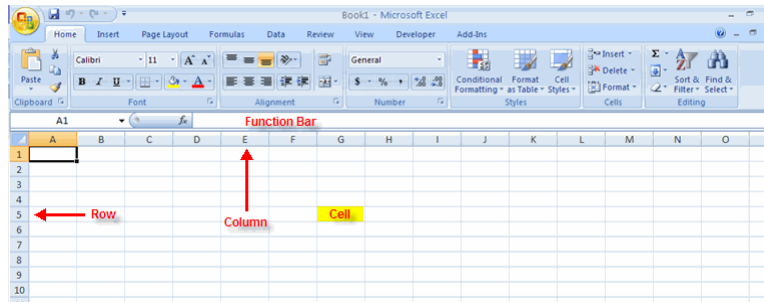
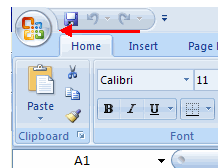


## Scientific Graphing in Excel 2007

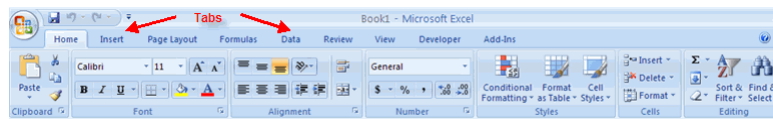
When you start Excel, you will see the screen below. Various parts of the display are labelled in red, with arrows, to define the terms used in the remainder of this overview.



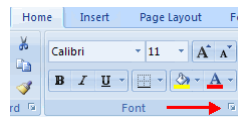
The Microsoft Office Button performs many of the functions that were located in the File menu of older versions of Excel. This button allows you to create a new workbook, open an existing workbook, save and save as, print, send, or close.



The ribbon is the panel at the top portion of the document. It has seven tabs: **Home**, **Insert**, **Page Layouts**, **Formulas**, **Data**, **Review**, and **View**. Each tab is divided into groups. The groups are logical collections of features designed to perform functions that you will use in developing and editing your Excel spreadsheets.



Commonly used features are displayed on the Ribbon. To view additional features within each group, click the arrow at the bottom right corner of each group.



**Home:** Clipboard, Fonts, Alignment, Number, Styles, Cells, Editing

**Insert:** Tables, Illustrations, Charts, Links, Text

**Page Layouts:** Themes, Page Setup, Scale to Fit, Sheet Options, Arrange

**Formulas:** Function Library, Defined Names, Formula Auditing, Calculation

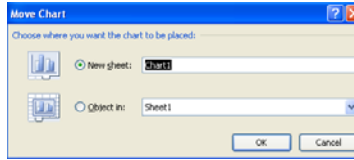
**Data:** Get External Data, Connections, Sort & Filter, Data Tools, Outline

**Review:** Proofing, Comments, Changes

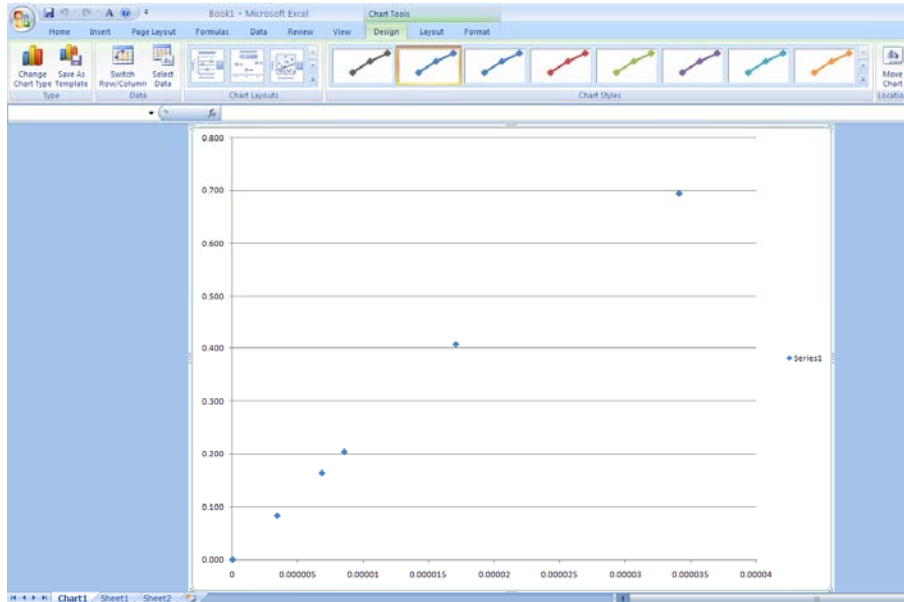
**View:** Workbook Views, Show/Hide, Zoom, Window, Macros



