



**Catholic
Memorial**
HIGH SCHOOL

Year Long Course Plan

Department: Mathematics

Course: Geometry 420-421

Essential Learning Outcomes: After successfully completing this course, students will be able to:

1. Identify, describe and analyze properties of figures, relationships among figures and relationships among their parts.
2. Use geometric models to solve mathematical and real-world problems.
3. Present convincing arguments by means of demonstration, informal proof, counter-examples or any other logical means to show the truth of statements and generalizations.
4. Use the two-dimensional rectangular coordinate system and algebraic procedures to describe and characterize geometric properties and relationships.
5. Organize work and present mathematical procedures and results clearly, systematically, succinctly and correctly.
6. Use reason and logic to evaluate information, perceive patterns, identify relationships, formulate questions, pose problems and to make and test conjectures.
7. Communicate logical arguments
8. Analyze non-routine problems and arrive at solutions by various means.
9. Develop effective oral and written presentations employing correct mathematical terminology, notation, symbols and conventions for mathematical arguments and display of data.
10. Determine measurements directly using geometric tools, formulas and applications of geometric properties.

<i>Quarter 1</i>	<i>Quarter 2</i>
<p>Unit 1: Inductive and Deductive Reasoning- ELO 1, 6, 10 Foundation of a Geometric System</p> <ul style="list-style-type: none"> •Patterning and Inductive Reasoning •Undefined Terms- Point, Line, Plane •Subsets of Lines, Parallel Lines and Planes •Measuring Segments and Angles •Basic Constructions •Coordinate Plane •Perimeter, Area and Circumference <p>Algebra Review: Solving Linear Equations</p> <ul style="list-style-type: none"> •ASSESSMENT: Written Quiz and Test <p>Unit 2: Reasoning and Proof ELO 3, 6, 7</p> <ul style="list-style-type: none"> •Conditional Statement •Biconditionals and Definitions •Reasoning in Algebra •Proving Angles Congruent •ASSESSMENT: Written Quiz and Test <p>Unit 3: Study of Parallels and Perpendiculars ELO 2,4,6</p>	<p>Unit 4: Congruent Triangles ELO: 5, 6, 7,9</p> <ul style="list-style-type: none"> •Congruent Figures •SSS and SAS Congruence •ASA and AAS Congruence •HL Congruence •Isosceles and Equilateral Triangles •Algebra Review: Systems of Linear Equations <p>ASSESSMENT: Written Quiz and Test</p> <p>Unit 5: Relationships Within Triangles ELO 1,2, 3</p> <ul style="list-style-type: none"> •Midsegments of Triangles •Bisectors in Triangles •Concurrent Lines: Medians, Altitudes, Angle Bisectors and Perpendicular Bisectors •Inverses and Contrapositives •Inequalities in Triangles •Algebra Review: Solving Inequalities •ASSESSMENT: Written Quiz and Test <p>Unit 6: Quadrilateral</p>

<ul style="list-style-type: none"> •Properties of Parallels •Triangle Angle Sum Theorem •Polygon Angle Sum Theorem •Lines in the Coordinate Plane •Slopes of Parallel and Perpendiculars •Algebra Review: Graphing Linear Equations •ASSESSMENT: Written Quiz and Test 	<p>ELO 1,2,4,10</p> <ul style="list-style-type: none"> •Classifying Quadrilaterals •Properties of Parallelograms •Proving Quadrilaterals are Parallelograms •Special Parallelograms •Trapezoids and Kites •ASSESSMENT: Written Quiz and Test
Quarter 3	Quarter 4
<p>Unit 7: Area ELO: 7,8,10</p> <ul style="list-style-type: none"> •Area of Parallelogram and Triangles •Pythagorean Theorem •Special Right Triangles •Area of Trapezoids, Rhombuses and Kites •Area of Regular Polygons •Circles and Arcs •Areas of Circles and Sectors •ASSESSMENT: Written Quiz and Test <p>Unit 8: Similarity ELO:1,9, 12</p> <ul style="list-style-type: none"> •Ratios and Proportions •Similar Polygons •Proving Triangles Similar •Proportions in Triangles •Perimeters and Areas of Similar Figures •ASSESSMENT: Written Quiz and Test <p>Unit 9: Right Triangle Trigonometry ELO 9, 10</p> <ul style="list-style-type: none"> •Tangent Ratio •Sine and Cosine Ratio •Angles of Elevation and Depression •Trig and Area •ASSESSMENT: Written Quiz and Test 	<p>Unit 10: Surface Area and Volume ELO: 1,2,5,8</p> <ul style="list-style-type: none"> •Space Figures and Nets •Surface Area of Prisms and Cylinders •Surface Areas of Pyramids and Cones •Volumes of Prisms and Cylinders •Volumes of Pyramids and Cones •Surface Area and Volume of Spheres •Area and Volume of Similar Figures •ASSESSMENT: Written Quiz and Test Platonic Solid Models <p>Unit 11: Circles ELO: 1,2,8,10</p> <ul style="list-style-type: none"> •Tangent Lines •Chords and Arcs •Angles and Circles •Segments and Circles •ASSESSMENT: Written Quiz and Test