Sterling Middle School Scope and Sequence

Math 7	Cycle 1	Cycle 2	Cycle 3
Central Concepts(s)	**Scaled Copies** **Ratios and Proportions** **Circles** **Fractions, Decimals and Percents**	**Fractions, Decimals and Percents - continued** **Integers and Absolute Value** **Expressions and Equations** **Pythagorean Theorem - Irrational Numbers**	**Angles and Triangles** **Area, Surface Area and Volume** **Statistics** **Probability**
Supporting Concepts	**Scaled Copies** Scale Factor Constant of Proportionality **Ratios and Proportions** Ratios and Rates Proportions Scale Drawings Writing Proportions Solving Proportions Slope Direct Variation The Percent Proportion **Circles** Circles and Circumference Perimeters of Composite Figures Area of Circles **Fractions, Decimals and Percents** Fraction Operations test of edit Decimal Operations Percents and Decimals Comparing and ordering Fractions/Decimals/Percents The Percent Equation Percents of Increase and Decrease Discounts and Markups Simple Interest	**Integers and Absolute Value** Integers and Absolute Value Adding Integers Subtracting Integers Multiplying Integers Dividing Integers **Expressions and Equations** Algebraic Expressions Adding and Subtracting Linear Expressions Solving Equations Using Addition or Subtraction Solving Equations Using Multiplication or Division Solving Two-Step Equations Writing and Graphing Inequalities Solving Inequalities Using Addition or Subtraction Solving Inequalities Using Multiplication or Division Solving Two-Step Inequalities Solving Simple Equations Solving Multistep Equations Solving Equations with Variables on Both Sides Rewriting Equations and Formulas	**Angles and Triangles** Adjacent and Vertical Angles Complementary and Supplementary Angles Triangles Parallel Lines and Transversals Angles of Triangles Angles of Polygons Using Similar Triangles **Area, Surface Area and Volume** Area of Composite Figures Surface Area of Prisms Surface Area of Pyramids Surface Area of Cylinders Volumes of Prisms Volumes of Pyramids Volumes of Cylinders Volumes of Cones Volumes of Spheres Surface Areas and Volumes of Similar Solids **Statistics** Samples & Populations Comparing Populations Scatter Plot Lines of Fit Two-Way Tables Choosing a Data Display **Probability** Outcomes & Events Probability Experimental & Theoretical Probability Compound Events Independent & Dependent Events
Essential Qustions	**Ratios and Proportions** How do rates and proportions help you describe or solve real-life problems? How can proportions help you decide when things are "fair"? How can you use ratio tables and cross products to solve proportions? How can you enlarge or reduce a drawing proportionally? How can you compare two rates graphically? How can you use a graph or equation to show the relationship between two quantities that vary directly? **Circles** How can you find the circumference of a circle? How can you find the perimeter of a composite figure? How can you find the area of a circle? **Fractions, Decimals and Percents** How can you use a number line to order rational numbers? How can you use what you know about adding integers to add rational numbers? How can you use what you know about subtracting integers to subtract rational numbers? Why is the product of two negative rational numbers positive? How does the decimal point move when you rewrite a percent as a decimal and when you rewrite a decimal as a percent? How can you use models to estimate percent questions? How can you use an equivalent form of the percent proportion to solve a percent problem? What is a percent of decrease or percent of increase? How can you find discounts and selling prices? How can you find the amount of simple interest earned on a savings account? How can you find the amount of interest owed on a loan? How can you order numbers that are written as fractions, decimals, and percents?	**Integers and Absolute Value** How can you use integers to represent the velocity and the speed of an object? Is the sum of two integers positive, negative, or zero? How can you tell? How are adding integers and subtracting integers related? Is the product of two integers positive, negative, or zero? How can you tell? Is the quotient of two integers positive, negative, or zero? How can you tell? **Expressions and Equations** How can you use inductive reasoning to discover rules in mathematics? How can you test a rule? How can you solve a multi-step equation? How can you check the reasonableness of your solution? How can you solve an equation that has variables on both sides? How can you use a formula for one measurement to write a formula for a different measurement? **Pythagorean Theorem - Irrational Numbers** If the area of a square is 10, what is the length of the side of the square? What is an irrational number? Can I construct a line that has an irrational number as its length?	**Angles and Triangles** What can you conclude about the angles formed by two intersecting lines? How can you classify two angles as complementary or supplementary? How can you construct triangles? How can you describe angles formed by parallel lines and transversals? How can you describe the relationships among the angles of a triangle? How can you find the sum of the interior angle measures and the sum of the exterior angle measures of a polygon? How can you use angles to tell whether triangles are similar? **Area, Surface Area and Volume** How can you find the area of a composite figure? How can you find the surface area of a prism? How can you find the surface area of a pyramid? How can you find the surface area of a cylinder? How can you find the volume of a prism? How can you find the volume of a pyramid? How can you find the volume of a cylinder? How can you find the volume of a cone? How can you find the volume of a sphere? When the dimensions of a solid increase by a factor of k, how does the surface area change? How does the volume change?

NC State Standards Alignment	Ratios and Proportions	Integers and Absolute Value	Angles and Triangles
	7.RP.1	7.NS.1	7.G.2
	7.RP.2	7.NS.2	7.G.5
	7.RP.3	7.NS.3	8.G.5
	7.G.1	**Expressions and Equations**	**Area, Surface Area and Volume**
	Circles	7.EE.1	7.G.3
	7.G.4	7.EE.2	7.G.6
	Fractions, Decimals and Percents	7.EE.3	8.G.9
	7.NS.1	7.EE.4	**Statistics**
	7.NS.2	8.EE.7	7.SP.1
	7.NS.3		7.SP.2
			7.SP.3
			7.SP.4
			8.SP.1
			8.SP.2
			8.SP.3
			8.SP.4
			Probability
			7.SP.5
			7.SP.6
			7.SP.7
			7.SP.8