

# Math

## FOURTH GRADE

Students in fourth grade are intrigued with mathematics. To nurture this interest, students at this grade level need to be involved in an active learning process rather than one that only builds on memorization of concepts and procedures. Concrete experiences are also important at this stage of development. Such experiences allow students to develop and strengthen the skills needed to communicate, reason, solve mathematical problems, and reach higher levels of cognitive reasoning.

An effective classroom environment provides intellectually stimulating instruction and developmentally appropriate opportunities for students to learn mathematical concepts. This classroom environment fosters an atmosphere in which students are encouraged to find solutions through a variety of methods and feel less threatened about making and correcting mistakes. Instruction includes opportunities for students to communicate their mathematical thinking by talking, writing, and sharing with each other.

Fourth-grade content builds a foundation of basic number sense, operations, quantitative reasoning, patterns, relationships, geometric and spatial reasoning, measurement, and probability and statistics. The content builds on and expands students' conceptual understanding of mathematics. Through the interweaving of mathematical concepts and processes, students learn to value mathematics, display confidence in their mathematical ability, solve problems, and make connections between mathematics and other subjects.

### Number and Operations

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Students will:

1. Demonstrate number sense by comparing and ordering decimals to hundredths and whole numbers to 999,999.
  - Identify a number when given a pictorial representation of tenths and hundredths or groups of ones, tens, hundreds, and thousands
  - Write a number in expanded notation through the hundred-thousands
  - Determine the place value of a digit in a whole number through the hundred-thousands and in a decimal to the hundredths
2. Write money amounts in words and dollar-and-cent notation.
  - Identifying equivalent units of money
  - Solve word problems involving money.
3. Rename improper fractions as mixed numbers and mixed numbers as improper fractions.
  - Use number line to simplify, compare, and order fractions and mixed numbers
  - Write equivalent forms of fractions
4. Demonstrate addition and subtraction of fractions with common denominators.
5. Round whole numbers to the nearest ten, hundred, or thousand and decimals to the nearest tenth.
6. Solve problems, including word problems, involving addition and subtraction of four-digit numbers with and without regrouping.
  - Estimate sums and differences of whole numbers by using appropriate strategies such as rounding, front-end estimation, and compatible numbers
  - Add and subtract decimals and money amounts

7. Solve problems, including word problems, involving basic operations of multiplication and division on whole numbers through two-digit multipliers and one-digit divisors.
  - Estimate products and quotients of whole numbers by using appropriate strategies such as rounding, front-end estimation, and compatible numbers
  - Identify information needed to determine the appropriate operation to solve a problem
  - Demonstrate computational fluency in multiplication and division fact families through 12
  - Complete 100 addition and/or subtraction facts in 3 minutes
  - Complete 100 multiplication facts in 4 minutes
  - Complete 100 division facts in 6 minutes
  - Understand operations of division including remainders
8. Recognize equivalent forms of commonly used fractions and decimals.

## **Algebra**

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9. Write number sentences for word problems that involve multiplication or division.
10. Create a word problem for a given number sentence.
11. Complete addition and subtraction number sentences with a missing addend or subtrahend.

## **Geometry**

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12. Identify triangles, quadrilaterals, pentagons, hexagons, or octagons based on the number of sides, angles, and vertices.
  - Demonstrating slides (translations), flips (reflections), and turns (rotations) using triangles, quadrilaterals, pentagons, hexagons, or octagons
  - Drawing lines of symmetry in triangles, quadrilaterals, pentagons, hexagons, or octagons
13. Find locations on a map or grid using ordered pairs.

## **Measurement**

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14. Calculate elapsed time in hours and minutes.
15. Measure length, width, weight, and capacity, using metric and customary units, and temperature in degrees Fahrenheit and degrees Celsius.
  - Estimate perimeter / area of irregular shapes using unit squares and grid paper
  - Estimate area using unit squares
  - Demonstrate practical use of various forms of measurement forms
  - Problem solve using various forms of measurement

## **Data Analysis and Probability**

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16. Represent data using tables/graphs, including bar and line graphs, as well as line plots
  - Collect data using observations, surveys, or experiments
  - Create tally charts to represent data collected from real-life situations
17. Determine if outcomes of simple events are likely, unlikely, certain, equally likely, or impossible.
18. Represent numerical data using tables and graphs, including bar graphs and line graphs.
19. Determine accurately the mean, median and mode of a given data set