Graphing with Excel
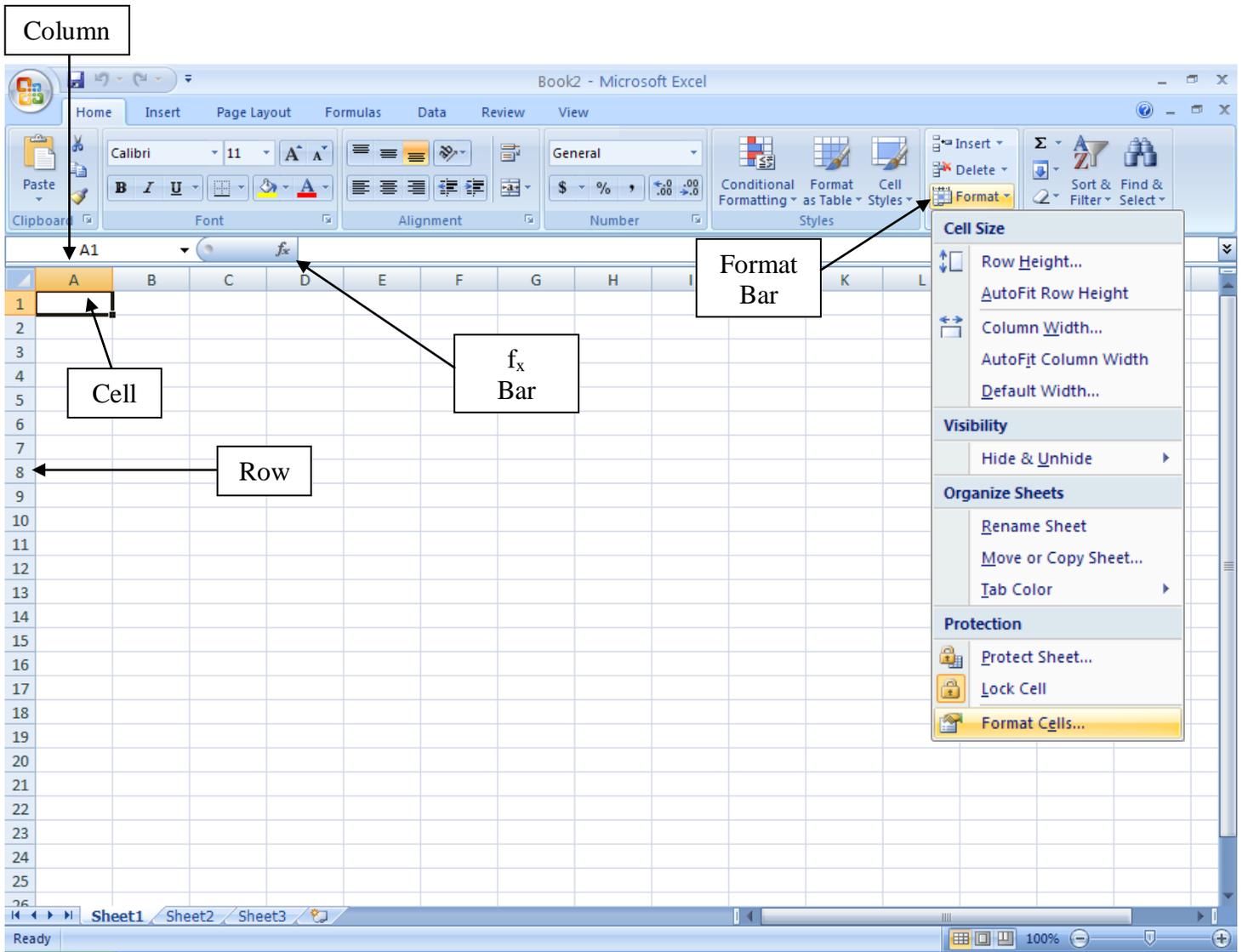
1. First thing you need to do is enter your data into the spreadsheet…

There are several tabs at the top of the spreadsheet…

- "Home"
- "Insert"
- "Page Layout"
- "Formulas"
- "Data"
- "Review"
- "View"

Each of these tabs opens a different "ribbon" along the top of the spreadsheet depending on the tab selected.

We will be using the "Home" and "Insert" tabs the most to enter data, format data, and graph data. When using formulas to calculate averages, standard deviations, p-values, etc., you can use the "Formula" tab or the f_x bar.

2. To merge cells, wrap text, align text, change format of text, select borders, etc., first highlight the cells you want to format then, click on the Format Bar (make sure you are on the "Home" tab). When you click on the Format Bar, a drop down menu will appear. Choose "Format Cells" at the bottom of the drop down menu. A pop up box appears. Choose the appropriate tab depending on what you want to do.
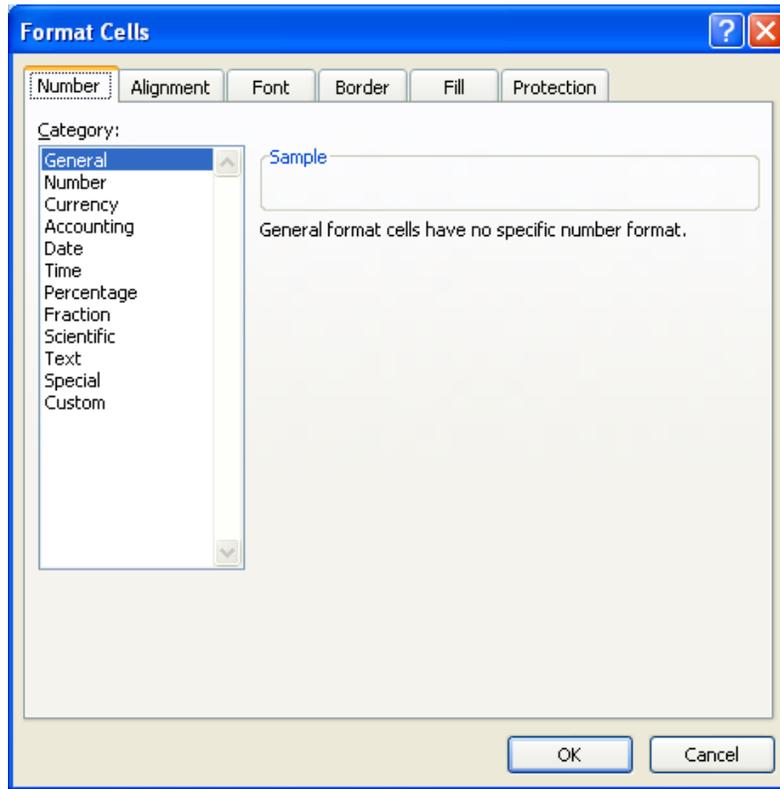

3. To have Excel calculate certain formulas, such as averages, standard deviations, p-values, etc... Click on the cell you want the number to go in and then click on the f_x bar. A pop up box will appear asking you what you want to calculate. Highlight the formula you want to use and click ok.
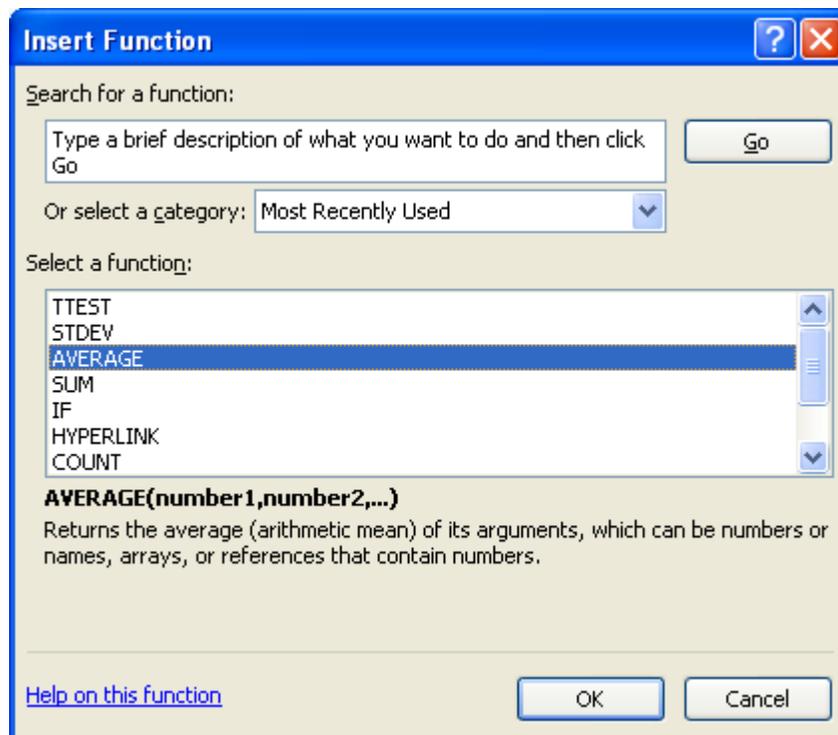
4. Another pop up box appears asking you to enter the cells containing the numbers you want it to use in the calculation you chose. You can enter them manually or click and highlight the numbers on the spreadsheet itself and it will automatically enter it for you. Click ok and the number will appear in the cell you selected previously. In the example below, the average is being calculated for the numbers that are in cells B2 to B6.
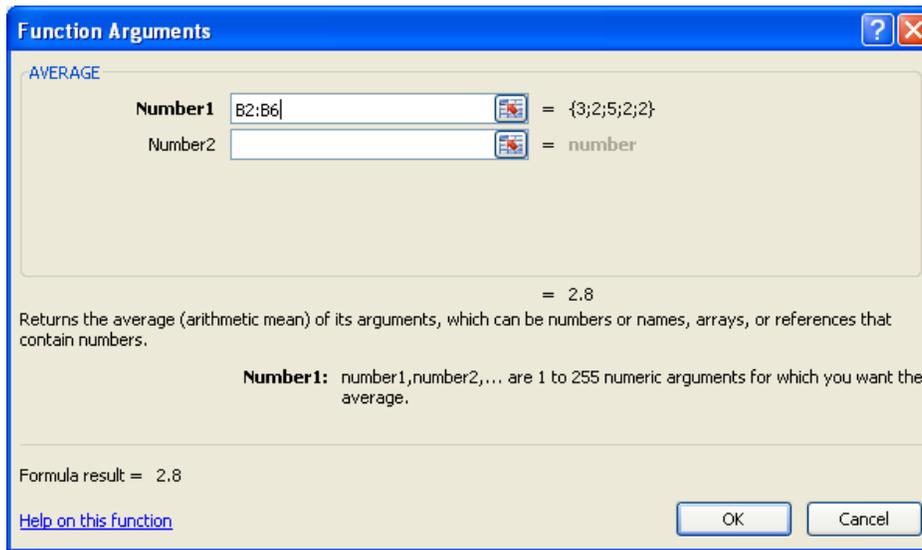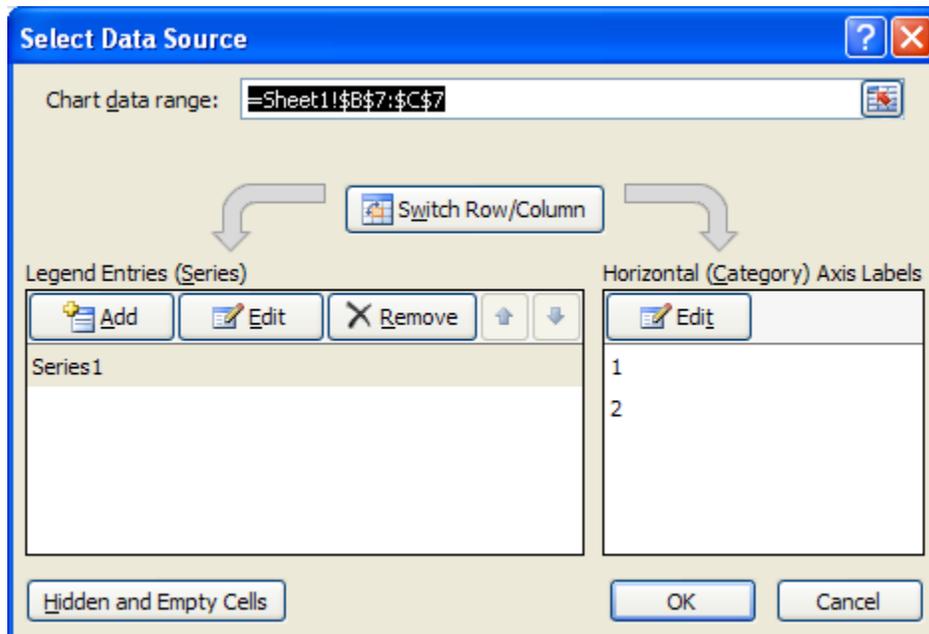

5. To make a graph of your data, make sure that you are on the "Insert" tab and that the data you want to graph is selected. Click on the graph of your choice. The type of graph you want depends on the nature of the data you are collecting. Use a line graph for data recorded over a period of time. Use a column graph when comparing data.
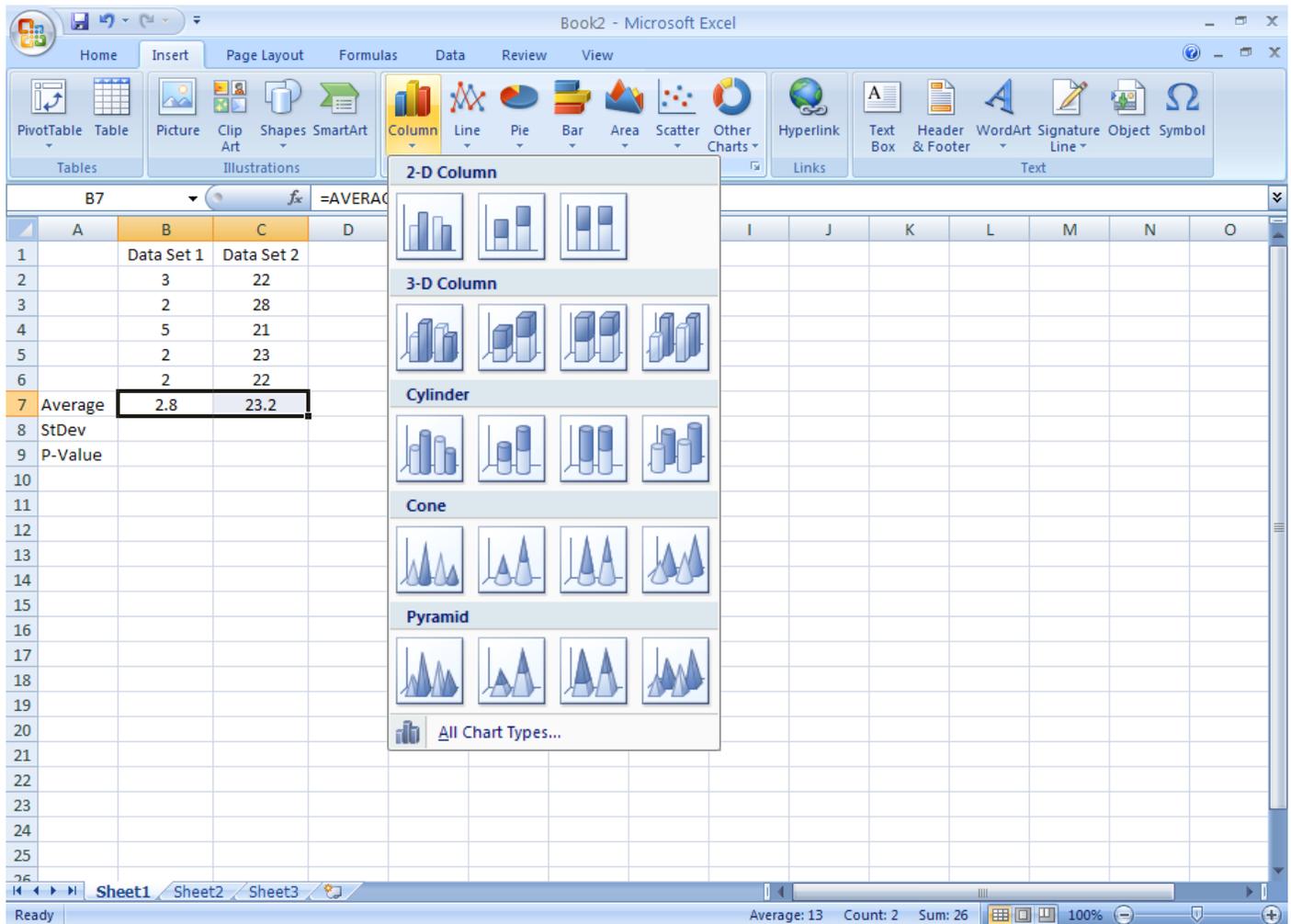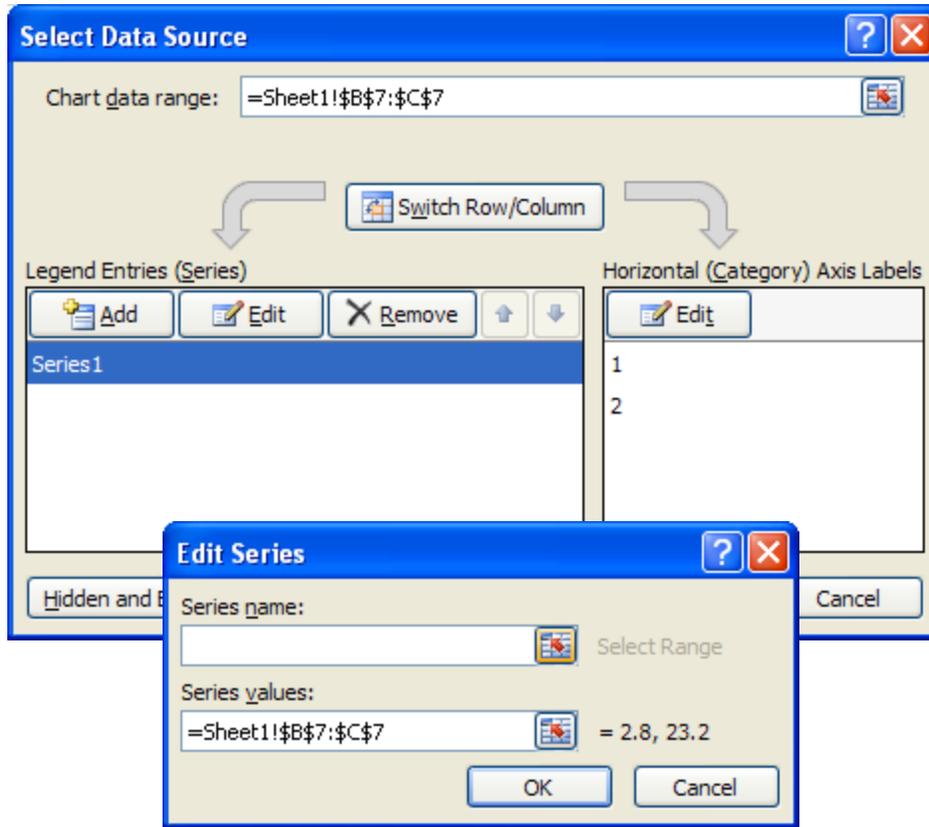
6. In the example below, the graph is a column graph and it is comparing the averages from data set 1 and data set 2.
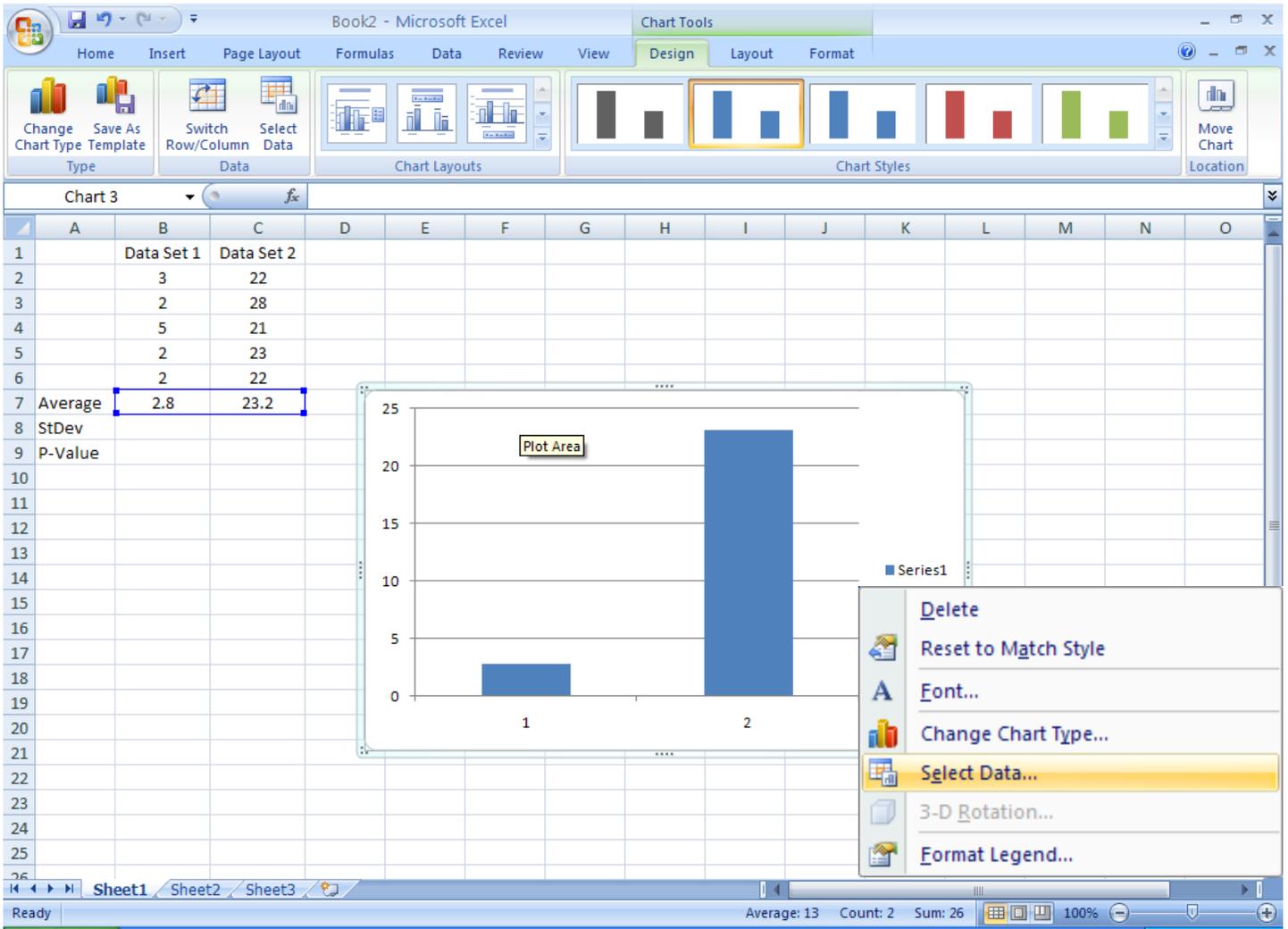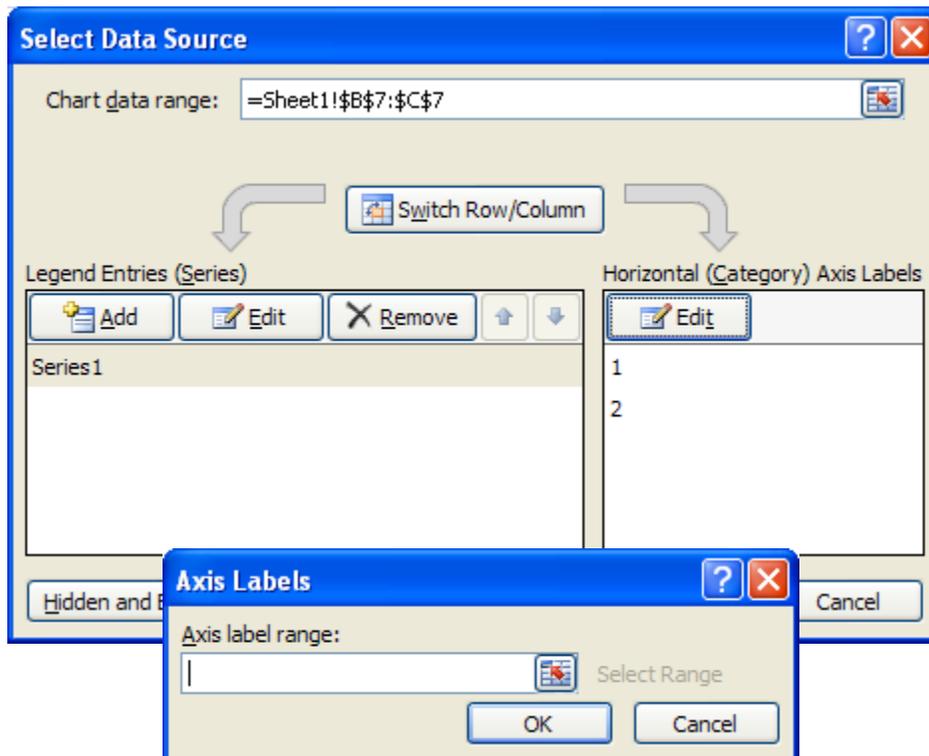

7. To edit the graph, left click on the "Series1" area and a pop up box will appear. Click on "Select Data" and another pop up box appears.

8. Click on "Series1" to highlight it and click on the "Edit" button. Now you can change the name.

Select Data Source

Chart data range: =Sheet1!$B$7:$C$7

Switch Row/Column

Legend Entries (Series)

Add | Edit | Remove

Series1

Horizontal (Category) Axis Labels

Edit

1
2

Hidden and E...

Edit Series

Series name:

Select Range

Series values:

=Sheet1!$B$7:$C$7 | = 2.8, 23.2

OK | Cancel

Cancel

9. To edit the x-axis labels instead of just having a "1" and a "2" under the bars, click on the "Edit" button under "Horizontal (Category) Axis Labels" on the right. You can enter the label for the first bar, then enter a comma and enter the label for the second bar…then click on ok.

Select Data Source

Chart data range: =Sheet1!$B$7:$C$7

Switch Row/Column

Legend Entries (Series)

Add | Edit | Remove

Series1

Horizontal (Category) Axis Labels

Edit

1
2

Hidden and E...

Axis Labels

Axis label range:

Select Range

OK | Cancel

Cancel

10. To edit the chart title, legend, and x-axis or y-axis labels, make sure the chart is selected and click on the Layout tab. From there chose the drop down menu for Chart Title, Axis Labels, Legend, Data Labels, or Data Table, depending on what you want to edit. Your graph should look something like this so far…
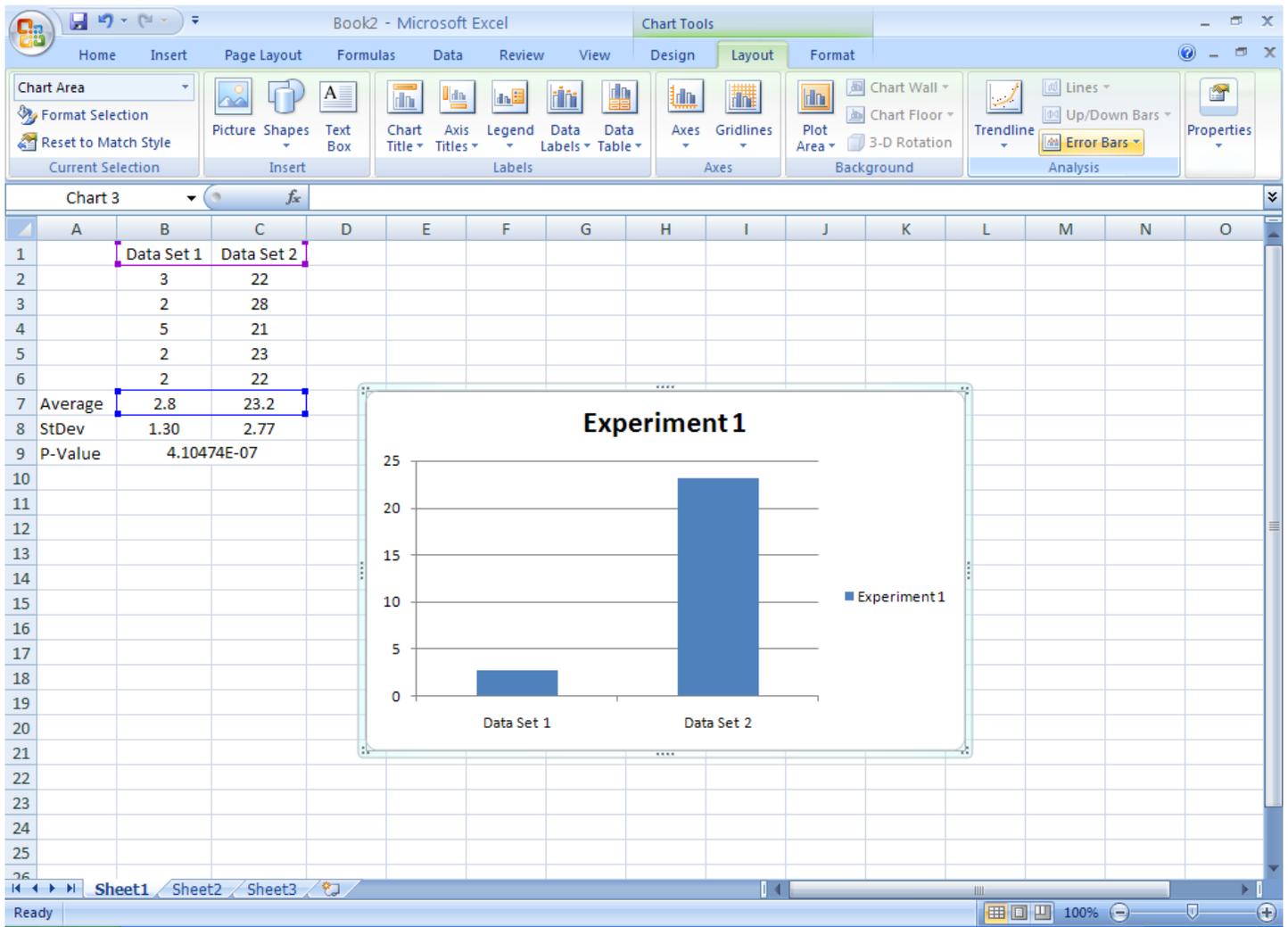
Statistics:

11. To calculate the standard deviation of your data, click on the cell you want the number to go in and then click on the f_x bar. A pop up box will appear asking you what you want to calculate. Select "STDEV" and click ok. The following pop up box will appear. Enter the cells that contain the data you want to calculate the standard deviation for and click ok. The standard deviation will appear in the cell you selected.
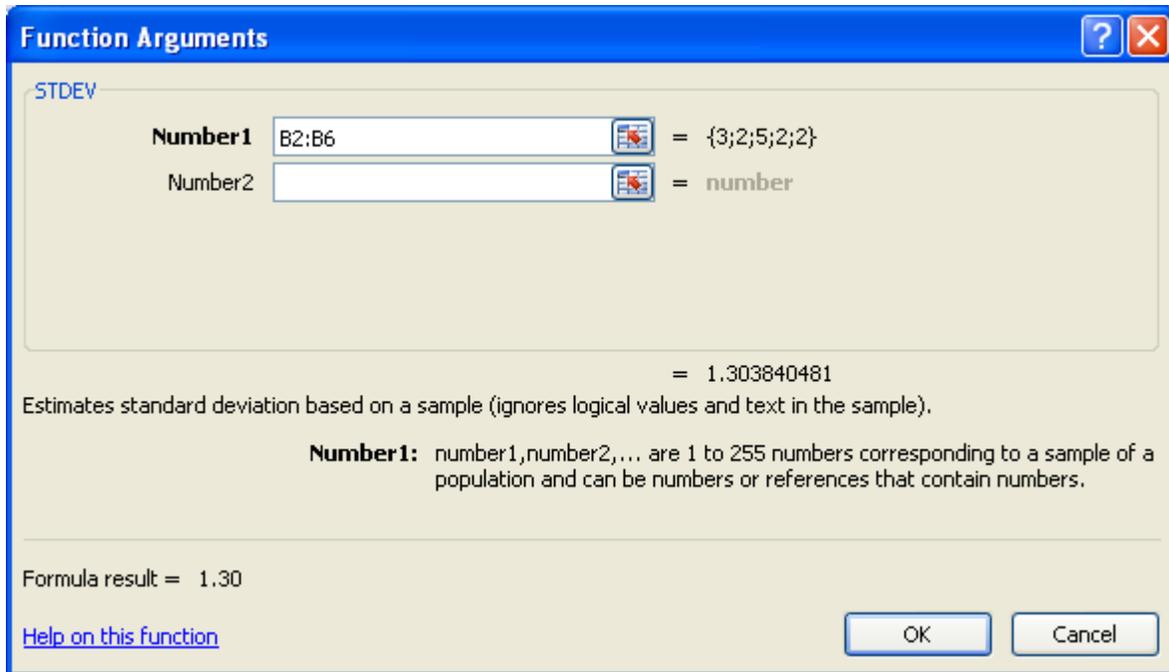
12. To calculate the p-value, click on the cell you want the number to go in and then click on the f_x bar. A pop up box will appear asking you what you want to calculate. Select "TTEST" and click ok. The following pop up box will appear. For array 1, select the cells from data set 1. For array 2, select the cells from data set 2. Enter a "2" for Tails and Type then, click ok. The p-value will appear in the cell you selected. Remember that the p-value must be less than 0.05 for the data you are comparing to be statistically significantly different.
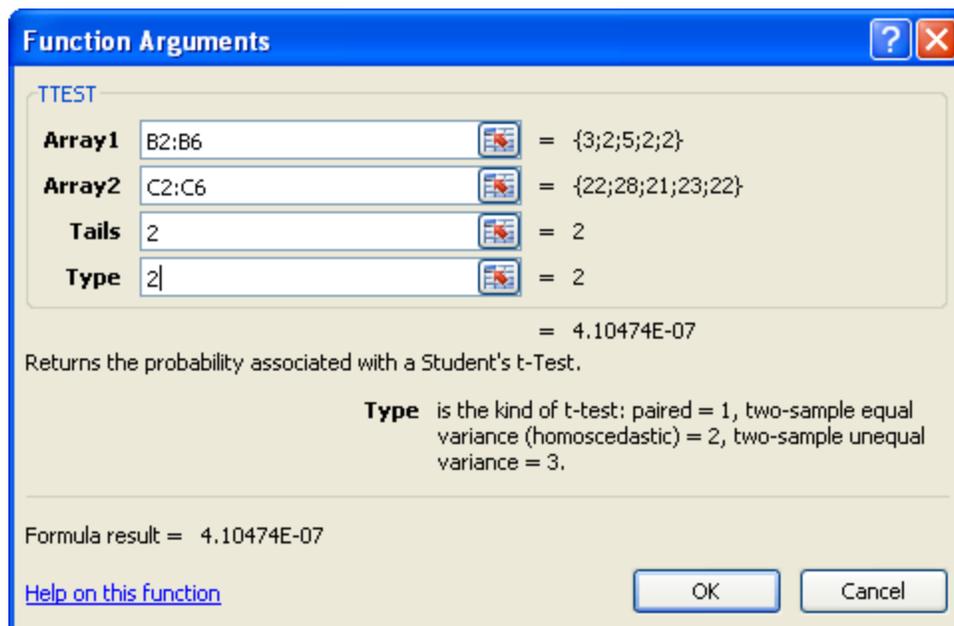
13. To add error bars to your graph, select the graph, click on the "Layout Tab" and then click on the "Error Bars" tab. Select "More Error Bars Options…" at the bottom of the menu. A pop up box will appear to format the error bars. Click on "Custom" at the bottom of the pop up box and then click on the "Specify Value" button to the right.
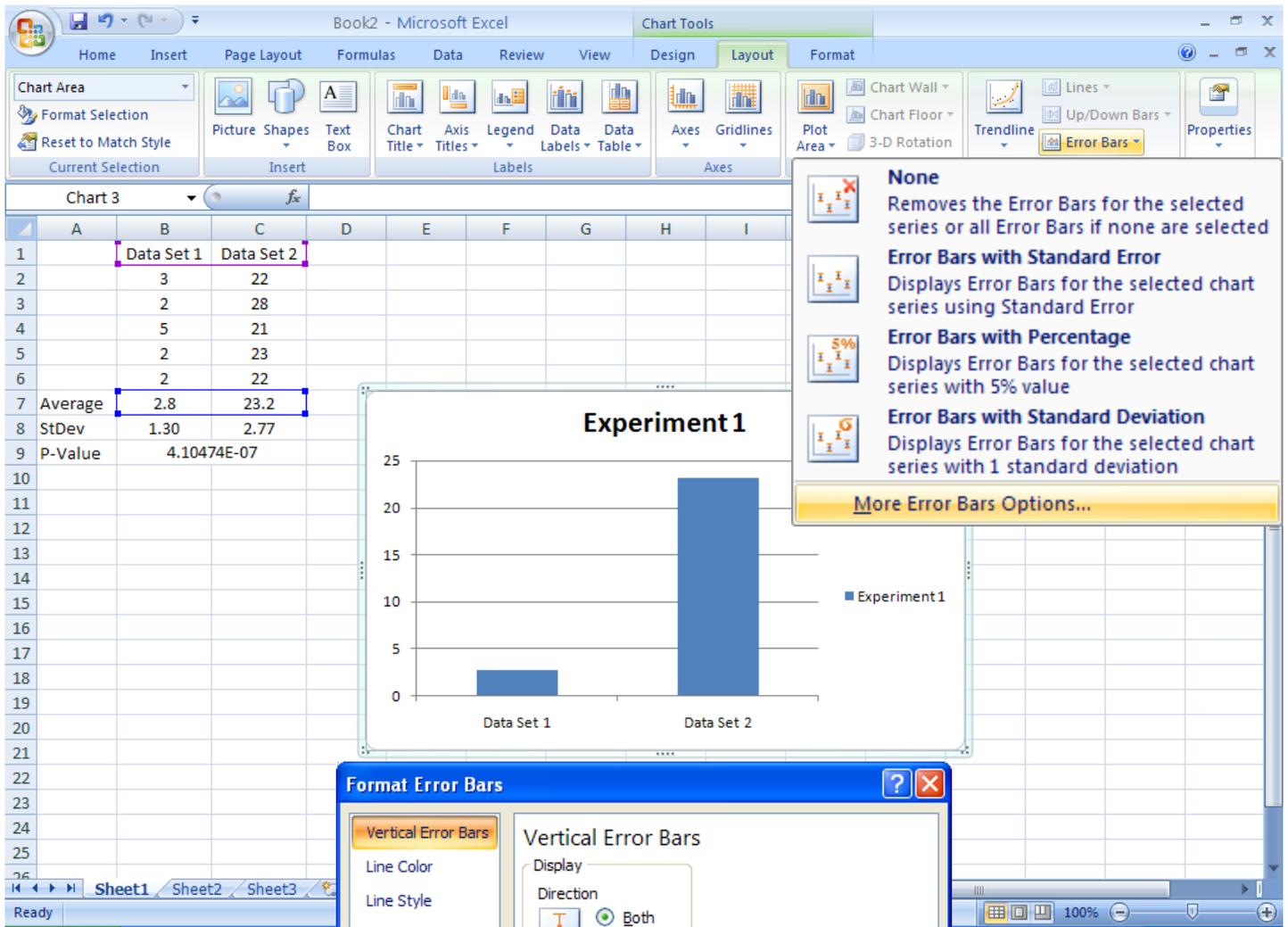
14. Another pop up box appears asking you to enter positive and negative error values. Enter the standard deviation for data set 1 followed by a comma and then the standard deviation for data set 1. Do this for both the positive and negative error values. Click ok. Close the Format Error Bars pop up box.
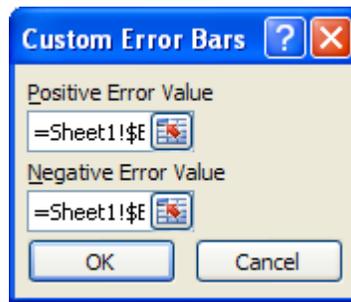
15. The error bars should now appear on each column of your graph…