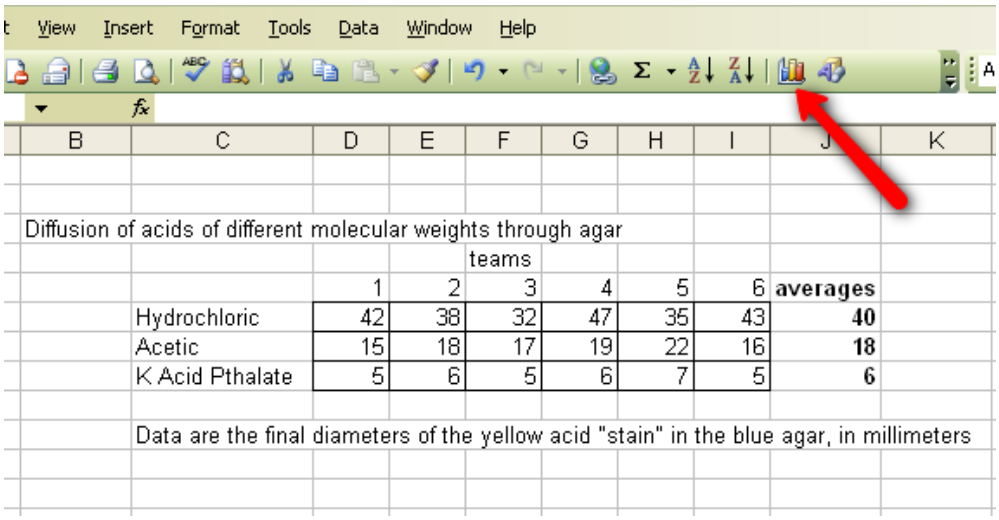
The Basics of Graphing in Excel

For this tutorial I'm borrowing from a Bi 102 lab. Apply this to the data you've just gathered in Bi 213. I'm using Excel for Windows XP. Each version of Excel, even within the same platform, will look different, so the buttons and commands may look different on your home computer. Sorry.

Students have just finished a lab where each table had three petri dishes containing agar stained with bromothymol blue. They cut a small well in the middle of each dish and filled the well with a drop of acid, using a different acid in each dish. They were to discover that the acid with the smallest molecular size diffused the fastest while the acid with the largest molecular sized diffused much more slowly.

The data are independent of one another, suggesting that a bar graph is appropriate.

Here is an Excel spreadsheet with the class data and the averages. The button for the graphing tool (or "charting" as Microsoft calls it) is in the button bar. If it's not in your version, you can add it.



	B	C	D	E	F	G	H	I	J	K
	Diffusion of acids of different molecular weights through agar									
					teams					
			1	2	3	4	5	6	**averages**	
		Hydrochloric	42	38	32	47	35	43	**40**	
		Acetic	15	18	17	19	22	16	**18**	
		K Acid Pthalate	5	6	5	6	7	5	**6**	
		Data are the final diameters of the yellow acid "stain" in the blue agar, in millimeters								

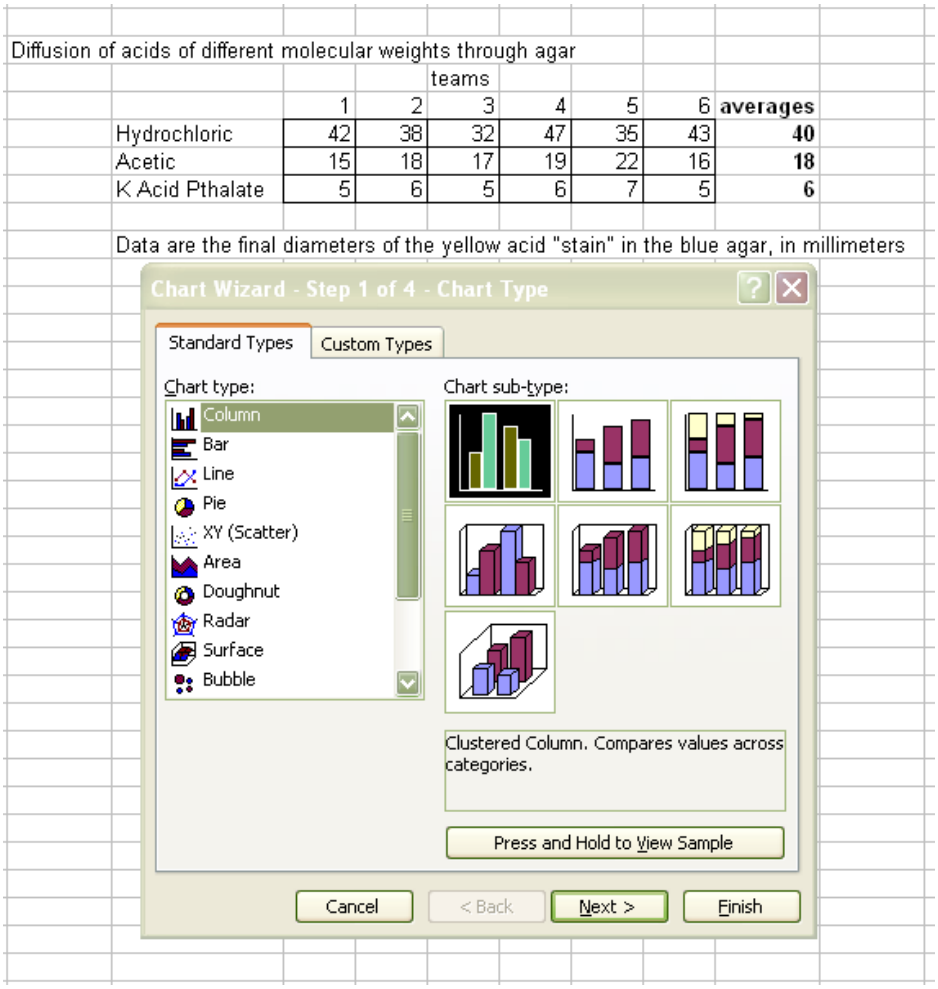
I want the averages for each of the three acids. I also want the bars of my bar graph to be labeled with the labels in the column on the left side of the graph. Before clicking the graphing button, then, I highlight the columns of data that I want to use in my graph. I can do this by highlighting the data column, then, holding down the Control (Ctrl) key, highlighting the column with the labels in it:

Diffusion of acids of different molecular weights through agar

	teams						
	1	2	3	4	5	6	averages
Hydrochloric	42	38	32	47	35	43	40
Acetic	15	18	17	19	22	16	18
K Acid Pthalate	5	6	5	6	7	5	6

Data are the final diameters of the yellow acid "stain" in the blue agar, in millimeters

When I click on the graphing tool, I get a choice of graph types. For this graph, I want a simple bar graph. If I'm not sure, I can click on the "Press and Hold to View Sample" button to see if that graph will give me what I want.



I've selected the simple bar graph. After I click "Next," I get a preview window:

Diffusion of acids of different molecular weights through agar

	teams						
	1	2	3	4	5	6	averages
Hydrochloric	42	38	32	47	35	43	**40**
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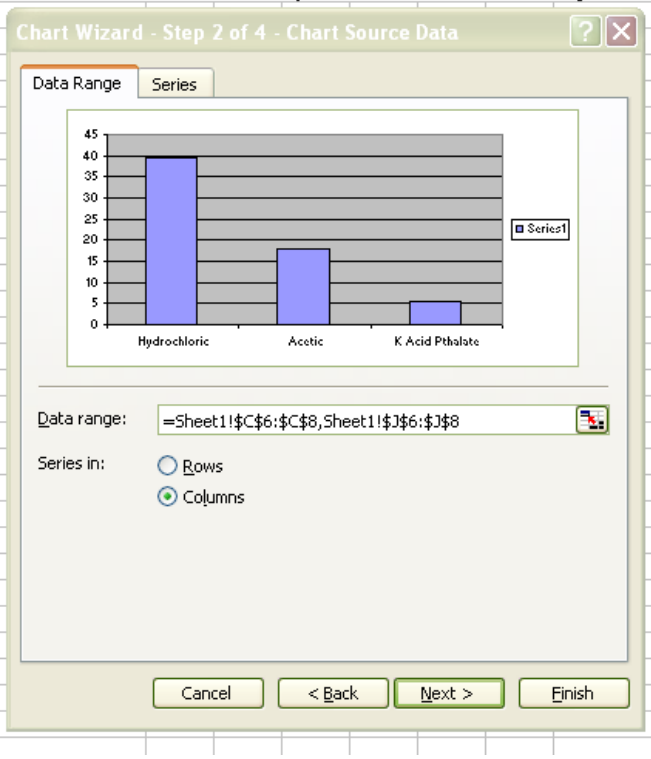
Data are the final diameters of the yellow acid "stain" in the blue agar, in millimeters



The graph looks okay except for that little box labeled “Series” on the right. No problem, I can get rid of that in a moment.

I click the “Next” button and get a window where I can label the axes. I give the graph a title and type in appropriate labels for the X and Y axes. Notice there are also tabs to edit the axes, change the gridlines, and perform other editing functions to tweak the graph if it needs it.

Diffusion of acids of different molecular weights through agar

	teams						
	1	2	3	4	5	6	averages
Hydrochloric	42	38	32	47	35	43	**40**
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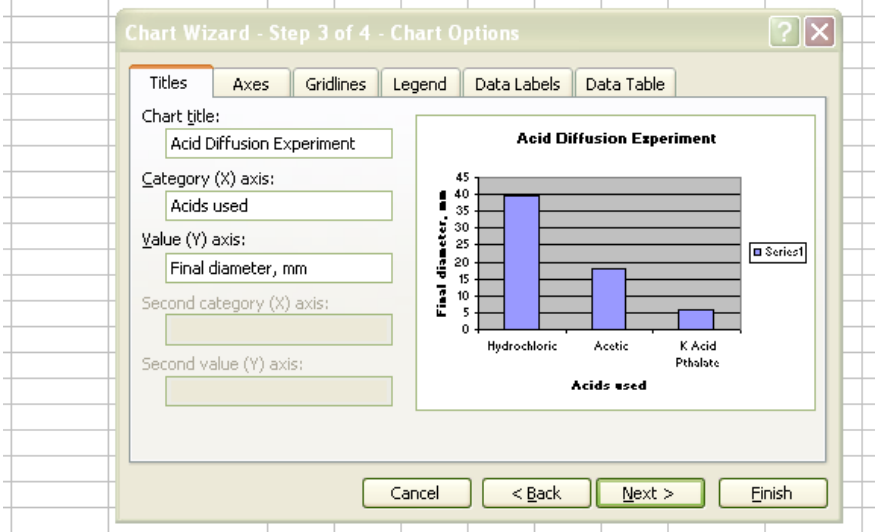

Right now it's looking good, except for the "Series" box that is still there. Let's get rid of that. It helps if I know it's called a "Legend." I click on the "Legend" tab and I get this:

Diffusion of acids of different molecular weights through agar

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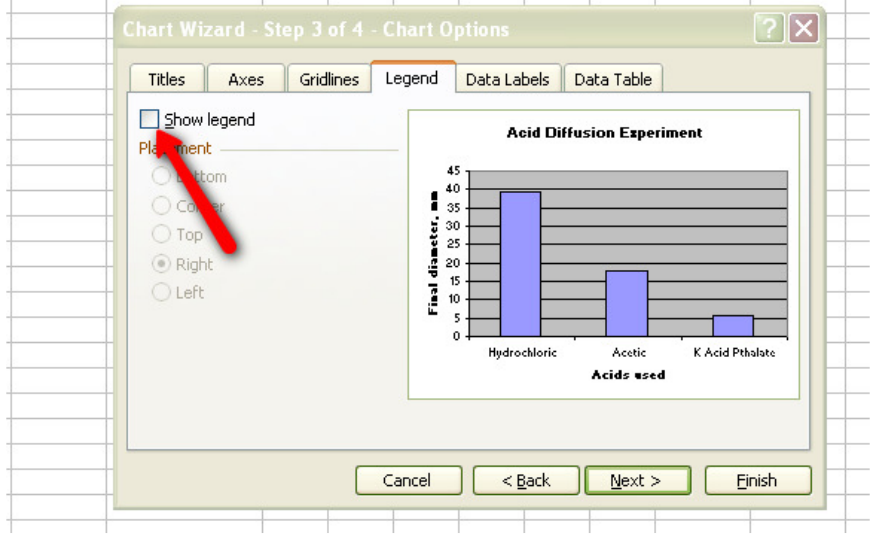
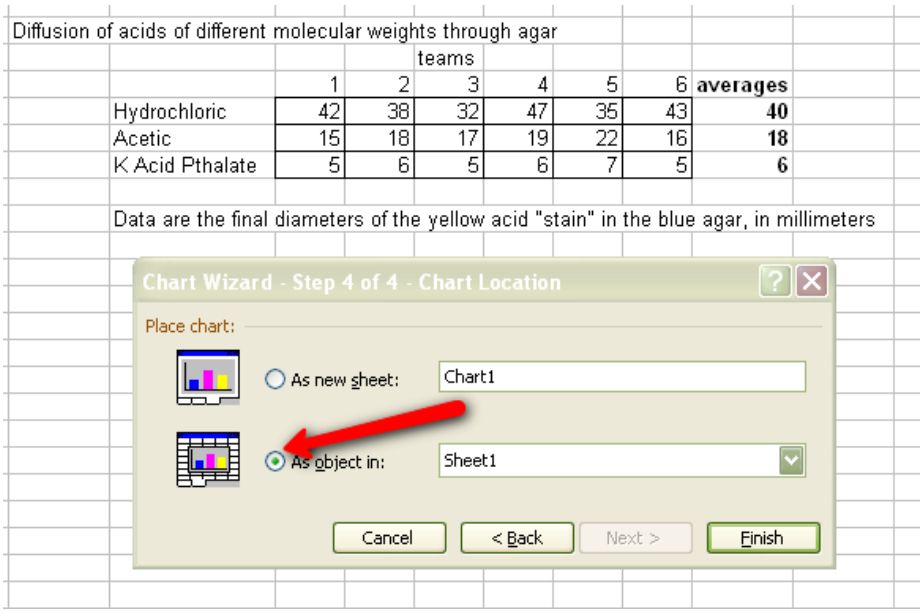
Acetic	15	18	17	19	22	16	**18**
K Acid Pthalate	5	6	5	6	7	5	**6**

Data are the final diameters of the yellow acid "stain" in the blue agar, in millimeters



Un-clicking the “Show Legend” box removes the legend. There, that looks better. I’m done with editing, so I click the “Next” button.

I can save the graph as a new sheet in my Excel workbook or as an object within the same sheet. I’ll choose to save it as an object that I can copy and paste into my final report:



And here is the completed graph, ready to go: