Ratios & Proportional Relationships:

6.RP.A Understand ratio concepts and use ratio reasoning to solve problems.

- Apply the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote Candidate .... received, Candidate .... received nearly three votes." (CCSS: 6.RP.A.1)
- Apply the concept of a unit rate a/b associated with a ratio a: b with b not equal 0 and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (Expectations for unit rates in this grade are limited to non-complex fractions.) (CCSS: 6.RP.A.2)

The Number System:

6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

- **Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. (CCSS: 6.NS.A.1)**

6.NS.C Apply and extend previous understandings of numbers to the system of rational numbers.

- **Explain why positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (CCSS: 6.NS.C.5)**
- **Describe a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. (CCSS: 6.NS.C.6)**
  a. **Use opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; identify that the opposite of the opposite of a number is the number itself, e.g., -(-3)=3, and that 0 is its own opposite. (CCSS 6.NS.C.6.a)**
  b. **Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; explain that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. (CCSS: 6.NS.C.6.b)**
  c. **Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. (CCSS: 6.NS.C.6.c)**
- **Order and find absolute value of rational numbers. (CCSS: 6.NS.C.7)**
  a. **Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram**
  b. **Write, interpret, and explain statements of order for rational numbers in real-world contexts**

c. Define the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value magnitude for a positive or negative quantity in a real-world situation
d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars. **(CCSS: 6.NS.C.7.d)**

- **Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (CCSS: 6.NS.C.8)**

Expressions & Equations:

6.EE.A Apply and extend previous understandings of arithmetic to algebraic expressions.

- Write and evaluate numerical expressions involving whole-number exponents. (CCSS: 6.EE.A.1)
- Write, read, and evaluate expressions in which letters stand for numbers. (CCSS: 6.EE.A.2)
  C. Evaluate expressions at specific values of their variables. Includeexpressions that arise from formulas used in real-world problems.
  Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
- Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

6.EE.B Reason about and solve one-variable equations and inequalities.

- Solve real-world and mathematical problems by writing and solving equations of the form $x \pm p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. (CCSS: 6.EE.B.7)