

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

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# 3.

## Drawing and Color Tools

Drawing Tools Explained	Modifying Strokes and Fills
Working with Multiple Objects	Grouping Objects
Creating Gradients	Color Mixer Panel
Drawing with the Pen Tool	Modifying Paths

chap\_03

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Macromedia Flash MX  
H•O•T CD-ROM

When most people think of Macromedia Flash, they think of one thing: animation. What many people don't know is that the program comes complete with a good set of drawing and color tools that can help you create artwork for making cool and interactive animations.








It's also possible to bring existing artwork into the program from other illustration programs such as Freehand or Illustrator. Chapter 18 "*Integration*," covers how to do this. For some types of artwork, however, you will find it is more convenient to draw right within the program. This chapter introduces you to the distinct characteristics and idiosyncrasies of the native drawing and color tools within Macromedia Flash MX.

## Drawing Tools Explained

The drawing tools in Macromedia Flash MX are very powerful, but they can seem somewhat complex as you try to understand their individual behaviors. Here's a handy chart to use for reference. Don't feel compelled to read through everything here if you want to jump into the exercises right away. The keyboard shortcuts for the tools are given in parentheses after the tool name in the chart below and also inside the project file when you move your mouse over a tool in the Toolbox.




Drawing Tools		
Icon	Name	What Does It Do?
	Line (N)	The Line tool creates straight lines. Holding down the Shift key with this tool will constrain the lines to 45-degree angles. The lines drawn with the Line tool can be modified with the Ink Bottle tool and/or by using the Property Inspector panel.
	Lasso (L)	The Lasso tool allows you to select artwork or even a specific area of that artwork by drawing a freehand or straight selection around it.
	Pen (P)	The Pen tool creates straight or curved lines. The Pen tool is the only Macromedia Flash MX drawing tool capable of creating Bézier curves.
	Text (T)	The Text tool allows you to add text or text fields to your movie. The text or text field can be modified using the Property Inspector panel. You will learn all about the Text tool in Chapter 12, "Working with Text"
	Oval (O)	The Oval tool creates circles and ovals composed of fills and strokes, just fills, or just strokes. Holding down the Shift key while using this tool will allow you to create perfect circles.
	Rectangle (R)	The Rectangle tool creates rectangles and squares composed of strokes and fills, just strokes, or just fills. Holding down the Shift key while using this tool will allow you to create perfect squares.
	Pencil (Y)	The Pencil tool creates lines in one of three different modes: Straighten, Smooth, and Ink. Holding down the Shift key while using this tool will enable you to create perfect horizontal and vertical lines.

*continues on next page*

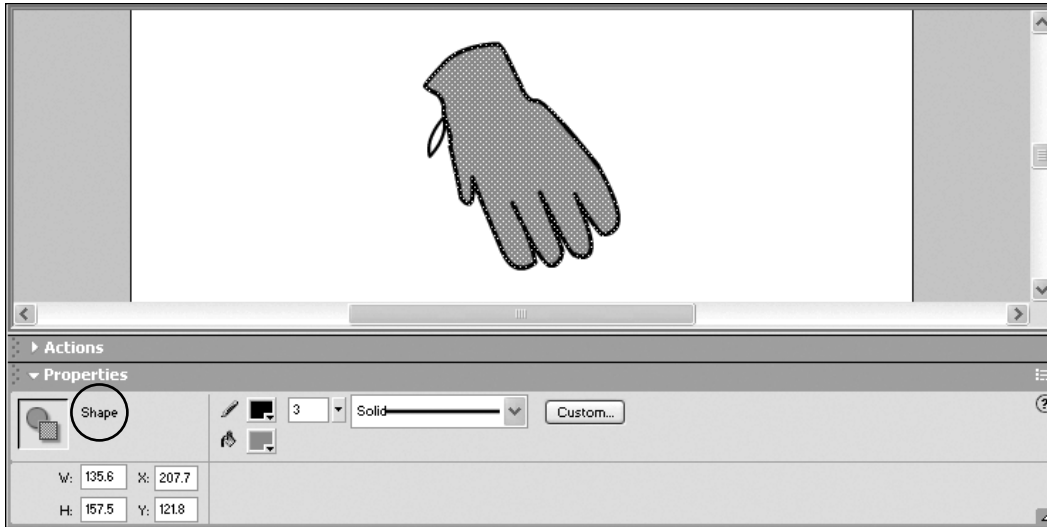
<b>Drawing Tools</b> <i>continued</i>		
<b>Icon</b>	<b>Name</b>	<b>What Does It Do?</b>
	<b>Brush (B)</b>	The Brush tool creates shapes with fills only. You can adjust the size and style of the brush by adjusting the tool options in the Toolbox or by using the Property Inspector. As with the Pencil tool, holding down the Shift key while using this tool enables you to create perfect horizontal and vertical lines.
	<b>Free Transform (Q)</b>	The Free Transform tool allows you to modify objects. You can use this tool to scale, rotate, flip, skew, or even change the center point of an object. Use the Shift key to maintain the aspect ratio while modifying the object.
	<b>Fill Transform (F)</b>	The Fill Transform tool allows you to change the size, direction, or center of a gradient or bitmap fill.
	<b>Ink Bottle (S)</b>	The Ink Bottle tool can be used to change the color or width of a line or to add a stroke to a shape. The Ink Bottle will not change the fill of a shape.
	<b>Paint Bucket (K)</b>	Use the Paint Bucket tool to add a fill inside a shape or to change the color of a fill. The Paint Bucket will never change the stroke of a shape.
	<b>Eyedropper (I)</b>	The Eyedropper tool can be used to copy the fill or stroke attributes of one object and then apply them to another object. This tool is especially useful when you want to copy the exact color of one object to another object.
	<b>Eraser (E)</b>	The Eraser tool can be used to remove any unwanted image areas on the Stage. Holding down the Shift key permits you to erase in perfect horizontal and vertical lines.

## Lines, Strokes, and Fills Explained

In addition to learning how each of the drawing tools behave, you need to know the difference between **fills**, **strokes**, **lines**, and **shapes**. These differences can be understandably confusing because the interface refers to both lines and strokes. The chart below gives an example and brief explanation of each.

Lines, Strokes, and Fills		
Lines and Strokes		<p>Lines are created with the Pencil, Pen, and Line tools. Strokes are the outlines that are created using the Rectangle and Oval tools. It is important to note that these terms are used interchangeably in the Macromedia documentation. We will also use both of these terms, since they both can be modified using the same tools. Lines and strokes are independent of any fills, and they are modified using the Ink Bottle, the Color and Tool Modifiers in the Toolbox, the Color Mixer panel, or using the Stroke Color in the Property Inspector.</p>
Fills		<p>Fills are created using the Brush, Paint Bucket, Rectangle and Oval tools. Fills can be created with or without strokes around them. They are modified using the Paint Bucket, the Color and Tool Modifiers in the Toolbox, the Color Mixer panel, or using the Property Inspector.</p>
Strokes, Lines, Fills, and Shapes		<p>Strokes and lines can be attached to fills, as in the pictures on the left, or they can be by themselves, as in the images in the top row. Strokes and lines are added to fills with the Ink Bottle and are modified using the Ink Bottle, the Color and Tool Modifiers in the Toolbox, the Color Mixer panel, or using the Property Inspector. Macromedia Flash MX refers to strokes, lines, fills, or a combination thereof as "shapes" when you select the artwork and view the selection in the Property Inspector.</p>

### 3. Drawing and Color Tools | Macromedia Flash MX H•O•T



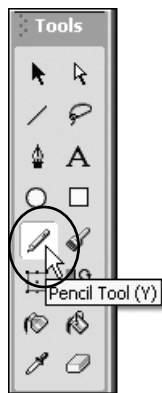
*When you select a line, a stroke, a fill, or a combination thereof, the Property Inspector displays the word "Shape." This is how Macromedia Flash MX collectively refers to lines, strokes, and fills.*

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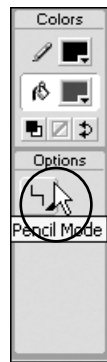
## I. Drawing with the Pencil Tool

The **Pencil tool** is one of the easiest drawing tools to use. It behaves much as you would expect a pencil to behave, drawing a line whenever you click and drag the mouse. By selecting one of the three modes (**Straighten**, **Smooth**, or **Ink**), you can control how the lines are created. In this exercise, you will draw a circle using each of the three modes, so you can better understand how each one works.

1. Copy the **chap\_03** folder from the Macromedia Flash MX H•O•T CD-ROM to your hard drive. You must copy the files to your hard drive if you want to save changes to them.
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2. Open the **pencil.fla** file from the **chap\_03** folder. This is just a blank file with the Stage dimensions set to 400 × 200 pixels. This should be enough space for you to draw some shapes.
- 



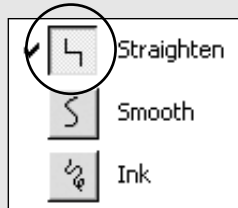
*The Pencil tool*



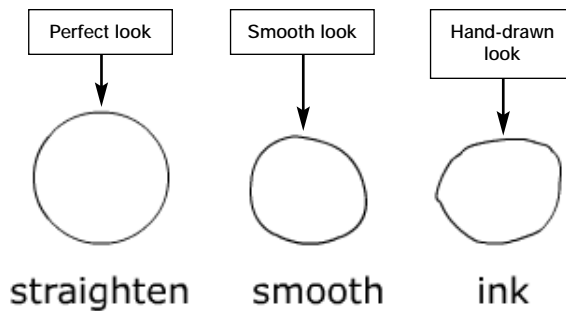
*The Pencil Mode button appears at the bottom of the Toolbox when the Pencil tool is selected*

3. Select the **Pencil tool** from the **Toolbox**. By default, the Pencil tool is in **Straighten** mode. Tip: If you leave your mouse over the tool long enough, a small **ToolTip** will appear, with the keyboard shortcut for that tool in parentheses.
-

**NOTE | About the Pencil Modes**



In Macromedia Flash MX, the Pencil tool works much the same as the pencil tools in other graphics programs. There are, however, some special drawing modes that can help you control the line's appearance: Straighten, Smooth, and Ink. For example, drawing a perfect circle might be really difficult for some of you (especially after that morning coffee!), but with Straighten mode, it's much easier to create perfect geometric circles.

