

behaviors don't exist as HTML code, they are programmed with JavaScript. Dreamweaver allows you to insert them through the **Behaviors** panel, so it is not necessary to write a JavaScript code line to program them.

The image below has a behavior associated. Place the mouse over it to see what happens.



The image has two behaviors associated to show and hide the layer. We'll look at this kind of behavior later.

Other behaviors you have seen are the ones applied to substitution bars and browser bars, they are predefined, and for this reason it isn't necessary to introduce the set of behaviors through **Behavior** panel.

To validate forms you saw some of the characteristics of **Behavior** panel. Let's remember which we need to insert behaviors later.

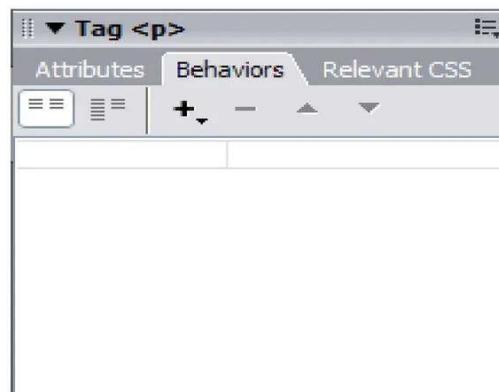
The **Behavior** panel can be opened through the **Window** menu, and then the **Behaviors** option, also by pressing **Shift+F3**.

In this panel you need to click on the button, and in **Show events** for selecting a version from the browser list.

Some behaviors don't work with some browsers. Depending on the selected browser, you will see or not some of the possible behaviors.

There are many behaviors for Internet Explorer but they don't work with Netscape. As most users use Internet Explorer, let's select this browser. You can select from one of its latest versions: **IE 5.5 o IE 6.0**.

Once the browser is selected it's not necessary to re-select it the following time you want to insert any behavior.



Inserting a behavior

When there is an established browser, you can insert behaviors.

The first thing to do is to select the object on which the behavior is going to be applied, it can be an image, a text fragment, etc.

When you click on the  button of the **Behavior** panel you will see the **Show Events for** option. Also, you will see a list of all possible actions in the browser previously selected, so you can select one.

Depending on the element on which you want to apply the behavior, you can select some actions, and others not.

- Preload Images
 - Set Nav Bar Image
 - Set Text
 - Show Pop-Up Menu
 - Show-Hide Layers
 - Swap Image
 - Swap Image Restore
 - Validate Form
-
- Show Events For
-
- Get More Behaviors...

In this case the **Validate form** action cannot be selected because there isn't any form in the Page.

After choosing any action, the corresponding behavior appears in the **Behaviors** panel. In this case, two behaviors have been inserted.

As you can see, each behavior has an action and an event associated to it.



Actions are the ones which have been selected in the previous list, and the event indicates the action by itself (when it is done).

To clear any behavior, you need to select it in the **Behaviors** panel and click on the  button. You can also change the order of the behaviors applied to an object, by selecting them and arranging their order through the   buttons.

Show and Hide layer behavior

One of the most habitual and interesting behaviors is **Show and Hide layers**. It is obvious that when you want to apply this behavior there need to be layers present in the document.

In the previous Page you had an example of this type.
Let's see which events and actions you need to establish in order to produce the behavior.

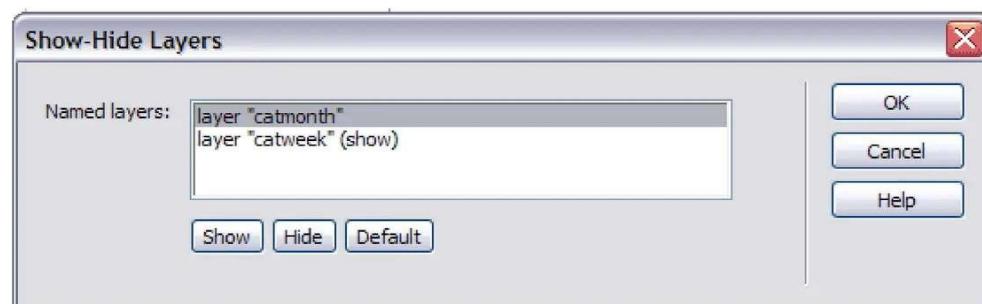
After selecting the image you need to select an action from the list by clicking on the **+** button. In this case the action has to be **Show-Hide layers**

After selecting the action, you must specify which layers have to be shown and which hidden for the event. For this you need to click twice on the action in the **Behavior** panel.

