

<b>DEPARTMENT: MATHEMATICS</b>	<b>COURSE TITLE: GEOMETRY/HONORS</b> <b>COURSE NUMBER: 318</b>
<b>GRADE(S): 9-12</b>	<b>PRE-REQUISITES (IF ANY): C- IN ALGEBRA/HONORS OR B IN ALGEBRA</b>

<b>UNIT</b>	<b>LENGTH</b>	<b>CONTENT</b>	<b>SKILLS</b>	<b>METHODS OF ASSESSMENT</b>	<b>FRAMEWORK STRAND(S) &amp; STANDARD(S)</b>
Introduction to Geometry	1 week	<ul style="list-style-type: none"> <li>• Points, lines, rays, segments, planes, congruence, angles</li> <li>• Simple constructions</li> <li>• Review of algebra</li> </ul>	<ul style="list-style-type: none"> <li>• Proper use of symbolic notation</li> <li>• Drawing pictures to represent situations</li> <li>• Writing and solving equations or systems to represent geometric relationships</li> <li>• Compass-and-straightedge constructions</li> <li>• Use of Geometer's Sketchpad</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	1, 2, 4
Concept of Proof	2 weeks	<ul style="list-style-type: none"> <li>• Theorems, postulates, and definitions</li> <li>• Direct proofs (two-column and paragraph)</li> <li>• Indirect proofs</li> <li>• Properties of angles and segments</li> <li>• Properties of equality</li> <li>• Supplementary and complementary angles</li> </ul>	<ul style="list-style-type: none"> <li>• Using proofs to generalize situations and to draw conclusions</li> <li>• Investigating efficient (elegant) strategies for proofs</li> <li>• Understanding and writing direct and indirect proofs</li> <li>• Using properties of equality</li> <li>• Investigate relationships involving complementary and supplementary angles</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	2
Congruent Triangles	3 weeks	<ul style="list-style-type: none"> <li>• Meaning of congruent triangles</li> <li>• Methods of proving congruence</li> <li>• Corresponding parts of congruent triangles</li> <li>• Overlapping triangles</li> <li>• Types of triangles</li> <li>• Properties of isosceles triangles</li> <li>• Medians and altitudes of triangles</li> </ul>	<ul style="list-style-type: none"> <li>• Investigating methods of congruence</li> <li>• Proving triangles congruent</li> <li>• Proving congruence of corresponding parts</li> <li>• Identifying types of triangles based on sides or angles</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	2, 6, 10
Perpendicularity	2 weeks	<ul style="list-style-type: none"> <li>• Definitions of perpendicularity and distance</li> <li>• Establishing perpendicularity</li> <li>• Equidistance Theorem</li> </ul>	<ul style="list-style-type: none"> <li>• Determining whether (and proving that) lines are perpendicular</li> <li>• Constructing perpendicular bisectors</li> <li>• Understanding and applying the Equidistance Theorem</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	2, 5

Parallel Lines	1 week	<ul style="list-style-type: none"> <li>• Definitions of transversals and parallel lines</li> <li>• Types of related angle pairs</li> <li>• The Parallel Postulate</li> </ul>	<ul style="list-style-type: none"> <li>• Determining whether lines are parallel (using algebra)</li> <li>• Constructing parallel lines</li> <li>• Identifying congruent or supplementary pairs of angles</li> <li>• Understanding the Parallel Postulate and its use</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	2, 5
Quadrilaterals	1 week	<ul style="list-style-type: none"> <li>• Types of quadrilaterals and their properties</li> <li>• Determining the identity of quadrilaterals (based on properties)</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying types of quadrilaterals</li> <li>• Knowing the minimum criteria for establishing types of quadrilaterals</li> <li>• Constructing quadrilaterals</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	1, 2
Other Polygons	1 week	<ul style="list-style-type: none"> <li>• Classification of polygons</li> <li>• Formulas involving angles, sides, and diagonals</li> <li>• Notion of regularity</li> </ul>	<ul style="list-style-type: none"> <li>• Classifying polygons</li> <li>• Using and writing formulas involving polygons</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	1
Geometry of Multiple Dimensions	1 week	<ul style="list-style-type: none"> <li>• Applying two-dimensional knowledge and concepts to three-dimensional (or higher) figures</li> <li>• Understanding three-dimensional drawings</li> <li>• Approaching higher-dimensional concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Solve problems that have three-dimensional pictures</li> <li>• Draw and explain the hypercube</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	2, 16
Similarity	2 weeks	<ul style="list-style-type: none"> <li>• Definition of similarity, ratio and proportion</li> <li>• Methods of proving similarity</li> <li>• Methods of indirect measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Investigating methods of similarity</li> <li>• Proving triangles similar</li> <li>• Proving corresponding parts proportional</li> <li>• Using similarity in indirect measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	1, 2
Right Triangles	3 weeks	<ul style="list-style-type: none"> <li>• Definition of right triangle</li> <li>• Pythagorean Theorem</li> <li>• Special right triangles</li> <li>• Right triangle trigonometry</li> <li>• Properties of square roots</li> </ul>	<ul style="list-style-type: none"> <li>• Applying the Pythagorean Theorem and special right triangles to real-world problems</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	7, 8, 9, 10
Circles	2 weeks	<ul style="list-style-type: none"> <li>• Definitions of radii, arcs, chords, secants, and tangents of circles</li> <li>• Angle-arc theorems and their uses</li> <li>• Inscribed and circumscribed polygons</li> </ul>	<ul style="list-style-type: none"> <li>• Applying knowledge of circles and angle-arc formulas to problems</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> </ul>	5, 14

				<ul style="list-style-type: none"> <li>• Notebooks</li> </ul>	
Area	2 weeks	<ul style="list-style-type: none"> <li>• Concept of area</li> <li>• Development of area formulas for quadrilaterals, triangles, polygons, and circles, surface area</li> </ul>	<ul style="list-style-type: none"> <li>• Applying area formulas to real-world problems</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	19, 20, 21, 22
Volume	2 weeks	<ul style="list-style-type: none"> <li>• Concept of volume</li> <li>• Development of volume formulas for prisms, pyramids, cylinders, cones, spheres, and other solids</li> </ul>	<ul style="list-style-type: none"> <li>• Applying formulas for volume to real-world problems</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	16, 19, 20, 21, 22
Coordinate Geometry	2 weeks	<ul style="list-style-type: none"> <li>• Transformations of objects on a coordinate plane</li> <li>• Midpoint and distance formulas</li> <li>• Equations of lines and systems of lines</li> <li>• Equations of circles</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing translations, reflections, and rotations of objects on a coordinate plane</li> <li>• Applying the midpoint and distance formulas to real-life problems</li> <li>• Writing equations of lines or systems</li> <li>• Writing equations of circles</li> </ul>	<ul style="list-style-type: none"> <li>• Tests and quizzes</li> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	3, 11, 12, 13, 15
Non-Euclidean Geometry	1 week	<ul style="list-style-type: none"> <li>• Parallel Postulate</li> <li>• Concepts of other geometries</li> </ul>	<ul style="list-style-type: none"> <li>• Checking the validity of postulates and Euclidean theorems in other geometries</li> </ul>	<ul style="list-style-type: none"> <li>• Homework assignments</li> <li>• Papers</li> <li>• Portfolios</li> <li>• Projects</li> <li>• Notebooks</li> </ul>	2