Creating Error Bars in Microsoft Excel 2010
## Chesapeake Bay Governor's School

Overview:

Error bars are a graphical representation of the variability of data and are used on graphs to indicate the error, or uncertainty in a reported measurement. Errors bars provide a visual representation of how far from the reported value the true value might be. Most commonly, error bars represent: one standard deviation of uncertainty, one standard error, or a certain confidence interval (e.g., a 95% interval). Since these quantities are not the same, the measure should be stated explicitly in the graph or supporting text.

Step-By-Step:

The easiest way to learn how to create the error bars is to follow an example. In the example below, we have been measuring the height of 10 plants over the course of six months. We want to graph their average heights with error bars. You will also need to calculate the mean and standard deviation using the =AVERAGE(:) and =STDEV.S(:) functions. The data and graph are shown below in the screen shot:
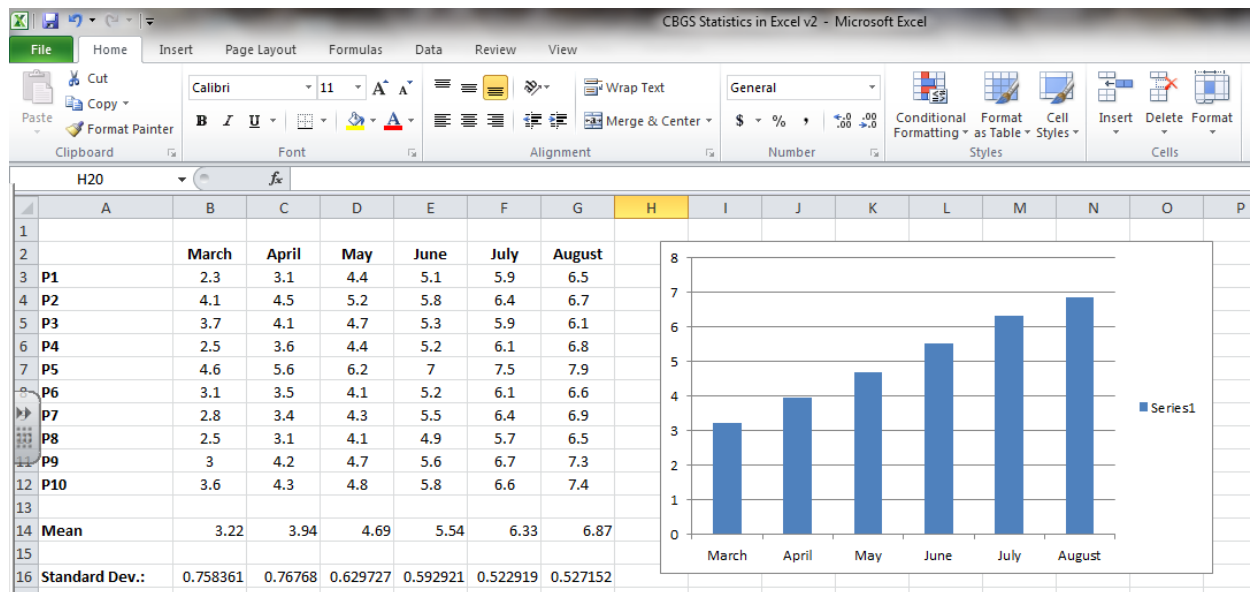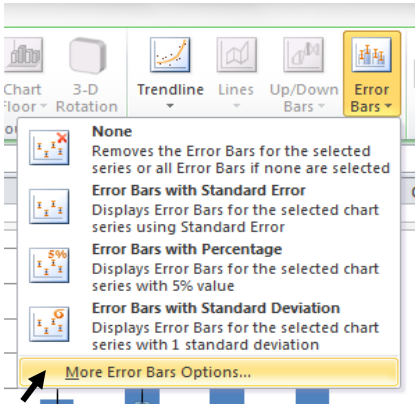

Notice that the bar graph is only graphing the mean heights of the plants for each month.

