



# Alignment Document

## State of Alaska And Aventa Learning Geometry

### Geometry 2005-2007 Benchmark Blueprint

State Standard Number	State Standard Area / Description	Unit Name	Course Topic Description
A	A student should understand mathematical facts, concepts, principles, and theories.		
A.1	understand and use numeration		
A.1.a	numbers, number systems, counting numbers, whole numbers, integers, fractions, decimals, and percents	All Units	Whole numbers, fractions, and decimals are used throughout all topics
A.1.b	irrationals and complex numbers		
A.2	select and use appropriate systems, units, and tools of measurement, including estimation	Language of Geometry	Finding Angle Measures
		Language of Geometry	Measuring Segments
A.3	perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools for computation or estimation including mental arithmetic, paper and pencil, a calculator, and a computer	All Units	Computation with whole numbers, fractions, and decimals are used throughout all topics.



A.4	represent, analyze, and use mathematical patterns, relations, and functions using methods such as tables, equations, and graphs	Language of Geometry	Finding Angle Measures (equations)
		Reasoning and Introduction to Proof	Inductive Reasoning- Number Reasoning and Geometric Patterns
		Parallel Lines and Coordinate Plane	Lines and Points in Planes- Distance and Midpoint Formulas
		Parallel Lines and Coordinate Plane	Equations of Lines in Coordinate Plane
		Circles	Equations of Circles
A.5	construct, draw, measure, transform, compare, visualize, classify, and analyze the relationships among geometric figures	Language of Geometry	Measuring Segments, Rays and Angles
		Parallel Lines and Coordinate Plane	Lines and Points in Coordinate Planes
		Triangles Basic Closed Figures in Geometry	Structure of Triangles
		Triangles Basic Closed Figures in Geometry	Congruent Triangles and Congruence Tests
		Triangles Basic Closed Figures in Geometry	Special Segments in Triangles
		Special Triangles and Special Relationships in Triangles	Isosceles Triangles
		Special Triangles and Special Relationships in Triangles	Equilateral Triangles Right Triangles and Pythagorean Theorem
		Special Triangles and Special Relationships in Triangles	Triangle Inequalities
		Quadrilaterals and Polygons	Square and Rectangle
		Quadrilaterals and Polygons	Parallelogram
		Quadrilaterals and Polygons	Rhombus and Trapezoid
		Quadrilaterals and Polygons	Polygons
		Similarity	Ratio and Proportion
		Similarity	Similar Triangles

		Similarity	Similar Quadrilaterals and Polygons
		Circles	Arcs and Circular Angles
		Circles	Special Segments in Circles
		Circles	Equations of Circles
		Right Triangles and Trigonometry	Special Ratios in a Right Triangle
		Right Triangles and Trigonometry	Laws of Sine and Cosine
		Perimeters and Areas	Perimeters and Areas of Triangles and Polygons
		Perimeters and Areas	Perimeters and Areas of Quadrilaterals
		Perimeters and Areas	Circumferences and Areas of Circles
A.6	collect, organize, analyze, interpret, represent, and formulate questions about data and make reasonable and useful predictions about the certainty, uncertainty, or impossibility of an event.		
B	A student should understand and be able to select and use a variety of problem-solving strategies.		
B.1	use computational methods and appropriate technology as problem-solving tools	Language of Geometry	Points, Lines, and Planes
		Language of Geometry	Measuring Segments
		Language of Geometry	Rays and Angles
		Language of Geometry	Classifying Angles
		Language of Geometry	Pairs of Angles
		Language of Geometry	Right Angles and Perpendicular Lines
		Parallel Lines and Coordinate Plane	Lines and Points in Planes
		Parallel Lines and Coordinate Plane	Lines and Points in Coordinate Planes- Distance and Midpoint Formulas
		Parallel Lines and Coordinate Plane	Equations of Lines in Coordinate Plane
		Triangles Basic Closed Figures in Geometry	Structure of Triangles
		Triangles Basic Closed Figures in Geometry	Congruent Triangles and Congruence Tests



		Triangles Basic Closed Figures in Geometry	Special Segments in Triangles
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		Perimeters and Areas	Circumferences and Areas of Circles
B.2	use problem solving to investigate and understand mathematical content	All Units	Exercises
B.3	formulate mathematical problems that arise from everyday situations		
B.4	develop and apply strategies to solve a variety of problems	All Units	Exercises

B.5	check the results against mathematical rules	Reasoning and Introduction to Proof	Two Column Proof
B.6	use common sense to help interpret results	Reasoning and Introduction to Proof	Reasoning and Introduction to Proof
		Reasoning and Introduction to Proof	If-Then Statements, Converses, and Postulates
B.7	apply what was learned to new situations	Connections From Algebra	Connections From Algebra
B.8	use mathematics with confidence	All Units	Exercises
C	A student should understand and be able to form and use appropriate methods to define and explain mathematical relationships.		
C.1	express and represent mathematical ideas using oral and written presentations, physical materials, pictures, graphs, charts, and algebraic expressions	Language of Geometry	Points, Lines, and Planes
		Language of Geometry	Measuring Segments
		Language of Geometry	Rays and Angles
		Language of Geometry	Classifying Angles
		Language of Geometry	Pairs of Angles
		Language of Geometry	Right Angles and Perpendicular Lines
		Parallel Lines and Coordinate Plane	Lines and Points in Planes
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C.2	relate mathematical terms to everyday language		
C.3	develop, test, and defend mathematical hypotheses	Reasoning and Introduction to Proof	Inductive Reasoning
		Reasoning and Introduction to Proof	Deductive Reasoning
		Reasoning and Introduction to Proof	Logic
		Reasoning and Introduction to Proof	Two Column Proof
C.4	clarify mathematical ideas through discussion with others		
D	A student should be able to use logic and reason to solve mathematical problems.		
D.1	analyze situations	Reasoning and Introduction to Proof	Reasoning and Introduction to Proof
		Reasoning and Introduction to Proof	If-Then Statements, Converses, and Postulates

D.2	draw logical conclusions	Reasoning and Introduction to Proof	Inductive Reasoning
		Reasoning and Introduction to Proof	Deductive Reasoning
		Reasoning and Introduction to Proof	Logic
		Reasoning and Introduction to Proof	Two Column Proof
D.3	use models, known facts, and relationships to explain the student's reasoning	Reasoning and Introduction to Proof	Inductive Reasoning
		Reasoning and Introduction to Proof	Deductive Reasoning
		Reasoning and Introduction to Proof	Logic
		Reasoning and Introduction to Proof	Two Column Proof
D.4	use deductive reasoning to verify conclusions, judge the validity of arguments, and construct valid arguments	Reasoning and Introduction to Proof	Deductive Reasoning
D.5	use inductive reasoning to recognize patterns and form mathematical propositions	Reasoning and Introduction to Proof	Reasoning and Introduction to Proof
		Reasoning and Introduction to Proof	If-Then Statements, Converses, and Postulates
E	A student should be able to apply mathematical concepts and processes to situations within and outside of school.		
E.1	explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations	All Units	Exercises
E.2	use mathematics in daily life		
E.3	use mathematics in other curriculum areas		