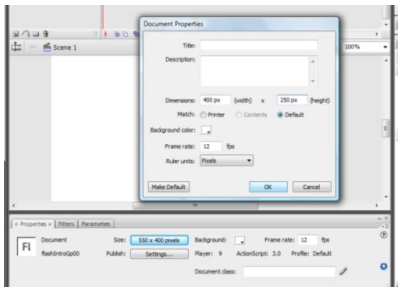
EBU5305 Interactive Media Design and Production

Flash Lab and Individual Coursework

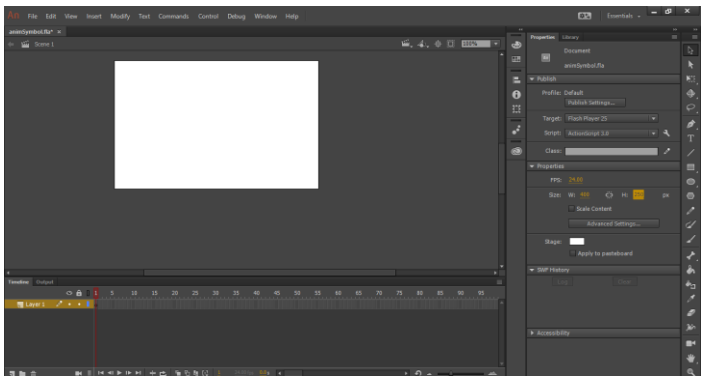
Note that EBU5305 is not a module on Flash. However, it uses Flash to allow you to put into practice the knowledge and techniques discussed in class. You are thus expected to learn Flash by yourself. You should make use of all the resources that are available, for example: Teaching Assistants will be present in the labs, do not hesitate to talk to them and ask them questions; Flash comes with a very good built-in help (you can access it by pressing F1 on your keyboard, at anytime, within the Flash environment); There is plenty of online resources available, including reference material, interactive tutorials, videos and sample applications.

Because Flash has gone through lots of versions (from CS3 to CS6 to now Animate CC), what you see in this document may not look exactly like what you have on your screen. However, the functions used are essentially the same. The version installed in the lab is CS6.

For example: in this document, an illustration that looks like this is from CS3:



An illustration that looks like this is from Animate CC (the latest):



Most of the time, both illustrations are provided side by side.

Lab 1: Drawing and timeline-based animation (tweening)

The objective is to familiarise yourself with the Flash interface and timeline.

There is no submission required at the end of this lab, but you should **save your work as you will use it again later.**

Watch a finished version of the Flash movie you are going to create:

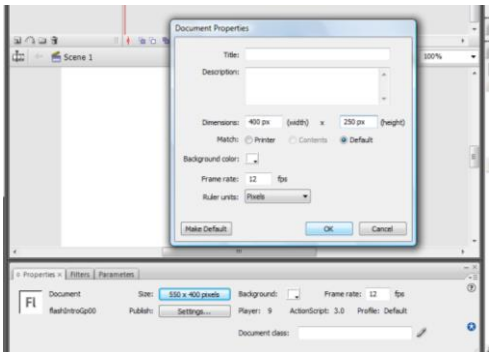
Select "*animSymbol_final.swf*" in the Lab1 folder.

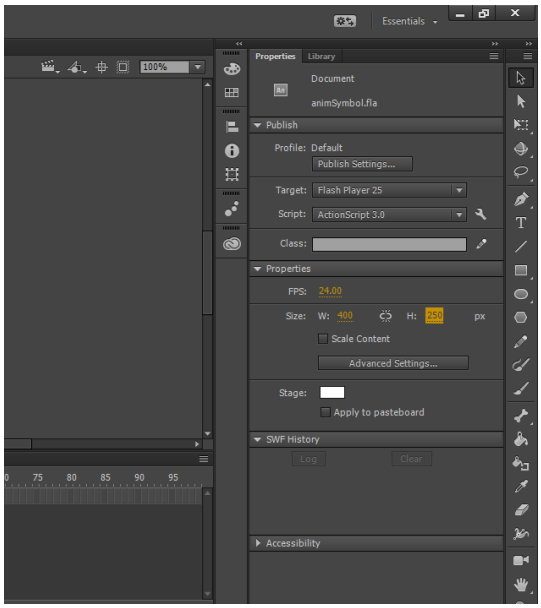
A. Download Lab material

➔ Copy and save the image file named "*mountainBckg.jpg*" in a directory of your choice.

B. Create a new Flash file

1. Open Flash
2. Create a new Flash file
   ➔ Click on Flash file (ActionScript 3.0) under Create New
3. Save your Flash file in the directory of your choice
   ➔ Select *File > Save As …*
   ➔ Type animSymbol in the File name
4. Change the size of the stage
   ➔ If it is not already open, open the Properties window by selecting Window > Properties > Properties
   ➔ Click on the Size button in the document Properties window and change the size to 400 px (width) x 250 px (height)



