12 Introduction to Adobe Illustrator™

An Adobe Illustrator file is encoded in the Postscript programming language. Postscript files (such as, Illustrator), unlike raster files (such as, Photoshop), always print sharp, crisp and clean, when printed to a postscript printer, regardless of the size of the image is printed. By taking advantage of the postscript programming language, the letter "O," for example, can be printed tiny, like this:

" ° "

or large, like this:

" **O** "

Either way the image prints sharp because it uses the mathematical coordinate information that is encoded in the font's postscript code. Postscript type is designed to look great in large quantities, like, the text on this page, because information about *kerning*, and *hints* that accompany text at very small point sizes, is stored in the postscript code.

How postscript works

Postscript is a programming language designed specifically to create text and graphics on a printed page. It is a page description language that consists of English-like commands that are send to the postscript interpreter, which in turn describes the actual spots on the page using the language of

Fig. 12-1: This rasterized image of the letter "o" has an effective resolution of 72 dpi

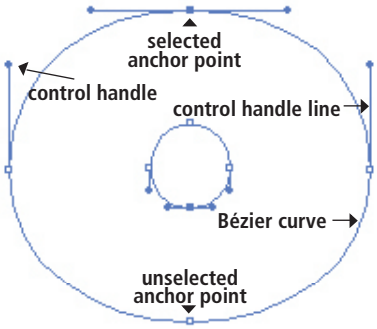


Fig. 12-2: This illustration shows one method of creating the letter "o," which will be encoded in postcript and then printed. Postscript files always print at the highest resolution of the printer, which could be 600, 1200, even 300 dpi.

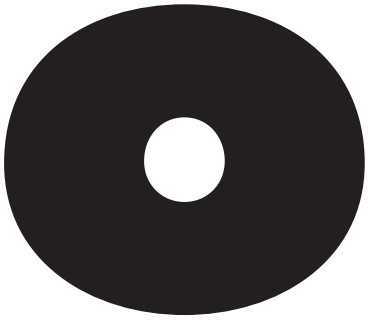


Fig. 12-3: This is an example of the postscript "o" printed at 1200 dpi. Notice the difference between it and the one at the top of this section.

mathematics. Do you remember back in grade school, learning how to pinpoint information on a graph? Describing a point's location in the 8½ x 11" image area works in much the same way, except that there are millions (instead of dozens) of possible locations (spots) for the printer to place the dot. Dots are printed, or not, at each one of millions of the exacting X/Y coordinates on the page.

A 300 dpi (dot per inch) printer can describe 90,000 spots in every square inch (300 x 300)—that adds up to 8.5 million spots on a letter sized sheet. Sounds like a lot of spots to me, but an imagesetter that is used for professional quality printouts contains over six hundred million spots! That's a ton of detail, and describing it using postscript, as opposed to describing the bitmap, requires far less disk space.

In order to print, the output device must first interpret the postscript code, and does so by converting it from postscript to a bitmap, creating a raster image. Printers that are capable of interpreting Postscript provided they have the postscript interpreter, also know as a RIP (Raster Image Processor). Most laser printers, but not all, are sold with the postscript RIPs already in the ROM.

Printers like dot-matrix or inkjet printers are also known as QuickDraw printers, and actually take the screen information and print from the screen. It is important to be sure that Adobe Type Manager (ATM) is installed and turned on in order to properly render all sizes of fonts on the screen. If fonts are not being properly rendered, they will look jagged and will print just as they appear on the screen.

Software RIPs can be purchased separately for most non-postscript printers. Many printers, including high end color copiers can be purchased with a standalone RIP, which is a separate CPU that interprets and passes along to the printing device the processed information about where to image dots on the page.

File Size

Why postscript? Smaller file sizes, reduced processing time, optimum resolution. Unlike a raster file, the file size of a postscript file is determined, not by the resolution of the output device the file is sent to, nor the total number of possible spots that it contains, but instead, by the complexity of the page geometry ultimately used to describe the image file.

More anchor points in an Illustrator file creates a larger file size. Gradients

and patterns, including the hatch patterns, will increase a file's size significantly.

Comparing file sizes

The size of an Illustrator file does not depend on the page size, but on the number of anchor points and the complexity of the postscript code.

If we were to create a file like the one in Fig. 12-3 that is approximately 3 inches x 2.5 inches and print to a 3,000 dpi imagesetter for maximum quality, here is how the file sizes would stack up.

Illustrator file (postscript) - 10 k (kilobytes)

Photoshop file (bitmap) - 8.05 Mb (megabytes)

In this scenario, the bitmap file is over 800 times larger than the postscript file! The bitmap format is appropriate for those parts of the image that will be photographic or if your intention is to give your image the unique "textural" quality that is achieved by changing each of the pixels in their own color.

Illustrator files are vector. The range of color and form are specified by mathematical formulas based on geometric principals—curves, vectors, etc. You don't need to *do* the math, but there is a fundamental difference between a vector object and a raster object. Let's magnify a small circle and take a look at how and why the raster image and the vector image differ by the amount of space they occupy and the way they appear in print.

Don't be confused when some vector programs claim to do tricks only raster software can perform. They usually just convert the image to a raster image, never again to know it's true vector self.

What kinds of things can you do with raster that can't be done in vector? Transparencies, for one—real transparencies. Not the fake illustrator kind.

Illustrator Objects

You will be creating the same, simple graphic image like the one at the right, in both Adobe Photoshop and Adobe Illustrator. In Photoshop, you will create three separate files at 72, 150, and 300 dpi resolution. In Illustrator, you will create one file.

This exercise is designed to familiarize you with the following:

- **Ellipse tool**
- **Color palette**
- **Moving objects**
- **Rectangle Tool**
- **Selection tool**
- **Visual scaling**
- **Fill and stroke**
- **Constrain objects**
- **Stacking order**

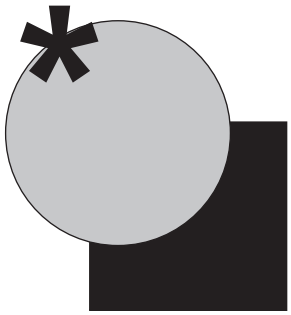


Fig. 12-4: Each Illustrator object stacks on top of the one before it, places some objects in front, others in the middle, and each successive object on top. This feature is known as "the stacking order."

In Illustrator:

1. Create a new document by going to the File Menu > New. Arrange your workspace so that the only palettes that are open are the tool palette and the color palette.
2. Choose the rectangle tool and create a perfect square using the shift key to constrain the rectangle as you drag. You will see a blue path with anchor points on the four corners. This indicates the square is selected.

Now we're going to change the attributes of the square.

3. With the square still selected, reset the color and stroke swatch to defaults by pressing the letter "d" on the keyboard. That assures the fill is white and the stroke is black.

Next you'll do a little fancy keystroking to change the attributes again.

4. Press the combination "shift-x" to flop the fill and stroke attributes. That should make your fill black and your stroke white.

Notice that the stroke swatch is in the forward position, just where it needs to be in order to change it's color. Right now it is white and doesn't show up at all on a white sheet of paper. But the minute we put it on a color, you will see a definite white stroke.

5. Press the forward slash "/" on the keyboard to change the stroke to none.

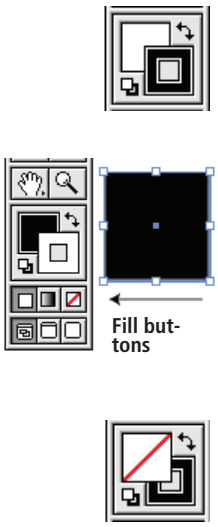


Fig. 12-5: The "swatches" at the bottom of the Illustrator tool palette represent the fill and stroke.

Postscript type

Adobe makes Postscript. Adobe makes Illustrator. Postscript type works best with Illustrator, better than True Type. True Type will sometimes work, but not always, because not all RIPs can process all True Type. If you will be using a service provider to output your files to film or RC paper, they will probably advise you to avoid using True Type fonts in your document, because they do not reliably process on some RIPs. Adobe Type Manager (ATM) is necessary in order to render fonts on the screen (called screen fonts, by some, and bitmaps by others because the screen display is a bitmap) as accurately as possible at all sizes.

In order for Postscript type to print so clean and provide scalability, programmers plot out the coordinates for the font's outlines and store the information in the code. It is the outline information that is fed to RIP and then printed. Because the outlines are described using the language of mathematics, sizes can be increased or decreased without any loss of quality.

