***INTRODUCTION:***

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| **Grade 8 Math: Functions** | | | | | |
| **Duration: 6 - 8 weeks**  **Topics covered: Functions, independent variable, dependent variable, linear function, nonlinear function** | | | | | |
| **Common Core Learning Standards:**   * 8.F.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. * 8.F.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.3. Interpret the equation *y = mx + b* as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function A = s2 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.* * 8.F.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.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. | | | | | |
| **BIG IDEAS/ENDURING UNDERSTANDINGS:**   * *Determine whether a relation is a function and how to identify a function rule, an input value, and an output value from a function table.* * *How to write an equation in function notation and compares functions represented in different ways.* * *Graph a function given its equation and compares graphs of different functions.* * *Model situations involving linear functions and how to interpret the slope and y-intercept of linear functions.* | | | **ESSENTIAL QUESTIONS:**   * How can we use a function table to organize the input and output values of a given function? * How do we write an equation in function notation?      * How do we compare properties of functions given a table, graph, or an equation? * How can we find the equation of a function given its graph? * How do we model situations involving linear functions? | | |
| **CONTENT:** | | | | | |
| *Subunit*: **Function Tables**   * Function * Input value * Output value * Function table * Function rule | *Subunit*: **Equations of Functions**   * Function notation | | | | *Subunit*: **Graphs of Functions**   * Linear function * Nonlinear function * Ordered pair * Slope * Y-intercept * Constant difference |
| **SKILLS AND PRACTICES:** | | | | | |
| **VOCABULARY / KEY TERMS:** | | | | | |
| **ASSESSMENT EVIDENCE AND ACTIVITIES** | | | | | |
|  | |  | | Grade 8 Geometry Performance Task | |
| **LEARNING PLAN AND ACTIVITIES** | | | | | |
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| **Resources:** | | | | | |