

Stat Support Activity: Quantitative Data Shapes

Notes on Quantitative Data Shapes

- Normal (normally distributed): Data is bell shaped. Most of data and the center (average) is in the middle and the left and right tails are symmetric.
- Skewed Right (positively skewed): Most of the data and the center (average) is on the far left side of the graph. The left tail is very short, while the right tail is very long.
- Skewed Left (negatively skewed): Most of the data and the center (average) is on the far right side of the graph. The right tail is very short, while the left tail is very long.
- Uniform (rectangular shape): Very rare shape. Data is evenly spread out. All the bars in the histogram are about the same length, giving the histogram a rectangle shape. Box plot will show a very long box with very short whiskers or no whiskers at all.

Problems

Directions: Go to matt-teachout.org, click on the “data sets” tab and open the “Bear Data”. Go to www.lock5stat.com, open StatKey and click on “one quantitative variable” and then “edit data”. Copy and paste all of the quantitative columns in the bear data into StatKey. Look at the box plot and dot plot. For the histogram slide the slider back and forth to adjust the number of bars (buckets). For each column, give what you think the shape is.

1. Copy and paste the bear age data from column A into StatKey. Look at all three graphs and adjusting the slider on the histogram. What is the shape of the data? How many bars did you use in the histogram in order to see the shape?
2. Copy and paste the bear head length data from column D into StatKey. Look at all three graphs and adjusting the slider on the histogram. What is the shape of the data? How many bars did you use in the histogram in order to see the shape?
3. Copy and paste the bear head width data from column E into StatKey. Look at all three graphs and adjusting the slider on the histogram. What is the shape of the data? How many bars did you use in the histogram in order to see the shape?
4. Copy and paste the bear neck circumference data from column F into StatKey. Look at all three graphs and adjusting the slider on the histogram. What is the shape of the data? How many bars did you use in the histogram in order to see the shape?
5. Copy and paste the bear overall length data from column G into StatKey. Look at all three graphs and adjusting the slider on the histogram. What is the shape of the data? How many bars did you use in the histogram in order to see the shape?
6. Copy and paste the bear chest circumference data from column H into StatKey. Look at all three graphs and adjusting the slider on the histogram. What is the shape of the data? How many bars did you use in the histogram in order to see the shape?
7. Copy and paste the bear weight data from column I into StatKey. Look at all three graphs and adjusting the slider on the histogram. What is the shape of the data? How many bars did you use in the histogram in order to see the shape?