FRANKLIN-SIMPSON HIGH SCHOOL

Course Name: Pre-Calculus   **Unit Name:** **Functions, Graphs, and Their Transformations**

Quality Core Objectives:

Unit 1 Functions, Graphs, and Their Transformations		
B.1.	Mathematical Processes	a. Apply problem-solving skills (e.g., identifying irrelevant or missing information, making conjectures, extracting mathematical meaning, recognizing and performing multiple steps when needed, verifying results in the context of the problem) to the solution of real-world problems
		d. Use the language of mathematics to communicate increasingly complex ideas orally and in writing, using symbols and notations correctly
		g. Demonstrate the appropriate role of technology (e.g., calculators, software programs) in mathematics (e.g., organize data, develop concepts, explore relationships, decrease time spent on computations after a skill has been established)
C.1.	Foundations	a. Identify and graph piecewise functions, including greatest integer, step, and absolute value functions
		b. Identify, graph, and write equations for inverses and transformations of various functions—including polynomial, rational, radical, absolute value, and trigonometric—with and without technology
E.2.	Functions	a. Use algebraic tests to determine whether the graph of a relation is symmetrical
		b. Classify functions as even, odd, or neither
F.1.	Rational and Radical Expressions, Equations, and Functions	a. Graph and analyze radical functions, including square root and cube root functions, with and without technology

Purpose of the Unit: Students will analyze functions, perform operations on functions and transform functions algebraically and graphically

Prerequisites: Graphing lines, quadratics, exponential, absolute value. State the domain of these functions

Daily Lesson Guide

Day	Lesson Content and Objectives	Focus Questions	Critical Thinking (High Yield / Literacy /LTF/etc.)	Engagement	Assessment and/or Accommodations
1	Parent Functions, Domain, Range, Symmetry	Do you know the parent functions? Their domain? Range? Symmetry?	Use beads to find the domain and range of a linear functions	Match the equation to the graph	Create a library of parent functions
2	Find the sum, difference, product and quotient of functions. Find the value of a function.	Can you find the domain of a function? Can you use function operations? What is a difference quotient?			Pg. 68-69
3	Transformations			LTF- Linear Functions, Transformations, and Graphic Displays	

4	Transformations			LTF – Transformation Story	
5	Transformations		Examples of Transformations using Parent Graphs		Pg 108-109
6	Transformations	Can you explain how to do transformations of functions?		LTF – Parent Charades	Pg 109-110
7	Analyze graphs of functions for domain, range, increasing, decreasing, max, min, odd, even	Can you analyze graphs of functions?		LTF - Characteristics of Functions Algebra I	Quiz on Transformations Pick up a graph and answer questions. Divide into groups to check answer
8	Find the sum, difference, product and quotient of functions. Find the value of a function.	Can you find the domain of a function? Can you use function operations? What is a difference quotient?			Pg. 68-69

9	Find the sum, difference, product and quotient of functions. Find the value of a function.	Can you find the domain of a function? Can you use function operations? What is a difference quotient?			Pg. 68-69
10	Average Rate of Change and Difference Quotient	Draw the secant line. As h approaches 0, the secant becomes a tangent			Pg 87-88
11	Greatest integer function			Add to Library of Function notes	Quiz Average Rate of Change and Difference Quotient
12	Piecewise functions			LTF-Walking Piecewise Graphs using CBRs	Pg 97
14	Review				Use white boards to display answer on pg. 123

15	**Assessment of Unit 1**			**Assessment**