

## Mathematics Curriculum First Grade

### A. Number Sense

Students will understand the number system is the basis of mathematics. Students will understand symbols, objects, and pictures used to represent numbers up to 100 and show an understanding of fractions.

The students will:

- Count, read, write, order, rename and compare whole numbers to at least 100 (count by 2's, 5's, and 10's, 100's to 100, identify even and odd numbers, count and write numbers to 1000, use patterns in whole number counting, count by tens beginning with a single-digit number i.e. 3, 13, 23).
- Using a number line as a tool count, read, and solve addition and subtraction problems.
- Name the number that is one more than or one less than any number to at least 100.
- Match the ordinal numbers first, second, third, etc. with an ordered set to at least 10 items.
- Recognize when a shape is divided into congruent parts.
- For a shape divided into 8 or fewer congruent parts, describe a shaded portion as “\_\_ out of \_\_ parts” and write the fraction.
- For a set of 8 or fewer objects, describe a subset as “\_\_ out of \_\_ parts” and write the fraction.
- Show equivalent forms of whole numbers to at least 100 as groups of tens and ones.

### B. Computation

Students will understand fluency in computation is essential. Students will demonstrate the meaning of addition and subtraction and use these operations to solve problems.

The students will:

- Solve problems involving addition and subtraction by modeling addition of numbers to at least 100 and by modeling the inverse operation of subtraction using objects and pictures.
- Demonstrate fluency with addition facts and the corresponding subtraction facts for totals to at least 20.
- Understand the role of zero in addition and subtraction.
- Show equivalent forms of the same number using objects, diagrams, and numbers.
- Model addition and subtraction facts of numbers less than 20 using a number line.
- Add three addends (numbers less than 10).
- Add two-digit numbers without regrouping

### C. Algebra and Functions

Students will understand algebra is a language of patterns, rules, and symbols. Students at this level relate word problems to number sentences in symbols, such as  $7 + 6 = 13$ , and learn some of the rules relating addition and subtraction.

The students will:

- Write and solve equations involving addition and subtraction.
- Understand the meaning of the symbols, +, -, =, < and >.
- Create, extend, and give a rule for number patterns using addition.
- Solve problems using the identify principle for addition and subtraction.
- Create word problems that match given number sentences involving addition and subtraction.

### D. Geometry

The students will learn about geometric shapes, classify them by common attributes, and describe their relative position or their location in space.

The students will:

- Identify, describe, compare, sort and draw circles, triangles, rectangles, squares, parallelograms, trapezoids, and hexagon in terms of their attributes (position, shape, size and number of vertices).
- Use simple plane shapes to compose a given geometric shape (spheres, cubes, cones, cylinders, and rectangular solids, and pyramids). Identify the geometric shapes and structures in the environment and specify their location.
- Arrange and describe objects in space by position and direction: near, far, under, over, up, down, behind, in front of, next to, and to the left or right of.
- Identify and draw lines of symmetry.
- Extend a pattern composed of three or more simple shapes.
- Recognize when a shape is divided into congruent parts.

### E. Measurement

The students will understand the study of measurement is essential because of its uses in many aspects of everyday life. Students will learn how to measure length, as well as how to compare, order, and describe other kinds of measurement.

The students will:

- Recognize the need for measuring using a standard unit.
- Estimate and measure the length of an object using non-standard units and standard units including inch and centimeter.
- Recognize and read a thermometer.
- Tell time to the nearest half-hour and hour and relate time to events (before/after, shorter/longer, morning, afternoon, evening, and night).
- Identify the days of the week, months of the year, and the four seasons.

- Identify the parts of a calendar and read the date today, yesterday, and tomorrow.
- Give the value of pennies, nickels, dimes, and quarters.
- Count mixed coins in various combinations up to \$ .99.
- Add and subtract amounts of money less than a dollar, without regrouping.

#### F. Data Analysis and Probability

The students will understand that data are all around us-in newspapers and magazines and in television news and commercials. Students need to learn how to use and understand data.

The students will:

- Represent, compare and interpret data using pictures, tally charts and bar/picture graphs.
- Pose a question and collect and represent data using pictures or picture graphs to answer the question posed.

#### G. Problem Solving

The students will understand in a general sense, mathematics is problem solving. In all mathematics, students use problem-solving skills and make decisions about how to set up a problem.

The students will:

- Use the Super Seven Strategies Chart: (guess & check, draw a picture, make an organized list, look for a pattern, make a table or chart, use logical reasoning, work backward).
- Choose the approach, materials, and strategies to use in solving problems.
- Use tools such as objects or drawings to model problems.
- Explain the reasoning used and justify the procedures selected in solving a problem.
- Check their work and make corrections.
- Understand and use connections between two problems.
- Understand and use grade level appropriate math vocabulary and symbols.