

Colorado High School Geometry Curriculum Mapping

High School Shape, Dimension, and Geometric Relationships	Boardworks High School Geometry presentation
1. Attributes of two- and three-dimensional objects are measurable and can be quantified	
a. Calculate (or estimate when appropriate) the perimeter and area of a two-dimensional irregular shape	Area formulas and calculations
b. Justify, interpret, and apply the use of formulas for the surface area, and volume of cones, pyramids, and spheres including real-world situations	Pyramids Cylinders, cones and spheres Using length, area and volume formulas
c. Solve for unknown quantities in relationships involving perimeter, area, surface area, and volume	Area formulas and calculations Using length, area and volume formulas
d. Apply the effect of dimensional change, utilizing appropriate units and scales in problem-solving situations involving perimeter, area, and volume	Area formulas and calculations Dilation
2. Objects in the plane and their parts, attributes, and measurements can be analyzed deductively	
a. Classify polygons according to their similarities and differences	Polygons
b. Solve for unknown attributes of geometric shapes based on their congruence, similarity, or symmetry	Congruency and similarity Reflection symmetry Rotational symmetry
c. Know and apply properties of angles including corresponding, exterior, interior, vertical, complementary, and supplementary angles to solve problems. Justify the results using two-column proofs, paragraph proofs, flow charts, or illustrations	Angles Angles in a circle Interior and exterior angles of polygons Lines Triangles
d. Develop conjectures and solve problems about geometric figures including definitions and properties (congruence, similarity, and symmetry). Justify these conjectures using two-column proofs, paragraph proofs, flow charts, or illustrations	Congruency and similarity Polygons Parts of a circle Quadrilaterals Reflection symmetry Rotational symmetry Triangles
3. Objects in the plane can be transformed, and those transformations can be described and analyzed mathematically	

a. Make conjectures involving two-dimensional objects represented with Cartesian coordinates. Justify these conjectures using two column proofs, paragraph proofs, flow charts, and/or illustrations	Using circle properties The equation of a circle The equation of a straight line
b. Represent transformations (reflection, translation, rotation, and dilation) using Cartesian coordinates	Combining transformations Translation Rotation Reflection symmetry Dilation
c. Develop arguments to establish what remains invariant and what changes after a transformation (reflection, translation, rotation, and dilations). Justify these conjectures using two-column proofs, paragraph proofs, flow charts, and/or illustrations	Translation Rotation Combining transformations Reflection symmetry Rotational symmetry
d. Using construction tools, including technology, make conjectures about relationships among properties of shapes in the plane including those formed through transformation. Justify these conjectures using two-column proofs, paragraph proofs, flow charts, and/or illustrations	Constructing triangles Rotation Translation Combining transformations Using construction
4. Right triangles are central to geometry and its applications Evidence Outcomes 21st Century Skills and Readiness Competencies	
a. Apply right triangle trigonometry (sine, cosine, and tangent) to find indirect measures of lengths and angles	Right triangles The sine ratio The cosine ratio The tangent ratio Trigonometry summary Applying trigonometry
b. Apply the Pythagorean theorem and its converse to solve real-world problems	Finding the length of diagonals using the Pythagorean Theorem Finding the height of triangles using the Pythagorean Theorem Using the Pythagorean Theorem to solve problems in context Finding the distance between two points using the Pythagorean Theorem Finding the diagonal in a rectangular prism

c. Determine the midpoint of a line segment and the distance between two points in the Cartesian coordinate plane	The distance between two points The midpoint of a line segment
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