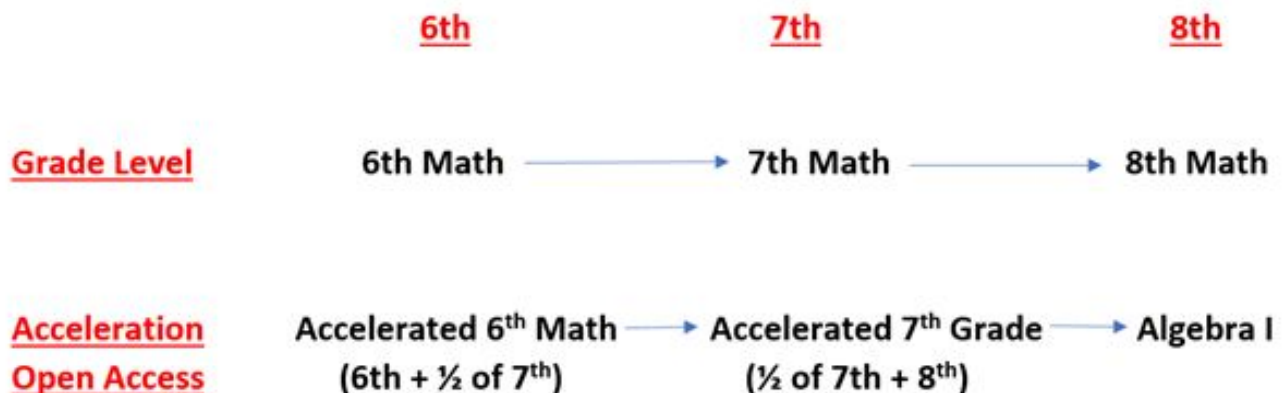


**Torrance Unified School District**  
**Frequently Asked Questions about Middle School Math Pathways**

The purpose of this document is to provide information about our middle school math program, and to inform you of our math course pathways. We believe that selecting an appropriate math course is an important decision and we want our families to be well informed regarding their child's math options. Torrance Unified School District is committed to ensuring all our students are engaged in a challenging, rigorous mathematics curriculum that supports individual student learning needs. Further questions should be directed to your student's current math teacher.

**1. How were the new middle school math pathways developed?**

A group of secondary math teachers and administrators (Math Leadership Committee) met several times during the school year 2016-2017 to analyze the current pathways. The Math Leadership Committee then carefully designed the new math pathways for middle schools and these recommendations were presented to all middle school math teachers for feedback. After gathering input from stakeholders, the new math pathways for TUSD were presented to and approved by the Board of Education in April 2017. The development of the new math pathways was handled with care to ensure that students master and fully understand all important topics in the mathematics curriculum, and that the continuity of the mathematics learning progression is not disrupted.



## 2. What are the two pathways in middle school math?

- **Grade Level** - Most students will follow the Grade Level pathway which includes grade level content, and may result in Pre-Calculus being taken during the senior year. It should be understood that this is a very appropriately rigorous math progression recommended by the Common Core State Standards (CCSS), which, with successful completion, will qualify students for higher education options beyond high school. Students who start 6th grade on this Grade Level pathway may still have opportunities to take AP Calculus or AP Statistics in 12th grade if they choose an option to accelerate in high school.
- **Acceleration (Open Access)** - This pathway compacts three years of middle school math into two years and allows students to begin Algebra I in 8th grade rather than 9th grade. This pathway may lead to AP Calculus or AP Statistics as a senior in high school. The accelerated pathway is open access. As parents, you have the right to enroll your student into accelerated math courses by requesting it. However, your child's teacher will be able to provide information about your student's progress and performance in math so that you, as parents, can make an informed decision about whether this pathway is appropriate for your child. If you do not agree with your child's math course placement, please contact the principal of the middle school your child is (or will be) attending.

## 3. How rigorous are the Mathematics Common Core State Standards?

The Common Core State Standards for Mathematics build on the best of existing standards and reflect the skills and knowledge students will need to succeed in college, career, and life. Rigor refers to deep, authentic command of mathematical concepts, not making math harder or introducing topics at earlier grades. To help students meet the standards, TUSD teachers are committed to pursuing, with equal intensity, three aspects of rigor: conceptual understanding, procedural skill and fluency, and application.

- **Conceptual understanding:** The standards call for conceptual understanding of key concepts, such as place value and ratios. Students must be able to access concepts from a number of perspectives in order to see math as more than a set of mnemonics or discrete procedures.
- **Procedural skills and fluency:** The standards call for speed and accuracy in calculation. Students must practice core functions, such as single-digit multiplication, in order to have access to more complex concepts and procedures. Fluency must be addressed in the

classroom or through supporting materials, as some students might require more practice than others.

- Application: The standards call for students to use math in situations that require mathematical knowledge. Correctly applying mathematical knowledge depends on students having a solid conceptual understanding and procedural fluency.

