

Grade K Mathematics Curriculum Guide

Grade Level/Course Title: Grade K	Trimester 1	Academic Year: 2014-2015
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Grade Level Mathematics Focus:
 In Kindergarten, instructional time should focus on 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 in Kindergarten should be devoted to number than to other topics.

Essential Questions for this Unit:

1. How can students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as $5 + 2 = 7$ and $7 - 2 = 5$? (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.)
2. How can students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away?

Unit (Time)	Standard	Standard Description	Content	Resources
(Aug.-Oct.)	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. 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.	<ul style="list-style-type: none"> • One-to-one correspondence • Subitizing (recognizing the number of objects in small quantities without counting one by one) • Decomposition (breaking sets of objects into smaller sets) • Represent small whole number quantities on an open number line • Represent quantities on a ten-frame 	<p><u>Whole Number Concepts and Counting (20 days)</u></p> <p>Use throughout Unit 1: Subitizing [L] Decomposition [L] Bar Models [L] Number Lines [L] Ten Frames [L] Ten Frames [GMR] Side-by-side [L] Number Match [L] Number Books [CP] Book [L] Number Books [L] Complements for Numbers to Ten</p>
(Approx. 50 days)	K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).		Lesson 1.3: Multisensory Counts (use as a routine) Lesson 1.4: Countdown to Zero Lesson 1.5: Getting to Know Numbers 1–9 (use as a routine) Lesson 1.8: Birthday Graphs (use throughout year) Lesson 1.12: Give the Next Number Game Lesson 1.14: Finger Count Fun Lesson 2.4: Spin a Number Game Lesson 2.6: Playful Oral Counting Games

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Essential Questions for this Unit: 1. How can students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as $5 + 2 = 7$ and $7 - 2 = 5$? (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) 2. How can students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away?				
Unit (Time)	Standard	Standard Description	Content	Resources
Unit 1: (Continued) Whole Numbers	(Aug.-Oct.) K.CC.1	Count to 100 by ones and by tens.	<ul style="list-style-type: none"> • Compare whole number sets to determine more, less, or equal • Concept of tens and ones as a foundation for place value 	<p style="text-align: center;"><u>Compare Numbers (10 days)</u></p> <p>Comparing Sets and Numbers [L] Use throughout Unit 1: Decomposition [L] Bar Models [L] Number Lines [L] Ten Frames [L] Ten Frames [GMR] Side-by-side [L] Number Match [L] Complements for Numbers to Ten</p> <p style="text-align: center;"><u>Introduction to Teen Numbers (5 days; See also End of Trimester 2)</u></p> <p>Lesson 2.10: Tricky Teens Lesson 3.3: Roll and Record (weekly) Lesson 3.8: Pocket Problems Lesson 3.9: Number Card Games Lesson 3.13: Train Games Lesson 3.15: Count by Tens Lesson 3.16: Teen Frame Game Working with Teens [L]</p> <p>BENCHMARK 1 (Unit 1)</p>
	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.		
	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.		
	K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.		
(Approx. 50 days)	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.		

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Grade Level/Course Title: Grade K		Trimester 2		Academic Year: 2014-2015	
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Essential Questions for this Unit:					
1. How can students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as $5 + 2 = 7$ and $7 - 2 = 5$? (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) 2. How can students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away?					
Unit (Time)	Standard	Standard Description	Content	Resources	
Unit 2: Addition and Subtraction Concepts (Approx. 60 days)	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.	<ul style="list-style-type: none"> • Decompose numbers to add and subtract in multiple ways • Represent adding and subtracting on an open number line • Represent adding and subtracting using bar models • Represent adding and subtracting using ten frames 	<p style="text-align: center;"><u>Connect Counting to Addition and Subtraction (35 days)</u></p> <p>Fluency to Five (or Ten) [L]</p> Lesson 4.1: Number Line Mathematics Lesson 4.4: The Addition Symbol (+) Lesson 4.11: The Subtraction Symbol (-) Lesson 4.2: Top-It Card Games Lesson 4.5: Follow My Pattern Lesson 4.6: Interrupted Counts Lesson 4.8: Roll and Record With Two Dice Lesson 4.15: Number Stories: Stage 2 Lesson 4.16: Two-Digit Numbers Lesson 5.4: Guess My Number Game Lesson 5.9: Intro of Tally Marks Lesson 5.15: Intro to the Number Grid Lesson 5.16: Number Grid Search Grid Lesson 6.9: Comparison Number Stories Lesson 6.12: Read My Mind Game	
	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.			
	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.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.5	Fluently add and subtract within 5.			

