

Desired Outcomes

Standard(s):

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

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*.

Routines:

Know number names and the count sequence

K.CC.1 Count to 100 by ones and by tens. *In this unit, students will focus on counting to 12 by ones.*

Transfer: *Students will apply...*

- Language for relative position of objects to model and describe objects in their environment.
- Knowledge of position and position language when using and describing the counting sequence.

Understandings: *Students will understand that ...*

- Objects and people have position relative to other objects.
- Positional words can be used to describe relative position of objects in a real life environment and numbers in the counting sequence.

Essential Questions:

- How are positional words used in math?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. **Make sense of problems and persevere in solving them.** Students will make sense of the position terms to describe and model relative positions of objects and numbers.
2. **Reason abstractly and quantitatively.** Students will reason about the sequence of numbers and the terms used to describe it.
- * 3. **Construct viable arguments and critique the reasoning of others.** Students construct arguments when they explain the locations of objects or numbers, or why they have used a particular term to describe the position. They will critique others when they explain why they agree or disagree with them regarding the positional language or position used in the placement of objects or numbers.
- * 4. **Model with mathematics.** Students will begin using mathematical terms to describe objects in real life contexts. They will begin looking at numerals in context of location.
5. **Use appropriate tools strategically.** Students use their objects to model the positional language.
- * 6. **Attend to precision.** Students attend to precision by listening to the precise language of directions and either repeating or acting out situations involving relative positions.
7. **Look for and make use of structure.** Through developing understanding of positional words, students will be able to describe the counting sequence.
- * 8. **Look for and express regularity in repeated reasoning.** Students will use repeated reasoning as they connect the use of position language to both real-world objects and number positions.

Prerequisite Skills/Concepts: *Students should already be able to...*

Advanced Skills/Concepts: *Some students may be ready to...*

Apply knowledge of positional words from real life objects to the relationship of numbers in visual models. (number line, number grid)

Ex. 2 is next to 3, or beside 3 on a number line or number grid.

Knowledge: *Students will know...*

- Positional words of *above, below, beside, in front of, behind, next to* so that they can follow directions using these precise terms.

Skills: *Students will be able to do...*

- Apply the understanding of positional words to describe objects in real life context.
- Use positional words to describe numbers and objects.

WIDA Standard:

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners will benefit from:

- Teacher modeling the location of familiar objects while describing the relevant positions emphasizing academic vocabulary.
- Teacher displaying academic vocabulary adjacent to the object that has been moved.
- Students repeatedly practicing speaking, using academic vocabulary as they manipulate each object.

Academic Vocabulary:

Critical Terms: Above Below Beside In Front of Behind Next to	Supplemental Terms:
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Assessment

Summative Assessments

This standard will be assessed again in Units 8 and 9.

Pre-Assessments	Formative Assessments	Self-Assessments
<ul style="list-style-type: none"> • Where's My Friend Observation Checklist 	<ul style="list-style-type: none"> • Where's My Friend Observation Checklist • Above, Below, Beside • Bears in a Cave Observational Checklist 	

Desired Outcomes

Standard(s):

Count to tell the number of objects.

K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

- a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
- b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
- c. Understand that each successive number name refers to a quantity that is one larger.

Count to tell the number of objects.

K.CC.5 Count to answer "how many?" questions about as many as ~~20~~ 10 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~~ 10, count out that many objects.

Know number names and the count sequence.

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

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)

Routines:

Know number names and the count sequence.

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

Centers:

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

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.

Transfer: *Students will apply...*

- Number recognition to count objects and pictures, or count out appropriate quantities of objects in real-world situations.
- Sense of quantity to recognize that the number of objects is the same regardless of the arrangement. *For example a group of 6 objects is the same quantity regardless of whether they are scattered or arranged in a line, circle, rectangle, die or domino pattern.*

Understandings: *Students will understand that ...*

- Counting is used to find how many or how much a quantity represents.
- The last number said when counting a quantity of objects, is the total number of objects in that group.
- The total number of objects is represented with a numeral.
- Counting one more will be the next larger number.

