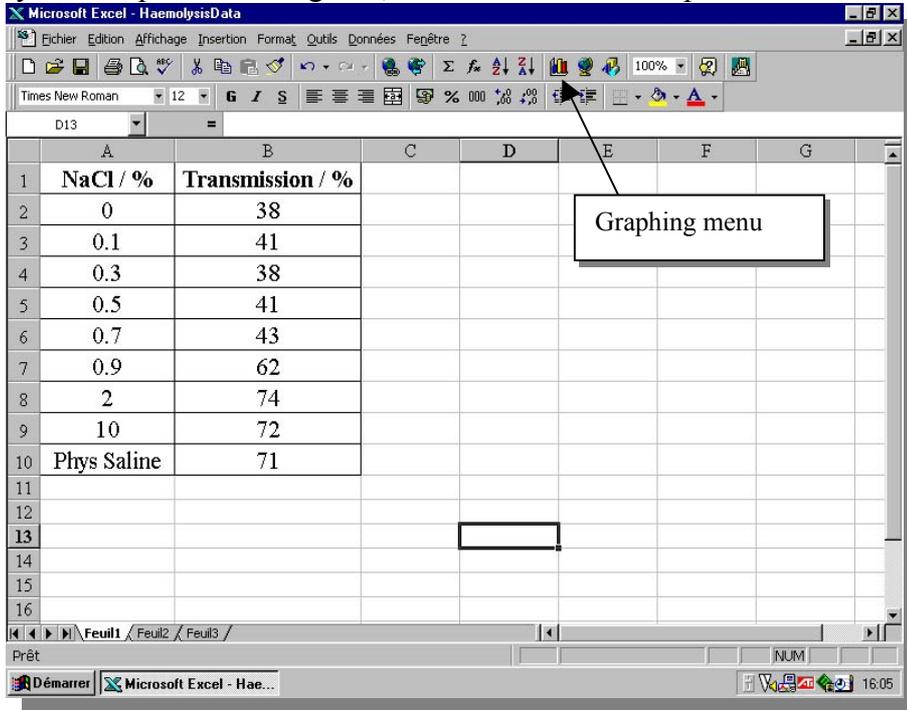


GRAPH DRAWING WITH MS-EXCEL

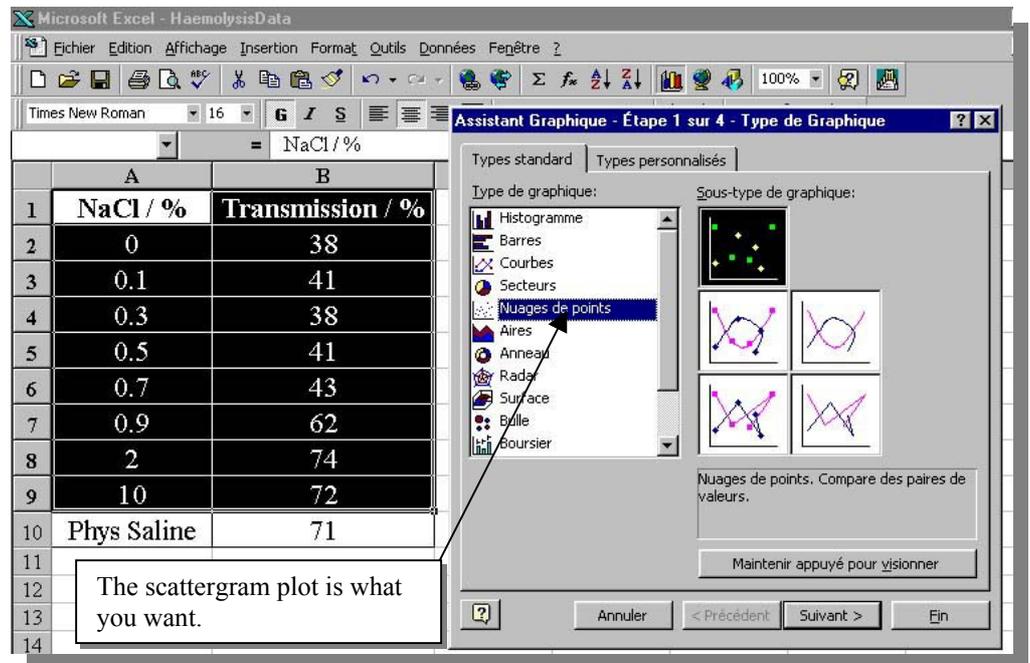
Graphical data can be effectively treated using Excel but you have to know a few of its idiosyncrasies. Most students seem to know how to use it to draw bar charts but Excel can do a lot more.

