| **Unit 1** | **Unit 2** | **Unit 3** | **Unit 4** | **Unit 5** | **Unit 6** |
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| **Classify and Count Numbers to 10** | **Identify and Describe Shapes** | **Comparison with Length, Weight, and Numbers to 10** | **Number Pairs, Addition and Subtraction of Numbers to 10** | **Numbers 10-20, Counting to 100 by 1 and 10** | **Analyze, Compare, Create, and Compose Shapes** |
| **8 weeks** | **2 weeks** | **8 weeks** | **9 weeks** | **7 weeks** | **2 weeks** |
| K.CC.A.1 | K.G.A.1 | K.CC.C.6 | K.OA.A.1 | K.CC.A.1 | K.G.B.4 |
| K.CC.A.2 | K.G.A.2 | K.CC.C.7 | K.OA.A.2 | K.CC.A.2 | K.G.B.5 |
| K.CC.A.3 | K.G.A.3 | K.MD.A.1 | K.OA.A.3 | K.CC.A.3 | K.G.B.6 |
| K.CC.B.4 |  | K.MD.A.2 | K.OA.A.4 | K.CC.B.4 |  |
| K.CC.B.5 |  | K.MD.B.3 | K.OA.A.5 | K.CC.B.5 |  |
| K.MD.B.3 |  |  |  | K.NBT.A.1 |  |
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| **Major Clusters** | | **Supporting Clusters** | | **Additional Clusters** | |
| **CC** – Counting and Cardinality  (1, 2, 3, 4, 5, 6, 7)  **OA** – Operations and Algebraic Thinking  (1, 2, 3, 4, 5)  **NBT** – Number and Operations in Base Ten  (1) | | **MD** – Measurement and Data  (3) | | **MD** – Measurement and Data  (1, 2)  **G** – Geometry  (1, 2, 3, 4, 5, 6) | |

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| **Summary of Year for Kindergarten Mathematics** |
| In kindergarten, students should be given the opportunity for focused learning experiences in two critical areas:  (1) representing, relating, and operating on whole numbers, initially with sets of objects; and  (2) describing shapes and space.  More learning time should be devoted to number than to any other topics. Students will begin the year by solidifying the meaning of numbers to 10. Much of the year is devoted to understanding the cardinality of numbers up to 10 and the relationships to 10. Towards the end of the year, students build upon the solid understanding of numbers to 10 and work with numbers from 10-20. |
| **Standards Clarification for Kindergarten Mathematics** |
| Some standards are included in multiple units to provide students with multiple opportunities to engage with the content. In the tables that follow, suggested focus areas and possible benchmarks for repeated standards are identified in the column labeled Standards Clarification. |
| **Fluency Requirements for Kindergarten Mathematics** |
| K.OA.A.5  Fluently add and subtract within 5. |

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| **Unit 1: Classify and Count Numbers to 10** | **Possible time frame**:  8 weeks |
| Kindergarten starts out realistically with solidifying the meaning of numbers to 10 with a focus on relationships to 5. Students will investigate growth and shrinking patterns to 10 of “1 more” and “1 less” using models. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Know number names and the count sequence.**  **K.CC.A.1** Count to 100 by ones and by tens.  **K.CC.A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).  **K.CC.A.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).  **Count to tell the number of objects.**  **K.CC.B.4** Understand the relationship between numbers and quantities; connect counting to cardinality.   1. 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. 2. 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. 3. Understand that each successive number name refers to a quantity that is one larger.   **K.CC.B.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. | Limit counts to 10 for all standards.  Students are not expected to recognize the number words, only numerals. Reading and writing the number words are reserved for 2nd grade when they are more developmentally appropriate. |
| **Supporting Cluster Standards** | **Standards Clarification** |
| **Classify objects and count the number of objects in each category.**  **K.MD.B.3** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. | **K.MD.B.3** Limit category counts to be less than or equal to 10. |

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| **Unit 2: Identify and Describe Shapes** | **Possible time frame**:  2 weeks |
| Students learn to identify and describe squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres. Students will also practice their fluency with numbers to 10. | |
| **Additional Cluster Standards** | **Standards Clarification** |
| **Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**  **K.G.A.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.A.2** Correctly name shapes regardless of their orientations or overall size.  **K.G.A.3** Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”). |  |

