
Drawing graphs from data stored in lists STAT PLOT

Setting up a graph using STAT PLOT

Press **2nd** then **STAT PLOT**

The **STAT PLOT** menu will be displayed showing **Plot 1** to **Plot 3**
If **4:PlotsOff** is selected and entered all the plots are deactivated.

If **5:PlotsOn** is selected and entered all the plots are activated.

It is best to start with all the plots deactivated then activate them one at a time.

```
STAT PLOTS
1: Plot 1...Off
2: Plot 2...Off
3: Plot 3...Off
4: PlotsOff
5: PlotsOn
```

Select **1: Plot 1** or press **1**

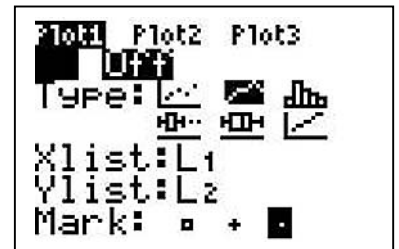
This will show the menu for **Plot 1**

To activate **Plot 1** press **ENTER** (the cursor will already be flashing over **On**).

Scroll down to select the type of graph. There is a choice of six:
Scatter graph, line graph, histogram, two types of box plot and normal probability graph.

For scatter graph and line graph, two variables are plotted (x and y) against one another.

For the others one variable is plotted against its frequency.



Plotting a line graph or scatter graph

- **Type:** selects the appropriate form of graph. Use the cursor to select scatter graph or line graph and press **ENTER**

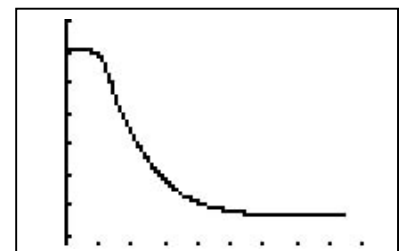
- **Xlist:** selects the x-axis
Either press **2nd** and **L1** or any other of the lists (**L2**, **L3**, **L4** etc.) if it is a set of data which has been recently entered.

Or press **2nd** and **LIST** to reveal the **LIST** menu. Scroll down the lists to the one you have stored previously as the x-axis and press **ENTER**.

Note you must unarchive the list before selecting it. You cannot plot graphs with archived lists.

- **Ylist:** selects the y-axis.
Repeat the same procedure as for the x-axis.
- **Mark:** selects shape of the data points: squares, plus sign or dots. Using the cursor choose the point, then press **ENTER**.

When these are all entered press **ZOOM** then select **9: ZoomStat** and a scaled graph will be plotted on the screen.



Plotting two or three graphs

STAT PLOT will allow you to plot up to three graphs at once. This done by activating **Plot1**, **Plot2** and **Plot3**.

In each case use the same list for the **Xlist** and different ones for the **Ylist**.

Press **ZOOM** then **9** or select **9 : ZoomStat** and the two or three lines will be plotted on the same scaled graph.

Because the graph is scaled to fit the calculator screen it may exaggerate or flatten one of the lines. You may need to go into the lists and increase or decrease the values by a factor. This can be done by using the **STAT** key

Using the calculator as a spread sheet to rescale your data

Press **STAT** to obtain the **STAT** menu. Select **1: Edit** press **ENTER**
This will open the spread sheet.

- | | | |
|----------------|------|-------|
| EDIT | CALC | TESTS |
| 1: Edit | | |
| 2: SortA(| | |
| 3: SortD(| | |
| 4: ClrList | | |
| 5: SetUpEditor | | |

Select a list of data. **L1**, **L2** etc if it has been recently entered or using the cursor to move to the head of the last list on the spread sheet, the one after **L10** which is unnamed. Press **2nd** then **LIST** and select the list you want to see on the spread sheet.

L9	L10	NAME
0	0	
-----	-----	
Name=		

NAME	OPS	MATH
1: L1		
2: L2		
3: L4		
4: L5		
5: L6		
6: C		
7: *L0502		

NAME	OPS	MATH
↑T0502		
: *PC1		
: *PC2		
: RESID		
: S		
: *T0410		
↓T0502		

L9	L10	NAME
0	0	
-----	-----	
Name=T0502		

Press **ENTER** and its name will appear at the bottom of the screen. Press **ENTER** and the values will appear in the column. Repeat this for other lists.

