

Electronic Illustration

Adobe Illustrator CS6

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Introduction to Electronic Illustration & Adobe Illustrator

What is Adobe Illustrator?

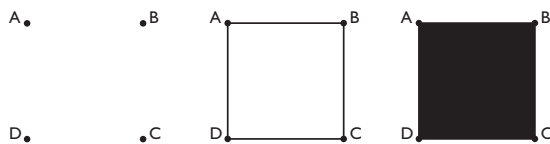
Adobe Illustrator is the industry standard for electronic illustration. Virtually all design vacancies request that the applicant has the ability to use Illustrator.

Illustrator is a powerful and highly versatile software package. It enables its user to produce complex images and layouts that are very small in file size due to illustrators use of Vector Graphics.

What is a Vector Graphic?

A Vector Graphic is a visual result of a mathematical equation. Each shape has a number of Anchor Points and each anchor point has a set of coordinates that goes into the

shapes equation. For example; here there are four anchor points, ABCD. All of the anchor points are linked with a line that is 1point in weight. The colour of the line is black and the enclosed area is also black.

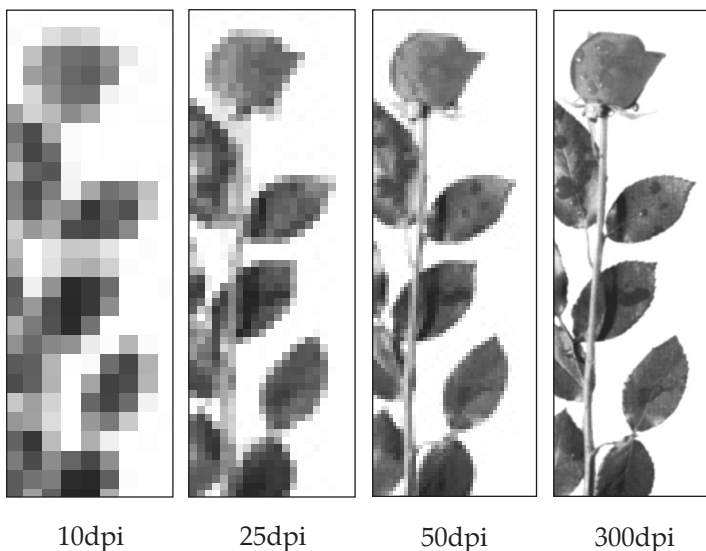


The file size that is generated for an Illustrator graphic is very small because of these mathematical equations. Another advantage to the vector graphic is that it can be virtually any size without image degradation, again this is due to the mathematical equation. Other software packages, such as Adobe Photoshop construct their images with pixels that have greater limitations than a vector image.

What is a Pixel Image?

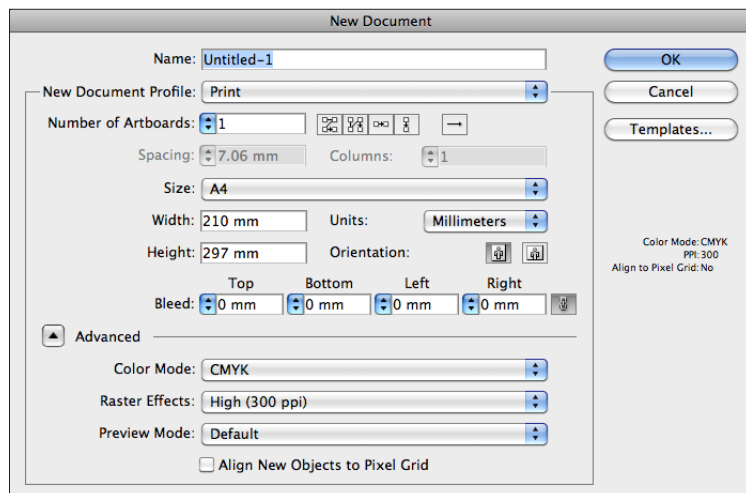
A Pixel image is made up of tiny coloured boxes called Pixels. Each pixel contains information regarding its position and colour, be it CMYK or RGB. Pixels are measured in their number of Dots Per Inch (dpi). The higher the

number of dpi the better the image quality. However, the higher the dpi the larger the file size. When working professionally you would be working on images at no less than 300dpi which means that an A4 image is about 25Mb in file size compared to a vector graphic illustration that is only a few k.



Setting up your Illustrator Document

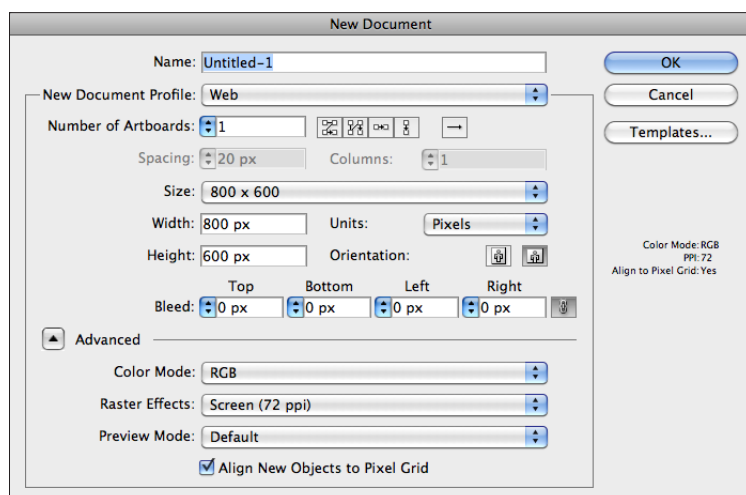
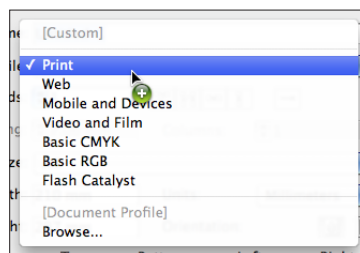
To create a New Document go to *File - New...or cmdN*. The New Document window allows you to set up many key aspects relating to the type of document that you are creating. There are several default document profiles that you can choose from, such as *Print* or *Web* (as shown in the examples here).



Things that you would want to set are:

- Number of Art boards - Illustrator CS5 allows you to have multiple art boards contained within a single document.
- Page/art board size.
- Measurement units.
- Bleed.
- Colour Mode.
- ...and so on.

