A Correlation of

Connected Mathematics Project 3 (CMP3) ©2018

to the

Nevada Academic Content Standards in Mathematics

Grade 8

Nevada Academic Content Standards in Mathematics	**Connected Mathematics Project 3 Grade 8 Investigations**
Standards for Mathematical Practice	
1. Make sense of problems and persevere in solving them.	The goal for students to make sense of, and persevere in solving, problems is fundamental to the curriculum set forth in *Connected Mathematics Project 3*. In addition to providing practice in critical thinking and problem-solving strategies, the problems are geared to engage students with student-centered problem situations. Student-student and student-teacher dialogues encourage students to persevere in solving problems. Applications, Connections, and Extensions (ACE) homework problems provide students with opportunities to apply what they have learned to make sense of and persevere in solving new problems. The introductions to the problems in each investigation include an initial analysis of the problem situation and the formation of a plan for solving the problem. Suggested questions in the Teacher Guide provide metacognitive scaffolding to help students monitor and refine their problem-solving strategies; the ACE homework problems enable students to practice and synthesize problem-solving skills. See, for example: **Thinking With Mathematical Models:** 3.2: Distance, Speed and Time; 3.3: Planning a Field Trip; 3.4: Modeling Data Patterns **Growing, Growing, Growing:** 1.3: Making a New Offer; 2.1: Killer Plant Strikes Lake Victoria; 2.3: Studying Snake Populations; 3.3: Making a Difference **Butterflies, Pinwheels, and Wallpaper:** 2.1: Connecting Congruent Polygons; 2.2: Supporting the World; 2.3: Minimum Measurement **Say It With Symbols:** 3.3: Factoring Quadratic Equations

Nevada Academic Content Standards in Mathematics	**Connected Mathematics Project 3 Grade 8 Investigations**
(Continued) 1. Make sense of problems and persevere in solving them.	**It's In The System:** 1.1: Shirts and Caps; 1.2: Connecting Ax + By = C and y = mx + b; 1.3: Booster Club Members; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II; 4.4: Miles of Emissions
2. Reason abstractly and quantitatively.	*Connected Mathematics Project 3* helps students develop abstract and quantitative reasoning skills by focusing on student acquisition of mathematical language and various forms of mathematical reasoning (e.g., visual, spatial, logical, graphical, and algebraic reasoning and number sense). Students employ abstract and quantitative reasoning to analyze, represent, and solve problems. They decontextualize problem situations by using variables, expressions, and equations to represent various aspects of the problem. They contextualize abstract representations to justify and verify their solution strategies, explain their reasoning, and state their solution in terms of the original problem situation. See, for example: **Thinking With Mathematical Models:** 1.3: Custom Construction Parts; 2.1: Modeling Linear Data Patterns; 2.2: Up and Down the Staircase; 2.3: Tree Top Fun; 2.4: Boat Rental Business; 2.5: Amusement Park or Movies **Growing, Growing, Growing:** 3.1: Reproducing Rabbits; 3.2: Investing for the Future; 3.3: Making a Difference **Butterflies, Pinwheels, and Wallpaper:** 4.1: Focus on Dilations; 4.2: Return of Super Sleuth; 4.3: Checking Similarity; 4.4: Using Similar Triangles

Nevada Academic Content Standards in Mathematics	**Connected Mathematics Project 3** **Grade 8 Investigations**
(Continued) 2. Reason abstractly and quantitatively.	**Say It With Symbols:** 3.1: Selling Greeting Cards; 3.2: Comparing Costs; 3.3: Factoring Quadratic Equations; 3.4: Solving Quadratic Equations **It's In The System:** 2.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II
3. Construct viable arguments and critique the reasoning of others.	In the *Connected Mathematics Project 3* classroom, students routinely participate in student-student and student-teacher discourse as they explain their thinking about a problem situation and their reasoning for a solution pathway. Additionally, the problems in each investigation and in the ACE problem sets provide opportunities for students to construct mathematical arguments and to critique other students' solutions and strategies. Teachers Guides include suggested questions to support the development of a classroom culture that includes argument and critique as fundamental components of mathematical problem-solving process. Students make conjectures and construct logical arguments using previously established results, assumptions, and definitions. They reason deductively and inductively and communicate their reasoning to others, providing opportunities for mutual critique of arguments. See, for example: **Thinking With Mathematical Models:** 2.1: Modeling Linear Data Patterns; 2.2: Up and Down the Staircase; 2.3: Tree Top Fun; 2.4: Boat Rental Business; 2.5: Amusement Park or Movies; 4.1: Vitruvian Man; 4.2: Older and Faster; 4.3: Correlation Coefficients and Outliers; 4.4: Measuring Variability **Looking for Pythagoras:** 1.2: Planning Parks

