

## 6th Grade Math Outcomes and Curriculum

**Course Outcome 1:** SWBAT demonstrate ratios are equivalent by modeling fractions, decimals, and percents.

### **Skills and Concepts:**

1. Comparison, correlation, and order of equivalent fractions, decimals, and percents.
2. Addition, subtraction, multiplication, division with fractions.
3. Addition, subtraction, multiplication, division with decimals.
4. Identifying place value spots.
5. Exploration of real-world application of fractions, decimals, and percents.

### **Assessment:**

Given student knowledge on ratios and their equivalents to fractions, decimals, and percents, students will:

1. Write a ratio as a fraction.
2. Solve proportions.
3. Express percents as fractions and vice versa.
4. Express percents as decimals and vice versa.
5. Explain and demonstrate the process of how to add, subtract, multiply, and divide fractions and mixed numbers with like and unlike denominators.
6. Explain and demonstrate the process of how to add, subtract, multiply, and divide decimals by both whole numbers and other decimal values.
7. Recognize both whole number and decimal place value spots extending from the hundred trillions place (farthest left of the decimal) to millionths place (farthest right of the decimal).
8. Apply real-world understanding of measurement, money, and statistical data.

**Course Outcome 2:** SWBAT differentiate between an expression and an equation.

### **Skills and Concepts:**

Identifying expressions and equations.

Recognition of a variable.

Solving one step problems with variables.

Addition, subtraction, multiplication, division with use of an expression.

Addition, subtraction, multiplication, division with use of an equation.

**Assessment:**

Given student knowledge on expressions and equations, students will:

1. Be able to identify the difference between expressions and equations.
2. Evaluate numerical and simple algebraic expressions.
3. Solve one step equations that involve one variable.
4. Use arithmetic and inverse operations to solve algebraic equations.
5. Explain and demonstrate the solution for an unknown variable using addition, subtraction, multiplication, and division.
6. Apply real-world understanding problem solving skills by making algebra connections using variables, expressions, and equations.

**Course Outcome 3:**        **SWBAT** solve one-step equations using algebraic processes and graphic representations.

**Skills and Concepts:**

Read numbers up to the hundred trillions place.

Use statistical surveys, frequency tables, and graphs (bar, line, and pie) to recognize number samples and data patterns.

Identify unknown numbers, mathematical properties, arithmetic operations, and inverse computations.

Solve one-step equations by simplifying expressions, solving equations, factoring, and graphing.

Recognize divisibility patterns and associate prime factorization, factors, multiples, and fractions for effectively solving algebraic problems.

**Assessment:**

Given student knowledge on solving one-step equations using algebraic processes and graphic representations, students will:

1. Identify place value spots from ones through hundred trillions.
2. Create surveys, frequency tables, and graphs using interpretation of number samples, data patterns, range, and scales.
3. Be able to recognize a variable and calculate its number representation through simplifying, solving, factoring, and graphing.
4. Use divisibility patterns, prime factorization, factors, multiples, and fractions to solve one step equations.
5. Apply mathematical properties, arithmetic operations, and inverse computations to real-world problem solving skills.

**Course Outcome 4:** **SWBAT** construct an algebraic rule using input-output tables.

**Skills and Concepts:**

Identify, name, and graph integers.

Compare and order integers.

Add, subtract, multiply, and divide integers.

Graph ordered pairs on a coordinate plane.

Calculate algebraic rules through use of expressions, functions, equations, and inequalities.

Identify and diagram inputs, outputs, and functions using tables and graphs.

**Assessment:**

Given student knowledge on constructing algebraic rules using input-output tables, students will:

1. Recognize integers through graphing numbers above (positive) and below (negative) zero.
2. Differentiate integers by measuring values in order to contrast numerical organization.
3. Use arithmetic operations with integers.
4. Determine ordered pairs and place them in correctly onto a coordinate plane.
5. Solve one and two-step equations as well as inequalities using arithmetic and inverse operations.
6. Find the input or output for a given function and complete an input-output table.
7. Graph algebraic rules and functions from input-output tables.

**Course Outcome 5:** **SWBAT** calculate the area and perimeter of 2-Dimensional figures AND volume of rectangular prisms.

**Skills and Concepts:**

Name two dimensional figures describing sides, angles, and lines of symmetry.

Recognize operational equations used to evaluate perimeter, area, circumference, and volume.

Determine perimeter of two dimensional figures.

Compute area of two dimensional figures (squares, rectangles, parallelograms, triangles, circles).

Find the circumference of circles.

Calculate the surface area of rectangular prisms.

Figure out the volume of rectangular prisms.

**Assessment:**

Given student knowledge on calculating the area and perimeter of 2-Dimensional figures AND volume of rectangular prisms, students will:

1. Identify two dimensional figures through quantifying their sides, angles, and lines of symmetry.
2. Explain and define perimeter, area, circumference, and volume using mathematical terminology and correlated equations.
3. Accurately calculate perimeter, area, and circumference of two dimensional figures.
4. Precisely determine surface area and volume of rectangular prisms.