Essential Questions:

- Why do we count?
- How is number order helpful to us?
- What can numerals represent?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. **Make sense of problems and persevere in solving them.**
- * 2. **Reason abstractly and quantitatively.** Students understand that numbers represent quantity.
3. **Construct viable arguments and critique the reasoning of others.** Students represent their arguments through the act of counting objects and stating the total quantity counted. They also represent their arguments when counting out a quantity of objects to represent a numeral. They critique each other's reasoning when discussing whether they agree or disagree with peers who have counted the same set of objects.
- * 4. **Model with mathematics.** Students model the value of numbers with objects and visuals.
5. **Use appropriate tools strategically.**
6. **Attend to precision.** Students attend to the precise sequence of number names when counting. This includes attention to the value of zero.
7. **Look for and make use of structure.** Students will recognize the appropriate order for saying the counting sequence. Students recognize the familiar visual arrangements to begin subitizing.
- * 8. **Look for and express regularity in repeated reasoning.** Students use their understanding of the structure and sequence of numbers to count appropriately in a variety of contexts. They use repeated reasoning to understand that the value of a number is consistent regardless of the arrangement of objects. (Conservation of number)

Prerequisite Skills/Concepts: *Students should already be able to...*

- Recall hearing/seeing others rote count and count objects.

Advanced Skills/Concepts: *Some students may be ready to...*

- Subitize (instantly recognize) objects in different arrangements and begin using small groups or units when counting objects.
- Use grouping strategies when they count.
- Begin predicting, "What's next?" when asked about the next number in a sequence.

Knowledge: *Students will know...*

- Names for numerals.
- Sequence and order of counting numbers.

Skills: *Students will be able to do...*

- Subitize within five. (K.CC.4)
- Use one-to-one correspondence when counting. (K.CC.4)
- Know and say the standard order when counting. (K.CC.4)
- Count within 10 (including 0). (K.CC.1)
- Name the next number in a counting sequence. (K.CC.4)

WIDA Standard: (English Language Learners)

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners will benefit from:

- Visual models of math and connections to the real world.
- The teacher showing a 3D model of each numeral and saying its number name, then displaying word form of the number name adjacent to the 3D model and number card.
- Students shape clay into numerals and verbalize the number name. Students sing number songs while writing/ tracing clay numerals or sand, as well as, when forming numbers in the air.
- The teacher modeling 1:1 correspondence of number names to numerals by counting objects. Then, students repeatedly practice using (speaking) the number names as they count with 1:1 correspondence.
- The teacher modeling how to count out small quantities and say the total this group represents. Then students repeatedly practice counting out small quantities and using (speaking) the appropriate number the group represents.

Academic Vocabulary:

Critical Terms:

Number names (zero, one, two, three four, five, six, seven, eight, nine, ten)
Number
Numerals
How many
Count
Order

Supplemental Terms:

Cardinality
Quantity

Assessment

Summative Assessments

Counting Objects
Oral Counting Assessment

Pre-Assessments

Formative Assessments

Self-Assessments

Counting Interview

Counting Objects
My Turtle Counting Book
Oral Counting Assessment
Five Frame Match-Up
Count & Match
Ten Frame Match-Up

Desired Outcomes

Standard(s):

Know number names and the count sequence.

K.CC.2 Count forward from a given number within the known sequence (instead of having to begin at 1).

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

Count to tell the number of objects.

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.

Routines:

Know number names and the count sequence

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

Centers:

Count to tell the number of objects

K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

- d. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
- e. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
- f. Understand that each successive number name refers to a quantity that is one larger.

Transfer: *Students will apply...*

Knowledge of numbers 0-10 to count and represent numbers up to 20.

Counting skills to answer the question of “how many” for as many as 20 objects arranged in a line, a rectangular array, or a circle, or as many as 10 things a scattered configuration given a number from 1-20, count out that many objects.

Understandings: *Students will understand that ...*

- Each successive number name refers to a quantity that is one larger.
- The last number name said is the total number of objects counted.
- The number of objects counted can be represented by a written numeral.
- Knowledge of numbers 0-10 can be applied to predict order and sequence in higher numbers.

Essential Questions:

- How can we represent the total for a collection of objects?
- How and why do we count objects?
- How can you use 0-10 to predict other counting sequences?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. **Make sense of problems and persevere in solving them.** Students persevere in counting collections of objects to find the total number of objects in the collection.
- * 2. **Reason abstractly and quantitatively.** Students will use their understanding of position and quantity to count from any given number. They reason about the value of the numbers as they count quantities of objects and pictures or count out objects.
- * 3. **Construct viable arguments and critique the reasoning of others.** Students construct arguments when they explain why they believe a quantity should be labeled with a particular number or numeral. They critique each other's reasoning when they explain why they agree or disagree with totals or representations.
- * 4. **Model with mathematics.** Students will count within 10 and use manipulatives, pictures, symbols, language and real-world situations to create models for each number.
5. **Use appropriate tools strategically.** Students use number cards appropriately to label collections and use collections of objects to represent quantities.
6. **Attend to precision.** Students attend to the precise language and order of the count sequence. They make sure they use the appropriate name for the quantity.
- * 7. **Look for and make use of structure.** Students will apply understanding of numbers 0-10 to count and quantify numbers 0-20.
- * 8. **Look for and express regularity in repeated reasoning.** Students can apply what they know 0-10 to the next 10 numbers based on the nature of our base-10 system.

