Mathematics
Geometry CP
Unit 4: Triangle Relationships

Essential Understandings	▪ Congruent triangles are used to derive many geometric relationships.
Essential Questions	▪ What are congruent triangles? ▪ How does one show that triangles are congruent? ▪ How does one use congruent triangles to derive other geometric relationships?
Essential Knowledge	▪ In congruent triangles, each pair of corresponding parts is congruent. ▪ Triangles can be proven congruent using SSS, SAS, ASA, AAS and HL postulates and theorem. ▪ Base angles of an isosceles triangle are congruent, and conversely, if two angles a triangle are congruent, then the triangle is isosceles. ▪ A triangle is equiangular if and only if it is equilateral. ▪ In an isosceles triangle, the median to the base, the altitude to the base and the bisector of the vertex angle are the same segment.
Vocabulary	▪ <u>Terms</u>: ○ corresponding parts, congruent triangles, SSS, SAS, ASA, AAS, HL, isosceles triangle, base angles, vertex angles, legs, base, right triangle, hypotenuse, legs, altitude, median, perpendicular bisector of a segment
Essential Skills	▪ Determine if triangles are congruent using SSS, SAS, ASA, AAS, and HL. ▪ Use corresponding parts of congruent triangles to prove that other parts of triangles are congruent. ▪ Identify congruent sides and angles in an isosceles triangle. ▪ Given the measure of one angle in an isosceles triangle, find the measures of the other two angles. ▪ Identify the altitudes, medians, perpendicular bisectors, and angle bisectors in a triangle.

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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	▪ Cut out four pairs of congruent triangles and place them on the overhead. Ask a volunteer to come up and place the "ones that are alike" together. Discuss why these are alike (i.e., angle measurement, side length, etc.)
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