

# Mathematics

## Grade: 1-2

### Topic: Number Sense and Operations

1. Name and write (in numerals) whole numbers to 1000, identify the place values of the digits, and order the numbers.
2. Identify and distinguish among multiple uses of numbers, including cardinal (to tell how many) and ordinal (to tell which one in an ordered list), and numbers as labels and as measurements.
3. Identify and represent common fractions ( $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ) as parts of wholes, parts of groups, and numbers on the number line.
4. Compare whole numbers using terms and symbols (e.g., less than, equal to, greater than,  $<$ ,  $=$ ,  $>$ ).
5. Identify odd and even numbers and determine whether a set of objects has an odd or even number of elements.
6. Identify the value of all U.S. coins, and \$1, \$5, \$10, and \$20 bills. Find the value of a collection of coins and dollar bills and different ways to represent an amount of money up to \$5. Use appropriate notation (e.g., 69¢, \$1.35).
7. Demonstrate an understanding of various meanings of addition and subtraction (e.g., addition as combination—plus, combined with, more; subtraction as comparison—how much less, how much more; equalizing—how many more are needed to make these equal; separation—how much remaining).
8. Understand and use the inverse relationship between addition and subtraction (e.g.,  $8+6=14$  is equivalent to  $14-6=8$  and is also equivalent to  $14-8=6$ ) to solve problems and check solutions.
9. Know addition facts (addends to ten) and related subtraction facts, and use them to solve problems.
10. Demonstrate the ability to add and subtract three-digit numbers accurately and efficiently.
11. Demonstrate in the classroom an understanding of and the ability to use the conventional algorithms for addition (two 3-digit numbers and three 2-digit numbers) and subtraction (two 3-digit numbers).
12. Estimate, calculate, and solve problems involving addition and subtraction of two-digit numbers. Describe differences between estimates and actual calculations.

### Topic: Patterns, Relations, and Algebra

1. Identify, reproduce, describe, extend, and create simple rhythmic, shape, size, number, color, and letter repeating patterns.
2. Identify different patterns on the hundreds chart.
3. Describe and create addition and subtraction number patterns (e.g., 1, 4, 7, 10...; or 25, 23, 21...).
4. Skip count by twos, fives, and tens up to at least 50, starting at any number.
5. Construct and solve open sentences that have variables (e.g.  $\square + 7 = 10$ ).
6. Write number sentences using  $+$ ,  $-$ ,  $<$ ,  $=$ , and/or  $>$  to represent mathematical relationships in everyday situations.
7. Describe functions related to trading, including coin trades and measurement trades (e.g. five pennies make one nickel, four cups make one quart, 11 nickels are worth more than 5 dimes).

### Topic: Geometry

1. Describe attributes and parts of two- and three-dimensional shapes (e.g., length of sides, and number of corners, edges, faces, and sides).
2. Identify, describe, draw, and compare two-dimensional shapes, including both polygonal (up to six sides) and curved figures such as circles.
3. Recognize congruent shapes.

4. Identify shapes that have been rotated (turned), reflected (flipped), translated (slid), and enlarged. Describe direction of translations (e.g., left, right, up, down).
5. Identify symmetry in two-dimensional shapes.
6. Predict the results of putting shapes together and taking them apart.
7. Relate geometric ideas to numbers (e.g., seeing rows in an array as a model of repeated addition).

### **Topic: Measurement**

1. Identify parts of the day (e.g., morning, afternoon, evening), week, month, and calendar.
2. Tell time at quarter-hour intervals on analog and digital clocks using a.m. and p.m.
3. Compare the length, weight, area, and volume of two or more objects by using direct comparison.
4. Measure and compare common objects using metric and English units of length measurement (e.g. centimeter, inch).
5. Select and correctly use the appropriate measurement tools (e.g., ruler, balance scale, thermometer).
6. Make and use estimates of measurement, including time, volume, weight, and area.

### **Topic: Data Analysis, Statistics, and Probability**

1. Use interviews, surveys, and observations to gather data about themselves and their surroundings.
2. Organize, classify, represent, and interpret data using tallies, charts, tables, bar graphs, pictographs, and Venn diagrams; interpret the representations.
3. Formulate inferences (draw conclusions) and make educated guesses (conjectures) about a situation based on information gained from data.
4. Decide which outcomes of experiments are most likely.