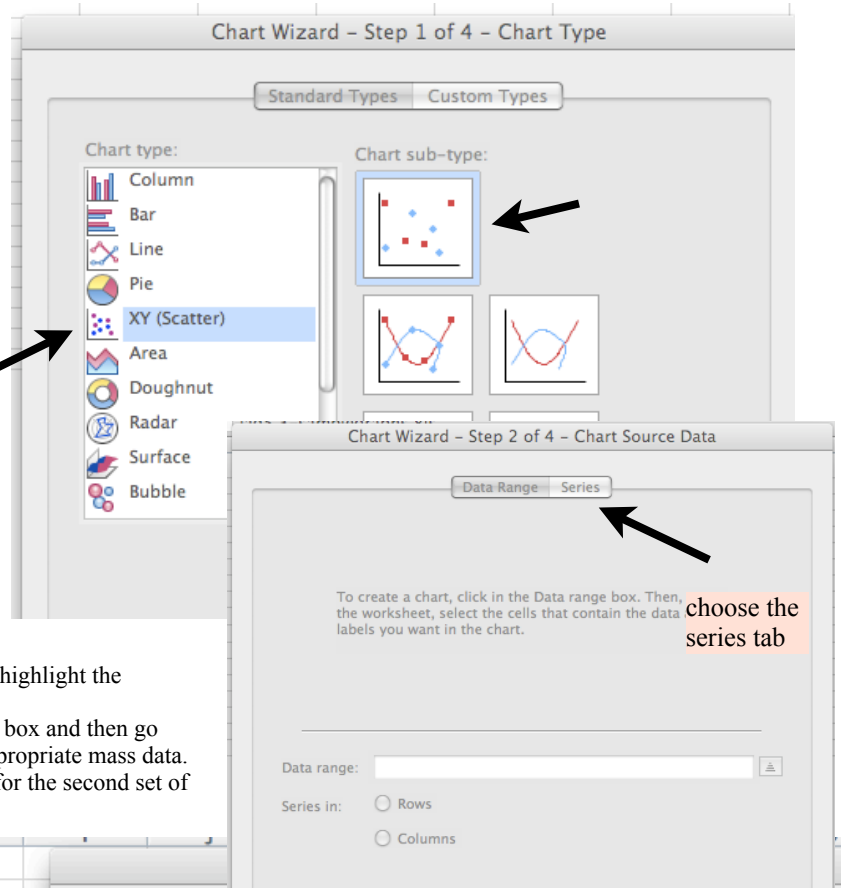


Graphing with Excel – Help Sheet

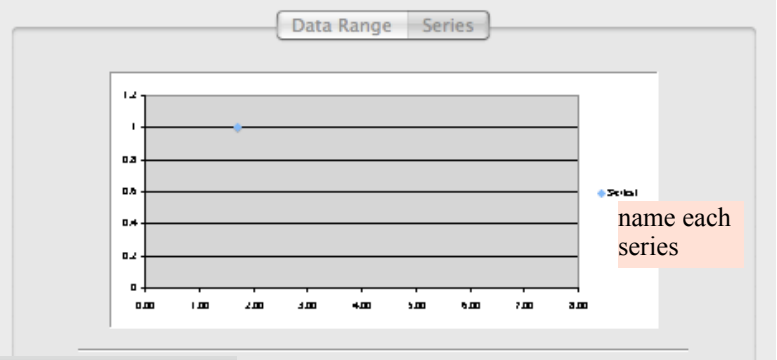
First let me say that there is no substitute for the help option at the top right of your excel drop-down menus. That being said, let me try to help you get started. Since there are many versions of excel, I have chosen to teach using the menus. You can often get most of what I discuss below using toolbars, buttons and icons, but not all versions have the same toolbars, but the menus have not changed so much.

1. Open an excel sheet and do an immediate save as: so that while you are working you can periodically save and if things go bad, you can always recover what you last saved.
2. Type your data into the sheet in columns and rows. Be sure and label as mass and volume and which material is which.
 - a) don't forget to put in (0,0) points
 - b) don't forget to put in water data.
3. After all the data is on the sheet, go to the insert menu and choose insert chart.
4. Be sure and choose XY scatter and the points (not lines) option.
5. Continue with the next button and this is where you add your 3 different sets of data to your graph. Choose the series tab at the top.
 - a) Give the series the name of the material.
 - b) Place your cursor in the X value and then point your cursor to your volume data. Click and drag to highlight the desired column of points.
 - c) Delete what has automatically been placed in the Y box and then go over to your data in the excel sheet and grab the appropriate mass data.
 - d) Repeat the procedure after clicking the add button for the second set of data, and then again for the third set.



LAD 5.3 Sample Data					
Rubber Tube		Glass Rods		water	
Mass(g)	Vol(ml)	Mass(g)	Vol(ml)	Mass(g)	Vol(ml)
1.63	1.71	1.85	0.65	1.00	1.00
2.51	2.89	2.78	1.21	3.00	3.00
3.27	3.48	3.56	1.31	4.00	4.00
4.59	4.51	5.89	2.292	5.00	5.00
6.54	7.00	7.99	3.196	6.00	6.00
0	0.00	0	0	0.00	0.00

Aluminum		Iron		water	
Mass(g)	Vol(ml)	Mass(g)	Vol(ml)	Mass(g)	Vol(ml)
3.67	1.14	14.68	1.87	1.00	1.00
8.23	3.05	23.76	3.49	3.00	3.00
16.46	5.01	31.63	4.02	4.00	4.00
26.50	9.81	44.98	5.00	5.00	5.00
34.73	13.67	53.75	6.83	6.00	6.00
0	0.00	0	0	0.00	0.00



Name:

X values:

Y values:

If you look carefully and you will notice that between all the symbols, you can see the X values range from B4 to B9 which corresponds to the cells on the spreadsheet (as labeled along the top and side) that correspond to whatever data you chose.

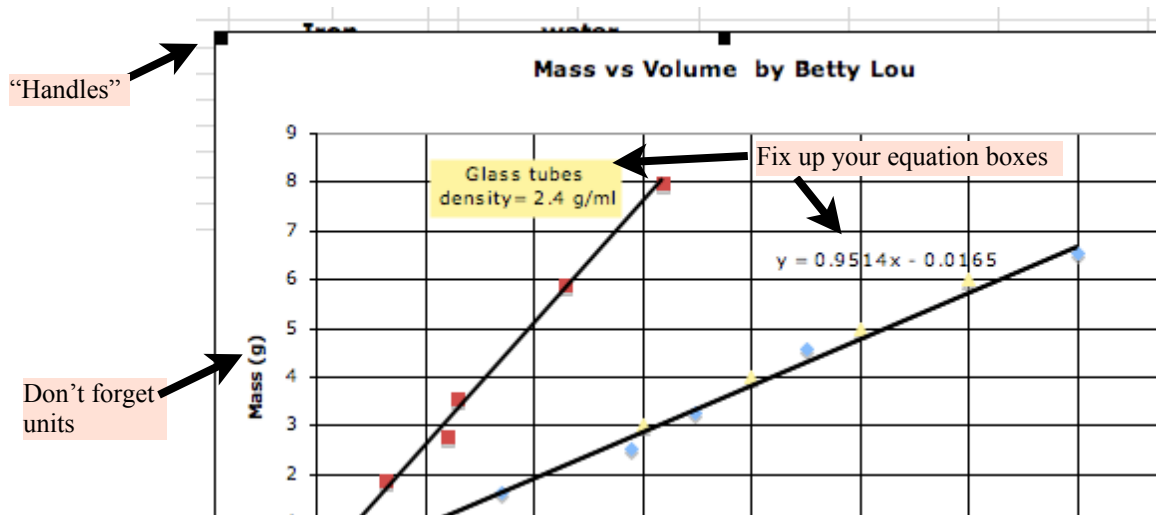
6. After you have your data on your graph, you are ready to make trend lines. (If you forgot to add data, when your graph is highlighted - the “handles” at the corners are showing, you can go up to the chart menu and choose source data - this will get you back to the series list.)
 - a. Click on any one point in one set of data and all the points in that set will “highlight.” From the chart menu at the top, you can choose add a trend line.
 - b. When the dialog box pops up click the options tab and then click the display equation option.
 - c. If you already have trend lines and forgot to display the equation, you can double click a trend line and you will get a dialog box with the options tab choice. If colors are your thing, there is also a tab that will allow you to change colors.

Glass Rods		water	
Mass(g)	Vol(ml)	Mass(g)	Vol(ml)
1.85	0.65	1.00	
2.78	1.21	3.00	
3.56	1.31	4.00	
5.89	2.292	5.00	
7.99	3.196	6.00	
0	0	0.00	

highlighted data set

display equation

7. Now you are ready to tidy thing up. One way to do this is to delete the legend and instead use your equation text box to label the line.
 - a) Realize that you can double click in any text box and type what you like. So you should type the name of the material, and eliminate the y and x and the intercept. Just leave the slope and label it as density, and don't forget units.
 - b) Consider filling the box, with color (perhaps match you points) or at least with white fill so that it will block out the gridlines.
 - c) Save on your ink, by double clicking in the gray area and choose “no fill”



Graphing with Excel – Help Sheet

- 8. You may find that your axis automatically formats into negative values, and it would be best to keep the origin of this graph at (0,0)
 - 1. You can fix this by double clicking on the axis.
 - 2. The dialog box that pops up will have a scale tab. Choose it and set the minimum to 0 instead of the negative value.
- 9. Most importantly, KEEP SAVING AS YOU GO, and don't be afraid to experiment with options. You'd be amazed what you can do when you point and double click!
- 10. Have fun, learn lots.

