

Essential Curricular Outcomes for 1st Grade Math by Six-Week Periods

1st Six Weeks: By the end of the first six weeks, all students will demonstrate proficiency* by:

Standard 1: Number and Computation

- 1.2.7 **Uses the concepts** of these properties with whole numbers from 0 through 10 and demonstrates their meaning using concrete objects (\$):
 - b. zero property of addition (additive identity), e.g., $4 + 0 = 4$
- 1.4.1 Computes with **efficiency** and **accuracy** using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology (\$). 0-10
- 1.4.8 Reads and writes horizontally and vertically the same addition expression, e.g., 5 + 4 is the same as
$$\begin{array}{r} 4 \\ + 5 \\ \hline \end{array}$$

Standard 2: Algebra

- 2.1.1 Uses concrete objects, drawings, and other representations to work with **types** of patterns:
 - a. repeating patterns, e.g., an AB pattern is like 1-2, 1-2, ...; an ABC pattern is like dog-horse-pig, dog-horse-pig, ...; an AAB pattern is like _-_-_, _-_-_, ...;
- 2.1.2 Uses the following **attributes** to generate patterns:
 - h. things related to size, shape, color, texture, or movement; e.g., tall-short, tall-short, tall-short, ...; or snapping fingers, clapping hands, or stomping feet (kinesthetic patterns)
- 2.1.3 Identifies and continues a pattern presented in various formats including numeric (list or table), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written (\$).
- 2.1.4 Generates:
 - a. repeating patterns for the AB pattern, the ABC pattern, and the AAB pattern
- 2.4.2 Uses concrete objects, pictures, diagrams, drawings, or dramatizations to show the relationship between two or more things (\$).

Standard 3: Geometry

- 3.1.1 Recognizes circles, squares, rectangles, triangles, and ellipses (ovals) (plane figures/two-dimensional figures)
- 3.2.2 Compares two measurements using these attributes (\$):
 - a. longer, shorter (length);
 - b. taller, shorter (height);
 - d. hotter, colder (temperature)
- 3.2.6 States the number of days in a week and months in a year.
- 3.3.1 Describes the spatial relationship between two concrete objects using appropriate vocabulary, e.g., behind, above, below, on, under, beside, or in front of.
- 3.3.2 Recognizes that changing an object's position or orientation does not change the name, size, or shape of the object.
- 3.3.3 Describes movement of concrete objects using appropriate vocabulary, e.g., right, left, up, or down.

*Proficiency standards are determined by grade level teachers or content teachers, and must be consistent with the state's definition of proficiency. Proficiency levels are based on the administration of common formative 6-week assessments.

Standard 4: Data

- 4.2.4 Determines the mode (most) after sorting by one attribute (\$).
- 4.2.5 Sorts and records qualitative (non-numerical, categorical) data sets using one attribute (\$), e.g., color, shape, or size.

The six-week common assessment will be __

2nd Six Weeks: By the end of 12 weeks all students will demonstrate proficiency by:

Standard 1: Number and Computation

- 1.2.1 Reads and writes whole numbers from 0 through 100 in numerical form (\$).
- 1.4.2 N states and uses with efficiency and accuracy basic addition facts with sums from 0 through 10 and corresponding subtraction facts (\$).

Standard 2: Algebra

- 2.1.1 Uses concrete objects drawings, and other representations to work with **types** of patterns:
 - b. growing (extending) patterns, e.g., 1, 2, 3, ...
- 2.2.2 Finds the unknown sum or difference of the basic facts using concrete objects (\$), e.g., 12 dominoes – 5 dominoes = _ dominoes or _ cubes = 2 cubes + 4 cubes.

Standard 3: Geometry

- 3.1.1 Recognizes and draws circles, squares, rectangles, triangles, and ellipses (ovals) (plane figures/two-dimensional figures)
- 3.1.2 Recognizes and investigates attributes of circles, squares, rectangles, triangles, and ellipses (plane figures) using concrete objects, drawings, and appropriate technology.

The twelve-week common assessment will be Kan-ed __

3rd Six Weeks: By the end of 18 weeks, all students will demonstrate proficiency by:

Standard 1: Number and Computation

- 1.2.7 Uses the concepts of these properties with whole numbers from 0 through 20 and demonstrates their meaning using concrete objects (\$):
 - a. commutative property of addition, e.g., $3 + 2 = 2 + 3$
- 1.4.1 Computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology (\$). 10-20

Standard 2: Algebra

- 2.1.2 Uses the following attributes to generate patterns:
 - c. geometric shapes, e.g., _, _, \diamond , _, _, \diamond , ...;
- 2.4.1 Knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include:
 - h. graphs using concrete objects, pictographs, frequency tables, horizontal and vertical bar graphs, and Venn diagrams or other pictorial displays to organize, display, and explain data (\$);
 - i. Venn diagrams to sort data

Standard 3: Geometry

- 3.4.3 Uses a number line to model addition and counting using whole numbers from 0 to 20.