This part of the font is known as the *outline file,* or sometimes the *printer font.*

The part of the code that enables the font to be rendered on the screen is referred to as the *screen font* or *bitmap,* and is stored in a separate file. Both parts of the font are necessary in order have use of the font.

Adobe Type Manager

Adobe Type Manager (ATM) is one of those "gotta have" utilities that no one should be without. Rendering fonts to the screen (also know as rasterizing) is the process of converting the code in each of the screen fonts to the computer monitor. Without ATM, any font you choose whose specific size code is not stored in the font suitcase would look hideous. The computer looks for the specific size you choose before rendering it to the screen.

ATM handles the complex task of reading the code in the outline file, scaling it to the precise size you specify in the software and then properly adjusting and rendering it to look great on the screen.

ATM is a must-have, even if you don't use a postscript printer. If you have an inkjet printer, ATM will actually render the postscript font at the printer resolution, giving you the best quality printing possible from that printer.

True Type

True Type is Apple's answer to postscript. Like postscript, True Type draws on an outline code for its information, and therefore is scalable as well, printing smooth and clean at virtually any size. What's more, its far cheaper, more accessible, and there is only a single icon to deal with, when using True Type.

If that's the case, then why use postscript at all? I'm glad you asked. True Type generally takes up more disk space, which is, perhaps a small price

Postscript fonts Fig. 12-6

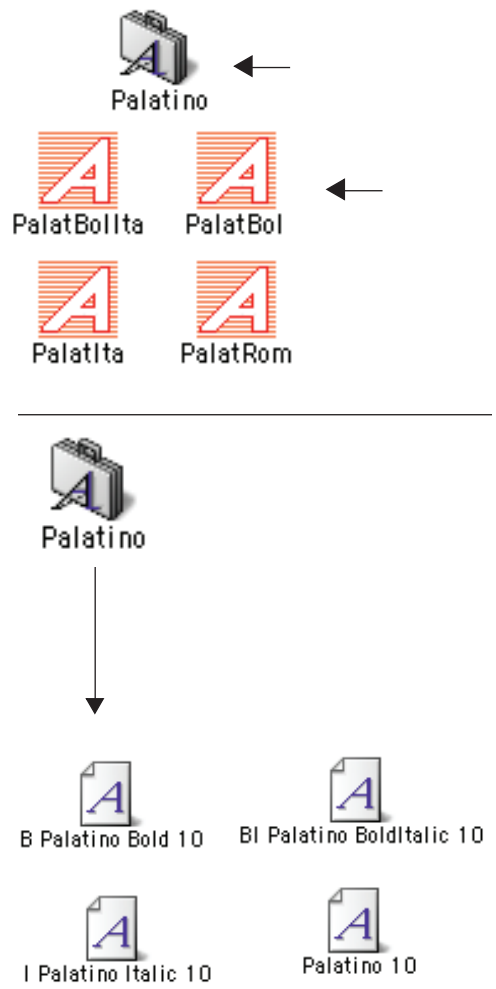


Fig. 12-7

to pay for the convenience of a single icon that stores all the information. The biggest drawback to True Type fonts is the fact that they don't work with postscript imagesetters. In other words, true type fonts may proof fine on your inkjet or laser printer, but when you send your files to a service provider, the job may have problems. If the service provider can't quickly find an appropriate substitute for the true type font, the job might be delayed or it might print with the wrong font.

Converting fonts

If you have a font editing program such as Macromedia's Fontographer, you can open a True Type font and convert it to postscript and vice versa. It also comes in very handy if you are working cross-platform and need to use the same font on a PC and Mac. Check the internet for other utility programs that can be used to convert fonts.

Bézier curves

Fig. xx depicts the "anatomy" of a Bézier curve, named in the early 1970s for their creator, Pierre Bézier. In the 70s, Bézier curves were used as a way of controlling mechanical cutting devices, and were adopted by Adobe and used in the creation and development of the postscript programming language. Illustrator was developed as a software program to show off the amazing capabilities of postscript.

Strategies

When you first see the Illustrator tool palette, you should be immediately struck by the similarities to the Photoshop tool palette. In both programs, the tools are separated by clear divisions which group the tools in various relationships. As you browse the tool palette, you should notice other similarities.

Similarities

Let's take a look at the Illustrator Environment. Because Adobe makes both Photoshop and Illustrator, they have created many similarities in both the appearance and functionality of the two programs. Look at carefully at the program window, menus, tools, and palettes. Look for items you recognize, either from the finder or from Adobe Photoshop. Make both a written and a mental record of the similarities to reinforce your learning.

The tool palette itself is already somewhat familiar. At the bottom are the Screen Viewing Mode icons, which can be "toggled through" by pressing the letter, "F," on the keyboard. Press the tab key to toggle the palettes off and on again, just like Photoshop.

Illustrator's tool palette has swatches similar to Photoshop's foreground-background color swatches, except that instead of representing a "foreground" or a "background," Illustrator's swatches represent the fill and stroke colors of the selected object, or path.

The small arrow in the bottom right corner of the tool's icon indicates that the tool is a pop-up. Click and hold the mouse button down to display other

related tools. Other tools that are common to both Photoshop and Illustrator are the pen, paintbrush, pencil, gradient, eyedropper, the hand and the magnifying glass.

Seeking out tools that are the same, or similar to those of a program you've already learned, or with which you are familiar, is one strategy to speed the learning process. A second strategy is to evaluate what you can do in one program, and then figure out if and how it's done in another program. Is it the same, or similar, or is it even possible? For example, if you rotated a selection in Photoshop, ask yourself, how would one rotate an object in Illustrator—not if, but how—because it is almost surely possible. Which tools are new in Illustrator that you won't find in Photoshop? What are the tools' functions?

As you come across features in a new program, make a mental note when their placement, function or keyboard shortcuts mimic another program you know. Making connections with material you've already learned will reinforce your mental data banks, making it easier for you to remember. With each new graphics program you undertake, the learning curve will become less steep.

Begin the kinesthetic exercise of practicing the keyboard shortcuts over and over, and in no time at all, you will find yourself invoking menu items and moving through sequences of commands without giving them a second thought. If you don't practice and decide not to use keyboard shortcuts, you may arrive at the same destination, but you may be late, and your wrists will feel the difference.

The Illustrator work environment

As you examine the Illustrator work environment, you will begin to recognize the similarities between Photoshop and Illustrator.

The tool palette

As mentioned earlier, Illustrator's tool palette is similar to Photoshop's in several ways, but Illustrator 8's palette has a "tear-off" feature, which lets you create separate palettes for any of the pop-up tools. To do so, click on the tool, holding the mouse button down and drag the arrow to the right side shown in figure 12-8, top. Release and the tool will appear in its very own palette. You'll have to judge how many palettes you want to keep open

Reset tool to default

Mac

Command-click any tool to reset all the tools to defaults

PC

Control-click any tool to reset all the tools to defaults

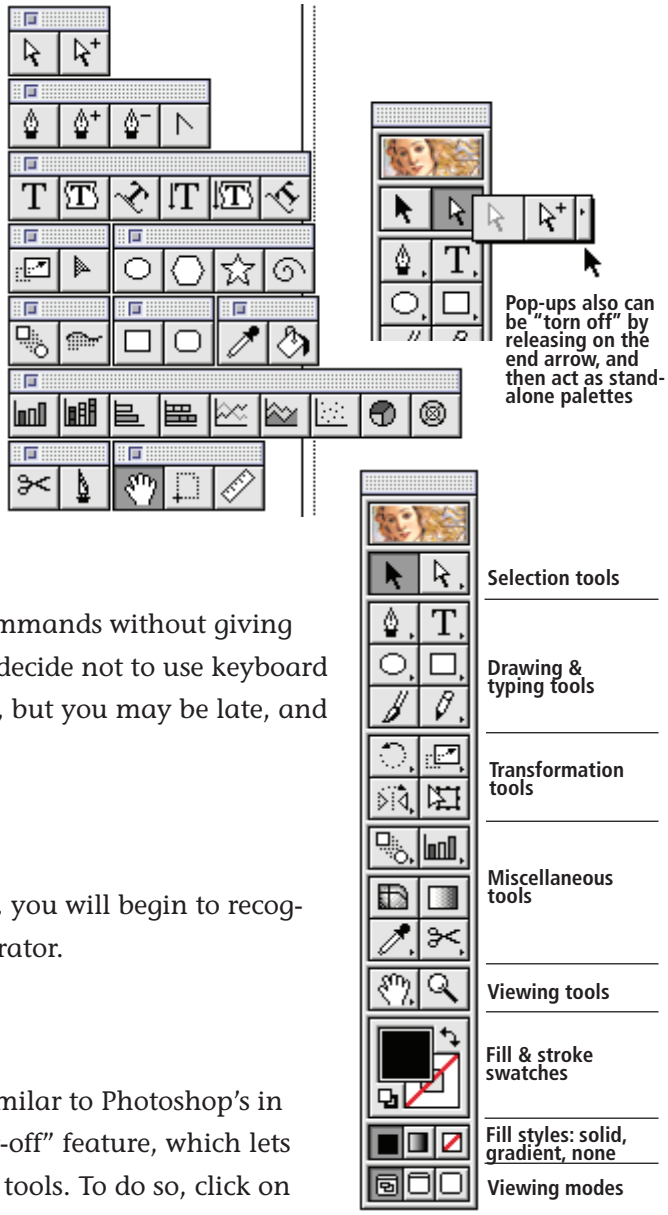


Fig. 12-8: The Illustrator tool palette—an overview.

Fig. 12-9: Like Photoshop, Illustrator's window menu divides the palettes into logical "docking sets."

at any given time based on how much screen real estate is available.

Illustrator's tools are grouped into somewhat logical groupings in the palette (figure 12-8). Illustrator boasts a straightforward set of drawing tools—six to be exact. All drawing is done using either the pen tool, the shape drawing tools, paintbrush or the pencil. The remainder of the tools are for making transformations or otherwise changing or editing Illustrator images.

Illustrator is full of palettes. Not only do a majority of tools have optional tearoffs, which then become palettes in their own rite, but check out the number of available palettes under the Window Menu. Just as in Photoshop, the Illustrator palettes are grouped in their logical "docking" arrangement.

Illustrator palettes work in essentially the same manner as the Photoshop palettes. If you want to change the positions of the palettes, so that they are docked the way you like to work, do so just as you do in Photoshop. Drag the tab of an open palette over the palette you want to dock it to. Release when you see a bold outline appear around the body of the palette, and you should now have your own, custom docking station. The palettes, in general, offer a convenient way to edit the attributes of a selection.

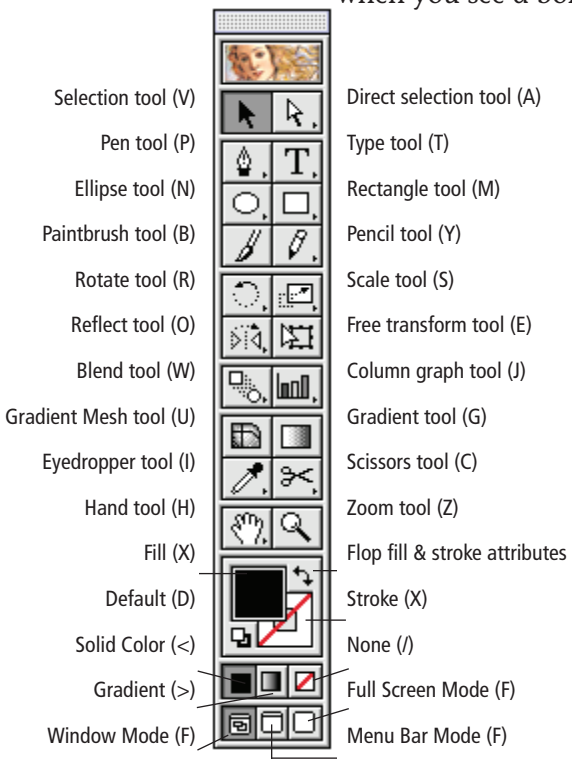


Fig. 12-10: Anatomy of the Illustrator tool palette and the "hot keys" for each tool.

It is important to take some time to begin "exploring" Illustrator. Search the menus for items you recognize. Display the various palettes and look them over. Because a palette is just a tiny window, the palettes have a similar structure, as any other window, albeit without all of the same features. Palettes can be moved by their title bar and collapsed, resized, and some palettes can be scrolled or have an information bar across the bottom. Palettes will always stay "in front" of the Illustrator window, but can be stacked on top of each other, when they behave like windows among themselves.

Notice that some menu items in Illustrator are the same as Photoshop and some may just be in a different place. Because Illustrator is a vector program, the Illustrator toolset and menus are strictly vector, with the exception of the bottom half of the filter menu. That set of filters is designed to convert your selection into a raster image where it is destined to live our the remainder of its life, for once raster, always raster.

Whenever beginning to learn any new program, it is helpful to examine the program's preferences, which allow you to customize many of the program's

behaviors. It isn't necessary to memorize anything, but glance back over the preferences often to see how you can create a more efficient and productive working environment.

With each new program or strategy you learn, your creative potential multiplies geometrically Look at good design. Be open to multi-tasking, using good design principles as you explore and create, moving files to the best program for the job, even if that means working on the same image in several different programs to recreate what you envision.

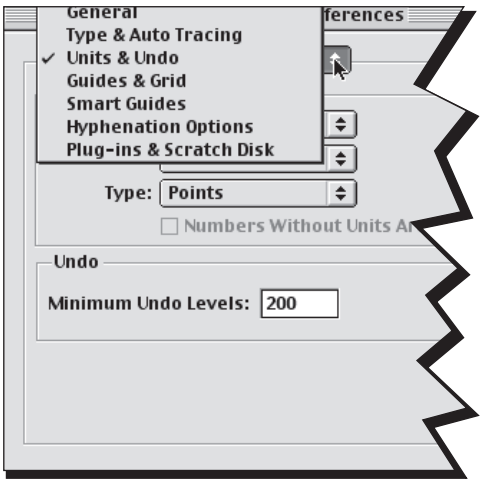
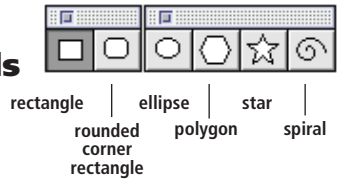


Fig. 12-11: Illustrator lets you set your preferences for up to 200 undos. Feel free to experiment, knowing with the multiple undo/redo feature you can get yourself out of a jam.

Shape Drawing Tools



There are two fundamental approaches to creating shapes: click and drag to draw using a freeform visual approach, or click and release to get a dialog box that lets you create the desired shape with mathematical precision. Once the shape is created, you can edit it by changing its fill and stroke, modify its shape or proportions, undo it, or leave it alone.

Modifier Keys

The shift key is a modifier key that works in virtually all environments as a constraining key. In the case of the shape drawing tools, the shift key constrains the proportions of the horizontal and vertical axes, forcing a rectangle to a square, an ellipse to a circle. The shift key forces the polygon and star to a 90-degree angles, keeping them upright on a horizontal axis. Use the up and down arrows on the keyboard to add or subtract sides on the polygon, or to add or subtract points on the star.

Stars have both an inside and outside radius. They can be set with mathematical precision by clicking and releasing the cursor in the image area to call up the dialog box, or use the command key to control the star's size and form visually. Once you have the inside and outside radius the way you like, release the command key to continue sizing the star. The option key works with the spiral to add and subtract segments to the spiral, otherwise known as the decay rate.

Don't worry if you don't remember what all the modifier keys do. If you're not sure what will happen, try it anyway. You may make a mistake, but so what? Sometimes mistakes reveal new information, and other times, you'll just have to press command-Z to undo. Big deal.

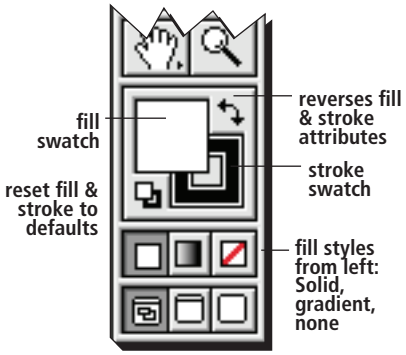


Fig. 12-12: Practice changing the fill and stroke of objects until you get the hang of it.

