Adobe®
Photoshop® LE

CLASSROOM
IN A BOOK®

Adobe

The official training workbook developed by the staff of Adobe

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Getting Started

Adobe Photoshop LE® software is an image-editing program that lets you create and produce high-quality digital images. The program contains a large number of editing tools and special effects capabilities that let you manipulate scanned images, slides, and original artwork.

The ability to work with multiple layers gives you the flexibility to isolate various parts of an image for experimentation and easy editing.

About Classroom in a Book

Adobe Photoshop LE Classroom in a Book® is part of the official training series for Adobe graphics and publishing software developed by experts at Adobe Systems. The lessons are designed to let you learn at your own pace. You'll learn the fundamental concepts and features you'll need to master the program.

Although each lesson provides step-by-step instructions for creating a specific project, there's room for exploration and experimentation. You can follow the lesson sequence from start to finish or do only the lessons that correspond to your interests and needs. Each lesson concludes with a review section summarizing what you've covered.

Prerequisites

Before beginning to use Adobe Photoshop LE, you should have a working knowledge of your operating system and its conventions, including how to use a mouse and standard menus and commands, and how to open, save, and close files. For help with any of these techniques, please see your Windows® or Mac OS documentation.

Installing Adobe Photoshop LE

Before you begin using *Adobe Photoshop LE Classroom in a Book*, make sure that your system is set up correctly and that you've installed the required software and hardware. You must purchase the Adobe Photoshop LE software separately. For complete instructions on installing the software, see the *InstallReadMe* file. Follow the on-screen instructions. Make sure that your serial number is accessible before installing the application.

Copying the Classroom in a Book files

The *Classroom in a Book* electronic files contain folders for the *Classroom in a Book* lessons. Each lesson has its own folder. You must install these folders on your hard disk to use the files for the lessons. To save room on your hard disk, you can install the folders for each lesson as you need them.

To install the *Classroom in a Book* files for Windows:

1 Create a folder on your hard disk and name it **PSLE_CIB**.

2 Copy the Lessons folder from the CD-ROM or the subdirectory you have downloaded into the PSLE_CIB folder.

To install the *Classroom in a Book* files for Mac OS:

1 Create a folder on your hard disk and name it **PSLE_CIB**.

2 Drag the Lessons folder from the CD-ROM or the subdirectory you have downloaded into the PSLE_CIB folder.

Restoring default preferences

The Preferences file controls how palettes and command settings appear on your screen when you open the Adobe Photoshop LE program. Each time you quit Adobe Photoshop, the position of the palettes and certain command settings are recorded in the Preferences file.

To ensure that the tools and palettes function exactly as described in each lesson, delete the Preferences file before you begin each lesson.

To locate and delete the Photoshop Preferences file quickly, create a shortcut (Windows) or an alias (Mac OS) for the Preferences folder.

To delete the Photoshop preferences file in Windows:

Delete the Adobe Photoshop 5 LE Prefs file in the Adobe Photoshop 5.0 LE/Prefs folder. (The default location is C:/Program Files/Adobe/Photoshop 5.0 LE/Prefs.)

To delete the Photoshop preferences file on the Macintosh:

1 Locate the Adobe Photoshop 5 LE Prefs file in the Preferences folder in the System folder.

2 If you can't find the file, choose Find from the desktop File menu, enter **Adobe Photoshop 5 LE Prefs** in the text box, and click Find.

Note: If you still can't find the file, you probably haven't started Adobe Photoshop for the first time yet. The preferences file is created when you start the program.

3 Drag the Adobe Photoshop 5 LE Prefs file to the Trash.

4 Choose Special > Empty Trash.

Important: If you want to save the current settings, rename the Adobe Photoshop 5 LE Prefs file rather than throwing it away. When you are ready to restore the settings, rename the file as Adobe Photoshop 5 LE Prefs *and make sure that the file is located in the Adobe/ Photoshop 5.0 LE\Prefs directory (Windows) or Preferences folder (Mac OS).*

Using the documentation

The following documentation is included with Adobe Photoshop LE.

Adobe Photoshop LE User Guide Provides cross-platform instructions for using Photoshop LE on both the Windows and Mac OS platforms. The text notes any differences in procedures and commands between platforms. Complete documentation of all Photoshop LE features is also available in the online Help system.

This user guide assumes you have a working knowledge of your computer and its operating conventions, including how to use a mouse and standard menus and commands. It also assumes you know how to open, save, and close files. For help with any of these techniques, please see your Windows or Mac OS documentation.

