Mathematics
Geometry CP
Unit 8: Area of Two Dimensional Figures

Essential Understandings	▪ Area and volume of polygons have many real-life applications.
Essential Questions	▪ What is area? ▪ What is perimeter? ▪ What is circumference? ▪ How do we find the area of geometric solids? ▪ How can we use area to solve real-life situations?
Essential Knowledge	▪ The area and perimeter of polygons and circles can be used to solve many real-life applications.
Vocabulary	▪ <u>Terms</u>: ○ area, perimeter, altitude, base, height, center, apothem, radius, central angle of a regular polygon, circumference, pi (π), segment of a circle, sector of a circle, probability, geometric porobabiltiy.
Essential Skills	▪ Find the area and perimeter of triangles, parallelograms, rectangles, rhombuses, squares and trapezoids. ▪ Find the area and perimeter of regular polygons. ▪ Apply the Pythagorean Theorem and right triangle trigonometry to find the areas and perimeters of polygons and circles. ▪ Find the area and circumference circles. ▪ Find the area of a segment and a sector of a circle. ▪ Find the lengths of arcs of a circle. ▪ Find geometric probability. ▪ Find ratios to find the areas and perimeters of similar polygons. ▪ Find the area and perimeter of regions enclosed by combining (parts of) circles and polygons.

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Related Maine Learning Results	Mathematics C. Geometry Geometric Figures C1. Students justify statements about polygons and solve problems. a. Use the properties of triangles to prove theorems about figures and relationships among figures. b. Solve for missing dimensions based on congruence and similarity. c. Use the Pythagorean Theorem in situations where right triangles are created by adding segments to figures. d. Use the distance formula. C2. Students justify statements about circles and solve problems. a. Use the concepts of central and inscribed angles to solve problems and justify statements. b. Use relationships among arc length and circumference, and areas of circles and sectors to solve problems and justify statements. C3. Students understand and use basic ideas of trigonometry. a. Identify and find the value of trigonometric ratios for angles in right triangles. b. Use trigonometry to solve for missing lengths in right triangles. c. Use inverse trigonometric functions to find missing angles in right triangles. Geometric Measurement C4. Students find the surface area of three-dimensional figures. a. Find the volume and surface area of three-dimensional figures including cones and spheres. b. Determine the effect of changes in linear dimensions on the volume and surface area of similar and other three-dimensional figures.
Sample Lessons And Activities	▪ Use the various formulas for the areas of a triangle, rectangles, and trapezoids to find the areas of figures that are composed of these base figures. Use overhead blocks to visually model.
Sample Classroom Assessment Methods	▪ In class work on the overhead and board to model work ▪ Group work with other students which is evaluated by peers ▪ Quizzes ▪ Tests ▪ Take-home worksheets and tests
Sample Resources	▪ Publications: ○ Geometry - McDougal Littell ○ Geometry: Concepts and Skills - McDougal Littell

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