

# Lesson 1 Drawing Tools

---

This lesson assumes some familiarity with drawing tools in a graphics program such as Photoshop. The vector-based tools in Flash differ in significant ways, so those differences will be pointed out. You're not expected to be a Photoshop expert. If you don't recognize the names of the tools, roll your mouse cursor over the **Tools** panel (far left side of the Flash window) and pause on each tool: A label will pop up and show you the name of that tool.

If you use Dreamweaver MX, the interface of Flash MX will look familiar to you, with the exception of the **Timeline**. If you have never edited digital video, the Timeline probably will be a new concept for you. If Flash is the first Macromedia application you have used, take some time to open the menus and look around. The Edit, Insert, and Modify menus will probably contain most of the unfamiliar items.

## Insert Figure 1.01a

Caption: The Flash MX interface.

## Insert Figure 1.01b

Caption: The Flash MX 2004 interface. The interface of Flash MX 2004 changed only slightly from the previous version, Flash MX. The five main areas are the same:

1. The Tools panel allows selection of tools, view, colors, and options.
2. The Timeline controls both motion and timing in the movie.
3. On the Stage, you draw objects or drag them in from the Library.
4. The Properties panel reflects what is selected on the Stage.
5. Panels appear here after they are selected from the Window menu.

**[endCaption]**

Until you animate an object (in Lesson 2), you will not use the **Timeline**, except to delete your early experiments with the drawing tools. Locate the Timeline now anyway. It's at the top of the Flash application window.

**Note:** If the center area is empty *and* there's no **Timeline** (nothing visible but gray), open the File menu and select "New." That gives you a blank white Stage to work on. If the center area is filled with a menu that includes a list titled "Create New," select "Flash Document" there, and you will get a blank white Stage. If you already have a white Stage, use that one.

To the left of the **Timeline** is the **Tools** panel. The sixteen tools at the top are followed by icons that allow you to change the attributes of the selected tool.

Below the Timeline is the **Stage**, a white rectangle on a field of gray. (The gray area is off stage, or out of sight, in the finished Flash movie.) Below the Stage is the **Properties** panel. Take a good look at that, because it's going to *change* every time you select a tool, or an object on the Stage, and that can be confusing at first.

To the right of everything else, you'll see a stack of closed **panels**. Panels in Flash are the equivalent of palettes in Photoshop. They can be opened from the Window menu. If you

see the panel name but not the full panel, look for a small triangle widget to the left of the panel name, and click the widget *once* to open the panel (click again to close it). Panels can be undocked and dragged to different places, if you like to work that way. To undock a panel, move the mouse cursor to the left of the small triangle widget. When the cursor becomes a cross with four arrowheads, you can click and drag the panel to undock it, or move it out of the panel stack. You can also dock a floating panel by grabbing it that way. You will not use the right-side panels in this lesson.

## Lesson 1

1. Open Flash and make sure you can see the **Stage** and also the **Tools**, **Timeline**, and **Properties** panel, which are described above. If they are not visible at all, find them on the Window menu. If you see the panel name but the panel is “closed,” then open the panel by clicking the small triangle widget to the left of the panel name.

### Insert Figure 1.02

Caption: In the Document Properties dialog, notice the settings for:

- Width
- Height
- Background color
- Frame rate (in frames per second)
- Ruler units (in pixels, naturally)

These affect the *entire* Flash movie.

**[endCaption]**

2. In the **Properties** panel, select the size (in pixels) of your Flash movie. Here’s how: Click the Size button in the **Properties** panel and a dialog box opens. In the dialog box, set the *width* and *height* for the final Flash movie (this is the size at which it will appear in a Web browser window, just like a GIF or a JPG). You can also select a *color* for the background of the entire movie. Go ahead, try it.

Of course you’re eager to get busy with the drawing tools, but make sure you understand what you’re doing here. You can change these settings *at any time*; however, it can be a big pain in the neck to change if you have already built a lot of things specific to *this* width and height.

Also take note of the *frame rate*. If you have not edited video or film, working with *time* as a design element will probably be a little strange at first. All you need to know right now is that a frame rate of 12 (the default in Flash) means that 12 frames equals 1 second (“fps” is “frames per second”). If you want a motion sequence to last 2 seconds, at 12 fps it will need to span 24 frames in the **Timeline**. You definitely do *not* want to change the frame rate *after* you have built a lot of things in the movie! It would change the speed of everything in the entire movie.

You’ll learn a lot more about frames in the Timeline—in Lesson 2.

### Insert Figure 1.03

Caption: To change the stroke color for the Pencil tool, open the palette in the Properties panel *after* you have selected the tool.

3. Try out the drawing tools, starting with the **Pencil** tool. Click the tool in the **Tools** panel, then move your mouse cursor to the **Stage**. Click, hold, and drag. If you don't see anything, that probably means your Pencil color is the same as your Stage color. You can change the Pencil color down in the **Properties** panel, which has *changed* to show you the current properties of the Pencil tool.

Now that you're looking at the **Properties** panel, you'll see that you can also change the "Stroke height" (thickness of the line) and "Stroke style" (for example, make your pencil draw a dotted line). Go ahead, experiment with these properties by changing them and then scribbling with the Pencil tool.

The Pencil tool also has three different *modes* for you to choose, but these are not on the **Properties** panel—they are on the **Tools** panel, near the bottom, under "Options." Click to choose one, and scribble something. Select another mode, and scribble something similar. Compare all three modes to learn how they work.

Now, here's a very specific exercise to try with the **Pencil** tool:

- a) Select a "Stroke height" of 3 (in the **Properties** panel).
- b) Under "Options" on the **Tools** panel, select the "Smooth" mode.
- c) Draw a few hills or humps, all connected.
- d) Select the **Arrow** tool from the **Tools** panel. (The Arrow tool is used to *select* things on the Stage, and in fact, in Flash MX 2004, it is called the **Selection** tool instead—but it still looks and acts the same way.)
- e) Click on the **Stage** *outside* your humps, hold the mouse button down, and *drag* to select the complete drawing. Notice how an object has a dotted appearance when it is selected.
- f) Under "Options" on the **Tools** panel, select the "Straighten" mode. Watch what happens to the humps. Click the Straighten button several times and keep watching.

**Note:** To select things on the **Stage**, always use the *black Arrow/Selection* tool, on the left side of the **Tools** panel, unless otherwise directed. The white arrow-shaped tool is actually the **Subselection** tool, and it works differently from the (black) Arrow tool. In Flash MX 2004, the Arrow tool is called the **Selection** tool instead—but it still looks and acts the same.

#### **Insert Figure 1.04**

Caption: A rounded shape, drawn freehand with the mouse (top), can be straightened with a few clicks (bottom), using the "Straighten" mode in the Tools options.

#### **Insert Figure 1.05**

Caption: A rather lumpy leaf (left) can be smoothed with several clicks, and then straightened, to achieve a better result (right).

4. Enough for the **Pencil** tool. You probably have a scribbled mess on the **Stage** that you would like to get rid of. Here is the one time in this lesson that you will use the **Timeline**. You can delete everything in a *frame* if you *select* that frame on the Timeline and then press the Delete key. You can see that there is only one frame (Frame 1, in fact) in your Flash movie, if you look closely at the Timeline. The black

dot and gray background symbolize that the frame has something in it. (If you have clicked the frame, the colors are white dot, black background. Click anywhere else to see the normal state of the frame, which is below the numeral 1, on Layer 1. A vertical red line goes through the frame.)

Click that frame (with the black dot) *once*. That *selects* the frame. Press the Delete key on the keyboard. The **Stage** will become empty. The frame will be white, with a white (or empty) dot in it. Even though this is a very small thing, you will soon recognize that the appearance of frames in the **Timeline** is *quite* important.

Remember that the *black dot* means there is something in the frame. The white dot means there's nothing there.

### **Insert Figure 1.06**

Caption: A single frame in the Timeline.