Adobe Photoshop LE Quick Reference Card Contains basic information about the Adobe Photoshop LE tools and palettes and shortcuts for using them.

Other learning resources

Other learning resources are available but are not included with your application.

Official Adobe Print Publishing Guide Provides in-depth information on successful print production, including topics such as color management, commercial printing, constructing a publication, imaging and proofing, and project management guidelines. For information on purchasing the *Official Adobe Print Publishing Guide*, visit the Adobe Web site at www.adobe.com.

Official Adobe Electronic Publishing Guide Tackles the fundamental issues essential to ensuring quality online publications in Hypertext Markup Language (HTML) and Portable Document Format (PDF). Using simple, expertly illustrated explanations, design and publishing professionals tell you how to design electronic publications for maximum speed, legibility, and effectiveness. For information on purchasing the *Official Adobe Electronic Publishing Guide*, visit the Adobe Web site at www.adobe.com.

The Adobe Training and Certification program Designed to help Adobe customers improve and promote their product proficiency skills. The Adobe Certified Expert (ACE) program is designed to recognize the high-level skills of expert users. Adobe Certified Training Providers (ACTP) use only Adobe Certified Experts to teach Adobe software classes. Available in either ACTP classrooms or on site, the ACE program is the best way to master Adobe products. For Adobe Certified Training Programs information, visit the Partnering with Adobe Web site at partners.adobe.com.

The Adobe Web site Can be viewed by choosing File > Adobe Online if you have a connection to the World Wide Web.

A Quick Tour of Adobe Photoshop LE
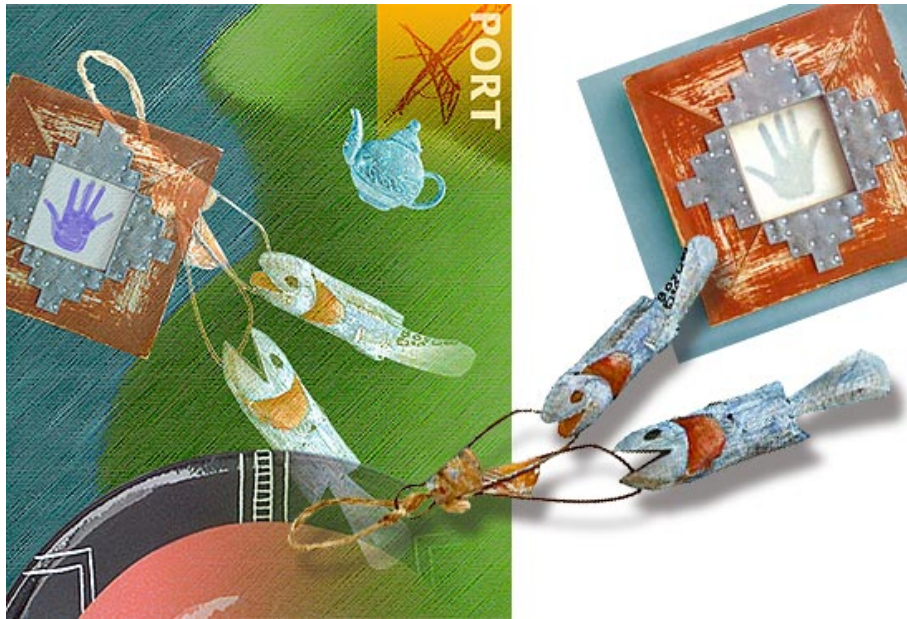
This interactive tour you will give you hands-on experience using some of the basic features of Photoshop LE. You will create the image shown above by manipulating and combining images as you learn how to navigate within the work area and between files. You will learn about tools and palettes, and will practice working with layers and masks.

This interactive tour of Adobe Photoshop LE provides an overview of key features of the program in approximately one hour.

You will begin by opening several image files that you will combine and manipulate to create a new image.

You can get images into Adobe Photoshop in a variety of ways. Most projects begin with a scanned image or stock digital art or are created from scratch using a drawing program, such as Adobe Illustrator, or a painting program, such as Adobe Photoshop. For this tour, you'll use files that were created from all of these sources.

1 Start Adobe Photoshop LE.

2 Choose File > Open, and open the TourEnd.psd file, located in the Lessons/Tour folder.

3 When you have finished viewing the file, either leave the End file open on your desktop for reference, or close it without saving changes.

Now you'll open the start file and begin the lesson.

