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Instructional Guides

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2012

Creating Multi-Layer Animations in Flash: Two Tutorials a Butterfly Animation and Filling a Glass

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Laboratory: Animations in Flash

Two-Layer Animations:
You saw last week how we used a motion guide to create more complex motions. The path that the object will follow is drawn on a separate guide layer. In addition we can also create objects called **movie-clip symbols** that animate independently of the main timeline. The following exercise demonstrates the process.

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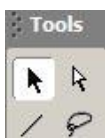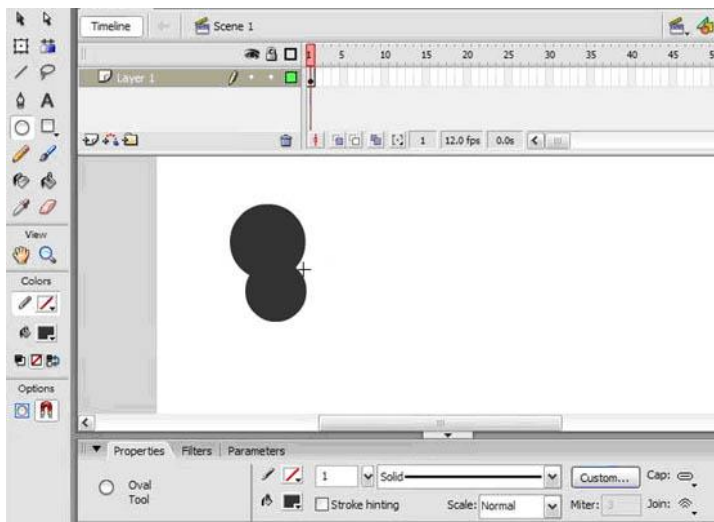### Exercise 1: A Butterfly Animation in Flash
This will be a 2 layer Animation:
Inside Layer animation of wings flapping
Outside Layer Butterfly moving along a path

Drawing the Butterfly:
First begin to create the butterfly using the **Oval** Tool, switch off the stroke and begin to draw the butterfly in silhouette using a dark grey fill. Draw some connected circles.

Switch to the **Selection** tool, float the cursor over a circle to get the cursor to include an arc, then drag the circles out to distort them slightly.

Now create an exact copy of the shape by selecting it and using **CTRL + c**, then use **CTRL + Shift + v** to paste the shape right on top of itself. This is called a paste in place.
Now move the pasted shape to the right using the right arrow key.
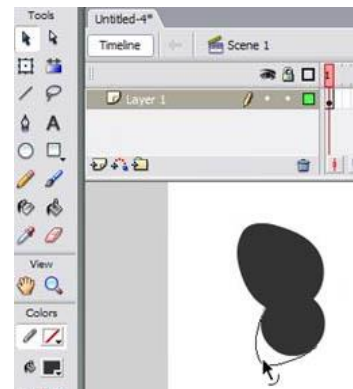
Next flip the shape by selecting **Modify/ Transform/ Flip Horizontal**.

Now move the shape back to the left as shown and use the **Paint Bucket** Tool to fill in the centre.

Click on the **Oval** tool to create an elongated oval which will add more detail to the butterfly. Move it into place to the upper body, then make a copy and move into place to the lower body.

This is the finished butterfly. You could add more colour to the wings if you like. Next we will work on the inner animation.

The Inner Animation:

The inner animation is of the wings flapping.

To achieve this we need to convert the butterfly shape to a movie symbol so that the wings animate over and over again. To convert it to a movie symbol, select the shape and hit **F8** or from the menu by using **Insert/ Convert to symbol**.

Movie-Clip:

You use movie clip symbols to create reusable pieces of animation. Movie clips have their own multiframe Timeline that plays independent of the main movie's Timeline—think of them as mini-movies inside a main movie that can contain interactive controls, sounds, and even other movie clip instances. You can also place movie clip instances inside the Timeline of a button symbol to create animated buttons.
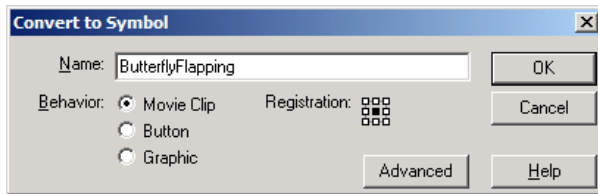
Double-click on the movie-clip to edit its Timeline.