5. Next you'll try out the **Brush** tool. Click the tool in the **Tools** panel, move your mouse cursor to the **Stage**, click, hold, and drag. If you don't see anything, that probably means your Brush color is the same as your Stage color. You can change the Brush color down in the **Properties** panel, which has changed to show you the current properties of the Brush tool.

Unlike the Pencil tool, the **Brush** tool has *size* and *shape* attributes over in the **Tools** panel (even though it may seem that those should appear in the Properties panel). Change the "Brush Size" and make some more brushstrokes on the Stage. Change the "Fill Color" a few times. (Did you think the Brush would be governed by "Stroke Color"? Wrong, but an understandable mistake.) Change the "Brush Shape" and try that out. You can create neat-looking calligraphy with a little patience and the same smoothing effect you used with the Pencil tool above.

One last trick with the **Brush** tool:

- a) Draw a closed shape, such as an oval.
- b) Change the "Fill Color."
- c) Under "Options" in the **Tools** panel, select the Brush mode "Paint Inside."
- d) Click the mouse *inside* your closed shape, keep holding the mouse button, and *drag* back and forth across the shape a few times. Go outside the lines (the way you *never* did in your childhood coloring books).
- e) When you release the mouse button, you'll see the effect of the "Paint Inside" mode.

### **Insert Figure 1.07**

Caption: The curlicue on the left was drawn freehand with the mouse, using the Brush tool. Select it with the Arrow/Selection tool, then click the Smooth button (under "Options" in the Tools panel) a few times, and you will get the result on the right.

### **Insert Figure 1.08**

Caption: Painting outside the lines (left) is no problem with "Paint Inside" mode (right). The small black dot is the brush cursor.

6. That's sufficient practice with the **Brush** tool. Empty the **Stage** now, just as you did in Step 4 above, by clearing Frame 1 in the **Timeline**.
7. The most commonly used drawing tools in Flash are surely the **Oval**, **Rectangle**, and **Line** tools. You probably already have some idea of how these tools work individually, but you may not know how the shapes *interact* in Flash. So, make sure you have two *different* colors selected for Stroke and Fill, and then select the **Oval** tool. Click and drag on the **Stage** to draw a big oval. (If you'd rather draw a circle, *hold* the Shift key before you click, and *keep holding it* while you drag your shape.)

With your oval (or circle) complete, click the **Arrow/Selection** tool. You'll remember that you can click and drag with the Arrow tool to select a shape. You can also just click something to select it, and that can be very useful—as well as somewhat tricky, as you're about to see. So *click once* on the outline of your oval. (After you click, the entire outline, or “stroke color,” should appear dotted, rather than solid.)

Now *click, hold, and drag* the outline. This may surprise you: The entire outline comes away from the solid oval shape. Let go of the mouse button with the outline *overlapping* the solid fill.

### Insert Web site icon

Select the smaller side of your solid oval and drag that. Yes, you have sliced up your shape. While this can seem maddening at first (if you are used to the bitmap drawing tools in Photoshop, for example), it turns out to be a great asset for creating neat-looking shapes if you're not very good at freehand drawing. In the illustration below, the almond shape on the right could be rotated 90 degrees to become a human eye (Modify menu > Transform > Rotate 90° CW).

### Insert Figure 1.09

Caption: The behavior of the drawing shapes in Flash can be quite useful. Click any part of a shape once to select it. Once selected, it can be dragged away from the rest of the shape.

8. If you aren't used to using **Ctrl-Z** (or Cmd-Z/Mac) to undo, now is a good time to practice. Imagine that you never wanted to slice up your oval. You want to put it all back together again. Okay! Hold the **Ctrl** (or Cmd/Mac) key and press the letter **Z**. Repeat this until the oval has returned to its original complete state. By default, Flash lets you undo 100 steps. (You can change that to a maximum of 200, but doing so will tie up additional system memory.)
9. If you want to move the entire oval shape, *without* breaking it into pieces, *double-click* the inside part of the shape (the “fill color”). If *everything* appears dotted (both the fill and the stroke color), you can be sure you have selected everything. The shape can now be dragged as a single unit. If you make a mistake, Ctrl-Z!

