



Math Teachers Press, Inc.

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NEW YORK STATE LEARNING STANDARDS FOR MATHEMATICS CORRELATED TO *MOVING WITH MATH® EXTENSIONS GRADE 6*

		Student Book	Skill Builders
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	14-17, 48, 49	45-1 to 45-5
6.PS.2	Understand that some ways of representing a problem are more efficient than others	14-17, 48, 49	45-1 to 45-5
6.PS.3	Interpret information correctly, identify the problem, and generate possible strategies and solutions	14-17, 48, 49	45-1 to 45-5
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		
6.PS.5	Formulate problems and solutions from everyday situations	16, 17	45-1, 45-2, 45-5
6.PS.6	Translate from a picture/diagram to a numeric expression	14-17, 48, 49	45-1 to 45-5
6.PS.7	Represent problem situations verbally, numerically, algebraically, and/or graphically		
6.PS.8	Select an appropriate representation of a problem	14-17, 48, 49	45-1 to 45-5
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	16, 17	

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6.PS.11	Translate from a picture/diagram to a number or symbolic expression	14-17, 48, 49	45-1 to 45-5
6.PS.12	Use trial and error and the process of elimination to solve problems	14-17, 48, 49	45-1 to 45-5
6.PS.13	Model problems with pictures/diagrams or physical objects		
6.PS.14	Analyze problems by observing patterns	14-17, 48, 49	45-1 to 45-5
6.PS.15	Make organized lists or charts to solve numerical problems	23, 41	3-1, 4-1, 47-1, 47-2
	Students will monitor and reflect on the process of mathematical problem solving.		
6.PS.16	Discuss with peers to understand a problem solving situation	14-17, 48, 49	45-1 to 45-5
6.PS.17	Determine what information is needed to solve problems	14-17, 48, 49	45-1 to 45-5
6.PS.18	Determine the efficiency of different representations of a problem		
6.PS.19	Differentiate between valid and invalid approaches		
6.PS.20	Understand valid counterexamples		
6.PS.21	Explain the methods and reasoning behind the problem solving strategies used	14-17, 48, 49	45-1 to 45-5
6.PS.22	Discuss whether a solution is reasonable in the context of the original problem	14-17, 48, 49	45-1 to 45-5
6.PS.23	Verify results of a problem	14-17, 48, 49	45-1 to 45-5
	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	17	45-2, 45-5
6.RP.2	Understand that mathematical statements can be supported, using models, facts, and relationships to explain their thinking	1, 3, 4, 6, 9, 12, 13, 20, 23, 28, etc.	45-5
	Students will make and investigate mathematical conjectures.		

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6.RP.3	Investigate conjectures, using arguments and appropriate mathematical terms		
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	Journal Prompts throughout	
6.RP.7	Verify claims other students make, using examples and counterexamples when appropriate	T.G. p. 17 16	
	Students will select and use various types of reasoning and methods of proof.		
6.RP.8	Support an argument through examples/counter examples and special cases	Journal Prompt T.G. p. 10	
6.RP.9	Devise ways to verify results	16	45-5
	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	16	45-1
6.CM.2	Explain a rationale for strategy selection	17	45-2
6.CM.3	Organize and accurately label work	T.G. p. 19	
	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	Throughout - examples pp. 1-4 T.G., 12, 15, 20, 23, etc.	
6.CM.5	Answer clarifying question from others	Scripted questions in lesson plans	

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	Students will analyze and evaluate the mathematical thinking and strategies of others.		
6.CM.6	Understand mathematical solutions shared by other students	16, 17	
6.CM.7	Raise questions that elicit, extend, or challenge others' thinking	Scripted questions in lesson plans	
6.CM.8	Consider strategies used and solutions found by others in relation to their own work	17	
	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	Glossary (Masters 13a - 13c) Vocabulary word in each lesson	
6.CM.10	Use appropriate vocabulary when describing objects, relationships, mathematical solutions, and rationale	Glossary (Masters 13a - 13c) Vocabulary word in each lesson	
6.CM.11	Decode and comprehend mathematical visuals and symbols to construct meaning	56-58 (partial examples)	
	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	16, 17, 59, 60	45-1 to 45-4
6.CN.2	Explore and explain the relationship between mathematical ideas	20, 22, 35, 39, 40	29-1, 30-1, 43-1
6.CN.3	Connect and apply mathematical information to solve problems	T.G. p. 16	
	Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.		

