***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.
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| **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?
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| **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
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| **SKILLS AND PRACTICES:**  |
| **VOCABULARY / KEY TERMS:**  |
| **ASSESSMENT EVIDENCE AND ACTIVITIES** |
|  |  | Grade 8 Geometry Performance Task |
| **LEARNING PLAN AND ACTIVITIES** |
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| **Resources:** |