NEW YORK STATE LEARNING STANDARDS FOR MATHEMATICS CORRELATED TO *MOVING WITH MATH® INTERMEDIATE/MIDDLE (IM) GRADE 6*

		IM1 *Number, Reasoning & Data* Student Book Skill Builders (SB)	IM2 *Fractions, Decimals & Percent* Student Book Skill Builders (SB)	IM3 *Geometry, Measurement & Graphing* Student Book Skill Builders (SB)
	PROBLEM SOLVING			
	Students will build new mathematical knowledge through problem solving.			
6.PS.1	Know the difference between relevant and irrelevant information when solving problems	29, 53 **SB:** 45-5, 45-7, 45-9 TO 45-11		39 **SB:** 45-1, 45-3, 45-4
6.PS.2	Understand that some ways of representing a problem are more efficient than others	54 **SB:** 45-1,8,13,14	35 **SB:** 45-1, 45-4	
6.PS.3	Interpret information correctly, identify the problem, and generate possible strategies and solutions	29, 53 **SB:** 45-5, 45-7, 45-9 to 45-11	26 **SB:** 45-10	39 **SB:** 45-1, 45-3, 45-4
	Students will solve problems that arise in mathematics and in other contexts.			
6.PS.4	Act out or model with manipulatives activities involving mathematical content from literature	31 **SB:** 8-1	3 **SB:** 11-3	
6.PS.5	Formulate problems and solutions from everyday situations	23-28 **SB:** 6-1 to 6-3, 7-1 to 7-4, 49-1, 49-2	26, 35 **SB:** 45-1, 45-4, 45-10	
6.PS.6	Translate from a picture/diagram to a numeric expression		35 **SB:** 45-1, 45-4	

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6.PS.7	Represent problem situations verbally, numerically, algebraically, and/or graphically	31, 34, 53 SB: 8-1, 45-7, 45-9 to 45-11	32, 35 SB: 45-1, 45-4	39 SB: 45-1, 45-3, 45-4
6.PS.8	Select an appropriate representation of a problem	30, 53 SB: 45-7, 45-9 to 45-11	27, 32, 35 SB: 45-1, 45-3, 45-4	
6.PS.9	Understand the basic language of logic in mathematical situations (and, or, and not)			
	Students will apply and adapt a variety of appropriate strategies to solve problems.			
6.PS.10	Work in collaboration with others to solve problems			
6.PS.11	Translate from a picture/diagram to a number or symbolic expression	31 SB: 8-1	35 SB: 45-1, 45-4	
6.PS.12	Use trial and error and the process of elimination to solve problems	57, 58 SB: 45-3, 45-6, 45-15, 45-17		
6.PS.13	Model problems with pictures/diagrams or physical objects	31, 34, 56 SB: 8-1, 45-4	32, 35 SB: 45-1, 45-4	
6.PS.14	Analyze problems by observing patterns	15, 38, 40, 73-75 SB: 4-1, 4-3, 8-3, 9-4, 44-1 to 44-3, 44-6	4, 7, 63 SB: 11-1, 11-2, 11-6, 27-4, 28-3, 28-7	21, 22 SB: 44-1 to 44-4
6.PS.15	Make organized lists or charts to solve numerical problems	76 SB: 44-5	7	
	Students will monitor and reflect on the process of mathematical problem solving.			
6.PS.16	Discuss with peers to understand a problem solving situation	54 SB: 45-1, 45-8, 45-13, 45-14		

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6.PS.17	Determine what information is needed to solve problems	29, 53 SB: 45-5, 45-7, 45-9 to 45-11		39 SB: 45-1, 45-3, 45-4
6.PS.18	Determine the efficiency of different representations of a problem			
6.PS.19	Differentiate between valid and invalid approaches	54 SB: 45-1, 45-8, 45-13, 45-14	27 SB: 45-3	
6.PS.20	Understand valid counterexamples			
6.PS.21	Explain the methods and reasoning behind the problem solving strategies used	30		
6.PS.22	Discuss whether a solution is reasonable in the context of the original problem	49, 57 SB: 9-3, 10-4, 45-3, 45-17	26 SB: 45-10	
6.PS.23	Verify results of a problem	47 SB: 9-5	26, 65 SB: 45-2, 45-10	
	REASONING AND PROOF			
	Students will recognize reasoning and proof as fundamental aspects of mathematics.			
6.RP.1	Recognize that mathematical ideas can be supported using a variety of strategies			
6.RP.2	Understand that mathematical statements can be supported, using models, facts, and relationships to explain their thinking			
	Students will make and investigate mathematical conjectures.			
6.RP.3	Investigate conjectures, using arguments and appropriate mathematical terms			

