



More drawing tools and techniques

Here are the rest of the main drawing tools and techniques. There will be an exercise at the end that will require all of the following skills.

Coloured lines with the Pencil and Line tools

To draw lines in Flash, use the *Pencil*  and *Line*  tools.

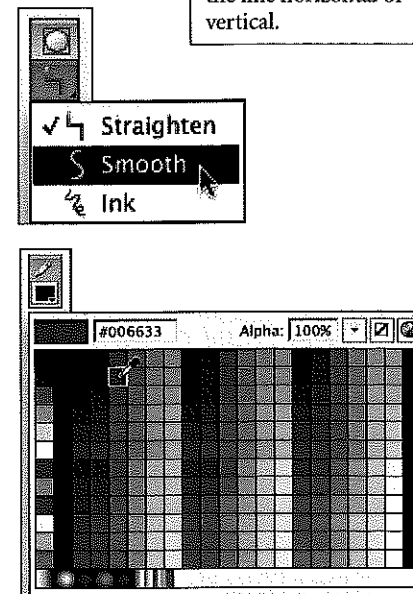
The *Pencil* tool has three *Options* associated with it (see right). Those options are at the bottom of the *Tools* window when the *Pencil* tool is selected.

- *Straighten* tries to straighten the lines you draw.
- *Smooth* tries to smooth the lines you draw.
- *Ink* reproduces the line exactly the way you draw it.


The *Line* tool is very similar to the *Pencil* tool—except it only draws straight lines. If *Snap to Objects* is selected (*View > Snapping > Snap to Objects*) the *Line* tool will snap to a horizontal or vertical line or onto another object.

To change the colour of a line, look at the *Colors* section of the *Tools* panel (see right). Choose a stroke colour by clicking on the colour swatch next to the pencil icon. Any lines drawn will now have that colour.

tip **Staying straight**
Shift-drawing with the pencil tool keeps the line horizontal or vertical.

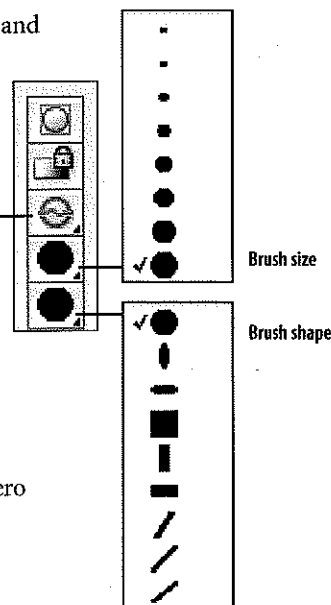
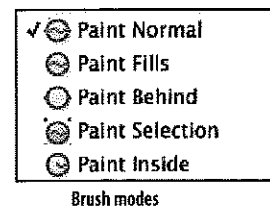


Painting with the Brush tool

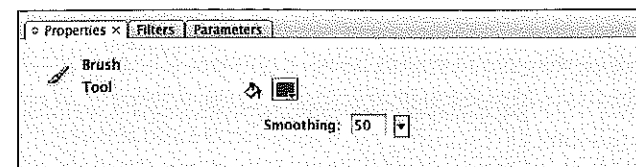
The *Brush* tool  has size and shape *Options* (see below right). Choose a *Brush size* and *Shape* from these two pop-up menus.

You can also select from five *Brush modes*—this affects how the *Brush* paints on the *Stage*. The modes are:

- *Paint Normal* will paint over everything like a **normal** paintbrush.
- *Paint Fills* will paint only the **fill** (inside) of an object.
- *Paint Behind* will only paint **behind** an object.
- *Paint Selection* will only paint the **selected areas** of an object.
- *Paint Inside* will only paint **inside** the object that you first clicked in.




Use the *Properties* window to set the *Color* and *Smoothing* (see below). The larger the smoothing value the more the *Brush* stroke will smooth itself out. Smoothing set to zero means it will not smooth itself at all.



Changing a shape's Fill and Stroke colours

Often you will want to change the *Fill* and *Stroke* colours of a shape after you have drawn it. You can quickly change the *Stroke* and *Fill* of objects using the *Paint Bucket* and *Ink Bottle* tools.

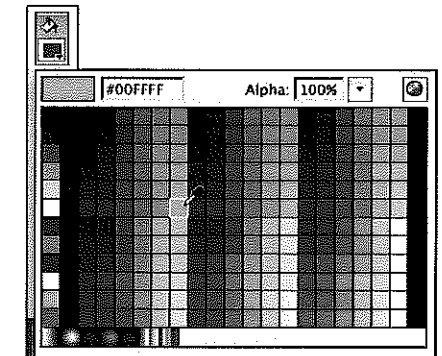
Using the Paint Bucket tool

The *Paint Bucket* tool  is used to apply fills to objects.


