

Mathematics Curriculum

Kindergarten

In kindergarten mathematics, children begin by using concrete objects to represent numbers, compare quantities (such as many, few, none, same, and different) represent and extend patterns, match and identify shapes, and sort objects. Problem-solving skills are encouraged and developed throughout the year as children make up their own math stories, solve and illustrate simple story problems, and share their thinking about how a problem is solved.



MTH.K

Standard 1

COMPARE TWO SETS CONTAINING 10 OR FEWER CONCRETE ITEMS

The student, given two sets containing 10 or fewer concrete items, will identify and describe one set as having more, fewer, or the same number of members as the other set, using the concept of one-to-one correspondence.



Benchmark 1.a

Compare Two Sets Containing 10 or Fewer Concrete Items

The student, given two sets containing 10 or fewer concrete items, will identify and describe one set as having more, fewer, or the same number of members as the other set, using the concept of one-to-one correspondence.



Indicator 1.a.1

Match each member of one set with each member of another set

Match each member of one set with each member of another set, using the concept of one-to-one correspondence to compare the number of members between sets, where each set contains 10 or fewer items.



Indicator 1.a.2

Compare/describe two sets using terms: more, fewer, same, different

Compare and describe two sets of 10 or fewer items, using the terms *more*, *fewer*, and *the same*.



Indicator 1.a.3

Estimate and compare quantities

Estimate and compare quantities using many, few, none, more, fewer, same, and different.



Indicator 1.a.4

Explore the part-part-whole relationship in contextual settings

Explore the part-part-whole relationship in contextual settings by counting the number of items/objects in the parts and relating the parts to the number in all (whole).



Indicator 1.a.5

Find groups of objects that are one more than/one less than/same

Find groups of objects that are one more than, one less than, and the same as a given group.



Indicator 1.a.6

Explore dividing wholes into "equal" and "not-equal" parts

Explore dividing wholes (objects and groups) into "equal" and "not-equal" parts.




MTH.K

Standard 2

COUNT ITEMS IN A SET OF 10 OR FEWER. SELECT/WRITE CORRESPONDING NUMBER


The student, given a set containing 10 or fewer concrete items, will

- a) tell how many are in the set by counting the number of items orally;
 - b) select the corresponding numeral from a given set; and
 - c) write the numeral to tell how many are in the set.
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 **Benchmark 2.a**


 **Count Items in a Set Containing 10 or Fewer**

The student, given a set containing 10 or fewer concrete items, will tell how many are in the set by counting the number of items orally.

 **Indicator 2.a.1**


Count orally the number of items in a set containing 10 or fewer

Count orally the number of items in a set containing 10 or fewer concrete items, using one-to-one correspondence, and identify the corresponding numeral.

 **Indicator 2.a.2**


Develop a concept of numbers, zero through ten

Develop a concept of numbers, zero through ten; count groups of 10 or fewer objects saying how many; record the number.

 **Indicator 2.a.3**


Orally count to 31, and recognize numerals to 31


Orally count to 31, and recognize numerals to 31.

 **Indicator 2.a.4**


Count from a given number up to 10

Count from a given number up to 10.

 **Benchmark 2.b**


 **Select Corresponding Numeral for a Given Set Containing 10 or Less**

The student, given a set containing 10 or fewer concrete items, will select the corresponding numeral from a given set.

 **Indicator 2.b.1**


Identify written numerals from 0-10 presented in random order

Identify written numerals from 0 through 10 presented in random order.

 **Indicator 2.b.2**


Select numeral that corresponds to a set of 10 or fewer concrete items

Select the numeral from a given set of numerals that corresponds to a set of 10 or fewer concrete items.

 **Benchmark 2.c**


 **Write Numeral Telling How Many Are in a Set Containing 10 or Less**

The student, given a set containing 10 or fewer concrete items, will write the numeral to tell how many are in the set.

 **Indicator 2.c.1**

Write numerals from 0 through 10

Write the numerals from 0 through 10.

 **Indicator 2.c.2**

Write numeral that corresponds to a set of 10 or fewer concrete items

Write a numeral that corresponds to a set of 10 or fewer concrete items.

**Indicator 2.c.3****Represent numerals to 20**

Represent numerals to 20.

