6th Grade - Unit 1: Math - The Number System

Content Area: **Mathematics**
Course(s): **Math 6**
Time Period: **Generic Time Period**
Length: **40 Days**
Status: **Published**

Established Goals/Standards

Please choose the appropriate Goals/Standards from the Standards tab above.

MA.6.NS	The Number System
MA.6.NS.A	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
MA.6.NS.A.1	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.
MA.6.NS.B	Compute fluently with multi-digit numbers and find common factors and multiples.
MA.6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.
MA.6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
MA.6.NS.B.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.
MA.6.NS.C	Apply and extend previous understandings of numbers to the system of rational numbers.
MA.6.NS.C.5	Understand that 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.
MA.6.NS.C.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.
MA.6.NS.C.6a	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, e.g., –(–3) = 3, and that 0 is its own opposite.
MA.6.NS.C.6b	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.
MA.6.NS.C.6c	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.
MA.6.NS.C.7	Understand ordering and absolute value of rational numbers.
MA.6.NS.C.7a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
MA.6.NS.C.7b	Write, interpret, and explain statements of order for rational numbers in real-world contexts.
MA.6.NS.C.7c	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.
MA.6.NS.C.7d	Distinguish comparisons of absolute value from statements about order.
MA.6.NS.C.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.

Essential Questions

Please add your Essential Questions by clicking on the Lists tab above.

- How are decimals and fractions related?
- How are integers related to whole numbers?
- How are sums, differences, products, and quotients involving decimals estimated and found?
- How can fractions be represented and simplified?
- How can numbers be broken apart into factors?
- How can whole numbers and decimals be written, compared, and ordered?
- What are standard procedures for estimating and finding products of fractions and mixed numbers?
- What are standard procedures for estimating and finding quotients of fractions and mixed numbers?
- What are standard procedures for estimating and finding sums and differences of fractions and mixed numbers?
- What are whole number and decimal place values?

Enduring Understanding

Please add your Enduring Understandings by clicking on the Lists tab above.

- A fraction can be expressed in its simplest form by dividing the numerator and denominator by common factors, including the greatest common factor, until there are no common factors other than 1
- A fraction describes the division of a whole number into equal parts. Decimals are another way of writing fractions.
- Decimal place values are just an extension of whole number place values to numbers less than one.
- Estimation of fractions to the nearest whole number or compatible number can be used when finding sums, differences, products, or quotients.
- Every positive integer can be represented as a product of one or more factors
- Integers are whole numbers, and their opposites
- Place value can be used to compare and order numbers.
- Standard addition, subtraction, multiplication, and division algorithms break calculations into simpler calculations using place value.
- Sums, differences, products, and quotients, can be found by using the appropriate algorithms.

Content

Students will be able to:

- read, write, round, add, subtract, multiply, divide, and model decimals
- use divisibility rules, and knowledge of factors to find the GCF and LCM of a set of a numbers.
- add, subtract, multiply, divide, and model fractions
- use integers, opposites, and absolute values to represent real-world situations.
- compare and order integers and rational numbers.
- name and graph points on a coordinate plane

Vocabulary list:

- expression
- order of operations
- common factor
- common multiple
- composite
- prime
- divisible
- factor
- greatest common factor
- multiple
- least common multiple
- reciprocal
- numerator
- denominator
- absolute value
- integer
- opposite
- rational number
- coordinate plane
- ordered pair
- origin
- quadrants
- axis

Assessments

Resources

- Pearson Math Course 1 textbook and online resources
- Teacher made flip-charts
- Web-based activities (mathplayground.com) (coolmath.com)
- Teacher made worksheets/assessments

- mad minutes
- NJCTL.org (PMI math)
- Pizzazz series of worksheets