



Indiana Academic Standards for Mathematics – Kindergarten Standards Resource Guide Document



This Teacher Resource Guide, revised in July 2018, provides supporting materials to help educators successfully implement the Indiana Academic Standards for Kindergarten. This resource guide is provided to help ensure all students meet the rigorous learning expectations set by the academic standards. Use of this guide and the resources on the web page is optional – teachers should decide which resources will work best for their students. However, all guidance contained in this document and on the website has been chosen to best support effective teaching practices and promote the Mathematics Process Standards.

With an increased emphasis on content area literacy, academic vocabulary has been noted and defined. Additionally, necessary vocabulary that should be prior knowledge has also been listed. Best practices should be utilized when teaching students academic vocabulary. Please see the Literacy Framework for examples of best practices.

Examples have been removed from the document as they tend to limit interpretation and classroom application. Rather, success criteria, in the form of “I can” statements, have been included. According to Hattie (2017), success criteria is specific, concrete and measurable, describing what success looks like when a learning goal is reached. Additionally, success criteria contributes to teacher clarity, which has a 0.75 effect size! An effect size of 0.40 reportedly indicates one year of growth. Utilizing success criteria in the classroom allows students to monitor their own learning and increases motivation (Hattie, p. 57). **It is important to note that the success criteria provided here are not intended to be limiting. Teachers may have additional success criteria for their students.**

Guidance around vertical articulation has been provided in the last two columns. Knowing what was expected of students at previous grade levels will help teachers connect new learning to prior knowledge. Additionally, understanding what a student will be expected to learn in the future provides the teacher a context for the current learning. This information is not exhaustive; rather it is provided to give teachers a quick understanding of how the work builds from previous grade levels into subsequent courses. The Indiana Department of Education (IDOE) math team recommends teachers further study this vertical articulation to situate their course objectives in the broader math context.

If you have any questions, please do not hesitate to reach out to the IDOE math team. Contact information for the Elementary and Secondary Math Specialists can be found on the website: <https://www.doe.in.gov/standards/mathematics>. If you have suggested resources for the website, please share those as well.

Hattie, J., Fisher, D., Frey, N., Gojak, L. M., Moore, S. D., & Mellman, W. (2017). *Visible learning for mathematics: What works best to optimize student learning, grades K-12*. Thousand Oaks, CA: Corwin Mathematics.



Number Sense

Number Sense					
Kindergarten Standards		Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead
K.NS.1	Count to at least 100 by ones and tens and count on by one from any number.	<p>I can count to at least 100 by ones.</p> <p>I can count to at least 100 by tens.</p> <p>I can count on by one from any number.</p>	Count on	Count the number sequence 1-20 (F.M.1.1)	<p>Count to at least 120 by ones, fives, and tens. (MA.1.NS.1)</p> <p>Count by ones, twos, fives, tens, and hundreds up to at least 1,000. (MA.2.NS.1)</p>
K.NS.2	Write whole numbers from 0 to 20 and recognize number words from 0 to 10. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	<p>I can write whole numbers from 0 to 20.</p> <p>I can recognize number words from 0 to 10.</p> <p>I can represent numbers of objects with numbers.</p>		Write numerals 1-10. (F.M.1.2)	Read and write whole numbers up to 1,000. (MA.2.NS.2)
K.NS.3	Find the number that is one more than or one less than any whole number up to 20.	<p>I can find one more than any number up to 20.</p> <p>I can find one less than any number up to 20.</p>	<p>Count on</p> <p>Count back</p> <p>More than</p> <p>Less than</p>	Count the number sequence 1-20. (F.M.1.1)	Find mentally 10 more or 10 less than a given two-digit number. (MA.1.NS.5)



