KINDERGARTEN

MATHEMATICS	KNOW	UNDERSTAND	DO
COMMON CORE STANDARDS	*(Factual)*	*(Conceptual)*	*(Procedural, Application, Extended Thinking)*
COUNTING & CARDINALITY			

	MATHEMATICS	KNOW	UNDERSTAND	DO
KNOW NUMBER NAMES AND THE COUNT SEQUENCE	**K.CC.1:** Count to 100 by ones and by tens.	The number-word sequence, combined with the order inherent in the natural numbers, can be used as a foundation for counting. The counting sequence by ones and tens.	Counting strategies can be used to determine the number of objects. Understand the relationship between numbers and quantities.	Count to 100 by ones and by tens.
	K.CC.2: Count forward beginning from a given number within the known sequence (instead of having to begin at 1).			Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
	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).	Ten different digits can be used and sequenced to express any whole number (In K, write numbers 0-20).	Connections to other Domains &/or Clusters:	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).
COUNT TO TELL THE NUMBER OF OBJECTS	**K.CC.4:** Understand the relationship between numbers and quantities; connect counting to cardinality.	The last number named when counting said tells the number of objects counted. (cardinality)	• Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	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.
	K.CC.4a: 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.	The number of objects is the same regardless of their arrangement or the order in which they were counted.	• 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.*	
	K.CC.4b: 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.	When comparing two sets of objects or numbers, the one with the largest quantity is more or smallest quantity is less.		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.
	K.CC.4c: Understand that each successive number name refers to a quantity that is one larger.		• Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	Understand that each successive number name refers to a quantity that is one larger.
	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.		• 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).	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.

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COMMON CORE STANDARDS		*(Factual)*	*(Conceptual)*	*(Procedural, Application, Extended Thinking)*
OPERATIONS AND ALGEBRAIC THINKING				
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.1	There are different ways to show addition and subtraction solutions.

Objects or drawings can be used to solve addition and subtraction word problems.

Record equations to represent addition or subtraction problems. | Understand addition as putting together and adding to.

Understand subtraction as taking apart and taking from.

Numbers can be decomposed into place value parts and represented in multiple ways. | |
| | **K.CC.7:** Compare two numbers between 1 and 10 presented as written numerals. | | | |
| UNDERSTANDING ADDITION | **K.OA.1:** Represent addition and subtraction with objects, fingers, mental images, drawings2, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. | Addition and subtraction facts to 5.

Quantities represented by numbers can be composed and decomposed into part-whole relationships (by place value up to 20 in K). | | Represent addition and subtraction with objects, fingers, mental images, drawings2, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. |
	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.			Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
	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).			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.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.			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.5: Fluently add and subtract within 5.			Fluently add and subtract within 5.

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NUMBER AND OPERATIONS BASE TEN			

| WORK WITH NUMBERS | **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. | Quantities represented by numbers can be composed and decomposed into part-whole relationships (by place value up to 20 in K). The base-ten number system allows for a new place-value unit by grouping ten of the previous place-value units (and this process can be iterated to obtain larger and larger place-value units). The value of a digit in a written numeral depends on its place, or position, in a number. Each composition or decomposition can be recorded by a drawing or equation (e.g., 18 = 10 + 8) | Teen numbers can be decomposed into place value parts and represented in multiple ways. | 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. |

| MEASUREMENT AND DATA | | | |

DESCRIBE AND COMPARE MEASUREABLE ATTRIBUTES	**K.MD.1:** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	Objects have different attributes that can be measured or compared.	Objects can be sorted/classified by their attributes. Objects can be described and compared by their attributes	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.			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	**K.MD.3:** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.3			Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.3

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MEASUREMENT AND DATA			

<table>
<tr><td rowspan="3">IDENTIFY AND DESCRIBE SHAPES</td><td>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.</td><td>A shape has the same name regardless of orientation or size.
Shapes have attributes that allow them to be analyzed and compared.
Shapes can be combined to form larger shapes.
2-D "lying flat"
3-D "solid"</td><td>Shapes can be described, compared, and sorted by their attributes.

Shapes can be joined together to make larger shapes.</td><td>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.</td></tr>
<tr><td>K.G.2: Correctly name shapes regardless of their orientations or overall size.</td><td rowspan="8">Connections to other Domains &/or Clusters:

Describe and compare measurable attributes.
1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. CC.K.MD.1
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. CC.K.MD.2
Classify objects and count the number of objects in each category.

3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.6 CC.K.MD.3
Count to tell the number of objects.
4. Understand the relationship between numbers and quantities; connect counting to cardinality. CC.K.CC.4
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. CC.K.CC.4a
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. CC.K.CC.4b
c. Understand that each successive number name refers to a quantity that is one larger. CC.K.CC.4c
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. CC.K.CC.5
Compare numbers.
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.7
7. Compare two numbers between 1 and 10 presented as written numerals. CC.K.CC.7</td><td>Correctly name shapes regardless of their orientations or overall size.</td></tr>
<tr><td>K.G.3: Identify shapes as two-dimensional (lying in a plane, "flat") or three- dimensional ("solid").</td><td>Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").</td></tr>
<tr><td rowspan="6">ANALYZE, COMPARE, CREATE, AND COMPOSE SHAPES</td><td>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).</td><td>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).</td></tr>
<tr><td>K.G.5: Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.</td><td>Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.</td></tr>
<tr><td>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?"</td><td>Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"</td></tr>
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