

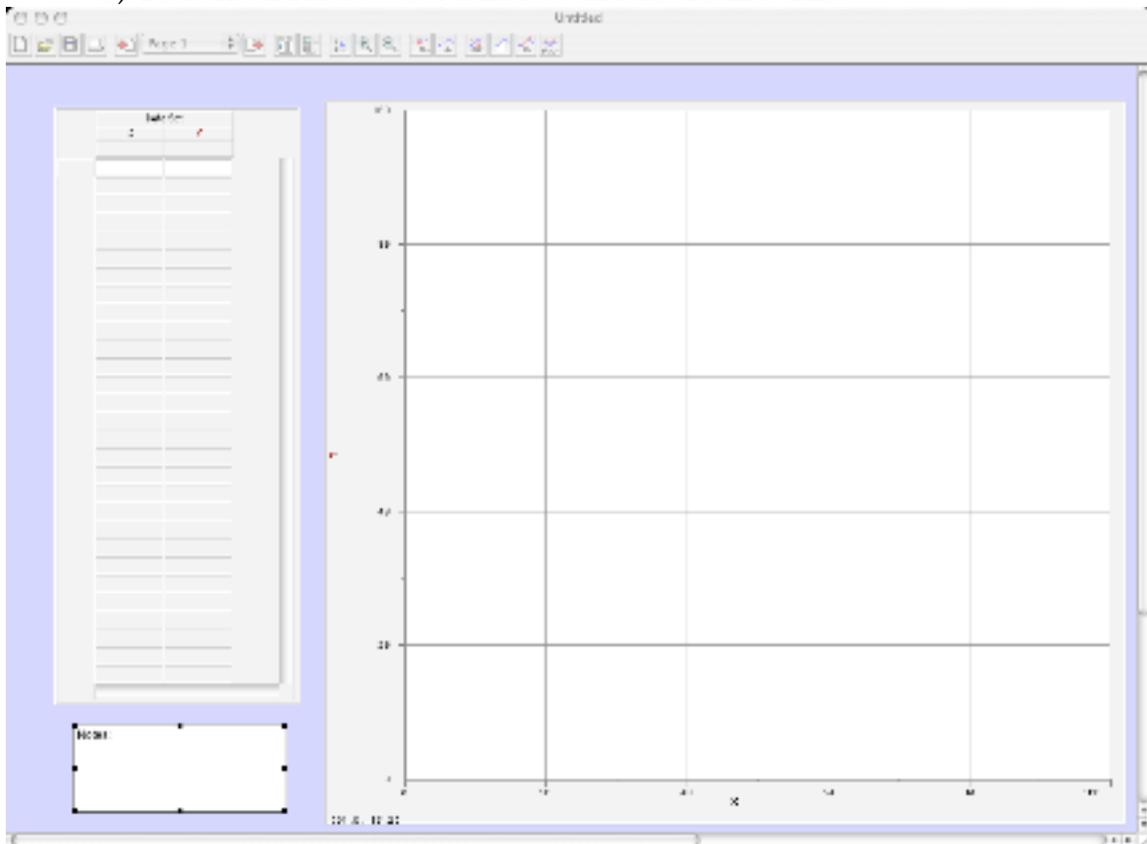
Using Graphical Analysis

Introduction

Graphical Analysis is a program dedicated to graphing data. We will be using this data to view our own data. The advantages to using a graphing program: Neat clear lines, greater precision and accuracy, and the program won't let you forget to include any components of a good graph.

Opening Graphical Analysis

- 1) Go to the **Applications** folder and find **Graphical Analysis**. (From your desktop choose **File->New**, then click on the **Applications** icon.)
- 3) You should now see a window that looks like this:



Entering Data

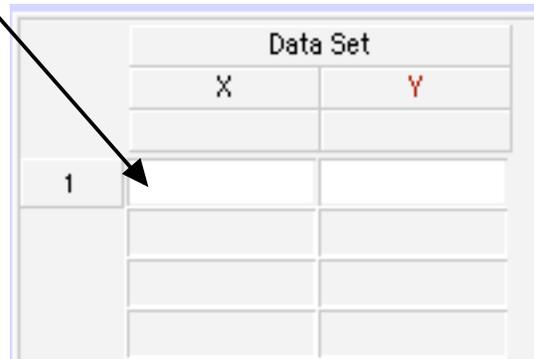
There are two ways of entering data into Graphical Analysis. The first method is very similar to the way you entered data on AppleWorks. The second method will save time when you have a lot data. You will be opening AppleWorks at the same time so that you can "**Copy**" your data from AppleWorks and "**Paste**" it into Graphical Analysis without retyping. I suggest you try the second method, because it will give you experience in the way the computer can take data from one program to another. The methods are listed on the following page.

Method 1:

- 1) Select a cell in which to enter data.
- 2) Enter a number and press return.
- 3) Continue entering data until you are finished.

