

Computer Science 140

Lab 7

Due Week of Nov 27-29

Purpose

Demonstration of Adobe Flash Professional CS6.

Overview

Provide a simple Flash movie to your web site.

Resources

Notes on Adobe Flash

<http://www.scribd.com/doc/56102862/123/Publish-settings-CS5-5>

<http://my.safaribooksonline.com/book/web-development/flash/9780132161145>

http://help.adobe.com/en_US/flash/cs/using/W5d60f23110762d6b883b18f10cb1fe1af6-7f84a.html

<http://active.tutsplus.com/tutorials/design/using-the-new-deco-drawing-tool-in-flash-cs5-basix/>

<http://www.cs.camosun.bc.ca/~langs/comp140-13/notes/Flash/MotionTweenInto.html>

<http://tv.adobe.com/watch/learn-flash-professional-cs4/introducing-flash-cs4-professional/>

<http://tv.adobe.com/show/learn-flash-professional-cs4/>

Prelab work

Determine the answers to the following pre-lab questions **before** attempting the lab work. Answers are not handed in for marks -- just for your understanding. Refer to the Flash handout at the end of lab write-up. Become familiar with the tool icons, the timeline, the stage, the property panel, and the library.

1. What part of the window display is the stage?
2. Where is the Select Tool on the toolbar?
3. Where is the Text Tool on the toolbar?
4. How do you change the fill colour of a selected object?
5. How do you change the name of a layer?
6. What visual aspect identifies a frame as a key frame?

7. What is the purpose for the sequence of numbers 5...10...15..., etc shown in the TimeLine?
8. What visual aspect in the timeline layer identifies a frame as an end frame?
9. How do you test your Flash movie?
10. How do you create a classic motion tween?
11. What is a motion guide and how do you add it to a layer?
12. What is onion skin and how do you enable onion skin mode?
13. How do you set the stroke colour to no colour?
14. What is a shape tween and how do you create it?
15. Where is the Subselect tool and what does it do?
16. What types of elements are found in the Library?
17. How do you publish a Flash movie?
18. What does “fps” mean?

Preparation

Create a Flash movie (max 60 frames -- that is about 5 seconds) of one or more simple shapes like circles, ovals, squares or triangles moving across the stage. The shape(s) should be filled in with some colour (solid or radial). Some possible ideas/themes are (in order of simplest to more complex): (or use your imagination!)

- a ball or (pizza?) bouncing from one side of the stage to the other
- a bee buzzing around a flower
- a bug crawling up a wall
- a fish swimming in the water
- coloured balloons or a kite flying in the wind
- a small boat sailing across the water
- a UFO landing from the sky
- a cartoon face with moving eyes and mouth

The focus is to demonstrate that you are able to:

- create a symbol and store it in a library
- create a motion tween
- create a shape tween
- use layers to show multiple objects on the stage

- use motion tween along a path
- place text on the stage (your name should appear somewhere on the background layer)
- create the Flash swf file
- publish the html file to your web site

Flash features such as sound effects, flash buttons, and preloaders are not mandatory for your Flash movie. If you play with the sound effects in the lab though, please use earphones or make sure the volume is kept low.

Flash has nearly unlimited levels of undo so if you get stuck , press ctrl-Z as many times as needed to undo whatever work you just did. Press ctrl-Y to “redo” an action. Once your Flash work reaches a state you want to preserve, save your Flash file. In fact, you should save your Flash file every 10-15 minutes to be safe.

Make sure you have selected the correct layer to work on. It is easy to confuse yourself the first time using Flash by creating elements on the wrong layer or accidentally creating new elements on a layer that don’t belong.

Process

Following these steps is optional – this process creates a workable Flash with all the requirements.

1. Create a new folder on your H: drive – name the new folder Flash. Start the Adobe Professional Flash CS6 application. When the Flash program starts, select from the menu File | New | ActionScript **2.0** and save this Flash file as lab7 on your H: folder under the Flash folder. The title of the application window should show

Flash – [lab7 fla]

2. The Letter “B” – for “bounce”
 - a. Use the **Text** tool to display the letter “B” in any font, size the letter to 72 points (one inch).
 - b. Give the letter a fill colour other than black.
 - c. Move the letter off the right hand edge of the stage.
 - d. Click on frame 60 for this layer and press F6 to create a new keyframe in frame 60.
 - e. Hold down the shift key and click on frame 60 and frame 1 to select all the frames from 1 to 60. The TimeLine bar should look something like this:

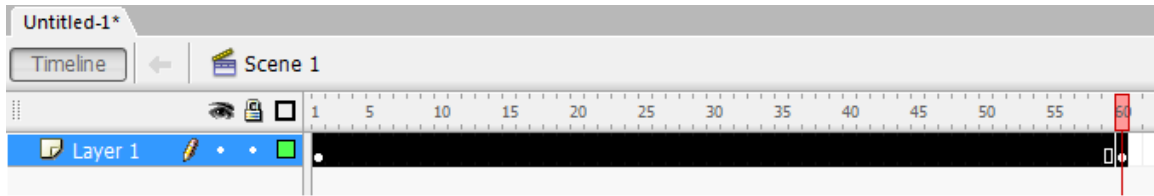
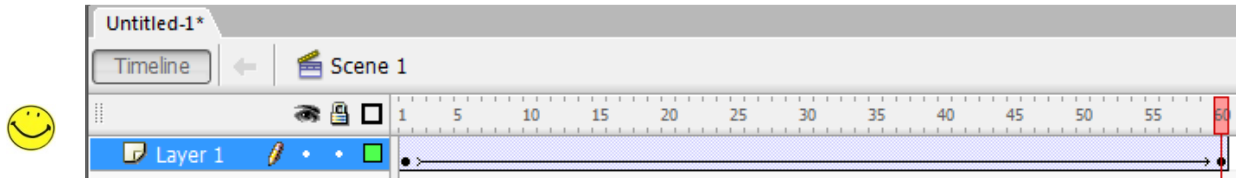
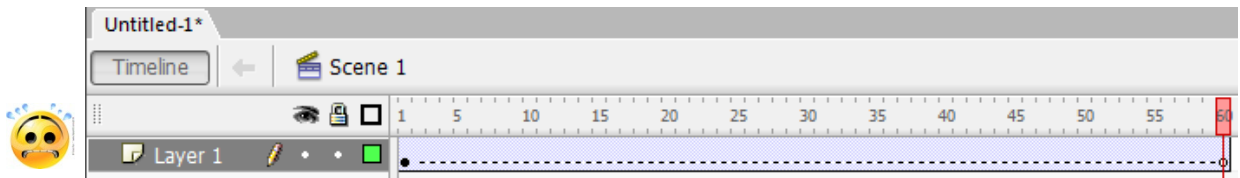


Figure 1. All frames selected from first keyframe to the last keyframe.

