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LOUISIANA GRADE LEVEL EXPECTATIONS GRADE 8 TO MOVING WITH MATH® MATH-BY-TOPIC FOR MIDDLE HIGH (MH)

	MH1 <i>Number, Reasoning Data</i> Student Book Skill Builders (SB)	MH2 <i>Fractions, Decimals</i> Student Book Skill Builders (SB)	MH3 <i>Percent, Probability</i> Student Book Skill Builders (SB)	MH4 <i>Geometry, Measurement</i> Student Book Skill Builders (SB)	MH5 <i>Algebra</i> Student Book Skill Builders (SB)
NUMBER AND NUMBER RELATIONS					
1. Compare rational numbers using symbols (i.e., $<$, \leq , $=$, \geq , $>$) and position on a number line (N-1-M) (N-2-M)	3	4, 9-11, 43, 44, 46, 47 SB: 11-2, 11-4, 18-1, 18-4	SB: 18-1	SB: 11-1, 18-1, 19-1	27, 48, 53 SB: 20-1, 25-1, 48-1 to 48-4, 58-5
2. Use whole number exponents (0-3) in problem-solving context (N-1-M) (N-5-M)	22, 23, 27-30	SB: 6-1, 57-1	SB: 6-1, 57-1		SB: 18-1
3. Estimate the answer to an operation involving rational numbers based on the original numbers (N-2-M) (N-6-M)	38, 47, 48	9, 11, 21-23, 34-36, 48, 49, 63, 67-70, 75, 76 SB: 5-1, 10-1, 19-1, 19-2, 22-2, 44-1	14 to 16, 29, 31, 32, 34, 36, 47 SB: 5-1, 10-1, 19-1, 23-1, 25-5, 27-2, 44-1 to 44-3	SB: 12-1, 13-1, 14-1, 15-1, 16-1, 17-1, 21-1, 22-1, 23-1, 24-1, 27-1, 44-1	3-10, 25 SB: 18-1, 44-1
4. Read and write numbers in scientific notation with positive exponents (N-3-M)	28-30	SB: 57-1	SB: 57-1		3-10, 25 SB: 57-1

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5. Simplify expressions involving operations on integers, grouping symbols, and whole number exponents using order of operations (N-4-M)	14-16, 25, 26				13-25, 50-52, 70 SB: 1-1, 2-1, 4-1, 5-1 to 17-1, 21-1 to 24-1, 58-1 to 58-10, 59-1 to 59-5
6. Identify missing information or suggest a strategy for solving a real-life, rational-number problem (N-5-M)	41, 48, 50-52		22-28, 45, 47, 49, 52, 60 SB: 26-2, 43-2		28-31, 70-76 SB: 26-1
7. Use proportional reasoning to model and solve real-life problems (N-8-M)		37, 38 SB: 26-1, 46-1	22-28, 45, 47, 49, 52, 60 SB: 26-2, 43-2	26-32 SB: 26-1 to 26-3	SB: 26-1
8. Solve real-life problems involving percentages, including percentages less than 1 or greater than 100 (N-8-M) (N-5-M)			7-10, 17, 18, 27-30, 32-56, 60 SB: 25-1, 27-1 to 27-3, 28-1 to 28-6, 43-1 to 43-3, 51-1, 51-2	SB: 25-1, 25-2, 27-1, 27-2, 28-1, 51-1, 52-1 to 52-3	SB: 27-1, 28-1, 51-1
9. Find unit/cost rates and apply them in real-life problems (N-8-M) (N-5-M) (A-5-M)		67-69	26	58, 59	
10. Write real-life meanings of expressions and equations involving rational numbers and variables (A-1M) (A-5-M)		33			3-10, 25, 32-34

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11. Translate real-life situations that can be modeled by linear or exponential relationships to algebraic expressions, equations, and inequalities (A-1-M) (A-4-M) (A-5-M)	70		48		34-40 SB: 58-9
12. Solve and graph solutions of multi-step linear equations and inequalities (A-2-M)					36-57 SB: 50-1 to 50-6, 61-2 to 61-4
13. Switch between functions represented as tables, equations, graphs, and verbal representations, with and without technology (A-3-M) (P-2-M) (A-4-M)	70				53, 60-64, 77 SB: 60-1
14. Construct a table if x - and y -values satisfying a linear equation and construct a graph of the line on the coordinate plane (A-3-M) (A-2-M)	70				60-64, 77 SB: 60-1 to 60-6
15. Describe and compare situations with constant or varying rates of change (A-4-M)				58 59	
16. Explain and formulate generalizations about how a change in one variable results in a change in another variable (A-4-M)				T.G. pp. 60, 64, 71	

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	MEASUREMENT				
17.	Determine the volume and surface area of prisms and cylinders (M-1-M) (G-7-M)			60-76 SB: 36-3, 41-1, 41-2, 62-1	SB: 55-1, 56-1
18.	Apply rate of change in real-life problems, including density, velocity, and international monetary conversions (M-1-M) (N-8-M) (M-6-M)			58, 59	
19.	Demonstrate an intuitive sense of the relative sizes of common units of volume in relation to real-life applications and use this sense when estimating (M-2-M) (M-3-M)			51, 52 SB: 36-3	
20.	Identify and select appropriate units for measuring volume (M-3-M)			51, 52 SB: 36-3	
21.	Compare and estimate measurements of volume and capacity within and between the U.S. and metric systems (M-4-M) (G-1-M)			43-46, 51-55 SB: 30-3	
22.	Convert units of volume/capacity within systems for U.S. and metric units (M-5-M)			47-55 SB: 36-3 to 36-5	