#### **4. How do the CCSS Math 8 and CCSS Algebra 1 courses compare to the former Algebra 1 course?**

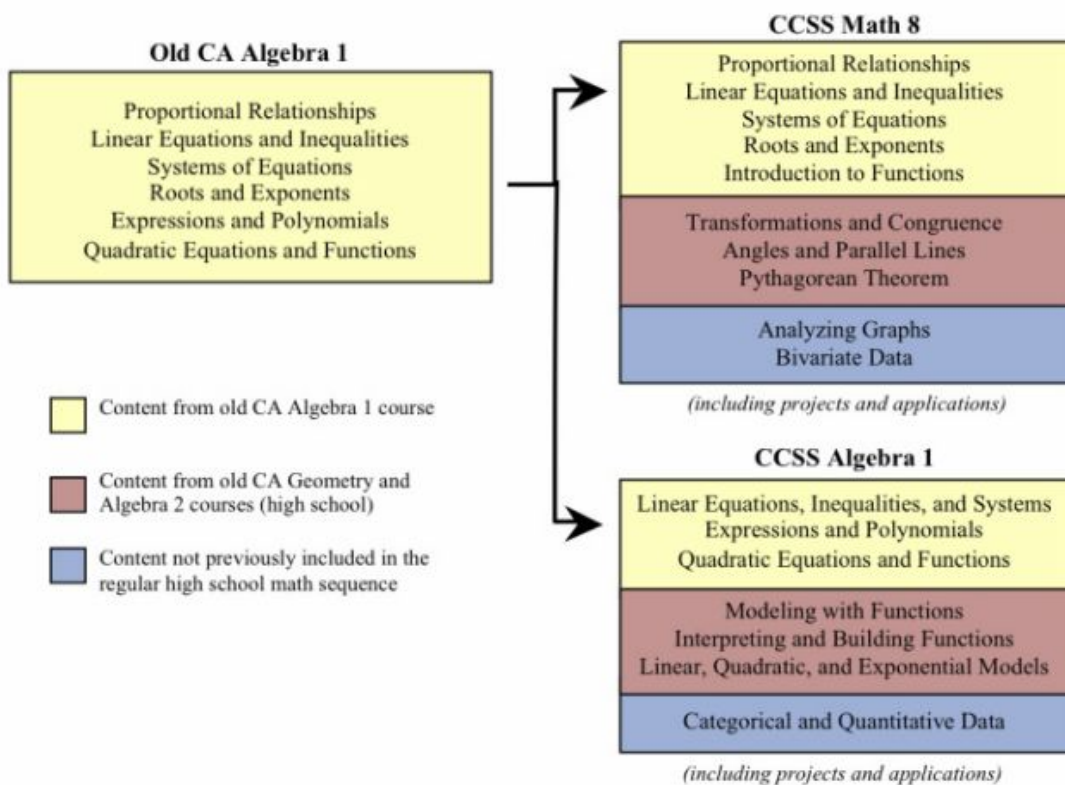
The standards that defined an Algebra 1 course under the former California standards are now divided between the CCSS Math 8 course and the CCSS Algebra 1 course, as shown below. CCSS Math 8 and CCSS Algebra 1 courses also include content from more advanced high school courses and concepts not previously taught in high school math, especially statistics.

- ***The CCSS-M grade-eight standards are significantly more rigorous than the Algebra I course that many students took in eighth grade.***

The CCSS-M grade eight course addresses the foundations of algebra by including content that was previously part of the Algebra I course (before CCSS) - such as a more in-depth study of linear relationships and equations, a more formal treatment of functions, and the exploration of irrational numbers. For example, by the end of the CCSS-M for grade eight, students will have applied graphical and algebraic methods to analyze and solve systems of linear equations with two variables. The CCSS-M for grade eight also includes geometry standards that relate graphing to algebra in a way that was not explored previously. Additionally, the statistics presented in the CCSS-M for grade eight are more sophisticated than those previously included in middle school and connect linear relations with the representation of bivariate data.

- ***The CCSS-M Algebra I builds on the CCSS-M grade-eight math. Therefore, it is more advanced than the previous courses.***

Because many of the topics included in the former Algebra I course are in the CCSS-M for grade eight, the CCSS-M Algebra I course contains more advanced topics and in-depth work with linear functions and exponential functions and relationships, and goes beyond the previous high school standards for statistics.



## 5. What guidelines should be taken into account when families are considering an accelerated pathway?

Placing students in a course pathway for which they are not adequately prepared can have negative consequences. Premature placement of students into an accelerated pathway should be avoided at all costs. “Learning the mathematics prescribed by CCSS-M requires that all students, including those most accomplished in mathematics, rise to the challenge by spending the time to learn each topic with diligence and dedication.

Maintaining motivation and engagement in accelerated mathematics is essential for some students who excel in mathematics. Slowing down instruction or restricting access to accelerated sequences may discourage and disengage some students from their progress in math. Students who are capable of moving more quickly deserve thoughtful attention, both to ensure that they are challenged and that they master the full range of mathematical content skills - without omitting critical concepts and topics. Care must be taken to ensure that students fully understand all important topics in the mathematics curriculum, and that the continuity of the mathematics learning progression is not disrupted.

Before a student is placed on an accelerated pathway, serious efforts must be made to consider solid evidence of the student's conceptual understanding, knowledge of procedural skills, fluency, and ability to apply mathematics. The decision to accelerate is best made when both school and family are involved, using solid, objective evidence of student learning to ensure success.

#### **6. What measures are encouraged to use to determine a student's readiness for acceleration?**

- Strong mathematics understanding and skills
  - California Assessment of Student Performance and Progress
  - Class grades
  - Mathematics Practice Standards
- Mature character traits and strong work ethics
  - Accountability
  - Responsibility
  - Self-Discipline
  - Persistence
  - Academic Integrity

#### **5. Can my 8th grade student take Geometry?**

Yes, this option is designed for students who have been identified as highly capable in mathematics, with abilities far beyond their grade level. Students must demonstrate their advanced mathematics knowledge through an assessment in order to qualify for this placement. Please contact your child's math teacher for more information.

#### **6. Will there be any options for my child to accelerate in high school?**

Yes, there will be other options for accelerating math in high school. Some students may not have the necessary preparation to enter an Accelerated Pathway but may still develop an interest in taking advanced mathematics, such as AP Calculus or AP Statistics in their senior year. For students who study the eighth-grade standards in grade eight, there are pathways that will lead them to advanced mathematics courses in high school. Those students who are interested in acceleration options in high school are advised to speak directly to their high school counselors or teachers.