Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.CC.1

Count to 100 by ones and by tens.

Essential Understandings

- Know number names and the count sequence.
- Know there is a standard order to counting.

Common Misconceptions

Because of the lack of patterns in the numbers one through twelve, some students struggle when they get to the "teen" numbers. Students will say things such as "three-teen" for thirteenth. Counting out loud often with students helps them develop the sequence for the words and see the patterns in the numbers. Use books, songs and counting chants to help the development of counting skills.

Academic Vocabulary/Language

- count
- number
- *number words 1 - 20*
- ones
- tens

Learning Targets	I can count to 100 by ones starting at 1 I can count to 100 by tens starting at 10.

Classroom Snapshot

Examples	Questions
"1, 2, 3, 4, ……."	Ask students to count to 100 by ones.
"10, 20, 30, 40,....."	Ask students to count to 100 by tens.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Students view counting as a mechanism used to land on a number. Young students mimic counting often with initial lack of purpose or meaning. Coordinating the number words, touching or moving objects in a one-to-one correspondence may be little more than a matching activity. However, saying number words as a chant or a rote procedure plays a part in students constructing meaning for the conceptual idea of counting. They will learn how to count before they understand cardinality, i.e. that the last count word is the amount of the set.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Apply counting to addition and subtraction (K.OA.1-2, 5).

Pre K (Prior Grade Standard)	1.NBT.1 (Future Grade Standard)
Count to 20 by ones with increasing accuracy.	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.CC.2 Count forward within 100 beginning from any given number other than 1. **Essential Understandings** ● Know number names and the count sequence. ● Counting can begin at any given number.	**Common Misconceptions** Some students might not see that you can start counting at any number. By having students count beginning at any number they develop the understanding of counting and make connections with counting patterns.	**Academic Vocabulary/Language** ▪ count ▪ number ▪ forward
Learning Target	I can count forward starting at any number that is given to me from 1 to 100.	

Classroom Snapshot

Example	Questions
When given a random number, they can count for at least 10 more.	Generate a random number and have the student start counting from that number on.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Counting on or counting from a given number conflicts with the learned strategy of counting from the beginning. In order to be successful in counting on, students must understand cardinality. Students often merge or separate two groups of objects and then recount from the beginning to determine the final number of objects represented. For these students, counting is still a rote skill or the benefits of counting on have not been realized. Games that require students to add on to a previous count to reach a goal number encourage developing this concept. Frequent and brief opportunities utilizing counting on and counting back are recommended. These concepts emerge over time and cannot be forced.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Apply counting to addition and subtraction (K.OA.1-2, 5).

Pre-K (Prior Grade Standard)	1.NBT.1(Future Grade Standard)
Count to 20 by ones with increasing accuracy.	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.CC.3

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

Essential Understandings

- Know number names and the count sequence.
- The numeral symbol represents a quantity (including zero).

Common Misconceptions

Some students might not see zero as a number. Ask students to write 0 and say zero to represent the number of items left when all items have been taken away. Avoid using the word none to represent this situation.

Academic Vocabulary/Language

- count
- number
- numeral
- *number words 0 - 20*
- how many
- zero

Tier 2

- show
- explain
- represent

Learning Targets	I can write the numbers from 0 to 20. I can write the number that names how many objects are in the group to 20. I can show/explain what a group of zero looks like.

Classroom Snapshot

Examples	Questions
1, 2, 3, . . . 20	Write the numerals from 1 - 20.
 is 4	Write the number of bear counters on the table.
"A group of zero has no objects."	Explain why this group has zero blocks.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Like counting to 100 by either ones or tens, writing numbers from 0 to 20 is a rote process. Initially, students mimic the actual formation of the written numerals while also assigning it a name. Over time, children create the understanding that number symbols signify the meaning of counting. Numerals are used to communicate across cultures and through time a certain meaning. Numbers have meaning when children can see mental images of the number symbols and use those images with which to think. Practice count words and written numerals paired with pictures, representations of objects, and objects that represent quantities within the context of life experiences for kindergarteners. For example, dot cards, dominoes and number cubes all create different mental images for relating quantity to number words and numerals. One way students can learn the left to right orientation of numbers is to use a finger to write numbers in air (skywriting). Children will see mathematics as something that is alive and that they are involved. Students should study and write numbers 0 to 20 in this order: numbers 1 to 9, the number 0, then numbers 10 to 20. They need to know that 0 is the number items left after all items in a set are taken away. Do not accept "none" as the answer to "How many items are left?" for this situation.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Apply to the teen numbers (K.NBT.1).

Pre-K (Prior Grade Standard)	**1.NBT.1 (Future Grade Standard)**
Identify and name numerals 1-9.	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.CC.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.

Essential Understandings

- A one-to-one relationship connects one object with one number name and one numeral.
- Each counted number stated includes all of the previous numbers in a counted set.
- The last number stated identifies the quantity in a set.
- When counting by ones, the next number in the sequence increases the quantity by one.