A new window is then shown, with the list of all the layers in the page, where you can indicate the view variation for each one of the layers.



You can indicate whether they are going to be Shown, Hidden, or if they are going to acquire the initial view (Predetermined). To determine the state of each one of the layers it's necessary to select them one by one, indicating the state through the buttons at the bottom of the window.



It's not necessary to apply a different view to all the layers of the page, only the ones you want to change at the moment of producing the event. For example, in this case the "**catmonth**" layer has not been applied a different view, because we don't want it to change when the event plays out.

If you want to clear an established view for any of the layers, you only need to click again on the button of the applied view. For example, to clear the view applied to the "**catweek**" layer, we would have to click again on the **Show** button.

You need to be careful about what you want - in this case it is that when you place the mouse on the image the layer is shown, and when the mouse is out of the image the layer

is hidden again. For this you need to insert two **Show-Hide layers** behaviors with the action. One of them will show the layer for the event **onMouseOver** (when the mouse is over), while the other will hide it for the event **onMouseOut** (when the mouse is out).

Using JavaScript Code

Another behavior that can be applied on any object is **Call JavaScript**. This behavior allows us to insert JavaScript code inside the file.

For example, it's possible to make the browser window close when you click on an object. To do this you need to insert a "**window.close();**" JavaScript line.

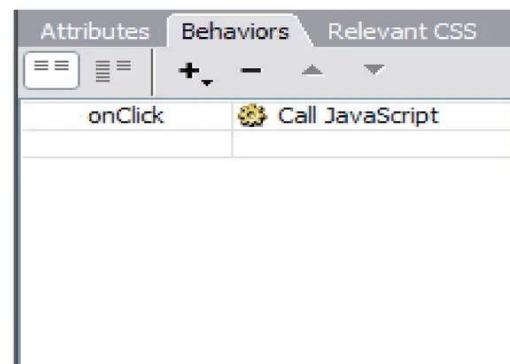
The same as the layers example, the first thing to do is to select the object on which the behavior is going to be applied. After this you need to select the **Call JavaScript** action through the **+** button.

Then a new window shows up and you now need to introduce the JavaScript line.



Once the behavior is inserted in the **Behavior** panel, you need to establish an **onClick** event to produce the call to JavaScript when clicking on the object.

By clicking twice on the action the previous window is opened again, and it's possible to modify the line code.



Introduction to Adobe Flash

Adobe Flash (formerly called Shockwave Flash, often just called Flash) is a multimedia software platform used for production of animations, rich Internet applications, desktop applications, mobile applications and mobile games. Flash displays text, vector graphics and raster graphics to provide animations, video games and applications. It allows streaming of audio and video, and can capture mouse, keyboard, microphone and camera input.

Introduction to Macromedia Flash

Macromedia Flash Mx/8 is a powerful Web authoring application used to create animation, interactive environments and data driven applications for use on Web sites. Flash Mx/8 is one of the leading Web authoring programs for creating vector-based animations or "Flash movies" for Web sites. A working Flash document should have the file extension of .fla. A compiled Flash document exported to web is abbreviated as a .swf file.

Flash creates vector-based graphics rather than bitmap graphics. Vector graphics are created using lines and curves, whereas bitmap graphics are described by pixels of color. Bitmap images are resolution dependent; therefore, resizing a bitmap image can lead to distortion. Vector-based graphics, on the other hand, are drawn using mathematical formulas. Resizing a vector-based image means the formula is recalculated, resulting in a scaled version of the original image and no distortion.

Flash MX supports the importing of bitmap graphics. This feature gives the Web developer a great deal of flexibility. The addition of a Flash movie to a Web site invites interactivity and provides an opportunity for visitors to have a more engaging experience.

Using Layers in Flash Mx/8

Layers are like clear sheets of acetate or glass. Layers can be stacked on top of each other. Each layer can have its own artwork, sound or action on it. Use as many layers as you need to keep everything separate and organized. Be consistent with the way you order and name layers, so that if you have to put the .fla away and work on it down the road, you won't be totally lost. This is a good practice to adopt. Suggested layer order and layer names are:

1. Actions --- any frame actions assigned can all be here.
2. Labels --- Name keyframes that have actions
3. Sounds --- Any sounds can be placed in keyframes here.
4. Object 1 (whatever you have on this layer)
5. Background

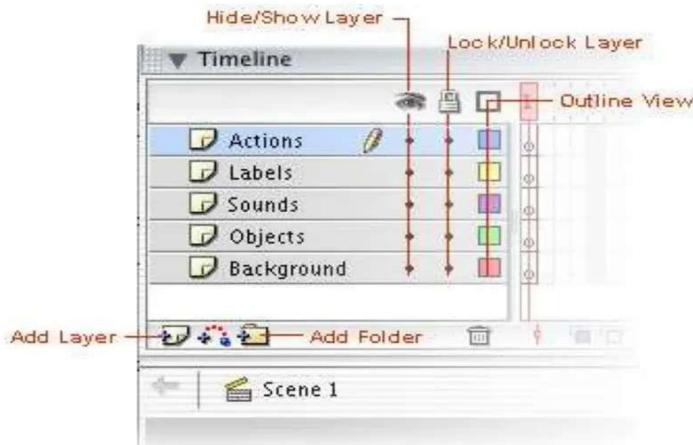
Name layers with short meaningful names that you will be able to identify at a glance. Such as "red ball bounce," or "button home." These aren't read by Flash, so they just have to have meaning to you.

NOTE: You can have as many layers as you want (or as your system can handle). Layers do not add to file size.

Creating New Layers

There are several ways to create a new layer:

- Click on the “+” button in the lower left corner of the Timeline.
or,
- From the **Insert** menu, choose **Layer**.
or,
- Right-click (Windows) or Control+Click (Macintosh) on an existing layer and choose Insert Layer from the dropdown menu.



Create a guide layer by choosing **Modify > Layer** and selecting the "guide" option. A guide layer is used to help in drawing. Any layer can be made into a guide layer. The artwork appears in your work area, but not in the published movie. When you see this icon next to the layer name, then it is a guide layer. 

Layer Attributes

You can change the order of the layers by dragging them up or down in the Timeline. The icons across the top of the Timeline control different attributes of the layers.



- The first changes the visibility of the layer to Off or On. This is helpful if you don't need to see that layer to work on a different layer. Even if you have the visibility of the layer turned Off, it will still show up in the published movie. If you want the layer to be visible, but not show up in the published movie, change the layer to a guide layer. The page icon on the layer will then change to a “t-square shape”
- The Lock icon locks the layer so that you can't make changes on it.
- The Box will change whatever artwork is on the layer into an outline. It will show up as the artwork, not as an outline in the movie.

You can also change the height of the layer. This may be necessary if you have a sound file on a frame and you want to see the whole sound wave representation. To change the height, Control+Click on the layer (Macintosh) or right-click (Windows) and choose Properties. Adjust the layer height in the Layer Height box at the bottom of the menu box.

Exercise:

1. Create an object on a layer, click on the eye and test movie. You should see that even though the layer is invisible, the object shows up. (In order to test a movie, it must be saved first.)
2. Change the object to an outline, and do the same thing. It should look the same.

Change the layer type to a guide and test. Even though the object is visible, it won't show up in the test movie.