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6.RP.4	Make and evaluate conjectures, using a variety of strategies			
	Students will develop and evaluate mathematical arguments and proofs.			
6.RP.5	Justify general claims or conjectures, using manipulatives, models, expressions, and mathematical relationships			
6.RP.6	Develop and explain an argument verbally, numerically, algebraically, and/or graphically			
6.RP.7	Verify claims other students make, using examples and counterexamples when appropriate			
	Students will select and use various types of reasoning and methods of proof.			
6.RP.8	Support an argument through examples/counterexamples and special cases			
6.RP.9	Devise ways to verify results	47 **SB:** 9-5	26 ,65 **SB:** 45-2, 45-10	
	COMMUNICATION			
	Students will organize and consolidate their mathematical thinking through communication.			
6.CM.1	Provide an organized thought process that is correct, complete, coherent, and clear	29, 53 **SB:** 45-5, 45-7, 45-9 to 45-11		
6.CM.2	Explain a rationale for strategy selection	54 **SB:** 45-1, 45-8, 45-13, 45-14		
6.CM.3	Organize and accurately label work	29, 53, 54		

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	Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.			
6.CM.4	Share organized mathematical ideas through the manipulation of objects, numerical tables, drawings, pictures, charts, graphs, tables, diagrams, models, and symbols in written and verbal form			
6.CM.5	Answer clarifying question from others			
	Students will analyze and evaluate the mathematical thinking and strategies of others.			
6.CM.6	Understand mathematical solutions shared by other students			
6.CM.7	Raise questions that elicit, extend, or challenge others' thinking			
6.CM.8	Consider strategies used and solutions found by others in relation to their own work			
	Students will use the language of mathematics to express mathematical ideas precisely.			
6.CM.9	Increase their use of mathematical vocabulary and language when communicating with others			
6.CM.10	Use appropriate vocabulary when describing objects, relationships, mathematical solutions, and rationale			
6.CM.11	Decode and comprehend mathematical visuals and symbols to construct meaning	5 SB: 1-4		

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	CONNECTIONS			
	Students will recognize and use connections among mathematical ideas.			
6.CN.1	Understand and make connections and conjectures in their everyday experiences to mathematical ideas		41, 55, 64, 71 **SB:** 26-4, 45-12, 53-3	
6.CN.2	Explore and explain the relationship between mathematical ideas			
6.CN.3	Connect and apply mathematical information to solve problems			
	Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.			
6.CN.4	Understand multiple representations and how they are related	54 **SB:** 45-1, 45-8, 45-13, 45-14	41	
6.CN.5	Model situations with objects and representations and be able to draw conclusions			
	Students will recognize and apply mathematics in contexts outside of mathematics.			
6.CN.6	Recognize and provide examples of the presence of mathematics in their daily lives		31, 41, 55, 64, 71 **SB:** 19-3 to 19-5, 26-4, 45-12, 53-3	
6.CN.7	Apply mathematics to problem situations that develop outside of mathematics	50	31 **SB:** 19-3 to 19-5	
6.CN.8	Investigate the presence of mathematics in careers and areas of interest		31 **SB:** 19-3 to 19-5	

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6.CN.9	Recognize and apply mathematics to other disciplines and areas of interest		31 **SB:** 19-3 to 19-5	
	REPRESENTATION			
	Students will create and use representations to organize, record, and communicate mathematical ideas.			
6.R.1	Use physical objects, drawings, charts, tables, graphs, symbols, equations, or objects created using technology as representations	78 **SB:** 44-4	37, 38 **SB:** 45-14, 48-1, 48-2	
6.R.2	Explain, describe, and defend mathematical ideas using representations			
6.R.3	Read, interpret, and extend external models			
6.R.4	Use standard and nonstandard representations with accuracy and detail	5 **SB:** 1-4	37, 38 **SB:** 45-14, 48-1, 48-2	
	Students will select, apply, and translate among mathematical representations to solve problems.			
6.R.5	Use representations to explore problem situations	78 **SB:** 44-4	37, 38 **SB:** 45-14, 48-1, 48-2	
6.R.6	Investigate relationships between different representations and their impact on a given problem			
	Students will use representations to model and interpret physical, social, and mathematical phenomena.			