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 8 Investigations
(Continued) 3. Construct viable arguments and critique the reasoning of others.	**Growing, Growing, Growing:** 1.1: Making Ballots; 1.2: Requesting a Reward; 1.3: Making a New Offer **Say It With Symbols:** 5.1: Using Algebra to Solve a Puzzle **It's In The System: 1**.1: Shirts and Caps; 1.2: Connecting Ax + By = C and y = mx + b; 1.3: Booster Club Members
4. Model with mathematics.	Students construct, make inferences from, and interpret concrete, symbolic, graphic, verbal, and algorithmic models of mathematical relationships in problem situations. They translate information from model to another, and modify their models as needed. Students develop fluency with different types of models, and learn to apply them appropriately to different problem situations arising in everyday life, society, and the workplace. See, for example: **Growing, Growing, Growing:** 1.1: Making Ballots; 1.2: Requesting a Reward; 1.3: Making a New Offer; 2.1: Killer Plant Strikes Lake Victoria; 2.2: Growing Mold; 2.3: Studying Snake Populations; 3.1: Reproducing Rabbits; 3.2: Investing for the Future; 3.3: Making a Difference; 4.1: Making Smaller Ballots; 4.2: Fighting Fleas; 4.3: Cooling Water; 5.1: Looking For Patterns Among Exponents; 5.2: Rules of Exponents; 5.3: Extending the Rules of Exponents; 5.4: Operations With Scientific Notation; 5.5: Revisiting Exponential Functions **Butterflies, Pinwheels, and Wallpaper:** 4.1: Focus on Dilations; 4.2: Return of Super Sleuth; 4.3: Checking Similarity; 4.4: Using Similar Triangles **Say It With Symbols:** 2.3: Making Candles; 2.4: Selling Ice Cream

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(Continued) 4. Model with mathematics.	**It's In The System: 2**.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II
5. Use appropriate tools strategically.	Students use tools to explore problem situations, deciding which tools are appropriate for solving a particular problem. Students are able to describe various uses for different tools, including the calculator, graphing tools, polystrips, and plastic two-dimensional shapes. For example, students recognize that calculators can be used to compute, to verify reasoning, to explore possibilities, and to see whether an approach or a solution makes sense; they use polystrips and two-dimensional plastic models to explore properties of geometry and measurement. See, for example: **Thinking With Mathematical Models:** 2.1: Modeling Linear Data Patterns; 2.2: Up and Down the Staircase; 2.3: Tree Top Fun; 2.4: Boat Rental Business; 2.5: Amusement Park or Movies **Looking for Pythagoras:** 5.1: Stopping Sneaky Sally; 5.2: Analyzing Triangles; 5.3: Analyzing Circles **Growing, Growing, Growing:** 1.1: Making Ballots; 1.2: Requesting a Reward; 1.3: Making a New Offer; 5.1: Looking For Patterns Among Exponents; 5.2: Rules of Exponents; 5.3: Extending the Rules of Exponents; 5.4: Operations With Scientific Notation; 5.5: Revisiting Exponential Functions **Butterflies, Pinwheels, and Wallpaper:** 1.1: Butterfly Symmetry; 1.2: In a Spin; 1.3: Sliding Around; 1.4: Properties of Transformations; 2.3: Minimum Measurement; 3.1: Flipping on a Grid; 3.2: Sliding on a Grid; 3.3: Spinning on a Grid; 3.4: A Special Property of Translations and Half-Turns; 3.5: Parallel Lines, Transversals, and Angle Sums;