Number Sense

<p>K.NS.4</p>	<p>Say the number names in standard order when counting objects, 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 describes the number of objects counted and that the number of objects is the same regardless of their arrangement or the order in which they were counted.</p>	<p>I can say the names of numbers in order when counting objects.</p> <p>I can pair objects with one, and only one, number name.</p> <p>I can explain that the last number said while counting is how many objects have been counted.</p>	<p>Pairs Arrangement Order</p>	<p>Recognize the last number name said tells the number of objects counted. (F.M1.1)</p>	<p>Match the ordinal numbers first, second, third, etc., with an ordered set up to 30 items. (MA.2.NS.4)</p>
<p>K.NS.5</p>	<p>Count up to 20 objects arranged in a line, a rectangular array, or a circle. Count up to 10 objects in a scattered configuration. Count out the number of objects, given a number from 1 to 20.</p>	<p>I can count up to 20 objects arranged in a line.</p> <p>I can count up to 20 objects arranged in a rectangular array.</p> <p>I can count up to 20 objects arranged in a circle.</p> <p>I can count up to 10 objects that are scattered.</p>	<p>Array Line Circle</p>	<p>Count the number sequence 1-20. (F.M1.1)</p>	<p>Count to at least 120 by ones, fives, and tens. (MA.1.NS.1)</p> <p>Count by ones, twos, fives, tens, and hundreds up to at least 1,000. (MA.2.NS.1)</p>



Number Sense

Number Sense					
		I can count out a given number of objects up to 20.			
K.NS.6	Recognize sets of 1 to 10 objects in patterned arrangements and tell how many without counting.	I can recognize sets of 1-10 objects set in patterns. I can tell how many objects, from 1-10, are in a pattern without counting.	Pattern	Identify, without counting, small quantities of items. (F.M1.1)	
K.NS.7	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).	I can identify that one group of objects is greater than another group. I can identify that one group of objects is less than another group. I can identify that one group of objects is equal to another group. I can use matching and counting strategies to compare groups of objects.	Greater Than Less Than Equal Compare	Identify when 2 sets are equal using matching and counting strategies. (F.M1.3)	Use place value understanding to compare two, two-digit numbers. (MA.1.NS.4)
K.NS.8	Compare the values of two numbers from 1 to 20 presented as written numerals.	I can compare two numbers from 1 to 20.	Greater Than Less Than Equal	Compare the values of two numbers from 1 to 10. (F.M1.3)	Use place value understanding to compare two, two-digit numbers. (MA.1.NS.4)



Number Sense

Number Sense					
			Compare		
K.NS.9	Use correctly the words for comparison, including: one and many; none, some and all; more and less; most and least; and equal to, more than and less than.	<p>I can compare things using the words: one and many.</p> <p>I can compare things using the words: none, some, and all.</p> <p>I can compare things using the words: more and less.</p> <p>I can compare things using the words: most and least.</p> <p>I can compare things using the words: equal to, more than, and less than.</p>	<p>One</p> <p>Many</p> <p>None</p> <p>Some</p> <p>All</p> <p>More</p> <p>Less</p> <p>Most</p> <p>Least</p> <p>Equal</p> <p>Compare</p>	Compare the values of two numbers from 1 to 10. (F.M1.3)	Use place value understanding to compare two, two-digit numbers. (MA.1.NS.4)



Number Sense

K.NS.10	Separate sets of ten or fewer objects into equal groups.	I can create equal groups with 10 or less objects.	Equal	Identify when 2 sets are equal. (F.M1.3)	Determine whether a group of objects (up to 20) has an odd or even number of members. (MA.2.NS.5)
K.NS.11	Develop initial understandings of place value and the base 10 number system by showing equivalent forms of whole numbers from 10 to 20 as groups of tens and ones using objects and drawings.	I can create groups of tens and ones using objects to represent numbers from 10-20. I can create groups of tens and ones using drawings to represent numbers from 10-20.	Tens Place Value Base Ten	Identify when 2 sets are equal. (F.M1.3)	Show equivalent forms of whole numbers as groups of tens and ones. (MA.1.NS.6)