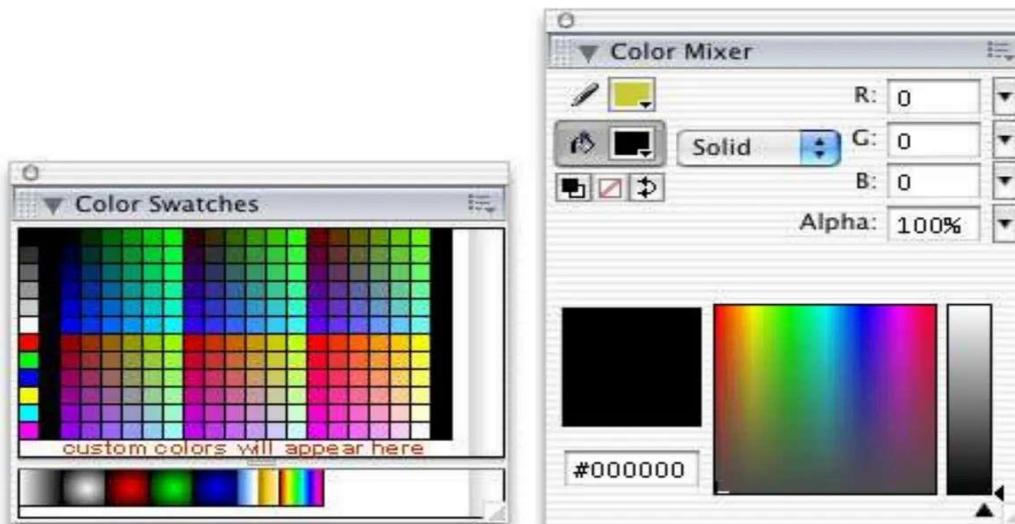
Creating Colors in Flash MX

There are several ways to select color with Flash MX. The Swatches panel displays the 216 Web safe colors and also stores custom mixed colors created by the Mixer panel. To open the Swatches and Mixer panel, from the **Windows** menu and then **Swatches** and then **Mixer**.

When working with colors in Flash, you may want to organize the Swatches, Mixer and Fill panels into one window. These three panels are used together very often with colors, and you can save and recall this panel layout.

[Adding a New Color to the Swatches Panel](#)

- Click on the Mixer panel tab. Select the color swatch next to the bucket symbol. This is the Fill color.



Select another color from the drop down swatches menu or by using the sliders from the RGB sliders on the right. These sliders can be switched from RGB (Red, Green, Blue) to HSL (Hue, Saturation, Luminance) or HEX (Hexidecimal) using the left pointing arrow on the Mixer panel.

- Adjust the transparency of the new color with the Alpha text box or slider.

- When the color and transparency is set, select Add Swatch from the right pointing arrow on the Mixer panel.
- Switch to the Swatches panel. The color you created is at the bottom of the color swatches. Now you have a custom swatch palette that you can save and call into other Flash sites.

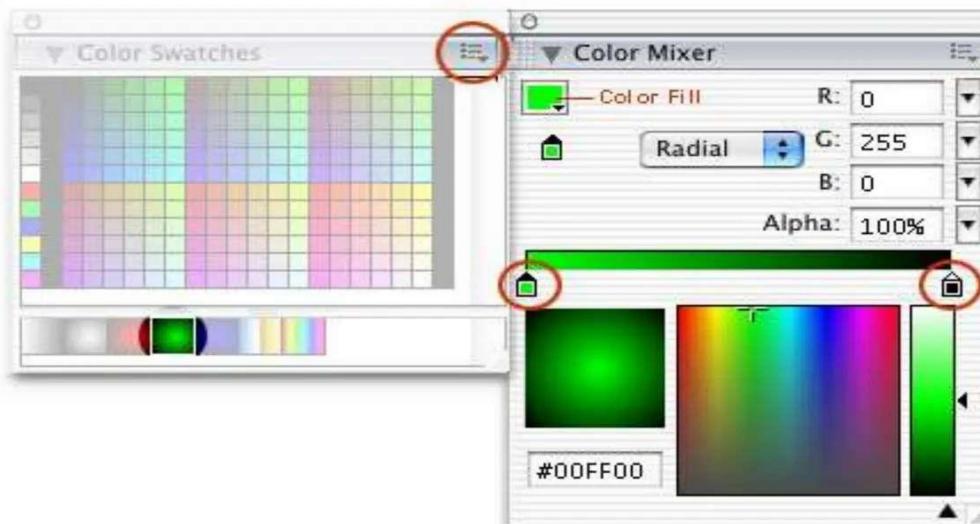
Saving a Custom Swatches Panel

Select the Swatches panel. Use the pull-down menu from the top right arrow and choose Save Colors. Save your swatches in your chosen directory.

