A Correlation of

Connected Mathematics Project 3 (CMP3) ©2018

to the

Nevada Academic Content Standards in Mathematics

Grade 7

SAVVAS

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 7 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. Unit Projects require students to analyze and solve multi-faceted problems, and report on their conclusions. 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. In *Moving Straight Ahead*, students apply algebra and linear relationships to represent problems using variables, expressions, equations, tables, graphs, and patterns. 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: **Shapes and Designs:** 3.2: Design Challenge II: Drawing Triangles **Accentuate the Negative:** 4.3: What Operations are Needed? **Stretching and Shrinking:** Unit Project: Shrinking and Enlarging Pictures

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 7 Investigations
(Continued) 1. Make sense of problems and persevere in solving them.	**Comparing and Scaling:** Unit Project: Paper Pool; 2.1: Sharing Pizza: Comparison Strategies; 3.3: Mixing It Up: Connecting Ratios, Rates, Percents, and Proportions **Moving Straight Ahead:** Unit Project: Conducting an Experiment; 3.2: Mystery Pouches in the Kingdom of Montarek: Exploring Equality
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: **Shapes and Designs:** 2.2: Angle Sums of Any Polygon; 2.4: The Ins and Outs of Polygons **Accentuate the Negative:** 3.1: Multiplication Patterns With Integers; 4.2: The Distributive Property **Stretching and Shrinking:** 4.3: Finding Missing Parts: Using Similarity to Find Measurements **Comparing and Scaling:** 1.4: Keeping Things in Proportion: Scaling to Solve Proportions

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(Continued) 2. Reason abstractly and quantitatively.	**Moving Straight Ahead:** 3.4: Solving Linear Equations **What Do You Expect?:** 4.4: Finding Expected Value **Filling and Wrapping:** 1.2: Optimal Containers II: Finding the Least Surface Area **Samples and Populations:** 3.2: Comparing Heights of Basketball Players: Using Means and MADs.
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: **Shapes and Designs:** 2: Designing Polygons: The Angle Connection (ACE 21) **Accentuate the Negative:** Unit Project: Dealing Down

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(Continued) 3. Construct viable arguments and critique the reasoning of others.	**Stretching and Shrinking:** 1: Enlarging and Reducing Shapes (ACE 23-24); 3: Scaling Perimeter and Area (ACE 22-24); 4: Similarity and Ratios (ACE 18, 50) **Comparing and Scaling:** 1.4: Keeping Things in Proportion: Scaling to Solve Proportions; 2.1: Sharing Pizza: Comparison Strategies **Moving Straight Ahead:** 3.2: Mystery Pouches in the Kingdom of Montarek: Exploring Equality **Filling and Wrapping:** 1.2: Optimal Containers I: Finding Surface Area **Samples and Populations:** 1.2: Which Team Is Most Successful?: Using the MAD to compare samples
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: **Shapes and Designs:** 3.4: Parallel Lines and Transversals **Accentuate the Negative:** 1.3: From Sauna to Snowbank: Using a Number Line; 1.4: In the Chips: Using a Chip Model **Stretching and Shrinking:** 2: Similar Figures (ACE 19)

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 7 Investigations
(Continued) 4. Model with mathematics.	**Moving Straight Ahead:** 3.2: Mystery Pouches in the Kingdom of Montarek: Exploring Equality; 3.3: From Pouches to Variables: Writing Equations **What Do You Expect?:** 3.1: Designing a Spinner to Find Probabilities; 4.1: Drawing Area Models to Find the Sample Space **Filling and Wrapping:** 4.1: Networking: Surface Area of Cylinders **Samples and Populations:** 3.3: Five Chocolate Chips in Every Cookie: Using Sampling in a Simulation
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: **Shapes and Designs:** 1.5: Design Challenge I: Drawing With Tools—Ruler and Protractor; 3.1: Building Triangles; 3.2: Design Challenge II: 3.3: Building Quadrilaterals; 3.5: Design Challenge III: The Quadrilateral Game **Stretching and Shrinking:** Unit Project: Shrinking or Enlarging Pictures; 3.1: Rep-Tile Quadrilaterals: Forming Rep-Tiles With Similar Quadrilaterals; 3.2: Rep-Tile Triangles: Forming Rep-Tiles With Similar Triangles

