

Chapter 2:

GETTIN' ARTSY WITH FLASH'S DRAWING TOOLS!



READY? SET? LET'S DRAW!

Up for a little artistic expression? If so, you're in the right spot. Here, you'll get to express your every creative whim with Flash's set of drawing tools. You'll see how to create artistic and painterly effects for use in your movies

with the Pencil, Brush, and Pen tools—as well as a few others thrown in for good measure.

HERE'S WHAT YOU'LL LEARN IN THIS CHAPTER

If drawing—even stickmen—isn't your forte, fear not. If you can spell drawing, then you're in the door. This chapter is all about working with Flash's set of drawing tools. You'll start off nice and easy with the Pencil tool and the settings it offers. Then it's on to the Line and Brush tools, where you can create artistic-quality effects. Want more? Good, cuz then we're on to the best of 'em all—the Pen tool. And before the chapter's through, you'll see how you can quickly and easily manipulate the lines, shapes and objects you've drawn by using the Selection and Subselection tools. Ready for arts and crafts time? Here we go!

Sharpening Up On The Pencil Tool	666
Line Tool Straight Talk	584
Brushing Up With The Brush Tool.....	45
What Mistake? Using The Eraser Tool.....	48
Using The Pen Tool	45
Manipulating Anchor Points.....	45

Now, the thing to remember as you're using Flash's drawing tools is that you're creating **vector** objects. Vector objects are scalable and won't lose their quality when they play back for your viewers. In other words, you can size 'em bigger or smaller, and they'll always look crisp and clean. And as we've already discussed, it's this vector behavior that really makes Flash so unique. So, not only does Flash allow for animation and movement, but it creates everything in this scalable, vector environment. But we'll get to all the good animation stuff later on in Chapter 8. To find out more about vector objects, be sure to check out the sidebar "*The Happs in Graphics: Raster vs. Vector.*"

Alrighty, so in this section, you'll get a taste of Flash's drawing tools—that is, the Pencil, Line, and Brush tools. And you'll see how to get rid of those embarrassing boo-boos with Flash's Eraser tool.

Ya know, if you have any thoughts on improving this book, then let us know over at tentonbooks.com/improve-ten-ton.html.

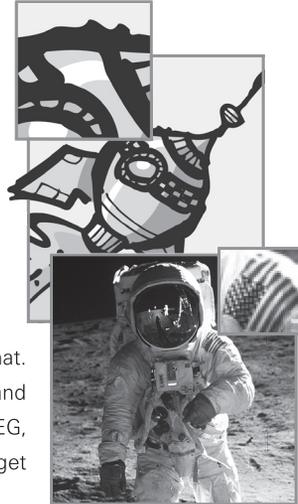
THE HAPPS IN GRAPHICS: RASTER VS. VECTOR

The wonderful world of graphics can often times be tough to wrap the 'ol melon around, especially if you're new to all this. JPGs, GIFs, TIFs, resolution, pixels—all of this could send you careening over the edge, stumbling over furniture and children in a panic to reach the liquor cabinet. But let's boil graphics down into simple terms so that all this makes sense. To begin, imagine that in graphics land, there are only two flavors, vanilla and chocolate—or more accurately, raster and vector. That's it. Everything in the land of graphics falls into either of these two categories. So then what's the difference between raster and vector, you ask? Well, put down the scotch and let's take a closer look.

First, raster images are graphics that are made up of blocks of color, called pixels, which I'm sure you've heard of. The higher the number of pixels inside an image, the higher the image's quality will be. Have you ever downloaded an image from the web, printed it out, and wondered why it looked so poopy? That's because images on the web are low quality, or low-resolution. Raster images that are used in commercial printing are of a much higher quality. Need some examples of raster graphics? Images like photos, artwork, scans, or any other image that contains a lot of color.

Then there's vector images. As we've already discussed, Flash's drawing tools create vector shapes, lines and objects. Vector objects are not based on pixels, but instead are based on mathematical lines and arcs. Specifically, vector objects are made up of anchor points and paths, which we'll talk about later on in this chapter. Because they're mathematically based, vector graphics always look nice 'n smooth, either on the web or in print. This means that you can scale your vector objects larger or smaller and never worry about quality—which you can't do with raster images. Good examples of vector graphics are logos, cartoons, icons, or any other image that uses only a few solid colors.

So there you go, that's what's up with raster and vector. Throughout this chapter, you'll be drawing and working with vector objects. Later on in Chapter 5, you'll see how you can import raster images into Flash. Where it gets a bit confusing is that Flash refers to raster images as bitmaps; not to be confused with the BMP file format. Anyway, so there ya go, there's a quick run down of the differences between raster and vector. As for file formats, I won't get into it here, but most are raster-based, like JPEG, GIF, and TIF. Others, like EPS, SWF, and Illustrator's AI are vector-based. Alright, let's get back to using Flash's drawing tools!



But before we get going, there's just one thing: You don't have to create your objects using Flash's drawing tools. Instead, you can import graphics and drawings you've created in other programs, like Illustrator or Photoshop. You'll see how to do that later on in Chapter 5. But for now, let's take a look at how the drawing tools in Flash work, starting with the Pencil tool.

Yeah that's right, you can't chew on the pencil tool. So if you're teething or you're a freak or whatever, just knaw on your mouse, kay?

Sharpening Up On The Pencil Tool

If you want to create freehand lines, arcs and shapes, Flash's Pencil tool is the place to be. It's just like using a real pencil, except you're drawing with a mouse...and you can't chew on it or yank the eraser off and flick it off someone's head. But other than that, it's pretty much the same thing.

The cool part about the Pencil tool is that as you draw with it, you can have Flash straighten out your lines, smooth out arcs and even recognize geometric shapes. This means if your drawing skills ain't so hot, Flash is there to make you look like a Picasso.