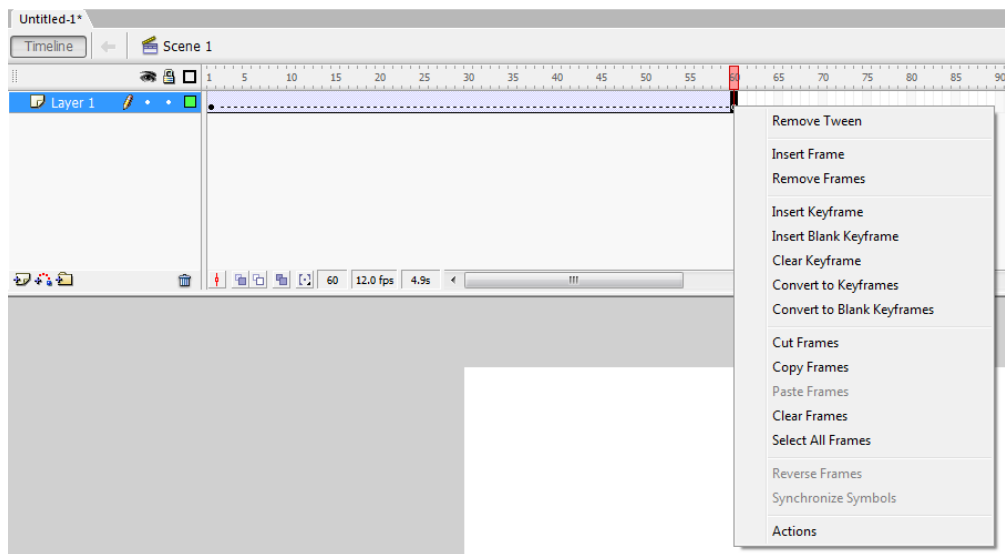
- f. Right click anywhere within the selected frames area and select Create Classic Tween. A valid Classic Tween will look like this:



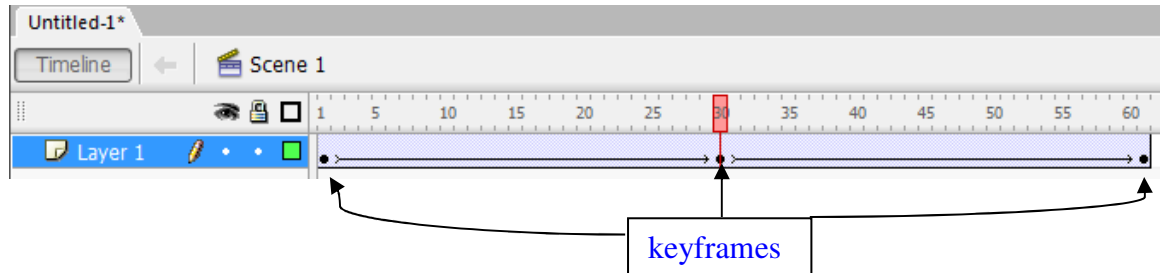
If you accidentally delete the end key frame at frame 60, the Classic Motion Tween won't work and the result is this display in the TimeLine:



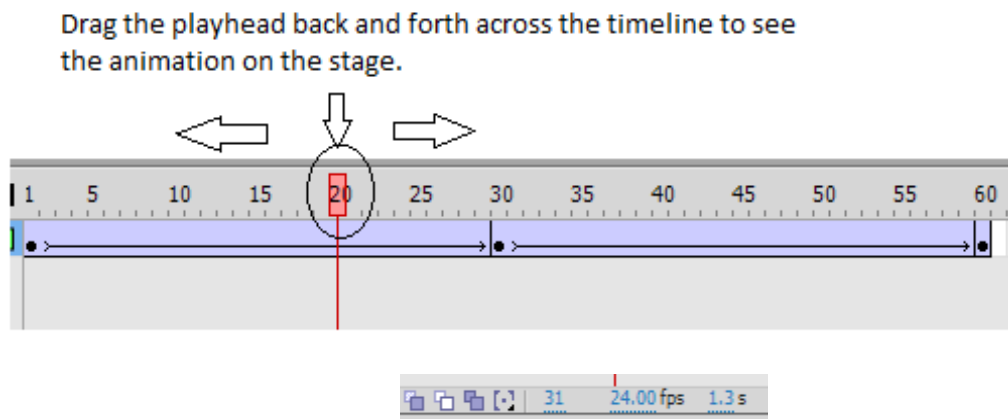
To correct this, simply click on the last frame (frame 60), the frame with the empty circle, right click and select "Clear Keyframe" from the context menu, then press F6 to add in the missing end key frame.



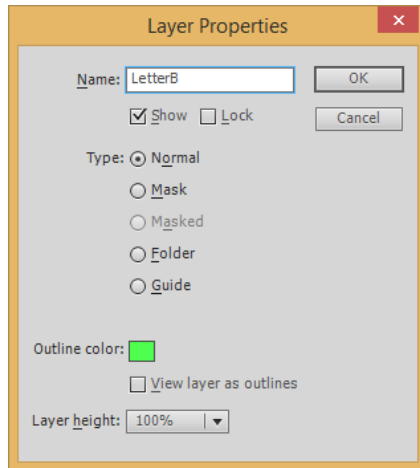
- g. Click on frame 60 to select it and use the selection tool (the black arrow) to move the letter to a location on the stage – somewhere in the upper left.
- h. Right click on frame 30 of the “Layer 1” timeline and select Insert keyframe.



