

HPISD Curriculum: Algebra II									
Title		Estimated Duration		6 Weeks					
Unit 13: Conics Part 1		1 week		1	2	3	4	5	6
Unit Overview									
Graph conics centered at the origin; parabola, circle, ellipse and hyperbola. Create an equation from the graph of a conic.									
Enduring Understandings									
The student will understand that:		<ul style="list-style-type: none"> • Conic sections are created from slices of cones • 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 sections • Students will put conic equations into standard form • Students will recognize similarities and differences 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					Tests				

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>A2.7B Use the parent function to investigate, describe, and predict the effects of changes in a, h, and k on the graphs of $y = a(x-h)^2$ form of a function in applied and purely mathematical 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 sections • 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 of a hyperbolic equation is $(x - h)^2/a^2 - (y - k)^2/b^2 = 1$ • The standard form of a circle is $(x - h)^2 + (y - k)^2 = r^2$ • Graphs of conic sections are the intersection of a plane and a cone 	
Topics			
Conic sections			
Language of Instruction			
Conic section	Minor axis	Focus	
Ellipse	Transverse axis	Latus rectum	
Hyperbola	Conjugate axis	Verticies	
Major axis	Directrix		

State Assessment Connections	National Assessment Connections
Resources	
McDougal Little – Algebra 2 Supplemental material	