FLASH'S PENCIL TOOL LETS YOU CREATE FREEHAND LINES, ARCS AND SHAPES.

There's a whole pile of options that you can set when you're drawing with the Pencil, as well. You can control what types of corners and ends your line will have, create dotted, dashed or solid lines—or a buncha other line styles—and even control how much say Flash has in cleaning up your lines. Sound like a party? Then grab the nachos and let's check it out.

NOTEWORTHY



When the Pencil tool's selected, you'll notice an Object Drawing button in the Options area of the Toolbox. For more on using Object Drawing, see "Before Ya Go Mental—Understanding Flash's Drawing Models" in the next chapter.

To draw lines with the Pencil tool, give this a try:

1. From Flash's Toolbox, click the Pencil tool.
2. In the Options area at the bottom of the Toolbox, click the Pencil Mode button, then choose a mode for the pencil.

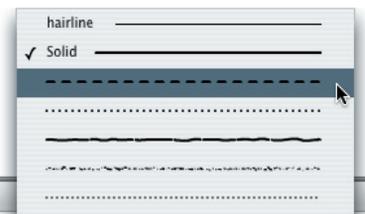
Straighten: Tightens up loose lines and converts poorly drawn shapes to their perfect geometric counterparts.

Smooth: Smooths out rough, bumpy lines. Using the Smoothing setting on the Properties inspector, you can specify the amount of smoothing for your line. More on that in a moment.

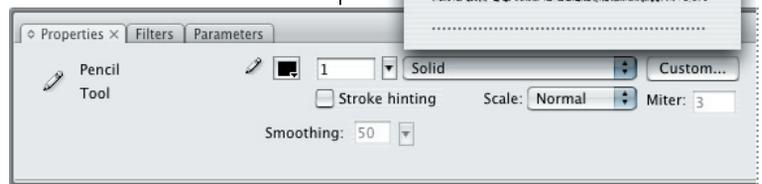
Ink: Slightly smooths lines and arcs, but mostly leaves them as you've drawn them.

3. In the Properties inspector, adjust any settings that you'd like to use for your line.

Stroke Color: Opens Flash's color window, where you can set the color of the line. We'll talk more about working with color in the next chapter.



Stroke Height: Sets the width of your line. Type in a number between 0 and 200 (measured in points) or click on the downward-pointing arrow and use the slider that appears.



Stroke Hinting: Prevents blurry horizontal or vertical lines. Check or uncheck this option to enable or disable Stroke Hinting.

Rather than setting the color for your line on the Properties inspector, you can also set it in the Color area at the bottom of the Toolbox. Just click on the Stroke Color setting's swatch to open Flash's color window. It's the same as setting the color in the Properties inspector.

NOTEWORTHY



When using either Round, or Square line caps, note that the length of the cap protruding from the end of the line is half the line's width. For example, if your line's width is set to 10 points, a Round or Square line cap will extend past the end of your line by 5 points. Setting the line cap to None results in the line ending exactly where you specified.

Stroke Style: Sets the style of the line. Choose from a set of default line styles, or see the sidebar *"Stylin' With Custom Stroke Styles"* to find out how you can create your own.

Scale: Determines how lines will scale when they're a part of a symbol. We haven't talked very much about symbols yet, but we'll cover them in detail in Chapter 7. But so you know, Normal allows lines to scale horizontally and vertically, Horizontal only allows horizontal scaling, Vertical allows only vertical scaling, and None does not allow scaling when lines are resized.

Cap: Determines the style of the line end. Click just to the right of Cap; then choose either None, Round, or Square.

Join: Sets the style of your corner joints. Click just to the right of Join; then choose Miter, which gives pointed corners, Round, which gives rounded corners, or Bevel, which results in angled corners.

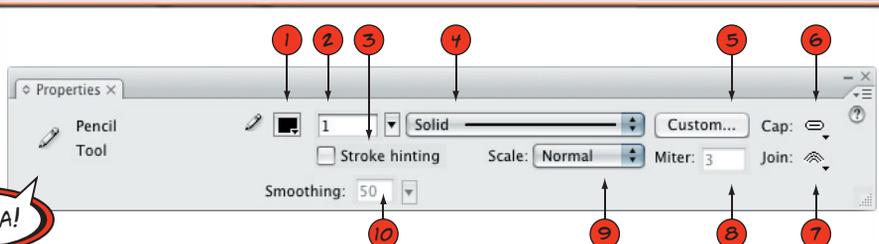
Smoothing: Sets how much smoothing Flash applies to lines you draw. A higher value results in a smoother line, a lower value gives a rougher line. The Smoothing

option is only available when the Pencil Mode modifier in the Options area of the Toolbox is set to Smooth.

4. Bring your cursor onto the Stage, and click and drag to draw a line.

See how easy it is to draw lines and arcs with the Pencil tool? If you ever want to draw with a different color, or use any other settings found on the Properties inspector, you can change them whenever you want. New lines will then reflect your new settings. In the next chapter, you'll see how to make changes to lines after they've been drawn.

THE PROPERTIES INSPECTOR'S PENCIL TOOL OPTIONS



1. Stroke color
2. Stroke height (use the slider at right to dynamically adjust)
3. Stroke hinting
4. Stroke style
5. Custom stroke style
6. Set the style for a path end
7. Define how two path segments meet
8. Control the sharpness of miter joins
9. Constrain stroke scaling in the player
10. Stroke smoothness

STYLIN' WITH CUSTOM STROKE STYLES

Flash's default Stroke Styles gotcha down? Chin up fella, brighter days are here—Flash will allow you to create your own custom line styles. The lines that you create will become a part of your Flash file, and will be available for all sorts of drawing tools, like the Pencil, Line, Pen, and even the shape tools. Lets take a look at how this is done.

