

HPISD Curriculum: Algebra II							
Title		Estimated Duration	6 Weeks				
Unit 12: Logarithms		3 weeks	1	2	3	4	5
Unit Overview							
Evaluate, solve, apply and graph logarithms							
Enduring Understandings							
The student will understand that:	<ul style="list-style-type: none"> • Logarithms and exponentials are inversely related • Graphs of logarithms have a vertical asymptote • Change of base formula is helpful in solving logarithmic equations • Growth and decay models are used to represent real world situations 						
Concepts	Guiding/Essential Questions						
logarithms	<ul style="list-style-type: none"> • How are logarithms converted to exponentials? • What determines whether an application problem is growth or decay? • How are logarithmic functions graphed? • How is the change of base formula used in solving logarithmic equations? • How are logarithmic functions transformed from the parent graph? 						
Learning Targets							
<ul style="list-style-type: none"> • Students will graph and transform logarithmic functions • Students will simplify logarithmic expressions • Students will solve logarithmic functions • Students will apply growth and decay formulas to real life situations • Students will transform logarithmic expressions to exponential expressions 							
Formative Assessments				Summative Assessments			
Quizzes and assignments				Tests			

TEKS: Readiness Standards	TEKS: Related Supporting Standards
<p>A2.11A Develop the definition of logarithms by exploring and describing the relationship between exponential functions and their inverses.</p> <p>A2.11G Analyze a situation modeled by an exponential function, formulate an equation or inequality, and solve the problem.</p>	<p>A2.11B Use the parent functions to investigate, describe, and predict the effects of parameter changes on the graphs of exponential and logarithmic functions, describe limitations on the domains and ranges, and examine asymptotic behavior.</p> <p>A2.11C Determine the reasonable domain and range values of exponential and logarithmic functions, as well as interpret and determine the reasonableness of solutions to exponential and logarithmic equations and inequalities.</p> <p>A2.11D Determine solutions of exponential and logarithmic equations using graphs, tables, and algebraic methods</p> <p>A2.11E Determine solutions of exponential and logarithmic inequalities using graphs and tables.</p>
Processes and Skills: What students should be able to DO	Facts: What students should KNOW
<ul style="list-style-type: none"> • Solve logarithmic functions • Evaluate logarithmic expressions • Graph logarithmic functions • Transform logarithmic expressions to exponential expressions • Analyze and apply growth and decay formulas 	<ul style="list-style-type: none"> • The graph of a logarithmic function has one vertical asymptote • The base of the logarithmic function is the base of the exponential function • The exponential growth formula is $P(t) = P_0(1+r)^t$ • The exponential decay formula is $P(t) = P_0(1-r)^t$ • Logarithmic properties; <ul style="list-style-type: none"> • $\log_b mn = \log_b m + \log_b n$ • $\log_b m/n = \log_b m - \log_b n$ • $\log_b m^p = p \log_b m$
Topics	
Logarithmic expressions and functions	
Language of Instruction	
argument	logarithm

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