Common Misconceptions

Some students might think that the count word used to tag an item is permanently connected to that item. So when the item is used again for counting and should be tagged with a different count word, the student uses the original count word. For example, a student counts four geometric figures: triangle, square, circle and rectangle with the count words: one, two, three, four. If these items are rearranged as rectangle, triangle, circle and square and counted, the student says these count words: four, one, three, two.

Academic Vocabulary/Language

- number
- *number words 0 - 20*

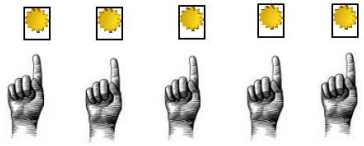
Tier 2

- count
- name
- find

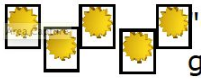
Learning Targets	I can count objects by touching and saying the correct number for each object. I can name the number of objects in a group after counting. I know the number of objects in a group does not change even when I start counting with a different object. I can name the number of objects in a group even after they have been mixed up. I can make a set that is one more than than a given number.

Classroom Snapshot

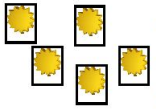
Examples



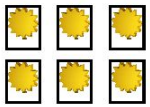
"one", "two", "three", "four", "five"



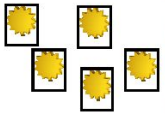
"One more than this group is six."



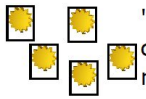
"I can start counting with any object and always get five."



"This group is one more than the previous group."



"Even if you move these objects around I know there are five without recounting."



"I know this is a group of five" or "five is the name for this whole group."

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

One of the first major concepts in a student's mathematical development is cardinality. Cardinality, knowing that the number word said tells the quantity you have and that the number you end on when counting represents the entire amount counted. The big idea is that number means amount and, no matter how you arrange and rearrange the items, the amount is the same. Until this concept is developed, counting is merely a routine procedure done when a number is needed. To determine if students have the cardinality rule, listen to their responses when you discuss counting tasks with them. For example, ask, "How many are here?" The student counts correctly and says that there are seven. Then ask, "Are there seven?" Students may count or hesitate if they have not developed cardinality. Students with cardinality may emphasize the last count or explain that there are seven because they counted them. These students can now use counting to find a matching set.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Count a collection by ones (K.CC.1).
Count a collection of pennies (K.MD.3).

Pre-K (Prior Grade Standard)	**1.NBT.1 (Future Grade Standard)**
Demonstrate one-to-one correspondence when counting objects up to 10.	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.CC.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.

Essential Understandings

- Count to tell the number of objects.
- The quantity of a set does not change based on the arrangement, size, or type of objects (conservation).

Common Misconceptions

Some students might think that the count word used to tag an item is permanently connected to that item. So when the item is used again for counting and should be tagged with a different count word, the student uses the original count word. For example, a student counts four geometric figures: triangle, square, circle and rectangle with the count words: one, two, three, four. If these items are rearranged as rectangle, triangle, circle and square and counted, the student says these count words: four, one, three, two.

Academic Vocabulary/Language

- count
- number
- *number words 0 - 20*

Learning Targets	I can count a set of objects up to 20 in an organized arrangement. I can count a set of objects up to 10 that are in a scattered arrangement. I can count out the correct number of objects to make a group (up to 20).

Classroom Snapshot

Examples	Questions
When you drop a group of 7 objects on the table, they can count then and tell you how many.	Count this group of counters. How many counters are there?
When you arrange 15 objects in 5 rows of three, the student can count then.	They can count organized counters that are "arranged" in groups up to 20.
"If you tell me to make a group of 16, I can select counters and make that group.	Given a random number from 1 to 20, they can assemble that many counters.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Students develop the understanding of counting and cardinality from experience. Almost any activity or game that engages children in counting and comparing quantities, such as board games, will encourage the development of cardinality. Frequent opportunities to use and discuss counting as a means of solving problems relevant to kindergarteners is more beneficial than repeating the same routine day after day. For example, ask students questions that can be answered by counting up to 20 items in multiple situations.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Count a collection by ones (K.CC.1).
Count a collection of pennies (K.MD.3).

Pre-K (Prior Grade Standard)	1.NBT.1 (Future Grade Standard)
Understand that the last number spoken tells the number of objects counted.	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.CC.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.

Essential Understandings

- The terms greater/more than, less/fewer than, and same as can be used when comparing objects and numerals.
- The quantity of a set does not change based on the arrangement, size, or type of object (conservation).

Common Misconceptions

Students may look at objects and focus on their size, arrangement, or area when making comparisons between groups and not the number.

Academic Vocabulary/Language

- equal to
- same as
- greater than
- more than
- less than
- fewer than

Tier 2

- identity
- compare

Learning Target	I can compare two groups and tell which has the greater number, which has lesser number, or if they are the same.

Classroom Snapshot

Example	Question
"When I see a group of 7, I can tell you which groups is greater (or fewer) by counting or sometimes by just looking at the arrangement."	Compare these two groups and tell me which one is greater (or fewer) or if they are the same.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

As children develop meaning for numerals, they also compare these numerals to the quantities represented. Children can look for similarities and differences in these different representations. They can use strategies such as matching or counting to determine which group is more, less, or the same as another group.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015 (Adjusted to reflect the standards revisions.)

