

INTRODUCTION TO FLASH

Flash is super cool.

Flash is an interactive web based animation program that can help you build web pages or web page elements. Using Flash, you can pretty much make your web pages do *whatever you want them to do!* Flash is the first widely accepted real step towards turning the web into interactive television. It's not even funny how much further Flash goes past what HTML can do. Flash works great with animation, interactivity, and sound. Like a print based program, it allows you to place elements wherever you want them on the screen.

Many consider Flash to be the future of the Internet. Flash designers also usually command higher salaries than HTML designers, which is also cool.

Checking Out Flash Sites

The best way to get a good idea of what Flash can do is to look at websites built with it. Check out the following links for inspirational Flash pages.

Macromedia's "Site of the Day" Showcase

Almost all of the sites showcased here are built with Flash.

<http://www.macromedia.com/showcase/archive/>

Flash Challenge

A running contest to declare the best Flash based site. You'll see super advanced stuff here!

<http://www.flashchallenge.com>

Eye4U

This design studio's site was one of the first full flash sites to make a big impression on the internet industry.

<http://www.eye4u.com>

NRG

This Belgian design site uses sound and voice to make their interactive site more interesting.

<http://www.nrg.be>

The Academy of Web Design, San Francisco

The best Flash based site ever created. Or, um, something like that.

<http://www.awdsf.com>

How Flash Works

Flash creates interactive presentations called "movies". Flash movies are imbedded into a web page much like images are. The Flash movie itself is not built in HTML, but an HTML page will be used to hold the Flash movie. Movies can be set to take up the whole screen, or can occupy a small portion of a web page as a banner or advertisement.

Flash Utilizes Streaming

Streaming is a technique used for transferring data, usually video, animation or sound. Instead of waiting for the whole file to download before it starts playing, by utilizing streaming, Flash can start showing you animations or playing sounds the second that data starts "streaming" into your computer.

Some Flash pages are too big to display correctly even though Flash uses streaming technology. It is possible to pause the Flash movie while waiting for a large enough portion to pre-download.

Flash Stores Page Elements in Memory

Traditional GIF animation works just like film animation in that it requires the download of a totally new image for each frame of the animation. This process is download intensive and inherently limits the usability of animation.

Flash approaches this problem with a smart and novel solution. If Flash wants to animate an image across the screen, instead of downloading it in slightly different positions a hundred times, Flash only downloads the image once, and stores it in the user's computer memory. Flash then downloads instructions telling the computer where to move the element and how fast to move it.

Flash takes the load off of a users modem and places it in the much stronger hands of the processor.

Flash Uses Vector Artwork

Artwork seen on normal web pages is all bitmap, or *raster*, based. It's created with thousands of different colored dots displayed in a pattern to produce a picture. Bitmap art looks great, but takes a long time to download. Animation using bitmap art is processor intensive because Flash must separately move each of the thousands of tiny dots.

Although Flash will accept and animate bitmap-based art, it will also allow you to animate and download vector-based objects. Because vector-based objects usually contain much less information, they work much better for animations. They also scale without losing image quality.

Flash comes with some pretty nice vector drawing tools, but you can also import vector-based art from applications such as Macromedia Freehand, Adobe Illustrator, and Macromedia Fireworks.

Flash Needs a Plug-in to Work

Your browser is mostly designed to show you static HTML based web pages. It doesn't understand Flash animations. To help your browser understand Flash animations you'll need the tiny Flash Plug-in. The Flash 5 player is free, and will not under any circumstances harm your computer. It takes less than a minute to download on a 56K modem, and comes guaranteed virus free.

Most people on the web can view Flash movies already. According to Macromedia.com, "In September 2000, NPD Research, the parent company of MediaMetrix, conducted a study to determine what percentage of Web browsers have Macromedia Flash preinstalled. The results show that 96.4% of Web users can experience Macromedia Flash content without having to download and install a [plug-in] player."

The 96.4% result includes all versions of the Flash Player. If you design your page to make use of some of Flash's newest features your users may have to update their Flash Player. You'll learn ways to design sites that automatically check to see if a user has the correct plug-in. If they don't, they'll be sent to an alternative page where they can download the plug-in or see a non-Flash version of the site. If you don't check for the correct plug-in, viewers may be able to see a Flash 5 movie with the Flash 4 player, but certain elements may not work.

