

Comparison of the MLR and NECAP Expectations

Grade 5 Mathematics

Maine Learning Results	NECAP Grade Level Expectation	Differences/Comments
A. Number	Number and Operations	
1. Students <i>understand</i> and use number notation to 10 million in numerals and words.	M(N&O)–5–1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 9,999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or powers of ten (10, 100, 1000), decimals (to thousandths), or benchmark percents (10%, 25%, 50%, 75% or 100%) as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.	The highlighted portion of the NECAP GLE relates to this MLR.
2. Students multiply and divide numbers up to four digits by numbers up to two digits, and by tens, hundreds, and thousands and <i>interpret</i> any remainders.	M(N&O)–5–3 Demonstrates conceptual understanding of mathematical operations by describing or illustrating the <u>meaning of a remainder with respect to division of whole numbers</u> using models, explanations, or <u>solving problems</u> . M(N&O)–5–4 Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors, multiples, <u>prime</u> , or <u>composite numbers</u> ; and addition or subtraction of <u>fractions (proper)</u> and decimals to the hundredths place. (<u>Division of whole numbers by up to a two-digit divisor.</u>)	The highlighted portion of the NECAP GLE relates to this MLR.
3. Students <i>solve</i> problems requiring multiple operations (addition, subtraction, multiplication, and division) and use the conventions of order of operations (no exponents expected).	M(N&O)–5–4 Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors, multiples, <u>prime</u> , or <u>composite numbers</u> ; and addition or subtraction of <u>fractions (proper)</u> and decimals to the hundredths place. (<u>Division of whole numbers by up to a two-digit divisor.</u>) (IMPORTANT: <i>Applies the conventions of order of operations with and without parentheses.</i>)	NECAP includes the use of factors or multiples (MLR A2 at grade 4) and prime or composite numbers (MLR A1 at grade 6).

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4. Students <i>understand</i> , name, compare, illustrate, compute with, and use fractions.	<p>M(N&O)–5–1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 9,999,999 through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and <u>positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or powers of ten (10, 100, 1000)), decimals (to thousandths), or benchmark percents (10%, 25%, 50%, 75% or 100%)</u> as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.</p> <p>M(N&O)–5–2 <u>Demonstrates understanding of the relative magnitude of numbers by ordering, comparing, or identifying equivalent positive fractional numbers,</u> decimals, or <u>benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents); or integers</u> in context using models or number lines.</p> <p>M(N&O)–5–4 Accurately solves problems involving multiple operations on whole numbers or the use of the properties of factors, multiples, prime, or composite numbers; and <u>addition or subtraction of fractions (proper)</u> and decimals to the hundredths place. (Division of whole numbers by up to a two-digit divisor.)</p>	The highlighted portions of the NECAP GLEs relates to this MLR.

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5. Students <i>understand</i> and use number notation and place value in numbers with three decimal places.	<p>M(N&O)–5–1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from <u>0 to 9,999,999</u> through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or <u>powers of ten (10, 100, 1000)</u>), <u>decimals (to thousandths)</u>, or <u>benchmark percents (10%, 25%, 50%, 75% or 100%)</u> as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.</p> <p>M(N&O)–5–2 <u>Demonstrates understanding of the relative magnitude of numbers by ordering, comparing, or identifying equivalent positive fractional numbers</u>, decimals, or <u>benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents)</u>; or <u>integers</u> in context using models or number lines.</p>	The highlighted portions of the NECAP GLEs relates to this MLR.
6. Students <i>understand</i> concepts of positive and negative integers.	<p>M(N&O)–5–2 Demonstrates understanding of the relative magnitude of numbers by ordering, comparing, or identifying equivalent positive <u>fractional numbers</u>, decimals, or <u>benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents)</u>; or <u>integers in context using models or number lines</u>.</p>	The highlighted portion of the NECAP GLE relates to this MLR.

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	M(N&O)–5–1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from <u>0 to 9,999,999</u> through equivalency, composition, decomposition, or place value using models, explanations, or other representations; and positive fractional numbers (proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, <u>twelfths</u> , fifths, or <u>powers of ten (10, 100, 1000)</u> , decimals (to <u>thousandths</u>), or <u>benchmark percents (10%, 25%, 50%, 75% or 100%)</u> as a part to whole relationship in area, set, or linear models using models, explanations, or other representations.	Green highlighted concepts are not included in the MLRs at this grade level. Percents are first covered in MLR A4 at grade 6.
	M(N&O)–5–4 Accurately solves problems involving multiple operations on whole numbers or the use of the <u>properties of factors, multiples, prime, or composite numbers</u> ; and addition or subtraction of <u>fractions (proper) and decimals to the hundredths place</u> . (<u>Division of whole numbers by up to a two-digit divisor.</u>) (IMPORTANT: <i>Applies the conventions of order of operations with and without parentheses.</i>)	Green highlighted concepts are not explicitly included in the MLRs at this grade level.
B. Data	Data, Statistics, and Probability	
1. Students <i>understand</i> and use measures of elapsed time, temperature, capacity, mass, and use measures of mass and weight.	M(G&M)–5–7 Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands. (Benchmarks in Appendix B.)	NECAP also includes measures of length.

