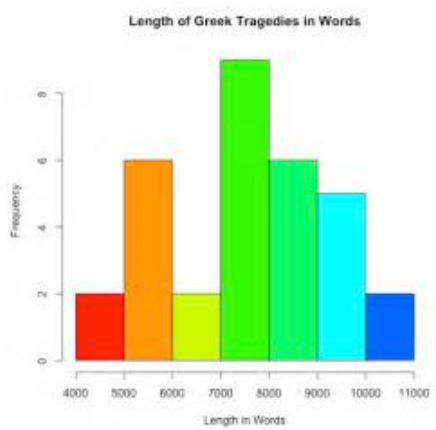
1. *Descriptive Statistics*

- Descriptive Statistics a way to organize data meaningfully; uses 3 measures of central tendency

  - *these numbers can organize large sets of data used to measure and describe characteristics of groups*

- Histogram simple visual representation of the frequency distribution



* its easy to design a graph that misrepresents data

** Always check the labels on the vertical scale (y-axis)

-Measures of Central Tendency

- Mean average of the distribution

- Median middle score in the distribution

- Mode most frequently occurring in distribution

How can these numbers be misrepresentative?

scores on the extreme end can skew the distribution, resulting in averages that don't reflect population

Measure of Variation

- Range the difference between the highest and lowest scores in a distribution

- Standard Deviation measure for how much scores deviate from one another; how much the score varies from the mean

- Normal Curve natural distribution of large sets of data; symmetrical bell shaped curve
  * seen so frequently it is called the normal curve

1. List the steps for calculating the standard deviation of a data set.

calculate mean of a set of scores
calculate the difference between each number and the mean
square the difference
add the squared numbers together
divide total by number of scores
find the square root of that number

2. Find the mean, median, mode, range and standard deviation of the the following data set (round to the nearest ten)

Data: 1. 3. 4. 15. 2. 11. 12. 9

1, 2, 3, 4, 9, 11, 12, 15

1, 2, 3, 4, 9, 11, 12, 15 MEAN: 10.5 MEDIAN: 6.5 MODE: none

Data Item	Difference	Difference ²
1	-9.5	90.25
2	-8.5	72.25
3	-7.5	56.25
4	-6.5	42.25
9	-1.5	2.25
11	0.5	0.25
12	1.5	2.25
15	4.5	20.25
		286

Mean of Squared Differences -

286 / 8 = 35.75

Standard Deviation - 5.979

square root of 35.75 = 5.979

2. *Inferential Statistics*

- Inferential Statistics numerical data that allows one to generalize; taking the results of there research and being able to assume it is probable of an entire population

- Three principles to keep in mind when generalizing from a sample to the larger population

  - Representative samples are better than bias samples

  - Less-variable observations are more reliable than those that are more variable

  - More cases are better than fewer

- Statistical Significance when sample averages are reliable, and the difference between them is relatively large, we say the difference has statistical significance

* means the observed differences are probably not due to chance

** to be statistically significant, data must fall within the 95% range

represented in decimal form .04 means that the data 96% not likely due to chance