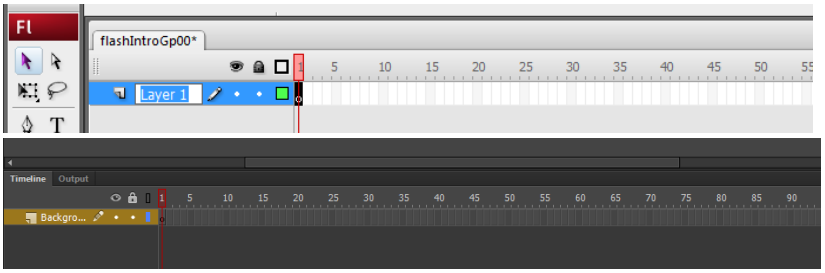


➔ Save your file : File > Save

C. Create the background

1. Rename Layer 1

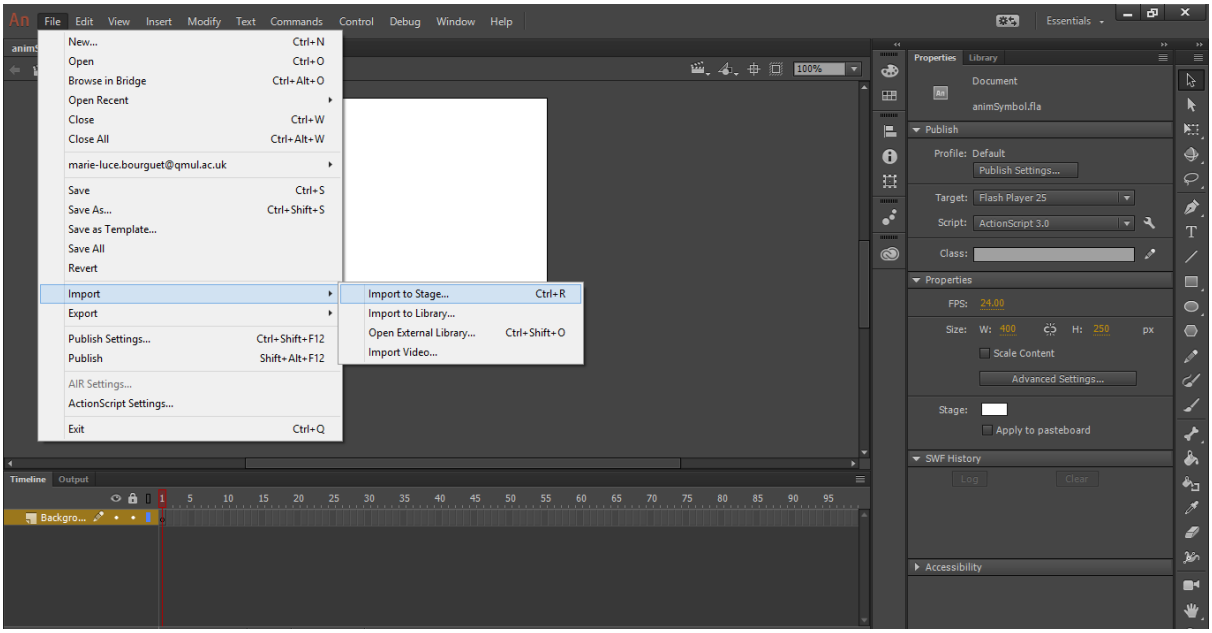
➔ Double click on the word Layer 1 on the timeline



➔ Type background then press Enter

2. Insert a picture

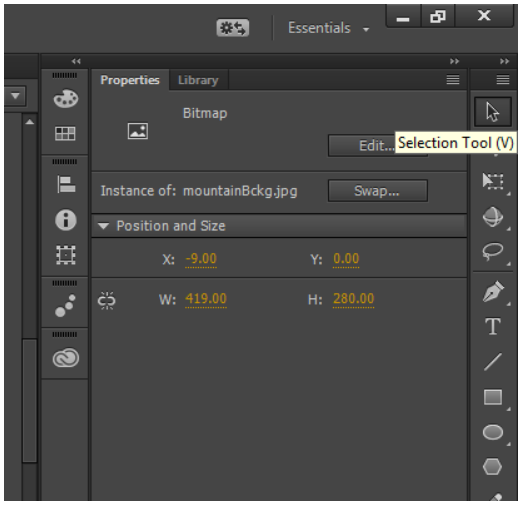
➔ Select File > Import > Import to Stage



➔ Browse to the directory where you saved the image file (jpeg) named mountainBckg and select the file

3. Resize the picture

➔ Select the Selection Tool in the Tools panel, then select the picture on the stage

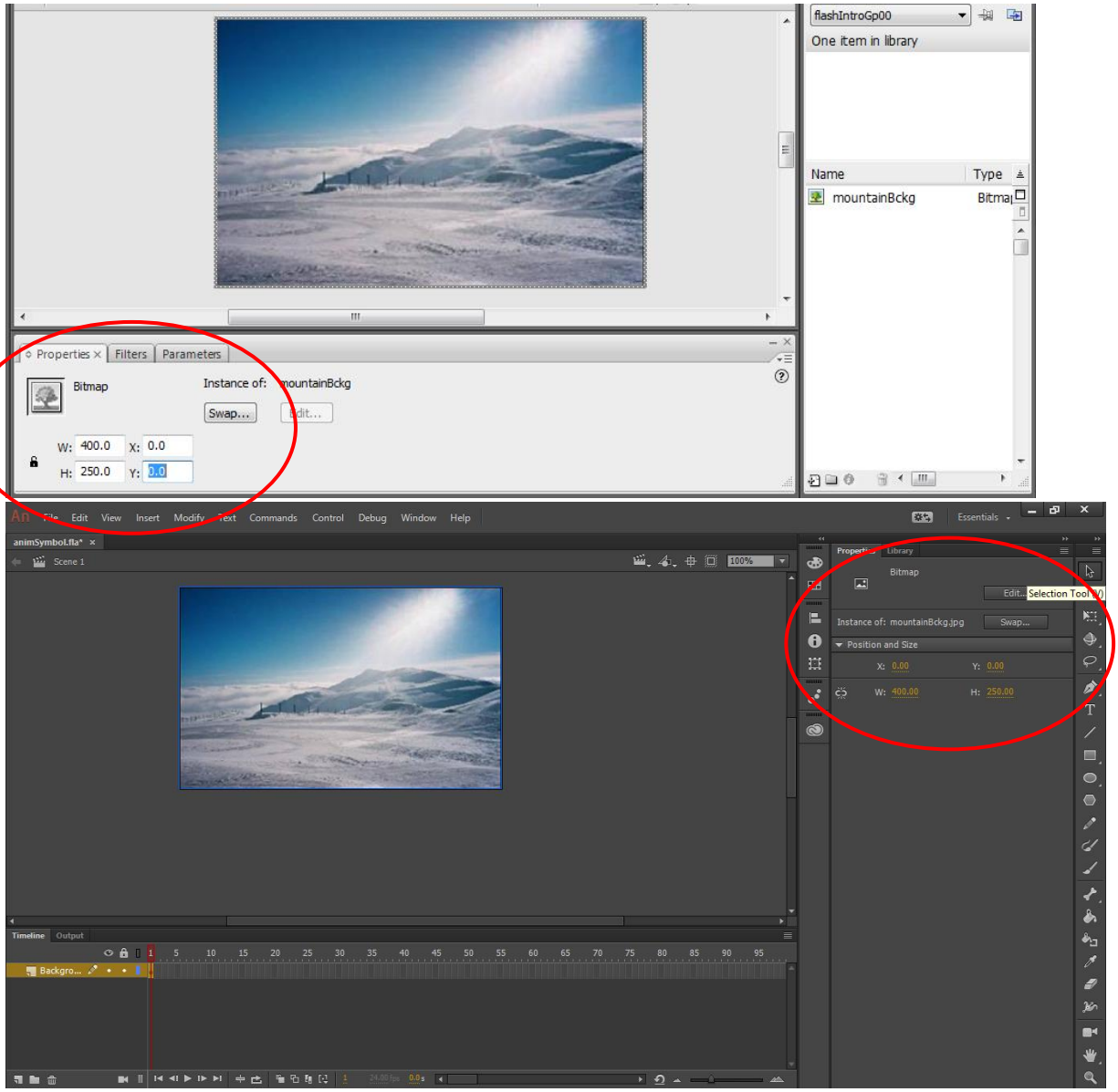


➔ In the Properties window, type:

