

MATH TO KNOW © 2006

correlated to

**New Mexico Mathematics Content Standards,
Benchmarks, and Performance Standards
Grades 3-4**



EDUCATION GROUP



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YOUR NEW MEXICO GREAT SOURCE REPRESENTATIVE

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Publisher: Great Source Education Group

Title: Math to Know

ISBN: 978-0-669-53596-9

NEW MEXICO MATHEMATICS CONTENT STANDARDS, BENCHMARKS, & PERFORMANCE STANDARDS
Publisher Alignment Analyses for Primary Tool of Instruction

This correlation table/matrix is a tool to show alignment with New Mexico’s Content Standards, Benchmarks, & Performance Standards and the proposed instructional material considered for adoption. The purpose is to demonstrate how your material can contribute to student achievement as measured against these Content Standards.

Attach a completed copy of this document to each core basal sample you are submitting for review. You will submit 3 copies of each student & teacher edition for each title & other material deemed necessary to provide appropriate instruction, along with these alignment documents at the 2006 June Summer Institute. DO NOT SEND WITH THE RFP.

Mathematics Grade 3

Standard 1: NUMBER AND OPERATIONS: Students will understand numerical concepts and mathematical operations.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems.	1. Exhibit an understanding of the place-value structure of the base-ten number system by: <ul style="list-style-type: none">• reading, modeling, writing, and interpreting whole numbers up to 10,000• comparing and ordering numbers up to 1,000• recognizing the position of a given number in the base-ten number system and its relationship to benchmark numbers such as 10, 50, 100, 500	2-16	
	2. Use whole numbers by using a variety of contexts and models (e.g., exploring the size of 1,000 by skip-counting to 1,000 using hundred charts or strips 10 or 100 centimeters long).	2-16	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems.	3. Identify some representations for some numbers and generate them by decomposing and recombining numbers (e.g., $853 = 8 \times 100 + 5 \times 10 + 3$; $85 \times 10 + 3 = 853$; $853 = 900 - 50 + 3$).	5-7	
	4. Identify the relationship among commonly encountered factors and multiples (e.g., factor pairs of 12 are 1×12 , 2×6 , 3×4 ; multiples of 12 are 12, 24, 36).	89, 90, 94, 95, 118	
	5. Use visual models and other strategies to recognize and generate equivalents of commonly used fractions and mixed numbers (e.g., halves, thirds, fourths, sixths, eighths, and tenths).	210-213	
	6. Demonstrate an understanding of fractions as parts of unit wholes, parts of a collection or set, and as a location on a number line.	214-215, 216	
	7. Use common fractions for measuring and money (e.g., using fractions and decimals as representations of the same concept, such as half of a dollar = 50 cents).	The opportunity to address this objective is available on the following pages: 17-19, 109, 347	

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B. Understand the meaning of operations and how they relate to one another.	1. Use a variety of models to show an understanding of multiplication and division of whole numbers (e.g., charts, arrays, diagrams, and physical models [i.e., modeling multiplication with a variety of pictures, diagrams, and concrete tools to help students learn what the factors and products represent in various contexts]).	60-73, 74-85	
	2. Find the sum or difference of two whole numbers between 0 and 10,000.	146-153, 159-167	
	3. Solve simple multiplication and division problems (e.g., $135 \div 5 = []$).	172-178, 184-191	

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B. Understand the meaning of operations and how they relate to one another.	4. Identify how the number of groups and the number of items in each group equals a product.	64-65, 67-69, 118	
	5. Demonstrate the effects of multiplying and dividing on whole numbers (e.g., to find the total number of legs on 12 cats, 4 represents the number of each [cat] unit, so $12 \times 4 = 48$ [leg] units).	64-65, 68, 72-73, 78-80, 82, 85, 384-385, 388-389	
	6. Identify and use relationship between multiplication and division (e.g., division is the inverse of multiplication) to solve problems.	77, 81-83, 94-95	
	7. Select and use operations (e.g., addition, multiplication, subtraction, division) to solve problems.	388-389	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
C. Compute fluently and make reasonable estimates.	1. Choose computational methods based on understanding the base-ten number system, properties of multiplication and division, and number relationships.	102-127, 146-153, 159-167, 172-178, 184-191, 198-204, 206-207, 240-247	
	2. Use strategies (e.g., 6×8 is double 3×8) to become fluent with the multiplication pairs up to 10×10 .	64-73	
	3. Compute with basic number combinations (e.g., multiplication pairs up to 10×10 and their division counterparts).	30-73	
	4. Demonstrate reasonable estimation strategies for measurement, computation, and problem solving.	132-143, 390-391, 394-395	

