Dec. 05

NEW YORK STATE LEARNING STANDARD FOR MATHEMATICS CORRELATED TO *MOVING WITH MATH® INTERMEDIATE/MIDDLE (IM) GRADE 5*

		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.**			
5.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
5.PS.2	Understand that some ways of representing a problem are more efficient than others	54 **SB:** 45-1, 45-8, 45-13, 45-14	35 **SB:** 45-1, 45-4	
5.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.			
5.PS.4	Act out or model with manipulatives activities involving mathematical content from literature	31 **SB:** 8-1	3 **SB:** 11-3	
5.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	
5.PS.6	Translate from a picture/diagram to a numeric expression		35 **SB:** 45-1, 45-4	

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5.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
5.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	
5.PS.9	Understand the basic language of logic in mathematical situations (and, or, not)			
	Students will apply and adapt a variety of appropriate strategies to solve problems.			
5.PS.10	Work in collaboration with others to solve problems			
5.PS.11	Translate from a picture/diagram to a number or symbolic expression	31 SB: 8-1	35 SB: 45-1, 45-4	
5.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		
5.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	
5.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
5.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.			
5.PS.16	Discuss with peers to understand a problem situation	54 SB: 45-1, 45-8, 45-13, 45-14		

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5.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
5.PS.18	Determine the efficiency of different representations of a problem			
5.PS.19	differentiate between valid and invalid approaches	54 **SB:** 45-1, 45-8, 45-13, 45-14	27 **SB:** 45-3	
5.PS. 20	Understand valid counterexamples			
5.PS.21	Explain the methods and reasoning behind the problem solving strategies used	30		
5.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	
5.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.			
5.RP.1	Recognize that mathematical ideas can be supported using a variety of strategies			
5.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.			
5.RP.3	Investigate conjectures, using arguments and appropriate mathematical terms			

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5.RP.4	Make and evaluate conjectures, using a variety of strategies			
	Students will develop and evaluate mathematical arguments and proofs.			
5.RP.5	Justify general claims or conjectures, using manipulatives, models, expressions, and mathematical relationships			
5.RP.6	Develop and explain an argument verbally, numerically, and/or graphically			
5.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.			
5.RP.8	Support an argument through examples/counterexamples and special cases			
	COMMUNICATION			
	Students will organize and consolidate their mathematical thinking through communication.			
5.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		
5.CM.2	Explain a rationale for strategy selection	54 **SB:** 45-1, 45-8, 45-13, 45-14		
5.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.			
5.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			
5.CM.5	Answer clarifying questions from others			
	Students will analyze and evaluate the mathematical thinking and strategies of others.			
5.CM.6	Understand mathematical solutions shared by other students			
5.CM.7	Raise questions that elicit, extend, or challenge others' thinking			
5.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.			
5.CM.9	Increase their use of mathematical vocabulary and language when communicating with others			
5.CM.10	Use appropriate vocabulary when describing objects, relationships, mathematical solutions, and rationale			

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5.CM.11	Decode and comprehend mathematical visuals and symbols to construct meaning	5 **SB:** 1-4		
	CONNECTIONS			
	Students will recognize and use connections among mathematical ideas.			
5.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	
5.CN.2	Explore and explain the relationship between mathematical ideas			
5.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.			
5.CN.4	Understand multiple representations and how they are related	54 **SB:** 45-1, 45-8, 45-13, 45-14	41	
5.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.			
5.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	

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5.CN.7	Apply mathematics to problem situations that develop outside of mathematics	50	31 **SB:** 19-3 to 19-5	
5.CN.8	Investigate the presence of mathematics in careers and areas of interest		31 **SB:** 19-3 to 19-5	
5.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.			
5.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	
5.R.2	Explain, describe, and defend mathematical ideas using representations			
5.R.3	Read, interpret, and extend external models			
5.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			
5.R.5	Use representations to explore problem situations	78 **SB:** 44-4	37, 38 **SB:** 45-14, 48-1, 48-2	
5.R.6	Investigate relationships between different representations and their impact on a given problem			

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	Students will use representations to model and interpret physical, social, and mathematical phenomena.					
5.R.7	Use mathematics to show and understand physical phenomena (e.g., determine the perimeter of a bulletin board)					
5.R.8	Use mathematics to show and understand social phenomena (e.g., construct tables to organize data showing book sales)					
5.R.9	Use mathematics to show and understand mathematical phenomena (e.g., find the missing value that makes the equation true: (3 + 4) + 5 = 3 + (4 + ___)					
	NUMBER SENSE AND OPERATIONS					
	Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.					
5.N.1	Read and write whole numbers to millions	4, 6 **SB:** 1-2, 1-3, 2-1, 2-2				
5.N.2	Compare and order numbers to millions	7, 8 **SB:** 2-2, 2-4				
5.N.3	Understand the place value structure of the base ten number system	2-4		42, 45 **SB:** 23-1, 23-3, 23-4		
	• 10 ones = 1 ten					
	• 10 tens = 1 hundred					
	• 10 hundreds = 1 thousand					
	• 10 thousands - 1 ten thousands					

