

HPISD Curriculum: Algebra II								
Title		Estimated Duration	6 Weeks					
Unit 14: Conics Part II		2 weeks	1	2	3	4	5	6
Unit Overview								
Transforming and graphing conics: parabola, circle, ellipse, and hyperbola. Creating an equation from the graph of a conic.								
Enduring Understandings								
The student will understand that:		<ul style="list-style-type: none"> • The conic sections are created from slicing a cone. • Parabolas, circles, ellipses, and hyperbolas are types of conic sections. • Conics are easier to graph when the equation is in standard form. 						
Concepts	Guiding/Essential Questions							
Conics	<ul style="list-style-type: none"> • How are conic sections created from slices of cones? • How are conic equations put into standard form? • What are similarities and differences between the different conic equations? • What is the standard form for each conic section? 							
Learning Targets								
<ul style="list-style-type: none"> • Students will graph each of the four mentioned conic section. • Students will put conic equations into standard form. • Students will recognize the differences and similarities between the different conic equations. • Students will identify the different parts of a conic such as foci, center, directrix, and axes. 								
Formative Assessments			Summative Assessments					
Quizzes and assignments			test					

TEKS: Readiness Standards	TEKS: Related Supporting Standards
<p>A2.7A Use characteristics of the quadratic parent function to sketch the related graphs and connect between the $y = ax^2 + bx + c$ and the $y = a(x-h)^2 + k$ symbolic representations of quadratic functions</p>	<p>A2.5A Describe a conic section as the intersection of a plane and a cone.</p> <p>A2.5B Sketch graphs of conic sections to relate simple parameter changes in the equation to corresponding changes in the graph.</p> <p>A2.5C Identify symmetries from graphs of conic sections.</p> <p>A2.5D Identify the conic section from a given equation.</p> <p>A2.5E Use the method of completing the square.</p> <p>A2.7B Use the parent function to investigate, describe, and predict the effects of changes in a, h, and k on the graphs of $y = a(x - h)^2 + k$ form of a function in applied and purely mathematics situations.</p>
Processes and Skills: What students should be able to DO	Facts: What students should KNOW
<ul style="list-style-type: none"> • Transform conic equations into standard form • Graph the four mentioned conic sections • Identify the differences and similarities between the different conic equations • Identify the different parts of each of the four conic sections 	<ul style="list-style-type: none"> • The standard form of a parabolic equation is $y = a(x - h)^2 + k$ • The standard form of an elliptical equation is $((x - h)^2)/a^2 + ((y - k)^2)/b^2 = 1$ • The standard form for a hyperbolic equation is $((x - h)^2)/a^2 - ((y - k)^2)/b^2 = 1$ • The standard form for a circle is $(x - h)^2 + (y - k)^2 = r^2$ • Completing the square is a method of converting a conic equation into standard form. • The graphs of conic sections are the intersection of a plane and a cone.
Topics	
<p>Conic sections</p>	

Language of Instruction		
Conic section	Minor Axis	Foci
Ellipse	Transverse Axis	Latus rectum
Hyperbola	Conjugate Axis	Vertices
Major Axis	Directrix	
State Assessment Connections		National Assessment Connections
Resources		
McDougal Littell – Algebra 2 Supplemental material		