**Using bivariate Data Sets to make predications and study**

**Central Tendency**

**Original source for task: Statway, Carnegie Foundation for the Advancement of Teaching**

**Quick review of central tendency with univariate data**

1. The chart below represents a univariate distribution of the length of forearms for a group of 20 female college students. [Oh, by the way, why is this called univariate data?]
2. How would you describe the “central tendencies” of forearm lengths for this group of students? What are the tendencies of this data?

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| 5 |  |  |  | X |  |  |  |  |  |
| 4 |  |  |  | X |  |  |  |  |  |
| 3 |  |  | X | X X |  |  |  |  |  |
| 2 |  | X | X | X X |  | X |  |  |  |
| 1 | X X | X | X | X X | X | X | X | X |  |

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|  | 8 |  | 9 |  | 10 |  | 11 |  | 12 |

forearm (in)

**Extending our study of central tendency with bivariate data**

Standard addressed: Statistics and Probability 2, Grade 8

Now lets extend our example to bivariate data and try to make predictions by continuing to pursue the concept of central tendency. [Oh, by the way, why is this called bivariate data?]

1. Making a prediction about an unknown quantity: the height of a female student.  The scatterplot below is a graph of forearm length versus height for 20 female college students.
2. How would you describe the “central tendencies” of forearm length as it relates to height of this group of students?
3. In this particular data set no student has a forearm length of 10”. Your job is to predict the likely height based on these data for a female student with a 10” forearm.
4. Based on the data set, what range would you include in your prediction that would make you feel confident that you included the girl’s actual height.

*Highlight and annotate your enlarged version of the graph in order to explain how you used the data to arrive at your prediction.*

ForearmVsHeight.wmf

1. Now refine your approach and predict the heights of students whose forearm lengths are 9” and 11”.

*In a different color than in the previous problem, highlight and annotate your enlarged version of the graph in order to explain how you used the data to arrive at your prediction*.

ForearmVsHeight.wmf

1. Using more of the data set, how could you predict any height given any forearm length?

*In a different color than in the previous problems, highlight and annotate your enlarged version of the graph in order to explain how you used the data to arrive at your prediction*.

ForearmVsHeight.wmf