
DESIGN TOOLS PRIMARY DESIGN

Drawing and Design Software
for Key Stage 2

TECHSOFT
USER GUIDE

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N.B. Primary Design can be used with a computer running any screen resolution. However, at low resolutions (eg., 640 x 480), the drawing screen may feel cramped, and lines, circles, etc., will seem coarse. TechSoft recommend a minimum screen display of 800 x 600 x 256 colours. (Higher screen resolutions will also improve the appearance, and enhance the use of many other software packages such as word processors, spreadsheets, etc.)

A special thanks to Rob Anthony for his help in testing, and for the use of his drawings.

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1 INTRODUCTION

In general there are two types of drawing package, paint packages and vector drawing packages.

Paint packages colour in the “dots” on screen to form an image (the package “Paint” supplied with Windows is an example). They are great for simple drawings, or editing scanned or photographic images. However they require great skill to create complex drawings. Also, it is virtually impossible to draw objects to a set size, and then to print out to scale.

Vector drawing packages store the drawing as a series of objects, eg., lines, rectangles, circles, etc. Only the relevant coordinates are stored, so that when the image is reproduced (either on screen or on a print-out) it can be to the set size, or accurately scaled without loss of definition. Individual objects can be edited, eg., a circle can easily be made bigger. More complex shapes can also be edited in the same way, eg., an elephant’s trunk could easily be made longer or fatter, etc. Single or groups of objects can be transformed in many ways, rotated, mirrored, repeated, etc. Vector drawing packages are used for the majority of commercial graphic design work, cartoon animation, etc. They are also already widely used in schools at Key Stages 3 & 4.

All this is not to say that either paint or vector drawing packages are “better”, rather that they are complimentary, and both have their place.

Design Tools - Primary Design is a vector drawing package designed for use at Key Stage 2. It allows accurate high quality drawings to be created easily. It opens up many options not possible before, eg., it is possible to accurately draw components to size, print out, stick the printout onto balsa or corre flute, then cut out to size on a shaper saw. This works with even simple things such as circles for wheels. The comprehensive transformation functions can also provide a new slant on maths work. As Primary Design is essentially a simplified and adapted version of Design Tools - 2D Design, TechSoft’s mainstream CAD/drawing package for KS3 onwards, the links with secondary schools are clear.

For those wishing to try CAD/CAM (Computer Aided Design / Computer Aided Manufacture), Primary Design outputs directly to the Roland STIKA. (STIKA, available from TechSoft, is a low cost machine for cutting labels, signs, etc., in vinyl. It also cuts iron-on vinyl.)

In common with most software, Primary Design can be used without further reference to the manual. Most functions are self-explanatory and *Help* is always available. However, to achieve the best results in the shortest time, it is recommended that you read this manual in its entirety, and carefully work through the tutorials. This printed manual is intended as a practical guide to using the software on a day to day basis, not as a deep technical reference. For technical reference information use the *Help* facilities within the software. This manual is aimed primarily at teachers not students.

2 INSTALLATION

Please follow the instructions below carefully for problem free installation.

The installation set supplied consists of a CD ROM and a floppy disk. The floppy disk contains your registration details and will be required during installation. **Keep this disk safe, as it may be required for future upgrades.**

The release CD ROM allows direct installation onto your target computer. If your target computer does not have a CD ROM drive fitted, the CD may be used with any computer that does have a suitable drive, to create an installation set of floppy disks. These floppy disks can then be used to install the software on the target computer.

Microsoft Windows 95/98, NT, etc., Users Only

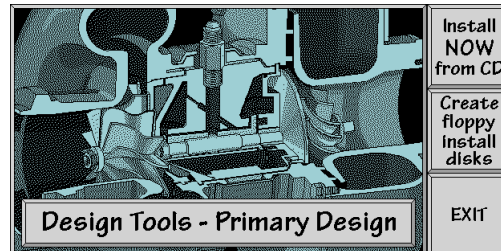
On insertion of the CD into the drive the installation program will normally auto-start. If for any reason the installation disk fails to start automatically, choose *Start > Run*, then type `d:\setup` (adapt this as appropriate if using a CD ROM drive other than d) and press ENTER.

Microsoft Windows V3.1x Users Only

Insert the CD into the drive, and from the Program Manager choose *File > Run*, then type `d:\setup` (adapt this as appropriate if using a CD ROM drive other than d) and press ENTER.

All users

When the install program starts, a splash window similar to that below will be displayed.



If installing directly onto the computer in use, choose the *Install NOW from CD* button, then follow the on-screen prompts.

If you wish to create a floppy disk installation set, choose the *Create floppy install disks* button then follow the on-screen prompts. When the floppy disk set has been created, refer to the section ***Installation from floppy*** disks below.

Installation from floppy disks

Microsoft Windows 95/98, NT, etc.

1. Insert disk 1 in a floppy drive.
2. Choose *Start > Run*.
3. Type *a:\setup* (adapt this as appropriate if using a floppy drive other than a) and press ENTER.
4. Follow the on-screen instructions.

Microsoft Windows V3.1x

1. Insert disk 1 in a floppy drive.
2. From Program Manager choose *File > Run*.
3. Type *a:\setup* (adapt this as appropriate if using a floppy drive other than a) and press ENTER.
4. Follow the on-screen instructions.

3 STARTING THE PROGRAM

16 Bit Version (Microsoft Windows V3.1x)

Double click on the Primary Design icon in the TechSoft Design Tools group.

32 Bit Version (Microsoft Windows 95/98, NT)

Choose *Start > Programs > TechSoft Design Tools > Primary Design*, or use the desktop shortcut icon.

4 DESIGN TOOLS HELP

Help is a standard Windows feature supported by a wide range of software. Design Tools Help gives you easy access to detailed information on every menu item, tool, dialog box, button and feature in Primary Design.

You can access *Help* in the following ways:

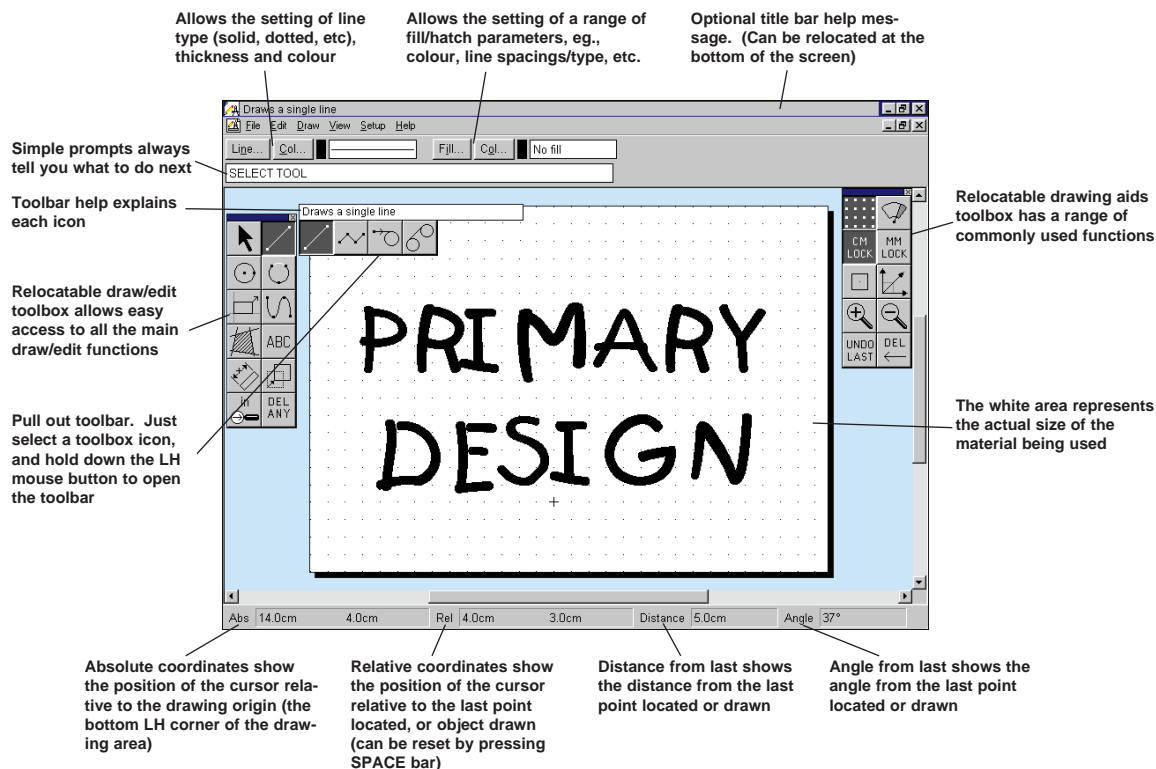
1. Use *Help > Help Topics*.
2. Click on the *Help* button in a dialog box for help on that dialog box.
3. With any menu item highlighted, press the *F1* key to see a Help window describing that item.
4. Press *Shift + F1* to display the Help cursor. Then click on any tool to see a Help window describing it.

5 TUTORIALS

TUTORIAL 1 - Screen layout, menu selection, etc.

The Primary Design program window provides a clear view of the current drawing, various information areas, and a selection of icons with tools to cover the most common drawing, editing, and display functions.

1. Start up Primary Design (see *Starting the Program* page 5) and familiarise yourself with the screen layout as shown below.



2. Menu items are normally chosen from the menu bar or the toolbox, using the mouse (although many keyboard alternatives are available). To choose an item from the toolbox, position the pointer over the appropriate icon and click the LH mouse button. Some items in the RH toolbox (the Drawing Aids toolbox), such as *Grid*, will cause the icon to stay selected (on) until it is chosen again.

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3. Many of the items in the LH toolbox (the Draw/Edit toolbox) have pull out toolbars. These are activated by positioning the pointer on the icon then pressing and holding the LH mouse button for a short while. The pointer can then be dragged along the icon bar until the required icon is highlighted, then the mouse button released. This selects the item, and changes the icon in the toolbox to that chosen.
 4. Most menu items, eg., text, grid, etc., have a related dialog box for settings. To access these dialog boxes, double click on the appropriate icon with the LH mouse button, or click on the icon with the RH mouse button.

TUTORIAL 2 - Setting up the software to suit your system

During the course of this tutorial you will set the software to suit your normal requirements. You will then save these values as the default.

1. Start up Primary Design. Select *Setup > Paper size*. The default setting is for A4 paper. Most people will normally set the drawing screen to match the printer (or STIKA) they are using. If you have an A4 printer you may wonder why you would change from the standard A4 paper size. In fact most printers cannot print to the edges of the paper, so if you set to match your printer, a grey dotted rectangle will appear to show the actual printing area. If you stay within this rectangle, you should not “loose” any image when printing. (This feature depends on the correct values being set in the Windows printer driver, which is obviously out of TechSoft’s control!) Use the dialog box to select the printer/STIKA/material size you will be using most often, then click *OK* to close.
2. Choose the menu option *Setup > Level 1*. You will notice that the LH toolbox now has less options, and the coordinates display at the bottom of the screen has disappeared. In fact there are three levels to choose from, *Level 1* being the simplest, and *Level 3* the most sophisticated. By using different levels it is possible to set the software to match the age/ability level of the students using the software. Set to the level you will be using most often. (You will need *Level 3* to complete these tutorials.)
3. Select *Setup > Set as default*. Click *OK* on the warning dialog box. Close down the software completely, then restart it. You will see that it starts up with the *Paper Size* and *Level* settings you have made. (Any other settings made from the *Setup* menu, eg., the type of grid, will also be saved.)

N.B. If you ever wish to return to the factory default settings, select *Help > Restore Factory Defaults*, then *Setup > Set as default*.

TUTORIAL 3 - Basic Drawing, ie., lines, circles, arcs, curves, etc.

