

Borders, Spacing and Depth: Within the FORMAT menu, you can put a border around the entire screen, around the chart or both. In GRAPH IT!'s default settings both options are "on." You can toggle one or both off; doing so will increase the size of your graph.

Also within the FORMAT menu are options that give you extra control over the display of graph elements for Column and Bar graphs. For example, Bar/Column Spacing... brings up a sub-menu allowing you to choose how much separation is between individual columns or bars within a Category. By clicking on the appropriate choice you can have 0, 2, 4 or 8 pixels between each element. Similarly, you choose how much separation exists between Category groupings with the Group Spacing... option.

Column Depth... on the FORMAT menu adds three-dimensional depth to column charts. Selecting Column Depth treats any negative numbers in your data as zeroes.

Finally, within the AXIS menus, you can tell GRAPH IT! to draw horizontal lines on your graph to clearly separate groups of data by Category. This option is particularly useful when Group Spacing... is set to none.

NOTE: Choosing a column depth other than 0 will automatically cancel the display of category lines.

Working with the Y-Axis: You have four options within the AXIS menu that control how the Y-Axis will look— Show Axis, Show Major Marks, which has an associated Style... sub-menu, and Show Minor Marks. Show Axis allows you to display the Y-Axis on both the left and right-hand sides of your graph. Toggling this option off removes the Y-Axis.

Show Major Marks displays horizontal hash marks along the scale of the Y-Axis. It also has an associated Style... sub-menu which allows you to control their appearance. You can choose to display the major marks the same as minor marks or to have them drawn slightly longer than minor marks. You can also draw major marks completely across your graph as solid or dotted lines. Simply click on your choice when the sub-menu is on your screen.

Show Minor Marks displays the small hash marks between each major mark. If you toggle this option off, there are no hash marks shown between the numbered major divisions on the scale.

NOTE: If Show Major Marks is off and Show Minor Marks is on, then small hash marks will still show at the major numbered divisions on the scale.

■ Further Refinements

We have not yet exhausted all of the options GRAPH IT! gives you for controlling how your graph will look. You can also determine how your graph will be scaled, the size of data points and whether scale values and Category names are displayed.

Controlling scaling: The GRAPH menu gives you two options for controlling the scaling of your graph—Auto Scaling and Normalize Scale. Auto Scaling causes the numbers along the Y-axis to be forced into multiples of 1, 2 or 5. The actual units selected are determined by a combination of the following chart attributes:



- The available screen area for the graph (turning off the chart title or moving the legend from the top to the side gives the graph more vertical space, for example).
- The number of major divisions drawn as determined by the combination of Minors per Major and Pixels per Minor specified in the AXIS menu. See the explanation of these options below.

When Auto Scale is not selected, the largest data value is scaled so as to take up the entire available plotting height. This optimizes resolution, but you may end up with some odd units on the value axis.

NOTE: While Auto Scaling provides even units, the largest data value may plot in as little as 50% of the available plotting height. If this occurs, try different layouts (turning labels off, repositioning the legend) or changing the Minors per Major or Pixels per Minor to improve the appearance of the chart.

Normalize Scale causes the smallest data value to be plotted as a zero value and subtracted from all other data values. Normalize does not work if any negative numbered data is selected.

The “offset” to be added to the value numbers is displayed at the top of the chart. This is useful when data is so tightly packed that the relative difference from point to point is negligible. The sample data file TEMPS.DATA on the GRAPH IT! disk illustrates data of this type. Let's see how this option works.

Open the TEMPS.DATA file. Use the pointer to highlight a number of cells and then use the Quick Keys   to graph the data. As you can see, it's hard to tell anything from this data.

Press any key to return to the Data Display Window and then select Normalize Scale from the GRAPH menu. Now regraph the same data. The variation among the ranges is visibly clearer. The number in the upper left hand corner of the graph, +95.6, is the offset which would be added back into the numbers displayed to obtain their original value.

Another way to partially control the scaling of your data is in **Minors per Major...** and **Pixels per Minor...** from the **AXIS** menu. **Minors per Major...** has a sub-menu which allows you to determine the number of hash marks drawn between each major division. You might think of this as a way to decide whether to use a ruler measured in halves, quarters or eighths.

The more **Minors per Major** you select, the fewer major divisions **GRAPH IT!** draws, and the distance between major divisions becomes greater. The **Pixels per Minor...** option has a similar effect on the number of major divisions by controlling the spacing between minor division hash marks. A pixel is the space allotted to an individual dot drawn on the screen.

NOTE: Choosing too few **Minors per Major** or **Pixels per Minor** may cause the **Y-Axis** numbers to overlap. Simply increase either option to get the spacing you want.

Data point size: The **FORMAT** menu option **Data Point Size...** allows you to control the size of data points used in **Line** and **Scatter** charts. Click on your choice in the sub-menu to choose a plot size of between one and nine pixels. You won't be able to see the legend pattern for sizes smaller than three pixels.