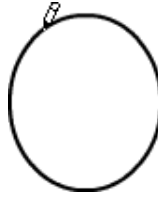


*This example shows the result of a circle drawn with the Pencil tool, using each of the three modes.*





*The circle as you draw in Straighten mode*



*The circle when you release the mouse button*

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4. On the **Stage**, click and drag with the **Pencil** tool to create a circle. Release the mouse button when you are finished. Notice that the shape snaps to a perfect circle when you release the mouse button. This is the effect of the Straighten mode as it tries to guess what shape you are trying to create.

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5. In the **Toolbox**, click the **Pencil Mode** drop-down menu and select **Smooth**. This changes the mode of the Pencil tool to Smooth.

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*The circle as you draw in Smooth mode*



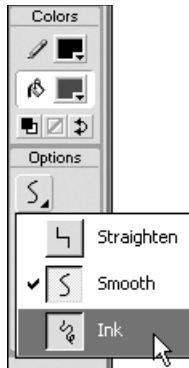
*The circle when you release the mouse button*

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6. Using the **Pencil** tool, draw another circle next to the one you just created. When you release the mouse button, notice that the circle gets smoother, but that the change is less significant than when you used Straighten mode.

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### 3. Drawing and Color Tools | Macromedia Flash MX H•O•T



7. Click the **Pencil Mode** drop-down menu and select **Ink**. This changes the mode of the Pencil tool to Ink.

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*The circle as you draw in Ink mode*



*The circle when you release the mouse button*

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8. Using the **Pencil** tool, draw a third circle next to the one you just created. When you release the mouse button, notice that there is very little change in the circle.

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9. Enough circles already. Go ahead and try drawing other simple shapes, such as squares, triangles, polygons, etc., with each of the different Pencil modes. This will give you an even better idea of how each of them works and how they can help you create artwork in Macromedia Flash MX.

*Tip: If you want to clear the Stage area for more experimenting, press **Ctrl+A** (Windows) or **Cmd+A** (Mac) to select everything on the Stage. Then press the **Delete** key to delete the contents of the Stage.*

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10. When you are done playing with the Pencil tool, save and close this file—you won't be needing it again.

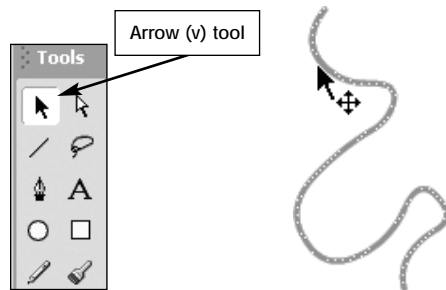
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## 2. Modifying Lines

Now that you know how to use the Pencil tool, you need to know how to make changes to the lines you create. In this exercise, you will learn how to use the **Property Inspector** as well as the **Ink Bottle** to modify the appearance of lines. Both of these tools let you change an object either by adding a line or by modifying the existing line. In addition, you will learn some of the nuances involved in selecting lines and the reason why you would use the Ink Bottle versus the Property Inspector.

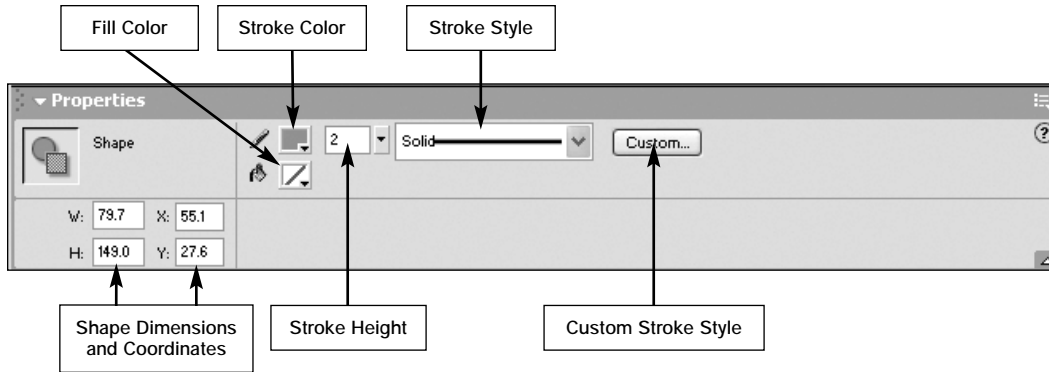


1. Open the **strokes.fla** file from the **chap\_03** folder. This file contains some shapes created with lines and fills. You will use these shapes to learn to modify lines and add strokes to shapes.



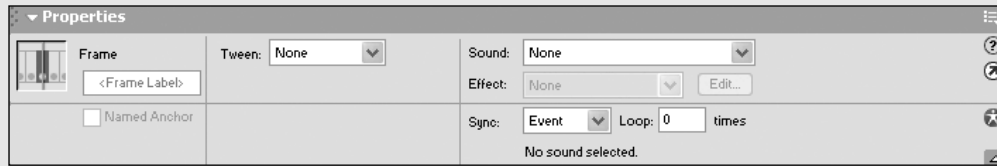
2. Select the **Arrow** tool from the **Toolbox**, and then click on the squiggle drawing to select it. The line gets a bit thicker, and a dotted pattern appears over it, indicating that the line is selected.

3. Drawing and Color Tools | Macromedia Flash MX H•O•T



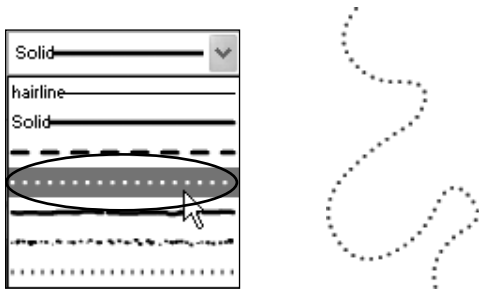
3. Make sure the **Property Inspector** is visible. If it's not, choose **Window > Properties** to make it visible. You must first select a line if you are going to use the Property Inspector to modify the stroke settings.

**NOTE | The Property Inspector**



One panel that you will become quite familiar with throughout this book is the Property Inspector. It is new to Macromedia Flash MX and is a great addition because it displays and allows you to change features associated with whatever is currently selected, including text, symbols, video, frames, and even tools. The Property Inspector appears in the interface just under the Actions panel below the Stage.

The beauty of the Property Inspector is that this panel allows you to make many different types of changes to the current selection from one easy-to-use panel.

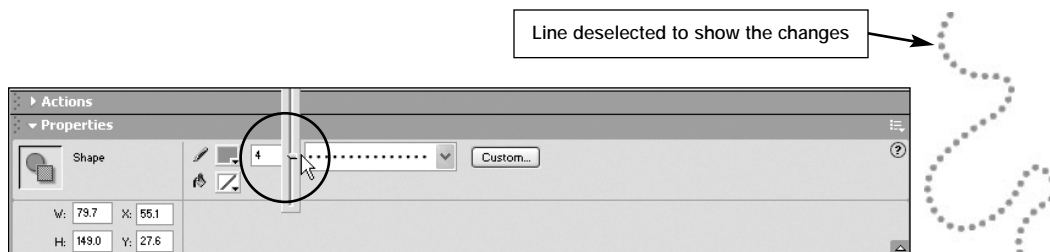


4. With the line still selected, click to see the **Stroke Style** drop-down menu. Select the fourth style from the top, the dotted line style, to change the style of the line from a solid line to a dotted line. Deselect the line by clicking on a blank area of the Stage to clearly see the changes.

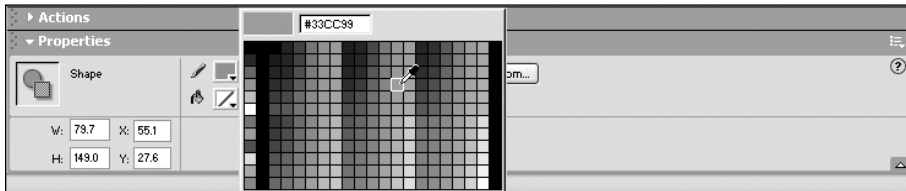
*You can use the Property Inspector as an easy way to modify artwork you select on the Stage. When you have a line selected, the Property Inspector displays the current settings for that line. This is helpful when you need to know what the line settings are for a particular object. The default stroke settings are for a 1-point, solid black line.*

#### TIP | Hiding Selections

When lines are selected, it can be very difficult to see the changes you've made. Press **Ctrl+H** (Windows) or **Cmd+H** (Mac) to temporarily hide the selection mesh so you can see the changes better. Press the keyboard shortcut again to see the selection mesh.

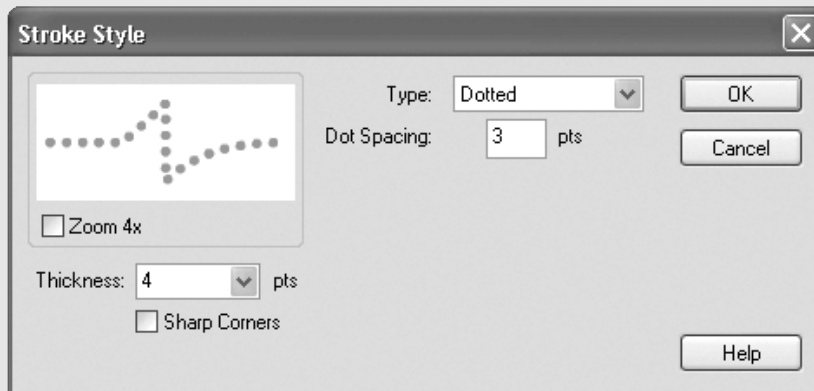


5. Make sure the line is selected on the **Stage** and, in the **Property Inspector**, click on the arrow next to the **Stroke Height** to reveal the slider. Click and drag up on the slider until you reach a setting of 4. This increases the thickness of the line. The total range of choices is from 0.25 to 10. Deselect the line by clicking on a blank area of the Stage to clearly see the changes.



