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

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

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| **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 Text  VISUALS: LAUNCH video showing a variety of trusses  MATERIALS: Accessibility Labsheet 1.3A and B | |

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| **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**

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| **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, & Text  TEXT: Thinking with Mathematical Models  VISUALS: None  MATERIALS: Graphic Organizer worksheet (one for each student) | |
| **Wrap up/Ticket Out**   * Application Questions | |

Friday, September 19, 2014

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| **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: None  MATERIALS: Paper | |
| **Wrap up/Ticket Out**   * Mathematical Reflections | |