4 Choose File > Open, and open the TourStart.psd file. Choose File > Save As, rename the file **01Tour.psd**, and save it in the Lessons/Tour folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

5 Choose File > Open, and open the Frame.psd and Fish.psd files, located in the Lessons/Tour folder.

6 Arrange the windows by dragging them by the title bar so that you can work with them easily.

Selecting

In Adobe Photoshop, you modify part of an image by first selecting that area. You'll begin your tour by making selections in files using the selection tools. (Don't worry. If you make a mistake at any point in the tour, simply choose Edit > Undo, and try again.)

First, you'll make a simple rectangular selection, and drag an image from one document into another.

1 Click the Frame.psd window to make it the active window.

2 Select the rectangular marquee tool (⬚) in the toolbox. Then drag a rectangular selection marquee from one corner of the frame to the opposite corner, to select the image.
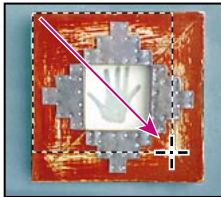
3 Select the move tool (▸✛) in the toolbox. Drag the frame into the 01Tour.psd window. The frame is now part of that file.
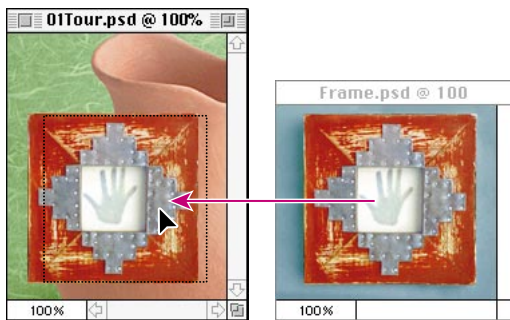
Now you'll resize the frame.

4 Choose Edit > Transform > Scale. Move the pointer onto one of the corner handles of the bounding box that appears around the selection. Hold down Shift and drag a corner handle inward toward the image center to shrink the frame to about three-fourths its current size. Holding down Shift constrains the image's proportions as you resize it.

To cancel a transformation, press the Escape key.
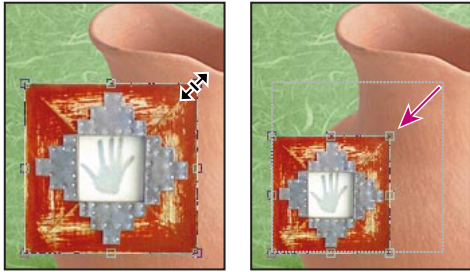
5 Press Enter or Return to apply the transformation.

6 If necessary, use the rectangular marquee tool to reselect the frame graphic.

7 Choose Edit > Transform > Rotate. Move the pointer outside the selection handles and drag clockwise to rotate the frame about 25°. Press Enter or Return to apply the transformation.
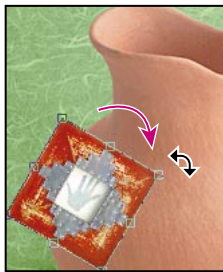
Next, you'll make a selection with the magic wand tool. This tool selects areas based on their similarity in color.

8 Select the magic wand tool ( ); then click the Fish.psd window to make it the active window.

9 Click the tan background in the image to select it. Notice that the background inside the hooks is not selected.

10 Choose Select > Similar to add the rest of the background to the selection. You've now selected everything except the fish, string, and hooks.

11 Choose Select > Inverse to select the fish. The Inverse command selects everything that wasn't selected—in this case, the fish.

12 Hold down Ctrl+Shift (Windows) or Command+Shift (Mac OS) and drag the image onto the 01Tour.psd window. Holding down Ctrl/Command changes to the move tool, and holding down the Shift key as you drag places the copied image in the center of the artwork.
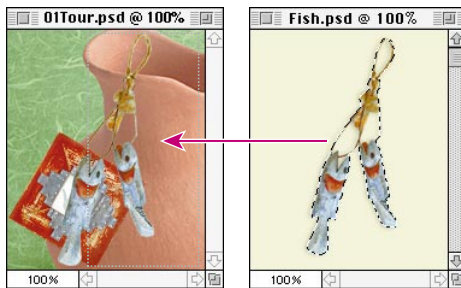
13 To rotate the fish image, choose Edit > Transform > Rotate. Move the pointer outside the selection handles and drag counterclockwise to rotate the fish graphic about 30°. Press Enter or Return to apply the transformation.

14 Choose File > Save to save your work so far.

15 Close the Frame.psd and Fish.psd windows without saving changes.

Layers

Photoshop lets you organize artwork on separate transparent layers so that you can easily construct composite images and experiment with various effects.