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6.R.7	Use mathematics to show and understand physical phenomena (e.g., determine the perimeter of a bulletin board)			
6.R.8	Use mathematics to show and understand social phenomena (e.g. construct tables to organize data showing book sales)			
6.R.9	Use mathematics to show and understand mathematical phenomena (e.g., Find the missing value: (3 + 4) + 5 = 3 + (4 + ___)			
	NUMBER SENSE AND OPERATIONS			
	Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.			
6.N.1	Read and write whole numbers to trillions	2-4, 6 **SB:** 1-1 to 1-3, 1-5, 2-1, 2-2		
6.N.2	Define and identify the commutative and associative properties of addition and multiplication	19, 20 **SB:** 5-1, 5-2		
6.N.3	Define and identify the distributive property of multiplication over addition	21 **SB:** 5-3, 5-5, 5-7		
6.N.4	Define and identify the identity and inverse properties of addition and multiplication	67 **SB:** 59-4		
6.N.5	Define and identify the zero property of multiplication			
6.N.6	Understand the concept of rate			59 **SB:** 52-3
6.N.7	Express equivalent ratios as a proportion		9 **SB:** 12-3, 12-8, 12-9	56-58 **SB:** 52-1, 52-2

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6.N.8	Distinguish the difference between rate and ratio			56, 57 SB: 52-1
6.N.9	Solve proportions using equivalent fractions		9 SB: 12-3, 12-8, 12-9	57, 58 SB: 52-2
6.N.10	Verify the proportionality using the product of the means equals the product of the extremes		9 SB: 12-3, 12-8, 12-9	57, 58 SB: 52-2
6.N.11	Read, write and identify percents of a whole (0% to 100%)		42, 43, 67 SB: 21-1, 21-3, 29-1 to 29-3	
6.N.12	Solve percent problems involving percent, rate, and base			59 SB: 52-3
6.N.13	Define absolute value and determine the absolute value of rational numbers (including positive and negative)			
6.N.14	Locate rational numbers on a number line (including positive and negative)	64, 65, 68, 69 SB: 59-2, 59-5 to 59-7	5 SB: 11-4	
6.N.15	Order rational numbers (including positive and negative)	7, 8, 66 SB: 2-3, 2-4, 59-3	10, 11, 49, 51, 72 SB: 13-1, 13-2, 13-5,2 4-1 to 24-4	
	Students will understand meanings of operations and procedures, and how they relate to one another.			
6.N.16	Add and subtract fractions with unlike denominators		19-21 SB: 13-4, 17-1 to 17-4	
6.N.17	Multiply and divide fractions with unlike denominators		28, 31, 33,3 4 SB: 19-1 to 19-5, 20- to 20-5	
6.N.18	Add, subtract, multiply, and divide mixed numbers with unlike denominators		22, 23 SB: 18-1, 18-2	

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6.N.19	Identify the multiplicative inverse (reciprocal) of a number		**SB:** 20-1	
6.N.20	Represent fractions as terminating or repeating decimals		47, 50 **SB:** 25-1, 25-2, 25-4	
6.N.21	Find multiple representations of rational numbers (fractions, decimals, and percents 0 to 100)		2, 6, 13, 42, 47, 67-70 **SB:** 14-2, 21-1 to 21-3, 22-1, 22-2, 23-1 to 23-4, 25-1, 25-2, 25-4, 29-1 to 29-3, 30-1 to 30-3, 30-5, 48-3, 53-1, 53-2	
6.N.22	Evaluate numerical expressions using order of operations (may include exponents of two and three)	22 **SB:** 5-4, 5-6 to 5-8		
6.N.23	Represent repeated multiplication in exponential form	16, 17 **SB:** 4-4		
6.N.24	Represent exponential form as repeated multiplication	16, 17 **SB:** 4-4		
6.N.25	Evaluate expressions having exponents where the power is an exponent of one, two, or three	16, 17 **SB:** 4-4		
	Students will compute accurately and make reasonable estimates.			
6.N.26	Estimate a percent of quantity (0% to 100%)		70	
6.N.27	Justify the reasonableness of answers using estimation (including rounding)	9-11, 27, 48, 49, 51, 52 **SB:** 3-1 to 3-4, 9-3, 10-4, 10-6, 49-1, 50-1 to 50-3	24, 25, 52, 53, 56 **SB:** 13-3, 18-3, 18-4, 45-5, 51-1 to 51-4	
	ALGEBRA			