1. Choose the *Single Lines* icon.



Move the cursor around, over the white area. (N.B. You can draw over the blue area, but it will not be printed.) Notice the changing coordinates at the bottom of the screen. Move the cursor to a position where you wish to start a line, and click the LH mouse button. A moving line should now appear. To “finish” a line click the LH mouse button again. Carry on drawing a few more lines. (To help with this tutorial, ensure that some of them cross each other.)

2. Choose the *Connected Lines* icon from the *Lines* toolbar.



Move the cursor to a start point, and click the LH mouse button. To “fix” a line section, click the LH mouse button again. A new moving line should now appear from the end of the fixed line. To “finish”, either double click the LH mouse button (this will “fix” the moving line), or click the RH mouse button (this will finish at the last fixed line). Try drawing a few lines finished in different ways. You will notice that although a grid is showing, the lines are not starting and ending on grid positions.

3. Choose the *CM Lock* icon.



Now draw a few more lines. The ends of the lines will now be fixed to grid positions.

4. Choose the *MM Lock* icon.



Now draw a few more lines. Again the ends of the lines appear to be free. However, they are not entirely free as will be seen after the next two steps.

5. Choose the *Zoom in* icon.



Note the prompt reading *Locate one corner of zoom box*. Move the cursor approx. 1 grid square (1.0cm) below and to the left of any “corner” that you have drawn, then click the LH mouse button. The prompt will change to *Locate opposite corner of zoom box*. Move the mouse to pull out a box up to the right, about 3.0cm square (three grid squares), then click the LH mouse button. That area will now be redrawn to fill the screen.

6. Choose the *Connected Lines* icon again.



Draw some more lines. Notice that when the mouse moves, the cursor moves in small steps between the grid dots. In fact the cursor is moving in 1mm steps.

7. Choose the *MM lock* icon again.



This time MM lock will be deselected and the cursor will be free to move to any position. Thus, there are three lock options, CM lock, MM lock, and no lock.

-
8. Choose the *Zoom Last* icon from the *Zoom* toolbar.



This will restore the previous zoom level, in this case the full drawing screen. (You might also like to try the effects of the *Zoom+* and *Zoom-* icons in the RH toolbox at this point.)

9. Choose the *Grid* icon.



Notice that the grid now disappears. Whether the grid is on or off has no effect on drawing work, the locks work as normal. The grid is purely a visual aid. Double click on the *Grid* icon with the LH mouse button, or single click with the RH button. This opens a dialog box which allows the use of an isometric grid. Experiment, but before proceeding with the tutorial, turn the grid back to *Orthogonal* with the *Grid* on, and *MM lock* on.

10. Choose the *Radial Lock* icon.



Choose the *Connected Lines* icon again and draw a few lines. Any line drawn is now constrained to 45 deg steps.

11. Choose the *Single Lines* icon again and draw a few lines.



12. Choose the *Attach* icon and ensure that *CM Lock* and *Radial Lock* are off.



The cursor will change to a small square. Position the cursor square to overlap the end of any line, and click the LH mouse button. The start of the line being drawn will automatically start exactly from the end of the selected line. Position the cursor over the end of a different line, and click the LH mouse button again. You do not have to be absolutely accurate in your positioning, as long as the square is over the line.

13. So far you have only drawn lines. Try some of the other drawing functions - circles, arcs, shapes and paths. Follow prompts, and use *Help* for further explanation.

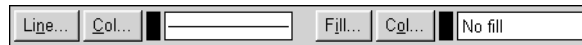
14. Try deleting and undoing as described below.

Simple mistakes may be undone by clicking on the *Undo last* icon in the RH toolbox. This undoes the last operation, either drawing, transforming or deleting. Once undone, the icon becomes *Redo last*. Choosing this effectively undoes the undo. *Redo last* is cleared by any further drawing or deleting operation. Also in the RH toolbox is *Delete last*. This deletes back one object each time it is selected. *Undo last* restores a deleted object, but only the last one deleted! Most other delete functions are in the LH toolbox, where there is *Delete any*, *Delete part*, and *Delete inside box*. *Delete any* allows you to point to an object and delete it. *Delete part* deletes any part of a line, arc, circle or bezier curve back to the closest intersection points to the locating point. Finally, pressing *Ctrl + Delete* on the keyboard deletes the current selection (selection will be dealt with in **Tutorial 5**), pressing *ALT + Delete* on the keyboard deletes the whole of the current drawing. Try some of the *Delete* options now.

TUTORIAL 4 - Line types, Colours and how to fill

Familiarise yourself with how to change line style/colour or solid/hatched fill, as described below:

1. So far, all the drawing done (if you are following these tutorials closely!) will be in solid black lines with no fills. To set a different line style/colour or a solid/hatched fill, new parameters are set from the attributes bar at the top of the screen.

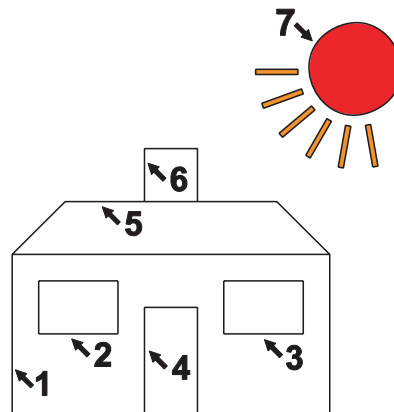


Simply click on the appropriate button to change the attributes from a dialog box. If the line settings are changed to, say, dashed with colour red, all subsequent lines will be red dashed lines. If the fill settings are changed to, say, colour blue, solid fill, all subsequent **closed** shapes (eg., circles, rectangles, closed paths, etc.,) will be filled in blue. Try it.

The attributes bar, as described in 1, is useful for filling shapes “as you draw”. However, more often than not, you have drawn an outline from a variety of lines, arcs, curves, etc., and wish to fill inside it. To do this you need to use the *Hatch/Fill* icon as described below.

2. First choose *File > Close* to clear the work you have done so far. Next choose *File > Open* and load the drawing “house” from the Tutorial directory.

