

Sample Hands-On-Training™ Chapter – Review Copy Only

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6.

Symbols and Instances

| Symbol and Instance Structure | Creating Graphic Symbols
| Library | Registration Point | Creating Symbol Instances |
| Editing Symbols and Instances | Color Styles |
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chap_06

Macromedia Flash MX
H•O•T CD-ROM

Effective Macromedia Flash MX movies, even very simple ones, often rely on symbols and instances. Just what can symbols and instances do for you? Symbols enable you to create very complex movies that are faster to download. How? Symbols are downloaded only once, regardless how many copies (called “instances”) you have in your movie. For example, if you had a symbol of a tree and you added 50 instances of that tree to the Stage, the file size would be not be that much larger. However, if you were to instead draw 50 separate trees, the user would have to download all 50 trees, and the file size would increase dramatically.

The concept of symbols and instances is often one of the hardest things to teach and learn in Macromedia Flash MX, because this way of working doesn't exist in many other common graphics, animation, or interactive programs. I am confident, however, that if you try these exercises you will better understand how to work more easily with symbols and instances than if you just read about

them. Here's where the premise of a hands-on training book is really worth its weight in gold. For many, trying something and gaining first-hand experience is the key to understanding!

The Symbol and Instance Structure

A Macromedia Flash MX **symbol** is a master object of sorts. You create a symbol once—it can be a simple shape or something very complex—and use it multiple times throughout your movie. Each time you reuse a symbol in your project file, it is called an **instance**, which is a copy of a symbol.

The concept of symbols and instances is the key to reducing the download weight of your Macromedia Flash MX documents, because the symbol is downloaded only once, while the instances are simply described in a small text file by their attributes (scale, color, transparency, animation, etc.). That is why instances add very little to the file size of your final movie. To reduce the file size, you should create symbols for any object that you reuse in your projects. Besides reducing the final file size, symbols and instances can also help you make quick updates to objects across your entire project file. Later in the book, as you learn about more advanced animation techniques, you'll see that symbols and instances play another dramatic role. But that's skipping ahead! This chapter focuses on one concept alone—how to create and manipulate symbols and instances.

There are three types of symbols in Macromedia Flash MX: Graphic symbols, Button symbols, and Movie Clip symbols. In this chapter, you will be working with **Graphic symbols**. Hands-on exercises for creating Button and Movie Clip symbols are covered in later chapters.

Here's a handy chart that explains some of the terms found in this chapter:

Symbol Definitions	
Term	Definition
Symbol	A reusable object that serves as a master from which you can create copies (instances). Once a symbol is created, it automatically becomes part of the project file's Library. You will learn about the Library later in this chapter.
Instance	A copy of the original symbol. You can alter the color, size, shape, and position of an instance without affecting the original symbol.
Graphic Symbol	One of the three types of symbols. It consists of artwork that can be either static or animated. The Graphic Symbol Timeline is dependent on the Main Timeline—it will play only while the Main Timeline is playing. You'll learn more about this behavior as you work through the exercises in this book.

Symbol Naming Conventions

As you learn to create symbols and instances in this chapter, you'll need to create names for them. In past versions of Macromedia Flash, it didn't matter what name you gave to symbols or instances. With ActionScripting in Macromedia Flash MX (which you will learn about later in this book), naming conventions are more important than they used to be. This is especially true for Movie Clip symbols. For this reason, I recommend that you get used to naming all your symbols in Macromedia Flash MX following the same rules, so you don't develop bad habits that bite you down the road. Here's a handy chart that explains the rules.

Naming Symbols	
Convention	Explanation
No spaces	Don't use any spaces. Instead, string the words together or add underscores. For example, instead of <i>my first symbol</i> , use the name <i>myFirstSymbol</i> or <i>my_first_symbol</i> .
No special characters	Special characters—such as <code>""@#%&'()*+,-./:;<=>?[]\^_`{ }~</code> —are forbidden. Some special characters have specific meaning to the Macromedia Flash MX Player and can mess up ActionScripting in the future, so be sure to avoid them.
No forward slashes	Forward slashes are often misinterpreted as path locations on a hard drive, instead of as the name of an object. So, for example, don't use the name <i>my/first/symbol</i> .
Begin with a lowercase letter	Symbol names that begin with numbers can cause confusion in ActionScripting. For this reason, always start your symbol names with a lowercase letter. Names can contain numbers, but the first character should be a letter.
No dots	Don't put dots in your file names, such as <i>snow.boarder</i> —dots are reserved for ActionScripting syntax.
Use a descriptive name	It is good practice to use descriptive names for symbols. Rather than <i>symbol6</i> , you should choose a name that is more easily recognized, like <i>gfxLogoBkgd</i> . When you use multiword names for symbols, capitalize the first letter of all words except the first so that you can read it more easily. When you refer to an object in ActionScripting (which you'll get to try in later chapters), you must refer to the symbol with the same capitalization you used in its name.

Important Timeline Vocabulary Terms

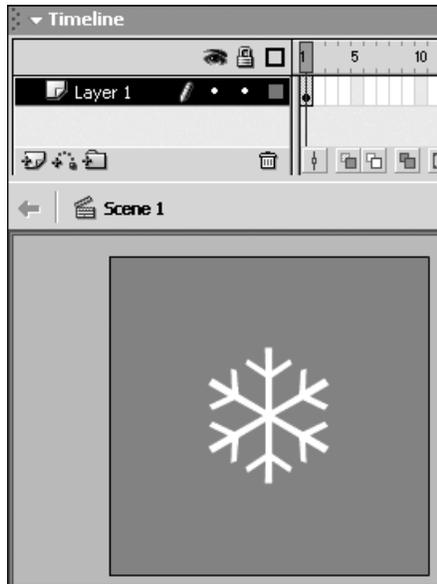
This chapter reintroduces you to the Timeline. In the following exercises, you will learn that a symbol has a Timeline too, and therefore you may have one Macromedia Flash MX project that contains several different Timelines. The following chart will help you further understand the distinctions among the various types of Timelines.

Timeline Definitions	
Term	Definition
Main Timeline	When you open a Macromedia Flash MX project (.fla), it always defaults to showing the Timeline of Scene 1. This is also called the Main Timeline in the Macromedia Flash MX documentation. The Main Timeline is the Timeline that is visible when you're inside a scene. (You will learn all about scenes in Chapter 11, " <i>ActionScripting Basics</i> .")
Graphic Symbol Timeline	Each Graphic symbol has its own Timeline, called a Graphic Symbol Timeline. The Timeline for a symbol and the scene in which the symbol is placed must have the same number of frames, or the symbol's animation will not play properly. This is important because Movie Clip symbols, which you'll learn about in Chapter 10, " <i>Movie Clips</i> ," do not behave this way.
Scene's Timeline	Every Macromedia Flash MX project (.fla) has a Main Timeline in the form of Scene 1's Timeline. You'll see in later chapters that Macromedia Flash MX projects can have multiple scenes. In those cases, each scene is considered part of the Main Timeline. Learning the difference between a scene's Timeline and a symbol's Timeline is one of the key foundations to working successfully with Macromedia Flash MX.

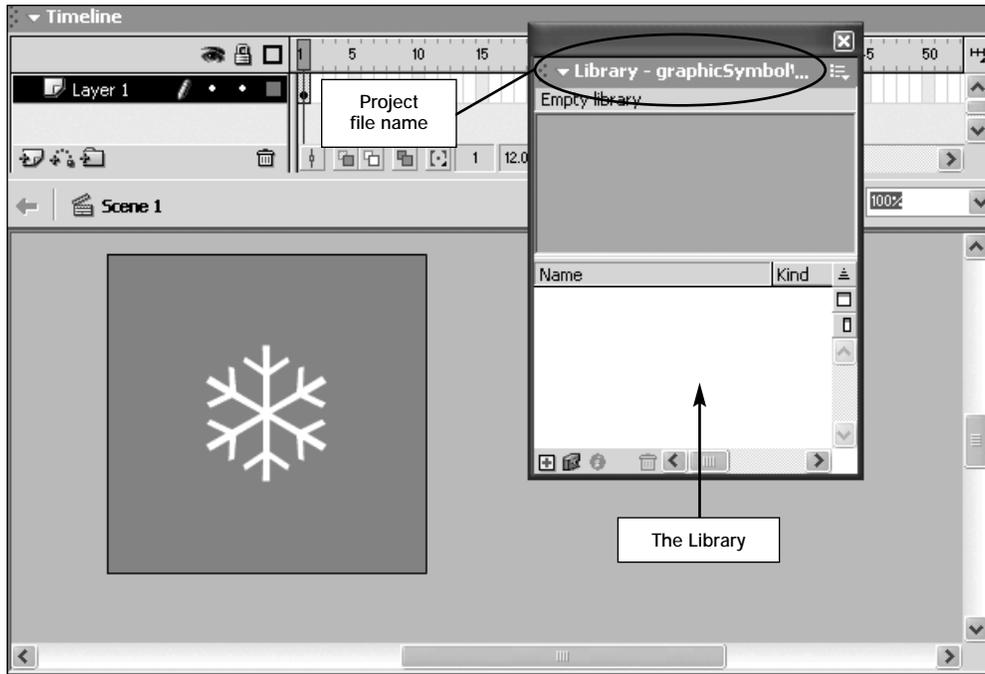
I. Creating Graphic Symbols

Symbols are used for many purposes in Macromedia Flash MX. Before you learn hands-on what they're good for, you'll need to know how to create them. This first exercise shows you how to create a Graphic symbol. Later in the book, you'll learn to work with the two other symbol types—Buttons and Movie Clips—which are more difficult.

1. Copy the **chap_06** folder, located on the **H•O•T CD-ROM**, to your hard drive. You need to have this folder on your hard drive in order to save changes to the files inside it.



2. Open the **graphicSymbol.fla** file from the **chap_06** folder. This file contains one layer with a snowflake shape in Frame 1. You will be converting this shape into a Graphic symbol in the steps that follow.

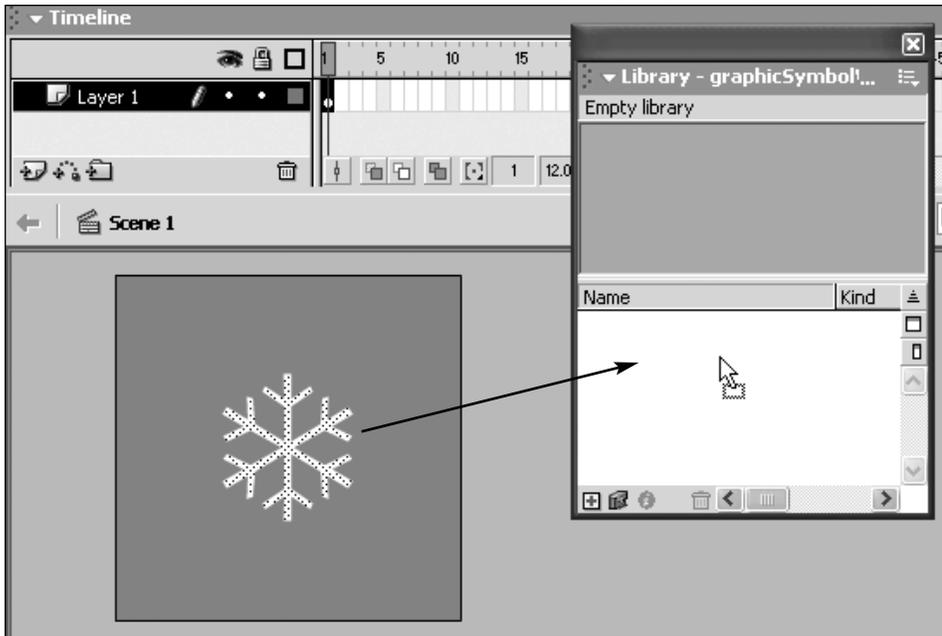


3. Choose **Window > Library** to open the **Library** panel. Notice that the project file name is displayed at the top of the Library panel.