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	Students will represent and analyze algebraically a wide variety of problem solving situations.			
6.A.1	Translate two-step verbal expressions into algebraic expressions	55 **SB:** 45-2, 45-12, 45-16	36, 66 **SB:** 45-6 to 45-9, 45-11, 45-13	
	Students will perform algebraic procedures accurately.			
6.A.2	Use substitution to evaluate algebraic expressions (may include exponents of one, two and three)	70-72 **SB:** 56-1 to 56-3, 56-5		
6.A.3	Translate two-step verbal sentences into algebraic equations	55 **SB:** 45-2, 45-12, 45-16		
6.A.4	Solve and explain two-step equations involving whole numbers using inverse operations			
6.A.5	Solve simple proportions within context		9 **SB:** 12-3, 12-8, 12-9	
6.A.6	Evaluate formulas for given input values (circumference, area, volume distance, temperature, interest, etc.)			50, 51 **SB:** 38-8, 38-11
	GEOMETRY			
	Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.			
6.G.1	Calculate the length of corresponding sides of similar triangles, using proportional reasoning			8, 18, 19, 62-64 **SB:** 34-3, 34-9, 52-6, 60-2, 60-3, 60-6

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6.G.2	Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas			9, 43-48, 50, 51 **SB:** 34-4, 34-5, 34-10, 38-4, 38-6 to 38-12
6.G.3	Use a variety of strategies to find the area of regular and irregular polygons			7, 10, 43-45, 49 **SB:** 34-1, 34-2, 38-4, 38-5, 38-9, 44-6
6.G.4	Determine the volume of rectangular prisms by counting cubes and develop the formula	17 **SB:** 4-4		11, 52, 53 **SB:** 34-6, 34-8, 39-1 to 39-3, 39-5
6.G.5	Identify radius, diameter, chords, and central angles of a circle			13 **SB:** 35-1
6.G.6	Understand the relationship between the diameter and radius of a circle			13, 14 **SB:** 35-1, 35-2
6.G.7	Determine the area and circumference of a circle, using the appropriate formula			13 **SB:** 35-1
6.G.8	Calculate the area of a sector of a circle, given the measure of a central angle and the radius of the circle			6 **SB:** 37-1 to 37-3
6.G.9	Understand the relationship between the circumference and the diameter of a circle			13 **SB:** 35-1
	Students will apply coordinate geometry to analyze problem solving situations			
6.G.10	Identify and plot points in all four quadrants	77 **SB:** 43-1		15, 16 **SB:** 43-1
6.G.11	Calculate the area of basic polygons drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths)			

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	MEASUREMENT			
	Students will determine what can be measured and how, using appropriate methods and formulas.			
6.M.1	Measure capacity and calculate volume of a rectangular prism			36 **SB:** 42-1
6.M.2	Identify customary units of capacity (cups, pints, quarts, and gallons)			36 **SB:** 42-1
6.M.3	Identify equivalent customary units of capacity (cups to pints, pints to quarts, and quarts to gallons)			36 **SB:** 42-1
6.M.4	Identify metric units of capacity (liter and milliliter)			37 **SB:** 42-2, 42-5
6.M.5	identify equivalent metric units of capacity (milliliter to liter and liter to milliliter)			37 **SB:** 42-2, 42-5
6.M.6	Determine the tool and technique to measure with an appropriate level of precision: capacity			36, 37 **SB:** 42-1, 42-2, 42-5
	Students will develop strategies for estimating measurements.			
6.M.7	Estimate volume, area, and circumference (see figures identified in geometry strand)			40-42 **SB:** 38-1 to 38-3, 38-13
6.M.8	Justify the reasonableness of estimates			
6.M.9	Determine personal references for capacity			
	STATISTICS AND PROBABILITY			
	Students will collect, organize, display, and analyze data.			

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6.S.1	Develop the concept of sampling when collecting data from a population and decide the best method to collect data for a particular question	61 **SB:** 46-5		67 **SB:** 47-4
6.S.2	Record data in a frequency table			66, 71 **SB:** 47-3
6.S.3	Construct Venn diagrams to sort data			
6.S.4	Determine and justify the most appropriate graph to display a given set of data (pictograph, bar graph, line graph, histogram, or circle graph)			66, 68-76 **SB:** 44-5, 47-1 to 47-3, 47-5, 47-6,4 8-2 to 48-5
6.S.5	Determine the mean, mode and median for a given set of data.	59, 60, 62 **SB:** 46-1 to 46-4		65 **SB:** 46-1
6.S.6	Determine the range for a given set of data	60, 62 **SB:** 46-3, 46-4		65 **SB:** 46-1
6.S.7	Read and interpret graphs			66-76
	Students will make predictions that are based upon data analysis.			
6.S.8	Justify predictions made from data			
	Students will understand and apply concepts of probability.			
6.S.9	List possible outcomes for compound events		73-75, 78 **SB:** 57-1 to 57-5, 58-1, 58-4	
6.S.10	Determine the probability of dependent events		73-75 **SB:** 57-1 to 57-5	

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6.S.11	Determine the number of possible outcomes for a compound event by using the fundamental counting principle and use this to determine the probabilities of events when the outcomes have equal probability		76,77,SB:58-2,3	