

## Kindergarten – Counting and Cardinality

### **Essential Questions:**

1. Why do we use numbers, what are their properties, and how does our number system function?
2. Why do we use estimation and when is it appropriate?
3. What makes a strategy effective and efficient and the solution reasonable?
4. How do numbers relate and compare to one another?

**Essential Vocabulary** – rote, counting on, object, strategy, how many, greater than, less than, or equal to, compare, groups, matching, numeral

We want students to understand that all numbers have value, uses, types, and we use operations and reasonableness to work with them.

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

### **Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. Number names</li> <li>2. What a rote number sequence is</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. That patterns of numbers help when counting.</li> <li>2. That there are different ways to count (by ones, tens).</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Count starting at 1 and going to 100.</li> <li>2. Count by tens on the decade (10, 20, 30, 40...).</li> <li>3. Use number names and the count sequence.</li> </ol>
--	---	--

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

### **Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. Number names</li> <li>2. What a rote number sequence is</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. Pattern of numbers</li> <li>2. Counting</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Begin a rote forward counting sequence from a number other than 1.</li> <li>2. Use number names and the count sequence.</li> </ol>
--	--	--

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

### **Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. Number names</li> <li>2. Numerals represent a quantity of objects.</li> <li>3. How to read a numeral</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. Written numbers represent an amount.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Write numbers to describe the amount of a set of objects</li> <li>2. Represent a set of objects with a written numeral. The number of objects should not be greater than 20</li> <li>3. Use number names and the count sequence.</li> </ol>
---	---	---

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

**Grade K Enduring Understandings**

<b><i>Students will know...</i></b> 1. Number names 2. What a rote number sequence is 3. Each number is matched to an object.	<b><i>Students will understand...</i></b> 1. The last number name said tells the number of objects counted. 2. The number of objects is the same regardless of their arrangement or the order in which they were counted. 3. That each successive number name refers to a quantity that is one larger.	<b><i>Students will be able to...</i></b> 1. Count objects, saying the names in the standard order, pairing each object with one and only one number name and each number with one and only one object. (one-to one correspondence).
--	---	---

**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 from a variety of cultural contexts, including those of Montana Native American Indians.

**Grade K Enduring Understandings**

<b><i>Students will know...</i></b> 1. Number names 2. What a rote number sequence is 3. Each number is matched to an object. 4. How many?	<b><i>Students will understand...</i></b> 1. That the number of objects stays the same no matter the arrangement.	<b><i>Students will be able to...</i></b> 1. Count 1-20 to tell the number of objects in a variety of arrangements.
--	--	--

**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

**Grade K Enduring Understandings**

<b><i>Students will know...</i></b> 1. greater than, less than, or equal to 2. how to count	<b><i>Students will understand...</i></b> 1. That groups of objects can be compared to one another to determine whether they are greater than, less than, or equal to each other.	<b><i>Students will be able to...</i></b> 1. Compare numbers 2. Use matching and counting strategies to compare groups of objects.
---	--	--

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

**Grade K Enduring Understandings**

<b><i>Students will know...</i></b> 1. greater than, less than, or equal to 2. how to count 3. the value of the numeral	<b><i>Students will understand...</i></b> 1. That numerals can be compared to one another to determine whether they are greater than, less than, or equal to each other.	<b><i>Students will be able to...</i></b> 1. Compare numerals 1-10 2. Apply their understanding of numerals 1-10 to compare one to another.
--	---	---

## Kindergarten – Geometry

### **Essential Questions:**

1. Why are geometry and geometric figures relevant and important?
2. How can geometric ideas be communicated using a variety of representations?  
\*\*\*\*\* (i.e. maps, grids, charts, spreadsheets)
3. How can geometry be used to solve problems about real-world situations, spatial relationships, and logical reasoning?

**Essential Vocabulary** – above, below, beside, in front of, behind, and next to, shapes, circle, square, rectangle, triangle, oval, rhombus(diamond), sphere, pyramid, rectangular prism, cube, cone, cylinder

We want students to understand that geometry is all around us in 2D or 3D figures. Geometric figures have certain properties and can be transformed, compared, measured and represented.

**K.G.1** - Describe objects, including those of Montana American Indians, in the environment using shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind, and next to*.

