Unit 2
The Number System

Grade 6
Math

Description:

In Unit 2, students add, subtract, multiply, and divide whole numbers, fractions and decimals. They find the greatest common factor of two whole numbers less than or equal to 100, and understand the greatest common factor of two prime numbers will be 1. Students use the least common multiple of two whole numbers less than or equal to twelve.

Students study negative numbers, their relationship to positive numbers, and the meaning and uses of absolute value. They learn that all numbers have an opposite. Students use the number line to order rational numbers and understand the absolute value of a number. They work with the four quadrants of the coordinate system as they solve real-world and mathematical problems.

Louisiana Student Standards for Mathematics (LSSM)

The Number System	
Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	
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. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc). How much chocolate will each person get if 3 people share 1/2 lb. of chocolate equally? How many 3/4- cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*
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.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
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. *For example, express 36 + 8 as 4 (9 + 2).*
Apply and extend previous understandings of numbers to the system of rational numbers.	
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.
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. 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, *e.g., -(-3) = 3, and that 0 is its own opposite.* 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. 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.
6.NS.C.7	Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.* b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3∘C > –7∘C to express the fact that –3∘C is warmer than –7∘C.* 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. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.* d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 d dollars represents a debt greater than 30 dollars.*

Enduring Understandings:	Essential Questions:
• The relationship between multiplication and division can be used to explain why the procedure for dividing fractions makes sense. • The number line can be extended to the left and right of the point, zero. • A number line can be either horizontal or vertical. • Least common multiple and greatest common factor are helpful when solving real-world problems. • A quantity can be represented numerically in various ways. • Coordinate geometry can be used to represent and verify geometric/ algebraic relationships.	• When I divide one number by another number, do I always get a quotient smaller than my original number? • How are negative numbers represented on a number line? • How are positive and negative numbers related? • How can I compare rational numbers on a number line? • How do you find value of an integer on the number line? • How does absolute value relate to distance on a number line? • How are both a horizontal and vertical number line used to make a coordinate plane? • How can you plot points on a coordinate plane?