Indiana Academic Standards for Mathematics – First Grade
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 First Grade. 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					
First Grade Standards		**Success Criteria**	**Academic Vocabulary**	**Looking Back**	**Looking Ahead**
MA.1.NS.1	Count to at least 120 by ones, fives, and tens from any given number. In this range, read and write numerals and represent a number of objects with a written numeral.	I can count on from any number to 120 by ones. I can count on from any number to 120 by fives. I can count on from any number to 120 by tens. I can read numerals to 120. I can write numerals to 120. I can represent a group of items with a written number to 120.	Count on	Count to at least 100 by ones and tens. (MA.K.NS.1)	Count by ones, twos, fives, tens, and hundreds up to at least 1,000. (MA.2.NS.1)
MA.1.NS.2	Understand that 10 can be thought of as a group of ten ones — called a “ten." Understand that the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. Understand that the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five,	I can understand that 10 ones make a group called a “ten”. I can understand that numbers from 11 to 19 are composed of a ten and 1 to 9 ones. I can understand that the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	Tens Ones Compose	Develop initial understandings of place value and the base 10 number system. (MA.K.NS.11)	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. (MA.2.NS.6)

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	six, seven, eight, or nine tens (and 0 ones).				
MA.1.NS.3	Match the ordinal numbers first, second, third, etc., with an ordered set up to 10 items.	I can match numbers with their ordinals in a set with up to 10 items.	Ordinal	Write whole numbers from 0 to 20 and recognize number words from 0 to 10. (MA.K.NS.2)	Match the ordinal numbers first, second, third, etc., with an ordered set up to 30. (MA.2.NS.4)
MA.1.NS.4	Use place value understanding to compare two, two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	I can compare two, two-digit numbers using place value understanding based on meaning of the tens and ones digits. I can use greater than, less than, and equal to symbols to compare two-digit numbers.	Greater than Less than Equal	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. (MA.K.NS.7) Compare the values of two numbers from 1 to 20. (MA.K.NS.8)	Use place value understanding to compare two three-digit numbers based on meanings of hundreds, tens, and ones. (MA.2.NS.7)
MA.1.NS.5	Find mentally 10 more or 10 less than a given two-digit number without having to count, and explain the thinking process used to get the answer.	I can mentally find 10 more than a two-digit number. I can mentally find 10 less than a two-digit number.		Find the number that is one more than or one less than any whole number up to 20. (MA.K.NS.3)	Count by ones, twos, fives, tens and hundreds up to at least 1,000 from any given number. (MA.2.NS.1)

Number Sense					
		I can explain how to mentally find 10 more than a two-digit number. I can explain how to mentally find 10 less than a two-digit number.			
MA.1.NS.6	Show equivalent forms of whole numbers as groups of tens and ones, and understand that the individual digits of a two-digit number represent amounts of tens and ones.	I can show numbers as equal groups of tens and ones. I can explain that the digits in a two-digit number represent the amount of tens and ones.	Tens Ones	Develop initial understands of place value and the base 10 number system. (MA.K.NS.11)	Understand that the three digits of a three-digit number represents amounts of hundreds, tens, and ones. (MA.2.NS.6)

Computation and Algebraic Thinking				
First Grade Standards	Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead

Computation and Algebraic Thinking					
MA.1.CA.1	Demonstrate fluency with addition facts and the corresponding subtraction facts within 20. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13). Understand the role of 0 in addition and subtraction.	I can fluently add within 20 by counting on. I can fluently add within 20 by making a group of ten. I can fluently add within 20 using the relationship between addition and subtraction. I can fluently add within 20 by creating easier, known sums. I can fluently subtract within 20 by counting back. I can fluently subtract within 20 by decomposing a number leading to a ten. I can fluently subtract within 20 by using the relationship between addition and subtraction. I can demonstrate the role of 0 in addition and subtraction.	Decompose Sum Difference Addend Addition Subtraction	Use objects, drawings, mental images, sounds, etc., to represent addition and subtraction within 10. (MA.K.CA.1)	Add and subtract fluently within 100. (MA.2.CA.1)