1 To display the Layers palette, choose Window > Show Layers. Click the minimize/maximize box (Windows) or size box (Mac OS) located near the top right of the Layers palette to expand the palette.

Notice that each layer has a name, as well as a *thumbnail*, or miniature version, of the image on that layer. Photoshop automatically created separate layers for the frame image (Layer 1) and fish image (Layer 2) when you brought them into the 01Tour.psd file.

2 Click the eye icon next to Layer 2 (the fish layer) to hide the layer. Click again to redisplay the layer.
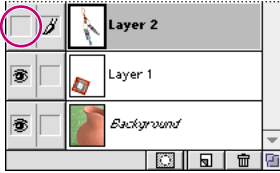
By changing the order of layers, you can restack images in the artwork.

3 Drag Layer 2 (the fish layer) until it's between Layer 1 (the frame layer) and the Background on the Layers palette. Release the mouse button to set Layer 2 in its new position.
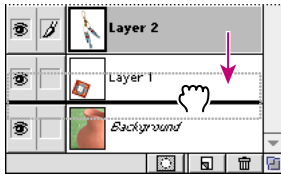
4 Click the name Layer 1 in the Layers palette to make it the active layer. A paintbrush icon appears next to the layer thumbnail, indicating that your changes will now affect artwork on that layer only.

5 Select the move tool (▶✛). Then drag the frame toward the top left of the artwork. Because the frame is on its own layer, you can move it separately from objects on other layers.

Now you'll adjust the opacity of Layer 1.

6 Drag the Opacity slider on the Layers palette to 50%. You can now see other layers through the frame.
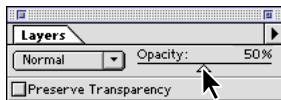
By specifying *blending modes*, you can determine how one layer interacts with another.

7 Click Layer 2 (the fish layer) in the Layers palette to make it the active layer.

8 Choose Screen from the mode menu at the top left of the Layers palette. This blending mode makes the fish look bleached.
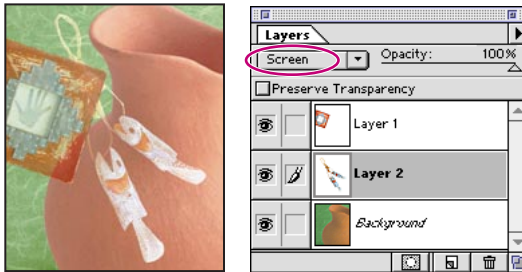
9 Choose File > Save to save your work. It's a good idea to save your work often.

Filters

Photoshop provides a wide variety of filters that let you quickly add special effects to your artwork. In this part of the tour, you'll apply two filters and adjust the color to completely transform the background.

1 Click the Background layer in the Layers palette to make it active.

2 Choose Filter > Brush Strokes > Sprayed Strokes. Click OK to accept the default settings. The Sprayed Strokes filter adds brush strokes to the background.

3 Choose Filter > Artistic > Rough Pastels to make the background look as if it were drawn with pastel chalks. Click OK to accept the default settings.

4 Choose Image > Adjust > Hue/Saturation to adjust the color of the background. Drag the sliders to change the hue (we used +92), saturation (we used +13), and lightness (we used – 42). Click OK.

Painting

The painting tools in Photoshop let you add color to your artwork using preset swatches or colors you create. Next, you'll paint part of the image using the paintbrush tool, and add colored type.

You'll begin by zooming in on the frame using the Navigator palette.

1 Click the Navigator palette tab to make the palette active. (If the palette isn't visible on-screen, choose Window > Show Navigator.)

The Navigator palette lets you specify which part of the image to magnify, and gives you precise control over the magnification level, making it easier to select small areas.

2 Drag the zoom slider in the Navigator palette to the right to about 200%. Then drag the red rectangle in the preview box over the frame image. Continue dragging the zoom slider until the frame image fills the 01Tour.psd window.
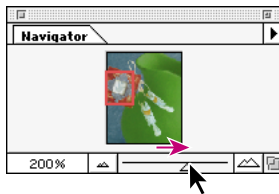
Next you'll create a new layer to paint on.

