NEW MEXICO MATHEMATICS CONTENT STANDARDS CORRELATED TO *MOVING WITH MATH® EXTENSIONS GRADE 4*

		Student Book	Skill Builders
	STANDARD 1: NUMBER AND OPERATIONS		
	Students will understand numerical concepts and mathematical operations.		
A.	**Understand numbers, ways of representing numbers, and relationships among numbers, and number systems.**		
1.	Exhibit an understanding of the place-value structure of the base-ten number system by reading, modeling, writing, and interpreting whole numbers up to 100,000; compare and order the numbers:	1- 4, 6, 28	1-1, 2-1, 6-1
•	recognize equivalent representations for the same number and generate them by decomposing and combining numbers (e.g., 853 = 8 x 100 + 5 x 10 + 3; 853 = 85 x 10 + 3; 853 = 900 ? 50 + 3)	7, 25, 38	4-1, 5-1, 20-1, 25-2
•	identify the numbers less than 0 by extending the number line and using negative numbers through familiar applications (e.g., temperature, money)	24	47-1, 47-2
2.	Identify fractions as parts of unit wholes, as parts of groups, and as locations on number lines:		
•	use visual models and other strategies to compare and order commonly used fractions	27, 32	20-3
•	use models to show how whole numbers and decimals (to the hundredths place) relate to simple fractions, e.g., ?, 5/10, and 0.5)	24, 45	30-1, 47-1, 47-2
•	identify different interpretations of fractions:	45, 46	6-7, 31-1, 50-4
	- division of whole numbers by whole numbers	40, 41	26-1
	- ratio	45	30-1
	- equivalence	47	32-1
	- ordering of fractions	45	30-1
	- parts of a whole or parts of a set	48, 49	33-1, 34-1
3.	Add and subtract fractions with common and common denominators using a variety of strategies (e.g., manipulatives, numbers, and pictures):	49, 50	33-1, 33-2, 34-1

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•	recognize and generate equivalent decimal forms of commonly used fractions (e.g., halves quarters, tenths, fifths)	24	47-1, 47-2
•	identify the numbers less than 0 by extending the number line and using negative numbers through familiar applications (e.g., temperature, money)	24	47-1, 47-2
4.	Recognize classes of numbers (e.g., odd, even, factors, multiples, square numbers) and apply these concepts in problem-solving situations.	8, 9, 21	3-1, 7-1
B.	**Understand the meaning of operations and how they relate to one another.**		
1.	Demonstrate an understanding of and the ability to use:		
•	standard algorithms for the addition and subtraction of multi-digit numbers	13-15, 18, 19	10-1, 11-1, 12-1, 15-23, 16-1
•	standard algorithms for multiplying a multi-digit number by a two-digit number and for dividing a multi-digit number by a one-digit number	28, 29	21-1
2.	Select and use appropriate operations (addition, subtraction, multiplication, and division) to solve problems.	20, 23	17-1, 18-1, 19-1
3.	Extend the uses of whole numbers too the addition and subtraction of simple decimals (positive numbers to two places).	19, 24	16-1, 47-1, 47-2
4.	Demonstrate commutative, associative, identity, and zero properties of operations on whole numbers (e.g., 37 x 46 = 46 x 37 and (6 x 2) x 5 = 6 x (2 x 5).	17	15-1
5.	Demonstrate the concept of distributivity of multiplication over addition and subtraction (e.g., 7 x 28 is equivalent to (7 x 20) + (7 x 8) or (7 x 30) - (7 x 2).	29-31	21-1, 21-2, 47-3
C.	**Compute fluently and make reasonable estimates.**		
1.	Demonstrate multiplication combinations through 12 x 12 and related division facts, and use them to solve problems mentally and compute related problems (e.g., 4 x 5 is related to 40 x 50, 400 x 5, and 40 x 500).	30, 31	21-2, 47-3
2.	Add, subtract, and multiply up to two double-digits accurately and efficiently.	15	12-1

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3.	Use a variety of strategies (e.g., rounding and regrouping) to estimate the results of whole number computations and judge the reasonableness of the answers.	22	
4.	Use strategies to estimate computations involving fractions and decimals.	22, 34	
	STANDARD 2: ALGEBRA		
	Students will understand algebraic concepts and applications		
A.	**Understand patterns, relations, and functions.**		
1.	Represent and analyze patterns and simple functions using words, tables, and graphs.	5, 10, 11	8-1, 9-1
2.	Create and describe numeric and geometric patterns including multiplication and division patterns.	42, 43	27-1, 27-2, 28-1, 29-1
3.	Express mathematical relationships using equations.	43	27-1, 27-2, 28-1, 29-1
4.	Use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:		
•	use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding of the concept of a variable)	39	25-3, 25-4
•	interpret and evaluate mathematical expressions using parentheses	12, 27	9-2, 20-3
•	use and interpret formulas, (e.g., Area = Length x Width or A = L x W) to answer questions about quantities and their relationships.	12	9-2
B.	**Represent and analyze mathematical situations and structures using algebraic symbols.**		
1.	Identify symbols and letters that represent the concept of a variable as an unknown quantity.	33, 37, 39	25-1, 25-3, 25-4
2.	Explore the properties (commutative, distributive, associative) in the computation of whole numbers.	12	9-2
3.	Express mathematical relationships using equations.	37	25-1
4.	Determine the value of variables in simple equations (e.g., 80 x 15 = 40 x ___).	39	25-3, 25-4
5.	Develop simple formulas in exploring quantities and their relationships (e.g., A = L x W).	12	9-2
C.	**Use mathematical models to represent and understand quantitative relationships.**		

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1.	Solve problems involving proportional relationships (including unit pricing and map interpretations; e.g., one inch = five miles; therefore, five inches = ___ miles).	]49, 50	33-1, 33-2, 34-1
2.	Model problem situations and use graphs, tables, pictures, and equations to draw conclusions (e.g., different patterns of change).	26, 27, 35	20-2, 20-3, 22-1, 23-1, 24-1
3.	use and interpret formulas (e.g., Area = Length x Width or A = L x W) to answer questions about quantities and their relationships.	39	25-3
D.	Analyze changes in various contexts.		
1.	Identify and describe situations with constant or varying rates of change and compare them.		
2.	Determine how a change in one variable relates to a change in a second variable (e.g., data tables, input-output machines).		
3.	Find and analyze patterns using data tables (e.g. T tables).	9	7-1
4.	Demonstrate and describe varying rates of change in relation to real-world situations (e.g., plant growth, students' heights).	24, 34, 44, 46	31-1, 47-1, 47-2, 49-1 to 49-3, 50-4, 50-6, 50-7
	STANDARD 3: GEOMETRY		
	Students will understand geometric concepts and applications.		
A.	Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.		
1.	Identify, compare, and analyze attributes of two- and three-dimensional shapes and develop vocabulary to describe the attributes: build, draw, create, and describe geometric objects, identify lines that are parallel or perpendicular, identify and compare congruent and similar figures.	51	
2.	Classify two- and three-dimensional shapes according to their properties and develop definitions of classes like triangles and pyramids:	52, 54	35-1
•	visualize, describe, and make models of geometric solids in terms of the number of faces, edges, and vertices	54	38-1, 39-1, 39-2, 40-1
•	interpret two-dimensional representations of three-dimensional objects.	52, 54	38-1, 39-1, 39-2, 40-1

