Dynamic Learning Maps® Mathematics Year-End Assessment Model Blueprint

In this document, the blueprint refers to the pool of Essential Elements that will be assessed during the spring assessment window. The mathematics Essential Elements are arranged into the four claims and nine conceptual areas shown in the table below.

Major Claims and Conceptual Areas in Mathematics

Major Claim		Conceptual Area	
1	Students demonstrate increasingly complex understanding of number sense.	M.C1.1	Understand number structures (counting, place value, fractions)
		M.C1.2	Compare, compose, and decompose numbers and sets
		M.C1.3	Calculate accurately and efficiently using simple arithmetic operations
2	Students demonstrate increasingly complex spatial reasoning and understanding of geometric principles.	M.C2.1	Understand and use geometric properties of two- and three-dimensional shapes
		M.C2.2	Solve problems involving area, perimeter, and volume
3	Students demonstrate increasingly complex understanding of measurement, data, and analytic procedures.	M.C3.1	Understand and use measurement principles and units of measure
		M.C3.2	Represent and interpret data displays
4	Students solve increasingly complex mathematical problems, making productive use of algebra and functions.	M.C4.1	Use operations and models to solve problems
		M.C4.2	Understand patterns and functional thinking

Coverage of the conceptual areas is summarized for each grade in the table below.[1]

Number of Essential Elements per conceptual area assessed in each grade

Grade	Conceptual Area									Total
	C1.1	C1.2	C1.3	C2.1	C2.2	C3.1	C3.2	C4.1	C4.2	
3	2		1	0	1	1	1	1	1	8
4	1	0	1	1	1	3	0	0	1	8
5	1	2	1	2	1	0	1		0	8
6	0	2	0		2		1	2		7
7	1	0	3	1	1		0	1	0	7
8	1	0	1	1	1		1	1	2	8
9			3	2	0	0	0	2	0	7
10			1	1	0	1	2	1	2	8
11			2	1	0	0	1	0	2	6

NOTE: Shaded cells represent grades with no Essential Elements assigned to the conceptual area.

In the pages that follow, the specific Essential Elements assessed in each grade are listed in tables.

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[1] The high school blueprint provides coverage options for students in grades 9, 10, and 11 to support the various testing requirements in different states in the consortium. Each state sets its own policy for which high school grade(s) are appropriate for DLM assessments.

Grade 3: Essential Elements Assessed

Conceptual Area	Essential Element	Description
M.C1.1		
	M.EE.3.NBT.2	Demonstrate understanding of place value to tens.
	M.EE.3.NBT.3	Count by tens using models such as objects, base ten blocks, or money.
M.C1.3		
	M.EE.3.OA.4	Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
M.C2.2		
	M.EE.3.G.2	Recognize that shapes can be partitioned into equal areas.
M.C3.1		
	M.EE.3.MD.4	Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.
M.C3.2		
	M.EE.3.MD.3	Use picture or bar graph data to answer questions about data.
M.C4.1		
	M.EE.3.OA.1-2	Use repeated addition to find the total number of objects and determine the sum.
M.C4.2		
	M.EE.3.OA.9	Identify arithmetic patterns.

Grade 4: Essential Elements Assessed

Conceptual Area	Essential Element	Description
M.C1.1		
	M.EE.4.NF.1-2	Identify models of one half (1/2) and one fourth (1/4).
M.C1.3		
	M.EE.4.NBT.4	Add and subtract two-digit whole numbers.
M.C2.1		
	M.EE.4.MD.6	Identify angles as larger and smaller.
M.C2.2		
	M.EE.4.MD.3	Determine the area of a square or rectangle by counting units of measure (unit squares).
M.C3.1		
	M.EE.4.MD.2.a	Tell time using a digital clock. Tell time to the nearest hour using an analog clock.
	M.EE.4.MD.2.b	Measure mass or volume using standard tools.
	M.EE.4.MD.2.d	Identify coins (penny, nickel, dime, quarter) and their values.
M.C4.2		
	M.EE.4.OA.5	Use repeating patterns to make predictions.

Grade 5: Essential Elements Assessed

Conceptual Area	Essential Element	Description
M.C1.1		
	M.EE.5.NF.2	Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).
M.C1.2		
	M.EE.5.NBT.3	Compare whole numbers up to 100 using symbols (<, >, =).
	M.EE.5.NBT.4	Round two-digit whole numbers to the nearest 10 from 0—90.
M.C1.3		
	M.EE.5.NBT.5	Multiply whole numbers up to 5x5.
M.C2.1		
	M.EE.5.G.1-4	Sort two-dimensional figures and identify the attributes (angles, number of sides, corners, color) they have in common.
	M.EE.5.MD.3	Identify common three-dimensional shapes.
M.C2.2		
	M.EE.5.MD.4-5	Determine the volume of a rectangular prism by counting units of measure (unit cubes).
M.C3.2		
	M.EE.5.MD.2	Represent and interpret data on a picture graph, line plot, or bar graph.

Grade 6: Essential Elements Assessed

Conceptual Area	Essential Element	Description
M.C1.2		
	M.EE.6.NS.1	Compare the relationships between two unit fractions.
	M.EE.6.NS.5-8	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).
M.C2.2		
	M.EE.6.G.1	Solve real-world and mathematical problems about area using unit squares.
	M.EE.6.G.2	Solve real-world and mathematical problems about volume using unit cubes.
M.C3.2		
	M.EE.6.SP.5	Summarize data distributions shown in graphs or tables.
M.C4.1		
	M.EE.6.EE.1-2	Identify equivalent number sentences.
	M.EE.6.EE.3	Apply the properties of addition to identify equivalent numerical expressions.

