

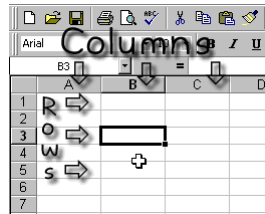
Excel Graphs

Getting Started

You can use a computer program called a **spreadsheet** to draw bar charts, pie charts, scatter graphs and pictograms.

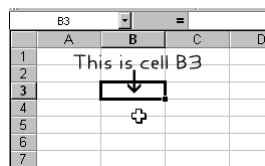
Step 1

Start the **Excel** program. Your kind teacher will tell you how to do this.



Step 2

Rows go across the screen. **Columns** go down the screen. The squares in the grid are called **cells**. Each cell has a name — a letter and a number.



Step 3

Click in the cell B1. Type '3' and press 'Enter'. Fill in the cells B2 to B5 with the data from Table 1. We need to say what the data means, so fill in cells A1 to A5 with the names of the flavours. The screen should look like the picture when you have finished.

	A	B
1	Mint	3
2	Chocolate	5
3	Strawberry	9
4	Choc Chip	2
5	Vanilla	4

Step 4

We need to **select** which data to use. Click in cell A1 and hold down the mouse button. Move to cell B5 and release the button. It should look like the picture.

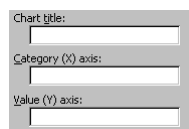
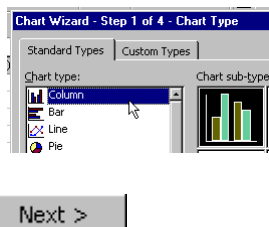
	A	B
1	Mint	3
2	Chocolate	5
3	Strawberry	9
4	Choc Chip	2
5	Vanilla	4

Step 5

Click on the 'Chart Wizard' icon; It looks like this: 

Step 6


In the box that pops up, make sure that 'Column' is highlighted, then click on the 'Next' button. You should see a picture of what the chart will look like. Just click on 'Next' again.



Step 7

You need to fill in the title and labels for the chart. Click in the first box and type the title. The other boxes are for the labels along the bottom and the side. When you are finished click on 'Next'.

Step 8

Click on 'Finish'.  Your bar chart is now completed. Ask your teacher how to delete it.

Exercises

1. Make a pie chart from the same data (Table 1).
2. Make a bar (column) chart and a pie chart from Table 2. Which is the best?
3. Make a bar (column) chart and a pie chart from Table 3. Which is the best?
4. **Extension:** Experiment with some of the other charts and graphs you can make from the data. See if you can make a scatter graph from Tables 2 & 3.

Table 1 — Favourite ice cream flavour

Flavour	Mint	Chocolate	Strawberry	Choc Chip	Vanilla
Number	3	5	9	2	4

Table 2 — Population of selected countries (millions)

Country	Population
Algeria	26
Luxembourg	0.39
France	57
Nigeria	90
UK	58
USA	256

Table 3 — GNP per person (US\$) (selected countries)

Country	GNP (US\$)
Algeria	2,060
Luxembourg	28,770
France	19,480
Nigeria	370
UK	16,070
USA	21,700

Excel can also do pictograms, although it is a little more complicated.

Example

City	Mean hours of sunshine (June)
Alphaville	7
Betatown	10
Gammaby	6
Fineborough	2

Step 1

Make sure that you have the picture you are going to use already saved in a place that can be easily accessed. It should be simple and preferably in a *vector* format, such as WMF.



Step 2

Enter the data into *Excel*.

	A	B
1	Alphaville	7
2	Betatown	10
3	Gammaby	6
4	Fineborough	2

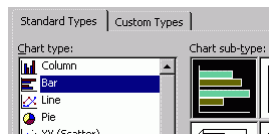
Step 3

Select the data and start the Chart Wizard

	A	B
1	Alphaville	7
2	Betatown	10
3	Gammaby	6
4	Fineborough	2

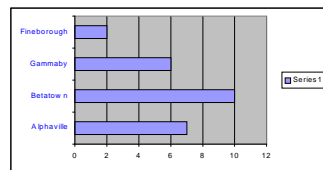
Step 4

Choose 'Bar' as the chart type and 'Clustered Bar' as the sub-type then click 'Next', then 'Finish'.

