



Topic B:

Similar Figures

8.G.A.4, 8.G.A.5

Focus Standard:	8.G.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
	8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i>
Instructional Days:	5	
	Lesson 8:	Similarity (P) ¹
	Lesson 9:	Basic Properties of Similarity (E)
	Lesson 10:	Informal Proof of Angle-Angle Criterion (S)
	Lesson 11:	More About Similar Triangles (P)
	Lesson 12:	Modeling with Similarity (M)

Topic B begins with the definition of similarity and the properties of similarities. In Lesson 8, students learn that similarities map lines to lines, change the length of segments by factor r , and are degree-preserving. In Lesson 9, additional properties about similarity are investigated; first, students learn that congruence implies similarity (e.g., congruent figures are also similar). Next, students learn that similarity is symmetric (e.g., if figure A is similar to figure B, then figure B is similar to figure A) and transitive (e.g., if figure A is similar to figure B, and figure B is similar to figure C, then figure A is similar to figure C.) Finally, students learn about similarity with respect to triangles.

Lesson 10 provides students with an informal proof of the angle-angle criterion for similarity of triangles. Lesson 10 also provides opportunities for students to use the AA criterion to determine if a pair of triangles is

¹ Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson

similar. In Lesson 11, students use what they know about similar triangles and dilation to find an unknown side length of one triangle. Since students know that similar triangles have side lengths that are equal in ratio (specifically equal to the scale factor), students verify whether or not a pair of triangles is similar by comparing their corresponding side lengths.

In Lesson 12, students apply their knowledge of similar triangles and dilation to real world situations. For example, students use the height of a person and the height of his shadow to determine the height of a tree. Students may also use their knowledge to determine the distance across a lake, the height of a building, and the height of a flagpole.