ABSS Math Unit Planning Template

Introduction:

Grade/Course: 9_12 **|** Adv Functions and Modeling	Suggested Unit Pacing (# of days): 9	
Unit Number and Title: Unit 2 - Linear Relations and Functions	**Mathematical Practices**	
	P1	Make sense of problems and persever in solving them.
	P2	Reason abstractly and quantitatively.
Conceptual Overview — Evaluate, find the zeros of, write and graph linear functions and inequalities. Write equations of parallel and perpendicular lines. Use scatter plots and piecewise finctions to model and solve real-life problems.	**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		

CCSS				
CCSS		**CCSS.9_12.MA.F.IF**	Interpreting Functions	
CCSS	**Interpreting Functions**	**CCSS.9_12.MA.F.IF.CL1**	Understand the concept of a function and use function notation	
CCSS	**Interpreting Functions**	**CCSS.9_12.MA.F.IF.1**	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.	
CCSS	**Interpreting Functions**	**CCSS.9_12.MA.F.IF.2**	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	
CCSS	**Interpreting Functions**	**CCSS.9_12.MA.F.IF.CL2**	Interpret functions that arise in applications in terms of the context	
CCSS	**Interpreting Functions**	**CCSS.9_12.MA.F.IF.5**	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*★	
CCSS	**Analyze functions using different representations**	**CCSS.9_12.MA.F.IF.7.a**	Graph linear and quadratic functions and show intercepts, maxima, and minima.	
CCSS	**Building Functions**	**CCSS.9_12.MA.F.BF.4**	Find inverse functions.	
CCSS	**Build new functions from existing functions**	**CCSS.9_12.MA.F.BF.4.a**	Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. *For example, f(x) =2 x^3 or f(x) = (x+1)/(x−1) for x ≠ 1.*	
	Build new			

CCSS	functions from existing functions	CCSS.9_12.MA.F.BF.4.b	(+) Verify by composition that one function is the inverse of another.
CCSS	Build new functions from existing functions	CCSS.9_12.MA.F.BF.4.c	(+) Read values of an inverse function from a graph or a table, given that the function has an inverse.
CCSS	Linear, Quadratic, and Exponential Models★	CCSS.9_12.MA.F.LE.CL1	Construct and compare linear, quadratic, and exponential models and solve problems
CCSS		CCSS.9_12.MA.F.LE	Linear, Quadratic, and Exponential Models★
CCSS	Linear, Quadratic, and Exponential Models★	CCSS.9_12.MA.F.LE.1	Distinguish between situations that can be modeled with linear functions and with exponential functions.
CCSS	Construct and compare linear, quadratic, and exponential models and solve problems	CCSS.9_12.MA.F.LE.1.a	Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.
SCS		SCS.9_12.MA.2	The learner will use functions to solve problems.
Learning Targets		○ Determine whether a given relation is a function ○ Perform operations with functions ○ Evaluate and find zeros of a linear function using function notation ○ Graph and write functions and inequalities ○ Write equations of parallel and perpendicular lines ○ Model data using scatterplots and write prediction equations	
Essential Terminology		● relation ● domain ● range ● function ● function notation ● vertical line test ● compostion ● linear equation ● x-itercept ● y-intercept ● slope ● standard form ● slope-intercept form ● zero of the function ● constant function ● family of linear graphs ● model ● point-slope form ● parallel lines ● coincide ● perpendicular lines ● best-fit lines ● prediction equation ● scatter plots ● goodness of fit ● correalation coefficient ● regression line ● piece-wise function ● step function ● greatest integer function	

		• absolute value funtion • linear inequality • half planes • boundary		
Literacy Integration	**Literacy Standards**	Level	Standard	Standard Name
	Literature Connections	Use applications of linear function to solve real-life problems.		
Technology Integration	**Technology Standards**	Level	Standard	Standard Name
	Websites			
Assessment	**Formative**			
	Performance Tasks			
	Summative			
Resources				
Learning Plan	**Instructional Sequence**	• **Relations and Functions (1-1)** • **Composition of Functions (1-2)** • **Graphing Linear Equations (1-3),Families of Linear Functions (1-3B)** • **Linear Regression** • **Writing Linear Equations (1-4),Equations of Parallel and Perpendicular Lines (1-5)** • **Modeling Real-World Data (Linear) (1-6)** • **Piecewise Functions (1-7)** • **Review** • **Assessment**		
Differentiation	**Remediation**			
	Enrichment			