This is a good reason to drag with the **Arrow/Selection** tool to select a shape. When you drag a selection box around a shape, you can *see* exactly what you are selecting, and what you're leaving out.

10. Let's switch to the **Rectangle** tool and see how it differs from the **Oval** tool. (Keep your oval on the **Stage**, so you can use it later.) Select the Rectangle tool. Click and drag on the Stage to draw a small rectangle. (If you'd rather draw a square, *hold* the Shift key before you click, and *keep holding it* while you drag your shape.)

Click the **Arrow/Selection** tool to select it. Then *click once* on the outline of your rectangle. It's important to click and *let go* (that *selects* the object), and *then* click, hold, and drag. When you did this for the oval in Step 7, the complete outline (stroke color) pulled away from the inside (fill color)—but for the rectangle, only *one side* of the outline pulls away. You could dismantle the rectangle outline in four parts, if you wanted to do that.

Assuming you might want to move the *entire* outline away from the fill color, use **Ctrl-Z** (or Cmd-Z/Mac) now to restore your rectangle. This time, *double-click* any part of the outline of your rectangle. You should see *all four sides* appear dotted, showing that they are, in fact, selected. Once you see that, you can click and drag the complete outline away from the solid interior.

11. There's one more click-and-drag trick to master. If you click a side of the rectangle but *do not let go* of the mouse button, you can alter the shape by dragging. (You can do the same at a corner of the rectangle, but the result looks different.) Pay close attention to the mouse cursor when you click and hold, and you will see a clear indication of whether your dragging action will create a *curve* or an *angle*. The little shape that appears to the side of the cursor shows which one it will be.

### Insert Figure 1.10

Caption: What happens when you click on the outline of a shape?

- A. A single click selects one side of a rectangle.
- B. A double click selects the entire outline (stroke color).
- C. Click and hold; look at the cursor.
- D. Drag without letting go.
- E. The shape can be changed by dragging on a side.

**[endCaption]**

12. Practice *combining shapes* to see how this capability in Flash makes it easier to create objects that look good, even if you lack real drawing talent. The first step is to make several shapes you want to combine into one. The second step is to drag the shapes into position.

**Note:** The shape you *select and drag* will be *on top of* the other shape(s). Figure 1.11 shows the result of dragging a small rectangle onto a larger circle.

This next step is one of the vector drawing techniques that can be tricky to master—but it's infinitely useful, so it's well worth the effort. While holding down the Shift key, *click once* on each line you want to remove from the final object. By “shift-clicking,” you can add a lot of strokes (and fills too) to the *selected* state—that is, the state indicated by a dotted appearance. When you have selected everything you want to remove, press the Delete key once.

### Insert Figure 1.11

Caption: By combining shapes, you can produce objects that would be difficult to draw freehand. In the middle illustration above, shift-clicking three times has selected the three straight lines to be deleted. Notice that once a shape is on top of another shape, its outer lines will be broken up by the intersecting lines of the other shape. The illustration at right shows what one press of the Delete key can accomplish.

13. Let's do one last thing with the **Rectangle** tool, just because it can be useful, and it's so simple. Empty the Stage now, just as you did in Step 4 above, by clearing Frame 1 in the **Timeline**. Select the Rectangle tool. Look at the "Options" section of the **Tools** panel; you'll see that the Rectangle tool has one option called "Round Rectangle Radius." Click it, and you get the opportunity to set *rounded corners* for your rectangle object. The "100" setting produces the most rounding; it's nice to use for oblong button shapes. The "20" setting produces a good-looking frame to enclose text. The "0" setting produces no rounding at all, or in other words, a normal rectangle with squared-off corners. You can change the thickness of the border (stroke color) at any time, even after you have drawn the rectangle—just *double-click* the border and change "Stroke Height" in the **Properties** panel. (The stroke thickness ranges from 0.1 to 10.)

