# SUMMATIVE ASSESSMENT: Unit 1 One-Variable Statistics- Data Poster and Presentation Project

You may work in pairs or groups of 3. Find two related data sets that you can analyze, compare, and draw conclusions about. Below are some ideas on where to find data or survey questions for collecting data. Once you have selected your data sets, check with the teacher that they are appropriate before proceeding.

Data sets can be found on the following website:
http://lib.stat.cmu.edu/DASL/allsubjects.html

Possible survey questions:

a. How much time does it take to get ready in the morning (male vs. female)?
b. How many hours do you spend watching television (college students vs. high school students)?
c. What is the average length of a commercial on television (morning vs. evening)?
d. How many friends do you have on Facebook (male vs. female)?
e. How many tweets do you make a day (male vs. female)?
f. How much time do you spend on the computer/social media (teacher vs. student)
g. How much money do you spend on clothes and shoes each month (male vs. female)?
h. Create your own (with approval from your teacher!)

## Graphs and Calculations:

Create graphical displays of each set of data (box plot and histogram) using the same set of axes for easy comparison. Calculate and report the mean, standard deviation, five number summary, and IQR for each set of data. Identify any outliers using the 1.5IQR Rule.

An electronic tool for graphing and calculations can be found by clicking the "Data Analysis" link on the following website:
http://www.nctm.org/standards/content.aspx?id=32706

## Narrative:

Describe the data sets in context. Interpret measures of center and spread in context. Compare the two data sets, addressing differences in shape, center, spread, and outliers. The narrative should be typed.

### Questions to address in your narrative:

1. Describe how you collected your data and what question you wanted to answer.
2. Which graphical display best represents each data set? Explain.
3. Based on the context of the data, why does each data distribution take a particular shape? (Why is it skewed? or Why is symmetrical?)
4. How are the two data distributions alike? Do they have the same shape? How are they different? If they don't have the same shape, why?

5. Which data set has a higher (or lower) center? Are the centers approximately the same or is there a large difference? What does this mean in the context of the data?
6. Which data set is more spread out? Are the spreads approximately the same or is one data set more spread out? What does this mean in the context of the data?
7. Do either or both sets have outliers? If so, discuss them in context.
8. What conclusions did you make?

## Display

Arrange your graphs, tables of data and statistics, and the narrative in a neat and creative display on poster board. Attach the rubric to the back of the display.

## Rubric for Grading

| Item | Possible Points | Points Earned | Comments |
|---|---|---|---|
| **Graphs and Calculations** | | | |
| Both sets of data provided in table form | 5 | | |
| Box Plots (correct, labeled completely, use same scale) | 10 | | |
| Histograms (correct, labeled completely, use same scale) | 10 | | |
| Measures of center and spread calculated correctly | 5 | | |
| Outliers identified using 1.5 IQR Rule | 5 | | |
| **Quality of Narrative** | | | |
| Measures of center and spread interpreted correctly in context | 10 | | |
| Shape, center, spread and outliers addressed in context | 10 | | |
| Features of data sets compared; correct conclusions drawn and supported with evidence | 10 | | |
| Correct grammar and spelling | 5 | | |
| **Display** | | | |
| Neat, attractive, creative, rubric attached to the back | 10 | | |
| **Presentation** | | | |
| Professional appearance, correct usage of mathematical language, engages audience, all members of the group speak, 3-5 minutes | 20 | | |
| **TOTAL POINTS** | **100** | | |