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(Continued) 5. Use appropriate tools strategically.	4.1: Focus on Dilations; 4.3: Checking Similarity; 4.4: Using Similar Triangles **Say It With Symbols:** 2.3: Making Candles; 2.4: Selling Ice Cream **It's In The System:** 2.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II
6. Attend to precision.	*Connected Mathematics Project 3* emphasizes the use of precise terms and definitions with the philosophy that the clarity of a student's reasoning and processing is reflected in the student's use of precise mathematical language. The student textbook includes definitions that are mathematically accurate and student-friendly. Students are expected to attend to precision in mathematical language and also in argument presentation. The Mathematical Reflections pages include questions to help students synthesize and organize their understandings of important concepts and strategies. Additionally, students are expected to perform accurate calculations, expressing numerical answers with an appropriate degree of precision, depending on the context of the problem. See, for example: **Looking for Pythagoras:** 4.1: Analyzing the Wheel of Theodorus; 4.4: Getting Real **Growing, Growing, Growing:** 1.1: Making Ballots; 1.2: Requesting a Reward; 1.3: Making a New Offer; 5.1: Looking For Patterns Among Exponents; 5.2: Rules of Exponents; 5.3: Extending the Rules of Exponents; 5.4: Operations With Scientific Notation; 5.5: Revisiting Exponential Functions **Butterflies, Pinwheels, and Wallpaper:** 2.1: Connecting Congruent Polygons; 2.2: Supporting the World; 2.3: Minimum Measurement

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(continued) 6. Attend to precision.	**Say It With Symbols:** 4.3: Generating Patterns; 4.4: What's the Function?; 5.1: Using Algebra to Solve a Puzzle **It's In The System:** 4.3: Feasible Points; 4.4: Miles of Emissions
7. Look for and make use of structure.	The *Connected Mathematics Project 3* materials are designed to help students build mathematical understandings while illuminating and applying mathematical structure. For example, in Grade 8, students extend their experience with the real number system to include irrational numbers. In all grades, students experience structure in algebraic expressions and properties, functional relationships, measurement formulas, computation algorithms, and number systems. See, for example: **Thinking With Mathematical Models:** 1.3: Custom Construction Parts; 3.2: Distance, Speed and Time; 3.3: Planning a Field Trip; 3.4: Modeling Data Patterns **Looking for Pythagoras:** 4.1: Analyzing the Wheel of Theodorus; 4.4: Getting Real **Growing, Growing, Growing:** 1.1: Making Ballots; 1.2: Requesting a Reward; 1.3: Making a New Offer; 2.1: Killer Plant Strikes Lake Victoria; 2.2: Growing Mold; 2.3: Studying Snake Populations; 3.1: Reproducing Rabbits; 3.2: Investing for the Future; 3.3: Making a Difference; 4.1: Making Smaller Ballots; 4.2: Fighting Fleas; 5.3: Extending the Rules of Exponents; 5.4: Operations With Scientific Notation; 5.5: Revisiting Exponential Functions **Butterflies, Pinwheels, and Wallpaper:** 1.1: Butterfly Symmetry; 1.2: In a Spin; 1.3: Sliding Around; 1.4: Properties of Transformations; 2.1: Connecting Congruent Polygons;

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 8 Investigations
(Continued) 7. Look for and make use of structure.	2.2: Supporting the World; 2.3: Minimum Measurement; 3.3: Spinning on a Grid; 3.4: A Special Property of Translations and Half-Turns; 3.5: Parallel Lines, Transversals, and Angle Sums **Say It With Symbols:** 3.1: Selling Greeting Cards; 3.2: Comparing Costs; 3.3: Factoring Quadratic Equations; 3.4: Solving Quadratic Equations **It's In The System:** 1.1: Shirts and Caps; 1.2: Connecting Ax + By = C and y = mx + b; 1.3: Booster Club Members
8. Look for and express regularity in repeated reasoning.	As students investigate problems in *Connected Mathematics Project 3*, they are encouraged to look for connections to previously solved problems and employed solution strategies. The titles of the units and investigations are intended to promote the connectedness of mathematical concepts and processes with references to "building," "linking," "connecting," and "extending." For example, in the Growing, Growing, Growing unit, 8th grade students learn that there are different patterns of change and different rates and types of growth than they have heretofore experienced, as they extend their knowledge of linear functions to exponential and quadratic functions. See, for example: **Thinking With Mathematical Models:** 3.2: Distance, Speed and Time; 3.3: Planning a Field Trip; 3.4: Modeling Data Patterns **Growing, Growing, Growing:** 1.1: Making Ballots; 1.2: Requesting a Reward; 1.3: Making a New Offer; 2.1: Killer Plant Strikes Lake Victoria; 2.2: Growing Mold; 2.3: Studying Snake Populations; 3.1: Reproducing Rabbits; 3.2: Investing for the Future; 3.3: Making a Difference; 4.1: Making Smaller Ballots; 4.2: Fighting Fleas; 4.3: Cooling Water