NOTE | What Is the Library?

The **Library** is a container where Macromedia Flash MX stores and organizes symbols, bitmap graphics, sound clips, and video clips. For designers, it can be one of the most useful and frequently used interface elements in the program. The Library is attached to the movie that you're working with. If you give your project file (.fla) to someone else and that person opens it, he or she will see the same Library that you see when you have that file open. Additionally, you can even open just the Library from another project file by choosing **File > Open as Library**.

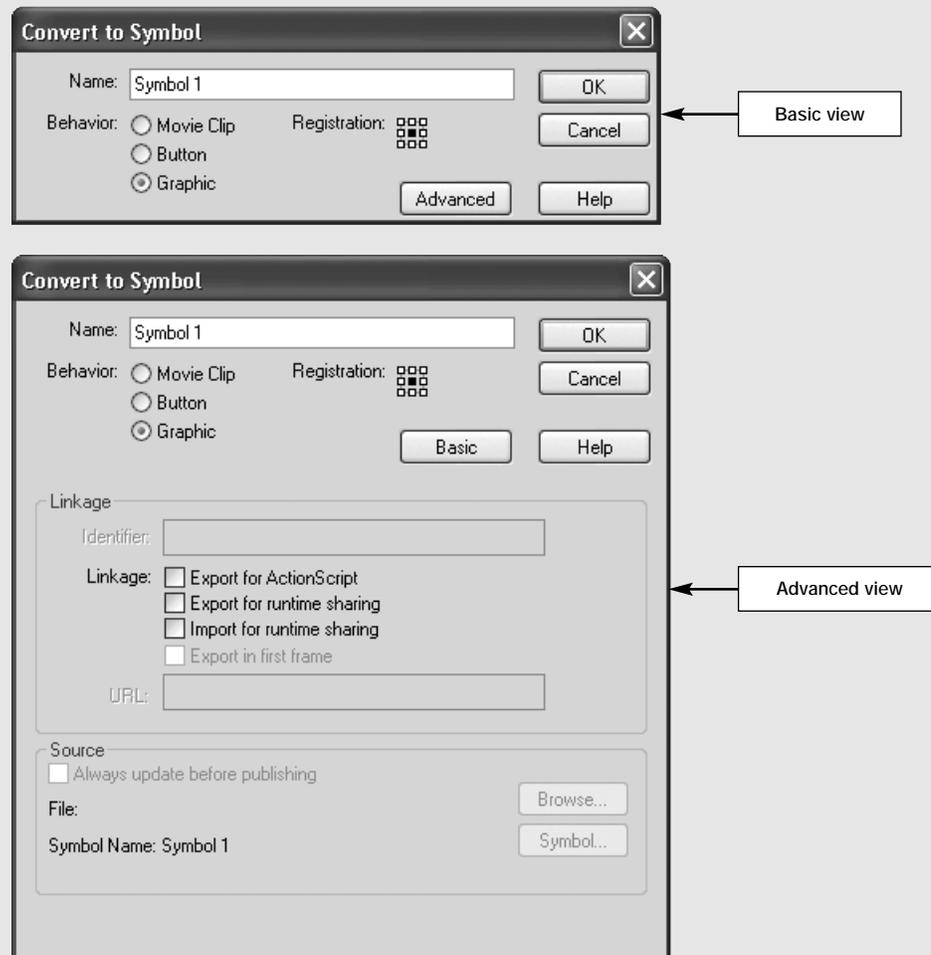
Inside the Library, you can sort the contents by name, type, usage, and linkage. As your files become more complex, you will find it useful to create folders within your Library to help separate your symbols into different categories. Since you will frequently work with the Library in Macromedia Flash MX, it's useful to learn the two shortcuts to bring the Library to the screen: **F11** or **Ctrl+L** (Windows) or **Cmd+L** (Mac). You will get an in-depth look at the Library and all its functions in later chapters.



4. Using the **Arrow** tool, select the **snowflake** on the **Stage** and drag it into the lower half of the **Library** panel. This will open the **Symbol Properties** dialog box.

*Note: Instead of dragging the shape into the Library, you can also select the shape and choose **Insert > Convert to Symbol** to open the **Symbol Properties** dialog box.*

NOTE | The Symbol Properties Dialog Box



The **Symbol Properties dialog box** offers two views: basic and advanced. For now, we will stick to the basic view. Inside the Symbol Properties dialog box are three settings to be determined next: the name, the behavior, and the Registration Point of the symbol.

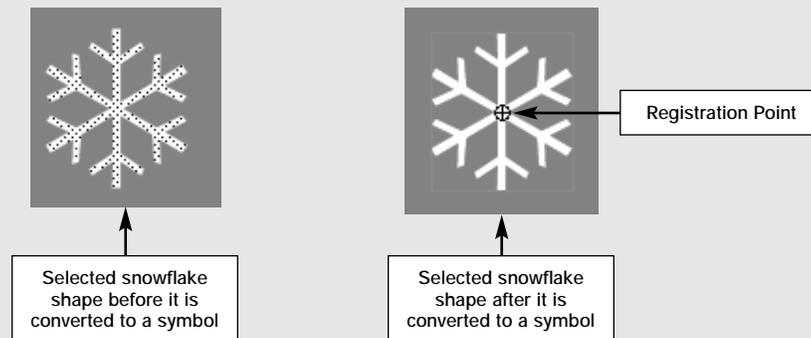


5. For **Name**, type **snowflake**; for **Behavior**, select **Graphic**; and for **Registration**, make sure the box in the middle of the square is selected. Click **OK**.

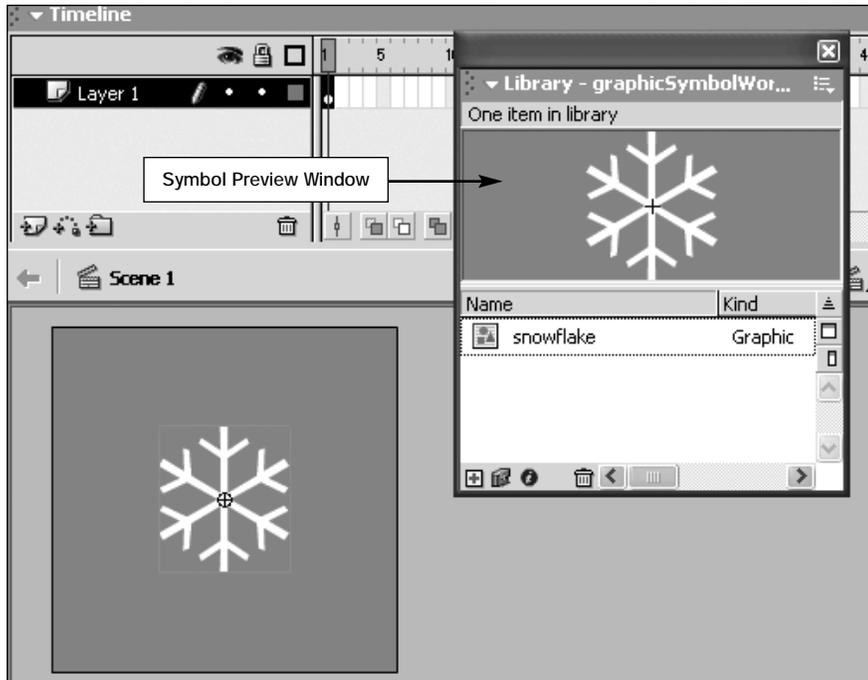
Note: I promise that you'll get to learn about Movie Clip and Button symbols in later chapters. For now, you'll focus on Graphic symbols only.

NOTE | What Is a Registration Point?

When you convert a shape into a symbol, Macromedia Flash MX needs to know where you want the center point to be located on that shape. Who cares, you might be thinking. Well, it becomes very important when you create animation using rotation because the symbol will rotate around its **Registration Point**. If this seems a bit abstract to you, it will make more sense once you have completed Exercise 5 later in the chapter. For now, make sure the Registration Point is in the middle.



Once you click OK, the snowflake on the stage will change slightly. Notice the bounding box and the circle with a crosshair in the middle of the snowflake. This provides visual feedback that your snowflake is now a Graphic symbol. The circle and crosshair in the middle of the snowflake act as a marker, telling you where the center (or Registration Point) of the symbol is. This is an important indicator because it affects how all of the instances (which you will learn about in the next exercise) of this symbol are rotated and scaled. You will also learn how to rotate and scale instances later in this chapter.



6. After you click OK in the Symbol Properties dialog box, notice that you now have two snowflakes in your project file: the snowflake symbol, which is located in the Library, and an instance (a copy of the original symbol) on the Stage. Instances are placed on the Stage, and symbols are stored in the Library.

Congratulations! You have just made your first Graphic symbol. In the next exercise, you will learn to work with symbol instances.

7. Save and close the file.

TIP | Five Ways to Create a Symbol

When you are working with Macromedia Flash MX, there are five different ways to create a symbol. You can create a symbol using artwork that already exists on the Stage or create a new symbol from scratch on a blank Stage. The five ways are explained below:

1. Select premade artwork on the Stage and drag it into the Library, as you did in step 4 of the previous exercise. This will turn the artwork you select into a symbol.
2. Select premade artwork on the Stage and choose **Insert > Convert to Symbol**, or use the shortcut key **F8**. This will also turn the artwork you select into a symbol.
3. Choose **Insert > New Symbol** or use the shortcut key **Ctrl+F8** (Windows) or **Cmd+F8** (Mac). This places you in symbol editing mode with a blank canvas ready for you to add or create artwork.
4. Choose **New Symbol** from the **Library Options** menu in the upper right corner of the Library. This places you in symbol editing mode with a blank canvas ready for you to add or create artwork.
5. Click the **New Symbol** button in the bottom left corner of the Library. This will place you in symbol editing mode with a blank canvas ready for you to add or create artwork.

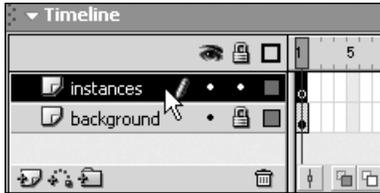
2. Creating Symbol Instances

In the last exercise, you learned how to create a symbol. In this exercise, you will learn how to create instances of a symbol in the Library. Instances are copies of the original symbol that can be modified individually without affecting the symbol in the Library. You will learn to do this in the following steps.

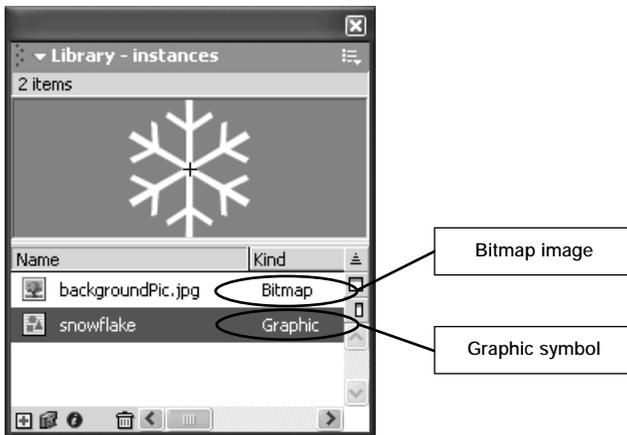


1. Open the **instances.fla** file from the **chap_06** folder. This file contains two layers: a layer named **background**, which contains a bitmap image, and a layer named **instances** where you will place instances of a symbol just like the one in the last exercise. The background layer has been locked so that you don't accidentally add instances to that layer.