6. Select the line on the **Stage** again, and from the **Stroke Color** box in the **Property Inspector**, click and select another color. As you can probably guess, this will change the color of the line. Deselect the line by clicking on a blank area of the Stage to clearly see the changes.

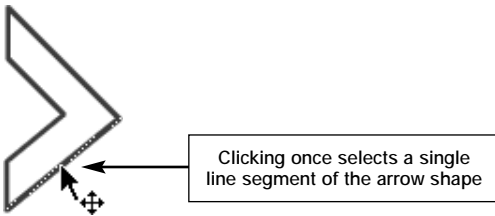
#### TIP | Creating Custom Line Styles



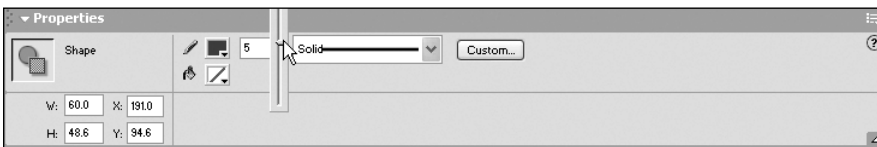
You might be wondering at this point if you can create your own custom line styles. Yes, you can. With the line selected on the Stage, click the box named **Custom** in the **Property Inspector** panel. This opens the Stroke Style dialog box, where you can create your own line style using a number of different options. The changes you make to the settings here are temporary, and they will return to their default settings once you quit the program.



7. Using the **Arrow** tool, move the cursor over the bottom line of the arrow shape in the middle of the Stage. (Don't click just yet.) Notice that as you move the cursor over the line, a small, curved line appears next to the Arrow tool. This indicates that you are over a line, not a fill.



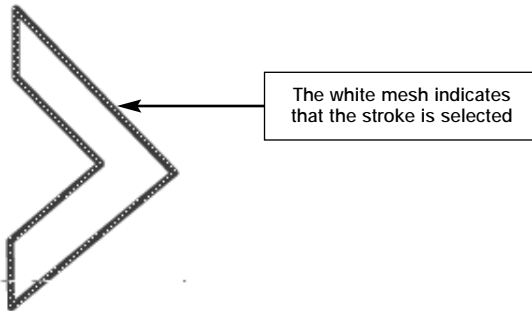
8. Using the **Arrow** tool, click on the right lower line segment. Notice that a white selection mesh appears over that line segment only.



9. In the **Property Inspector**, use the **Stroke Height** slider to change the line width to 5. Notice that only the one selected line segment is changed. In order for a line to be modified, it must be selected before you change the settings in the Stroke panel, and in this case, only one of the six lines of this arrow shape was selected.

10. With the line still selected, change the line width back to **2.75**, the line's original width.

*If you know the exact value you want to use, you can change the width of a line by entering a specific numeric value in the small box to the left of the slider.*



11. Click away from the line to deselect it. Double-click on any part of the object and the entire shape will become selected. This shortcut is essential when you need to select entire shapes that are composed of multisegmented lines.

**TIP | Selecting Lines in Macromedia Flash MX**

Unlike other drawing programs, Macromedia Flash MX breaks lines with hard angles into separate line objects. For example, clicking on the bottom line of the arrow shape selects only the bottom portion of the shape. That's because the shape has six hard angles, which have created six separate lines for this object. Double-clicking on one of the lines will select the entire arrow shape.

12. In the **Property Inspector**, change the style, width, and color of the selected lines. You can choose any settings you like—the point here is to become more comfortable with selecting line styles and changing line preferences using the Property Inspector.

*Now you know how to modify an existing line using the Property Inspector, but what do you do when your object doesn't have a line? You add one using the Ink Bottle tool. You will learn how to do this in the following steps.*





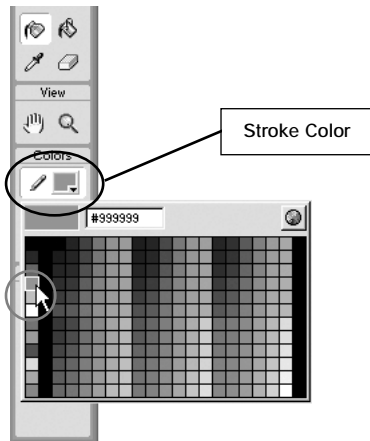
**13.** In the **Toolbox**, click to select the **Ink Bottle** tool. The Ink Bottle lets you either add a stroke around a fill object that has no stroke or make changes to the color, width, and texture of existing lines.

*Once you select the Ink Bottle tool, you can set the stroke color using the Property Inspector or the Stroke Color options in the Toolbox. Since you have used the Property Inspector quite a bit in this exercise, you will have a chance to use the Toolbox color settings next.*

#### **NOTE | Property Inspector or Toolbox?**

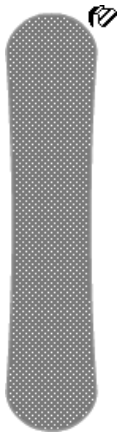
In Macromedia Flash MX there are often several ways to access and work with the same tools. There is not one *right* way. However, you may find that using the Property Inspector will streamline your workflow, since it gives you quick access to the attributes of the object or tool selected, all in one panel.

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14. In the **Toolbox**, click the **Stroke Color** icon, and in the **color palette** that pops up, choose a light gray color.

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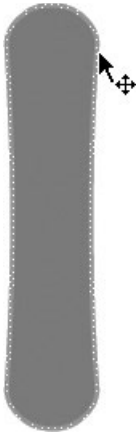


15. Using the **Ink Bottle**, click on the outer edge of the snowboard shape. This adds a stroke to the outside of the shape.

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#### **NOTE | The Ink Bottle**

The Ink Bottle serves several very important purposes. First, it lets you add a stroke to an object, as you just did in step 15. Second, by Shift+clicking on multiple objects, you can use it to modify the line settings for those objects all at once, rather than having to select each object and change its settings individually. This can save you a lot of time when you have several lines to add or modify.



**16.** Using the **Arrow** tool, double-click to select the stroke around the snowboard shape. The gray selection mesh will appear to confirm that you have selected the stroke. Press the **Delete** key. This will remove the selected stroke. Now you know how to add strokes to objects and remove them in Macromedia Flash MX.

**NOTE | Complex Artwork**



Complex artwork  
with many lines

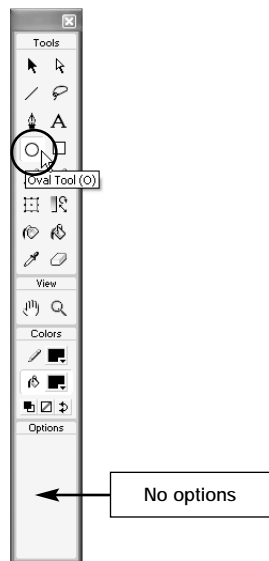
Objects with a lot of complexity add to the file size of your final movie. For this reason, use complex artwork sparingly, if your design allows.

**17.** Save and close this file—you won't be needing it again.

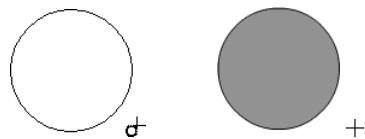
### 3. Using the Oval and Rectangle Tools

The Pencil and Pen tools can be really useful for creating irregular shapes. Sometimes, however, those tools can become somewhat tedious or inefficient for creating simple geometric shapes, such as circles and squares. The **Oval tool** and **Rectangle tool** are good for creating simple shapes, with lines and/or fills that are independent of each other, quickly and effortlessly. In this exercise, you will learn how to use these tools.

1. Open the **shapes.fla** file located inside the **chap\_03** folder. This is nothing more than a blank file that has been created for you.



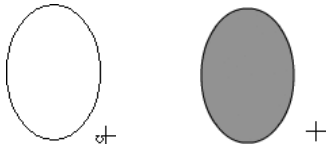
2. In the **Toolbox**, select the **Oval tool**. At the bottom of the **Toolbox**, notice that there are no options for this tool.



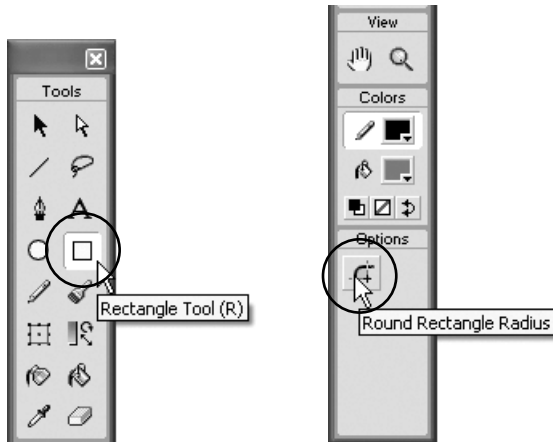
3. Press and hold down the **Shift** key. On the **Stage**, click and then drag the crosshair cursor to the lower right corner with the **Shift** key held down. As you do this, a large, thick circle will appear next to the crosshair. This indicates that you are drawing a perfect circle. Release the mouse button to draw the circle. Notice that Macromedia Flash MX uses the current fill and stroke colors to create the circle.

**TIP | Easy Perfect Shapes**

When you are using the Oval or Rectangle tools, holding the Shift key down while you draw the shapes will force the tool to draw only perfect circles or squares.