### **Grade K Enduring Understandings**

**Students will know...**

1. Positional words

**Students will understand...**

1. That all objects have a position in space related to one another.

**Students will be able to...**

1. Identify and describe shapes.
2. Use positional words to describe objects in the environment.

**K.G.2** - Correctly name shapes regardless of their orientation or overall size.

### **Grade K Enduring Understandings**

**Students will know...**

1. Names and attributes of shapes

**Students will understand...**

1. That a shape has the same name regardless of its orientation and size. (An upside down triangle is still a triangle.)

**Students will be able to...**

1. Identify and describe shapes.
2. Identify shapes based on particular geometric attributes that define a shape. (Triangles have 3 sides and 3 vertices)

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

### **Grade K Enduring Understandings**

**Students will know...**

1. Names and attributes of shapes and solids.

**Students will understand...**

1. That shapes can be 2-dimensional (flat,

**Students will be able to...**

1. Identify and define shapes.

	lying in a plane) or 3-dimensional (solid).	<ol style="list-style-type: none"> <li>Identify flat objects (2-dimensional).</li> <li>Identify solid objects (3-dimensional).</li> </ol>
<p><b>K.G.4:</b> Analyze and compare 2- and 3-dimensional shapes, in different sizes and orientations, using informational language to describe their similarities, differences, parts (e.g. number of sides and vertices) and other attributes (e.g. having sides of equal length).</p>		
<p><b>Grade K Enduring Understandings</b></p>		
<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>Names and attributes of shapes and solids.</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>How 2D and 3D shapes compare to each other.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>Analyze, compare, create, and compose shapes.</li> <li>Note similarities and differences between and among 2D and 3D shapes using informal language.</li> </ol>
<p><b>K.G.5:</b> Model shapes, including those from a variety of cultural contexts, including those of Montana American Indians, in the world by building shapes from the components (e.g. sticks and clay balls) and drawing shapes.</p>		
<p><b>Grade K Enduring Understandings</b></p>		
<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>Names and attributes of shapes and solids.</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>How the components of a shape are used to create that shape.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>Analyze, compare, create, and compose shapes.</li> <li>Apply their understanding of geometric attributes of shapes in order to create given shapes.</li> <li>Recall various attributes in order to create a particular shape.</li> </ol>
<p><b>K.G.6:</b> Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”</p>		
<p><b>Grade K Enduring Understandings</b></p>		
<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>Names and attributes of shapes and solids.</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>How the components of one shape can be used to create another shape.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>Analyze, compare, create, and compose shapes.</li> <li>Apply their understanding of geometric attributes of shapes in order to create given shapes.</li> <li>Manipulate 2 or more shapes to create a new shape.</li> </ol>

## Kindergarten – Measurement

**Essential Questions:**

1. How does estimation help you find a reasonable measurement?
2. How do you determine the tool and unit to help you accurately measure?
3. When do you need to measure?

**Essential Vocabulary** – heavy, light, short, long, weight, compare, match, measure, length, height

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

**Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. Length is linear</li> <li>2. The length and/or height of two objects can be compared.</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. That objects need to be matched up in order to accurately compare them.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Directly compare two objects when placed next to each other or lined up.</li> </ol>
--	--	---

**K.MD.2** - Directly compare to 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.

**Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. Names and attributes of shapes</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. That a shape has the same name regardless of its orientation and size. (An upside down triangle is still a triangle.)</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Identify and describe shapes.</li> <li>2. Identify shapes based on particular geometric attributes that define a shape. (Triangles have 3 sides and 3 vertices)</li> </ol>
---	--	--

**K.MD.3** - Classify objects from a variety of cultural contexts, including objects of Montana American Indians, or people into given categories into given categories; count the number of objects in each category and sort the categories by count.(Note: Limit category counts to be less than or equal to 10)

**Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. That objects can be sorted based on similarities and differences.</li> <li>2. How to count objects in a set.</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. How to classify objects and count the number of objects in each category.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Identify similarities and differences between objects (size, color, shape).</li> <li>2. Use the identified attributes to sort a collection of objects.</li> <li>3. Count the number of objects in each set.</li> </ol>
---	--	--

## Kindergarten – Number Sense Base Ten

### **Essential Questions:**

1. Why do we use numbers, what are their properties, and how does our number system function?
2. Why do we use estimation and when is it appropriate?
3. What makes a strategy effective and efficient and the solution reasonable?
4. How do numbers relate and compare to one another?