Say for example you want the wings to flap at a rate of once per second.
Thus with the default setting of 12 frames per second, place the cursor at Frame 6.
Select **Insert/ Keyframe** and a copy is made. Repeat to create another keyframe at Frame 12.

Now reselect Frame 6 and use the **Free transform** tool to squash the wings from the sides. If you hold down **alt** then the transform will be applied symmetrically.

Select any frame between 1 and 6 and in the *Properties Panel* select *Tween* and choose **Shape**. Repeat the tween in-between frames 6 and 12.

current frame
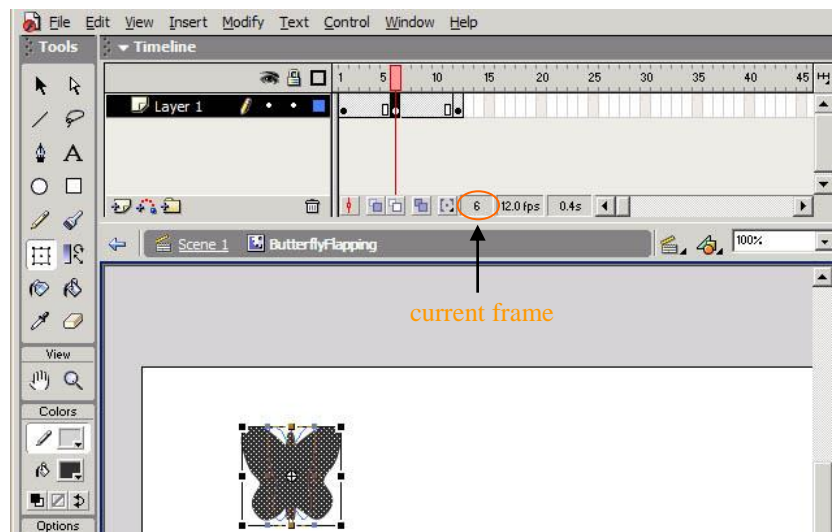
Exit the movie clip by clicking on Scene 1 to return to the main timeline.

The Outer Animation:

Next create a guide layer along which the butterfly will travel. Rename the present layer *Butterfly* and create a new layer called *Guide*.

Switch to the guide layer and using the **Pen** tool start to draw the guide over on the left hand side of the stage. Click and drag upwards for the first point, then move over to the right and click and drag downwards to create the second point. The path starts to evolve. Add four more points as shown.
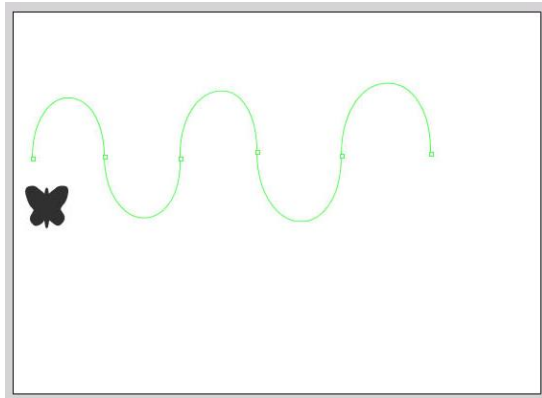
Select the *Guide* layer and identify it as a guide layer by right-clicking it and choosing *Guide*. It adds the symbol of a tee-square. To designate this as the guide layer for the *butterfly* layer, select the *butterfly* layer and drag it up to touch the guide layer, thereby indenting it. There is now a relationship between the two.

Now the aim is to 'attach' the butterfly to the motion guide. If you select near the edge of the butterfly a registration mark will appear on its circumference. We want the centre of the butterfly to follow the motion guide so attempt to get a registration mark appearing in the centre. Hold down the button to keep the hollow circle registration mark visible and drag it to the very beginning of the guide where it 'snaps' on to the guide layer.

Say we want the animation to last 5 seconds, then with the default setting of 12 frames per second, the last frame will be frame 60. Place the cursor at Frame 60 of the *butterfly* layer. Select **Insert/ Keyframe** and a copy is made.

The guide is only present on frame 1 of its layer. It needs to be visible for all frames, so insert frames up to frame 60. Do this by selecting frame 60 of the *Guide* layer and then from the menu **Insert/ Frame** or hit F5. Note we do this so that the guide is visible throughout the animation.

Select the butterfly object in the 2nd keyframe of the *butterfly* layer and move it to the end of the motion guide and snap it onto the guide.

Place the cursor anywhere between frames 1 and 60 on the *butterfly* layer. Right-click and choose **Create Motion Tween**.