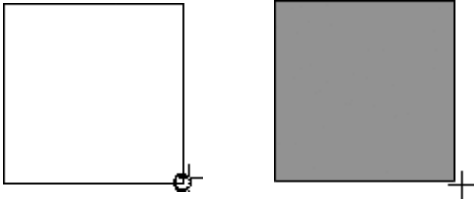


4. Draw another circle, this time in the shape of an oval, but do not use the Shift key. Notice that the small circle around the crosshair is smaller and thinner. This indicates that you are drawing an oval, not a perfect circle.



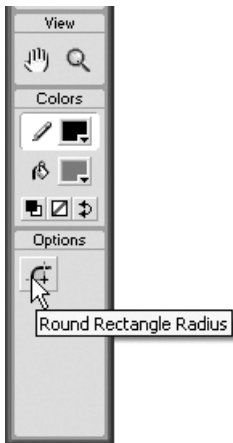
5. In the **Toolbox**, select the **Rectangle** tool. At the bottom of the Toolbox, notice that there is one option for this tool. You'll learn about this option in a bit.

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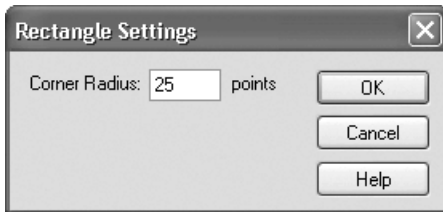
6. Hold down the **Shift** key and click and drag toward the lower right corner of the **Stage**. As you do this, a rectangle preview will appear. Notice the “perfect shape” indicator. It’s the same as the one you saw on the Oval tool. In this instance, it indicates that you are drawing a perfect square. Release the mouse button to create the shape. Again, Macromedia Flash MX uses the selected fill and line colors.

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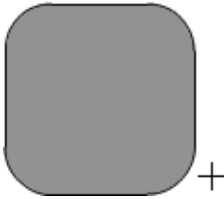
7. At the bottom of the **Toolbox**, click the **Round Rectangle Radius** button. This opens the **Rectangle Settings** dialog box.

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8. Enter 25 for the **Corner Radius** setting. Click **OK**. This will add rounded corners with a 25-point radius to the next rectangle you draw.

*Tip: You can enter any value between 0 and 999.*



9. Using the **Rectangle** tool, draw another rectangle on the Stage. Notice that the corners of the rectangle are rounded now. Sweet.

#### TIP | **Round Before You Draw**

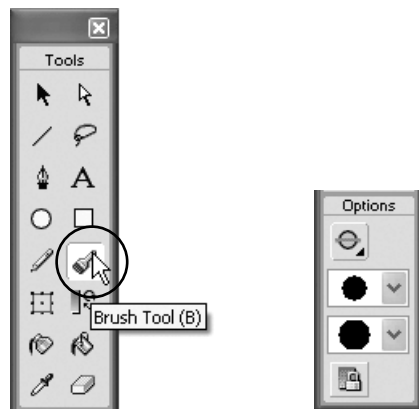
You can't use the Round Rectangle Radius option to round the corners of a rectangle you have already drawn. So creating rounded rectangles does require some forethought. However, you can adjust the points *as you draw* the rectangle. Pressing the Up Arrow key as you draw will decrease the corner radius points, while pressing the Down Arrow key will increase the corner radius points. This is a very cool little shortcut.

10. Save and close this file; you won't be using it anymore.

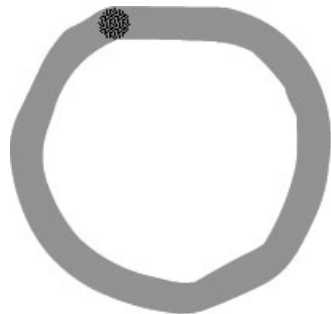
## 4. Using the Brush Tool

The **Brush tool** is used to paint shapes. You can create shapes with solid colors, gradients, and even bitmaps as fills. The Brush tool has several painting modes that are unique to Macromedia Flash MX, such as **Paint Fills**, **Paint Selections**, **Paint Behind**, and **Paint Inside**. These modes are covered in detail in the **brushmodes.mov** movie mentioned at the end of this exercise. For now, you will learn to use the Brush tool to create and modify shapes.

1. Open the **paint.fla** file located inside the **chap\_03** folder. Once again, this is just a blank file that has been saved for you.

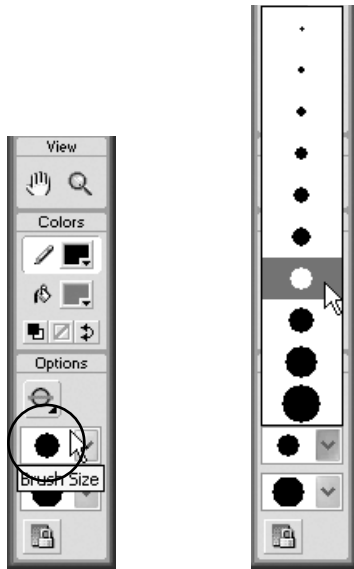


2. In the **Toolbox**, click to select the **Brush** tool. Notice that there are several options for this tool. You will learn about these options as you complete this exercise.



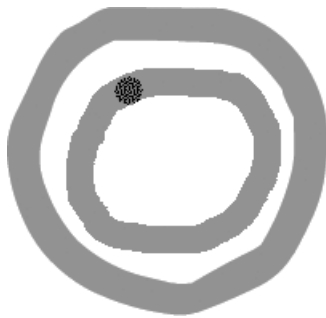
3. On the **Stage**, draw a circle with the **Brush**. Notice that it uses the fill color for this shape, rather than the stroke color. The Brush tool always uses the fill color, as the kind of shape it creates is considered a fill, not a stroke.





4. At the bottom of the **Toolbox**, click on the **Brush Size** pop-up menu. Select the fourth size from the bottom. This will decrease the size of the next fill that you draw.

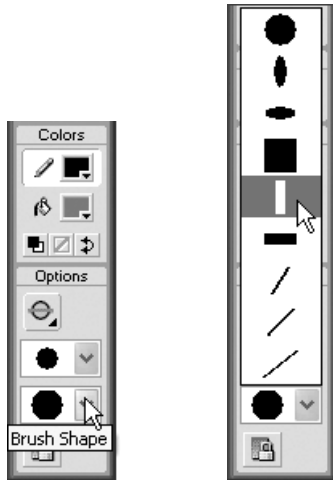
---



5. Draw a smaller circle inside the large one. Notice that the smaller brush size creates a fill shape that is narrower than the first one.

---

### 3. Drawing and Color Tools | Macromedia Flash MX H•O•T



6. At the bottom of the **Toolbox**, click on the **Brush Shape** pop-up menu. Select the fifth shape from the bottom. This will change the shape of the next fill that you draw.

---



7. Draw another circle on the **Stage**. Notice that it uses the new shape to create the circle. You can produce some pretty cool calligraphy effects using these shapes.

---

**TIP | Using Tablets**

Macromedia Flash MX offers support for most pressure-sensitive graphics tablets. Using a tablet can help you create natural-looking shapes that have a hand-drawn look. As you increase pressure on the tablet, the width of the shape will increase, whereas less pressure will create a thinner shape.

8. Go ahead and experiment with the other brush shapes and sizes. If you have a graphics tablet, you might want to use it.

**TIP | Adding Lines to Brush Shapes**

Because the Brush tool creates shapes that are fills, you can use the Ink Bottle to easily add a stroke to the shapes you create with the Brush.

9. When you are done experimenting with the Brush, save and close this file—you won't need it again.



**MOVIE | Brush Modes**

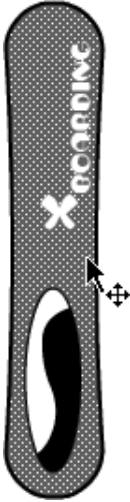
If you want to learn about the different Brush modes in Macromedia Flash MX, be sure to check out the `brushmodes.mov` movie, located inside the `movies` folder on the **H•O•T CD-ROM**.

## 5. Modifying Strokes and Fills

There are several ways to change the fill of a shape. You can specify the fill color before you create the shape, or you can use the **Paint Bucket** to fill uncolored areas of a shape or to change an existing fill color. The Paint Bucket can also be used to modify bitmap and gradient fills. In addition, the Color Mixer panel lets you create solid, gradient, and bitmap fills, which you can then apply to the shapes you create. In this exercise, you will learn how to use the Paint Bucket tool and the Fill color palette to modify the fill of a shape.

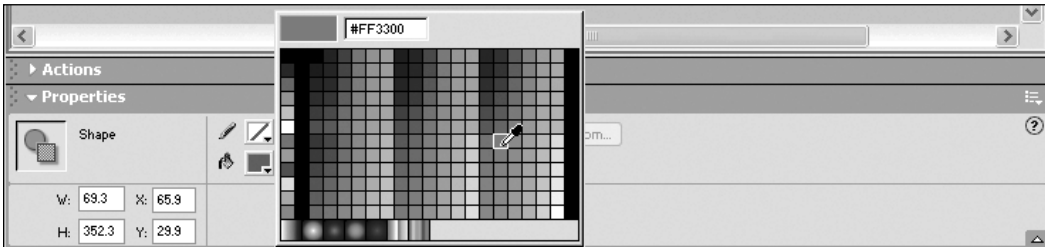


1. Open the `modifyFills.fla` file located inside the `chap_03` folder. This file contains a vector graphic of a snowboard.
-



2. Using the **Arrow** tool, select the blue background of the snowboard. When an object is selected, a white dotted selection mesh will appear over it. In this case, it's the background color of the snowboard.

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

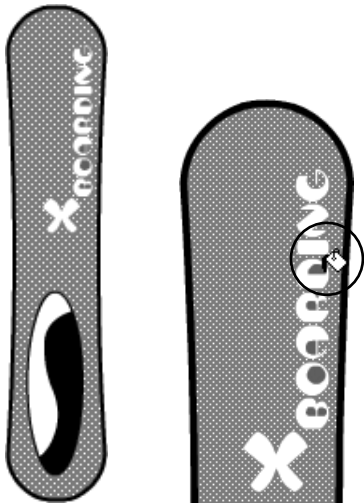


4. In the **Property Inspector**, click on the **Fill Color** box and select a shade of red you like from the Fill color palette. This changes the background color of the snowboard to red.