W: 400 X: 0

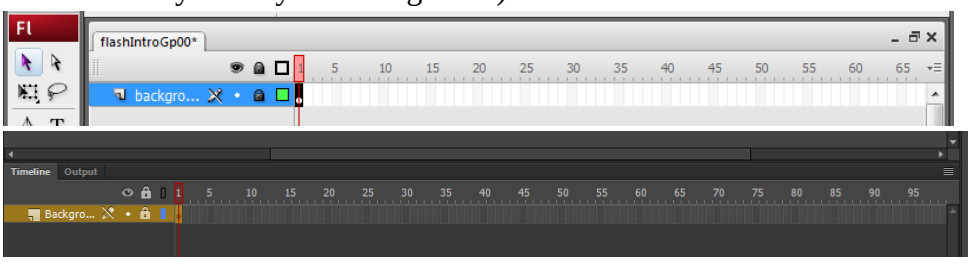
H: 250 Y: 0

This will resize the image to the same size as the stage, and position the image so it covers exactly the stage.



4. Lock the background layer

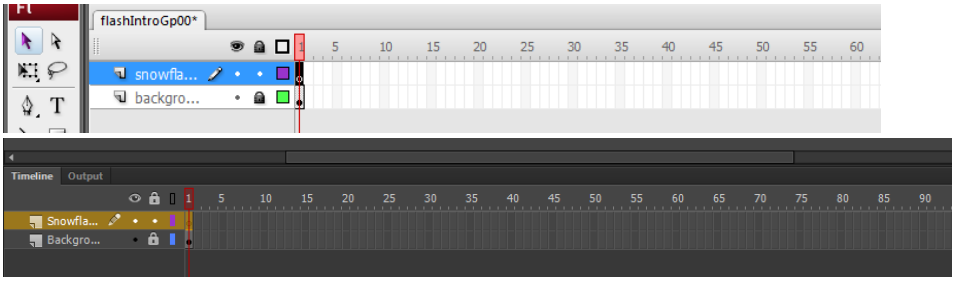
➔ On the background layer, click the dot in the lock column (so you will not be able to accidentally modify the background)



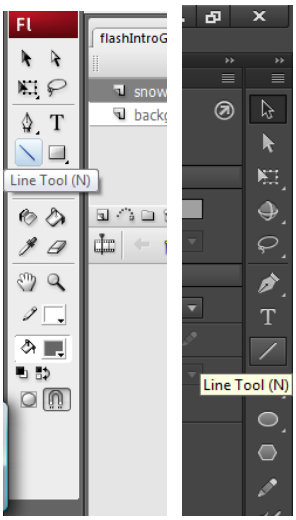
➔ Save your file

D. Create some vector graphics

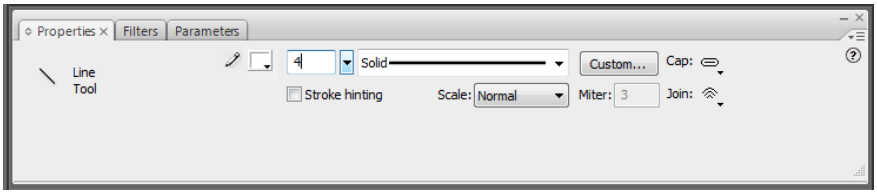
1. Create a new layer
   - ➔ Select Insert > Timeline > Layer
   - ➔ Double click on the new layer name (Layer 2) and type snowflakes
   - ➔ Select frame 1 in the snowflakes layer

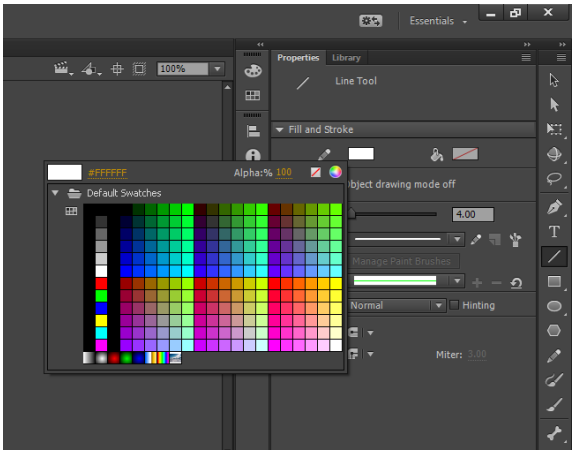


2. Draw a snowflake
   - ➔ Select the Line Tool in the Tools panel

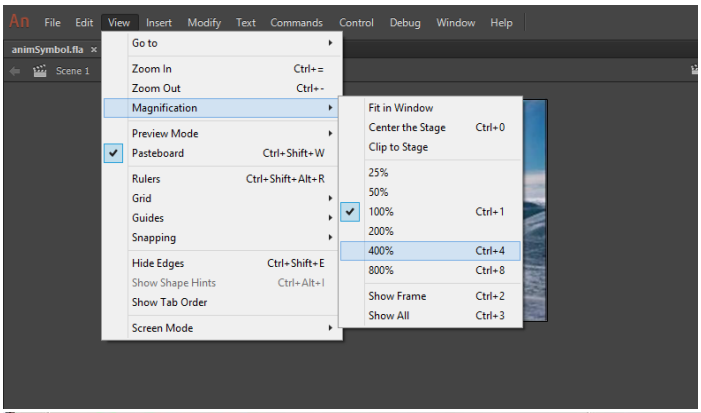


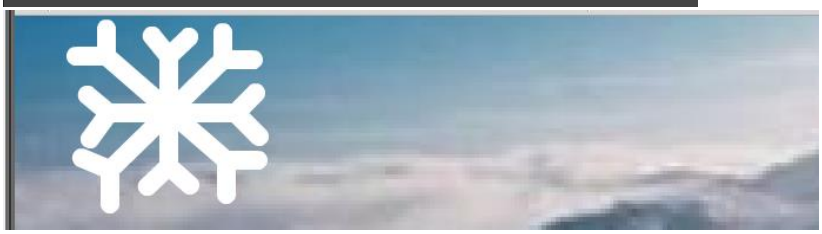
   - ➔ In the Properties window, change the Stroke colour to white and the Size to 4





