

Seventh Grade

- Children will communicate, model and represent an understanding of **numbers** and their relationships. They will explain estimation techniques, compare various computation techniques, and verify solutions with whole numbers, fractions, and decimals.
- Children will compute with **ratios, proportions, and percents**. They will solve real world problems using proportions and the decimal equivalents of percents.
- Children will use **geometric** vocabulary and notation. Spatial relationships will be explored using manipulative shapes.
- 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.
- 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 identify **patterns** using manipulatives and numbers. They will demonstrate an understanding of **integers** as they continue their use of number lines and the coordinate plane. They will explore functions as an introduction to **algebra**.
- **Problem solving** should be the central focus of the math curriculum. Students will continue to explain orally and in written detail the processes and results of their discoveries. They will use calculators, and other technologies to solve real-life problems.

Number and Numerical Operations			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Number Sense</p> <p>Demonstrate understanding of relationships between decimals, fractions and percents.</p> <p>Perform order of operations.</p> <p>Understand and use exponents including powers of one and zero.</p> <p>Write numbers in scientific notation.</p> <p>Identify prime and composite numbers.</p> <p>Identify and use factors (GCF), multiples (LCM) and divisibility rules (2, 3, 4, 5, 6, 9, 10).</p> <p>Identify fractions in simplest form and reduce fractions to simplest form.</p> <p>Perform prime factorization with variables.</p> <p>Recognize the commutative, associative, distributive and identity properties for addition and multiplication.</p>	<p>Number Sense</p>	<p>4.1A, 4.1B, 4.1C , 4.3D 4.5A, 4.5B</p>	<ul style="list-style-type: none"> ➤ Draw/Illustrate factor trees and prime factorization ➤ Teacher made game called “Express yourself”. Up to four players can participate. Expressions on index cards are dealt to each player. A number cube is rolled. That number is placed in each player’s expression. Player with highest value collects all cards. Winner is player with most cards ➤ Shopping and math: use catalogs advertisements to estimate and find actual sums, differences, tax, etc. within a given budget. ➤ Use restaurant menus to place orders, apply tip, split bills, etc. ➤ Use recipes to double, triple, reduce, etc. amounts for each ingredient.

Number and Numerical Operations			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Perform addition, subtraction, multiplication and division of decimals to solve real-world problems.</p> <p>Perform addition, subtraction, multiplication and division of fractions and mixed numbers to solve real-world problems.</p> <p>Compare and order fractions, mixed numbers and decimals, using the symbols: $<$, $>$, $=$, \neq.</p> <p>Explore and use of the symbols $<$ and $>$.</p> <p>Solve and graph inequalities.</p> <p>Perform the distributive property with whole numbers, fractions and decimals.</p> <p>Solve real world problems using whole numbers, fractions, decimals, percents incorporating various strategies and approaches.</p> <p>Use estimation and rounding techniques.</p> <p>Find and estimate a square root.</p>	<p>Number and Operations</p> <p>Estimation</p>	<p>4.1A, 4.1B, 4.1C, 4.3D, 4.5A</p>	<p>➤ Teams of students to compare and order fractions, mixed numbers and decimals written on cards. Other teams must check work.</p>

Ratio, Proportion and Percent			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Convert fractions to decimals and percents, decimals to fractions and percents, percents to decimals and fractions.</p> <p>Show understanding of a ratio, rate and proportion.</p> <p>Understand and apply unit rate to find the better deal.</p> <p>Write and solve proportions or a percent equation.</p> <p>Interpret and use proportions for scale drawings, map reading and finding similar polygons.</p> <p>Write percents greater than 100% and percents less than 1%.</p> <p>Solve real-life percent problems: Percent of a number; tax; discount; simple interest; percent increase and percent decrease.</p>	<p>Rational Numbers, Proportion and Percent</p>	<p>4.1A, 4.1B, 4.2A, 4.2C,4.3C, 4.5A, 4.5B, 4.5C, 4.5.D</p>	<ul style="list-style-type: none"> ➤ Scramble: Students find their equivalent matches for the card they hold (fractions, mixed numbers, decimal, percents and values written as words). ➤ Supermarket Math: Students use supermarket advertisement or trip to supermarket to find better deals on various products using unit price. ➤ Students to create scale drawings of their bedrooms or entire home.

<p>Explore permutations and probability; combinations and probability; and Venn diagrams and probability.</p> <p>Apply techniques of systematic listings, counting, and reasoning in a variety of contexts.</p> <p>Find the shortest network connecting specified sites</p>			<p>➤ Finding the shortest route on a map from one site to another.</p>
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Patterns and Algebra			
INSTRUCTIONAL OBJECTIVES	SUBJECT MATTER CONTENT	STANDARDS	ACTIVITIES
<p>Recognize, describe, extend, and create patterns involving whole numbers, and integers.</p> <p>Generate sequences by using calculators to repeatedly apply a formula.</p> <p>Describe a finite and infinite sequence.</p> <p>Recognize and understand the use of a variable.</p> <p>Translate word problems into an algebraic expressions and algebraic equations.</p> <p>Represent integers on a number line.</p> <p>Compare and order integers.</p> <p>Show understanding of absolute value.</p> <p>Perform addition, subtraction, multiplication and division of integers.</p> <p>Explore various strategies for adding, subtracting, multiplying and dividing integers.</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>Patterns</p> <p>Algebra</p> <p>Integers And the Coordinate Plane</p>	<p>4.1A, 4.1B, 4.2B, 4.2C, 4.3A, 4.3C</p>	<ul style="list-style-type: none"> ➤ Students to create their own word problems. Other students must solve their own word problems. Other students must solve by creating an algebraic expression. ➤ Play “guess-my-rule” game where students practice determining function after they’ve given “input” and are told the “output.” ➤ Use a deck of cards to play war. Red is positive, black is negative. Flip down two cards at a time and add. Winner has largest value.

<p>Solve two-step equations with integers. Explore solving two-step inequalities. Explore functions: evaluating functions (input and output), writing a function rule, and use a function table.</p>			
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<p>Use reasoning to support mathematical conclusions and problem situations.</p> <p>Use technology (calculators and computers) to aid in problem solving.</p> <p>Use technology to gather, analyze, and communicate mathematical information.</p>	Technology		
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