Math Teachers Press, Inc.
4850 Park Glen Road, Minneapolis, MN 55416
phone (800) 852-2435 fax (952) 546-7502

NEW YORK STATE LEARNING STANDARDS FOR MATHEMATICS CORRELATED TO *MOVING WITH MATH® EXTENSIONS GRADE 4*

		Student Book	Skill Builders
	PROBLEM SOLVING		
	Students will build new mathematical knowledge through problem solving.		
4.PS.1	Explore, examine, and make observations about a social problem or mathematical situation	21, 23, 33, 36, 44	48-1, 49-1 to 49-3
4.PS.2	Understand that some ways of representing a problem are more helpful than others	21, 23, 33, 36, 44	48-1, 49-1 to 49-3
4.PS.3	Interpret information correctly, identify the problem, and generate possible solutions	21, 23, 33, 36, 44	48-1, 49-1 to 49-3
	Students will solve problems that arise in mathematics and in other contexts.		
4.PS.4	Act out or model with manipulatives activities involving mathematical content from literature		
4.PS.5	Formulate problems and solutions from everyday situations	21, 23, 33, 36, 44	48-1, 49-1 to 49-3
4.PS.6	Translate from a picture/diagram to a numeric expression	1-3 and throughout	
4.PS.7	Represent problem situations in oral, written, concrete, pictorial, and graphical forms	21, 23, 33, 36, 44, 60-64	
4.PS.8	Select an appropriate representation of a problem	37, 38	
	Students will apply and adapt a variety of appropriate strategies to solve problems.		
4.PS.9	Use trial and error to solve problems		
4.PS.10	Use process of elimination to solve problems		
4.PS.11	Make pictures/diagrams of problems	35	
4.PS.12	Use physical objects to model problems	Throughout	
4.PS.13	Work in collaboration with others to solve problems	Cooperative groups throughout	

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4.PS.14	Make organized lists to solve numerical problems	T.G. p. 28 10	
4.PS.15	Make charts to solve numerical problems	T.G. p. 8 5	
4.PS.16	Analyze problems by identifying relationships	T.G. p. 44 23, 26	
4.PS.17	Analyze problems by identifying relevant versus irrelevant information		
4.PS.18	Analyze problems by observing patterns	8	
4.PS.19	State a problem in their own words	T.G. p. 23	
	Students will monitor and reflect on the process of mathematical problem solving.		
4.PS.20	Determine what information is needed to solve a problem	21, 23, 33, 36, 44	48-1, 49-1 to 49-3
4.PS.21	Discuss with peers to understand a problem situation	21, 23, 33, 36, 44	48-1, 49-1 to 49-3
R.-S.22	Discuss the efficiently of different representations of a problem	21, 23, 33, 36, 44	48-1, 49-1 to 49-3
4.PS.23	Verify results of a problem		
4.PS.24	Recognize invalid approaches		
P.PS.25	Determine whether a solution is reasonable in the context of the original problem	T.G. p. 22	
	REASONING AND PROOF		
	Students will recognize reasoning and proof as fundamental aspects of mathematics.		
4.RP.1	Use representations to support mathematical ideas	Pictures ad manipulatives used throughout.	
4.RP.2	Determine whether a mathematical statement is true or false and explain why.	Journal Prompt p. 48	
	Students will make and investigate mathematical conjectures.		
4.RP.3	Investigate and use of knowledgeable guessing by generalizing mathematical ideas	9, 10	
4.RP.4	Make conjectures from a variety of representations		
	Students will develop and evaluate mathematical arguments and proofs.		

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4.RP.5	Justify general claims or conjectures, using manipulatives, models, and expressions	Throughout	
4.RP.6	Develop and explain an argument using oral, written, concrete, pictorial, and/or graphical forms	Journal Prompt p. 28	
4.RP.7	Discuss, listen, and make comments that support or reject claims made by other students	T.G. p. 21	
	Students will select and use various types of reasoning and methods of proof.		
4.RP.8	Support an argument by trying many cases		
4.RP.9	Disprove an argument by finding counterexamples		
	COMMUNICATION		
	Students will organize and consolidate their mathematical thinking through communication.		
4.CM.1	Understand and explain how to organize their thought process	Journal Prompts throughout.	
4.CM.2	Verbally explain their rationale for strategy selection	Journal Prompt p. 23	
4.CM.3	Provide reasoning both in written and verbal form	Journal Prompts and scripted questions.	
	Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others,		
4.CM.4	Organize and accurately label work		
4.CM.5	Share organized mathematical ideas through the manipulation of object , drawing, pictures, charts, graphs., tables, diagrams, models, symbols, and expressions in written and verbal form	Manipulatives, drawings throughout.	
4.CM.6	Answer clarifying questions from others	Scripted questions	
	Students will analyze and evaluate the mathematical thinking and strategies of others.		
4.CM.7	Restate mathematical solutions shared by other students	Cooperative groups.	
4.CM.8	Consider strategies used and solutions found in relation to their own work	Cooperative groups	

