Unit #1: Functions

Content Area: **Mathematics**
Course(s): **PreCalc Trig A**
Time Period: **Semester 1**
Length: **3 weeks**
Status: **Published**

Standards

MA.F-IF.A.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 $y = f(x)$.
MA.F-IF.A.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
MA.K-12.4	Model with mathematics.
MA.F-IF.B.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.
MA.F-IF.B.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
MA.F-IF.C.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

Enduring Understandings

Students will understand that a relation is a function when every x value has a unique y value.

Students will be able to distinguish when a relation, graph, or equation is a function.

Essential Questions

What is a function?

How can you determine if a relation, graph, or equation represents a function?

Knowledge and Skills

- Define function using mathematical symbols
- Identify whether relations, graphs, or equations represent functions.
- State domain and range of functions.
- Graph parent functions.

- Graph translations/reflections/shrinks/stretches to parent functions.
- Graph functions with restricted domains.
- Graph split-rule functions.
- Perform operations to functions.
- Find domain of algebraic functions.
- Graph algebraic functions (sum/difference/product/quotient of functions) with proper domain.
- Evaluate composite functions.
- Find inverse functions.
- Graph inverse functions.

Transfer Goals

Recognize and solve practical or theoretical problems involving mathematics, including those for which the solution approach is not obvious, by using mathematical reasoning and strategic thinking.

Resources

1. Pre-Calculus with Limits - Aufmann
2. Trigonometry 6th edition - Lial
3. Classkick
4. Khan Academy
5. PurpleMath
6. KutaSoftware
7. CK-12
8. Quizlet
9. Albert I/O
10. Desmos
11. Problem Attic