Prerequisite Skills/Concepts:

- Fluency in counting numbers 0-10
- Knowledge of number sequence
- Connecting "how many" with each number within 10

Advanced Skills/Concepts:

- Application of Base-10 number system to count other number sequences within 100

<p>Knowledge: <i>Students will know...</i></p> <ul style="list-style-type: none"> • Numerals 	<p>Skills: <i>Students will be able to do...</i></p> <ul style="list-style-type: none"> • Count up to 20 objects in any organized arrangement. • Count up to 10 objects in a scattered arrangement. • Count out a given quantity of objects within 20. • Write numerals for quantities within 20. • Connect a numeral with a quantity.
<p>WIDA Standard: English Language Learners</p> <p>English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.</p> <p>English language learners will benefit from:</p> <p>Using i.e. five-frames; ten-frames; a linear arrangement of or an unorganized pile of manipulatives; irregular and regular spatial patterns such as dot cards :</p> <ul style="list-style-type: none"> • Teacher modeling of counting out a quantity within 20. Students repeatedly practice counting out objects within 20 and using (speaking) the appropriate number the group represents. • Teacher modeling of counting out a quantity within 20 and then matching the quantity of objects with the correct number card. Students repeatedly practice counting out a quantity within 20 and matching the quantity of objects with the correct number card. • Teacher modeling counting on from a particular quantity within 20. Students repeatedly practice counting on from a particular quantity within 20 verbalizing each number while counting. • Tracing teen numbers to 20 and verbalizing the number names. 	
<p>Academic Vocabulary:</p>	
<p>Critical Terms:</p> <p>Cardinality Number Names Numerals Quantity</p>	<p>Supplemental Terms:</p> <p>Number Count Before After In Front of Behind</p>

Assessment		
Summative Assessments Counting On Interview Counting Objects Observation		
Pre-Assessments	Formative Assessments	Self-Assessments
<ul style="list-style-type: none"> • Counting Interview 	<ul style="list-style-type: none"> • Counting Objects Observation • Counting On Interview • Number Sequence Presentation • Tracing and Writing Numbers • Count & Match • Count & Write • Counting, Cardinality and Writing • Oral Counting • Counting Within 20 	

Desired Outcomes

Standard(s):

Compare Numbers

K.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g. by using matching and counting strategies (include groups with up to ten objects).

K.CC.7 Compare two numbers between one and ten presented as written numerals.

Describe and compare measurable attributes

K.MD.1 Describe measurable attributes of objects such as length or weight. Describe several measurable attributes of a single object.

K.MD.2 Directly compare two objects with a measurable attribute in common to see which object has more of/less of the attribute and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category

K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count (limit category counts to be less than or equal to 10).

Routines:**Know number names and the count sequence.**

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

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).

Centers:**Count to tell the number of objects**

K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality

Know number names and the count sequence.

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).

Transfer: *Students will apply...*

- Knowledge of quantity within numbers to sort objects into categories by count.
- Understanding of attributes to categorize objects.
- Describing objects based on measurable attributes.
- Comparison language to describe the relationship between two objects based on measurable attributes.

Understandings: *Students will understand that ...*

- Comparing quantity of numbers can be described as less than, greater than, or equal to.
- Some attributes are measurable and both numbers and words can be used to describe and compare the measurements.
- Groups can be quantified for comparison and order.
- Written numerals represent an amount and each numeral represents a different amount.

Essential Questions:

- What attributes can be measured?
- How are objects similar and different?
- How are groups of objects compared and described?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. **Make sense of problems and persevere in solving them.** Students make sense of comparison situations through their use of matching and counting strategies.
- * 2. **Reason abstractly and quantitatively.** Students will demonstrate abstract reasoning when they compare quantities of objects and determine which group has more, less, or are equal. They will also consider reasoning for groupings of objects, understanding that objects are grouped together because they possess common attributes and they can be grouped in multiple ways because they possess multiple attributes.
3. **Construct viable arguments and critique the reasoning of others.** Students discuss and share how objects and quantities are different or alike. They will also construct and critique arguments about whether or not an attribute is measurable or whether an object belongs in a particular group when sorting.
- * 4. **Model with mathematics.** Students will represent numbers with objects and count groups of objects. They will sort objects with different characteristics into categories.
5. **Use appropriate tools strategically.**
- * 6. **Attend to precision.** Students will use precise counting and precise language to describe attributes of objects.
7. **Look for and make use of structure.** Students examine the structure of objects as they sort and compare their characteristics. Matching and counting strategies can be used to determine if one group of objects is greater than, less than, or equal to another group.
8. **Look for and express regularity in repeated reasoning.** Students will make generalizations about categories of objects based on their attributes. They begin to recognize that two groups with the same quantity of objects in each are equal groups.