*Notice that some areas of the snowboard are still blue, like the insides of the letters. You will fix this next.*

**NOTE | Why Didn't Everything Turn to the Color I Selected?**

Macromedia Flash MX treats shapes that are one continuous color as one shape. Each time a new color appears, that is a new shape, which means it must be modified individually. In step 4 of this exercise, the middle parts of the letters were treated as separate shapes because they were surrounded by white. You will learn how to quickly fill these remaining blue shapes next.



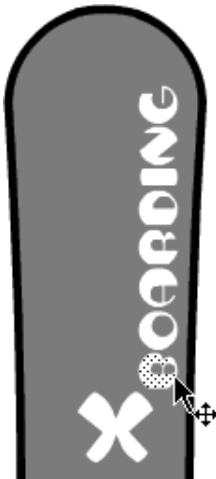
5. In the **Toolbox**, select the **Paint Bucket** tool and click on each of the blue shapes inside the letters to change the color to match the red background color you selected.

*Unlike the Property Inspector method, you do not need to select the artwork before you color it with the Paint Bucket tool. If you are having trouble clicking on the small blue regions inside the type, you may want to use the zoom feature. You can use the shortcut keys to zoom in and out by pressing **Ctrl+plus** or **Ctrl+hyphen** (Windows) or **Cmd+plus** or **Cmd+hyphen** (Mac) on the keyboard.*

***Tip:** As a safeguard, you can always press **Ctrl+Z** (Windows) or **Cmd+Z** (Mac) to undo any mistakes you make.*

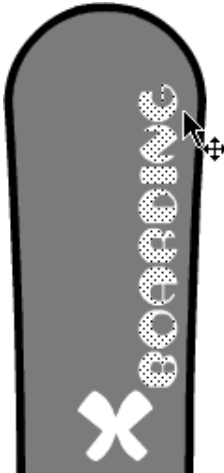
**TIP | Applying Fills**

Using the Fill Color box in the Property Inspector and using the Paint Bucket in the Toolbox are two ways to change the solid fill of an object. Either method will yield the same results; although using the Property Inspector can help speed up your workflow, since you can change and access many features of the selected object using only one panel. It is important to note that you must have the object selected first if you want to change the fill using Property Inspector. However, you can Shift+click to select multiple objects and change them all at once; this is a great way to make several changes quickly.



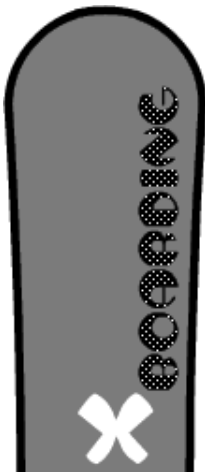
**6.** In the **Toolbox**, select the **Arrow** tool and click on the letter **B** on the snowboard. A black dotted mesh will appear indicating the area you have selected.

*Rather than fill one letter at a time, you will fill all the letters at once next.*



7. Shift+click on each of the remaining letters in the word **boarding** so that all the letters are selected at one time. If you make a mistake and want to start over, you can press the **Esc** key, which will clear all selections.

---

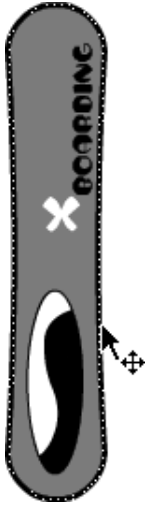


8. In the **Property Inspector**, choose a new color for the letters by selecting the **Fill Color** box and selecting a new color from the Fill color palette. All the letters will change to the new color you selected!

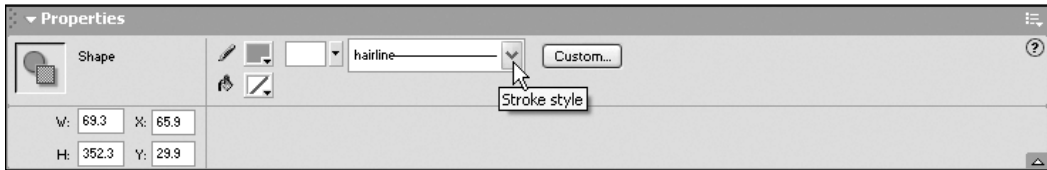
*Up to this point, you have been modifying the fills on the snowboard shape. You will modify the strokes on the snowboard shape next.*

---

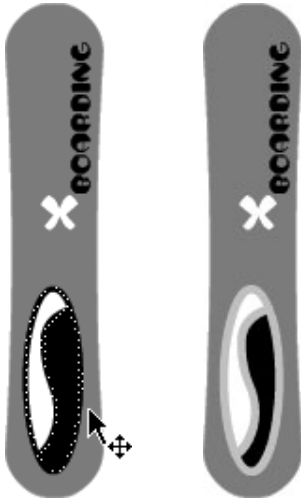




9. Using the **Arrow** tool, double-click to select the entire outline of the snowboard.



10. Using the **Property Inspector**, choose a new **stroke color** and **stroke style** for the outline of the snowboard. Pretty quick and easy, huh?



11. Using the **Arrow** tool, double-click on the outline of the yin and yang design on the snowboard to select the entire outline of the design. Back in the **Property Inspector**, choose a new **stroke color** and **stroke height** for the outline of the design. This snowboard has come a long way since you started this exercise!

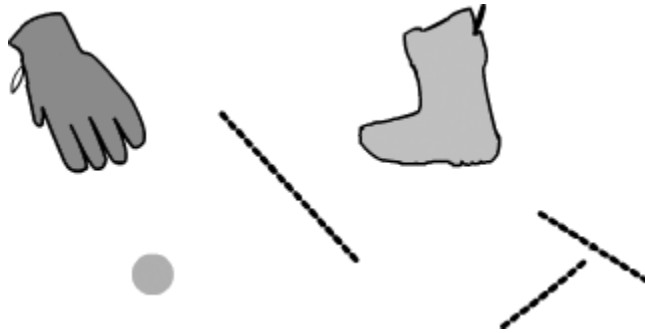
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12. Save and close this file—you won't need it again.

---

## 6. Working with Multiple Objects

By now you should have a pretty good idea of how to draw in Macromedia Flash MX. In this exercise, I want to point out some of the nuances involved in drawing, because Macromedia Flash MX behaves differently than most other drawing programs. You will learn how it handles multiple and overlapping objects and you will learn how to protect artwork from being unintentionally modified.



1. Open the **multiple.fla** file located inside the **chap\_03** folder. This file contains some simple shapes that you will use to understand the unique drawing behaviors of Macromedia Flash MX.



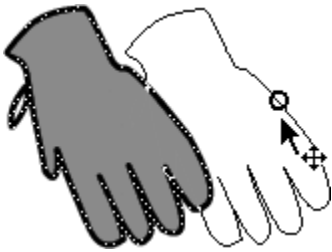
2. Select the **Arrow** tool, and then move the cursor over the line of the glove. Notice that a small curved line appears at the end of the cursor. This line indicates that you will select the line (rather than the fill) if you click.

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3. Double-click to select the entire line around the glove. A gray mesh will appear over the line once it has been selected. Shift+double-click on the black strap to select that also.

---



4. Click again on the line and drag to the right. This will pull the line off the glove. As I mentioned earlier, Macromedia Flash MX treats the line and fill as separate objects. Because of this, you can easily separate the two.

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5. Press **Delete** to permanently remove the line.

---



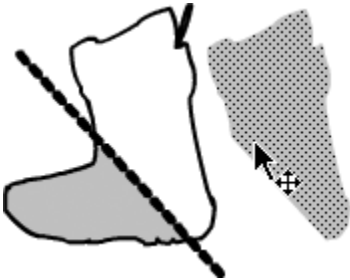
6. Move the cursor over the long line between the glove and the boot. Again, that little curve will appear at the bottom of the cursor. Click once to select the line.

---



7. Click again on the line and drag it over the boot.

---



8. Click in the right section of the boot and drag to the right. Notice how the line you dragged on top of the boot has cut the fill into different objects?

*Since the fill color of the boot is gray and the line is a different color (black), the line will cut the color beneath it into separate sections.*

---



9. Click on one of the lines to the right of the boot to select it.

---

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10. Click and drag that same line over so that it lies across the other line, then click in a blank area of the Stage to deselect the line.

---



11. Click to select the top right line segment.

---



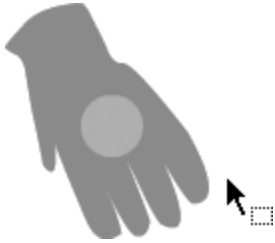
12. Click and drag to the right. Notice that the line was split into four segments simply by having two lines intersect. While this might seem somewhat counterintuitive, it's a great way to create interesting shapes in Macromedia Flash MX.

---



13. Click and drag the small light blue circle into the middle of the glove.

---



14. Click on any blank area of the Stage to deselect the circle.

---



15. Click and drag the small circle back to its original location. Notice that it has left a hole in the fill of the glove. **Note:** If this circle were exactly the same turquoise color as the glove, it would not have cut through the circle and made a hole. Instead, it would have combined with the glove into one shape.

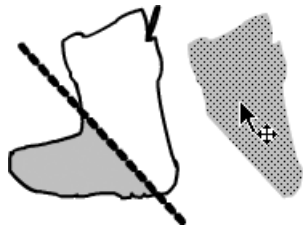
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16. Save your file, but leave it open; you'll need it for the next exercise.

---

## 7. Grouping Objects

Now that you have a good idea of how the drawing features behave in Macromedia Flash MX, this exercise will show you how to create shapes that overlap without cutting into or combining with one another. The following steps will also show you how to create a **grouped object**.