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	• 10 ten thousands - 1 hundred thousand			
	• 10 hundred thousands = 1 million			
5.N.4	Create equivalent fractions, given a fraction		6, 7, 9 **SB:** 1`2-1, 12-4 toO 12-7	
5.N.5	Compare and order fractions including unlike denominators (with and without the use of a number line) *Note: Commo9nly used fractions such as those that might be indicated on ruler, measuring cup, etc.*		10, 11 **SB:** 13-1, 13-2, 13-5	
5.N.6	Understand the concept of ratio		9 **SB:** 12-3, 12-8, 12-9	56 **SB:** 52-1
5.N.7	Express ratios in different forms			56 **SB:** 52-1
5.N.8	Read, write, and order decimals to thousandths		46 **SB:** 22-1, 22-2	
5.N.9	Compare fractions using <, >, or =		10-11 **SB:** 13-1, 13-2, 13-5	
5.N10	Compare decimals using <, >, or =		49, 51 **SB:** 24-1 to 24-4	
5.N.11	Understand that percent means part of 100, and write percents as fractions and decimals		67-70 **SB:** 29-1 to 29-3, 30-1 to 30-5, 48-3, 53-1, 53-2	
5.N.12	Recognize that some numbers are only divisible by one and themselves (prime) and others have multiple divisors (composite)	14, 15, 18 **SB:** 4-1 to 4-3, 4-5	18 **SB:** 13-4	
5.N.13	Calculate multiples of a whole number and the least common multiple of two numbers		18, 48 **SB:** 13-4	
5.N.14	Identify the factors of a given number	13, 18 **SB:** 4-5, 4-6	48 **SB:** 25-3	

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5.N.15	Find the common factors and the greatest common factor of two numbers	13 **SB:** 4-6	8 **SB:** 12-2, 12-10	
	Students will understand meanings of operations and procedures, and how they relate to one another.			
5.N.16	Use a variety of strategies to multiply three-digit by three-digit numbers *Note: Multiplication by anything greater than a three-digit multiplier/multiplicand should be done using technology.*	31-38 **SB:** 8-1 to 8-7		
5.N.17	Use a variety of strategies to divide three-digit numbers by one- and two-digit numbers *Note: Division by anything greater than a two-digit divisor should be done using technology.*	39-48 **SB:** 9-1 to 9-5, 10-1 to 10-,7		
5.N.18	Evaluate an arithmetic expression using order of operations including multiplication, division, addition, subtraction and parentheses	22 **SB:** 5-4, 5-6, 5-8		
5.N.19	Simplify fractions to lowest terms		6	
5.N.20	Convert improper fractions to mixed numbers, and mixed numbers to improper fractions	13 **SB:** 14-2	13 **SB:** 14-2	
5.N.21	Use a variety of strategies to add and subtract fractions with like denominators	14, 15 **SB:** 15-1 to 15-3	14, 15 **SB:** 15-1 to 15-3	
5.N.22	Add and subtract mixed numbers with like denominators	16, 17 **SB:** 16-1 to 16-,4	16, 17 **SB:** 16-1 to 16-5	
5.N.23	Use a variety of strategies to add, subtract, multiply, and divide decimals to thousandths		54, 57-63 **SB:** 26-1 to 26-3, 27-1 to 27-,6, 28-1 to 28-7	

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	Students will compute accurately and make reasonable estimates.			
5.N.24	Round numbers to the nearest hundredth and up to 10,000	9-12, 51, 52 **SB:** 3-1 to 3-4, 50-1 to 50-3	52, 53 **SB:** 51-2 to 51-4	
5.N.25	Estimate sums and differences of fractions with like denominators	12 **SB:** 11-5, 14-1	24, 25 **SB:** 13-3, 18-3, 18-4	
5.N.26	Estimate sums differences, products, and quotients of decimals		65 **SB:** 45-3, 45-5	
5.N.27	Justify the reasonableness of answers using estimation	49, 51, 52 **SB:** 9-3, 10-4, 50-1 to 50-3	56 **SB:** 45-5	
	ALGEBRA			
	Students will represent and analyze algebraically a wide variety of problem solving situations.			
5.A.1	Define and use appropriate terminology when referring to constants, variables, and algebraic expressions	50, 70 **SB:** 56-1, 56-4, 56-5		
5.A.2	Translate simple verbal expressions into algebraic expressions	50 **SB:** 56-4	64, 65 **SB:** 45-9	
	Students will perform algebraic procedures accurately.			
5.A.3	Substitute assigned values into variable expressions and evaluate using order of operations			
5.A.4	Solve simple one-step equations using basic whole-number facts		64 **SB:** 45-12	