Fill and Stroke

Every Illustrator path, regardless of whether it is an open or closed path, has a fill and stroke assigned to it. The swatches at the bottom of the tool palette display the current fill and stroke, or the fill and stroke of a selected path. The solid swatch represents the fill color, and the outlined swatch represents the stroke color. Clicking on either swatch brings it to the front where it needs to be in order to assign a new attribute. The double headed arrow exchanges the fill and stroke attributes, and the button at the bottom left resets the fill and stroke to the default, which is a white fill and a black stroke.

I suggest you just press the letter "D" on the keyboard to reset the default fill and stroke, just as you would press the letter "D" to reset the foreground, background color swatches in Photoshop. The press the "/" key to reset the white fill to "none." (That's the key that has the "?" on top.) This short key sequence gives you a path with a black stroke and no fill which is usually my preferred modus operandi.

Artwork mode

When Illustrator first came out back in 1986 (check this) you had to create and edit your path in the artwork mode, which only showed a sort of wireframe of the illustration with no fill or stroke to obstruct the view of the entirety of the path or paths. The "preview mode" let you view the image as it would appear in print, but unfortunately it was back to the artwork mode for editing. Switching between the artwork mode and the preview mode was the bane of graphic designers, illustrators, and well, anyone with a slow machine, and that was everyone. It was a happy day when Illustrator finally enabled editing in the preview mode. I praised the day when I could finally see what I was doing! It didn't take long before I learned that there really was no one best way to work. There are different solutions for every problem with variations on a theme. There may be more than one solution for a given problem. Working in the preview mode is all well and good, but be appraised of the fact that the fill of a path can obscure the path itself, and it is often difficult, if not impossible, to see what you are doing while you are creating a path with an active fill.

When I begin an Illustrator image, I usually like to create the initial path with a black stroke and a fill of "none," but you may find that you prefer working in the artwork mode.

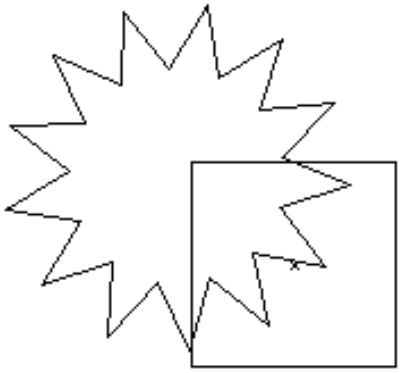


Fig. 12-13: Starbust and square in the artwork mode.

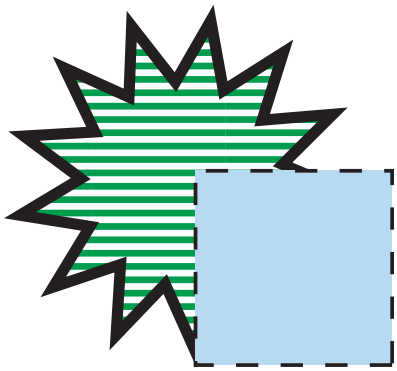


Fig. 12-14: Starbust and square in the preview mode.

Colors

The Illustrator color palette gives you several options for specifying color and is similar to Photoshop's color modes. We also call these color models or color space.

Grayscale - For one-color black and white illustrations, you can specify fill and stroke in percentages.

RGB - Web color is specified using RGB, or anything that will ultimately be displayed on a television or computer monitor should be specified using RGB.

HSB - Hue, saturation and brightness may be useful for adjusting the saturation and brightness of an RGB image.

CMYK - Process printing color is specified using CMYK, or cyan, magenta, yellow, black.

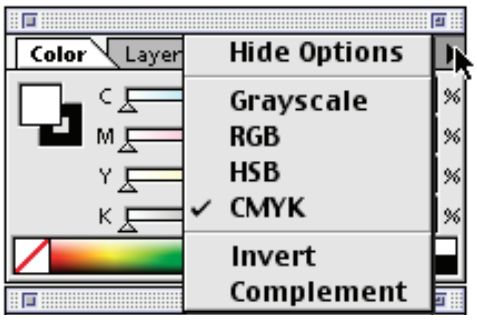


Fig. 12-15: Specify colors using any one of four color models.

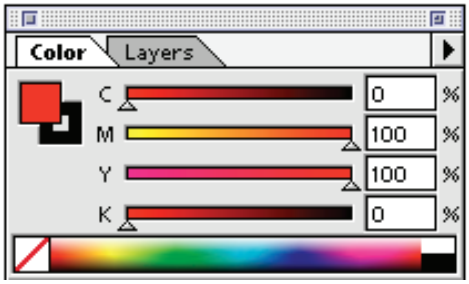


Fig. 12-16: Shows how red is mixed in CMYK.

Choosing colors

You can make a quick color choice by clicking in or dragging through the color ramp that stretches across the bottom of the color palette. As you do so, the corresponding values will appear in the color sliders. The color you select is applied to whichever swatch is in the forward position—either the fill or stroke. You can reverse the positions of the swatches either by clicking on the rear-most swatch, bringing it forward, or press the letter "X" on the keyboard.

If you are doing roughs, you may base your color choice on way colors look on the computer monitor. Your Illustrator image may be intended for the internet, interactive CD, video, or four-color process printing. You can be sure that the final color is predictable, no matter what medium, provided you specify color by number, using the appropriate color space.

For example, if you want to use red for an image that going to be printed for a four-color process poster, you should specify red as percentages of cyan,

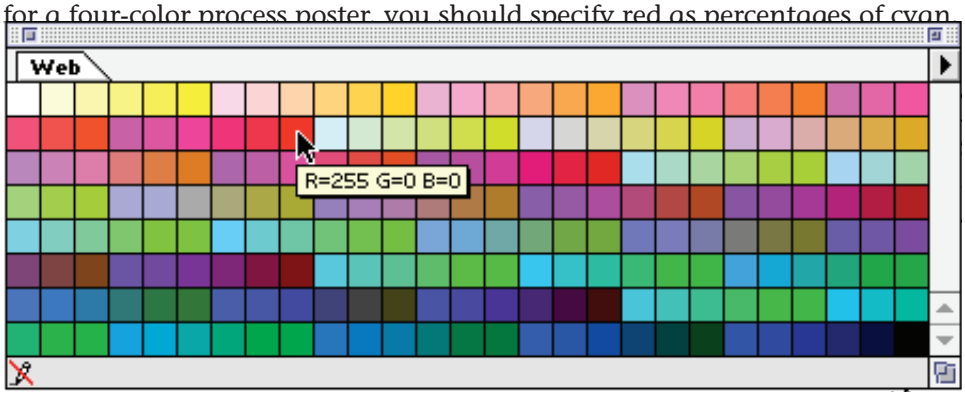
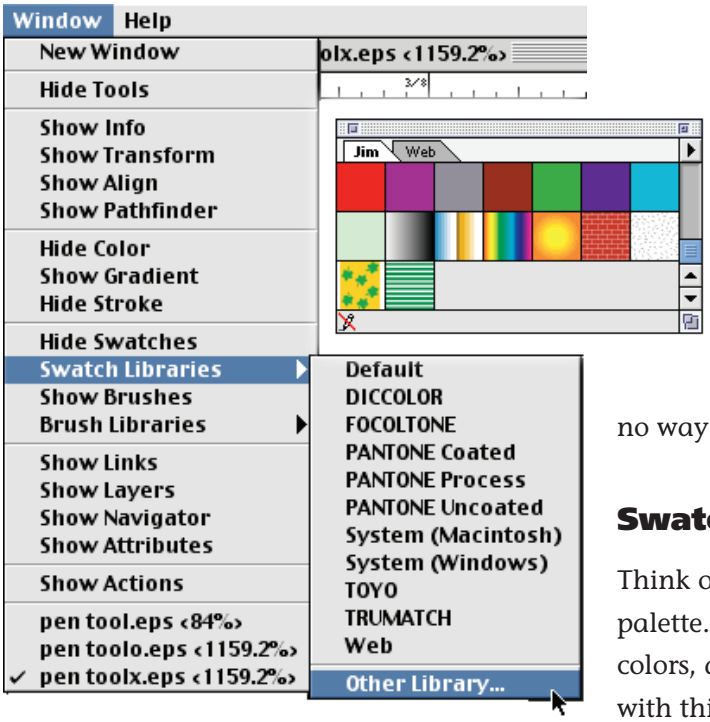


Fig. 12-17: Displays the optional web-safe swatch color palette.

