

HPISD Curriculum: Geometry						
Title	Estimated Duration	6 Weeks				
Unit 4: Segments of Triangles	2 weeks	1	2	3	4	5
Unit Overview						
Use a variety of representations to describe geometric relationships and solve problems involving triangles, including special segments of triangles.						
Enduring Understandings						
<b>The student will understand that:</b>	<ul style="list-style-type: none"> <li>• The height in a polygon is always the segment that is perpendicular to the base of the polygon.</li> <li>• Constructing the perpendicular bisector of a segment creates two congruent triangle and thereby locates the midpoint of the segment; a process is used in real world applications</li> <li>• The Angle Bisector and Perpendicular Bisector Theorems are applied in algebraic settings</li> <li>• The length of a side of a triangle is twice the length of the midsegment in a triangle.</li> <li>• A relationship exists between the midsegment in a triangle, its altitude, median, and angle bisectors of isosceles and equilateral triangles. and can be used in real world applications</li> <li>• A point of concurrency requires a specific construction.</li> </ul>					
Concepts	Guiding/Essential Questions					
<ul style="list-style-type: none"> <li>• Congruence</li> <li>• Symmetry</li> </ul>	<ul style="list-style-type: none"> <li>• What type of triangle(s) would not exist, when classifying it by both its sides and its angles?</li> <li>• What are some special cases in which the points of concurrency would be concurrent or collinear?</li> <li>• When do any of the points of concurrency line in the interior/exterior of the triangle?</li> <li>• Does the circumcenter of a triangle have to be inside the triangle? What is an example?</li> <li>• Why must the distance from a point to a line be the shortest distance?</li> </ul>					
Learning Targets						
<ul style="list-style-type: none"> <li>• Students will use slope and equations of lines to investigate geometric relationships, including special segments of triangles and points of concurrency.</li> <li>• Students will analyze geometric relationships in order to make and verify conjectures.</li> </ul>						

Formative Assessments		Summative Assessments	
homework, quizzes		test	
TEKS: Readiness Standards		TEKS: Related Supporting Standards	
<p><b>G.2B</b> Make conjectures about angles, lines ... and determine the validity of the conjectures, choosing from a variety of approaches such as coordinate, <del>transformational</del>, or axiomatic.</p> <p><b>G.7B</b> Use slopes and equations of lines to investigate geometric relationships, including parallel lines, perpendicular lines, and special segments of triangles and other polygons.</p> <p><b>G.7C</b> Derive and use formulas involving length, slope, and midpoint.</p>		<p><b>G.1A</b> Develop an awareness of the structure of a mathematical system, connecting definitions, <del>postulates</del>, logical reasoning, and theorems.</p> <p><b>G.2A</b> Use constructions to explore attributes of geometric figures and to make conjectures about geometric relationships.</p> <p><b>G.6A</b> Use one- and two-dimensional coordinate systems to represent points, lines, rays, line segments, and figures.</p>	
Processes and Skills: What students should be able to DO		Facts: What students should KNOW	
<ul style="list-style-type: none"> <li>• Apply the bisector theorems related to segments and angles.</li> <li>• Name, label, and classify triangles by sides and angles.</li> <li>• Perform triangle constructions to identify and explore the properties of segments associated with triangles.</li> </ul>		<ul style="list-style-type: none"> <li>• How to add, subtract, multiply, divide, simplify, and rationalize the denominator when working with radicals.</li> <li>• When and how to use slope and midpoint formulas to construct perpendicular bisectors, medians, altitudes and midsegments.</li> <li>• How to determine if a ray or segment is an angle bisector.</li> <li>• How to classify a triangle by the location of its orthocenter.</li> </ul>	
Topics			
Radical Review Classifying Triangles		Angle and Perpendicular Bisectors Medians and Altitudes	Centers

Language of Instruction		
Acute Triangle	Incenter	Perpendicular Bisector Theorem
Altitude	Isosceles Triangle	Perpendicular Bisector Theorem Converse
Angle Bisector	Median	Perpendicular Distance
Angle Bisector Theorem	Midpoint of a Segment	Points of Concurrency
Angle Bisector Theorem Converse	Midpoint Formula	Pythagorean Theorem
Centroid	Midsegment	Radical
Circumcenter	Midsegment Theorem	Right Triangle
Distance Formula	Obtuse Triangle	Scalene Triangle
Equiangular Triangle	Orthocenter	
Equilateral Triangle	Perpendicular Bisector	
State Assessment Connections		National Assessment Connections
Resources		
<u>Glencoe: Geometry</u> 4.1, 5.1		