



# Math Teachers Press, Inc.

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## Rhode Island Mathematics Grade-Level Expectations Correlated to *Moving with Math Intermediate/Middle (IM) Grade 6*

		IM1 <i>Number, Reasoning &amp; Data</i> Student Book Skill Builders (SB)	IM2 <i>Fractions, Decimals &amp; Percent</i> Student Book Skill Builders (SB)	IM3 <i>Geometry, Measurement &amp; Graphing</i> Student Book Skill Builders (SB)
	<b>NUMBER AND OPERATIONS</b>			
<b>M(N&amp;O)-6-1</b>	<b>Demonstrates conceptual understanding of rational numbers with respect to:</b>			
•	ratios (comparison of two whole numbers by division $a/b$ , $a:b$ , and $a \div b$ , where $b \neq 0$ ;			56-58 <b>SB:</b> 12-1
•	rates (e.g., $a$ out of $b$ , 25%) <b>using models, explanations, or other representations.</b>		72 <b>SB:</b> 13-5	59
<b>M(N&amp;O)-6-2</b>	<b>Demonstrates understanding of the relative magnitude of numbers</b> by ordering or comparing numbers with whole number bases and whole number exponents (e.g., $3^3$ , $4^3$ ), integers, or rational numbers within and across number formats (fractions, decimals, or whole number percents from 1-100) using number lines or equality and inequality symbols.	7, 8, 66 <b>SB:</b> 2-3, 4-4, 59-3	5, 10, 11, 49-51 <b>SB:</b> 13-1, 13-2, 24-3	
<b>M(N&amp;O)-6-3</b>	<b>Demonstrates conceptual understanding of mathematical operations by:</b>			
•	adding and subtracting positive fractions and integers;	68, 69 <b>SB:</b> 59-5 to 59-7	14-17, 19-23 <b>SB:</b> 15-1, 15-2, 17-1, 17-2	

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	<ul style="list-style-type: none"> <li>• multiplying and dividing fractions and decimals.</li> </ul>		28, 29, 33, 58-62 <b>SB:</b> 19-1, 20-1, 27-3, 28-2	
<b>M(N&amp;O)-6-4</b>	<b>Accurately solves problems involving:</b>			
	<ul style="list-style-type: none"> <li>• single or multiple operations on fractions (proper, improper, and mixed), or decimals;</li> </ul>		14-17, 20-23, 26, 27, 54 <b>SB:</b> 19-5, 45-1	
	<ul style="list-style-type: none"> <li>• addition or subtraction of integers;</li> </ul>	<b>SB:</b> 59-2	64, 69, 70, 71 <b>SB:</b> 29-3	
	<ul style="list-style-type: none"> <li>• percent of a whole;</li> </ul>			
	<ul style="list-style-type: none"> <li>• problems involving greatest common factor or least common multiple.</li> </ul>	13 <b>SB:</b> 4-6	18 <b>SB:</b> 13-4	
<b>M(N&amp;O)-6-5</b>	No GLE at this grade			
<b>M(N&amp;O)-6-6</b>	<b>Uses a variety of mental computation strategies to solve problems:</b>			
	<ul style="list-style-type: none"> <li>• (e.g., using compatible numbers, applying properties of operations, using mental imagery, using patterns) and to determine the reasonableness of answers;</li> </ul>	27, 28, 51, 52 <b>SB:</b> 49-1, 49-2, 50-1, 50-2		
	<ul style="list-style-type: none"> <li>• <b>mentally calculates</b> change back from \$5.00, \$10.00, \$20.00, \$50.00, and \$100;</li> </ul>		56	
	<ul style="list-style-type: none"> <li>• multiplies a two-digit whole number by a one-digit number whole number (e.g., 45 x 5), two-digit whole numbers that are multiples of ten (e.g., 50 x 60), a three-digit whole number that is a multiple of 100 by a two- or three-digit number which is a multiple of 10 or 100, respectively (e.g., 400 x 50, 400 x 600);</li> </ul>	33, 38, 51 <b>SB:</b> 8-2, 8-3		

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	<ul style="list-style-type: none"> <li>divides 3- and 4-digit multiples of powers of ten by their compatible factors (e.g., <math>360 \div 6</math>, <math>360 \div 60</math>, <math>3600 \div 6</math>; <math>3600 \div 60</math>, <math>3600 \div 600</math>, <math>360 \div 12</math>, <math>360 \div 120</math>, <math>3600 \div 12</math>, <math>3600 \div 120</math>, <math>3600 \div 1200</math>);</li> </ul>	44, 52 SB: 10-1		
	<ul style="list-style-type: none"> <li>determines the part of a whole number using benchmark percents (1%, 10%, 25%, 50%, and 75%).</li> </ul>		72 SB: 29-3	
M(N&O)-6-7	<b>Makes estimates</b> in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.		24-27, 65, 66 SB: 45-1, 45-3, 49-1, 50-1	
M(N&O)-6-8	<b>Applies properties of numbers</b> (odd, even, remainders, divisibility, and prime factorization) and <b>field properties</b> (commutative, associative, identity [including the multiplicative property of one, e.g., $1 = 2/2$ and $2/2 \times 3/4 = 6/8$ , so $3/4 = 6/8$ ], distributive, and additive inverses) <b>to solve problems and to simplify computations.</b>	14, 15, 18-21 SB: 4-3, 4-5, 5-5		
	<b>GEOMETRY AND MEASUREMENT</b>			

