**Mrs. Daniel- AP Stats** **Name: _____**

**Height & Arm Span Correlation Activity**

Measure your height and arm span. Record data.

Height (inches): _____ Arm span (inches):_____

**A.** Create and label a scatterplot of the classes' data:

**B**. Calculate and interpret the correlation coefficient.

**C.** Calculate your personal contribution to the correlation coefficient.

Class mean height ($\bar{x}$): _____ Class standard dev height (Sx):_____

Class mean arm span ($\bar{y}$_____ Class standard dev arm span (Sy):_____

$$\frac{(your\ height - \overline{x})}{Sx} \cdot \frac{(your\ arm\ span - \bar{y})}{Sy}$$

Who contributed the least? _____ Who contributed the most? _____

**D.** Remove the person who "contributed" the most to the correlation and re-calculate the correlation coefficient.

Revised Correlation Coefficient: _____

How much/what percent did the value change by?

**E.** What is the least squares regression equation for this association? (Remember to re-add the person we removed in part D). Define any variables used. Draw line on scatterplot in part A.

LSRL: _____

**F.** Calculate your personal residual value.

My predicted arm span (plug in your height to LSRL): _____

Residual = actual arm span - predicted arm span: _____

Who had the highest residual? _____ Who had the lowest residual?_____

**G.** Remove the person who had the highest residual value and re-calculate the correlation coefficient.

Revised Correlation Coefficient: _____

How much/what percent did the value change by? How does this compare to the value in part D?

**H.** Create and label a residual plot of the classes' data. Circle your personal data.: