Ohio Mathematics - Extended Learning Standards

Kindergarten

Counting and Cardinality

Know number names and the count sequence.

1 Count to 100 by ones and by tens. K.CC.1

- a Count by 1s up to 75 K.CC.1.A
- b Count by 10s to 100 using a model to represent groups of 10 K.CC.1.B
- c Count by 1s up to 50 K.CC.1.C
- d Count by 10s to 50 using a model to represent groups of 10 K.CC.1.D
- e Count up to 10 by 1s using a model or concrete objects with 1:1 correspondence K.CC.1.E
- f Match the number 10 to a model to represent group of 10 (base 10 block, ten frame, etc.) K.CC.1.F
- g Count by 1s to 10 K.CC.1.G
- h Engage with numbers by 10 (10, 20, 30, 40, etc.) K.CC.1.H
- i Engage with numbers 1-10. K.CC.1.I

2 Count forward within 100 beginning from any given number other than 1. K.CC.2

- a Count forward 10 more beginning with any multiple of 10 up to 90 K.CC.2.A
- b Count forward beginning from a given number between 20 and 50 K.CC.2.B
- c Count forward 5 more given a starting number from 2-20 K.CC.2.C
- d Identify the next number when given a starting number between 1 and 10 K.CC.2.D
- e Order a set of given numbers in sequence beginning with any number other than one K.CC.2.E
- f Match numbers that are side-by side in a sequence K.CC.2.F
- g Engage with numbers that are side-by side in a counting sequence K.CC.2.G
- h Engage with a number line or 100 chart K.CC.2.H

3 Write numerals from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). K.CC.3

- a Write/identify numbers 11-20 in random order when given a number name. K.CC.3.A
- b Write/identify numbers 11-20 in consecutive order. K.CC.3.B
- c Write/identify numbers 0-10 in random order when given a number name. K.CC.3.C
- d Write/identify numbers 0-10 in consecutive order. K.CC.3.D
- e Write/identify the numbers (within a range of 0-20) to represent a number of objects K.CC.3.E
- f Write/identify a number (within a range of 0-10) to represent a number of objects. K.CC.3.F

g Write/identify each number while counting objects with 1:1 correspondence. K.CC.3.G

h Match the correct numeral for a set of objects up to 20, including 0. K.CC.3.H

i Match written number to quantity of objects up to 20. K.CC.3.I

j Match written number to quantity of objects up to 10. K.CC.3.J

k Match a spoken number to quantity of objects up to 20. K.CC.3.K

l Match a spoken number to quantity of objects up to 10. K.CC.3.L

m Identify numbers with 1:1 correspondence while orally counting up to 20. K.CC.3.M

n Identify numbers with 1:1 correspondence while orally counting up to 10. K.CC.3.N

o Identify 0 as representing no objects. K.CC.3.O

p Engage with tools for writing or communicating numbers. K.CC.3.P

q • Engage with numbers (written or tactile). K.CC.3.Q

Count to tell the number of objects.

4 Understand the relationship between numbers and quantities; connect counting to cardinality using a variety of objects including pennies. a. When counting objects, establish a one-to-one relationship by saying 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.b. Understand that the last number name said tells the number of objects counted and that the number of objects is the same regardless of their arrangement or the order in which they were counted.c. Understand that each successive number name refers to a quantity that is one larger K.CC.4

- b Count objects in a given group from different starting places and compare the sum each time with the previous count. K.CC.4.B
- a Describe/identify that order/placement of the same group of objects does not change the sum of the group. K.CC.4.A
- c Visually/tacitly compare multiple arrangements of objects with the same sum. K.CC.4.C
- d State/identify the last number counted as the sum of a group of objects. K.CC.4.D
- e Identify the last number counted in a group of objects. K.CC.4.E
- f Identify which number in a sequential set is more. K.CC.4.F
- g Demonstrate more using objects and numbers in a sequence (show that 4 is more than 3, or 8 is more than 7) K.CC.4.G
- h Describe/identify that each number named in the sequence indicates “more” of a given object. K.CC.4.H
- i Identify and say each number while counting objects with 1:1 correspondence. K.CC.4.I
- j Using a visual or tactile organizer, match a line of objects with its corresponding number in a counting sequence K.CC.4.J
- k Identify numbers 11-20 by name. K.CC.4.K
- l Match the correct numeral for objects up to 20, including 0. K.CC.4.L
- m Count the total number of objects up to 20. K.CC.4.M
- n Match the correct numeral to objects up to 15. K.CC.4.N
- o Identify numbers 0-10 by name. K.CC.4.O
- p Match the correct numeral to objects up to 10. K.CC.4.P
- q Count the total number of objects up to 10. K.CC.4.Q
- r Match the correct numeral to objects up to 5. K.CC.4.R
- s Count the total number of objects up to 5. K.CC.4.S
- t Engage with numbers 0-20 (written or tactile). K.CC.4.T
- u Engage with a group of objects representing a numbered quantity K.CC.4.U