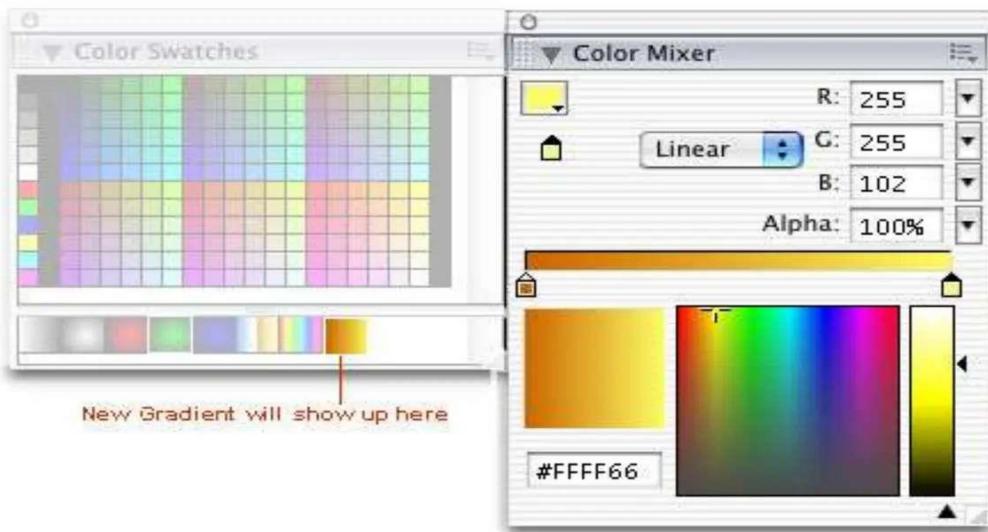
Adding a New Gradient Fill

Let's make a new gradient that has one solid color and one transparent color.

- From the Swatches panel, choose the green radial gradient type. (You can change the type of gradient later.)
- From the upper right arrow choose Duplicate Swatch.



- To alter a portion of the gradient, select one of the color boxes under the bar that defines the gradient.
Next, use the "color fill" box above to choose another color.
- Now select the other color and choose a new one. You can change the gradient type from the pull-down menu to create various types of gradients.
- Change the gradient type to Linear.
- Now look at your swatches and you'll see the new gradient you made at the end of the gradients.
- Gradient color swatches can only be used in fills. Transparent fills can only be applied to new objects. They will not replace a fill already there. You will have to select and delete the fill before refilling with the transparent color. This might have to be a two-step process. If there is no stroke on your object, add a temporary one with the inkwell tool. Use that to define the area to be filled, then you can delete the stroke again.

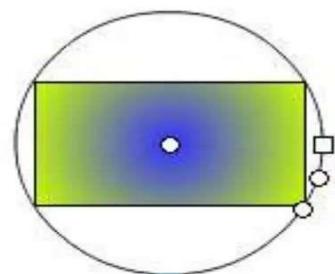


Modifying the gradient's size, position and rotation inside of a filled object.

- Make a shape and fill it with your newly created gradient.
- Select the "fill transform" tool on the Toolbox.



Click on your filled shape on the stage.



A center point appears in the center of the shape and with a Radial fill a circular transform modifier surrounds the shape. The square handle is an adjustment handle. Linear and Bitmap fills will display a center point and two vertical lines on either side of the shape. On the right line, the square adjustment handle appears.

- The Transform Fill handles allow you to change the size, position and rotation of the gradient fill inside the object. When you drag from the center point, the position of the fill will move. The square on the side changes the width, the circle directly below controls scale, and the other circle below that one controls the rotation of the fill. The mouse pointer will change when hovering over one of the handles to indicate the function. Try this with a linear fill to see the difference. In a linear fill, you can modify the same properties as well as skew or slant by dragging from one of the corners.

Bitmap Fills

In the Fill panel, choose Bitmap from the Fill Menu. Click on a bitmap that appears in the Fill panel. You can modify a Bitmap fill the same as a Linear fill.

Drawing in Flash MX

If you're familiar with Photoshop or other drawing, image manipulation and paint programs, then Flash tools will look familiar. Let's go over some of the drawing methods unique to Flash.

Overlapping Shapes

When one shape overlaps another and the two shapes are on the same layer and are not selected, these objects merge into one object. You can still select one section of the object, but when you move it, the part of the other object that was overlapped will be erased.

Exercise:

Draw a shape on the stage in one color. Draw an overlapping shape in another color. Select one of the color areas and drag the shape. You see that the part of the shape that was covered by the overlapping shape is gone. Keep this in mind when you're creating graphics. If you don't want this to happen, put the shapes on different layers, group them or make them symbols.