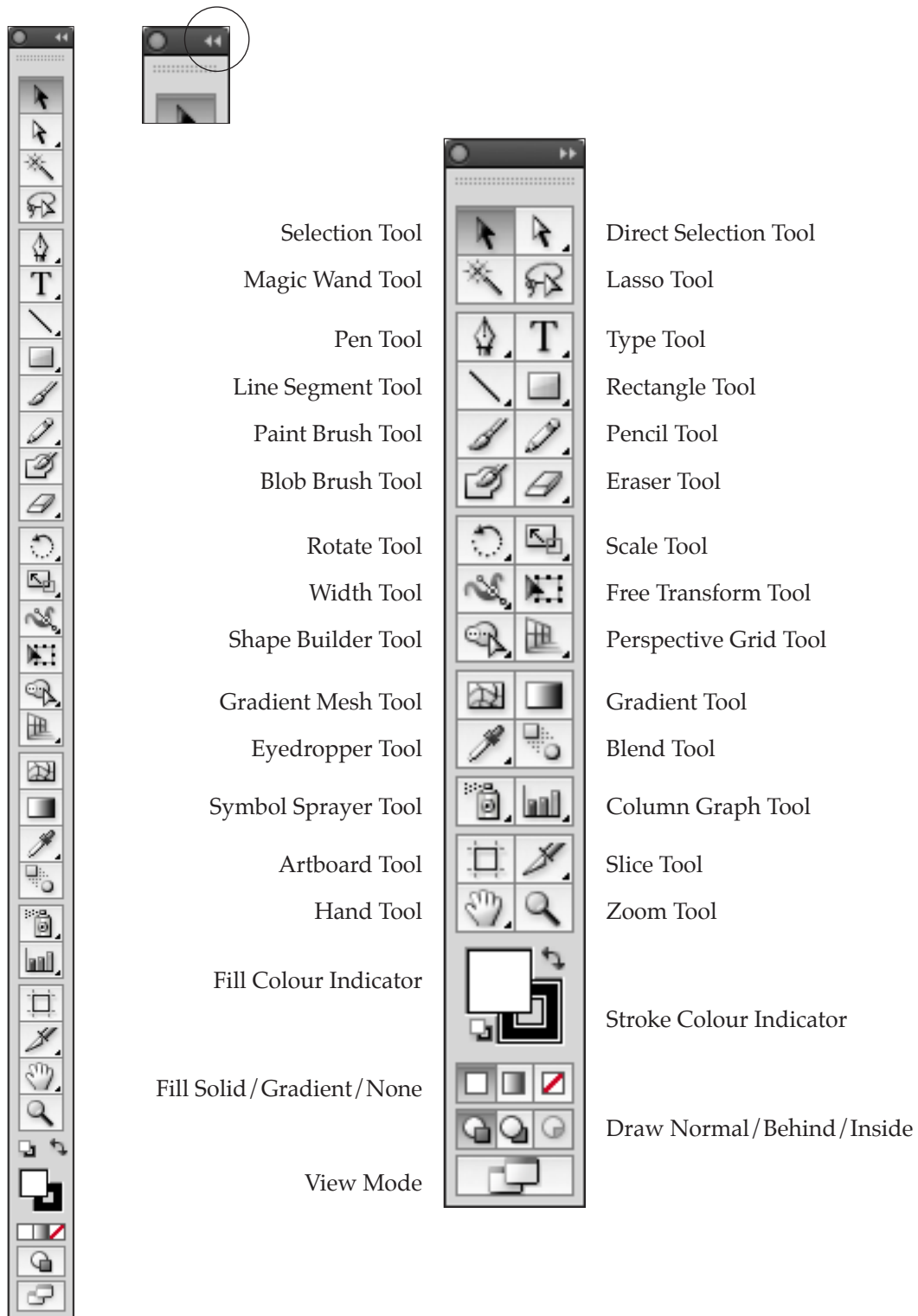
For the most part you will not need to alter the default settings much. Possibly the most common alteration you will make in this window is changing the page size.



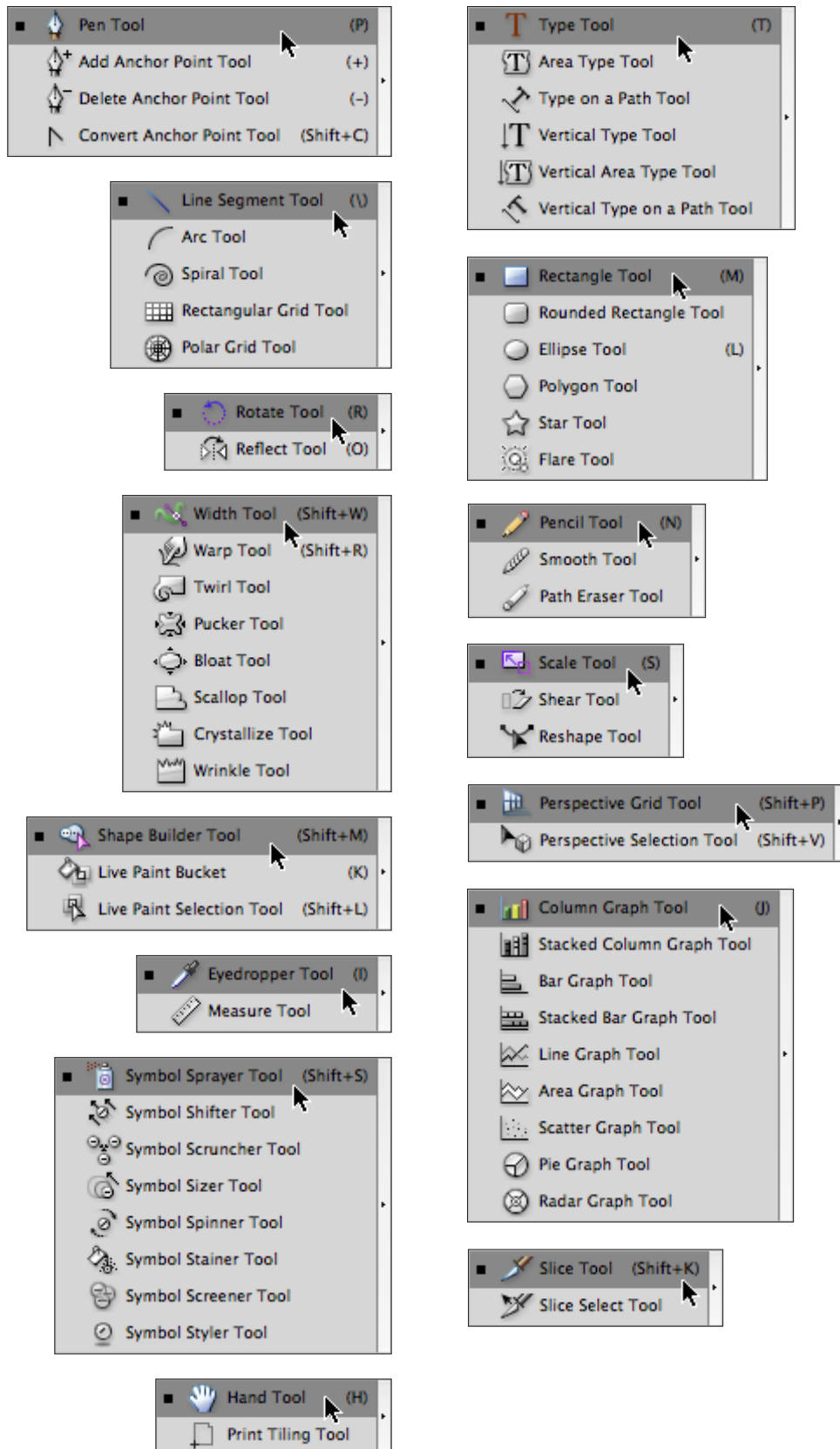
When designing for web you will notice that several things have changed in the New Document window. The page size has automatically changed to pixels and the colour mode has changed to RGB. Also, *Align New Objects to Pixel Grid* is now activated. This will help to prevent fuzzy edges appearing on you art work when it is output to web.

The Tools Palette

The tools palette should appear automatically when Illustrator starts up. However, if you are unable to see the tools palette then you can open it by going to *Window - Show Tools*. The palette can be viewed as a long strip or in a more traditional condensed appearance.



There are additional tools to those shown in the above diagram. These additional tools can be found by clicking and holding on a tool icon that has a small black indicator in its bottom right corner. Here are the other tools.





