Mathematics – Kindergarten

All West Virginia teachers are responsible for classroom instruction that integrates content standards and mathematical habits of mind. Students in kindergarten will focus on two critical areas: (1) representing and comparing whole numbers, initially with sets of objects; (2) describing shapes and space.   Mathematical habits of mind, which should be integrated in these content areas, include: making sense of problems and persevering in solving them, reasoning abstractly and quantitatively; constructing viable arguments and critiquing the reasoning of others; modeling with mathematics; using appropriate tools strategically; attending to precision, looking for and making use of structure; and looking for and expressing regularity in repeated reasoning. The skill progressions begin in kindergarten as foundational understanding of numeracy. The following chart represents the mathematical understandings that will be developed in kindergarten:

Counting and Cardinality	Operations and Algebraic Thinking
• Count objects to tell how many there are by ones and by tens. • Write numbers from 0 to 20. • Compare two groups of objects to tell which group, if either, has more; compare two written numbers to tell which is greater. • Group pennies.	• Understand addition as putting together and adding to. • Understand subtraction as taking apart and taking from. • Add and subtract very small numbers quickly and accurately (e.g., 3 + 1).
Number and Operations in Base Ten	**Measurement and Data**
• Act out addition and subtraction word problems and draw diagrams to represent them. • Add with a sum of 10 or less; subtract from a number 10 or less; and solve addition and subtraction word problems. • Group objects by tens and ones. (1 group of 10 and 3 ones makes 13)	• Describe and compare objects as longer, shorter, larger, smaller, etc. • Classify objects and count the number of objects in each category. (e.g., Identify coins and sort them into groups of 5s or 10s.)
Geometry	
• Name shapes correctly regardless of orientation or size (e.g., a square oriented as a "diamond" is still a square).	

Numbering of Standards

The following Mathematics Standards will be numbered continuously. The following ranges relate to the clusters found within Mathematics:

Counting and Cardinality	
Know number names and the count sequence.	Standards 1-3
Count to tell the number of objects.	Standards 4-5
Compare numbers.	Standards 6-7
Operations and Algebraic Thinking	
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	Standard 8-12
Number and Operations in Base Ten	
Work with numbers 11-19 to gain foundations for place value.	Standard 13
Measurement and Data	
Describe and compare measurable attributes.	Standards 14-15
Classify objects and count the number of objects in each category.	Standard 16
Geometry	
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)	Standards 17-19
Analyze, compare, create, and compose shapes	Standards 20-22

Counting and Cardinality

Cluster	Know number names and the count sequence.
M.K.1	Count to 100 by ones and by tens.
M.K.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
M.K.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).
Cluster	**Count to tell the number of objects.**
M.K.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 and 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.
M.K.5	Count to answer questions (e.g., "How many?") about as many as 20 things arranged in a line, a rectangular array, a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Cluster	**Compare numbers.**

M.K.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).
M.K.7	Compare two numbers between 1 and 10 presented as written numerals.

Operations and Algebraic Thinking

Cluster	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**
M.K.8	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), and acting out situations, verbal explanations, expressions, or equations.
M.K.9	Solve addition and subtraction word problems and add and subtract within 10 by using objects or drawings to represent the problem.
M.K.10	Decompose numbers less than or equal to 10 into pairs in more than one way by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
M.K.11	For any number from 1 to 9, find the number that makes 10 when added to the given number by using objects or drawings, and record the answer with a drawing or equation.
M.K.12	Fluently add and subtract within 5.

Number and Operations in Base Ten

Cluster	**Work with numbers 11-19 to gain foundations for place value.**
M.K.13	Compose and decompose numbers from 11 to 19 into ten ones and some further ones 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 (one ten) and one, two, three, four, five, six, seven, eight, or nine ones.

Measurement and Data

Cluster	**Describe and compare measurable attributes.**
M.K.14	Describe measurable attributes of objects, such as length or weight and describe several measurable attributes of a single object.
M.K.15	Directly compare two objects with a measurable attribute in common, to see which object has "more of" or "less of" the attribute, and describe the difference.
Cluster	**Classify objects and count the number of objects in each category.**
M.K.16	Classify objects into given categories, count the numbers of objects in each category, and sort the categories by count. Category counts should be limited to less than or equal to 10. (e.g., Identify coins and sort them into groups of 5s or 10s.)

Geometry

Cluster	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
M.K.17	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.
M.K.18	Correctly name shapes regardless of their orientations or overall size.
M.K.19	Through the use of real-life objects, identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").
Cluster	**Analyze, compare, create and compose shapes.**
M.K.20	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). Instructional Note: Student focus should include real-world shapes.
M.K.21	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
M.K.22	Compose simple shapes to form larger shapes (e.g., "Can these two triangles, with full sides touching, join to make a rectangle?").