1. Using the **Arrow** tool, click to select the half of the boot you separated.
- 

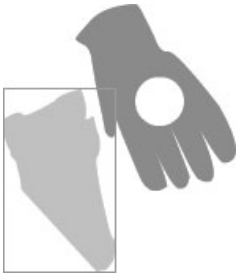


2. Choose **Modify > Group**. When you do this, a thin blue rectangle appears around the object, indicating that this is a grouped object, which protects it from intersecting with other objects on the Stage.
- 



3. Click and drag the gray half of the boot on top of the blue glove.
  4. Deselect the gray half of the boot by clicking on any blank area of the Stage.
-





5. Click and drag the gray half of the boot off of the blue glove. Nothing happens. Phew! As you can see, grouping objects, even single objects, is a quick way of protecting them from being affected by or affecting other objects.

---



6. With the gray half of the boot still selected, choose **Modify > Ungroup**. This will ungroup the selected object. You can tell that this has been done because the thin blue line goes away and the gray selection mesh returns, both telltale signs that this is a shape in its most primitive form.

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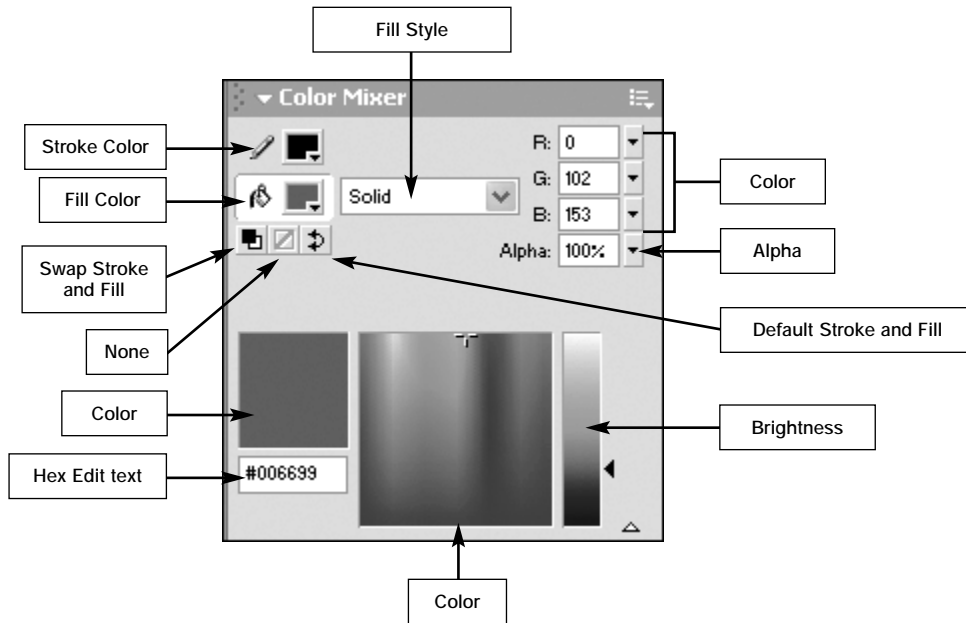
7. Now drag that ungrouped gray shape onto the blue glove, deselect it, and then drag it off again. Yikes! Look ma, no fingers! Grouping objects can be a quick and easy way to protect them from unwanted editing.

---

8. Save and close this file—you won't be needing it again.

---

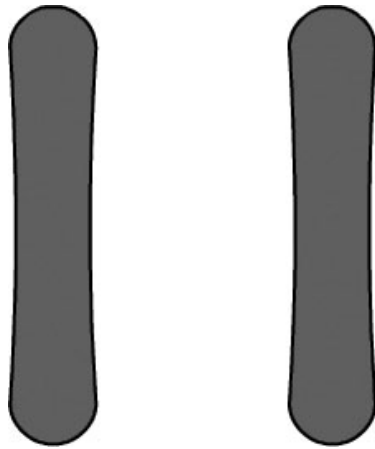
## What Is the Color Mixer Panel?



The **Color Mixer** panel gives you precise control over color, all in one panel. This panel is open by default; if you've closed it, you can access it again by choosing **Window > Color Mixer**. The following exercise will show you how to use the Color Mixer panel to create gradient fills.

## 8. Creating Gradients

**Gradients** can help you create lots of cool and interesting effects, such as glows and photorealistic spheres, which you will learn more about in Chapter 5, “*Shape Tweening*.” Macromedia Flash MX lets you create two types of gradient fills: **linear** and **radial**. In this exercise, you will learn how to use the Color Mixer and Color Swatches panels to create, apply, and change the color of a linear and radial gradient with some shapes in Macromedia Flash MX.

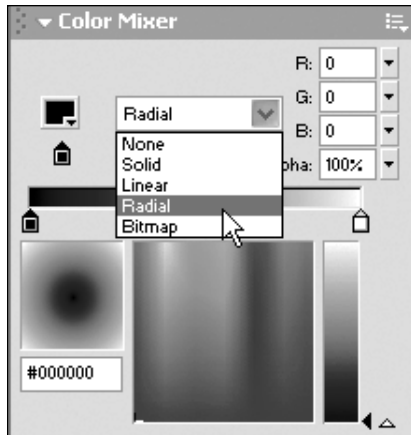


1. Open the **newGradient.fla** file in the **chap\_03** folder. This file contains two snowboards. You will be applying gradients to both of these shapes in this exercise.
- 



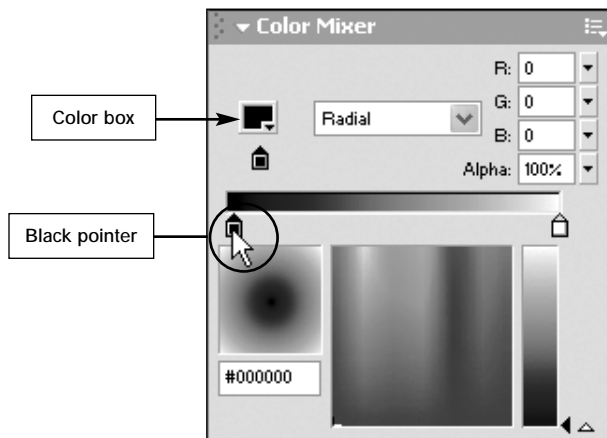
2. Using the **Arrow** tool, click the blue fill on the snowboard on the left to select it.
-

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3. Make sure the **Color Mixer** panel is open; if it is not, choose **Window > Color Mixer** to open it. Click the small down arrow to see the **Fill Style** drop-down menu. This menu displays the different types of available fills. Choose **Radial**. This fills the selected shape with a radial gradient, using black and white.

*Tip: A radial gradient radiates outward from the center.*



4. Click the **black pointer** in the **Color Mixer** panel. This selects the black color point of the gradient and causes the Fill Color box to display the color of the pointer. This box defines the fill color for the selected pointer.



5. Click the **Fill Color** box and select a shade of red from the palette. This changes the appearance of the radial gradient—instead of ranging from black to white, it ranges from red to white.

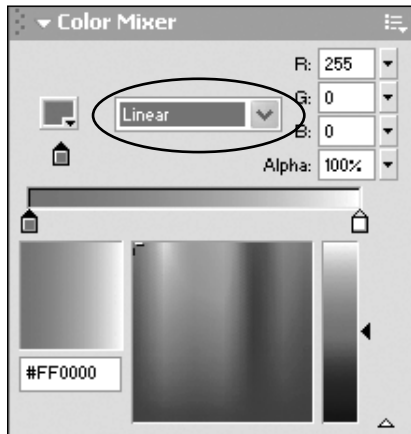
*You have just created your first custom gradient! Next you will make a linear gradient, in which the colors change horizontally or vertically.*

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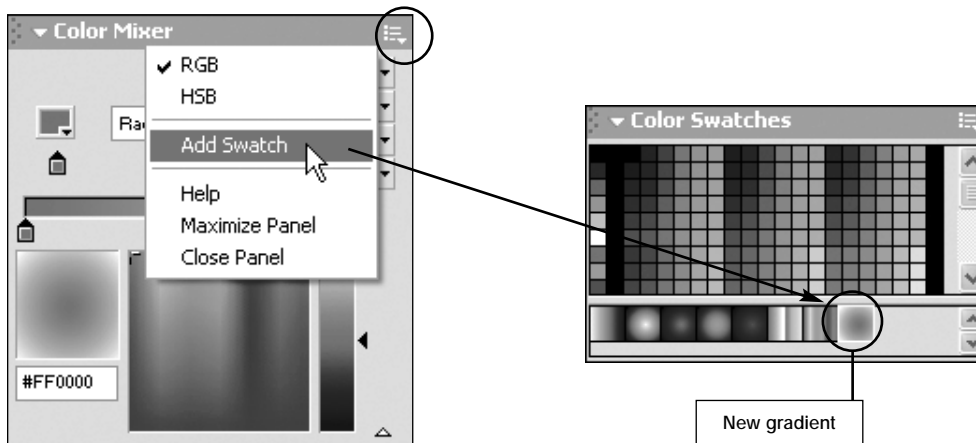
6. Using the **Arrow** tool, select the snowboard on the right side of the Stage.

---



7. In the **Color Mixer** panel, choose **Linear** from the **Fill Style** menu. This creates a linear gradient, using the same color you used for the previous gradient.

---



8. Click in the top right corner of the **Color Mixer** panel to reveal the **Color Mixer** pop-up menu, and choose **Add Swatch**. This saves the selected gradient in the **Color Swatches** panel so that you can access it easily. **Note:** Your **Color Swatches** panel should be open by default and located under the **Color Mixer** panel. If it is not, choose **Window > Color Swatches** to open that panel.

---

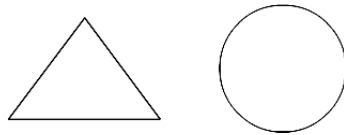
9. Save and close this file—you won't need it again.

