

FIRST GRADE MATH

Goal

The first grade mathematics program introduces the concept of fractions and continues the development of sorting and patterning skills. By the end of first grade, students can use *ones* and *tens* in the place value system. First graders can add and subtract small numbers easily. They can measure a variety of objects and can use basic geometric concepts. In addition, first grade students can collect and organize data, analyze simple probability situations, and solve basic problem situations.

While learning mathematics, students should be actively engaged and using concrete materials. Students should also be encouraged to correctly use the concepts, skills, symbols, and vocabulary associated with mathematics.

Number Sense and Operations

1. The student will understand and use whole numbers up to 100:

- a. Count, read, write, order and compare whole numbers to 100.
- b. Count by number groups to 100 (2s, 5s, 10s).
- c. Count and group concrete objects in ones and tens to develop an understanding of place value.
- d. Identify ordinal positions using an ordered set of objects 1st through 20th.
- e. Classify numbers as even or odd.
- f. Make reasonable estimates when comparing smaller or larger numbers.

2. The student will demonstrate an understanding of addition and subtraction by using these operations to solve problems.

- a. Identify one more than, one less than, 10 more than, and 10 less than in a given number.
- b. Demonstrate the meaning of addition as putting together, or increasing.
- c. Demonstrate the meaning of subtraction as taking away, comparing, or finding the difference.
- d. Use the inverse relationship between addition and subtraction to solve problems.
- e. Solve addition and subtraction problems with one and two-digit numbers (without regrouping).
- f. Find the sum of 3 one-digit numbers.

3. The student will use fraction models to identify parts of a whole.

- a. Investigate concepts of fractional parts (e.g. halves, thirds, fourths).
- b. Compare common fractions using concrete materials (e.g. one-fourth, to one-half of a candy bar).

Patterns, Relations, and Algebra

1. The student will demonstrate an understanding of patterning and classification.

- a. Describe, compare, sort, and classify objects according to one or more attributes (e.g., color, size, shape, thickness).

- b. Recognize, describe, extend, and create a variety of patterns, including rhythmic, color, shape, and numeric.

2. The student will use number sentences with operational symbols and expressions to solve problems.

- a. Use addition and subtraction symbols to write number sentences and solve problems.
- b. Describe problem situations that require addition and subtraction.

Geometry

1. The student will identify common geometric figures and classify them by common attributes.

- a. Identify, describe, compare, and draw plane figures: circle, square, triangle, and rectangle.
- b. Recognize basic three-dimensional figures: sphere, cube, and cylinder.
- c. Determine ways in which shapes can be divided into equal pieces.

2. The student will describe the relative position of objects and their location in space.

- a. Give and follow directions about location (e.g. below, up, down, beside, next to).
- b. Arrange and describe objects in space by proximity, position, and direction (e.g. near, far, below, above, up, down, behind, in front of, next to, left of, or right of).

Measurement

1. The student will use comparison and standard, as well as nonstandard units, to measure objects.

- a. Compare the length, weight, and volume of two or more objects by using direct comparison, or a nonstandard unit to measure.
- b. Tell time to the nearest hour and half-hour, using an analog or digital clock.
- c. Identify the value of coins and show different combinations of coins that equal the same value.
- d. Use calendar language appropriately (e.g. seasons and months, today, yesterday, tomorrow, next week, last, month).
- e. Observe and record temperatures taken at various times.
- f. Identify various tools used to solve measurement problems.

Data Analysis, Statistics, and Probability

1. The student will demonstrate an understanding of data collection, display, and interpretation.

- a. Represent and compare various forms of data (e.g. daily temperature, lunch count, attendance, favorite color) using picture graphs, bar graphs, and tally charts.
- b. Interpret information displayed in a chart, or graph, by using the vocabulary: more, less, fewer, greater than, and less than.

2. The student will use the concept of chance to explore the probability of actual events.

- a. Predict possible outcomes of probability experiments (e.g. tossing a die or coin).
- b. Explain how some events are more likely to occur than others.
- c. Generate data from probability experiments using spinners, tiles, or dice.