Pencil Tool

The Pencil tool works like a regular pencil tool with some cool options. The Pencil tool draws in three modes: Straighten, Smooth and Ink. These modes appear in the Options section of the Toolbox.

Choose Straighten and draw a box. The lines you draw have been straightened. Try this with the other two modes. Smooth makes nice curves averaged from the curve you drew. Ink leaves the line as you've drawn it.

Selecting edges and lines in Flash MX

- To select a line segment or the fill of an object, use the Arrow tool and click once over the line or fill.
- Double clicking on a line will select all the curves in that line.

- Choose the selection (Arrow) tool and deselect any shapes or lines that are on the stage. With the selection arrow, move it over one of the shape edges. The pointer arrow changes when you're over the edge of a shape that hasn't been grouped or made into a symbol. If it's over a curved line or curved edge of a fill, it is a pointer with a curve next to it and will move the curve if you press and drag. Over a corner or endpoint, it is a pointer with a corner, and will move the point or corner maintaining the straight lines. This will pull both stroke and fill alike.
- To reshape lines and fills, select them. Use the Smooth or Straighten mode from the Modify Menu or from the Options section of the Toolbox. (You can adjust the amount of smoothing or straightening by choosing **Preferences** from the **Edit** menu.)
- Control-drag (Windows) or option-drag (Macintosh) a line to create a new corner point.

Optimizing Shapes

The fewer curved sections in a shape, the lower the amount of data Flash has to maintain on that shape. Optimizing shapes is highly recommended to reduce file size and increase playback speed of the Flash movie. To reduce the amount of curves in an object, choose **Optimize** from the **Modify** menu. The Optimize Curves dialog box allows you to reduce the number of curves contained in a shape. Observe the shape as you smooth it and stop before it changes the shape unacceptably. If it's a simple shape, the number of curves may not change at all. Optimizing all objects in a movie, can significantly reduce the movie file size and increase the playback speed.

Exercise:

Draw a shape. Select it and choose **Optimize** from the **Modify** menu. Use the slider to adjust the amount of smoothing to apply to the curve. (You can always choose **Undo** from the **Edit** menu.) The option 'Use multiple passes' will repeat the smoothing process until no more optimizing is possible. This is the same thing as choosing **Optimize** from the **Modify** menu over and over again.

Pen Tool

If you are familiar with Adobe Illustrator or Photoshop, Macromedia Freehand or Fireworks, you've seen this tool before. The Pen tool allows you to place points and create curves and lines that are repositionable.

Exercise to create a straight line:

- Select the Pen tool.
- Click once anywhere in the stage window.
- Click again, and a straight line is created between the two points.

Exercise to create a curved line:

Position the Pen icon where you want it to begin on the stage. Press and hold the mouse and slide in the

Making Buttons in Flash MX

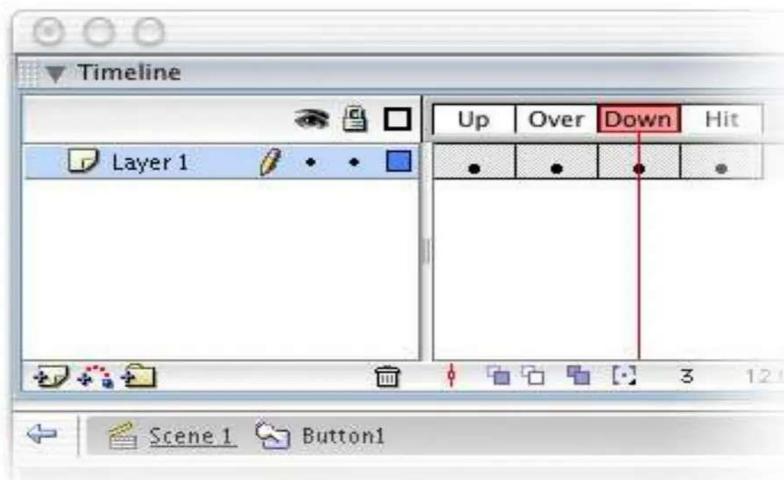
One of the most powerful features of Flash MX is the interactivity you can build into your Web site. The button symbol is something you'll use often. Buttons can be as simple or as complex as you want. Buttons can contain movies and actions inside.

