Cartersville Middle School- Seventh Grade Math						
Topic of Study	**Operations with Rational Numbers**	**Expressions & Equations**	**Ratios & Proportional Relationships**	**Geometry**	**Inferences**	**Probability**
Big Ideas	• Students will develop a deeper understanding of numbers. • Express different representations of rational numbers (e.g., fractions, decimals, and percents) • Interpret negative numbers in everyday context (e.g., sea level change) • Positive and negative numbers are often used to solve problems in everyday life.	• Solve multi- step equations & discuss the difference between equations & expressions. • Use variables to represent numbers in any mathematical problem. • Understand the difference in an expression & an equation. • Write & solve multi-step equations including all rational numbers. • Recognize the differences & similarities between equations & inequalities.	• Analyze proportional relationships by graphing in the coordinate plane • Distinguish proportional relationships from other kinds of mathematical relationships • Fractions, decimals, and percents can be used interchangeably. • Ratios and rates use multiplication/division to represent relationships between two quantities. • The constant of proportionality is also considered to be the unit rate.	• Construct triangles from 3 measures of angles or sides; given conditions, determine what and how many type(s) of triangles are possible to construct. • Describe the two-dimensional figures that result from slicing three-dimensional figures. • Identify and describe supplementary, complementary, vertical, and adjacent angles. • Write & solve equations using the understanding of the above angles. • Explain the relationships between the angles formed by two intersecting lines. • Solve mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	• Understand that statistics can be used to understand samples of the population; generalizations are valid only if the sample is representative of that population. • Understand random sampling • Use data from random samples to draw inferences about populations • Assess the degree of visual overlap of two numerical data distributions with similar variability •Study various measures of variability. •Use measures of center and measures of variability from random samples to draw informal comparative inferences about two populations.	• Probabilities are fractions derived from modeling real world experiments & simulations of chance. • Model real world experiments through trials & simulations • The probability of a given event can be represented as a fraction between 0 & 1. • Probabilities are similar to percents. • The experimental probability or relative frequency of outcomes of an event can be used to estimate the exact probability of an event. • Tree diagrams and arrays are useful for describing relatively small sample spaces and computing probabilities.

Math Practices	1 Make sense of problems and persevere in solving them. 2 Reason abstractly and quantitatively. 3 Construct viable arguments and critique the reasoning of others. 4 Model with mathematics. 5 Use appropriate tools strategically. 6 Attend to precision. 7 Look for and make use of structure. 8 Look for and express regularity in repeated reasoning.