5 Count to answer “how many?” questions about as many as 20 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 1-20, count out that many objects. K.CC.5

- a Answer the question of “How many” objects are in this group? K.CC.5.A
- b State/identify the last number counted as the sum of a group of objects. K.CC.5.B
- c Identify the last number counted in a group of objects. K.CC.5.C
- d Count objects in a random group. K.CC.5.D
- e Count objects in a shaped (square, rectangle, circle) group. K.CC.5.E
- f Count objects in a linear group. K.CC.5.F
- g Given a number from 11-20 count out that many objects. K.CC.5.G
- h Given a number from 6-10 count out that many objects. K.CC.5.H
- i Given a number from 1-5 count out that many objects. K.CC.5.I
- j Identify that numbers of objects can be grouped in different ways (i.e. rows or lines, rectangles or squares, circles and/or random scattered patterns). K.CC.5.J
- k Identify that a question containing “how many”refers to numbers and counting. K.CC.5.K
- l Engage with numbers 0-20 (auditory or tactile). K.CC.5.L
- m Engage in counting activities. K.CC.5.M

Compare numbers

6 Orally identify (without using inequality symbols) whether the number of objects in one group is greater/more than, less/fewer than, or the same as the number of objects in another group, not to exceed 10 objects in each group. K.CC.6

- a Identify whether the number of objects in one group is “greater than,” “less than,” or the same as the objects in another group, for up to 10 objects. K.CC.6.A
- b Compare and describe two collections of objects presented in the same visual/tactile organizers using terms such as more, less, or same. K.CC.6.B
- c Count objects presented in two groups using the same visual/tactile organizers and record the number in each group. K.CC.6.C
- d Using common visual/tactile organizers, place objects from each of the two collections into individual organizers. K.CC.6.D
- e Engage in comparing two collections of objects. K.CC.6.E
- f Engage in counting activities K.CC.6.F
- g Engage with collections of objects not to exceed 10. K.CC.6.G

7 Compare (without using inequality symbols) two numbers between 0 and 10 when presented as written numerals. K.CC.7

- a Compare two numerals between 1 and 10 to determine which is “greater than”, “less than”, or “equal to.” K.CC.7.A
- b Compare two numerals between 1 and 10 to determine which is “greater than” or “less than.” K.CC.7.B
- c Compare and describe two groups of objects presented in the same visual/tactile organizers using terms such as more, less, or same. K.CC.7.C
- d Using visual/tactile models, show two numbers presented side by side. K.CC.7.D
- e Match a given number from 0-10 with a visual/tactile model. K.CC.7.E
- f Match comparison vocabulary such as more, less and same to object or picture models showing groups of 0-10. K.CC.7.F
- g Identify comparison vocabulary as more, less and same. K.CC.7.G
- h Engage in comparing two numbers. K.CC.7.H
- i Engage with numbers 1-10 (auditory or tactile). K.CC.7.I
- j Engage in counting activities not to exceed 10. K.CC.7.J
- k Operations and Algebraic Thinking K.CC.7.K