Prerequisite Skills/Concepts:

- Understanding of quantity of numerals within 10.
- Understand quantity of number in any configuration to answer “how many?” (within 10)
- Counting numbers have a measurable quantity.

Advanced Skills/Concepts:

- Comparison of numbers using addition and subtraction number stories.

Knowledge: *Students will know...*

- How to compare objects based on quantity to identify more, less, or equal.
- How to categorize objects using attributes.
- How to measure and compare 2 objects.
- Comparison language

Skills: *Students will be able to do...*

- Identify counts of objects as more than, less than, or equal to.
- Sort objects into groups and count the number of objects in each group.
- Compare and/or order groups by quantity.
- Measure and compare 2 objects using appropriate comparing words.
- Write all numerals within 20.
- Group objects by specific attributes.

WIDA Standard: English Language Learners

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners will benefit from:

- The teacher modeling how to count groups in order to compare two quantities and then students count each group, verbalizing the quantity of each using the appropriate number name.
- The teacher modeling how to line up objects in order to compare two quantities and students repeatedly maneuvering objects into two linear arrangements, then counting each arrangement and verbalizing the quantity of each using the appropriate number name.
- The teacher representing each quantity counted with a number card and students labeling each quantity counted with the appropriate number card.
- The teacher modeling the academic language of “greater than,” “less than,” or “equal to” that describes the relationship of 2 quantities and students repeatedly using (speaking) the appropriate academic language to describe the relationship of one quantity to another.
- The teacher using realia (real objects) and /or pictures to create meaning of the academic vocabulary of “taller” and “shorter” by comparing two similar objects i.e. children, a picture of trees, etc., and students comparing pictures or similar items and verbalizing whether one object is taller or shorter than another.
- The teacher comparing two number cards for the numerals 1-10, finding the location of those numbers on a number line and/or saying whether a number is greater than, less than, or equal to another number. Students repeatedly practice saying the number names and using the academic vocabulary of greater than, less than, or equal to compare the numerals.

Academic Vocabulary:

Critical Terms:

Greater than
 Less than
 Equal to
 More of
 Less of
 Attribute
 Taller
 Shorter
 Length
 Weight
 Quantity
 Number words
 Numerals
 Difference (within context of Measurement Standard)
 Compare
 Group/Unit
 Sort

Supplemental Terms:

Number words
 Numerals
 Count
 Longer
 Shorter
 Lighter
 Heavier

Assessment

Summative Assessments

More/Less/Same

Pre-Assessments

Formative Assessments

Self-Assessments

Sorting and Counting
 Who's Got More?
 Building Numbers and Making Comparisons
 Comparing Classroom Objects – Weights
 Comparing Classroom Objects – Lengths
 Comparing Stuffed Animals
 1-10 War

Desired Outcomes

Standard(s):

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

K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps), acting out situations, verbal explanations, expressions, or equations.

K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way e.g. by using objects or drawings and record each decomposition by a drawing or equation (e.g. $5=2+3$ and $5=4+1$)

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

K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g. by using objects or drawings to represent the problem.

Routines:

Know number names and the count sequence

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

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).

Centers:

Know number names and the count sequence

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).

Transfer: *Students will apply...*

- Knowledge of counting numbers and cardinality to build fluency of number combinations to 5.
- Understanding of composition and decomposition to model real word situations involving addition and subtraction within 5.

Understandings: *Students will understand that ...*

- The quantity of numbers can be combined in different groups of numbers.
- Numbers can be decomposed with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations and can be demonstrated in more than one way.
- Number combinations are used for addition and subtraction of numbers within 5.
- Numbers are composed of other numbers
- Numbers can be decomposed into other numbers.

Essential Questions:

- How many combinations of numbers can you find within 2? 3? 4? 5?
- How can we represent number combinations within 5?
- How can knowing how to put together or take apart numbers help form other numbers?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

- 1. Make sense of problems and persevere in solving them.**
- * **2. Reason abstractly and quantitatively.** Students will demonstrate abstract reasoning when recording composition and decomposition with written symbols.
- * **3. Construct viable arguments and critique the reasoning of others.** Students will use different modalities to construct their arguments regarding number quantity and different combinations of number. They will critique each other when they discuss the validity of the various representations.
- 4. Model with mathematics.** Students will represent number combinations with objects, fingers, drawings, expressions, equations, to model addition and subtraction.
- * **5. Use appropriate tools strategically.** Students will use tools such as links, snap cubes, color tiles, dice, dominoes, five and ten frames, number bonds, dot cards, two-color counters and various other counters to look at different combinations of the same number.
- 6. Attend to precision.**
- * **7. Look for and make use of structure.** Students use the structures inherent in composition and decomposition of numbers to build fluency of number combinations within 5 as foundation for addition/subtraction.
- 8. Look for and express regularity in repeated reasoning.**

