

Grade Four

The fourth-grade standards place emphasis on multiplication and division with whole numbers and solving problems involving addition and subtraction of fractions and decimals. Students will develop fluency with multiplication through 12×12 and the corresponding division facts as they become proficient in multiplying larger numbers. Students will apply knowledge of place value and the properties of addition and multiplication as strategies for solving problems. Students also will refine their estimation skills for computations and measurements. Students will identify and describe representations of points, lines, line segments, rays, and angles, including endpoints and vertices. Students will describe and compare characteristics of plane and solid figures. Concrete models and pictorial representations will be used to solve problems involving perimeter and area, patterns, probability, and equivalence of fractions and decimals.

The use of appropriate technology and the interpretation of the results from applying technology tools must be an integral part of teaching, learning, and assessment. While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies to facilitate problem solving. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative and algebraic concepts or for proficiency in basic computations.

The acquisition of specialized mathematical vocabulary and language is crucial to a student's understanding and appreciation of the subject and fosters confidence in mathematics communication and problem solving.

Problem solving is integrated throughout the content strands. The development of problem-solving skills is a major goal of the mathematics program at every grade level. The development of skills and problem-solving strategies must be integrated early and continuously into each student's mathematics education.

Number and Number Sense

- 4.1 The student will
 - a) read, write, and identify the place and value of each digit in a nine-digit whole number;
 - b) compare and order whole numbers expressed through millions; and
 - c) round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.

- 4.2 The student will
 - a) compare and order fractions and mixed numbers, with and without models;
 - b) represent equivalent fractions; and
 - c) identify the division statement that represents a fraction, with models and in context.

- 4.3 The student will
 - a) read, write, represent, and identify decimals expressed through thousandths;
 - b) round decimals to the nearest whole number;
 - c) compare and order decimals; and
 - d) given a model, write the decimal and fraction equivalents.

Computation and Estimation

- 4.4 The student will
- a) demonstrate fluency with multiplication facts through 12×12 , and the corresponding division facts;
 - b) estimate and determine sums, differences, and products of whole numbers;
 - c) estimate and determine quotients of whole numbers, with and without remainders; and
 - d) create and solve single-step and multistep practical problems involving addition, subtraction, and multiplication, and single-step practical problems involving division with whole numbers.
- 4.5 The student will
- a) determine common multiples and factors, including least common multiple and greatest common factor;
 - b) add and subtract fractions and mixed numbers having like and unlike denominators; and
 - c) solve single-step practical problems involving addition and subtraction with fractions and mixed numbers.
- 4.6 The student will
- a) add and subtract with decimals; and
 - b) solve single-step and multistep practical problems involving addition and subtraction with decimals.

Measurement and Geometry

- 4.7 The student will solve practical problems that involve determining perimeter and area in U.S. Customary and metric units.
- 4.8 The student will
- a) estimate and measure length and describe the result in U.S. Customary and metric units;
 - b) estimate and measure weight/mass and describe the result in U.S. Customary and metric units;
 - c) given the equivalent measure of one unit, identify equivalent measures of length, weight/mass, and liquid volume between units within the U.S. Customary system; and
 - d) solve practical problems that involve length, weight/mass, and liquid volume in U.S. Customary units.
- 4.9 The student will solve practical problems related to elapsed time in hours and minutes within a 12-hour period.
- 4.10 The student will
- a) identify and describe points, lines, line segments, rays, and angles, including endpoints and vertices; and
 - b) identify and describe intersecting, parallel, and perpendicular lines.
- 4.11 The student will identify, describe, compare, and contrast plane and solid figures according to their characteristics (number of angles, vertices, edges, and the number and shape of faces) using concrete models and pictorial representations.
- 4.12 The student will classify quadrilaterals as parallelograms, rectangles, squares, rhombi, and/or trapezoids.

Probability and Statistics

- 4.13 The student will
- a) determine the likelihood of an outcome of a simple event;
 - b) represent probability as a number between 0 and 1, inclusive; and
 - c) create a model or practical problem to represent a given probability.
- 4.14 The student will
- a) collect, organize, and represent data in bar graphs and line graphs;
 - b) interpret data represented in bar graphs and line graphs; and
 - c) compare two different representations of the same data (e.g., a set of data displayed on a chart and a bar graph, a chart and a line graph, or a pictograph and a bar graph).

Patterns, Functions, and Algebra

- 4.15 The student will identify, describe, create, and extend patterns found in objects, pictures, numbers, and tables.
- 4.16 The student will recognize and demonstrate the meaning of equality in an equation.