Standard 4: Data

- 4.2.1 Displays and reads numerical (quantitative) and non-numerical (qualitative) data in a clear, organized, and accurate manner including a title, labels, and whole number intervals using these **data displays** (\$):
- graphs using concrete objects,
 - pictographs with a whole symbol or picture representing one (no partial symbols or pictures),
 - frequency tables (tally marks),
 - horizontal and vertical bar graphs,
 - Venn diagrams or other pictorial displays, e.g., glyphs.
- 4.2.2 Collects data using different techniques (observations or interviews) and explains the results (\$).
- 4.2.3 Identifies the minimum (lowest) and maximum (highest) values in a data set (\$).

The eighteen-week common assessment will be a Kan-ed __

4th Six Weeks: By the end of 24 weeks, all students will demonstrate proficiency by:

Standard 1: Number and Computation

- 1.1.1 Knows, explains, and represents whole numbers from 0 through 100 using concrete objects (\$).
- 1.1.2 Compares and orders (\$):
- whole numbers from 0 through 100 using concrete objects
- 1.1.4 Identifies and uses ordinal numbers first (1st) through tenth (10th)
- 1.1.5 Identifies coins (pennies, nickels, dimes, quarters) and currency (\$1, \$5, \$10) and states the value of each coin and each type of currency using money models (\$).
- 1.2.2 Represents whole numbers from 0 through 100 using various groupings and place value models (place value mats, hundred charts, or base ten blocks) emphasizing ones, tens, and hundreds (\$), e.g., how many groups of tens are there in 32 or how many groups of tens and ones in 62?
- 1.4.3 Skip counts by 2s, 5s, and 10s through 50
- 1.4.7 Shows that addition and subtraction are inverse operations using concrete objects (\$).

Standard 2: Algebra

- 2.1.2 Uses the following **attributes** to generate patterns:
- things related to daily life, e.g., seasons, temperature, or weather
- 2.1.4 Generates:
- growing patterns that add 1, 2, 5, or 10.

The twenty-four-week common assessment will be a Kan-ed __

5th Six Weeks: By the end of 30 weeks, all students will demonstrate proficiency by:

Standard 1: Number and Computation

- 1.1.6 Recognizes and counts a like group of coins (pennies, nickels, dimes) (\$).
- 1.2.2 Represents whole numbers from 0 through 100 using various groupings and place value models (place value mats, hundred charts, or base ten blocks) emphasizing ones, tens, and hundreds (\$), e.g., how many groups of tens are there in 32 or how many groups of tens and ones in 62?
- 1.2.3 Counts subsets of whole numbers from 0 through 100 both forward and backwards (\$).
- 1.2.4 Writes in words whole numbers from 0 through 10.

- 1.2.5 Identifies the place value of the digits in whole numbers from 0 through 100 (\$).
- 1.3.1 Estimates whole number quantities from 0 through 100 using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology (\$).
- 1.3.2 Estimates to check whether or not results of whole number quantities from 0 through 100 are reasonable (\$).
- 1.4.4 Uses repeated addition (multiplication) with whole numbers to find the sum when given the number of groups (ten or less) and given the same number of **concrete objects** in each group (ten or less), e.g., three plates of cookies with 10 cookies on each plate means $10 + 10 + 10 = 30$ cookies

Standard 2: Algebra

- 2.1.2 Uses the following **attributes** to generate patterns:
 - a. counting numbers related to number theory, e.g., evens, odds, or skip counting by 2s, 5s, or 10s;
 - f. money and time (\$), e.g., 10¢, 20¢, 30¢, ... or 1:00, 1:30, 2:00, ...;
- 2.2.1 Explains and uses symbols to represent unknown whole number quantities from 0 through 20.
- 2.2.3 Describes and compares two whole numbers from 0 through 100 using the terms: is equal to, is less than, is greater than (\$).

Standard 3: Geometry

- 3.1.3 Recognizes cubes, rectangular prisms, cylinders, cones, and spheres (solids/three-dimensional figures)
- 3.2.2 Compares two measurements using these attributes (\$):
 - c. heavier, lighter (weight)
- 3.2.3 Reads and tells time at the hour and half-hour using analog and digital clocks.
- 3.4.1 Locates and plots whole numbers from 0 through 100 on a segment of a number line (horizontal/vertical), e.g., using a segment of a number line from 45 to 60 to locate the whole number 50.
- 3.4.2 Describes a given whole number from 0 to 100 as coming before or after another number on a number line.