Whether we're talking about getting up in the morning or beginning an Illustrator image, each person eventually creates some set patterns of behavior. Some of our habits may be deeply ingrained having done the same thing for years and years. Perhaps we are not aware that alternative or new methods have been developed and are now available.

Habits are most often invoked because they involve the path of least resistance. They are time-worn remedies that work for us. Sometimes it is good to remove oneself from the well-worn rut of traveling that path. Become conscious of your habits and determine the appropriate moment to purposefully break the mold. Do the unexpected and don't judge yourself prematurely.

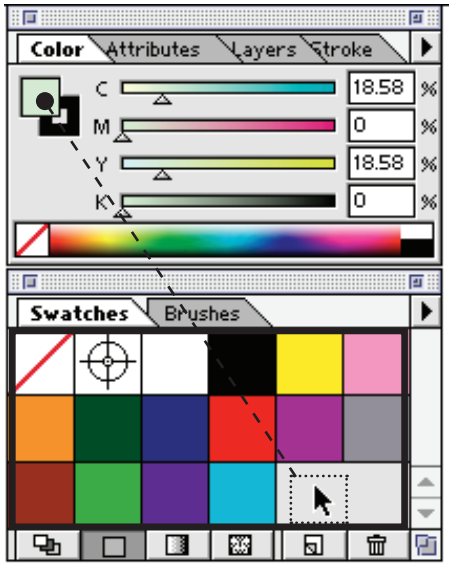


magenta, yellow and black.

If, however your Illustrator graphic is going onto a web page on the internet, the red should be specified in web safe RGB values. Using web safe colors is the best way of ensuring that the color you specify is what will appear on the end users monitor. Of course, if their monitor isn't calibrated to yours, which it most probably will not be, there is no way yet of completely controlling color.

Swatches

Think of the swatches palette as if it were an artist's palette. Use the Colors Palette to mix and play with colors, and when you create a color you want to save with this document so that you can use it again, drag the swatch from the color palette to the swatches palette. See Figure xx. Now save the document, which I'll call, "Jim." The only time that custom color set will be available is when "Jim" is open, and every time "Jim" is opened.



For the sake of argument, let's say "Jim" has a very attractive color palette, and you would like to use it in other files. Here's what you need to do:

1. Go to Windows > Swatch Libraries > Other Library…
2. Find the file "Jim" and open it.
3. "Jim" will show up in your window as a new palette.

Each additional palette you open, like the web palette, or one of the Pantone palettes, will open as a separate window on the screen You can save space by custom docking your palettes like Web and Jim in Figure xx.

Selecting

Fill

Stroke

TK

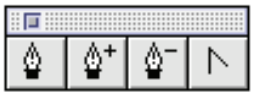
The Pen Tool

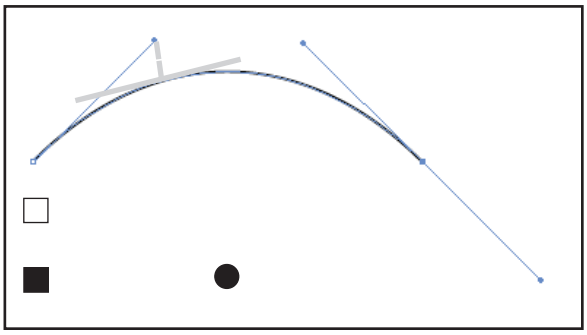
The pen tool is used to create paths, which can be open or closed, filled or not, and stroked, or not. You've probably heard the expression, "The shortest path between two points is a straight line." With Adobe Illustrator it's the same. Creating straight lines and multiple straight line segments is about as basic as Illustrator gets.

If you prefer to continue using the pen tool for straight lines or bezier curves, you can press the command key and click in the image area instead of clicking the pen tool. Command click is the computer's signal that you have completed a path and are ready to begin a new path using the pen tool.

---

1. Select the pen tool and move* the cursor into the image area.
2. Click and release the mouse button to set the position of the first anchor point.
3. With the mouse button still in the "up" position, move the cursor to the position where you want your line to end. Click and release the mouse button to set the second anchor point. If the second anchor point completes the path, click on the pen tool to indicate the path is completed.





Bézier Curves

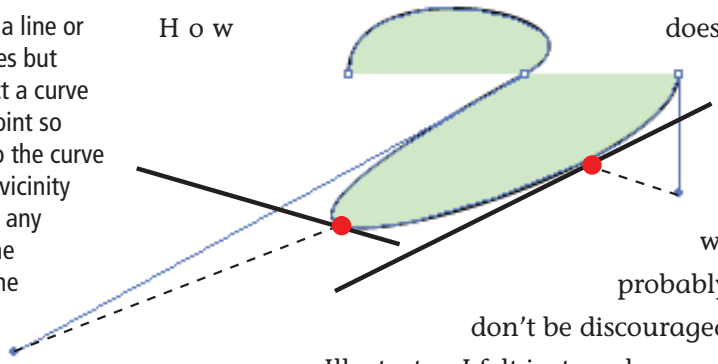
At the heart of the Illustrator program is its curves—*Bézier curves,* to be precise. The curves, named for their creator, Pierre Bézier, are a mathematical, as opposed to an artist's approach, to creating curves.

Each Bézier curve consists of four points, with two *anchor points,* one at the end of each *segment,* and two *control handles,* each one connected by a *control handle line* to the anchor points.

I've always thought that Bézier curves behaved a bit like a marionette. The control handle works like the control handles on the marionette. Pulling and stretching the end of the control handle, which in turn, forces the curve to bend and stretch as if there were a string tied from the control handle to the curve. But the string isn't tied just anywhere on the curve…it's tied to the shortest distance between it and the curve, and that point is determined by drawing an invisible plane that touches but does not intersect the curve.

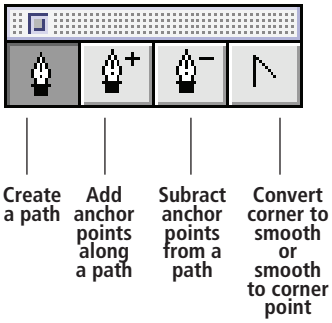
*** make sure the mouse button is in the up position when you move the mouse to the drawing area.**

tangent - a line or plane that touches but does not intersect a curve or surface at a point so that it is closer to the curve or surface in the vicinity of the point than any other line or plane drawn through the point.



How does that help you? You probably never mastered the art of marionettes—neither did it—and if you're like me, the last time you thought about geometry was in the eighth grade, and that probably wasn't even voluntarily. But don't be discouraged. After my first few times using Illustrator, I felt just as clumsy and confused, not to mention stupid as I did the time when I tangled up my friend, Sam's, marionette strings. Don't you feel better now?

The real point is this: you really don't have to understand how Bézier curves are created, you just do it over and over until you get a feel for it, like riding a bike or tying your shoes.



So I never really thought much about Bézier curves being like marionettes before, but I think the analogy works anyway. And I do have a friend who is a puppeteer.

The best way to understand how to create elegant Bézier curves it to spend lots of time practicing them. You didn't learn to handwrite overnight, so don't expect to be able to master Bézier curves in one or two lessons.

The Pen Tool - Line

To create a straight line, click and release the pen tool where you want the line to begin. Move the cursor to the point on the screen where you want the line to end and click and release to set the second and last anchor point. In order for the computer to "know" that it is the last anchor point in the path, click the pen tool to indicate you are done.

If you prefer to continue using the pen tool for straight lines or beziér curves, you can press the command key and click in the image area instead of clicking the pen tool. Command click is the computer's signal that you have completed a path and are ready to begin a new path using the pen tool.

Fig. 12-1: Faux metallic embossed seal in its completed black and white form.

Efficient production is very much like cooking. When I watch the cooking shows on TV, the chefs have all their tools organized and the ingredients are neatly lined up on the counter within easy reach. Recipes are just a guideline—the professional chef understands the basic principles and elaborates on them as the occasion arises. The chef knows just the right height for the flame and how to make a sauce from the drippings. I view computer graphics and production work in much the same way.

Before I begin a project, I like to make sure my work area is set up so that I know just where to reach for my tools, and I want to make sure they behave the way I expect. We're going to follow a recipe for creating a seal, but the techniques you learn as you compose the seal will be useful in numerous other projects and designs.