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(Continued) 5. Use appropriate tools strategically.	**Moving Straight Ahead:** Unit Project: Conducting an Experiment **Filling and Wrapping:** 4.4: Filling Cones and Spheres
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: **Shapes and Designs:** 1.3: Estimating Measures of Rotations and Angles **Accentuate the Negative:** 4.2: The Distributive Property **Stretching and Shrinking:** 4.4: Using Shadows to Find Heights: Using Similar Triangles **Comparing and Scaling:** 2.3: Finding Costs: Unit Rate and Constant of Proportionality; 3.1: Commissions, Markups, and Discounts: Proportions With Percents; 3.2: Measuring to the Unit: Measurement Conversions; 3.3: Mixing It Up: Connecting Ratios, Rates, Percents, and Proportions

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 7 Investigations
(Continued) 6. Attend to precision.	**What Do You Expect?:** 4.4: Finding Expected Value **Filling and Wrapping:** 3.3: Squaring a Circle to Find Its Area: Did You Know?; 3.4: Connecting Circumference and Area
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 6, students discover patterns in data tables and analyze numbers to determine their prime structure. In all grades, students experience structure in algebraic expressions and properties, functional relationships, measurement formulas, computation algorithms, and number systems. See, for example: **Shapes and Designs:** 2.2: Angle Sums of Any Polygon; 2.4: The Ins and Outs of Polygons **Accentuate the Negative:** 1.2: Extending the Number Line; 2.3: The "+/-" Connection; 4.1: Order of Operations **Stretching and Shrinking:** 1.2: Scaling up and Down: Corresponding Sides and Angles **Comparing and Scaling:** 2.3: Finding Costs: Unit Rate and Constant of Proportionality; 3.3: Mixing It Up: Connecting Ratios, Rates, Percents, and Proportions **Moving Straight Ahead:** 4.4: Pulling It All Together: Writing Equations for Linear Relationships **Filling and Wrapping:** 3.3: Squaring a Circle to Find Its Area: Did You Know?

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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 Prime Time unit, students investigate Building on Factors and Multiples and Linking Multiplication and Addition. They extend the number line to include rational and negative numbers, and they extend computation algorithms to add and subtract fractions. See, for example: **Shapes and Designs:** 2.2: Angle Sums of Any Polygon; 2.3: The Bees Do It: Polygons in Nature; 2.4: The Ins and Outs of Polygons **Accentuate the Negative:** 1.2: Extending the Number Line; 2.1: Extending Addition to Rational Numbers; 2.2: Extending Subtraction to Rational Numbers; 2.4: Fact Families; 3.1: Multiplication Patterns With Integers **Stretching and Shrinking:** 3.1: Rep-Tile Quadrilaterals: Forming Rep-Tiles With Similar Quadrilaterals; 3.2: Rep-Tile Triangles: Forming Rep-Tiles With Similar Triangles

