

Brookfield Local Schools
Curriculum Map for Geometry
Unit # 7 Title: Similarity

Duration of Unit:

4 weeks

Topic Sequence:

3 weeks

Student Friendly Learning Targets:

I can write and simplify ratios and use proportions to solve problems.

I can identify similar polygons and apply their properties to solve problems.

I can prove triangles are similar using AA, SSS, and SAS.

I can apply properties of similar triangles to solve problems.

I can apply proportionality to similar figures and triangle angle bisector theorems.

I can determine the relationship between scale factor, perimeter, and area of similar polygons.

Common Core State Standards Addressed:

G.SRT.1: Verify experimentally the properties of dilations given by a center and a scale factor.

G.SRT.2: Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

G.SRT.3: Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

G.SRT.4: Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*

G.SRT.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

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 $(0, 2)$.*

Vocabulary:

Similarity, dilation, center, scale factor, ratio, proportion, proportional, means/extremes, cross product, transformation, triangle congruence, triangle similarity

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 Similarity Unit.

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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/parcc-model-content-frameworks-browser>

Inside Mathematics: <http://insidemathematics.org/index.php/mathematical-content-standards>

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 on the proficiency assessment.