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 8 Investigations
(Continued) 8. Look for and express regularity in repeated reasoning.	**Butterflies, Pinwheels, and Wallpaper:** 2.1: Connecting Congruent Polygons; 2.2: Supporting the World; 2.3: Minimum Measurement **Say It With Symbols:** 3.1: Selling Greeting Cards; 3.2: Comparing Costs; 3.3: Factoring Quadratic Equations; 3.4: Solving Quadratic Equations **It's In The System:** 4.3: Feasible Points; 4.4: Miles of Emissions
The Number System 8.NS	
A. Know that there are numbers that are not rational, and approximate them by rational numbers.	
1. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	**Looking for Pythagoras:** 4.1: Analyzing the Wheel of Theodorus; 4.4: Getting Real
2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*	**Looking for Pythagoras:** 4.1: Analyzing the Wheel of Theodorus; 4.4: Getting Real; 5.1: Stopping Sneaky Sally
Expressions and Equations 8.EE	
A. Work with radicals and integer exponents.	
1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.	**Growing, Growing, Growing:** 5.1: Looking For Patterns Among Exponents; 5.2: Rules of Exponents; 5.3: Extending the Rules of Exponents; 5.4: Operations With Scientific Notation

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2. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.	**Looking for Pythagoras:** 2.2: Square Roots; 2.3: Using Squares; 2.4: Cube Roots; 5.1: Stopping Sneaky Sally
3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.*	**Growing, Growing, Growing:** 1.2: Requesting a Reward: Representing Exponential Functions; 5.4: Operations With Scientific Notation
4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	**Growing, Growing, Growing:** 5.4: Operations With Scientific Notation
B. Understand the connections between proportional relationships, lines, and linear equations.	
5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*	**Thinking With Mathematical Models:** 2.2: Up and Down the Staircase; 3.2: Distance, Speed, and Time
6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	**Thinking With Mathematical Models:** 2.2: Up and Down the Staircase

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C. Analyze and solve linear equations and pairs of simultaneous linear equations.	
7. Solve linear equations in one variable.	**Thinking With Mathematical Models:** 2.4: Boat Rental Business; 2.5: Amusement Park or Movies **Say It With Symbols:** 3.1: Selling Greeting Cards; 3.2: Comparing Costs; 5.1: Using Algebra to Solve a Puzzle
a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).	**Thinking With Mathematical Models:** 2.4: Boat Rental Business **Say It With Symbols:** 3.1: Selling Greeting Cards; 3.2: Comparing Costs; 5.1: Using Algebra to Solve a Puzzle
b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	**Thinking With Mathematical Models:** 2.4: Boat Rental Business **Say It With Symbols:** 3.1: Selling Greeting Cards; 3.2: Comparing Costs; 5.1: Using Algebra to Solve a Puzzle
8. Analyze and solve pairs of simultaneous linear equations.	**Thinking With Mathematical Models:** 2.5: Amusement Park or Movies **It's In The System:** 1.1: Shirts and Caps; 1.2: Connecting Ax + By = C and y = mx + b; 1.3: Booster Club Members; 2.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II; 4.4: Miles of Emissions
a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	**Thinking With Mathematical Models:** 2.5: Amusement Park or Movies **It's In The System:** 2.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II; 4.4: Miles of Emissions