Now scrub your playhead to see the complete animation or hit return. You will see that the butterfly remains vertical during the animation. It should really rotate as it travels along the path. To achieve this select any of the frames in the tween. Then in the *Properties Panel* within the <u>Rotate</u> section check the *Orient to Path* checkbox.

Now scrub your playhead again and you will see that the object rotates as it animates but it is not quite precise yet. This is because the butterfly is vertical at Frame 60 when it really should be facing downwards. Therefore use the **Free transform** tool to flip the butterfly so that it is in this position at Frame 60 and run the animation again.

Exercise 2: Filling a Glass Animation in Flash

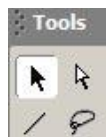This will be a 2 layer Animation:
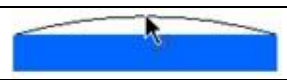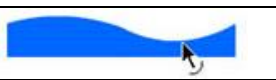Inside Layer waves at top of glass as it fills
Outside Layer rest of glass filling up from bottom to top

Drawing the Wave:

First begin by creating the wave by selecting the **Rectangle** Tool, switch off the stroke and using a medium to light blue fill **#0066FF** to draw a flat rectangle on the stage.

|			
(1) Now use the **Selection** tool to click in the middle of the upper line and bend it upwards into a curve.	(2) Now while holding down the **alt** key select the highest point of the curve and bend it downwards, then release as shown.	(3) Then grab a point on the wave on the right and drag downwards and release.	(4) This gives a smooth flowing wave as shown.
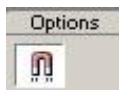
If there are any 'corners' left on the wave just pull them downwards to smooth them out while you have the **Snap to Objects** Tool switched on. This tool enables you to nudge the curve into smooth points. 'Corners' are indicated by a backwards L beside the cursor when you float the cursor along over the wave. When you smooth out the wave the cursor will have an arc next to it.

Now convert the modified rectangle to a movie clip symbol by selecting it and then hitting **F8** or from the menu by using **Insert/ Convert to symbol**. Call it *wave*.

Double-click on the movie clip symbol to enter its timeline. A movie clip animation by default loops over and over again so we just need to make one iteration. We will copy the movie clip symbol and paste it to the right edge of the current shape. The animation gradually moves this to the left with the help of a mask.

Set the width of the movie clip symbol to 170 pixels and its x co-ordinate to 0.
Copy the movie clip using **CTRL + c** and Paste it on top of itself using **CTRL + Shift + v**
Move the pasted movie clip symbol to the right edge of the first movie clip symbol by setting its x co-ordinate to 170 (same as the width). Click the Stage to deselect and produce the wave as shown.
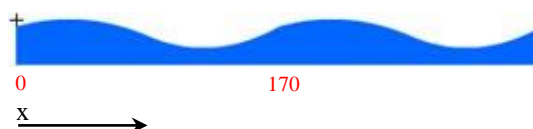
Now convert the entire shape to a movie clip symbol by selecting it and then hitting **F8** or from the menu by using **Insert/ Convert to symbol**. Call it *water_top*.

Creating the Wave Animation:

Go to Frame 7 and hit **F6** to insert a new keyframe. At this point we want the second half of *water_top* moved over to the left where the first half now is. i.e. move to the left 170 pixels. Select the movie clip symbol and set its x co-ordinate to -170 and hit return.
Right-click between the 2 keyframes and choose **Create Motion Tween**.

Creating a Mask:

Now create a mask on a new layer called *mask* that covers up the first half of the rectangle – it has a width of 170 pixels. Rename the layer containing the movie clip symbol *water*.

A mask layer always masks the layer immediately below it, so be sure to create the mask layer in the proper place.

On Frame 1 of the *mask* layer create a rectangle by selecting the **Rectangle** Tool, switch off the stroke and using a light green fill **#00FF00** draw a flat rectangle on the stage roughly covering the first half of the movie clip symbol.

