



<b>Unit A</b>	<b>Numbers and Operations (7 modules containing 40 lessons)</b>
<b>Module 1</b>	<b>Number Sense</b>
1.1	<b>Order of Operations</b> <ul style="list-style-type: none"><li>Apply rules for order of operations to whole numbers where the left to right computations are modified only by the use of parentheses.</li><li>Apply rules for order of operations to whole numbers with or without parentheses, brackets or exponents.</li><li>Apply rules for order of operations to rational numbers.</li></ul>
1.2	<b>Divisibility Rules</b> <ul style="list-style-type: none"><li>Use divisibility rules to determine if a number is a factor of another number (2, 3, 4, 5, 6, 9, and 10).</li></ul>
1.3	<b>Properties of Addition and Multiplication and Inverse Operations</b> <ul style="list-style-type: none"><li>Identify properties of addition and multiplication: commutative, associative, identity, and multiplicative property of zero.</li><li>Apply the properties of addition and multiplication to simplify computations with whole numbers and to solve problems, including the use of inverse relationships (addition and subtraction, multiplication and division) in problem solving situations.</li></ul>
1.4	<b>Distributive Property</b> <ul style="list-style-type: none"><li>Identify the distributive property by using physical models.</li><li>Apply the distributive property of multiplication over addition to simplify computations with whole numbers.</li><li>Apply the addition, subtraction, and multiplication properties of equality.</li></ul>
1.5	<b>Estimation</b> <ul style="list-style-type: none"><li>Develop and use strategies to estimate the results of whole number computations and to judge the reasonableness of such results.</li></ul>
<b>Module 2</b>	<b>Whole Number Operations</b>
2.1	<b>Large Numbers: Addition</b> <ul style="list-style-type: none"><li>Develop and use a variety of algorithms with computational fluency to perform whole number operations using addition (up to five-digit numbers) including real-world problems.</li></ul>
2.2	<b>Large Numbers: Subtraction</b> <ul style="list-style-type: none"><li>Develop and use a variety of <i>algorithms</i> with computational fluency to perform whole number operations using subtraction (up to five-digit numbers) including real-world problems.</li></ul>
2.3	<b>Large Numbers: Multiplication</b> <ul style="list-style-type: none"><li>Develop and use a variety of algorithms with computational fluency to perform whole number operations using multiplication (up to three-digit x two-digit) including real-world problems.</li></ul>
2.4	<b>Large Numbers: Division</b> <ul style="list-style-type: none"><li>Develop and use a variety of algorithms with computational fluency to perform whole number operations using division (up to two-digit divisor) and interpreting remainders including real-world problems.</li></ul>
2.5	<b>Problem Solving Strategies</b> <ul style="list-style-type: none"><li>Develop and apply a variety of strategies to solve problems with emphasis on multi-step and non-routine problems.</li></ul>
<b>Module 3</b>	<b>Integers</b>
3.1	<b>Integers and Absolute Value</b> <ul style="list-style-type: none"><li>Define negative integers.</li><li>Compare and order integers.</li><li>Graph integers on a number line</li><li>Find the absolute value of an expression.</li></ul>
3.2	<b>Adding Integers</b> <ul style="list-style-type: none"><li>Model addition of integers using physical objects and pictures.</li><li>Add integers.</li></ul>
3.3	<b>Subtracting Integers</b> <ul style="list-style-type: none"><li>Model subtraction of integers using physical objects and pictures.</li><li>Subtract integers.</li></ul>
3.4	<b>Multiplying and Dividing Integers</b> <ul style="list-style-type: none"><li>Model multiplication and division of integers using physical objects and pictures.</li><li>Multiply integers.</li><li>Divide integers.</li></ul>
3.5	<b>Solving Problems with Integers</b> <ul style="list-style-type: none"><li>Read, write, compare and solve problems involving <i>integers</i> with or without appropriate technology.</li></ul>
