

## Step-by-step guide to making a simple graph in Excel 2007

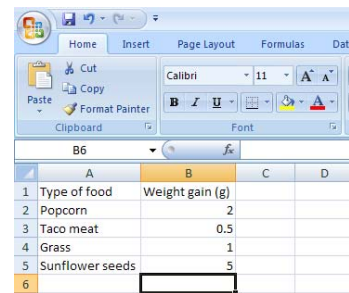
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The following tutorial includes bare-bones instructions for using Microsoft Excel 2007 to make two types of simple graphs: column/bar graphs and line (XY) graphs.

### A. Column/Bar Graphs

Column or bar graphs are for data collected in an experiment in which the independent variable (the one that goes on the X-axis) is qualitative (categorical), not quantitative (numerical). As an example, perhaps you designed an experiment to determine which type of food produces the most weight gain in your parakeet.

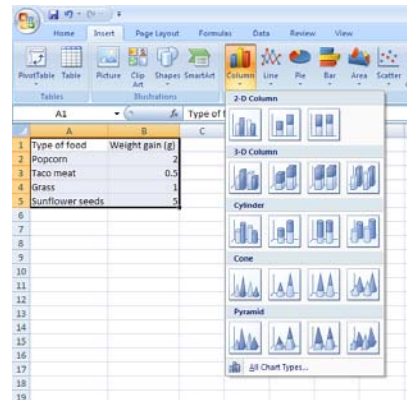
**Step 1:** Enter the data in the cells of an Excel spreadsheet, like this:



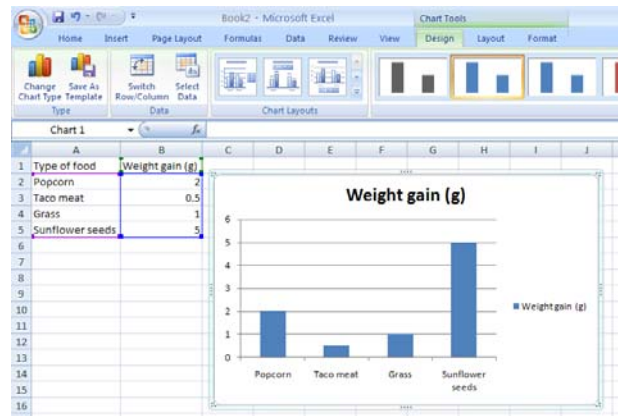
A screenshot of the Microsoft Excel 2007 interface. The 'Home' tab is selected. The spreadsheet shows a table with the following data:

	A	B	C	D
1	Type of food	Weight gain (g)		
2	Popcorn	2		
3	Taco meat	0.5		
4	Grass	1		
5	Sunflower seeds	5		
6				

**Step 2:** Click the Insert tab. Use the mouse to highlight the block of cells containing your data, then click the button corresponding to the type of chart you want to create (in this case, a Column graph).

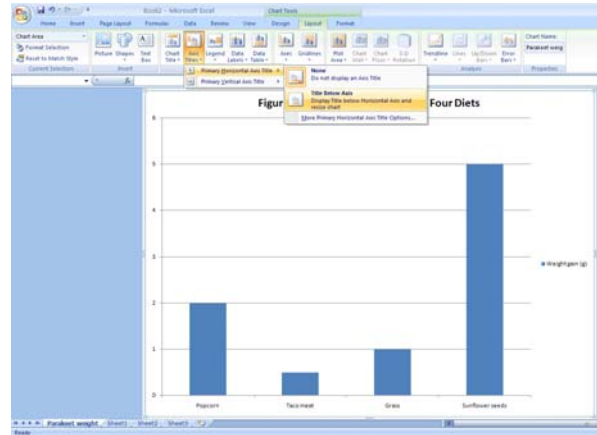


**Step 3:** When you click on the chart type you want, Excel automatically makes a draft of the chart for you and pastes it into the worksheet, like this:

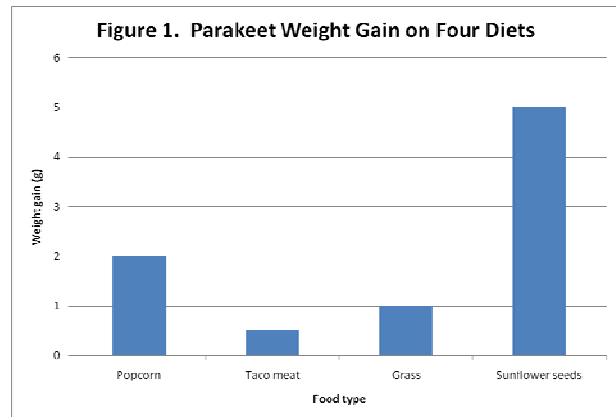


**Step 4:** This is looking pretty good, but you're not done because there aren't any axis labels or units, and the title is kind of lame. So the next step is to click on the chart and look at the chart tools with tabs labeled "Design," "Layout," and "Format."