**Indicator 2.c.4****Read the number words one to ten**

Read the number words one to ten.

**Benchmark 2.d****Sequence Numerals**

The student will, given a set of number cards to 10, put them in sequence.

**Indicator 2.d.1****Sequence numerals to 10**

Sequence numerals to 10.

**Indicator 2.d.2****Sequence numerals to 20**

Sequence numerals to 20.

**MTH.K****Standard 3****INDICATE THE ORDINAL POSITION OF THREE OBJECTS AND/OR PICTURES**

The student, given an ordered set of three objects and/or pictures, will indicate the ordinal position of each item, first through third, and the ordered position of each item from left-to-right, right-to-left, top-to-bottom, and/or bottom-to-top.

**Benchmark 3.a****Indicate the Ordinal Position of Three Objects and/or Pictures**

The student, given an ordered set of three objects and/or pictures, will indicate the ordinal position of each item, first through third, and the ordered position of each item from left-to-right, right-to-left, top-to-bottom, and/or bottom-to-top.

**Indicator 3.a.1****Identify the ordinal positions first, second, and third**

Identify the ordinal positions first, second, and third, using ordered sets of three concrete objects and/or pictures of such sets presented from

- left-to-right;
- right-to-left;
- top-to-bottom; and/or
- bottom-to-top.

**Indicator 3.a.2****Seriate up to 10 objects by length, weight, size, and number**

Seriate (order) up to 10 objects by length, weight, size, and number (e.g., order trains of two, four, seven, and ten).

**MTH.K****Standard 4****INVESTIGATE AND RECOGNIZE PATTERNS FROM COUNTING BY FIVES & TENS TO 30**

The student will investigate and recognize patterns from counting by fives and tens to 30, using concrete objects and a calculator.



Benchmark 4.a

Investigate and Recognize Patterns from Counting by Fives & Tens to 30

The student will investigate and recognize patterns from counting by fives and tens to 30, using concrete objects and a calculator.



Indicator 4.a.1

Group 30 or fewer objects into sets of fives or tens, then count

Group 30 or fewer objects together into sets of fives or tens and then count them by fives or by tens.



Indicator 4.a.2

Use objects to investigate the pattern of counting by fives and tens

Investigate and recognize the pattern of counting by fives and tens, using 30 or fewer concrete objects.



Indicator 4.a.3

Use calculator to investigate the pattern of counting by fives & tens

Investigate and recognize the pattern of counting by fives and tens to 30, using a calculator.



Indicator 4.a.4

Explore number patterns such as odd/even using concrete materials

Explore number patterns such as odd/even, using concrete materials.



Indicator 4.a.5

Create patterns to show counting by twos, fives and tens

Create patterns to show counting by twos, fives and tens; verify the pattern using the calculator.



Indicator 4.a.6

Explore the concept of conservation of number

Explore the concept that number remains constant regardless of the arrangement of the objects that represent it (conservation of number).



MTH.K

Standard 5

COUNT FORWARD TO 30 AND BACKWARD FROM 10

The student will count forward to 30 and backward from 10.



Benchmark 5.a

Count Forward to 30 and Backward from 10

The student will count forward to 30 and backward from 10.



Indicator 5.a.1

Count forward from 1 to 30

Count forward from 1 to 30.



Indicator 5.a.2

Count backward from 10 to 1

Count backward from 10 to 1.




Indicator 5.a.3

Count backward from 20

Count backward from 20.

 **Standard 6****ADD AND SUBTRACT WHOLE NUMBERS, USING UP TO 10 CONCRETE ITEMS**


The student will add and subtract whole numbers, using up to 10 concrete items.

 **Benchmark 6.a****Add and Subtract Whole Numbers, Using Up to 10 Concrete Items**


The student will add and subtract whole numbers, using up to 10 concrete items.

 **Indicator 6.a.1****Combine two sets with known quantities to determine the sum up to 10**


Combine two sets with known quantities in each set, and count the combined set to determine the sum, where the sum is not greater than 10 concrete items.

 **Indicator 6.a.2****Remove part of a set to determine the result of subtraction**


Remove, "take away," or separate part of a set from a given set to determine the result of subtraction.

 **Indicator 6.a.3****Estimate & count the number in the "missing part" when whole is known**


Estimate and count the number in the "missing part" when the "whole" is known and one "part" is shown with concrete materials.

 **Indicator 6.a.4****Model & explain addition and subtraction to 10 using concrete objects**


Model and explain addition and subtraction to 10 using concrete objects

 **Indicator 6.a.5****Use symbols for addition (+) and subtraction (-)**


Use symbols for addition(+) and subtraction (-) and record the math sentence for facts to five.

 **Indicator 6.a.6****Explain concept of "one more" and "one less" with concrete materials**

Explain and demonstrate, with concrete materials, the concepts of "one more" and "one less."

 **Indicator 6.a.7****Explain concept of "two more" and "two less" with concrete materials**


Explain and demonstrate, with concrete materials, the concepts of "two more" and "two less."

 **Indicator 6.a.8****Explore, model, and talk about a variety of ways to make 10**

Explore, model, and talk about a variety of ways to make 10.

 **MTH.K**
Standard 7**RECOGNIZE PENNY/NICKEL/DIME/QUARTER & DETERMINE VALUE OF COLLECTION**

The student will recognize a penny, nickel, dime, and quarter and will determine the value of a collection of pennies and/or nickels whose total value is 10 cents or less.

 **Benchmark 7.a****Recognize Penny/Nickel/Dime/Quarter & Determine Value of Collection**

The student will recognize a penny, nickel, dime, and quarter and will determine the value of a collection of pennies and/or nickels whose total value is 10 cents or less.

**Indicator 7.a.1****Describe the characteristics of a penny, nickel, dime, and quarter**

Describe the properties/characteristics (e.g., color, relative size) of a penny, nickel, dime, and quarter.

**Indicator 7.a.2****Identify a penny, nickel, dime, and quarter**

Identify a penny, nickel, dime, and quarter.

**Indicator 7.a.3****Count collection of pennies/nickels whose value is 10 cents or less**

Count a randomly placed collection of pennies and/or nickels (or models of pennies and/or nickels) whose value is 10 cents or less, and determine the value of the collection.

**Indicator 7.a.4****Recognize/name coins: identify and use cent sign**

Recognize and name pennies, nickels, dimes, and quarters; identify and use the cent sign. Determine the value of a collection of pennies and/or nickels up to ten cents.

**Indicator 7.a.5****Determine value of collection of pennies/nickels/dimes to 20 cents**

Determine the value of a mixed collection of pennies, nickels, and dimes up to 20 cents.

**MTH.K****Standard 8****IDENTIFY INSTRUMENTS USED TO MEASURE LENGTH/WEIGHT/TIME/TEMPERATURE**

The student will identify the instruments used to measure length (ruler), weight (scale), time (clock: digital and analog; calendar: day, month, and season), and temperature (thermometer).

**Benchmark 8.a****Identify Instruments Used to Measure Length/Weight/Time/Temperature**

The student will identify the instruments used to measure length (ruler), weight (scale), time (clock: digital and analog; calendar: day, month, and season), and temperature (thermometer).

**Indicator 8.a.1****Identify a ruler as an instrument to measure length**

Identify a ruler as an instrument to measure length.

**Indicator 8.a.2****Identify different types of scales as instruments to measure weight**

Identify different types of scales as instruments to measure weight.

**Indicator 8.a.3****Identify analog and digital clocks as instruments to measure time**

Identify different types of clocks (analog and digital) as instruments to measure time.

**Indicator 8.a.4****Identify the components of a calendar including days, months, seasons**

Identify the components of a calendar, including days, months, and seasons.

**Indicator 8.a.5****Identify thermometers as instruments used to measure temperature**

Identify different types of thermometers as instruments used to measure temperature.

Indicator 8.a.6



Count, name, and sequence the days of the week

Count, name and sequence days of the week using a calendar, stories, and songs; name and describe seasons.



Indicator 8.a.7

Sequence real-life events, referencing hours, days, weeks, etc.

Sequence real-life events, referencing hours, days, weeks, etc.



MTH.K

Standard 9

TELL TIME TO THE HOUR, USING AN ANALOG OR DIGITAL CLOCK

The student will tell time to the hour, using an analog or digital clock.



Benchmark 9.a

Tell Time to the Hour, Using an Analog or Digital Clock

The student will tell time to the hour, using an analog or digital clock.



Indicator 9.a.1

Tell time on an analog clock to the hour

Tell time on an analog clock to the hour.



Indicator 9.a.2

Tell time on a digital clock to the hour

Tell time on a digital clock to the hour.



Indicator 9.a.3

Fill in the numbers on a clock

Fill in the numbers on a clock.



MTH.K

Standard 10

COMPARE TWO OBJECTS/EVENTS USING DIRECT COMPARISON/NONSTANDARD UNITS

The student will compare two objects or events, using direct comparisons or nonstandard units of measure, according to one or more of the following attributes: length (shorter, longer), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder). Examples of nonstandard units include foot length, hand span, new pencil, paper clip, block.



Benchmark 10.a

Compare Two Objects/Events Using Direct Comparison/Nonstandard Units

The student will compare two objects or events, using direct comparisons or nonstandard units of measure, according to one or more of the following attributes: length (shorter, longer), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder). Examples of nonstandard units include foot length, hand span, new pencil, paper clip, block.



Indicator 10.a.1

Compare and describe the length of two objects

Compare and describe lengths of two objects (as shorter or longer), using direct comparison or nonstandard units of measure (e.g., foot length, hand span, new pencil, paper clip, block).



Indicator 10.a.2

Compare and describe the heights of two objects

Compare and describe heights of two objects (as taller or shorter), using direct comparison or

nonstandard units of measure (e.g., book, hand span, new pencil, paper clip, block).



Indicator 10.a.3

Compare and describe the weight of two objects

Compare and describe weights of two objects (as heavier or lighter), using direct comparison or nonstandard units of measure (e.g., book, cubes, new pencil, paper clip, block).



Indicator 10.a.4

Compare and describe the temperatures of two objects

Compare and describe temperatures of two objects or environment (as hotter or colder), using direct comparison.



Indicator 10.a.5

Estimate and measure length, weight, and capacity/volume

Estimate and measure length, weight, and capacity/volume using nonstandard units which may include foot length, hand span, paper clips, blocks, etc.



Indicator 10.a.6

Relate a nonstandard linear measure to a 12 inch ruler

Relate a nonstandard linear measure to a 12 inch ruler.



MTH.K

Standard 11

IDENTIFY/DESCRIBE/DRAW TWO-DIMENSIONAL (PLANE) GEOMETRIC FIGURES

The student will identify, describe, and draw two-dimensional (plane) geometric figures (circle, triangle, square, and rectangle).



Benchmark 11.a

Identify/Describe/Draw Two-Dimensional (Plane) Geometric Figures

The student will identify, describe, and draw two-dimensional (plane) geometric figures (circle, triangle, square, and rectangle).



Indicator 11.a.1

Identify a circle, triangle, square, and rectangle

Identify a circle, triangle, square, and rectangle.



Indicator 11.a.2

Describe the properties of triangles, squares, and rectangles

Describe the properties of triangles, squares, and rectangles, including number of sides and number of corners.



Indicator 11.a.3

Describe a circle

Describe a circle.



Indicator 11.a.4

Draw a circle, triangle, square, and rectangle

Draw a circle, triangle, square, and rectangle.



Indicator 11.a.5

Match/identify/make/name/sort squares, circles, triangles, rectangles

Match, identify, make, name, and sort squares, circles, triangles, and rectangles. Compare size and shape of plane geometric figures.



Indicator 11.a.6

Recognize basic shapes regardless of orientation

Recognize squares, circles, triangles, and rectangles, regardless of orientation.



MTH.K

Standard 12

DESCRIBE RELATIVE LOCATION & IDENTIFY REPRESENTATIONS OF PLANE FIGURES

The student will describe the location of one object relative to another (above, below, next to) and identify representations of plane geometric figures (circle, triangle, square, and rectangle) regardless of their position and orientation in space.



Benchmark 12.a

Describe Relative Location & Identify Representations of Plane Figures

The student will describe the location of one object relative to another (above, below, next to) and identify representations of plane geometric figures (circle, triangle, square, and rectangle) regardless of their position and orientation in space.