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## 9. Drawing with the Pen Tool

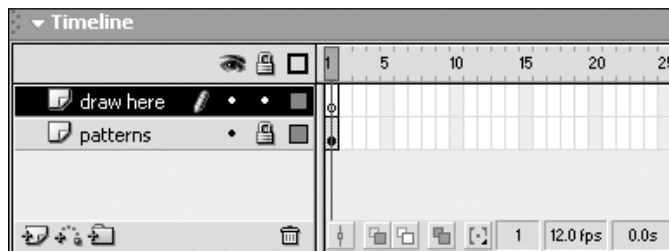
The **Pen tool** is found in many other vector graphics applications, including Macromedia Freehand and Adobe Illustrator. If you are familiar with how the tool works in those programs, you'll know how to use it in Macromedia Flash MX.

However, if you haven't used it before, the Pen tool can take a little getting used to and will require a good amount of practice before you become really comfortable with it. In this exercise, you will learn to use the Pen tool to draw a few basic geometric shapes. When you are finished with this exercise, you should be a bit more comfortable working with the Pen tool—not only in this program, but in other programs as well.



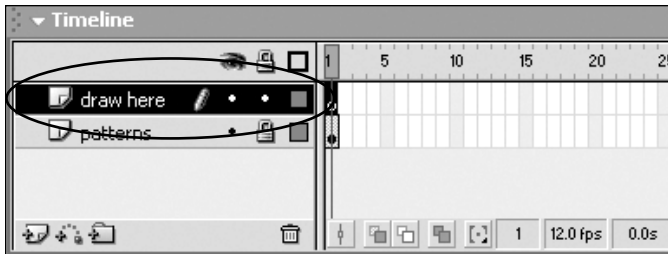
1. Open the **pen.fla** file located inside the **chap\_03** folder. This file contains an outline of two separate geometric shapes.

***Note:** Since you will be using the Pen tool in this exercise, it will be easier to see the results if you use the default settings for this tool. If you just completed the previous exercise, set the stroke settings back to their default values (black, solid, 1 point) using the Property Inspector.*



*This document has two layers: one for the shape outlines, titled "patterns," and another titled "draw here," which is where you will draw these shapes using the Pen tool. The "patterns" layer is locked so you can't do any damage to the outlines. But have fun drawing on the "draw here" layer.*

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2. Make sure the **draw here** layer is selected in the **Timeline**. If the **patterns** layer is selected and you try to draw on that layer, you will get an error message asking you to unlock and show that layer. To select the **draw here** layer, click in the first frame, or click where it says “draw here.” A pencil appears next to the name of the layer, indicating that it is selected.

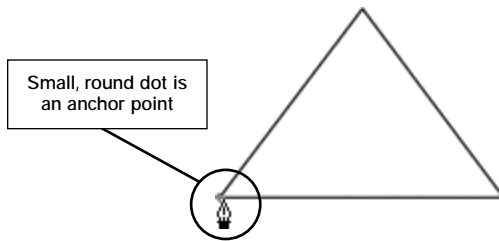
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3. In the **Toolbox**, select the **Pen** tool.

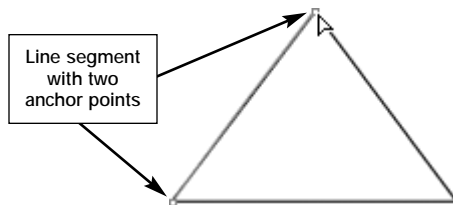
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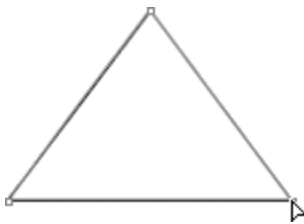
4. Move your mouse to the bottom left corner of the triangle outline and click. A small circle appears. This is the first **anchor point**, indicating the beginning of your line. Line segments are created between pairs of anchor points to create shapes.

---



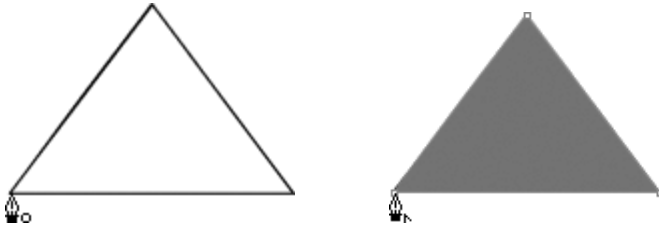
5. Click the top corner of the triangle to add the second anchor point, thus creating a line segment, which appears only after you click. The line segment will appear as a red line with two square anchor points. The line segment is the color currently set as the stroke color in the Property Inspector and in the Toolbox.

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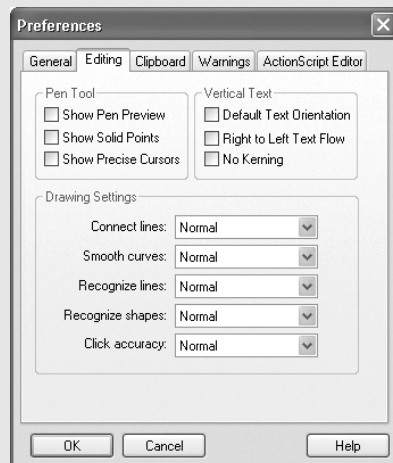
6. Click the lower right corner of the triangle. This will create a second line segment between the upper and lower right anchor points.

---



7. Move the cursor to the lower left corner. A small circle appears at the end of the cursor. This indicates that you will close the path if you click. Click to close the path and complete the shape. When you close a path, the shape automatically fills with whatever color you currently have selected for the fill color in the Property Inspector or the Toolbox.

### TIP | Pen Preferences



As you learn to work with the Pen tool, there are some preferences you should be aware of that might make your life a bit easier. If you choose **Edit > Preferences**, you can access the Preferences dialog box. Click the **Editing** tab to see the Pen preferences, in the top left corner. There are three preferences you should consider here:

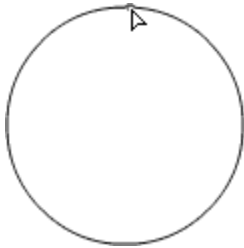
**Show Pen Preview** (off by default) lets you preview the line segments as you draw with the Pen tool. A stretchy line will appear as a preview of the line segment you will create when you click.

**Show Solid Points** (off by default) displays unselected anchor points as solid points and selected anchor points as hollow points when you use the **Subselection** tool.

**Show Precise Cursors** (off by default) causes the Pen cursor to appear as a crosshair. This can be helpful for precise drawing and works great with the grid feature.

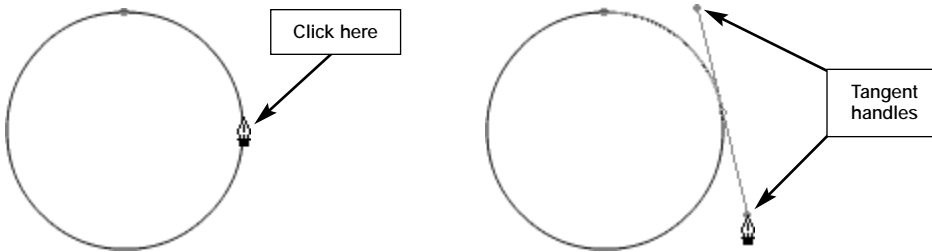
Next you'll learn to draw a circle with the Pen tool. This is a bit more complicated than drawing a triangle and will probably take some time to master. Don't worry if you have to do this exercise a few times before you get the hang of things.

---



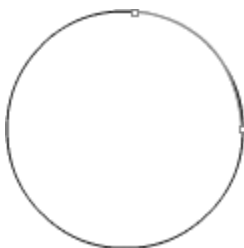
8. Using the Pen tool, click at the top center of the circle outline. This will place the first anchor point.

---



9. Click on the middle right edge of the circle and **drag down** to add another control point. As you drag, you will see two **tangent handles** appear. Move the mouse around and watch how the angle of the line changes as you do this. Don't release the mouse button just yet.

---



10. Drag down toward the bottom right until the line segment seems to match the outline of the circle. Now release the mouse button. **Note:** The circle you draw doesn't have to be perfect here; just try to get comfortable working with the Pen tool.

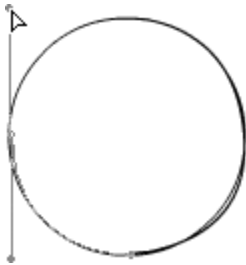
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3. Drawing and Color Tools | Macromedia Flash MX H•O•T



11. Click on the middle bottom edge of the circle to add another control point. The line will curve automatically when you add the third control point and this will complete half of the circle shape.

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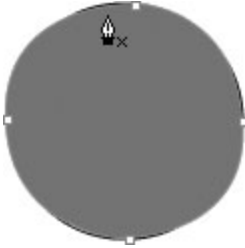
12. Click and **drag up** on the middle left edge of the circle to add another control point. As you drag, you will see two tangent handles appear. Don't release the mouse just yet.

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13. Drag up toward the top left until the line segment seems to match the outline of the circle. Release the mouse button.

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**14.** Move the cursor to the top of the circle. Click on the first anchor point you created. This will complete the circle and fill it with whatever color you have selected for the fill color.

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**15.** Save the changes you made to this file. After all that hard work, who wants to lose it? Go ahead and leave this file open for the next exercise. Don't worry if it isn't perfect because next you will learn how to modify lines using the shapes you just made.

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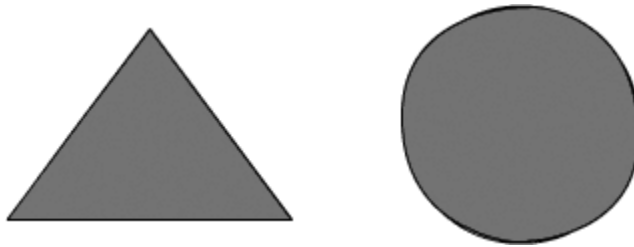


**MOVIE | [morepen.mov](#)**

If you want to see the Pen tool in action and learn how to create more complicated shapes, make sure you check out the [morepen.mov](#) movie inside the **movies** folder on the **H•O•T CD-ROM**.