<p>Prerequisite Skills/Concepts:</p> <ul style="list-style-type: none"> • Understand quantity of numbers within 5 • Write numbers within 20. • Understanding of decomposition of numbers. • Understanding of cardinality. 	<p>Advanced Skills/Concepts:</p> <ul style="list-style-type: none"> • Understanding quantities of numbers within 10. • Composing and decomposing numbers within 10.
<p>Knowledge: <i>Students will know...</i></p> <ul style="list-style-type: none"> • Put together and take apart models. 	<p>Skills: <i>Students will be able to do...</i></p> <ul style="list-style-type: none"> • Use knowledge of number combinations to fluently add and subtract within 5. • Represent addition and subtraction with multiple modalities. • Represent addition and subtraction word problems with objects or drawings.
<p>WIDA Standard: English Language Learners</p> <p>English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.</p> <p>English language learners would benefit from:</p> <ul style="list-style-type: none"> • Modeling addition and subtraction situations through dramatization, manipulatives and/ or pictures. • Teacher modeling how to write and addition and subtraction equations inserting the known values for the addends and sum in addition problems and the minuend, subtrahend, and difference in the subtraction problems. Students write an equation that represents the objects or a drawing in an addition or subtraction situation. 	

Academic Vocabulary:

Critical Terms:

Decompose
 Compose
 Addition
 Subtraction
 Word Problems
 Number
 Numeral
 Equation
 Represent
 Word Problems
 Take Apart
 Put together
 Represent
 Additions sign/plus sign
 Subtraction sign/minus sign

Supplemental Terms:

Modality

Assessment

Summative Assessments

Circle and Write
 Show Me a Combination
 Create a Number Story

Pre-Assessments

Formative Assessments

Self-Assessments

Five Finger Rhyme

Decomposing Numbers Within 5
 Domino Accept or Reject Within 5
 Counting Boxes Within 5
 Build a Number and Color
 Five Frames and Expressions Within 5
 Circle and Write
 Show Me a Combination
 Putting Together and Taking Apart
 Observation Checklist
 Equations Record Sheet
 Five Frame Build and Write
 Show Me 5

Desired Outcomes

Standard(s):

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

K.OA.1 Represent addition and subtractions with objects, fingers, mental images, drawings, sound (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5=2+3$ and $5=4+1$)

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

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 equation.

K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Transfer: *Students will apply...*

Number knowledge to solve addition and subtraction word problems, involving adding to, taking from, putting together and taking apart situations.

Understandings: *Students will understand that ...*

- Different combinations of numbers within 10 represent addition and subtraction.
- Word problems can be represented with objects or drawings.
- Equations can be built by decomposing numbers in more than one way.
- Quantities can be created using a variety of individual sets.

Essential Questions:

- Why should numbers be decomposed to form different combinations of a specific number?
- What is the connection of an equation to a number combination?
- How are word problems connected to number combinations?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

- * **1. Make sense of problems and persevere in solving them.** Students will make sense of real-world problems by representing the situations using manipulatives, pictures and equations.
- * **2. Reason abstractly and quantitatively.** Student’s reason about the value of the quantities they represent by making sure their visual models accurately represent the numerals and vice versa.
- 3. Construct viable arguments and critique the reasoning of others.** Students construct arguments regarding the accuracy of their representations and critique others’ reasoning when they consider whether they agree or disagree with their representations.
- * **4. Model with mathematics.** Students create visual models of the real-world problems using manipulatives and diagrams. They can also tell stories to represent numerical expressions or equations.
- 5. Use appropriate tools strategically.** Students will select appropriate tools to use when representing addition and subtraction situations.
- 6. Attend to precision.** Students count precisely when representing addition and subtraction situations and solving problems. They attend to the precise language in the problems to represent the situations and use precise language to describe the units.
- * **7. Look for and make use of structure.** Student’s exhibit understanding of this practice when they show that the number changes when they add or subtract, except for when adding or subtracting zero.
- 8. Look for and express regularity in repeated reasoning.** Students demonstrate repeated reasoning when they show that there are multiple combinations of numbers that equal the same number, and there are multiple strategies to solve addition and subtraction problems

Prerequisite Skills/Concepts:

- Use number combinations within 5 to add and subtract
- Understanding of cardinality
- Writing numbers within 20
- Represent word problems with objects or drawings

Advanced Skills/Concepts:

- Students can build word problems using all modalities
- Students can extend combinations of 10 to fluent addition/subtraction within 10

Knowledge: *Students will know...*

- Combinations of 10 using modalities
- Number combinations within 5

Skills: *Students will be able to ...*

- Use knowledge of number combinations to fluently add and subtraction within 5.
- Represent addition and subtraction word problems with multiple modalities within 10 (objects and drawings).

