

**Publisher: CORD Communications**

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**Title: Bridges to Algebra and Geometry**

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**ISBN 1-57837-341-7**

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**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 8**

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

<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
A. Understand numbers, ways of representing numbers, relationships among numbers, and number systems.	1. Sort numbers by their properties (e.g., prime, composite, square, square root).	247-253 285-286 551-556	
	2. Demonstrate the magnitude of rational numbers (e.g., trillions to millions).	43 247-253 273-277 536-542	

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B. Understand the meaning of operations and how they relate to one another.	1. Use real number properties (e.g., commutative, associative, distributive) to perform various computational procedures.	24-25 25-26 36 37-38 38-39 157 199	
	2. Perform arithmetic operations and their inverses (e.g., addition/subtraction, multiplication/division, square roots of perfect squares, cube roots of perfect cubes) on real numbers.	162-167 167-173 180-181 192-195 254-257 261-265 266-271	
	3. Find roots of real numbers using calculators.	553 555	

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C. Compute fluently and make reasonable estimates.	1. Formulate algebraic expressions that include real numbers to describe and solve real-world problems.	20-21 152-153 172-173	
	2. Use a variety of computational methods to estimate quantities involving real numbers.	11-15 29-31 42-48 362-366 553	
	3. Differentiate between rational and irrational numbers.	551-554	
	4. Use real number properties to perform various computational procedures and explain how they were used.	25-26 36-41 187-188 189 273-275 278-279	

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C. Compute fluently and make reasonable estimates.	5. Perform and explain computations with rational numbers, pi, and first-degree algebraic expressions in one variable in a variety of situations.	16-23 186-190 192-195 622-623 635-637	
	6. Select and use appropriate forms of rational numbers to solve real-world problems including those involving proportional relationships.	236-240 241-245 294-298 304-310 338-339 348-353 367	
	7. Approximate, mentally and with calculators, the value of irrational numbers as they arise from problem situations.	15 42-48 362-366 553 555	
	8. Express numbers in scientific notation (including negative exponents) in appropriate problem situations using a calculator.	536-542 568-570	

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	9. Estimate answers and use formulas to solve application problems involving surface area and volume.	649-655 656-662 663-669 670-671 672 673 679-680 681 688-689	
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**Mathematics Grade 8**

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

<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
A. Understand patterns, relations, and functions.	1. Move between numerical, tabular, and graphical representations of linear relationships.	405-412 433-438 449-450	
	2. Use variables to generalize patterns and information presented in tables, charts, and graphs: <ul style="list-style-type: none"><li>graph linear functions noting that the vertical change per unit of horizontal change (the slope of the graph) is always the same</li><li>plot the values of quantities whose ratios are always the same, fit a line to the plot, and understand that the slope of the line equals the quantities</li></ul>	120-121 413-418 419-427	

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B. Represent and analyze mathematical situations and structures using algebraic symbols.	1. Demonstrate the difference between an equation and an expression.	Not covered	
	2. Solve two-step linear equations and inequalities in one variable with rational solutions.	198-202 203-209 273-277 278-284	
	3. Evaluate formulas using substitution.	217-223 405 605-608 622-627 671-677	
	4. Demonstrate understanding of the relationships between ratios, proportions, and percents and solve for a missing term in a proportion.	294-298 304-310 338-339 367	

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B. Represent and analyze mathematical situations and structures using algebraic symbols.	5. Graph solution sets of linear equations in two variables on the coordinate plane.	405-412 413-414 417 425 449-450	
	6. Formulate and solve problems involving simple linear relationships, find percents of a given number, variable situations, and unknown quantities.	211-216 217-222 354-361 367-373	
	7. Use symbols, variables, expressions, inequalities, equations, and simple systems of equations to represent problem situations that involve variables or unknown quantities.	16-23 134-139 211-216 217-222 428-432	
C. Use mathematical models to represent and understand quantitative relationships.	1. Generate different representations to model a specific numerical relationship given one representation of data (e.g., a table, a graph, an equation, a verbal description).	58-90 406-407 433-437 439-447	