To change the *Fill* colour of any shape:

- 1 Make sure the shape is not selected.

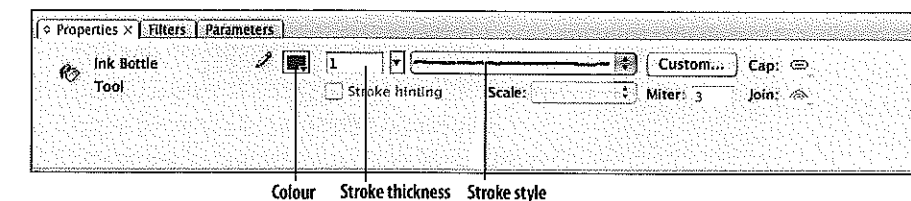
- 2 Select the *Paint Bucket* tool.
- 3 From the *Colors* section of the *Tools* panel, click on the second colour swatch (see right).
- 4 Click to choose a new colour. That will set the *Paint Bucket* to that colour.
- 5 Click inside the shape to fill the shape with the new colour.



Using the Ink Bottle tool

The *Ink Bottle* tool  is used to apply different *Stroke* colours, thicknesses and styles to objects. To change the *Stroke* of any shape:


- 1 Make sure the shape is not selected.
- 2 Select the *Ink Bottle* tool.
- 3 Using the *Properties* window (see below), click the colour swatch to choose a new stroke colour. That will set the *Ink Bottle* tool to that colour.



tip **Hairlines**
Make your *Strokes* as fine as you wish. Flash will always make them at least one pixel wide, so they'll always be visible.

- 4 Type a number to set the thickness of the stroke, in pixels.
- 5 Select a *Stroke style* from the drop-down list.
- 6 Click anywhere on the shape to outline the shape with the new stroke settings.

Sampling with the Eyedropper tool

The *Eyedropper* tool  is used to sample (copy) fill and stroke settings of other shapes.

To use the *Eyedropper* tool:

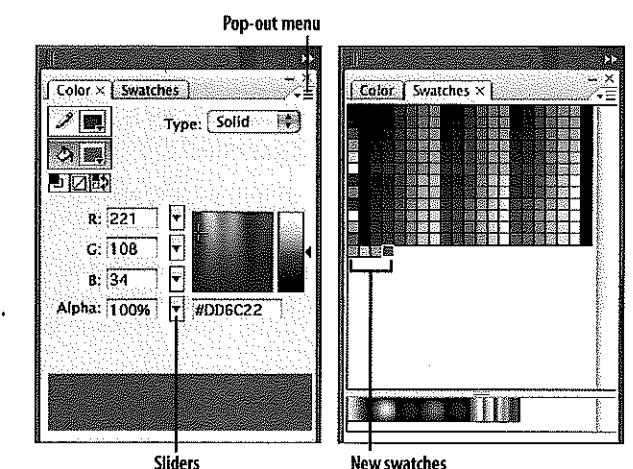
- 1 Select the *Eyedropper* tool.
- 2 To sample another shape's *Stroke* settings, click on the outline.
- 3 To sample another shape's *Fill* settings, click inside the shape.

The *Paint Bucket* and *Ink Bottle* tools will be set to the new settings.

Creating new colour swatches

To create a new, customised colour swatch:

- 1 Choose *Window > Color*.
- 2 Use the sliders in the *Color* window to mix a new colour.
- 3 Adjust the transparency using the *Alpha* slider.
- 4 Click the pop-out menu on the top right of the *Color* window and choose *Add Swatch* (see right).
- 5 Choose *Window > Swatches* to see the new swatch. You may have to scroll down to it (see far right).



tip **Alpha values**
In the *Color Mixer* panel you saw the *Alpha* setting. This relates to how transparent the colour is. Solid colours have 100% *Alpha* and completely transparent objects have an *Alpha* of 0%.

Creating depth with gradients

Gradients are colours that change. Sometimes a light colour will become darker, sometimes one colour will blend into another. There are unlimited possibilities with gradients.

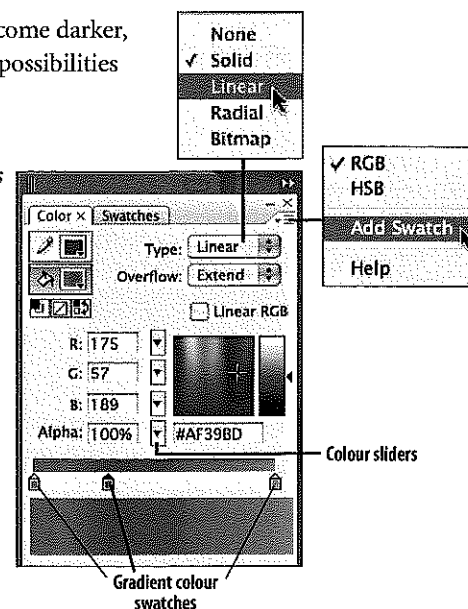
There are two kinds of gradient—**linear** and **radial**. To apply either of these to a shape, simply look in the bottom of the *Swatches* window or any of the pop up colour palettes for the gradient swatches (see below).