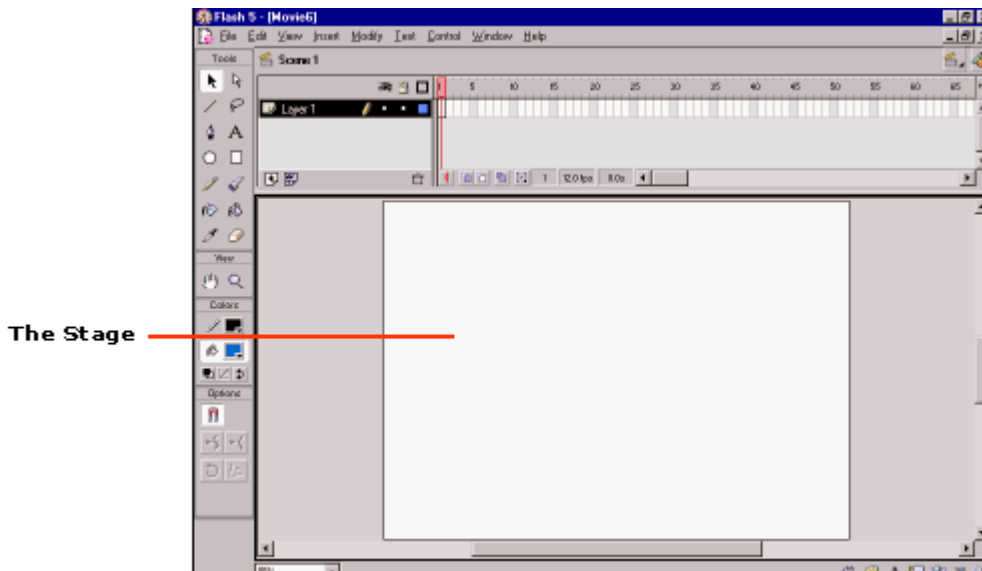
A Note about Flash 5

Flash 5, the newest version of Flash, is significantly different than Flash 4.0. Users will enjoy the new upgrades and automated features of Flash 5.0, but if you have an older version, you might have a hard time translating your new 5.0 skills. My advice, sadly, is to throw down the credit card and upgrade.

Creating a Movie in Flash

To create a new Flash movie, simply click:

FILE-> NEW

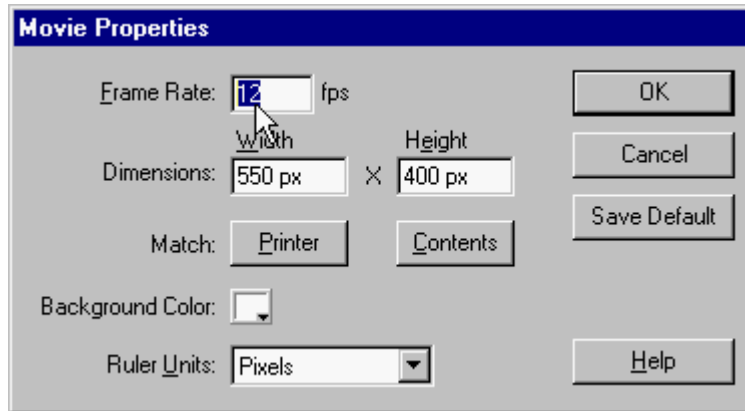


The **Stage** is the main area where you'll create your Flash movie

Modifying Your Movie Right Away

The first thing you'll want to do is set the height and width for your Flash movie. If you decide to change your height and width later, Flash will allow you to, but will not resize any movie elements or scale any animations. If you make your movie smaller, things that were near the end of the screen will be completely chopped off.

1. Click **MODIFY->MOVIE**



The following are movie Properties you can set by clicking MODIFY-> MOVIE:

Frame Rate: A traditional filmstrip has thousands of tiny little pictures called frames. By showing you a number of slightly changed frames every second, film can fool our eyes into seeing motion. Computers can also quickly change the presented picture. The more frames shown per second the smoother the animation will look. The standard film rate is 24 frames per second, but animators often show each frame twice to cut down on the number of necessary drawn frames. Flash's standard rate, at 12fps, corresponds with that halved rate.

It is important to understand that a faster frame rate also means more work for the computer's processor. Often a Flash animator's greatest enemy is slow processing speed, not slow download speed. If a movie is too fast for the processor, it will appear jerky and slow. Most Flash movies are created at anywhere from 8-20 frames per second, depending on the intended audience.

Dimensions: Set your movie's height and width here. You must carefully determine your height and width because, as mentioned above, later changes may damage your movie. Flash can be set to stretch a movie set to take up 100% of a browser window, so it is more important to use the correct proportions than the correct dimensions.

If your average user is high tech, you may want to set for your dimensions at **955x600**, the average viewable browser window size for monitors 17" and up. Otherwise, set your Flash movie to **760x420** to cater to the average user.

