5th Grade Math Objectives

Mathematical Reasoning

Apply skills of mathematical representation, communication and reasoning throughout the remaining four content strands.

1. Communicate, reason and represent situations mathematically.
2. Solve problems by distinguishing relevant from irrelevant information, sequencing and prioritizing information and breaking multi-step problems into simpler parts.
3. Evaluate the reasonableness of the solution by considering appropriate estimates and the context of the original problem. (Estimated Multiply Divide Word Problems)
4. Know when it is appropriate to estimate and when an exact answer with whole numbers, fractions or decimals is needed. (Estimated Multiply Divide Word Problems)
5. Express a written problem in suitable mathematical language, solve the problem and interpret the result in the original context. (Arithmetic Word Problems , Making Change , Unit Cost)
6. Support mathematical results using pictures, numbers, and words to explain why the steps in a solution are valid and why a particular solution method is appropriate.
7. Organize, record and communicate math ideas coherently and clearly.

Number Sense, Computation and Operations

A. Number Sense

Represent fractions, decimals and whole numbers in a variety of ways, to quantify information and to solve real-world and mathematical problems. Understand the concept of negative numbers.

1. Read and write numbers up to three decimal places in numerals and words. (Decimal Place Value)
2. Represent and compare positive and negative integers symbolically and on the number line and use them to solve real-world and mathematical problems. (Compare Integers , Integer Addition , Integer Subtraction , Positive Integer Subtraction , Integer Multiplication , Integer Division , Integer Equivalence , Integers In

Word Problems)

3. Recognize equivalent common fractions, decimals and percentages. (Basic Fraction Simplification , Fraction Simplification , Fractions to Decimals , Percentages , Percentage Pictures)

4. Use a variety of estimation strategies such as rounding, truncation, over- and underestimation and decide when an estimated solution is appropriate. (Rounding Numbers , Rounding Large Numbers , Estimated Multiply Divide Word Problems)

B. Computation and Operation

Compute fluently and make reasonable estimates with fractions, decimals, and whole numbers, in real-world and mathematical problems. Understand the meanings of arithmetic operations and how they relate to one another.

1. Use addition, subtraction, multiplication and division of multi-digit whole numbers to solve multi-step, real-world and mathematical problems. (Arithmetic Word Problems , Long Addition , Long Subtraction , Multiplication By One Digit , Long Multiplication , Long Division By One Digit , Long Division)

2. Add and subtract numbers with up to two decimal places in real-world or mathematical problems. (Making Change , Decimal Addition , Decimal Subtraction)

3. Add and subtract, without a calculator, numbers containing up to five digits such as 546.23 - 84.1. (Decimal Addition , Decimal Subtraction)

4. Multiply, without a calculator, a two-digit whole number or decimal by a two-digit whole number or decimal, such as 3.2 x 3.4. (Money Multiplication , Decimal Multiplication)

5. Divide, without a calculator, a three-digit whole number or decimal by a one-digit whole number or decimal such as 3.51 divided by 3. (Money Division , Decimal Division)

6. Model simple problems, arising from concrete situations, involving the addition and subtraction of common fractions and mixed numbers as well as fractions where the common denominator equals one of the denominators. (Requires outside materials)

7. Interpret percents as a part of a hundred. (Percentage Pictures)

Patterns, Functions and Algebra

A. Patterns and Functions

Understand and describe patterns in numbers, shapes, tables and graphs.

1. Identify patterns in numbers, shapes, tables, and graphs and explain how to extend those patterns. (Patterns: Numbers , Patterns:

Shapes , Function Tables , Function Tables 2)
B. Algebra (Algebraic Thinking)
Represent mathematical relationships using equations.
1. Evaluate numeric expressions in real-world and mathematical problems. (Compare Expressions)

Data Analysis, Statistics and Probability

A. Data and Statistics
Represent data and use various measures associated with data to draw conclusions and identify trends.
1. Determine whether or not a given graph matches a given data set.
2. Use fractions and percentages to compare data sets.
3. Collect data using measurements, surveys or experiments and represent the data with tables and graphs with labeling.
4. Find mean, mode, median, and range of a data set. (Mean, Median, Mode)
B. Probability
Model simple probabilities by displaying the outcomes for real-world and mathematical problems.
1. Represent all possible outcomes for a simple probability problem with tables and grids, and draw conclusions from the results.

Spatial Sense, Geometry and Measurement

A. Spatial Sense
Understand the concepts of reflection and rotation symmetry as applied to two-dimensional shapes.
1. Identify reflection and rotation symmetries in two-dimensional shapes and designs.
B. Geometry
Sort, classify, compare and describe two- and three-dimensional objects.
1. Sort three-dimensional objects according to number and shape of faces, number of edges and vertices.
2. Classify, compare and identify acute, right and obtuse angles. (Triangle Types)
3. Classify polygons as regular or irregular.
4. Know the sum of the angles in triangles and quadrilaterals. (Triangle Angles , Quadrilateral Angles)

C. Measurement

Measure and calculate length, area and capacity using appropriate tools and units to solve real-world and mathematical problems.

1. Find the area and perimeter of a triangle by measuring or using a grid, and label the answer with appropriate units.
2. Use a two-dimensional pattern of a cube or rectangular box to compute the surface area.
3. Select and apply the appropriate units and tools to measure perimeter, area and capacity.