

Walton Academy

Kindergarten Mathematics

Goals and Objectives

Counting and Cardinality

Know number names and the count sequence.

- Count to 100 by ones and tens. Count to 50 by fives. Count to 20 by twos.
- Count forward beginning from a given number within the known sequence (instead of having to begin at 1). Count backward beginning from a given number within 3-10.
- Write numbers from 0 to 30. Represent a number of objects with a written numeral 0-30 (with 0 representing a count of no objects). Count to tell the number of objects.
- Understand the relationship between numbers and quantities; connect counting to cardinality.
 - When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
 - Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
 - Understand that each successive number name refers to a quantity that is one larger.
- Count to answer “how many?” questions about as many as 30 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–30, count out that many objects. Compare numbers.
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Note: Include groups with up to ten objects.)
- Compare two numbers between 1 and 20 presented as written numerals.
- Use ordinals (1st – 10th).

Operations and Algebraic Thinking

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

- Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. (Note: Drawings need not show details, but should show the mathematics in the problem – this applies wherever drawings are mentioned in the Standards.)
- Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
- Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).
- For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
- Fluently add and subtract within 10.
- Demonstrate conceptual understanding of rational numbers with respect to positive fractional numbers ($1/2$) as “fair share” (i.e., equal sized parts or sets) using models, explanations, or other representations.
- Demonstrate understanding of monetary value through investigation involving knowing

the names and values for coins (penny, nickel, and dime).

- Mentally adds and subtracts whole numbers by naming the number that is one more or one less than the original number. **IMPORTANT:** The intent of this is to embed mental arithmetic throughout the instructional program, not to teach it as a separate unit.
- Make estimates of the number of objects in a set (up to 20) by making and revising estimates as objects are counted (e.g., A student estimates the number of pennies in a jar of 20. Then the student counts the first 10 and makes another estimate based on those that have been counted and those that remain in the jar.). **IMPORTANT:** Estimation should be embedded instructionally throughout all strands.
- Identifies and extends to specific cases a variety of patterns (sequences of shapes, sounds, movement, colors, and letters) by extending the pattern to the next one, two or three elements, or by translating AB patterns across formats (e.g. an ABB pattern can be represented as snap, clap, clap or red, yellow, yellow) or by identifying number patterns in the environment.

Numbers and Operations in Base Ten

Work with numbers 11 – 19 to gain foundations for place value.

- Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Measurement and Data

Describe and compare measurable attributes.

- Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter. Classify objects and count the number of objects in each category.
- Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Note: Limit category counts to be less than or equal to 10.)
- Determine elapsed and accrued time as it relates to calendar patterns (days of the week, yesterday, today, and tomorrow), the sequence of events in a day; and identifies a clock and calendar as measurement tools (days of week, months of the year).
- Interpret a given representation created by the class (models and tally charts) to answer questions related to the data, or to analyze the data to formulate conclusions using words, diagrams, or verbal/scribed responses to express answers.
- Analyze patterns, trends, or distributions in data in a variety of contexts by determining more, less, equal (e.g., Have there been more, less, or the same number of cloudy days compared to sunny days this week?).

Geometry

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

- Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
- Correctly name shapes regardless of their orientations or overall size.
- Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”). Analyze, compare, create, compose, and decompose shapes.
- Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g.,

number of sides and vertices/ “corners”) and other attributes (e.g., having sides of equal length).

- Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
- Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

Supplementary Books and Materials:

- Steck-Vaughn
- Math Seeds
- Math Manipulatives (Hand2Mind, EAI Education)
- Math Games
- Teacher Created Materials