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2. Students read, construct, and <i>interpret</i> line graphs.	M(DSP)–5–1 Interprets a given representation (tables, bar graphs, circle graphs, or <u>line graphs</u>) to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems. (IMPORTANT: <i>Analyzes data consistent with concepts and skills in M(DSP)–5–2.</i>) M(DSP)–5–3 Identifies or describes representations or elements of representations that best display a given set of data or situation, consistent with the representations required in <u>M(DSP)–5–1</u> .	
3. Students find and use median, mode, and range for a set of data.	M(DSP)–5–2 Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using measures of central tendency (<u>mean</u> , median, or mode) or range to <u>analyze situations</u> , or to <u>solve problems</u> .	NECAP also includes mean (grade 6 in MLRs).
No corresponding MLR at this grade.	M(DSP)–5–5 For a probability event in which the sample space may or may not contain equally likely outcomes, determines the <u>experimental</u> or theoretical probability of an event and <u>expresses the result as a fraction</u> .	The MLRs assess probability at grade 7.
C. Geometry	Geometry and Measurement	
1. Students identify, describe, and <i>classify</i> solid figures.	M(G&M)–5–3 Uses properties or attributes (shape of bases, number of lateral faces, or <u>number of bases</u>) to identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, spheres, pyramids, or cones).	
2. Students find the area of triangles and quadrilaterals.	M(G&M)–5–6 Demonstrates conceptual understanding of perimeter of polygons, and the area of rectangles or right triangles through models, manipulatives, or formulas , the area of polygons or irregular figures on grids, and <u>volume of rectangular prisms (cubes)</u> using a variety of models, manipulatives, or formulas. Expresses all measures using appropriate units.	NECAP also includes conceptual understanding of perimeter (grade 6 in MLRs) and the area of polygons or irregular figures using a grid (grade 4 in MLRs).

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3. Students <i>understand</i> how to find the volume and surface area of rectangular prisms.	M(G&M)–5–6 Demonstrates conceptual understanding of perimeter of polygons, and the area of rectangles or <u>right triangles</u> through models, manipulatives, or formulas, the area of polygons or irregular figures on grids, and <u>volume of rectangular prisms (cubes) using a variety of models, manipulatives, or formulas.</u> Expresses all measures using appropriate units.	MLRs also include surface area (grade 6 NECAP).
4. Students <i>understand</i> how to describe position and direction in two dimensions.		This concept is not explicitly mentioned in the NECAP GLEs.
5. Students reflect, slide, and rotate plane figures.		This MLR relates to NECAP GLE G&M4-4 (grade 4).
No corresponding MLR at this grade.	M(G&M)–5–1 Uses properties or attributes of angles (<u>right, acute, or obtuse</u>) or sides (<u>number of congruent sides, parallelism, or perpendicularity</u>) to identify, describe, <u>classify</u> , or distinguish among <u>different types of triangles (right, acute, obtuse, equiangular, or equilateral)</u> or <u>quadrilaterals (rectangles, squares, rhombi, trapezoids, or parallelograms).</u>	This GLE relates to MLR C1 at grade 4.
D. Algebra	Functions and Algebra	
1. Students <i>create</i> and <i>evaluate</i> simple expressions in the context of numbers and operations as described in <u>Standard 2.1: Number</u> * for this grade level.	M(F&A)–5–3 Demonstrates conceptual understanding of algebraic expressions by using letters to represent unknown quantities to write <u>linear algebraic expressions</u> involving <u>any two</u> of the four operations; or by evaluating <u>linear algebraic expressions</u> using whole numbers.	

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<p>2. Students find the unknown in simple equations in the context of numbers and operations as described in <u>Standard 2.1: Number</u></p> <p>* for this grade level such as: $39 - k = 39 - 40$ $78 + b = 57 + 79$ $30 \times A = 276$ $(3 + 4) \times 6 = 6 \times []$ $3 \times 15 = 3 \times (10 + [])$.</p>	<p>M(F&A)–5–4 Demonstrates conceptual understanding of equality by showing equivalence between two expressions using models or different representations of the expressions (expressions consistent with the parameters of <u>M(F&A)–5–3</u>), by solving one-step linear equations of the form $ax = c$, $x \pm b = c$, or $x/a = c$, where a, b, and c are whole numbers with $a \neq 0$; or by <u>determining which values of a replacement set make the equation (multi-step of the form $ax \pm b = c$ where a, b, and c are whole numbers with $a \neq 0$) a true statement (e.g., $2x + 3 = 11$, $\{x: x = 2, 3, 4, 5\}$).</u></p>	
<p>3. Students use tables, rules, diagrams, and graphs to represent and analyze the relationship between quantities.</p>	<p>M(F&A)–5–1 Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, or <u>in problem situations</u>; and writes a rule in words or symbols <u>for finding specific cases of a linear relationship</u>.</p>	