

Brookfield Local Schools
Curriculum Map for Geometry
Unit # 4 Title: Triangle Congruence

Duration of Unit:

4 weeks

Topic Sequence:

3 weeks

Student Friendly Learning Targets:

I can classify triangles by their angle measures and side lengths.

I can use the definition of congruency to illustrate congruent triangles.

I can prove triangles are congruent using SSS, SAS, ASA, and SAA.

I can prove right triangles are congruent using LL, LA, HL, and HA.

I can use CPCTC to show corresponding parts of congruent triangles are congruent and apply CPCTC in two-column proofs.

I can construct coordinate proofs.

I can identify properties of isosceles and equilateral triangles and use theorems regarding them in two-column proofs.

Common Core State Standards Addressed:

G.CO.7: Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

G.CO.8: Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

G.CO.9: Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*

G.CO.10: Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*

G.CO.12: Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*

G.GPE.4: Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.*

G.GPE.7: Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

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Vocabulary:

Triangle, angle measure, corresponding angles, corresponding sides, CPCTC, SAS, ASA, SSS, LL, LA, HL, HA, coordinate proof, equilateral triangle, isosceles triangle, distance formula, midpoint formula

Materials and/or Technology Needed:

Smartboard, Holt-McDougal Geometry Textbook, Whiteboards, Protractors, Compasses, Straight Edges

Instructional Notes:

Instruction should integrate with the standards that comprise the Triangle Congruence Unit.

Instructional and Assessment Resources:

Formative Assessment Lessons: <http://map.mathshell.org/materials/lessons.php>

Formative Assessment Tasks: <http://map.mathshell.org/materials/tasks.php>

Illustrative Mathematics: <http://www.illustrativemathematics.org/standards/k8>

NCTM Illuminations: <http://illuminations.nctm.org/>

PARCC: [http://www.parcconline.org/mcf/mathematics/parc c - model - content - frameworks – browser](http://www.parcconline.org/mcf/mathematics/parc%20c%20-%20model%20-%20content%20-%20frameworks%20-%20browser)

Inside Mathematics: [http://insidemathematics.org/index.php/mathematical - content - standards](http://insidemathematics.org/index.php/mathematical%20-%20content%20-%20standards)

New York State: <http://www.engageny.org/mathematics>

<http://mathforum.org/>, <http://www.nctm.org/>, <http://plus.maths.org/content/>,

<http://www.pbslearningmedia.org/>, <http://www.mathwords.com/>,

<http://www.math.com/homeworkhelp/Geometry.html>, <http://mathworld.wolfram.com/>,

<http://nlvm.usu.edu/en/nav/vlibrary.html>, <http://www.purplemath.com/>, Holt-McDougal Geometry Textbook

Assessment Notes:

The Focus Topic will have three multiple choice questions and one extended response on the proficiency assessment.