and state performance.

III. Issues / Themes

How do the new standards define mathematics proficiency?

- The CCSS Eight Standards for Mathematical Practice represent what it means to be proficient in mathematics. A simplified version is that students must be able to deeply understand mathematics concepts, be able to calculate efficiently, and apply mathematics knowledge to real life.

<http://www.corestandards.org/Math/Practice/>

In order to ensure all students become mathematically proficient, a balance of the above must be a part of high quality mathematics instruction. CUSD's adopted curricula, Ready Common Core (K-5) and College Preparatory Mathematics (CPM) for grades 6-12 must be taught with fidelity. Instruction is based on a socratic and constructivist approach. CUSD's vision for high quality mathematics instruction is the following:

CUSD teachers of mathematics, based on knowledge and experience, believe that all students deserve access to high-quality mathematics instruction provided by a teacher who:

- **creates a safe and nurturing environment in which all students have the opportunity to succeed,**

- **supports collaborative learning through thoughtfully and intentionally planned grade/course appropriate lessons aligned with California State Standards for Mathematics,**
- **provides meaningful, rich tasks that engage students in mathematical thinking and reasoning, and**
- **prioritizes students’ voices to be the focus of discourse.**

What is different between the old Algebra 1 course and the new Integrated Math 1 course?

The California Mathematics Framework describes the difference in rigor between the new CA Common Core Math Standards (CCSSM) and the previous math standards. Appendix A of the Math Framework states:

“The CA CCSSM Grade 8 standards are of significantly higher rigor than the Algebra 1 course that many students have taken while in 8th grade....Because many of the topics previously included in the former Algebra I course are in the CA CCSSM for grade eight, the new Algebra I and Mathematics I courses typically start in ninth grade with more advanced topics and include more in-depth work with linear functions, exponential functions and relationships, and go beyond the previous high school standards in statistics.”

What about the other integrated math courses? What is taught?

- This table compares (in a very generic way) the Common Core Integrated Math sequence to the previous high school courses based on the 1997 California math standards. This shows how the level of math content of Common Core has increased compared to our previous math courses.

<p style="text-align: center;">Common Core Math 8</p> <ul style="list-style-type: none"> • Statistics: Bivariate Data • Some “1997 High School Geometry” • 1st half “1997 Algebra 1” 	<p style="text-align: center;">Common Core Math I</p> <ul style="list-style-type: none"> • 2nd half “1997 Algebra 1” • 1st half “1997 Algebra 2” • Some statistics topics • Some “1997 High School Geometry”
<p style="text-align: center;">Common Core Math II</p> <ul style="list-style-type: none"> • Strong emphasis on transformational geometry • Additional “1997 High School Geometry” • Some content in “1997 Algebra 2” 	<p style="text-align: center;">Common Core Math III</p> <ul style="list-style-type: none"> • 2nd half “1997 Algebra 2” • Trigonometry (unit circle, graphing 6 trig. functions, identities, etc.) • Some AP Statistics topics (normal distribution, inference, etc.)

- Descriptions of integrated math courses:
[Math I](#)

[Math II](#)
[Math III](#)

Did CUSD have to choose an integrated high school math sequence?

- The quick answer is “no”. For each grade level from Kindergarten through 8th grade there is a set of standards addressing various math domains, including number, algebra, geometry and statistics. For high school, there are 3 years’ worth of standards that all students will be assessed on at the end of 11th grade (not at the end of each grade level or course). Districts must determine how to arrange the high school standards into courses. The California Math Framework provides guidance by organizing the Common Core high school standards into two sequences: integrated (Math I, II, III) or traditional (Algebra, Geometry, Algebra 2). *The sequences are equivalent in rigor because they are the same set of standards...just in two different orders.* The CUSD Governing Board came to their decision through the recommendations of all CUSD secondary math teachers.

The PSAT and SAT have been redesigned. Why did College Board change the tests?

- The College Board announced recently the redesigned SAT, revised to align with CCSSM, to begin in spring 2016. There is a strong emphasis on data analysis, real-world application, and reasoning skills in varied contexts. There is alignment with the coursework that students will be doing in math based on these new standards. This [side-by-side comparison by the College Board](#) shows differences between the current SAT and redesigned SAT. All Common Core math secondary math courses (Math 6 – Integrated Math III) have a strong emphasis on statistics and probability to support students’ understanding and skill in data analysis.

From the College Board website: “The world needs more people who can solve problems, communicate clearly, and understand complex relationships. The SAT Suite of Assessments focuses on the skills and knowledge that will help today’s students meet that need. The tests are designed to measure the essential ingredients for college and career readiness and success, as shown by research; have a stronger connection to classroom learning; and inspire productive practice. As students advance from grade to grade, the tests will keep pace, matching the scope and difficulty of work found in the classroom.”

I have a high school junior who completed the UC’s three year A-G admission requirement for math, as well as extra math classes beyond the minimum requirement. Should she take math her senior year?

- *Taking mathematics courses through students’ 12th grade year is important for academic preparation for college success no matter what major a student chooses.* The University of California, California State University and California Community Colleges have released a [Statement on Competencies in Mathematics Expected of Entering College Students](#) to provide a clear and coherent message about the mathematics that students need to know and be able to do to be successful in college and is predicated on the following basic recommendation:

For proper preparation for baccalaureate level course work, all students should be enrolled in a mathematics course in every semester of high school. It is particularly important that students take mathematics courses in their senior year of high school, even if they have completed three years of college preparatory mathematics by the end of their junior year. Experience has shown that students who take a hiatus from the study of mathematics in high school are very often unprepared for courses of a quantitative nature in college and are unable to continue in these courses without remediation in mathematics.

IV. Celebrations

- CUSD's decisions to transition to new instructional models, course sequences, and curricula were very thoughtful decisions, involving teachers across the district who engaged in intense professional development and discourse, observed neighboring schools, analyzed available resources, and the like.
- CUSD students at all levels are becoming more highly engaged in mathematics.

V. More Information:

- <http://coronadousd.net/cusd-mathematics/>
- CPM comparison to other high school mathematics materials
<http://www.edreports.org/math/reports/compare.html?level=hs>
- Hanover Research <http://gssaweb.org/wp-content/uploads/2015/11/Supporting-an-Integrated-Mathematics-Curriculum.pdf>