

Year at a Glance - Enhanced Math 7/8

What Students Learn

Students in the first of our enhanced math courses begin the year by interpreting and understanding probability models. Students then continue to develop 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 out of very large and very small numbers using scientific notation. Students build on this understanding and use the arithmetic of rational numbers and exponents as they formulate expressions and equations in one variable and use these equations to solve real-world and mathematical problems.

A critical area of instruction is an understanding and the application of 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 and equations with variables on both sides. Students recognize proportional and linear relationships given descriptions, graphs, equations and/or tables. 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. They extend their work with single data distributions to compare two different data distributions and address questions about differences between populations.

Unit Numbers and Titles	Overview of Depth of Mastery
1. Probability (3 weeks)	<p><u>Enh Math 7/8 students should master:</u></p> <ul style="list-style-type: none"> ● Fluency in arithmetic with rational numbers ● 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 of change scenarios ● Knowing and applying formulas for area and perimeter of 2-D figures <p><u>Enh Math 7/8 students work towards fluency in:</u></p> <ul style="list-style-type: none"> ● Solving multi-step equations/inequalities with rational numbers. ● Comparing rational and irrational numbers ● Manipulating algebraic and numeric expressions ● Applying statistical models to samples in order to generalize their properties to a population ● Simplifying expressions with integer exponents ● Knowing and applying the formulas for volume/surface area of prisms and pyramids ● Understanding congruence & similarity through rotations, reflections, translations & dilations ● Understanding linear relationships in multiple representations <p><u>Enh Math 7/8 students are introduced to:</u></p> <ul style="list-style-type: none"> ● Interpreting, developing, and understanding probability models ● Describing the shapes of cross sections of 3D solids, and calculating the volume of cylinders, cones & spheres ● Using random sampling to draw inferences about a population ● Operations with scientific notation
2. Rational Numbers & Exponents (5 weeks)	
3. Expressions, Equations, and Inequalities (5 weeks)	
4. Proportional Reasoning & Linear Relationships (7 weeks)	
5. Geometry: Construction & Angle Relationships (3 weeks)	
6. Geometry: Congruence & Similarity Transformations (5 weeks)	
7. Geometry: Area & Volume (3 weeks)	
8. Statistics (3 weeks)	