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Mathematics Grade 3

Standard 2: ALGEBRA: Students will understand algebraic concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand patterns, relations, and functions.	1. Represent relationships of quantities in the form of mathematical expressions, equations, or inequalities.	34-45, 46-59, 60-73, 74-87, 101-127, 146-158, 159-178, 172-183, 184-207, 240-249, 250-254, 255-257, 384-385, 388-393	
	2. Solve problems involving numeric equations.	255-257, 384-385, 388-391	
	3. Select appropriate operational and relational symbols to make an expression true (e.g., “If $4 \square 3 = 12$, what operational symbol goes in the box?”).	The opportunity to address this objective is available on the following pages: 255-257	
	4. Use models of feet and inches to express simple unit conversions in symbolic form (e.g., 36 inches = \square feet \times 12) that develop conceptual understanding versus procedural skills.	The opportunity to address this objective is available on the following pages: 346-347	

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Standard 2: ALGEBRA: Students will understand algebraic concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand patterns, relations, and functions.	5. Recognize and use the commutative property of multiplication (e.g., if $5 \times 7 = 35$, then what is 7×5 ?).	67, 241	
	6. Create, describe, and extend numeric and geometric patterns including multiplication patterns.	64, 65, 90, 118, 324-325, 374-376, 378-379	
	7. Represent simple functional relationships: <ul style="list-style-type: none">• solve simple problems involving a functional relationship between two quantities (e.g., find the total cost of multiple items given the cost per unit)• extend and recognize a linear pattern by its rules (e.g., the number of legs on a given number of horses may be calculated by counting by 4s, by multiplying the number of horses by 4, or through the use of tables)	260-261, 374-376, 378-379	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
B. Represent and analyze mathematical situations and structures using algebraic symbols.	1. Determine the value of variables in missing part problems (e.g., $139 + [] = 189$).	256-257, 384-385	
	2. Recognize and use the commutative and associative properties of addition and multiplication (e.g., "If $5 \times 7 = 35$, then what is 7×5 ? And if $5 \times 7 \times 3 = 105$, then what is $7 \times 3 \times 5$?").	240-243	
	3. Explore the ways that commutative, distributive, identity, and zero properties are useful in computing with numbers.	The opportunity to address this objective is available on the following pages: 106-109, 114-115, 123-125, 240-246	

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Standard 2: ALGEBRA: Students will understand algebraic concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
C. Use mathematical models to represent and understand quantitative relationships.	1. Model problem situations with objects and use representations such as pictures, graphs, tables, and equations to draw conclusions.	369-385, 387-397	
	2. Solve problems involving proportional relationships including unit pricing (e.g., four apples cost 80 cents; therefore, one apple costs 20 cents).	The opportunity to address this objective is available on the following pages: 119, 179, 192-193	
	3. Describe relationships of quantities in the form of mathematical expressions, equations, or inequalities.	34-45, 46-59, 60-73, 74-87, 101-127, 146-158, 159-178, 172-183, 184-207, 240-249, 250-254, 255-257, 384-385, 388-393	
	4. Select appropriate operational and relational symbols to make an expression true (e.g., "If $4 \square 3 = 12$, what operational symbol goes in the box?").	The opportunity to address this objective is available on the following pages: 255-257	

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Standard 2: ALGEBRA: Students will understand algebraic concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
D. Analyze changes in various contexts.	1. Demonstrate how change in one variable can relate to a change in a second variable (e.g., input-output machines, data tables).	260-261, 378-379	

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Mathematics Grade 3

Standard 3: GEOMETRY: Students will understand geometric concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.	1. Describe and compare the attributes of plane and solid geometric figures to show relationships and solve problems: <ul style="list-style-type: none">• identify, describe, and classify polygons (e.g., pentagons, hexagons, and octagons)• identify lines of symmetry in two-dimensional shapes• explore attributes of quadrilaterals (e.g., parallel and perpendicular sides for the parallelogram, right angles for the rectangle, equal sides and right angles for the square)• identify right angles• identify, describe, and classify common three-dimensional geometric objects (e.g., cube, rectangular solid, sphere, prism, pyramid, cone, cylinder)	305, 308, 310-316, 322-323, 326-329	
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 (e.g., directions from classroom to gym).	No specific lesson addresses this objective.	
	2. Use ordered pairs to graph, locate specific points, create paths, and measure distances within a coordinate grid system.	258-259	
	3. Use a two-dimensional grid system (e.g., a map) to locate positions representing actual places.	258-259, 434-436	

