

## Focus Areas in Kindergarten

In Kindergarten, instructional time focuses on two critical areas:

### 1. Representing, relating, and operating on 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. More learning time in Kindergarten is devoted to number than to other topics.

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.

## Mathematical Practices in Kindergarten

K.MP.1 Make Sense and Persevere in Solving Problems.	<ul style="list-style-type: none"><li>• Use both verbal and nonverbal means, these students begin to explain to themselves and others the meaning of a problem, look for ways to solve it, and determine if their thinking makes sense or if another strategy is needed.</li></ul>
K.MP.2 Reason abstractly and quantitatively.	<ul style="list-style-type: none"><li>• Begin to use numerals to represent specific amount (quantity)</li><li>• Begin to draw pictures, manipulate objects, use diagrams or charts, etc. to express quantitative ideas such as a joining or splitting situation .</li><li>• Begin to understand how symbols (+, -, =) are used to represent quantitative ideas in a written format.</li></ul>
K.MP.3 Construct viable arguments and critique the reasoning of others.	<ul style="list-style-type: none"><li>• Begin to clearly express, explain, organize and consolidate their math thinking using both verbal and written representations.</li><li>• Begin to learn how to express opinions, become skillful at listening to others, describe their reasoning and respond to others' thinking and reasoning.</li></ul>

	<ul style="list-style-type: none"> <li>• Begin to develop the ability to reason and analyze situations as they consider questions such as, “Are you sure...?”, “Do you think that would happen all the time...?”, and “I wonder why...?”</li> </ul>
K.MP.4 Model with mathematics	<ul style="list-style-type: none"> <li>• Begin to experiment with representing real-life problem situations in multiple ways such as with numbers, words (mathematical language), drawings, objects, acting out, charts, lists, and number sentences.</li> </ul>
K.MP.5 Use appropriate tools strategically.	<ul style="list-style-type: none"> <li>• Begin to explore various tools and use them to investigate mathematical concepts.</li> <li>• Experiment and use both concrete materials (e.g. 3-dimensional solids, connecting cubes, ten frames, number balances) and technological materials (e.g., virtual manipulatives, calculators, interactive websites) to explore mathematical concepts.</li> </ul>
K.MP.6 Attend to precision	<ul style="list-style-type: none"> <li>• Begin to express their ideas and reasoning using words.</li> <li>• Begin to describe their actions and strategies more clearly, understand and use grade-level appropriate vocabulary accurately, and begin to give precise explanations and reasoning regarding their process of finding solutions.</li> </ul>
K.MP.7 Look for and make use of structure	<ul style="list-style-type: none"> <li>• Begin to look for patterns and structures in the number system and other areas of mathematics.</li> </ul>
K.MP.8 Look for and express regularity in repeated reasoning.	<ul style="list-style-type: none"> <li>• Begin to notice repetitive actions in geometry, counting, comparing, etc.</li> </ul>