The Zoom Tool (Z)

The Zoom tool allows you to zoom into your art work for a better view of what you are working on. By holding down the alt key the zoom icon changes from a + to a - thus enabling you to zoom out for an over all view of your art work. There are also a number of quick key combinations that provide zoom abilities

- cmd- Zoom out
- cmd+ Zoom in
- cmd0 Fit in window
- cmd1 Actual size

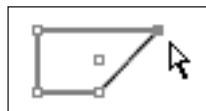
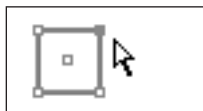


The Selection Tools (V/A)

Selected anchor point



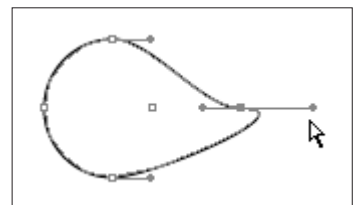
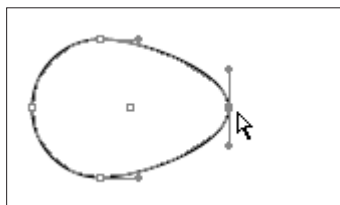
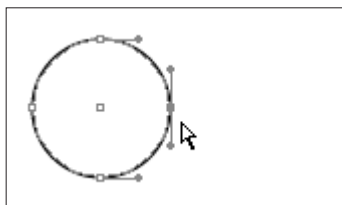
Deselected anchor point



The two main selection tools that are used in Illustrator are the Black arrow and the White arrow. The black arrow (called the selection tool) enables you to select a whole object by activating all of the anchor points. You can tell when an anchor point has been selected because it will become solid.

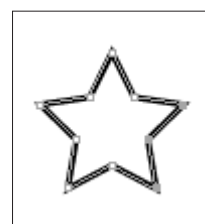
The White arrow enables you to select a single anchor point or a line between two anchor points. By doing this you can move that anchor point or line to change the look of a shape. You can also alter the arc of a line with the white arrow in the same way. And greater control is gained by moving the bezier points.

Holding down the *Shift* key enables you to select multiple shapes or anchor points. You can also click and drag a selection area around multiple objects.



The lasso Tool (Q)

The lasso tool helps you to select groups of shapes or groups of anchor points. The lasso will let you select multiple anchor points on the same shape, gradient mesh or group of shapes.



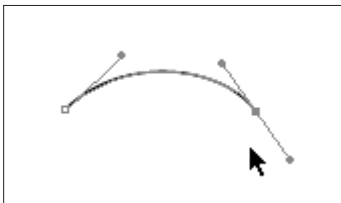


The Pen Tool (P)

The Pen tool is the best way to draw lines in Illustrator. You are able to create straight lines, vertical and horizontal lines, curved lines and whole shapes. To draw a straight line simply click at where you want the line to start and then click on where you want the line to finish. By holding down the *Shift* key your next anchor point will create either a vertical, horizontal or a 45° line.



Click & Hold & Drag
Click & Hold & Drag



Drawing curved lines.

The arc of a curve is controlled by the bezier points that are attached to the lines anchor points. To create the bezier points simply click & Hold, drag then release. This will give you an anchor point situated in the middle of two bezier points. Then by doing the same again (click, drag, release) you will have drawn a curved line.

Remember that with the direct selection tool (white arrow) you can alter the position of the anchor points and the arc of the curve.

The Pen tool cursor icons

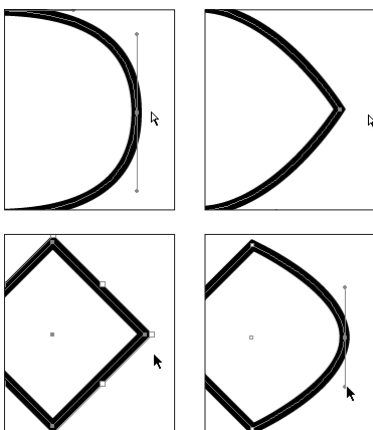
When using the pen tool you will notice that the cursor icons change this adds extra functionality to the pen tool.

- x indicates a new start for a line.
- + Add and extra anchor point to a line.
- Delete an anchor point from a line.
- / Restart drawing on an existing line.
- ° Joins to starting point to make a whole shape.

The add anchor point and delete anchor point are also available from the tool palette (see p3). There is a final icon regarding the pen tool and that is the Convert Direction Point Tool. This allows you to turn a curve anchor point into an angle anchor point or visa-versa.



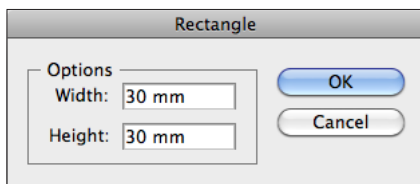
Convert Direction Point Tool (Shift+C)



To convert a curve anchor point into an angle anchor point just simply click on the anchor point that you wish to change with the convert directing point tool.

To convert an angle anchor point to a curve anchor point you will need to click and drag to create the bezier points.

Basic Shape Tools (M/L)



The Ellipse and the Rectangle tool provide you with the basic shapes that their name suggests. You can click and drag a to create a shape. To specify the exact shape size, click once and type into the desired dimensions into the dialogue box that appears.

To draw a circle simply use the Ellipse tool and hold down the *Shift* key as you draw to constrain proportions. Doing the same with the Rectangle tool you will get a square. You can also hold down the *alt* key as you drag to draw from a centre point.

Parts of a Shape

All shapes in Illustrator have three components, they are anchor points, stroke and an area fill. You should now be familiar with anchor points and how to use them. The Stroke is the line that joins the anchor points together and the Area Fill represents the area enclosed by the Stroke.

Figure 1 shows that the Area Fill has a no fill. This is indicated by the line across the box which appears as a red line on your computer screen. *Figure 2* shows that the Stroke colour is set to black.

Which ever box is in the foreground is the one that any colour changes will occur in. By clicking on the double headed arrow in the top right hand corner you can swap the stroke colour and the area fill colour around (*Figure 3*).

In the bottom left you can see the reset to default button. This will remove and colours or stroke thicknesses from the selected shape.

Figure 1



Figure 2

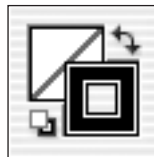
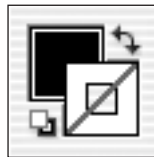
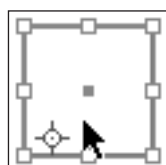
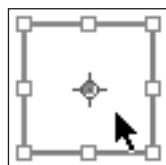


Figure 3

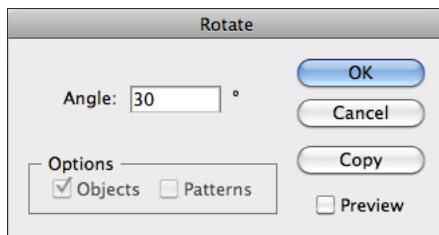


The Rotate Tool (R)



The Rotate tool will effect any selected object, shape or anchor point. If you want to rotate a whole shape use the black arrow to select then click on the Rotate tool. A small cross hair target will appear in the centre of the shape that you want to rotate. This shows the point where the shape will rotate around. The rotation point is movable and is done by simply clicking where you want it to be.

There are two ways that you can rotate a shape or object, free rotate and constrained rotate. To free rotate set the rotation point then move the cursor about an inch or so away for the rotation point, then click and hold and when you move the mouse (still with the mouse button depressed) the shape will rotate. To gain more control when rotating move the cursor further away from the rotation point. Also, you can constrain to 45° rotations by holding down *Shift*.



If you know the exact angle that you want to set a shape to then it is best to use the constrained rotate method. To do this double click on the rotate tool and then type in the angle required into the window that appears. To use a constrained rotate hold down *alt* then click on the point that you wish to rotate around.