<b>Module 4</b>	<b>Fractions, Decimals, Percents, and Factors</b>
4.1	<b>Concepts of Fractions, Ratios, and Percents</b> <ul style="list-style-type: none"><li>Use models and visual representations to develop the concepts of the following fractions: parts of unit wholes, parts of a collection, locations on number lines, locations on ruler (benchmark fractions), division of whole numbers.</li><li>Use models and visual representations to develop the concepts of the following ratios: part-to-part (2 boys to 3 girls), and part-to-whole (2 boys to 5 people).</li><li>Use models and visual representations to develop the concepts of percents: part-to-100.</li></ul>
4.2	<b>Concepts of Decimal Place Value and Fraction and Percent Equivalents</b> <ul style="list-style-type: none"><li>Develop understanding of decimal place value using models.</li><li>Identify decimal and percent equivalents for benchmark fractions.</li><li>Identify decimal and percent equivalents for proper fractions and explain why they represent the same value.</li></ul>



4.3	<ul style="list-style-type: none"><li>Identify decimal and percent equivalents for mixed numbers and explain why they represent the same value.</li></ul> <b>Factors and Prime Factorization</b> <ul style="list-style-type: none"><li>Find the factors of a number.</li><li>Determine if a number is prime or composite.</li><li>Find the prime factorization of a composite number.</li><li>Use factors of a number to find common factors of two integers, including finding the greatest common factor (GCF) of two or more integers.</li><li>Use prime factorization to determine the greatest common factor (GCF). Use prime factorization to determine the greatest common factor (GCF).</li></ul>
4.4	<b>Prime Factorization, GCF, and LCM</b> <ul style="list-style-type: none"><li>Use a variety of methods, including prime factorization, to determine the least common multiple (LCM).</li><li>Apply factorization, GCF, and LCM to solve problems.</li></ul>
4.5	<b>Simplifying and Converting Fractions</b> <ul style="list-style-type: none"><li>Use factors of numbers to simplify fractions to the lowest terms.</li><li>Convert between mixed numbers and improper fractions.</li></ul>
<b>Module 5</b>	<b>Decimal Operations, Exponents, and Powers</b>
5.1	<b>Rounding and Comparing Decimals</b> <ul style="list-style-type: none"><li>Round and compare decimals to a given place value (whole numbers, tenths, hundredths, and thousandths).</li></ul>
5.2	<b>Converting, Comparing, and Ordering</b> <ul style="list-style-type: none"><li>Convert, compare, and order fractions, decimals, and percents and find their approximate location on a number line.</li><li>Compare and represent integers, fractions, mixed numbers, and decimals and find their approximate location on a number line.</li></ul>
5.3	<b>Adding and Subtracting Decimals</b> <ul style="list-style-type: none"><li>Estimate decimal sums and differences using rounding and front-end estimation.</li><li>Model addition and subtraction of decimals using diagrams and/or illustrations of manipulatives.</li><li>Develop and use algorithms to add and subtract numbers containing decimals (up to thousandths place).</li></ul>
5.4	<b>Multiplying Decimals</b> <ul style="list-style-type: none"><li>Estimate products using rounding and compatible numbers.</li><li>Model multiplication of decimals using diagrams and/or illustrations of manipulatives.</li><li>Develop and use algorithms to multiply decimals (hundredths x tenths up to thousandths x thousandths)</li></ul>
5.5	<b>Dividing Decimals</b> <ul style="list-style-type: none"><li>Estimate quotients using rounding and compatible numbers.</li><li>Model division of decimals using diagrams and/or illustrations of manipulatives.</li><li>Develop and use algorithms to divide decimals (hundredths by tenths up to thousandths by thousandths).</li></ul>