Select the rectangle and set its width to 170 and its x co-ordinate to 0.

current frame
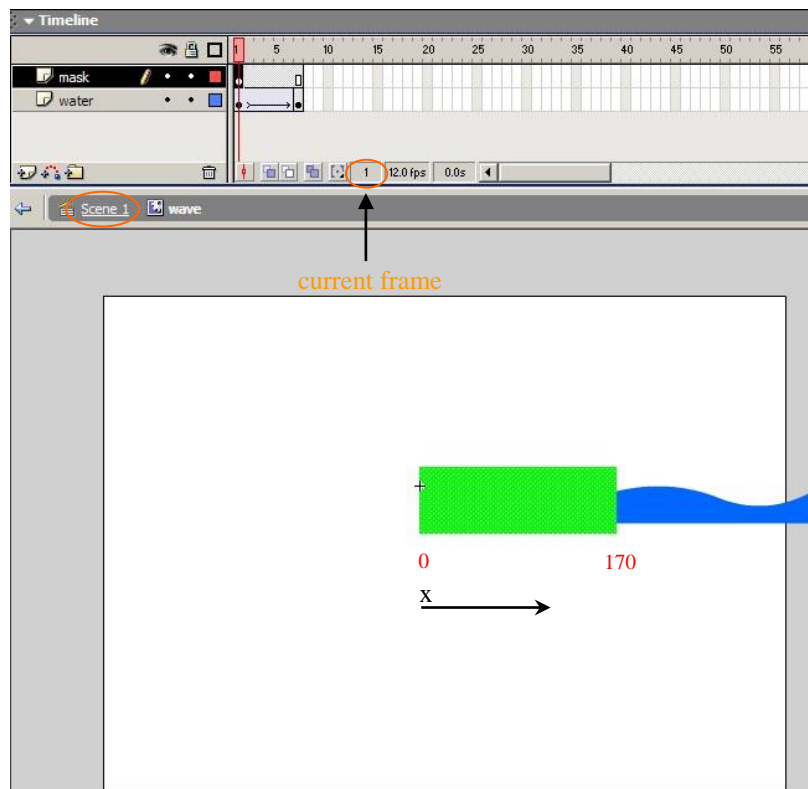
Apply the Mask by right-clicking on the *mask* layer's name in the Timeline and selecting **Mask**.
See the effect of the animation by hitting **CTRL** + **Enter**.

Exit the movie clip to return to the Main Timeline by clicking on **Scene 1** as indicated above.

Creating the Cup:

Place the movie clip over on the right hand side of the Stage out of the way and create a rectangle by selecting the **Rectangle** Tool. Switch off the fill color this time, set the stroke to black **#000000** and the stroke style to *Hairline* to draw a flat rectangle on the stage.

(1) Now use the **Selection** tool to bring in the bottom corner.	(2) Repeat for the other bottom corner.	(3) Then grab a point on the left hand side and drag outwards and release.	(4) Repeat for the right hand side to give a smooth cup as shown.

Creating the Cup-Inside:

Select the rectangle by double-clicking on the stroke.

Copy it using **CTRL + c** and Paste it on top of itself using **CTRL + Shift + v**.

Now make this copy smaller by using the **Free Transform** tool and holding down **Alt + Shift**. Alt keeps the cup-inside centred with the cup-outside while Shift keeps the same proportions.

Rounding off the Corners:

Delete the upper line of the Cup-inside and now round off the corners of the lower line. Zoom in to get a better view by using the shortcut:

CTRL + Spacebar +left-click   zoom in
CTRL + Shift + Spacebar +left-click   zoom out

(1) Now select the **Line** tool and add a line to the corner which you will use to create an arc.	(2) Now use the **Selection** tool to select the old corners and delete.	(3) Then grab a point on the new line and drag outwards and release to create an arc.	(4) Repeat steps 1-3 for the right hand side to give the rounded corners as shown.

Zoom out to 100% by hitting **CTRL + 1**

Creating the Mask from the Cup-Inside:

Select the Cup-inside by double-clicking on the stroke while holding down **Shift**.

Copy the selection using **CTRL + c**, then create a mask on a new layer called *mask*, select Frame 1 on the *mask* layer and Paste it in Place using **CTRL + Shift + v**.

Rename the other layer *glass* and create a third layer for the wave movie clip called *water*, make a cut selection of the wave movie clip using **CTRL + x** followed by **CTRL + Shift + v** to Paste it in Place. Move the wave movie clip into position as shown below.

