

Sixth Grade

- Children will model and perform **operations on numbers**, explain estimation techniques, compare various computation techniques, and verify solutions with whole numbers, fractions, and decimals.
- Children will use **geometric** vocabulary and notation. Spatial relationships will be explored using manipulative shapes.
- Students will describe **measurement** processes using formulas, estimation, and comparative techniques with length, distance, weight, volume, area, capacity, time, and temperature. Manipulatives will help them explore shapes, areas, and perimeters as they use models to solve measurement problems.
- Children will **represent and interpret numerical data** using charts, graphs, and tables. They will model probability, describe trends, and communicate generalities in both oral and written fashion. Their use of technology will help them display their results and further increase their understanding and awareness of probability.
- Children will compute with **ratios, proportions, and percents**. They will solve real world problems using proportions and the decimal equivalents of percents.
- Children identify **patterns** using manipulatives and numbers. They will discover alternative ways of solving problems once patterns have been established. They will develop the concept mathematical functions.
- Students will demonstrate an understanding of **integers** as they continue their use of number lines and the coordinate plane.
- **Problem solving** should be the central focus of the math curriculum. It will provide the framework in which concepts and skills such as calculation and technology can be encouraged and developed. Students will continue to explain verbally, using pictorial representations, and in written detail the processes and results of their discoveries.

Unit I – Number and Numerical Operations

INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Number Sense: Concepts Demonstrate understanding of numbers and our base ten value system. Apply order of operations including use of exponents. Use estimation and rounding techniques. Write whole numbers in expanded scientific notation. Identify prime and composite numbers. Identify commutative, associative and identity properties for addition and multiplication. Identify and use distributive properties. Determine and use factors (GCF) and multiples (LCM). Represent numbers in different, equivalent ways. Explore numbers in other bases (base 5, 2, 8): read and write numbers in other bases and change numbers to a different base.</p>	<p>Number Sense: Concepts</p>	<p>4.1A, 4.1B, 4.1C</p>	<ul style="list-style-type: none">➤ Matching game.➤ Match whole numbers written in words and numerals with the numbers written in expanded and scientific notation.➤ Create T-shirts of prime only numbers and of composite only numbers.

Unit I – Number and Numerical Operations			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Complete addition, subtraction, multiplication and division of whole numbers to solve everyday problems. Write, read and model decimal numbers and fractions.</p> <p>Convert from fraction to decimal and percent; decimal to fraction and percent; percent to decimal and fraction.</p> <p>Write read and model equivalent decimal numbers, fractions, percents.</p> <p>Compare and order mixed and whole numbers, decimal numbers, fractions using the following symbols: $<$, $>$, $=$, \neq.</p> <p>Round whole numbers, decimal numbers, fractions and mixed numbers.</p> <p>Complete addition, subtraction, multiplication and division of decimal numbers to solve read world problems (including money).</p>	<p>Number Sense: Operations & Computations</p>	<p>4.1A, 4.1B, 4.1C</p>	<ul style="list-style-type: none"> ➤ Given a percent, decimal of fraction card, students are to match it to an equivalent value around the room. ➤ Order amounts of ingredients need for various recipes from least to greatest.

Unit I – Number and Numerical Operations

INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Identify terminating and repeating decimals.</p> <p>Use multiplication of decimal numbers and percent to solve every day problems.</p> <p>Complete addition, subtraction, multiplication and division of fractions and mixed numbers to solve real world problems, (including common and uncommon denominators, regrouping and whole numbers).</p> <p>Show understanding of reciprocals and identify reciprocals.</p>	<p>Number Sense: Operations and Computations</p>	<p>4.1A, 4.1B,</p>	<p>➤ Math at the mall. Students to find how much off an item is if not 10% off, 25% off, 50% off (items tagged around the room).</p>

Unit II – Measurement

INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Demonstrate an understanding of conversion within the U.S. customary system. Rewrite measurements of length Rewrite and convert measures of time.</p> <p>Measure lengths with U.S. Customary Units ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$).</p> <p>Measure lengths using the metric system (millimeter, centimeter, decimeter)</p> <p>Change units of length in the metric system.</p> <p>Use estimating skills to determine size, distance/length, and time.</p> <p>Solve real-life problems involving time, distances and length.</p> <p>Show understanding of difference between area and perimeter.</p> <p>Show understanding of the measurements of circumference and volume.</p>	<p style="text-align: center;">Measurement</p>	<p style="text-align: center;">4.2C, 4.2D</p>	<ul style="list-style-type: none">➤ Create a CD of your favorite songs. Find total number of hours and minutes, total number of minutes, total number of seconds.➤ Measure objects located around the room or school using the metric system and/or our customary system.