1. Enter your data on a spread sheet. **Important:** Respect the convention for decimal points. It depends upon how your computer is configured, for commas or full stops.

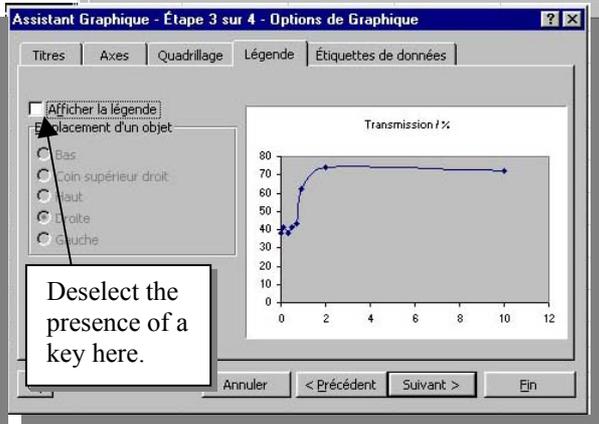
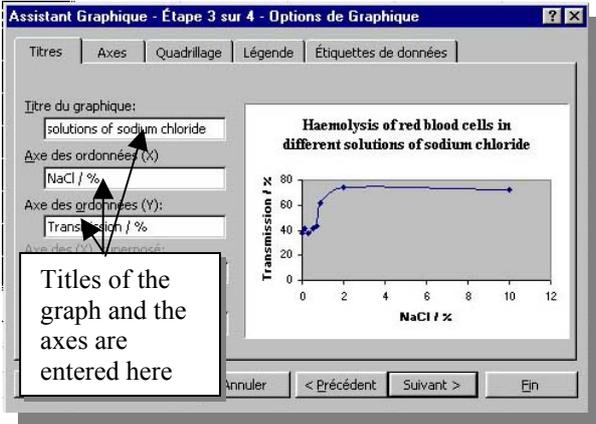
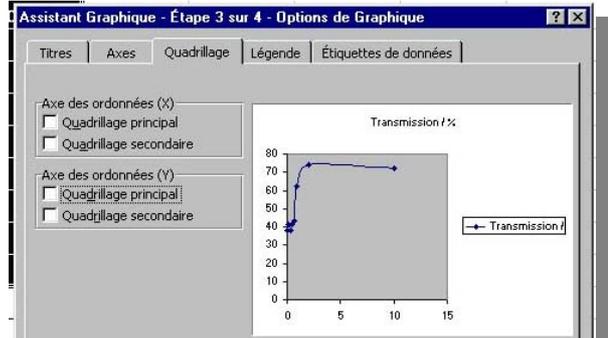


These data come from an experiment where blood was mixed with different concentrations of sodium chloride solution. By the effect of osmosis the blood cells burst in dilute solutions but not in concentrated ones. when they burst the red blood cells released the red pigment haemoglobin into their surrounding solution. The amount of redness is measured by a colorimeter. The blood cells are also placed in physiological saline which is a specially prepared solution of sodium chloride in which the cells can survive best.

2. To draw a curve of these data, highlight the data and open the graphing menu and select scattergram (nuage de points). Do not select curves this is a recipe for disaster! The reason is that if you look at these data they are not at regular intervals (0, 0.1, 0.3, 0.5 etc.) and the curve plotting programme for some reason cannot cope with this, the scattergram program can.