The last two options for controlling display characteristics are found within the GRAPH menu. Show Values controls whether to display the numerical values along the Y-Axis of your graph. Show Category Names toggles the display of Category names along the X-Axis. If you've previously chosen Swap Axis in the AXIS menu, choosing this option affects the display of Legend names along the X-Axis.

■ Working with 3-D Graphs

One of the more visually interesting options that GRAPH IT! offers is the three-dimensional graph. This can be very dramatic in appearance, but its practicality is determined by the nature of the data being charted. See the Appendix for a description of the 3-D graph.

In general, data that tends to increase in magnitude from left to right and from top to bottom, starting in the upper left cell, looks the best in 3-D. If a smaller value follows a larger value, it is hidden behind the 3-D columns in front of it.

For a large amount of data, the plotting of random values yields a "contour" effect. Heat loss distribution over a surface, rainfall, pollution readings, and topographical information are types of measurements that are typically displayed in three dimensions.

4: Creating, Saving and Printing Graphs

The 3-D graph has several options available to help enhance its appearance and readability. These are shown on the TYPE menu as sub-menus of the 3-D graph. You access these by selecting them from the menu.

Line Spacing. . . – Specifies the number of scale lines to be drawn along the Y-axis. You can select from 5 to 11 lines by clicking on your choice. More lines make it easier to determine the value of plotted points. Too many lines cause the scale numbers to run together. Minor divisions are not available in the 3-D graph mode.

Rotate Axes – Large data in the front hides small data in the back of a 3-D chart. Click on Rotate Axes to turn the 3-D graph 90 degrees so that it can viewed from a different angle. This can be quite useful depending upon the nature of the data being charted.

Width Spacing. . . – Specifies the space or “room” between 3-D columns side-to-side. If you choose None, the bars touch side-to-side. If you choose Remove Width, the bars appear as thin wafers standing on edge with the large face to the side.

Depth Spacing. . . – This option works the same as Width Spacing, except that it specifies the space between 3-D columns front-to-back. If you choose None, the bars touch front-to-back. If you choose Remove Depth, the bars appear as thin wafers standing on edge with the large face to the front.

NOTE: Selecting both Remove Depth and Remove Width at the same time creates a graph where the columns resemble spikes. This simulates what is known as a “pin cushion graph” and can be interesting when very large amounts of data are selected.

Show Grid—Toggles the drawing of the grid background of the 3-D chart on and off. Turning the grid off gives your 3-D graph an appearance of “floating in space”.

It's often worthwhile to try the Rotate Axes option to see if a superior view of the data results. Due to the effect of parallax between the 3-D columns and the graph scale, reading values from a 3-D chart is less practical than with two-dimensional graphs.



The relative size of 3-D columns, however, can be very informative. Experiment freely with the width and depth spacing to see the visual difference of the bars touching each other or standing alone as free standing columns. One disadvantage of this graph type is that it is difficult to read values accurately if the bars are not touching.

Refer to the sample charts in Chapter 8 to get ideas on how varying the depth and width of the 3-D columns can create striking visual effects.

Saving Your Graphs

Once you've opened a GRAPH IT! file, entered your data and determined the characteristics of your graph, you need to save it in order to be able to work with it at another session. GRAPH IT! gives you four options for saving your work.

■ Saving a GRAPH IT! Data File


When you save a file for the first time, choose Save Data As... from the FILE menu. The File Selector Dialog Box will appear. This is the same as the Open Dialog Box except that it includes a Save As window. You can also access this dialog box by using the Quick Keys  .

To enter a new file name, click on the Save As window and type in the name of your file. It can be any combination of letters and numbers up to fifteen characters maximum. Please note, however, that your file name cannot contain any spaces. Once you've entered the file name, press **RETURN** and click on SAVE.

To save as an existing file name, click on the file name in the File Selector Window and then click on Save. You may also double click on the file name.

If you select the name of an existing file, the Replace File Dialog Box appears. It warns you that your choice will replace the existing file and asks you to confirm your decision by clicking on either REPLACE or CANCEL.

You can use Save Data As... to make copies of files with different names using the same data but specifying different graphing parameters.

To save the current version of a previously saved file, select Save Data from the FILE menu or use the Quick Keys  **S**. This will automatically overwrite any previous version of the file.

■ Saving a File for Use in PUBLISH IT!

Choosing Save Chart or Save Chart As... from the FILE menu allows you to save your GRAPH IT! chart as a PUBLISH IT! or PUBLISH IT! 2 compatible graphic file. The graphic file may then be incorporated into desktop publishing documents, and can even be altered with Timeworks PUBLISH IT! or PUBLISH IT! 2 programs. For more information on this, see Chapter 5 of the PUBLISH IT! or PUBLISH IT! 2 manual.

We recommend that you use Save Chart As... so that you can give your graphic file a different name from your data file. If you select Save Chart you will be asked whether you want to replace your data file completely with the graphic file. Choosing this option permanently erases your data file!