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| **Unit 3: Comparison with Length, Weight, and Numbers to 10** | **Possible time frame**:  8 weeks |
| Students begin to experiment with measurement, particularly with units and comparison of units. Students use different units to measure length, weight and capacity, and explore the measurable attributes of an object. Comparison begins with developing the meaning of the phrases “greater than”, “less than,” “taller than,” “shorter than,” “heavier than,” “longer than,” etc. Comparing numbers provides an opportunity to study how numbers relate to one another in order to set the foundation for addition and subtraction concepts in future units. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **K.CC.C.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.  **K.CC.C.7** Compare two numbers between 1 and 10 presented as written numerals. | **k.cc.c.6** Include groups with up to ten objects. |
| **Supporting Cluster Standards** | **Standards Clarification** |
| **Classify objects and count the number of objects in each category.**  **K.MD.B.3** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. | **K.MD.B.3** Limit category counts to be less than or equal to 10. |
| **Additional Cluster Standards** | **Standards Clarification** |
| **Describe and compare measurable attributes.[[1]](#footnote-1)**  **K.MD.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.  **K.MD.A.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.* |  |

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| **Unit 4: Number Pairs, Addition and Subtraction of Numbers to 10** | **Possible time frame**:  9 weeks |
| Students formally begin working on the concepts of addition and subtraction with numbers to 10. Students will work the following types of addition and subtraction situations: Add To with Result Unknown; Take From with Result Unknown; and Put Together/Take Apart with Total Unknown and Both Addends Unknown. [[2]](#footnote-2) Students begin to build fluency with addition and subtraction within 5 (which should become ongoing practice throughout the remainder of the year). Students will also learn the importance of 10 as a benchmark number by finding the number that makes 10 when added to a given number. Students should use manipulatives, drawings, etc. to model the addition and subtraction situations. Students are encouraged to record their work with equations, but this is not a requirement for kindergarten. | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**  **K.OA.A.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.A.2** 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.A.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.A.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.A.5** Fluently add and subtract within 5. | **K.OA.A.1** Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) |

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| **Unit 5: Numbers 10-20, Counting to 100 by 1 and 10** | **Possible time frame**:  7 weeks |
| After students have gained a firm foundation in numbers to 10, students progress toward exploring numbers 10-20. They begin to see that the numbers 11-19 are “10 ones and some more ones.” Applying their understanding of comparisons from Unit 3, students also understand relationships such as “12 is 2 more than 10.” | |
| **Major Cluster Standards** | **Standards Clarification** |
| **Know number names and the count sequence.**  **K.CC.A.1** Count to 100 by ones and by tens.  **K.CC.A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).  **K.CC.A.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).  **Count to tell the number of objects.**  **K.CC.B.4** Understand the relationship between numbers and quantities; connect counting to cardinality.   1. 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. 2. 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. 3. Understand that each successive number name refers to a quantity that is one larger.   **K.CC.B.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.  **Work with numbers 11–19 to gain foundations for place value.**  **K.NBT.A.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. | Students are not expected to recognize the number words, only numerals. Reading and writing the number words are reserved for 2nd grade when they are more developmentally appropriate.  **K.CC.A.1** When counting to 100, the expectation is rote counting, orally; knowing the count sequence. |

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| **Unit 6: Analyze, Compare, Create, and Compose Shapes** | **Possible time frame**:  2 weeks |
| In this final unit, students work with different shapes to explore area concepts. Students will discover that they can build larger shapes from smaller shapes and break larger shapes down into smaller shapes. This will set the foundation for work in future years. | |
| **Additional Cluster Standards** | **Standards Clarification** |
| **Analyze, compare, create, and compose shapes.**  **K.G.B.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.B.5** Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.  **K.G.B.6** Compose simple shapes to form larger shapes. *For example, “Can you join these two triangles with full sides touching to make a rectangle?”* |  |

1. For more information about measurable attributes, see the [Geometric Measurement](http://math.arizona.edu/~ime/progressions/) progression document, pages 6-7. [↑](#footnote-ref-1)
2. For more information on these problem situations, see the [Operations and Algebraic Thinking](http://math.arizona.edu/~ime/progressions/) progression document, page 8-11. [↑](#footnote-ref-2)