Buttons are actually interactive movies consisting of four frames. The first three frames define three states of the button, while the fourth frame defines the hit area, or the area that is "hot." The four frames are:

1. Up -- what button looks like in inactive state, when the pointer is not over the button;
2. Over -- what the button looks like when the pointer is over it;
3. Down – what the button looks like when the mouse is clicked on it; and
4. Hit -- the area that is "hot" that will trigger the button states.

Exercise to build a simple button:

- From the **Insert** menu, choose **New Symbol**. In the Symbol Properties window that opens, choose Button as the Behavior type. Name it: b, simple button. Click **OK**.
- This opens up the symbol editing window.



You will see 4 labeled frames in the Layers and Timeline area. These frames represent the 4 states for your button: Up, Over, Down, and Hit. This is where you will create the artwork for the different states for your button.

- Click in the "Up" state frame.
- On the stage, draw a blue filled circle. The Up state is done.
- To create the "Over", "Down" and "Hit" states, select each frame (state) and from the **Insert** menu choose **Keyframe**. This will put the last keyframe (Up state frame) in the selected frame. Then you can go back to each new frame and change the button.
- We want the "Over" state of the button to look like the "Up" state except with a different fill color.

- Select the "Over" state frame. If you click directly on the frame, it will select all objects in that frame. If you click over the frame, on the state label, it will go to the correct frame, but not select the objects in that frame. If the object is not selected, choose the selection arrow and select the blue filled circle on the "Over" state. While it is selected, choose a new color by the fill bucket to change the fill color.
- Now select the "Down" state frame. Let's make the Down state a little different. Change the fill color to yellow the same way as in the Over state. Add some little dashes like radiating rays from the sun around the circle.
- Let's leave the "Hit" state the way it is.
- Click on the Scene 1 icon in the upper left hand corner of the work area.
- If the Library window is not open, select Window/Library. (The key command will be indicated in the pull-down menu, if you'd rather use keys than the pull-down menus all the time.)
- The simple button you made shows up in the Library list.
- Select the button and the "Up" state of the button will appear in the upper portion of the Library window along with a right pointing arrow. Click this right pointing arrow and you'll see all four states of the button played.
- Drag this button onto your stage.
- To see your button in action, from the **Control** menu, select **Enable Simple Buttons**. Rollover your button and click on it. It should turn a different color when you roll over it, and turn into a yellow sun when you click on it.

Exercise to create a button to perform an action:

One of the most common button actions is to call up a different URL. We'll put this action on the button we just made and placed on the stage.

- From the **Control** menu turn off **Enable Simple Buttons** so you can interact with the button on the stage without testing the movie.
(Enable Simple Buttons will not show you movies in keyframes.)
- From the **Window** menu, choose **Actions**. This will open up the Object Actions window, one of the most powerful tools in Flash MX. Check and see that it is set on Normal mode and not Expert Mode by clicking on the arrow in the upper right corner. (Normal mode gives you clues and blanks to fill in with the proper syntax. Expert mode allows you to type in your own syntax.) For our purposes, we will choose Basic Actions from the list on the left hand side. Scroll through the list and select "Get URL". Either double click on it, or drag it over to the right hand side. It will show up with the proper syntax, and an area to fill in on the bottom of the Object Actions window. (This action defaults to the "on release" action. If you want to change this, click on that line in the Object Actions window, and you'll see a new set of options for that line on the bottom.) With "Get URL" selected, Flash asks you for the URL you want this button to direct the user to. If you don't have a URL to use, type in this one: <http://www.utexas.edu/>
- Now you're ready to test your button. There are several ways to do this:
 1. from the **Control** menu, choose **Test Movie** or
 2. from the **File** menu, choose **Publish Preview/HTML** or

3. from the **File** menu, choose **Publish Preview/Flash**.

Test the button by rolling over it and clicking on it.