- Extend number combinations of 5 to combinations within 10 by using objects or drawings, and record the answer with a drawing or equation.

WIDA Standard: English Language Learners

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners would benefit from:

- Modeling addition and subtraction situations through dramatization, manipulatives and/or pictures.
- The teacher modeling how to write addition and subtraction equations plugging in the known values for the addends and sum in addition problems and the minuend, subtrahend, and difference in the subtraction problems.
- Writing an equation that represents the objects or drawings in an addition or subtraction situation.
- The teacher modeling how to fill a ten frame using manipulatives to find the number that makes ten when added to any number from 1 to 9.
- Students will have repeated practice using a ten frame and manipulatives to find the number that makes ten when added to any given number. Students will verbalize that _____ and _____ makes ten.
(number) (number)
- The teacher modeling how to write the equation that represents the ten frame situation.
- Students having repeated practice recording the ten frame situation with a drawing or an equation.

Academic Vocabulary:

Critical Terms:

Decompose
Compose
Addition
Subtraction
Word Problems
Number
Numeral
Equation
Represent

Supplemental Terms:

Modality

Assessment

Summative Assessments

Growing and Shrinking Word Problems
Fluency within 5 Observational Checklist
Leaps to Ten

Pre-Assessments

Formative Assessments

Self-Assessments

- Fluency within 5 Observational Checklist
- Ten Frame Equations 1
- Ten Frame Equations 2
- Show Me 10
- Appearing Dots
- Disappearing Dots
- Composing Numbers on the Number Line
- Story Problems with Counters and/or Bead Racks
- Story Problems with Number Line
- Story Problems with Ten Frame
- Roll Your Facts within 5
- Roll Your Facts within 10
- Ten Frames Match-Up
- Ten Frames Assessment
- Relating 5 and 10 Frames
- Ten Finger Rhyme
- Leaps to Ten

Desired Outcomes

Standard(s):

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

K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Know number names and the count sequence.

K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

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

K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

Routines:

Know number names and the count sequence.

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

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).

Centers:

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

K.OA.5 Fluently add and subtract within 5

Know number names and the count sequence.

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).

Transfer: *Students will apply...*

Knowledge of smaller numbers (combinations to 5, combinations to 10) and counting to 10 to decompose teen numbers as “ten and some more ones” by using objects or drawings, and recording each composition or decomposition by a drawing or equation.

Understandings: *Students will understand that ...*

- Teen numbers are composed of a group of ten and some more.

Essential Questions:

- How are teen numbers composed and decomposed?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. Make sense of problems and persevere in solving them.

*

2. Reason abstractly and quantitatively. Students decompose teen numbers into “ten and some more” to see context of base-ten notation.

3. Construct viable arguments and critique the reasoning of others. Students determine if representations accurately reflect the value of teen numbers. They justify their reasoning for representations using various tools.

*

4. Model with mathematics. Students decompose/compose numbers within twenty to see the structure of ten within teen numbers and the differences in numbers greater than nine.

5. Use appropriate tools strategically.

6. Attend to precision.

*

7. Look for and make use of structure. Students learn combinations to 5, combinations to 10 to build knowledge of structure in teen numbers.

8. Look for and express regularity in repeated reasoning.

<p>Prerequisite Skills/Concepts:</p> <p><i>Students should already be able to...</i></p> <ul style="list-style-type: none"> • Fluency in combinations to five. • Work with combinations to ten using modalities. • Word problems using objects or drawings as well as recording the answer with drawings or equations 	<p>Advanced Skills/Concepts:</p> <p><i>Some students may be ready to...</i></p> <ul style="list-style-type: none"> • Students will compose and decompose teen numbers using equations and explain the relationship of equations to the value of the numbers. • Students compose and decompose numbers using doubles and doubles +1.
<p>Knowledge: <i>Students will know...</i></p> <ul style="list-style-type: none"> • Number names for teen numbers 	<p>Skills: <i>Students will be able to do...</i></p> <ul style="list-style-type: none"> • Decompose/compose teen numbers into a group of ten and some ones, using modalities as well as numerical representation. (K.NBT.1) • Use objects/drawings to show how many tens and ones are in a number 11-19. (K.NBT.1) • Record compositions and decompositions using an equation. (K.NBT.1)
<p>WIDA Standard: English Language Learners</p> <p>English language learners communicate information, ideas, and concepts necessary for academic success in the content area of Mathematics.</p> <p>English language learners would benefit from:</p> <ul style="list-style-type: none"> • The teacher modeling how to fill two ten frames using manipulatives to compose and decompose numbers from eleven to nineteen. Students will repeatedly practice using a double ten frame and manipulatives to show that teen numbers are composed of tens and ones. Students will verbalize the number of tens and the number of ones for a given teen number. i.e. The number 18 is made up of 1 ten and 8 ones. 	