To create a new gradient with the *Color* window:

- 1 Choose a gradient type. You have two choices; *Linear* or *Radial*. The gradient appears with two small colour swatches.
- 2 Either click on each swatch and set the colours for the gradient using the colour sliders, or double-click to choose from the *Swatches* window.
- 3 To add extra swatches for multi-coloured gradients, click underneath the gradient bar.
- 4 Remove unwanted swatches by dragging them away from the gradient bar.
- 5 When you are done, choose *Add Swatch* from the *Color* window's pop-up menu.

The new gradient swatch will add itself to the other swatches in the *Swatches* window and can be applied to objects.



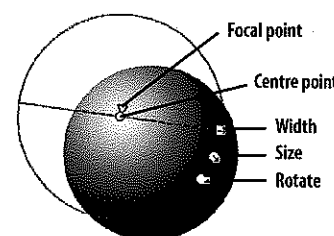
tip Turn object snapping off

While object snapping can be very useful it can often be very annoying. Choose *View > Snapping > Snap to Objects* if it is causing problems.

Transforming applied gradients

To adjust the size and direction of a gradient applied to an object:

- 1 Choose the *Gradient Transformation* tool (which hides underneath the *Free Transform* tool) and click the gradient.
- 2 Drag the *Centre point*, *Focal point*, *Size*, *Width* and *Rotate* control handles to suit (see right).

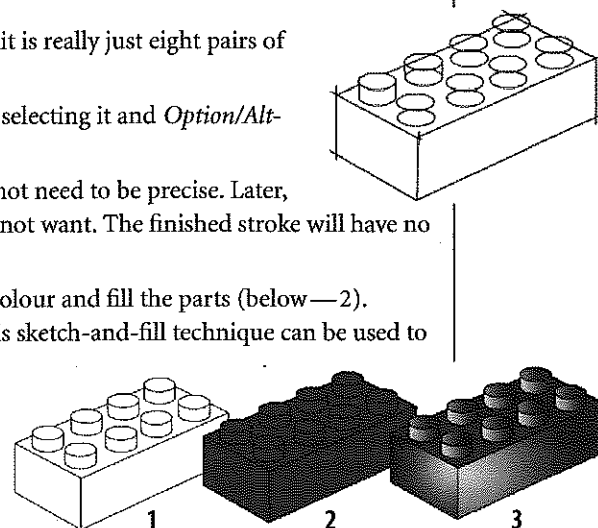


exercise

1.2 Red building block

Follow these steps to build a red block. It is best to draw with hairline strokes that can be filled with colour later:

- 1 Examine this graphic closely. You can see it is really just eight pairs of ovals and a handful of straight lines.
- 2 Draw one small oval, then duplicate it by selecting it and *Option/Alt*-dragging it.
- 3 Add straight lines where needed. You do not need to be precise. Later, delete the parts of the stroke that you do not want. The finished stroke will have no fill (below—1).
- 4 Set the *Paint Bucket* tool to your chosen colour and fill the parts (below—2). Your brick is now outlined and filled. This sketch-and-fill technique can be used to create a wide assortment of shapes.
- 5 Set the *Paint Bucket* tool to a gradient colour and experiment with shading instead (right—3). Clicking with the *Paint Bucket* tool in slightly different parts of a shape will create slight shading differences.



Storing symbols in the Library

A Flash movie may contain many dozens of graphics, making for a potentially large file size. However, many graphics are often repeated. You can keep your movies small by turning repeated graphics into *Symbols* and storing them in the *Library*.

There are three types of symbol, but in this section just *Movie clip* and *Graphic* symbols will be looked at.

Each Flash project has its own *Library*. Create a new file and open your *Library* now: *Window > Library*. The *Library* will be empty at first.

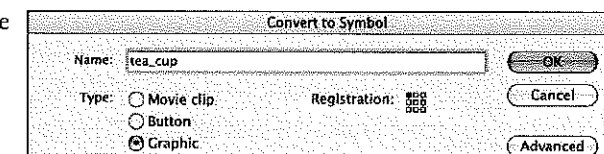
tip Library shortcut:

You'll use the *Library* so often that a good shortcut is essential. **⌘/Ctrl-L** calls up the *Library* panel.

Creating symbols

The easiest way to create a symbol is to draw the graphic on the *Stage* first, then turn it into a symbol. Try it now—create a graphic and follow these steps:

- 1 Select **all** of the graphic on the *Stage* (make sure you select the *Stroke*, if you have one, as well as the *Fill*) and choose *Modify > Convert to Symbol...*
- 2 In the *Convert to Symbol* dialog box (see right), name the symbol (something logical and recognisable) and set the *Type* to *Movie clip* or *Graphic*. The difference between these two symbol types is explained below.
- 3 Click *OK*. This graphic is now a symbol and stored in the *Library*.



