The worksheet data can be found at: http://www.statcrunch.com/app/index.php?dataid=1135370

1. Let's explore this data set using poverty rate and the percentage of the population that is obese. The idea is to explore how poverty associates with obesity. In the 18th century being a bit larger was actually desired as it was a sign of affluence. This altered as food became more readily and cheaply available until today where fast food is one of the easiest to access and cheapest food sources. The question we're trying to answer is whether or not poverty tends to occur with obesity or not.

    a. Using technology, look at a scatter plot with x = poverty rate and y = percentage of the population that is obese in a given state and make a statement about the graph.

    b. Using technology, find the regression line that uses the poverty rate to predict the percentage of the population that is obese in a given state.

    c. What is the explanatory variable?

d. What is the response variable?

e. State the regression line.

f. Report and interpret the slope.

g. Report and interpret the y-intercept.

h. Report and interpret the R-sq:

i. Predict the percentage of the population that is obese for a state with a poverty rate of 8.3%.

j. If the actual percentage of the population with a poverty rate of 8.3% is 21.8% what is the residual?

2. Let's continue exploring this data set using percentage of the population that exercises and the percentage of the population that is obese. The idea is to explore how exercise associates with obesity. It should be obvious that if more of the population exercises that the population should be less obese, but we can look at the statistics.

a. Using technology, look at a scatter plot with x = percentage of the population that exercises and y = percentage of the population that is obese in a given state and make a statement about the graph.

b. Using technology, find the regression line that uses the percentage of the population that exercises to predict the percentage of the population that is obese in a given state.

c. What is the explanatory variable?

d. What is the response variable?

e. State the regression line.

f. Report and interpret the slope.

g. Report and interpret the y-intercept.

h. Report and interpret the R-sq:

i. Predict the percentage of the population that is obese for a state where 28.6 percent of the population exercises.

j. If the actual percentage of the population where 28.6% of the population exercises is 28.5% what is the residual?

3. Let's continue exploring this data set using percentage of the population over 65 that are toothless and the percentage of the population that is obese. The idea is to explore how the percentage of the population over 65 that are toothless associates with obesity. Do we follow the stereotype of the obese, toothless person or do we say that people without teeth can't eat as much and might be less obese?

a. Using technology, look at a scatter plot with x = percentage of the population over 65 that are toothless and y = percentage of the population that is obese in a given state and make a statement about the graph.

b. Using technology, find the regression line that uses the percentage of the population over 65 that are toothless to predict the percentage of the population that is obese in a given state.

c. What is the explanatory variable?

d. What is the response variable?

e. State the regression line.

f. Report and interpret the slope.

g. Report and interpret the y-intercept.

h. Report and interpret the R-sq:

i. Predict the percentage of the population that is obese for a state where 26.1 percent of the population over 65 is toothless.

j. If the actual percentage of the population where 26.1% of the population over 65 is toothless is 30.9% what is the residual?

4. Let's continue exploring this data set using number of doctors per 100k residents and the percentage of the population that is obese. The idea is to explore how the number of doctors per 100k residents associates with obesity. We can think that more doctors would mean a healthier population, but if we think about it like a business we can think that a less healthy population would require more doctors.

a. Using technology, look at a scatter plot with x = number of doctors per 100k residents and y = percentage of the population that is obese in a given state and make a statement about the graph.

b. Using technology, find the regression line that uses number of doctors per 100k residents to predict the percentage of the population that is obese in a given state.

c. What is the explanatory variable?

d. What is the response variable?

e. State the regression line.

f. Report and interpret the slope.

g. Report and interpret the y-intercept.

h. Report and interpret the R-sq:

i. Predict the percentage of the population that is obese for a state where there are 242 doctors per 100k residents.

j. If the actual percentage of the population where there are 242 doctors per 100k residents is 25.4% what is the residual?

Try to use another variable and follow a similar line of questioning to come up with answers to your own questions!