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Rhode Island Mathematics Grade-Level Expectations Correlated to
Moving with Math Extensions Grade 5

		Student Book	Skill Builders
	NUMBER AND OPERATIONS		
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;	1, 2	1-1
•	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 modes, explanations, or other representations.	28, 29, 41-43	11-1, 21-1, 23-1
M(N&O)-5-2	Demonstrates understanding of the relative magnitude of numbers by:		
•	ordering, comparing, or identifying equivalent positive fractional numbers, decimals, or benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents).	3, 30-32, 44, 45	12-1, 13-1, 24-1
•	integers in context using models or number lines.		
M(N&O)-5-3	Demonstrate conceptual understanding of mathematical operations by:		
•	adding and subtracting decimals and positive proper fractions with unlike denominators;	37, 38, 46, 47	17-1, 17-3
•	describing or illustrating the meaning of a remainder with respect to division of whole numbers using models, explanations, or solving problems.	19	9-1
M(N&O)-5-4	Accurately solve problems involving:		
•	multiple operations on whole numbers or the use of properties of factors, multiples, prime, or composite numbers;	7, 13, 36	4-1

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•	addition or subtraction of fractions (proper) and decimals to the hundredths place. (Divison of whole numbers by up to a two-digit divisor).	19, 20, 24, 25, 49	9-1, 10-2, 26-1
M(N&O)-5-5	No GLE at this grade level		
M(N&O)-5-6	Mentally calculate:		
•	change back from $1.00, $5.00 and $10.00;		
•	calculates multiplication and related division facts to a product of 144;	40	Master 5, Master 6
•	multiplies a two-digit whole number by a one-digit 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);	15, 16	8-1, 8-2
•	divides 3- and 4-digit multiples of powers of ten by their compatible factors (e.g., 360 ÷ 6, 360 ÷ 60, 3600 ÷ 6, 3600 ÷ 60, 2=3600 ÷ 600, 360 ÷ 12, 360 ÷ 120, 3600 ÷ 12, 3600 ÷ 20, 3600 ÷ 1200).	23	10-1
M(N&O)-5-7	Makes estimates:		
•	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.	11, 12	49-1, 49-2, 50-1
M(N&O)-5-8	Applies properties of numbers (odd, even, and divisibility) and field properties (commutative, associative, identify, and distributive) to solve problems and to simplify computations.	8	5-1, 5-2
	GEOMETRY AND MEASUREMENT		
M(G&M)-5-1	Use properties or attributes of angles (right, acute, or obtuse) or sides (number of congruent sides, parallelism, or perpendicularity) to identify, describe, classify, or distinguish among different types of triangles (right, acute, obtuse, equiangular, or equilateral) or quadrilaterals (rectangles, squares, rhombi, trapezoids, or parallelograms).	51, 53	31-2, 34-1
M(G&M)-5-2	No GLE at this grade		
•	Use properties or attributes (shapes of bases, number of lateral faces, or number of bases) to identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, spheres, pyramids, or cones)		
M(G&M)-5-4	No GLE at this grade		

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M(G&M)-5-5	Demonstrates conceptual understanding of similarity by:		
•	describing the proportional effect on the linear dimensions of triangles and rectangles when scaling up or down while preserving angle measures;		
•	solving related problems (including applying scales on maps).		
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 girds, **and volume of** rectangular prisms (cubes0 using a variety of models, manipulatives, or formulas. Express all measures using appropriate units.	57-59	38-1, 38-2
M(G&M)-5-7	Measures and uses units of measures appropriately and consistently and makes conversations within systems when solving problems across the content strands.	55, 56, 61, 62	36-1, 41-1
M(G&M)-5-8	No GLE at this grade		
M(G&M)-5-9	Demonstrates understanding of spatial relationships using location and position by:		
•	interpreting and giving directions between locations on a map or coordinate grid (all four quadrants);		44-2
•	plotting points in four quadrants in context (e.g., games, mapping, identifying the vertices of polygons as they are reflected, rotated, and translated);		44-2
•	determining horizontal and vertical distances between points on a coordinate grid in the first quadrant.		
M(G&M)-5-10	Demonstrates conceptual understanding of spatial reasoning and visualization by building models of rectangular and triangular prisms, cones, cylinders, and pyramids from two- or three-dimensional representations.		39-1
	FUNCTIONS AND ALGEBRA		
M(F&A)-5-1	Identifies and extends to specific cases a variety of patterns:		
•	(linear and non linear) represented in models, tables, sequences or in problem situations;		44-1
•	writes a rule in words or symbols for finding specific cases of a linear relationship.		

