

MATHEMATICS PLACEMENT - Grade 8

To make the course placement recommendation, current grade mathematics teachers used student grades, the results of a cumulative mathematics assessment and previous standardized assessments, the teacher's knowledge of the student, and the expectation for next year's course. This process led to the professional judgment that we believe is in the best interest of your child. All students will build a strong foundation in mathematics at a pace which develops each student's mathematical understanding and ability to apply concepts to problems.

We offer three core math courses in 8th grade – one course in which students learn the content of the grade 8 standards and two courses in which students learn the content of the High School Algebra 1 standards. Below we have included a description of each course and a map of courses from grades 7–9, for your reference. **Your student's placement will be shared with you in the Family Aspen Portal at 4pm on 5/5/26.** Please contact your child's math teacher with any questions or concerns.

Grade 8 Mathematics

Students in this course will learn the content and practices from the Grade 8 MA Curriculum Frameworks for Mathematics. All students will build a strong foundation in mathematics at a pace which develops each student's mathematical understanding and ability to apply concepts to problems. Topics in this course will include, but are not limited to:

- Expressions and Equations
- Formulating, Reasoning and Modeling with Linear Equations and Functions
- Perimeters, Area, and Volume of Geometric Figures
- Systems of Linear Equations
- Transformations, Congruence, and Similarity of Geometric Figures
- Exponent rules and use of Scientific Notation
- Emphasis on word problem and applications
- Development of problem solving strategies and independent thinking

Algebra 1 Comprehensive*

This course aligns with our 7/8 Compacted Math course. Students entering from Grade 7 Mathematics must also complete the Geometry UA or self-study. Students in this course will learn the content and practices from High School Algebra 1. Students will study various approaches and strategies for solving algebraic problems. Topics in this course will include, but are not limited to:

- Linear Equations and Inequalities
- Linear Functions
- Systems of Equations and Inequalities
- Laws of Exponents
- Polynomial Operations
- Quadratic Equations and Parabolas
- Radicals
- Mathematical Applications and Modeling

**Students in Algebra courses are not eligible for our Math Center Intervention courses.*

Algebra 1 Extensive

Students in this course will learn the content and practices from High School Algebra 1 Advanced. Students in this course present more abstract thinking, approach problem solving in different ways, independently seek connections to prior knowledge, and are comfortable with a high degree of independent work. Topics in this course will include, but are not limited to:

- Linear Equations and Inequalities
- Linear Functions
- Systems of Equations and Inequalities
- Exponential Functions
- Polynomial Operations
- Quadratic Equations and Parabolas
- Radicals and Complex Numbers
- Rational Applications and Modeling
- Mathematical Applications and Modeling
- Emphasis on independent thinking, problem solving, and mathematical rigor

Number Theory

The Number Theory course is available for students who have successfully completed Algebra 1. Number Theory is the branch of mathematics that focuses on the study of whole numbers, integers and their properties. This course is structured to promote the development of new mathematical ideas through the exploration of the topics within the Art of Problem Solving textbook, Introduction to Number Theory. Topics include primes & composites, multiples & divisors, prime factorization and its uses, base numbers, modular arithmetic, divisibility rules, and linear congruences. Students in this course will build a unique collaborative mathematical community in which they will use multiple problem solving approaches to solve problems and explore solutions.

New: Geometry UA

The Geometry course is available for students who have successfully completed Grade 7 Mathematics and have been recommended for Algebra 1 Comprehensive.

Our new Geometry course is designed to be taken simultaneously with Algebra 1 Comprehensive. This one-semester course meets 3 days per 6-day cycle. The content focus will be on the standards from the MA Curriculum Frameworks for Mathematics from Grade 8 in Geometry. These concepts include: properties of rotations, reflections, translations, and dilations; understanding congruence and similarity; solving real-world and mathematical problems involving volume of cylinders, cones, and spheres; sum of angles in a triangle and angles when parallel lines are cut by a transversal; and applying the Pythagorean Theorem.