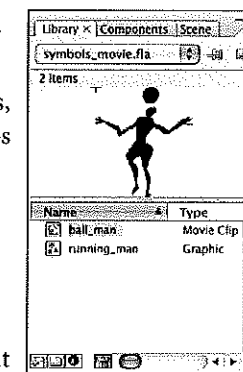
Movie clip vs Graphic symbols

The difference between *Movie clip* and *Graphic* symbols is not particularly obvious.

Graphic symbols should be used for static images and simple pieces of animation only. *Graphic* symbols cannot be scripted, cannot have 9-slice scaling applied to them, nor can you add effects (drop shadows etc) to them.

Movie clips are the most complex and useful type of symbol. They are really mini-movies, with timelines of their own, which play inside the main *Timeline*. In addition, movie clips are scriptable with *ActionScript*.

You will probably find it easier in the long run to create *Movie clip* symbols rather than *Graphic* symbols, simply because they are more versatile.



Using the Library

When your *Library* contains a symbol, you can use this symbol many times by dragging it onto the *Stage*. Each time you place a symbol on the *Stage*, you create an **instance** of it.

- 1 Drag the symbol onto the *Stage* now to create an **instance** of the symbol. Do this several times if you like.
- 2 Notice that the instances can be placed on top of each other without cutting into each other or merging into one graphic.

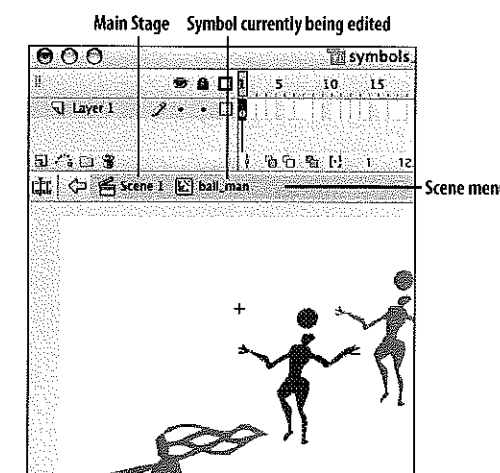
The symbol in the *Library* is your master copy. Take care not to delete the symbol in the *Library*. If this happens, all the instances will disappear too!

Editing symbols

Instances are linked directly to the master symbol stored in the *Library*. If you modify a symbol, all the **instances** of that symbol change too.

The easiest way to edit a symbol is to double-click any instance on the *Stage*. Follow these steps:

- 1 Double-click an instance of a symbol on the *Stage*.
- 2 Note that the *Scene Menu* shows you that you have left the *Stage* and are in symbol-editing mode (see right).



- 3 Make any small change to the graphic.
- 4 Click on the words *Scene 1* to return to the main *Stage*.

All instances, plus the symbol in the *Library*, will have changed. This shows how all instances are interconnected via the symbol.

9-slice scaling

Normally Flash scales all parts of a graphic evenly, and sometimes this even scaling can make parts of a graphic distort (see right).

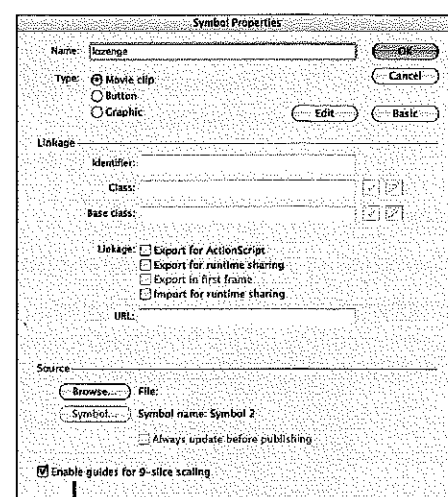
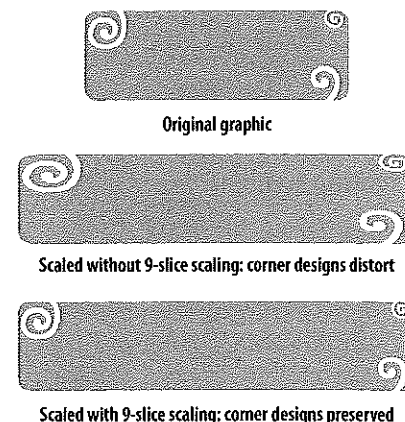
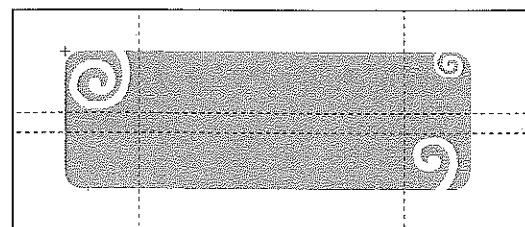
9-slice scaling is a setting which allows you to apply scaling unevenly across a graphic (see right). This type of scaling **only** works with a *Movie clip* symbol.

