

Unit 4B - Investigating Similarity

10 Days of Instruction

These standards expand in all Units of Geometry to reinforce real-world phenomena.

Unit 4	<i>Geometry: Concepts and Connections</i> Investigating Similarity	Considerations or scaffolds for Support
Unit 4B: Day 1 dilations/scale factor	<p>Standards: G.GSR.5.1 Verify experimentally the properties of dilations.</p> <p>LT:</p> <ul style="list-style-type: none">o I can apply dilations to polygons. <p>SC:</p> <ul style="list-style-type: none">o I can identify a dilation as a reduction or enlargement depending on the scale factor.o I can draw a dilation given the center at the origin and scale factor.o I can identify the center of dilation using intersecting lines through corresponding preimage and image points.o I can find the ratio of sides of the image to the preimage as the scale factor of a dilation.o I can use function notation to represent dilations in the coordinate plane.o I can describe properties of dilations such as center, scale factor, angle measure, parallelism, and collinearity.o I can recognize that a dilation changes the size of a figure and does not preserve congruence. <p>LA&R:</p>	<p>Scaffolding throughout the lesson and applications will be provided for rigor.</p> <p>Students will work in pairs for turn and talk.</p> <p>Graphic organizers</p>

	<ul style="list-style-type: none"> o (Super Mario Dilations) and 3-Act Tasks; GeoGebra; Dilation Art; Coordinate Plane mini-dry erase board practice; KutaSoftware; Quizlet vocabulary & word wall 	
Day 2-3 similar ity/ind ircet measu remen t	<p>Standards:</p> <p>G.GSR.5.2 Given two figures, use and apply the definition of similarity in terms of similarity transformations.</p> <p>G.GSR.5.3 Use the properties of similarity transformations to establish criterion for two triangles to be similar. Use similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</p> <p>LT:</p> <ul style="list-style-type: none"> o I can classify two polygons as similar or not similar and find missing sides using proportions with similar figures. <p>SC:</p> <ul style="list-style-type: none"> o I can use the properties of similarity transformations to establish criterion for two polygons to be similar. o I can identify when figures are similar based on corresponding angles being congruent, and corresponding sides being proportional. o I can solve a proportion. o I can apply properties of similarity to solve problems with missing values involving corresponding parts. <p>LA&R:</p>	

	<ul style="list-style-type: none"> o Desmos and 3-Act Tasks; GeoGebra; Review ratios, solving proportions & simplifying fractions; Quizlet vocabulary & word wall; Flipped classroom to show an example of ratio 	
Day 4-6 Triangle midsegment /median	<p>Standards: G.GSR.5.3 Use the properties of similarity transformations to establish criterion for two triangles to be similar. Use similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</p> <p>LT:</p> <ul style="list-style-type: none"> o I can prove two triangles similar, prove theorems about triangles involving similarity, and prove theorems about triangles. <p>SC:</p> <ul style="list-style-type: none"> o I can use these similarity theorems for triangles: AA~ SAS~ SSS~ o I can prove the theorem that a line parallel to one side of a triangle divides the other two proportionally and can find missing sides in similar triangles using this theorem. o I can find the measure of segments in a triangle using the midsegment theorem. o I can prove the Pythagorean Theorem using triangle similarity. <p>LA&R:</p> <ul style="list-style-type: none"> o Desmos and 3-Act Tasks; GeoGebra; Triangle Median & Midsegment Theorems Discovery; Coordinate Plane Proof for Pythagorean Theorem; Quizlet vocabulary & word wall 	
Day 7-8	<p>Standards: G.GSR.5.4</p>	

Triangle Similarity Theorems	<p>Construct formal proofs to justify and apply theorems about triangles.</p> <p>LT:</p> <ul style="list-style-type: none"> o I can construct formal proofs to justify and apply theorems about triangles. <p>SC:</p> <ul style="list-style-type: none"> o I can prove a line parallel to one side of a triangle divides the other two proportionally, and its converse. o I can use the Midsegment and Angle Bisector Theorems to solve problems in similar geometric figures. o I can prove the Pythagorean Theorem using triangle similarity. o I can construct a two-column proof with statements and reasons. <p>LA&R:</p> <ul style="list-style-type: none"> o Desmos and 3-Act Tasks; GeoGebra; Triangle Median & Midsegment Theorems Discovery; Coordinate Plane Proof for Pythagorean Theorem; Quizlet vocabulary & word wall 	
Day 9 Test	<p><u>Test Day</u></p> <p>Lesson/Activity: Edulastic - Unit 4 Test - Proofs and Similar Triangles</p>	<p>Teach Students how to prepare organized graph paper.</p>
Day 10	<p>Test Corrections - Reteach Missed Standards</p>	

G.GSR.5.1 Verify experimentally the properties of dilations.

G.GSR.5.2 Verify experimentally the properties of dilations. Given two figures, use and apply the definition of similarity in terms of similarity transformations.

G.GSR.5.3 Use the properties of similarity transformations to establish criterion for two triangles to be similar. Use similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

G.GSR.5.4 Construct formal proofs to justify and apply theorems about triangles.

G.MM.1.1 Explain mathematically applicable problems using a mathematical model.

G.MM.1.2 Create mathematical models to explain phenomena that exist in the natural sciences, social sciences, liberal arts, fine and performing arts, and/or humanities contexts.

G.MM.1.3 Using abstract and quantitative reasoning, make decisions about information and data from a mathematically applicable situation.

G.MM.1.4 Use various mathematical representations and structures with this information to represent and solve real-life problems.