- i. Select the letter B and move it to the bottom of the stage for frame 30.
- j. Test your Flash movie by *scrubbing*. This means clicking and holding down on the *playhead* (the small red rectangular box indicating the displayed frame number) and moving the playhead back and forth from the start frame to the end frame. Note that as you move the playhead from frame to frame, the bottom of the timeline shows the current frame number (e.g. 31) and at what point in time the frame appears (e.g. 1.3 seconds).



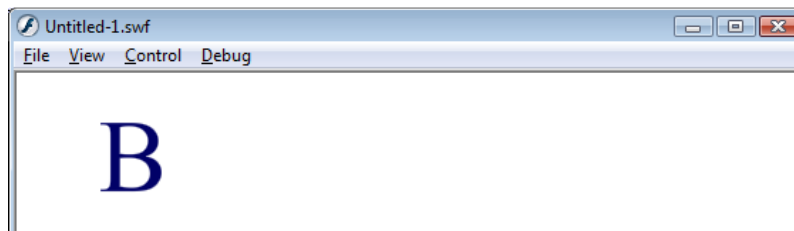
- k. Right click on the “Layer 1” layer name and select the Properties... option – change this layer name from “Layer 1” to “LetterB”.



1. From the menu select Control and select Test Movie, press Control Enter. A dialog should appear with your Flash movie looping continuously. The loop can be stopped by selecting Control and Loop from the dialog's menu.

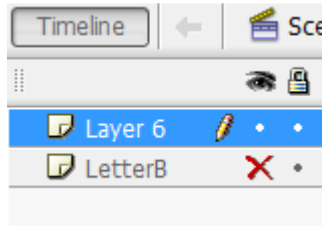
[Optional: From the dialog menu select View and Bandwidth Profiler, then run the Flash again. Note what information is provided by the profiler.]

- m. Close the test window panel by clicking the x in the top right corner or pressing control W.

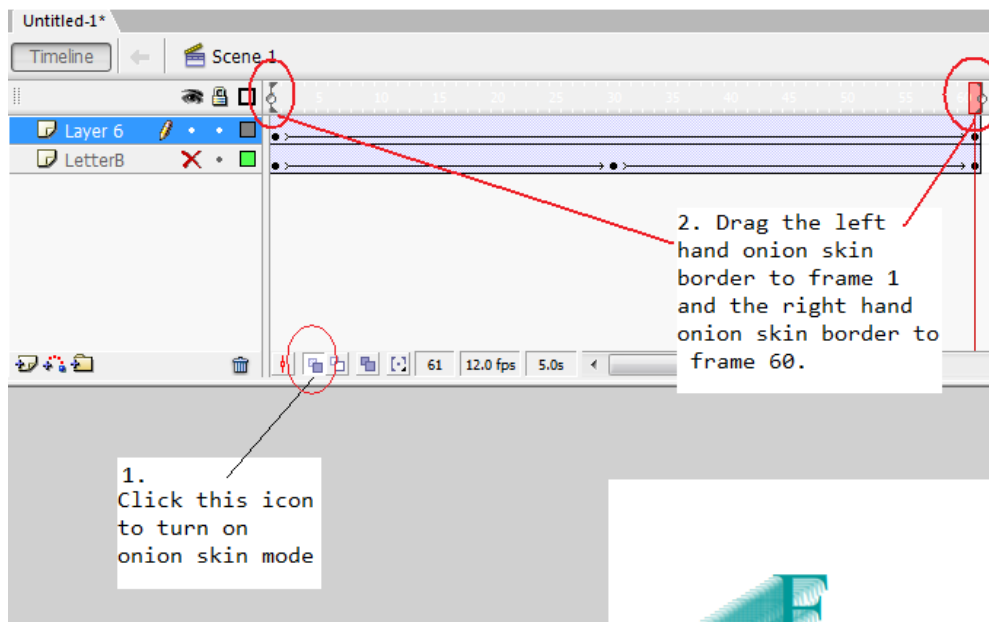


3. The Letter "E"—for "ease"
 - a. Insert a new layer (click Insert | Timeline | Layer) and name the new layer "LetterE".
 - b. On the stage make a letter E, similar to letter B as above but with a different fill colour.
 - c. Make a motion tween for letter E to move from outside the bottom left edge of the stage to a spot just to the right of where the "B" ends up on the last frame.
 - d. Click the white dot under the "eye" column for the letter B layer. The white dot should turn into a red X. This action will make anything on that layer invisible. This is helpful when you are working with a number of

different layers and don't want to be visually confused as to which elements exist on which layers.

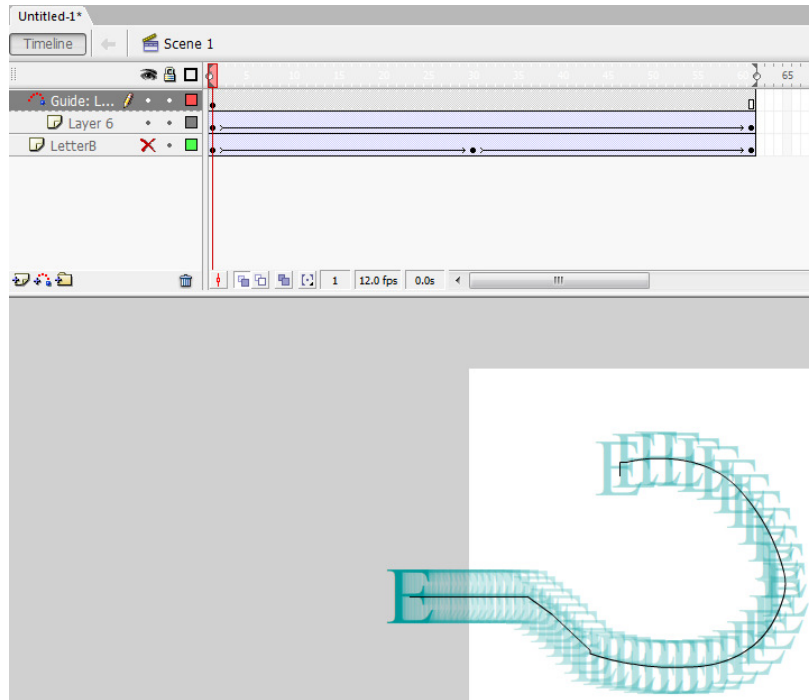


- e. Turn on onion skin mode to view the motion tween on the stage as a sequence of overlapping letter “E”'s.