3 Click Layer 1 (the frame layer) in the Layers palette to make it the active layer. Hold down Alt (Windows) or Option (Mac OS) and click the New Layer button at the bottom of the palette. Holding down Alt/Option lets you name the new layer you create.
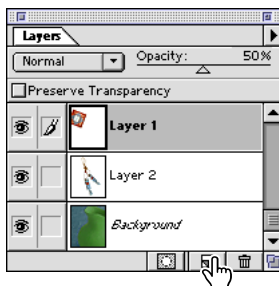
4 Enter **Paint** in the Name text box and click OK. A new, active layer named Paint is added above Layer 1.

Now you'll select a paint color.

5 Click the Swatches palette tab to make the Swatches palette active. (If the palette isn't visible on-screen, choose Window > Show Swatches.)

6 Click a color in the Swatches palette to select a paint color from an existing swatch. This sets it as the *foreground* color—the color you'll paint with.
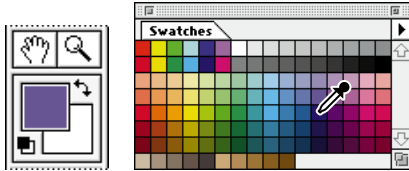
Sampled color

Notice that the foreground color appears in a swatch near the bottom of the toolbox, along with a swatch representing the background color, which is used when you erase part of an image.

7 Select the paintbrush tool (✐). Click the Brushes palette tab, and click a small brush in the Brushes palette.

8 Click the Options palette tab (located in the Navigator palette group), and select the Wet Edges option. The Wet Edges option gives a watercolor effect by building up the paint along the edges of the brush stroke. Drag the Opacity slider to the left to make the paint slightly transparent.
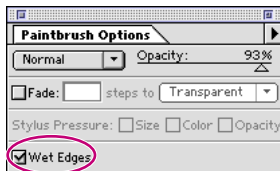
9 Drag the paintbrush tool to paint over the hand.

10 Double-click the zoom tool ($\mathbb{Q}$) to return to 100% magnification.

You can also apply a gradient fill to create a blend between two or more colors.

11 Select the rectangular marquee tool ($\begin{smallmatrix}\vdots\end{smallmatrix}$). Drag a small marquee from the top right of the image.

12 Select the gradient tool (▦). Click a gold swatch in the Swatches palette to select the foreground color. Then choose Foreground to Transparent from the Gradient menu on the Gradient Tool Options palette.
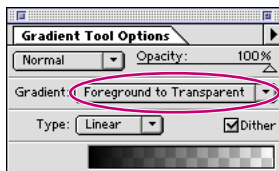
13 Drag the gradient tool from the top to the bottom of the selection to set the beginning and end of the gradient. Choose Select > None to deselect the gradient.
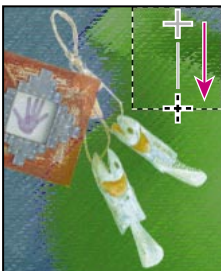
14 Choose File > Save to save your work.

Now you're ready to create and manipulate some type. You can modify type as you would any other image in Photoshop. In this part of the lesson, you'll begin by selecting a color for the type.

15 Click a cream-colored swatch in the Swatches palette to select the type's color. Select the type tool (**T**); then click the image.

16 Enter **PORT** in the large text box at the bottom of the Type Tool dialog box. Choose a font from the Font menu, enter a point size in the Size text box, and click OK. (We used 22-point Lucida Sans bold font.) The type is automatically placed on a new layer.

17 Choose Edit > Transform > Rotate 90° CW to rotate the text 90° clockwise. Select the move tool (⬆), and drag the text on top of the gradient you just created.

18 Click in the eye column next to the X layer in the Layers palette to add a hand drawn "X" to the type logo.
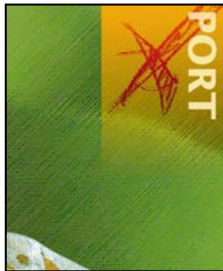
19 Choose File > Save.

Retouching

Adobe Photoshop provides a full range of tools for retouching images, including dodge and burn tools, as well as features for adjusting color, contrast, hue, and saturation. Next, you'll do some basic color correction and editing on an image.

1 Click the Plate layer in the Layers palette to make it the active layer.

2 To set the basic contrast and tonal range between the highlights and shadows in the Plate image, choose Image > Adjust > Auto Levels.

The midtones in the plate need to be more red. To correct them, you'll adjust the mixture of colors in the image with the Color Balance command.

3 Choose Image > Adjust > Color Balance. Select the Preview option, drag the top slider toward Red, and click OK.

Next you'll remove a chip on the plate with the rubber stamp tool. This tool lets you sample part of an image and then paint with a copy of the sampled area.

