Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	MATH	Course:	Advanced Algebra (H)	Unit 12 Title:	Transformations	Grade Level(s):	11
Assessed Trimester:	Trimester C	Pacing:	7-8 days	Date Created:	6/25/2014	Last Revision Date:	6/25/2014

Course Understandings: Student will understand that:

A. Relationships exist between real-world situations, mathematical equations, and graphs for sequences, series, polynomial functions, and exponential functions.

B. Sequences, series, polynomial, and exponential function can be categorized by form and that each form has specific processes to consider when solving and graphing.

D. The numeric elements of a function have specific transformational effects on the graphs of those functions.

E. The context of a problem is important in recognizing the reasonableness of a solution.

F. There are benefits and limitations in the use of calculators and other technology to solve mathematical situations.

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Established Goals				
Minnesota State/Local/Technology Standard(s) addressed (2007):				
 Standard (9.2.1.#): Understand the concept of function, and identify important features of functions and other relations using symbolic and graphical methods w Benchmark: 9.2.1.3 Find the domain of a function defined symbolically, graphically or in a real-world context. 9.2.1.9 Determine how translations affect the symbolic and graphical forms of a function. Know how to use graphing technology to examine translations. 				
 Standard (9.2.2.#): Recognize linear, quadratic, exponential and other common functions in resolve problems involving these functions, and explain results in the original context. Benchmark: 9.2.2.6 Sketch the graphs of common non-linear functions such as f(x) = √x, f(x) = x , 	eal-world and mathematical situations; represent these functions w $f(x) = \frac{1}{x}$, $f(x) = x^3$, and translations of these functions, such as $f(x)$			
to graph these functions.				
Transfer				
 Students will be able to independently use their learning to: (product, high order reasoning) Extend understanding of transformations in geometry to transformations of functions and other 	relations.			
	Meaning			
Unit Understanding(s): Students will understand that: • Transformations affect all forms of a function (graphical, symbolic, tabular and verbal)	Essential Q Students will keep considering: When looking at functions, how do the significant real-world representation relate to each other? What are the characteristics of different types of file. How do the skills and knowledge that we are learn can be modeled by different types of functions?			

nere appropriate.

ith tables, verbal descriptions, symbols and graphs;

 $x = \sqrt{x-2} + 4$. Know how to use graphing technology

uestion(s):

features of the graph, its algebraic equation and

unctions? ning influence the task of understanding situations that

y to help solve a real-world situation? to help me to interpret and solve problems?

Acc	quisition
 Knowledge - Students will: Distinguish between parent functions defined symbolically, graphically or in tabular form. I can determine how transformations affect the symbolic, verbal, and graphical forms of a function. (Linear, quadratic, cubic, exponential, absolute value, radical, rational and any graphic relation.) Reasoning - Students will: Be able to determine which aspects of a graph are and are not changed by a transformation. 	 Skills - Students will: Sketch the graphs of common functions such as li radical, and rational. Know how to use graphing technology to graph the
 Common Misunderstandings Students confuse translations with other transformations previously studied (i.e. rotations, reflections, etc.) Students move translations in the opposite direction (i.e., believe that f(x) = (x + 3) is a translation of 3 units to the right rather than to the left). 	 Essential new vocabulary horizontal translation vertical translation parameters

• Students confuse when to reflect over the x-axis and the y-axis (i.e., -f(x) with f(-x)) - honors only

linear, quadratic, cubic, exponential, absolute value, nese functions.