Unit 2
Functions

Grade 8 Math

Unit Description:

Students will explore the concept of function using input/output tables and maps. Functions will be compared using the concept of unit rate developed in 6th grade. Students will graph and analyze linear functions; the concept of slope will be developed in the next unit.

Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them.
MP.2 Reason abstractly and quantitatively.
MP.3 Construct viable arguments and critique the reasoning of others.
MP.4 Model with mathematics.
MP.5 Use appropriate tools strategically.
MP.6 Attend to precision.
MP.7 Look for and make use of structure.
MP.8 Look for and express regularity in repeated reasoning.

Louisiana Student Standards for Mathematics (LSSM)

F – Functions	
A. Define, evaluate, and compare functions.	
8.F.A.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in this grade level.)
8.F.A.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
8.F.A.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; categorize

	functions as linear or nonlinear when given equations, graphs, or tables. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points $(1,1)$, $(2,4)$ and $(3,9)$, which are not on a straight line.
B. Use functions to model relationships between quantities.	
8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.B.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Enduring Understandings:

*Our world is filled with functions. By learning how to represent, construct, and analyze functions we gain a better understanding of how our world works.
*Verbal descriptions, tables, equations, and graphs can be used to represent linear and nonlinear functions.

Essential Questions:

*What is the difference between a relation and a function?
*How can you determine if a relation is a function?
*How does a change in the independent variable affect the dependent variable?
*What types of relationships can be represented as functions?
*How can you use words, tables, equations, and graphs to represent linear and nonlinear functions?