

HPISD Curriculum: Geometry						
Title		Estimated Duration	6 Weeks			
Unit 6: Similarity		2 weeks	1	2	3	4 5 6
Unit Overview						
Apply the concepts of similarity to justify properties of figures and solve problems.						
Enduring Understandings						
The student will understand that:		<ul style="list-style-type: none"> • Ratios are related to similarity, proportions, and scale factor. • Lengths (by proportions) and measures can be found using similar figures. • Similar figures can be used in proofs using special postulates. • A line that intersects two sides of a triangle and is parallel to the third side or a line that bisects an angle creates proportional segments in the triangle. 				
Concepts	Guiding/Essential Questions					
<ul style="list-style-type: none"> • similarity • proportionality 	<ul style="list-style-type: none"> • How do you use properties of similar figures to solve practical problems? • What conclusion, if any, can be justified about any two equilateral triangles being similar? • What are some of the similarities and differences between the triangle similarity theorems/postulates and the triangle congruence theorems/postulates? • What conclusion, if any, can be justified about any two isosceles triangles being similar? • Why is the congruence symbol, \cong, a combination of the equal sign and the similarity symbol, \sim? • How is indirect measurement useful in real-world applications? 					
Learning Targets						
<ul style="list-style-type: none"> • Students will apply logical reasoning to justify and prove mathematical statements. • The student applies the concepts of similarity to justify properties of figures and solve problems. 						
Formative Assessments			Summative Assessments			
homework, quizzes			test			

TEKS: Readiness Standards		TEKS: Related Supporting Standards	
<p>G.2B Use conjectures about ..., polygons... and ... the validity of the conjectures, choosing from a variety of approaches such as coordinate, transformational, or axiomatic.</p> <p>G.5A Use numeric and geometric patterns to develop algebraic expressions representing geometric properties.</p> <p>G.11C Develop, apply, and justify triangle similarity relationships, such as right triangle ratios, trigonometric ratios, and Pythagorean triples using a variety of methods.</p>		<p>G.1A Develop an awareness of the structure of a mathematical system, connecting definitions, postulates, logical reasoning, and theorems.</p> <p>G.3E Use deductive reasoning to prove a statement.</p> <p>G.5B Use numeric and geometric patterns to make generalizations about geometric properties, including properties of polygons, ratios in similar figures and solids, and angle relationships in polygons and circles.</p> <p>G.11A Use and extend similarity properties and transformations to explore and justify conjectures about geometric figures.</p> <p>G.11B Use ratios to solve problems involving similar figures</p>	
Processes and Skills: What students should be able to DO		Facts: What students should KNOW	
<ul style="list-style-type: none"> • Apply the properties of proportion and similarity. • Use the triangle similarity theorems to find lengths and measures in triangles. • Use proportionality theorems to solve problems and write proofs. 		<ul style="list-style-type: none"> • AA, SAS, and SSS Similarity • Definition of Similar Polygons • Triangle Proportionality Theorem and Converse 	
Topics			
Ratio and Properties of Proportions Angle-Angle Similarity	Side-Angle-Side Similarity Side-Side-Side Similarity	Triangle Proportionality Theorem and Converse	

Language of Instruction		
Angle-Angle (AA) Similarity Postulate	Properties of Proportions	Side-Angle-Side (SAS) Similarity Postulate
Cross Products Property	Proportion	Side-Side-Side (SSS) Similarity Postulate
Extremes	Ratio	Similar Polygons
Interchange Extremes Property	Reciprocal Property	Triangle Proportionality Theorem
Interchange Means Property	Scale Factor	Triangle Proportionality Theorem Converse
Means		
State Assessment Connections		National Assessment Connections
Resources		
<p><u>Glencoe: Geometry</u> 7.1, 7.2, 7.3, 7.4</p>		