**Essential Vocabulary** – tens, ones, separate

**K.NBT.1** - Compose and decompose numbers from 11-19 into ten ones and some further ones, eg, by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as  $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and 1,2,3,4,5,6,7,8, or 9 ones.

### **Grade K Enduring Understandings**

#### ***Students will know...***

1. A group of ten ones is a “ten”.
2. Numbers in the teens are a set of “ten” and more.

#### ***Students will understand...***

1. That numbers 11-19 are made up of one “ten” and a set of leftover ones.

#### ***Students will be able to...***

1. Separate a set of 11-19 objects into a group of ten objects with leftovers. ( $12 = 1$  ten and two ones)

## Kindergarten - Algebraic Thinking

**Essential Questions:**

1. How do you use patterns to understand mathematics and model situations?
2. What is algebra?
3. How are the horizontal and vertical axes related?
4. How do algebraic representations relate and compare to one another?
5. How can we communicate and generalize algebraic relationships?

**Essential Vocabulary:** addition, subtraction, plus, minus, more, less, add, take away, sum

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

**Grade K Enduring Understandings**

*Students will know...*

1. That objects can be joined (addition) and separated (subtraction) by representing addition and subtraction situations in various ways.

*Students will understand...*

1. The concept of addition and subtraction, rather than merely reading and solving addition and subtraction number sentences (equations).

*Students will be able to...*

1. Solve an addition or subtraction problem using a variety of strategies (manipulatives, drawings, etc.).

**KOA.2 -** Solve addition and subtraction word problems from a variety of cultural contexts, including those Montana American Indians, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

**Grade K Enduring Understandings**

*Students will know...*

1. That objects can be joined (addition) and separated (subtraction) by representing addition and subtraction situations in various ways.
2. There are three types of problems: result unknown, change unknown, start unknown.

*Students will understand...*

1. The concept of addition and subtraction to 10, rather than merely reading and solving addition and subtraction number sentences (equations).

*Students will be able to...*

1. Solve problems that are presented in a story format (context) with a specific emphasis on using objects or drawings to determine the solution.
2. Build upon their understanding from KOA1 to solve problems.

**KOA.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.,  $5=2+3$ ,  $5=4+1$ ).

**Grade K Enduring Understandings**

*Students will know...*

*Students will understand...*

*Students will be able to...*

<ol style="list-style-type: none"> <li>1. That objects can be broken into two sets and still have the same total amount.</li> <li>2. That a set of objects can be broken in multiple ways (e.g., 5 can be 3 and 2 or 4 and 1).</li> </ol>	<ol style="list-style-type: none"> <li>1. When breaking apart a set (decomposing) that a smaller set of objects exists within the larger set (inclusion).</li> </ol>	<ol style="list-style-type: none"> <li>1. Break apart a set of objects into two sets ( 5 can be 3 and 2).</li> <li>2. Break apart a set into multiple smaller sets ( e.g., 5 can be 3 and 2 or 4 and 1).</li> </ol>
---	--	---

**KOA.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.

**Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. That objects can be broken into two sets and still have the same total amount.</li> <li>2. That a set of objects can be broken in multiple ways (e.g., 5 can be 3 and 2 or 4 and 1).</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. That a number can be decomposed into parts (KOA3) by finding a missing part of 10.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Use a variety of strategies to find the missing number when presented with a problem.</li> </ol>
---	---	--

**KOA.5 - Fluently add and subtract within 5.**

**Grade K Enduring Understandings**

<p><i>Students will know...</i></p> <ol style="list-style-type: none"> <li>1. That objects can be broken into two sets and still have the same total amount.</li> <li>2. That a set of objects can be broken in multiple ways (e.g., 5 can be 3 and 2 or 4 and 1).</li> </ol>	<p><i>Students will understand...</i></p> <ol style="list-style-type: none"> <li>1. That there are a variety of ways to represent numbers up to 5.</li> </ol>	<p><i>Students will be able to...</i></p> <ol style="list-style-type: none"> <li>1. Accurately, efficiently, and flexibly add and subtract within 5.</li> </ol>
---	---	---