Academic Vocabulary:

Critical Terms:

Decompose
 Compose
 Teen number
 Number
 Numeral
 Equation
 Unit
 Leftover
 Remainder

Supplemental Terms:

Base-ten system
 Digit

Assessment

Summative Assessments

Pre-Assessments	Formative Assessments	Self-Assessments
Sequencing Numbers on the Number Line	Double Ten Frame Assessment Building a Teen Number on a Number Line Assessment Counting All Observational Checklist Counting On Observational Checklist	

Desired Outcomes

Standard(s):

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

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.

K.G.2 Correctly name shapes regardless of their orientations or overall size

Analyze, compare, create, and compose shapes.

K.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).

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

K.G.6 Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

Routines:**Know number names and the count sequence.**

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

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).

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

K.OA.5 Fluently add and subtract within 5

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

K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Know number names and the count sequence.

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).

Transfer: *Students will apply...*

- Knowledge of positional language to describe 2-dimensional shapes in the environment regardless of their size or orientation.
- Knowledge of 2-dimensional figures to identify them and describe their features in real-world situations.

Understandings: *Students will understand that ...*

- Two-dimensional shapes are flat.
- Attributes are used to compare and analyze shapes.
- Basic shapes are used to create more complex shapes.
- Two dimensional shapes can be built from components.
- The location of objects are described by using positional words

Essential Questions:

- What characteristics make a shape two-dimensional?
- How is mathematical language used to describe shapes?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

- * **1. Make sense of problems and persevere in solving them.**
- 2. Reason abstractly and quantitatively.** Students reason about the attributes of two-dimensional figures.
- 3. Construct viable arguments and critique the reasoning of others.**
- 4. Model with mathematics.** Students find flat shapes in their world and reconstruct the shapes using mathematical tools.
- 5. Use appropriate tools strategically.** Students will use tools to construct flat shapes and to compose composite figures using flat shapes.
- * **6. Attend to precision.** Students use informal language to describe flat shapes and will build complex shapes from simple shapes.
- 7. Look for and make use of structure.** Shapes do not change their name, regardless of orientation or size. A shape can come in a variety of sizes, but the name is not identified by its size.
- * **8. Look for and express regularity in repeated reasoning.** Students will analyze and compare two-dimensional shapes to discuss similarities and differences between them.

Prerequisite Skills/Concepts:

Students should already be able to:

- Use positional language (above, below, next to, behind, in front of, beside) to describe the location of objects.

Advanced Skills/Concepts:

Some students may be ready to:

- Students will apply knowledge of two-dimensional shapes to extend to three-dimensional shapes.

Knowledge: *Students will know...*

- Names of two-dimensional shapes (squares, circles, triangles, rectangles, hexagon)
- Defining attributes of flat shapes

Skills: *Students will be able to do...*

- Draw shapes (circle, square, rectangle, triangle, hexagon)
- Build two-dimensional shapes from smaller shapes.
- Analyze and compare two-dimensional shapes using informal language (e.g. number of sides and vertices/ "corners" or having sides of equal length).

WIDA Standard: (English Language Learners)

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners would benefit from:

- The teacher describing objects in the environment using the names of shapes and labeling the shape. Students look for another object that is the same shape as the one the teacher shared. Students verbalize the shape name.
- The teacher shows examples of a two-dimensional shape. Students look for additional examples of 2D shapes.
- The teacher shows another two-dimensional shape in a different size describing its similarities and differences to the original shape. Students analyze and compare two different sized shapes describing their parts (number of sides and vertices/"corners") and other attributes such as length of sides.
- Students draw shapes and build shapes from materials such as popsicle sticks.
- The teacher will then model how a larger shape can be composed of two smaller shapes. Students build a new larger shape using two or more simple shapes. Students verbalize the name of the smaller shapes that the larger shape is composed of.