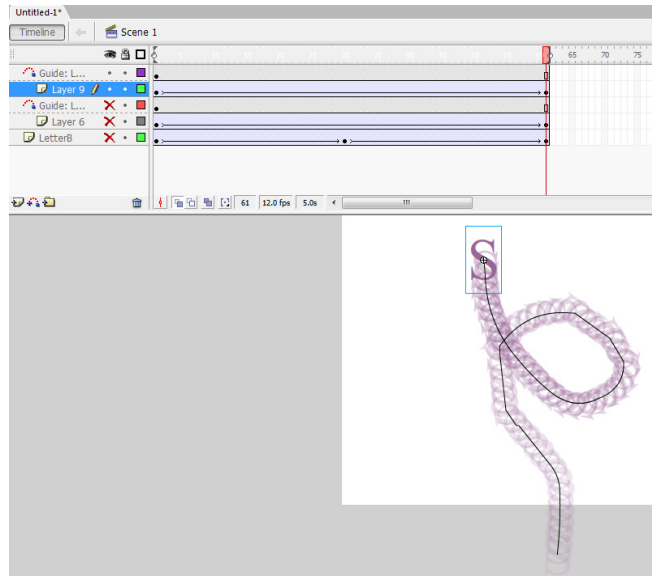


- f. Click the layer name to select the layer. In the Properties frame at the bottom of the screen (press ctrl-F3 if you don't see it), change the Ease property from 0 to 100 (called “ease out” by sliding the ease slider up). Note the change of the onion skin images – the E images should appear to be bunched up tight towards the end of the motion tween and sparse at the start of the motion tween. Switch off the onion skin mode by clicking the onion skin icon. Drag the playhead back and forth from frame 1 to 60 to see the motion changes. Click the onion skin icon again to restore onion skin mode. Change the Ease property from 100 to -100 (called “ease in”). The onion skin images of E's will bunch up tighter at the start of the motion tween. Easing is an animation technique to help simulate the appearance of gravitational fall. A motion tween element can appear to fall down onto the ground speeding up as it falls (ease in), then bounce up but slowing its ascent as it climbs (ease out).

- g. Right click on the layer and select Add Classic Motion Guide. Select the pencil icon. Make the motion tween move in some way other than a straight line. It is helpful to have the onion skin mode switched on to do this so you can see where the last frame takes the letter E.
- h. You may have to do some adjustments on the last bit of the motion guide line to make the E line up next to the B. Or, possibly reposition the letter B.

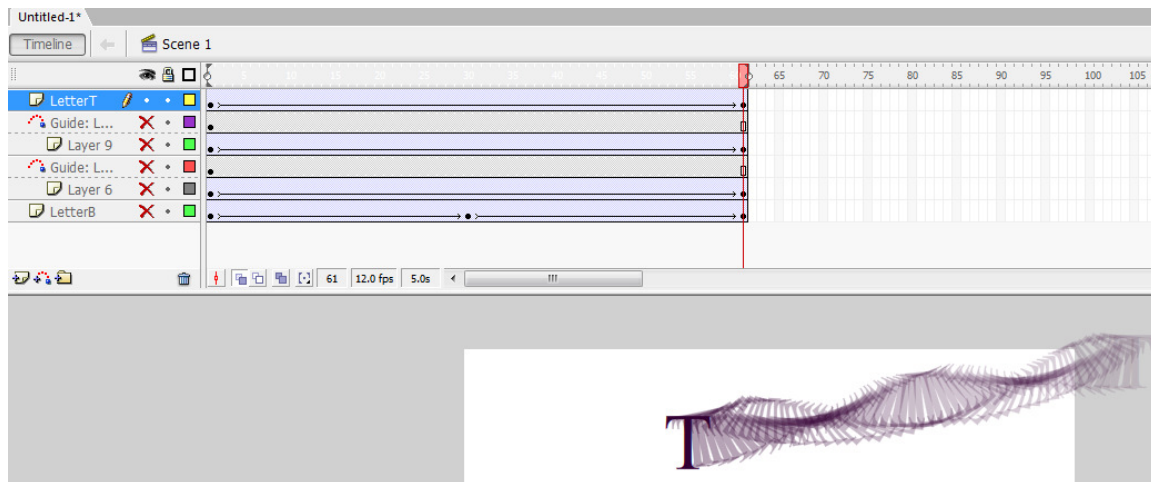


4. The Letter “S” – for “swirl”
 - a. Insert a new layer and call it “Letter S”.
 - b. Create a letter S using the same font but having a different fill colour.
 - c. The motion tween for S will make it appear that the letter appears up from the bottom of the stage, do a circle around the middle of the stage and eventually end up to the right of the letter E.
 - d. Create the appropriate motion tween and the layer motion guide to do this. Use the “Orient to Path” property so that the letter “S” adjusts its angle appropriately to the motion guide curve.