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

1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds such as claps, acting out situations, verbal explanations, expressions, or equations. Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) K.OA.1
    a. Represent addition and subtraction using auditory, visual and/or tactile models (i.e. fingers, tally marks, touchpoints, objects, counters, tapping, chants/rhymes/songs, etc.) K.OA.1.A
    b. Match subtract (-) to terms such as: take away, take apart, minus, subtract K.OA.1.B
    c. Match add (+) to terms such as: count on, plus, put together, group. K.OA.1.C
    d. Describe or demonstrate - as taking away using multi-sensory models. K.OA.1.D
    e. Describe or demonstrate + as putting together using multi-sensory models. K.OA.1.E
    f. Follow along and mimic “putting together” and “taking apart” as demonstrated using multi-sensory models to represent addition and subtraction. K.OA.1.F
    g. Engage in demonstrations using multi-sensory models to represent addition and subtraction K.OA.1.G
    h. Engage in auditory, visual and/or tactile models (i.e. fingers, tally marks, touchpoints, objects, counters, tapping, chants/ rhymes/songs, etc.) representing addition and subtraction. K.OA.1.H
2. Solve addition and subtraction problems (written or oral), and add and subtract within 10 by using objects or drawings to represent the problem. K.OA.2
    a. Solve addition and subtraction problems within 10 involving situations where one is “adding to,” “taking from,” “putting together” and “taking apart,” using models or objects. K.OA.2.A
    b. Solve addition and subtraction problems within 5, involving situations where one is “adding to,” “taking from,” “putting together” and “taking apart,” using models or objects. K.OA.2.B
    c. Demonstrate addition as “putting together” and subtraction as “taking away,” using models or objects up to a sum of 10. K.OA.2.C
    d. Use a number sentence to subtract/take away one number from another and count the sum of 10 or less. K.OA.2.D
    e. Match a number sentence to a like object model representing addition and subtraction problems with a sum of 10 or less. K.OA.2.E
    f. Identify a number sentence involving subtraction up to 10. (i.e. 3-1= or 9+1=) K.OA.2.F
    g. Use object model to subtract/take away one group of objects from whole and count the remaining objects with a sum of 10 or less. K.OA.2.G

h Use a number sentence to add/put together two numbers to count to a sum of 10 or less. K.OA.2.H

i Match a number sentence to a like object model involving problems with a sum of 10 or less. K.OA.2.I

j Identify a number sentence involving addition. (4+1=) K.OA.2.J

k Use object model to add/put together two groups and count the sum. K.OA.2.K

l Identify numbers 1-5 K.OA.2.L

m Describe or demonstrate - as taking away. K.OA.2.M

n Describe or demonstrate + as putting together. K.OA.2.N

o Name the + and - signs. (can use terms such as: add, plus, take away, minus, subtract) K.OA.2.O

p Engage with the signs for + and -. K.OA.2.P

q Engage with numbers. K.OA.2.Q

3 Decompose numbers and record compositions for numbers less than or equal to 10 into pairs in more than one way by using objects and, when appropriate, drawings or equations. K.OA.3

a Use number labels from a visual/tactile models of the decomposed number ten to record the composition or number sentence (i.e. 5+5=10) K.OA.3.A

b Using a visual/tactile model of the decomposed number ten into any two groups label each group with its number representation K.OA.3.B

c Decompose a visual/tactile model of the number ten into any two groups (i.e. 1 and 9, 4 and 6, 3 and 7, etc.) K.OA.3.C

d Create a visual/tactile model of the number ten K.OA.3.D

e Identify numbers 1-9 K.OA.3.E

f Select a visual/tactile model (ten frame, unifix cubes, base ten rod, etc.) representing 10 K.OA.3.F

g Engage with the numbers 1-9 K.OA.3.G

h Engage with the number 10 K.OA.3.H

i Engage with a model representing the number 10 (ten frame, base 10 block, etc.) K.OA.3.I

4 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, when appropriate, an equation. K.OA.4

a Select or write an equation to represent the sum of ten (6+4=10) K.OA.4.A

b Use color change, object change or other change feature to count up to 10 from a given number 1-9 K.OA.4.B

c Identify numbers 1-9 as less than ten K.OA.4.C

d Use a visual model to compare numbers 1-9 with a model of 10 K.OA.4.D

e Identify numbers 1-9 K.OA.4.E

f Select a visual/tactile model (ten frame, unifix cubes, base ten rod, etc.) representing 10 K.OA.4.F

g Engage with the numbers 1-9 K.OA.4.G

h Engage with the number 10 K.OA.4.H

i Engage with a model representing the number 10 (ten frame, base 10 blocks, etc.) K.OA.4.I