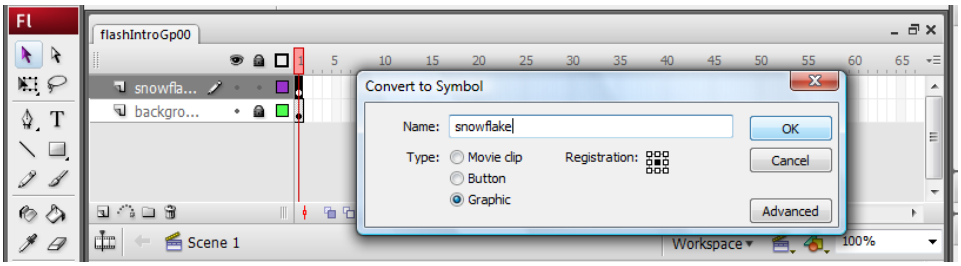
➔ Draw a number of lines to make a snowflake
Hint: it may be easier to do if you increase the view size (View > Magnification > 400%). If you make a mistake, undo your last action (Edit > Undo Line)

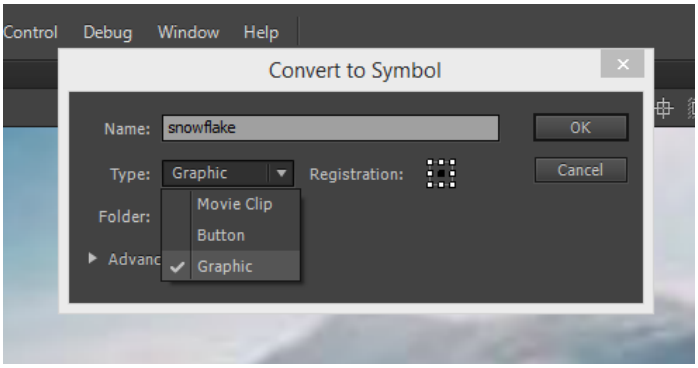




E. Create a graphic symbol

➔ Click on the Selection Tool in the Tools panel
➔ Double click anywhere on the snowflake you have just drawn on stage (to select all the lines)
➔ Go to Modify > Convert to Symbol
➔ Type Name : snowflake
➔ Select Type : Graphic
➔ Make sure the Registration point is in the centre
➔ Click OK

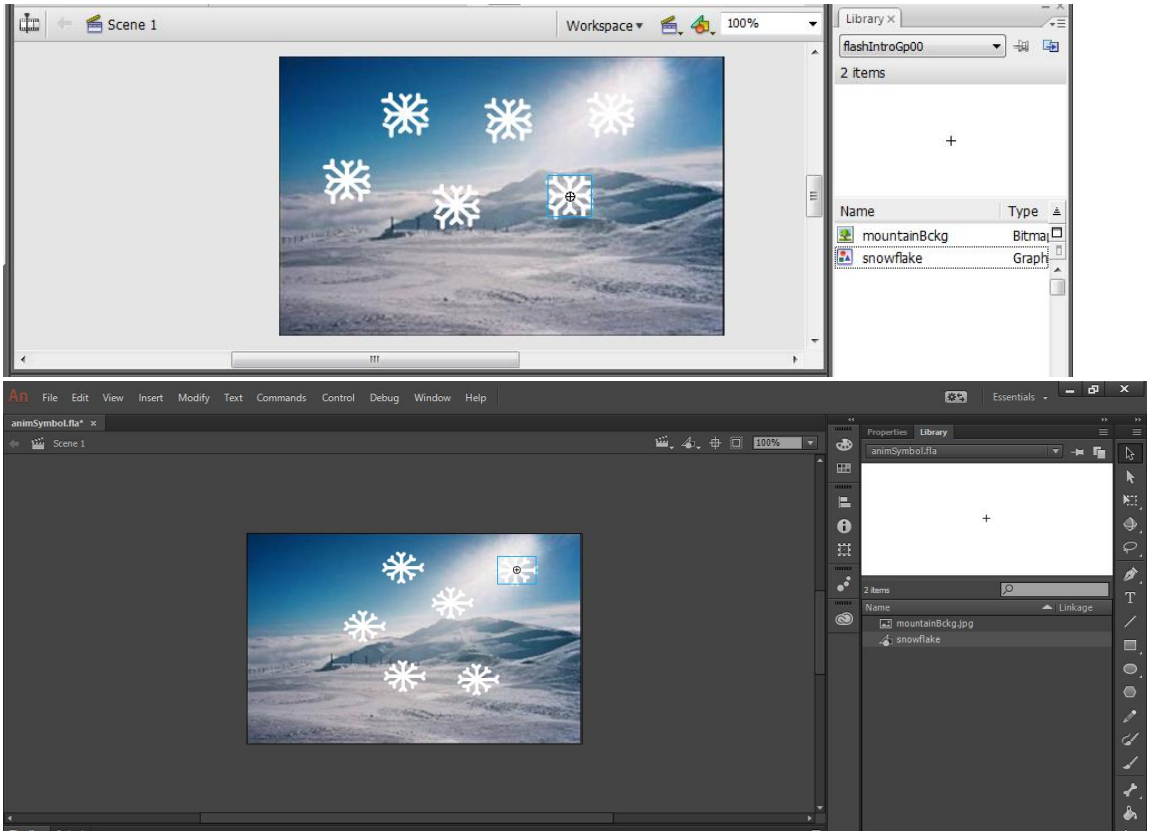




➔ Save your file

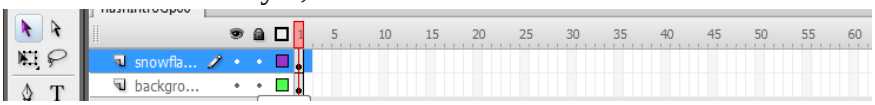
F. Create instances (do not save your file during this step)

- ➔ If the Library window is not open, open it : Window > Library
- ➔ Select the snowflake symbol in the Library and drag it to the stage anywhere you like
- ➔ Repeat this 5 times in order to have 6 snowflakes on the stage



G. Animating frame by frame (do not save your file during this step)

1. Insert a new frame
   - ➔ Unlock the background layer by clicking the lock icon that appears on the layer
   - ➔ On the snowflake layer, click frame 2 to select it