5. The Letter “T” – for “tumble”

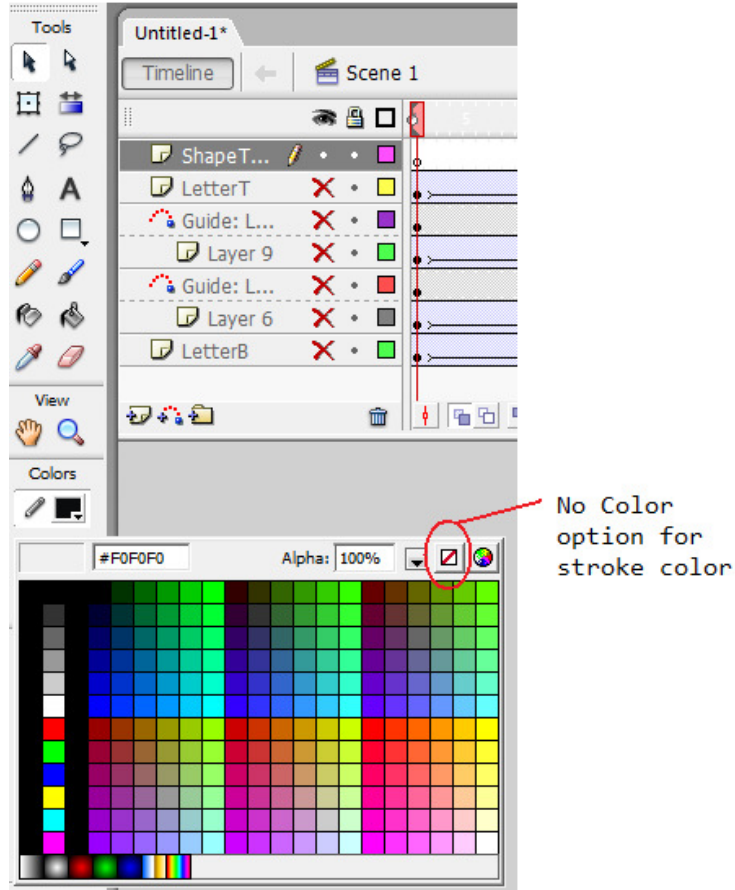
- a. Insert a new layer and call it “LetterT”.
- b. As before, another motion tween for this letter but this letter is a gymnast – it appears to “tumble” end over end into its final spot from the top right edge of the stage to its spot to the right of the letter S.
- c. Use the layer’s rotate property to do this.



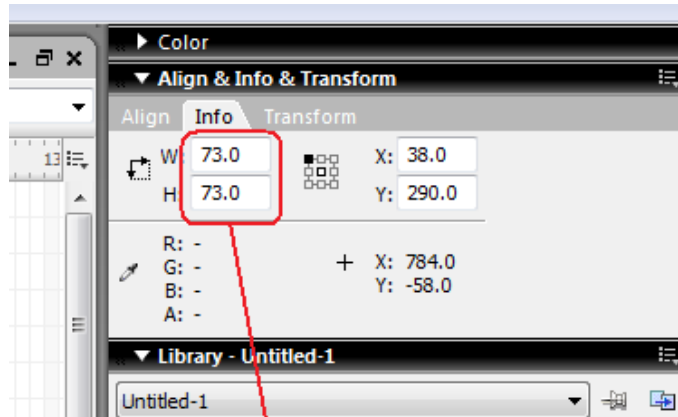
6. Shape Tween Number 1

- a. Insert a new layer and change its name to “ShapeTween”.
- b. Click on the Rectangle Tool from the toolbar. Click on the black square to the right of the pencil icon and then click the box having the red line

stroke through it (the “No Color” option).

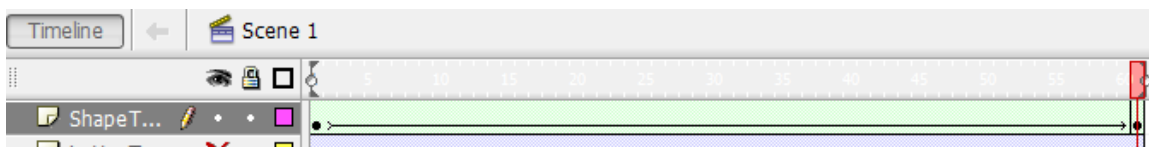


- c. This disables drawing the border around a shape when you draw it.
- d. Select any fill colour.
- e. Draw an inch sized circle somewhere on the lower left stage. You can check the pixel dimension's of a selected element by the Info panel (click ctrl-I to see the Info panel if it is not visible on the screen).



Shows the pixel dimensions of the selected element on the stage.

- f. Click on that layer's frame 60 and press F6 to insert a keyframe.
- g. Select that layer's frames 1 to 60.
- h. From the menu select Insert | Shape Tween.
- i. Select frame 60 for that layer and change the circle's fill to another colour.
- j. Confirm that your shape tween worked – the circle changes colour and that layer's frames are all light green colour.



- k. Select the layer's frame 1.
- l. Select the subselect tool from the toolbar. This is the white arrow found underneath the black arrow (the select tool).
- m. Click on an edge of the circle with the white arrow tool and you should see tiny yellow (or white) squares (called "anchor points") equidistant around the edge of the circle similar to the figure below.

From this in frame 1:



to this in frame 60:



- n. Select and hold an anchor point and move it slightly away from the center of the circle. Notice the circle loses its shape as the other anchor points adjust. Move the circle's anchor points to morph it into a shapeless blob or perhaps square if you prefer.
 - o. When you play the Flash, the 'blob' will appear to morph into a circle with a new fill colour.
7. Shape Tween 2
- a. Insert a new layer and call it Pizza.
 - b. Enter text of "Pizza Here" with the second word appearing below the word "Pizza".
 - c. Use the same size as the other letters.
 - d. Create a motion tween for this text so that it ends up just below the word "BEST".
 - e. Click on this layer's frame 1 and select the text.
 - f. Right click inside the box of text and select "Free Transform". The free transform tool allows you to scale, twist or rotate your selection. You can resize this text to a very small size in frame 1 so that the motion tween appears to bring it forward in the Flash.
8. Buttons
- a. Insert a new layer and call it Buttons.
 - b. Create a new keyframe on this layer's frame 60. We want the buttons to appear only at the end of the movie so we create the keyframe at the end.
 - c. Enter smaller text (size 24 will do) of "Replay" somewhere visible on the stage.
 - d. Click on the selection tool – the text should now have a blue border.
 - e. Right click on this text and select the "Convert to Symbol..." option.

- f. Make sure the Type is set to “Button” and change the Name: from “Symbol 1” to “Replay”, then click the dialog’s OK.
- g. Right click on the text again and select the “Actions” option.
- h. In the actions panel enter this ActionScript program code:

```
on (release) {  
    play();  
}
```

Click on the x button to close the ActionScript code. This code will work as shown only if you had selected ActionScript 2.0 when you created this Flash document.

This process has made the text into an object that responds to a mouse click.

When you click on this text, the flash movie will play over again.

This button won’t work when you select the menu option Control | Play – but it will work when you select Control | Test Movie.

