Ratio and Proportional Relationships		
6	7	8
Understand ratio concepts and use ratio reasoning to solve problems. NC.6.RP.1 Demonstrate a ratio relationship with whole numbers using pictures or numbers. NC.6.RP.3 Find equivalent ratios by multiplying or dividing the quantities by the same whole number	**Analyze proportional relationships and use them to solve real-world and mathematical problems.** NC.7.RP.1 Model part-to-whole and part-to-part ratios to compare two measures of the same type	

The Number System		
6	7	8
Apply and extend previous understandings of multiplication and division to divide fractions by fractions. NC.6.NS.1 Compare the relationships between two-unit fractions. Compute fluently with multi-digit numbers and find common factors and multiples. NC.6.NS.2 Apply the concept of fair share and equal shares to divide. NC.6.NS.3 Solve two-factor multiplication problems with products up to 50 using concrete objects and using a calculator. **Apply and extend previous understandings of numbers to the system of rational numbers.** NC.6.NS.5 Use integers to describe real world context, include zero and negative numbers.	**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.** NC.7.NS.1 Add fractions with like denominators (halves, thirds, fourths, and tenths) with sums less than or equal to one. NC.7.NS.2 a. Solve multiplication problems with products up to 100 using a calculator. b. Solve division problems with divisors up to five and also with a divisor of 10 without remainders. c. Express any remainder as a faction. NC.7.NS.3 Solve one-step real-world problems involving decimal numbers to the tenths place	**Know that there are numbers that are not rational and approximate them by rational numbers.** NC.8.NS.1 Subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends less than or equal to one. NC.8.NS.2 a. Express a fraction with a denominator of 100 as a decimal. b. Compare decimal quantities using less than (<), greater than (>), or equal to (=), in real-world examples to the hundredths place.

Expressions and Equations		
6	7	8
Apply and extend previous understandings of arithmetic to algebraic expressions. NC.6.EE.1 Identify equivalent number sentences. NC.6.EE.3 Apply the properties of addition to identify equivalent numerical expressions	**Use properties of operations to generate equivalent expressions.** NC.7.EE.1 Use one of the four operations to determine if expressions are equivalent. NC.7.EE.2 Identify arithmetic sequences where the difference between two consecutive terms is constant. **Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.** NC.7.EE.4 Use the concept of equality with models to solve one-step addition and subtraction equations.	**Work with radicals and integer exponents.** NC.8.EE.1 Identify the meaning of an exponent (limited to single digits and exponents of 2). NC.8.EE.3 Compose and decompose whole numbers up to 999. NC.8.EE.5 Given a table or graph with identified points, determine a ratio that describes the relationship between quantities. **Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.** NC.8.EE.7 Solve simple algebraic equations with one variable using addition and subtraction.

Geometry		
6	7	8
Solve real-world and mathematical problems involving area, surface area, and volume. NC.6.G.1 Solve real-world and mathematical problems about area using unit squares.	**Draw, construct, and describe geometrical figures and describe the relationships between them.** NC.7.G.1 Identify two similar geometric shapes that are proportional in size and in the same orientation. NC.7.G.2 Recognize geometric shapes with given conditions. **Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.** NC.7.G.4 Determine the perimeter of a rectangle by adding the measures of the sides. NC.7.G.5 Recognize angles that are acute, obtuse, and right. NC.7.G.6 Determine the area of a rectangle using the formula for length × width, and confirm the result using tiling or partitioning into unit squares.	**Understand congruence and similarity using physical models, transparencies, or geometry software.** NC.8.G.2 Identify congruent shapes after transformation (translation, rotation, and reflection). NC.8.G.4 Identify similar shapes after dilation (resizing). NC.8.G.5 Compare any angle to a right angle, and describe the angle as greater than, less than, or congruent to a right angle. **Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.** NC.8.G.9 Use the formula for volume to solve real-world and mathematical problems (limited to volume of rectangular prisms).

Functions		
6	7	8
		Define, evaluate, and compare functions. NC.8.F.2 Given a linear function table containing at least 2 complete ordered pairs, identify a missing number that completes another ordered pair (limited to linear functions). **Use functions to model relationships between quantities.** NC.8.F.4 Determine the values or rule of a function using a graph or a table

Statistics and Probability		
6	7	8
Develop understanding of statistical variability. NC.6. SP.1 Display data on a graph or table that shows variability in the data. Summarize and describe distributions. NC.6. SP.4 Summarize data distributions shown in graphs or tables.	**Use random sampling to draw inferences about a population.** NC.7. SP.1 Answer a question related to the collected data from an experiment, given model of data, or from data collected by the student. **Draw informal comparative inferences about two populations**. NC.7. SP.3 Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph. **Investigate chance processes and develop, use, and evaluate probability models.** NC.7. SP.5 Describe the probability of events occurring as possible or impossible.	**Investigate patterns of association in bivariate data.** NC.8. SP.1 Construct a graph or table from given categorical data and compare data categorized in the graph or table