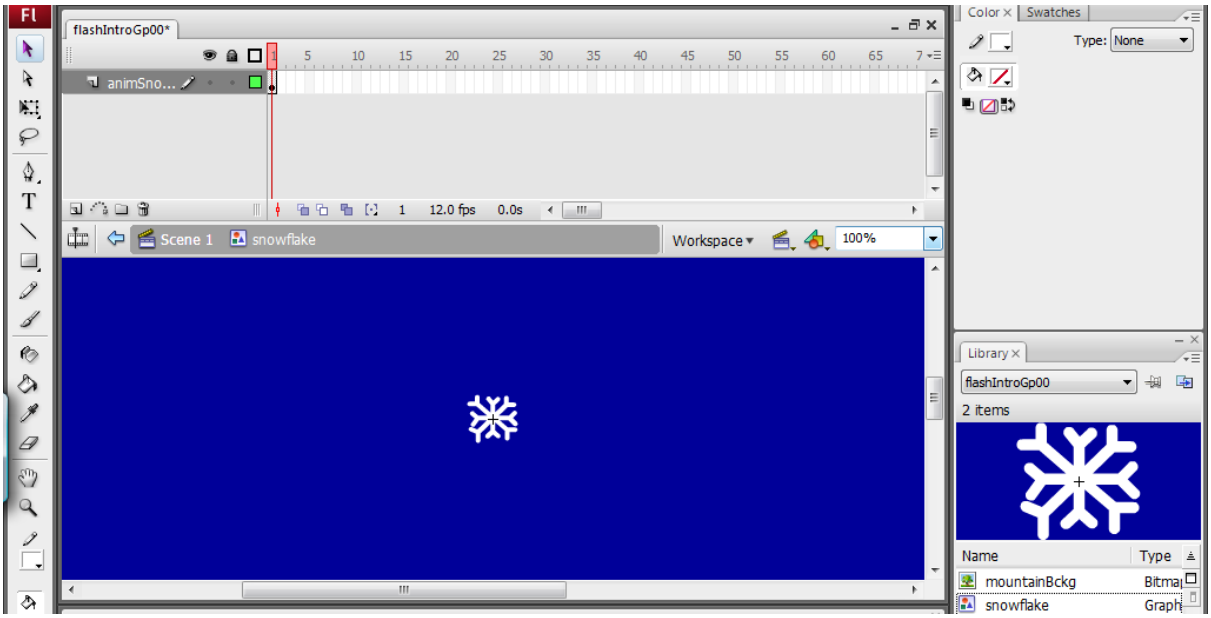


   - ➔ Go to Insert > Timeline > Keyframe
   - ➔ On the background layer, select frame 2
   - ➔ Go to Insert > Timeline > Frame (not Keyframe)
2. Modify the content of frame 2
   - ➔ Select frame 2 on the snowflake layer
   - ➔ With all the snowflakes selected, drag them down a little to a new position
3. Create and modify more keyframes
   - ➔ Repeat the above operations on frames 3, 4 and 5 (on both layers)
4. Preview your animation
   - ➔ Move the Playhead to play your movie “by hand”
   - ➔ Go to Control > Test Movie to preview your movie
   - ➔ Close your file (without saving) and open it again

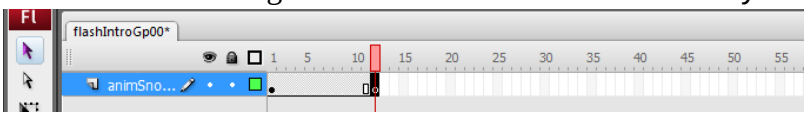
H. Animating graphic symbols (using shape tweening)

Your file should contain two layers (background and snowflakes), and a bitmap background image and a symbol named snowflake in the Library -

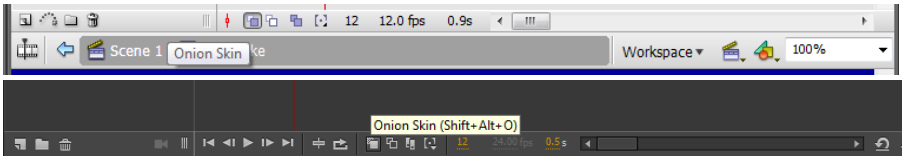
1. Enter the symbol editing mode
   - ➔ Double click the snowflake graphic symbol in the Library (notice the changes on stage and in the edit bar just above the stage)
   - ➔ If the stage background is white, click anywhere on the stage to select the document, and change its colour in the document Properties window (so you can see the white snowflake on stage)
   - ➔ In the Timeline, double click Layer 1 and rename it **animSnowflake**



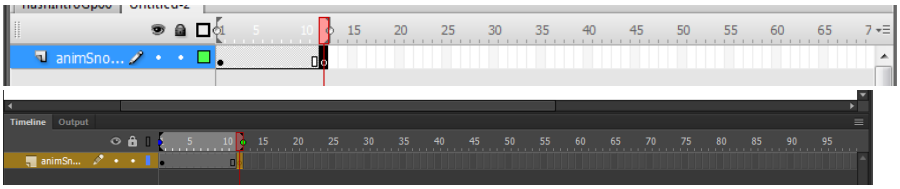
2. Add a blank keyframe
   - ➔ Select frame 12 and go to Insert > Timeline > Blank Keyframe



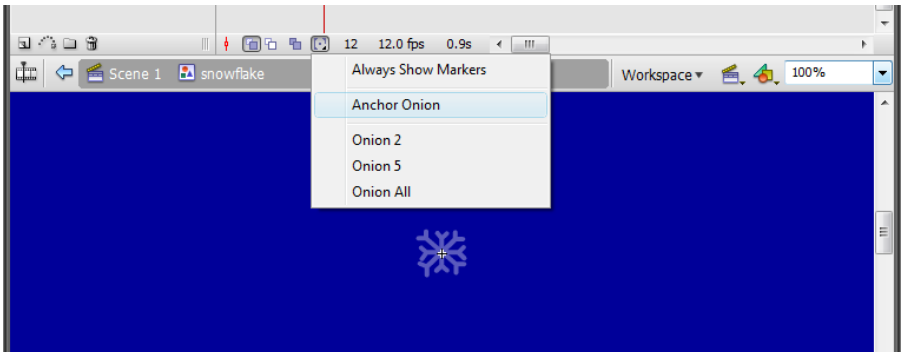
3. Onion Skinning (by turning on onion skinning, you will be able to see a faint ghost image of the artwork on frame 1 and add artwork relative to it)
   - ➔ At the bottom of the Timeline, click the Onion Skin button



   - ➔ Drag the start onion skin marker to Frame 1 and the end onion skin marker to frame 12

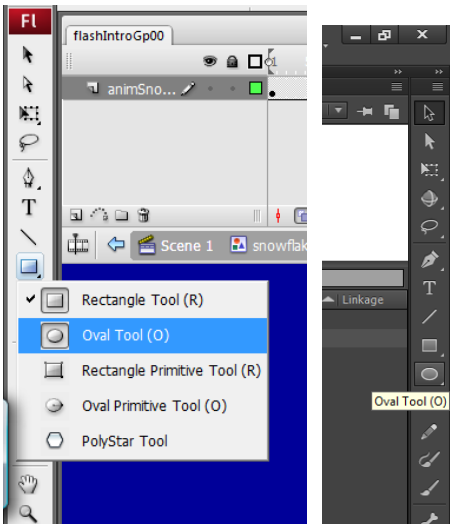


➔ Click the Modify Onion Skins button, and choose Anchor Onion in the pop-up menu