Insert another text object – called Home. The ActionScript for this text is:

```
on (release) {  
    getURL("http://www.cs.camosun.bc.ca/");  
}
```

The URL part can be replaced with any functioning URL such as <http://deepblue.cs.camosun.bc.ca/~cstxxx/comp140/lab6/> .

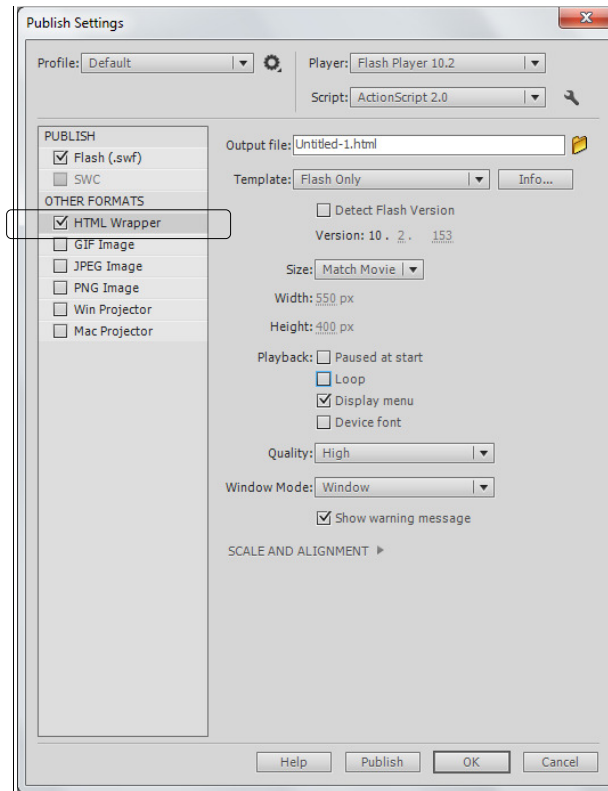
There are three parameters to `getURL` – the second parameter indicates how you want to show the URL (“_blank” for a new window, “_self” for the current frame) – the third parameter is either “GET” or “POST” which does not have to be specified unless the receiving application needs it.

9. Background layer

Insert a new layer and call it Background. Reposition this layer to the very bottom of the list of layers and for the first frame of this layer draw a large radial-filled rectangle to serve as the background for your Flash. The rectangle should cover the stage area. Feel free to add in some assorted shapes filled with animation effects using the Deco Tool. Add **your name** as a text element anywhere on the background layer.

10. Publish

Under the File | Publish Settings menu dialog, click on the HTML Wrapper under OTHER FORMATS, then change the Output file entry to Comp140.swf and switch off the Loop playback option.



Publish your Flash movie – switching off the “loop” option on the publish panel means your Flash movie does not automatically repeat (unless you click on the replay text). If you missed that step, you can text edit the HTML file that Flash generated when you did the publish step.

The Flash publish process creates two new files: lab7.html and lab7.swf. The .swf file is the Shockwave file version of your work. The .html file is the file that calls it. Open the .html file in a text editor to view how the HTML `<object>` and `<param>` tags are used to invoke the Shockwave file.

Do not open the Shockwave file in a text editor because it is a binary file and is not editable at all.

The Shockwave file and html file should be copied to your deepblue folder under public_html/comp140/lab7 so that you can invoke it from the browser through the URL

<http://deepblue.cs.camosun.bc.ca/~cstxxx/comp140/lab7/lab7.html>

Hand In :

1. Email me (langs@camosun.bc.ca) the URL to your published Flash HTML file.

The published Flash page must be accessible somewhere on your deepblue web site if you didn't follow the /comp140/lab7 folder name convention.

16 marks =

- 2 marks for a shape tween
- 2 marks for using layers
- 2 marks for using a motion tween along a path
- 2 marks for a shape tween
- 2 marks for getting the action script buttons to work
- 2 marks for creating the swf file
- 2 marks for style, effort, general work
- 2 marks for publishing the html file to your web site

[Optional]

Flash can easily handle sound effects, music and other types of audio feedback. Games made from Flash are expected to provide appropriate sound effects.

The key is to import any audio elements into the Flash Library first before you want to apply them to an event or perhaps just as background music.

There is a `sounds.zip` file in your course lab folder containing some optional audio effect files you can try out when then Replay or Home button elements are clicked. Download and extract the sounds.zip file components into a folder (but remember what it is).

From the Flash main menu select File | Import | Import to Library... Browse to the folder containing the unzipped audio files and select all the .WAV files and click the Open button. The Library panel should now show the Sound elements.

From the Library panel select the Replay button, right click and select Edit. This button has its own layers you can manage separately from the main scene.

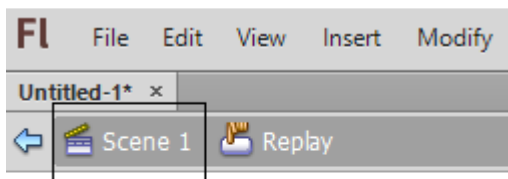
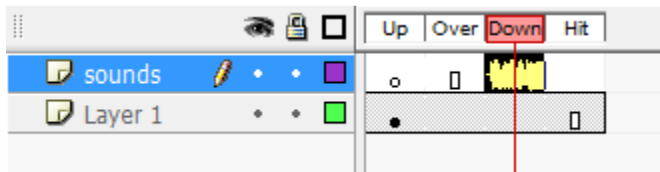


Add a new layer and name it `sounds`. The renaming part isn't crucial but it is helpful to name layers appropriately.

There are four boxes at the top: Up, Over, Down and Hit corresponding to the four different possible events for the button. Click inside the empty frame box under Down for the sounds layer and press F6 to insert a key frame.

In the Properties panel select from the Sound pulldown the audio you want to play when the button is clicked down. In the Sync pulldown select Event.

