Free Digital Tools
for Teaching Statistics

StatKey: http://www.lock5stat.com/StatKey/

Art of Stat: http://www.artofstat.com/webapps.html

ClassPad: http://www.classpad.net

Today's data: mrmathman.com/data

Useful Data Sources:
- Census at Schools: http://ww2.amstat.org/censusatschool/
- Request a free instructor's account from statcrunch.com
- The Data & Story Library: https://dasl.datadescription.com
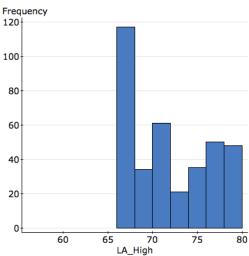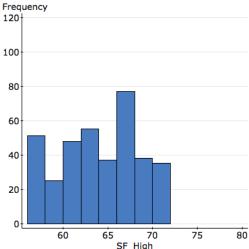- Your own students/school!

1. The average daily high temperature was collected for Los Angeles (LA) and San Francisco (SF). Here are the summary statistics and histograms for these data. The temperature was measured in degrees Fahrenheit.

Summary statistics:

	Mean	sd	Med	Range
LA_High	71.8	4.46	70.4	13
SF_High	63.9	4.33	64.05	14.4

	Min	Max	Q1	Q3
LA_High	66.3	79.3	67.2	76.3
SF_High	56	70.4	61.1	66.9

a) Compare these distributions.

b) Provide <u>one </u>statistical reason why you would think that the Los Angeles data is NOT approximately normally distributed.

c) A Canadian researcher changes the degrees to Celsius using the formula $C° = \frac{5}{9}(F° - 32)$. Find the mean, IQR, sd, and Q1 for Los Angeles in degrees Celsius.

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Open the data at: mrmathman.com/data

Note: Chromebook users may wish to save the data to their downloads folder.

Go to: http://www.lock5stat.com/StatKey/

Click on: Two Quantitative Variables

Choose: Upload Data and select your data set from the folder where you saved it.

Let's investigate if higher calorie fast food has more total fat.

Click Calories (green) and then Total Fat (red) and then OK.

1. Describe the relationship you see between Calories and Fat.

2. What is the correlation? What does this tell you?

3. Interpret the slope in context.

4. The y-intercept is negative. Why?

Continue investigating! What other relationships can you find with these data? Describe them.

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Load the fast food data at: mrmathman.com/data

Go to: artofstat.com and click on Web Apps.

Click on: Explore quantitative data.

Select: Your own.

Change Name of Variable to: Protein.

Select all the protein data on your sheet and paste this data.

1. Describe the distribution of protein.

2. Change the bin width of the histogram. What value do you think best shows the shape of the distribution?

3. Choose another fast food variable to describe. Describe the distribution thoroughly.

4. What do you know about the recommended daily allowance for calories? Do some research! What do you conclude?