

Mathematics

Goal: Students will explore mathematical concepts*, and apply the concepts to solving a broad range of real-life problems.

*Acquisition of these mathematical concepts may not occur until the second half of the year for some students. Informally gathering information about students' understanding of these concepts from time to time throughout the year will inform instruction.

Mathematical Processes (ongoing throughout the year) Objectives – The student will demonstrate mathematical thinking to:

- a. Begin to use simple strategies to solve mathematical problems (WSS III A1) by:
 - Using number words during play to compare or solve problems (WSS)
 - Asking questions during everyday activities (e.g., “How many napkins do I need for my table?”) (WSS)
 - Using mathematical concepts to translate personal experiences into mathematical language (e.g., “Today, I am going to the park and tomorrow I am going to the store.” “Are there more people in your house or mine?”)(CS M 10.PK1)
 - Observing and listening to obtain mathematical information from a variety of sources (CS M 8.PK1)
 - Using mathematical language appropriately (more, less, first, last) (CS M8PK5)
 - Clarifying meaning by asking questions (CSM8PK4)
 - Manipulating objects to represent mathematical ideas (CDM8PK2)
 - Discussing problem situations using concrete objects (CS M8PK3)
 - Identifying the relationship between numerical and physical models (matching numerals with appropriate sets) (CSMPK2)
 - Displaying data using real or concrete graphs [Statistics] CSMPK4PK2)
 - Presenting results using concrete objects and oral language (CSM8PK8)
 - Gathering relevant data to answer a question [Statistics]CSM4PK1)
 - Using information to identify questions within a problem (CSM7PK1)
 - Using appropriate tools and technology to solve problems (CS M7PK7)
 - Applying what was learned to a different problem of the same kind. (CSM7PK14)

Number (Relationships) and Operations (Computations) Objectives – The student will demonstrate the ability to:

- a. Show beginning understanding of number and quantity (WSS III B 1) by:
 - Showing an interest in counting and numbers (CS 6PK1a)
 - Becoming aware of the purposes for number and counting
 - Asking adults about number and quantities
 - Attempting to estimate and count in everyday activities
 - Rote counting to 10 (at a minimum) (CS 6PK1b))
 - Rote counting backwards from 5 (CS6PK 1b)

- Counting five to ten objects at a minimum with one-to-one correspondence (CS6PK1c)
- Matching a set of objects with another set of the same quantity
- Comparing sets of objects using these terms: more, less, and the same (CS 6PK4)
- Estimate whether a group of objects is more or less than five (CS 6PK7)
- Conserving number (a set of three blocks is still three whether spaced closely or spaced far apart)
- Demonstrating a beginning understanding of constancy (e.g., three bears, three crayons, or a set of a crayon, pencil and eraser are all examples of three)
- Recognizing some numerals
- Represents whole numbers to 5 on a number line using concrete materials and symbols (CS 1PK4).

(Algebra,) Patterns, and Functions Objectives – The student will demonstrate the ability to:

- a. Sort objects into subgroups that vary by one or two attributes (WSS III C 1) by:
 - Sorting objects by one attribute (color, shape, size) then resorting by another attribute (CS)
 - Sorting objects according to use (e.g., writing instruments, eating utensils)
 - Describing a group of objects according to common attributes or functions (use) (CS/WSS ex.).
- b. Recognize simple patterns and duplicate them (WSS C 2) by:
 - Copying a sound pattern of two claps and a pause, then one clap and a pause
 - Stringing beads or using manipulates in a repeating pattern according to color, shape, or size
 - Drawing colored dots on a paper in a repeating pattern (blue, green, blue, green)
 - Describe a pattern
 - Recognizing the pattern in a predictable book and saying the next line before turning the page.

Geometry and Spatial Relations Objectives – The student will demonstrate the ability to:

- a. Begin to recognize and describe the attributes of shapes (WSS D1/CS) by:
 - Recognizing and matching objects with the same size and shape (CS2PK5)
 - Identifying shapes including circle, square, triangle, and rectangle
 - Identifying and labeling shapes in the environment
 - Identifying sides and angles of two dimension shapes such as triangle, square, and rectangle (e.g., “This is the side of the rectangle. This is the angle of the triangle.”)
 - Explain criteria (size, sides, color) used for matching, identifying, and sorting objects, including shapes.
- b. Show understanding of and use several positional words (WSS D2) by:

Following directions using positional words including before, after, first, next, and last (CS 6PK1d)

 - Locating, describing, or placing an object or self by spatial position using the following terms: on, off, top, bottom, inside, outside, next to (beside), first, last.

Measurement (ongoing throughout the year) Objectives – The student will apply measurement concepts to:

- a. Order, compare, and describe objects according to a single attribute (WSSE1) by:
 - Describing objects by relative size, height, length, weight, and volume
 - Comparing objects using terms such as big, little, heavy, light, wide, narrow, empty, full, tall, short
 - Ordering objects by relative size, height, length, weight, and volume
 - Locating big, bigger, biggest; small, smaller, smallest; long, longer, longest
 - Using measurement words during the school day.
- b. Participate in measuring activities (WSS E2) by:
 - Using non-standard (everyday objects) and standard units for length and weight (CS3PK2c)
 - Using measuring tools to determine quantity, length, and height
 - Placing common routines in chronological order
 - Sequencing events in time using the following terms: first, next, last, before, now, and later
 - Describing activities in terms of morning/night, yesterday/today, tomorrow, morning, afternoon, and now/later.