



Alignment Document
State of Mississippi and Aventa Learning Geometry

Geometry
2005-2007 Benchmark Blueprint

Strands	Standards	Benchmarks	Unit Name	Course Topic Description
Number and Operations	G.1 Compute and determine the reasonableness of a result in mathematical and real-world situations with and without technology.	G.1.a Apply problem-solving skills to solve and verify the solutions for unknown measures in similar polygons.	Similarity Similarity Similarity	Similar Figures Similar Quadrilaterals Similar Polygons
		G.1.b Given exact irrational solutions, determine the best rational estimation.		
		G.1.c Solve real-world or application problems that involve square roots and the Pythagorean Theorem.	Special Triangles Quadrilaterals and Polygons	Right Triangles and Pythagorean Theorem Application of Pythagorean Theorem in Squares
Algebra	G.2 Understand relations, functions, and patterns. Analyze change using various geometric properties.	G.2.a Represent data from geometric and real-world contexts with expressions, formulas, tables, charts, graphs, relations, and functions.	Connections From Algebra Parallel Lines and the Coordinate Plane Parallel Lines and the Coordinate Plane Parallel Lines and the Coordinate	The Concept of "Variable" in Geometry Equations of Lines in the Coordinate Plane How to Write the Equation of a Line How to Display a Line on the Coordinate Plane



			Plane	
			Parallel Lines and the Coordinate Plane	Slope-Intercept Form
			Parallel Lines and the Coordinate Plane	Relationships Between Two Lines on a Plane
		G.2.b Recognize and write the equation of a circle in standard form $(x-h)^2 + (y-k)^2 = r^2$ and identify the center and radius.		
		G.2.c Use slope to analyze and write equations for parallel and perpendicular lines.	Parallel Lines and the Coordinate Plane	Lines and Points in a Plane
			Parallel Lines and the Coordinate Plane	Positions of Two Lines in a Plane
			Parallel Lines and the Coordinate Plane	Concurrent Lines
			Parallel Lines and the Coordinate Plane	Parallel Lines and Transversals
			Parallel Lines and the Coordinate Plane	Equations of Lines in the Coordinate Plane
			Parallel Lines and the Coordinate Plane	How to Write the Equation of a Line
			Parallel Lines and	How to Display a Line on the

			the Coordinate Plane	Coordinate Plane
			Parallel Lines and the Coordinate Plane	Slope-Intercept Form
			Parallel Lines and the Coordinate Plane	Relationships Between Two Lines on a Plane
		G.2.d Apply the Midpoint and Distance Formulas to solve application problems involving the coordinate plane.	Parallel Lines and the Coordinate Plane	Length of a Segment on a Coordinate Plane
			Parallel Lines and the Coordinate Plane	Midpoint of a Segment
			Parallel Lines and the Coordinate Plane	Distance Formula
		G.2.e Determine the effects of rigid (translations, rotations, and reflections) and nonrigid (dilations) motions and compositions when performed on objects on the coordinate plane.		
Geometry	G.3 Investigate, apply, and prove properties and theorems from postulates and definitions related to angles, lines, circles, polygons, and two- and three-dimensional figures. Explore applications of patterns and transformational geometry.	G.3.a Use inductive reasoning to make conjectures and deductive reasoning to make valid conclusions.	Reasoning and Intro to Proof	Inductive Reasoning
			Reasoning and Intro to Proof	Recognizing Number Patterns By Inductive Method
			Reasoning and Intro to Proof	Counter Examples
			Reasoning and Intro to Proof	Geometric Induction



			Reasoning and Intro to Proof	Laws of Deductive Reasoning
			Reasoning and Intro to Proof	Law of Detachment
			Reasoning and Intro to Proof	Law of Syllogism
			Reasoning and Intro to Proof	Inverse of a Conditional Statement
	G.3.b Develop and evaluate mathematical arguments and proofs to include paragraph, two-column, and flow chart forms.		Reasoning and Intro to Proof	Language of Reasoning
			Reasoning and Intro to Proof	Truth Tables
			Reasoning and Intro to Proof	Compound Statements
			Reasoning and Intro to Proof	Postulates and Converses
			Reasoning and Intro to Proof	Introduction to Two Column Proof
	G.3.c Identify, classify, and apply angle relationships formed by parallel lines cut by transversals.		Parallel Lines and the Coordinate Plane	Parallel Lines and Transversals
			Parallel Lines and the Coordinate Plane	Postulates about Parallel lines
			Parallel Lines and the Coordinate Plane	Angles Formed by Parallel Lines and their Transversals