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Ratios and Proportional Relationships 7.RP	
A. Analyze proportional relationships and use them to solve real-world and mathematical problems.	
1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.	**Comparing and Scaling:** 1.1: Surveying Opinions; 1.2: Mixing Juice; 1.3: Time to Concentrate; 2.2: Comparing Pizza Prices; 2.3: Finding Costs; 3.2: Measuring to the Unit **Moving Straight Ahead:** 1.1: Walking Marathons; 1.2: Walking Rates and Linear Relationships; 1.3: Raising Money; 2.1: Henri and Emile's Race; 2.2: Crossing the Line; 2.3: Comparing Costs; 2.4: Connecting Tables; Graphs, and Equations; 2.3: Comparing Costs
2. Recognize and represent proportional relationships between quantities.	**Stretching and Shrinking:** 1.2: Scaling Up and Down; 2.3: Mouthing Off and Nosing Around; 3.1: Rep-Tile Quadrilaterals; 3.3: Designing Under Constraints; 3.4: Out of Reach; 4.1: Ratios Within Similar Parallelograms; 4.2: Ratios Within Similar Triangles; 4.3: Finding Missing Parts; 4.4: Using Shadows to Find Heights **Comparing and Scaling:** 1.4: Keeping Things in Proportion; 2.1: Sharing Pizza; 2.2: Comparing Pizza Prices; 2.3: Finding Costs; 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit; 3.3: Mixing it Up **Moving Straight Ahead:** 1.1: Walking Marathons; 1.2: Walking Rates and Linear Relationships
a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	**Stretching and Shrinking:** 2.3: Mouthing Off and Nosing Around; 3.1: Rep-Tile Quadrilaterals; 3.3: Designing Under Constraints; 4.1: Ratios Within Similar Parallelograms; 4.2: Ratios Within Similar Triangles **Comparing and Scaling:** 1.4: Keeping Things in Proportion; 2.1: Sharing Pizza

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b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	**Comparing and Scaling:** 2.2: Comparing Pizza Prices; 2.3: Finding Costs; 3.2: Measuring to the Unit **Moving Straight Ahead:** 1.1: Walking Marathons; 1.2: Walking Rates and Linear Relationships
c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t=pn.	**Stretching and Shrinking:** 4.3: Finding Missing Parts; 4.4: Using Shadows to Find Heights **Comparing and Scaling:** 1.4: Keeping Things in Proportion; 2.2: Comparing Pizza Prices; 2.3: Finding Costs; 3.2: Measuring to the Unit; 3.3: Mixing it Up
d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.	**Moving Straight Ahead:** 2.1: Henri and Emile's Race; 2.2: Crossing the Line
3. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	**Stretching and Shrinking:** 1.2: Scaling Up and Down; 3.1: Rep-Tile Quadrilaterals; 3.4: Out of Reach; 4.1: Ratios Within Similar Parallelograms; 4.2: Ratios Within Similar Triangles; 4.3: Finding Missing Parts; 4.4: Using Shadows to Find Heights **Comparing and Scaling:** 1.1: Surveying Opinions; 1.4: Keeping Things in Proportion; 2.1: Sharing Pizza; 2.2: Comparing Pizza Prices; 2.3: Finding Costs; 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit; 3.3: Mixing it Up

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The Number System 7.NS	
A. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	
1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.	**Accentuate the Negative:** 1.1: Playing Math Fever; 1.2: Extending the Number Line; 1.3 From Sauna to Snowbank; 1.4: In the Chips; 2.1: Extending Addition to Rational Numbers; 2.2 Extending Subtraction to Rational Numbers; 2.3: The "+/-" Connection; 2.4: Fact Families; 4.1: Order of Operations
a. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.	**Accentuate the Negative:** 1.2: Extending the Number Line; 1.4: In the Chips; 2.2 Extending Subtraction to Rational Numbers; 2.3: The "+/-" Connection; 2.4: Fact Families; 4.1: Order of Operations
b. Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	**Accentuate the Negative:** 1.2: Extending the Number Line; 1.3 From Sauna to Snowbank; 1.4: In the Chips; 2.1: Extending Addition to Rational Numbers; 2.2 Extending Subtraction to Rational Numbers; 2.3: The "+/-" Connection; 2.4: Fact Families; 4.1: Order of Operations
c. Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.	**Accentuate the Negative:** 1.2: Extending the Number Line; 1.3 From Sauna to Snowbank; 1.4: In the Chips; 2.2 Extending Subtraction to Rational Numbers; 2.3: The "+/-" Connection; 2.4: Fact Families; 4.1: Order of Operations
d. Apply properties of operations as strategies to add and subtract rational numbers.	**Accentuate the Negative:** 1.1: Playing Math Fever; 1.2: Extending the Number Line; 1.3 From Sauna to Snowbank; 1.4: In the Chips; 2.1: Extending Addition to Rational Numbers; 2.2 Extending Subtraction to Rational Numbers; 2.3: The "+/-" Connection; 2.4: Fact Families; 4.1: Order of Operations

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 7 Investigations
2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	**Accentuate the Negative:** 3.1: Multiplication Patterns; 3.2: Multiplication of Rational Numbers; 3.3 Division of Rational Numbers; 3.4: Playing the Integer Product Game; 4.1: Order of Operations; 4.2: The Distributive Property; 4.3: What Operations Are Needed? **Comparing and Scaling:** 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions
a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	**Accentuate the Negative:** 3.1: Multiplication Patterns; 3.2: Multiplication of Rational Numbers; 3.4: Playing the Integer Product Game; 4.1: Order of Operations; 4.2: The Distributive Property; 4.3: What Operations Are Needed? **Comparing and Scaling:** 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions
b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then –(p/q) = (–p)/q = p/(–q). Interpret quotients of rational numbers by describing real- world contexts.	**Accentuate the Negative:** 3.3 Division of Rational Numbers; 3.4: Playing the Integer Product Game; 4.1: Order of Operations; 4.2: The Distributive Property; 4.3: What Operations Are Needed? **Comparing and Scaling:** 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions
c. Apply properties of operations as strategies to multiply and divide rational numbers.	**Accentuate the Negative:** 3.1: Multiplication Patterns; 3.2: Multiplication of Rational Numbers; 3.3 Division of Rational Numbers; 3.4: Playing the Integer Product Game; 4.1: Order of Operations; 4.2: The Distributive Property; 4.3: What Operations Are Needed? **Comparing and Scaling:** 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions

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d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	**Accentuate the Negative:** 3.3 Division of Rational Numbers; 4.2: The Distributive Property **Comparing and Scaling:** 3.1: Commissions, Markups, and Discounts
3. Solve real-world and mathematical problems involving the four operations with rational numbers.	**Accentuate the Negative:** 1.1: Playing Math Fever; 1.2: Extending the Number Line; 1.3 From Sauna to Snowbank; 1.4: In the Chips; 2.1: Extending Addition to Rational Numbers; 2.2 Extending Subtraction to Rational Numbers; 2.3: The "+/-" Connection; 2.4: Fact Families; 3.1: Multiplication Patterns; 3.2: Multiplication of Rational Numbers; 3.3 Division of Rational Numbers; 3.4: Playing the Integer Product Game; 4.1: Order of Operations; 4.2: The Distributive Property; 4.3: What Operations Are Needed? **Comparing and Scaling:** 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions
Expressions and Equations 7.EE	
A. Use properties of operations to generate equivalent expressions.	
1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	**Moving Straight Ahead:** 3.3: From Pouches to Variables: Writing Equations; 3.4: Solving Linear Equations **Filling and Wrapping:** 3.4: Connecting Circumference and Area
2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a =1.05a means that "increase by 5%"is the same as "multiply by 1.05."	**Shapes and Designs:** 2.1: Angle Sums of Regular Polygons; 2.2: Angle Sums of Any Polygon; 2.4: The Ins and Outs of Polygons **Moving Straight Ahead:** 3.3: From Pouches to Variables: Writing Equations; 3.4: Solving Linear Equations **Filling and Wrapping:** 3.4: Connecting Circumference and Area