1.   Select your graph and at the top of the tabs, "Chart Tools" should appear, highlighting three options: "Design," "Layout," and "Format." Under the Layout tab choose the option in the Analysis region for "Error Bars."
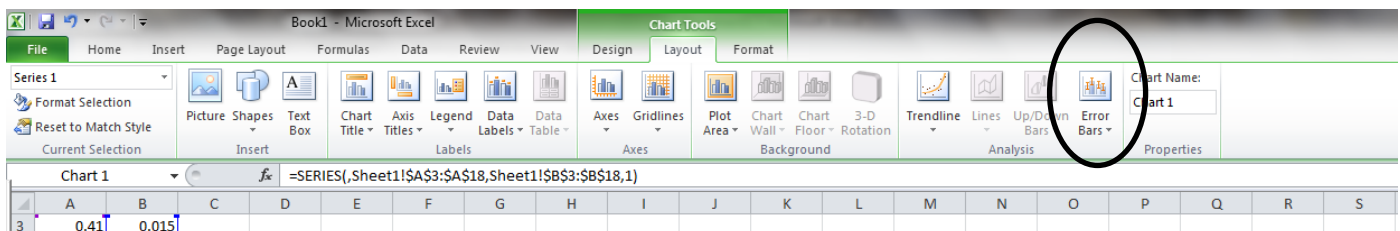
2. a. Under the "Error Bar" menu, choose the option "More Error Bars Options…"

b. Within the Format Error Bars menu, choose "Custom" and then "Specify Value."
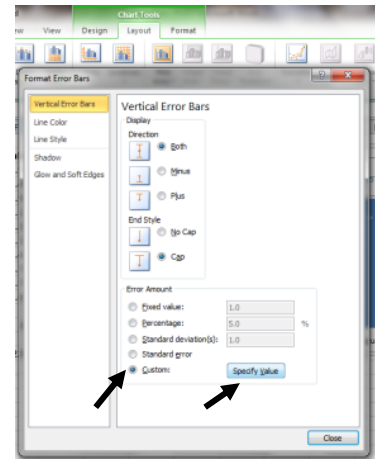
3. When the Custom Error Bars menu pops up, it will ask you for the "Positive Error Value" and the "Negative Error Value." These are the amounts we will add to and subtract from the mean to get our error bars. We want both of these values to **be** the standard deviation.

With the "Positive Error Value" entry highlighted, select the range of values representing the standard deviations for each mean, as shown below:
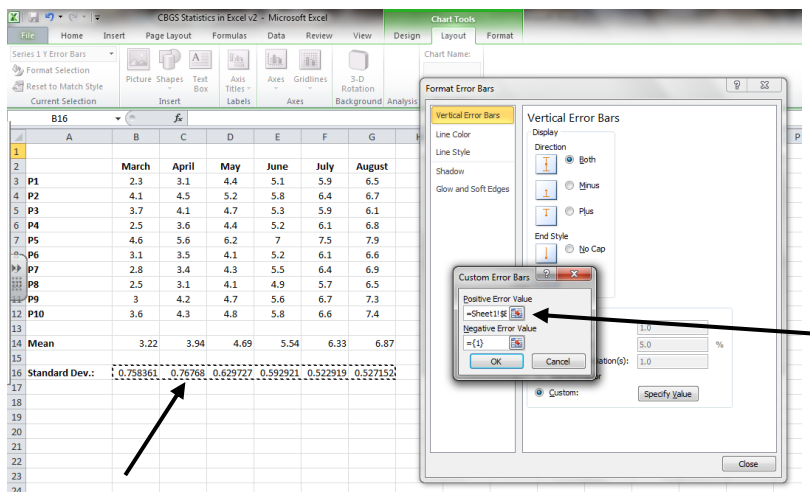
Then select the "Negative Error Value," again select the range of values representing the standard deviations for each mean, to insert them.

After clicking "OK" and "Close," you should be able to view your error bars: