

Indiana High School Geometry
Content Standards Mapping

Geometry	Boardworks High School Geometry presentation
Standard 1: Points, Lines, Angles, and Planes	
G.1.1 Find the lengths and midpoints of line segments in one- or two-dimensional coordinate systems.	The distance between two points The midpoint of a line segment
G.1.2 Construct congruent segments and angles, angle bisectors, and parallel and perpendicular lines using a straight edge and compass, explaining and justifying the process used.	Angles Lines Constructing bisecting lines and angles
G.1.3 Understand and use the relationships between special pairs of angles formed by parallel lines and transversals.	Angles
G.1.4 Use coordinate geometry to find slopes, parallel lines, perpendicular lines, and equations of lines.	The equation of a straight line Parallel and perpendicular lines Slopes and intercepts
Standard 2: Polygons	
G.2.1 Identify and describe convex, concave, and regular polygons.	Polygons
G.2.2 Find measures of interior and exterior angles of polygons, justifying the method used.	Interior and exterior angles of polygons
G.2.3 Use properties of congruent and similar polygons to solve problems.	Congruence and similarity Using congruence and similarity
G.2.4 Apply transformations (slides, flips, turns, expansions, and contractions) to polygons to determine congruence, similarity, symmetry, and tessellations. Know that images formed by slides, flips, and turns are congruent to the original shape.	Combining transformations Tessellation Dilation The center of dilation Translation Reflection symmetry Rotation Rotational symmetry Congruence and similarity
G.2.5 Find and use measures of sides, perimeters, and areas of polygons. Relate these measures to each other using formulas.	Polygons Using area formulas
G.2.6 Use coordinate geometry to prove properties of polygons such as regularity, congruence, and similarity.	-
Standard 3: Quadrilaterals	

G.3.1 Describe, classify, and understand relationships among the quadrilaterals square, rectangle, rhombus, parallelogram, trapezoid, and kite.	Quadrilaterals
G.3.2 Use properties of congruent and similar quadrilaterals to solve problems involving lengths and areas.	Using congruence and similarity
G.3.3 Find and use measures of sides, perimeters, and areas of quadrilaterals. Relate these measures to each other using formulas.	Quadrilaterals Using area formulas
G.3.4 Use coordinate geometry to prove properties of quadrilaterals, such as regularity, congruence, and similarity.	–
Standard 4: Triangles	
G.4.1 Identify and describe triangles that are right, acute, obtuse, scalene, isosceles, equilateral, and equiangular.	Triangles
G.4.2 Define, identify, and construct altitudes, medians, angle bisectors, and perpendicular bisectors.	Constructing bisecting lines and angles
G.4.3 Construct triangles congruent to given triangles.	Constructing triangles Congruence and similarity
G.4.4 Use properties of congruent and similar triangles to solve problems involving lengths and areas.	Similar right triangles Using congruence and similarity
G.4.5 Prove and apply theorems involving segments divided proportionally.	–
G.4.6 Prove that triangles are congruent or similar and use the concept of corresponding parts of congruent triangles.	Congruence and similarity Similar right triangles
G.4.7 Find and use measures of sides, perimeters, and areas of triangles. Relate these measures to each other using formulas.	Calculating sides of a triangle Constructing triangles Finding the height of triangles using the Pythagorean Theorem The area of a triangle
G.4.8 Prove, understand, and apply the inequality theorems: triangle inequality, inequality in one triangle, and the hinge theorem.	The Triangle Inequality Theorem
G.4.9 Use coordinate geometry to prove properties of triangles such as regularity, congruence, and similarity.	–
Standard 5: Right Triangles	

	<p>The Pythagorean Theorem</p> <ul style="list-style-type: none"> Identifying right triangles Pythagorean triples Similar right triangles Calculating sides of a triangle 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
G.5.1 Prove and use the Pythagorean Theorem.	
G.5.2 State and apply the relationships that exist when the altitude is drawn to the hypotenuse of a right triangle.	–
G.5.3 Use special right triangles ($30^\circ - 60^\circ$ and $45^\circ - 45^\circ$) to solve problems.	Special right triangles
	<ul style="list-style-type: none"> The sine ratio The cosine ratio The tangent ratio Trigonometry summary Applying trigonometry Trig value functions on the unit circle Opposite and adjacent The sine, cosine and tangent of any angle
G.5.4 Define and use the trigonometric functions (sine, cosine, tangent, cotangent, secant, cosecant) in terms of angles of right triangles.	
G.5.5 Know and use the relationship $\sin^2 x + \cos^2 x = 1$.	–
G.5.6 Solve word problems involving right triangles.	Right triangles
Standard 6: Circles	
G.6.1 Find the center of a given circle. Construct the circle that passes through three given points not on a line.	–
	<ul style="list-style-type: none"> Parts of a circle The area of a circle The length of an arc Radius and circumference
G.6.2 Define and identify relationships among: radius, diameter, arc, measure of an arc, chord, secant, and tangent.	

	Parts of a circle The area of a circle The length of an arc The area of a sector Angles in a circle Using circle properties
G.6.3 Prove theorems related to circles.	
G.6.4 Construct tangents to circles and circumscribe and inscribe circles.	Parts of a circle
G.6.5 Define, find, and use measures of arcs and related angles (central, inscribed, and intersections of secants and tangents).	Parts of a circle Angles in a circle The length of an arc
G.6.6 Define and identify congruent and concentric circles.	–
G.6.7 Define, find, and use measures of circumference, arc length, and areas of circles and sectors. Use these measures to solve problems.	Radius and circumference The length of an arc The area of a circle The area of a sector
G.6.8 Find the equation of a circle in the coordinate plane in terms of its center and radius.	The equation of a circle
Standard 7: Polyhedra and Other Solids	
G.7.1 Describe and make regular and nonregular polyhedra.	Prisms Pyramids Cylinders, cones and spheres
G.7.2 Describe the polyhedron that can be made from a given net (or pattern). Describe the net for a given polyhedron.	Prisms Pyramids Cylinders, cones and spheres
G.7.3 Describe relationships between the faces, edges, and vertices of polyhedra.	Prisms Pyramids Cylinders, cones and spheres Edges of rectangular prisms Surface area of rectangular prisms
G.7.4 Describe symmetries of geometric solids.	Reflection symmetry in 3-D shapes Rotational symmetry in 3-D shapes
G.7.5 Describe sets of points on spheres: chords, tangents, and great circles.	–
G.7.6 Identify and know properties of congruent and similar solids.	–

G.7.7 Find and use measures of sides, volumes of solids, and surface areas of solids.
Relate these measures to each other using formulas.

Edges of rectangular prisms
Surface area of rectangular prisms
Volume of right rectangular prisms
Using length, area and volume formulas