5 Fluently add and subtract within 5. K.OA.5

a Use a number sentence to subtract/take away one number from another and count the sum. K.OA.5.A

b Match a number sentence to a like object model. K.OA.5.B

c Identify a number sentence involving subtraction. (3-1=) K.OA.5.C

d Use object model to subtract/take away one group of objects from whole and count the remaining objects. K.OA.5.D

e Use a number sentence to add/put together two numbers to count the sum. K.OA.5.E

f Match a number sentence to a like object model. K.OA.5.F

g Identify a number sentence involving addition. (4+1=) K.OA.5.G

h Use object model to add/put together two groups and count the sum. K.OA.5.H

i Identify numbers 1-5. K.OA.5.I

j Describe or demonstrate - as taking away. K.OA.5.J

k Describe or demonstrate + as putting together. K.OA.5.K

l Name the + and - signs. (can use terms such as: add, plus, take away, minus, subtract) K.OA.5.L

m Engage with the signs for + and -. K.OA.5.M

n Engage with numbers. K.OA.5.N

Number and Operations Base Ten

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

1 Compose and decompose numbers from 11 to 19 into a group of ten ones and some further ones by using objects and, when appropriate, drawings or equations; understand that these numbers are composed of a group of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. K.NBT.1

- a Decompose a number from 11-19 into ten and ones. (i.e. 11 = 10+1 or one 10 and one, one) K.NBT.1.A
- b Use ten frames to compose and decompose a number up to 19. K.NBT.1.B
- c Decompose an object model into a group of ten and ones up to 19. K.NBT.1.C
- d Compose an object model for numbers 0-19. K.NBT.1.D
- e Use 1:1 correspondence to count objects, or models of objects, representing a two-digit number up to 19. K.NBT.1.E
- f Use 1:1 correspondence to count objects , or models of objects, representing a two-digit number up to 10. K.NBT.1.F
- g Identify given numbers up to 19. K.NBT.1.G
- h Count by 1s to 19. K.NBT.1.H
- i Count by 5's to 10 K.NBT.1.I
- j Count by 1's to 10 K.NBT.1.J
- k Participate in counting activities. K.NBT.1.K
- l Engage with number models. K.NBT.1.L
- m Engage with objects to be counted. K.NBT.1.M

Measurement and Data

Identify, describe, and compare measurable attributes.

1. Identify and describe measurable attributes (length, weight, and height) of a single object using vocabulary terms such as long/short, heavy/ light, or tall/short. K.MD.1
   - a Use measurement vocabulary to describe an object. K.MD.1.A
   - b Identify opposite attributes (heavy/light, tall/short, long/short, etc.) K.MD.1.B
   - c Identify weight, height, length, size, etc. as measurable attributes. K.MD.1.C
   - d Match the terms long/short/tall with length. K.MD.1.D
   - e Match the terms heavy/light with weight. K.MD.1.E
   - f Engage in conversations about objects. K.MD.1.F
   - g Engage with an object that can be measured by weight or length. K.MD.1.G
2. Directly compare two objects with a measurable attribute in common to see which object has “more of” or “less of” the attribute, and describe the difference. For example, directly compare the heights of two children, and describe one child as taller/shorter. K.MD.2
   - a Compare two objects and identify as longer, shorter, taller or same length. K.MD.2.A
   - b Identify weight, height, length, size, etc. as measurable attributes. K.MD.2.B
   - c Place two objects side-by-side. K.MD.2.C
   - d Actively engage with two objects K.MD.2.D
   - e Actively engage with one object K.MD.2.E

Classify objects and count the number of objects in each category.

3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. The number of objects in each category should be less than or equal to ten. Counting and sorting coins should be limited to pennies. K.MD.3

- a Match two groups of objects with the same count. K.MD.3.A
- b Count group of objects between 6-10. K.MD.3.B
- c Identify group of objects as 6, 7, 8, 9, or 10. K.MD.3.C
- d Count group of objects between 1-5. K.MD.3.D
- e Identify group of objects as 0, 1, 2, 3, 4 or 5. K.MD.3.E
- f Count objects presented in a ten frame. K.MD.3.F
- g Following a model, count objects chorally using 1:1 correspondence, giving the number in association with the object. K.MD.3.G
- h Orally count, sign or count using assistive technology, with 1 second automaticity from 1-10 K.MD.3.H
- i Participate in counting activities. (using assistive technology switches or voice output devices as needed) K.MD.3.I
- j Engage in counting activities, songs, rhymes, tools. (numbers 1-10) K.MD.3.J