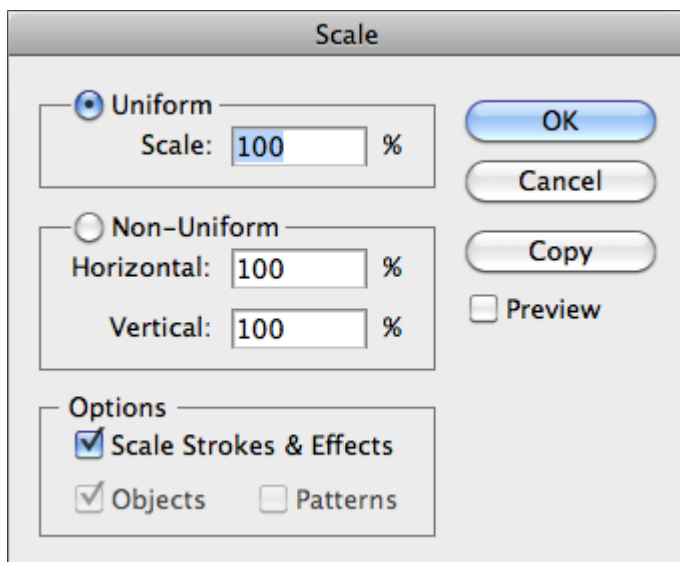
The Scale Tool (S)

Similar to the rotate tool the scale tool has both free scale and constrained. With a shape selected click on the scale tool then click on an anchor point and drag to rescale the shape. Holding down the *shift* key will keep the shape in proportion during its rescaling.

To use the constrained scale double click on the scale tool, remember to have the shape selected first, and the constrained scale window will appear. In this window you

can do a *uniform* scale which rescales the shape by the same amount in all directions, or non-uniform where you can designate different scale values to different directions.

An important feature to note in this window is that of *Scale Stroke Weight* this will rescale the shapes stroke by the same scale value applied to the rest of the shape. With this option turned off the stroke weight will stay the same regardless of scaling up or down.



Copy and Paste

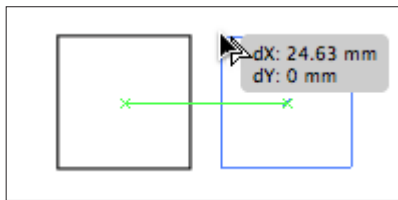
Edit	Object	Type	Select	Effect
Undo Rectangle				⌘Z
Redo				⇧⌘Z
Cut				⌘X
Copy				⌘C
Paste				⌘V
Paste in Front				⌘F
Paste in Back				⌘B
Paste in Place				⇧⌘V
Paste on All Artboards				⌘⇧⌘V

Copy and Paste is an ability that is constant throughout virtually all application programmes. They are found in the Edit menu, or you can use the quick key combinations ;

cmdC copy
cmdV paste
cmdF paste in front etc.

Quick Key combinations are found next to the corresponding action in the drop down menus, try to learn them as you work this will improve your productivity and knowledge of the software.

When you paste a shape it will appear in the centre of the active document window. Illustrator gives you the option to copy a shape and then paste it directly on top or behind its self.



Another way to copy and paste is, as you go to move a shape with the black arrow hold down the *alt* key and the selected shape will be copied. Try doing this with both the *alt* and *shift* keys pressed.



The Reflect Tool (O)

The Reflect Tool enables you to flip a shape at any angle, or by double clicking on the reflect tool you can either use the horizontal and vertical defaults or set an exact angle to flip the shape by.

Organising your shapes and your document

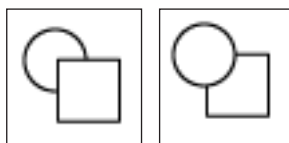


Figure 1

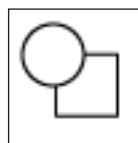
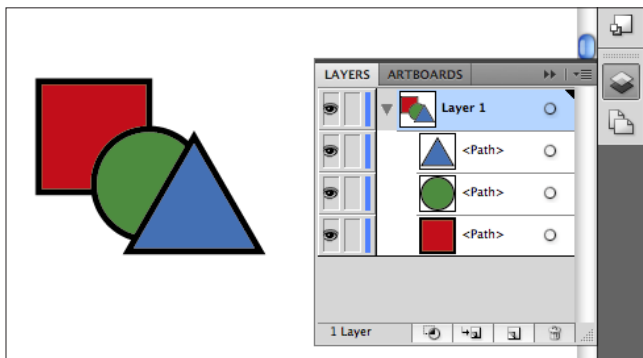


Figure 2

When you draw a new shape it will automatically be placed on top of the last drawn shape. In *figure 1* the circle was drawn first and then the square. To bring the circle in front of the square first select the circle and then go to *Object - Arrange - Bring To Front (shift I)* the circle will now be in front of the square (*figure 2*).

When you draw a shape, place an image or type some text, it will appear on its very own sub-layer to which ever layer you are working on.

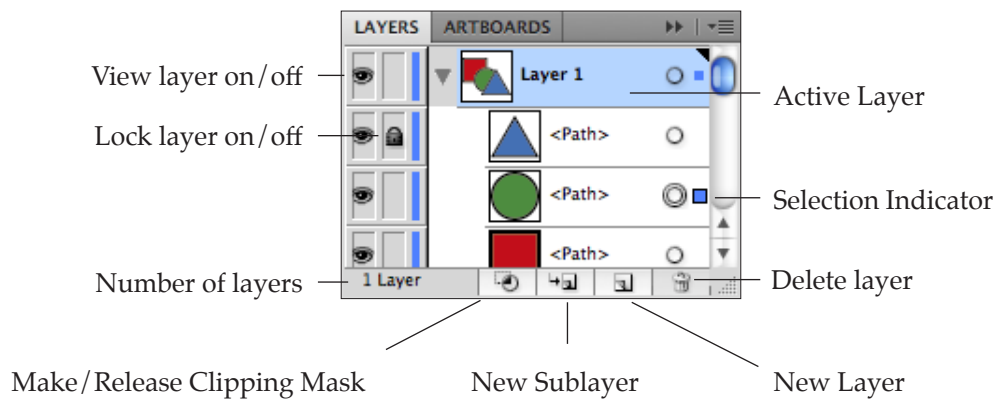


When you are working on a more complex document it is easier to break down the overall image into manageable sections and designate a layer to that section.

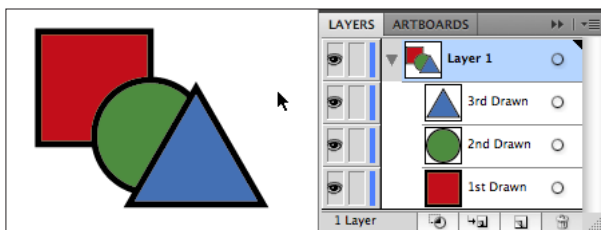
To open the layers window go to *Window - Show Layers* and this window will appear. To add an new layer go to the palette menu on the right hand side of the window and click on *New Layer*.

In the *Layer Options* window that has now appeared you can change the name of the new layer, in this example the new layer will hold all of the text for the document so it is renamed *Text Layer*. This is also the window that you can change the path colour and allocate any special abilities to that layer. To open this window for a layer that already exists simply double click on the layer in the *Layers Window*.