#### **Flash MX 2004 Note:**

The **Rectangle** tool has two options in MX 2004; the second one is "Snap to Objects," represented by a magnet icon. Click this when you want at least one edge of the rectangle to align perfectly over the edge of another shape on the Stage. (The **Oval** tool has this new option too.) Also, if you *click and hold* the Rectangle tool on the **Tools** panel, you get the option to use the new **PolyStar** tool, which draws a five-sided polygon shape. This is a fun tool, so be sure to try it. Use the Options button on the **Properties** panel *before you draw* to change the number of sides, or to select a star shape *instead of* a polygon. The PolyStar tool does not exist in earlier versions of Flash.

14. You know enough now to experiment with the **Line** tool on your own, but here are a few ideas you may not think of right away. When drawing a triangle, for example, with the Line tool, you do not need to match the end of each line to the end of another. You can cross lines and extend them, then *select* and *delete* the excess part of any line (just as you did in Step 12 above, when you combined shapes). You will also find the Line tool useful for creating a half-circle, or a pie with a missing piece.

#### **Insert Figure 1.12**

Caption: Draw straight lines and then drag them into position on top of other shapes to cut away new shapes.

## **Additional Tools**

Flash provides ten more tools. The **Text** tool will be discussed in detail in Lesson 9. The **Eye Dropper**, **Lasso**, **Paint Bucket** and **Pen** tools are not very different from the equivalent tools in Photoshop and similar software applications. The **Eraser** tool is easy to experiment with—draw something, and then try out the Eraser tool "Options" on the **Tools** panel.

Try out the remaining four tools, which can be very useful:

- **Fill Transform** tool: If you have used a *linear or radial gradient fill* on a shape (see the **Color Mixer** panel), you can use this tool to *move* the point governing the direction of the gradient.
- **Free Transform** tool: Select any shape with this tool, then *scale, skew, or rotate* the object by dragging the “handles” on the box. You can open the **Transform** panel (Flash MX: Window menu > Transform; Flash MX 2004: Window menu > Design Panels > Transform) to see numeric measures. Another option: On the Modify menu, go to “Transform” and select actions from the submenu to achieve many of the same effects. In other words, there are two other ways to transform an object, *in addition to* using the tool.
- **Subselection** tool: Select the edge of any object with this tool to get access to *anchor points*, or draggable handles, that allow you to alter the shape of the object. For example, draw a square, then use the Subselection tool to reshape it into a skinny diamond shape. (This is quite useful in complex animation.) If you can’t get the shape you want with the **Free Transform** tool, then try this one. You can also use this tool to change a *path* you created with the **Pen** tool.

### Insert Figure 1.13

Caption: Use the Subselection tool to change standard shapes into irregular shapes.

- **Ink Bottle** tool: Use this tool to add an outline (of any color or thickness you choose) to an object *without* an outline. (If the object has an outline already, this tool simply changes the color of that outline.) The outline is called “stroke color” in Flash.

## Drawing Aids

### Snapping

You may have encountered the “snap to” option in another software application, such as QuarkXPress. The option can be turned on or off. In Flash MX, there are two types of snapping available to you. Flash MX 2004 has additional options for snapping. All are available from the View menu.

**Snap to Objects**, when enabled, makes a dragged object adhere to the edge of a second object (if you drag it close to the second object). It also works nicely with the **Line** tool in cases where you want a new line to start perfectly at the corner of an object. When you don’t want this option to operate, it can be extremely annoying—so learn how to turn it off! You can also enable and disable Snap to Objects from the Options (**Tools** panel) for some tools, such as the **Arrow/Selection** tool—look for the magnet icon.

**Snap to Pixels** causes a precise pixel grid to appear if you set Magnification (on the View menu) to 400 percent or more. Each time you move an object or draw a new one, it adheres to the pixels (rather than allowing tenths of a pixel).

## Aligning

When you need to align objects with one another, you may be used to using guide lines (in Photoshop, for example). Flash provides guide lines (View menu), but the options available on the **Align** panel are far better! By *selecting* any number of objects on the Stage (*shift-click* each one), you can *align* them all by clicking one button on the **Align** panel. The farthest object in the direction you are aligning determines the alignment “edge.” For example, if you click “Align right edge” in the Align panel, all the selected objects will align with the right-hand edge of the right-most object selected.