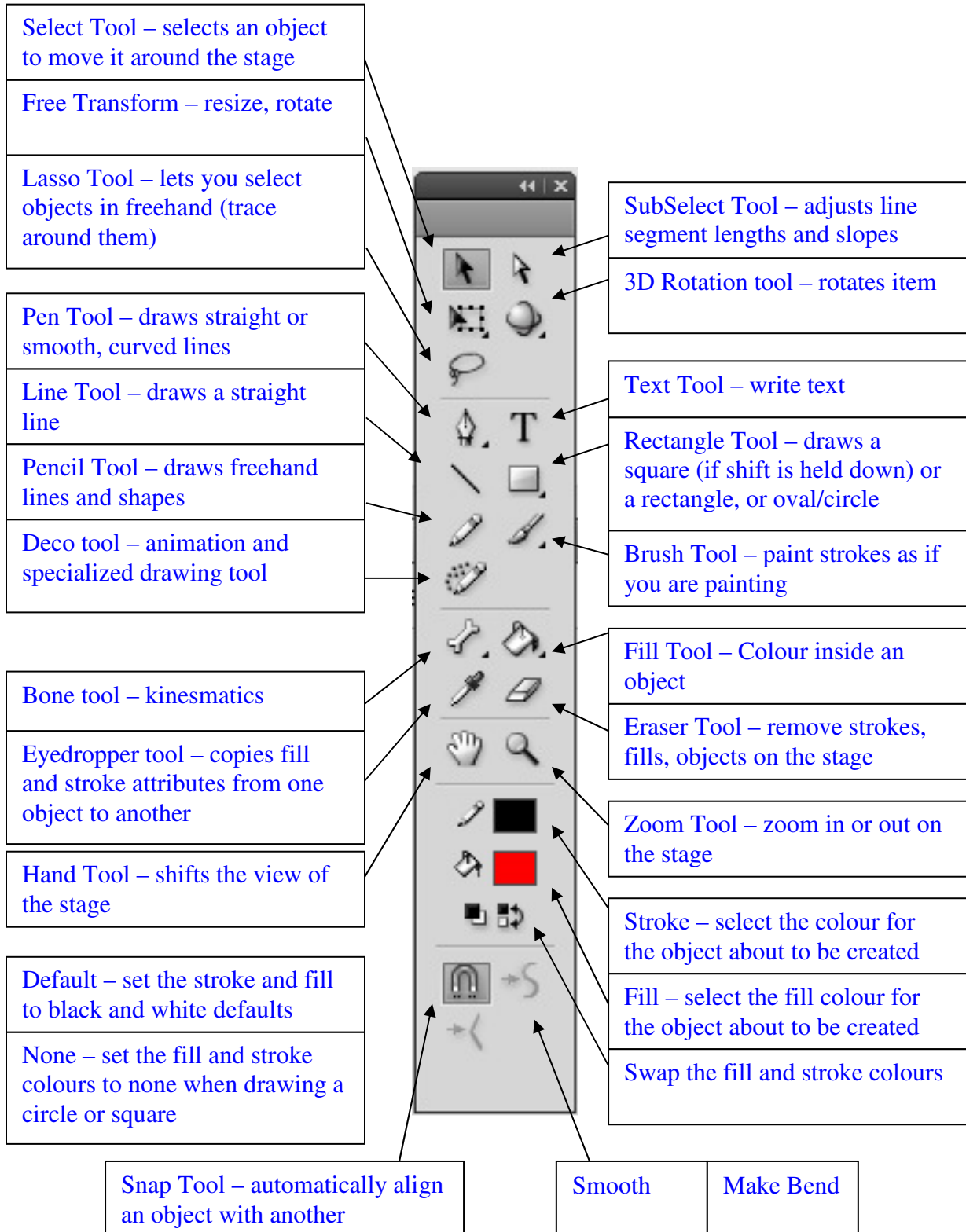
The last requirement in this process is to select the frame under Up for Layer 1 and press F5 three times so that the end frame for that layer extends to the Hit column. If you do not do this step, the button will not respond when clicked.



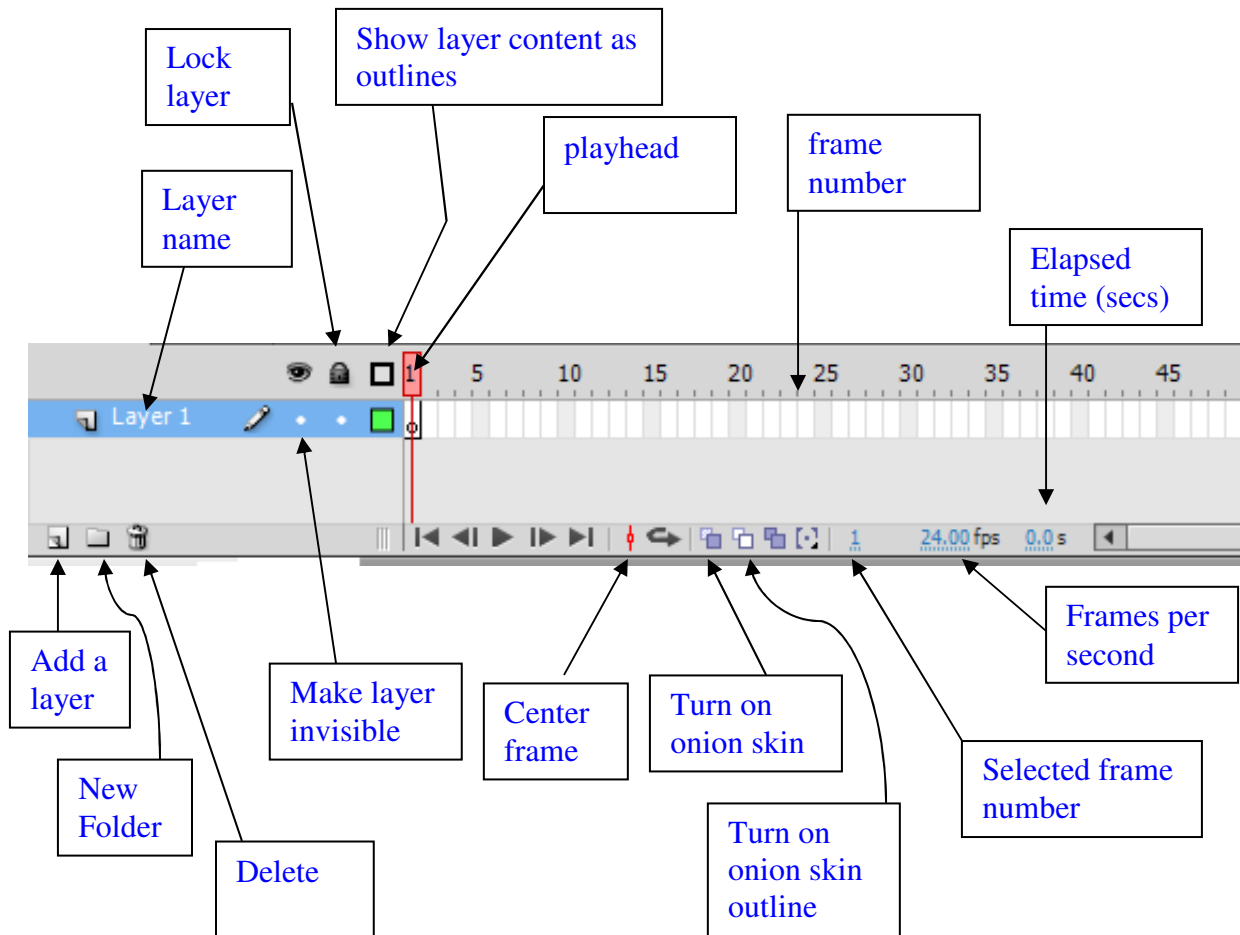
Click the **Scene 1** when finished editing the button.