Geometry

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

1. 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. K.G.1
   - a. Describe the relative positions of objects using terms such as “above,” “below”, “beside,” “in front,” “behind” and “next to.” K.G.1.A
   - b. Sort objects in the environment by their shape. K.G.1.B
   - c. Match objects in the environment to a given shape. K.G.1.C
   - d. Match a shape from a given array to an object from the environment. K.G.1.D
   - e. Describe an object as having shape. K.G.1.E
   - f. Using the terms above, below, beside, in front of, behind, and next to to describe where the object was located in the environment. K.G.1.F
   - g. Name an object from the environment. K.G.1.G
   - h. Select an object from the environment to describe. K.G.1.H
   - i. Engage with objects from the environment. K.G.1.I
2. Correctly name shapes regardless of their orientations or overall size. K.G.2
   - a. Match shapes of differing orientation to the name of the shape. K.G.2.A
   - b. Match shapes of all sizes to the name of the shape. K.G.2.B
   - c. Name the shapes squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres. K.G.2.C
   - d. Identify squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres given the name of the shape. K.G.2.D
   - e. Identify squares, triangles, circles and rectangles given the name of the shape. K.G.2.E
   - f. Explore and manipulate shapes tactually or visually. K.G.2.F
   - g. Engage in activities involving shapes. K.G.2.G
3. Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”). K.G.3
   - a. Identify shapes as two-dimensional or three-dimensional (i.e., flat vs. solid). K.G.3.A
   - b. Sort two dimensional and three-dimensional shapes/objects. K.G.3.B
   - c. Sort/match pictures as flat and objects as solid. K.G.3.C
   - d. Learn vocabulary associated with dimension: flat, solid. K.G.3.D
   - e. Engage with two or three dimensional shapes. K.G.3.E

Describe, compare, create, and compose shapes.

4 Describe and compare two- or three-dimensional shapes, in different sizes and orientations, using informal language to describe their commonalities, differences, parts, and other attributes. K.G.4

- a Describe two or three dimensional objects using vocabulary to tell about size, shape, parts, similarities or differences. K.G.4.A
- b Group given shapes by common attributes (e.g. number of sides, 2D or 3D, curved lines, number of corners (angles), parallel lines, right angles, etc.) K.G.4.B
- c Identify the characteristics of a three dimensional shape K.G.4.C
- d Identify the characteristics of a two dimensional shape K.G.4.D
- e Name parts of a given shape (e.g. base, side, cone, line, corner, etc.) K.G.4.E
- f Identify parts of shapes given the name (e.g. base, side, cone, line, corner, etc.) K.G.4.F
- g Order given shapes by size K.G.4.G
- h Learn vocabulary associated with size such as small, big, medium, large, extra large, largest, smallest, etc. K.G.4.H
- i Name shapes shown in different orientations K.G.4.I
- j Manipulate a 2D or 3D shapes by turning or repositioning K.G.4.J
- k Engage with two or three dimensional objects K.G.4.K

5 Model shapes in the world by building shapes from components, e.g., sticks and clay balls, and drawing shapes. K.G.5

- a Build a shape seen in the world using given materials K.G.5.A
- b Match simple shapes to pictures of objects from the environment K.G.5.B
- c Identify shapes seen in the world through given pictures or other experiences K.G.5.C
- d Follow step-by-step directions to use building materials to create a shape K.G.5.D
- e Identify building verbs (e.g. build, roll, draw, etc.) K.G.5.E
- f Identify building materials by name (e.g. sticks, rod, clay, ball, pencil, etc.) K.G.5.F
- g Participate in building activities K.G.5.G
- h Engage in building activities K.G.5.H
- i Engage with building materials K.G.5.I

6 Combine simple shapes to form larger shapes. K.G.6

- a Compose simple shapes from other basic shapes (e.g., a rectangle can be composed from two right triangles). K.G.6.A

b Match shapes that can be combined to form new shapes (e.g. triangles can be used to form diamonds or squares, squares can be used to make rectangles, but not circles) K.G.6.B

c Name simple shapes given the visually or tactually K.G.6.C

d Identify simple shapes (e.g. circle, square, triangle, diamond, rectangle) when given the name K.G.6.D

e Identify a shape vs. letter or number K.G.6.E

f Engage in activities involving shapes K.G.6.F