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M(F&A)-5-2	Demonstrates conceptual understanding of linear relationships (y -kx) as a constant rate of change by identifying, describing, or comparing situations that represent constant rates of change (e.g., tell a story given a line graph about a trip).		
M(F&A)-5-3	Demonstrates conceptual understanding of algebraic expressions by:		
•	using letters to represent unknown quantities to write linear algebraic expressions involving any two of the four operations;		45-5
•	evaluating linear algebraic expressions using whole numbers.		
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 M(F&A)-5-3), by solving one-step linear equations of the form ax = c, x ≠ b = c, or x/a = c, where a, b, and c are whole numbers with a ≠ 0;		
•	determining which values of a replacement set make the equation (multi-step of the form ax ≠ b = c where a, b, and c are whole numbers with a ≠ 0 a true statement (e.g., 2x + 3 = 11, {x:x = 2, 3,4, 5}).		
	DATA, STATISTICS, AND PROBABILITY		
M(DSP)-5-1	Interprets a given representation (tables, bar graphs, circle graphs, or line graphs) to answer questions related to the data,, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.	63, 64	47-1, 48-1
M(DSP)-5-2	Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using measures of central tendency (mean, median, or mode) or range to analyze situations, or to solve problems.	21	46-1, 46-2
M(DSP)-5-3	Organizes and displays data using tables, bar graphs, or line graphs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.	22	
M(DSP)-5-4	No GLE at this grade		
M(DSP)-5-5	For a probability event in which the sample space may or may not contain equally likely outcomes, predicts:		

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•	the likelihood of an event as a fraction and tests the prediction through experiments;		47-2
•	determines if a game is fair.		47-2
M(DSP)-5-6	**In response to a teacher or student generated question or hypothesis:**		
•	decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question;		
•	collects, organizes, and appropriately displays the data;	22	
•	analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions;	22	
•	asks new questions and makes connections to real world situations.	22	
	PROBLEM SOLVING, REASONING AND PROOF		
M(PRP)-5-1	**Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content** and be able to:		
•	Determine the reasonableness of solutions to real-world problems.	13	
•	Generalize solutions and apply strategies to new problem situations.	26	
•	Add to the repertoire of problem-solving strategies (e.g., looking for similar problems) and use those strategies in more sophisticated ways.	26	45-1
•	Solve problems with multiple solutions, recognize when a problem has no solution, and recognize problems where more information is needed.		45-3, 45-4
•	Translate results of a computation into solutions that fit the real-world problem (e.g., when a computation shows that one needs 3.2 gallons of point to paint a room, how much paint do you buy?	48	
M(PRP)-5-2	**Students will use mathematical reasoning and proof** and be able to:		
•	Draw conclusions and solve problems using elementary deductive reasoning and reasoning by analogy.	8	
•	Make and defend conjectures and generalizations.	4	
•	Use models, known facts, properties, and relationships to explain thinking and to justify answers and solution processes.	33	
•	Recognize the pervasive use and power of reasoning as a part of mathematics.	Journal Prompts throughout	

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	COMMUNICATION, CONNECTIONS, AND REPRESENTATIONS		
M(CCR)-5-1	**Students will communicate their understanding of mathematics** and be able to:		
•	Discuss mathematical ideas and write convincing arguments.	Journal Prompts throughout	
•	Understand, explain, analyze, and evaluate mathematical arguments and conclusions presented by others.	21 (T.G.)	
•	Ask clarifying and extending questions related to mathematics they have heard or read about.	14 (T.G.)	
•	Understand and appreciate the economy and power of mathematical symbolism and its role in the development of mathematics.	1	
•	Demonstrate an understanding of mathematical concepts and relationships through a variety of methods (e.g., writing, graphing, charts, diagrams, number sentences, or symbols).	31	
•	Use a variety of technologies (e.g., computers, calculators, video, probes) to represent and communicate mathematical ideas.	18	
M(CCR)-5-2	**Students will create and use representations to communicate mathematical ideas and to solve problems** and be able to:		
•	Use physical models and diagrams to represent important mathematical ideas (e.g., multiplication).	28	
•	Use appropriate representations to solve problems or to portray, clarify, or extend a mathematical idea.	46	
•	Recognize equivalent representations of concepts and procedures and translate among them as appropriate (for example, understand how the addition of whole numbers, fractions, and decimals are related).	37 (T.G.)	
M(CCR)-5-3	**Students will recognize, explore, and develop mathematical connections** and be able to:		
•	See mathematics as an integrated whole.	Throughout	
•	Recognize relationships among different topics in mathematic.	41	
•	Recognize and use mathematics in other curriculum areas and in their daily lives.	3, 40	
•	Link concepts and procedures.	13	

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•	Use mathematical skills, concepts and applications in other disciplines (e.g., graphs in social studies, patterns in art, or music and geometry in technology education).	3	