Background Color: Choose between any of the 216 web safe colors. You can also use the eyedropper to choose a color from the screen. You can not choose a gradient as a

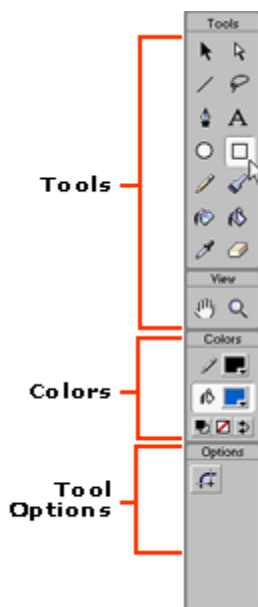
background color, but later on you can draw a gradient filled box and place everything on top of it, if you wish...

Experiment with the different movie sizes and background colors.


DRAWING IN FLASH

Flash comes with a number of drawing tools, most of which work exactly like the drawing tools you've already used in Fireworks. There are some important differences, though. So you're better off not skipping this section.

Tool Options



Like other drawing programs, each tool has options. The Rectangle tool can make rounded corners. The paintbrush can draw with different shaped and different sized brushes.

Many of the commonly used options are available on the Tools palette. When a tool is selected, its options will display at the bottom of the Tools Palette. In the left graphic, the Rectangle tool is selected. Notice that at the bottom of the palette, the rectangle corner button  is displayed.

It is important to note that not all of the options are displayed at the bottom of the Tools Palette. Some tools have too many options to display in such a small area, and therefore have their own Palette.

All the the palettes are kept in the WINDOW pull down menu.

Basic Drawing

Many of the drawing tools function just like you'd think they would. You may want to review the drawing tools covered in Fireworks. The Oval Tool draws ovals. The Rectangle tool draws rectangles. There are some basic differences that you should know about, though, so keep on reading.

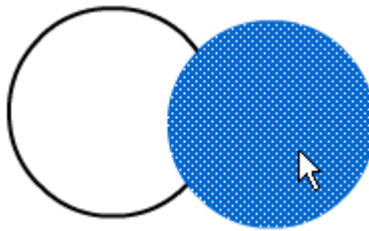
Selecting Items

In Flash, an object's fill and stroke are treated as totally different objects. If you click the fill, you'll only select the fill. If you want to select both an object's fill and stroke, you have to *double click* the object.

1. Draw a circle.
Hold SHIFT to draw a perfect circle.
2. Click the circle once with the black pointer.



3. Drag the circle



You'll notice that only the fill moves.

4. Undo so that the fill moves back inside the stroke.
5. **Double Click** the circle and move it.
The stroke moves too!

Intersecting Drawings

Flash draws in layers. If you overlap a drawn object on the same layer, the overlapping image will chop out whatever it overlaps. Later you'll use multiple layers to avoid this problem.

1. Draw a square.
2. Draw a circle slightly overlapping the square.

3. Double click the circle to select it.
4. Move the circle.



If you want to select all visible artwork, you can use the “select all” command (CTRL/CMD + A).

The Black Pointer



The black pointer is for all your general pointer needs. It selects, moves, and never complains. It also has a number of other handy uses.

Bending Vector Lines With the Black Pointer

1. Place the black pointer right next to a rectangle.
You should see a curved line under the pointer. If you don't, get a little closer or farther away.



2. Click, hold, and drag out.

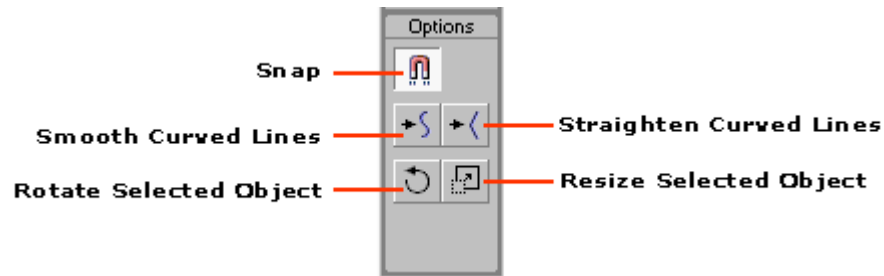


Whew! That's fun. Play with it for a while.

You can add a vector point by dragging while holding CTRL/CMD

Black Pointer Options

When an object is selected with the black pointer, you'll notice that the options on the tool palette change.



Remember that resizing a vector based object will not hurt its quality, but resizing will mess up a bitmap.