Computation and Algebraic Thinking

Kindergarten Standards	Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead
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Computation and Algebraic Thinking					
K.CA.1	Use objects, drawings, mental images, sounds, etc., to represent addition and subtraction within 10.	<p>I can represent addition and subtraction using objects within 10.</p> <p>I can represent addition and subtractions using drawings within 10.</p> <p>I can use mental images to represent addition and subtraction within 10.</p> <p>I can use sounds to represent addition and subtraction within 10.</p>	<p>Addition</p> <p>Subtraction</p>	<p>Draw pictures, symbols, or use manipulatives to represent spoken numbers 0-10. (F.M1.1)</p>	<p>Demonstrate fluency with addition facts and the corresponding subtraction facts within 20. (MA.1.CA.1)</p>
K.CA.2	Solve real-world problems that involve addition and subtraction within 10 (e.g., by using objects or drawings to represent the problem).	<p>I can solve real-world problems that involve addition within 10 using objects or drawings.</p> <p>I can solve real-world problems that involve subtraction within 10 using objects or drawings.</p>	<p>Addition</p> <p>Subtraction</p>	<p>Draw pictures, symbols, or use manipulatives to represent spoken numbers 0-10. (F.M1.1)</p>	<p>Solve real-world problems involving addition and subtraction within 20. (MA.1.CA.2)</p>



K.CA.3	Use objects, drawings, etc., to decompose numbers less than or equal to 10 into pairs in more than one way, and record each decomposition with a drawing or an equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$). [In Kindergarten, students should see equations and be encouraged to trace them, however, writing equations is not required.]	<p>I can use objects to break numbers less than or equal to 10 into pairs in more than one way.</p> <p>I use drawings to break apart numbers less than or equal to 10 into pairs in more than one way.</p> <p>I can trace, or draw equations.</p>	<p>Add</p> <p>Subtract</p> <p>Decompose</p> <p>Equation</p>	Use understanding that numbers can be composed and decomposed to create new numbers. (F.M2.1)	Determine if equations involving addition and subtraction are true or false. (MA.1.CA.6)
K.CA.4	Find the number that makes 10 when added to the given number for any number from 1 to 9 (e.g., by using objects or drawings), and record the answer with a drawing or an equation.	<p>Given any number 1 to 9, I can find the correct number to add to make 10.</p> <p>I can write a math problem to show a two numbers being added to make 10.</p> <p>I can draw a picture to show two numbers being added to make 10.</p>	Number Bond	Use understanding that numbers can be composed and decomposed to create new numbers. (F.M2.1)	Show that the order in which two numbers are added and how the numbers are grouped in addition will not change the sum. (MA.2.CA.6)
K.CA.5	Create, extend, and give an appropriate rule for simple repeating and growing patterns with numbers and shapes.	<p>I can create a rule for repeating and growing patterns with numbers and shapes.</p> <p>I can extend a rule for repeating and growing</p>	<p>Pattern</p> <p>Create</p> <p>Extend</p>	Begin to create and extend a new simple pattern. (F.M2.2)	Create, extend and given an appropriate rule for number patterns using addition within 100. (MA.1.CA.7)



		patterns with numbers and shapes.			
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Geometry

Kindergarten Standards		Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead
K.G.1	Describe the positions of objects and geometric shapes in space using the terms inside, outside, between, above, below, near, far, under, over, up, down, behind, in front of, next to, to the left of and to the right of.	I can describe the position of objects and shapes using the words: outside, between, above, below, near, far, under, over, up, down, behind, in front of, next to, to the left of, and to the right of.	Outside Between Above Below Near Far Under Over Up Down Behind	Use position terms such as above, below, beside and between. (F.M4.1)	Identify, describe, and classify two- and three-dimensional shapes. (MA.2.G.1)