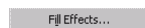


Step 5

You now have a bar chart. We need to turn it into a pictogram. Double-click on one of the bars.



You should see the 'Format Data Series' box. Make sure the 'Patterns' tab is showing and click on 'Fill Effects...'



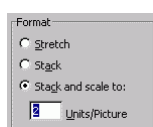
Step 6

Go to the 'Picture' tab and click 'Select Picture...'



Step 7

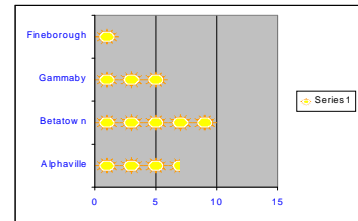
In the 'Format' section make sure that 'Stack and scale to:' is selected and, since we want each



picture to stand for 2 hours, enter 2 for 'Units/Picture'.

Step 8

Click on 'OK' twice and admire your pictogram. We can make it look better with a bit of tweaking...

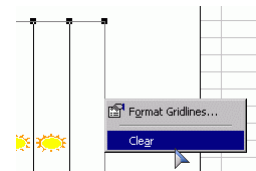


Step 9

The grey background doesn't look too good, so double-click on the grey background to bring up the 'Format Plot Area' box. In the 'Area' section select 'None' and click 'OK'.

Step 10

We want to get rid of the grid lines so click on one of the grid lines so they are selected, then right-click and select 'Clear'.

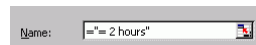


Step 11

We want to have a proper key, so right-click on a blank area of the chart and select 'Source Data...'

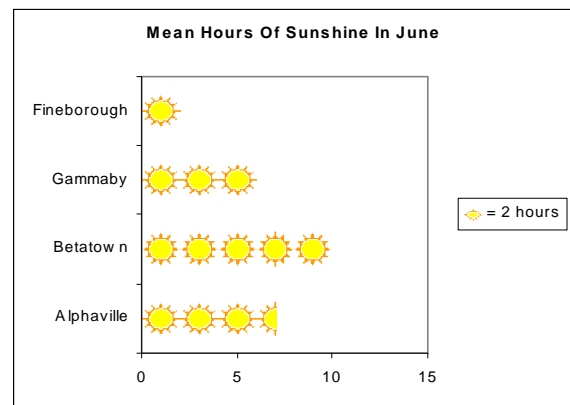
Go to the 'Series' tab and change the Name to '= 2 hours'.

Click on 'OK' to confirm your choice.



Step 12

Finally we want to have a proper title. Right-click on a blank area of the chart and select 'Chart Options...'. On the 'Titles' tab change the chart title to something suitable. Press 'OK' to complete your chart.



Excel Graphs

Population Pyramids

Although Excel does not have a built-in population pyramid chart type it can be done...

Example

Create a population pyramid from this data:

Age Group (years)	Males(%)	Females(%)
0-9	10	7
10-19	7	5
20-29	6	4
30-39	13	12
40-49	8	9
50-59	7	5
60-69	3	4

Step 1

Enter the data into Excel.

Note: We have to enter the first data series as negative numbers.