Exercise to create a fancier button:

- Select the b, simple button in the Library window. Click on the Options arrow and from the drop-down menu select Duplicate. Name this button 'copy b, movie button'. Leave the behavior as Button. Click OK.
- Create a movie to place in the Down state of the button.
- First, let's copy the sun and rays from the Down state of the simple button.
-  Click on the Symbols icon in the upper right hand corner of the stage, scroll down and choose your old button. The symbol editor opens.
- Click on the Down frame, select the sun and rays, and from the **Edit** menu, choose **Copy**.
- From the **Insert** menu, choose **New Symbol**. Select Movie Clip and name it 'm,sunny'. Click OK. The symbol editor is now open.
- From the **Edit** menu, choose **Paste in Place**. You should see your sun from the "Down" state of the simple button.
- From the **Insert** menu, choose **Keyframes** at frame 5 and frame 10.
- Go to frame 5. Scale the sun up a little (i.e., make the image bigger). From the **Modify** menu, choose **Transform** and then **Scale**. Grab one of the square handles and make the image a little bigger. Now lets make a tween between keyframe 1 and 5, and 5 and 10.
- Click on a frame between 1 and 5. The area on the Timeline turns black.
- Now open the Frames panel. From the **Window** menu, choose **Panels** and then **Frame**. Choose Shape Tweening from the pull-down menu. (Shape tweening is for objects that have not been turned into symbols or grouped together. You can tell if it's a raw graphic by the selection. It will select and fill the object with black and white noise if its still raw. Grouped objects and symbols will have a bounding box instead. The shape tween is represented by a light green background with a solid line arrow on top. Dashed lines means something is not right.)
- The tween should make a smooth upward scale between frame 1 and 5. Do the same thing between frame 5 and 10.

Let's make this even more fun.

- Add a layer above the scaling sun layer. Name it 'spiral.' Double-click on the Layer to change the layer name.
- Insert a keyframe on the first frame.
- Select the first frame on the spiral layer and draw a darker yellow or orange spiral on top of the sun.
- Select the spiral and make it a symbol by choosing **Convert to Symbol** from the **Insert** menu. Name it 'm,spiral movie clip.' The behavior is movie clip.
- Create a Keyframe in frame 10.
- Select frame 10 which still contains the unconverted graphic. Select the image, delete it and drag the spiral symbol from the Library window into its place. You

can use the arrow keys to line up the center crosshairs. It should be in registration with the first one on the first frame.

- Let's make the spiral rotate one complete revolution for 10 frames. Select the area between frames 1 and 10 and open the Frame panel (from the **Window** menu, choose **Panels** and then **Frame**). In the Tweening box select Motion. In Motion Tweening, you can indicate the direction of the Rotation. Select CCW for counter-clockwise. In the "times" box, put 1 for 1 revolution. Motion tweens work on symbols. The tween on the Timeline will look blue, with a solid line arrow.
- Create a new layer and move it to the top. Call it 'actions.'
- On the actions layer, select frame 10 and insert a keyframe by choosing **Keyframe** from the **Insert** menu.
- Choose Window/Actions. The Frame Actions window opens.
- Select Basic Actions and "Go To." It will be an action on this frame sending it to a frame number or label. It defaults to frame 1 which is fine in this case. Now this movie will loop endlessly. (The timelines in movies are independent of the Timeline on the main stage, so frame 1 is unique to this movie.)

Putting the movie into the button

- Click on the symbols icon in the upper right hand corner and select 'copy b, movie button.' You are still in the symbol editor, but you are back in the duplicate of the first button you made.
- Go to the Down state (frame) and delete the sun graphic.
- From the library, drag in the copy b, movie button you just finished making. You can line up the center crosshairs with the arrow keys.
- Go back to Scene 1 (upper left). Now your movie button has an animated down state.
- Test your movie.

Using Symbols in Flash MX

One of the most efficient ways to use Flash MX is to use symbols whenever you need more than one occurrence of a graphic, or animation or sound. A symbol is a graphic, button, movie clip, or sound that you create once, then reuse in your movie or other movies. Flash allows you to have an item saved in the Library that you can pull out onto your stage over and over again without busting your file size budget. You can also modify certain parameters on each instance such as scale, rotation, alpha and overall color. If you modify the symbol, it will change all the instances, but if you modify the instance, then just that instance is affected.

Symbol Types

- **Movie Clip** - A symbol that can include animation(s), buttons, graphics, other symbols, and operates independently of the main stage Timeline.
- **Button** - A symbol that allows interactivity and that responds to mouse clicks or rollovers. Buttons can also have movies placed in one of the states.
- **Graphic** – A symbol that is used for static images or is controlled by main stage Timeline. Interactive controls and sounds won't work in this symbol.
- **Sound** - The Sound symbol is created automatically when you import a sound.