Indicator 12.a.1

Identify pictorial representations of circle/triangle/square/rectangle

Identify pictorial representations of a circle, triangle, square, and rectangle, regardless of their position and orientation in space.



Indicator 12.a.2

Describe the location of one object relative to another

Describe the location of one object relative to another, using the terms *above*, *below*, and *next to*.



Indicator 12.a.3

Find and discuss plane and solid shapes in the environment

Find and discuss plane and solid shapes in the environment.



Indicator 12.a.4

Sort plane and solid shapes by properties

Sort plane and solid shapes by properties (e.g., straight and /or curved lines).



Indicator 12.a.5

Describe position/directionality of objects relative to other objects

Describe position and directionality of objects relative to other objects (left/right, top/bottom, over/under, beside/inside/outside/on, first/last, between, etc.).



MTH.K

Standard 13

COMPARE THE SIZE AND SHAPE OF PLANE GEOMETRIC FIGURES

The student will compare the size (larger, smaller) and shape of plane geometric figures (circle, triangle, square, and rectangle).



Benchmark 13.a

Compare the Size and Shape of Plane Geometric Figures

The student will compare the size (larger, smaller) and shape of plane geometric figures (circle, triangle, square, and rectangle).



Indicator 13.a.1

Compare/group plane geometric figures according to their relative size

Compare and group plane geometric figures (circle, triangle, square, and rectangle) according to their relative sizes (larger, smaller).



Indicator 13.a.2

Compare/group plane geometric figures according to their shapes

Compare and group plane geometric figures (circle, triangle, square, and rectangle) according to their shapes.



MTH.K

Standard 14

GATHER DATA RELATING TO FAMILIAR EXPERIENCES BY COUNTING AND TALLYING

The student will gather data relating to familiar experiences by counting and tallying.



Benchmark 14.a

Gather Data Relating to Familiar Experiences by Counting and Tallying

The student will gather data relating to familiar experiences by counting and tallying.



Indicator 14.a.1

Gather data on given categories by counting and tallying

Gather data on given categories by counting and tallying (e.g., favorites, number of days of various types of weather during a given month, types of pets, types of shoes).



Indicator 14.a.2

Gather real-life data by sorting, counting, and tallying

Gather real-life data by sorting, counting, and tallying.



MTH.K

Standard 15

DISPLAY OBJECTS/INFORMATION USING OBJECT/PICTORIAL GRAPHS AND TABLES

The student will display objects and information, using object graphs, pictorial graphs and tables.



Benchmark 15.a

Display Objects/Information Using Object/Pictorial Graphs and Tables

The student will display objects and information, using object graphs, pictorial graphs and tables.



Indicator 15.a.1

Display data by arranging concrete objects into organized groups

Display data by arranging concrete objects into organized groups to form a simple object graph.



Indicator 15.a.2

Display data using a simple pictorial graph

Display data, using pictorial representations of the data to form a simple pictorial graph (e.g., a picture graph of the types of shoes worn by students on a given day).



Indicator 15.a.3

Display information in tables

Display information in tables, either in rows or columns (e.g., a table showing the number of bunnies in one column and the number of ears the bunnies have in another, or a table showing the time schedule for classroom activities).



Indicator 15.a.4

Represent data by making object graphs, pictographs, and charts

Represent data by making object graphs, pictographs, and charts; read and discuss these graphs and charts.



Indicator 15.a.5

Communicate findings by describing data using more than/less than/same

Communicate findings by describing data using more than, less than, and same.



MTH.K

Standard 16

INVESTIGATE AND DESCRIBE THE OUTCOMES OF PROBABILITY ACTIVITIES

The student will investigate and describe the results of dropping a two-colored counter or using a multicolored spinner.



Benchmark 16.a

Investigate and Describe the Outcomes of Probability Activities

The student will investigate and describe the results of dropping a two-colored counter or using a multicolored spinner.



Indicator 16.a.1

Conduct investigations of probability through hands-on activities

Conduct investigations of probability through hands-on activities such as dropping a two-colored counter or using a multicolored spinner.



Indicator 16.a.2

Describe outcomes verbally, pictorially, and/or with tally marks

Describe verbally, pictorially, and/or with tally marks the outcome of dropping a two-colored counter or using a multicolored spinner (e.g., the number of times the red side of the counter landed up compared to the number of times the counter was dropped).