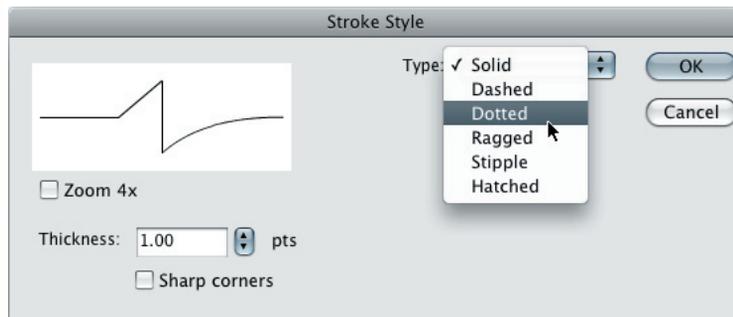
Here's how to create your own custom stroke styles:

1. To begin, select a drawing tool from Flash's Toolbox.

You can choose either the Pencil, Line, Pen, Oval, Rectangle, or Polystar tool. So far in this chapter, you've only worked with the Pencil tool, so you can stick with it for now if you like.

2. In the Properties inspector, click the Custom button.
3. In the Stroke Style dialog box that appears, choose an option from the Type pull-down menu.

You'll see all sorts of choices in the Type pull-down menu, and depending on which one you choose, you'll see additional options appear that allow you to further customize your line.



4. Use the additional settings that appear in the Stroke Style dialog box to further customize your line.

For example, if you choose Stipple from the Type menu, you can use the Dot Size, Dot Variation, and Density menus that appear to adjust your new line style. Fiddle with these settings until your line is exactly as you want.

5. Use the Thickness setting in the bottom-right of the dialog box to set the weight of your stroke.

To get a closer look at your line, you can use the dialog box's Zoom checkbox as well.

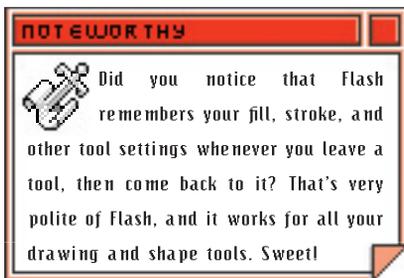
6. When you're done, click OK.

Your custom line is added to the Properties inspector's Stroke Style menu, and you can now use it with your drawing tools. To see your new style in action, just click and drag with one of Flash's drawing tools on the Stage. Now that's a stylin' new stroke style!

THE LINE TOOL MAKES IT EASY TO DRAW PERFECTLY STRAIGHT LINES.

In the Options section of the Toolbox, you'll see settings for Object Drawing and Snap to Objects. You'll see how these two options work in the next chapter.

THE BRUSH TOOL WILL HELP YOU CREATE EFFECTS THAT MIMIC WORKING WITH AN ARTIST'S PAINTBRUSH.



If you're working with a pressure-sensitive drawing tablet, Flash provides Pressure and Tilt settings at the bottom of the Toolbox, which allow you to control how your tablet interacts with the Brush tool.

Have fun drawing and experimenting for a few minutes; then when you're ready, continue reading. Next up, the Line tool!

Line Tool Straight Talk

The Pencil tool's okay, but trying to draw a perfectly straight line with it? Sheesh, what a pain! Enter the Line tool, perfect for creating straight lines that are bang-on every time. Ready to keep 'er straight? Then let's have a looky.

Here's how to draw lines with the line tool:

1. In the Toolbox, select the Line tool.
2. In the Properties inspector, set any additional options that you'd like for your line.

The settings in the Properties inspector are the same as they were for the Pencil tool, which you saw in the previous section.

3. Bring your cursor onto the Stage, then click and drag to create a line.

If you'd like your line to snap to the nearest 45-degree angle, hold down Shift as you click and drag. Voila!

Drawing straight lines was never easier. Hang on to the Pencil tool for those freeform lines, but when it's straight lines you need, now you know where to go.

Brushing Up With The Brush Tool

Alright, wanna look like a modern Matisse? Then get using Flash's Brush tool. This fella will help you create effects that mimic working with a fine artist's paintbrush, but without all the messy cleanup. You can create swooping arcs and artistic-like brush strokes, as well as graceful calligraphy. As you begin working, you'll realize that the Brush paints with a fill, creating filled objects, but doesn't use a stroke—remember, the fill is the color used inside a shape, and the stroke is the outline.

And if you have one of those fancy pressure-sensitive drawing tablets (lucky you!), Flash will recognize it and allow you to use it along with the Brush tool. If you don't have a drawing tablet, no problem. You can still paint with the Brush tool, just using your mouse instead.

Here's how to use the Brush tool:

1. In the Toolbox, select the Brush tool.
2. In the options area at the bottom of the toolbar, choose an option from the Brush Mode menu.



Paint Normal: Paints normally without any extra effects, meaning that the brush will paint over object fills, strokes, and empty areas of the Stage.

Paint Fills: Paints only the fills of shapes, as well as empty areas of the Stage, leaving strokes alone.

Paint Behind: Paints behind objects, filling only empty areas on the Stage. Shape fills and strokes are left intact.

Paint Selection: Paints only in an area that you've selected and leaves any unselected areas unaffected.

Paint Inside: Paints only inside the lines of the shape you start in. However, if you begin painting on the Stage, the Stage will be painted.

3. Using the Brush Size menu, set the size of your brush.
4. Use the Brush Shape menu to set the style of your brush.

As you can see, there are quite a few styles to choose from, including rounded brushes, blocks, and calligraphy brushes.