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B. Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	
3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.	**Accentuate the Negative:** 2.1: Extending Addition to Rational Numbers; 2.2 Extending Subtraction to Rational Numbers; 2.3: The "+/-" Connection; 2.4: Fact Families; 3.1: Multiplication Patterns; 3.2: Multiplication of Rational Numbers; 3.3 Division of Rational Numbers; 3.4: Playing the Integer Product Game; 4.1: Order of Operations; 4.2: The Distributive Property; 4.3: What Operations Are Needed? **Stretching and Shrinking:** 4.3: Finding Missing Parts: Using Similarity to Find Measurements; 4.4: Using Shadows to Find Heights: Using Similar Triangles **Comparing and Scaling:** 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions **Moving Straight Ahead:** 1.1: Walking Marathons; 1.2: Walking Rates and Linear Relationships; 1.3: Raising Money; 1.4: Using the Walkathon Money; 2.1: Henri and Emile's Race; 2.2: Crossing the Line; 2.3: Comparing Costs; 2.4: Connecting Tables; Graphs, and Equations; 3.1: Solving Equations Using Tables and Graphs; 3.2: Mystery Pouches in the Kingdom of Montarek; 3.3: From Pouches to Variables; 3.4: Solving Linear Equations; 3.5: Finding the Points of Intersection; 4.1: Climbing Stairs; 4.2: Finding the Slope of a Line; 4.3: Exploring Patterns With Lines; 4.4: Pulling it All Together

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4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	**Accentuate the Negative:** 1.2: Extending the Number Line; 1.3 From Sauna to Snowbank **Shapes and Designs:** 2.1: Angle Sums of Regular Polygons; 2.2: Angle Sums of Any Polygon; 2.4: The Ins and Outs of Polygons **Stretching and Shrinking:** 4.3: Finding Missing Parts: Using Similarity to Find Measurements; 4.4: Using Shadows to Find Heights: Using Similar Triangles **Comparing and Scaling:** 1.3: Time to Concentrate: Scaling Ratios; 1.4: Keeping Things in Proportion: Scaling to Solve Proportions; 2.3: Finding Costs: Unit Rate and Constant of Proportionality; 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions; 3.3: Mixing It Up: Connecting Ratios, Rates, Percents, and Proportions **Moving Straight Ahead:** 1.1: Walking Marathons; 1.2: Walking Rates and Linear Relationships; 1.3: Raising Money; 1.4: Using the Walkathon Money; 2.1: Henri and Emile's Race; 2.2: Crossing the Line; 2.3: Comparing Costs; 2.4: Connecting Tables; Graphs, and Equations; 3.1: Solving Equations Using Tables and Graphs; 3.2: Mystery Pouches in the Kingdom of Montarek; 3.3: From Pouches to Variables; 3.4: Solving Linear Equations; 3.5: Finding the Points of Intersection; 4.1: Climbing Stairs; 4.2: Finding the Slope of a Line; 4.3: Exploring Patterns With Lines; 4.4: Pulling it All Together

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a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangleis54cm. Its length is6cm.What is its width?	**Comparing and Scaling:** 2.3: Finding Costs: Unit Rate and Constant of Proportionality; 3.1: Commissions, Markups, and Discounts; 3.2: Measuring to the Unit: Measurement Conversions; 3.3: Mixing It Up: Connecting Ratios, Rates, Percents, and Proportions **Moving Straight Ahead:** 3.1: Solving Equations Using Tables and Graphs; 3.2: Mystery Pouches in the Kingdom of Montarek; 3.3: From Pouches to Variables; 3.4: Solving Linear Equations
b. Solve word problems leading to inequalities of the form px + q > r or px + q < r,where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a sales person, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100.Write an inequality for the number of sales you need to make, and describe the solutions.	**Accentuate the Negative:** 1.2: Extending the Number Line **Moving Straight Ahead:** 3.5: Finding the Point of Intersection: Equations and Inequalities
Geometry 7.G	
A. Draw, construct, and describe geometrical figures and describe the relationships between them.	
1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	**Stretching and Shrinking:** 1.1: Solving a Mystery; 1.2: Scaling Up and Down; 2.1: Drawing Wumps; 2.2: Hats Off to the Wumps; 2.3: Mouthing Off and Nosing Around; 3.1: Rep-Tile Quadrilaterals; 3.2: Rep-Tile Triangles; 3.3: Designing Under Constraints; 3.4: Out of Reach; 4.1: Ratios Within Similar Parallelograms; 4.2: Ratios Within Similar Triangles; 4.3: Finding Missing Parts; 4.4: Using Shadows to Find Heights **Filling and Wrapping:** 1.4: Compost Containers: Scaling Up Prisms

