

Mathematics

Grade 5

It is essential that these standards be addressed in contexts that promote problem solving, reasoning, communication, making connections, and designing and analyzing representations.

5.1 Number and Operations and Data Analysis: **Develop an understanding of and fluency with addition and subtraction of fractions and decimals.**

- 5.1.1 Use fraction models to represent the addition and subtraction of fractions with unlike denominators.
- 5.1.2 Use decimal models, place value, and number properties to add and subtract decimals (to the thousandths).
- 5.1.3 Select and use appropriate strategies to estimate fraction and decimal sums and differences.
- 5.1.4 Develop fluency with efficient procedures for adding and subtracting fractions and decimals and justify why the procedures work.
- 5.1.5 Solve problems involving the addition and subtraction of fractions and decimals.
- 5.1.6 Use ordered pairs on coordinate graphs to specify locations and describe paths.
- 5.1.7 Construct and analyze double bar, line, and circle graphs to solve problems involving fractions and decimals.

5.2 Number and Operations and Algebra: **Develop an understanding of and fluency with division of whole numbers.**

- 5.2.1 Apply understanding of models for division (e.g., equal-sized groups, arrays, area models, equal intervals on the number line) and the relationship of division to multiplication to solve problems.
- 5.2.2 Apply concepts of place value and the properties of operations to solve problems involving division.
- 5.2.3 Select and use appropriate estimation strategies for division (e.g., use benchmarks, overestimate, underestimate, round) to calculate mentally based on the problem situation when computing with whole numbers.
- 5.2.4 Develop and use accurate, efficient, and generalizable methods to find quotients for multi-digit division problems.
- 5.2.5 Develop fluency with efficient procedures for dividing whole numbers and justify why the procedures work on the basis of place value and number properties.
- 5.2.6 Determine the most appropriate form of the quotient and interpret the remainder in a problem situation.

5.3 Geometry, Measurement, and Algebra: **Describe and relate two-dimensional shapes to three-dimensional shapes and analyze their properties, including volume and surface area.**

- 5.3.1 Identify and classify triangles by their angles (acute, right, obtuse) and sides (scalene, isosceles, equilateral).
- 5.3.2 Find and justify relationships among the formulas for the areas of triangles and parallelograms.
- 5.3.3 Describe three-dimensional shapes (triangular and rectangular prisms, cube, triangular- and square-based pyramids, cylinder, cone, and sphere) by the number of edges, faces, and/or vertices as well as types of faces.
- 5.3.4 Recognize volume as an attribute of three-dimensional space.

- 5.3.5 Determine volume by finding the total number of same-sized units of volume that fill a three-dimensional shape without gaps or overlaps.
- 5.3.6 Recognize a cube that is one unit on an edge as the standard unit for measuring volume.
- 5.3.7 Determine the appropriate units, strategies, and tools for solving problems that involve estimating or measuring volume.
- 5.3.8 Decompose three-dimensional shapes and find surface areas and volumes of triangular and rectangular prisms.

- 5.3.9 Identify and measure necessary attributes of shapes to use area , surface area, and volume formulas to solve problems (e.g., to find which of two gift boxes needs the most wrapping paper or has the greater volume?).