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<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
D. Analyze changes in various contexts.	1. Use graphs, tables, and algebraic representations to make predictions and solve problems that involve change.	405-412 413-418 419-427 433-438	
	2. Estimate, find, and justify solutions to problems that involve change using tables, graphs, and algebraic expressions.	405-412 413-418 419-427 433-438	
	3. Use appropriate problem-solving strategies (e.g., drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table or graph, working a simpler problem, writing an algebraic expression or working backward) to solve problems that involve change.	42 103 100-107 304 306 406 413-416 546 652	

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D. Analyze changes in various contexts.	4. Solve multi-step problems that involve changes in rate, average speed, distance, and time.	61-65 405-412 413-418	
	5. Analyze problems that involve change by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing, and observing patterns.	108-119 578-583	
	6. Generalize a pattern of change using algebra and show the relationship among the equation, graph, and table of values.	405-411 413-418 419-427 449-450 451-453	
	7. Recognize the same general pattern of change presented in different representations.	405-411 413-418 419-427 449-450 451-453	

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**Mathematics Grade 8**

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

<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
A. Analyze characteristics and properties of two-and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.	1. Recognize, classify, and discuss properties of all geometric figures including point, line, and plane.	460-465 473-479 481-486	
	2. Identify arc, chord, and semicircle and explain their attributes.	626 689-690	
	3. Use the Pythagorean theorem and its converse to find the missing side of a right triangle and the lengths of the other line segments.	557-565	
B. Specify locations and describe spatial relationships using coordinate geometry and other representational systems.	1. Represent, formulate, and solve distance and geometry problems using the language and symbols of algebra and the coordinate plane and space (e.g., ordered triplets).	61-65 218 400-404 513-514 680-686	

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

<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
C. Apply transformations and use symmetry to analyze mathematical situations.	1. Describe the symmetry of three-dimensional figures.	Not covered	
	2. Describe and perform single and multiple transformations that include rotation, reflection, translation, and dilation (i.e., shrink or magnify) to two-dimensional figures.	495-500 501-505 506-512 593-598	

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<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
D. Use visualization, spatial reasoning, and geometric modeling to solve problems.	1. Understand angle relationships formed by parallel lines cut by a transversal.	517	
	2. Recognize and apply properties of corresponding parts of similar and congruent triangles and quadrilaterals.	489 517 584 613-621	
	3. Represent and solve problems relating to size, shape, area, and volume using geometric models.	605-606 622-625 664-667	
	4. Develop and use formulas for area, perimeter, circumference, and volume.	615-616 622-623 624 672-673	
	5. Construct two-dimensional patterns for three-dimensional models (e.g., cylinders, prisms, cones).	650-656 657-661 671-677	

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

<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
A. Understand measurable attributes of objects and the units, systems, and process of measurement.	1. Understand the concept of volume and use the appropriate units in common measuring systems (e.g., cubic centimeter, cubic inch, cubic yard) to compute the volume of rectangular solids.	664-666	
	2. Use changes in measurement units (e.g., square inches, cubic feet) to perform conversions from one-, two-, and three-dimensional shapes.	543-549	
B. Apply appropriate techniques, tools, and formulas to determine measurements.	3. Use ratios and proportions to measure hard-to-measure objects.	338-339 584-590 599-604	
	4. Use estimation to solve problems.	34 39-42 47 59-60 63-65	

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<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
B. Apply appropriate techniques, tools, and formulas to determine measurements.	3. Use proportional relationships in similar shapes to find missing measurements.	305 338-339 584-592 680-686	
	4. Apply strategies to determine the surface area and volume of prisms, pyramids, and cylinders.	650-656 657-663 664-670 671-679	
	5. Perform conversions with multiple terms between metric and U.S. standard measurement systems.	545	
	6. Estimate volume in cubic units.	664-670	
	7. Solve simple problems involving rates and derived measurements for such properties as velocity and density.	63-65 67 224-226 299-303	

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**Mathematics Grade 8**

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

<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
A. Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.	1. Represent two numerical variables on a plot, describe how the data points are distributed, and identify relationships that exist between the two variables.	400-404 405-409 433-438 439-449	
	2. Generate, organize, and interpret real numbers in a variety of situations.	400-404 405-409 433-438 439-449	
	3. Organize, analyze, and display appropriate quantitative and qualitative data to address specific questions including: <ul style="list-style-type: none"><li>• frequency distributions</li><li>• plots</li><li>• histograms</li><li>• bar, line, and pie graphs</li><li>• diagram and pictorial displays</li><li>• charts and tables</li></ul>	76-77 91-99 100-107 357 406-407 470	

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A. Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.	4. Select the appropriate measure of central tendency to describe a set of data for a particular problem situation.	70-75 77 110	
	5. Simulate an event selecting and using different models.	327-332	
	6. Develop an appropriate strategy using a variety of data from surveys, samplings, estimations, and inferences to address a specific problem.	70-75 117-121 333-337	

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<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
B. Select and use appropriate statistical methods to analyze data.	1. Use changes in scales, intervals, or categories to help support a particular interpretation of data.	108-116	
	2. Generate, organize, and interpret real number and other data in a variety of situations.	70-74 80-84 85-90 100-107	
	3. Analyze data to make decisions and to develop convincing arguments from data displayed in a variety of formats that include: <ul style="list-style-type: none"><li>• plots</li><li>• distributions</li><li>• graphs</li><li>• scatter plots</li><li>• diagrams</li><li>• pictorial displays</li><li>• charts and tables</li><li>• Venn diagrams</li></ul>	70-74 76-79 85-90 91-99 121	

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<b>Benchmark</b>	<b>Performance Standards</b>	<b>Publisher Citation (pages)</b>	<b>% Meets Standard*</b>
B. Select and use appropriate statistical methods to analyze data.	4. Interpret and analyze data from graphical representations and draw simple conclusions (e.g., line of best fit).	85-90 100-107 120-121	
	5. Evaluate and defend the reasonableness of conclusions drawn from data analysis.	80-81 85-87 100-102	
	6. Use appropriate central tendency and spread as a means for effective decision-making in analyzing data and outliers.	70-75 85-90 108-110	
	7. Identify simple graphic misrepresentations and distortions of sets of data (e.g., unequal interval sizes, omission of parts of axis range, scaling).	108-116	
	8. Use appropriate technology to display data as lists, tables, matrices, graphs, and plots and to analyze the relationships of variables in the data displayed.	25 118-120	

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C. Develop and evaluate inferences and predictions that are based on data.	1. Describe how changes in scale, intervals, or categories influence arguments for a particular interpretation of the data.	108-116 124	
	2. Describe how reader bias, measurement errors, and display distortion can affect the interpretation of data, predictions, and inferences based on data.	108-116 124	
	3. Conduct simple experiments and/or simulations, record results in charts, tables, or graphs, and use the results to draw conclusions and make predictions.	117-118 120-121	
	4. Compare expected results with experimental results and information used in predictions and inferences.	311-313 327-332	

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D. Understand and apply basic concepts of probability.	1. Calculate the odds of a desired outcome in a simple experiment.	312-313 322-326 327-332 333-337 339-343	
	2. Design and use an appropriate simulation to estimate the probability of a real-world event (e.g., disk toss, cube toss).	329-330 339-341 341-343	
	3. Explain the relationship between probability and odds and calculate the odds of a desired outcome in a simple experiment.	329 341-343	

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D. Understand and apply basic concepts of probability.	4. Use theoretical or experimental probability to make predictions about real-world events.	311-312 333-337 339-343	
	5. Use probability to generate convincing arguments, draw conclusions, and make decisions in a variety of situations.	333-337 331 313-315	
	6. Understand that the probability of two unrelated events occurring is the sum of the two individual possibilities and that the probability of one event following another, in independent trials, is the product of the two probabilities.	322-326 327-332	

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