In this example T0502 is the time intervals in seconds, L0502 is the light of a flashing diode and V0502 is the voltage across the diode.

L9	L10	NAME
0	0	
-----	-----	
Name=T0502		
0		0
		.003
		.006
		.009
		.012
		.015
		.018
T0502 = (0, .003, .0		

Notice the voltage values are bigger than the light values by a factor of 100. If you plotted these values together the changes in voltage would appear properly scaled on the graph but the light values as they are would be too small to show any variation. The answer is to multiply the light values by a factor of 100 and their fluctuations will appear next to the voltage values.

T0502	L0502	NAME
0	.00797	1.0068
.003	.00894	-1.857
.006	.00991	-1.359
.009	.00894	-2.414
.012	.01185	-3.431
.015	.01574	-4.370
.018	.01866	-5.269
V0502 = (1.00684, -...		

Create a new list (e.g. L100) , press **ENTER** and type in the appropriate equation on the bottom of the screen as follows: select the list you want to modify (**2nd** then **LIST**, scroll down and then **ENTER**) and then multiply it by the appropriate factor.

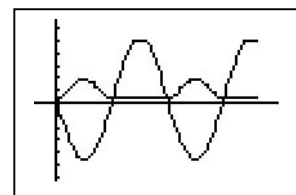
Press **ENTER** and the spread sheet will calculate the conversion for all the values in the list.

Now plot Time against Light x 100 and Volts.

L0502	V0502	NAME
.00797	1.0068	
.00894	-1.857	
.00991	-1.359	
.00894	-2.414	
.01185	-3.431	
.01574	-4.370	
.01866	-5.269	
L100 = LL0502		

L0502	V0502	NAME
.00797	1.0068	
.00894	-1.857	
.00991	-1.359	
.00894	-2.414	
.01185	-3.431	
.01574	-4.370	
.01866	-5.269	
L100 = LL0502*100		

L0502	V0502	L100
.00797	1.0068	.796736
.00894	-1.857	.89390
.00991	-1.359	.99106
.00894	-2.414	.89390
.01185	-3.431	1.1854
.01574	-4.370	1.5740
.01866	-5.269	1.8655
L100() = .796736		



Plotting a histogram to show a frequency distribution

Open **STAT PLOT** and select **Plot1**

Switch it to On by pressing **ENTER**.

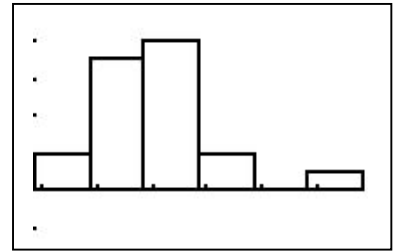
Under type: select the histogram type of presentation.

Scroll to **Xlist:** and select the list you want to plot. Press **2nd** then

LIST then scroll down to the list of data. Press **ENTER**.

There is no **Ylist** because the histogram plots the frequency of the different data in the **Xlist** in regular groups called class intervals. These are set automatically by the calculator.

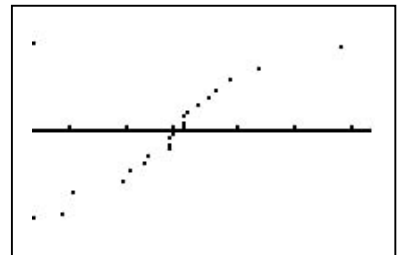
Press **ZOOM** then **9** and the histogram will appear.



If you want to see if the histogram approaches a normal distribution you may test this using the normal probability graph. This is the last type of graph in the **STAT PLOT** series.

Return to **STAT PLOT** and **Plot 1**. Scroll to **Type:** Then scroll through the list to the last one and press **ENTER**.

Press **ZOOM** then **9**. The graph that appears now will be a scattergram of points. If they fall into a diagonal line, the distribution of the data follows a normal distribution.



Setting the number of significant places using the mode menu

Sometimes it is useful to limit the number of significant places after the decimal point. This can be adjusted using the **MODE** menu.

Press **MODE**, scroll down to Float and scroll along to the desired number of places.

Press **ENTER**