5. In the Properties inspector, set options for your brush's fill color and Smoothing.

Fill Color determines the color that will appear when you paint with the brush. The Smoothing setting works the same here as it did for the Pencil tool: It determines how much influence Flash has over cleaning up your work. A higher Smoothing value creates a smoother, cleaner line, while a lower value results in a rougher line, closer to what you had drawn.

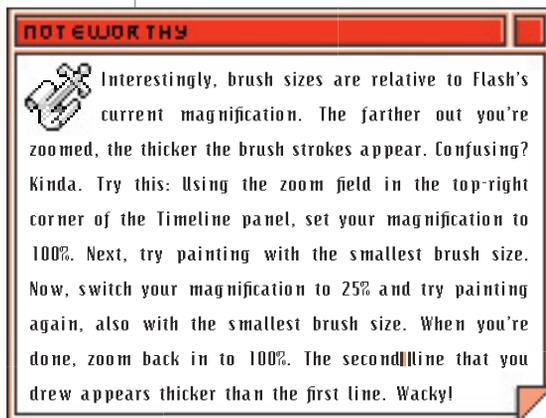
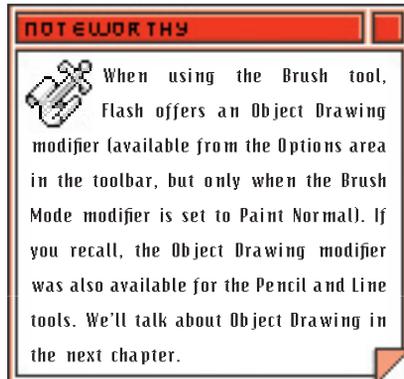
6. Bring your cursor onto the Stage and click and drag to paint with the brush.

With all the settings available for the Brush tool, you may want to spend a little time experimenting to see the sorts of effects that you can achieve. Once you've had your fun, it's on to erasing all that lovely artwork that you so painstakingly created!

What Mistake? Using The Eraser Tool

Did you goof up your artwork? No worries, Flash's Eraser tool is perfect for fixin' up mistakes and perfecting your drawings. With the Eraser, you can easily remove parts of objects, or clean up fills and strokes. Activate the

Another modifier that's available for the Brush tool is Lock Fill. You'll see how this works later on in Chapter 5.



THE ERASER WILL LET YOU EASILY REMOVE PARTS OF OBJECTS, OR CLEAN UP FILLS AND STROKES.

tool's modifiers, and you can tightly control what objects the eraser will toast, and what's left intact—sorta like a smart-bomb, except it actually works. So if you mess up, don't fret. Just get using that Eraser tool. Let's take a look.

Follow these steps to use the Eraser tool:

1. From the Toolbox, select the Eraser tool.
2. In the Options area at the bottom of the Toolbox, choose an option from the Eraser Mode menu.

NOTEWORTHY



Here's a killer tip: Wanna quickly delete of all the objects on Flash's Stage? It might sound like a tall order, but it's actually very easy. Simply double-click on the Eraser tool in the Toolbox, and everything on the Stage is instantaneously nuked. How's that for thermo-nuclear?

Erase Normal: Removes strokes and fills from shapes without any extra effects.

Erase Fills: Erases only shape fills, while leaving strokes as they are.

Here's another way to quickly toast all the objects on the Stage in one shot: choose Edit > Select All; then pound the Delete key. on your keyboard while yelling, "Die bastard!"

If you're not too sure about the Eraser tool's Eraser Mode modifier settings, keep in mind that they're similar to the Brush tool's Brush Mode modifier—'cept you're erasing, not painting. And you're using the Eraser tool, not the Brush tool. And erasers are fun to throw at co-workers as discussed earlier. But other than that, they're the same.

Erase Lines: Erases only strokes, while leaving shape fills unaffected.

Erase Selected Fills: Erases only fills that are selected. All strokes, as well as unselected fills, remain intact.

Erase Inside: Erases only inside the lines of the shape you start in. Fills in other shapes, as well as all strokes, are unaffected.

3. From the Eraser Shape pull-down menu, choose a circular or block eraser style, as well as a size for your eraser.
4. To begin erasing, bring your cursor onto the Stage; then click and drag across your artwork.

Rotten pumpkin heads! What better way to show you the Eraser Mode menu's options than with rotten pumpkin heads? Ya just can't go wrong!



Erase Normal, which indiscriminantly destroys all in its path.



Erase Fills, which is only takin' out the pumkin's fill.



Erase Lines, only the pumkin's lines are getting toasted.



Selected Fills. Only the selected background is erased.



Erase Inside. Only the shape I began in (the left eye) gets erased.

Erasing in Flash is fast, easy, and it's great for relieving bottled up stress and anger. Just make sure that you have the right Eraser Mode modifier set before you go on your bloodlust killing spree...otherwise you might have some undoing or redrawing to do. Have fun! Next up, the biggest and badest of them all—the Pen tool!

ADVANCED DRAWING AND MANIPULATION TOOLS

Feelin' good about Flash's drawing tools up to this point? Good, then you're ready to get into some of the more advanced tools that'll be at your disposal. First, you'll see how to draw very accurate lines and curves using the Pen tool. After that, you'll see how you can manipulate your lines and objects in Flash. Take a swig from that giant coffee stein of yours, then let's get going!

Using The Pen Tool

If you want to get into drawing precise lines, arcs and shapes, then it's all about the Pen tool. This guy will let you create both straight and curved lines that can then either be closed to create shapes, or left open where only lines are needed.