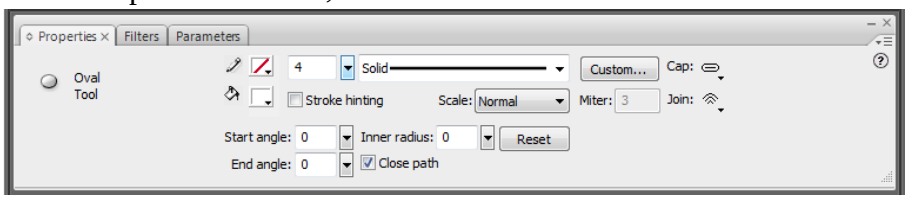


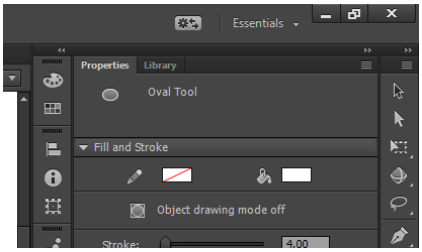
4. Modify the blank keyframe

➔ Select the Oval Tool in the Tools panel



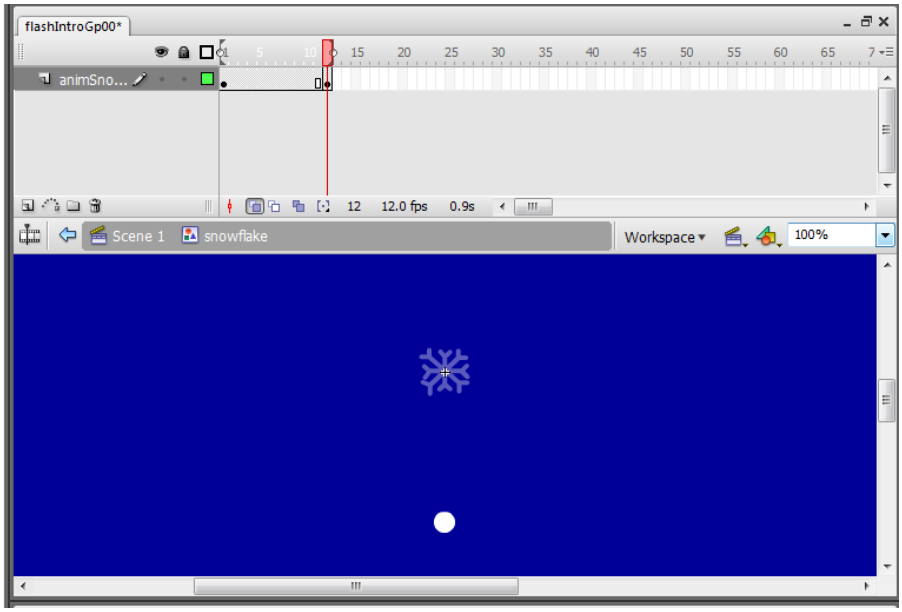
➔ In the Properties window, set Stroke to none and Fill to white



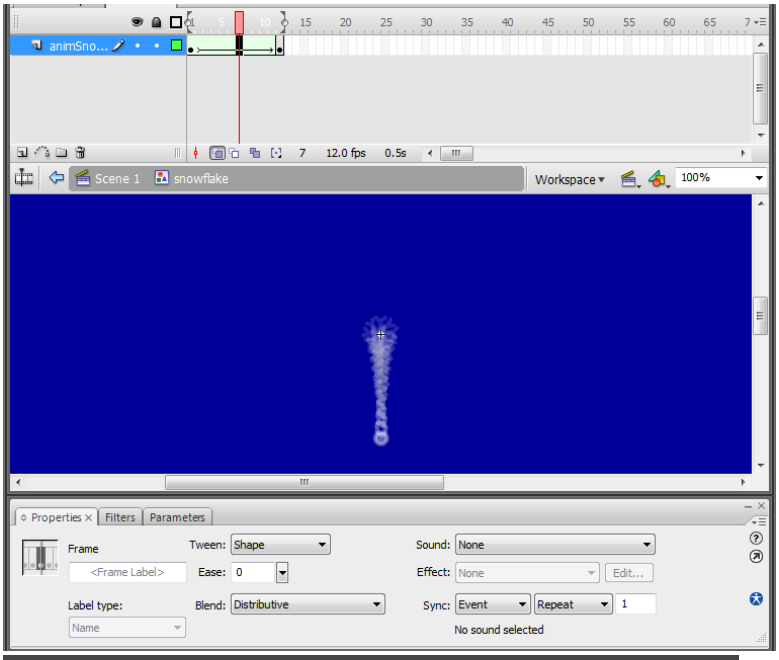


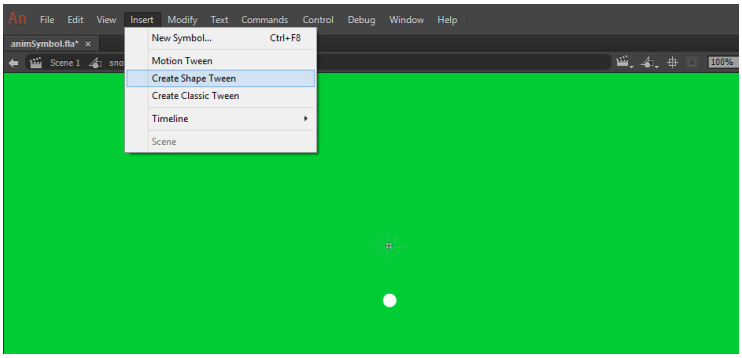
➔ Make sure the playhead is on frame 12

➔ With the Oval tool, draw a small snowball just below the ghost image of the snowflake