Connections Across Standards

Count to determine the number of objects (K.CC.4-5).
Count the number in each category (K.MD.3).
Compare two objects to see which object has "more of" or "less of" a unit (K.MD.2)

Pre-K (Prior Grade Standard)	1.NBT.3 (Future Grade Standard)
Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group up to 10.	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.CC.7 Compare (without using inequality symbols) two numbers between 0 and 10 when presented as written numerals.	**Common Misconceptions** Students possibly have misconceptions about comparing the numbers between 1 and 10 when only using written numerals because the numeral is an abstract representation of a quantity. Students must have mastery of the concrete representations of written numerals and quantities long before they would be asked to compare the written numerals alone. Adapted from Homestead County	**Academic Vocabulary/Language** ▪ more ▪ less ▪ greater than ▪ more than ▪ less than ▪ fewer than **Tier 2** ▪ compare ▪ tell
Essential Understanding ● Compare numbers.		

Learning Target	I can look at two numbers from 1 to 10 and tell which is greater than, less than, more than or fewer than.

Classroom Snapshot

Example	Question
"I know that '7' is larger than '5' and even better I know it is '2' larger."	Compare two numbers and tell which is greater than or less than.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Students need to explain their reasoning when they determine whether a number is greater than, less than, or equal to another number. Teachers need to ask probing questions such as "How do you know?" to elicit their thinking. For students, these comparisons increase in difficulty, from greater than to less than to equal.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Count to determine the number of objects (K.CC.4-5).
Count the number in each category (K.MD.3)
Count two objects to see which object has "more of" or "less of" a unit (K.MD.2)

Pre-K (Prior Grade Standard)	1.NBT.3 (Future Grade Standard)
Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group up to 10.	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.OA.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.)

Essential Understandings

- Addition is putting together.
- Subtraction is taking apart, taking from, or comparing two quantities.
- There is a relationship between addition and subtraction.
- Adding 1 results in the next number in a counting sequence.
- Subtracting 1 results in the previous number in a counting sequence.
- Adding and subtracting 0 results in the same number.
- 0 is the number of items left when all the objects in a set are taken away.

Common Misconceptions

Students may over-generalize the vocabulary in word problems and think that certain words indicate solution strategies that must be used to find an answer. They might think that the word more always means to add and the words take away or left always means to subtract. When students use the words take away to refer to subtraction and its symbol, teachers need to repeat students' ideas using the words minus or subtract. For example, students use addition to solve this problem: Seth took the 4 stickers he no longer wanted and gave them to Anna. Now Seth has 5 stickers left. How many stickers did Seth have to begin with?

Academic Vocabulary/Language

- add
- subtract
- putting together
- adding to
- taking apart
- taking from

Tier 2

- show
- model
- draw
- act out

Learning Targets	I can add in many ways (including objects, fingers, mental images, drawings, sounds, etc.). I can subtract in many ways (including objects, fingers, mental images, drawings, sounds, etc.).

Classroom Snapshot

Examples	Questions
"I can show 2 + 3 by putting counters out and showing the total of 5"	Show 3 + 5 two different ways.
"I can show 7-4 by having 7 students stand in a group and then have 4 students walk away"	Model 7 - 2 two different ways

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Provide contextual situations for addition and subtraction that relate to the everyday lives of kindergarteners. A variety of situations can be found in children's literature books. Students then model the addition and subtraction using a variety of representations such as drawings, sounds, acting out situations, verbal explanations and numerical expressions. Manipulatives, like two-color counters, clothespins on hangers, connecting cubes and stickers can also be used for modeling these operations.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Write numerals in mathematical representations (K.CC.3).
Use counting and cardinality to represent addition and subtraction (K.CC.4-5).
Count the number of objects in each category (K.MD.3).

Pre-K Prior Grade Standard)	1.OA.1 (Future Grade Standard)
Count to solve simple addition and subtraction problems with totals smaller than 8, using concrete objects.	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. See Table 1, page 95.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.OA.2 Solve addition and subtraction problems (written or oral), and add and subtract within 10 by using objects or drawings to represent the problem.	**Common Misconceptions** Students may over-generalize the vocabulary in word problems and think that certain words indicate solution strategies that must be used to find an answer. They might think that the word more always means to add and the words take away or left always means to subtract. When students use the words take away to refer to subtraction and its symbol, teachers need to repeat students' ideas using the words minus or subtract. For example, students use addition to solve this problem: Seth took the 4 stickers he no longer wanted and gave them to Anna. Now Seth has 5 stickers left. How many stickers did Seth have to begin with?	**Academic Vocabulary/Language** ▪ add ▪ in all ▪ join ▪ are left ▪ subtract ▪ minus **Tier 2** ▪ solve ▪ use
Essential Understandings ● Addition is putting together. ● Subtraction is taking apart, taking from, or comparing two quantities. ● There is a relationship between addition and subtraction. ● There are different problems types: add to (result unknown); take from (results unknown); and put together/take apart (total unknown and both addends unknown) (<u>See Glossary Table 1; page 95)</u>		

Learning Target	I can solve problems using addition and subtraction. I can explain my thinking.