To create a Movie clip with 9-slice scaling:

- 1 Create a graphic and convert it to a *Movie clip* symbol.
- 2 Expand the *Symbol Properties* box by clicking the *Advanced* button.
- 3 At the bottom of the window, make sure *Enable guides for 9-slice scaling* is checked on (see right).

This and other symbol properties (including its *Type*) can be edited later by *Control/right-clicking* on a symbol in the *Library* and choosing *Properties...* from the drop-down menu.

To edit the guides for 9-slice scaling, double-click on an instance of the symbol on the *Stage* or on the instance itself in the *Library*. You will see the guides (below) which can be moved by dragging them. The corners of these guides are the parts which are never scaled.



Enable 9-slice guides

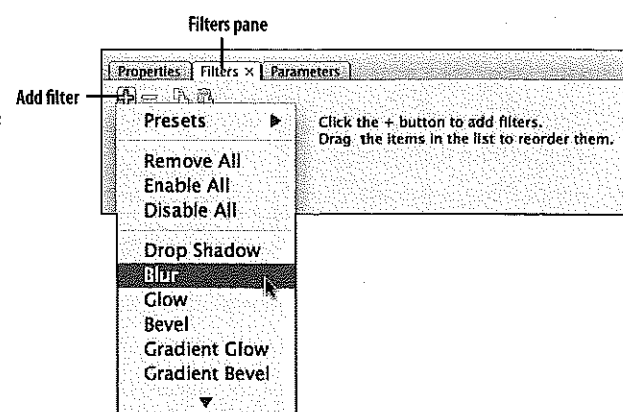
Filters

Flash allows you to add a limited number of live filters to *Movie clip* symbols; filters like drop shadows, blurs and glows. These filters can be edited and updated and can also be adding to animated elements.

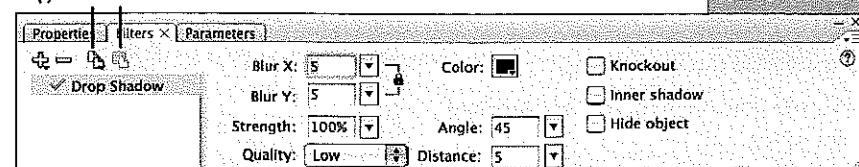
To apply a filter to a Movie clip:

- 1 Create a *Movie clip* symbol and select an instance of it on the *Stage*.
- 2 In the *Properties* window, switch to the *Filters* pane (see right).
- 3 Using the *Add filter* button, choose a filter.
- 4 Adjust the settings for that filter until you see the effect you want (see below).

These filters can be copy-pasted from one instance to another using the copy and paste buttons in the *Filters* pane of the *Properties* window (see below).



Copy filters Paste filters



Importing Library items

Entire libraries from other Flash files can be brought into your current movie. Any Flash file can be opened as a *Library* by choosing *File > Import > Open External Library*. It is a good idea to save a backup of your own file. If you ever delete a symbol from the *Library* by mistake, you can import your backup file as an *External Library*.

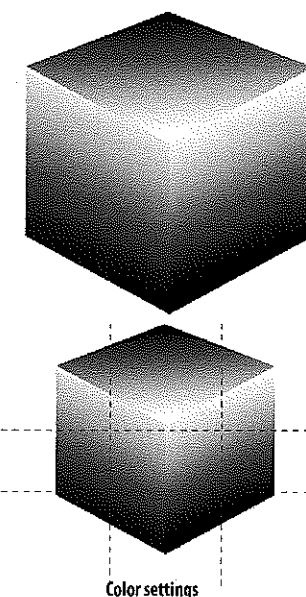
Any *External Library* item used on the *Stage* automatically becomes part of your main *Library* too.

Exercise 1.3

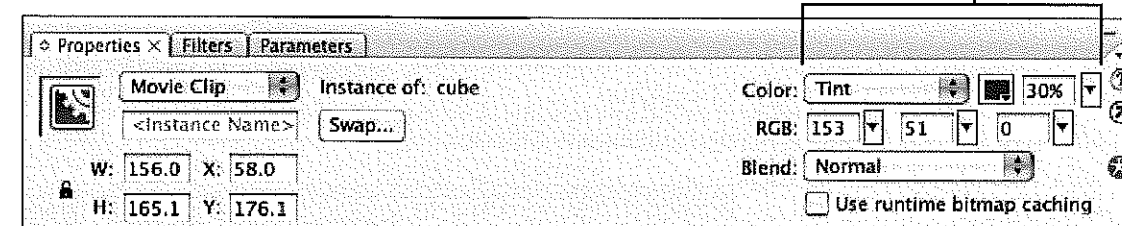
Many effects from one symbol

This exercise will show how the *Library* can be used to create relatively complex effects with little work:

- 1 Create a cube using shapes filled with greyscale linear gradients. Transform the shapes and the gradients so that it look somewhat 3-dimensional (see right).
- 2 Turn the shape into a *Movie clip* symbol and make sure that 9-slice scaling is switched on.
- 3 Edit the 9-slice guides so that when the cube is stretched it will just get taller and not distort (see right).
- 4 Drag and drop the symbol several times on the *Stage* to create instances.
- 5 Use the *Free Transform* tool to make some instances shorter and some taller.
- 6 Click on one of the instances and look at the *Properties* window. Find the setting in there labelled *Color* and change it from *None* to *Tint* (see below).

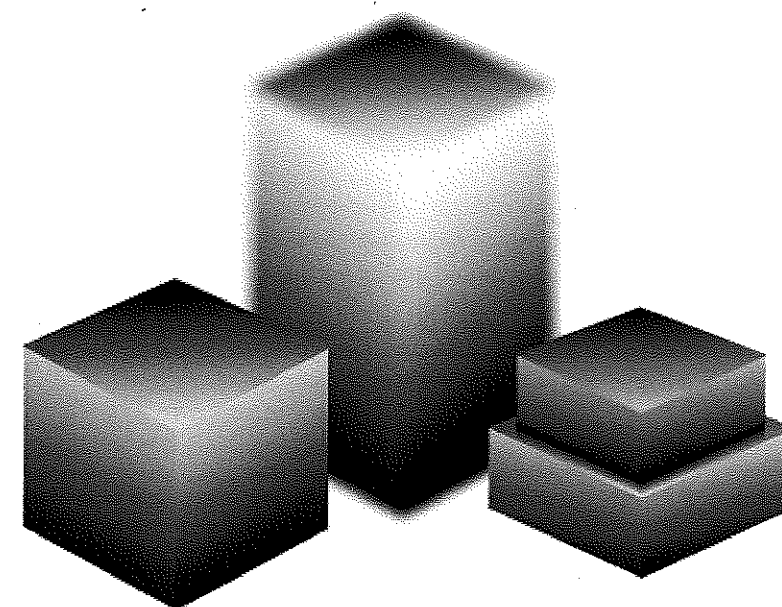


Color settings




- 7 Experiment with the tint settings to colour some of the instances.
- 8 Apply some filters to some of the cubes—the ones shown below have a mixture of the *Blur* and *Drop Shadow* filters applied.

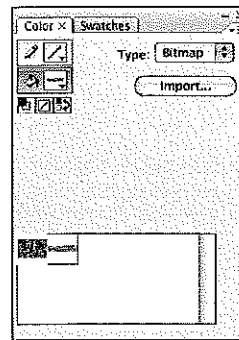
Notice the flexibility that you have with **instances**. You can distort their shape, change their colour and add filters while they are still part of the same symbol.



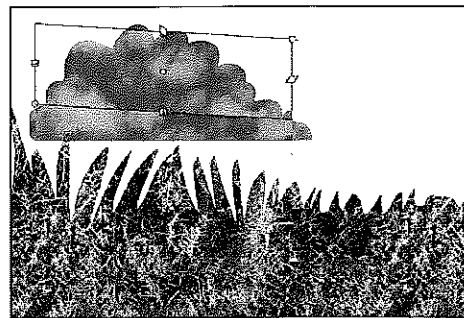
Tiling with bitmaps

One small bitmap can be used to fill large areas in Flash, or be used to paint with, as a repeating pattern on a brush. To do this, follow these steps:

- 1 Import a graphic into your project's *Library*.
- 2 Select one of the shape tools or the *Paintbrush* tool.
- 3 In the *Color* window, change the fill *Type* from *Solid* to *Bitmap*. Any bitmaps imported into your project will be available to use as a fill. Select the bitmap that you want to use (see right).
- 4 The bitmap is now your *Fill* colour. Painting or making shapes with this setting will use the bitmap as the fill.
- 5 Use the *Gradient Transform* tool  you can resize, skew, stretch and rotate the fill (see right). The pattern will repeat automatically.



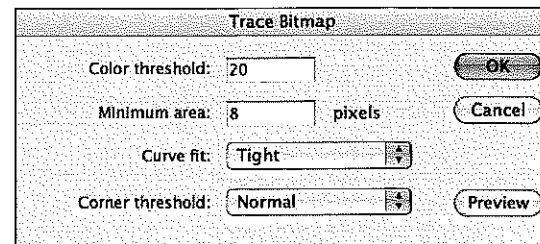
Altering the bitmap fill using the Gradient Transform tool



Turning bitmaps into vectors

The *Trace Bitmap* command will convert a bitmap into a vector graphic with editable areas of colour.