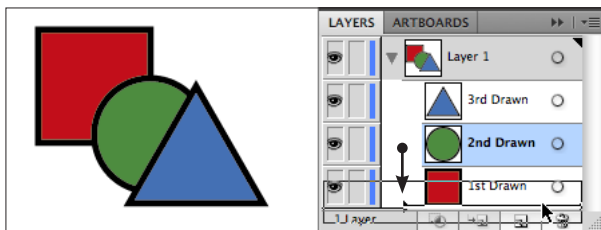
The diagram below indicates the other abilities of the layers window such as view, write protect, copy layer and delete layer.



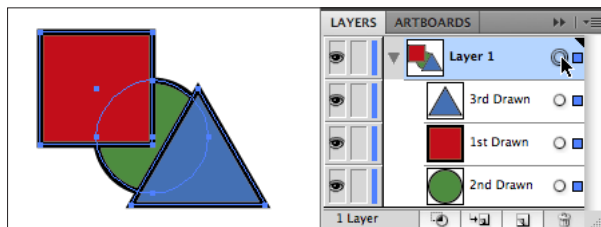
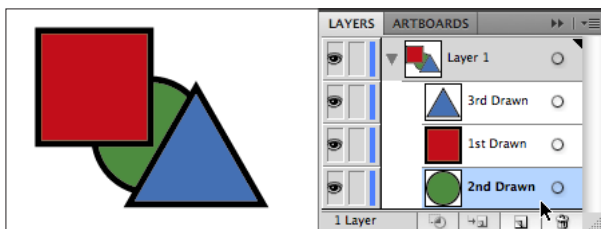
Organising your Layers and Sublayers



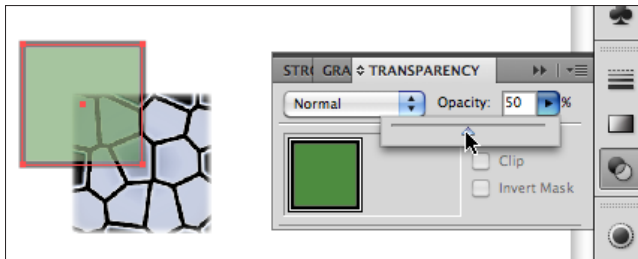
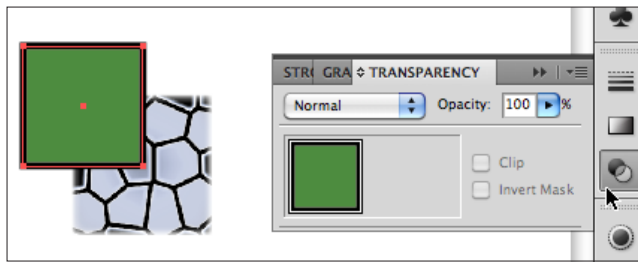
Organising your shapes is made easy thanks to Illustrator's use of sublayers. Each shape that is drawn appears on its own sublayer and the layer palette shows the overlay order for all the shapes.



To rearrange the order of shapes on a layer or between layers simply drag and drop the shapes sublayer to where you want it to go.



To select all of the shapes that are situated on any one layer all you need to do is click on the small circle on the right side of the layer palette. This will select all unlocked shapes on the layer.



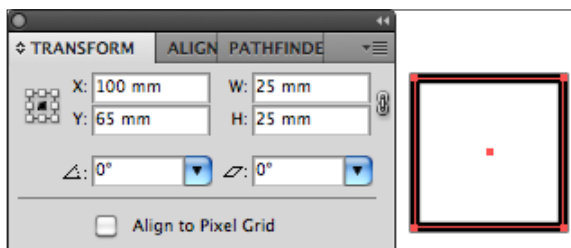
Transparency

A powerful feature of Adobe Illustrator is the Transparency palette which can be found by going to *Window - Show Transparency*. The Transparency palette allows you to change the opacity of a layer or object. This enables shapes on underlying layers to show through, much in the same way as changing the opacity of a layer in Photoshop. Due to each shape existing on its own sub layer they can still be moved or resized with no hindrance. This also means that you can change the opacity of gradient meshes and placed images.

Rulers and Guides

To get rules on the document window go to *View - Show Rulers* or *cmdR*. The measuring units can be changed in the document setup. Guide lines can be setup by dragging them from the document rules. When the guides appear they are fixed in the place that they are left. If you want to move the guides to a different position you will need to go to *View - Guides*. The tick indicates that lock guides is turned on. With lock guides deactivated not only can you move the guides but you also rotate them as with a normal path or shape.

You can also convert a shape into a guide by going to *View - Guides - Make Guides*, and can be reverted by *Release Guides* (remember to unlock guides first).



Transform

In the transform window (*Window - Transform*) you can precisely dictate the exact size, position, angle and shear. The X and Y measurements indicate the position of a shapes anchor point.

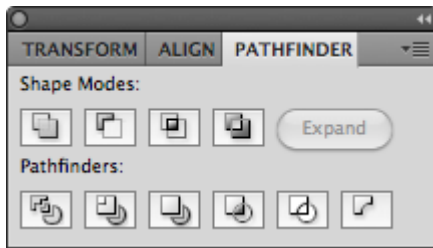


Alignment

The Alignment Window (*Window - Show Alignment*) helps you to organise shapes that are in your document. You can align left, vertical centre, align right, align top, horizontal centre and align bottom. Also if there is a line of shapes you can distribute them evenly by using the distribute objects options.

Combining both Transform and Align you have complete control over the position of any shapes that appear in your document giving a professional look and finish.

Creating Complex Shapes



The Pathfinder Palette

You are able to create more complex shapes in Illustrator by joining basic shapes together. The easiest way in which to do this is by using the *Pathfinder Palette* or the *Shape Builder Tool*. To open the Pathfinder Palette go to *Window - Pathfinder*. To apply a Pathfinder affect select two or more shapes and click one of the Pathfinder functions.

The four Shape Modes in the Pathfinder palette will either Unite, Subtract, Intersect or Exclude by clicking on the relevant icon. If you hold *alt* when clicking on one of these features the shapes will remain adaptable (the shapes can be moved/manipulated with the white arrow) until you click on the Expand Button.

Experiment with the other pathfinder tools to see how they work and what effects they can provide.

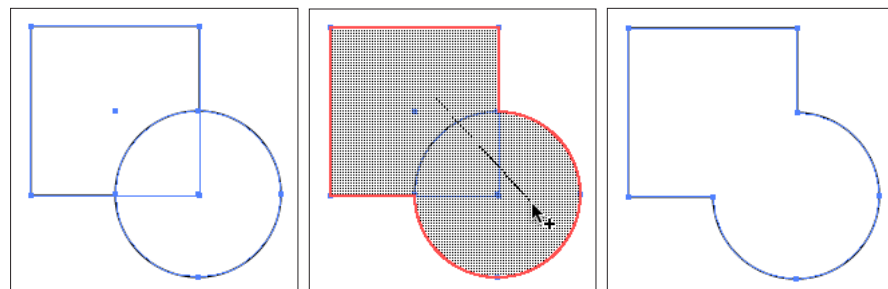
Also try the Warp Tool to see what different effects you can achieve.



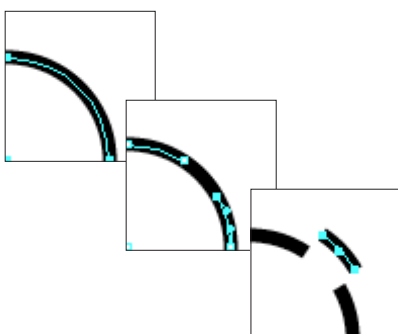
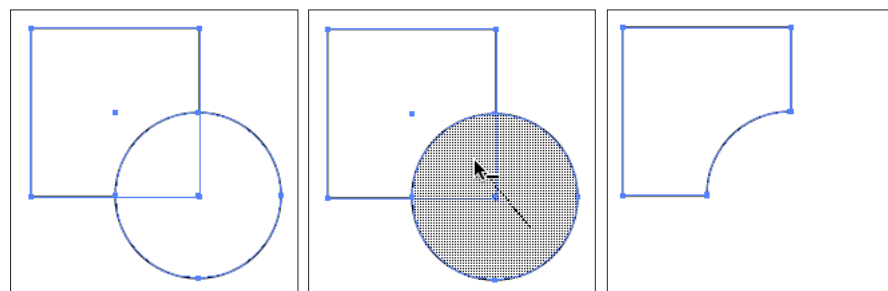
Shape Builder Tool (Shift+M)

The Shape Builder Tool is a quick way to join multiple shapes together or by holding *alt* you can subtract one shape from another.

Unite shapes



Hold *alt* to Subtract



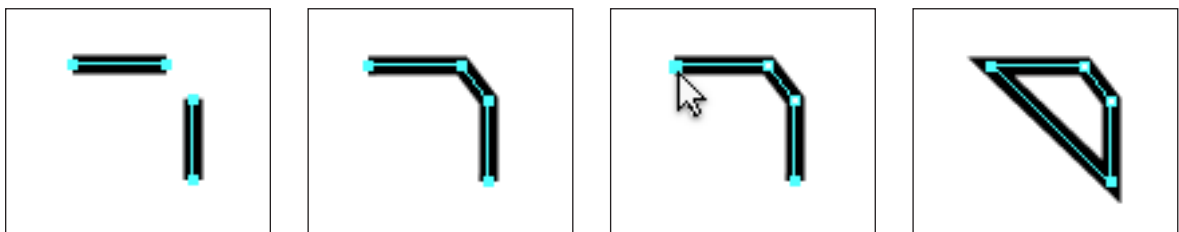
The Scissors Tool (C)

The Scissors tool enables you to cut a section from a path just like normal scissors and a piece of string. With the scissors tool selected click on the path where you want to make the cut then, if you need to click the second point to isolate the section.

Joining Paths

To join two open ended paths you need to have both paths selected. If the open ended points are touching or very close together Illustrator will join them with when you go to *Object - Path - Join* or *cmdJ*.

If the points are far apart use the white arrow to select the two anchor points that you wish to join. The Join command will only work on a even number of open anchor points. To get a better view use the zoom tool along with *View - Artwork* this will show only the paths of the image, repeat the action to return to the preview mode. When you have the two anchor points selected go to *Object - Path - Join* or *cmdJ*.



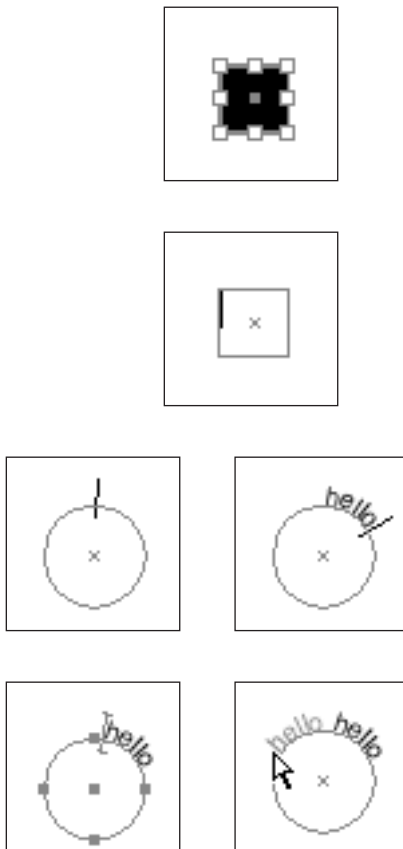
Text in Illustrator

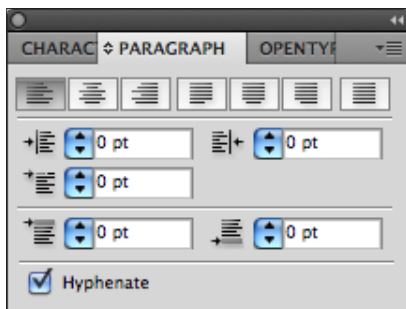
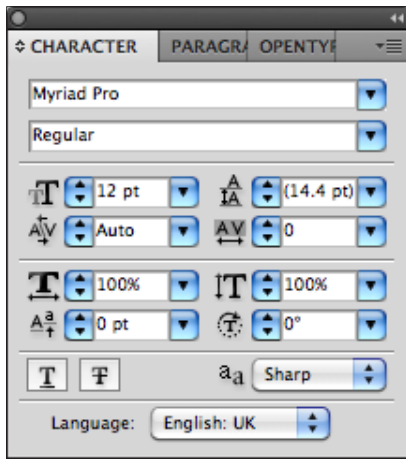
The Type Tool

The Type tool has different functions, such as area type and path type. With the normal type tool you can simply click and type. However, the text will appear in one long straight line and can only be reflowed by pressing the Return key. Another way to combat this is to constrict the type to an area or text box. Text can be added to any whole shape or path, to do this move the cursor to the left hand side of the shape and click on the path. The shape should now have turned into a path with no colour fill or line weight. Inside the shape should now be a blinking type icon, if so you are ready to add text to the shape.

Type on a Path

Selecting the Path type tool you can run text along a path to give different text affects. This is done by clicking on the path with the path type tool. If the text is not quite in the right place on the path then this can be corrected by using the black arrow. When selecting the text path with one of the arrows a large coloured icon will appear, simply drag this icon and the text will move.





The Character Palette

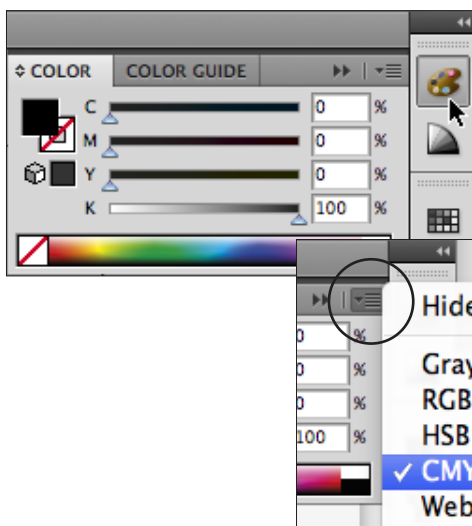
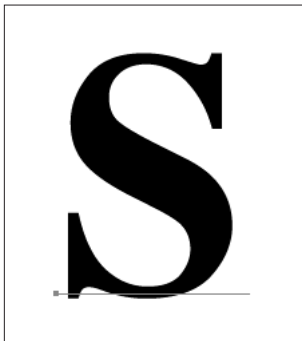
Although you are able to change type size and face by using the drop down menus from the Type menu, there is a better way and that is to use the Character Palette (*Window - Type - Character.. or cmdT*). The Character palette allows you to change the font type face, size, leading, kerning and tracking. There are also some hidden abilities such as vertical scale, horizontal scale and baseline shift.

When you want to control large blocks of text the Paragraph palette helps you to set your type. Here you can alter the alignment of the text and set indent parameters such as left indent, right indent and first line indent etc.

You can also activate or deactivate hyphenation by ticking the Hyphenate box. If this is not visible you may need to expand the palette window by clicking on the little up and down arrows found next to the word PARAGRAPH.

