

Kindergarten Comparison

Common Core State Standards (CCSS) and Priority Academic Student Skills (PASS)



Common Core State Standards	Priority Academic Student Skills	Comments
Kindergarten		
Counting and Cardinality	K.CC	
Know number names and count sequence		
<ul style="list-style-type: none"> ❶ Count to 100 by ones and by tens. ❷ Count forward beginning from a given number within the known sequence (instead of having to begin at 1). ❸ 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). 	<p>K.2.3 Count forward to twenty and backward from ten. 1.2.1c Read and write numerals to 100.</p> <p>K.2.6 Identify and write numerals zero through twenty, in and out of sequence. Children may still be reversing some numerals.</p>	<p>In CCSS, students count by both ones and tens to 100. This is an increase in what is expected of students at this level, as in PASS this was a first grade expectation. While PASS expected students to count to 100, there was no specific articulation of counting beginning with a number other than 1 as is expected in CCSS.</p> <p>Students write the numerals 0-20 and use the written numerals 0-20 to represent the amount within a set. For example, if the student has counted 9 objects, then the written numeral "9" is recorded. Students can record the quantity of a set by selecting a number card/tile (numeral recognition) or writing the numeral. Students can also create a set of objects based on the numeral presented. For example, if a student picks up the number card "13", the student then creates a pile of 13 counters. While children may experiment with writing numbers beyond 20, this standard places emphasis on numbers 0-20.</p> <p>Due to varied development of fine motor and visual development, reversal of numerals is anticipated. While reversals should be pointed out to students and correct formation modeled in instruction, the emphasis of this standard is on the use of numerals to represent quantities rather than the correct handwriting formation of the actual numeral itself.</p>
Count to tell the number of objects		

<p>4 Understand the relationship between numbers and quantities; connect counting to cardinality</p> <ol style="list-style-type: none"> 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. 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. Understand that each successive number name refers to a quantity that is one larger. <p>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.</p>	<p>K.2.2 Pair and count objects using one-to-one correspondence (e.g., one napkin for each child at snack time).</p> <p>K.2.4 Count objects in a set one-by-one from one through twenty.</p> <p>K.2.5 Identify and create sets of objects zero through twenty.</p>	<p>The relationship between counting and cardinality was more implied with PASS; however, in CCSS, it is explicitly stated as students connect the last number name to the total number of objects. Similarly, in CCSS, there is greater depth of understanding required in connecting counting to meaning as students understand the relationship between number counted and impact on the quantity. Experience with counting allows students to discuss and come to understand the second part of K.CC.4b—that the number of objects is the same regardless of their arrangement or the order in which they were counted. This connection will continue in Grade 1 with the more advanced counting-on methods in which a counting word represents a group of objects that are added or subtracted and addends become embedded within the total (1.OA.6). Students come to quickly recognize the cardinalities of small groups without having to count the objects; this is called perceptual subitizing. Perceptual subitizing develops into conceptual subitizing—recognizing that a collection of objects is composed of two subcollections and quickly combining their cardinalities to find the cardinality of the collection (e.g., seeing a set as two subsets of cardinality 2 and saying “four”). Use of conceptual subitizing in adding and subtracting small numbers progresses to supporting steps of more advanced methods for adding, subtracting, multiplying, and dividing single-digit numbers (in several OA standards from Grade 1 to 3 that culminate in single-digit fluency).</p>
Compare Numbers		
<p>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.¹</p> <p>7 Compare two numbers between 1 and 10 presented as written numerals.</p>	<p>K.2.1 Compare a group or set to another group, set, or numerical quantity and verbally explain which has more, less, or equivalent quantities.</p>	<p>With PASS, students were expected to compare numbers when given objects; however, CCSS expect students to make such comparisons between 1 and 10 when they are represented symbolically (with the number).</p>
Operations and Algebraic Thinking	K.OA	
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from		

- 1 Represent addition and subtraction with objects, fingers, mental images, drawings², sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- 2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
- 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 $5 = 4 + 1$).
- 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.
- 5 Fluently add and subtract within 5.

