Common Core State Standards for Mathematics

Kindergarten: The Big Picture

Domains	Counting and Cardinality	Operations and Algebraic Thinking	Number and Operations in Base Ten	Measurement and Data	Geometry
Clusters	• Know number names and the count sequence • Counting to tell the number of objects • Compare numbers	• Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from	• Work with numbers 11 – 19 to gain foundations for place value	• Describe and compare measurable attributes • Classify objects and count the number of objects in each category	• Identify and describe shapes • Analyze, compare, create and compose shapes
Mathematical Practices	1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively.	3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics.	5. Use appropriate tools strategically. 6. Attend to precision.	7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	

In Kindergarten, instructional time should focus on two critical areas:

1. ***Representing and comparing whole numbers, initially with sets of objects***
   - 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.) 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.

2. ***Describing shapes and space***
   - Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They 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. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

More learning time in Kindergarten should be devoted to number than to other topics.

GRADE K MATHEMATICS: Crosswalk between the Common Core State Standards (CCSS) and the Hawaii Content and Performance Standards (HCPS) III

Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
K.CC.1	Count to 100 by ones and by tens.	K.1.1: Count and compare groups of objects up to 30 according to the number of objects in each group. *Related benchmark at another grade level: 1.1.1: Count whole numbers up to 100 in a variety of ways (e.g., skip counts by 2's, 5's, 10's).*	1	The CC standard goes well beyond the HCPS III benchmark K.1.1 (counting up to 100 vs. up to 30, and counting by tens). The CC standard focuses primarily on counting in sequence; this also allows learning opportunities to count using objects in one-to-one correspondence (which is a connection to CC standard K.CC.4).
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	K.1.1: Count and compare groups of objects up to 30 according to the number of objects in each group. *Related benchmark at another grade level: 1.3.2: Use a variety of strategies to solve number problems involving addition and subtraction (e.g. comparing sets, counting on, counting backwards, doubles, doubles plus one).*	2	This CC standard and HCPS III benchmark K.1.1 are quite similar. One difference is that the strategy of "counting on" is a new expectation for this grade level. Also, although this particular CC standard does not ask students to "compare groups of objects" as the HCPS III benchmark does, two other CC standards do expect comparisons to be made: K.CC.6 and K.CC.7.
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).	K.1.2: Represent whole numbers up to 30 in flexible ways (e.g., relating, composing, and decomposing numbers).	1	The focus on this CC standard is on being able to write the numbers 0 to 20 to describe the size of a group of objects. The CC standard is only requiring numbers up to 20 whereas the HCPS III benchmark expectation was up to 30.
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality. 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.	K.1.1: Count and compare groups of objects up to 30 according to the number of objects in each group. *Related benchmark at another grade level: 1.3.2: Use a variety of strategies to solve number problems involving addition and subtraction (e.g. comparing sets, counting on, counting backwards, doubles, doubles plus one).*	2	The CC standard has several components: • 4a: one-to-one correspondence • 4b: cardinality and conservation of number • 4c: the quantitative concept of "one larger" Students should have numerous learning opportunities (including concrete and semi-concrete representations) to develop an understanding of the relationship between numbers and quantities. For example, learning activities that utilize patterned sets and five- and ten-frames can be very useful for developing students' expertise for recognizing sets of objects without having to count each individual object.

* Degree of Match: 1 = WEAK (major aspect of the CC not addressed in HCPS III); 2 = GOOD (minor aspect of the CC not addressed in HCPS III); 3 = EXCELLENT