- 1 Select a bitmap on the *Stage*. Make sure it is just a bitmap and not a symbol.
- 2 Choose *Modify > Bitmap > Trace Bitmap*.
- 3 Enter a *Color Threshold* value. This defines how similar colours must be, to be considered the same. A higher number means fewer colours.
- 4 Enter a value for *Minimum Area*. This will define how many surrounding pixels will also be selected.
- 5 Enter a value for *Curve Fit* to determine how smoothly outlines are drawn.
- 6 Enter a value for *Corner Threshold* to determine whether the corners are sharp or smooth.
- 7 The *Preview* button allows you to see the effect on your bitmap before you commit to it.



tip File size beware!

The file size of the traced bitmap can exceed the file size of the original if the imported bitmap is complex and the tracing is precise.

Using text

The Text tool

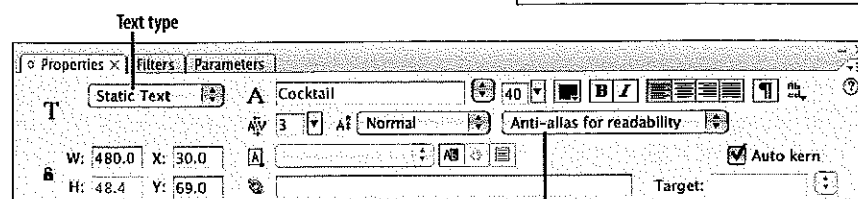
You add text to your Flash movies using the *Text* tool.

As with all other tools the *Text* tool works together with the *Property Inspector* (see below).

- To add text to the *Stage* you can either just click and type, which adds text of an infinite length, or drag the text tool to define a specific width for your text. Text automatically wraps to the next line as text fills the box.
- Make sure that basic text you add is set as *Static Text*. This is the most basic type of text. You will use *Dynamic Text* in later exercises.
- Move text blocks around by using the *Selection* tool. To edit text again, you can either double-click on the text with the *Selection* tool or click on it with the *Text* tool.

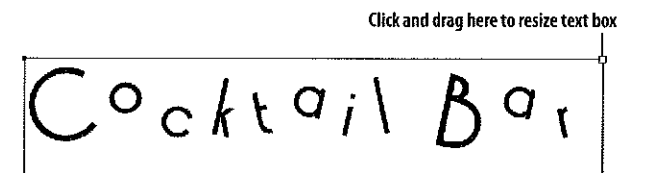
tip Fonts

When you use *Static Text*, any font you used will automatically be embedded into the .swf file. However, fonts aren't included in the .fla authoring file, so if you work on more than one computer you will need the same fonts installed on each machine.



Anti-alias settings

- To change the width of a text box, click in it with the *Text* tool and then drag the handle in the top right corner to resize it (see right).
- You can change the colour of text, but you can't apply a gradient or bitmap fill to it. Likewise you can't add a stroke to text. To do either of these things you first need to break apart the text (*Modify > Break Apart*) twice, the first time into individual letters and the second time into outlines which can then have any *Stroke* or *Fill* attribute applied to it (see right).



Note the anti-alias settings in the *Properties* window (see previous page). Anti-aliasing attempts to smooth out the edges of objects, and is particularly important for text because too much anti-aliasing and text can become quite hard to read. Always choose a setting appropriate to your use of text.

Edges Edges

No anti-aliasing

Anti-aliasing applied

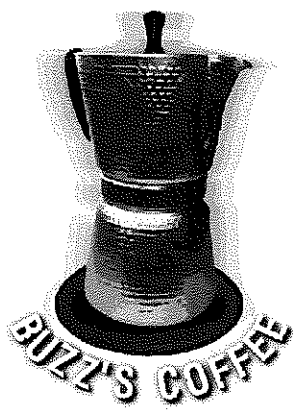
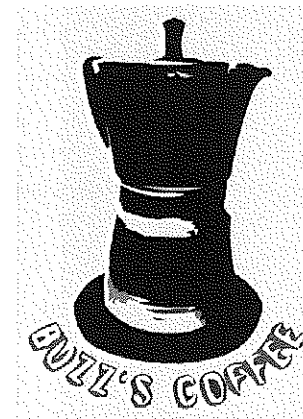
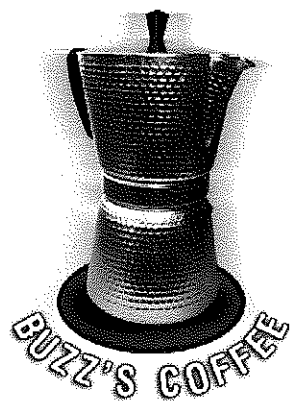
SKY SEA BEACH

exercise 1.4

Import and trace a logo

Choose a favourite logo, perhaps from the web, and prepare to turn it into an all-vector file by tracing the bitmap. Your challenge is to keep the logo looking good, while reducing the file size as much as possible.