- Click **Move Chart Location** and place as a new sheet with any name you choose.

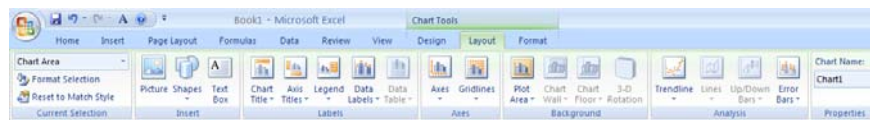


The chart will now be in its own workbook tab (bottom of the page).

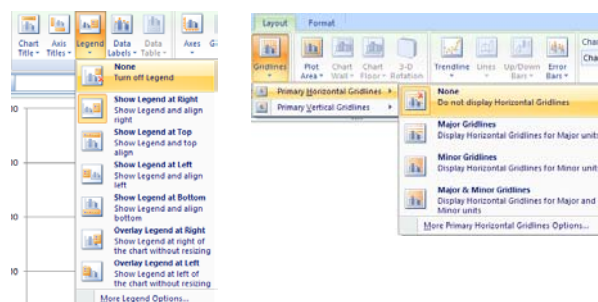


The color of the data points can be changed by clicking in the boxes. You get more options if you right-click on a data point. However, a lot still needs to be done to the plot before it is acceptable to be turned in as part of your laboratory report.

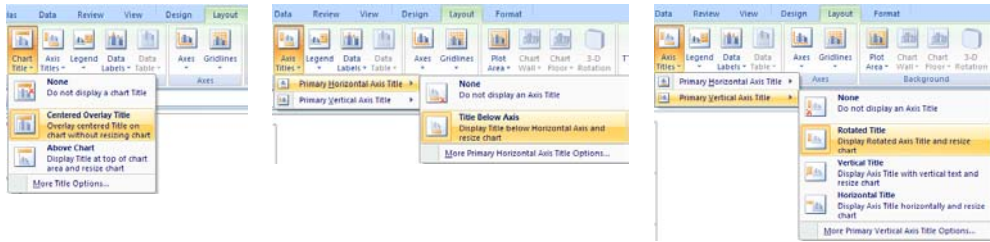
- The most important tab is **Layout**; in particular the **Labels**, **Axes** and **Analysis** options.



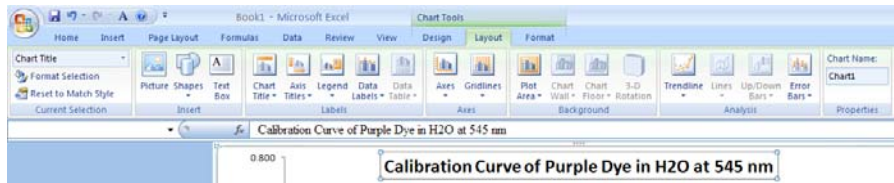
- Turn off the **Legend** and the **Primary Horizontal Gridlines**. The legend is not needed if you are plotting one set of data. The graph title will describe what is being plotted. The gridlines should **both** (horizontal and vertical) be given **for a reason**, or left off entirely.