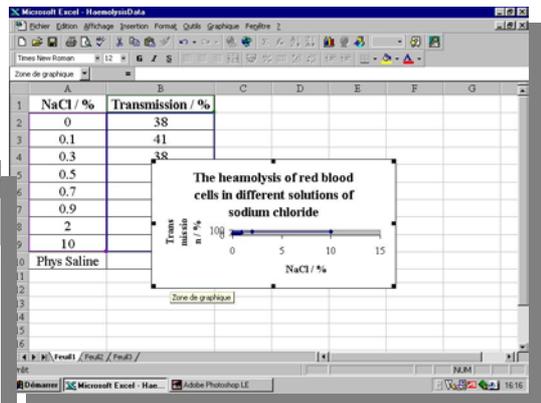
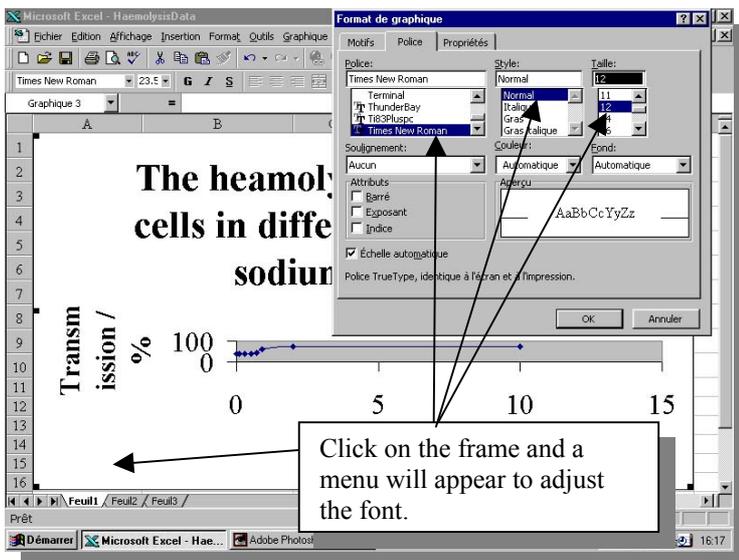
- The options are then followed in sequence. Stage three is very important it allows you to set up some of the basic features of the graph:
 - whether or not you want to include a grid,
 - whether or not you need a key (in this graph it is not needed – deselect it).
 - entering your title and the labels on the axes.



- Finally you have to decide if you want the graph in its own file or as an insert on the spread sheet. The insert on the spread sheet is probably the most useful as it permits you to easily cut and paste the graph into a document and you can see the data at the same time as the graph.

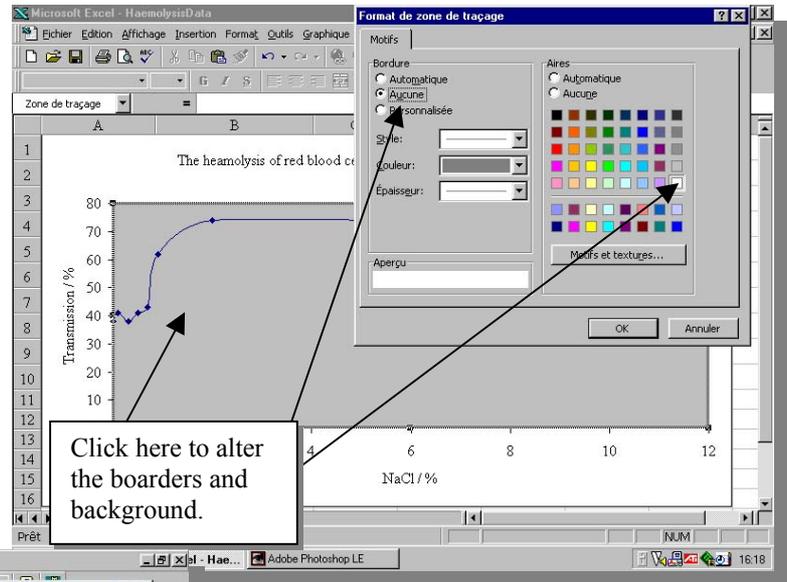


- Once you have the graph insert you can continue to work on it. You can pull it out to the size you want.