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2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	**Shapes and Designs:** 1.1: Sorting and Sketching Polygons; 1.2: In a Spin: Angles and Rotations; 1.3: Estimating Measures of Rotations and Angles; 1.4: Measuring Angles; 1.5: Design Challenge I: Drawing with Tools—Ruler and Protractor; 2.2: Angle Sums of Any Polygon; 2.3: The Bees Do It: Polygons in Nature; 2.4: The Ins and Outs of Polygons; 3.1: Building Triangles; 3.2: Design Challenge II: Drawing Triangles; 3.3: Building Quadrilaterals **Stretching and Shrinking:** 1.1: Solving a Mystery; 2.1: Drawing Wumps; 2.2: Hats Off to the Wumps; 2.3: Mouthing Off and Nosing Around; 3.1: Rep-Tile Quadrilaterals; 3.2: Rep-Tile Triangles; 3.3: Designing Under Constraints; 4.4: Using Shadows to Find Heights
3. Describe the two-dimensional figures that result from slicing three- dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	**Filling and Wrapping:** 2.3: Slicing Prisms and Pyramids
B. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	
4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	**Filling and Wrapping:** 3.1: Going Around in Circles; 3.2: Pricing Pizza; 3.3: Squaring a Circle to Find Its Area; 3.4: Connecting Circumference and Area
5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	**Shapes and Designs:** 1.4: Measuring Angles; 2.4: The Ins and Outs of Polygons; 3.4: Parallel Lines and Transversals

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6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	**Stretching and Shrinking:** 1.2: Scaling Up and Down; 3.1: Rep-Tile Quadrilaterals; 3.2: Rep-Tile Triangles; 3.3: Designing Under Constraints **Filling and Wrapping:** 1.1: How Big Are Those Boxes?; 1.2: Optimal Containers I; 1.3: Optimal Containers II; 1.4: Compost Containers; 2.1: Folding Paper; 2.2: Packing A Prism; 2.3: Slicing Prisms and Pyramids; 3.1: Going Around in Circles; 3.2: Pricing Pizza; 3.3: Squaring a Circle to Find Its Area; 3.4: Connecting Circumference and Area; 4.1: Networking; 4.2: Wrapping Paper; 4.3: Comparing Juice Containers; 4.4: Filling Cones and Spheres; 4.5: Comparing Volumes of Spheres, Cylinders, and Cones
Statistics and Probability 7.SP	
A. Use random sampling to draw inferences about a population.	
1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	**Samples and Populations:** 2.1: Asking About Honesty; 2.2: Selecting a Sample; 2.3: Choosing Random Samples; 2.4: Growing Samples; 3.1: Solving an Archeological Mystery; 3.2: Comparing Heights of Basketball Players; 3.3: Five Chocolate Chips in Every Cookie; 3.4: Estimating a Deer Population
2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.	**Samples and Populations:** 2.1: Asking About Honesty; 2.2: Selecting a Sample; 2.3: Choosing Random Samples; 2.4: Growing Samples; 3.1: Solving an Archeological Mystery; 3.2: Comparing Heights of Basketball Players; 3.3: Five Chocolate Chips in Every Cookie; 3.4: Estimating a Deer Population

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B. Draw informal comparative inferences about two populations.	
3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.	**Samples and Populations:** 1.1: Comparing Performances; 1.2: Which Team Is Most Successful?; 1.4: Are Steel-Frame Coasters Faster Than Wood-Frame Coasters?; 3.1: Solving an Archeological Mystery; 3.2: Comparing Heights of Basketball Players; 3.3: Five Chocolate Chips in Every Cookie; 3.4: Estimating a Deer Population
4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.	**Samples and Populations:** 1.1: Comparing Performances; 1.2: Which Team Is Most Successful?; 1.4: Are Steel-Frame Coasters Faster Than Wood-Frame Coasters?; 3.1: Solving an Archeological Mystery; 3.2: Comparing Heights of Basketball Players; 3.3: Five Chocolate Chips in Every Cookie; 3.4: Estimating a Deer Population
C. Investigate chance processes and develop, use, and evaluate probability models.	
5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	**What Do You Expect?:** 1.1: Choosing Cereal; 1.2: Tossing Paper Cups; 1.3 One More Try; 1.4 Analyzing Events; 2.1 Predicting to Win; 2.2 Choosing Marbles; 2.3: Designing a Fair Game; 2.4: Winning the Bonus Prize; 3.1: Designing a Spinner to Find Probabilities; 3.2: Making Decisions; 3.3: Roller Derby; 3.4: Scratching Spots
6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6would be rolled roughly 200 times, but probably not exactly 200 times.	**What Do You Expect?:** 1.1: Choosing Cereal; 1.2: Tossing Paper Cups; 1.3 One More Try; 1.4 Analyzing Events; 2.1 Predicting to Win; 2.2 Choosing Marbles; 2.3: Designing a Fair Game; 2.4: Winning the Bonus Prize; 3.1: Designing a Spinner to Find Probabilities; 3.2: Making Decisions; 3.3: Roller Derby; 3.4: Scratching Spots

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7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	**What Do You Expect?:** 2.1 Predicting to Win; 2.2 Choosing Marbles; 2.3: Designing a Fair Game; 2.4: Winning the Bonus Prize; 3.1: Designing a Spinner to Find Probabilities; 3.2: Making Decisions; 3.3: Roller Derby; 3.4: Scratching Spots; 4.1: Drawing Area Models to Find the Sample Space; 4.2: Making Purple; 4.3: One-and-One Free Throws: Simulating a Probability Situation; 4.4: Finding Expected Value; 5.1: Guessing Answers: Finding More Expected Values; 5.2: Ortonville: Binomial Probability; 5.3: A Baseball Series: Expanding Binomial Probability
a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.	**What Do You Expect?:** 4.1: Drawing Area Models to Find the Sample Space; 4.2: Making Purple; 4.3: One-and-One Free Throws: Simulating a Probability Situation; 4.4: Finding Expected Value; 5.1: Guessing Answers: Finding More Expected Values; 5.2: Ortonville: Binomial Probability; 5.3: A Baseball Series: Expanding Binomial Probability
b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?	**What Do You Expect?:** 1.1: Choosing Cereal; 1.2: Tossing Paper Cups; 1.3 One More Try; 1.4 Analyzing Events; 2.1 Predicting to Win; 2.2 Choosing Marbles; 2.3: Designing a Fair Game; 2.4: Winning the Bonus Prize; 3.1: Designing a Spinner to Find Probabilities; 3.2: Making Decisions; 3.3: Roller Derby; 3.4: Scratching Spots
8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	**What Do You Expect?:** 2.3: Designing a Fair Game; 3.4: Scratching Spots: Designing and Using a Simulation; 4.1: Drawing Area Models to Find the Sample Space; 4.4: Finding Expected Value; 5.2: Ortonville: Binomial Probability

Nevada Academic Content Standards in Mathematics	Connected Mathematics Project 3 Grade 7 Investigations
a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	**What Do You Expect?:** 3.2: Making Decisions; 3.3: Roller Derby; 3.4: Scratching Spots; 4.1: Drawing Area Models to Find the Sample Space; 4.2: Making Purple; 4.3: One-and-One Free Throws: Simulating a Probability Situation; 4.4: Finding Expected Value; 5.1: Guessing Answers: Finding More Expected Values
b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	**What Do You Expect?:** 2.3: Designing a Fair Game; 3.4: Scratching Spots: Designing and Using a Simulation; 4.1: Drawing Area Models to Find the Sample Space; 4.4: Finding Expected Value; 5.2: Ortonville: Binomial Probability
c. Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40%of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?	**What Do You Expect?:** 2.3: Designing a Fair Game; 3.4: Scratching Spots: Designing and Using a Simulation; 4.1: Drawing Area Models to Find the Sample Space