

Geometry CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
1	Students will develop the language of geometry including specialized vocabulary, reasoning, and application of theorems, properties, and postulates.		
LG.1.G.1	Define, compare and contrast inductive reasoning and deductive reasoning for making predictions based on real world situations		
LG.1.G.1.a	venn diagrams		
LG.1.G.1.b	matrix logic		
LG.1.G.1.c	conditional statements (statement, inverse, converse, and contrapositive)	Reasoning and Introduction to Proof	If-Then, Converses, and Postulates Deductive Reasoning
LG.1.G.1.d	figural patterns		
LG.1.G.2	Represent points, lines, and planes pictorially with proper identification, as well as basic concepts derived from these undefined terms, such as segments, rays, and angles	Language of Geometry	Points, Lines, and Planes Rays and Angles
LG.1.G.3	Describe relationships derived from geometric figures or figural patterns	Quadrilaterals and Polynomials	Squares and Rectangles
LG.1.G.4	Apply, with and without appropriate technology, definitions, theorems, properties, and postulates related to such topics as complementary, supplementary, vertical angles, linear pairs, and angles formed by perpendicular lines	Parallel Lines in Coordinate Plane	Lines and Points in a Plane
LG.1.G.5	Explore, with and without appropriate technology, the relationship between angles formed by two lines cut by a transversal to justify when lines are parallel	Parallel Lines in Coordinate Plane	Lines and Points in a Plane

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LG.1.G.6	Give justification for conclusions reached by deductive reasoning. State and prove key basic theorems in geometry (i.e., the Pythagorean theorem, the sum of the measures of the angles of a triangle is 180° , and the line joining the midpoints of two sides of a triangle is parallel to the third side and half its length		
2	Students will identify and describe types of triangles and their special segments. They will use logic to apply the properties of congruence, similarity, and inequalities. The students will apply the Pythagorean Theorem and trigonometric ratios to solve problems in real world situations.		
T.2.G.1	Apply congruence (SSS ...) and similarity (AA...) correspondences and properties of figures to find missing parts of geometric figures and provide logical justification	Triangles Similarity	Congruent Triangles Similar Figures
T.2.G.2	Investigate the measures of segments to determine the existence of triangles (triangle inequality theorem)	Special Triangles and Special Relationships in Triangles	Triangle Inequalities
T.2.G.3	Identify and use the special segments of triangles (altitude, median, angle bisector, perpendicular bisector, and midsegment) to solve problems	Triangles	Special Segments in Triangles
T.2.G.4	Apply the Pythagorean Theorem and its converse in solving practical problems		

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T.2.G.5	Use the special right triangle relationships (30°-60°-90° and 45°-45°-90°) to solve problems	Special Triangles and Special Relationships in Triangles	Right Triangles and Pythagorean Theorem
T.2.G.6	Use trigonometric ratios (sine, cosine, tangent) to determine lengths of sides and measures of angles in right triangles including angles of elevation and angles of depression	Right Triangles and Trigonometry	Special Ratios in Right Triangles
T.2.G.7	Use similarity of right triangles to express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given including angles of elevation and angles of depression		
3	Students will measure and compare, while using appropriate formulas, tools, and technology to solve problems dealing with length, perimeter, area and volume.		
M.3.G.1	Calculate probabilities arising in geometric contexts		
M.3.G.2	Apply, using appropriate units, appropriate formulas (area, perimeter, surface area, volume) to solve application problems involving polygons, prisms, pyramids, cones, cylinders, spheres as well as composite figures, expressing solutions in both exact and approximate forms	Perimeter and Area	Covered throughout unit
M.3.G.3	Relate changes in the measurement of one attribute of an object to changes in other attributes		

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M.3.G.4	Use (given similar geometric objects) proportional reasoning to solve practical problems (including scale drawings)	Similarity	Ratios and Proportions Similar Figures
M.3.G.5	Identify and apply properties of and theorems about parallel and perpendicular lines to prove other theorems and perform basic Euclidean constructions		
4	Students will analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.		
R.4.G.1	Explore and verify the properties of quadrilaterals	Quadrilaterals and Polynomials	Squares and Rectangles Parallelograms
R.4.G.2	Solve problems using properties of polygons:		
R.4.G.2.a	sum of the measures of the interior angles of a polygon	Quadrilaterals and Polynomials	Polygons

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R.4.G.2.b	interior and exterior angle measure of a regular polygon or irregular polygon	Quadrilaterals and Polynomials	Polygons
R.4.G.2.c	number of sides or angles of a polygon	Quadrilaterals and Polynomials	Polygons
R.4.G.3	Identify and explain why figures tessellate		
R.4.G.4	Identify the attributes of the five Platonic Solids		
R.4.G.5	Investigate and use the properties of angles (central and inscribed) arcs, chords, tangents, and secants to solve problems involving circles	Circles	Arcs and Special Segments Special Angles in Circles
R.4.G.6	Solve problems using inscribed and circumscribed figures		

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R.4.G.7	Use orthographic drawings (top, front, side) and isometric drawings (corner) to represent three-dimensional objects		
R.4.G.8	Draw, examine, and classify cross-sections of three-dimensional objects		
R.4.G.9	Explore non-Euclidean geometries, such as spherical geometry and identify its unique properties which result from a change in the parallel postulate		
5	Students will specify locations, apply transformations and describe relationships using coordinate geometry.		
CGT.5.G.1	Use coordinate geometry to find the distance between two points, the midpoint of a segment, and the slopes of parallel, perpendicular, horizontal, and vertical lines	Parallel Lines and Coordinate Plane	Lines and Points in Coordinate Plane
CGT.5.G.2	Write the equation of a line parallel to a line through a given point not on the line		

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CGT.5.G.3	Write the equation of a line perpendicular to a line through a given point		
CGT.5.G.4	Write the equation of the perpendicular bisector of a line segment		
CGT.5.G.5	Determine, given a set of points, the type of figure based on its properties (parallelogram, isosceles triangle, trapezoid)		
CGT.5.G.6	Write, in standard form, the equation of a circle given a graph on a coordinate plane or the center and radius of a circle	Circles	Equations of Circles
CGT.5.G.7	Draw and interpret the results of transformations and successive transformations on figures in the coordinate plane		
CGT.5.G.7.a	translations	Perimeter and Area	Transformations

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CGT.5.G.7.b	reflections	Perimeter and Area	Transformations
CGT.5.G.7.c	rotations (90°, 180°, clockwise and counterclockwise about the origin)	Perimeter and Area	Transformations
CGT.5.G.7.d	dilations (scale factor)	Perimeter and Area	Transformations