1. Play with the resize and rotate options.

The White Pointer



Just like in Fireworks, the white pointer is for manipulating vector points. You can select, move, or delete vector points with the White pointer. You can also adjust a curved vector point's handles to fiddle with the line curvature.

The Line Tool



Surprise, the line tool draws lines!

You'll use the Stroke Palette (described shortly) to change line characteristics.

The Lasso Tool



The lasso tool works just like the Lasso tool in Fireworks and PhotoShop, except that you can use it to select portions of vector based objects, too! Isn't that cool?

Polygon Lasso and the Magic Wand

When the Lasso is selected, the Tools Palette options will display the Magic Wand and the Polygonal Lasso.



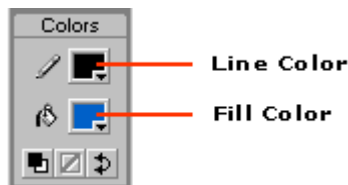
The Pen Tool

Works just like the pen tool in other programs. Great for drawing smooth curving lines.

The Oval and Rectangle Tool

The Oval tool draws circular shapes, while the rectangular tool draws rectangular shapes. Hold SHIFT to draw a perfect circle or square.

You can set the shape's initial fill and stroke color on the Tools Palette:

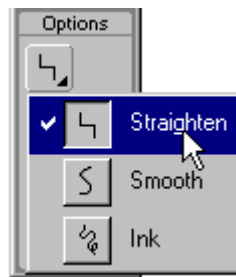


The Pencil Tool

The pencil tool draws lines. It is important to note that the pencil tool draws with a stroke. You'll use the Stroke Palette (described shortly) to change line characteristics.

You can choose the initial line color on the Tools Palette.

The Pencil Tool has some interesting options that smooth lines when you draw



Straighten: Smooths a line, sharpening corners

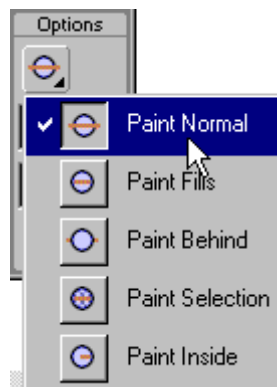
Smooth: Smooths a line, softening corners

Ink: Smooths a line, leaving corners like you made them.

The Paintbrush Tool

The paintbrush draws fills. This can come in handy if you want to draw with a gradient or fill effect.

The Tools Palette options allow you to set the brush size and angle, as well as the paint placement options:



Paint Normal: Paints everywhere you drag the pointer.

Paint Fills: Won't paint lines.

Paint Behind: Paints behind drawn objects.

Paint Selection: Only paints a selected area. First you'll have to select an area with the lasso or magic wand.

Paint Inside: Paints inside of objects originally clicked on. Flash considers the background an object.

The Ink Bottle

Changes a line's color, thickness and pattern. Choose color on the Tools Palette. You'll use the Stroke Palette (described shortly) to change line characteristics.

The Paint Bucket

You can use the Paint Bucket to change fill color. Choose color on the Tools Palette. The Paint Bucket also edits and changes gradient fills, which we will learn about shortly.

You cannot change background color with the Paint Bucket. If you want to change the background color, click MODIFY-> MOVIE

The Eye Dropper

The Eyedropper allows you to choose fill colors from within the Flash movie.

The Eraser

Allows you to erase vector and bitmap based colors.

The  option erases continuous colors with one click.

The Zoom Tool

Click or drag to zoom. Hold ALT/OPTION to zoom out.

Some Important Zoom Shortcuts

To see the Flash movie at actual size:

CTRL/CMD + 1

To fit the entire movie into the viewable Flash area:

CTRL/CMD + 2

The Hand Tool

The Hand allows you to move the work area around. It's similar to scrolling, except you have more control.

Hold the **Spacebar** while using any tool to activate the Hand Tool.

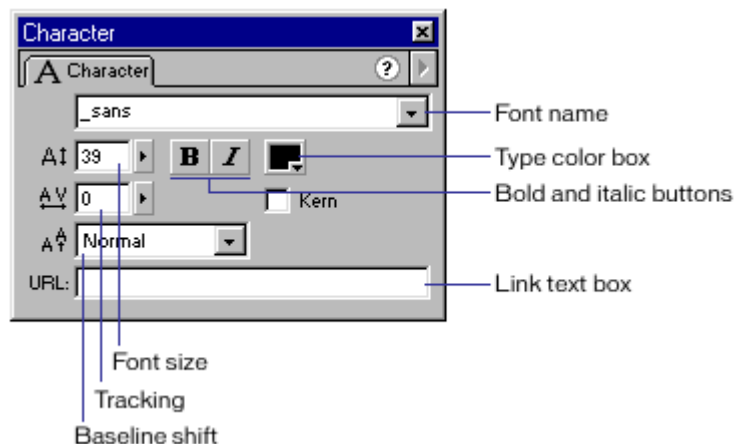
The Text Tool

The Text Tool allows you to place type on the screen. Just click where you want the type to go.

