Investigations Math Scope and Sequence

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| **Unit 1:** Who is in School: Classroom Routines and Materials | 18 sessions/21 days | August 31 – September 29 |
| **Standards*** Count to 100 by ones and by tens. K.CC.A.1
* 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). K.CC.A.3
* Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.B.4
	+ 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.B.4.A
	+ 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.B.4.B
* Understand that each successive number name refers to a quantity that is one larger. K.CC.B.4.C
* 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. K.CC.B.5
* Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.B.3
* 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.1
* Correctly name shapes regardless of their orientations or overall size. K.G.A.2
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| Unit Overview:This unit introduces the processes, structures, and materials that are important features of the kindergarten math curriculum. It also introduces routines, common to many kindergarten classrooms that students will encounter regularly throughout the year. These routines include taking attendance, using the calendar to count and to keep track of time and events, counting sets of objects, and collecting and discussing data about the class. They offer reinforcement of number concepts that are central to the kindergarten curriculum. | Assessed Benchmarks:N/A |

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| **Unit 2:** Counting and Comparing: Measurement and the Number System 1 | 24 sessions/27 days | Sept. 30 – Nov. 10 |
| **Standards*** Count to 100 by ones and by tens. K.CC.A.1
* 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). K.CC.A.3
* Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.B.4
* 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.B.4.A
* 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.B.4.B
* Understand that each successive number name refers to a quantity that is one larger. K.CC.B.4.C
* 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. K.CC.B.5
* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. K.CC.C.6
* Compare two numbers between 1 and 10 presented as written numerals. K.CC.C.7
* Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. K.MD.A.1
* 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.MD.A.2
* Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.B.3
* 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.1
* Correctly name shapes regardless of their orientations or overall size. K.G.A.2
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| Unit Overview:Students explore numbers through a variety of counting activities. They build knowledge of the counting sequence, use numerals to represent quantities, represent equivalent amounts, and develop skills for accurate counting. They also begin to compare quantities. As an introduction to linear measurement, students measure and compare the lengths of objects using direct comparison. | Assessed Benchmarks: * Count a set of up to 10 objects
* Decide which of two objects is longer
* Compare two quantities up to 10 to see which is greater
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| **Unit3:** What Comes Next? Patterns and Functions | 22 sessions/ 30 days | November 11 – Jan. 4 |
| **Standards*** Count to 100 by ones and by tens. K.CC.A.1
* Count forward beginning from a given number within the known sequence (instead of having to begin at 1). K.CC.A.2
* Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.B.4
* 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.B.4.A
* 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.B.4.B
* Understand that each successive number name refers to a quantity that is one larger. K.CC.B.4.C
* 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. K.CC.B.5
* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. K.CC.C.6
* Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.B.3
* 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.1
* Correctly name shapes regardless of their orientations or overall size. K.G.A.2
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| Unit Overview:In this unit, students investigate what makes a repeating pattern. They focus on attributes of objects and think about which attributes (i.e., size, color, shape, and orientation) are important in the patterns they are making. Students work with simple and complex repeating patterns. They have many opportunities to copy, create, and extend repeating patterns using a variety of materials and common objects. They use patterns to determine what comes next and focus on the part, or unit, of a pattern that repeats. | Assessed Benchmarks:* Copy, construct, and extend simple repeating patterns, such as AB, ABC
* Begin to identify the unit of a repeating pattern
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| **Unit 4:** Measuring and Counting: Measurement and the Number System 2 | 26 sessions/ 29 days | January 5 – February 17 |
| **Standards*** Count to 100 by ones and by tens. K.CC.A.1
* 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). K.CC.A.3
* Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.B.4
* 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.B.4.A
* 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.B.4.B
* Understand that each successive number name refers to a quantity that is one larger. K.CC.B.4.C
* 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. K.CC.B.5
* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. K.CC.C.6
* Compare two numbers between 1 and 10 presented as written numerals. K.CC.C.7
* Represent addition and subtraction with objects, fingers, mental images, drawings1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. K.OA.A.1
* 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.2
* 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.3
* 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.4
* Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. K.MD.A.1
* 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.MD.A.2
* Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.B.3
* 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.1
