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EDFI 7100

**Unit Learner Outcomes**

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**Unit 1: Integers and Non- Integers**

**Subunit 1: Integers and Operations**

* Students will investigate numbers that are less than zero, examine the set of integers and express them in mathematical notation, and define and list pairs of opposite numbers. (Knowledge, comprehension)

 Students will investigate numbers by their sign and their distance from zero, and find the absolute value of numbers and expressions. (Knowledge, application)

* Students will use a number line to get a picture of what it means to add or subtract a negative number, and develop a strategy for adding or subtracting negative numbers.(Comprehension, application)
* Students will investigate what happens when they subtract a negative number from itself. (Knowledge)
* Students will investigate what happens when they multiply different combinations of positive and negative numbers.(Analysis)
* Students will develop a strategy for multiplying or dividing any two integers, and use what they know about multiplication to find a way to divide negative numbers. (Comprehension, application, synthesis)
* Students will define and define and use the commutative and associative properties while solving mathematical expressions. (Knowledge, application)
* Students will review the four main mathematical operations (+ - x /), and use the order of operations to solve mathematical expressions. (Knowledge, Application)
* Students will investigate how using grouping symbols make mathematical expressions much easier to use, and demonstrate how the use of grouping symbols affects the order of operations. (Knowledge, application)
* Students will define and use a number line, and also be able to plot number on a number line and see relationships between them. Students will also write relationships between numbers using inequality signs. (Comprehension, application)

**Subunit 2: Fractions and Operations**

* Students will define fractions and use diagrams and manipulatives to compare equivalent fractions.(Knowledge, application)
* Students will learn and demonstrate how to add and subtract fractions with a common denominator.( Knowledge, application)
* Students will learn and demonstrate how to multiply fractions by integers as well as other fractions. (Knowledge, application)
* Students will learn and demonstrate how to find equivalent fractions with a common denominator. Students will also show how to find equivalent fractions to then add or subtract fractions from one another. (comprehension, application)
* Students will explore the definitions of common factors, prime numbers, and composite numbers. (Knowledge and analysis)
* Students will use factor trees to find the prime factorization of a number. (application)
* Students will develop a strategy for placing a fraction in lowest terms. (analysis)
* Students will explore the difference between a proper and improper fraction, and will then demonstrate how to convert improper fractions to mixed numbers and mixed numbers back to improper fractions. (comprehension, application)
* Students will define reciprocals and then be able to find the reciprocal of any fraction. (knowledge and application)
* Students will develop a strategy for fraction division. (analysis and synthesis)
* Students will define rational numbers and explore examples of numbers that are not rational. (Knowledge and comprehension)
* Students will demonstrate how to apply the concepts of fractional addition, subtraction, improper fractions, and mixed numbers to real world problems. (application, analysis)

**Subunit 3: Decimals and Operations**

* Students will investigate the importance of place value in the decimal system and develop a method for converting any fraction to a decimal. (comprehension)
* Students will learn where to place the decimal point after multiplying decimal numbers as well as being able to find the product of decimal numbers. (knowledge)
* Students will explore repeating decimals and demonstrate how to write a repeating decimal so it has the same value as a fraction.(knowledge, application)
* Students will demonstrate how to divide decimal numbers as well as show they understand where to place the decimal point when dividing decimal numbers. (knowledge, application)
* Students will show that they can add and subtract decimal numbers while aligning place values. (application)
* Students will identify where they find decimals in the real world, and then be able to solve real world problems with decimals. (synthesis, evaluation)
* Students will explore how to round decimal numbers into the nearest whole number and demonstrate how to round decimal numbers to larger place values. (comprehension, application)
* Students will learn how to move the decimal point in a number to find the product and quotient of decimal numbers. (knowledge, application)