Classroom Snapshot

Example	Question
The student can consistently solve addition and subtraction word problems.	"Billy has 6 hats and Sally has 4 hats. Who has more? How many more?"

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Provide contextual situations for addition and subtraction that relate to the everyday lives of kindergarteners. A variety of situations can be found in children's literature books. Students then model the addition and subtraction using a variety of representations such as drawings, sounds, acting out situations, verbal explanations and numerical expressions. Manipulatives, like two-color counters, clothespins on hangers, connecting cubes and stickers can also be used for modeling these operations.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

TABLE 1. COMMON ADDITION ADDITION AND SUBTRACTION SITUATIONS.

	RESULT UNKNOWN	CHANGE UNKNOWN	START UNKNOWN
ADD TO	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? 2 + 3 = ?	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? 2 + ? = 5	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? ? + 3 = 5
TAKE FROM	Five apples were on the table. I ate two apples. How many apples are on the table now? 5 – 2 = ?	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? 5 – ? = 3	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? ? – 2 = 3
	TOTAL UNKNOWN	**ADDEND UNKNOWN**	**BOTH ADDENDS UNKNOWN[1]**
PULL TOGETHER/ TAKE APART[2]	Three red apples and two green apples are on the table. How many apples are on the table? 3 + 2 = ?	Five apples are on the table. Three are red and the rest are green. How many apples are green? 3 + ? = 5, 5 – 3 = ?	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? 5 = 0 + 5, 5 = 5 + 0 5 = 1 + 4, 5 = 4 + 1 5 = 2 + 3, 5 = 3 + 2
	DIFFERENCE UNKNOWN	**BIGGER UNKNOWN**	**SMALLER UNKNOWN**
COMPARE[3]	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? ("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? 2 + ? = 5, 5 – 2 = ?	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? 2 + 3 = ?, 3 + 2 = ?	(Version with "more"): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? 5 – 3 = ?, ? + 3 = 5

[1] These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean "makes" or "results in" but always does mean "is the same number as."

Connections Across Standards

Write numerals in mathematical representations (K.CC.3).
Use counting and cardinality to represent addition and subtraction (K.CC.4-5).
Count the number of objects in each category (K.MD.3).

Pre-K (Prior Grade Standard)

Count to solve simple addition and subtraction problems with totals smaller than 8, using concrete objects.

1.OA.1 (Future Grade Standard)

Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. See Table 1, page 95.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.OA.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.

Essential Understanding

- There is more than one way to compose or decompose a number.

Common Misconceptions

Students often do not realize that there are many different ways to break a number down in to parts. By giving students manipulatives, they can explore the different ways to make a number. Once students are successful using the manipulatives, they can move to pictorial and then numerical representations.

Academic Vocabulary/Language

- add
- in all
- join
- are left
- subtract
- minus
- plus sign +
- minus sign −
- equals sign =
- break apart
- put together
- equation

Tier 2

- decompose
- record

Learning Target	I can break apart a number from 1 to 10 and show it in different ways.

Classroom Snapshot

Example	**Question**
"Seven can be 3 and 4, 5 and 2, 4 and 2, 2 and 5, 6 and 1, 7 and 0…"	Show as many ways as you can to make the number 7?

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Have students decompose numbers less than or equal to 5 during a variety of experiences to promote their fluency with sums and differences less than or equal to 5 that result from using the numbers 0 to 5. For example, ask students to use different models to decompose 5 and record their work with drawings or equations. Next, have students decompose 6, 7, 8, 9, and 10 in a similar fashion. As they come to understand the role and meaning of arithmetic operations in number systems, students gain computational fluency, using efficient and accurate methods for computing.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Write numerals in mathematical representations (K.CC.3).
Use counting and cardinality to represent addition and subtraction (K.CC.4-5).
Count the number of objects in each category (K.MD.3).

Pre-K (Prior Grade Standard)	**1.OA.3 (Future Grade Standard)**
Count to solve simple addition and subtraction problems with totals smaller than 8, using concrete objects.	Apply properties of operations as strategies to add and subtract. For example, if 8 + 3 = 11 is known, then 3 + 8 = 11 is also known (Commutative Property of Addition); to add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12 (Associative Property of Addition). Students need not use formal terms for these properties

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.OA.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.

Essential Understanding

- Addition is putting together.

Common Misconceptions

Students often do not realize that there are many different ways to break a number down in to parts. By giving students manipulatives, they can explore the different ways to make a number. Once students are successful using the manipulatives, they can move to pictorial and then numerical representations.

Academic Vocabulary/Language

- add
- plus sign +
- equals sign =
- ten
- equation

Tier 2

- find
- record

Learning Target	Given a number from 1 to 9, I can find the number to make 10 and show it in different ways.

Classroom Snapshot

Example	**Questions**
"I know if I have 7 it takes three more to make 10. I can show 7 + 3 = 10 by using a ten frame chart, using groups of counters, or by drawing.	If you have 6, how many more do you need to make 10? Can you show how you know? Delmar has 10 buttons. Some are blue and some are red. How many blue and red buttons might he have?

