Notes

1. Look at the data for weights of apples and onions. What do you notice? Write two observations.

organic apple weight (grams)				onion weights (grams)		
n=11				n = 11		
127				20		
130				139		
133				152		
133				153		
133				158		
137				169		
137				170		
140				177		
142				216		
144				221		
144				263		
Find each:						
2. Mean				Mean		
3. Median				Median		
4. Mode				Mode		
5. Range				Range		
6. Population Variance				Population Variance		
7. Population Standard Deviation				Population Standard Deviation		

Link to Answer key version of spreadsheet. Handwritten version.

8. Comment on the differences between the centers of the two data sets.

9. Do you see a difference in the variation in the two data sets?

The **range** of a set of data is the distance (difference) between the maximum and minimum values.

10. Find the range of each data set.

The **standard deviation** of a set of data is another way to measure the variation of the data values from the mean.

- standard deviation is always positive
- if all data values are the same, the standard deviation would be zero. This is the smallest possible value of the standard deviation. if there is a lot of variation the standard deviation will be larger.
- the units of the standard deviation are the same as the units of the original data (in this case, grams)
- if a set of data has outliers, this will increase the value of the standard deviation

Finding the standard deviation of a set of data:
- Find the mean of the data values
- Find the deviation of each value from the mean (subtract the mean from each data value)
- Square each deviation
- Add the squared deviations
- n is the number of data values.
  - If the data set is the whole population, then divide the total from the previous step by n.
  - If the data set is a sample from the population, then divide the total from the previous step by n-1.
- This value is the **variance**.
- Take the square root of the variance to get the standard deviation.

How to find standard deviation <u>in a spreadsheet</u> (by hand way and using =stdev.p command)

Quartiles & Box Plots will be covered in Math 243, Statistics. You do not need to study these topics for this class.