There are a few things you need to know first, though: The Pen tool creates what are called Bézier lines and curves (that's "Bez-ee-yay," so you don't look like a weenie in front of your designer friends—see the sidebar "*Stuff You Don't Need To Know About Pierre Bézier*" for more). When you begin working with the Pen tool, Flash inserts something called *anchor points*. Every time your line changes direction, an anchor point will appear. Your anchor points are then connected together with a line called a *path*.

A path can then have stroke effects applied to it, like color and weight for example. All vector shapes are built out of anchors and paths, and later on in this chapter you'll see how you can manipulate anchor points and paths to adjust your lines and shapes. With that out of the way, let's take a look at how the Pen tool works.

Drawing Straight Lines and Polygons

Drawing straight lines with the Pen tool allows for the creation of very precise lines and shapes in Flash. Actually drawing straight lines with the Pen tool is easy. It's all done by single-clicking with the tool on the Stage.

Here's how to draw straight lines with the Pen tool:

1. Select the Pen tool from the Toolbox; then use the settings on the Properties inspector to set any options that you'd like.

NOTEWORTHY



You can easily remove a shape's entire fill or stroke in one shot by using the Eraser tool's Faucet modifier. Give it a try by selecting the Eraser tool; then in the Options area of the Toolbar, click on Faucet. You can now click on a shape's fill or stroke, and Ka-pow—the entire fill or stroke is removed!

IF YOU WANT TO GET INTO DRAWING PRECISE LINES, ARCS AND SHAPES, THEN IT'S ALL ABOUT THE PEN TOOL.

NOTEWORTHY



If you've used the Pen tool in Photoshop or Illustrator, you're way ahead of the game. And if you've never used the Pen tool before, the good news is that it behaves exactly the same as the Pen tool in Photoshop, Illustrator, and countless other graphics programs. In other words, learn how the Pen tool works in Flash, and you've learned how to use it in other graphics programs, too.

If you're having trouble with the Pen tool, try turning on Pen Preview in Flash's Preferences. Go to Edit > Preferences (Windows) or Flash > Preferences (Mac); then choose Drawing from the Category list on the left, and check Show Pen Preview. This will help you determine the lines that you're drawing as you work with the Pen tool.

FROM THE LAND OF GEEK



As you're creating straight lines with the Pen tool, anchor points are added each time you click. Specifically, these anchor points are called "corner" anchor points. In the next section, you'll see how you can manipulate corner anchor points, and even how to convert them to "curved" anchor points. Ohh, the jargon is mind-numbing!

Hold down Shift while you click to snap your path to the nearest 45-degree angle.

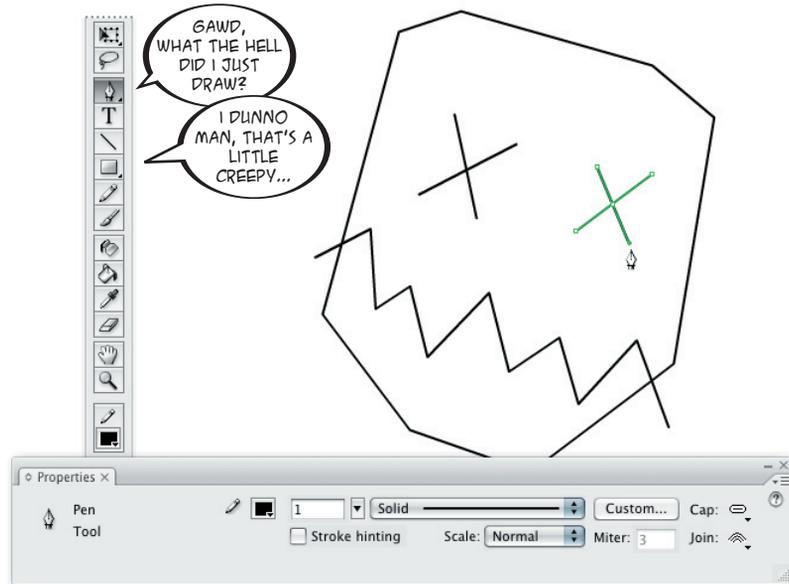
The settings that appear on the Properties inspector are the same for the Pen as they are for the Pencil tool, which you saw earlier in the chapter.

2. Single-click on the Stage where you'd like your line to start.

Flash adds the first anchor point for your line.

3. Move your mouse to where ever you'd like the next anchor point to appear; then single-click again.

Flash adds a second anchor point and draws a line between the two anchor points. The line that connects the two anchor points appears as a stroke, using the settings that you'd specified in the Properties inspector.



STUFF YOU DON'T NEED TO KNOW ABOUT PIERRE BÉZIER

Bézier. That sounds kinda funny. Well don't make fun—this is serious business! We're talkin' about none other than famed French engineer and mathematician Pierre Étienne Bézier. He's a guy who we should all pause and silently thank—he developed Bézier curves and Bézier surfaces, which now forms the basis of nearly all computer graphics applications—including Flash, Illustrator, and many others.

Pierre was born in Paris in September, 1910, had a heck of a career developing his math-based curves and lines, had a thing for Montreal poutine (what good Frenchman doesn't?), and was even recognized for all his hard work back in 1985. Hold off on the fan mail or tracking him down at the next math convention, though. In November of 1999, Pierre moved on to the great graphics application in the sky. He now fills eternity chillin' out and debating mathematical theory with other numerical greats like Pythagoras, Newton, and Francesca. So perhaps we should have a moment of thanks, and maybe a tear, for the great Pierre Bézier. And...done. Let's move the hell on.

4. Continue drawing your line by single-clicking on the Stage.

As you continue single-clicking, anchor points and paths are added as you go.

5. To finish your line, do one of the following:

- To end your line, double-click with the Pen tool on the Stage.
- To draw a closed shape, bring your cursor back over the starting point; then single-click.