Text as Outlines

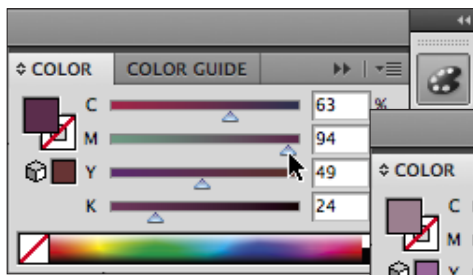
If you need to alter the shape of a character other than its size and face then you will need to turn the character into a shape. This is done by selecting the text or character that you want to change and then go to *Type - Create Outlines*. The text will now have turned into a shape and can be altered in the same way as any other shape.



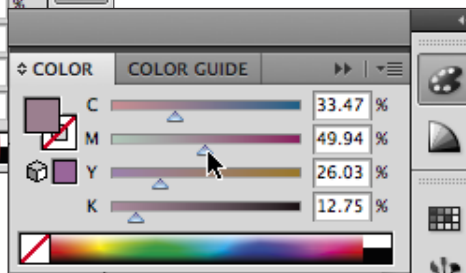
Colour Management

Colour management in Illustrator involves several windows and palettes. One of the most common palettes is the Color palette (*Window - Color*). The Color Palette enables you to alter the individual values of any colour.

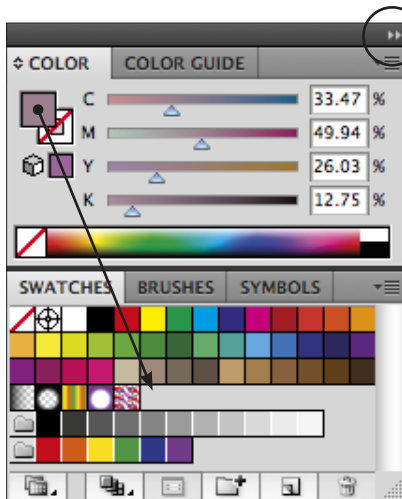
On the left side of the palette you can select either a shapes colour fill or its stroke colour. The example shows the color palette with a CMYK colour setting, if you require a different colour setting like RGB then use the hidden side palette.



To create a tint of a colour hold down *Shift* and then move the slider on the colour bar that has the highest



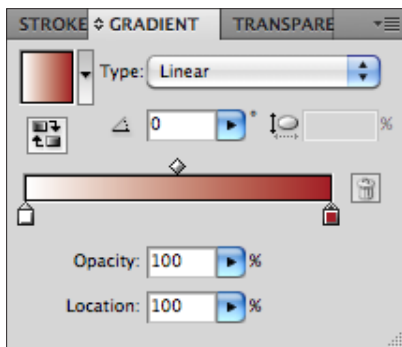
percentage. The other colours will reduce in proportion to the colour slider that you are moving.



Swatches Palette

The Swatches palette (*Window - Swatches*) offers default colours, patterns and gradients. It is also where you can save colours that you have made in the Color palette and new gradients. To save a colour from the Color palette to the Swatches palette simply drag it from one to the other.

→ This is made much easier if both palettes are visible. To expand all the nested palettes click on the expansion arrows near the top right of the palette bar.



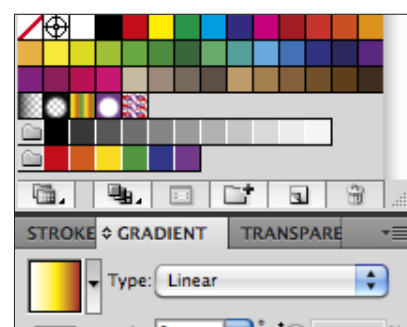
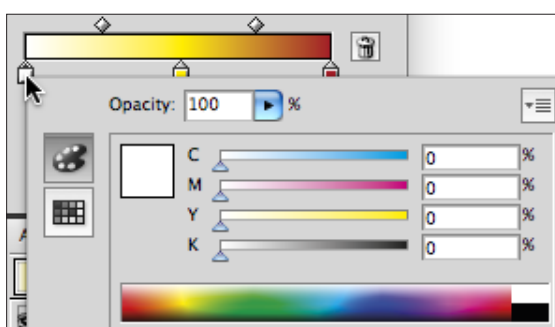
Gradient Palette

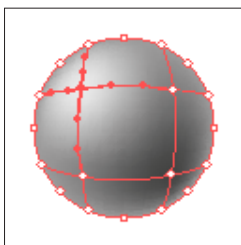
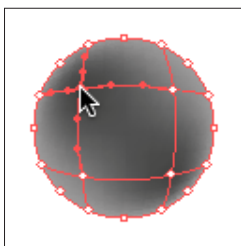
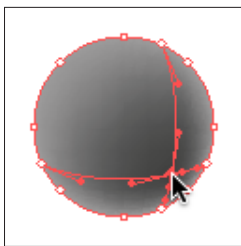
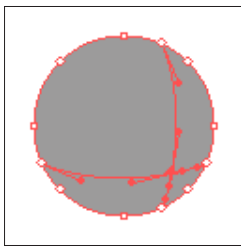
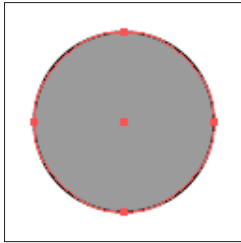
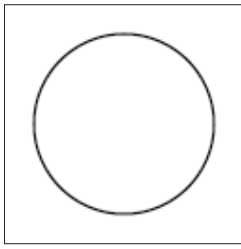
When opened (*Window - Gradient*) you will see the default gradient which is a black to white linear gradient. To change one of the two default colours just drag the desired colour from the Swatches palette onto the gradient colour that you wish to change. To add a third or fourth colour just drag the chosen colour down to the sliding scale. The sliders on the top of the gradient scale alter the mix of colours. The default mix for colours is 50 - 50.

You can also alter the colours by double clicking on the colour you want to change. This will open a colour palette giving you access to a colour mixer, colour modes, colour swatches and opacity via the corresponding buttons and menus.

To save the gradient that you have just created drag the gradient preview to the swatch palette.

There are also several swatch libraries available that can be found under *Window - Swatch Libraries*, such as the Pantone libraries.





Gradient Mesh (U)

To create more realistic and complex colour blends you will need to use the gradient mesh tool. The gradient mesh can give flat shape a more solid three dimensional appearance. Before you begin to apply a gradient mesh I recommend that you decide where the light areas and dark areas are.

Step 1

Fill the shape with the colour that you want to use then make that colour into a 50% tint.

Step 2

Select the gradient mesh tool then click where you want the shaded area to be on the shape. Note that two new paths have appeared these are gradient paths.

Step 3

To darken the shaded area simply increase the tint percentage to about 90%.

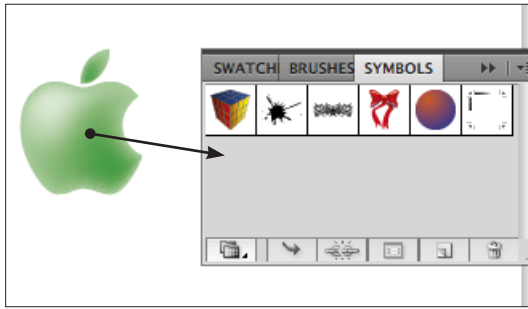
Step 4

Now click the area for the highlight. Note that the mesh point that you have just created still has the same tint value as the shaded area.