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5.A.5	Solve and explain simple one-step equations using inverse operations involving whole numbers			
5.A.6	Evaluate the perimeter formula for given input values			50 **SB:** 38-8, 38-11
	Students will recognize, use, and represent algebraically patterns, relations, and functions.			
5.A.7	Create and explain patterns and algebraic relationships (e.g., 2, 4, 6, 8,...) algebraically: 2n (doubling)	73-75 **SB:** 44-1 to 44-3, 44-6	4	21, 22 **SB:** 44-1 to 44-4
5.A.8	Create algebraic or geometric patterns using concrete objects or visual drawings (e.g., rotate and shape geometric shapes)			21, 22 **SB:** 44-1 to 44-4
	GEOMETRY			
	Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.			
5.G.1	Calculate the perimeter of regular and irregular polygons			40-42 **SB:** 38-1 to 38-3, 38-13
	Students will identify and justify geometric relationships, formally and informally.			
5.G.2	Identify pairs of similar triangles			18, 62 **SB:** 34-9, 60-2, 60-3, 60-6
5.G.3	Identify the ratio of corresponding sides of similar triangles			58, 63, 64, **SB:** 52-2, 52-6

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5.G.4	Classify quadrilaterals by properties of their angles and sides			9 SB: 34-4, 34-5, 34-10
5.G.5	Know that the sum of the interior angles of a quadrilateral is 360 degrees			27 SB: 55-2
5.G.6	Classify triangles by properties of their angles and sides			8 SB: 34-3
5.G7	Know that the sum of the interior angles of a triangle is 180 degrees			25, 26
5.G.8	Find a missing angle when given two angles of a triangle			26 SB: 55-1
5.G.9	Identify pairs of congruent triangles			18 SB: 34-9, 60-2, 60-3, 60-6
5.G.10	Identify corresponding parts of congruent triangles			18 SB: 34-9, 60-2, 60-3, 60-6
	Students will apply transformations and symmetry to analyze problem solving situations.			
5.G.11	Identify and draw lines of symmetry of basic geometric shapes			17 SB: 60-1
	Students will apply coordinate geometry to analyze problem solving situations.			
5.G.12	Identify and plot points in the first quadrant	77 SB: 43-1		15, 16 SB: 43-1
5.G.13	Plot pints to form basic geometric shapes (identify and classify)			15

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5.G.14	Calculate perimeter of basic geometric shapes drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths and parallel to the axes)			50 **SB:** 38-8, 38-11
	MEASUREMENT			
	Students will determine what can be measured and how, using appropriate methods and formulas.			
5.M.1	Use a ruler to measure to the nearest inch, 1/2, 1/4, and 1/8 inch			30 **SB:** 36-1 to 36-3
5.M.2	Identify customary equivalent units of length			31 **SB:** 36-11
5.M.3	Measure to the nearest centimeter			32 **SB:** 36-5
5.M.4	Identify equivalent metric units of length			33 **SB:** 36-6
5.M.5	Convert measurement within a given system			31, 33 **SB:** 36-4, 36-6
5.M.6	Determine the tool and technique to measure with an appropriate level of precision: lengths and angles			6 **SB:** 37-1 to 37-3
	Students will use units to give meaning to measurements.			
5.M.7	Calculate elapsed time in hours and minutes			28 **SB:** 40-1 to 40-3
5.M.8	Measure and draw angles using a protractor			
	Students will develop strategies for estimating measurements.			

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5.M.9	Determine personal references for customary units of length (e.g., your pace is approximately6 3 feet, your height is approximately 5 feet, etc.)			
5.M.10	Determine personal references for metric units of length			
5.M.11	Justify the reasonableness of estimates			
	STATISTICS AND PROBABILITY			
	Students will collect, organize, display, and analyze data.			
5.S.1	Collect and record data from a variety of sources (e.g., newspapers, magazines, polls, charts, and surveys0	61 SB: 46-5		66-69 SB: 47-1 to 47-5
5.S.2	Display data in a line graph to show an increase or decrease over time			42, 73 SB: 48-2, 48-3
5.S.3	Calculate the mean for a given set of data and use to describe a set of data	59, 60, 62 SB: 46-1 to 46-4		65 SB: 46-1
	Students will make predictions that are based upon data analysis.			
5.S.4	Formulate conclusions and make predictions from graphs			66-76 SB: 47-1 to 47-,6 ,48-1 to 48-5
	Students will understand and apply concepts of probability.			
5.S.5	List the possible outcomes for a single-event experiment		73, 74 SB: 57-1 to 57-,5	
5.S.6	Record experiment results using fractions/ratios		75 SB: 57-3, 57-4	

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5.S.7	Create a sample space and determine the probability of a single event, given a simple experiment (e.g.., rolling a number cube)		73, 74 **SB:** 57-1 to 57-5	