Flash CS6 Basics

1. Toolbar



2. Timeline



3. Adding a new symbol to the library

- On the toolbar at the top select Insert, New Symbol
- On the Symbol Properties dialog, change the Symbol name from Symbol1 to a description of the symbol you are about to create; select a type of Graphic; click OK
- The stage should now have a crosshair at the center, indicating that you are editing a symbol. Everything added to the stage at this point will be part of the symbol you create. Center the object on the crosshairs.
- When you have finished the graphic, click on the Scene at the top of the toolbar.
- To add the symbol to the stage, open the library (on the toolbar at the top select Window, Library) and drag the symbol onto the stage. A light blue rectangular border will appear around the symbol.

4. Animation using multiple keyframes

- a. For the current layer select the start frame on the timeline window.
- b. Draw a shape on the stage or drag out a symbol from the library.
- c. Press F5 as many times as you want to insert blank frames to the timeline after the keyframe.
- d. In a blank frame nothing on the stage changes. Whatever image is defined on the stage for the previous keyframe is shown for all blank frames thereafter.
- e. Select the end frame on the layer's timeline. Press F6 to insert a new keyframe.
- f. Use the Select Tool to move the shape on the stage to a new location on the stage.
- g. Press F5 as many times as you want to insert blank frames to the timeline after this new keyframe.
- h. Press Enter to show the movie.

5. Animation using Classic Motion Tween

- i. Flash uses motion tweening to calculate the necessary changes of an object from a start keyframe to an end keyframe. This saves a lot of space as Flash does not have to store information for each frame in the motion.
- j. Start by adding a keyframe to a layer (press F6). A keyframe will appear in the timeline as a frame with a single black dot.
- k. Insert a symbol to the stage or draw a new shape
- l. Select the keyframe and press F5 to add some blank frames. The end frame will appear as a frame with a white rectangle.
- m. Select the end frame and press F6 to add an end keyframe.
- n. With the end keyframe selected, move the object to a new location on the stage.
- o. Select all the frames from the start frame to the second keyframe. Press and hold the shift key while clicking the first keyframe and the second keyframe.

- p. Click on Insert, Classic Motion Tween. The frames selected will change to a directed arrow with the frames having a light blue background. If the line is dashed, then the final keyframe had not been selected. In that case, click F6 on the last frame.

5. Creating a Motion Tween along a Path

- a. Once you have defined the motion tween, right click on the layer name (on the far left of the layer) and select Add Motion Guide.
- b. A new layer will appear above the selected layer. This motion guide layer is the one that you use to define a path for layers underneath it (those layers are shown on the timeline indented).
- c. Click on the first frame of the motion guide layer to select it.
- d. Select the pencil tool and trace out a freehand path for the object to follow on the stage.
- e. Click on the motion tween layer and make sure the moving object's crosshair is on the pencil line you just traced out for the start and end keyframe.
- f. The motion tween should now follow the new freehand line.
- g. If you want the object's motion to be oriented along the path, click on Windows, Panels, Frame. Make sure the motion tween layer is selected. On the Frame Panel, click on the Frame tab and click the "Orient to path" checkbox.
- h. Make the motion guide layer invisible.

6. Creating a Shape Tween

- a. A shape tween cannot be done with a symbol from your Library. You must break apart a symbol if you want to make it into a shape tween. (Click on Modify, Break Apart). Or just create a shape on the stage.
- b. Insert a **keyframe** and add a graphic to the stage. Press F5 to add some blank frames.
- c. Add a second **keyframe** at the end (press F6) and modify the graphic on the stage (change its colour, size, shape)
- d. Select all the frames from the first keyframe to the second keyframe.

- e. Select Insert | Shape Tween. The shape tween is shown in the timeline as a directed arrow with the frames having a light green background.

7. Pointers

- a. You can cut and paste one or more consecutive frames on the timeline. Select the desired set of frames and right click on them. Select “Copy Frames” or “Cut Frames”, select a new frame location on the layer and right click to paste the frames.
- b. Often shape tweens can be optimized to better effect by using “shape hints”. A shape hint helps Flash more effectively determine how to transform an area. A shape hint is added by selecting the shape tween’s first keyframe, then select Modify, Shape and Add Shape Hint. The first shape hint is shown as a yellow dot with a lowercase “a”. Click on the dot and move it to a location on the shape that needs to be tweaked. Select the next keyframe in the shape tween and move the corresponding “a” shape hint dot (it should be green here) to where it can help Flash optimize the morph process. The shape hint dot stays red, then it needs to be moved onto the shape. You can add up to 26 shape hints to a shape tween.
- c. An empty frame on the timeline will show nothing on the stage. The difference between a blank frame and an empty frame is that the blank frame is part of a tween or a keyframe and will cause something to appear on stage for that time. An empty frame appears on the timeline as if there is a missing frame.