Unit 3: Number Systems

Content Area: **Mathematics**
Course(s): **Math 3, Math 4, Math 5, Math 6**
Time Period: **Quarter 2**
Length: **11 weeks**
Status: **Published**

Unit Summary

The goal for this unit is to develop students' understanding of number systems and their applications to real life problem solving. Students will use their prior understanding of mathematical operations to determine the greatest common factor and least common multiple of the provided numbers. In addition, students will use the relationship between multiplication and division to understand division of fractions. Students will extend their understanding of the number system to negative integers and then negative rational numbers. Students can appropriately solve real world multi-decimal problems involving all four operations.

Student Learning Objectives

- Students will learn how to determine greatest common factor and least common multiple to solve fraction problems.
- Students will learn how to extend previous understandings of multiplication and division to divide fractions by fractions and interpret the quotient.
- Students will learn how to construct visual fraction models for multiplication and division.
- Students will learn how to extend previous understandings of decimals to fluency in solving multi-digit decimal problems and real world problems using all four operations.
- Students will learn how to apply and extend previous understandings of numbers to the system of rational numbers.
- Students will learn how to compare and order rational numbers.
- Students will learn how to understanding of integers and their purpose in real world situations.
- Students will learn how to introduce and interpret absolute value.
- Students will learn how to distinguish comparisons of absolute value from statements of order in real life situations.
- Students will learn how to order and compare integers using inequality symbols and number lines.
- Students will learn how to add integers using number line, chip jar, and absolute value.
- Students will learn how to subtract integers using number line, chip jar, and additive inverse property.
- Students will learn how to graph ordered pairs in the coordinate plane.
- Students will learn how to determine the distance between ordered pairs using absolute value.

Essential Questions

- Where do you see rational numbers in your world?
- In what ways can rational numbers be used?
- How can rational numbers be expressed in multiple ways?
- How are integers and whole numbers alike and different?

Enduring Understandings

- Students will understand that there are specific rules when adding, subtracting, multiplying, and dividing rational numbers.
- Students will understand that how to fluently solve addition, subtraction, multiplication, and division problems involving positive rational numbers.
- Students will understand that numbers allow us to compare and establish relationships between quantities in the real world.

Application

- Students will be able to independently use their mathematical knowledge to solve fraction, decimal, and integer problems.

Skills

Students will be skilled at:

- Reading and writing integers.
- Interpreting real-world situations into numerical expressions.
- Ordering and comparing rational numbers.
- Making visual models.
- Interpreting and solving real world problems involving rational numbers.
- Maintaining a "banking account."
- Interpreting and use absolute value to solve integer problems.
- Solving addition and subtraction integer problems.
- identifying and graphing ordered pairs on the coordinate plane.
- Determining distances between ordered pairs.