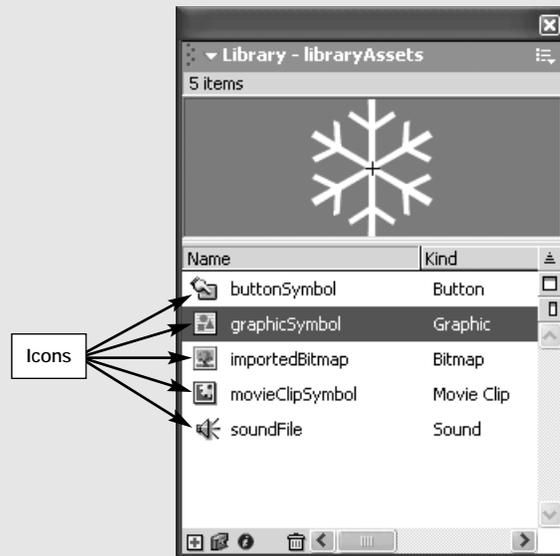
6. Symbols and Instances | Macromedia Flash MX H•O•T



2. Make sure the **instances** layer is selected. If it's not, click to the right of the layer name to select that specific layer.



3. Make sure the **Library** is open. If it is not, choose **Window > Library** (or press **F11**) to open the Library for this file. Notice that there are two items in the Library: the snowflake symbol and something called **backgroundPic.jpg**. You might be wondering how those elements got there. The snowflake was saved as a symbol in this project file, and it automatically appears in the Library whenever you open this project file, just like the snowflake symbol you created in Exercise 1. The backgroundPic item is a bitmap that was also saved as a Library element and is located on the **background** layer.

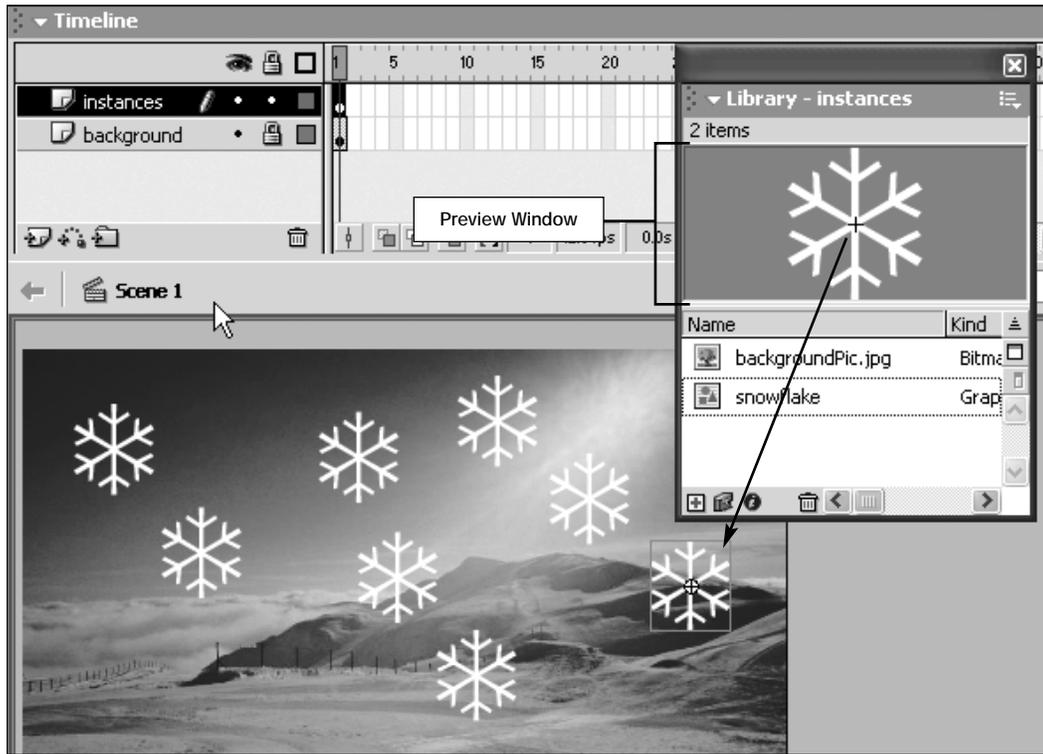
NOTE | Library Assets

In addition to storing symbols, the Library also stores other assets, such as imported bitmap and vector graphics, sound clips, and video clips. It is easy to identify the different assets inside the Library at a glance, since each type has a different icon associated with it.



4. In the **Library**, click on the snowflake's **Graphic symbol** icon, and drag it onto the **Stage**. When you release the mouse button, an instance of the snowflake is placed on the Stage.

One key point to remember is that symbols are stored in the Library and instances are located on the Stage. From every symbol, you can create as many instances as you want.



5. Click and drag seven more snowflakes from the Library. This will create a total of eight instances on your Stage. You can also insert instances by clicking in the Library's Preview Window and dragging an instance onto the Stage.

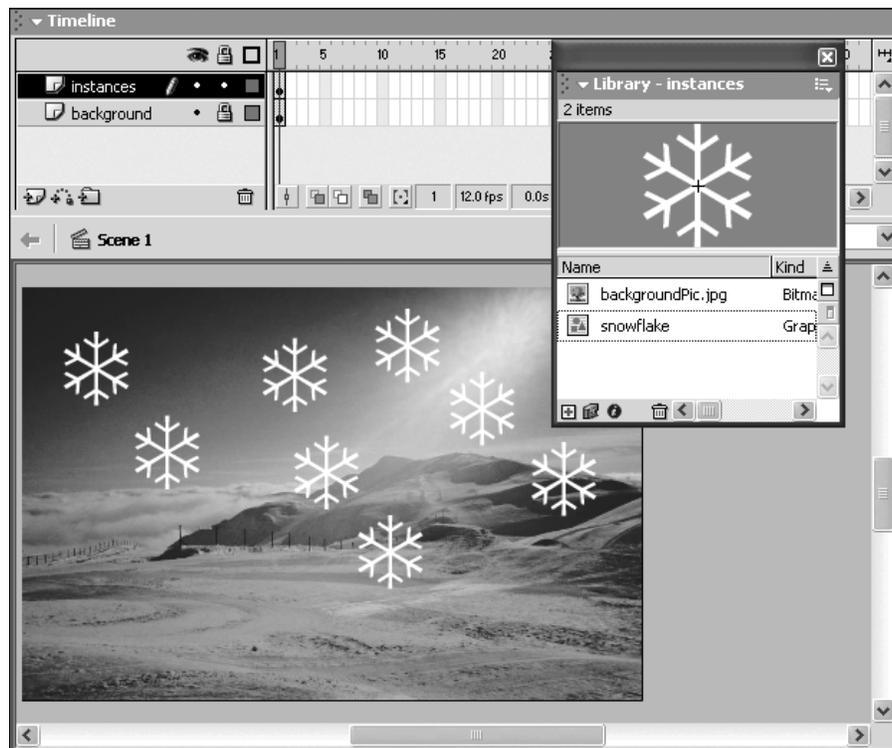
Clicking and dragging from the Library is one way to create instances on your Stage, but you can also Ctrl+drag (Windows) or Option+drag (Mac) an instance on the Stage to create a duplicate of it without opening the Library.

6. Save the changes you made to this file. Keep this file open for the next exercise. You will learn how to edit symbols next.

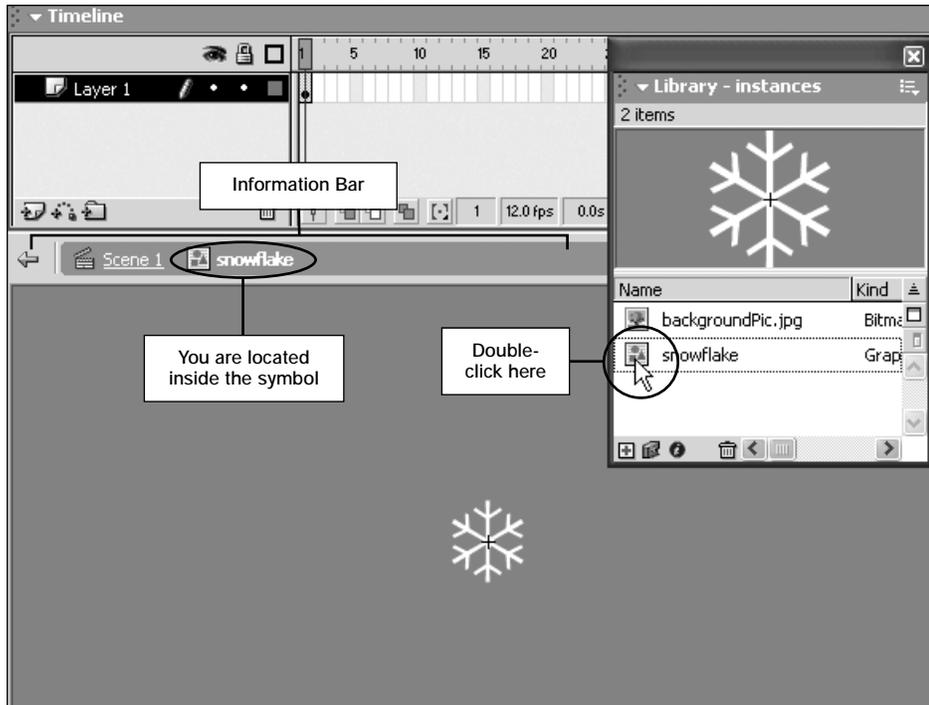
3. Editing Symbols

The instances on your Stage have a special relationship with the symbol in the Library. This is often referred to in computer programming circles as a **parent/child relationship**. One of the advantages of this relationship is that if you change a symbol in the Library, all of the instances on your Stage will be updated. As you can imagine, this can save you a lot of time when you need to make large updates across an entire project. This ability to make quick—and sometimes large—updates is one of the powerful advantages of using symbols and instances. In this exercise, you will modify the appearance of the snowflake symbol to change all eight instances on the Stage.

1. The file from the previous exercise should still be open. If you closed it, go ahead and open the **instances.fla** file from the **chap_06** folder.
2. Make sure your **Library** panel is open. If it's not, press **F11** to open it now.



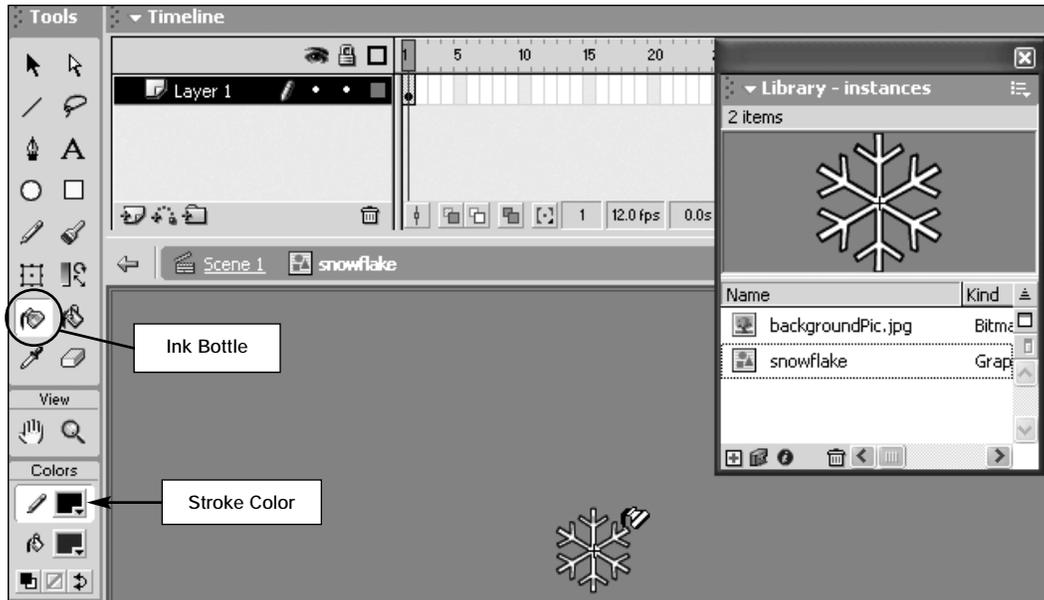
Your Stage should look similar to the one shown above. If for some reason it does not, refer to the previous exercise to learn how to create multiple instances of the snowflake symbol.