	A	B	C
1	Age Group (years)	Males(%)	Females(%)
2	0-9	-10	7
3	10-19	-7	5
4	20-29	-6	4
5	30-39	-13	12
6	40-49	-8	9
7	50-59	-7	5
8	60-69	-3	4

Step 2

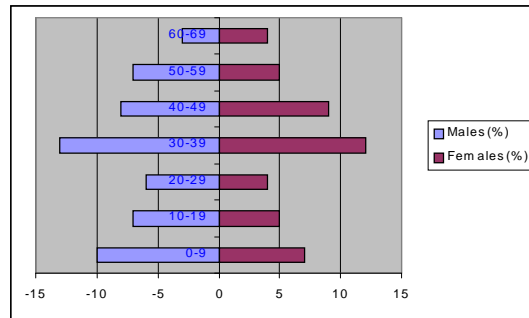
Select the data and start the *Chart Wizard*:



	A	B	C
1	Age Group (years)	Males(%)	Females(%)
2	0-9	-10	7
3	10-19	-7	5
4	20-29	-6	4
5	30-39	-13	12
6	40-49	-8	9
7	50-59	-7	5
8	60-69	-3	4

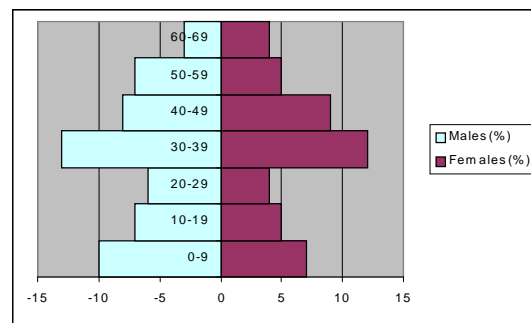
Step 3

Select 'Bar' as the chart type and 'Stacked Bar' as the sub-type. Click on the sample button – it should already look a bit like a population pyramid. Click 'Finish' and admire your chart:



Step 4

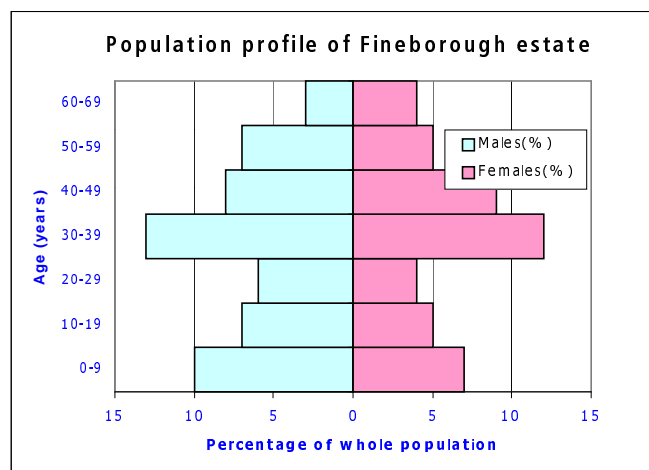
We don't want gaps between the bars, so double click on one of the bars on the left to bring up the 'Format Data Series' control. Go to the 'Options' tab and reduce the gap width to 0. Go to the 'Patterns' tab to change the bar colour. Click 'OK' to see your changes.



Step 5

We don't want the bottom scale to show as negative numbers. Double click on one of the numbers on the bottom scale, go to the 'Number' tab. Reduce the 'Decimal Places' to 0 and select 'Number' as the category and the red '1234' for negative numbers.

Some more tweaking and your chart is done:



Excel can be persuaded to produce a simulation of a box-and-whisker diagram...

Example

Produce a box-and-whisker diagram from this leaf size data:

Leaf	LQ	UQ	Min	Max	Median
Hawthorn	4.9	6.7	2.1	8.6	5.3
Rose	2.8	4.3	2.2	5.2	3.2
Juniper	4.1	4.9	3.8	6.7	4.5

Step 1

Enter the data in Excel. Note that the interquartile range (UQ-LQ) is needed and that the columns should be in the order given.

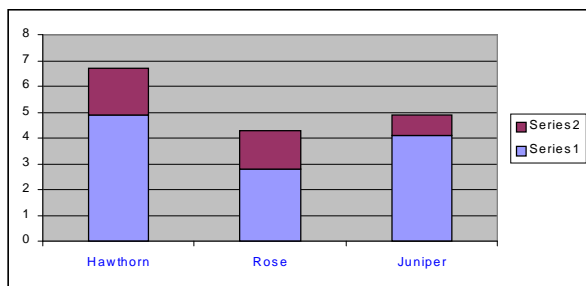


Select the data as shown and start the Chart Wizard.

	A	B	C	D	E	F	G	H	I
1		LQ	UQ-LQ	UQ	Min	Max	Median	Median-Min	Max-Median
2	Hawthorn	4.9	1.8	6.7	2.1	8.6	5.3	3.2	3.3
3	Rose	2.8	1.5	4.3	2.2	5.2	3.2	1	2
4	Juniper	4.1	0.8	4.9	3.8	6.7	4.5	0.7	2.2

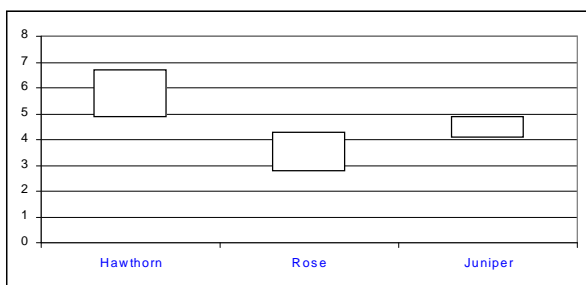
Step 2

Select 'Column' as the chart type and 'Stacked Column' as the sub-type. Click 'Next' and select 'Series as column'. Click 'Finish' and admire your chart.



Step 3

We need to get rid of the first part of each column to leave the floating boxes. Double click on the first part of a column and change the border to 'None' and the area to 'None'. A bit more tweaking leaves us with the boxes:

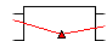


Step 4

Now for the median lines...

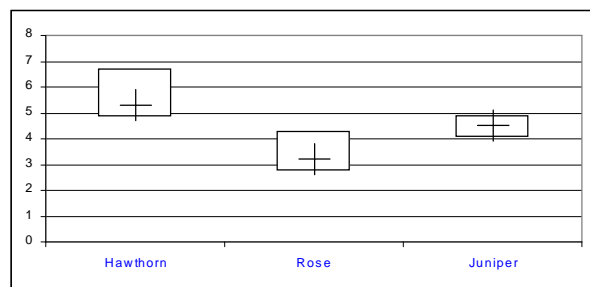
We need to add another data series for the median. Go to Chart... Add Data... and select the range G2:G4. The new series should appear as a stacked bar. We need to change this to a line. Click on the new series so it is selected then go to Chart... Chart Type... and select 'Line' and 'Line with markers displayed'. The medians should appear along a line.

Now we need to get rid of the line.



Double click on one of the markers.

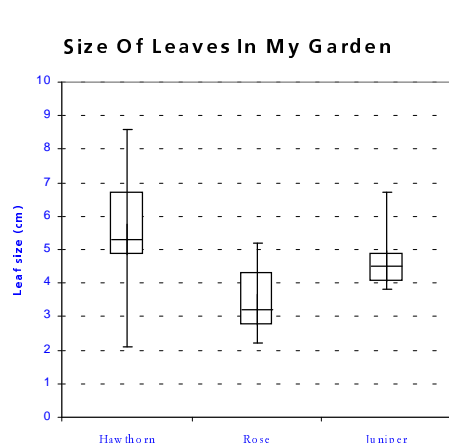
In the 'Patterns' tab set the line to 'None' and the marker to 'Custom', then set the Foreground to black and the Background to 'No colour'. Finally set the Style to the cross.



Adjust the Size to about 20.

Step 5

For the whiskers we need to add 'error bars'. Double click on one of the crosses. On the 'Y Error Bars' tab select 'Display Both'. For the Error Amount select 'Custom'. Select I2:I4 as the range for '+' and H2:H4 for '-'. Finally we have our whiskers. After some more tweaking



we have our chart..