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6.CN.4	Understand multiple representations and how they are related	T.G. pp. 1, 2, etc.	
6.CN.5	Model situations with objects and representations and be able to draw conclusions	Throughout	
	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	16, 17, 59, 60	45-1 to 45-4
6.CN.7	Apply mathematics to problem situations that develop outside of mathematics	16	46-1
6.CN.8	Investigate the presence of mathematics in careers and areas of interest	18, 22, 43	43-1
6.CN.9	Recognize and apply mathematics to other disciplines and areas of interest	18, 22, 43	43-1
	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	T.G. pp. 1, 2 14	
6.R.2	Explain, describe, and defend mathematical ideas using representations	Journal Prompt p. 3 (T.G.)	
6.R.3	Read, interpret, and extend external models		
6.R.4	Use standard and nonstandard representations with accuracy and detail		
	Students will select, apply, and translate among mathematical representations to solve problems.		
6.R.5	use representations to explore problem situations	21-23, 28, 35	21-1
6.R.6	Investigate relationships between different representations and their impact on a given problem	T.G. p. 29	
	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)	56	38-1
6.R.8	Use mathematics to show and understand social phenomena (e.g. construct tables to organize data showing book sales)	23, 41	3-1, 4-1, 47-1, 47-2
6.R.9	Use mathematics to show and understand mathematical phenomena (e.g., Find the missing value: $(3 + 4) + 5 = 3 + (4 + \underline{\quad})$)	4	5-1, 5-2
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	1, 36, 37	1-1
6.N.2	Define and identify the commutative and associative properties of addition and multiplication	4	5-1, 5-2
6.N.3	Define and identify the distributive property of multiplication over addition		
6.N.4	Define and identify the identity and inverse properties of addition and multiplication		
6.N.5	Define and identify the zero property of multiplication		
6.N.6	Understand the concept of rate		
6.N.7	Express equivalent ratios as a proportion	T.G. p. 32 30	
6.N.8	Distinguish the difference between rate and ratio		
6.N.9	Solve proportions using equivalent fractions		
6.N.10	Verify the proportionality using the product of the means equals the product of the extremes		
6.N.11	Read, write and identify percents of a whole (0% to 100%)		
6.N.12	Solve percent problems involving percent, rate, and base		
6.N.13	Define absolute value and determine the absolute value of rational numbers (including positive and negative)		

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6.N.14	Locate rationale numbers on a number line (including positive and negative)	35	11-1
6.N.15	Order rational numbers (including positive and negative)	2, 25, 38	2-1, 13-1, 24-1
	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	27, 30, 31	15-1, 17-1, 17-2
6.N.17	Multiply and divide fractions with unlike denominators	32-34	19-1, 19-2, 20-1
6.N.18	Add, subtract, multiply, and divide mixed numbers with unlike denominators	28, 29	16-1, 16-2, 18-1
6.N.19	Identify the multiplicative inverse (reciprocal) of a number		
6.N.20	Represent fractions as terminating or repeating decimals	40	25-1
6.N.21	Find multiple representations of rational numbers (fractions, decimals, and percents 0 to 100)	22-24, 35, 39, 40	12-1, 14-1, 21-1, 22-1, 25-1
6.N.22	Evaluate numerical expressions using order of operations (may include exponents of two and three)		
6.N.23	Represent repeated multiplication in exponential form		
6.N.24	Represent exponential form as repeated multiplication		
6.N.25	Evaluate expressions having exponents where the power is an exponent of one, two, or three		
	Students will compute accurately and make reasonable estimates.		
6.N.26	Estimate a percent of quantity (0% to 100%)		
6.N.27	Justify the reasonableness of answers using estimation (including rounding)	3, 7, 8, 14, 26	3-1, 3-2, 49-1, 49-2, 50-1
	ALGEBRA		
	Students will represent and analyze algebraically a wide variety of problem solving situations.		

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6.A.1	Translate two-step verbal expressions into algebraic expressions		
	Students will perform algebraic procedures accurately.		
6.A.2	Use substitution to evaluate algebraic expressions (may include exponents of one, two and three)		
6.A.3	Translate two-step verbal sentences into algebraic equations		
6.A.4	Solve and explain two-step equations involving whole numbers using inverse operations		
6.A.5	Solve simple proportions within context	T.G. p. 30 23, 39, 40	
6.A.6	Evaluate formulas for given input values (circumference, area, volume distance, temperature, interest, etc.)		
	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		
6.G.2	Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas		
6.G.3	Use a variety of strategies to find the area of regular and irregular polygons	57	38-2
6.G.4	Determine the volume of rectangular prisms by counting cubes and develop the formula	58	39-1
6.G.5	Identify radius, diameter, chords, and central angles of a circle	54	35-1
6.G.6	Understand the relationship between the diameter and radius of a circle	54	35-1
6.G.7	Determine the area and circumference of a circle, using the appropriate formula		
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		

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6.G.9	Understand the relationship between the circumference and the diameter of a circle		
	Students will apply coordinate geometry to analyze problem solving situations		
6.G.10	Identify and plot points in all four quadrants	61	44-1
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)	57	38-2
	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	58	39-1
6.M.2	Identify customary units of capacity (cups, pints, quarts, and gallons)		42-1
6.M.3	Identify equivalent customary units of capacity (cups to pints, pints to quarts, and quarts to gallons)		42-1
6.M.4	Identify metric units of capacity (liter and milliliter)		
6.M.5	Identify equivalent metric units of capacity (milliliter to liter and liter to milliliter)		
6.M.6	Determine the tool and technique to measure with an appropriate level of precision: capacity		42-1
	Students will develop strategies for estimating measurements.		
6.M.7	Estimate volume, area, and circumference (see figures identified in geometry strand)		
6.M.8	Justify the reasonableness of estimates		
6.M.9	Determine personal references for capacity	Journal Prompt p. 58	
	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	19, 62	
6.S.2	Record data in a frequency table	19	
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)		
6.S.5	Determine the mean, mode and median for a given set of data.	18	46-1, 46-2
6.S.6	Determine the range for a given set of data	19	
6.S.7	Read and interpret graphs	62, 63	48-1
	Students will make predictions that are based upon data analysis.		
6.S.8	Justify predictions made from data	T.G. p. 62	
	Students will understand and apply concepts of probability.		
6.S.9	List possible outcomes for compound events		47-2
6.S.10	Determine the probability of dependent events		
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		47-2