

# Technology Project 4

## Inferences When Variables are Related

Group Members:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Follow the [Minitab instructions](#) under the technology exercises link on the website for information about how to do the problems.

1. Use the color frequency data from Activity 8 to test the claim that M&M Peanut candies are distributed as claimed by M&M Mars.
  - a. Conduct the hypothesis test by hand (Minitab doesn't directly do a goodness of fit test) and create a table in your project with the appropriate values.
  - b. Find the p-value for the test statistic.
  - c. Create a similar to the graph on technology project 3 demonstrating the hypothesis test. In addition, include a vertical line at the test statistic and label the graph with the p-value.
  - d. Give the decision and conclusion for the test.
2. Test the claim that there is a correlation in Illinois between the rate of front seat driver and passenger seatbelt usage and the total fatality rate.
  - a. Before collecting the data and analyzing it, discuss the kind of relationship you think might exist between the two variables. The seatbelt usage rate is the percent of people in the front seat wearing their seatbelts and the fatality rate is the number of deaths per million of vehicle miles traveled.
  - b. Gather the data and make a fitted line plot.
  - c. Test for linear correlation. Check the residuals for normality.
  - d. Give a regression model that will estimate the fatality rate based on the seatbelt usage rate.
  - e. There was one point that appeared to be influential because of the low seatbelt usage. Remove this point and re-run the analysis. Which model is a better fit?