MRS. GAWLIK/MRS. CACHIA Lesson Outline (TWO DAYS)

Grade/Subject: 8th Grade Mathematics **Monday, September 15, 2014/Tuesday September 16, 2014**

|  |  |
| --- | --- |
| **Content Standard:*** 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.
 | **ELP Standard:**English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics. |
| **Content Objective:**I can demonstrate application of slope by determining whether a function is linear or nonlinear by representing data patterns using graphs and tables. | **Language Objective:**I can write to describe if a pattern between variables is linear or nonlinear using content specific vocabulary by completing Problem 1.3 on pages 12-14 |
| **Key Vocabulary:**Independent and Dependent variable, linear relationship, nonlinear relationship, x-axis, y-axis, variables**HOTS (Questions): After showing a sketch/picture of a truss*** What does a two-foot truss look like? (an isosceles trapezoid with legs of equal lengths, the longer base is 2 feet long and the shorter base 1 foot long)
* How many one-foot steel rods would be needed to make this truss? (7)
* What does a 7-foot truss look like? (an isosceles trapezoid with legs of equal lengths, the longer base is 7 feet long and the shorter base 6 feet long)
* How many one-foot steel rods would be needed to make a truss that long?(27)
 | **Content Specific: (Graphing the Data from the Experiment)*** Which is the independent variable and which is the dependent variable?
* What patterns do you see in the data? (The data appear to be linear.)

**General Terms:** * Every time the length of the truss increases by 1 foot, 4 rods are added.
* In the table, each increase of 1 foot truss length yields an increase of 4 in the number of rods. The graph is a straight line. To get from one point to the next, you move over 1 and up 4
 |
| **Visuals, Materials, & Text**TEXT: Thinking with Mathematical Models TextVISUALS: LAUNCH video showing a variety of trussesMATERIALS: Accessibility Labsheet 1.3A and B  |

|  |  |
| --- | --- |
| **Building Vocabulary and Concept Knowledge/ Structured Conversation and Writing****(Processes, Stems, and Scaffolds)*** (The length of truss is the \_\_\_\_\_\_\_\_\_\_\_ (independent variable.)
* (The number of rods is the \_\_\_\_\_\_\_\_\_\_\_ (dependent variable.)
* The data appears to be linear because\_\_\_\_\_\_\_\_\_\_\_ (as the length of truss increases by 1, the number of rods increase by 4).
* If constant change in the independent variable in the table yields constant change in the dependent variable, then the relationship is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (linear)
* If the graph is a straight line, then the relationship is \_\_\_\_\_\_\_\_ (linear)
* If the words talk about one variable changing at a constant rate as another increase, the modeling function will be \_\_\_\_\_\_\_\_\_\_\_\_. (linear)
 | **Reviews & Checks for Understanding****(Response Signals, Writing, Self-Assessment, Student Products, etc.)*** Listen to student responses to questions, walk around and observe individual and group work.
* Make sure students are making the table correct and labeling the x and y axis correctly.
* Make sure students are making the graph correctly and using correct labeling and numbering of the x and y axis.

**Accommodations** * **Partners, small groups, master copy of table and graph**
 |
| **Wrap up/Ticket Out*** Today I learned…
 |

**Wednesday September 17- Thursday September 18, 2014**

|  |  |
| --- | --- |
| **Content Standard:*** 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.
 | **ELP Standard:**English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics. |
| **Visuals, Materials, & Text****TEXT:** Thinking with Mathematical Models**VISUALS:** None**MATERIALS:** Graph Paper and Text | **Accommodations** * **Partners, small groups, master copy of table and graph and application questions 1, 2, 3 and 5**
 |
| **Content Objective:** I can demonstrate evaluation of functional relationship between two variables by investigating the nature of linear or nonlinear functions, | **Language Objective:**I can write to answer questions about functional relationships between two variables using content specific vocabulary by completing Application Questions 1-9. |
| Visuals, Materials, & TextTEXT: Thinking with Mathematical Models VISUALS: NoneMATERIALS: Graphic Organizer worksheet (one for each student) |
| **Wrap up/Ticket Out*** Application Questions
 |

Friday, September 19, 2014

|  |  |
| --- | --- |
| **Content Standard:*** 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.
 | **ELP Standard:**English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics. |
| **Visuals, Materials, & Text** **TEXT:** Thinking with Mathematical Models**VISUALS:** None**MATERIALS:** Graph Paper and Text | **Accommodations** * Sentence starters…
 |
| **Content Objective:** I can demonstrate evaluation of the functional relationship between two variables by investigating the nature of linear or nonlinear functions. | **Language Objective:**I can write to answer questions about functional relationships between two variables using content specific vocabulary by completing mathematical reflections on page 28. |
| **Visuals, Materials, & Text**TEXT: Thinking with Mathematical Models VISUALS: NoneMATERIALS: Paper |
| **Wrap up/Ticket Out*** Mathematical Reflections
 |