5.6	<b>Exponents and Powers</b> <ul style="list-style-type: none"><li>Use factors of numbers to introduce exponents and powers.</li><li>Demonstrate an understanding of exponents and powers and an understanding of when to use exponents and powers in expressions.</li><li>Define and use negative exponents.</li><li>Solve problems with exponents and powers.</li></ul>
5.7	<b>Scientific Notation</b> <ul style="list-style-type: none"><li>Demonstrate an understanding of place value using powers of 10, and write numbers greater than one in scientific notation with and without appropriate technology.</li><li>Convert between scientific notation and standard notation using numbers greater than one.</li><li>Convert between scientific notation and standard notation using numbers from zero to one.</li></ul>
<b>Module 6</b>	<b>Computational Fluency of Fractions</b>
6.1	<b>Adding and Subtracting Fractions with Like Denominators</b> <ul style="list-style-type: none"><li>Model addition and subtraction of fractions with like denominators using diagrams and/or illustrations of manipulatives.</li><li>Develop and use algorithms to add and subtract fractions with like denominators.</li></ul>
6.2	<b>Adding Fractions with Unlike Denominators</b> <ul style="list-style-type: none"><li>Find equivalent fractions.</li><li>Model addition of fractions with unlike denominators using diagrams and/or illustrations of manipulatives.</li><li>Develop and use algorithms to add fractions with unlike denominators</li></ul>
6.3	<b>Subtracting Fractions with Unlike Denominators</b> <ul style="list-style-type: none"><li>Find equivalent fractions.</li><li>Model subtraction of fractions with <i>unlike denominators</i> using diagrams and/or illustrations of manipulatives.</li><li>Develop and use algorithms to subtract fractions with unlike denominators</li></ul>
6.4	<b>Adding and Subtracting Mixed Numbers</b> <ul style="list-style-type: none"><li>Model addition and subtraction of mixed numbers using diagrams and/or illustrations of manipulatives</li><li>Develop and use algorithms to add and subtract mixed numbers.</li></ul>
6.5	<b>Multiplying Fractions</b> <ul style="list-style-type: none"><li>Model multiplication of fractions, including mixed numbers, using diagrams and/or illustrations of manipulatives.</li><li>Develop and use algorithms for multiplying fractions.</li></ul>
6.6	<b>Dividing Fractions</b> <ul style="list-style-type: none"><li>Model division of fractions using diagrams and/or illustrations of manipulatives.</li></ul>



	<ul style="list-style-type: none"><li>Develop and use algorithms for dividing fractions.</li></ul>
<b>Module 7</b>	<b>Ratio, Proportion, and Percent</b>
7.1	<b>Square Roots</b> <ul style="list-style-type: none"><li>Use models to differentiate between perfect squares up to 100 and other numbers.</li><li>Recognize and identify perfect squares and their square roots.</li><li>Represent and solve problem situations that can be modeled by and solved using concept of square roots for perfect squares.</li></ul>
7.2	<b>Finding Percents</b> <ul style="list-style-type: none"><li>Relate with or without models and pictures, concepts of ratios, proportion, and percent, including percents less than 1 and greater than 100.</li><li>Demonstrate conceptual understanding to find a specific percent of a number using models, real-life examples, or explanations.</li></ul>
7.3	<b>Decimal and Percent Equivalents</b> <ul style="list-style-type: none"><li>Convert proper fractions to decimals and percents.</li><li>Convert mixed numbers and improper fractions to decimals and percents.</li></ul>
7.4	<b>Ratios, Rates, and Proportional Reasoning</b> <ul style="list-style-type: none"><li>Write ratios as fractions in simplest form.</li><li>Determine unit rates.</li><li>Use proportional reasoning and ratios to represent problem situations.</li></ul>
7.5	<b>Percent Proportions</b> <ul style="list-style-type: none"><li>Use the percent proportion to write fractions as percents.</li><li>Determine the percent of a number and solve related problems in real-world situations (e.g. gratuities, sales tax, discounts, and mark up).</li><li>Use percents to estimate.</li></ul>
7.6	<b>Using Percent Equations</b> <ul style="list-style-type: none"><li>Find the percent of a given number.</li><li>Find what percent one number is of another number.</li><li>Find a number when a percent of it is given.</li><li>Use equations to solve percent problems.</li></ul>
7.7	<b>Problem Solving with Percents</b> <ul style="list-style-type: none"><li>Solve real-world percent problems including percent of increase and decrease with or without technology.</li><li>Solve real-world percent problems involving simple and compound interest with or without technology.</li></ul>
<b>Unit B</b>	<b>Geometry (4 modules containing 22 lessons)</b>
<b>Module 8</b>	<b>Points, Lines, Angles and Triangles</b>
8.1	<b>Language of Geometry</b> <ul style="list-style-type: none"><li>Identify points, lines, planes, rays, and segments.</li><li>Define and identify an angle.</li><li>Label parts of an angle: vertex, rays, interior, and exterior.</li></ul>
8.2	<b>Angle Classification and Line Relationships</b> <ul style="list-style-type: none"><li>Identify parallel, perpendicular, and intersecting lines.</li><li>Identify, draw, and measure congruent, adjacent, obtuse, acute, right, and straight angles.</li><li>Use benchmark angles to estimate the measure of angles (e.g. 45°, 90°, 120°, and 180°).</li></ul>
8.3	<b>Angle Relationships and Parallel Lines</b> <ul style="list-style-type: none"><li>Recognize the pairs of angles formed and the relationship between the angles including two intersecting lines and parallel lines cut by a transversal (vertical, supplementary, complementary, corresponding, alternate interior and alternate exterior).</li></ul>
8.4	<b>Triangles</b> <ul style="list-style-type: none"><li>Identify, describe, draw, and classify triangles as equilateral, isosceles, or scalene.</li><li>Identify, describe, draw and classify triangles as right, acute, obtuse, and equiangular.</li><li>Use physical models and paper to determine the sum of the measures of interior angles of triangles.</li></ul>
8.5	<b>Congruent Triangles</b> <ul style="list-style-type: none"><li>Identify congruent triangles and corresponding parts of congruent triangles.</li><li>Model and identify the properties of congruent triangles.</li></ul>
8.6	<b>Similar Triangles</b> <ul style="list-style-type: none"><li>Determine if triangles are similar.</li><li>Develop the properties of similar triangles (ratio of sides and congruent angles).</li><li>Use similar triangles to solve problems.</li></ul>
8.7	<b>Right Triangles</b> <ul style="list-style-type: none"><li>Prove and use the Pythagorean Theorem and its converse.</li><li>Use special right triangles to solve real-life problems.</li></ul>
<b>Module 9</b>	<b>Characteristics of Geometric Shapes</b>
9.1	<b>Polygons</b> <ul style="list-style-type: none"><li>Identify and model regular and irregular polygons including decagon.</li><li>Identify and model convex and concave polygons.</li></ul>



9.2	<ul style="list-style-type: none"><li>Identify, draw, classify, and compare geometric figures using models and real-world examples.</li></ul> <b>Quadrilaterals</b> <ul style="list-style-type: none"><li>Classify quadrilaterals.</li><li>Use paper and physical models to determine the sum of the measures of interior angles of quadrilaterals.</li><li>Find the missing measure of a quadrilateral.</li><li>Compare quadrilaterals.</li></ul>
9.3	<b>Circles</b> <ul style="list-style-type: none"><li>Model and identify circle, radius, diameter, center, circumference, and chord.</li><li>Draw, label, and determine relationships among the radius, diameter, center, and circumference (e.g. radius is half the diameter) of a circle.</li><li>Model and develop the concept that <math>\pi</math> is the ratio of the circumference to the diameter of any circle.</li></ul>
9.4	<b>Similar Polygons</b> <ul style="list-style-type: none"><li>Identify shapes that have similarity.</li><li>Identify similar figures and explore their properties.</li><li>Develop the properties of similar figures (ratio of sides and congruent angles).</li><li>Apply proportional reasoning to solve problems involving congruent or similar shapes (e.g., create scale drawings, perspective drawings).</li></ul>
9.5	<b>Properties of Geometric Shapes</b> <ul style="list-style-type: none"><li>Define and apply deductive reasoning to solve problems involving geometric relationships.</li><li>Define and apply inductive reasoning to solve problems involving number patterns and geometric relationships.</li></ul>
<b>Module 10 Coordinate Geometry and Spatial Visualization</b>	
10.1	<b>Points in a Coordinate Plane</b> <ul style="list-style-type: none"><li>Use geometric vocabulary (horizontal/ x-axis, vertical/y-axis, ordered pairs) to describe the location and plot points in all four quadrants.</li><li>Plot points in the coordinate plane.</li><li>Use ordered pairs to locate points and to organize data.</li></ul>
10.2	<b>Classifying Geometric Figures Using Points</b> <ul style="list-style-type: none"><li>Plot points that form the vertices of a geometric figure and draw, identify, and classify the figure.</li></ul>
10.3	<b>Coordinate Geometry</b> <ul style="list-style-type: none"><li>Use coordinate geometry to explore the links between geometric and algebraic representations of problems (lengths of segments/distance between points, slope/perpendicular-parallel lines).</li><li>Count the distance between two points on a horizontal or vertical line and compare the lengths of the paths on a grid.</li><li>Find the distance between two points on a number line.</li><li>Find the distance between two points on a number line and locate the midpoint.</li><li>Find the distance between two points on a coordinate plane using the Pythagorean Theorem.</li></ul>
10.4	<b>Three-dimensional Shapes</b> <ul style="list-style-type: none"><li>Identify three-dimensional geometric figures using models (rectangular prisms, cylinders, cones, pyramids, and spheres).</li><li>Use properties of standard three-dimensional shapes to identify, classify, and describe them.</li></ul>
10.5	<b>Building Models</b> <ul style="list-style-type: none"><li>Identify two-dimensional patterns (nets) for three-dimensional solids, such as prisms, pyramids, cylinders, and cones.</li><li>Build three-dimensional solids from two-dimensional patterns (nets).</li><li>Recognize the front, side, and top views of three-dimensional figures.</li><li>Sketch front, top, and side views of three-dimensional figures with or without technology.</li></ul>
<b>Module 11 Transformation of Shapes</b>	
11.1	<b>Translations and Reflections</b> <ul style="list-style-type: none"><li>Perform translations and reflections of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).</li><li>Draw and describe the results of translations and reflections about the x- and y-axis.</li></ul>
11.2	<b>Rotations</b> <ul style="list-style-type: none"><li>Perform rotations of two-dimensional figures using a variety of methods.</li><li>Draw and describe the results of rotations about the origin (<math>90^\circ</math> and <math>180^\circ</math>).</li></ul>
11.3	<b>Dilations</b> <ul style="list-style-type: none"><li>Draw and describe dilations (enlargements and reductions) of two-dimensional figures.</li><li>Graph dilations on a coordinate plane.</li></ul>
11.4	<b>Symmetry</b> <ul style="list-style-type: none"><li>Identify lines of symmetry in two-dimensional shapes (e.g. letters of the alphabet, polygons).</li><li>Determine if two shapes have line symmetry, rotational symmetry, and/or point symmetry.</li></ul>
11.5	<b>Tessellations</b> <ul style="list-style-type: none"><li>Analyze geometric patterns (e.g., tessellations, sequences of shapes) and develop descriptions of the patterns.</li><li>Use tessellations and fractals to create geometric patterns.</li></ul>
<b>Unit C Measurement (2 modules containing 12 lessons)</b>	
<b>Module 12 Attributes and Tools</b>	
12.1	<b>Measurement Systems</b> <ul style="list-style-type: none"><li>Identify and select appropriate units and tools from both systems, customary and metric, to measure (e.g. distance with</li></ul>



	feet/meters).
	<ul style="list-style-type: none"><li>• Establish through experience benchmark prefixes of milli-, centi-, deci-, deca-, hecto-, and kilo-).</li><li>• Distinguish the difference between weight and mass.</li><li>• Understand, select, and use the appropriate units and tools (metric and customary) to measure length, weight, mass, and volume to the required degree of accuracy for real-world problems.</li></ul>
12.2	<b>Same System Conversions</b> <ul style="list-style-type: none"><li>• Make conversions within the same measurement system, either customary or metric, in real-world problems (e.g. hours to minutes to seconds, meters to centimeters, feet to inches, liters to milliliters, quarts to gallons, etc).</li><li>• Make conversions using time in real-world problems.</li></ul>
12.3	<b>Measurement: Time</b> <ul style="list-style-type: none"><li>• Solve real-world problems involving one elapsed time, counting forward and backward (clock and calendar).</li><li>• Solve real-world problems involving two or more elapsed times, counting forward and backward (clock and calendar).</li></ul>
12.4	<b>Measurement: Distance</b> <ul style="list-style-type: none"><li>• Determine which unit of measure or measurement tool matches the context for a problem situation involving distance.</li><li>• Draw and measure distance to the nearest cm and <math>\frac{1}{4}</math> inch, the nearest mm and <math>\frac{1}{8}</math> inch, the nearest mm and <math>\frac{1}{16}</math> inch accurately.</li></ul>
12.5	<b>Measurement: Weight and Mass</b> <ul style="list-style-type: none"><li>• Demonstrate how to read a scale and a balance.</li><li>• Determine when and how to measure customary weight.</li><li>• Determine when and how to measure metric mass.</li><li>• Determine which unit of measure or measurement tool matches the context for a problem situation involving weight and mass.</li><li>• Solve real-world problems involving weight and mass.</li></ul>
<b>Module 13 Perimeter, Area, and Volume</b>	
13.1	<b>Perimeter and Circumference</b> <ul style="list-style-type: none"><li>• Establish and apply formulas to find perimeter of triangles, rectangles, and parallelograms.</li><li>• Develop and use strategies to solve problems involving circumference of a circle.</li><li>• Use linear units to describe perimeter or circumference.</li></ul>
13.2	<b>Area</b> <ul style="list-style-type: none"><li>• Establish and apply formulas to find the area of triangles and different types of quadrilaterals.</li><li>• Develop and use strategies to solve problems involving the area of quadrilaterals and the area of a circle</li><li>• Demonstrate understanding of when to use linear units to describe perimeter, square units to describe area.</li><li>• Find different areas for a given perimeter and find different perimeters for a given area.</li></ul>
13.3	<b>Area: Irregular Shapes</b> <ul style="list-style-type: none"><li>• Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes.</li><li>• Estimate and compute the area of irregular two-dimensional shapes.</li></ul>
13.4	<b>Surface Area: Prisms, Cylinders, and Spheres</b> <ul style="list-style-type: none"><li>• Derive and use formulas for surface area and volume of prisms, cylinder, and spheres.</li><li>• Use square units to find the surface area of prisms, cylinders, and spheres.</li></ul>
13.5	<b>Volume: Prisms, Cylinders, and Spheres</b> <ul style="list-style-type: none"><li>• Model the differences between covering the faces (surface area/nets) and filling the interior (volume).</li><li>• Derive and use formulas for the volume of prisms and cylinders, and spheres, and justify using geometric models and common materials.</li><li>• Use cubic units to find the volume of prisms, cylinders, and spheres.</li><li>• Demonstrate understanding of when to use linear units to describe perimeter, square units to describe area or surface units, and cubic units to describe volume, in real-world situations</li><li>• Compare and contrast the differences among linear units, square units, and cubic units.</li></ul>
13.6	<b>Surface Area: Pyramids and Cones</b> <ul style="list-style-type: none"><li>• Derive and use formulas for surface area of pyramids and cones.</li><li>• Use square units to find the surface area of pyramids and cones.</li></ul>
13.7	<b>Volume: Pyramids and Cones</b> <ul style="list-style-type: none"><li>• Derive and use formulas volume of pyramids and cones, and justify using geometric models and common materials.</li><li>• Use cubic units to find the volume of pyramids and cones.</li><li>• Demonstrate understanding of when to use linear units to describe perimeter, square units to describe area or surface units, and cubic units to describe volume, in real-world situations.</li><li>• Compare and contrast the differences among linear units, square units, and cubic units</li></ul>