A mask layer always masks the layer immediately below it, so be sure to create the mask layer in the proper place.

current frame
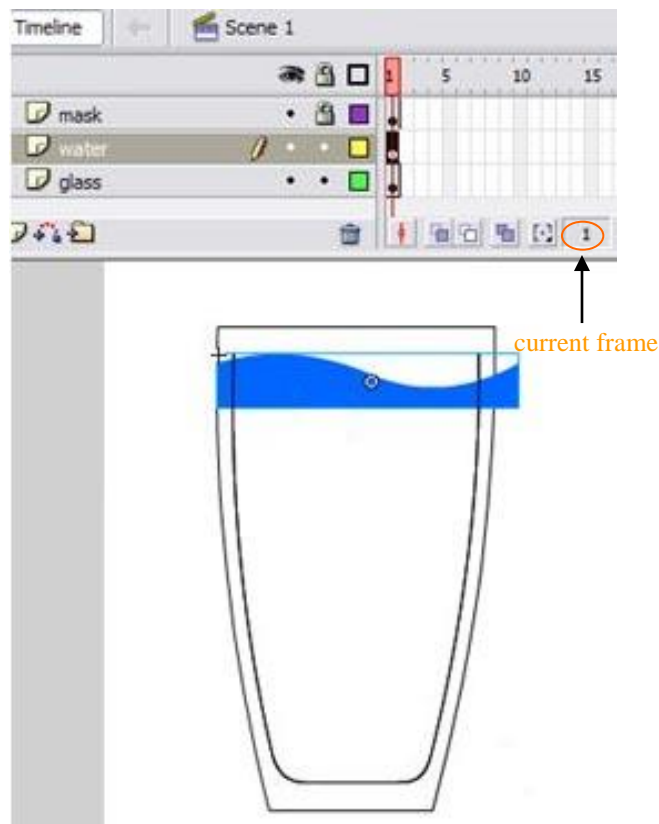
Switch off the *glass* layer and the *water* layer so that only the *mask* layer is visible. Select this layer and the **Line** tool and add a line to close the Cup-inside. This allows us to apply a fill.

Select the **Paint Bucket** tool and using a light green fill **#00FF00** fill the glass for the mask.
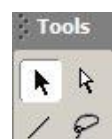
Now delete the stroke by switching to the **Selection** tool, double-clicking on the stroke and hitting delete. Anything outside this shape will not be visible when it is applied as a mask during the animation.

Apply the Mask by right-clicking on the *mask* layer's name in the Timeline and selecting **Mask**.

Creating the Rising Wave:

Switch all 3 layers back on.

glass layer: Select Frame 50 and hit **F5** to insert new frames.
mask layer: Select Frame 50 and hit **F5** to insert new frames. Make the layer invisible so that you can see the water movie clip.
water layer: click inside Frame 1 and then select the water movie clip and move it down to the bottom of the glass. We now want to create an animation of the wave moving upwards as the glass fills. Select Frame 50 and hit **F6** to insert a new keyframe.
While at Frame 50 move the water movie clip close to the top of the glass level making sure it doesn't go outside the area covered by the mask, which would result in clipping.
Right-click between the 2 keyframes and choose **Create Motion Tween**.

current frame
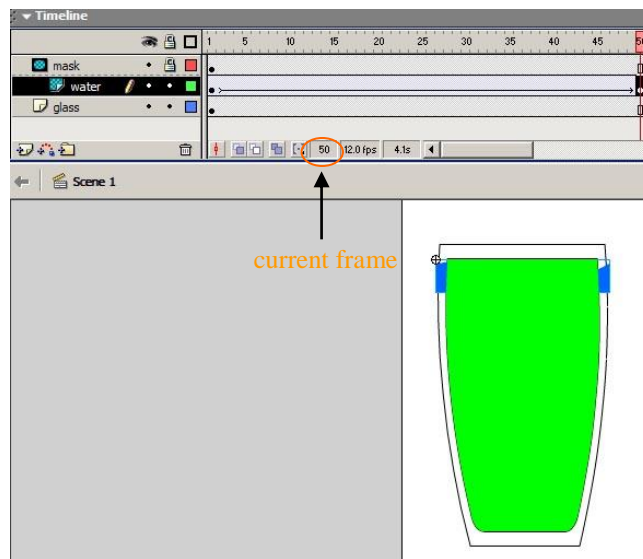
Creating the Bottom Water-Level:

With the *water* layer selected create a new layer inside the mask and call it *waterbottom*
On Frame 1 of the *waterbottom* layer create a rectangle by selecting the **Rectangle** Tool, switch off the stroke and using a medium to light blue fill **#0066FF** draw a flat rectangle on the stage roughly covering the bottom of the glass that's plenty wider than it needs to be and touching the bottom of the movie clip.

Select Frame 50 and hit **F6** to insert a new keyframe. Now using the **Free Transform** tool resize the rectangle to a size that just overlaps the bottom of the movie clip. Right-click between the 2 keyframes and in the **Properties Panel** change **Tween** from None to **Shape**.

See the effect of the animation by hitting **CTRL + Enter**.