3. In the **Library**, double-click on the **Graphic symbol** icon to the left of the **snowflake** symbol name. Your Stage will change, because you are now editing the Timeline for the symbol, where you can create or modify its contents. At this point, you are no longer working in the Main Timeline. Notice that the gray (work) area around your Stage is gone, as is the bounding box around the symbol. When you're in symbol editing mode (inside a symbol), you will not see the work area, unless you are using the Edit in Place feature, which you will learn about later in this exercise. Notice also that the Information Bar above the Stage shows two names: **Scene 1** and **snowflake**. This is another indicator that you are no longer working on the Main Timeline. Instead, you are inside the editing interface and Timeline for the snowflake Graphic symbol.

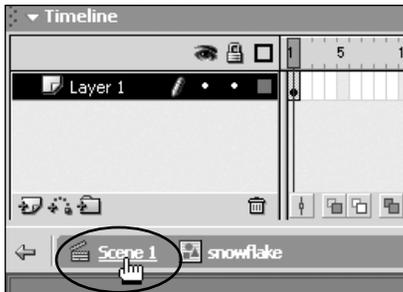
TIP | Know Your Location

There are several ways to get into symbol editing mode. It's so easy to get into and out of this mode that you may not even be aware that you have switched views, so be constantly aware of where you are while you work. Keep an eye on the Information Bar and make sure that you are drawing, animating, or creating in the correct location of your project.

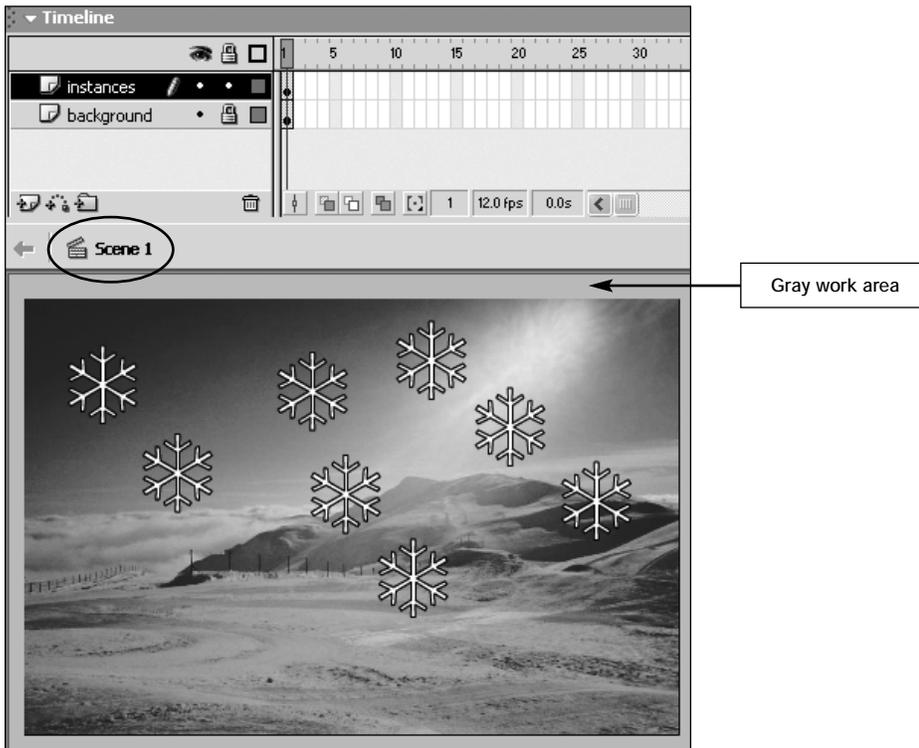


4. In the **Toolbox**, select the **Ink Bottle** tool, and select **black** for the **Stroke Color**. Click on the **snowflake** to add a stroke to the snowflake shape. Notice that as soon as you click on the shape with the Ink Bottle tool, the Preview Window in the Library is updated instantly to reflect the change you made.

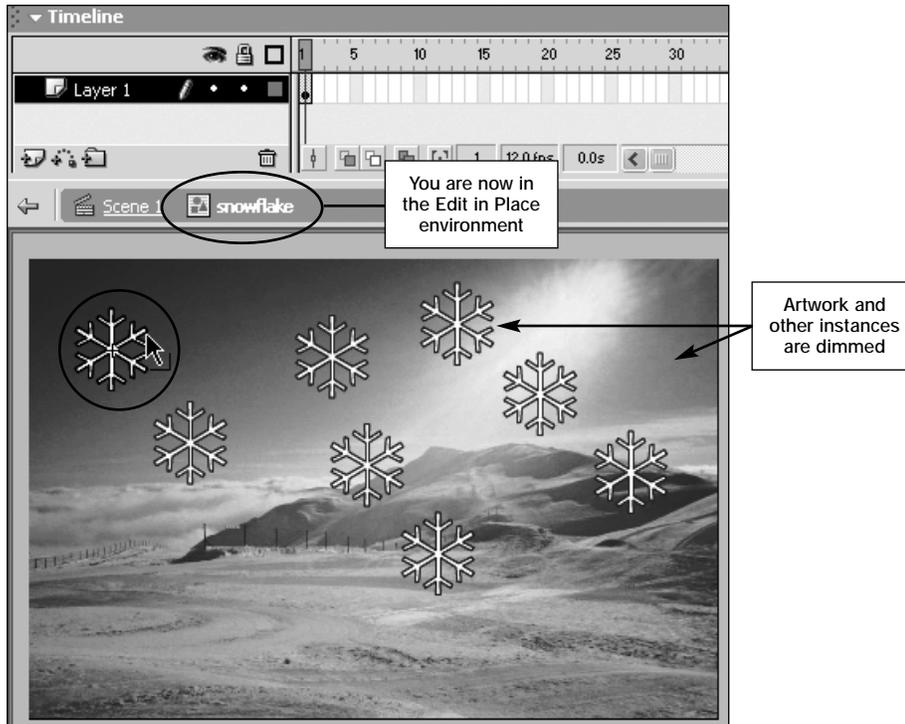
Note: In the Macromedia Flash MX documentation, the terms “outline” and “stroke” are at times used interchangeably. As you may recall from Chapter 3, “Drawing and Color Tools,” you can add strokes (sometimes called outlines) to objects that don’t already have a stroke applied to them with the Ink Bottle, as you did in the previous step. You can also modify an existing stroke by selecting it and then changing its width and appearance using the Property Inspector.



5. In the **Information Bar**, click on the underlined **Scene 1** to return to the **Main Timeline**. You should see the bitmap with the snow and sky again.



As soon as you click on the Scene 1 name, the gray work area appears again, and you see only the Scene 1 name, without the snowflake name next to it. Notice also that all of the instances of the snowflake now have a black stroke around them. Every time you modify a symbol, it affects all of the instances you have in your project file, just as you saw here. This can be a very powerful way to make changes throughout your project.



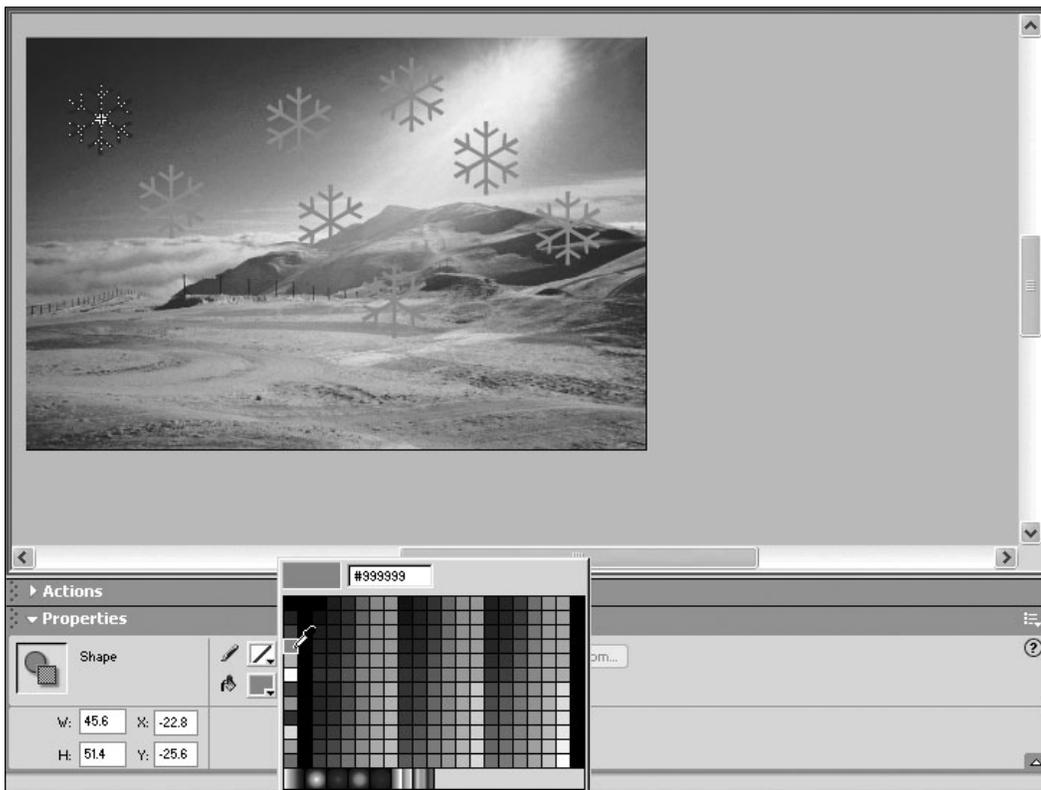
6. Choose a **snowflake** instance on the **Stage**, and double-click on it. This will allow you to edit the symbol in place, which means in the context of the other instances on the Stage. When you edit a symbol in place, all the other objects on the Stage are dimmed to differentiate them from the symbol you are editing. You can also edit the symbol in place by choosing **Edit > Edit in Place**.

TIP | Techniques for Editing Symbols

Editing an instance in place (double-clicking on the instance on the Stage) will produce the same end result as editing the symbol in the Library (double-clicking on the Graphic symbol icon to the left of the symbol name in the Library). Both techniques change the appearance of the master symbol as well as all of its instances. The difference between the two techniques is that when you edit the symbol in the Library, you cannot see the Main Timeline. When you edit an instance in place, you see a dimmed version of the Stage, and you can preview your changes in context with the rest of the Stage on the Main Timeline before returning to the Main Timeline.