Formatting Text

To format text, you'll use the Character and Paragraph Panels.

WINDOW-> PANELS-> CHARACTER (or CTRL/CMD + T)



Tracking controls the amount of space between characters.

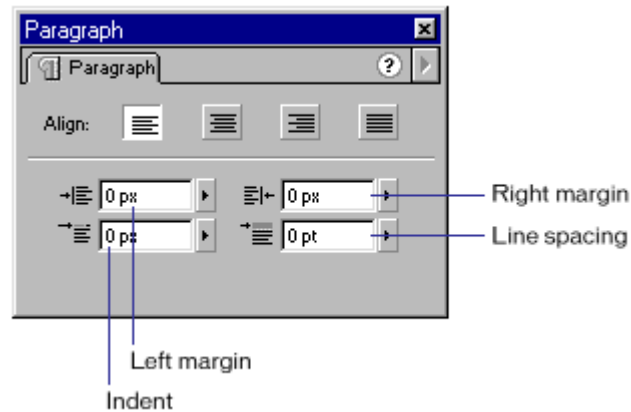
Baseline shift controls how far type displays above or below it's initial line.

URL: Allows you to specify a link for text. You must type in the whole address, including "http://"

NOTE: Direct text linking is new for Flash 5 and will only work if the user has the Flash 5 plug-in.

Paragraph Formatting

WINDOW-> PANELS-> PARAGRAPH



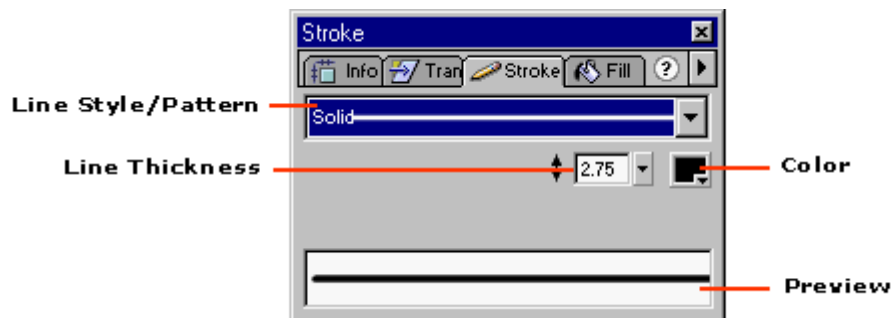
Experiment adding and formatting text in your movie.

The Stroke Palette

The stroke palette controls all the settings you could ever want to apply to a line. You can set thickness, pattern, and color. You can even design your own patterns.

To Use the Stroke Palette

1. Click: **WINDOWS-> PANELS-> STROKE**
2. Select the line or stroked object you wish to change.
3. Change Stroke Settings



You can also change the stroke settings before you draw a line.

To Specify A Custom Fill, Click The **Stroke Palette Arrow** And Choose **Custom**.

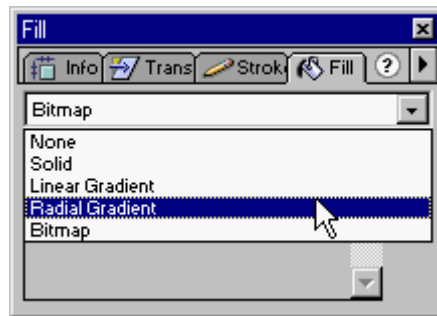
The Fill Palette

You can specify a color, gradient, or bitmap fill on the Fill Palette. A bitmap fill fills with a tiled image.

To Open the Fill Palette:

Window-> Panels-> Fill

Set the fill type on the pull-down menu.



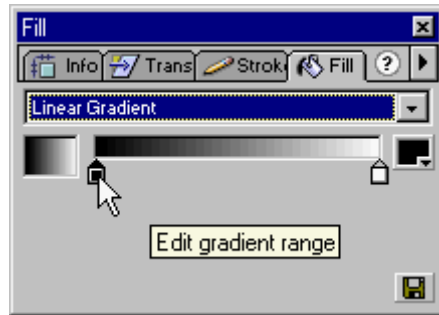
Gradient Fills

Flash makes gradient fills easy to work with.

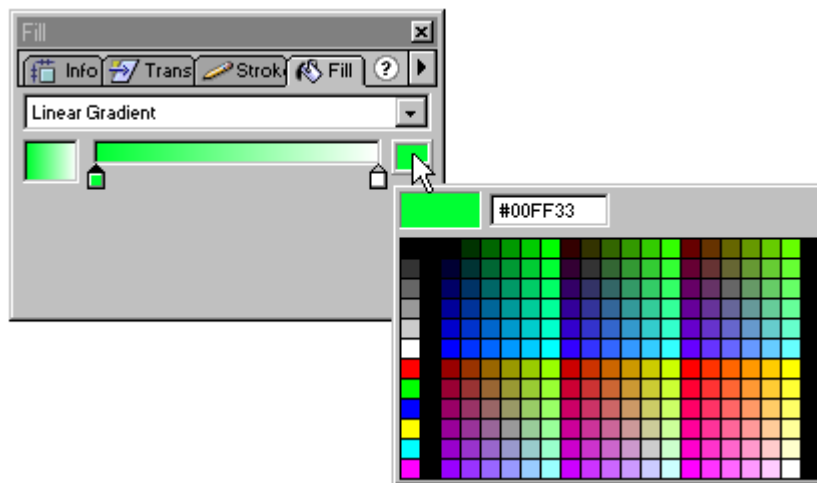
1. Choose a gradient type.
2. Move the color boxes to adjust the gradient.

To change the gradient's color:

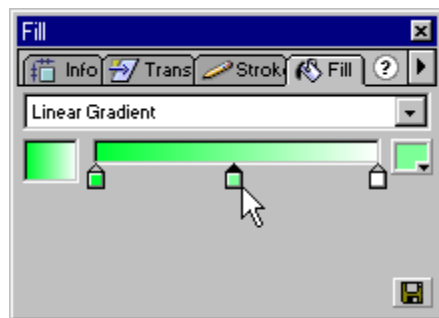
1. Click the colored gradient box



2. Choose a color



To add a color to the gradient, click in a blank space under the gradient line.



To remove a color, grab it and pull it down off the line.

SYMBOLS AND LIBRARY ITEMS

Remember that Flash saves download time by downloading images one time and storing them in memory. From there, Flash can reuse the image many times without reloading it. Any reusable object is called a symbol. You'll learn to convert images into symbols. Symbols can be drawn or imported.

Here's a big rule:

If you're going to animate an object, it must be a symbol first.

Symbols are stored in the Library. Just like a real library, you can store objects (symbols) and check them out over and over again.

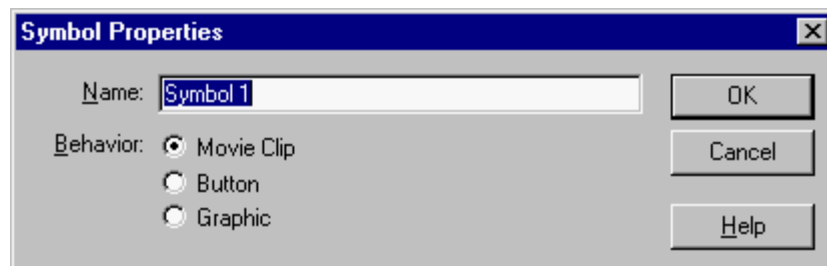
Creating Symbols

Creating a symbol is easy. First you must draw or import an object.

1. Select the object or objects.
If you select more than one object, they will become one when you convert to symbol.
2. On your keyboard, hit the F8 key.

Feel free to memorize the F8 shortcut, you'll be using it a lot.

You can also find symbol in INSERT-> CONVERT TO SYMBOL.



3. Name your symbol and click **OK**.

Don't worry about the Behavior setting right now. We'll get into those later.

You'll notice that a selected symbol looks different than a selected primitive drawn object.



Okay, pay attention!

If you want to animate an object it MUST be made into a symbol first.

It is very common for beginners to miss this crucial step. Flash doesn't pop-up a window telling you that you're trying to animate a non-symbol. Your animation just won't work!

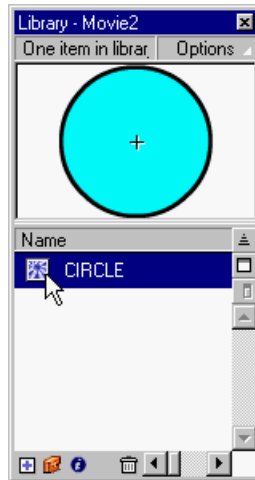
Practice making symbols out of drawn objects, imported objects, and text!

Using the Library

The Library stores all of your symbols so you can reuse them later.

1. Draw a circle and convert it into a symbol (F8). Name it "Circle".
2. Delete the circle from the screen.
3. Open the Library **CTRL/CMD + L** or **WINDOW-> LIBRARY**
4. Select "Circle"

Notice that the Library shows you a preview of the image.



5. Drag the circle onto the screen.
Drag it again.

Remember that all Library items are downloaded once and stored in memory. You can repeatedly use library items without slowing download time.

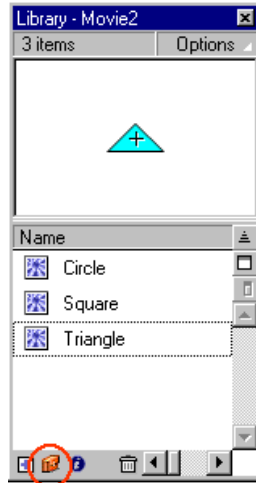
Organizing your Library

Most everything you use in your Flash movie will end up in the Library. You'll have quite a mess on your hands if you don't organize.

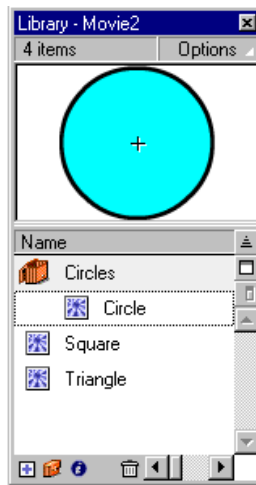
You can store your library items in folders.

Adding Folders in the Library

Adding folders to the Library is easy. Simply click the New Folder button on the Library to add a new folder



Drag items on top of a folder to place them inside.



Editing Library Symbols

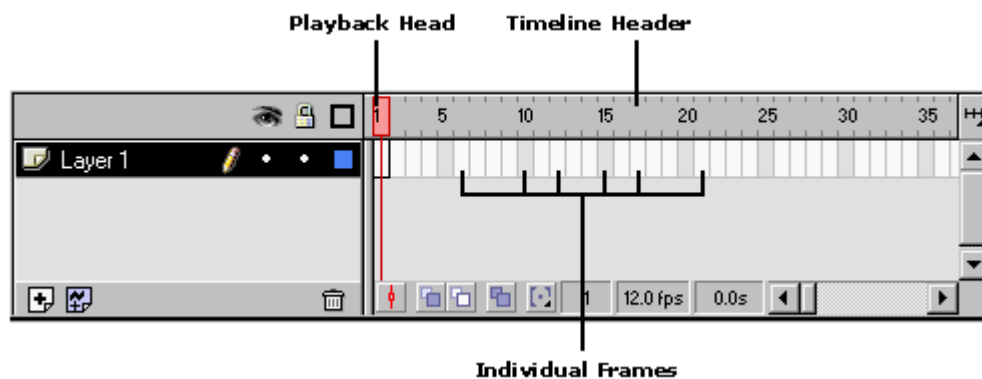
Tips for Using the Library

- * Don't delete anything from the Library. Some items are used to build other items. If you delete them, they're gone for good, as well as any items they're linked to. Every instance of the deleted item in the movie will disappear. Instead of deleting, create a folder called "unneeded" and throw any unneeded items in there. When you're ready to publish to the web, Flash will not export library items not used in your movie.
- * After you place a symbol in the Library, feel free to use it over and over again.

CONTROLLING PLAYBACK AND LAYERS

Flash can have many animations happening at the same time on many different layers. You'll have to learn how to control playback and layers if you're going to effectively use Flash.

The Timeline



The timeline is found at the top of the Flash window. The timeline keeps track of and displays in chronological order everything that happens in Flash. It's kind of like that timeline that starts with Neanderthal Man, and ends up with a business man carrying a briefcase.

Remember that Flash functions on the same principle as film. In film, each picture is kept in a frame. Flash uses frames, too. Each frame can hold changes to occur in the Flash movie.

The Playback Head

In Hollywood style movies, the film is moved across the projector. In Flash, the opposite happens. The playback head moves across the stationary frames.

Timeline Header

The frames are marked in the Timeline Header (above). The Timeline Header only marks the frames. The actual frames are below the timeline header.

Controlling Playback

Controlling a movie in Flash is pretty easy.

Open "**Layer Example.fla**" and prepare to test your new playback skills.

- * **To play the movie:**
Hit **ENTER** on the keyboard
(Watch the playback head move!)

- * **To stop the movie:**
Hit **ENTER** on the keyboard
(The playback head stops!)

- * **To move the playback head to a specific frame:**
Click that Frame
(The playback head goes there)

- * **To move the playback head one frame:**
Use the carrots < > on your keyboard

Testing Your Movie In the Internet Explorer or Netscape

Sometimes you'll need to see how your movie will look on the Internet. No problem-o.

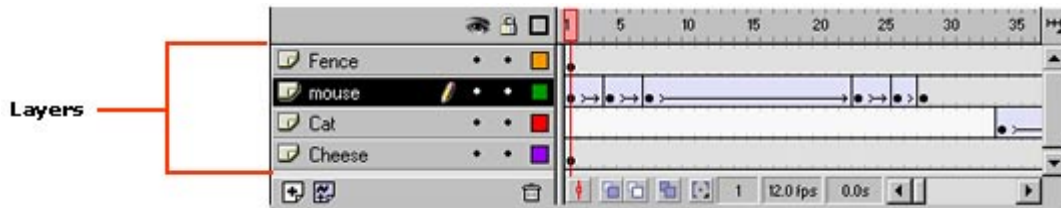
To test your movie, simply hit **F12**.

F12 is one of those short cuts you'll use over and over and over.

Some of Flash's more advanced features will not work in the main Flash window and must be tested by hitting F12 to function. It's a good idea to check your movie often by hitting F12 just to make sure you're getting what you want.

Using Layers in Flash

Flash builds movies by placing layers of animations and objects over each other. The layers are clearly visible on the timeline:



It doesn't matter how many Layers you have in Flash, they'll all get smushed down into one layer when we're ready to export to the Internet. So, go crazy. Add as many layers as you want. Use them for organization.

Here's the big rule:

You can only have one animation happening on a layer at a time.

That means if you want to have two animations happening at the same time, they have to be on different layers. This rule will come in mighty handy in a little while. You might want to go back and read it again right now...

The Playback Head Crosses All Layers at the Same Time

Notice that the playback head has a red line coming out of it that crosses all the layers? If a layer has something happening on it when the playback head crosses that frame, Flash will display the object in the movie.

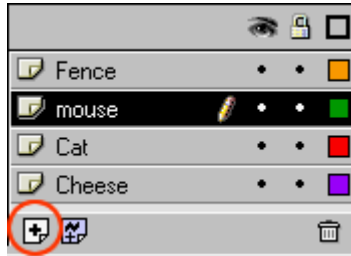
Selecting a Layer

If you want to work on a layer, simply click the layer's name, or any of the frames in the layer.



To Add a New Layer

Adding a new layer is easy. Simply Click the new layer button underneath the layers.



To Delete a Layer

Click the layer, and then click the trashcan.



The new layer pops in above the selected layer.

Renaming Your Layers

"Layer 1" is not a very descriptive name.

Simply double Click on a layer's name to name it.

Do yourself a favor and always name your layers. When you have thirty layers you'll be happy you did. Plus, you won't look very professional with unnamed layers.

Rearranging Layers

The top layer in Flash will also display as the top layer. To rearrange layers, simply click and drag them above or beneath each other.

Try this exercise:

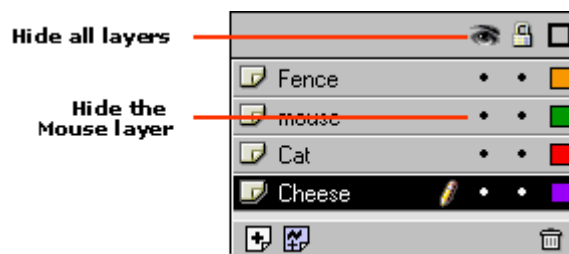
1. Make sure you have **Layer Example.fla** open
2. Play the movie (ENTER). Watch as the mouse runs behind the fence.
3. Drag the Mouse layer above the Fence Layer



4. Play the movie again. The mouse is in front of the fence.

Hiding a Layer

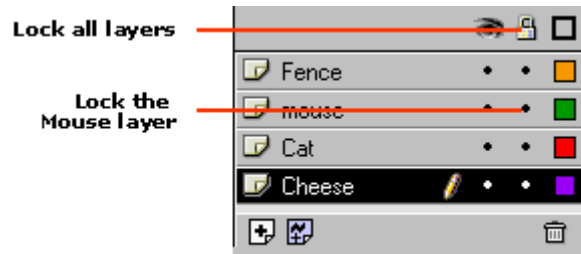
You can hide a layer to get it out of your way. A hidden Layer is not editable.



Click once to hide, and again to show.

Locking a Layer

A locked Layer is visible, but not editable.



Click once to lock, and again to unlock.