K.2.8 Combine and remove objects from sets and verbally describe the result (e.g., adding objects to a set makes the set larger, subtracting objects from a set makes the set smaller).

1.2.2b Write addition and subtraction number sentences for problem-solving situations.

1.2.2a.i. Use models to construct addition and subtraction facts with sums up to 20 (e.g., counters, cubes).

1.2.2a.ii. Perform addition by joining sets of objects and subtraction by separating and by comparing sets of objects.

Previously, PASS expected students to verbally describe the results of combining or removing objects from sets. CCSS expects that students represent addition and subtraction in multiple ways, including the use of expressions and equations.

Students in Kindergarten work with the following types of addition and subtraction situations:

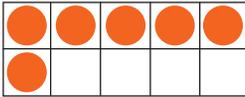
Add To with Result Unknown; Take From with Result Unknown; and Put Together/Take Apart with Total Unknown and Both Addends Unknown.

Add To Result Unknown	Take From Result Unknown	Put Together/ Take Apart Total Unknown	Put Together/Take Apart Addend Unknown
Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5$, $5 - 3 = ?$

The composition/decomposition may be physical or conceptual. These situations are acted out with objects initially and later children begin to move to conceptual mental actions of shifting between seeing the addends and seeing the total. Students build upon the understanding that a number (less than or equal to 10) can be decomposed into parts (K.OA.3) to find a missing part of 10. Through numerous concrete experiences, kindergarteners model the various sub-parts of ten and find the missing part of 10.

Example:

A full case of juice boxes has 10 boxes. There are only 6 boxes in this case. How many juice boxes are missing?

<p>Student A <i>Using a Ten-Frame</i></p> <p>"I used a ten frame for the case. Then, I put on 6 counters for juice still in the case. There's no juice in these 4 spaces. So, 4 are missing."</p> 	<p>Student B <i>Think Addition</i></p> <p>"I counted out 10 counters because I knew there needed to be ten. I pushed these 6 over here because they were in the container. These are left over. So there's 4 missing."</p> 	<p>Student C <i>Fluently add/subtract</i></p> <p>"I know that it's 4 because 6 and 4 is the same amount as 10."</p>
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Fluency within 5 was not previously expected of kindergarten students with PASS.

			<p>Focusing attention on small groups in adding and subtracting situations can help students move from perceptual subitizing to conceptual subitizing in which they see and say the addends and the total (e.g., “Two and one make three.”).</p> <p>While it appears that CCSS for Kindergarten are written as succinct statements of what students should know and be able to do, there is a tremendous amount of conceptual development that must be gained through rich and meaningful interactions in the classroom.</p>
Number and Operations in Base Ten	K.NBT		
Work with numbers 11-19 to gain foundations for place value			
<p>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.</p>			<p>PASS expected students to use tens and ones and knowledge of place value to perform addition and subtraction operations. CCSS intentionally focuses on composing and decomposing numbers up to 20 to thoroughly understand numbers and foundations for place value. This is a vital first step kindergarteners must take toward understanding base-ten notation for numbers greater than 9.</p>
Measurement and Data	K.MD		
Describe and compare measurable attributes			
<p>1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.</p> <p>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.</p>		<p>K.4.1b Compare objects according to observable attributes (e.g., long, longer, longest; short, shorter, shortest; big, bigger, biggest; small, smaller, smallest; small, medium, large).</p>	<p>Direct comparisons are made when objects are put next to each other, such as two children, two books, two pencils. For example, a student may line up two blocks and say, “The blue block is a lot longer than the white one.” Students are not comparing objects that cannot be moved and lined up next to each other.</p> 