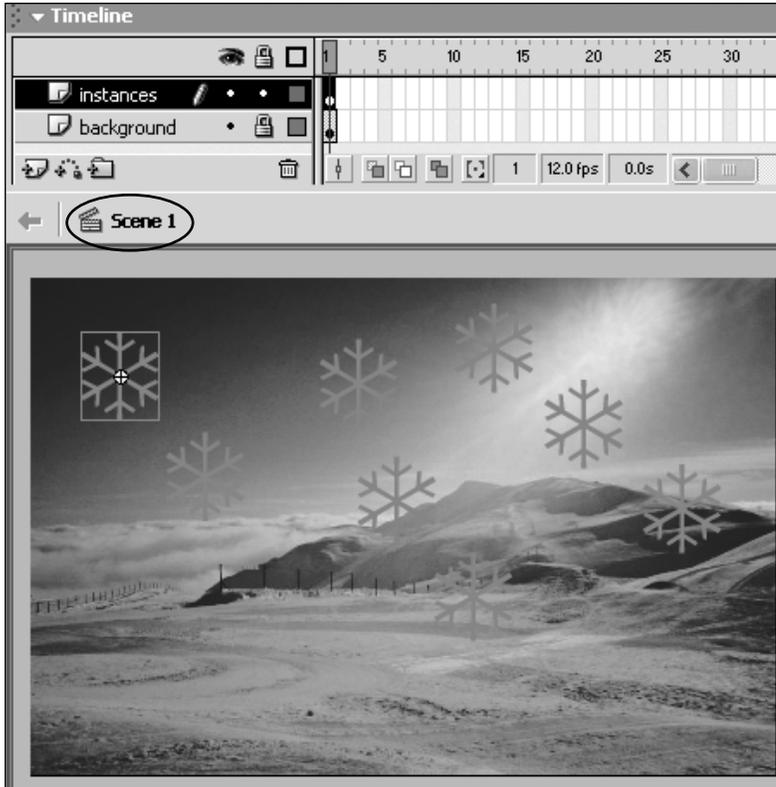
7. Using the **Arrow** tool, double-click on the **stroke** around the snowflake to select it. Press the **Delete** key to remove it. Instead of the stroke, you'll make a change to the fill this time. It's easy to change the artwork for the symbol whenever the mood strikes you!

8. Use the **Arrow** tool to select the **snowflake** shape.



9. In the **Property Inspector**, click on the **Fill Color** box and choose a different shade of gray. Because the snowflake was already selected, Macromedia Flash MX automatically updates the color of the snowflake as soon as you select a color. Again, notice that all the other instances of the snowflake change color as well!

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10. In the **Information Bar**, click on **Scene 1** to return to the **Main Timeline**. You should see the background bitmap and the snowflake instances in full color.

11. Save the changes you made to this file. Leave this file open because you will use it in the next exercise.

4.

Editing Symbol Instances

In the previous exercise, you learned how to modify a symbol to make changes to all of the instances on the Stage. But what do you do if you want to change the color of only one instance or of each instance individually? You can do this by selecting the instance on the Stage in the Main Timeline and modifying the setting in the Property Inspector. The Property Inspector will let you change the tint, brightness, and alpha settings of symbol instances. This is the only way to change the color values of an instance because the Paint Bucket and Brush tools work only on shapes, not on symbol instances. In this exercise, you will use the Property Inspector and the Free Transform tool to change the appearance of individual snowflakes.

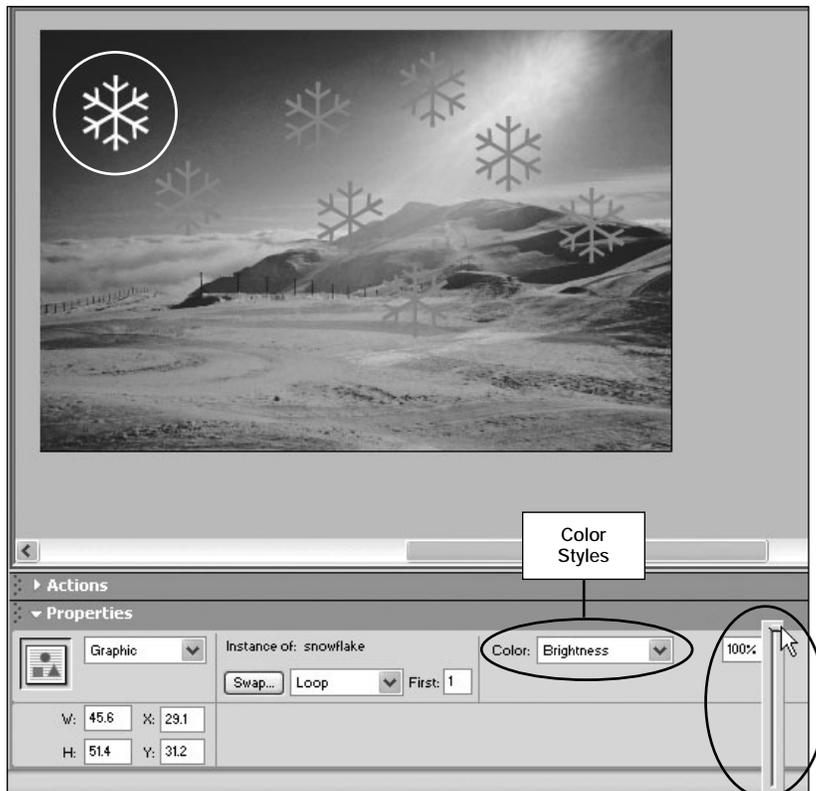
1. The file from the previous exercise should still be open. If it's not, open the `instances fla` file from the `chap_06` folder.



2. Click to select the **snowflake** instance in the upper left corner of the **Stage**.

It's very important that you select the snowflake instance by clicking on it only once. If you double-click it accidentally, you will be editing the symbol, not the instance. If this happens, go back to the Main Timeline by clicking on the Scene 1 link in the Information Bar.

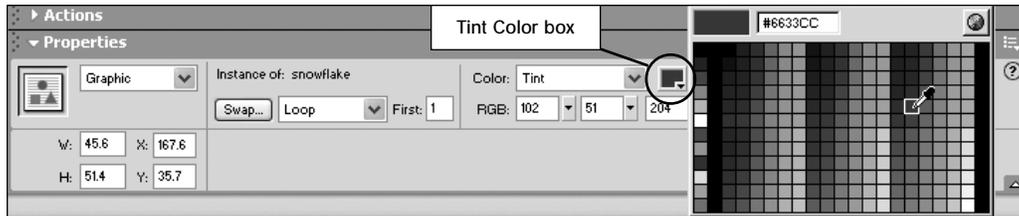
3. Make sure the **Property Inspector** is open and visible. If it's not, choose **Window > Properties** or use the shortcut **Ctrl+F3** (Windows) or **Cmd+F3** (Mac) to open it.



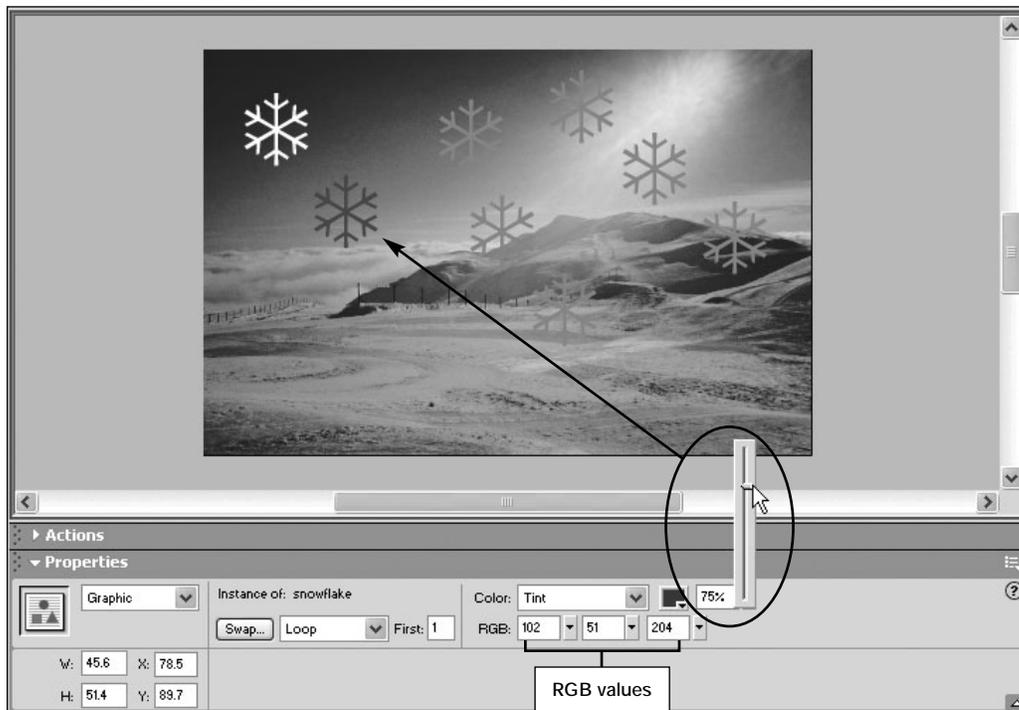
4. From the **Color Styles** box in the **Property Inspector**, choose **Brightness**. Click the **slider** to the right of the menu and drag it up to **100%**. This will increase the brightness level of the selected object as you drag up.

*Note: The **Brightness** option controls the brightness value of the instance and has a range of **-100%** to **100%**, with **-100%** being completely black and **100%** being completely white.*

5. Click to select a different **snowflake** on your **Stage**. You can choose any snowflake you want.
6. From the **Color Styles** box in the **Property Inspector**, choose **Tint**. The **Tint** option applies a tint to the base color of your instance.



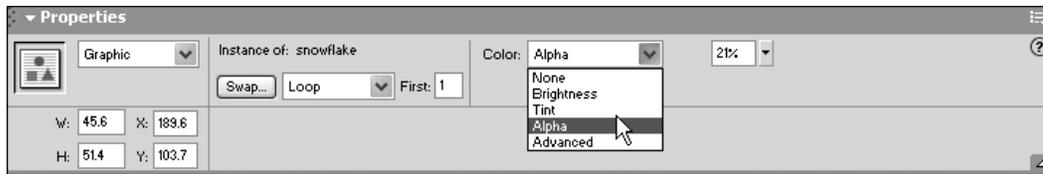
7. Click inside the **Tint Color** box and, from the pop-up color palette select a shade of purple.



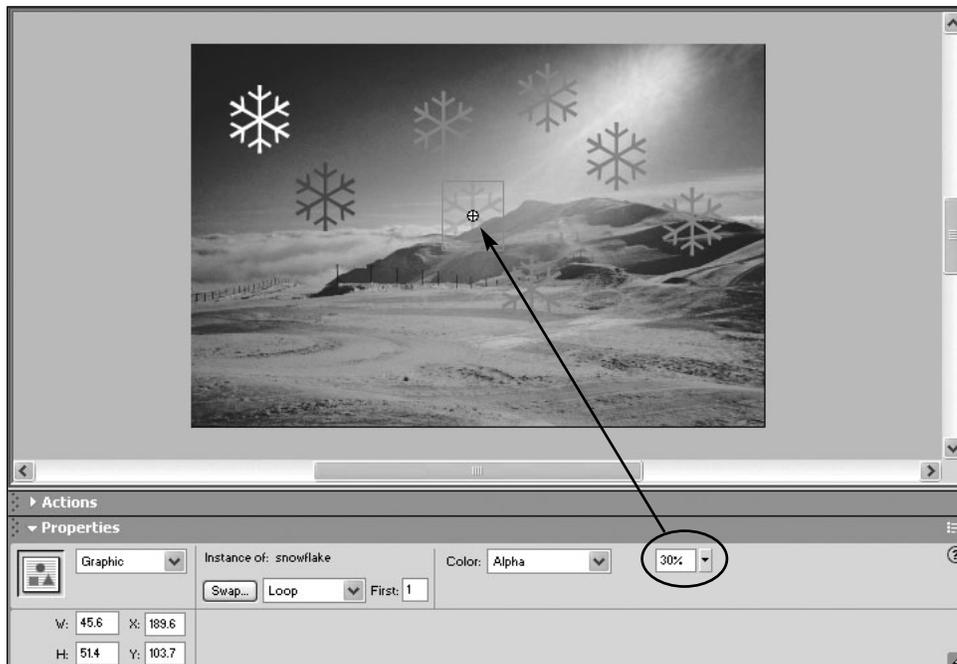
8. Click and drag the **Tint slider** up to 75%. As you drag the slider up, notice how the color becomes brighter. The Tint option has a range of 0% (no tint) to 100% (fully saturated). Basically, this is changing the amount of color that is applied to the instance. It also changes the RGB values in the Property Inspector.