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M(G&M)-6-1	Use <b>properties or attributes of angles</b> (right, acute, or obtuse) or <b>sides</b> (number of congruent sides, parallelism, or perpendicularity) <b>to identify, describe, classify, or distinguish</b> among different types of triangles (right, acute, obtuse, equiangular, scalene, isosceles, or equilateral) or quadrilaterals (rectangles, squares, rhombi, trapezoids, or parallelograms).			8, 9 SB: 34-3
M(G&M)-6-2	No GLE at this grade			
M(G&M)-6-3	Uses <b>properties or attributes</b> (shape of bases, number of lateral faces, number of bases, number of edges, or number of vertices) <b>to identify, compare, or describe three-dimensional shapes</b> (rectangular prisms, triangular prisms, cylinders, spheres, pyramids, or cones).			11, 12 SB: 34-7
M(G&M)-6-4	<b>Demonstrates conceptual understanding of congruency by:</b>			
•	predicting and describing the transformational steps (reflections, translations, and rotations) needed to show congruence (including the degree of rotation) and as the results of composing and decomposing two- and three-dimensional objects using models or explanations;			18-20
•	using line and rotational symmetry to demonstrate congruent parts within a shape.			17

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<b>M(G&amp;M)-6-5</b>	<b>Demonstrates conceptual understanding of similarity</b> by describing the proportional effect on the linear dimensions of polygons or circles when scaling up or down while preserving the angles of polygons, or by solving related problems (including applying scales on maps). Describes effects using models or explanations.			51, 60-64
<b>M(G&amp;M)-6-6</b>	<b>Demonstrates conceptual understanding of:</b>			
	perimeter of polygons, the area of quadrilaterals or triangles, and the volume of rectangular prisms by using models, formulas, or by solving problems;			40-50, 52, 53 <b>SB:</b> 38-1 to 38-11, 39-2, 39-3
•	<b>demonstrates understanding of the relationships of circle measures</b> (radius to diameter and diameter to circumference) by solving related problems. Expresses all measures using appropriate units.			13, 14, <b>SB:</b> 35-2
<b>M(G&amp;M)-6-7</b>	<b>Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems</b> across the content strands.			30-39 <b>SB:</b> 36-4, 36-5
<b>M(G&amp;M)-6-8</b>	No GLE at this grade			
<b>M(G&amp;M)-6-9</b>	No GLE at this grade			
<b>M(G&amp;M)-6-10</b>	No GLE at this grade			
	<b>FUNCTIONS AND ALGEBRA</b>			
<b>M(F&amp;A)-6-1</b>	<b>Identifies and extends to specific cases a variety of:</b>			

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•	<b>patterns</b> (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations;	73-76, 78 <b>SB:</b> 44-6		
•	writes a rule in words or symbols for finding specific cases of linear relationship	76 <b>SB:</b> 44-2, 44-3		
•	writes a rule in words or symbols for finding specific cases of nonlinear relationship;	75 <b>SB:</b> 44-3		
•	writes an expression or equation using words or symbols to express the <b>generalization of a linear</b> relationship (e.g., twice the term number plus 1 or $2n + 1$ ).	76 <b>SB:</b> 56-1, 56-5		
M(F&A)-6-2	<b>Demonstrates conceptual understanding of:</b>			
•	<b>linear relationships</b> ( $y = kx$ ; $y - x = b$ ) as a <b>constant rate of change</b> by construction or interpreting graphs of real occurrences and describing the slope of linear relationships (faster, slower, greater or smaller) in a variety of problem situations.			
•	<b>describes how change in the value of one variable relates to change in the value of a second variable</b> in problem situations with constant rates of change.	78		74
M(F&A)-6-3	<b>Demonstrates conceptual understanding of:</b>			
•	<b>algebraic expressions</b> by using letters to represent unknown quantities to write linear algebraic expressions involving any of the four operations and consistent with order of operations expected at this grade level;	70 <b>SB:</b> 56-1, 56-5		

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•	evaluating linear algebraic expressions (including those with more than one variable)	71, 72 SB: 56-2, 56-3		
•	evaluating an expression within an equation (e.g., determine the value of $y$ when $x = 4$ given $7 = 3x - 2$ ).			
M(F&A)-6-4	<b>Demonstrates conceptual understanding of equality</b> by showing equivalence between two expressions using models or different representations of the expressions (expressions consistent with the parameters of M(F&A)-6-3), solving multi-step linear equations of the form $ax + b = c$ , where $a$ , $b$ , and $c$ are whole numbers with $a \neq 0$ .			
	<b>DATA, STATISTICS, AND PROBABILITY</b>			
M(DSP)-6-1	<b>Interprets a given representation</b> (circle graphs, line graphs, or stem-and-leaf plots) to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.			72, 73, 75 SB: 48-1, 48-3
M(DSP)-6-2	<b>Analyze patterns, trends or distributions in data in a variety of contexts by determining or using</b> measures of central tendency (mean, median, or mode) or dispersion (range) to analyze situations, or to solve problems.	59-62 SB: 46-1 to 46-5		65 SB: 46-1

