Math: Grade 8

UNIT/Weeks (not consecutive)	Timeline/Topics	Essential Questions
.8	**Real Numbers, Exponents, and Scientific Notation** • Integer Exponents • Scientific Notation	• How can you use scientific notation to solve real world problems? • How can you use exponents to model repeated multiplication and division? • How do you develop and use the properties of integer exponents? • How can you use scientific notation to express very large and very small quantities?
5	**Proportional and Nonproportional Relationships and Functions** • Proportional Relationships • Rate of Change and Slope • Unit Rates and Slope • Nonproportional Relationships • Graphing Linear Relationships	• How can you use linear equations to solve real world problems? • How can you use functions to solve real world problems? • What are some characteristics that you can use to describe functions? • How can you use tables, graphs, and equations to represent proportional situations? • How do you find a rate of change or a slope? • How do you interpret the unit rate as slope?
3	**Transformational Geometry** • Congruent Figures • Dilations • Similar Figures	• How can you use transformations and congruence to solve real world problems? • How can you describe the effect of a dilation on the coordinates using an algebraic representation? • How do you describe the properties of translation

		and their effect on the congruence and orientation of figures? • How do you describe the properties of reflection and their effect on the congruence and orientation of figures? • How can transformations be used to verify that two figures have the same shape and size? • How do you describe the properties of dilations?
3.8	**Measurement Geometry** • Parallel Lines cut by Transversal • Angle Theorems for Triangles • Pythagorean Theorem • Converse of Pythagorean Theorem • Distance Formula • Volume	• How can you use angle relationships in parallel lines and triangles to solve real world problems? • What can you conclude about the measures of the angles of a triangle? • How can you prove the Pythagorean Theorem and use it to solve real world problems? • How can you test the converse of the Pythagorean Theorem and use it to solve problems? • How can you use the Pythagorean Theorem to find the distance between teo points on a coordinate plane? • What can you conclude about the angles formed by parallel lines that are cut by a transversal? • How can you determine when two angles are similar? • How do you find the volume of a cylinder? • How do you find the volume of a cone? • How do you find the volume of a sphere? • How can you apply the volume formulas for cylinders, cones, and spheres to real-world problems?

6.6	**Solving Equations and Systems of Equations** • Writing Linear Equations • Linear Relationships and Bivariate Data • Functions • Multistep Equations • Distributive Property • Solutions of Equations • Systems of Equations • Special Equations	• How can you use equations with variables on both sides to solve real world problems? • How can you represent and solve equations with the variable on both sides? • How can you use systems of equations to solve real-world problems? • How do you solve systems with no solution or infinitely many solutions? • How do you use the Distributive Property to solve equations?
4.6	**Statistics** • Scatter Plots • Two Way Tables	• How can you use scatter plots to solve real world problems? • How can you use two-way frequency tables to solve real world problems? • How can categorical data be organized and analyzed? • How can you use a trend line to make a prediction from a scatter plot?
2	**Foundations For Algebra** • Variables and expressions • Order of operations • The distributive property • An introduction to equations • Using tables to solve equations • Graphing in the coordinate plane • Patterns, equations, and graphs	• How can you represent quantities, pattern, and relationships? • How are properties related to Algebra?
4	**Solving Equations**	• What kinds of relationships can proportions represent?

	• Modeling one-step equations • Solving one–step equations • Solving two-step equations • Solving multi-step equations • Modeling equations with variables on both sides • Solving equations with variables on both sides • Literal equations and formulas • Finding perimeter, area, and volume • Ratios, rates, and conversions • Solving proportions • Proportions and similar figures • Percents • Change expressed as a percent	• Can equations that appear to be different be equivalent? • How can you solve equations?