Grade 7: Essential Elements Assessed

Conceptual Area	Essential Element	Description
M.C1.1		
	M.EE.7.RP.1-3	Use a ratio to model or describe a relationship.
M.C1.3		
	M.EE.7.NS.1	Add fractions with like denominators (halves, thirds, fourths, and tenths) with sums less than or equal to one.
	M.EE.7.NS.2.a	Solve multiplication problems with products to 100.
	M.EE.7.NS.2.b	Solve division problems with divisors up to five and also with a divisor of 10 without remainders.
M.C2.1		
	M.EE.7.G.2	Recognize geometric shapes with given conditions.
M.C2.2		
	M.EE.7.G.4	Determine the perimeter of a rectangle by adding the measures of the sides.
M.C4.1		
	M.EE.7.EE.1	Use the properties of operations as strategies to demonstrate that expressions are equivalent.

Grade 8: Essential Elements Assessed

Conceptual Area	Essential Element	Description
M.C1.1		
	M.EE.8.NS.2.a	Express a fraction with a denominator of 100 as a decimal.
M.C1.3		
	M.EE.8.NS.1	Subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends less than or equal to one.
M.C2.1		
	M.EE.8.G.5	Compare any angle to a right angle, and describe the angle as greater than, less than, or congruent to a right angle.
M.C2.2		
	M.EE.8.G.9	Use the formulas for perimeter, area, and volume to solve real-world and mathematical problems (limited to perimeter and area of rectangles and volume of rectangular prisms).
M.C3.2		
	M.EE.8.SP.4	Construct a graph or table from given categorical data, and compare data categorized in the graph or table.
M.C4.1		
	M.EE.8.EE.7	Solve simple algebraic equations with one variable using addition and subtraction.
M.C4.2		
	M.EE.8.EE.2	Identify a geometric sequence of whole numbers with a whole number common ratio.
	M.EE.8.F.1-3	Given a function table containing at least 2 complete ordered pairs, identify a missing number that completes another ordered pair (limited to linear functions).

Grade 9: Essential Elements Assessed[2]

Conceptual Area	Essential Element	Description
M.C1.3		
	M.EE.HS.N.CN.2.a	Use the commutative, associative, and distributive properties to add, subtract, and multiply whole numbers.
	M.EE.HS.N.CN.2.b	Solve real-world problems involving addition and subtraction of decimals, using models when needed.
	M.EE.HS.N.CN.2.c	Solve real-world problems involving multiplication of decimals and whole numbers, using models when needed.
M.C2.1		
	M.EE.HS.G.CO.1	Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles.
	M.EE.HS.G.MG.1-3	Use properties of geometric shapes to describe real-life objects.
M.C4.1		
	M.EE.HS.A.SSE.1	Identify an algebraic expression involving one arithmetic operation to represent a real-world problem.
	M.EE.HS.A.SSE.3	Solve simple algebraic equations with one variable using multiplication and division.

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[2] The high school blueprint provides coverage options for students in grades 9, 10, and 11 to support the various testing requirements in different states in the consortium. Each state sets its own policy for which high school grade(s) are appropriate for DLM assessments.

Grade 10: Essential Elements Assessed[3]

Conceptual Area	Essential Element	Description
M.C1.3		
	M.EE.HS.S.CP.1-5	Identify when events are independent or dependent.
M.C2.1		
	M.EE.HS.G.CO.4-5	Given a geometric figure and a rotation, reflection, or translation of that figure, identify the components of the two figures that are congruent.
M.C3.1		
	M.EE.HS.N.Q.1-3	Express quantities to the appropriate precision of measurement.
M.C3.2		
	M.EE.HS.S.ID.1-2	Given data, construct a simple graph (line, pie, bar, or picture) or table, and interpret the data.
	M.EE.HS.S.ID.4	Calculate the mean of a given data set (limit the number of data points to fewer than five).
M.C4.1		
	M.EE.HS.A.CED.2-4	Solve one-step inequalities.
M.C4.2		
	M.EE.HS.A.REI.10-12	Interpret the meaning of a point on the graph of a line. *For example, on a graph of pizza purchases, trace the graph to a point and tell the number of pizzas purchased and the total cost of the pizzas.*
	M.EE.HS.F.BF.1	Select the appropriate graphical representation (first quadrant) given a situation involving constant rate of change.

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Grade 11: Essential Elements Assessed[4]

Conceptual Area	Essential Element	Description
M.C1.3		
	M.EE.HS.N.RN.1	Determine the value of a quantity that is squared or cubed.
	M.EE.HS.S.IC.1-2	Determine the likelihood of an event occurring when the outcomes are equally likely to occur.
M.C2.1		
	M.EE.HS.G.CO.6-8	Identify corresponding congruent and similar parts of shapes.
M.C3.2		
	M.EE.HS.S.ID.3	Interpret general trends on a graph or chart.
M.C4.2		
	M.EE.HS.F.BF.2	Determine an arithmetic sequence with whole numbers when provided a recursive rule.
	M.EE.HS.F.IF.4-6	Construct graphs that represent linear functions with different rates of change and interpret which is faster/slower, higher/lower, etc.

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