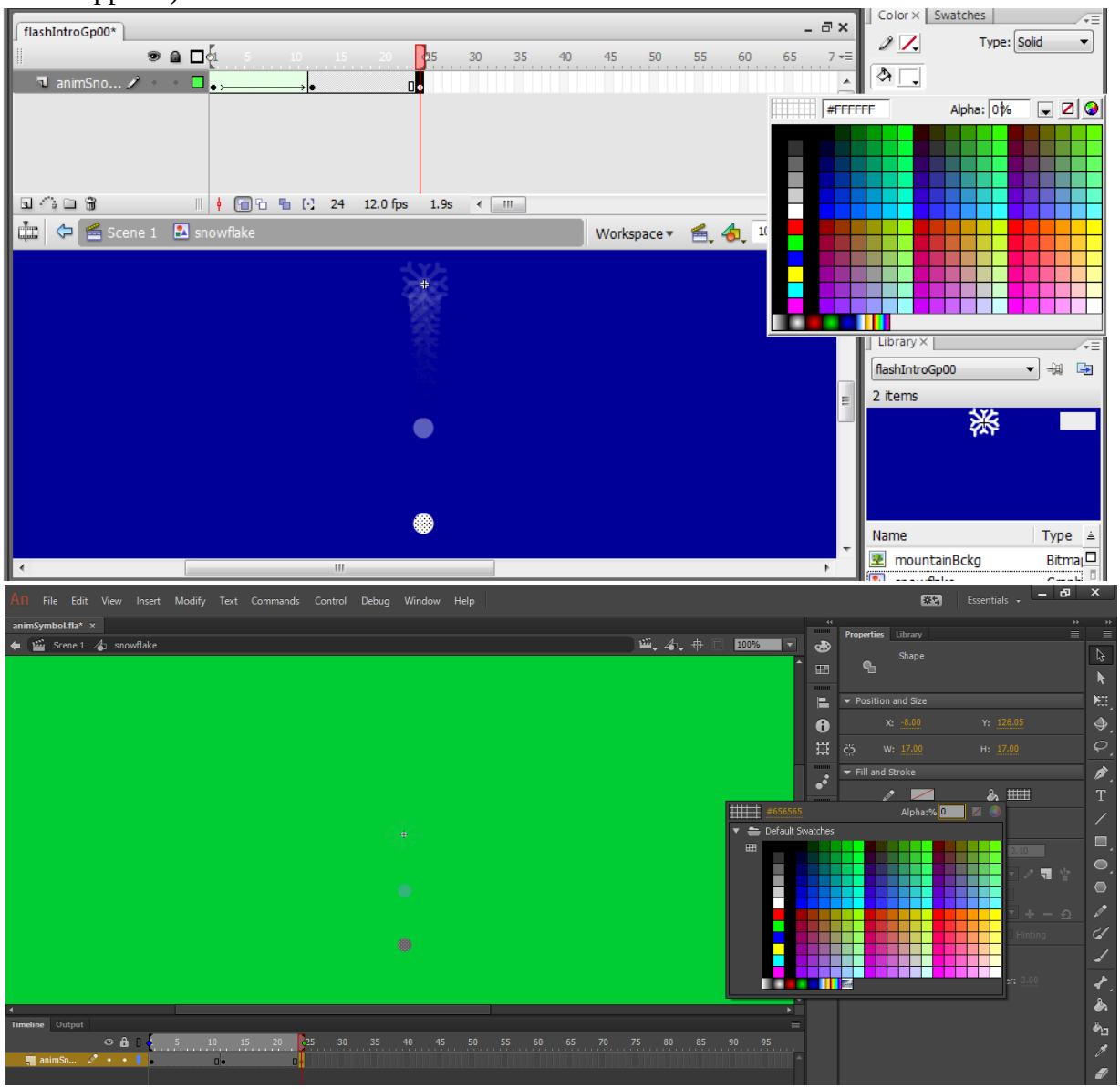


5. Shape tweening
   - ➔ Make sure you are still on the animSnowflake graphic symbol Timeline
   - ➔ Click anywhere between frame 1 and frame 12 to select one of the frames
   - ➔ In the Properties window, choose Shape in the Tween pop-up menu (in Animate, go to the Insert -> Create shape tween menu)

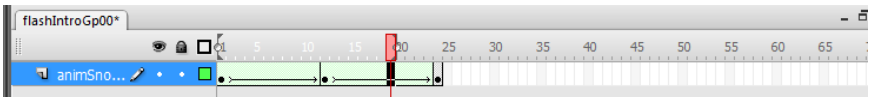




6. Preview your animation
   - ➔ Save your file
   - ➔ Press Enter
7. Add another keyframe
   - ➔ Select frame 24 on the animSnowflake Timeline
   - ➔ Add a keyframe : Insert > Timeline > Keyframe
8. Modify the content of the keyframe
   - ➔ Select the Selection Tool in the Tools panel
   - ➔ On frame 24, select the snowball and drag it down a little
   - ➔ Drag the end onion skin marker to frame 24
   - ➔ Make sure the Color window is open (if not : Window > Color)
   - ➔ With the snowball still selected on frame 24, make sure the Fill color is selected in the Color window and set Alpha to 0% (the snowball becomes transparent and disappears)



9. Add another tween
   - ➔ In the animSnowflake graphic symbol Timeline, click anywhere between frame 12 and frame 24 to select one of the frames.
   - ➔ In the Properties window, choose Shape from the Tween pop-up menu

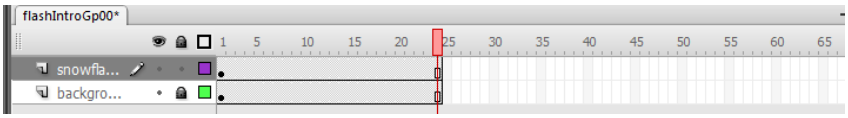


   - ➔ At the bottom of the Timeline, click the Onion Skin button to turn off onion skinning
   - ➔ Position the Playhead on frame 1 and press Enter to preview the entire animation (as the snowflake falls, it should turn into a snowball, and then the snowball should fade away, all in about 2 seconds)
   - ➔ When you are happy with the animation, click the Scene 1 link in the edit bar to return to the main Timeline

   - ➔ Save your file

I. Test the entire movie

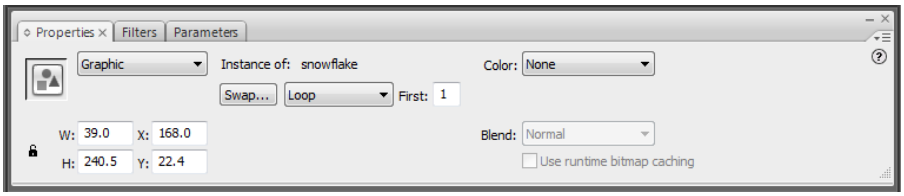
- ➔ Choose Control > Test Movie (the animation is not working because you have only one frame on the main Timeline!)
- ➔ Click frame 24 on the snowflakes layer and shift-click frame 24 of the background layer to select both frames
- ➔ Select Insert > Timeline > Frame



- ➔ Choose Control > Test Movie

J. Add more snowflakes

- ➔ On the main timeline, select frame 1 and drag 5 more instances of the animated snowflake from the Library to the Stage to make a total of 6 snowflakes
- ➔ Choose Control > Test Movie (the snowflakes are all falling in unison, which doesn't look very natural)
- ➔ Click to select a snowflake instance on the Stage
- ➔ Type a value between 1 and 24 in the First field of the Properties window to set the frame where you would like the animation to begin



- ➔ Repeat this process for all the snowflakes on the Stage, typing a different value in the First field of the Properties window
- ➔ Save your file, you will use it for the individual coursework
- ➔ Choose Control > Test Movie to preview your movie (It's snowing!)

