

## Geometry

State Standard Number	State Standard Area/Description	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	Section C
G.1.b	Given exact irrational solutions, determine the best rational estimation.	Right Triangles and Trigonometry	Section A
G.1.c	Solve real-world or application problems that involve square roots and the Pythagorean Theorem.	Right Triangles and Trigonometry	Section B
	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.	Lines and the Coordinate Plane	Section B, C
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.	Circles	Section C
G.2.c	Use slope to analyze and write equations for parallel and perpendicular lines.	Lines and the Coordinate Plane	Section C

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G.2.d	Apply the Midpoint and Distance Formulas to solve application problems involving the coordinate plane.	Lines and the Coordinate Plane	Section A
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.	Transformations	Section A, B
	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.	Introduction to Proof	Section A
G.3.b	Develop and evaluate mathematical arguments and proofs to include paragraph, two-column, and flow chart forms.	Introduction to Proof	Section A, B
G.3.c	Identify, classify, and apply angle relationships formed by parallel lines cut by transversals.	Introduction to Geometry	Section D

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G.3.d	Use the properties of altitudes, medians, angle bisectors, and perpendicular bisectors of triangles to solve problems.	Introduction to Geometry	Section C Section D
G.3.e	Classify triangles and apply postulates and theorems to test for triangle inequality, congruence, and similarity.	Triangles Similarity	Section B, D Section B
G.3.f	Determine and justify if a given shape could be tessellated.	Transformations	Section B
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.	Transformations	Section A, B
	Measurement		
G.4	Select and apply various strategies, tools, and formulas to calculate length, surface area, volume, and angle measurements.		

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G.4.a	Use the properties of circles using arc, angle, and segment relationships to find missing measures.	Circles	Section A, B
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.	Triangles Right Triangles and Trigonometry	Section C Section B
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.	Surface Area and Volume	Section A, B, C
G.4.d	Explain and use the properties of 45-45-90 and 30-60-90 triangles.	Triangles	Section C
G.4.e	Apply the relationships of sine, cosine, and tangent to problems involving right triangles.	Right Triangles and Trigonometry	Section B
	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.		