**Old Faithful**

According to <http://www.uweb.ucsb.edu/~glennon/geysers/>, “a geyser is a hot spring that periodically erupts, throwing water into the air. Though that sounds simple, geysers are extremely rare. As of August 2008, the total of active geysers on earth numbered approximately 1000.” One of the most famous geysers in the world is called Old Faithful, which is located in Yellowstone National Park in Wyoming. Suppose you are a visitor to this geyser and don’t want to wait too long to see it erupt. Before heading out on your trip, you decide to find data on time between Old Faithful’s eruptions to investigate how long you might have to wait to see an eruption, and whether the geyser’s eruptions are predictable or unpredictable.

In this activity, you will be examining a random sample of 500 times between Old Faithful’s eruptions for the year 2009.

**Discuss the Following Questions**

* Open up the data set: *18b-Old-Faithfu-2009-500.csv*.
* Go to[**http://www.rossmanchance.com/applets/HClasses/Histogram.html**](http://www.rossmanchance.com/applets/HClasses/Histogram.html)**.**
* From the Old Faithful data file, copy all 500 of the numeric values (not including the first row).
* Click on the *Edit/Paste Data* button in the online applet.
* Click Command + a to select all of the old values. Hit the delete button. Paste the new values into the data window by clicking Command + v. Then click Ok.
* Move the bin width slider from 10 to 20.

1. How would you describe the shape of this distribution? What would you consider a typical wait time?
2. Would you consider this a good portrayal of Old Faithful’s times between eruptions? Why or why not?

* Move the bin width slider from 20 to 10.

1. How would you describe the shape of this distribution? What would you consider a typical wait time?
2. Would you consider this a good portrayal of Old Faithful’s times between eruptions? Why or why not?

* Move the bin width slider from 10 to 5.

1. How would you describe the shape of this distribution? What would you consider a typical wait time?
2. Would you consider this a good portrayal of Old Faithful’s times between eruptions? Why or why not?
3. Which of the histograms that you described above provide you the best picture of answering the research question? Why does this histogram help you answer the research question as opposed to the other histograms?
4. What things should you consider when deciding which bin width to use?