Computation and Algebraic Thinking					
MA.1.CA.2	Solve real-world problems involving addition and subtraction within 20 in situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all parts of the addition or subtraction problem (e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem).	I can solve real-world problems involving addition within 20. I can solve real-world problems involving subtraction within 20. I can use objects, drawings, and equations to solve real-world addition and subtraction problems within 20.	Sum Difference Addition Subtraction	Solve real-world problems that involve addition and subtractions within 10. (MA.K.CA.2)	Solve real-world problems involving addition and subtractions within 100. (MA.2.CA.2)
MA.1.CA.3	Create a real-world problem to represent a given equation involving addition and subtraction within 20.	I can create a real-world problem involving addition within 20. I can create a real-world problem involving subtraction within 20.	Sum Difference Addition Subtraction Equation	Solve real-world problems that involve addition and subtractions within 10. (MA.K.CA.2)	Solve real-world problems involving addition and subtraction within 100 in situations involving lengths. (MA.2.CA.3)
MA.1.CA.4	Solve real-world problems that call for addition of three whole numbers whose sum is within 20 (e.g., by using objects, drawings, and equations with a symbol for the	I can add three whole numbers whose sum is within 20 to solve real-world addition problems. I can use objects, drawings, and equations to add three whole numbers whose sum is	Sum Addend Addition Equation	Solve real-world problems that involve addition and subtractions within 10. (MA.K.CA.2)	Add and subtract fluently within 100. (MA.2.CA.1)

Computation and Algebraic Thinking					
	unknown number to represent the problem).	within 20 to solve real-world problems.	Symbol		
MA.1.CA.5	Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; describe the strategy and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones, and that sometimes it is necessary to compose a ten.	I can add within 100. I can add a two-digit number and a one-digit number. I can add a two-digit number and a multiple of 10. I can use models, drawings, and various other strategies to add within 100. I can explain strategies used to add within 100. I can explain that when adding two-digit numbers within 100, I add ones to ones and tens to tens. I can make a new group of ten when there are more than 10 ones.	Sum Addend Addition Place Value Compose	Use objects, drawings, mental images, sounds, etc., to represent addition and subtraction within 10. (MA.K.CA.1)	Add and subtract within 1000. (MA.2.CA.4)

Computation and Algebraic Thinking					
MA.1.CA.6	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false (e.g., Which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2).	I can understand what the equal sign means. I can determine if addition problems are true or false. I can determine if subtraction problems are true or false.	Equal Sign Addition Subtraction	Find the number that makes 10 when added to the given number for any number from 1 to 9. (MA.K.CA.4)	Use addition to find the total numbers of objects arranged in rectangular arrays. (MA.2.CA.5)
MA.1.CA.7	Create, extend, and give an appropriate rule for number patterns using addition within 100.	I can create rules for number patterns using addition within 100. I can extend rules for number patterns using addition within 100. I can give appropriate rules for number patterns using addition within 100.	Number Pattern Addition	Create, extend, and give an appropriate rule for simple repeating and growing patterns within numbers and shapes. (MA.K.CA.5)	Create, extend, and give an appropriate rule for number patterns using addition and subtraction within 1000. (MA.2.CA.7)

Geometry					
First Grade Standards		Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead
MA.1.G.1	Identify objects as two-dimensional or three-dimensional. Classify and sort two-dimensional and three-dimensional objects by shape, size, roundness and other attributes. Describe how two-dimensional shapes make up the faces of three-dimensional objects.	I can identify objects as two or three-dimensional. I can classify and sort two and three dimensional objects by shape, size, roundness, and other attributes. I can describe how two-dimensional shapes make up the faces of three-dimensional objects.	Two-Dimensional Three-Dimensional Faces	Compare two- and three-dimensional shapes. (MA.K.G.2)	Identify, describe, and classify two- and three-dimensional shapes. (MA.2.G.1)
MA.1.G.2	Distinguish between defining attributes of two- and three-dimensional shapes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size). Create and draw two-dimensional shapes with defining attributes.	I can describe what makes a two and three-dimensional shape. I can create and draw two-dimensional shapes. .	Two-Dimensional Three-Dimensional	Compare two- and three-dimensional using informal language to describe their similarities, and differences. (MA.K.G.2)	Identify, describe, and classify two- and three-dimensional shapes according to the number and shape of faces and the number of sides and/or vertices. (MA.2.G.1)
MA.1.G.3	Use two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and	I can combine two-dimensional shapes to create new, composite shapes.	Two-Dimensional Three-Dimensional	Compose simple geometric shapes to form larger	Investigate and predict the result of composing and decomposing two-

