

Geometry CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
0	Geometric structure.		
111.34.G.1	The student understands the structure of, and relationships within, an axiomatic system.		
111.34.G.1.A	develop an awareness of the structure of a mathematical system, connecting definitions, postulates, logical reasoning, and theorems;	Throughout	Throughout
111.34.G.1.B	recognize the historical development of geometric systems and know mathematics is developed for a variety of purposes; and		
111.34.G.1.C	compare and contrast the structures and implications of Euclidean and non-Euclidean geometries.		
111.34.G.2	The student analyzes geometric relationships in order to make and verify conjectures.		
111.34.G.2.A	use constructions to explore attributes of geometric figures and to make conjectures about geometric relationships; and	Quadrilaterals and Polygons	Section 2 Section 3
111.34.G.2.B	make conjectures about angles, lines, polygons, circles, and three-dimensional figures and determine the validity of the conjectures, choosing from a variety of approaches such as coordinate, transformational, or axiomatic.		
111.34.G.3	The student applies logical reasoning to justify and prove mathematical statements.		
111.34.G.3.A	determine the validity of a conditional statement, its converse, inverse, and contrapositive;		

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111.34.G.3.B	construct and justify statements about geometric figures and their properties;	Quadrilaterals and Polygons	Section 2 Section 3
111.34.G.3.C	use logical reasoning to prove statements are true and find counter examples to disprove statements that are false;		
111.34.G.3.D	use inductive reasoning to formulate a conjecture; and	Reasoning and Introduction to Proof	Section 1
111.34.G.3.E	use deductive reasoning to prove a statement.	Reasoning and Introduction to Proof	Section 2
111.34.G.4	The student uses a variety of representations to describe geometric relationships and solve problems.		
111.34.G.4.A	The student is expected to select an appropriate representation (concrete, pictorial, graphical, verbal, or symbolic) in order to solve problems.	Quadrilaterals and Polygons	Section 1, 2, 3
0	Geometric patterns.		

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111.34.G.5	The student uses a variety of representations to describe geometric relationships and solve problems.		
111.34.G.5.A	use numeric and geometric patterns to develop algebraic expressions representing geometric properties;		
111.34.G.5.B	use numeric and geometric patterns to make generalizations about geometric properties, including properties of polygons, ratios in similar figures and solids, and angle relationships in polygons and circles;	Quadrilaterals and Polygons Similarity Circles	Section 1 Section 2 Section 3 Section 2
111.34.G.5.C	use properties of transformations and their compositions to make connections between mathematics and the real world, such as tessellations; and		
111.34.G.5.D	identify and apply patterns from right triangles to solve meaningful problems, including special right triangles (45-45-90 and 30-60-90) and triangles whose sides are Pythagorean triples.	Special Triangles and Special Relationships in Triangles	Section 3
0	Dimensionality and the geometry of location.		
111.34.G.6	The student analyzes the relationship between three-dimensional geometric figures and related two-dimensional representations and uses these representations to solve problems.		

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111.34.G.6.A	describe and draw the intersection of a given plane with various three-dimensional geometric figures;		
111.34.G.6.B	use nets to represent and construct three-dimensional geometric figures; and		
111.34.G.6.C	use orthographic and isometric views of three-dimensional geometric figures to represent and construct three-dimensional geometric figures and solve problems.		
111.34.G.7	The student understands that coordinate systems provide convenient and efficient ways of representing geometric figures and uses them accordingly.		
111.34.G.7.A	use one- and two-dimensional coordinate systems to represent points, lines, rays, line segments, and figures;	Parallel Lines and the Coordinate Plane	Section 3
111.34.G.7.B	use slopes and equations of lines to investigate geometric relationships, including parallel lines, perpendicular lines, and special segments of triangles and other polygons; and	Parallel Lines and the Coordinate Plane	Section 3
111.34.G.7.C	derive and use formulas involving length, slope, and midpoint.	Parallel Lines and the Coordinate Plane	Section 2 Section 3
0	Congruence and the geometry of size.		

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111.34.G.8	The student uses tools to determine measurements of geometric figures and extends measurement concepts to find perimeter, area, and volume in problem situations.		
111.34.G.8.A	find areas of regular polygons, circles, and composite figures;		
111.34.G.8.B	find areas of sectors and arc lengths of circles using proportional reasoning;		
111.34.G.8.C	derive, extend, and use the Pythagorean Theorem;		
111.34.G.8.D	find surface areas and volumes of prisms, pyramids, spheres, cones, cylinders, and composites of these figures in problem situations;		
111.34.G.8.E	use area models to connect geometry to probability and statistics; and		
111.34.G.8.F	use conversions between measurement systems to solve problems in real-world situations.		
111.34.G.9	The student analyzes properties and describes relationships in geometric figures.		

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111.34.G.9.A	formulate and test conjectures about the properties of parallel and perpendicular lines based on explorations and concrete models;	Parallel Lines and the Coordinate Plane	Section 1
111.34.G.9.B	formulate and test conjectures about the properties and attributes of polygons and their component parts based on explorations and concrete models;	Quadrilaterals and Polygons	Section 2, 3
111.34.G.9.C	formulate and test conjectures about the properties and attributes of circles and the lines that intersect them based on explorations and concrete models; and		
111.34.G.9.D	analyze the characteristics of polyhedra and other three-dimensional figures and their component parts based on explorations and concrete models.		
111.34.G.10	The student applies the concept of congruence to justify properties of figures and solve problems.		
111.34.G.10.A	use congruence transformations to make conjectures and justify properties of geometric figures including figures represented on a coordinate plane; and		
111.34.G.10.B	justify and apply triangle congruence relationships.	Triangles: Basic Closed Figures in Geometry	Section 2
0	Similarity and the geometry of shape.		

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111.34.G.11	The student applies the concepts of similarity to justify properties of figures and solve problems.		
111.34.G.11.A	use and extend similarity properties and transformations to explore and justify conjectures about geometric figures;	Perimeters and Areas	Section 6
111.34.G.11.B	use ratios to solve problems involving similar figures;	Similarity	Section 2
111.34.G.11.C	develop, apply, and justify triangle similarity relationships, such as right triangle ratios, trigonometric ratios, and Pythagorean triples using a variety of methods; and		
111.34.G.11.D	describe the effect on perimeter, area, and volume when one or more dimensions of a figure are changed and apply this idea in solving problems.		