Standards Chart:
Geometry
Grades 6–8

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Sources: Common Core State Standards (CCSS) for Mathematics: corestandards.org/Math
National Council of Teachers of Mathematics (NCTM) Standards: nctm.org/standards

	Setting the Stage With Geometry			Designing With Geometry				
Common Core State Standards for Mathematical Content **Geometry**	1: Perimeter and Area of 2D Shapes	2: Surface Area	3: Volume of 3D Shapes	1: Polygons on the Coordinate Plane	2: Scale Drawings of Geometric Figures	3: Finding Missing Angle Measurements	4: Congruence and Transformations	5: Applying the Pythagorean Theorem
Grade 6: 6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.				X				
Grade 7: 7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.					X			
Grade 7: 7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	X	X						
Grade 7: 7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.						X		
Grade 7: 7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	X	X	X					
Grade 8: 8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations.							X	
Grade 8: 8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.			X					
Grade 8: 8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.								X
Grade 8: 8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.								X

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Common Core State Standards for Mathematical Practice	1: Perimeter and Area of 2D Shapes	2: Surface Area	3: Volume of 3D Shapes	1: Polygons on the Coordinate Plane	2: Scale Drawings of Geometric Figures	3: Finding Missing Angle Measurements	4: Congruence and Transformations	5: Applying the Pythagorean Theorem
MP1. Make sense of problems and persevere in solving them.	X	X		X	X	X	X	X
MP2. Reason abstractly and quantitatively.	X	X	X	X	X	X	X	X
MP3. Construct viable arguments and critique the reasoning of others.	X	X	X	X	X	X		X
MP4. Model with mathematics.	X				X			
MP5. Use appropriate tools strategically.			X		X			X
MP6. Attend to precision.	X	X	X	X	X	X	X	X
MP7. Look for and make use of structure.		X			X	X		
MP8. Look for and express regularity in repeated reasoning.						X		
National Council of Teachers of Mathematics (NCTM) Standards **Geometry**								
Grades 6–8: Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships: • precisely describe, classify, and understand relationships among types of two- and three-dimensional objects using their defining properties; • understand relationships among the angles, side lengths, perimeters, areas, and volumes of similar objects; • create and critique inductive and deductive arguments concerning geometric ideas and relationships, such as congruence, similarity, and the Pythagorean relationship.	X	X	X	X	X	X	X	X
Grades 6–8: Specify locations and describe spatial relationships using coordinate geometry and other representational systems: • use coordinate geometry to represent and examine the properties of geometric shapes; • use coordinate geometry to examine special geometric shapes, such as regular polygons or those with pairs of parallel or perpendicular sides.				X			X	X
Grades 6–8: Apply transformations and use symmetry to analyze mathematical situations: • describe sizes, positions, and orientations of shapes under informal transformations such as flips, turns, slides, and scaling; • examine the congruence, similarity, and line or rotational symmetry of objects using transformations.							X	
Grades 6–8: Use visualization, spatial reasoning, and geometric modeling to solve problems: • draw geometric objects with specified properties, such as side lengths or angle measures; • use two-dimensional representations of three-dimensional objects to visualize and solve problems such as those involving surface area and volume; • use visual tools such as networks to represent and solve problems; • use geometric models to represent and explain numerical and algebraic relationships; • recognize and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and everyday life.	X	X	X	X	X	X	X	X