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Standard 3: GEOMETRY: Students will understand geometric concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
C. Apply transformations and use symmetry to analyze mathematical situations.	1. Predict and describe the results of sliding, flipping, and turning two-dimensional shapes.	318-319	
	2. Identify and describe the line of symmetry in two-and three-dimensional shapes.	322-323	

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Standard 3: GEOMETRY: Students will understand geometric concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
D. Use visualization, spatial reasoning, and geometric modeling to solve problems.	1. Visualize, build, and draw geometric objects.	324-325, 426-427	
	2. Create and describe mental images of objects, patterns, and paths.	The opportunity to address this objective is available on the following pages: 324-325, 426-427	
	3. Recognize geometric shapes and structures (e.g., in the environment).	311, 316, 328-329	
	4. Use geometric models to solve problems in other areas of mathematics (e.g., using arrays as models of multiplication or area).	61, 65, 83, 99, 212-213, 262-263, 348-349, 350-353, 354-355, 372-373, 374-375	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
D. Use visualization, spatial reasoning, and geometric modeling to solve problems	5. Identify and build three-dimensional objects from two-dimensional representations of that object.	The opportunity to address this objective is available on the following pages: 326-329, 426-427	
	6. Investigate two-dimensional representations of three-dimensional shapes.	The opportunity to address this objective is available on the following pages: 328-331	
	7. Explore geometric ideas and relationships as they apply to other disciplines and to problems that arise in the classroom or in everyday life.	No specific lesson addresses this objective.	

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Mathematics Grade 3

Standard 4: MEASUREMENT: Students will understand measurement systems and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand measurable attributes of objects and the units, systems, and process of measurement.	1. Demonstrate understanding of the need for measuring with standard units and become familiar with standard units in the U.S. customary system.	345-347, 356-357, 358-359, 360-361, 431-433	
	2. Choose and use the appropriate units and measurement tools to quantify the properties of objects (e.g., length [ruler], width [ruler], or mass [balance scale]).	The opportunity to address this objective is available on the following pages: 345-347, 356-357, 358-359, 360-361, 431-433	
	3. Identify time to the nearest minute (elapsed time) and relate time to everyday events.	334-340	

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Standard 4: MEASUREMENT: Students will understand measurement systems and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand measurable attributes of objects and the units, systems, and process of measurement.	4. Identify and use time intervals (e.g., hours, days, weeks, months, years).	334-340, 341-344	
	5. Identify properties (e.g., length, area, weight, volume) and select the appropriate type of unit for measuring each property.	345-347, 356-357, 358-359, 360-361, 431-433	
	6. Demonstrate understanding that measurements are approximations, investigate differences in units and their effect on precision, and consider the degree of accuracy for different situations.	The opportunity to address this objective is available on the following pages: 345-347, 356-357, 358-359, 360-361, 431-433	

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Mathematics Grade 3

Standard 4: MEASUREMENT: Students will understand measurement systems and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
B. Apply appropriate techniques, tools, and formulas to determine measurements.	1. Find the area of rectangles using appropriate tools (e.g., grid paper, tiles).	263, 350-353	
	2. Estimate measurements.	The opportunity to address this objective is available on the following pages: 345-347, 356-357, 358-359, 360-361, 431-433	
	3. Use appropriate standard units and tools to estimate, measure, and solve problems (e.g., length, area, weight).	345-347, 356-357, 358-359, 360-361, 431-433	
	4. Recognize a 90-degree angle and use it as a strategy to estimate the size of other angles.	307-309	

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Mathematics Grade 3

Standard 5: DATA ANALYSIS AND PROBABILITY: Students will understand how to formulate questions, analyze data, and determine probabilities.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.	1. Collect and organize data using observations, measurements, surveys, or experiments.	266-283	
	2. Represent data using tables and graphs (e.g., line plots, bar graphs, and line graphs).	267-283	
	3. Conduct simple experiments by determining the number of possible outcomes and make simple predictions: <ul style="list-style-type: none">• identify whether events are certain, likely, unlikely, or impossible• record the outcomes for a simple event and keep track of repetitions• summarize and record the results in a clear and organized way• use the results to predict future events	The opportunity to address this objective is available on the following pages: 292-293, 297-299	