So far, you have learned:

- How to create a Flash movie
- How to use the Properties window and the Tools panel
- How to add layers and Keyframes to the Timeline
- How to draw vector graphics
- How to create graphic symbols and instances
- How to edit a symbol
- How to create an animation using shape tweening
- How to preview your Flash movie

K. Learn more about vector graphics and drawing in Flash

- Go to this page: https://www.webucator.com/tutorial/learn-flash/working-with-drawing-tools.cfm
- Try to re-create the graphics you can see in "*car.swf*" and "*planes.swf*".

L. Learn more about animation and tweening

- Go to this page: https://www.webucator.com/tutorial/learn-flash/basic-animation.cfm
- Try to re-create the animations you can see in "*car.swf*" and "*planes.swf*" (ignore the stop/play buttons for now).

Lab 2: Practicing ActionScript 3.0

The objective is to familiarise yourself with ActionScript 3.0. You will learn how to make your Flash applications interactive and how to use Flash User Interface (UI) Components. You will also learn how to create animations using ActionScript only.

There is no submission required at the end of this lab, but you should **save your work as you will use it again later.**

This part of the FlashLab shows examples from CS3, but ActionScript 3.0 is the same!

A. Getting started

Create a new Flash file and follow the instructions you can find in the file named *Introduction-to-action.pdf* (Lab 2 folder). At the end of this exercise, you will have created a Flash application which looks like the *actions.swf* application.

This first exercise shows you how to:

- Open an "actions panel" in a dedicated "actions layer".
- Manipulate instances of Movie Clips which have been created on stage, using ActionScript.
- Create variables and functions in ActionScript.

B. Adding interactivity (mouse inputs)

The next step is to add interactivity. Follow the instructions in the *Introduction-to-event.pdf* file. At the end of this exercise, you will have created a Flash application which behaves like the *events.swf* application.

You should now read the *EventHandling.pdf* document, which explains you a bit more about event handling in ActionScript 3.0.

C. Handling keyboard events

In the previous exercise, you practiced handling mouse events. Let's now try to handle keyboard events. For this, you need to start using User Interface (UI) components that can display text. You will use the file *Introduction-to-keyboard.pdf*. At the end of this exercise, you will have created a Flash application which behaves like the *keyboard.swf* application.
Attention! For this exercise to work, you must place on stage two instances of a text field component. You should do the following (not explained in the above tutorial):

a. You should create two layers, one named "actions" where you write your code as explained in the tutorial, and another layer named "components" (for example) in which you will import the text field components.
b. While on the first frame of the "components" layer, open the component window (Window > Components)
c. Select the "TextArea" component ("TextInput" would also work) and drag it on stage.

d. Name the instance of the TextArea component you have created “keyDownText”.
e. In the Properties window, select the Parameters tab and toggle the “editable” field to false.
f. Repeat steps c to e to create a second instance of TextArea, which you should name “keyUpText”.

Now, you know:

- How to add ActionScript 3.0 code to your Flash applications
- How to create interactive Flash applications
- How to handle events such as mouse and keyboard events
- How to use User Interface components (there are many more components that you can explore later).

D. Personalising your work and adding interactivity

1. Open the fla file you created in Lab 1 (the snowflakes application).
2. Rename this file.
3. Replace the background image by an image of yourself.
4. In the timeline, add a layer you will call “button”.
5. In the button layer, create the instance of a Button Component. The label that appears on the button on stage should show your first name (you can do this by changing the button’s parameters). Don’t forget to give a name to the instance of your button.
6. In the timeline, add a layer you will call “actions”.
7. In the actions layer, write the code which will make the movie stop or play each time the button has been clicked (refer again to the *EventHandling.pdf* document). You may have to declare a Boolean variable to help you keep track of whether the movie is currently playing or is stopped.
8. Create another layer you will call “bee”.
9. On this new layer, draw what looks like a little insect.
10. Using motion tweening and a motion path, make the insect enter stage, turn once around your face, and then exit the stage.
11. Save your work as you will use it for the individual coursework!

You can see an example of a finished version of this exercise in the file *bee.swf*.

E. Learn more about UI (User Interface) Components

Flash has a number of ready made components you can use (buttons, text fields, colour pickers, sliders, etc.). You can place them on stage and/or manipulate them with ActionScript 3.0.

Read the *Components.pdf* document to familiarise yourself with the Flash Components.
Play with the *shoppingCart.swf* application to see how components can be used. Now open the *shoppingCart.fla* file and try to understand the code and what is on stage.

To check your understanding, try to answer the following questions:

a. How many components have been placed on stage? Can you find out the type of each component?
b. Two of these components are of the "List" type. Do you understand how they have been set up on stage? (Select a list on stage and check the Parameters tab in the Property Inspector window).
c. How does the application know, at run time, that a selection has been made in one of the lists? (Find out the answer in the ActionScript code).
d. How does the application find out which item in the list has been selected?
e. Each item in a list comes with a "label" and "data". What is the difference between these two entities? How are they used in ActionScript?
f. What is the difference between a List and a ComboBox component?
g. At run time, if some selections have not been made (e.g. size selection), error labels appear in red. The error labels then disappear once the selections have been made. Which part of the ActionScript code is responsible for this behaviour?
h. Do you understand how components can be made visible/invisible and enabled/unabled using ActionScript? What does it mean for a component to be visible but unabled?
i. Check how other components, such as the radio buttons, the colour picker and the numeric stepper are set up on stage and used in the ActionScript code.

F. Learn more about ActionScript 3.0.

There are plenty of online tutorials and books on the subject, for example http://www.adobe.com/devnet/actionscript/learning.html

Lab 3: Adding sound and video to Flash applications

The objective is to familiarise yourself with the use of sound and video in Flash applications. It is also to let you realise that audio and video assets are often very large files and that they need to be used sparingly. In most cases, audio and video files (and in fact images as well) need to be compressed in order to reduce their size. This is a very important topic in multimedia, which we will discuss in class after you have completed this lab.

You are required to submit your work at the end of this lab.

A. Using sound

Refer to the *AudioFlash.pdf* document (Lab 3 folder).

B. Using video

Refer to the *VideoFlash.pdf* document.

C. Adding sound to your application (individual coursework)

1. Open the .fla file you created during Lab 2.
2. Add a sound track (ideally the sound of a flying insect, if you can find such a sound file). Choose the appropriate parameters for your sound so it plays nicely, in coordination with the animations of the bee and of the snowflakes.
3. Save your work.
4. Create a zip archive with your .fla and .swf files
5. Name the archive EBU5305CWxxxxxxxxx where xxxxxxxxx should be replaced by your QMUL student number.
6. Submit the archive on QMplus by the deadline.