SAU 50
Grade 6
Mathematics
The Number System

The Number System: rational numbers and operations with fractions.

SAU 50 District Competency:

Students will independently use their learning to choose and use the efficient format to express equivalency in a given situation.

Essential Questions

- Why are there so many different kinds of numbers?
- Why is it important to have strategies to manipulate numbers?
- Why do the order of operations exist?

Acquisition

Students will demonstrate the following to meet the standards.

- I can add, subtract, multiply, and divide positive rational numbers (multi-digit, decimals and fractions).
- I can fluently identify the factors of two whole numbers less than or equal to 100 and determine the greatest Common Factor.
- I can fluently identify the multiples of two whole numbers less than or equal to 12 and determine the Least Common Multiple.
- I can locate and plot integers on a number line.
- I can find the point and the quadrant of an ordered pair on a coordinate plane.
- I can apply the Distributive Property to rewrite addition problems by factoring out the Greatest Common Factor.
- I can use positive and negative numbers to represent quantities in real world situations, explaining the meaning of 0 in each situation.
- I can represent an inequality on a number line diagram.
- I can write, interpret, and explain statements of order for rational numbers in real-world contexts.
- I can calculate and solve problems that involve absolute value.
- I can find the distances between points with the same x or y value.

Standards

NH College and Career Ready Standards

Key to Standard Notation:

6.NS.1: 6 *(grade level)* **NS** *(domain: The Number System)* **1** *(number of the standard)*

The Number System
Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
6.NS.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, by using visual fraction models and equations to represent the problem.

Compute fluently with multi-digit numbers and find common factors and multiples.
6.NS.2: Fluently divide multi-digit numbers using the standard algorithm.
6.NS.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.4: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Apply and extend previous understandings of numbers to the system of rational numbers.
6.NS.5: Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (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.
6.NS.6: Understand 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.
6.NS.6.a: Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, and that 0 is its own opposite.
6.NS.6.b: Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
6.NS.7: Understand ordering and absolute value of rational numbers.
6.NS.7.a: Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
6.NS.7.b: Write, interpret, and explain statements of order for rational numbers in real-world contexts.
6.NS.7.c: Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-

world situation.
6.NS.7.d: Distinguish comparisons of absolute value from statements about order.
6.NS.8: 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.

New Hampshire College and Career Ready Standards

References:

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common Core Standards for Mathematics* (United States, National Governors Association Center for Best Practices, Council of Chief State School Officers). Retrieved August 10, 2016, from http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf

Math is fun/definitions. (n.d.). Retrieved April 17, 2017, from http:/www.mathisfun.com/definitions