Mathematics
Geometry CP
Unit 7: Similar Polygons

Essential Understandings	▪ Similar polygons have many real-world applications.
Essential Questions	▪ What is a ratio? ▪ What is a proportion? ▪ What are similar polygons? ▪ What are the properties of similar polygons? ▪ What are similar triangles? ▪ How can one show that triangles are similar? ▪ How can the properties of similar polygons be applied in real-life situations?
Essential Knowledge	▪ Similar polygons have: • Corresponding angles that are congruent. • Corresponding sides that are in proportion. ▪ Similar triangles have proportional lengths.
Vocabulary	▪ <u>Terms</u>: ▪ ratio, proportion, means, extremes, similar polygons, similar triangles, scale factor, divided proportionally, proportional lengths, midsegment, reduction, enlargement, dilation, AA postulate, SAS Similarity theorem, SSS Similarity theorem, Triangle Proportionality theorem, Parallel Lines Proportionality theorem, Triangle Angle Bisector theorem
Essential Skills	▪ Identify similar polygons and similar triangles. ▪ Apply the definition of similar to find the measures of angles and lengths of sides of similar polygons. ▪ Prove triangles are similar using AA, SAS, and SSS similarity. ▪ Solve algebraic equations using properties of properties of proportions.

Mathematics
Geometry CP
Unit 7: Similar Polygons

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	▪ Have student draw Polygons with sides being full unit measurement. The teacher will make photocopies of the figures with percentages of shrinking and enlarging g(50A% and 100%). The students will then measure the sides on the copies and make observations regarding the originals and the copies.
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

Mathematics
Geometry CP
Unit 7: Similar Polygons