MRS. GAWLIK/MRS. CACHIA November 10-14, 2014

**Monday, November 10, 2014**

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| **Content Standard:**  **Understand the connections between proportional relationships, lines, and linear equations.**   * 8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. | **ELP Standard:**  English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.   * Explicit instruction of bivariate data vocabulary using tactile and virtual tools (ex: software tools, example of scatter plots). * Real world examples to reinforce bivariate data vocabulary (positive, negative, and no relationship graphs). |
| **Content Objective:**  I can demonstrate comprehension of correlation coefficients and outliers by using mathematical models. | **Language Objective:**  I can write to answer questions about correlation coefficients and outliers using mathematical models. |
| * TARGET STATEMENT:   **I CAN** use correlation coefficients to determine the strength of a linear relationship between two models. | |
| **Key Vocabulary:**  Independent and Dependent variable, linear relationship, nonlinear relationship, x-axis, y-axis, variables, function, mathematical model, residual, slope, additive inverse, multiplicative inverse, inverse variation, correlation coefficient, outlier, residual, scatter plot, standard deviation, variance  **HOTS (Questions):**   * What variables do you think would be strongly related to top roller coaster speed on a roller coaster ride? (maximum speed/height) * Do you think the relationship would be strong or weak? * How accurately do you think you could predict maximum speed? (Best predicted by maximum drop) | **Content Specific:**   * How easy is it to fit a line to the data * Are the data points close to the line? * Are there any outliers? * Is the slope of the trend line positive or negative?   **General Terms:**   * When points cluster close to a line with positive slope, the correlation coefficient is almost 1, and with a negative slope, the correlation coefficient is almost -1. * Points that do not cluster close to any line have a correlation coefficient of almost 0. * Positive association has correlation coefficients greater than 0 while negative association has correlation coefficients less than 0. |
| **Visuals, Materials, & Text**  **TEXT:** Thinking with Mathematical Models  **VISUALS: Launch**  **MATERIALS:** Lab sheet 4.3 A-E | **Today I learned that a correlation of 1 is… a perfect linear relationship between two variables with a positive slope.** |

**Tuesday, November 11, 2014**

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| * TARGET STATEMENT   I can answer use knowledge of correlation coefficients to questions, 4 and 5 on pages 98-99 about the strength of linear relationships between two models. |

**Wednesday, November 12, 2014**

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| * TARGET STATEMENT   I can use knowledge of correlation coefficients to answer questions, 6-9 on pages 100-101 about the strength of linear relationships between two models. |

**Thursday November 13, 2014**

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| **Content Standard:**  **Understand the connections between proportional relationships, lines, and linear equations.**   * 8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. | **ELP Standard:**  English language learners communicate information, ideas and concepts necessary for academic success in the content area of Mathematics.   * Explicit instruction of bivariate data vocabulary using tactile and virtual tools (ex: software tools, example of scatter plots). * Real world examples to reinforce bivariate data vocabulary (positive, negative, and no relationship graphs). |
| **Content Objective:**  I can demonstrate comprehension of the spread of univariate distribution by calculating the standard deviation. | **Language Objective:**  I can write to draw conclusions of standard deviation using mathematical models and a calculator. |
| * TARGET STATEMENT:   **I CAN** calculate the standard deviation of data using mathematical models and a calculator. | |
| **Key Vocabulary:**  Independent and Dependent variable, linear relationship, nonlinear relationship, x-axis, y-axis, variables, function, mathematical model, residual, slope, additive inverse, multiplicative inverse, inverse variation, correlation coefficient, outlier, residual, scatter plot, standard deviation, variance  **HOTS (Questions):**  **Essential Questions:**   * Look at the height data, what are some ways you could visually display the data? (line plot, box plot, stem and leaf plot) * What statistics are used to describe the center of distribution such as heights? (median and mean) * What statistics are used to describe the spread of distribution such as heights? (range, interquartile range, MAD) * How can graphs, tables, or equations be used to predict data? | **Content Specific:**   * What is the IQR? (Interquartile range-the middle 50% of the data or the “box” in a box plot) * Which measure of center-median or mean-is involved with the IQR measure of variability? (median) * If one IQR is greater than another IQR, what do you know about the two distributions of data? (The middle 50% of the data is more variable for the data set with greater IQR.) * What is MAD? (The mean absolute deviation. The average of the absolute values of the differences between each data value and the mean.) * Which measure of center-median or mean-is involved with the MAD measure of variability? (Mean) * If one standard deviation is greater than another, what do you know about the two distributions of data? (The distribution with the greater standard deviation is more spread out than the other distribution. )   **General Terms:**   * What are the different measures of variability we have used? (range, IQR, MAD-mean absolute deviation, and standard deviation) |
| **Visuals, Materials, & Text**  **TEXT:** Thinking with Mathematical Models  **VISUALS:** Show Launch  **MATERIALS:** Lab sheet 4.4A-B, graph paper | **Accommodations**  **Partners, small groups, master copy of lab sheets** |
| **Wrap up/Ticket Out**   * Today I learned that standard deviation measures…the spread of a data set. The greater the S.D, the greater the spread of data. | |

**Friday, November 14, 2014**

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| Career Day-Half Day |