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Unit (Time)	Standard	Standard Description	Content	Resources
(Nov.-March) Unit 2: (Continued) Addition and Subtraction Concepts (Approx. 60 days)	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.	<ul style="list-style-type: none"> Decompose numbers to add and subtract in multiple ways Represent adding and subtracting on an open number line Represent adding and subtracting using bar models 	<p>More Addition and Subtraction (25 days)</p> <p>Tackling the Terrific Teens [L]</p> <p>Fluency to Five (or Ten) [L]</p> <p>Lesson 7.2: Counting Object: Writing Number Models for Number Stories</p> <p>Lesson 7.3: Creating Number Stories</p> <p>Lesson 7.6: Dice Addition Games</p> <p>Lesson 7.7: Counting Forward and Backward</p> <p>Lesson 7.9: Exploring Equivalent Names for Numbers</p> <p>Lesson 7.10: Number Scrolls</p> <p>Lesson 7.13: Double-Digit Number</p> <p>Lesson 7.14: Number in Sequence</p> <p>BENCHMARK 2 (Unit 2)</p>
	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.		
	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.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.5	Fluently add and subtract within 5.		
	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.		

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Essential Questions for this Unit:					
1. How can students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary? 2. How can students learn to identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres? 3. How can students use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes?					
Unit (Time)	Standard	Standard Description	Content	Resources	
Unit 3: Measurement and Geometry Concepts (Approx. 50 days)	K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	<ul style="list-style-type: none"> • Measurement as comparison • Longer/Shorter • Heavier/Lighter • More/Less (capacity) • Spatial relationships 	<u>Connecting Sorting, Graphing, and Measurement (20 days)</u> Treasures: Sorting, Counting, and Graphing [CP] Graphing in the Primary Grades [L] Measurement in the Primary Grades [L] Review: Lesson 1.2: Introduction to Pattern Blocks Lesson 2.1: Shape Collages Lesson 2.2: Shapes By Feel Lesson 2.5: Patterns All Around Lesson 1.6: Introduction to Sorting Lesson 1.13: Body Height Comparisons	
	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. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>			
	K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.			
	K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above, below, beside, in front of, behind, and next to.</i>			

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Essential Questions for this Unit:			
<ol style="list-style-type: none"> How can students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary? How can students learn to identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres? How can students use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes? 			
Unit (Time)	Standard	Standard Description	Resources
(March-June) Unit 3: (Continued) Measurement and Geometry Concepts (Approx. 50 days)	K.G.2	Correctly name shapes regardless of their orientations or overall size.	<p style="text-align: center;">Shapes and Attributes (20 days)</p> Lesson 4.10: Shape Comparisons Lesson 4.13: Introduction to Attribute Blocks Lesson 5.14: Attribute Spinner Game Lesson 6.3: Solid Shape Museum Lesson 6.6: I Spy with Shapes Lesson 7.4: Making Geometric Shapes Decomposing/Recomposing Geometric Shapes [L] Geometry and Justifying [L] <p style="text-align: center;">Review of Addition, Subtraction, and Teen Numbers (10 days)</p> Fluency to Five (or Ten) [L] Working with Teens [L] BENCHMARK 3 (Unit 3)
	K.G.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	
	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. <i>For example, "Can you join these two triangles with full sides touching to make a rectangle?"</i>	
	K.OA.5	Fluently add and subtract within 5.	
	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.	