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Create written addition problems with sums equal to 10. It is important to use a problem context that is relevant to kindergarteners. After the teacher reads the problem, students choose their own method to model the problem and find a solution. Students discuss their solution strategies while the teacher represents the situation with an equation written under the problem. The teacher and students should use the words equal and is the same as interchangeably.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Write numerals in mathematical representations (K.CC.3).
Use counting and cardinality to represent addition and subtraction (K.CC.4-5).
Count the number of objects in each category (K.MD.3).

Pre-K (Prior Grade Standard)	**1.OA.4 (Future Grade Standard)**
Count to solve simple addition and subtraction problems with totals smaller than 8, using concrete objects.	Understand subtraction as an unknown-addend problem. For example, subtract 10 − 8 by finding the number that makes 10 when added to 8.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.OA.5	Fluently [G] add and subtract within 5.	**Common Misconceptions** Teachers need to provide instructional experiences so that students progress from the concrete level (manipulatives), to the pictorial level, then to the abstract (expressions/equations) level when learning mathematical concepts. Students who skip pictorial thinking are more likely to use finger counting and rote memorization for work with addition and subtraction.	**Academic Vocabulary/Language** ▪ add ▪ subtract
Essential Understandings ● There is a relationship between addition and subtraction. ● Adding 1 results in the next number in a counting sequence. ● Subtracting 1 results in the previous number in a counting sequence. ● Adding or subtracting 0 results in the same number. ● 0 is the number of items left when all the objects in a set are taken away. ● Fluency is the ability to use efficient, accurate, and flexible methods for computing.			
Learning Target	I can easily add and subtract any of the numbers from 1 to 5.		

Classroom Snapshot

Example	Question
"I can add and subtract within 5 quickly without external help or counting in my head."	Add 2 + 3 without counters.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Have students decompose numbers less than or equal to 5 during a variety of experiences to promote their fluency with sums and differences less than or equal to 5 that result from using the numbers 0 to 5. For example, ask students to use different models to decompose 5 and record their work with drawings or equations.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Write numerals in mathematical representations (K.CC.3).
Use counting and cardinality to represent addition and subtraction. (K.CC. 4-5).
Count the number of objects in each category (K.MD.3).

Pre-K (Prior Grade Standard)	**1.OA.6 (Future Grade Standard)**
Count to solve simple addition and subtraction problems with totals smaller than 8, using concrete objects.	Add and subtract within 20, demonstrating fluency [G] with various strategies for addition and subtraction within 10. Strategies may include counting on; making ten, e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14; decomposing a number leading to a ten, e.g., 13 − 4 = 13 − 3 − 1 = 10 − 1 = 9; using the relationship between addition and subtraction, e.g., knowing that 8 + 4 = 12, one knows 12 − 8 = 4; and creating equivalent but easier or known sums, e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.NBT.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.

Essential Understandings

- Work with numbers 11–19 to gain foundations for place value.
- The basic unit of the base-ten system is a one.
- Teen numbers are composed of a group of ten ones and more ones.
- A group of ten consists of ten "ones".

Common Misconceptions

Students have difficulty with ten as a singular word that means 10 things. For many students, the understanding that a group of 10 things can be replaced by a single object and they both represent 10 is confusing. Help students develop the sense of 10 by first using groupable materials then replacing the group with an object or representing 10. Watch for and address the issue of attaching words to materials and groups without knowing what they represent. If this misconception is not addressed early on it can cause additional issues when working with numbers 11-19 and beyond.

Academic Vocabulary/Language

- ten 10
- number words 11 through 19
- compose
- decompose
- equation
- ones
- tens

Tier 2

- record
- tell
- show

Learning Target	Given a number from 11 to 19, I can tell and show how many tens and how many ones make the number.

Classroom Snapshot

Example	Question
"I know that 14 is a ten and four more. I can also show that with a ten stick and 4 additional blocks."	How can you make 17? Can you show that with base-ten blocks?

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Kindergarteners need to understand the idea of a ten so they can develop the strategy of adding onto 10 to add within 20 in Grade 1. Students need to construct their own base-ten ideas about quantities and their symbols by connecting to counting by ones. They should use a variety of manipulatives to model and connect equivalent representations for the numbers 11 to 19. For instance, to represent 13, students can count by ones and show 13 beans. They can anchor to five and show one group of 5 beans and 8 beans or anchor to ten and show one group of 10 beans and 3 beans. Students need to eventually see a ten as different from 10 ones.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Decompose numbers (K.OA.3).

Know and write numerals to 20 and count on from any given number (K.CC.2-3).

Pre-K (Prior Grade Standard)	1.NBT.2 (Future Grade Standard)
N/A	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: 10 can be thought of as a bundle of ten ones — called a "ten;" the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones; and the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.MD.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.	**Common Misconceptions** Discourage the use of the words bigger and smaller and ask the students to use words appropriate to the attributes they are measuring. For length, objects are shorter and longer, for weight heavier and lighter, and height taller and shorter. Grade K Common Core Math	**Academic Vocabulary/Language** ▪ height ▪ length ▪ weight ▪ shorter ▪ longer ▪ heavier ▪ lighter ▪ taller ▪ shorter **Tier 2** ▪ describe ▪ compare ▪ explain
Essential Understanding ● Objects have multiple attributes that can be identified and described.			
Learning Target	I can describe different ways to measure an object..		