- 1 Create a new blank file and save it with a sensible and recognisable name. Don't forget to make sure it has a .fla file extension.
- 2 Import a logo to the *Stage*. This example uses a fictitious logo for the company 'Buzz's Coffee'.
- 3 Double-click on the bitmap in the *Library*, uncheck *Use document default quality*, choose a *Quality* setting and click the *Test* button. Make a pencil note of its compressed size.
- 4 *Trace* the bitmap. Make a note on paper of the settings you apply. *Preview* the results.
- 5 If the result is not good enough, modify the settings and try again. In the example on the right the *Color Threshold* was too high (300) and *Minimum Area* too high (20 pixels).
- 6 You might also choose to tidy up or recreate some parts in Flash. In the example on the far right, the text is static text in a *Movie clip* symbol with some Flash filters applied.
- 7 When you have a result that you like, save the file and test the movie by pressing **⌘/Ctrl-Enter**. This creates a web-ready Shockwave (.swf) version of your Flash movie.
- 8 Choose *View > Bandwidth Profiler*. Look in the top right for the movie's size. See if your vector version is smaller than the bitmap version would have been.
- 9 Close the Shockwave movie. If you managed to make a file size saving while retaining the quality of the image, you have completed this task. If not, try again with different *Trace Bitmap* settings.



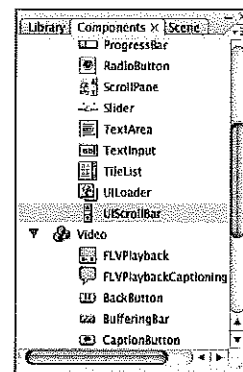
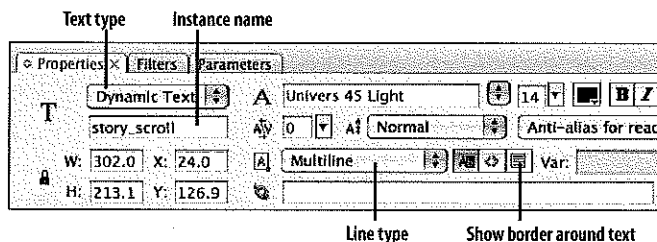
Scrolling text

The UIScrollBar component

A seemingly simple thing like adding a scroll bar to a block of text in Flash is surprisingly complicated. However, the last few versions of Flash have all included some pre-built, pre-scripted objects called Components. Most of them are used for building complex Flash applications, but there is one which is commonly used at a basic level; the **UIScrollBar**.

To use this component, do the following:

- 1 Create a text box with a fairly large amount of text in it. There has to be enough text to warrant a scroll bar!
- 2 Change the text type to *Dynamic Text* (see right). Dynamic text can be controlled by ActionScript (in-built into the component).
- 3 Give the text box an *Instance name* (see right). This should have no spaces in it (- and _ characters are OK though).
- 4 Set the *Line type* to *Multiline*, (see above) otherwise your text box will only display a single line!
- 5 Make sure the anti-aliasing is set to *Anti-alias for readability*.
- 6 Using the *Selection* tool, resize the text box so that it's shorter than its contents (so that some of the contents are hidden).
- 7 Open the *Components* window and in the *User Interface* folder find the *UIScrollBar* (see right). Drag and drop it onto your dynamic text box. The component should snap to the height of the text box and you will see it (and a folder of associated parts) appear in your *Library*.
- 8 Test your movie (**⌘/Ctrl-Enter**) by creating a .swf file. You will only see the scroll bar working in Flash Player, not in the authoring environment itself.
- 9 To add edges to your text box, you can either add some graphics in the normal way to create a border, or use the *Show border around text* button (see above)—this will not only show a border but will also give the text box a white background.



win the races tomorrow; it told me who would be the next prime minister; it told me what the weather would be like in two years' time. Imagine that! A predicting paper! It was quite good at it too, everything it predicted for the first week came true, exactly as it had described. But then came my dilemma. On page 22 of newspaper was a story about my next door neighbour's cat being run over. Now I'm not one to try and change the way things happen in life, but I happen to really like Mr Turnus.

exercise
1.5

Create a text layout

Using what you have learned about text so far, create a layout which uses several different types of text. Try the following:

- Create *Static Text* headings
- Create a scrolling text box for a large amount of text (change the text type to *Dynamic Text*!).
- Try applying some filters to the heading text: filters can be applied directly to text—you **don't** need to make it into a *Movie clip* first.
- Break apart some text and try applying gradient or bitmap fills and strokes to the letters.
- Add borders or other graphics to your scrolling text and to the rest of the movie.

Don't forget to save your movie and test it by turning it into a .swf file.