But wait, there’s more! You can also *distribute* the selected objects so they are equally spaced. This is especially useful for a row or column of related objects, such as thumbnail photos. Set the first and last objects where you want them, with all the other objects between them. Select all the objects, then click one of the six “Distribute” options.

## Grouping

If you draw complex objects made up of several (or many) shapes, you may find it convenient to *group* some of the shapes, either temporarily or permanently. When a shape has been *grouped*, it will not cut other shapes (as described in Step 7 above). To *group* shapes that have been selected, press Ctrl-G (or Cmd-G/Mac), or open the Modify menu and select “Group.” All the selected shapes are now stuck together.

Too much grouping can produce strange effects later when you animate an object, so it’s important to know how to *ungroup* also. Once the shapes are ungrouped, they will (again) cut into one another. To *ungroup* shapes that have been selected, press Ctrl-Shift-G (or Cmd-Shift-G/Mac), or open the Modify menu and select “Ungroup.” All the selected shapes are now separate again.

### Insert Figure 1.14

Caption: You should be able to draw all these shapes in Flash, regardless of your artistic skill (or lack thereof) by using the techniques described in this lesson.

## Drawing Tools Summary

This should be enough information to set you on the path to working comfortably with the drawing tools in Flash. As with any software, the more time you spend playing with the tools, the better you will become at using them efficiently. As is also true of most software, you can accomplish quite a lot without learning how to use *every* tool. So don’t drive yourself crazy trying to use all the tools not discussed here.

There are very good reasons to focus on these six tools initially: **Arrow/Selection**, **Brush**, **Line**, **Oval**, **Pencil**, and **Rectangle**. If you become comfortable with these, you will be able to accomplish most simple drawing tasks.

Of course, Flash cannot turn you into an artist if you aren’t one already. But Flash will make it easy for you to create buttons, frames, pointers, and other simple objects.

If you *are* an artist, and you're used to tools such as Illustrator or FreeHand, you may find Flash frustrating because it lacks features you depend on in those programs. You'll be happy to know you can export Flash-compatible vector graphics from those programs (see Lesson 7).

## Conclusion

In this lesson, you have learned to:

1. Identify the **Tools** panel, **Timeline**, **Stage**, and **Properties** panel.
2. Open and close *panels*.
3. Specify the *width* and *height* (in pixels) of the final Flash movie.
4. Select the *background color* for the entire movie.
5. Check or change the *frame rate* for the entire movie.
6. Identify all the items on the **Tools** panel.
7. Use the **Pencil** tool, including *stroke color*, *height*, and *style*, and the options *straighten*, *smooth*, and *ink*.
8. Use the **Brush** tool, including *fill color* and the options *brush mode*, *size*, and *shape*.
9. Draw ovals and circles with the **Oval** tool.
10. Draw rectangles and squares with the **Rectangle** tool.
11. Draw straight lines with the **Line** tool.
12. Use the **Arrow/Selection** tool to *select* objects (or parts of objects) in four ways: click and drag around the object, single-click, double-click and shift-click.
13. Use the **Arrow/Selection** tool to *alter* the shape of an object (click the edge, hold, and drag).
14. Use the **Arrow/Selection** tool to *move* selected objects (select first; then click, hold, and drag).
15. Position a line, or other shape, in a way that *slices* another line or a solid fill—an easy way to create new shapes that are not ovals or rectangles.
16. *Combine* objects to create new compound shapes.
17. Use **Ctrl-Z** (or Cmd-Z/Mac) to *undo* up to 100 actions.
18. Clear a *frame* in the **Timeline** by selecting it and then erasing everything it contains (Delete key).
19. *Snap* objects to each other, or to a pixel grid.
20. *Align* objects or *distribute* them evenly (**Align** panel).
21. *Group* and *ungroup* shapes to make it easier to build complex objects.

(end)