## 10. Modifying Paths

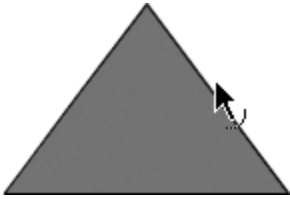
Now that you know how to create shapes using the Pencil and Pen tools, it's a good time to learn how to reshape them. In this exercise, you'll use the **Subselection tool** to modify paths using their anchor points or tangent handles. The following steps will expose you to using both the Arrow tool and the Subselection tool to give you a better understanding of how each of these tools works.



1. The file from the previous exercise should still be open. If it's not, open the **pen.fla** file.
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2. In the **Toolbox**, select the **Arrow** tool.
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3. Move your cursor over the right side of the triangle. Notice that a small curved line appears at the end of the cursor. This line indicates that you are over a line segment.

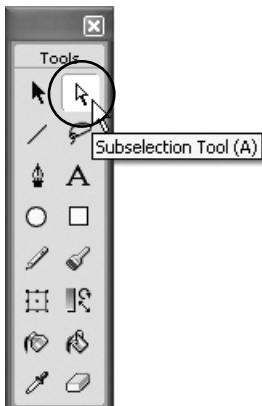
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4. Click and drag the mouse to the right. The shape will start to distort and stretch as you continue to drag the mouse. (Hey, remember Silly Putty?) Release the mouse button. Notice that both the line and the fill have changed their shape.

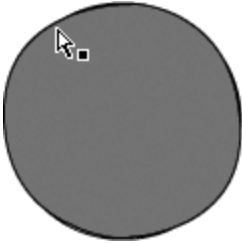
*The Arrow tool offers a free-form way of transforming shapes, and while it can be fun, it can also lack the precision you sometimes need when creating complex shapes. When you do want pinpoint precision, you can use the Subselection tool, which lets you manipulate the anchor points and tangent handles of paths after you have added them.*

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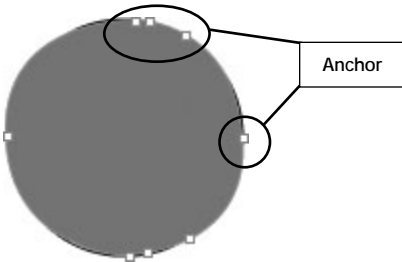
5. In the Toolbox, select the Subselection tool.

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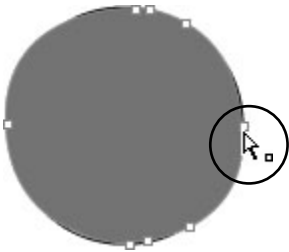
6. Move the cursor over the edge of the circle shape. A small black square will appear indicating that you are over a line.

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7. Click on the edge of the circle to select it. Notice that once the shape is selected, the anchor points become visible. The anchor points are represented by small red squares along the line of the circle.  
**Note:** Macromedia Flash MX adds anchor points, if necessary, to create the curve. That is why you might see more than the four anchor points you added when drawing the circle.

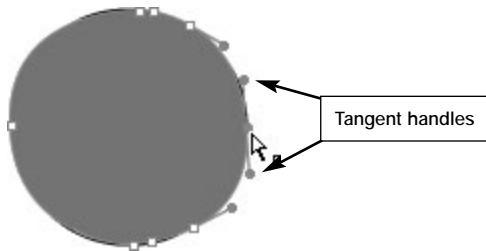
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8. Using the **Subselection** tool, move the cursor over the middle right anchor point. A small white square will appear next to the cursor when you are over the anchor point.

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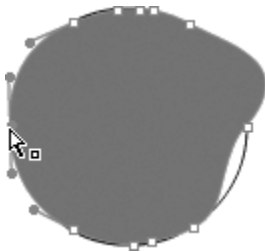
9. Click to select the middle right anchor point. When you do, the tangent handles for that anchor point and the ones above and below it appear. Why? Because all three anchor points work together to create this part of the circle's curve. **Note:** If you don't have as many anchor points as I do in this example, you may not see the three anchor points working together.

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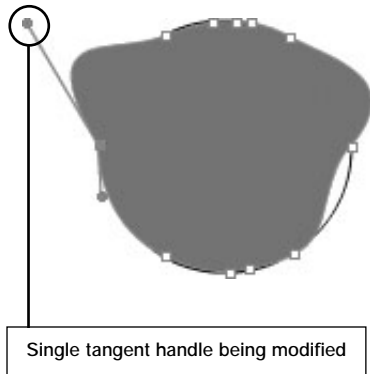
10. Click and drag the top tangent handle of the middle right anchor point over to the right. Release the mouse button. Notice that the top and bottom portions of the curve change together. This is the normal behavior of tangent handles.

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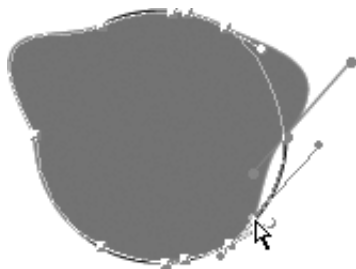
11. Click to select the middle left anchor point.

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**12.** Press and hold the **Alt** key (Windows) or **Option** key (Mac) as you click and drag the top tangent handle of the middle left anchor point over to the left. Release the mouse button. Notice that only the top portion changes. This is how you modify one part of a curve without changing the other.

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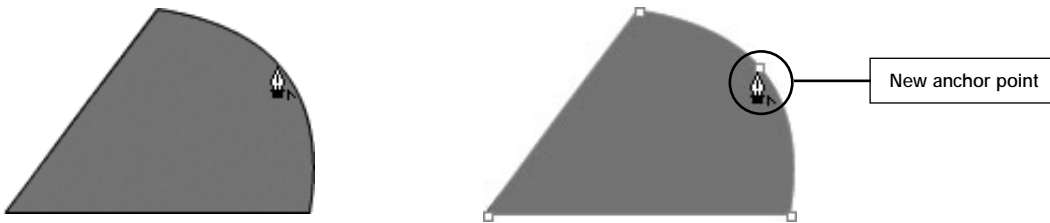
**13.** Using the **Subselection** tool, click on the anchor point on the middle right of the circle and drag down to try to match the circle image in the background. You can click and drag an anchor point to make the circle more perfect in shape.

*Now you know how to use the Arrow and Subselection tools to modify the lines you create in Macromedia Flash MX. With the Arrow tool, you can reshape straight or curved lines by dragging the lines themselves. The Subselection tool lets you reshape objects by clicking on and moving the tangent handles and anchor points in an object. Next you will learn how to add, remove, and convert anchor points. Knowing how to do this will give you more control when you are creating shapes in Macromedia Flash MX.*

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**14.** In the **Toolbox**, select the **Pen** tool. In addition to drawing shapes, the Pen tool lets you add anchor points to a line.

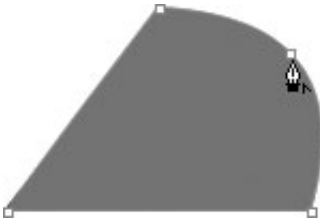
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**15.** Move the cursor over the rounded side of the triangle shape. Notice that when you move over the edge, a small ^ symbol appears next to the cursor. This symbol indicates that a new anchor point will be created if you click. Click to add a new anchor point here.

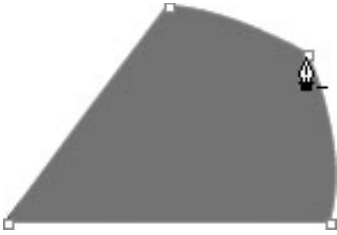
*Converting curves to straight lines is a rather simple process and one you should know how to do. That's exactly what you will do in the following steps.*

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**16.** With the Pen tool still selected, move the cursor over the newly added anchor point and notice that the small ^ symbol appears again. This indicates that you will convert the curve point to a corner point if you click.

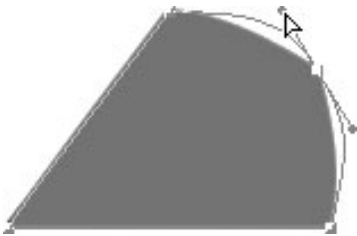
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**17.** Click the anchor point. The curve point is converted to a corner point. This transforms the curve into a straight-edged shape, and it will look less like a curve. You will no longer have access to any tangent handles for this anchor point.

*Converting a corner point to a curve point is even easier to do.*

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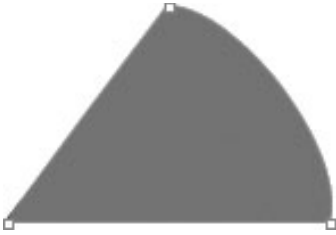


**18.** Using the **Subselection** tool, click on the anchor point to select it. Now **Alt+click** (Windows) or **Option+click** (Mac) and drag the anchor point you just modified up a bit. When you do this, you will convert that corner point back to an anchor point.

**Note:** Make sure the anchor point is still selected before you drag it. Selected anchor points are red.

**Tip:** You can delete anchor points in a number of different ways. One of the easiest ways is to select the anchor point with the Subselection tool and press the Delete key.

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**19.** With the anchor point still selected, press **Delete**. This removes the anchor point.

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**20.** Save and close this file—you won't be needing it again.

*By now, you should feel pretty comfortable working with the drawing and color tools inside Macromedia Flash MX. If you aren't quite there yet, please feel free to take some time to play with the different tools and color settings. You might try drawing some artwork for a project you want to create in Macromedia Flash MX. Nothing will ever replace good old-fashioned practice. It might not make you perfect, but it can make you one heck of an efficient Macromedia Flash designer.*

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