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	GEOMETRY					
23.	Define and apply the <i>terms measure, distance, midpoint, bisect, bisector, and perpendicular bisector (G-2-M)</i>				SB: 32-3, 32-5	SB: 30-1, 31-1, 32-1, 33-1, 38-1 to 48-1
24.	Demonstrate conceptual and practical understanding of symmetry, similarity, and congruence and identify similar and congruent figures (G-2-M)				13-16, 24-32 SB: 32-2 to 32-4, 46-1 to 46-3, 53-1, 53-2	SB: 46-1, 53-1
25.	Predict, draw, and discuss the resulting changes in lengths, orientation, angle, measures, and coordinates when figures are translated, reflected across horizontal or vertical lines, and rotated on a grid (G-3-M) (G-6-M)				5-14, 69 SB: 32-4, 49-1	SB: 49-1, 49-2
26.	Predict, draw, and discuss the resulting changes in lengths, orientation, and angle measures that occur in figures under a similarity transformation (dilation) (G-3-M) (G-3-M) (G-6-M)				SB: 53-3	
27.	Construct polyhedral using 2-dimensional patterns (nets) (G-4-M)				36-38 SB: 62-1, 62-2	

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28. Apply concepts, properties, and relationships of adjacent, corresponding, vertical, alternate interior, complementary, and supplementary angles (G-5-M)				17-22 SB: 33-1, 33-2	SB: 33-1, 52-1
29. Solve problems involving lengths off sides of similar triangles (G-5-M) (A-5-M)				26-30	SB: 46-1, 53-1
30. Construct, interpret, and use scale drawings in real-life situations (G-5-M) (M-6-M) (N-8-M)				31, 32	
31. Use area to justify the Pythagorean theorem and apply the Pythagorean theorem and its converse in real-life problems (G-5-M) (G-7-M)				33-35 SB: 54-1 to 54-3	SB: 54-1
32. Model and explain the relationship between the dimensions of a rectangular prism and its volume (i.e. how scale change in linear dimension(s) affects volume) (G-5-M)				T.G. p. 76 SB: 36-3, 63-1	
33. Graph solutions to real-life problems in the coordinate plane (G-6-M)				77 SB: 64-1	11, 12 SB: 49-1, 49-2

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	DATA ANALYSIS, PROBABILITY, AND DISCRETE MATH					
34.	Determine what kind of data display is appropriate for a given situation (D-1-M)	77		58 SB: 68-1, 68-3		
35.	Match a data set or graph to a described situation, and vice versa (D-1-M)	62				
36.	Organize and display data using circle graphs (D-1-M)			58 SB: 68-3		
37.	Collect and organize data using box-and-whisker plots and use the plots to interpret quartiles and range (D-1-M) (D-2-M)	71, 72				
38.	Sketch and interpret a trend line (i.e., line of best fit) on a scatterplot (D-2-M) (A-4-M) (A-5-M)	75				
39.	Analyze and make predictions from discovered data patterns (D-2-M)	75, 76				
40.	Explain factors in a data set that would affect measures of central tendency (e.g., impact of extreme values) and discuss which measure is most appropriate for a given situation (D-2-M)	60	75, 76 SB: 45-1	SB: 45-1	SB: 45-1	SB: 45-1

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41. Select random samples that are representative of the population, including sampling with and without replacement, and explain the effect of sampling on bias (D-2-M) (D-4-M)	77 SB: 68-7				
42. Use lists, tree diagrams, and tables to apply the concept of permutations to represent an ordering with and without replacement (D-4-M)			75, 76 SB: 66-2		
43. Use lists and tables to apply the concept of combinations to represent the number of possible ways a set of objects can be selected from a group (D-4-M)			69, 77 SB: 66-1		
44. Use experimental data presented in tables and graphs to make outcome predictions of independent events (D-5-M)		78 SB: 47-1	67, 74 SB: 47-2, 47-6		
45. Calculate, illustrate, and apply single- and multiple-event probabilities, including mutually exclusive, independent events and non-mutually exclusive, dependent events (D-5-M)		78 SB: 47-1	61-68, 70-74 SB: 47-1 to 47-6	SB: 47-1	SB: 47-1

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PATTERNS, RELATIONS, AND FUNCTIONS					
46. Distinguish between and explain when real-life numerical patterns are linear/arithmetic (i.e. grows by addition) or exponential/geometric (i.e. grows by multiplication) (P-1-M) (P-4-M)	31-38				64-69 SB: 60-4, 60-5
47. Represent the n th term in a pattern as a formula and test the representation (P-1-M) (P-2-M) (P-3-M) (A-5-M)	31			23	
48. Illustrate patterns of change in dimension(s) and corresponding changes in volumes of rectangular solids (P-3-M)				T.G. p. 71	