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
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.1.1: Count and compare groups of objects up to 30 according to the number of objects in each group.	3	This CC standard is closely related to (and thus, builds off of) K.CC.4b. The previous standard (K.CC.4) describes an expectation to "understand" an important mathematical idea, while K.CC.5 describes an expectation of applying that understanding to perform a task or skill.
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. (Include groups with up to ten objects.)	K.1.1: Count and compare groups of objects up to 30 according to the number of objects in each group.	2	The only difference between the CC standard and the HCPS III benchmark is the "limit" on the size of the groups that students are expected to be able to compare. This CC standard builds on the understanding of K.CC.4 (e.g., students must have an understanding of one-to-one correspondence as a prior learning expectation).
K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.	K.1.1: Count and compare groups of objects up to 30 according to the number of objects in each group.	1	This CC standard is requiring students to make comparisons between number quantities at the symbolic level (abstract). The CC standard expects students to compare the quantities that are represented by the written form of the number. Students may create concrete or semi-concrete representations to be able to do the comparison (as was expected in the HCPS III benchmark). However, the CC standard specifies that the numbers must be presented symbolically (written numerals) for students to compare. Over time, students should develop a level fluency such that they will not have to rely on concrete or semi-concrete representations to be able to make the comparison.
K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings (drawings need not show details, but should show the mathematics in the problem), sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	K.2.1: Demonstrate addition as “putting together” or combining sets. K.2.2: Demonstrate subtraction as “taking away,” “separating sets,” or “counting back”. K.3.1: Use a variety of strategies (objects, fingers) to add and subtract single-digit whole numbers. K.10.1: Represent simple numerical situations with objects and number sentences.	3	The CC standard is a consolidation of the four HCPS III benchmarks listed.

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
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.2.1: Demonstrate addition as "putting together" or combining sets. K.2.2: Demonstrate subtraction as "taking away," "separating sets," or "counting back". K.3.1: Use a variety of strategies (objects, fingers) to add and subtract single-digit whole numbers.	2	This CC standard requires students to solve word problems, whereas the HCPS III benchmarks did not explicitly require the application of the skill in problem solving situations.
K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way, for example, by using objects or drawings, and record each decomposition by a drawing or equation (for example, 5 = 2 + 3 and 5 = 4 + 1).	K.1.2: Represent whole numbers up to 30 in flexible ways (e.g., relating, composing, and decomposing numbers). K.10.1: Represent simple numerical situations with objects and number sentences.	2	Decomposing (and composing) numbers is a fundamental idea that is scaffolded throughout the grades K-5 CC standards. Learning opportunities should be provided to develop a profound understanding of this concept (and develop fluency with the skill) that students will draw upon in future grades. In addition, students should have numerous opportunities to visualize representations of important benchmark numbers (i.e., anchoring numbers to 5 and 10 using five-frames and ten-frames).
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.1.2: Represent whole numbers up to 30 in flexible ways (e.g., relating, composing, and decomposing numbers).K.10.1: Represent simple numerical situations with objects and number sentences.	2	This CC standard represents an important mathematical idea (***making ten***) that is utilized and extended throughout the grades K-3 learning expectations. Numerous learning opportunities should be provided for students to develop fluency regarding this learning expectation.
K.OA.5	Fluently add and subtract within 5.	K.3.1: Use a variety of strategies (objects, fingers) to add and subtract single-digit whole numbers. *Related benchmark at another grade level: 1.3.1: Recall single-digit addition facts.*	2	This CC standard builds on the other standards in this domain toward the goal of developing fluency over time. Although "fluently" should not be interpreted as simply *recall*, by the end of grade K, students should have developed efficient strategies (other than simply counting on their fingers) for determining sums and differences within 5, which is an essential skill that students will need to build off of in order to be successful in future grades. Learning activities may incorporate patterned sets to develop students' ability to ***subitize***. Instruction should be purposefully designed to develop students' ability to visual and recognize mental images of sums and differences within 5. The goal of "fluency" implies that over time, students need to become less dependent upon "counting by ones" strategies.

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Code	Common Core State Standard	Matched HCPS III Benchmark	Match*	Comments
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 (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.1.2: Represent whole numbers up to 30 in flexible ways (e.g., relating, composing, and decomposing numbers). K.10.1: Represent simple numerical situations with objects and number sentences.	2	The CC standard expects students to recognize and create a group of ten ones. (NOTE: the concept of "ten ones makes one ten" is not specified here, although it is explicitly addressed in grade 1).
K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	K.4.1: Compare and order objects according to length, weight, capacity, area, and volume.	1	This CC standard requires students to describe measurable attributes; it does not require any measurement or comparison.
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.	K.4.1: Compare and order objects according to length, weight, capacity, area, and volume.	2	This CC standard expects students to directly compare two objects but does not require the use of any measurement tools. It also requires students to describe how the two objects differ using comparison words (e.g., longer/shorter, heavier/lighter, etc.).
K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)	K.11.1: Sort objects or people according to stated attributes. K.1.1: Count and compare groups of objects up to 30 according to the number of objects in each group.	2	For this CC standard after students classify objects and count the number of objects in each category, the expectation to "sort by count" means that students should be prompted to identify, for example, which groups have more (or less) than 5 objects.
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.	K.5.1: Identify common geometric shapes (e.g. circle, square, rectangle, triangle). K.8.1: Use positional words to describe an object's location (e.g., up, down, above, under, inside, outside).	2	The CC standard and the related HCPS III benchmarks are closely related, however, the CC standard specifies the use of objects in students' surroundings (both inside and outside of the classroom). To better understand the context for this CC standard, teachers should refer to the CLUSTER that this standard supports: ***Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).***