Note: You control the color of the instance by modifying the percentage of the tint being applied and the individual RGB (red, green, and blue) values. The Tint option is the only way you can change the color of an instance, other than using the advanced settings, where you can set the RGB values. This option also changes both the Fill and Stroke settings to the value you specify. You cannot change these settings separately when editing the instance; this can be done only by editing the symbol.

9. Click to select another **snowflake** on the **Stage**. Just make sure you select one that has not been modified yet.



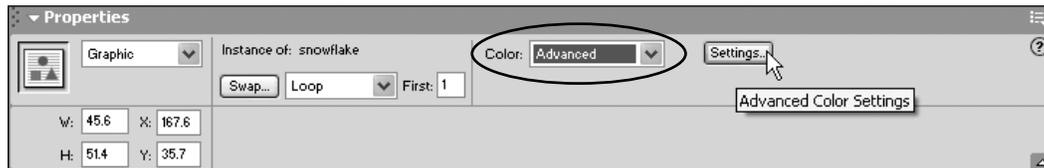
10. From the **Color Styles** box in the **Property Inspector**, choose **Alpha**. This option, which has a range of 100% (opaque) to 0% (transparent), lets you control the transparency value of the selected instance.



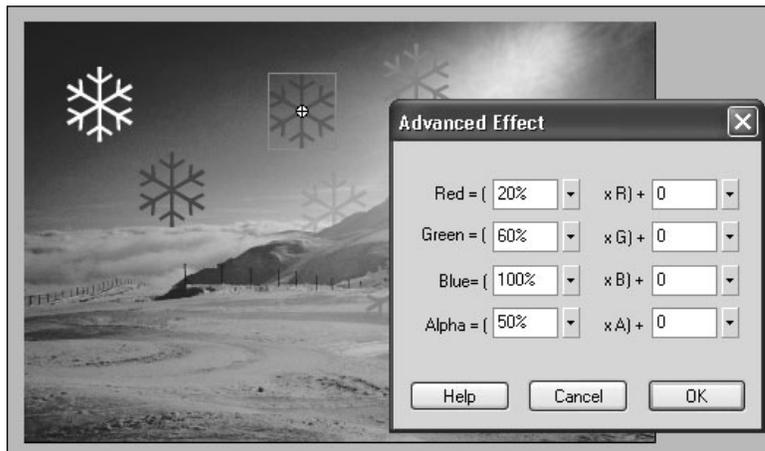
11. Click and drag the **Alpha slider** down to **0%**. Watch the selected snowflake disappear as you drag the slider down. Return the Alpha slider to **30%**.

*In the next few steps, you will learn about the **Advanced** option in the **Color Styles** drop-down menu. This option lets you modify multiple settings for a selected object. For example, you can use this option to adjust the **Tint** and **Alpha** settings of the selected instance. The best way to learn about it is by using it, and that's exactly what you are going to do.*

12. Click to select another unmodified snowflake on the Stage.



13. From the Color Styles box in the Property Inspector, choose **Advanced** from the drop-down menu. Click the **Settings** button.



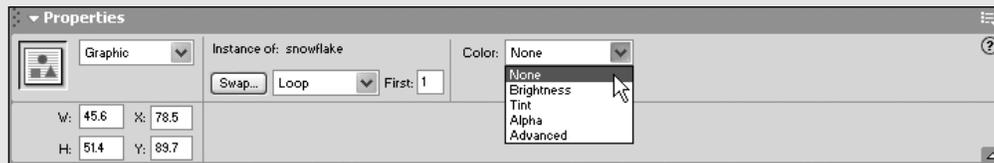
14. In the **Advanced Effect** dialog box, click the arrow and drag the **Red** slider to 20%. Click and drag the **Green** slider down to 60%. Click and drag the **Alpha** slider to 50%. The end result should be a snowflake that is a nice shade of blue.

The left column of fields in the Advanced Effect dialog box allows you to manipulate the colors using percentages, while the right column of fields allows you to manipulate the colors using numbers that correspond with color values.

Note: Your snowflake might look a bit different if you didn't select the same gray for your snowflake symbol as I did in the last exercise.

15. Go ahead and recolor as many snowflakes as you want. It never hurts to practice! For your reference, I have provided a chart at the end of this exercise that outlines all of the options in the Color Styles drop-down menu.

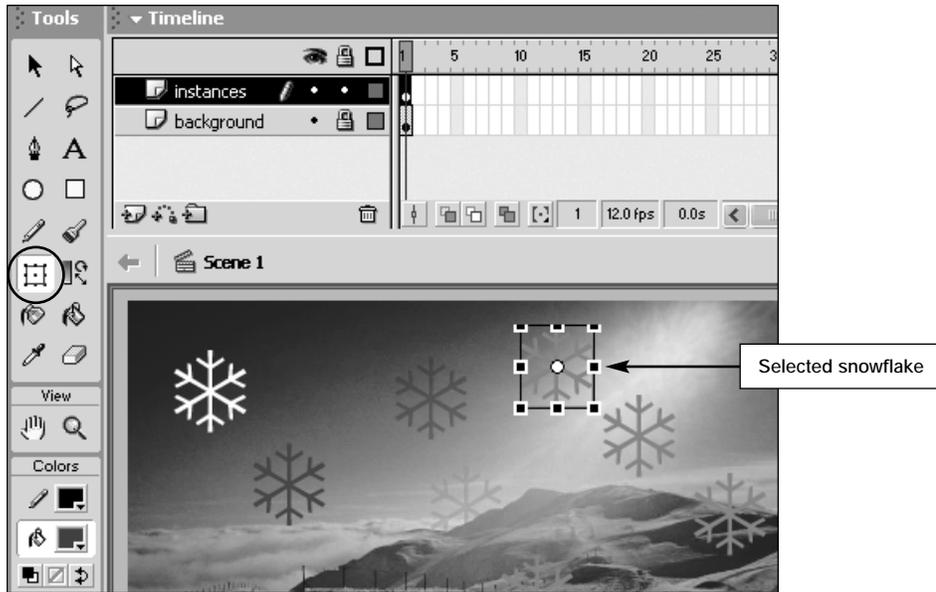
NOTE | Removing Color Styles



Up to this point in this exercise, you have added many different color styles to the instances on your Stage. If you want to remove the styles you have applied to an instance, you can simply select the instance and choose the **None** option from the Color Styles drop-down menu. This will turn off any color styles you have applied and restore the instance to its original condition.

So far, you've gained some experience in changing symbol instances by modifying their brightness, tint, and alpha. You can also rotate, scale, and skew instances. In the following steps, you will use the Free Transform tool to modify the instances on your Stage.

16. Click to select another **snowflake** on your **Stage**. It doesn't really matter which one you select because you will eventually select them all.



17. In the **Toolbox**, select the **Free Transform** tool.

18. Click on the middle handle on the bottom of the snowflake and drag down. This will increase the height of the snowflake.



19. Move your cursor between the bottom left and middle handles (slightly above the handles) until you see the **skew** cursor icon, as shown in the picture above. Once you see the icon, click and drag to the left. This will skew the selected snowflake.

20. Click to select another **snowflake** instance on the **Stage**.



21. Select the **Free Transform** tool in the **Toolbox** and click and drag diagonally on one of the corner handles. This will scale the snowflake to a bigger size.

Tip: If you hold down the Shift key while you drag one of the handles, the snowflake will scale proportionally on all sides.

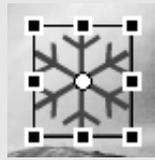
22. Click to select a different **snowflake** instance on the **Stage**.



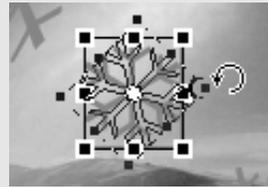
23. In the **Toolbox**, select the **Free Transform** tool and move your cursor over a corner handle until the **rotate** icon appears, as shown in the picture above. Click and drag down. This will rotate the selected snowflake.

NOTE | Changing the Registration Point

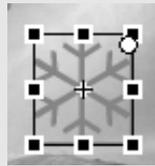
When using the Free Transform tool, you might have noticed that the circle in the center of an instance serves as an anchor from which position, rotation, and scale originate. It is possible to move the center point (Registration Point) if you want to.



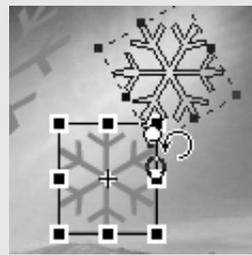
Registration Point in center



Instance being rotated with Registration Point in center



Registration Point in upper right corner



Instance being rotated with Registration Point in upper right corner

To change the Registration Point, make sure that both the Free Transform tool and the instance are selected, and then click and drag the center circle to a new location. From then on, any transformations you make will originate from this new position. Use this technique when you want to rotate from a corner; you can even move the Registration Point off the image to rotate on a distant axis.

24. Go ahead and select the last **snowflake** on the Stage and, using the **Free Transform** tool, apply any transformation you like. Remember, practice makes perfect, so have some fun creating your own transformation of the last unchanged snowflake instance.

25. When you are finished, save the changes you made and close this file. You won't need it anymore.

Color Styles

The chart below explains the different options available in the Color Styles drop-down menu in the Property Inspector. As you learned in this exercise, the Color Styles options can be used to change the color and alpha properties of an instance.

Color Styles Options	
Option	Description
Brightness	Controls the brightness (lightness or darkness) of the selected symbol. The percentage slider goes from –100% (black) to 100% (white).
Tint	Allows you to tint a selected symbol a specific RGB color. You can choose a color from the Tint color palette. The slider allows you to add a tint to the selected symbol with a percentage of that specific color. You can also choose a color by sliding the R, G, and B color sliders up and down.
Alpha	Allows you to change the transparency of a selected instance. Using the slider, you can have a completely opaque instance (100%) or a completely transparent instance (0%), or any value in between.
Advanced	A complex option that lets you adjust the tint and alpha of an instance. The <i>Using Macromedia Flash MX</i> manual has a good explanation of the complex mathematical equations involved with this panel. I find it easier to just play with the different settings to get the right look.

Great job! You've made it this far; now you have only one more exercise to go. Next you will learn how to make an animated Graphic symbol.