Standard 4: Data

- 4.1.1 Recognizes whether an outcome of a simple event in an experiment or simulation is impossible, possible, or certain (\$).
- 4.1.2 Recognizes and states whether a simple event in an experiment or simulation including the use of concrete objects can have more than one outcome.

The thirty-week common assessment will be a Kan-ed __

6th Six Weeks: By the end of 36 weeks, all students will demonstrate proficiency by:

Standard 1: Number and Computation

- 1.1.2 Compares and orders (\$):
 - b. fractions with like denominators (halves and fourths) using concrete objects.
- 1.1.3 Recognizes a whole, a half, and a fourth and represents equal parts of a whole (halves, fourths) using concrete objects, pictures, diagrams, fraction strips, or pattern blocks (\$).
- 1.2.6 Identifies any whole number from 0 through 30 as even or odd
- 1.2.7 Uses the concepts of these properties with whole numbers from 0 through 100 and demonstrates their meaning using concrete objects (\$):
- 1.4.5 Uses repeated subtraction (division) with whole numbers when given the total number of concrete objects in each group to find the number of groups, e.g., there are 9 pencils. If

each student gets 2 pencils, how many students get pencils? $9 - 2 - 2 - 2 - 2$ or 9 minus 2 four times means four students get 2 pencils each and there is 1 pencil left over. *or* There are 30 pieces of candy to put equally into five bowls, how many pieces of candy will be in each bowl? $30 - 5 - 5 - 5 - 5 - 5 - 5$ means there are six in each bowl.

- 1.4.6 Performs and explains these computational procedures:
- adds whole numbers with sums through 99 **without** regrouping using concrete objects, e.g., 42 straws (bundles in 10s) + 21 straws (bundled in 10s) = 63 straws (bundled in 10s);
 - subtracts two-digit whole numbers **without** regrouping using concrete objects, e.g., 63 cubes – 21 cubes = 42 cubes.

Standard 2: Algebra

- 2.1.2 Uses the following **attributes** to generate patterns:
- whole numbers that increase (\$), e.g., 11, 21, 31, ... or like 2, 4, 6, ...;
 - measurements, e.g., counting by inches or feet;
 - the calendar, e.g., January, February, March, ...;
- 2.3.1 Plots whole numbers from 0 through 100 on segments of a number line.
- 2.3.2 States mathematical relationships between whole numbers from 0 through 50 using various methods including mental math, paper and pencil, and concrete objects (\$), e.g., every time a hand is added to the set, five more fingers are added to the total.
- 2.3.3 States numerical relationships for whole numbers from 0 through 50 in a horizontal or vertical function table (input/output machine, T-table) (\$), e.g.,

<u>Number of bicycles</u>	1	2	3	4	5	...
Total number of wheels	2	4	6	8	10	...

The student states: For every bicycle added, you add two more wheels.

- 2.4.1 Knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships.
- Mathematical models include:
- process models (concrete objects, pictures, diagrams, number lines, unifix cubes, hundred charts, measurement tools, or calendars) to model computational procedures and mathematical relationships, to compare and order numerical quantities, and to represent fractional parts (\$);
 - place value models (place value mats, hundred charts, or base ten blocks) to compare, order, and represent numerical quantities and to model computational procedures (\$);
 - fraction models (fraction strips or pattern blocks) to compare, order, and represent numerical quantities (\$);
 - money models (base ten blocks or coins) to compare, order, and represent numerical quantities (\$);
 - function tables (input/output machines, T-tables) to model numerical relationships (\$);
 - two-dimensional geometric models (geoboards, dot paper, pattern blocks, tangrams, or attribute blocks) three-dimensional geometric models (solids), and real-world objects to compare size and to model attributes of geometric shapes;
 - two-dimensional geometric models (spinners), three-dimensional geometric models (number cubes), and concrete objects to model probability (\$);

Standard 3: Geometry

- 3.2.1 Uses whole number approximations (estimations) for length and weight using nonstandard units of measure (\$), e.g., the width of the chalkboard is about 10 erasers long or the weight of one encyclopedia is about five picture books.
- 3.2.4 Selects appropriate measuring tools for length, weight, volume, and temperature for a given situation (\$).
- 3.2.5 Measures length and weight to the nearest whole unit using nonstandard units (\$).
- 3.4.3 Uses a number line to model addition and counting using whole numbers from 0 to 100.