As you bring your cursor over the starting point of a line, you'll notice a tiny circle appears beside your cursor. This indicates that you're about to create a closed shape. After you single-click, your shape is filled with the Fill color that's set in the bottom of the Toolbox.

How was that, not too bad? The great thing about using the Pen tool to create straight lines is that you can pretty much create whatever sort of zig-zagging lines or odd polygonal shapes you need. If you'd like to create arcs or blobby shapes, keep reading—that's up next.

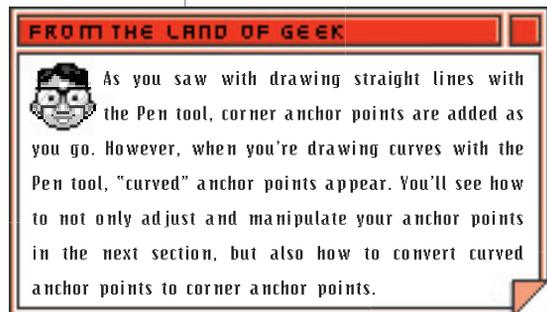
Drawing Curves and Blobby Shapes

Drawing curved lines with the Pen tool can be a little more tricky. This takes a bit more skill and patience than does drawing straight lines. So, before continuing, dog-ear this page and go refill that coffee stein of yours. Go on, I'll wait for you...

Okay, to create curves, you'll be clicking and dragging with the Pen tool rather than simply single-clicking with it. The trick here is knowing what direction to drag to get the curve that you want. So remember this: For the first anchor point, click and drag in the direction that you want the curve to go in. For example, if you want to draw a line that curves upward, like the arch on a doorway, click and drag upwards. Then, for the second anchor point, click and drag in the opposite direction. So in our doorway example, you'd click and drag down to complete your arch.

As you go, you'll notice lines appearing from each anchor point. These lines are called *direction lines*, and they help control the length and positioning of a curve. Shortly, you'll see how you can work with these direction lines to manipulate your curves.

Alternatively, you can also Ctrl+click (Windows) or Command+click (Mac) away from your line to complete it, or choose a different tool in the Toolbox.



If you'd like to lock the direction of your curve to 45-degree angles, hold down the Shift key while you click and drag with the Pen tool.

To draw curved lines with the Pen tool, try this:

1. Choose the Pen tool from Flash's Toolbox; then set any options that you'd like on the Properties inspector.

Again, all the settings in the Properties inspector are the same for the Pen tool as they are for the Pencil tool, which you saw earlier.

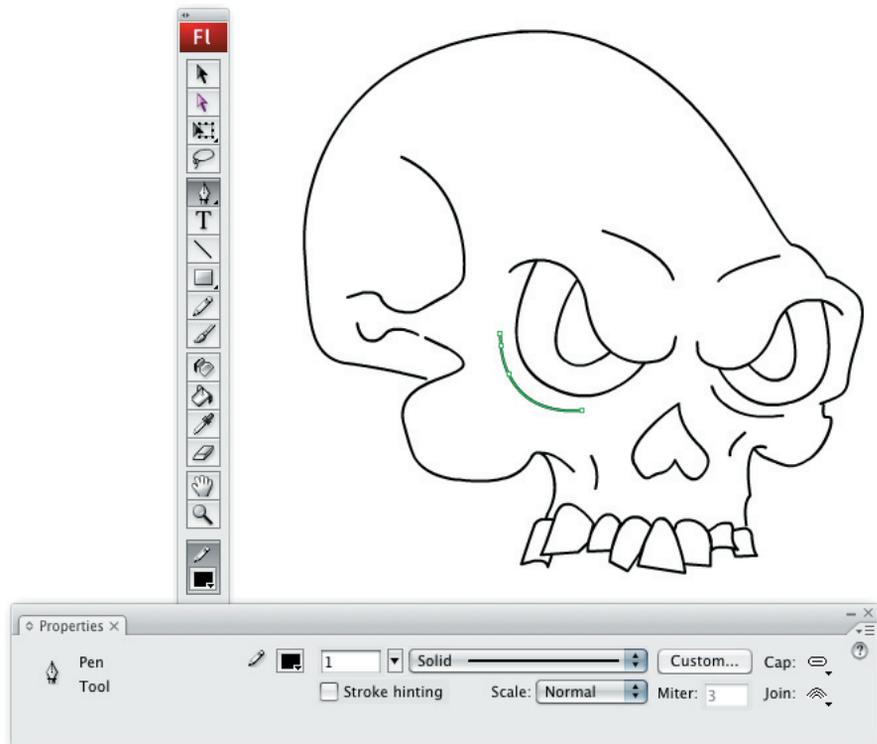
2. Click and drag with the Pen tool on the Stage to create the first anchor point.

Flash adds an anchor point to the Stage, and direction lines appear from your anchor point. The farther you drag before letting go of your mouse button, the longer the curve will appear.

Don't forget that the direction you drag in with the first anchor point determines the direction of the curve that you'll get. In other words, click and drag down for a downward arc; click and drag up for an upward arc, and so on.

3. Position your mouse where you'd like your curve to end; then click and drag in the opposite direction.

Again, if you dragged upward for the first anchor point, click and drag downward for your second. This will complete your first curve.



As you drag, you'll see that Flash adds a second anchor point, and direction lines appear from the anchor point. As you saw when drawing straight lines, Flash connects the two anchor points with a path, which has a stroke applied to it

4. Continue clicking and dragging to add additional curves to your line.

As you continue, Flash adds additional anchor points and paths to your curve.

5. To complete your line, do one of the following:

- To end your line, double-click with the Pen tool on the Stage.
- To draw a closed shape, bring your cursor over the starting point; then click and drag.

