

ESSENTIAL ELEMENTS FOR GRADE 2: MATHEMATICS

For all Target Grade 2 Essential Elements, the Michigan Range of Complexity is not measured at the state level; range of complexity is determined at the classroom level.

****Claim #1: Students demonstrate increasingly complex understanding of number sense.**

Number and Operations in Base 10

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Grade 2 Standard for Mathematics: 2.NBT.1: Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: A. 100 can be thought of as a bundle of ten tens—called a “hundred.” B. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).			
EE.2.NBT.1: Represent numbers up to 30 with sets of tens and ones using objects in columns or arrays.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.NBT.2: Count within 1000; skip-count by 5s, 10s, and 100s.			
EE.2.NBT.2.a: Count from 1 to 30 (count with meaning; cardinality).	Locally determined	Locally determined	Locally determined
EE.2.NBT.2.b: Name the next number in a sequence between 1 and 10.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.NBT.3: Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.			
EE.2.NBT.3: Identify numerals 1 to 30.	Locally determined	Locally determined	Locally determined

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Grade 2 Standard for Mathematics: 2.NBT.4: Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.			
EE.2.NBT.4: Compare sets of objects and numbers using appropriate vocabulary (more, less, equal).	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.NBT.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.			
EE.2.NBT.5.a: Identify the meaning of the “+” sign (i.e., combine, plus, add), “-” sign (i.e., separate, subtract, take), and the “=” sign (equal).	Locally determined	Locally determined	Locally determined
EE.2.NBT.5.b: Using concrete examples, compose and decompose numbers up to 10 in more than one way.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.NBT.6: Add up to four two-digit numbers using strategies based on place value and properties of operations.			
Michigan Grade 2 Standard for Mathematics: 2.NBT.7: Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.			
EE.2.NBT.6-7: Use objects, representations, and numbers (0–20) to add and subtract.	Locally determined	Locally determined	Locally determined

****Claim #2: Students demonstrate increasingly complex spatial reasoning and understanding of geometric principles.**

Geometry

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Grade 2 Standard for Mathematics: 2.G.1: Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. (Sizes are compared directly or visually, not compared by measuring.) Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.			
EE.2.G.1: Identify common two-dimensional shapes: square, circle, triangle, and rectangle.	Locally determined	Locally determined	Locally determined

****Claim #3: Students demonstrate increasingly complex understanding of measurement, data and analytic procedures.**

Using Measurement and Data

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Grade 2 Standard for Mathematics: 2.MD.1: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.			
EE.2.MD.1: Measure the length of objects using non-standard units.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.MD.3: Estimate lengths using units of inches, feet, centimeters, and meters. Michigan Grade 2 Standard for Mathematics: 2.MD.4: Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.			
EE.2.MD.3-4: Order by length using non-standard units.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.MD.5: Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.			
EE.2.MD.5: Increase or decrease length by adding or subtracting unit(s).	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.MD.6: Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.			
EE.2.MD.6: Use a number line to add one more unit of length.	Locally determined	Locally determined	Locally determined

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Grade 2 Standard for Mathematics: 2.MD.7: Tell and write time from analog and digital clocks to the nearest five minutes, using <i>a.m.</i> and <i>p.m.</i>			
EE.2.MD.7: Identify on a digital clock the hour that matches a routine activity.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.MD.8: Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. <i>Example: If you have 2 dimes and 3 pennies, how many cents do you have?</i>			
EE.2.MD.8: Recognize that money has value.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.MD.9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.			
Michigan Grade 2 Standard for Mathematics: 2.MD.10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.			
EE.2.MD.9-10: Create picture graphs from collected measurement data.	Locally determined	Locally determined	Locally determined

****Claim #4: Students solve increasingly complex mathematical problems, making productive use of algebra and functions.**

Problem Solving

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Grade 2 Standard for Mathematics: 2.OA.3: Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.			
EE.2.OA.3: Equally distribute even numbers of objects between two groups.	Locally determined	Locally determined	Locally determined
Michigan Grade 2 Standard for Mathematics: 2.OA.4: Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.			
EE.2.OA.4: Use addition to find the total number of objects arranged within equal groups up to a total of 10.	Locally determined	Locally determined	Locally determined

Target Essential Elements as developed by: Dynamic Learning Maps Consortium (2013). Dynamic Learning Maps Essential Elements for Mathematics. Lawrence, KS: University of Kansas.