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| Unit Overview:Students gain a deeper understanding of numbers and number relationships as they engage in activities in which they count, combine, and compare amounts. They develop visual images of numbers and solve problems in which they find different combinations of the same number. Students are introduced to addition and subtraction situations through story problem contexts. Work with linear measurement continues as students use nonstandard units to measure the length of objects and paths. | Assessed Benchmarks:* Measure the length of an object by lining up multiple units
* Count a set of up to 15 objects
* Figure out what is one more or one fewer than a number
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| **Unit 5: Make a Shape, Build a Block: 2-D and 3-D Geometry** | 20 sessions/ 23 days | February 18 –March 22 |
| **Standards*** Count to 100 by ones and by tens. K.CC.A.1
* Count forward beginning from a given number within the known sequence (instead of having to begin at 1). K.CC.A.2
* Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.B.4
* 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.B.4.A
* 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.B.4.B
* Understand that each successive number name refers to a quantity that is one larger. K.CC.B.4.C
* 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. K.CC.B.5
* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. K.CC.C.6
* Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.B.3
* 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.1
* Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). K.G.A.3
* 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.4
* Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. K.G.B.5
* Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?" K.G.B.6
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| Unit Overview:Students explore geometry using a variety of materials, including Geoblocks, pattern blocks, interlocking cubes and geoboards. They describe, sort and compose and decompose two and three-dimensional shapes. They think about shapes in their environment and match two-dimensional shapes to three dimensional objects. The *Shapes* software is introduced as a tool for extending and deepening this work. This tool is designed for k-2 student to explore how different shapes go together, experiment with different sorts of geometric transformations (rotations, translation, reflection), explore patterning, and investigate symmetry.  | Assessed Benchmarks: * Describe the overall size, shape, function, and/or features of familiar 2-D and 3-D shapes
* Construct 2-D and 3-D shapes
* Make 2-D and 3-D shapes by combining shapes
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| **Unit 6:** How Many Do You Have? Addition, Subtraction, and the Number System | 26 sessions/ 28 days | March 23 – May 11 |
| **Standards*** Count to 100 by ones and by tens. K.CC.A.1
* Count forward beginning from a given number within the known sequence (instead of having to begin at 1). K.CC.A.2
* 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). K.CC.A.3
* Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.B.4
* 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.B.4.A
* 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.B.4.B
* Understand that each successive number name refers to a quantity that is one larger. K.CC.B.4.C
* 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. K.CC.B.5
* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. K.CC.C.6
* Compare two numbers between 1 and 10 presented as written numerals. K.CC.C.7
* Represent addition and subtraction with objects, fingers, mental images, drawings1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. K.OA.A.1
* 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.2
* 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.3
* 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.4
* Fluently add and subtract within 5. K.OA.A.5
* 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 (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. K.NBT.A.1
* Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. K.MD.A.1
* Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.B.3
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| Unit Overview:Students continue to work with counting and number composition as they count sets of objects and find multiple combinations of the same number as they decompose numbers to 10. They use numbers and notation to describe arrangements of tiles and number combinations. Students continue to develop an understanding of the operations of addition and subtraction as they act out, model, solve story problems, and play games that involve combining or separating small amounts. | Assessed Benchmarks: * Write the numbers up to 10
* Count a set of up to 20 objects
* Combine two small quantities
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| **Unit7:** Sorting and Surveys: Data Analysis | 17 sessions/ 20 days | May 12 – June 9 |
| **Standards*** Count to 100 by ones and by tens. K.CC.A.1
* Count forward beginning from a given number within the known sequence (instead of having to begin at 1). K.CC.A.2
* Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.B.4
* 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.B.4.A
* 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.B.4.B
* Understand that each successive number name refers to a quantity that is one larger. K.CC.B.4.C
* 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. K.CC.B.5
* Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. K.CC.C.6
* Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.B.3
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| Unit Overview:This unit develops ideas about sorting and classifying, counting, representing, conducting a data investigation, and using data to solve a problem. In this unit, students sort objects according to common attributes, as well as sort data about their class. They collect, record, and represent categorical and numerical data about their class, and they carry out their own data investigation by collecting responses to their own survey questions. | Assessed Benchmarks:* Represent a set of data
* Use data to solve a problem
* Sort a set of objects according to their attributes
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