4 Select the rubber stamp tool (⚒). Click the Brushes palette tab, and choose a medium-sized brush.

5 Place the rubber stamp tool over the plate next to the chip. Hold down Alt (Windows) or Option (Mac OS), and click to sample this area. Release Alt/Option. Then drag the rubber stamp tool to paint over the chip.
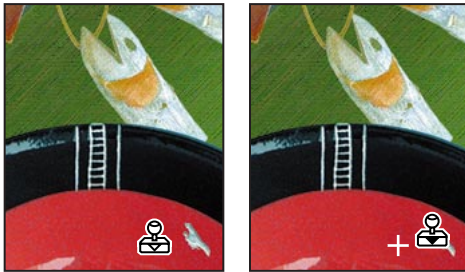
6 Choose File > Save to save your work.

Masks

Next you'll work with a mask. A *mask* covers the image, so that only the unmasked part shows through and is affected by any changes you apply. Adobe Photoshop provides several ways of creating and working with masks. In this part of the tour, you'll work with a layer mask, which affects only the image on the same layer as the mask.

1 Click the Plate layer on the Layers palette. Click the Mask button (▣) at the bottom of the palette to add a layer mask to the Plate layer. Notice that you can see the plate through the unmasked area.

You can modify the mask by painting on it. Black paint adds to the mask, hiding the plate; white paint removes from the mask, revealing the plate.
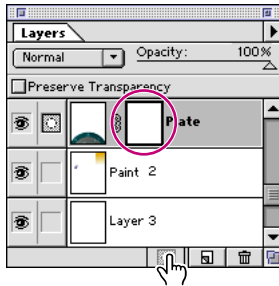
2 Select the eraser tool (�). Then drag the tool to erase to the black background color, masking the plate.

3 Double-click the paintbrush tool (✏). Choose Reset Tool from the menu on the Paintbrush Tool Options palette. Then drag the paintbrush tool to paint with the white foreground color, unmasking the plate.
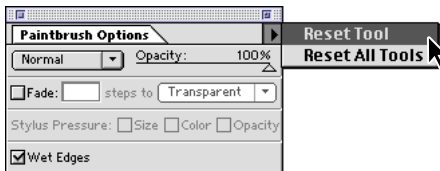
Next you'll apply a gradient to the layer mask, creating a mask that ranges from opaque to transparent.

4 Double-click the gradient tool (▦) in the toolbox. Then choose Foreground to Background from the Gradient menu in the Gradient Tool Options palette.

5 Drag the gradient tool across the plate. Where the gradient is darker, the layer mask is more opaque and hides the plate; where the gradient is lighter, the layer mask is more transparent and exposes the plate.
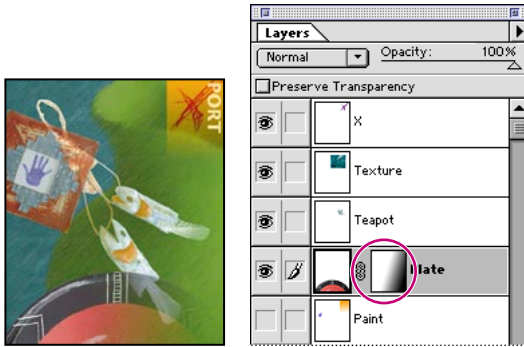
Now you'll use the teapot on one layer as a mask for the texture on the layer above it. Layers connected in this way are called a *clipping group*.

6 Click the Teapot layer in the Layers palette so you can view the layer. Then click the Texture layer so you can view and make it the active layer.

7 Choose Layer > Group with Previous to turn the layers into a clipping group.
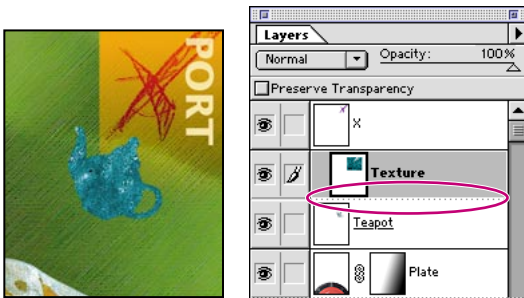
The solid line separating the layers on the Layers palette changes to a dotted line, indicating the layers are now linked as a clipping group. The texture is now clipped to the teapot.

You can apply blending modes and opacity to clipping groups the same as with layers, but the modes will apply only to the clipping group and won't affect any of the layers below the clipping group.
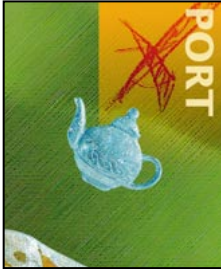
8 Choose Overlay from the mode menu on the Layers palette. This mode lets the highlights and shadows on the teapot image show through the texture, making the texture more realistic.