5. Animating Graphic Symbols

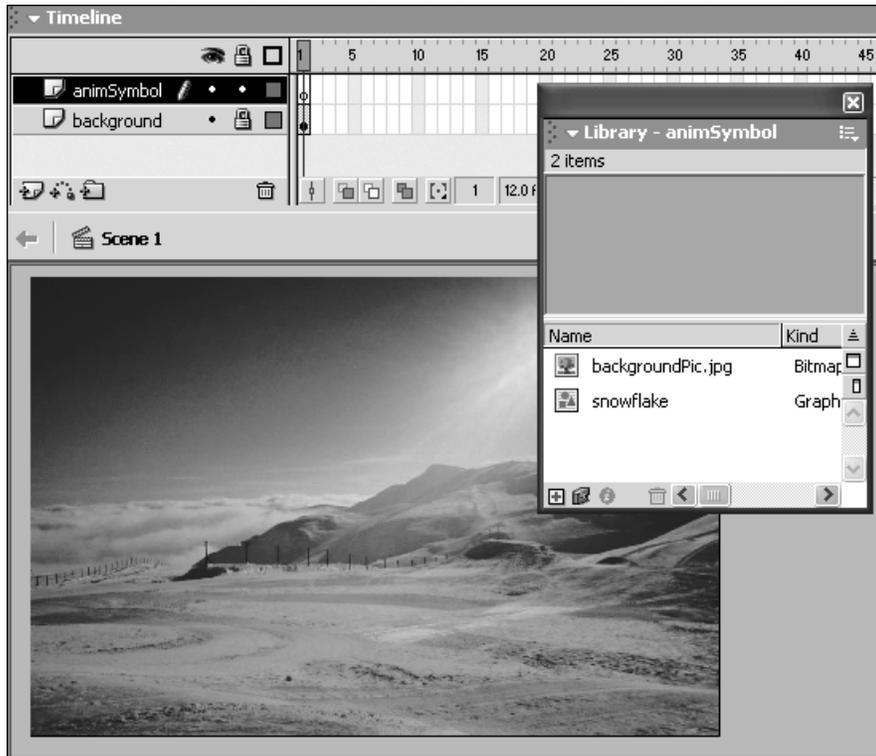
Up until now, you have been working with static Graphic symbols. Now you will learn how to create a Graphic symbol that contains animation frames. When you use animated Graphic symbols in Macromedia Flash MX, it's important to understand that the number of animation frames inside the symbol have to relate to the number of frames that are set on the Main Timeline. This will make more sense to you after you try it.

In this exercise, you will modify the snowflake Graphic symbol and add a simple shape tween animation to its Timeline to convert it into an animated Graphic symbol. The end result will be a snowflake that turns into a small snowball and fades away.



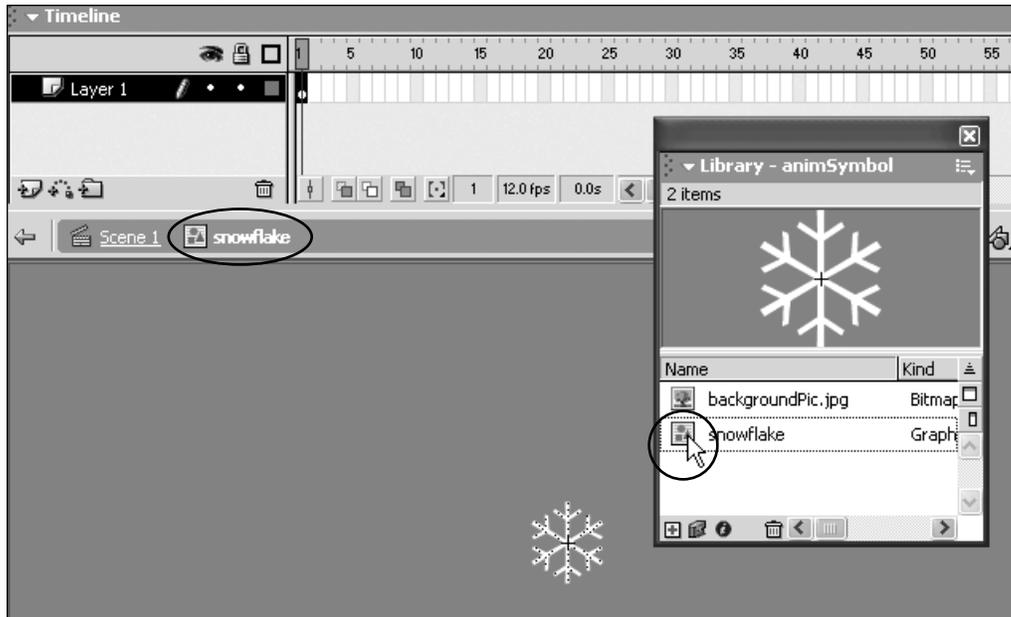
1. Open the `animSymbolFinal.fla` file from the `chap_06` folder. Choose **Control > Test Movie** to preview the animation. It's snowing! You will play Mother Nature and create the snowing animation next.

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2. Close **animSymbolFinal.fla** and open the file named **animSymbol.fla** from the **chap_06** folder. This file is similar to the one you started with in Exercise 2. It contains two layers: one named **background**, which contains a bitmap background image, and one named **animSymbol**, where you will place the animated symbol you are about to create. The **background** layer has been locked so that you don't accidentally modify that layer.

3. Make sure the **Library** panel is open and visible. If it's not, press **F11** to open it. The Library contains two items: **backgroundPic.jpg**, which is the background image, and a snowflake symbol.



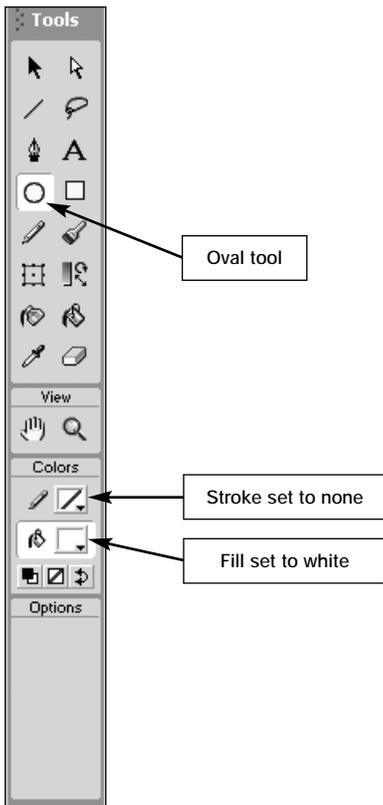
4. In the **Library**, double-click on the small **Graphic symbol** icon to the left of the word **snowflake**. This will take you into editing mode for this symbol. Notice that the contents of your Stage have changed and that the snowflake **Graphic symbol** icon appears in the **Information Bar**.

*In the following steps, you will create a shape tween animation that will make the snowflake look as though it is falling as it changes into a small snowball and fades away. Keep in mind that you are creating this animation of your snowflake on the **Graphic Symbol Timeline**, which is different from the **Main Timeline** in **Scene 1**. This means that the animation will affect all the instances of this symbol, because you are editing the master symbol.*

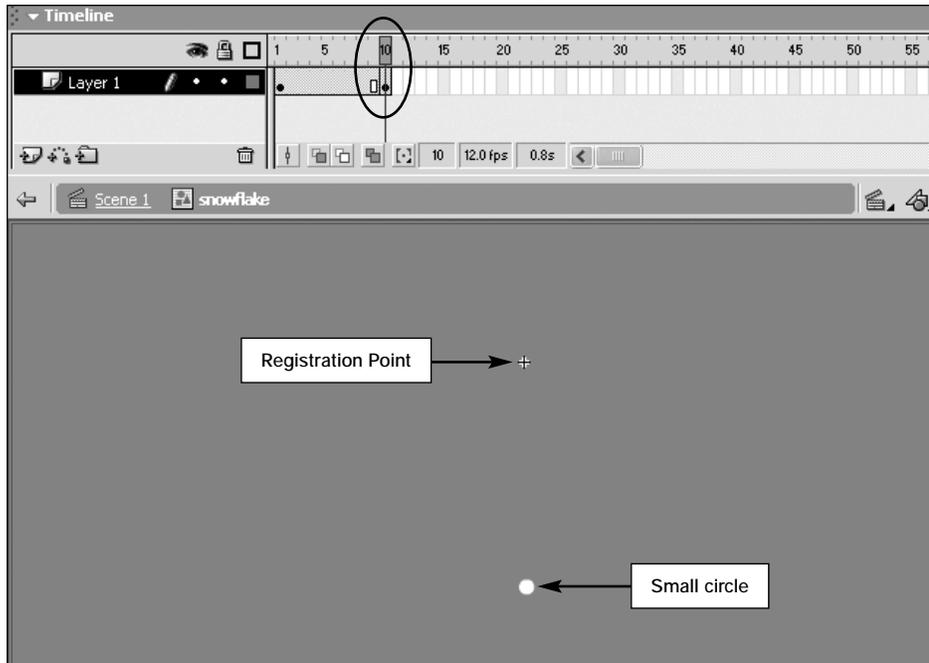


5. In the **Timeline**, press **F7** on **Frame 10** to add a blank keyframe to Frame 10.

Remember, a blank keyframe identifies a change and does not copy any artwork from the previous keyframe.



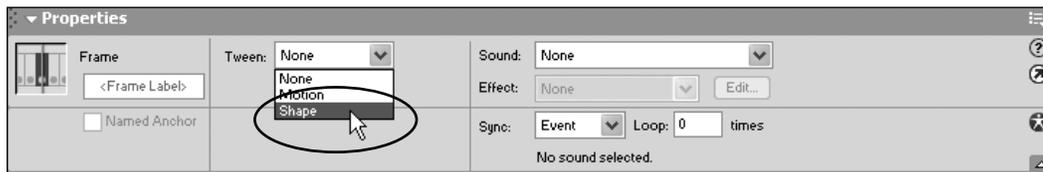
6. In the **Toolbox**, select the **Oval tool** and set the **Stroke to none** and the **Fill to white**.



7. Draw a small circle directly below the **Registration Point**.

On Frame 1, your snowflake was centered on the Registration Point, and since you want to create an animation of the snowflake falling, you need to draw the circle below the Registration Point.

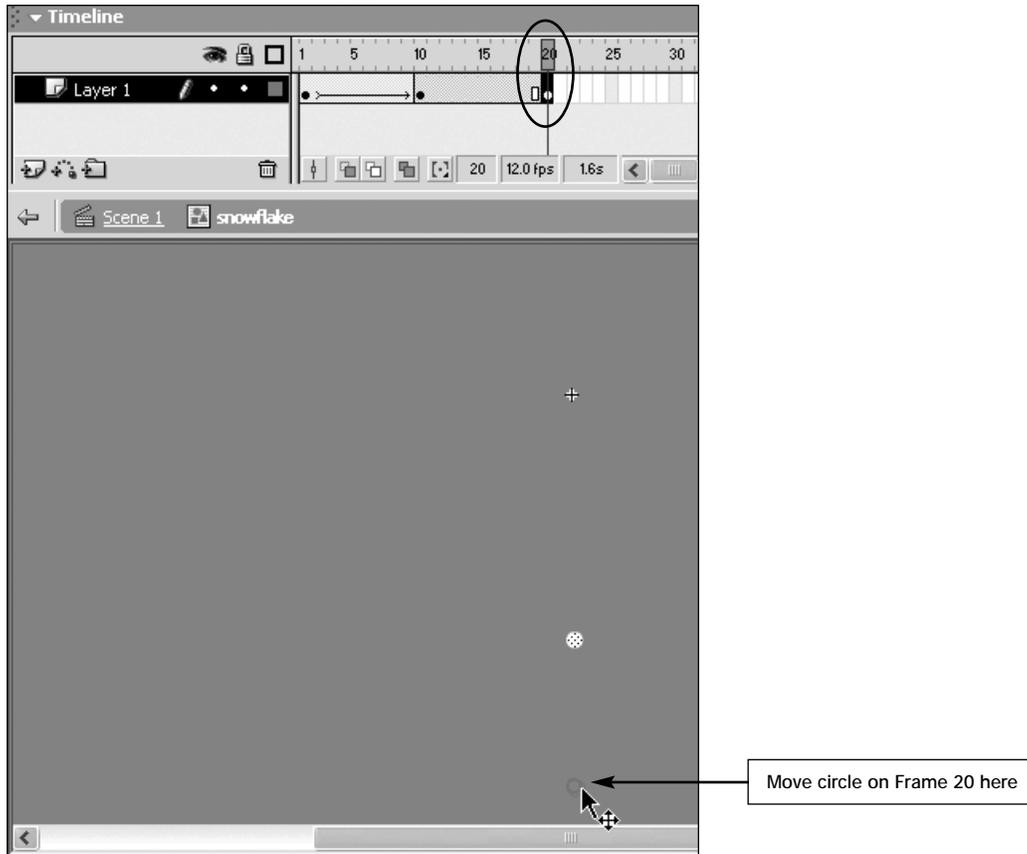
8. In the **Graphic Symbol Timeline**, click anywhere between **Frame 1** and **Frame 10** to select one of the frames.