- The most useful thing under the “Design” tab is the “Move Chart” option on the far right. This lets you place the chart to a new sheet, which makes it look a little tidier.
- Clicking the “Layout” tab gets you a bunch of choices. You can change the chart title just by clicking on it, but you’ll need to do a little more work to get the axis titles. For the X-axis, click “Axis Titles” and then “Primary Horizontal Axis” and then “Title Below Axis.” You’ll get a little box called “Axis Title” that you can edit just like you did for the chart title. Do the same thing for the “Primary Vertical Axis;” don’t forget to add the units.



**Step 5:** In this case, we don’t need that legend on the right, so you can go to the Legend tab and delete the default legend. So here’s what the final graph looks like (of course, you can fool around all you want with the fonts, text sizes, bar colors, gridlines, background color, and so forth, but I left it pretty basic).



## B. Line (or XY) Graphs

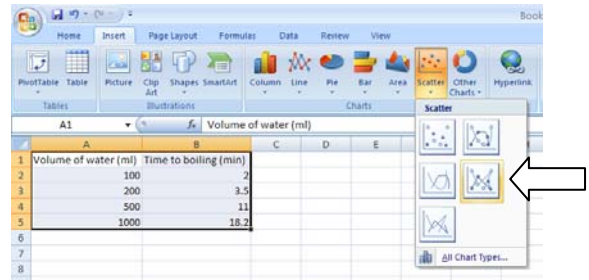
Line (or XY) graphs are for data collected in an experiment in which the independent variable (the one that goes on the X-axis) is quantitative (numerical). As an example, perhaps you designed an experiment to determine how long it takes to boil various volumes of water.

**Step 1:** Enter the data in the cells of an Excel spreadsheet, like this:

	A	B	C
1	Volume of water (ml)	Time to boiling (min)	
2	100	2	
3	200	3.5	
4	500	11	
5	1000	18.2	
6			

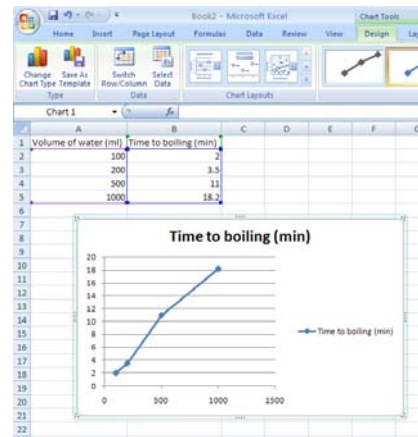
**Step 2:** Click the Insert tab. Use the mouse to highlight the block of cells containing your data, then click the button corresponding to the type of chart you want to create.

**I know you're tempted by the Line graph option, but don't let it seduce you; choose the Scatter chart, the one with dots and jagged (not smooth) lines.**



**\*\*Pay attention!\*\*** If you accidentally choose the Line graph, Excel will NOT consider the relative values of the numbers on your X axis! In our example, the X-axis values are 100, 200, 500, and 1000. If you choose Line, you will get those numbers equally spaced. If you pick Scatter, as you should, Excel will create a graph in which 1000 is ten times as far away from 0 as 100 is. If you don't believe me, try both graph types with the data I have given you, and look at the difference.

**Step 3:** When you click on the chart type you want, Excel automatically makes a draft of the chart for you and pastes it into the worksheet (see example at right).



**Step 4:** You're still not done, though, because there aren't any axis labels or units, and the title is lame. So the next step is to click on the chart and look at the chart tools with tabs labeled "Design," "Layout," and "Format."

- The most useful thing under the "Design" tab is the "Move Chart" option on the far right. This lets you place the chart to a new sheet, which makes it look a little tidier.
- Clicking the "Layout" tab gets you a bunch of choices. You can change the chart title just by clicking on it, but you'll need to do a little more work to get the axis titles. For the X-axis, click "Axis Titles" and then "Primary Horizontal Axis" and then "Title Below Axis." You'll get a little box called "Axis Title" that you can edit just like you did for the chart title. Do the same thing for the "Primary Vertical Axis;" don't forget to add the units.

**Step 5:** In this case, we don't need that legend on the right, so you can go to the Legend tab and delete the default legend. So here's what the final graph looks like (of course, you can fool around all you want with the fonts, text sizes, line color, gridlines, background color, and so forth, but I left it pretty basic). And that's it! You're done!