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Standard 5: DATA ANALYSIS AND PROBABILITY: Students will understand how to formulate questions, analyze data, and determine probabilities.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
B. Select and use appropriate statistical methods to analyze data.	1. Apply and explain the uses of sampling techniques (e.g., observations, polls, tally marks) for gathering data.	266-267	
C. Develop and evaluate inferences and predictions that are based on data.	1. Analyze data displayed in a variety of formats to make reasonable inferences and predictions, answer questions, and make decisions.	The opportunity to address this objective is available on the following pages: 267-283	
D. Understand and apply basic concepts of probability.	1. Discuss the degree of likelihood of events and use terminology such as “certain,” “likely,” “unlikely”.	292-296	
	2. Predict the outcomes of simple experiments (e.g., coin tossing) and test the predictions using concrete objects (e.g., coins, counters, number cubes, spinners).	297-299	
	3. Record the probability of a specific outcome for a simple probability situation (e.g., probability is three out of seven for choosing a black ball; $3/7$).	297-299	

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Mathematics Grade 4

Standard 1: NUMBER AND OPERATIONS: Students will understand numerical concepts and mathematical operations.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand numbers, ways of representing numbers, 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: <ul style="list-style-type: none">• recognize equivalent representations for the same number and generate them by decomposing and combining numbers (e.g., $853 = 8 \times 100 + 5 \times 10 + 3$; $853 = 85 \times 10 + 3$; $853 = 900 - 50 + 3$)• identify the numbers less than 0 by extending the number line and using negative numbers through familiar applications (e.g., temperature, money)	2-16, 238-239	

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Mathematics Grade 4

Standard 1: NUMBER AND OPERATIONS: Students will understand numerical concepts and mathematical operations.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems.	2. Identify fractions as parts of unit wholes, as parts of groups, and as locations on number lines: <ul style="list-style-type: none">• use visual models and other strategies to compare and order commonly used fractions• use models to show how whole numbers and decimals (to the hundredths place) relate to simple fractions (e.g., $\frac{1}{2}$, $\frac{5}{10}$, and 0.5)• identify different interpretations of fractions:<ul style="list-style-type: none">○ division of whole numbers by whole numbers○ ratio○ equivalence○ ordering of fractions○ parts of a whole or parts of a set	210-226, 430	
	3. Add and subtract fractions with common and uncommon denominators using a variety of strategies (e.g., manipulatives, numbers, pictures): <ul style="list-style-type: none">• recognize and generate equivalent decimal forms of commonly used fractions (e.g., halves, quarters, tenths, fifths)• identify the numbers less than 0 by extending the number line and using negative numbers through familiar applications (e.g., temperature, money)	214, 220-221, 227-229, 232-233	
	4. Recognize classes of numbers (e.g., odd, even, factors, multiples, square numbers) and apply these concepts in problem-solving situations.	89-91	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
B. Understand the meaning of operations and how they relate to one another.	1. Demonstrate an understanding of and the ability to use: <ul style="list-style-type: none">• standard algorithms for the addition and subtraction of multi-digit numbers• 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	146-153, 159-167, 180-183, 184-192, 200-204	
	2. Select and use appropriate operations (addition, subtraction, multiplication, and division) to solve problems.	388-389	
	3. Extend the uses of whole numbers to the addition and subtraction of simple decimals (positive numbers to two places).	154-158, 168-171	
	4. Demonstrate commutative, associative, identity, and zero properties of operations on whole numbers (e.g., $37 \times 46 = 46 \times 37$ and $(6 \times 2) \times 5 = 6 \times (2 \times 5)$).	240-247	
	5. Demonstrate the concept of distributivity of multiplication over addition and subtraction (e.g., 7×28 is equivalent to $(7 \times 20) + (7 \times 8)$ or $(7 \times 30) - (7 \times 2)$).	123, 244-245	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
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).	63, 66-73, 120-121, 126-127	
	2. Add, subtract, and multiply up to two double-digits accurately and efficiently.	146-153, 159-167, 172-175, 180-182	
	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.	128-131, 132-135, 136-138, 139-140	
	4. Use strategies to estimate computations involving fractions and decimals.	131, 133, 135, 137, 141-143	

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Standard 2: ALGEBRA: Students will understand algebraic concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand patterns, relations, and functions.	1. Represent and analyze patterns and simple functions using words, tables, and graphs.	260-261, 374-375	
	2. Create and describe numeric and geometric patterns including multiplication and division patterns.	65, 70, 99, 124, 324-325, 374-375	
	3. Express mathematical relationships using equations.	34-87, 90-99, 102-127	
	4. Use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences: <ul style="list-style-type: none">• 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)• interpret and evaluate mathematical expressions using parentheses• use and interpret formulas (e.g., Area = Length x Width or $A = L \times W$) to answer questions about quantities and their relationships	36, 48, 62, 76, 250-251, 254, 255-257, 262-263	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
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.	250-252, 255-257, 262-263	
	2. Explore the uses of properties (commutative, distributive, associative) in the computation of whole numbers.	240-249	
	3. Express mathematical relationships using equations.	65, 70, 99, 124, 324-325, 374-375	
	4. Determine the value of variables in simple equations (e.g., $80 \times 15 = 40 \times []$).	255-257, 262-263	
	5. Develop simple formulas in exploring quantities and their relationships (e.g., $A = L \times W$).	262-263, 348-355	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
C. Use mathematical models to represent and understand quantitative relationships.	1. Solve problems involving proportional relationships (including unit pricing and map interpretations; e.g., one inch = five miles; therefore, five inches = [] miles).	The opportunity to address this objective is available on the following pages: 346-347, 431-433, 362-363, 384, 436	
	2. Model problem situations and use graphs, tables, pictures, and equations to draw conclusions (e.g., different patterns of change).	256-257, 260-261, 370-385	
	3. Use and interpret formulas (e.g., Area = Length x Width or $A = L \times W$) to answer questions about quantities and their relationships.	262-263, 348-355	

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Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
D. Analyze changes in various contexts.	1. Identify and describe situations with constant or varying rates of change and compare them.	The opportunity to address this objective is available on the following pages: 260-261, 280-281	
	2. Determine how a change in one variable relates to a change in a second variable (e.g., data tables, input-output machines).	The opportunity to address this objective is available on the following pages: 260-261	
	3. Find and analyze patterns using data tables (e.g., T tables).	The opportunity to address this objective is available on the following pages: 260-261, 267-283	
	4. Demonstrate and describe varying rates of change in relation to real-world situations (e.g., plant growth, students' heights).	The opportunity to address this objective is available on the following pages: 438	

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Publisher: Great Source Education Group

Title: Math to Know

ISBN: 978-0-669-53596-9

Mathematics Grade 4

Standard 3: GEOMETRY: Students will understand geometric concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
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: <ul style="list-style-type: none">• build, draw, create, and describe geometric objects• identify lines that are parallel or perpendicular• identify and compare congruent and similar figures	303-304, 310-316, 317, 320-321, 326-329, 426-427	
	2. Classify two-and three-dimensional shapes according to their properties and develop definitions of classes like triangles and pyramids: <ul style="list-style-type: none">• visualize, describe, and make models of geometric solids in terms of the number of faces, edges, and vertices• interpret two-dimensional representations of three-dimensional objects	311-316, 327-329, 426-427	
	3. Make and test conjectures about geometric properties and relationships and develop logical arguments to justify conclusions.	No specific lesson addresses this objective.	

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Standard 3: GEOMETRY: Students will understand geometric concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
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.	No specific lesson addresses this objective.	
	2. Use ordered pairs to graph, locate, identify points, and describe paths in the first quadrant of the coordinate plane.	258-259	
	3. Use a variety of methods for measuring distances between locations on a grid.	The opportunity to address this objective is available on the following pages: 258-259, 434-435	
C. Apply transformations and use symmetry to analyze mathematical situations.	1. Create and describe rotational designs using language of transformational symmetry.	318-319	
	2. Describe a motion or set of motions that will show that two shapes are congruent.	317-319	