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3.	Make and test conjectures about geometric properties and relationships and develop logical arguments to justify conclusions.	52, 53		4E: 35-1, 37-1, 56-1
B.	Specify locations and describe spatial relationships using coordinate geometry and other representational systems.			
1.	Describe location and movement using common language and geometric vocabulary.	16		13-1, 14-1
2.	use ordered pairs to graph, locate, identify points, and describe paths in the first quadrant of the coordinate plane.			
3.	Use a variety of methods for measuring distances between locations on a grid.	57		43-1
C.	Apply transformations and use symmetry to analyze mathematical situations.			
1.	Create and describe rotational designs using language of transformational symmetry.	53		36-1, 37-1
2.	Describe a motion or set of motions that will show that two shapes are congruent.	54		38-1, 39-1, 39-2, 40-1
D.	Use visualization, spatial reasoning, and geometric modeling to solve problems.			
1.	Develop and use mental images of geometric shapes to solve problems (e.g., represent three-dimensional shapes in two dimensions).	54		38-1, 39-1, 39-2, 40-1
2.	Use geometric models such as number lines, arrays, and computer simulations to investigate number relationships (e.g., patterns).	8, 9		3-1, 7-1
3.	Explore relationships involving perimeter and area:			
•	measure area of rectangular shapes and use appropriate units	62		46-2
•	recognize that area can have the same perimeter but different areas and vice versa	60, 61		46-1
•	use models and formulas to solve problems involving perimeter and area of rectangles and squares (e.g., arrays).	60-62		46-1, 46-2
	STANDARD 4: MEASUREMENT			
	Students will understand measurement systems and applications.			
A.	Understand measurable attributes of objects and the units, systems, and process of measurement.			

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1.	Select the appropriate type of unit for measuring perimeter and size of an angle.	60, 61	46-1
2.	Understand the need for measuring with standard units and become familiar with the standard units in customary and metric system.	58, 59	44-1
3.	Identify the inverse relationship between the size of the units and the number of units.		
4.	Develop formulas to determine the surface areas of rectangular solids.	62	46-2
5.	Develop, understand, and use formulas to find the area of rectangles and related triangles and parallelograms.	58, 59	44-1, 45-1
6.	Cary out simple conversions within a system of measurement (e.g., hours to minutes, meters to centimeters).	58, 59	44-1, 45-1
B.	Apply appropriate techniques, tools, and formulas to determine measurements.		
1.	Estimate perimeters, areas of rectangles, triangles, and irregular shapes.	60, 61	46-1
2.	Find the area of rectangles, related triangles, and parallelograms	62	46-2
3.	Estimate, measure, and solve problems involving length, area, mass, time, and temperature using appropriate standard units and tools.	16, 17, 57, 62	13-1, 14-1, 15-1, 43-1, 46-2
4.	Identify common measurements of turns 9e.g., 360 degrees in one turn, 90 degrees in a quarter turn).		
5.	Compute elapsed time and make and interpret schedules.	55, 56	41-1, 41-2
6.	Use tools to measure angles (e.g., protractor, compass).		
	STANDARD 5: DATA ANALYSIS AND PROBABILITY		
	The student will understand how to formulate questions, analyze data, and determine probabilities.		
A.	Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.		
1.	Organize, represent, and interpret numerical and categorical data and clearly communicate findings: choose and construct representations that are appropriate for the data set recognize the differences in representing categorical and numerical data.	63, 64	42-1, 50-1 to 50-3, 50-5
2.	Design investigations and represent data using tables and graphs (e.g., line plots, bar graphs, line graphs).	63, 64	42-1, 50-1 to 50-3, 50-5

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B.	Select and use appropriate statistical methods to analyze data.		
1.	Compare and describe related data sets.	63	50-1, 50-2
2.	Use the concepts of median, mode, maximum, minimum, and range and draw conclusions about a data set.		
3.	Use data analysis to make reasonable inferences/predictions and to develop convincing arguments from data described in a variety of formats (e.g., bar graphs, Venn diagrams, charts, tables, line graphs, and pictographs).	64	42-1, 50-3, 50-5
C.	Develop and evaluate inferences and predictions that are based on data.		
1.	Propose and justify conclusions and predictions based on data.	16, 17	13-1, 14-1, 15-1
2.	Develop convincing arguments from data displayed in a variety of formats.	36	48-1
D.	Understand and apply basic concepts of probability.		
1.	Describe events as 'likely', 'unlikely', or 'impossible' and quantify simple probability situations:		
•	represent all possible outcomes for a simple probability situation in an organized way (e.g., ablest, grids, tree diagrams)		
•	express outcomes of experimental probability situations verbally and numerically (e.g., three out of four; 3/4).		
2.	List all possible combinations of objects from three sets (e.g., spinners, number of outfits from three different shirts, two skirts, and two hats).		