Classify objects and count the number of objects in each category			
<p>3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.³</p>		<p>K.5.1c Describes similarities and differences between objects.</p>	<p>In CCSS, kindergarten work with data uses counting and order relations. In CCSS, important connections to this standard are: K.CC. Counting to tell the number of objects K.CC. Comparing numbers PASS contained a separate strand for Data Analysis. In CCSS, Measurement and Data are combined and draw on important connections to number concepts. Students identify similarities and differences between objects (e.g., size, color, shape) and use the identified attributes to sort a collection of objects. Once the objects are sorted, the student counts the amount in each set. Once each set is counted, then the student is asked to sort (or group) each of the sets by the amount in each set.</p> <p>For example, when exploring a collection of buttons: First, the student separates the buttons into different piles based on color (all the blue buttons are in one pile, all the orange buttons are in a different pile, etc.). Then the student counts the number of buttons in each pile: blue (5), green (4), orange (3), purple (4). Finally, the student organizes the groups by the quantity in each group (Orange buttons (3), Green buttons next (4), Purple buttons with the green buttons because purple also had (4), Blue buttons last (5).</p> <p>This objective helps to build a foundation for data collection in future grades as they create and analyze various graphical representations.</p>
Geometry	K.G		
<p>Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)</p>		<p>Geometry – The student will identify common geometric shapes and explore the relationship of objects in the environment</p>	

<ul style="list-style-type: none"> ❶ 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. ❷ Correctly name shapes regardless of their orientations or overall size. ❸ Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). 	<p>K.3.3 Model and use words indicating relative position or direction (e.g., students describe the relationships between self and objects in space using on, above, below, beside, under, on top of, behind, and over).</p> <p>K.3.1 Identify, name, and describe a variety of basic two-dimensional geometric shapes such as squares, triangles, circles, rectangles, (regular) hexagons, and (isosceles) trapezoids presented in a variety of ways (e.g. with different sizes of orientation).</p> <p>K.3.2 Identify, name, and describe a variety of three-dimensional geometric shapes such as spheres, cubes, and cylinders.</p>	<p>Through numerous experiences exploring and discussing shapes, students begin to understand that certain attributes define what a shape is called (number of sides, number of angles, etc.) and that other attributes do not (color, size, orientation). As the teacher facilitates discussions about shapes ("Is it still a triangle if I turn it like this?"), children question what they "see" and begin to focus on the geometric attributes.</p> <p>Kindergarten students typically do not yet recognize triangles that are turned upside down as triangles, since they don't "look like" triangles. Students need ample experiences manipulating shapes and looking at shapes with various typical and atypical orientations. Through these experiences, students will begin to move beyond what a shape "looks like" to identifying particular geometric attributes that define a shape.</p>
<p>Analyze, compare, create, and compose shapes</p>		

- 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).
- 5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
- 6 Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"

1.3.2 Identify, name, and describe two-dimensional geometric shapes (including rhombi) and objects in everyday situations (e.g., the face of a round clock is a circle, a desktop is a rectangle).

1.3.3 Identify, name, and describe three-dimensional geometric shapes (including cones) and objects in everyday situations (e.g., a can is a cylinder, a basketball is a sphere).

2.3.2 Investigate and predict the results of putting together and taking apart two-dimensional shapes.

3.3.2 Analyze the effects of combining and subdividing two- and three-dimensional figures (e.g., folding paper, tiling, nets, and rearranging pieces of solids).

In CCSS, the level of thinking and understanding has increased as students must now analyze and compare two- and three-dimensional shapes rather than just identify and describe them.

The term "compose" is used in in Kindergarten CCSS both in Number and Operations with Base Ten and Geometry. This builds conceptual understanding of numbers and shapes and provides a foundation for later understanding in both areas. In PASS, this concept was developed more in second and third grade.

This standard moves beyond identifying and classifying simple shapes to manipulating two or more shapes to create a new shape. This concept begins to develop as students move, rotate, flip, and arrange puzzle pieces to complete a puzzle. Kindergarteners use their experiences with puzzles to use simple shapes to create different shapes.

For example, when using basic shapes to create a picture, a student flips and turns triangles to make a rectangular house.