

Year at a Glance - Enhanced Math 7/8

What Students Learn
<p>Students in the first of our enhanced math courses begin the year by developing an understanding of operations with rational numbers and extend their understanding of fractions and whole numbers to operations with rational numbers. This leads them into expanding their knowledge on decimal expansion of rational numbers and making sense of numbers using scientific notation. Students formulate expressions and equations in one variable and use the equations to solve real-world and mathematical problems. A critical area of instruction is proportional relationships, including percentages, as a foundation for the study of linear relationships. Students write expressions in equivalent forms and use algebraic reasoning to find solutions to solve multi-step equations and inequalities. Students recognize proportional and linear relationships given multiple representations. They inspect the rate of change of linear equations and interpret the equation $y = mx + b$. They solve problems that apply these concepts in various contexts. Another critical area of instruction is transformational geometry where students connect proportionality with area and volume by investigating similar objects. They work with two- and three-dimensional shapes to solve problems involving area, surface area, and volume. Students also investigate chance processes through the use of probability models. They extend their work with single data distributions to compare two different data distributions and address questions about differences between populations.</p>

Unit Titles (Time Frame*)	Overview of Depth of Mastery
1. Rational Numbers & Exponents (5 weeks)	<p><u>Enh Math 7/8 students work towards mastery:</u></p> <ul style="list-style-type: none"> ● Building fluency in arithmetic with rational numbers ● Simplifying expressions with integer exponents (positive, negative, and zero) ● Solving 2-step equations using properties ● Understanding and analyzing the constant of proportionality and understanding proportional relationships in multiple representations ● Applying proportional reasoning to percent application scenarios ● Defining and comparing linear functions in multiple representations ● Understanding congruence & similarity through rotations, reflections, translations & dilations ● Knowing and applying formulas for area and perimeter of 2-D figures (including circles) ● Using random sampling to draw inferences about a population <p><u>Enh Math 7/8 students work towards fluency:</u></p> <ul style="list-style-type: none"> ● Knowing that there are numbers that are not rational, and approximate them by rational numbers. ● Performing operations with scientific notation ● Manipulating algebraic and numeric expressions by applying order of operations ● Solving multi-step equations using properties of rational numbers (Distributive Property, combine like terms) ● Knowing and applying the formulas for surface area of prisms and the volume of cylinders, cones, & spheres ● Interpreting, developing, and understanding probability models ● Applying statistical models to samples in order to generalize their properties to a population
2. Expressions, Equations, and Inequalities (5 weeks)	
3. Proportional Reasoning & Linear Relationships (7 weeks)	
4. Geometry: Construction & Angle Relationships (3 weeks)	
5. Geometry: Congruence & Similarity Transformations (5 weeks)	
6. Geometry: Area & Volume (3 Weeks)	
7. Probability (3 weeks)	
8. Statistics (3 weeks)	

*All time frames are approximations based on student progress and understanding