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Standard 3: GEOMETRY: Students will understand geometric concepts and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
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).	The opportunity to address this objective is available on the following pages: 328-329, 330-331, 372-373, 426-427	
	2. Use geometric models such as number lines, arrays, and computer simulations to investigate number relationships (e.g., patterns).	61, 65, 83, 99, 212-213, 262-263, 348-349, 350-353, 354-355, 372-373, 374-375	
	3. Explore relationships involving perimeter and area: <ul style="list-style-type: none">• measure area of rectangular shapes and use appropriate units• recognize that area can have the same perimeter but different areas and vice versa• use models and formulas to solve problems involving perimeter and area of rectangles and squares (e.g., arrays)	262-263, 348-353	

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Mathematics Grade 4

Standard 4: MEASUREMENT: Students will understand measurement systems and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand measurable attributes of objects and the units, systems, and process of measurement.	1. Select the appropriate type of unit for measuring perimeter and size of an angle.	The opportunity to address this objective is available on the following pages: 262, 348-349	
	2. Understand the need for measuring with standard units and become familiar with the standard units in customary and metric system.	346-347, 356-357, 358-359, 431-432	
	3. Identify the inverse relationship between the size of the units and the number of units.	The opportunity to address this objective is available on the following pages: 226	

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Mathematics Grade 4

Standard 4: MEASUREMENT: Students will understand measurement systems and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
A. Understand measurable attributes of objects and the units, systems, and process of measurement.	1. Develop formulas to determine the surface areas of rectangular solids.	No specific lesson addresses this objective.	
	2. Develop, understand, and use formulas to find the area of rectangles and related triangles and parallelograms.	The opportunity to address this objective is available on the following pages: 263, 350-352	
	3. Carry out simple conversions within a system of measurement (e.g., hours to minutes, meters to centimeters).	335, 341, 346-347, 356-357, 358-359, 362-363	

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Mathematics Grade 4

Standard 4: MEASUREMENT: Students will understand measurement systems and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
B. Apply appropriate techniques, tools, and formulas to determine measurements.	1. Estimate perimeters, areas of rectangles, triangles, and irregular shapes.	The opportunity to address this objective is available on the following pages: 262-263, 348-353	
	2. Find the area of rectangles, related triangles, and parallelograms.	263, 350-353	
	3. Estimate, measure, and solve problems involving length, area, mass, time, and temperature using appropriate standard units and tools.	334-344, 345-347, 356-357, 358-359, 360-361, 362-363	

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Standard 4: MEASUREMENT: Students will understand measurement systems and applications.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
B. Apply appropriate techniques, tools, and formulas to determine measurements.	4. Identify common measurements of turns (e.g., 360 degrees in one turn, 90 degrees in a quarter-turn).	No specific lesson addresses this objective.	
	5. Compute elapsed time and make and interpret schedules.	338-339	
	6. Use tools to measure angles (e.g., protractor, compass).	422-423	

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Mathematics Grade 4

Standard 5: DATA ANALYSIS AND PROBABILITY: Students will understand how to formulate questions, analyze data, and determine probabilities.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
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: <ul style="list-style-type: none">choose and construct representations that are appropriate for the data setrecognize the differences in representing categorical and numerical data.	265-283	
	2. Design investigations and represent data using tables and graphs (e.g., line plots, bar graphs, line graphs).	265-283	
B. Select and use appropriate statistical methods to analyze data.	1. Compare and describe related data sets.	The opportunity to address this objective is available on the following pages: 265-283, 284-290	
	2. Use the concepts of median, mode, maximum, minimum, and range and draw conclusions about a data set.	284-290	
	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).	265-283	

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Mathematics Grade 4

Standard 5: DATA ANALYSIS AND PROBABILITY: Students will understand how to formulate questions, analyze data, and determine probabilities.

Benchmark	Performance Standards	Publisher Citation (pages)	% Meets Standard*
D. Develop and evaluate inferences and predictions that are based on data.	1. Propose and justify conclusions and predictions based on data.	The opportunity to address this objective is available on the following pages: 265-283	
	2. Develop convincing arguments from data displayed in a variety of formats.	The opportunity to address this objective is available on the following pages: 265-283	
D. Understand and apply basic concepts of probability.	1. Describe events as “likely,” “unlikely,” or “impossible” and quantify simple probability situations: <ul style="list-style-type: none">• represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams)• express outcomes of experimental probability situations verbally and numerically (e.g., three out of four, $\frac{3}{4}$)	292-293, 298-299	
	2. List all the possible combinations of objects from three sets (e.g., spinners, number of outfits from three different shirts, two skirts, and two hats).	298-299	

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