You've added all the elements to the artwork. At this point, you're ready to save the file.

9 Choose File > Save.

You can save a file in a variety of formats, depending on how you plan to use the file.

For example, you could flatten this file and then save it in the JPEG format to publish the image on the World Wide Web. (To save in most formats other than Photoshop format, you must flatten the file into a single layer. See "Flattening files" on page 96.)

10 Choose File > Close to close the file.

Congratulations, you've finished the tour!

The lessons that follow will help you master the basics of creating art in Adobe Photoshop LE, as well as learn tips and shortcuts for creating professional-quality artwork quickly and easily.

1 Getting to Know the Work Area

As you work with Adobe Photoshop, you'll discover that there is often more than one way to accomplish the same task. To make the best use of Adobe Photoshop's extensive editing capabilities, you first must learn to navigate the work area. The work area consists of the image window, the toolbox, and the default set of floating palettes, which are used repeatedly during the editing process.

In this introduction to the work area, you'll learn how to do the following:

• Open an Adobe Photoshop file.

• Select tools from the toolbox.

• Use viewing options to enlarge and reduce the display of an image.

• Work with palettes.

• Use online Help.

Starting the Adobe Photoshop LE program

When you start Adobe Photoshop LE, the menu bar, the toolbox, and four palette groups appear on screen.

Before beginning this lesson, you'll rename or delete the Adobe Photoshop preferences file to restore the application's default settings. See "Restoring default preferences" on page 2. Then restart Adobe Photoshop.

Opening files

Adobe Photoshop works with bitmapped, digitized images (that is, continuous-tone images that have been converted into a series of small squares, or picture elements, called *pixels*). You can create original artwork in Adobe Photoshop, or you can bring images into the program by scanning a photograph, a slide, or a graphic; by capturing a video image; or by importing artwork created in drawing programs. You can also import previously digitized images—such as those produced by a digital camera or by the Kodak PhotoCD process.
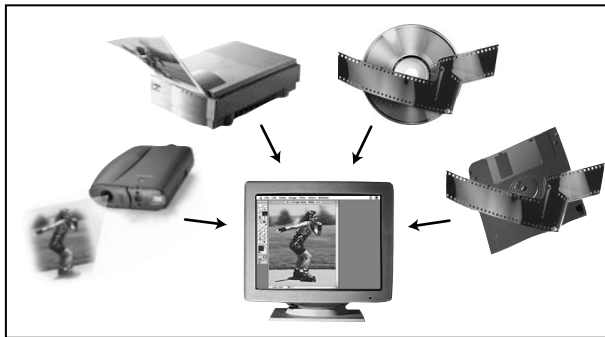
[?] For more information on the kinds of files you can use with Adobe Photoshop, see "Getting Images into Photoshop" in online Help or Chapter 2 of the *Adobe Photoshop LE User Guide*.

1 Choose File > Open, and open the 01Start.psd file, located in the Lessons/Lesson01 folder on your hard drive.
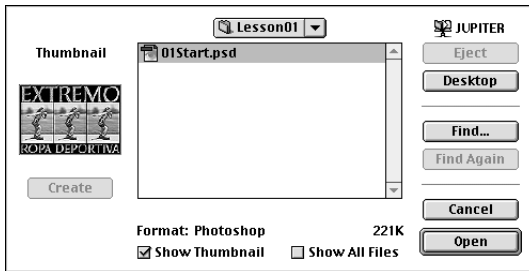
The Classroom in a Book files are stored in individual lesson folders within the Photoshop LE CIB folder.

2 Choose File > Save As, rename the file **01Work.psd**, and save it in the Lessons/Lesson01 folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

Using the Photoshop tools

The toolbox contains selection tools, painting and editing tools, foreground and background color selection boxes, and viewing tools. This section introduces the toolbox and shows you how to select tools. As you work through the lessons, you'll learn more about each tool's specific function.