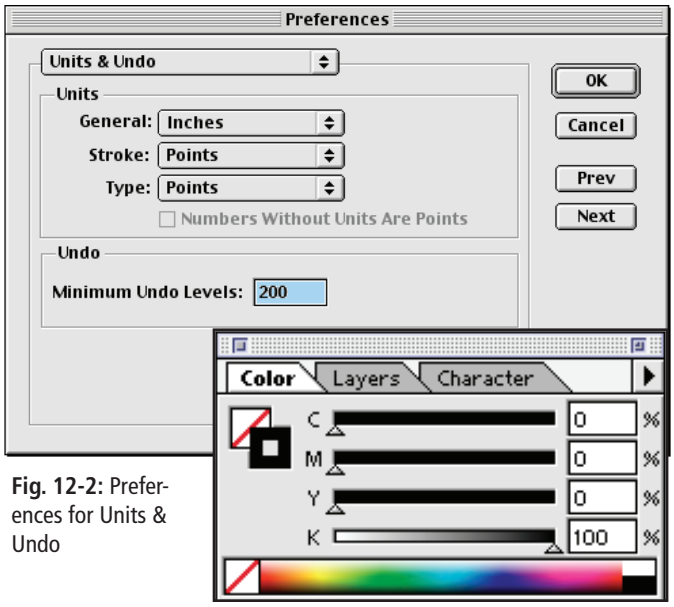


Fig. 12-2: Preferences for Units & Undo

This exercise is designed to familiarize you with the following:

- **Shape drawing tools**
- **Palette principles**
- **Offset paths**
- **Add anchor points** • **Filters**
- **Type Tool**
- **Text Formatting**
- **Layers**
- **Export to Photoshop**

1. Begin the exercise bycreating a new document. Arrange your palettes so that you will have easy access to Colors, Layers, and the Character Palette. Dock them together to create additional screen real estate.

2. Confirm that your "Undo Preferences" are set to the maximum—200 for maximum undo and redo flexibility. Command-K will bring up the preferences. Then use the pop-up to go to "Units and Undo." Change the General units to inches, but make the Stroke and Type in points (Fig.12-2).

3. We'll begin by creating a 2-inch circle, so click on the Circle in the tool palette and move the cursor to the drawing area. You can create a circle by clicking and dragging, but we know the precise size, so instead of dragging the cursor, click and release in the drawing area. This will bring up a dialog box where you will enter the proper dimensions, which in this case are a 2-inch width, and a 2-inch height.

Circle Strageties

1. Create another, smaller circle the same way we created the first. Use the "Align" Palette to align the center points of the two selected circles.
2. Eyeball it, creating a second circle by dragging from the center out, holding down the option key to force the shape to draw from the center. If we select the original circle, the center anchor point acts as a guide to indicate the exact center point.
3. Select the circle and double-click the scaling tool to create a larger or smaller copy.
4. Go to Object > Path > Offset to create a duplicate path that is precisely positioned.

We're going to be creating a scalloped edge to the circle, but before we do, let's create the path onto which we'll "bind" the circle type. There are several different strategies, but in order to determine the best, you'd need to know what they are, so I'm going to list the various strategies in the margin. Any one of the strategies will work. As you become more familiar with the program, you'll be making your decisions on the fly. For the purposes of this exercise, we'll create our concentric circles by using strategy #4.

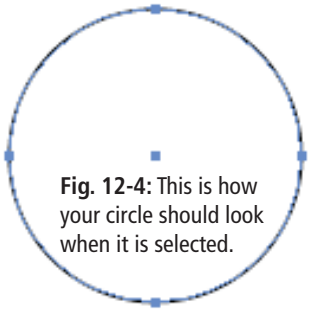


Fig. 12-4: This is how your circle should look when it is selected.

4. Select the circle and go to Object > Path > Offset to create a duplicate path that is precisely positioned. Set the offset for -0.167 which is the equivalent of one-sixth of an inch. By entering a negative number, the new circle will be placed inside of the original circle. Don't be concerned with the joins or miter limits, since we're working with a circle.

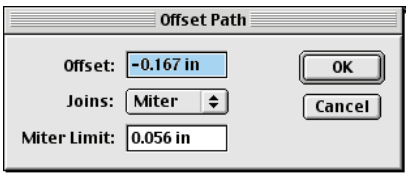


Fig. 12-5: The selected circle is the original, and by setting a negative offset, it places the duplicate concentric circle inside, rather than outside of the original path.

Now we'll return to the outside circle and create the scalloped edges. In order to do that, we'll need additional anchor points equally distributed along the path.

5. To create the additional anchor points, go to Object > Path > Add Anchor Points. Do this a total of four times. Each time you add anchor points, it will place new anchor points at the mid-point between all existing anchor points. This should provide enough new anchor points to make an effective scalloped edge (Fig. 12-6).

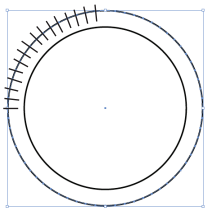


Fig. 12-6: Too small to see here, each crosshatch represents the insertion of an additional anchor point.

6. To create the scalloped edge, go to Filter > Distort > Punk & Bloat. Turn on the preview check box, and change the percentage to 1%. Feel free to experiment—you may decide to use the "Punk" feature instead or you might find something that will work in another project and come back to it later (Fig. 12-7). (Always feel free to explore—that's how you'll find pleasant surprises.)

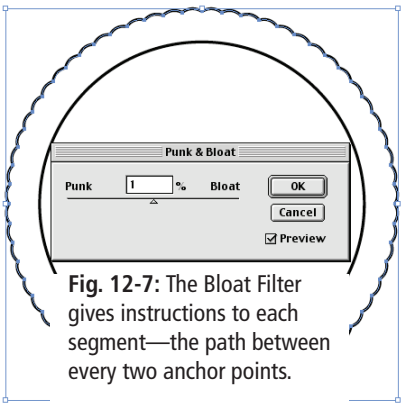


Fig. 12-7: The Bloat Filter gives instructions to each segment—the path between every two anchor points.

Now we are ready to begin on the type portion of the seal.

6. With the arrow tool, select the inner circle. Because we are going to "bind" the type to the circular path, we'll tearoff the type tools to keep them handy. Release on the endbar on the right side of the tools, and the popup will "tearoff," leaving the tools visible for easy use. Select the tool for creating type on a path. Once selected, click on the top center anchor point of the path, and when you see the flashing cursor, type your text (Fig. 12-8). Be sure that the crossbar on the cursor is directly over the

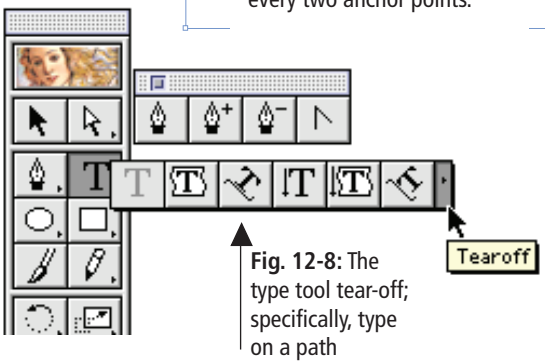


Fig. 12-8: The type tool tear-off; specifically, type on a path

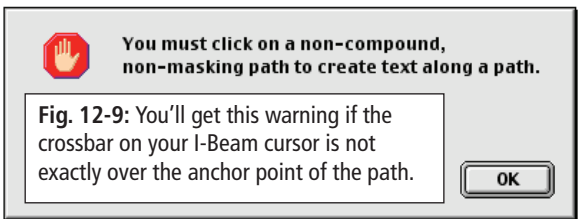


Fig. 12-9: You'll get this warning if the crossbar on your I-Beam cursor is not exactly over the anchor point of the path.

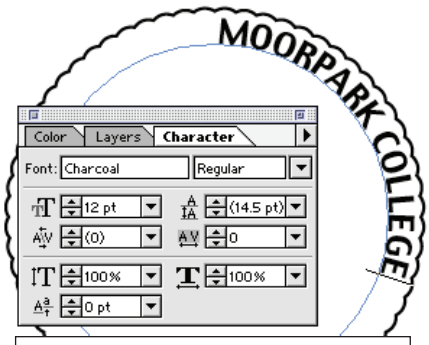


Fig. 12-9: This type, bound to a circle path, is left justified to the top anchor point.

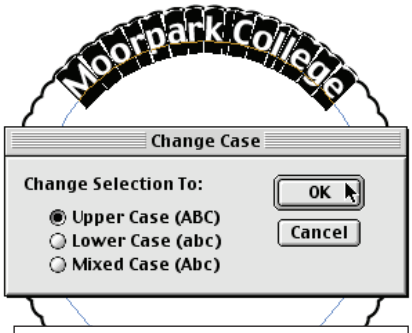


Fig. 12-10: Shows type centered (Command-Shift C), and the process for changing the case.

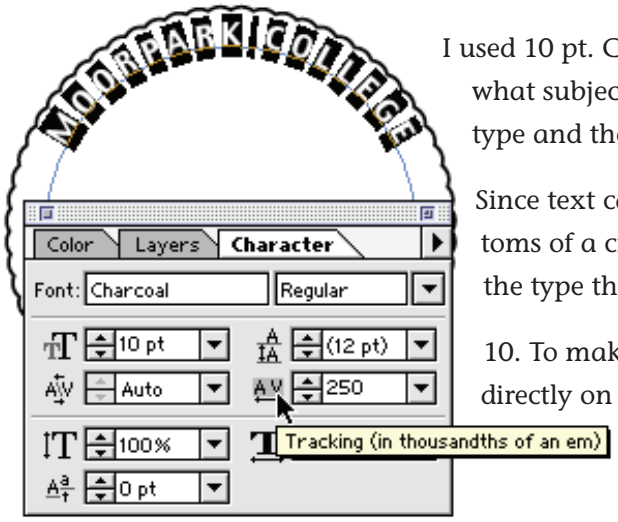


Fig. 12-11: Shows where to find tracking on the character palette, and the visual effect as the text, *Moorpark College,* is tracked.

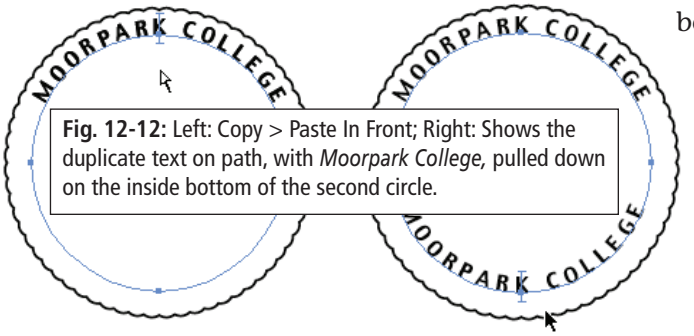


Fig. 12-12: Left: Copy > Paste In Front; Right: Shows the duplicate text on path, with *Moorpark College,* pulled down on the inside bottom of the second circle.

anchor point on the path or you will receive the error message (Fig. 12-9).

7. Type the text you want to appear on the top portion of the circular path. Type aligns to the anchor point, and we'd like it to center on the top anchor point, so while the cursor is still active (flashing), you can center the type by pressing Command-Shift C for center (Comand-Shift L, for left; Command-Shift R, for right).

8. Format the text. Since the type is quite tight to the edge of the scallop, we'll make the text a bit smaller by changing the size to 10 points. Choose a bold, sans serif typeface, and make sure that it is all upper case. If you typed it in upper and lower case, you can make the change quickly and easily without re-typing by going to Type > Change Case. Click on the "Upper Case" radio button (Fig. 12-10).

9. Next, we'll adjust the space between the letters so that the name, "Moorpark College" better fills the upper portion of the circle, giving the text a broader focal range. Inserting, or decreasing a uniform amount of space between letters over a range of text is called, *tracking*. In order to *track* the text, it is necessary to have selected the text range using the text tool's I-beam.

I used 10 pt. Charcoal for my type. The amount of tracking is somewhat subjective, depending on such factors as the typeface, size of type and the size of the interior and exterior circles.

Since text cannot appear right-reading on both the top and bottoms of a circle, you're going to have to create a second circle for the type that will bind along the bottom.

10. To make sure that the duplicate circle is correctly positioned directly on top of the original, Command-C to copy it, and Command-F to "Paste in Front," or Edit > Paste in Front.

You won't notice the difference on the screen, but if you glance at the Edit Menu, you should notice the menu flash, indicating the transformation has been completed.

11. Using the Direct Select Tool, slide the "I-beam" down and into the inside of the circle. Repositioning the text can be pretty tricky, so don't get frustrated if you don't get the text properly positioned on the first few tries.

Look carefully at the new illustration, and

notice how both text areas are positioned in relation to the path. It appears the top text runs along the outside of the circle, and the bottom text runs along the inside. If we position the bottom text along the outside of the circle, it will be upside down. In order for the text on the bottom to appear right side up, we need to adjust it so that the baseline is shifted down, just enough to the tops of the letters touch the path, instead of the baseline touching the path.

Take a look at what happens when you just move the text and path down. Notice that the letters on the bottom are not all equal distance from the scalloped edge of the circle (Fig. 12-13). We'll be using traditional typesetting techniques to make the adjustment to the position of the letters by applying a baseline shift to the letters along the bottom of the circle.

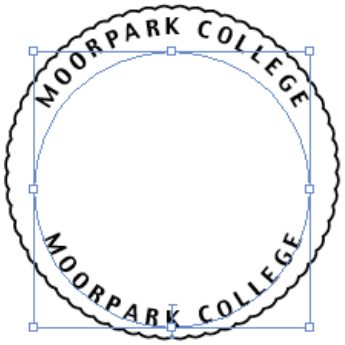


Fig. 12-13: Show the results of repositioning the duplicate circle.

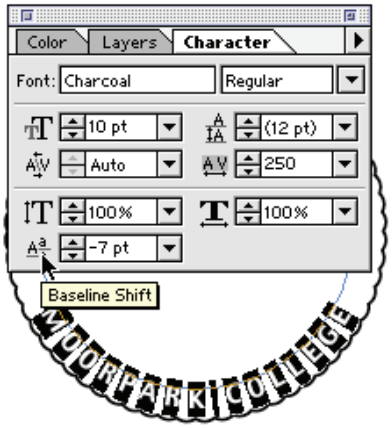


Fig. 12-13: Show the results of repositioning the duplicate circle.

12. Using the baseline shift setting in the Character Palette, enter a negative number of point to lower the type below the baseline just enough so the tops of the letters touch the baseline. For the example, I used a -7 pt. setting (Fig. 12-13).

13. Select the "Text on a Path" tool and triple click on the text in the lower portion of the circle to select it. Type in the new text—*Media Arts Institute.* Typing over the highlighted text will replace it with the text you type.

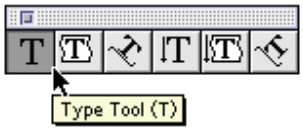


Fig. 12-14: The type tearoff showing the Point Type Tool.

14. Select the "Point Text Tool" (that's the plain "T," otherwise known as the type and set the words, *Cyber Summer* on two lines. Format it in Ulc (upper and lower case) and tighten up the leading to solid…i.e. the same number of points as the type size. The correct notation, in this case, would be 10/10, with the top number referring to the type size, and the bottom number referring to the leading.

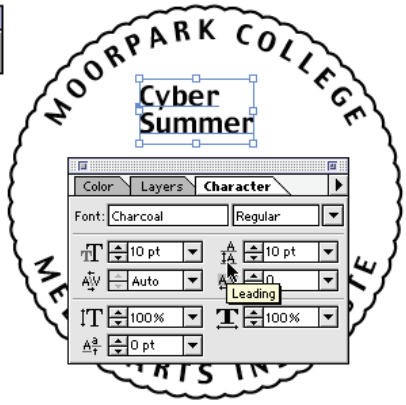


Fig. 12-15: Shows the leading controls, and the handles used for scaling.

15. When you select the point text you just set, you'll see eight hollow handles that surround it (Fig. 12-15). You can use these handles to scale the type. Click on a corner handle, making sure you hold down the shift key to constrain the proportions. Scale the type up so it fits neatly under the words, *Moorpark College.*

16. Go ahead and finish up the seal, using only a single text block to complete the formatting (Fig.12-17) Set the words, *Cyber Summer 2K.*

This ends the first part of this exercise.

Fig. 12-17: Completed Illustrator Seal.

Fig. 12-17: Completed Illustrator Seal.

Here's the seal we ended up with in the first part of the Illustrator exercise. There's really nothing special about the seal…it doesn't jump off the page… it just sits there. What can you do to the seal to make it look more realistic, more dimensional, less static? The illustration serves its purpose, but is it possible to make it more dynamic? What if we used another program for additional design effects? Perhaps some soft shadows or embossing would help the seal look a little more like a foil-stamped seal.

This exercise is designed to familiarize you with the following:

- **Layers**
- **Export to Photoshop**

One strategy you could use would be to export the file to Photoshop, and then use the power of Photoshop's layers, effects and filters to spice up the appearance of the seal. In order to be able to work on sections of the seal as individual layers in Photoshop, we first have to set up the layers in Illustrator. We could have worked with layers from the beginning of our illustration, but that would have been an awfully big piece to bite off. Since this is a fairly simple illustration, we can set them up just as easily now, and reassign each of the elements to it's own, unique layer.

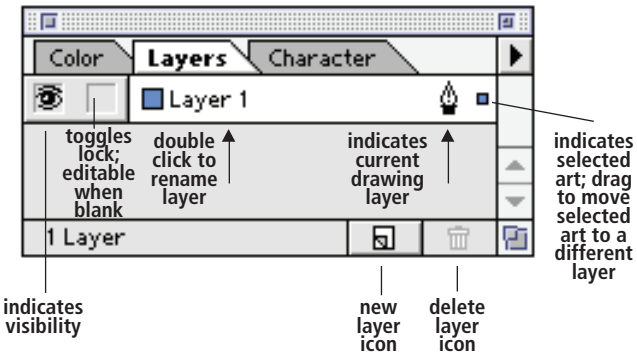


Fig. 12-18: The Layers Palette.

1. Create two additional new layers by clicking on the new layer icon, for a total of three layers in the illustration. Right now, everything is on the blue layer, which is on the bottom (Fig. 12-19).

2. Rename the new layers by double clicking on the names.

3. To position the respective objects on their new layers, first select the object, in this case the type that says *Moorpark College*. Then, in the layers palette, click on the small, colored square and drag it to the layer you want the object to reside on. You'll know it has changed layers because now, all the paths and anchor points will highlight in the new color.

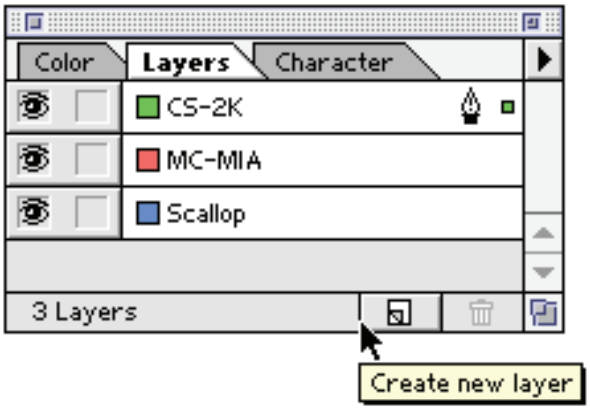


Fig. 12-19: The Layers Palette with two new layers renamed to help recognize obejcts in the illustration.

Make sure that each object is placed on the appropriate layer.There's just one more step to take before exporting the file to Photoshop. Once in Photoshop, opening the newly exported file will create a document the size of the outermost boundaries of the Illustrator document. Since you'll need a little more room for creating effects, such as drop shaddows, you'll need to create an object somewhat larger

than the outer dimensions of the scalloped circle.

4. Choose the rectangle tool and create a rectangle that is about one-half inch larger than the seal on both the x and y axis. Make sure it has no fill and no stroke. This rectangle will determine the image size when the image is exported into Photoshop (Fig. 12-20).

5. Go to File > Export. The export dialog contains a pop-up menu displaying the various file formats available. Choose Photoshop 5, and append the name of the export using ".psd" to identify it as Photoshop file format. An "options" dialog will appear, prompting you to determine the color model, resoltuion, whether you want to anti-alias the raster image and whether you want to keep the layers (Fig. 12-22).

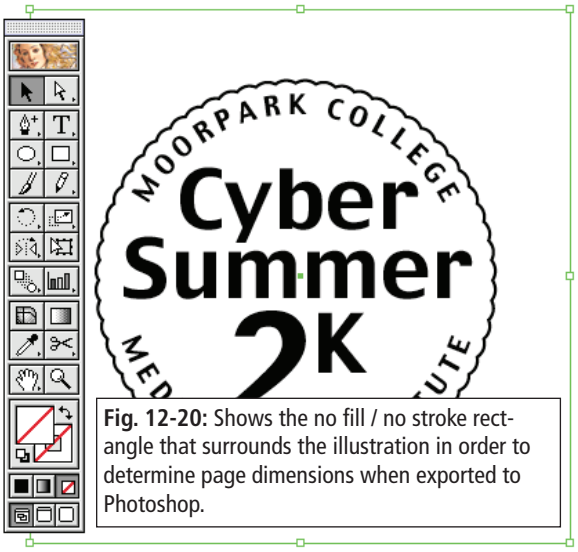


Fig. 12-20: Shows the no fill / no stroke rectangle that surrounds the illustration in order to determine page dimensions when exported to Photoshop.

You are now ready to open the exported file using Photoshop.

1. Launch Photoshop. Go to File > Open. Find the .psd file you just exported and open it. You're all set to use Photoshop's tools to manipulate your image layer by layer.

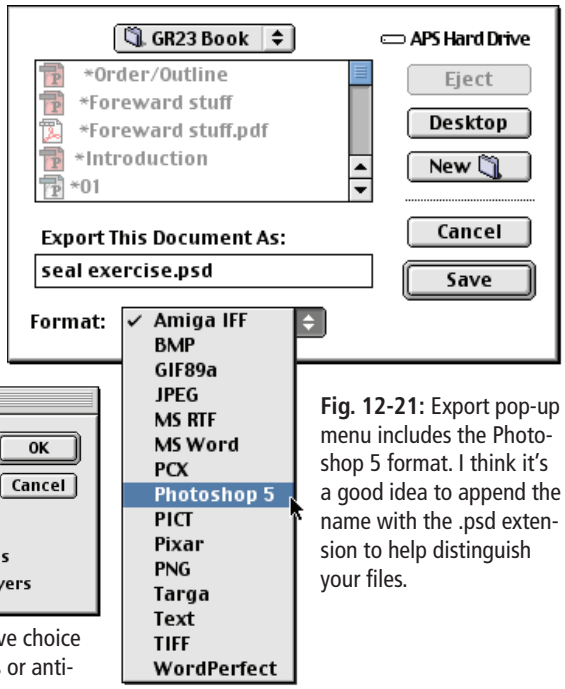


Fig. 12-21: Export pop-up menu includes the Photoshop 5 format. I think it's a good idea to append the name with the .psd extension to help distinguish your files.

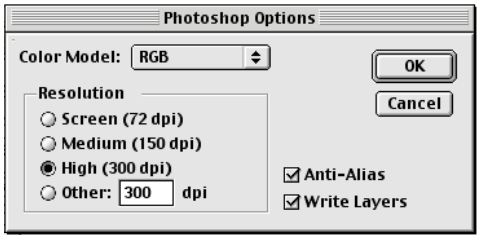


Fig. 12-22: Photoshop export options give choice of color model, resolution, choice of alias or anti-alias, and whether to write layers.

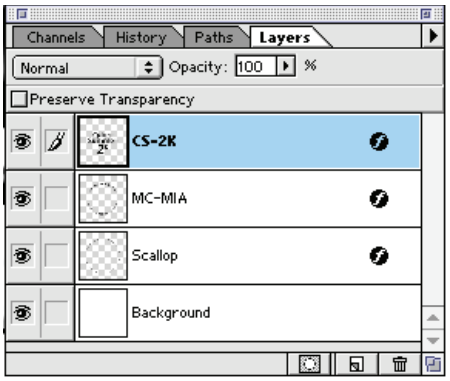


Fig. 12-23: Illustrator image exported to Photoshop opens with layers distinguished by name and ready to manipulate in Photoshop.

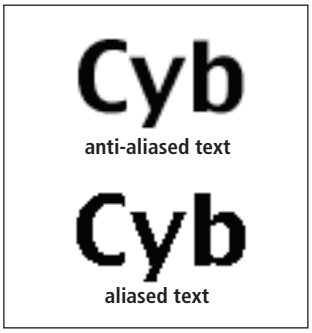


Fig. 12-24: *Top*-Example of anti-aliased text. *Bottom*-Example of aliased text.

Left-Seal completed in Photoshop