3. Choose the *Hatch/Fill* icon.



From the *Hatch/Fill routine settings* dialog box, click the *Fill Col...* button and choose a colour for the house walls. At the prompt *Locate one edge of boundary on side for hatch/fill*, locate at approximately point 1 shown above. To the question *Any islands*, answer *Yes* and

locate at point 2, repeat for point 3, then answer *No*. The walls will fill with colour, leaving holes for the windows. Double click with the LH button (or click with the RH button) on the *Hatch/Fill* icon to bring back the dialog box. Set the *Fill Col...* to a different colour, and fill the door, locating at point 4. To the question *Any islands*, answer *No*. Repeat for the roof and chimney at points 5 and 6.

It is also possible to change the colour/line style/line style/line style of an object after it has been drawn. This is done as follows:

4. Choose the *Select* icon.



Move the cursor to point 7 and click. The sun will be redrawn in pink, and surrounded by a dotted box (a marquee box) with handles (yellow shapes). (We will explore selection and the marquee box further in **Tutorial 5**). Notice how the information boxes on the attributes bar have blanked out, as shown below.

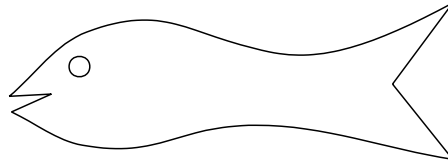


Click the *Fill Col...* button and change the fill colour to orange. Click *OK*, then click anywhere away from the drawing. The sun will turn orange. In a similar manner, we could have altered, not only the fill colour, but also the fill type and the line style/colour, etc., as well. This is useful for changing from solid to outline, etc.

TUTORIAL 5 - Object selection and the marquee box

As you will see in this tutorial, selection is carried out using normal Windows methods. Selected objects may be dragged, rotated, flipped, resized or copied quickly and easily.

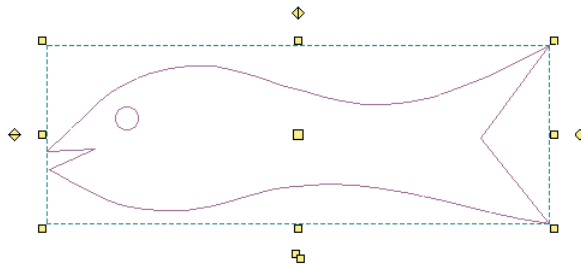
1. Start up Primary Design, or if you have already loaded the program, choose *File > Close* to clear any work you have done so far. Choose *File > Open* and load the drawing “Sammy” from the Tutorial directory.



2. Choose the *Select* icon.



Move the cursor below, and to the LH side of Sammy. Press the LH mouse button, drag a box around the drawing, then release (alternatively *Select All* using the keyboard shortcut *Ctrl + A*). Sammy will be redrawn in pink, and surrounded by a dotted box (a marquee box) with handles (yellow shapes).



3. Familiarise yourself with the marquee box functions, as described below.

The large centre square handle allows the box to be re-positioned. Clicking on the handle with the LH mouse button allows the box to be moved around (*CM Lock* and *Attach* still operate). A second click with the LH mouse button “drops” the box in its new position (or a second click with the RH mouse button cancels the operation.)

N.B. If the initial click is done with the RH mouse button, the handle will move and not the box. Subsequent operations such as flip and rotate will act about this handle. When the marquee box is de-selected, the centre handle will revert to its normal position.

The corner and edge square handles allow the box to be re-sized. Clicking with the LH mouse button allows the handle to move, clicking again redraws the object/s at the new size. N.B. **Warning** - moving the corner and edge handles can alter the aspect ratio. In this case, arcs and circles are converted to elliptical bezier curves, which can no longer have tangency properties, etc. Clicking in a corner handle with the RH mouse button, then moving, maintains the aspect ratio, keeping circles and arcs fixed (this may however, change the drawing layout).

The circular handle to the right of the marquee box allows the object(s) to be rotated. N.B. This can be used in conjunction with the *Radial Lock* tool.

The diamond handles, above and to the left of the the box, flip the object(s) vertically or horizontally, and the double handle below the box copies the object(s), leaving the new copy selected.

Experiment with these handles to test the effects.

N.B. To undo a transformation (or any other drawing or editing operation), click on the *Undo last* icon in the RH toolbox.

4. An individual object (single line, arc, etc.) can be selected by moving the pointer near it and clicking the LH mouse button. Clicking on another object in the same way will select the new object (de-selecting the first object). Clicking on an object with the RH mouse button (or SHIFT + LH mouse button) will "add" or "remove" the object from the selection by toggling its select state.

Multiple objects can be selected by dragging a select box around them with the LH mouse button. Dragging another select box in the same way will create a new selection (cancelling the first). Dragging a select box with the RH mouse button (or SHIFT + LH mouse button), will toggle the select state of the objects.

To de-select objects, move the pointer outside the marquee box and click the LH mouse button. Individual objects may be de-selected using the RH mouse button (or SHIFT + LH mouse button) as described above.

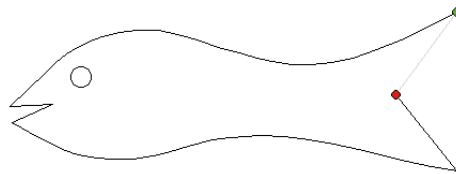
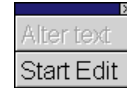
Try all of the above options on Sammy to get the feel of the selection process.

TUTORIAL 6 - Editing the drawing

Selected objects may also be easily edited (start/end/centre/nodes of lines/arcs/paths/text, etc., moved and modified).

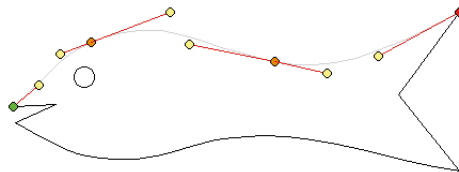
1. Start up Primary Design, or choose *File > Close* to clear any work you have done so far. Choose *File > Open* and load the drawing “Sammy” from the Tutorial directory. Select the upper straight line forming Sammy’s tail. You will notice the *Alter Text/Start Edit* toolbox open in the bottom RH corner of the screen.

Click on the *Start Edit* button.