Academic Vocabulary:

Critical Terms:

Square
Circle
Triangle
Rectangle
Hexagon
Attribute
Side
Length
Vertices

Supplemental Terms:

Orientation
Most
Least
Above
Below
Inside
Outside
Next to
Behind
In front of

Assessment

Summative Assessments

Find the Shape
Designing with Attributes Blocks

Pre-Assessments

Formative Assessments

Self-Assessments

Where Are My Shapes?
Graph the Shape
Shape Hunt
Model the 2-D Shapes
Find the Shapes

Desired Outcomes

Standard(s):

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

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.

K.G.2 Correctly name shapes regardless of their orientations or overall size.

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

Analyze, compare, create, and compose shapes.

K.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length)

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

K.G.6 Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

Routines:**Know number names and the count sequence.**

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

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).

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

K.OA.5 Fluently add and subtract within 5

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

K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Know number names and the count sequence.

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).

Transfer: *Students will apply...*

Knowledge of two-dimensional shapes to three-dimensional shapes to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

Modeling of shapes in the world by building shapes from components and drawing shapes.

Understandings: *Students will understand that ...*

- Three-dimensional shapes have unique attributes.
- Three-dimensional shapes have specific names regardless of their orientations or overall size.
- Shapes can be used to build pictures, designs and other shapes.
- Shapes can be built from components.

Essential Questions:

- What determines the difference between 2-dimensional and 3-dimensional shapes?
- Why is mathematical language critical when describing 2-dimensional and 3-dimensional shapes?

Highlighted Mathematical Practices: (Practices to be explicitly emphasized are indicated with an *.)

1. **Make sense of problems and persevere in solving them.**
2. **Reason abstractly and quantitatively.** Students reason about the attributes of 3-dimensional figures by counting faces, edges and corners.
- * 3. **Construct viable arguments and critique the reasoning of others.** Students construct arguments by defending the way they have sorted shapes, when sorting “flat” and “solid” figures. They critique each other’s reasoning when discussing if they agree or disagree with the way others have sorted.
4. **Model with mathematics.** Students use informal language to describe attributes of flat and solid shapes. Students will build complex shapes from simpler shapes using geometric tools. In addition, students study the shapes by composing them from 2-dimensional figures. They model when they can describe how real world objects have shapes or are composed of shapes.
5. **Use appropriate tools strategically.** Students will use their geometric figures and component parts to construct, describe and replicate 3-dimensional figures.
- * 6. **Attend to precision.** Students build geometric shapes from other size/orientation of shapes. They will use this knowledge to build a richer vocabulary to describe 3-dimensional shapes in their own words.
7. **Look for and make use of structure.** Students will examine the structure of 3-dimensional shapes and use the structure to discuss similarities and differences between the figures.
8. **Look for and express regularity in repeated reasoning.**

Prerequisite Skills/Concepts:

- Students will compose, analyze, and compare flat shapes to build descriptive knowledge of geometric attributes

Advanced Skills/Concepts:

- Students will determine defining attributes of 3-dimensional figures.

Knowledge: *Students will know...*

- Attributes of flat and solid shapes (K.G.4)

Skills: *Students will be able to do...*

<ul style="list-style-type: none"> Names of 2 and 3-dimensional shapes (K.G.2) 	<ul style="list-style-type: none"> Analyze and compare 2 and 3-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts, and other attributes. (K.G.4) Model shapes in the world by building shapes from components and drawing shapes. (K.G.5) 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) Identify shapes as “flat” or “solid.” (K.G.3)
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WIDA Standard: English Language Learners

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.

English language learners would benefit from:

- The teacher describing objects in the environment using the names of shapes and labeling the shape. Students looking for other objects that are the same shape as the one the teacher shared, verbalizing the shape name.
- The teacher identifying shapes as two-dimensional (flat) or three dimensional (solid) and showing examples of three-dimensional shapes. Students looking for additional examples of 3D shapes.
- The teacher showing three-dimensional shapes of different sizes and describing their similarities and differences. Students analyzing and comparing two different sized shapes describing their parts (number of sides and vertices/"corners") and other attributes such as length of sides.
- Students building shapes from materials such as clay.
- The teacher modeling how a larger shape can be composed of two smaller shapes and students building a larger shapes using two or more simple shapes. Students repeatedly verbalizing the names of the smaller shapes used to compose the larger shape.

Academic Vocabulary:

Critical Terms:

Attribute
Side
Length
Orientation
Square
Circle
Triangle
Rectangle
Hexagon
Cube
Cone
Cylinder
Sphere

Supplemental Terms:

Assessment

Summative Assessments

Shape Scavenger Hunt
Designing with Blocks

Pre-Assessments

Formative Assessments

Self-Assessments

Pull the Shape
Flat-Solid Shape Sort
Shape Comparison
Model the 3-D Shape