Indicator 16.a.3

Explore concept of change by predicting likelihood of everyday events

Explore the concept of chance by predicting the likelihood of everyday events occurring (e.g., in game situations, weather).



Indicator 16.a.4

Explore probability with concrete materials and communicate results

Explore probability with concrete materials (e.g., color spinners, objects in a bag, two-color counters) and communicate results.



MTH.K

Standard 17

SORT AND CLASSIFY OBJECTS ACCORDING TO SIMILAR ATTRIBUTES

The student will sort and classify objects according to similar attributes (size, shape, and color).



Benchmark 17.a

Sort and Classify Objects According to Similar Attributes

The student will sort and classify objects according to similar attributes (size, shape, and color).



Indicator 17.a.1

Sort objects into appropriate groups based on one attribute

Sort objects into appropriate groups (categories) based on one attribute, such as size, shape, or color.



Indicator 17.a.2

Classify sets of objects into three groups of one attribute

Classify sets of objects into three groups (categories) of one attribute (e.g., for size — small,

medium, and large).



Indicator 17.a.3

Sort by function (student-generated criteria) & explain reasoning

Sort by function (student-generated criteria) and explain reasoning.



MTH.K

Standard 18

IDENTIFY, DESCRIBE, AND EXTEND A REPEATING RELATIONSHIP (PATTERN)

The student will identify, describe, and extend a repeating relationship (pattern) found in common objects, sounds, and movements.



Benchmark 18.a

Identify, Describe, and Extend a Repeating Relationship (Pattern)

The student will identify, describe, and extend a repeating relationship (pattern) found in common objects, sounds, and movements.



Indicator 18.a.1

Observe and identify basic repeating patterns that occur in real life

Observe and identify the basic repeating pattern found in repeating patterns of common objects, sounds, and movements that occur in real-life situations, where there are four or fewer elements in the basic repeating pattern.



Indicator 18.a.2

Describe basic repeating pattern where there are four or less elements

Describe the basic repeating pattern found in a repeating pattern, where there are four or fewer elements in the basic repeating pattern.



Indicator 18.a.3

Extend a repeating pattern by adding at least two repetitions

Extend a repeating pattern by adding at least two repetitions to the pattern.



Indicator 18.a.4

Find a missing element in a pattern

Find a missing element in a pattern.



Indicator 18.a.5

Create patterns using concrete materials focusing on attributes

Create patterns using concrete materials focusing on the attributes of color, size, and shape.



Indicator 18.a.6

Create patterns using concrete materials focusing on two attributes

Create patterns using concrete materials focusing on two attributes.



Indicator 18.a.7

Investigate "one more" and simple "doubles" using a function box

Investigate "one more" and simple "doubles" using a function box.



MTH.K

Standard 19

USE PROBLEM-SOLVING APPROACHES TO UNDERSTAND CONCEPTS AND SKILLS

Students will use problem-solving approaches to understand concepts and skills. They will pose problems, solve problems, verify and explain solutions, and focus on process that leads to reasonable solutions.



Benchmark 19.a

Use Problem-Solving Approaches to Understand Concepts and Skills

Students will use problem-solving approaches to understand concepts and skills. They will pose problems, solve problems, verify and explain solutions, and focus on process that leads to reasonable solutions.



Indicator 19.a.1

Tell/retell a "math happening" that shows how many altogether

Tell and retell a "math happening" story related to a familiar real-life situation that shows "how many altogether"; illustrate the action in the story.



Indicator 19.a.2

Tell/retell a "math happening" that shows how many were taken away

Tell and retell a "math happening" story related to a familiar real-life situation that shows "how many were taken away" and "how many are left"; illustrate the action in the story.



Indicator 19.a.3

Represent an addition or subtraction story problem using real objects

Represent an addition or subtraction story problem using real objects or semi-concrete materials.



Indicator 19.a.4

Use strategies to solve simple story problems and explain thinking

Use strategies (act it out, draw a picture, make/use a pattern) to solve simple story problems; share and explain thinking about how a problem was solved.



Indicator 19.a.5

Find an alternate way to solve a problem

Find an alternate way to solve a problem.