Journal – Day 7

• Make sure you have your Design Your Own Experiment sheet completed, except for the last 2 boxes.

• Homework
  – PowerPoint Slides – Day 8
  – Unit 1 Vocabulary Quiz – TOMORROW – 9/7
  – Unit 1 HW and Test – 9/8
Types of Correlation

Positive Correlation
- The variables go in the SAME direction.

Negative Correlation
- The variables go in opposite directions.

Studying and grades hopefully has a positive correlation.

Heroin use and grades probably has a negative correlation.
Correlation

- **Correlation Coefficient**
  - a statistical measure of the extent to which two factors vary together, and thus how well either factor predicts the other

  - Indicates direction of relationship (positive or negative)
  - Indicates strength of relationship (0.00 to 1.00)

  - Correlation coefficient
  - $r = +.37$
Correlation

- **Scatterplot**
  - a graphed cluster of dots, each of which represents the values of two variables
  - the slope of the points suggests the direction of the relationship
  - the amount of scatter suggests the strength of the correlation
    - little scatter indicates high correlation
  - also called a scattergram or scatter diagram
Correlation

- Perfect positive correlation (+1.00)
- No relationship (0.00)
- Perfect negative correlation (-1.00)

Scatterplots, showing patterns of correlations
Correlation

Height and Temperament of 20 Men

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<th>Height in Inches</th>
<th>Temperament</th>
<th>Subject</th>
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</table>
Correlation

Scatterplot of Height and Temperament scores

Temperament scores

Height in inches
Correlation

Three Possible Cause-Effect Relationships

1. Low self-esteem → Depression
2. Depression → Low self-esteem
3. Distressing events or biological predisposition → Low self-esteem → Depression
Statistical Reasoning

- **Mode**
  - *the most frequently occurring score in a distribution*

- **Mean**
  - *the arithmetic average of a distribution*
  - *obtained by adding the scores and then dividing by the number of scores*
  - *Could easily be thrown off by a couple of outliers*

- **Median**
  - *the middle score in a distribution*
  - *half the scores are above it and half are below it*
Statistical Reasoning

A Skewed Distribution

One Family

Income per family in thousands of dollars
Statistical Reasoning

- **Range**
  - *the difference between the highest and lowest scores in a distribution*

- **Standard Deviation**
  - *a computed measure of how much scores vary around the mean*