Method 2:

- 1) Open AppleWorks under the Apple menu. Wait while the program comes up.
- 2) Choose "**Open**" from the "**File**" menu.
- 3) Now find your Coke and Diet Coke data. You may need to log into your account if you have not already done this because you logged into an iBook as "**Student**". If you are on an iBook then see the instructions on the Appleworks Spreadsheet tutorial for how to log in from the iBook.
- 4) Now that you have your table on the screen, you need to decide what data you want to graph. In our case, this is the column containing Volume of Soda and the one containing Mass of Soda. **Highlight only the numerical data** in one of those columns now. *Make sure not to include the titles or units.* We only want the numbers.
- 5) At this point you want to tell the computer to remember these numbers, so choose "**Copy**" from the "**Edit**" menu. This will place a copy of your data on the computer's internal clipboard.
- 6) You can switch to Graphical Analysis by pressing **F9** and choosing the right window.
- 7) Now select the cell in which you want to start entering data, and choose "**Paste**" from the "**Edit**" menu.
- 8) Your data from AppleWorks should now appear. Don't worry about it's appearance. We will not be printing the data, just the graph.
- 9) You can change back and forth from program to program by pressing **F9**. Repeat this process as many times as needed to copy the data. (Note: You can switch between AppleWorks and Graphical Analysis more quickly by clicking the mouse on the window you would like to be active. Just by clicking on a window that is part of an application tells the computer to switch applications. It is easiest if you have both windows visible at the same time.)

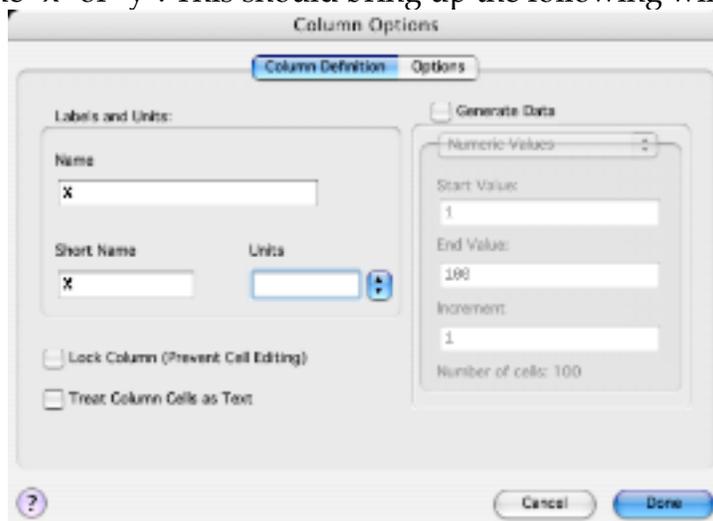


| | Data Set | |
|---|----------|---|
| | X | Y |
| 1 | | |
| | | |
| | | |
| | | |

Creating the graph

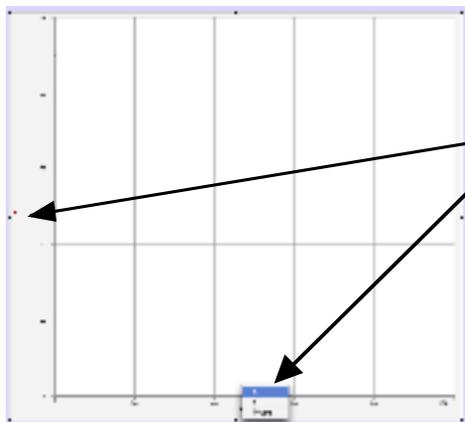
The graph will automatically be generated as you enter data. However, you will want to tell the computer how to label the axes and what units to use.

- 1) The axes can be labeled by double-clicking at the top of the column (ie on the "x" or "y". This should bring up the following window.



- 2) Provide a Name, Short Name, and Unit for the data in that column.

- 3) Look at your graph to make sure the axes are correct. You can change which column is graphed along which axis by clicking and holding the mouse button when pointing at the axis label on the graph itself.



Click and hold here to change which data is graphed on which axis.

- 4) You can also change how the numbers are displayed by double clicking on any of the numbers on the axis. This lets you set the starting and ending values for this axis.

- 5) To title the graph double-click anywhere inside the graph and fill in the **Title** field.

- 6) **TURN OFF THE "CONNECT POINTS" FEATURE.** In scientific data it is rare to create such a graph. This is done in the same window where you added a title. Uncheck Connect Points.

Drawing the Best Fit Curve

- 1) Graphical Analysis will calculate the best fit curve for your data. In our case this data is obviously linear, so choose "**Linear Fit**" from the "**Analyze**" menu.
- 2) You can try other types of functions by choosing "**Curve Fit**" instead and experimenting with other options.

Saving the Graph

- 1) Once you have the graph how you like it, you should save it.
- 2) Choose "**Save as...**" from the "**File**" menu.
- 3) Find your folder and save it there.

Printing your graph

- 1) Choose "**Print Graph**" from the "**File**" menu.

Quitting

- 1) Quit all applications.
- 2) Log out of your account.