			Parallel Lines and the Coordinate Plane	Alternate Interior Angles
			Parallel Lines and the Coordinate Plane	Alternate Exterior Angles
			Parallel Lines and the Coordinate Plane	Corresponding Angles
		G.3.d Use the properties of altitudes, medians, angle bisectors, and perpendicular bisectors of triangles to solve problems.	Triangles	Special Segments in Triangles
			Triangles	Altitude
			Triangles	Median
			Triangles	Angle Bisector
			Triangles	Perpendicular Bisectors
			Special Triangles	Properties of Medians of Isosceles Triangle
			Special Triangles	Properties of Altitudes of Isosceles Triangle
			Special Triangles	Properties of Altitudes of Isosceles Triangle
			Special Triangles	Properties of Perpendicular Bisectors of Isosceles Triangle
		Special Triangles	Special Segments in an Equilateral Triangle	
		G.3.e Classify triangles and apply	Triangles	Classification of Triangles

		postulates and theorems to test for triangle inequality, congruence, and similarity.	Triangles	(sides) Classification of Triangles (angles)
			Triangles	Congruent Triangles and Congruence Tests
			Triangles	Congruence of Geometric Figures
			Triangles	When Two Triangles Are Congruent SAS Postulate
			Triangles	ASA Postulate
			Triangles	SSS Postulate
			Triangles	AAS Postulate
			Triangles	HL Postulate
			Special Triangles	When Two Equilateral Triangles Are Congruent
		G.3.f Determine and justify if a given shape could be tessellated.		
		G.3.g Describe and draw cross-sections of prisms, cylinders, pyramids, and cones.		
		G.3.h Graph a vector and determine the magnitude and direction of a given vector.		
		G.3.i Given the pre-image or image, find figures obtained by applying reflections, translations, rotations, and dilations; describe and justify the method used.		
Measurement	G.4 Select and apply various strategies, tools, and formulas to	G.4.a Use the properties of circles using arc, angle, and segment relationships to	Circles	Arcs and Special segments



	<p>calculate length, surface area, volume, and angle measurements.</p>	<p>find missing measures.</p>	<p>Circles Circles Circles Circles Circles Circles</p>	<p>What is a circle? Arcs, chords, segments, diameters, tangents Theorems About Chords and Tangents (1-4) Theorems About Chords and Tangents (5-7) Special Angles in Circles Central Angles, Inscribed Angles, Tangent-Chord Angles</p>
		<p>G.4.b Solve real-world applications and mathematical problems to find missing measurements in right triangles by applying special right triangle relationships, geometric means, or trigonometric functions.</p>	<p>Special Triangles Special Triangles Special Triangles Special Triangles Special Triangles Right Triangles and Trigonometry Right Triangles and Trigonometry Right Triangles and Trigonometry</p>	<p>Right Triangles and Pythagorean Theorem Right Triangles Special Right Triangles 30-60-90 Special Right Triangles 45-45-90 Pythagorean Theorem Review of Pythagorean Theorem Right Triangles, Special Triangles, Pythagorean Theorem Indirect Measurement</p>

			Right Triangles and Trigonometry	Special Ratios in a Right Triangle
			Right Triangles and Trigonometry	Sine, Cosine, Tangent, Cotangent
			Right Triangles and Trigonometry	Relationships Between Trigonometric Ratios
		G.4.c Solve real-world and mathematical problems involving the lateral area, surface area and volume of three-dimensional figures, including prisms, cylinders, cones, pyramids, and spheres.		
		G.4.d Explain and use the properties of 45-45-90 and 30-60-90 triangles.	Special Triangles	Special Right Triangles 30-60-90
			Special Triangles	Special Right Triangles 45-45-90
		G.4.e Apply the relationships of sine, cosine, and tangent to problems involving right triangles.	Right Triangles and Trigonometry	Special Ratios in a Right Triangle
			Right Triangles and Trigonometry	Sine, Cosine, Tangent, Cotangent
			Right Triangles and Trigonometry	Relationships Between Trigonometric Ratios
Data Analysis & Probability	G.5 Represent, analyze, and make inferences based on data with and without the use of technology.	G.5.a Apply multiple strategies and representations, including area models, to solve probability problems.		