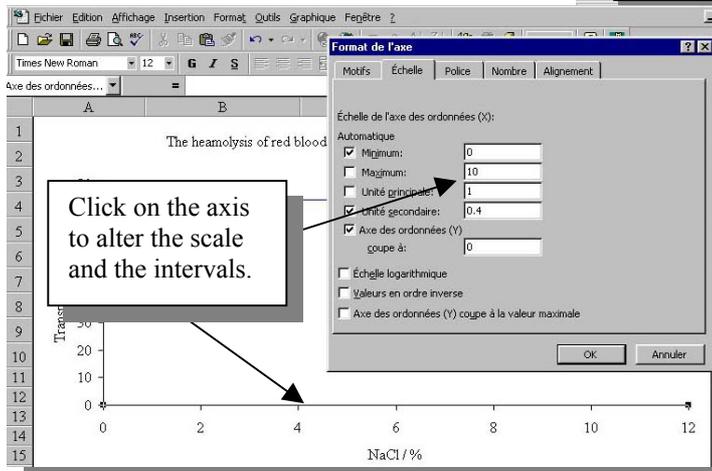


- Click on its frame and you can set the size of the lettering, the type of font.

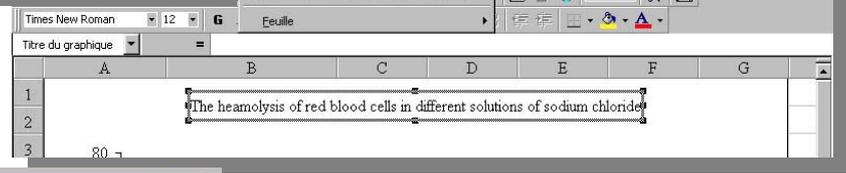
7. Click on the area inside the axes and you can set the background colour. White is best. Fancy backgrounds tend to distract. Follow the “kiss” principle “keep it simple stupid”.



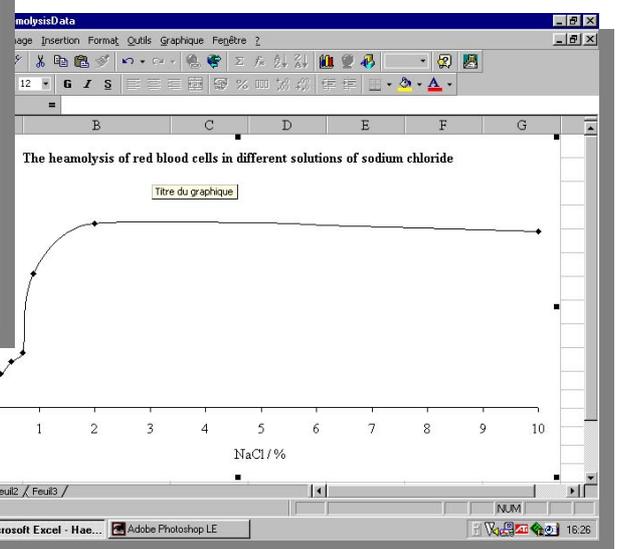
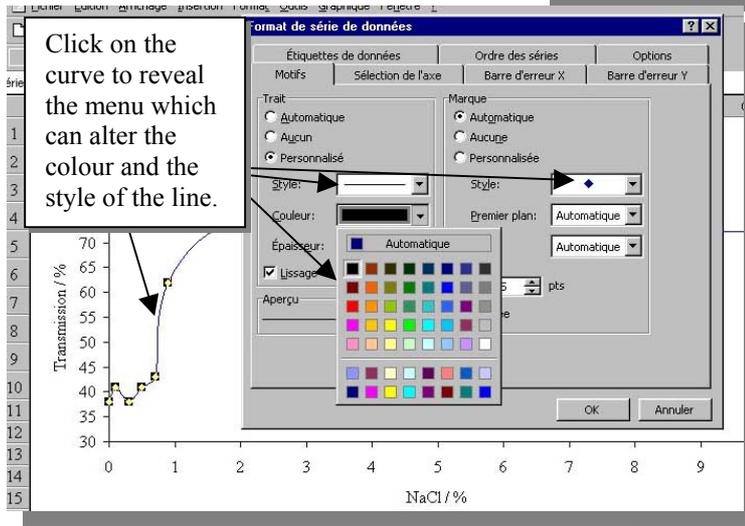
8. Changing the scale of the axes can be useful. Click on the axis that you want to alter.



9. Click on a block of text to make any changes.



10. You can change the colour of the curve and the style of the data points by clicking on the line.



11. Your graph may now be cut and pasted into your document.