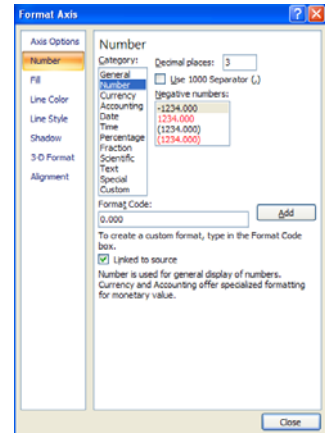
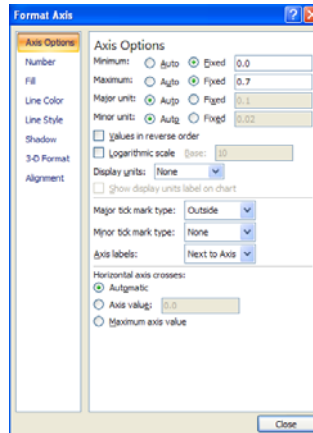
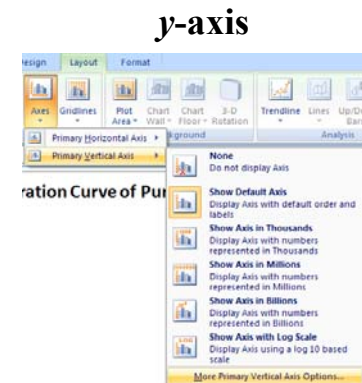
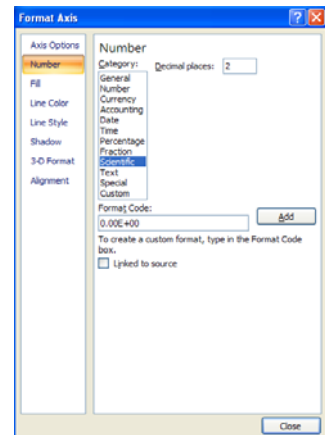
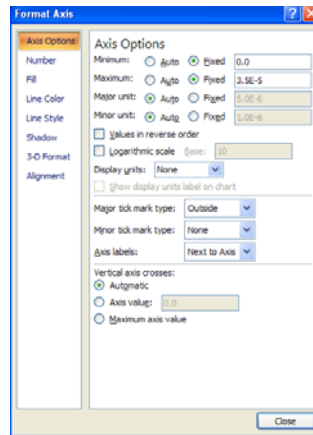
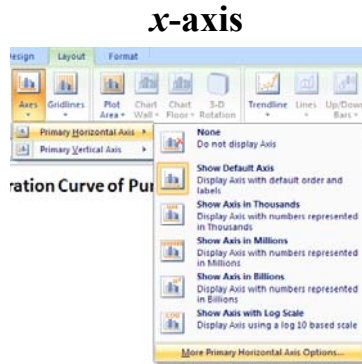
b. All graphs must have properly labeled axes and a descriptive title.