Unit III - Geometry			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Recognize, identify and classify 2 and 3 decimal figures (squares, rectangles, parallelograms, polygons, cubes, rectangular prisms).</p> <p>Identify and define the following terms: point, line, ray, segment, angles, parallel, perpendicular, intersecting, faces, edges and vertices, radius and diameter.</p> <p>Identify and classify triangles by their sides and angles.</p> <p>Classify angles as acute, obtuse, right or straight angles.</p> <p>Use a protractor to find angle measures.</p> <p>Identify congruent and similar figures (using transformations).</p> <p>Identify line of symmetry</p> <p>Identify and describe slides in a coordinate plane.</p> <p>Determine perimeter and area of squares, rectangles, triangles, polygons and irregular shapes.</p> <p>Determine area and circumference of a circle.</p> <p>Find surface area of a rectangular prism.</p> <p>Find volume of a rectangular prism.</p>	Geometry	4.2A, 4.2C, 4.2E	<ul style="list-style-type: none"> ➤ Create your dream house ➤ Use and name various geometric shapes. ➤ Math in nature. ➤ Identify lines of symmetry in objects found in nature. ➤ Determine/Discovery pi b finding circumference of real-life objects students bring in from home. ➤ Estimate and then find volumes of various containers.

Unit IV – Data Analysis & Probability

INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Analyze, interpret and evaluate data in various forms.</p> <p>Gather and organize data in various forms by constructing line plots, stem-and-leaf plots, bar graphs, line graphs, circle graphs, pictographs and tables using appropriate scales.</p> <p>Interpret and analyze data by computing averages (mean) and determining the mode, median and range of data.</p> <p>Determine probability of simple events expressed as a ratio.</p> <p>Interpret probability of an event expressed as a number between 0 and 1.</p>	<p>Data Analysis and Probability</p>	<p>4.4A, 4.4B</p>	<ul style="list-style-type: none">➤ Collect numerical data from classmate and or parents and or teachers. Then compute and display averages, ranges, medians, and modes.➤ Student partners to complete simple experiments to determine experimental probability of a given situation (ex. choosing a red marble from a bag of different – colored marbles. Students to share and discuss results and make predictions.➤ Students to share unit rates they found at supermarket.

Unit V – Ration, Portion and Percent

INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
Ratio, Proportion and Percent Identify rates, ratios, proportions. Explore unit rate. Convert fractions to percentage, decimals to percentage, percentage to decimals and fractions. Solve proportions. Explore scale measure on a map or drawing. Use proportions to find solutions simple real-world percent problems. Use estimation to solve percent problems.	Ratio, Proportion, Percent	4.1A, 4.1B, 4.1C	➤ Students will use a recipe for cookies and find the amount of each ingredient you must have to make the number of cookies needed.

Unit VI – Patterns			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
Identify, create and continue arithmetic and geometric. Recognize patterns with fractions and in exponents (powers of ten). Use tables to show and investigate patterns.	Patterns and Relationships	4.3A	➤ Student groups to create their own patterns of geometric shares and then other student groups must reorganize and continue pattern.

Unit VII – Integers and the Coordinate Plane

INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Define integers and graph integers on a number line.</p> <p>Compare and order integers on a number line.</p> <p>Introduce and explore addition and subtraction of integers on a number line.</p> <p>Explore the coordinate plane. (x- and y-axis, origin, ordered pair, coordinates, quadrants).</p> <p>Plot points in a coordinate plane.</p> <p>Explore flipping and sliding figures on a coordinate plane.</p>	<p>Integers and Coordinate Plane</p>	<p>4.2B, 4.2C</p>	<p>➤ Play battleship using the coordinate plane, the 4 quadrants and ordered pairs to name ships.</p>

Unit VIII – Problem Solving			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Practice problem-solving strategies to solve real-world problems throughout the entire year and in every unit of study. (Look for a pattern, read and make a table, make a list, use a graph, draw a diagram, classify and group, work backward, solve a simpler problem.)</p> <p>Formulate problems from everyday life and mathematical situations.</p> <p>Use technology (computers, calculators) to aid in problem solving.</p>	<p>Problem Solving</p>	<p>4.5A, 4.5F</p>	<p>➤ Student will write their own story problems based on their real-life experiences.</p>