When you bring your cursor over the starting point of your line, a tiny circle appears beside your cursor, indicating that you're about to create a closed shape. After you click and drag, your shape is filled with the Fill color that's set in the bottom of the Toolbox.

You might find drawing curves with the Pen tool a little frustrating at first. Keep trying! The Pen tool takes a bit of practice to master fully, but once you put in the time and really get a feel for how it works, you'll be able to draw any type of line or object that you'll ever need. To help you get more comfortable using the Pen tool, be sure to try out this chapter's Five Ton Tutorial, *"Gettin' Friendly with the Pen Tool."*

As mentioned earlier, you can also Ctrl+click (Windows) or Command+click (Mac) away from your line to complete it, or choose a different tool in the Toolbox.

You can also use Flash's *Optimize Curves* command to help smooth out lines and curves that you've drawn. Learn how it works at tentonbooks.com/flash/optimize-curves.html

STRAIGHTENING OUT AND SMOOTHING CURVES

Ever want to smooth out bumpy lines or straighten arcs? The Selection tool (the black arrow tool) has two nifty modifiers called (you guessed it) Straighten and Smooth. Straighten affects curved lines by gradually making them straighter as the modifier is applied. Smoothing evens out rough lines, making them appear more soft and flat. Both the Straighten and Smooth modifiers work only on curved lines—they have no effect on straight lines.

To straighten a line, choose the Selection tool in the Toolbox, click on the curved line that you'd like to affect; then click the Straighten modifier in the Options area at the bottom of the Toolbox. Your line straightens slightly. Click the Straighten modifier repeatedly to apply more straightening to your line. As you click the modifier, your line is gradually straightened. Alternatively, you could also choose **Modify > Shape > Straighten** to straighten out your lines.

To smooth a line, select your line with the Selection tool; then click on the Smooth modifier in the Options area of the Toolbox. Again, click the modifier repeatedly to apply additional smoothing to your line. As you click, bumps and rough areas of your line are evened out. You can also choose **Modify > Shape > Smooth** to apply smoothing.

You can also use the Straighten and Smooth modifiers on the strokes of shapes that you draw. In the next chapter, we'll take a look at how Flash's shape tools work. After you learn how the shape tools work, try using these modifiers to manipulate them.

FIVE TON TUTORIAL: GETTIN' FRIENDLY WITH THE PEN TOOL

Having a tough time with Flash's Pen tool? Okay, take a break and cool off. When you're feeling better, come back and give this here Pen tool tutorial a try. What you'll be doing here is tracing out the lines and shapes that you see below. This will give you a better understanding of working with the Pen tool and how it behaves.

To get this tutorial off work, you'll first have to import this tutorial's sample file into Flash. Once it's imported into Flash, you'll be able to trace out the lines and shapes with the Pen tool.

Here's how to set up this tutorial:

1. Using your web browser, navigate to tentonbooks.com/flash/Ten-Ton-Flash-Pen-Tutorial.gif; then download the tutorial file by right-clicking inside your browser window and choosing Save Target As (Windows) or Save Image To The Desktop (Mac).

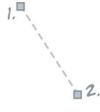
Depending on your browser, you might not see these commands when you right-click, but you'll see somethin' similar. Once the sample file has been downloaded, you're ready to import it into Flash.

2. Choose File > Import > Import to Stage; then navigate to and select PenTutorial.jpg and click Import.

Flash imports the graphic and places it in the middle of the Stage. He's a biggie, but no worries. Set your zoom to about 50% and use the Hand tool or scroll bars to set his position onscreen.

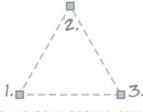
Now before you start, you'll have to create a new layer for your tracing. If you don't, your trace lines will actually appear behind your imported graphic—it's a weird Flash thing. Here's how to create a new layer.

GETTIN' STARTED WITH STRAIGHT PATHS:



1. THIS FIRST GUY'S EASY. CLICK ON THE FIRST ANCHOR POINT, FOLLOWED BY THE SECOND. POOF! YOU JUST CREATED A PATH WITH THE PEN TOOL!

2. FINISH OFF BY HOLDING DOWN CTRL (WINDOWS) OR CMD (MAC) AND CLICKING AWAY FROM YOUR PATH.



1. HERE'S A STRAIGHT LINE. ALL YA DO IS CLICK ON THE FIRST ANCHOR POINT; THEN HOLD DOWN SHIFT AND CLICK ON THE SECOND ANCHOR POINT.

2. AGAIN, FINISH BY HOLDING DOWN CTRL (WINDOWS) OR CMD (MAC) AND CLICKING AWAY FROM YOUR PATH.

HERE'S A CLOSED OBJECT. START ON THE FIRST ANCHOR POINT; THEN JUST WORK YOUR WAY AROUND THE SHAPE.

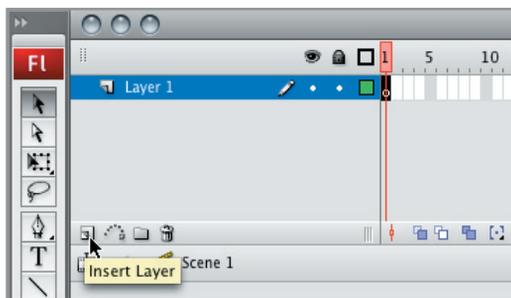


1. THIS TIME, WE WANT MULTIPLE 45-DEGREE LINES. CLICK ON THE FIRST ANCHOR POINT TO GET STARTED; THEN FOLLOW EACH OF THE REMAINING ANCHOR POINTS, SHIFT-CLICKING ON EACH OF THEM AS YOU GO.

