



Alignment Document
State of Nevada and Aventa Learning

Geometry CR

Strand	Common Curriculum Goal	Standard	Lesson Name
Problem Solving	Process Standard A: Students will develop their ability to solve problems by engaging in developmentally appropriate opportunities where there is a need to use various approaches to investigate and understand mathematical concepts in order to:	<ul style="list-style-type: none"> • Generalize solutions and apply previous knowledge to new problem solving situations 	All Units/Lessons
		<ul style="list-style-type: none"> • Determine an efficient strategy, verify, interpret, and evaluate the results with respect to the original problem 	Unit 1: Language of Geometry
		<ul style="list-style-type: none"> • Apply problem solving strategies until a solution is found or it is clear that no solution exists 	Unit 2: Reasoning and Introduction to Proof
		<ul style="list-style-type: none"> • Interpret and solve a variety of mathematical problems by paraphrasing 	Unit 9: Right Triangles and Trigonometry
		<ul style="list-style-type: none"> • Identify necessary and extraneous information 	Unit 1: Language of Geometry Unit 3: Parallel Lines and Coordinate Plane
		<ul style="list-style-type: none"> • Check the reasonableness of a solution 	Unit 9: Right Triangles and Trigonometry
		<ul style="list-style-type: none"> • Apply technology as a tool in problem solving situations 	Unit 1: Lesson 4: Classifying Angles
		<ul style="list-style-type: none"> • Apply combinations of proven strategies and previous knowledge to solve non-routine problems 	All Units/Lessons

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Mathematical Communication	Process Standard B: Students will develop their ability to communicate mathematically by solving problems where there is a need to obtain information from the real world through reading, listening, and observing in order to:	<ul style="list-style-type: none"> • Use a variety of techniques to solve mathematical problems 	All Units/Lessons
		<ul style="list-style-type: none"> • Evaluate written and oral presentations in mathematics. 	Unit 1: Language of Geometry
		<ul style="list-style-type: none"> • Model and explain mathematical relationships using oral, written, graphic, and algebraic methods 	Unit 1: Language of Geometry
		<ul style="list-style-type: none"> • Communicate and evaluate mathematical thinking based on the use of definitions, properties, rules, and symbols in problem solving 	Unit 1: Language of Geometry Unit 6: Quadrilaterals and Polygons
		<ul style="list-style-type: none"> • Use everyday language, both orally and in writing, communicate strategies and solutions to problems using appropriate mathematical language 	All Units/Lessons
Mathematical Reasoning	Process Standard C: Students will develop their ability to reason mathematically by solving problems where there is a need to investigate mathematical ideas and construct their own learning in all content areas in order to:	<ul style="list-style-type: none"> • Recognize and apply deductive and inductive reasoning 	Unit 2: Lesson 1: Inductive Reasoning Unit 2: Lesson 3: Deductive Reasoning
		<ul style="list-style-type: none"> • Review and refine the assumptions and steps used to derive conclusions in mathematical arguments 	Unit 1: Language of Geometry Unit 2: Reasoning and Introduction to Proof

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		<ul style="list-style-type: none"> • Make and test conjectures about algebraic and geometric properties based on mathematical principles 	
		<ul style="list-style-type: none"> • Justify the validity of an argument 	Unit 2: Reasoning and Introduction to Proof
		<ul style="list-style-type: none"> • Construct a valid argument 	Unit 2: Reasoning and Introduction to Proof
Mathematical Connections	Process Standard D: Students will develop the ability to make mathematical connections by solving problems where there is a need to view mathematics as an integrated whole in order to:	<ul style="list-style-type: none"> • Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics 	Unit 3: Parallel Lines and Coordinate Plane Unit 9: Right Triangles and Trigonometry
		<ul style="list-style-type: none"> • Explain the relationship between concepts and procedures 	Unit 1: Language of Geometry
		<ul style="list-style-type: none"> • Use the connections among mathematical topics to develop multiple approaches to problems 	Unit 10: Perimeters and Areas
		<ul style="list-style-type: none"> • Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science 	
		<ul style="list-style-type: none"> • Identify, explain, and apply mathematics in everyday life 	Unit 1: Language of Geometry

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1.0 Numbers, Number Sense, and Computation	Content Standard 1.0 Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.	1.12.6.1 Determine an approximate value of radical and exponential expressions using a variety of methods.	
		1.12.7.1 Solve mathematical problems involving exponents and roots.	Unit 9: Lesson 3: Laws of Sine and Cosine Unit 10: Lesson 3: Circumferences and Areas of Circles
		1.12.7.2 Perform addition, subtraction, and scalar multiplication on matrices.	
		1.12.8.1 Identify and apply real number properties to solve problems.	Unit 9: Right Triangles and Trigonometry
2.0 Patterns, Functions, and Algebra	Content Standard 2.0 Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.	2.12.1.1 Use algebraic expressions to identify and describe the nth term of a sequence.	
		2.12.2.1 Isolate any variable in given equations, inequalities, proportions, and formulas to use in mathematical and practical situations.	Unit 7: Lesson 1: Ratios and Proportions

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		2.12.3.1 Add, subtract, multiply, and factor 1st and 2nd degree polynomials connecting the arithmetic and algebraic processes.	
		2.12.3.2 Simplify algebraic expressions, including exponents and radicals.	
		2.12.4.1 Determine the domain and range of functions, including linear, quadratic, and absolute value, algebraically and graphically.	
		2.12.4.2 Solve absolute value equations and inequalities both algebraically and graphically.	
		2.12.5.1 Solve systems of two linear equations algebraically and graphically and verify solutions (with and without technology).	
		2.12.6.1 Solve mathematical and practical problems involving linear and quadratic equations with a variety of methods, including discrete methods (with and without technology).	
3.0 Measurement	Content Standard 3.0 Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.	3.12.1.1 Estimate and convert between customary and metric systems.	

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		3.12.2.1 Justify, communicate, and differentiate between precision, error, and tolerance in practical problems.	
		3.12.3.1 Select and use appropriate measurement tools, techniques, and formulas to solve problems in mathematical and practical situations.	
		3.12.4.1 Interpret and apply consumer data presented in charts, tables, and graphs to make informed financial decisions related to practical applications.	
		3.12.5.1 Determine the measure of unknown dimensions, angles, areas, and volumes using relationships and formulas to solve problems.	Unit 1: Lesson 2: Measuring Segments Unit 7: Similarity Unit 8: Circles Unit 9: Right Triangles and Trigonometry Unit 10: Perimeters and Areas
4.0 Spatial Relationships, Geometry, and Logic	Content Standard 4.0 Students will identify, represent, verify, and apply spatial relationships and geometric properties to solve problems, communicate, and make connections within and beyond the field of mathematics.	4.12.1.1 Identify and use the parts of a circle to solve mathematical and practical problems.	Unit 8: Circles
		4.12.1.2 Identify and apply properties of interior and exterior angles of polygons to solve mathematical and practical problems.	Unit 6: Lesson 4: Polygons

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		4.12.2.1 Apply properties of similarity through right triangle trigonometry to find missing angles and sides.	Unit 7: Similarity Unit 9: Right Triangles and Trigonometry
		4.12.5.1 Determine the slope of lines using coordinate geometry and algebraic techniques.	Unit 3: Lesson 3: Equations of Lines in Coordinate Plane
		4.12.5.2 Identify parallel, perpendicular, and intersecting lines by slope.	Unit 3: Lesson 3: Equations of Lines in Coordinate Plane
		4.12.5.3 Graph linear equations and find possible solutions to those equations using coordinate geometry.	Unit 3: Lesson 3: Equations of Lines in Coordinate Plane
		4.12.5.4 Find possible solution sets of systems of equations whose slopes indicate parallel, perpendicular, or intersecting lines.	Unit 3: Lesson 3: Equations of Lines in Coordinate Plane
		4.12.6.1 Solve problems using complementary and supplementary angles, congruent angles, vertical angles, angles formed when parallel lines are cut by a transversal and angles in polygons.	Unit 1: Lesson 5: Pairs of Angles
		4.12.7.1 Apply the Pythagorean Theorem and its converse in mathematical and practical situations.	Unit 5: Lesson 3: Right Triangles and Pythagorean Theorem
		4.12.8.1 Solve problems by drawing and/or constructing geometric figures to demonstrate geometric relationships.	Unit 3: Parallel Lines and Coordinate Plane Unit 6: Polygons

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		4.12.9.1 Formulate, evaluate, and justify arguments using inductive and deductive reasoning in mathematical and practical situations.	Unit 2: Lesson 1: Inductive Reasoning Unit 2: Lesson 3: Deductive Reasoning
5.0 Data Analysis	Content Standard 5.0 Students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections to solve problems, communicate, reason, and make connections within and beyond the field of mathematics.	5.12.1.1 Organize statistical data through the use of tables, graphs, and matrices (with and without technology).	
		5.12.2.1 Select and apply appropriate statistical measures in mathematical and practical situations.	
		5.12.3.1 Distinguish between a sample and a census	
		5.12.3.2 Identify sources of bias and their effect on data representations and statistical conclusions.	
		5.12.3.3 Use the shape of a normal distribution to compare and analyze data from a sample.	
		5.12.4.1 Apply permutations and combinations to mathematical and practical situations, including the Fundamental Counting Principle.	
		5.12.5.1 Determine the probability of an event with and without replacement using sample spaces.	
		5.12.5.2 Design, conduct, analyze, and effectively communicate the results of multi-stage probability experiments.	



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		5.12.6.1 Design, construct, analyze, and select an appropriate type of graphical representations to communicate the results of a statistical experiment.	
		5.12.6.2 Formulate and justify inferences based on a valid data sample.	