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<b>M(DSP)-6-3</b>	<b>Organizes and displays data</b> using tables, line graphs, or stem-and-leaf plots to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.			66, 73 <b>SB:</b> 47-3, 48-2
<b>M(DSP)-6-4</b>	<b>Uses counting techniques to solve problems in context involving combinations or simple permutations using a variety of strategies (e.g., organized lists, tables, tree diagrams, models. Fundamental Counting Principal or others).</b>		76, 77 <b>SB:</b> 58-1, 58-2	
<b>M(DSP)-6-5</b>	<b>For a probability event in which the sample space may or may not contain equally likely outcomes:</b>			
	predicts the theoretical probability of an event and tests the prediction through experiments and simulations;		73-75, 78 <b>SB:</b> 57-2, 57-3	
	designs fair games.			
<b>M(DSP)-6-6</b>	<b>In response to a teacher or student generated question or hypothesis:</b>			
•	decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question;	61		66, 67 <b>SB:</b> 47-4
•	collects, organizes, and appropriately displays the data;	61		66, 68 <b>SB:</b> 47-5, 48-2
•	analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions;	61		66, 68, 71 <b>SB:</b> 47-5, 48-2



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	<ul style="list-style-type: none"> <li>asks new questions and makes connections to real world situations.</li> </ul>	61		66, 71 <b>SB:</b> 48-2
	<b>PROBLEM SOLVING, REASONING, AND PROOF</b>			
<b>M(PRP)-8-1</b>	<b>Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content and be able to:</b>			
	<ul style="list-style-type: none"> <li>Use problem-solving strategies appropriately and effectively for a given situation.</li> </ul>	49-58 <b>SB:</b> 45-8	12, 26	39
	<ul style="list-style-type: none"> <li>Determine, collect and organize the relevant information needed to solve real-world problems.</li> </ul>	61	26, 27	4, 66
	<ul style="list-style-type: none"> <li>Apply integrated problem-solving strategies to solve problems in the physical, natural, and social sciences and in pure mathematics.</li> </ul>	49-58	73	60, 61
	<ul style="list-style-type: none"> <li>Use technology when appropriate to solve problems.</li> </ul>	61 (T.G.)	63	
	<ul style="list-style-type: none"> <li>Reflect on solutions and the problem-solving process for a given situation and refine strategies as needed.</li> </ul>	49 <b>SB:</b> 45-8	26	39 (T.G.)
<b>M(PRP)-8-2</b>	<b>Students will use mathematical reasoning and proof and be able to:</b>			
	<ul style="list-style-type: none"> <li>Draw logical conclusions and make generalizations using deductive and inductive reasoning.</li> </ul>	15	28	68
	<ul style="list-style-type: none"> <li>Formulate, test, and justify mathematical conjectures and arguments.</li> </ul>	46, 51	73	25

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•	Construct and determine the validity of a mathematical argument or a solution.	46, 51	75	9
•	Apply mathematical reasoning skills in other disciplines.	7, 49 <b>SB: 45-13</b>	55	59
	<b>COMMUNICATION, CONNECTIONS, AND REPRESENTATIONS</b>			
<b>M(CCR)-8-1</b>	<b>Students will communicate their understanding of mathematics and be able to:</b>			
•	Articulate ideas clearly and logically in both written and oral form.	Journal Prompts throughout	Journal Prompts throughout	Journal Prompts throughout
•	Present, share, explain, and justify thinking with others and build upon the ideas of others to solve problems.	29 (T.G.)	59	9
•	Use mathematical symbols and notation.	17	49	49
•	Formulate questions, conjectures, definitions, and generalizations about data, information, and problem situation.	30 (T.G.)	3	10
<b>M(CCR)-8-2</b>	<b>Students will create and use representations to communicate mathematical ideas and to solve problems and be able to:</b>			
•	Use models and technology to develop equivalent representations of the same mathematical concept.	31	7, 42	74
•	Use and create representations to solve problems and organize their thoughts and ideas.	34	75, 76	64

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•	Convert between representations (e.g., a table of values, an equation, and a graph may all be representations of the same function).	78	67	74
<b>M(CCR)-8-3</b>	<b>Students will recognize, explore, and develop mathematical connections and be able to:</b>			
•	Connect new mathematical ideas to those already studied and build upon them.	15, 38	63	49
•	Understand that many real-world applications require an understanding of mathematical concepts (e.g., personal finance, running a business, building a house, following a recipe, or sending a rocket to the moon).	49	31, 55	4, 39
•	Explain in oral and written form the relationships between a real-world problem and an appropriate mathematical model.	56 (T.G.)	64	50
•	Explain in oral and written form the relationships among various mathematical concepts (e.g., the relationship between exponentiation and multiplication.)	17 (T.G.)	12	51