2. FINISH OFF BY CTRL-CLICKING (WINDOWS) OR CMD-CLICKING (MAC) AWAY FROM YOUR WORK.

TO CLOSE YOUR SHAPE, BRING YOUR MOUSE OVER THE FIRST ANCHOR POINT. A CIRCLE APPEARS BESIDE YOUR CURSOR, INDICATING THAT YOU'RE ABOUT TO CLOSE YOUR PATH. GO AHEAD AND CLICK, AND THAT WILL FINISH OFF YOUR SHAPE.

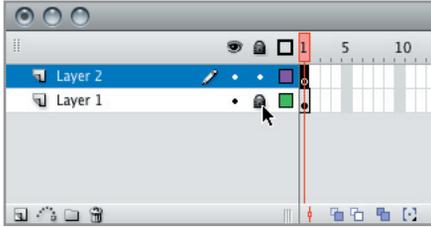
3. In the bottom-left corner of the Timeline, click the Insert Layer icon.



FIVE TON TUTORIAL (CONTINUED)

Flash adds a new layer to the Timeline. We'll talk in much more detail about the Timeline and layers in upcoming chapters. For now, lets get trac'n! One more thing, though.

4. Finally, lock the first layer, which contains the imported graphic, by clicking on the dot that appears in the layer's lock column.



Now you're ready to start tracing with the Pen tool.

5. Select the Pen tool from Flash's Toolbar; then follow the instructions in the pen tutorial graphic.

How are things lookin'? Did you do okay? It'll definitely take some practice (and maybe a little aspirin) to get then hang of the Pen tool—but once you do, you can pretty much draw and manipulate shapes in any way you want. So stick with it. Maybe come back to this tutorial a little later on and have another go at it. Good luck!

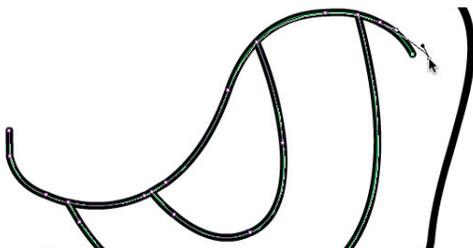


Manipulating Anchor Points

As we discussed earlier, as you're drawing lines with the Pen tool, Flash inserts anchor points for you. When you draw straight lines, Flash inserts corner anchor points. If you're creating curved lines, Flash inserts curved anchor points, and also uses direction lines to help control the height and positioning of the curve. Further, don't forget that Flash also creates paths between anchor points and applies a stroke to the path.

Now as mentioned, all of these components are completely editable. So, if you goof up or don't get your line looking the way you want, you can always fix it up, which is what you'll see how to do here.

First, you may want to move an anchor point to a new location on the Stage. No problem. To move an anchor point, choose the Subselection tool (the white arrow tool) from the Toolbox; then click and drag on the anchor.



YOU CAN ALWAYS ADJUST AN OBJECT'S PATHS AND ANCHOR POINTS TO GET IT EXACTLY THE WAY YOU WANT.

All the manipulating in this section will be done using the Subselection tool (the white arrow in Flash's Toolbox. We'll get into using the Selection tool (the black arrow tool), and the differences between these two tools in Chapter 4.

If you'd like more precision when you're moving an anchor point, try single-clicking on it with the Subselection tool to select it; then use the arrow keys on your keyboard to move the anchor in tiny increments. This is called nudging, or micro-positioning.

NOT E W O R T H Y



The anchor points that you can manipulate in Flash are not limited to those created only by the Pen tool. In fact, you'll find that all the drawing tools in Flash—including the Pencil, Brush, and the shape tools—are all created with anchor points and paths. Therefore, you can manipulate any object in Flash using the techniques found in this section.

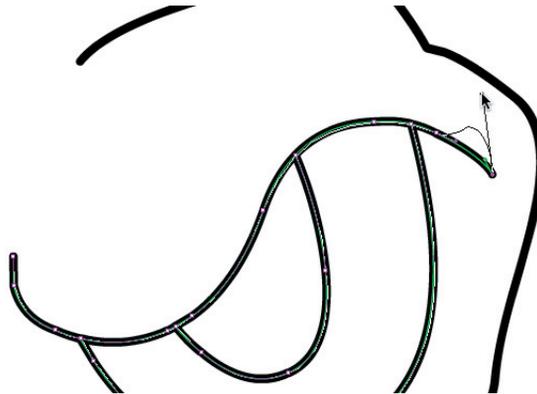
Rather than clicking on the Subselection tool in the Toolbox, just hit the A key on your keyboard and Flash will select it for you!

NOT E W O R T H Y



Another way to adjust a curve that you've drawn is to click and drag on it with the Selection tool (the black arrow tool in the Toolbox). If you bring the Selection tool over a line that you've drawn, a curve appears beside it. As soon as the curve appears, just click and drag on the line. Existing curves can be manipulated, and straight lines can be bent into curves using this technique.

Next, you might find that you want to adjust a curve that you've drawn. To do this, click on the anchor point with the Subselection tool; then pull on the direction lines that appear. Pull the direction lines farther away from the anchor point to extend your curve, or bring them closer to the anchor point to contract the curve. The direction lines behave like a see-saw—if you pull one side up the other side goes down, and vice versa. If you'd like to manipulate your direction lines independently of one another, hold down Alt (Windows) or Option (Mac).



Earlier, I mentioned that straight lines use corner anchor points, and arcs use curved anchor points. However, you can always convert corner points to curved points and vice versa. To convert a corner point to a curve point, select the point with the Subselection tool; then hold down Alt (Windows) or Option (Mac) and drag on it. As you drag, direction handles appear, and your line begins to curve. Alternatively, you might want to convert a curved point to a corner point. To do that, simply click on the anchor point with the Pen tool, and the anchor becomes a corner.

