

GRADE FOUR

Number and Numeration

Goal 1: Read and write whole numbers up to 1,000,000,000 and decimals through thousandths; identify places in such numbers and the values of the digits in those places; translate between whole numbers and decimals represented in words and in base-10 notation.

Goal 2: Read, write, and model fraction; solve problems involving fractional parts of a region or a collection; describe and explain strategies used; given a fractional part of a region or a collection, identify the unit whole.

Goal 3: Find multiples of whole numbers less than 10; identify prime and composite numbers; find whole-number factors of numbers.

Goal 4: Use numerical expressions involving one or more of the basic four arithmetic operations and grouping symbols to give equivalent names for whole numbers.

Goal 5: use numerical expressions to find and represent equivalent names for fractions and decimals; use and explain a multiplication rule to find equivalent fractions; rename fourths, fifths, tenths, and hundredths as decimals and percents.

Goal 6: Compare and order whole numbers up to 1,000,000,000 and decimals through thousandths; compare and order integers between -100 and 0; use area models, benchmark fractions, and analyses of numerators and denominators to compare and order fractions.

Operations and Computation

Goal 1: Demonstrate automaticity with addition and subtraction fact extensions.

Goal 2: Use manipulatives, mental arithmetic, paper and pencil algorithms and models, and calculators to solve problems involving the addition and subtraction of whole numbers and decimals through hundredths; describe the strategies used and explain how they work.

Goal 3: Demonstrate automaticity with multiplication facts through 10×10 and proficiency with related division facts; use basic facts to compute fact extensions such as 30×60 .

Goal 4: Use manipulatives, mental arithmetic, paper and pencil algorithms and models, and calculators to solve problems involving the multiplication of multidigit whole numbers by 2-digit whole numbers and the division of multidigit whole numbers by 1-digit whole numbers; describe the strategies used and explain how they work.

Goal 5: Use manipulatives, mental arithmetic, and calculators to solve problems involving the addition and subtraction of fractions and mixed numbers; describe the strategies used.

Goal 6: Make reasonable estimates for whole number and decimal addition and subtraction problems and whole number multiplication and division problems; explain how the estimates were obtained.

Goal 7: Use repeated addition, skip counting, arrays, area, and scaling to model multiplication and division.

Data and Chance

Goal 1: Collect and organize data or use given data to create charts, tables, graphs, and line plots.

Goal 2: Use the maximum, minimum, range, median, mode, and graphs to ask and answer questions, draw conclusions, and make predictions.

Goal 3: Describe events using certain, very likely, likely, unlikely, very likely, impossible and other basic probability terms; use more likely, equally likely, same chance, 50-50, less likely, and other basic probability terms to compare events; explain the choice of language.

Goal 4: Predict the outcomes of experiments and test the predictions using manipulatives; summarize the results and use them to predict future events; express the probability of an event as a fraction.

Measurement and Reference Frames

Goal 1: Estimate length with and without tools; measure length to the nearest $\frac{1}{4}$ inch and $\frac{1}{2}$ centimeter; use tools to measure and draw angles; estimate the size of angles without tools.

Goal 2: Describe and use strategies to measure the perimeter and area of polygons, to estimate the area of irregular shapes, and to find the volume of rectangular prisms.

Goal 3: Describe relationships among U.S. customary units of measure and among metric units of measure.

Goal 4: Use ordered pairs of numbers to name, locate, and plot points in the first quadrant of a coordinate grid.

Geometry

Goal 1: identify, draw, and describe points, intersection and parallel line segments and lines, rays, and right, acute, and obtuse angles.

Goal 2: Describe, compare, and classify plane and solid figures, including polygons, circles, spheres, cylinders, rectangular prisms, cones, cubes, and pyramids, using appropriate geometric terms including vertex, base, face, edge, and congruent.

Goal 3: Identify, describe, and sketch examples of reflection; identify and describe examples of translations and rotations.

Patterns, Functions, and Algebra

Goal 1: Extend, describe, and create numeric patterns; describe rules for patterns and use them to solve problems; use words and symbols to describe and write rules for functions that involve the four basic arithmetic operations and use those rules to solve problems.

Goal 2: Use conventional notation to write expressions and number sentences using the four basic arithmetic operation; determine whether number sentences are true or false; solve open sentences and explain the solutions; write expressions and number sentences to model number stories.

Goal 3: Evaluate numeric expressions containing grouping symbols; insert grouping symbols to make number sentences true.

Goal 4: Describe and apply the Distributive Property of Multiplication over Addition.