Classroom Snapshot

Example

"I can describe an object identifying how long, tall or heavy it is."

Questions

Ask a student to choose an object and describe it (e.g. "This block has 2 long sides and 2 shorter sides.")

Can the student describe more than one attribute? Does the student only describe length? Do they consider width or weight?

Adapted from Darke County Schools
Grade K Common Core Math

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

It is critical for students to be able to identify and describe measurable attributes of objects. An object has different attributes that can be measured, like the height and weight of a can of food. When students compare shapes directly, the attribute becomes the focus. For example, when comparing the volume of two different boxes, ask students to discuss and justify their answers to these questions: Which box will hold the most? Which box will hold least? Will they hold the same amount? Students can decide to fill one box with dried beans then pour the beans into the other box to determine the answers to these questions.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Classify objects into given categories (K.MD.3).
Compare quantities of objects (K.CC.6).

Pre-K (Prior Grade Standard)	**1.MD.1 (Future Grade Standard)**
Sort and classify objects by one or more attributes (e.g., size, number).	Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.MD.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.*	**Common Misconceptions** Discourage the use of the words bigger and smaller and ask the students to use words appropriate to the attributes they are measuring. For length, objects are shorter and longer and for weight heavier and lighter. Grade K Common Core Math	**Academic Vocabulary/Language** · longer · shorter · heavier · lighter · taller · more of · less of **Tier 2** · describe · compare
Essential Understandings ● Objects have multiple attributes that can be identified and described. ● Objects have common attributes that can be compared.		

Learning Target	I can compare two objects by measurement and talk about how they are different.

Classroom Snapshot

Example

"I know when comparing two books that one might be longer or wider and also it could be heavier."

Question

Circle the object that is lighter

Adapted from Darke County Schools
Grade K Common Core Math

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Have students work in pairs to compare their arm spans. As they stand back-to-back with outstretched arms, compare the lengths of their spans, then determine who has the smallest arm span. Ask students to explain their reasoning. Then ask students to suggest other measurable attributes of their bodies that they could directly compare, such as their height or the length of their feet.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Classify objects into given categories (K.MD.3).
Compare quantities of objects (K.CC.6).

Pre-K(Prior Grade Standard)	**1.MD.2 (Future Grade Standard)**
Describe and compare objects using measurable attributes (e.g., length, size, capacity and weight).	Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.MD.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.

Essential Understandings

- Groups of objects can be classified in multiple ways and counted.
- Classifying objects is the process of sorting objects into categories and naming those categories.
- Pennies can be used as a manipulative to count and sort.

Common Misconceptions

During initial instruction, students may need guidance in identifying the categories in which to sort objects.

Grade K Common Core Math

Academic Vocabulary/Language

- alike
- different
- shape
- size
- sort
- count

Tier 2

- classify
- category
- categorize

Learning Targets	I can put objects into groups so that each group has something the same. I can count the objects in a group and put the groups in order from least to greatest.

Classroom Snapshot

Examples	Questions
"Given some shapes I can sort then into groups by color or shape."	Show the student's a collections of cubes. Say: "*I have a set of cubes. Sort these cubes by color."*
"I counted the shapes in each group and can arrange them from the largest group and the smallest".	After the students have sorted the cubes by color, say : *Count the number of cubes in each group. How many cubes do you have in each group? Do you have any groups that have the same amount? "* Prompt if needed: *"Which groups have the same amount?"*

Adapted from Darke County Schools
Grade K Common Core Math

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Provide categories for students to use to sort a collection of objects. Each category can relate to only one attribute, like Red and Not Red or Hexagon and Not Hexagon, and contain up to 10 objects. Students count how many objects are in each category and then order the categories by the number of objects they contain.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Count to answer "how many?" questions (K.CC.5).
Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (K.CC.6).
Compare two numbers between 1 and 10 represented as written numerals (K.CC.7).

Pre-K (Prior Grade Standard)	1.MD.4 (Future Grade Standard)
Sort and classify objects by one or more attributes (e.g., size, number).	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.G.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.*

Essential Understandings

- Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
- Shapes exist in the environment.
- Shapes can be described by position and location.

Common Misconceptions

Students many times use incorrect terminology when describing shapes. For example students may say a cube is a square or that a sphere is a circle. The use of the two-dimensional shape that appears to be part of a three-dimensional shape to name the three-dimensional shape is a common misconception. Work with students to help them understand that the two-dimensional shape is a part of the object but it has a different name.

Academic Vocabulary/Language

- above
- below
- in front of
- behind
- beside
- next to
- square
- circle
- triangle
- rectangle
- hexagon
- cube
- cone
- cylinder
- sphere

Tier 2

- describe
- find
- identify
- location

Learning Targets	I can find and name shapes that I find all around me. I can describe the location of shapes I find around me.

Classroom Snapshot

Examples	Questions
"I can find many 'triangles' in the classroom."	Point to a rectangle in the classroom.
"I can tell my friends there is a square above their head on the ceiling."	Place an X under the 

Adapted from Darke County Schools
Grade K Common Core Math

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Ask students to find rectangles in the classroom and describe the relative positions of the rectangles they see, e.g. This rectangle (a poster) is over the sphere (globe). Teachers can use a digital camera to record these relationships. Hide shapes around the room. Have students say where they found the shape using positional words, e.g. I found a triangle UNDER the chair.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Identify and describe measurable attributes (K.MD.1).
Directly compare two objects with a measurable attribute (K.MD.2).

Pre-K(Prior Grade Standard)	1.G.1 (Future Grade Standard)
Demonstrate understanding of the relative position of objects using terms such as in/on/under, up/down, inside/outside, above/ below, beside/between, in front of/ behind and next to.	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.G.2	Correctly name shapes regardless of their orientations or overall size.	**Common Misconceptions** Students many times use incorrect terminology when describing shapes. For example students may say a cube is a square or that a sphere is a circle. The use of the two-dimensional shape that appears to be part of a three-dimensional shape to name the three-dimensional shape is a common misconception. Work with students to help them understand that the two-dimensional shape is a part of the object but it has a different name.	**Academic Vocabulary/Language** ▪ circle ▪ rectangle ▪ hexagon ▪ triangle ▪ square ▪ cube ▪ cone ▪ cylinder ▪ sphere ▪ straight ▪ round ▪ side ▪ vertex ▪ shapes ▪ solids **Tier 2** ▪ name ▪ identify ▪ describe
Essential Understandings ● Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). ● Shapes can be identified regardless of size or orientation.			

Learning Targets	I can name 2-D (flat) shapes even after they have been moved around (rotated, flipped, etc.). I can name 3-D (solid) shapes even after they have been moved around (rotated, flipped, etc.).

Classroom Snapshot

Examples	Questions
"I know a square no matter how you turn it or color it."	Show the students a triangle. Ask: *What is name of this shape? How do you know that this is a triangle?* Rotate the shape and repeat the questions.
"I know a cylinder no matter how you turn it or color it."	Show the students a cube. Ask: *What is the name of this solid?" How do you know that this is a cube?* Show them a different size cube and repeat the questions.

Adapted from Darke County Schools
Grade K Common Core Math

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Use a shape in different orientations and sizes along with non-examples of the shape so students can learn to focus on defining attributes of the shape.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Identify and describe measurable attributes (K.MD. 1).
Directly compare two objects with a measurable attribute (K.MD.2).
Classify objects into given categories (K.MD.3).

Pre-K(Prior Grade Standard)	1.G.1 (Future Grade Standard)
Understand and use names of shapes when identifying objects.	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.G.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

Essential Understandings

- Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
- Shapes can be categorized as two-dimensional (flat) or three-dimensional (solid).

Common Misconceptions

Students many times use incorrect terminology when describing shapes. For example students may say a cube is a square or that a sphere is a circle. The use of the two-dimensional shape that appears to be part of a three-dimensional shape to name the three-dimensional shape is a common misconception. Work with students to help them understand that the two-dimensional shape is a part of the object but it has a different name.

Academic Vocabulary/Language

- circle
- rectangle
- hexagon
- triangle
- square
- cube
- cylinder
- cone
- sphere
- two-dimensional
- three-dimensional
- shapes
- solids

Tier 2

- name
- label

Learning Targets	I can name 2-D (flat) shapes. I can name 3-D (solid) shapes.

Classroom Snapshot

Examples	Questions
"I can name triangles, squares, circles, rectangles, and hexagons." "I can name cubes, cones, cylinders and spheres."	Show a collections of two-dimensional three-dimensional shapes. Ask students to sort the objects into the categories "Two-Dimensional" or "Three- Dimensional."

Adapted from Darke County Schools
Grade K Common Core Math

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Manipulatives used for shape identification actually have three dimensions. However, Kindergartners need to think of these shapes as two-dimensional or "flat" and typical three-dimensional shapes as "solid." Students will identify two-dimensional shapes that form surfaces on three-dimensional objects. Students need to focus on noticing two and three dimensions, not on the words two-dimensional and three-dimensional.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Identify and describe measurable attributes (K.MD.1).
Directly compare two objects with a measurable attribute (K.MD.2).
Classify objects into given categories (K.MD.3).

Pre-K (Prior Grade Standard)	1.G.2 (Future Grade Standard)
Compare two-dimensional shapes, in different sizes and orientations, using informal language.	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Note: Students do not need to learn formal names such as "right rectangular prism.")

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.G.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.

Essential Understandings

- Shapes can be described by their attributes.
- Shapes can be compared by their attributes.

Common Misconceptions

One of the most common misconceptions in geometry is the belief that orientation is tied to shape. A student may see the first of the figures below as a triangle, but claim to not know the name of the second.

Students need to have many experiences with shapes in different orientations.

Another misconception is confusing the name of a two-dimensional shape with a related three-dimensional shape or the shape of its face. For example, students might call a cube a square because the student sees the face of the cube.