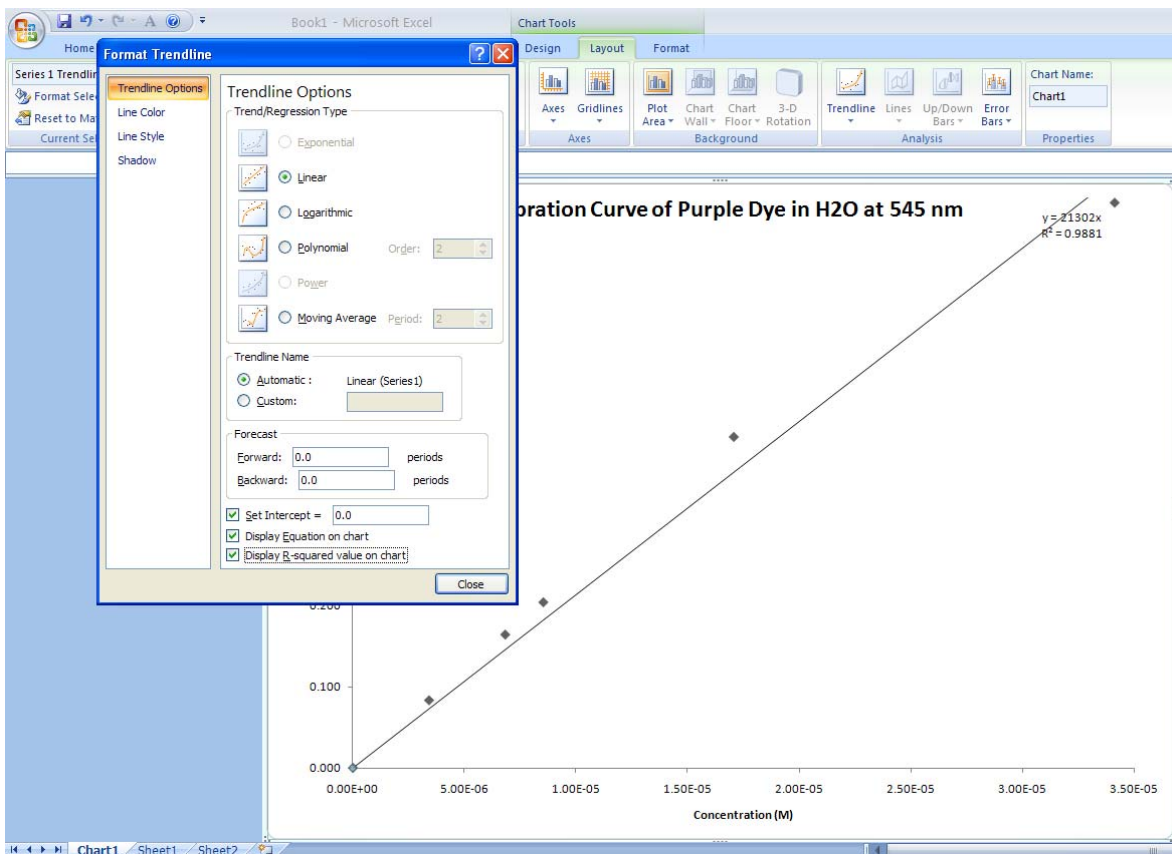
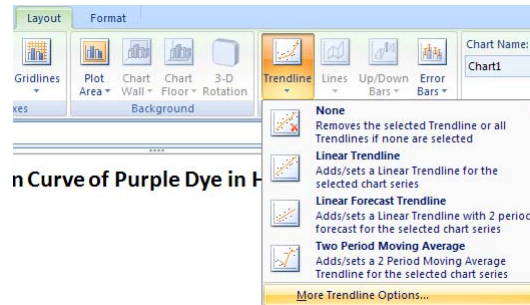
Click on **Chart Title** > **Centered Overlay Title**, **Axis Titles** > **Primary Horizontal Axis** > **Title Below Axis**, **Axis Titles** > **Primary Vertical Axis** > **Rotated Title**. This will insert boxes in the proper location. To edit the titles, click the box and type the correct title. Note that the text is in the formula bar and it replaces the original labels when <enter> is typed.



To adjust x and y limits and format axis labels, click **Axis** (or right click on each axis).

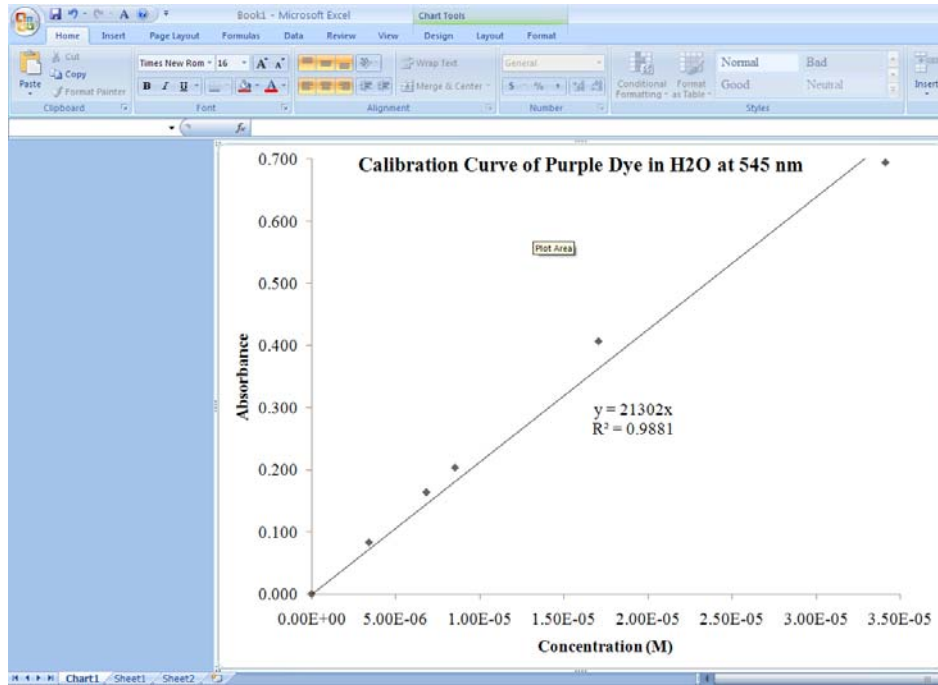


6. In this case, a trendline needs to be added. The trendline is the best straight line that minimizes the distance to each data point. Also, because of the way the instrument was calibrated, the point (0, 0) is an exact point, so we want it to be on the trendline. Click **Trendline > More Trendline Options**.

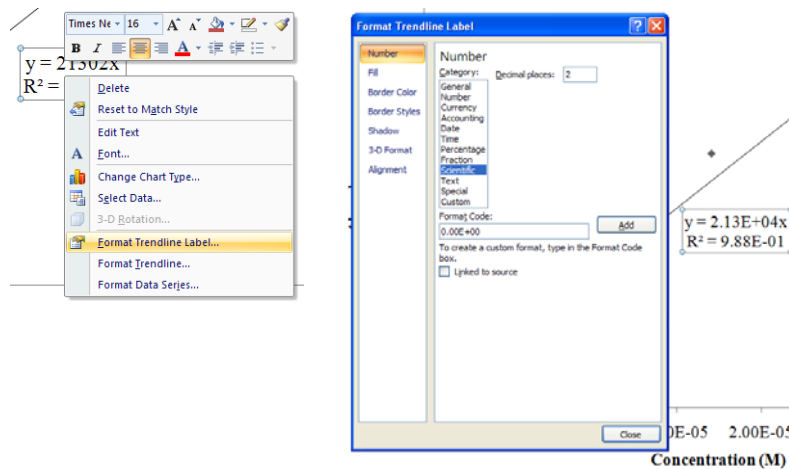


Note the **Linear** button, and the three checked boxes: **Set Intercept = 0, 0** (not always done), **Display Equation on chart** (always done) and **Display R-squared value on chart** (always done).

7. The font, font size, font type, significant figures and equation location can be adjusted. Click on **Home**. The Font and font size can be changes for the entire plot.



The equation is moved by clicking, holding and dragging. Right clicking on the label and selecting **Format Trendline Label** allows significant figures (3) to be addressed.

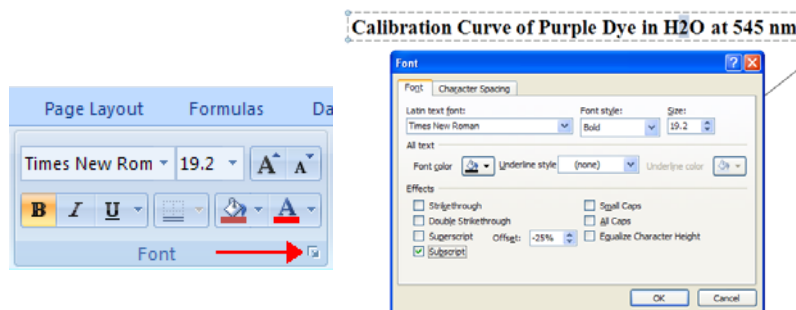


Changes can also be typed directly in the box. For example, the  $R^2$  can be reformatted:

$$y = 2.13E+04x$$

$$R^2 = 0.988$$

8. Subscripts, superscripts and special characters (Greek fonts) can be used as well. Highlight the character to be changed, and then click the additional features button on the font ribbon. Check the appropriate box or select the symbol font (for Greek), then click **OK**.



9. Finally, the border around the graph (not needed) can be removed by clicking the **Format** tab, then **Shape Outline**, then selecting **No Outline**.