Step 5

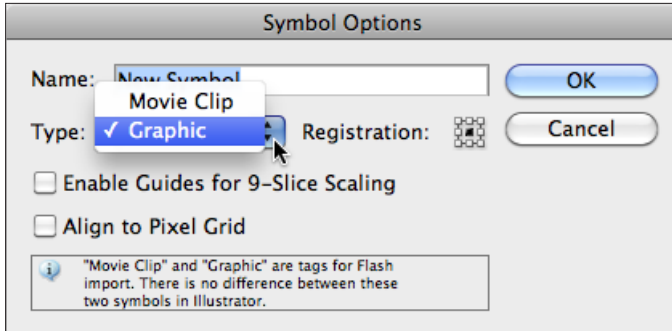
To correct this change the tint value to about 10%. You have now created a light and a dark area on a shape which gives it a three dimensional appearance.

Take some time to get use to creating gradient mesh fills. Remember that the more complex the shape the more difficult the gradient mesh. Notice that the shape has lost its stroke colour. This is because the software will not allow a shape to have an outline colour with a gradient mesh. If you want the shape to have an outline colour then you will need to do this by using layers.



Using Symbols

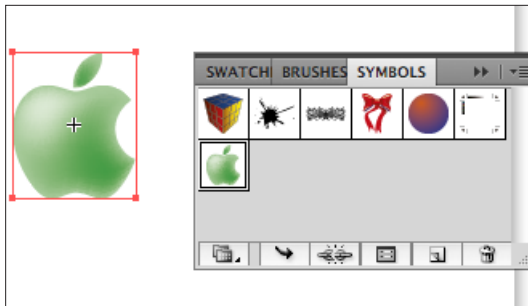
A symbol in Adobe Illustrator is an illustration that is stored in the Symbol palette. There are a number of default symbols that you may be able to find a use for, but the real potential for using symbols is when you create your own. To do so simply draw your illustration/symbol as normal and when finished select it all and then drag it to



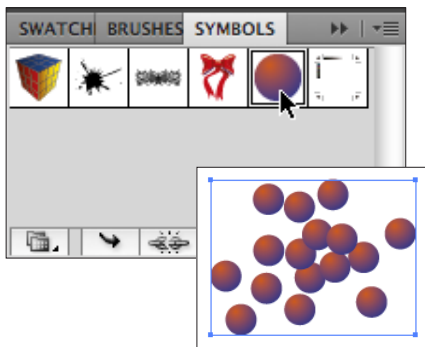
the Symbol palette. You can then make the choice of *Movie Clip* or *Graphic*. If the Symbol palette is not available then goto *Window - Symbols*. The design will now be saved in the Symbols palette when you save your document.

What to save as a Symbol

The best symbols to create are those that you will use over and over, things



like company logo's, bar codes, signs etc. You are also able to call up a symbol library from another document. Guide Illustrator to the desired library by going to *Window - Symbol Library - Other Library..* It is common practice for designers to have one Illustrator file where they store all of their logos etc. as symbols then when a new job comes along all they have to do is activate the symbol library and they will have company logo's, names etc. to hand.



The Symbol Sprayer Tool

The Symbol Sprayer Tool is a quick way to cover a large area with multiples of the same symbol. An example would be a symbol of one fish will become a shoal. You can then alter the shoal by using the symbol manipulators, see what effects you can get. You can alter the tool settings window by double clicking on the desired tool.

Symbol Sprayer Tool



Symbol Spinner Tool

Symbol Shifter Tool



Symbol Stainer Tool

Symbol Scruncher Tool



Symbol Screener Tool

Symbol Sizer Tool

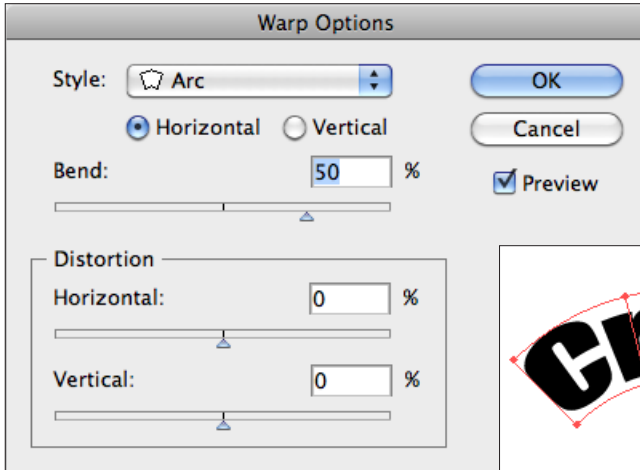


Symbol Styler Tool



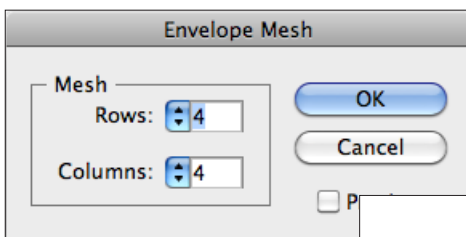
Making Envelopes

Envelopes are objects that distort or reshape selected shapes and text. This is done by selecting the object that you want to distort then go to *Object - Envelope Distort* you then have a choice of three ways in which to distort the chosen object.



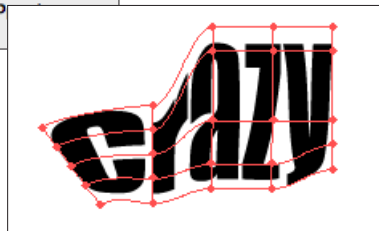
Make with Warp

The window that appears gives you several options that you can choose from the *Style* menu and sliders that adjust the amount of distortion.



Make with Mesh

When using *Make with Mesh* the object is placed inside a grid that can be manipulated by using the white arrow (This applies to all Envelopes). You can also use any of the distortion tools from the tools palette such as, Rotate, Scale, Warp and Free Transform.



Make with Top Object

This method uses the top most object as the envelope to manipulate the chosen shape or text.



Editing the Object inside the Envelope

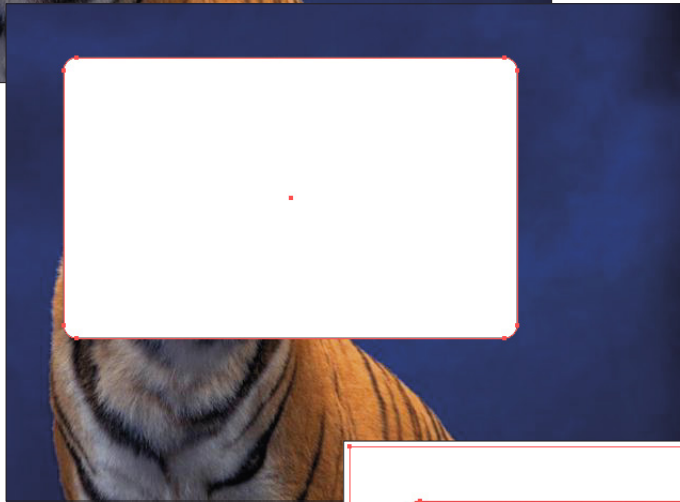
Both the envelope and the object contained inside can be edited. However, they can only be edited one at a time. You will be able to edit the envelope instantly but to edit the object inside you will need to go to *Object - Envelope Distort - Edit Contents*.





Masking Shapes

The use of masks helps you to sort and control large shapes and placed images. A mask enables you to hide parts of shapes and images that you do not need. To create a mask draw the shape that is to be turned into the mask. Remember that the last shape drawn will be the one that is turned into the mask.



With the shape for the mask drawn select all of the items to be affected by the mask (including the mask shape). Then go to *Object - Masks - Make* or *cmd7*, the upper most shape will then be converted into the mask. The items that have been masked can be moved with the arrow tools as normal.