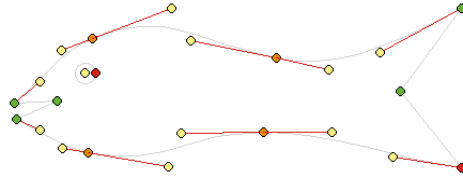
The line will turn grey, and a red and green circle will appear at the ends. These are the nodes of the line (defining points), green indicates the start point, red the end point. Click on the green node using the LH button. The node will now follow the mouse freely around. Click again and the line will be repositioned at that point. Click on *Undo Last* to return the line to its original position. Now click on the green node using the RH button. The line will still move, but is now constrained along its own path. Click again to place the line, then click on *Undo Last* to return the line to its original state. To remove the nodes, click “off” the drawing, (or click on *End Edit*). This will return the marquee box. Click off again to de-select.

2. Now select Sammy’s back curve and then click on *Start Edit*.

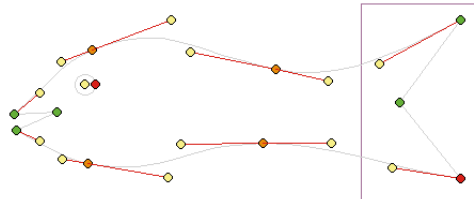


The curve will grey, and circles will appear on it to denote the nodes. (In this case these points are the original location points when the curve was drawn, green - start, red - end, and orange for all other defining points). Each node has two yellow handles (only one for the start and end points). Clicking on a node or a handle with the LH button allows that point to be moved around. Clicking on one of a pair of handles with the RH button, locks the angle of the handles and allows them to move together. Try it.

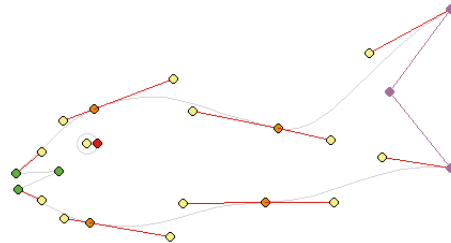
-
3. By now Sammy may be a bit of a mess. Select *End Edit*, close your drawing, and re-load “Sammy” again. Select the whole drawing, then click on *Start Edit*. As you will see it is possible to edit several objects at once.



Drag a select box over Sammy’s tail as shown below.



It is now possible to move the whole tail section by clicking on one of the selected nodes and moving with the mouse.



In this way, very powerful editing changes can be made very easily.

TUTORIAL 7 - Text

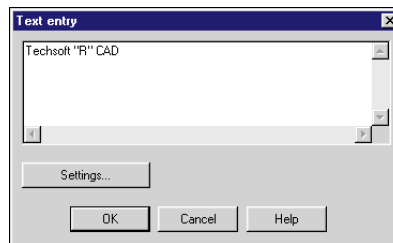
Text fonts used are in Windows TrueType format. Vast numbers of fonts in this format are cheap and widely available.

1. Start up Primary Design, or choose *File > Close* to clear any work you have done so far then choose *File > New* to start a new drawing. For the purposes of this tutorial only, choose *Help > Restore factory defaults*.

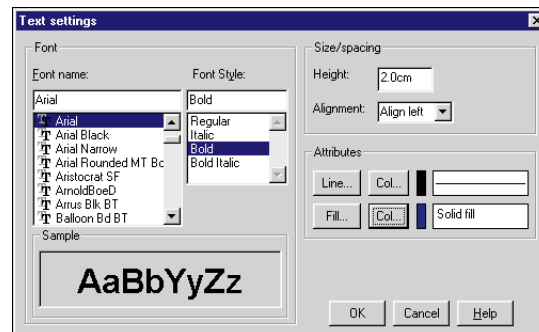
2. Choose the *Linear text* icon.



At the prompt *Locate start position for text*, move the cursor to position (3.0, 4.0) approx., then click the LH mouse button. The following dialog box will open.



Type in **Techsoft “R” CAD** then click on the *Settings* button. The following dialog box will open.

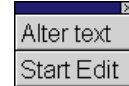


Ensure that the font is set to Arial - Bold (if not available choose another font), the *Height* to 2cm and change the Fill *Col...* to blue. Click *OK* on the *Text settings* box, then *OK* on the *Text entry* box.

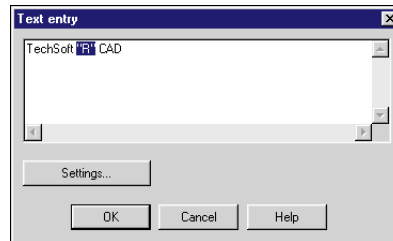
Your text should appear as below.

Techsoft "R" CAD

3. Select the text (so that it has a marquee box around it). You will notice the *Alter Text/Start Edit* toolbox pop up in the bottom RH corner of the screen.



Click on the *Alter text* button. The *Text entry* dialog box will open as below.



Edit the text to change the letter S to a capital. Highlight the three characters "R" (drag the text cursor over the characters so that they are highlighted in blue). Click on the *Settings* button. In the *Text settings* dialog box set the *Height* to 2.5, and the *Fill Col...* to red. *OK* all dialogs, then click off to de-select the text. Your text should appear as below.

TechSoft "R" CAD

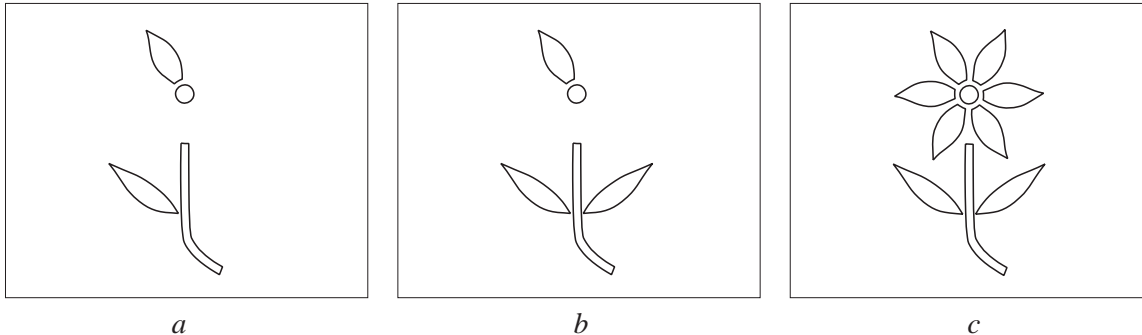
Text can be treated as any other drawing object. It can be selected, rotated, repeated, mirrored, etc. Even more extreme effects can be obtained by selecting the text and then "exploding" it, using the menu item *Edit > Explode*. This converts the text to a series of individual letter "shapes" (paths). Although the text properties are lost, each letter (or groups of letters) can then be modified using *Start Edit*, a useful feature in its own right.





