ABSS Math Unit Planning Template

Introduction:

Grade/Course: 9_12 **|** Adv Functions and Modeling			**Suggested Unit Pacing (# of days):** **5**
Unit Number and Title: Unit 9 - Logarithmic Functions			**Mathematical Practices**
			P1 Make sense of problems and persever in solving them.
			P2 Reason abstractly and quantitatively.
Conceptual Overview	This unit introduces logarithmic functions and allows for simplification and evaluation of problems including modeling of real-world problems and graphing.		**P3** Construct viable arguments and critique the reasoning of others.
			P4 Model with mathematics.
			P5 Use appropriate tools strategically.
			P6 Attend to precision.
			P7 Look for and make use of structure.
			P8 Look for and express regularity in repeated reasoning.
Essential Understandings			
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.01**	Create and use calculator-generated models of linear, polynomial, exponential, trigonometric, power, and logarithmic functions of bivariate data to solve problems.
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.01.a**	Interpret the constants, coefficients, and bases in the context of the data.
SCS	**The learner will use functions to solve problems.**	**SCS.9_12.MA.2.01.b**	Interpret the constants, coefficients, and bases in the context of the problem.
SCS	**The learner will use functions to solve problems.**	**SCS.9_12.MA.2.03**	Use power functions to model and solve problems; justify results.
SCS	**The learner will use functions to solve problems.**	**SCS.9_12.MA.2.03.b**	Interpret the constants, coefficients, and bases in the context of the problem.
CCSS	**Building Functions**	**CCSS.9_12.MA.F.BF.5**	(+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
CCSS	**Linear, Quadratic, and Exponential Models★**	**CCSS.9_12.MA.F.LE.4**	For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where *a, c,* and *d* are numbers and the base *b* is 2, 10, or *e*; evaluate the logarithm using technology.
Learning Targets	• Evaluate expressions and solve and graph equations involving logarithms. • Model real-world situatios and slove problems using common and natural logarithms.		
	• logarithm • logarithmic function • logarithmic properties		

<table>
<tr><td>Essential Terminology</td><td colspan="2">logarithmic form
common logarithm
natural logarithm
characteristic
mantissa
change of base
antilogarithm
ln x
anti ln x
base e
base</td></tr>
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Natural Logarithms and the Number e (11-3)(11-6)
Modeling Real-world Data with Logarithmic Functions (11-7)
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Assessment</td></tr>
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