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K.G.2	Correctly name shapes regardless of their orientations or overall size.	K.5.1: Identify common geometric shapes (e.g. circle, square, rectangle, triangle).	2	The CC standard and the related HCPS III benchmark are closely related, however, the CC standard specifies that the shapes should be presented in a variety of orientations and sizes. In addition, different types of triangles should be presented, for example, scalene, isosceles and equilateral (however, students do not need to be able to verbalize the names of these categories of triangles). To better understand the context for this CC standard, teachers should refer to the CLUSTER that this standard supports: ***Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).***
K.G.3	Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	No HCPS3 benchmark at this grade level. *Related benchmarks at another grade level: K.5.1: and 1.5.1:*	N/A	This Common Core Standard is a new learning expectation for this grade level. To better understand the context for this CC standard, teachers should refer to the CLUSTER that this standard supports: ***Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).***
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).	No HCPS3 benchmark at this grade level. *Related benchmarks at another grade level: 1.5.2: Identify attributes and parts of common two- and three-dimensional shapes; and, 2.5.1: Compare and sort two- and three-dimensional shapes according to selected attributes.*	N/A	This Common Core Standard is a new learning expectation for this grade level.
K.G.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	No HCPS3 benchmark at this grade level.	N/A	This Common Core Standard is a new learning expectation for this grade level.
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?"	K.6.1: Use slides, flips, and turns to solve puzzles.	1	This CC standard expects students to compose shapes that they have learned previously (refer to the CLUSTER that this standard addresses).

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KINDERGARTEN

HCPS III Code	HCPS III Benchmark	Related Common Core Standard
K.1.1	Count and compare groups of objects up to 30 according to the number of objects in each group	K.CC.1, K.CC.2, K.CC.4, K.CC.5, K.CC.6, K.CC.7, K.MD.3
K.1.2	Represent whole numbers up to 30 in flexible ways (e.g., relating, composing, and decomposing numbers)	K.OA.3, K.OA.4, K.NBT.1
K.2.1	Demonstrate addition as “putting together” or “combining sets”	K.OA.1, K.OA.2
K.2.2	Demonstrate subtraction as “taking away,” “separating sets,” or “counting back”	K.OA.1, K.OA.2
K.3.1	Use a variety of strategies (e.g., objects, fingers) to add and subtract single-digit whole numbers	K.OA.1, K.OA.2, K.OA.5
K.4.1	Compare and order objects according to length, weight, capacity, area, and volume	K.MD.1, K.MD.2
~~K.4.2~~	~~Identify the value of pennies, nickels, and dimes and the equivalence among them (e.g., 5 pennies = 1 nickel)~~	None
~~K.4.3~~	~~Tell time to the hour~~	None
~~K.4.4~~	~~Identify tools used to measure time (i.e., digital and analog clock, calendar)~~	None
K.5.1	Identify common geometric shapes (e.g., circle, square, rectangle, triangle)	K.G.1, K.G.2
K.6.1	Use slides, flips, and turns to solve puzzles	K.G.6
K.8.1	Use positional words to describe an object’s location (e.g., *up*, *down*, *above*, *under*, *inside*, *outside*)	K.G.1
~~K.9.1~~	~~Demonstrate repeating patterns involving shapes, objects, sounds, and movements~~	None
K.10.1	Represent simple numerical situations with objects and number sentences	K.OA.1, K.OA.3, K.OA.4, K.NBT.1
K.11.1	Sort objects or people according to stated attributes	K.MD.3