Primary Design uses Windows TrueType fonts. As drawings are created, edited, re-drawn, etc., the software refers back to the TrueType font data stored in the computer. If a drawing is saved and then loaded onto another computer, the text can only be reproduced correctly if the fonts used are installed on the second computer. If the fonts are not found, Windows automatically substitutes an alternative. To be able to display text correctly on other computers without the correct fonts, all text must first be selected, then exploded.

(N.B. Redrawing exploded text can be much slower than redrawing normal text.)

TUTORIAL 8 - Transformations

You have already tried simple transformations using the marquee box in **Tutorial 5**. There are different transformation functions available in the LH toolbox, *Move/Copy*, *Mirror image*, *Rotate* and *Alter Size*. All these functions operate in a similar way. First you must select the objects to be transformed using the *Select* option. Then choose the appropriate transform option (the objects will stay selected but the select box will disappear). Set/check the variables in the dialog box that appears, then follow the screen instructions. The following example illustrates their use.



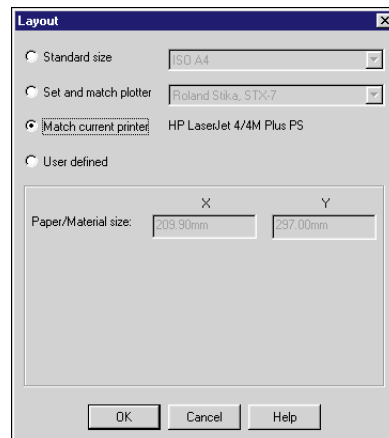
1. Start up Primary Design, or choose *File > Close* to clear any work you have done so far. Choose *File > Open* and load the “flower” drawing from the Tutorial directory. (See *fig a.*)
2. Choose the *Select* icon.  Select the leaf only, by clicking next to it, or by dragging a select box over it.
3. Choose the *Mirror image* icon from the *Transform* toolbar.  Ensure that *Repeat/Replace* is set to *Repeat*. Ensure that *CM Lock* is on. At the prompt *Locate one point on axis of reflection*, move the cursor to co-ordinate position (14.0, 6.0), then click the LH mouse button. At the second prompt *Locate another point on axis of reflection*, locate the cursor at co-ordinate position (14.0, 11.0). The drawing should appear as in *fig b.*
4. Choose the *Select* icon.  Select the petal only, by clicking next to it, or by dragging a select box over it.
5. Choose the *Rotate* icon from the *Transform* toolbar.  Ensure that *Repeat/Replace* is set to *Repeat, No. repeats* to 5, *Angle of rotation* to 60 deg. At the prompt *Locate centre of rotation*, locate the cursor at co-ordinate position (14.0, 15.0). The finished drawing should now appear as in *fig c.*

6 OUTPUTTING

Printing is done using standard Windows drivers, either supplied with Windows, or supplied with your printer. Primary Design also has its own drivers for the Roland STIKA range. (Primary Design combined with a STIKA, provides an ideal low cost introduction to CAD/CAM.)

PRINTERS

When using a printer such as a dot matrix, laser, inkjet, bubble jet, etc., set the Windows printer driver up in the normal way and use *File > Print*. It is good practice to first set the screen drawing area to match the printer to be used. To do this choose *Setup > Paper size > Match current printer*. (See *Tutorial 2* page 7.) If you do not match to the printer, printing can still take place, but you may find that the drawing does not come out where expected on the page, or the drawing may be tiled across several sheets of paper.



If you wish to retain your chosen layout for future sessions, choose *Setup > Set as default*.

ROLAND STIKA USERS

When outputting to a STIKA, first set the screen drawing area to match the material to be used. To do this choose *Setup > Paper size > Set and match plotter*. Then from the resulting dialog box set the size of material being used. (If you wish to retain your chosen layout for future sessions, choose *Setup > Set as default*.)

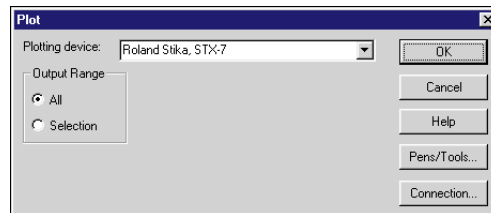
When you are ready to output, choose *File > Plot*. At this time the STIKA should be:

1. Connected to the computer.
2. Plugged in and switched on.
3. Correctly loaded with material, and ready to receive data.

For the STX-7, load a piece of material of a suitable size into the STIKA, and ensure that the green light is on by pressing the button on the machine.

For the SCP-85, simply insert a piece of material of a suitable length into the STIKA (ensuring first that the picture LED is off), and wait until the material has stopped feeding through.

The following *Plot* dialog box will open.



Output range

The output range is normally set to *All*. If, however, an object or group of objects is selected when going to output, the range is set to *Selection*, and if retained, only the currently selected objects will be output. This is a very useful feature for selective outputting.

Connection

The *Connection* may be *Direct to port*, or *Via Generic / Text Only Printer driver*. By default, connection is set to *Direct to port*. In this mode all data is transmitted directly to the STIKA. This is the simplest option to set up, but will cause the computer to be tied up until output is completed.

The *Via Generic / Text Only Printer driver* option makes use of the Windows print buffering capabilities. The *Generic / Text Only* printer driver is a neutral printer driver which allows plotter commands to pass directly through it. It therefore allows direct control of the STIKA, whilst maintaining the advantages of the windows background printing and queueing facilities. Before using this option, however, the *Generic / Text Only* driver must be loaded and set as the current printer driver.

The *Generic / Text Only* printer driver is installed either from Windows 3.1 *Program Manager* using *Control Panel > Printers > Add*, or from Windows 95/98, NT, using *Start > Settings > Printers > Add Printer... Manufacturer "Generic"*. The driver itself is supplied on your Windows installation discs. Additionally the driver's setup should have set: *Paper size - A4, Paper feed - Continuous, No Page break*.

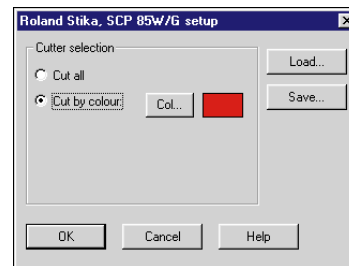
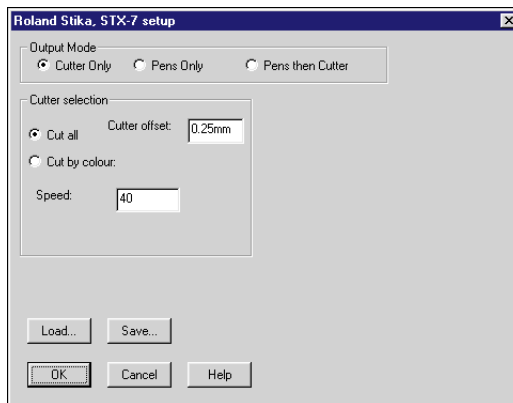
The STIKA STX-7 has a parallel port. If the *Connection* is set to *Direct to port* a suitable parallel port (normally LPT1) must be set. If the *Connection* is set to *Via Generic / Text Only Printer driver*, the printer driver itself must be set to a suitable parallel port (normally LPT1).

The STIKA SCP-85 has a serial port. If the *Connection* is set to *Direct to port* a suitable serial port (normally COM1 or COM2) must be set. If the *Connection* is set to *Via Generic / Text Only Printer driver*, the printer driver itself must be set to a suitable serial port (normally COM1 or COM2), and the protocol must be set to 9600 baud, 8 data bits, 1 stop bit, No parity, Hardware flow control.

If you wish to change the connection permanently, the appropriate changes should be made, and then the setup saved using *Setup > Set as default*.

Pens/Tools

This leads to a dialog box which allows you to determine whether all, or just selected colours are output, and in the case of the STX-7 only, whether a cutter and/or plotting pens are to be used.



As the STIKA is primarily used for cutting, the default *Output mode* is *Cutter only*. In this mode, areas of solid colour fill, and hatching, are never output, and thick lines are output as thin. If *Cut by colour* is selected, only objects in the selected colour will be cut. For the STX-7 only, the *Cutter offset* (the distance of the cutting tip from the central axis) is set to 0.25mm, and should not

be changed unless using a non-standard cutter.

For the STX-7, if pen plotting only is required, the *Output Mode* should be set to *Pens only*, and the dialog box will change as shown in *fig a* below.

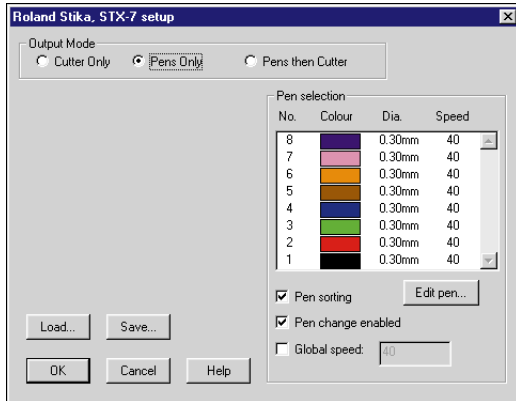


fig a

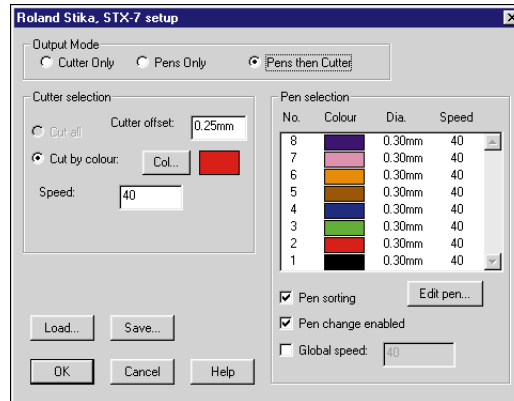


fig b

Each pen can have a colour, diameter and speed value. The speed controls the speed of the pen when drawing. The diameter value sets the distance apart of the “cross hatch” lines when an area is filled (in practise a value about 90% of the diameter value is used to ensure an overlap). The colour of the pen determines which pen is used to plot which colours. The software will look at each colour in the design and choose the nearest match from the pens available (based on RGB values). Pen colours should normally be set to match the pens you have available. When a pen change is required, the STX-7 will stop to allow for a manual pen change, under the direction of an on-screen prompt.

Again for the STX-7 only, if pen plotting and cutting output is required from the same drawing, the *Output Mode* should be set to *Pens then Cutter*. The dialog box will change, and may be set as shown in *fig b* above. Appropriate colours/pen diameters/pen speeds can be set for plotting, and a colour can be selected for cutting (the colour selected for cutting will not be plotted). When a pen/cutter change is required, the STX-7 will stop to allow for a manual change, under the direction of an on-screen prompt.

Load... / Save...

The *Pens/Tools* setup for each device is normally saved (along with all the other settings such as paper size, scale, etc..) using *Setup > Set as default*. The *Load* and *Save* options in this dialog allow advanced users to save the *Pens/Tools* setup separately.

HINTS, TIPS & TROUBLESHOOTING for STIKA

1. **When using the *File > Plot* option, a message *The Generic / Text Only Printer must be selected before plotting with this connection can take place* appears.**

Refer to *Connection* page 20.

2. **When using *File > Plot*, “it’s not working”, there is no reaction from the STIKA.**

The most common cause is incorrect setting up, either from the software or the device itself. If experiencing problems first check that the *Connection* (in the *File > Plot* dialog box) has been set appropriately and that you are using the correct lead.

If using the connection *Via Generic / Text Only Printer driver*, check the installation and settings of the *Generic / Text Only* printer driver very carefully (particularly with regard to the com/serial port settings if using the SCP-85). Refer to *Connection* page 20.

Check that the STIKA has material loaded and is ready to receive data.

3. **Erratic output, spurious lines cut, random data errors, random error lights flashing, etc.**

On some computers, power management systems have been known to cause outputting errors, eg., if data is still being transmitted when the monitor, hard disk, etc., is powered down, the data can become corrupted. (Power management systems are usually setup in the computer bios - refer to the computer documentation or supplier.)

General problems can be caused by hardware clashes in your computer, eg., if two or more devices are set to use the same “hardware interrupts”. This is more common if extra expansion cards are fitted to the computer, eg., network cards, sound cards, SCSI cards, some CD roms, etc. Curing this type of clash may require reference to the supplier of the computer. (From Windows 95/98, NT, you might try *Start > Settings > Control Panel > System > Device Manager > Ports > Select appropriate port > Properties > General* to look for clues.)

4. **Random lines cut when using a STIKA SCP-85 from Windows 95/98, NT.**

These can sometimes be cured by de-selecting the use of FIFO buffers (from Windows 95/98, NT, use *Start > Settings > Control Panel > System > Device Manager > Ports > Select Communications Port (COM1) or Communications Port (COM2) as applicable > Properties > Port Settings > Advanced > de-select Use FIFO buffers*). If this does not cure the problem, advice from the supplier of the computer should be sought.

5. **Vinyl sheets are not feeding into the STIKA SCP-85 properly.**

Try cleaning the lower pinch rollers.

6. **Signwriting vinyl is difficult to weed.**

It is normally the depth of cut at fault. If the cut is too shallow, the vinyl will not cut completely through. If the cut is too deep, the paper backing may be cut and will tend to peel off with the vinyl.

STX-7

Adjust the cutting depth carefully by adjusting the amount of blade extension (as per the STIKA manual) to give best results. If the cutting bed is deeply scored (possibly from repeated cutting with no vinyl!), then the vinyl will be pressed into the groove and it will be difficult to set a depth accurately. If this is the case replace the bed. From the software (*File > Plot > Pens/Tools*) it is possible to set the output to pen plotting. If this has been done, but the machine is still using a cutter, then the corners may not be cut accurately, resulting in difficult weeding at corners.

SCP-85

The cutter cap should be used to set the depth of cut. If this is not used the blade may cut right through the vinyl and score the bed. Also, if the vinyl is too short for the design, it may be ejected and the blade will cut on the bed. If for any reason, the bed becomes scored, then the vinyl will be pressed into the groove and it will be difficult to accurately cut to depth.

Vinyl hardens at low temperature and becomes more difficult to cut. Always try to use vinyl at room temperature (18 to 24 deg. C).

7. **Plotter pens are drying up quickly (STX-7 only).**

If pen plotting do not use cartridge, photocopy or similar paper with fibre tip pens. These papers are abrasive and highly absorbent - they soon wreck good pens! Use smooth non-porous (non, or anti-bleed/absorbent) papers.

8. **I've tried everything, and it still doesn't work!**

If your STIKA powers up correctly, but still does not work after checking the preceding points, then (if possible), try running the machine from another computer (preferably a different model), and/or with a different lead. (Computers and leads can be faulty as well as STIKA's!!)

Techsoft are always pleased to try and offer technical help and support. However we will be unable to help with communication/computer problems, except for advice of a general nature.

7 CLIPART & LINKS WITH OTHER SOFTWARE

Commercial clipart may be loaded directly into Primary Design provided it is in a format accepted by the *File > Import* option, eg., *wmf* (*Windows metafile*), *dxf* (*Data Exchange format*), *plt* (*HPGL plot file*), *aff* (*Acorn Draw file*), etc. If the clipart is in another format, eg., *cdr*, then the image must first be loaded into a suitable drawing application, then transferred to Primary Design. Transferring a drawing from another application into Primary Design can be done in one of two ways:

1. In the other application, save the drawing in a format that Primary Design can import, eg., *wmf*, *dxf*, etc. In Primary Design, use *File > Import* to load the drawing.
2. In the other application, *Copy* the drawing to the clipboard. In Primary Design, use *Edit > Paste* to load the drawing.

In a similar way Primary Design files can be transferred to other applications using *File > Export*, or by copying to the clipboard then pasting into the other application from the clipboard.

The preferred data format for transfer between Windows based drawing packages is *wmf* (Windows metafile format) or *emf* (Enhanced metafile format).

N.B. Confusion sometimes arises about the use of bitmap images in Design Tools - Primary Design. See below for details.

Bitmap / Scanned Images

Primary Design only understands drawings in vector format (lines, arcs, etc.). It does not understand bitmap (raster) images. Bitmap images are normally produced in painting packages or from handheld or flatbed scanners. These images essentially consist of pictures made up of small coloured dots. (Some clipart is in bitmap format.) To load images from these sources into Primary Design they must first be “vectorised”, ie., the coloured shapes in the image must be “traced” around to create an equivalent vector image. This must be done in one of several third party pieces of software. To confuse the issue slightly, whilst *wmf* and *emf* files are primarily used for vector format drawings, they can also store other drawing data such as bitmap data. If a *wmf* or *emf* file with bitmap data is loaded into Primary Design, the bitmap part of the data will be ignored (this may lead to a blank drawing, and the user thinking that loading has “gone wrong”).

N.B. As a cautionary note, vectorised bitmap images can be excellent, but are often very poor, particularly when photographic or other complex images are used. Bitmap to vector conversion is not an easy option for inexperienced users, and should only be used as a last resort.