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b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.*	**Thinking With Mathematical Models:** 2.5: Amusement Park or Movies **It's In The System:** 1.1: Shirts and Caps; 1.2: Connecting Ax + By = C and y = mx + b; 1.3: Booster Club Members; 2.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II; 4.4: Miles of Emissions
c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*	**Thinking With Mathematical Models:** 2.5: Amusement Park or Movies **It's In The System:** 1.1: Shirts and Caps; 1.2: Connecting Ax + By = C and y = mx + b; 1.3: Booster Club Members; 2.1: Shirts and Caps Again; 2.2: Taco Truck Lunch; 2.3: Solving Systems by Combining Equations II; 4.4: Miles of Emissions
Functions 8.F	
A. Define, evaluate, and compare functions.	
1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	**Thinking With Mathematical Models:** 2.1: Modeling Linear Data Patterns; 2.2: Up and Down the Staircase; 2.3: Tree Top Fun; 2.4: Boat Rental Business; 2.5: Amusement Park or Movies; 3.2: Distance, Speed and Time; 3.3: Planning a Field Trip; 3.4: Modeling Data Patterns **Growing, Growing, Growing:** 1.1: Making Ballots; 1.2: Requesting a Reward; 1.3: Making a New Offer; 2.1: Killer Plant Strikes Lake Victoria; 2.2: Growing Mold; 2.3: Studying Snake Populations; 3.1: Reproducing Rabbits; 3.2: Investing for the Future; 3.3: Making a Difference; 4.1: Making Smaller Ballots; 4.2: Fighting Fleas; 4.3: Cooling Water; 5.5: Revisiting Exponential Functions **Say It With Symbols:** 2.1: Walking Together; 2.2: Predicting Profit; 3.1: Selling Greeting Cards; 3.2: Comparing Costs; 3.3: Factoring Quadratic Equations; 3.4: Solving Quadratic Equations; 4.3: Generating Patterns; 4.4: What's the Function?

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 8 Investigations
2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*	**Say It With Symbols:** 2.1: Walking Together; 2.2: Predicting Profit; 4.3: Generating Patterns; 4.4: What's the Function? **It's In The System:** 4.3: Feasible Points
3. Interpret the equation *y* = *mx* + *b* as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*	**Thinking With Mathematical Models:** 2.1: Modeling Linear Data Patterns; 2.2: Up and Down the Staircase; 2.3: Tree Top Fun; 2.4: Boat Rental Business; 2.5: Amusement Park or Movies
B. Use functions to model relationships between quantities.	
4. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (*x*, *y*) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	**Thinking With Mathematical Models:** 1.3: Custom Construction Parts; 2.1: Modeling Linear Data Patterns; 2.2: Up and Down the Staircase; 2.3: Tree Top Fun; 2.4: Boat Rental Business; 2.5: Amusement Park or Movies **Say It With Symbols:** 3.1: Selling Greeting Cards; 3.2: Comparing Costs
5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	**Thinking With Mathematical Models:** 1.3: Custom Construction Parts; 2.2: Up and Down the Staircase; 2.3: Tree Top Fun; 2.4: Boat Rental Business; 2.5: Amusement Park or Movies; 3.2: Distance, Speed and Time; 3.3: Planning a Field Trip; 3.4: Modeling Data Patterns **Growing, Growing, Growing:** 1.3: Making a New Offer; 2.1: Killer Plant Strikes Lake Victoria; 2.3: Studying Snake Populations; 3.3: Making a Difference; 4.2: Fighting Fleas; 5.5: Revisiting Exponential Functions **Say It With Symbols:** 3.3: Factoring Quadratic Equations

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Geometry 8.G	
A. Understand congruence and similarity using physical models, transparencies, or geometry software.	
1. Verify experimentally the properties of rotations, reflections, and translations:	**Butterflies, Pinwheels, and Wallpaper:** 1.1: Butterfly Symmetry; 1.2: In a Spin; 1.3: Sliding Around; 1.4: Properties of Transformations; 2.1: Connecting Congruent Polygons; 2.2: Supporting the World; 2.3: Minimum Measurement; 3.1: Flipping on a Grid; 3.2: Sliding on a Grid; 3.3: Spinning on a Grid; 3.4: A Special Property of Translations and Half-Turns; 3.5: Parallel Lines, Transversals, and Angle Sums
a. Lines are taken to lines, and line segments to line segments of the same length.	**Butterflies, Pinwheels, and Wallpaper:** 1.1: Butterfly Symmetry; 1.2: In a Spin; 1.3: Sliding Around; 1.4: Properties of Transformations; 3.1: Flipping on a Grid; 3.2: Sliding on a Grid; 3.3: Spinning on a Grid; 3.4: A Special Property of Translations and Half-Turns; 3.5: Parallel Lines, Transversals, and Angle Sums
b. Angles are taken to angles of the same measure.	**Looking for Pythagoras:** 5.2: Analyzing Triangles **Butterflies, Pinwheels, and Wallpaper:** 1.1: Butterfly Symmetry; 1.2: In a Spin; 1.3: Sliding Around; 1.4: Properties of Transformations; 3.1: Flipping on a Grid; 3.2: Sliding on a Grid; 3.3: Spinning on a Grid; 3.4: A Special Property of Translations and Half-Turns; 4.1: Focus on Dilations; 4.2: Return of Super Sleuth; 4.3: Checking Similarity Without Transformations; 4.4: Using Similar Triangles
c. Parallel lines are taken to parallel lines.	**Butterflies, Pinwheels, and Wallpaper:** 1.1: Butterfly Symmetry; 1.3: Sliding Around; 1.4: Properties of Transformations; 3.1: Flipping on a Grid; 3.2: Sliding on a Grid

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2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	**Looking for Pythagoras:** 5.2: Analyzing Triangles **Butterflies, Pinwheels, and Wallpaper:** 1.1: Butterfly Symmetry; 1.2: In a Spin; 1.3: Sliding Around; 1.4: Properties of Transformations; 2.1: Connecting Congruent Polygons; 2.2: Supporting the World; 3.1: Flipping on a Grid; 3.2: Sliding on a Grid; 3.3: Spinning on a Grid; 3.4: A Special Property of Translations and Half-Turns
3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	**Butterflies, Pinwheels, and Wallpaper:** 4.1: Focus on Dilations; 4.2: Return of Super Sleuth; 4.3: Checking Similarity Without Transformations; 4.4: Using Similar Triangles
4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two- dimensional figures, describe a sequence that exhibits the similarity between them.	**Looking for Pythagoras:** 5.2: Analyzing Triangles **Butterflies, Pinwheels, and Wallpaper:** 4.2: Return of Super Sleuth; 4.3: Checking Similarity Without Transformations; 4.4: Using Similar Triangles
5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*	**Looking for Pythagoras:** 5.2: Analyzing Triangles **Butterflies, Pinwheels, and Wallpaper:** 3.5: Parallel Lines, Transversals, and Angle Sums; 4.3: Checking Similarity Without Transformations; 4.4: Using Similar Triangles
B. Understand and apply the Pythagorean Theorem.	
6. Explain a proof of the Pythagorean Theorem and its converse.	**Looking for Pythagoras:** 1.2: Planning Parks; 3.1: Discovering the Pythagorean Theorem; 3.2: A Proof of the Pythagorean Theorem; 3.3: Finding Distances; 3.4: Measuring the Egyptian Way; 4.1: Analyzing the Wheel of Theodorus; 5.1: Stopping Sneaky Sally; 5.3: Analyzing Circles

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7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	**Looking for Pythagoras:** 1.2: Planning Parks; 3.1: Discovering the Pythagorean Theorem; 3.2: A Proof of the Pythagorean Theorem; 3.3: Finding Distances; 3.4: Measuring the Egyptian Way; 4.1: Analyzing the Wheel of Theodorus; 5.1: Stopping Sneaky Sally; 5.3: Analyzing Circles
8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	**Looking for Pythagoras:** 3.1: Discovering the Pythagorean Theorem; 3.2: A Proof of the Pythagorean Theorem; 3.3: Finding Distances; 3.4: Measuring the Egyptian Way; 4.1: Analyzing the Wheel of Theodorus; 5.1: Stopping Sneaky Sally; 5.3: Analyzing Circles
C. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	
9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	**Say It With Symbols:** 2.3: Making Candles; 2.4: Selling Ice Cream
Statistics and Probability 8.SP	
A. Investigate patterns of association in bivariate data.	
1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	**Thinking With Mathematical Models:** 1.3: Custom Construction Parts; 2.1: Modeling Linear Data Patterns; 3.4: Modeling Data Patterns; 4.1: Vitruvian Man; 4.2: Older and Faster; 4.3: Correlation Coefficients and Outliers
2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	**Thinking With Mathematical Models:** 1.3: Custom Construction Parts; 2.1: Modeling Linear Data Patterns; 3.4: Modeling Data Patterns; 4.1: Vitruvian Man; 4.2: Older and Faster; 4.3: Correlation Coefficients and Outliers

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 8 Investigations
3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5cm in mature plant height.*	**Thinking With Mathematical Models:** 1.3: Custom Construction Parts; 2.1: Modeling Linear Data Patterns; 3.4: Modeling Data Patterns; 4.1: Vitruvian Man; 4.2: Older and Faster; 4.3: Correlation Coefficients and Outliers
4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*	**Thinking With Mathematical Models:** 5.1: Wood or Steel? That's the Question; 5.2: Politics of Girls and Boys; 5.3: After-School Jobs and Homework