Geometry

			<p>In front of</p> <p>Next to</p> <p>To the left of</p> <p>To the right of</p>		
K.G.2	<p>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).</p>	<p>I can compare two-dimensional shapes.</p> <p>I can compare three-dimensional shapes.</p> <p>I can describe similarities between two-dimensional shapes.</p> <p>I can describe differences between two-dimensional shapes.</p> <p>I can describe similarities between three-dimensional shapes.</p> <p>I can describe differences between three-dimensional shapes.</p>	<p>Two-Dimensional</p> <p>Three-Dimensional</p> <p>Side</p> <p>Edge</p> <p>Vertex</p> <p>Length</p> <p>Face</p> <p>Compare</p>	<p>Differentiate two- and three-dimensional shapes. (F.M4.2)</p>	<p>Distinguish between defining attributes of two- and three-dimensional shapes versus non-defining attributes. (MA.1.G.2)</p>



Geometry

Geometry					
K.G.3	Model shapes in the world by composing shapes from objects (e.g., sticks and clay balls) and drawing shapes.	I can create shapes using a variety of objects. I can draw shapes.	Model Compose	Start to identify the attributes of shapes. (F.M4.2)	Describe how two-dimensional shapes make up the faces of three-dimensional objects. (MA.1.G.1) Use two-dimensional shapes or three-dimensional shapes to create a composite shape. (MA.1.G.3)
K.G.4	Compose simple geometric shapes to form larger shapes (e.g., create a rectangle composed of two triangles).	I can create simple shapes made from other shapes.	Compose	Differentiate two- and three-dimensional shapes. (F.M4.2)	Use two-dimensional shapes or three-dimensional shapes to create a composite shape. (MA.1.G.3)

Measurement

Measurement				
Kindergarten Standards	Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead



Measurement

Measurement					
K.M.1	Make direct comparisons of the length, capacity, weight, and temperature of objects, and recognize which object is shorter, longer, taller, lighter, heavier, warmer, cooler, or holds more.	<p>I can compare the length of objects.</p> <p>I can compare the capacity of objects.</p> <p>I can compare the weight of objects.</p> <p>I can compare the temperature of objects.</p> <p>I can recognize which object is shorter, longer, taller, lighter, heavier, warmer, cooler, and holds more.</p>	<p>Weight</p> <p>Temperature</p> <p>Length</p> <p>Volume</p> <p>Compare</p>	Directly compare and describe two or more objects with a measurable attribute. (F.M5.2)	Use direct comparison or a nonstandard unit to compare and order objects. (MA.1.M.1)
K.M.2	Understand concepts of time, including: morning, afternoon, evening, today, yesterday, tomorrow, day, week, month, and year. Understand that clocks and calendars are tools that measure time.	<p>I can show that a clock is used to tell time.</p> <p>I can show that a calendar is used to tell time.</p> <p>I can understand the meaning of morning, afternoon, evening, today, yesterday, and tomorrow.</p> <p>I can understand the meaning of day, month, and year.</p>	<p>Morning</p> <p>Afternoon</p> <p>Evening</p> <p>Yesterday</p> <p>Tomorrow</p> <p>Day</p> <p>Week</p> <p>Month</p>	Know daily concepts of earlier and later, morning and afternoon. (F.M5.1)	Tell and write time to the nearest half-hour and relate time to events using analog clocks. (MA.1.M.2)



Measurement

Measurement					
			Year Calendar		

Data Analysis

Data Analysis					
Kindergarten Standards	Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead	
K.DA.1	Identify, sort, and classify objects by size, number, and other attributes. Identify objects that do not belong to a particular group and explain the reasoning used.	<p>I can identify objects by size, number, and other characteristics.</p> <p>I can sort objects by size, number, and other characteristics.</p> <p>I can classify objects by size, number, and other characteristics.</p> <p>I can identify objects that do not belong in a group.</p>	<p>Classify</p> <p>Identify</p> <p>Sort</p>	Match similar shapes that are different sizes, and different orientation. (F.M4.2)	Organize and interpret data with up to three choices. (MA.1.DA.1)



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Data Analysis

Data Analysis					
		I can explain why an object does not belong in a group.			

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