Academic Vocabulary/Language

- circle
- rectangle
- hexagon
- triangle
- square
- cube
- cylinder
- cone
- sphere
- roll
- stack
- slide
- vertices
- two-dimensional
- three-dimensional

Tier 2

- compare
- analyze
- describe

Learning Targets	I can describe the parts of a 2-D shape (flat). I can compare the parts of a 2-D shape. I can describe the parts of a 3-D shape (solid). I can compare the parts of a 3-D shape.

Classroom Snapshot

Examples	Questions
"When I compare a square and a triangle, I notice that number of vertices are different and the number of sides are different."	Have each child select two 2-D shapes and share with the group one way the two shapes are alike and one way they are different.
"When I compare a cylinder and a cone, I notice they both have circle ends but the cylinder has two of them."	Have each child select 3-D shapes and share with the group one way the two shapes are alike and one way they are different.

Adapted from Darke County Schools
Grade K Common Core Math

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Use shapes collected from students to begin the investigation into basic properties and characteristics of two- and three-dimensional shapes. Have students analyze and compare each shape with other objects in the classroom and describe the similarities and differences between the shapes. Ask students to describe the shapes while the teacher records key descriptive words in common student language. Students need to use the word flat to describe two-dimensional shapes and the word solid to describe three-dimensional shapes.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Identify and describe shapes (K.G.1-3).
Identify and describe measurable attributes (K.MD.1).
Directly compare two objects with a measurable attribute (K.MD.2).
Classify objects into given categories (K.MD.3).

Pre-K (Prior Grade Standard)	1.G.2 (Future Grade Standard)
Compare two-dimensional shapes, in different sizes and orientations, using informal language.	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Note: Students do not need to learn formal names such as "right rectangular prism.")

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.G.5 Model shapes in the world by building shapes from components e.g., sticks and clay balls and drawing shapes.	**Common Misconceptions** Students may create 2D shapes when be asked to use 3D materials such as sticks, clay balls, etc. thus creating a 3D shape. Work with students to identify how 2D and 3D shapes are similar and different to develop an understanding of the attributes of 2D and 3D shapes.	**Academic Vocabulary/Language** ▪ round ▪ rectangle ▪ side ▪ square ▪ straight ▪ triangle **Tier 2** ▪ analyze ▪ compare ▪ create ▪ compose
Essential Understanding ● Shapes in the environment can be represented with models.		

Learning Targets	I can make and draw 2-D (flat) shapes. I can make and draw 3-D (solid) shapes.

Classroom Snapshot

Examples	Questions
"When given toothpicks and marshmallows, I can build a cube."	Draw a triangle.
"When given clay, I can build a triangle."	Draw a rectangle.

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

The teacher and students orally describe and name the shapes. Students draw a shape and build it using materials regularly kept in the classroom such as construction paper, clay, wooden sticks or straws.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Identify and describe shapes (K.G.1-3).
Identify and describe measurable attributes (K.MD.1).
Directly compare two objects with a measurable attribute (K.MD.2).
Classify objects into given categories (K.MD.3).

Pre-K (Prior Grade Standard)	1.G.2 (Future Grade Standard)
Create shapes during play by building, drawing, etc.	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Note: Students do not need to learn formal names such as "right rectangular prism.")

Ohio's Learning Standards-Clear Learning Targets

Math Kindergarten

K.G.6 Combine simple shapes to form larger shapes. **Essential Understandings** ● Analyze, compare, create and compose shapes. ● Shapes can be combined to form larger shapes.	**Common Misconceptions** Students may struggle to see a new shape from a composite shape. For example, a triangle and a square create a composite shape - pentagon. Students may see only the triangle and square not the pentagon. Students struggle to identify attributes of a shape that determines the shape name.	**Academic Vocabulary/Language** ▪ round ▪ rectangle ▪ side ▪ square ▪ straight ▪ triangle ▪ order **Tier 2** ▪ analyze ▪ compare ▪ create ▪ compose

Learning Target	I can put two shapes together to make more shapes that I can name.

Classroom Snapshot

Example	**Question**
"When I put two squares together, side by side, it looks just like a rectangle."	Give the students 2 squares. Say: *Join these two squares to make a rectangle.* When the student is finished, ask: *How do you know that this new shape is a rectangle.?*

Adapted from Darke County Schools

Ohio Department of Education Model Curriculum Instructional Strategies and Resources

Have students compose (build) a larger shape using only smaller shapes that have the same size and shape. The sides of the smaller shapes should touch and there should be no gaps or overlaps within the larger shape. For example, use one-inch squares to build a larger square with no gaps or overlaps. Have students also use different shapes to form a larger shape where the sides of the smaller shapes are touching and there are no gaps or overlaps. Ask students to describe the larger shape and the shapes that formed it.

Ohio's New Learning Standards Mathematics Kindergarten Model Curriculum 2015

Connections Across Standards

Identify and describe shapes (K.G.1-3).
Identify and describe measurable attributes (K.MD.1).
Directly compare two objects with a measurable attribute (K.MD.2).
Classify objects into given categories (K.MD.3).

Pre-K (Prior Grade Standard)	**1.G.2 (Future Grade Standard)**
Combine simple shapes to form larger shapes.	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Note: Students do not need to learn formal names such as "right rectangular prism.")