

WAUCONDA SCHOOL DISTRICT 118

UNIT PLANNING ORGANIZER

Subject: Geometry

Grade Level or Course: Geometry

Unit: 7 Similarity

Pacing: 14 days

STAGE 1 – DESIRED RESULTS

Essential Questions:

- How are the concepts of similarity and congruence related to each other?
- How do you use proportions to find side lengths in similar polygons?
- How do you show two triangles are similar?
- How do you identify corresponding parts of similar triangles?

Big Ideas:

- Understand how distances and lengths in a dilation are related to the scale factor and center of dilation.
- Two triangles are similar if certain relationships exist between two or three pairs of corresponding parts.
- Drawing in the altitude to the hypotenuse of a right triangle forms three similar right triangles.
- Apply similarity relationships in right triangles to solve problems.
- Use corresponding sides of similar polygons to set up proportions and find missing lengths.
- When two or more parallel lines intersect other lines, proportional segments are formed.
- A scale factor can be used to dilate a figure and create a reduction or enlargement of a figure that is similar to the original figure.

CCSS (Priority Standards):

- G.SRT.A.1 Understand similarity in terms of similarity transformations. Verify experimentally the properties of dilations given by a center and a scale factor.
- G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- G.SRT.A.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.A.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.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

CCSS (Supporting Standards):**STAGE 2 – EVIDENCE**

Concepts (What students need to know)	Performance Tasks (What students will be able to do)	21st Century Skills
<ul style="list-style-type: none">• Ratio & Proportion• Dilations• Similar Polygons• Proving Similar Triangles by AA~, SAS~, SSS~• Similar Right Triangles• Triangle Proportionality	<ul style="list-style-type: none">• Dilate figures on and off the coordinate plane.• Identify a dilation as a reduction or an enlargement and find its scale factor.• Simplify ratios.• Use properties of proportions.• Determine if polygons are similar, write similarity statements, and find scale factors.• Prove triangles are similar (by AA~, SSS~, or SAS~).• Simplify radical expressions.• Solve problems involving similar right triangles formed by the altitude drawn to the hypotenuse of a right triangle.• Use altitude and leg proportions (geometric mean formulas) to find missing lengths in right triangles.• Use similar triangles to set up proportions & find missing lengths.• Use the Side-Splitter Theorem, the Midsegment Theorem, and the Angle Bisector Theorem to find side lengths in a triangle.	

Common Formative/Summative Assessments:

- Topic 7 Test
- Checks for Understanding

Interim Assessments (Informal Progress Monitoring checks):

- Warm-ups

Modified Common Assessments:

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Modified Interim Assessments:

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**STAGE 3 – LEARNING PLAN
(INSTRUCTIONAL PLANNING)**

Suggested Resources/Materials/Informational Texts

Suggested Research-based Effective Instructional Strategies

Academic Vocabulary/ Word Wall	Enrichment/Extensions/ Modifications	Interdisciplinary Connection
<p>Essential Vocabulary:</p> <p>AA~ Similarity Cross Multiplication Property Dilation Enlargement Geometric Mean Image Midsegment Preimage Proportion Ratio Reduction SAS~ Similarity Scale Factor Side-Splitter Theorem Similar Polygons SSS~ Similarity Triangle Midsegment Theorem Triangle Proportionality Theorem</p> <p>Worth-knowing Vocabulary:</p>		