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	quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. [In grade 1, students do not need to learn formal names such as "right rectangular prism."]	I can combine three-dimensional shapes to create new, composite shapes. I can compose new shapes from composite shapes.	Compose Composite	shapes. (MA.K.G.4)	and three-dimensional shapes. (MA.2.G.3)
MA.1.G.4	Partition circles and rectangles into two and four equal parts; describe the parts using the words halves, fourths, and quarters; and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of, the parts. Understand for partitioning circles and rectangles into two and four equal parts that decomposing into equal parts creates smaller parts.	I can break circles into two and four equal pieces. I can break rectangles into two and four equal pieces. I can describe equal pieces of circles and rectangles using the words halves, fourths, and quarters. I can describe a whole circle or rectangle as having all the parts that make up that shape. I can understand that decomposing circles and	Partition Equal Parts Rectangle Fraction Half Fourth Quarter Decompose	Use objects, drawings, etc., to decompose numbers less than or equal to 10 into pairs. (MA.K.CA.3)	Partition a rectangle into rows and columns of same-size. (MA.2.G.4) Partition circle and rectangles into two, three, or four equal parts. (MA.2.G.5)

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		rectangles creates smaller parts.			

Measurement					
First Grade Standards		Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead
MA.1.M.1	Use direct comparison or a nonstandard unit to compare and order objects according to length, area, capacity, weight, and temperature.	I can compare and order objects by length. I can compare and order objects by area. I can compare and order objects by capacity. I can compare and order objects by weight. I can compare and order objects by temperature.	Length Area Capacity Weight Temperature Compare	Make direct comparison of the length, capacity, weight and temperature of objects. (MA.K.M.1)	Describe the relationship among inch, foot, and yard. (MA.2.M.1) Estimate and measure the length of an object. (MA.2.M.2) Estimate and measure the volume using cups and pints. (MA.2.M.4)

Measurement					
MA.1.M.2	Tell and write time to the nearest half-hour and relate time to events (before/after, shorter/longer) using analog clocks. Understand how to read hours and minutes using digital clocks.	I can tell time to the nearest half-hour using an analog clock. I can write time to the nearest half-hour using an analog clock. I can understand how to read hours and minutes on digital clocks.	Analog Clock Digital Clock	Understand concepts of time. (MA.K.M.2)	Tell and write time to the nearest five minutes from analog clocks. (MA.2.M.5) Describe relationships of time. (MA.2.M.6)
MA.1.M.3	Find the value of a collection of pennies, nickels, and dimes.	I can find the value of groups of coins that include pennies, nickels, and dimes.	Penny Nickel Dime Value	Solve real-world problems that involve addition and subtraction within 10. (MA.K.CA.2)	Find the value of a collection of pennies, nickels, dimes, quarters and dollars. (MA.2.M.7)

Data Analysis				
First Grade Standards	Success Criteria	Academic Vocabulary	Looking Back	Looking Ahead

Data Analysis					
MA.1.DA.1	Organize and interpret data with up to three choices (What is your favorite fruit? apples, bananas, oranges); ask and answer questions about the total number of data points, how many in each choice, and how many more or less in one choice compared to another.	I can organize data with up to three choices. I can interpret data with up to three choices. I can ask questions about data points. I can answer questions about data points.	Data	Identify objects that do not belong to a particular group and explain the reasoning used. (MA.K.DA.1)	Draw a picture graph to represent a data set with up to four choices. (MA.2.DA.1)