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	Students will use the language of mathematics to express mathematical ideas precisely.		
4.CM.9	Increase their use of mathematical vocabulary and language when communicating with others	Glossary (Masters 18a, 18b) Journal Prompts	
4.CM.10	Describe objects, relationships, solutions, and rationale using appropriate vocabulary	Glossary (Masters 18a, 18b) Journal Prompts	
4.CM.11	Decode and comprehend mathematical visuals and symbols to construct meaning	63, 64	
	CONNECTIONS		
	Students will recognize and use connections among mathematical ideas.		
4.CN.1	Recognize, understand, and make connections in their everyday experiences to mathematical ideas	21, 23, 33, 36, 44	
4.CN.2	Compare and contrast mathematical ideas	T.G. p. 1	
4.CN.3	Connect and apply mathematical information to solve problems	58, 59	
	Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.		
4.CN.4	Understand multiple representations and how they are related	1-3 as one example	
4.CN.5	Model situations with objects and representations and be able to make observations	Throughout	
	Students will recognize and apply mathematics in contexts outside of mathematics.		
4.CN.6	Recognize the presence of mathematics in their daily lives	21, 23, 33, 36, 44	
4.CN.7	Apply mathematics to solve problems that develop outside of mathematics	21, 23, 33, 36, 44	
4.CN.8	Recognize and apply mathematics to other disciplines	58, 59	
	REPRESENTATION		

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	Students ill create and use representations to organize, record, and communicate mathematical ideas		
4.R.1	Use verbal and written language, physical models, drawing charts, graphs, tables, symbols, and equations as representations	Throughout	
4.R.2	Share mental images of mathematical ideas and understandings	Journal Prompt p. 71	
4.R.3	Recognize and use external mathematical representations		
4.R.4	Use standard and nonstandard representations with accuracy and detail		
	Students will select, apply, and translate among mathematical representations to solve problems.		
4.R.5	Understand similarities and differences in representations	T.G. p. 63	
4.R.6	Connect mathematical representations with problem solving	33, 60-62	
4.R.7	Construct effective representations to solve problems	9, 10	7-1, 8-1
	Students will use representations to model and interpret physical, social, and mathematical phenomena.		
4.R.8	Use mathematics to show and understand physical phenomena (e.g., estimate and represent the number of apples in a tree)		
4.R.9	Use mathematics to show and understand social phenomena (e.g., determine the number of buses required for a field trip)	21, 23, 33	
4.R.10	Use mathematics to show and understand mathematical phenomena (e.g., use a multiplication rid to solve odd and even number problems)	T.G. p. 8	
	NUMBER SENSE AND OPERATION		
	Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.		
4.N.1	Skip count by 1,000's		
4.N.2	Read and write whole numbers to 10,000	1, 2, 4, 7	1-1, 4-1, 5-1, 6-1

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4.N.3	Compare and order numbers to 10,000	5, 6, 47	2-1, 32-1
4.N.4	Understand the place value structure of the base ten number system:		
	10 ones = 1 ten	1-3	1-1
	10 tens = 1 hundred	1-3	1-1
	10 hundreds = 1 thousand	3	
	10 thousands = 1 ten thousand		
4.N.5	Recognize equivalent representations for numbers up to four digits and generate them by decomposing and composing numbers	1-3	1-1
4.N.6	Understand, use, and explain the associative property of multiplication		
4.N.7	Develop an understanding of fractions as locations on number lines and as divisions of whole numbers	45, 46	30-1, 31-1, 32-1
4.N.8	Recognize and generate equivalent fractions (halves, fourths, thirds, fifths, sixths, and tenths) using manipulatives, visual models, and illustrations	47, 48	32-1
4.N.9	Use concrete materials and visual models to compare and order unit fractions or factions with the same denominator (with and without the use of a number line)	47	32-1
4.N.10	Develop an understanding of decimals as part of a whole		
4.N.11	Read and write decimals to hundredths, using money as a context	24	47-1, 47-2
4.N.12	Use concrete materials and visual models to compare and order decimals (less than 1) to the hundredths place in the context of money		
4.N.13	Develop an understanding of the properties of odd/even numbers as a result of multiplication	T.G. p. 8	
	Students will understand meanings of operations and procedures, and how they relate to one another.		
4.N.14	Use a variety of strategies to add and subtract numbers up to 10,000	11-20	9-2, 10-1, 11-1, 12-1, 13-1, 14-1, 15-1, 15-2, 16-1, 17-1, 18-1, 19-1

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4.N.15	Select appropriate computational and operational methods to solve problems	21, 23	24-1, 49-3
4.N.16	Understand various meanings of multiplication and division	25-27, 35, 37-40, 42, 43	20-1 to 20-3, 25-1 to 25-4, 27-1, 27-2, 28-1, 29-1
4.N.17	Use multiplication and division as inverse operations to solve problems	38, 39	25-2 to 25-4
4.N.18	Use a variety of strategies to multiply two-digit numbers by one-digit numbers (with and without regrouping)	29, 30	21-1, 21-2, 47-3
4.N.19	Use a variety of strategies to multiply two-digit numbers by two-digit numbers (with and without regrouping)	35	22-1, 23-1
4.N.20	Develop fluency in multiplying and dividing multiples of 10 and 100 up to 1,000	28, 35	22-1
4.N.21	Use a variety of strategies to divide two-digit dividends by one-digit divisors (with and without remainders)	37-42	25-1 to 25-4, 26-1, 27-1
4.N.22	Interpret the meaning of remainders		
4.N.23	Add and subtract proper fractions with common denominators	49, 50	33-1, 33-2, 34-1
4.N.24	Express decimals as an equivalent form of fractions to tenths and hundredths		
4.N.25	Add and subtract decimals to tenths and hundredths using a hundreds chart	33	
	Students will compute accurately and make reasonable estimates.		
4.N.26	Round numbers less than 1,000 to the nearest tens and hundreds	9, 10	7-1, 8-1
4.N.27	Check reasonableness of an answer by using estimation	22, 34	
	ALGEBRA		
	Students will represent and analyze algebraically a wide variety of problem solving situations		
4.A.1	Evaluate and express relationships using open sentences with one operation		14-1, 19-1, 24-1, 29-1

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	Students will perform algebraic procedures accurately.		
4.A.2	Use the symbols <, >, =, and ≠ (with and without the use of a number line) to compare whole numbers and unit fractions and decimals (up to hundredths)	5, 47	32-1
4.A.3	Find the value or values that will make an open sentence true, if it contains < or >		
	Students will recognize, use, and represent algebraically patterns, relations, and functions.		
4.A.4	Describe, extend, and make generalizations about numeric (+, -, x, ÷) and geometric patterns	8, 25	3-1, 20-1
4.A.5	Analyze a pattern or a whole-number function and state the rule, given a table or an input/output box	T.G. p. 25	25-1
	GEOMETRY		
	Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.		
4.G.1	Identify and name polygons, recognizing that their by names are related to the number of sides and angles (triangle, quadrilateral, pentagon, hexagon, and octagon)	54	39-1
4.G.2	Identify points and line segments when drawing a plane figure	51	
4.G.3	Find perimeter of polygons by adding sides	60, 61	46-1
4.G.4	Find the area of a rectangle by counting the number of squares needed to cover the rectangle	62	46-2
4.G.5	Define and identify vertices, faces, and edges of three-dimensional shapes		
	Students will identify and justify geometric relationships, formally and informally		
4.G.6	Draw and identify intersecting, perpendicular, and parallel lines	53	36-1, 37-1
4.G.7	Identify points and rays when drawing angles	52	35-1
4.G.8	Classify angles as acute, obtuse, right, and straight		
	MEASUREMENT		
	Students will determine what can be measured and how, using appropriate methods and formulas.		

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4.M.1	Select tools and units (customary and metric) appropriate for the length being measured	57-59	43-1, 45-1
4.M.2	Use a ruler to measure to the nearest standard unit (whole, 1/2 and 1/4 inches, whole feet, whole yards, whole centimeters, and whole meters)	57-59,	43-1, 45-1
4.M.3	Know and understand equivalent standard units of length:		
	12 inches = 1 foot	58	
	3 feet = 1 yard	58	
4.M.4	Select tools and units appropriate to the mass of the object being measured (grams and kilograms)		44-1
4.M.5	Measure mass, using grams		
4.M.6	Select tools and units appropriate to the capacity being measured (milliliters and liters)		44-1
4.M.7	Measure capacity, using milliliters and liters		
	Students will use units to give meaning to measurement		
4.M.8	Make change, using combined coins and dollar amounts	24	47-1, 47-2
4.M.9	Calculate elapsed time in hours and half hours, not crossing A.M./P.M.	55, 56	41-1, 47-2
4.M.10	Calculate elapsed time in days and weeks, using a calendar		42-1
	STATISTICS AND PROBABILITY		
	Students will collect, organize, display, and analyze data.		
4.S.1	Design investigations to address a question from a given data	63, 64	50-1, 50-2
4.S.2	Collect data using observations, surveys, and experiments and record appropriately	63	50-1, 50-2
4.S.3	Represent data using tables, bar graphs, and pictographs	63, 64	50-1 to 50-3
4.S.4	Read and interpret line graphs		
	Students will make predictions that are based upon data analysis.		
4.S.5	Develop and make predictions that are based on data	64	50-3, 50-4, 50-7

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4.S.6	Formulate conclusions and make predictions from graphs	64	50-3