9. Make sure the **Property Inspector** is open. If it is not, press **Ctrl+F3** (Windows) or **Cmd+F3** (Mac). Choose **Shape** from the **Tween** drop-down menu.

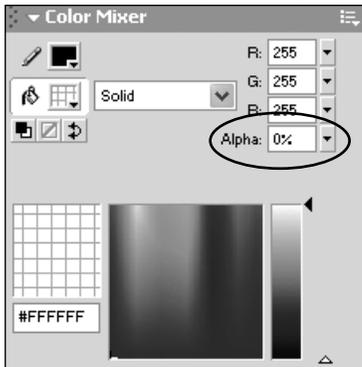
10. Press **Enter/Return** to get a quick preview of what your animation will look like.

You still have one more tween to add.



11. Press **F6** on **Frame 20** to add a keyframe to **Frame 20**. With the **Arrow** tool, move the **snowball** circle on **Frame 20** down, as shown in the picture above.

*The snowflake will turn into a snowball from **Frame 1** to **10**, and then the snowball will disappear from **Frame 10** to **20**.*

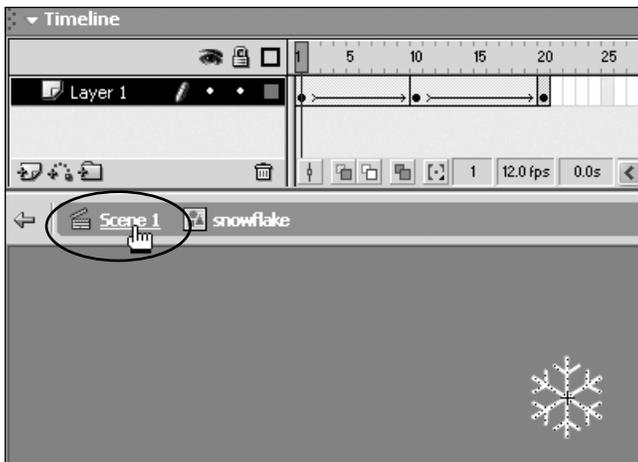


12. With the **snowball** circle still selected, set the **Alpha** to 0%. This will make the snowball in Frame 20 transparent. Click anywhere off the snowball to deselect it, and you will see it disappear!

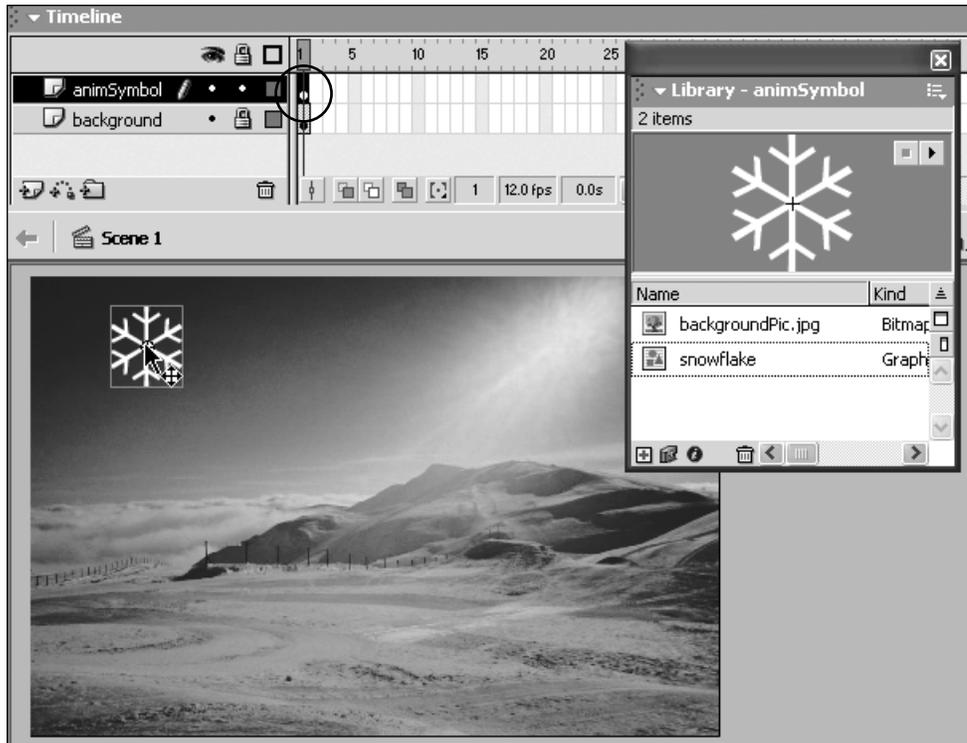
13. In the **Graphic Symbol Timeline**, click anywhere between **Frame 10** and **Frame 20** to select one of the frames.

14. Choose **Shape** from the **Tween** drop-down menu. This adds the tween animation of the snowball falling and disappearing.

15. Press **Enter/Return** to preview the entire animation. As it is falling, the snowflake should turn into a snowball, and then the snowball should fade away.



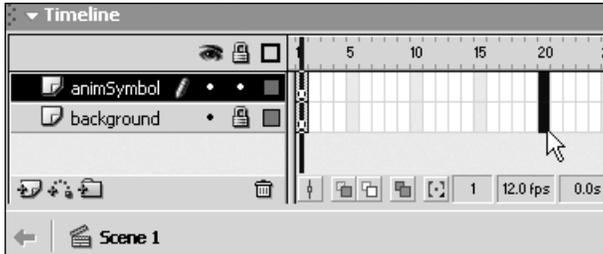
16. When you are happy with your animation, click on **Scene 1** in the **Information Bar** to return to the **Main Timeline**.



17. Drag an instance of the **snowflake** symbol onto the **Stage**. This will add an instance of the animated snowflake symbol to the Main Timeline.

18. Choose **Control > Test Movie**. This will open a new window with a preview of your movie. But wait; the snowflake is not animating. Why not? Close the Preview Window to return to Scene 1's Timeline, and I'll show you how to fix this.

The Timeline of the animated Graphic symbol is directly related to the Main Timeline (the current scene—in this case, Scene 1) of the project. This means that if the Main Timeline is one frame in length, which it is, and the Timeline of the animated Graphic symbol is 20 frames in length, only one frame will be displayed. To fix this situation, you need to extend the Main Timeline to be at least as long as the Timeline of the animated Graphic symbol, which is 20 frames long.



19. Click in **Frame 20** of the **animSymbol** layer and drag down to **Frame 20** of the **background** layer. This will select the range of frames between the layers.

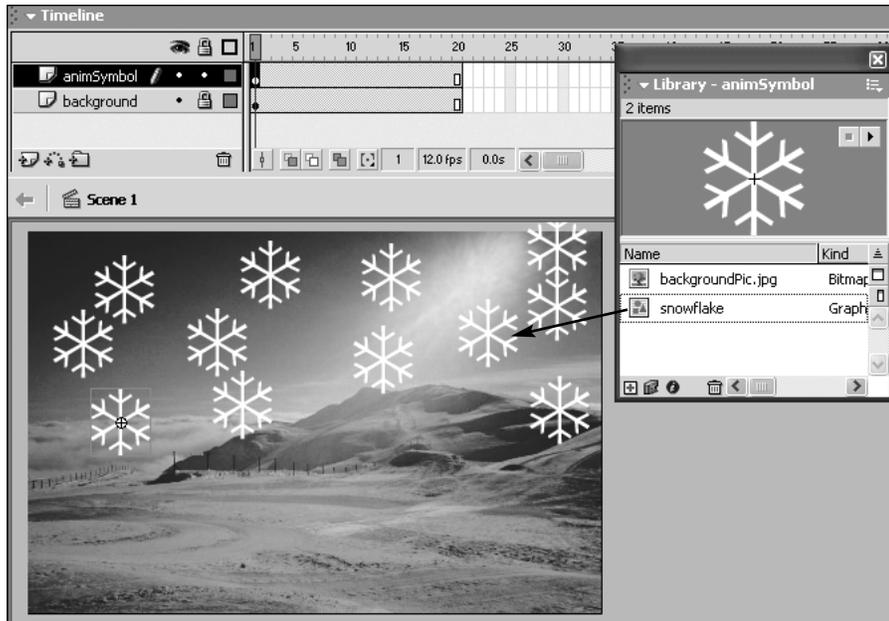
20. Press **F5** to insert frames and extend the Timeline of both layers to 20 frames in length. Now the Main Timeline is at least as long as the Timeline of the animated Graphic symbol, which means that you will see the entire animation play. Your snowflake is about to animate!

***Note:** You just extended both layers so that the content of these layers is displayed for the same length of time. For example, extending just the animSymbol layer would cause the background layer to disappear when the Playhead reached Frame 2. Extending both layers to Frame 20 ensures that all of the layers are displayed for the same length of time.*

21. Choose **Control > Test Movie** once again to preview your movie. There you go: an animating snowflake. However, in order to have the effect of snow falling, you need to add more instances to your Stage. You will do this next.

22. Close the Preview Window.

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23. On the **Main Timeline**, drag 11 more instances of the animated **snowflake** symbol onto the **Stage**, to make a total of 12 snowflakes on the **Stage**.

24. Choose **Control > Test Movie**. This will open a new window with a preview of your movie.

Notice that the snowflakes are all falling in unison, which doesn't look very realistic. The following steps will show you how to change the starting frames of each animated Graphic symbol to create a more natural-looking snowfall.

25. Close the Preview Window.

26. Click to select a **snowflake** on the **Stage**.



27. Enter any number between **1** and **20** in the **First** field, in the middle of the **Property Inspector**. This field sets the frame on which the animation begins. Since this animation has a total of 20 frames, you must select a number between 1 and 20.



28. Repeat this process for all of the snowflakes on your Stage, entering a different **First** value for each one. By changing the starting frame of each animation, you will change the starting point of each animation, and that will produce a more realistic snowfall effect.

29. Choose **Control > Test Movie** to preview your movie. It's snowing! You can go ahead and close the Preview Window.

Could you have achieved this same effect using a different method? The answer is yes. In Macromedia Flash MX, it is often possible to produce the same effect in a number of different ways. However, some ways are more efficient than others. The above example outlines an efficient way of using one symbol to create several instances that look and behave very differently. You could have created and animated each of the snowflakes separately to produce the same effect, but that would have been so much more work.

30. Save the changes you made to this file and close it.

NOTE | Looping

You might have noticed that the 20-frame animation of the falling snowflakes played over and over again when you tested the movie. This type of behavior is called a **loop**, which is an animation sequence that repeats over and over. Macromedia Flash MX defaults to looping whatever is on the Stage, unless you tell it not to through the use of ActionScript. You will learn about ActionScript in Chapter 11, "ActionScripting Basics."

You made it! Congratulations! By now, you should feel a lot more comfortable working with symbols and instances, and you should understand the role they can play in your projects. But you aren't finished yet. Future chapters on Buttons and Movie Clips will continue this learning process. So don't stop now—you are just getting to the good stuff.