ESSENTIAL ELEMENTS FOR KINDERGARTEN: MATHEMATICS

For all Target Kindergarten 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.

Counting and Cardinality

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Kindergarten Standard for Mathematics: K.CC.1: Count to 100 by ones and by tens.			
EE.K.CC.1: Starting with one, count to 10 by ones.	Locally determined	Locally determined	Locally determined
Michigan Kindergarten Standard for Mathematics: K.CC.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. 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.			
EE.K.CC.4: Demonstrate one-to-one correspondence, pairing each object with one and only one number and each number with one and only one object.	Locally determined	Locally determined	Locally determined
Michigan Kindergarten Standard for Mathematics: K.CC.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.			
EE.K.CC.5: Count out up to three objects from a larger set, pairing each object with one and only one number name to tell how many.	Locally determined	Locally determined	Locally determined

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Kindergarten Standard for Mathematics: K.CC.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. (Include groups with up to ten objects.)			
EE.K.CC.5: Identify whether the number of objects in one group is more or less than (when the quantities are clearly different) or equal to the number of objects in another group.	Locally determined	Locally determined	Locally determined

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

Measurement and Data

Target Essential Element	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan Kindergarten Standard for Mathematics: K.MD.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. **Michigan Kindergarten Standard for Mathematics: K.MD.2**: Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children, and describe one child as taller/shorter.* **Michigan Kindergarten Standard for Mathematics: K.MD.3**: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)			
EE.K.MD.1-3: Classify objects according to attributes (big/small, heavy/light).	Locally determined	Locally determined	Locally determined

Geometry

Target Essential Element	Michigan Range of Complexity		
	High Range	**Medium Range**	**Low Range**
Michigan Kindergarten Standard for Mathematics: K.G.2: Correctly name shapes regardless of their orientations or overall size. **Michigan Kindergarten Standard for Mathematics: K.G.3**: Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").			
EE.K.G.2-3: Match shapes of same size and orientation (circle, square, rectangle, triangle).	Locally determined	Locally determined	Locally determined

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

There are no Kindergarten standards for Claim #3.

****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 Kindergarten Standard for Mathematics: **K.OA.1**: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. Drawings need not show details but should show the mathematics in the problem.			
EE.K.OA.1: Represent addition as "putting together" or subtraction as "taking from" in everyday activities.	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.