(M) Marquee	Move (V)
(L) Lasso	Magic wand (W)
(A) Airbrush	Paintbrush (B)
(E) Eraser	Pencil (Y)
(S) Rubber stamp	Smudge (U)
(R) Blur	Dodge (O)
(P) Type mask	Type (T)
(N) Line	Gradient (G)
(K) Paint bucket	Eyedropper (I)
(H) Hand	Zoom (Z)
Foreground color	Switch colors (X)
(D) Default colors	Background color
(Q) Standard mode	Quick mask mode (Q)
(F) Standard screen mode	Full screen mode (F)

Full screen mode with menu bar (F)

Ellipse marquee
Single row marquee
Single column marquee
Crop (C)
Magnetic lasso
Polygon lasso
Sharpen
Burn
Sponge

1 To select a tool, you can either click the tool in the toolbox or you can press the tool's keyboard shortcut. For example, you can press M to select the marquee tool from the keyboard. Selected tools remain active until you click a different tool.

2 If you don't know the keyboard shortcut for a tool, position the mouse over the tool until its name and shortcut are displayed. (All keyboard shortcuts are also listed in the Quick Reference section of online Help. You'll learn to use online Help later in this lesson.)

Some of the tools in the toolbox display a small triangle at the bottom right corner, indicating the presence of additional hidden tools.
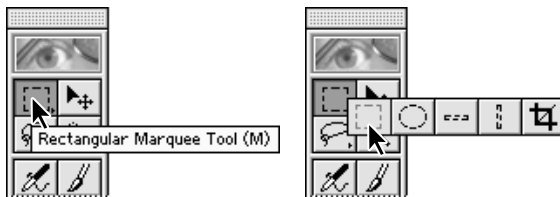
Name and shortcut displayed   *Hidden tools*

3 Select a hidden tool in any of the following ways:

• Click and hold down the mouse button on a tool that has additional hidden tools. Then drag to the desired tool, and release the mouse button.

• Hold down Alt (Windows) or Option (Mac OS), and click the tool in the toolbox. Each click selects the next hidden tool in the hidden tool sequence.

• Press Shift + the tool's keyboard shortcut repeatedly until the tool you want is selected.

4 Change the screen display of an image by clicking a screen mode button at the bottom of the toolbox.

5 Click the Standard Screen Mode button to return to the default work area.

*Standard
screen mode*

Viewing images

You can view your image at any magnification level from 0.29% to 1600%. Adobe Photoshop displays the percentage of an image's actual size in the title bar. When you use any of the viewing tools and commands, you effect the *display* of the image, not the image's dimensions or file size.

Using the View menu

To enlarge or reduce the view of an image using the View menu, do one of the following:

• Choose View > Zoom In to enlarge the display of the 01Work image.

• Choose View > Zoom Out to reduce the view of the 01Work image.

Each time you choose a Zoom command, the view of the image and the surrounding window are resized. The percentage at which the image is viewed is displayed in the title bar and at the bottom left corner of the Adobe Photoshop window.

View percentage

You can also use the View menu to fit an image to your screen.

1 Choose View > Fit on Screen. The size of the image and the size of your monitor determine how large the image appears on-screen.

2 Double-click the zoom tool in the toolbox to return to a 100% view.

Using the zoom tool

In addition to the View commands, you can use the zoom tool to magnify and reduce the view of an image.

1 Click the zoom tool (🔍) in the toolbox to select the tool, and move the tool pointer onto the 01Work image. Notice that a plus sign appears at the center of the zoom tool.

2 Position the zoom tool over one of the skaters in the 01Work image, and click. The image is magnified to a 200% view.

3 With the zoom tool selected and positioned in the image area, hold down Alt (Windows) or Option (Mac OS). A minus sign appears at the center of the zoom tool (🔍).

4 Click once; the view of the image is reduced to a 100% view.

You can also drag a marquee with the zoom tool to magnify a specific area of an image.

5 Drag a marquee around the head of one of the skaters using the zoom tool.
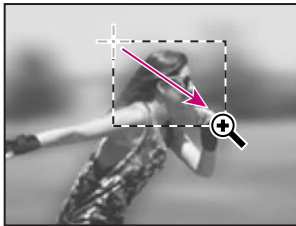
Area selected   *Resulting view*

The percentage at which the area is magnified is determined by the size of the marquee you draw with the zoom tool. (The smaller the marquee you draw, the larger the level of magnification.)

Note: You can draw a marquee with the zoom-in tool to enlarge the view of an image, but you cannot draw a marquee with the zoom-out tool to reduce the view of an image.

You can use the zoom tool to quickly return to a 100% view, regardless of the current magnification level.

6 Double-click the zoom tool in the toolbox to return the 01Work image to a 100% view.

Because the zoom tool is used frequently during the editing process to enlarge and reduce the view of an image, you can select it from the keyboard at any time without deselecting the active tool.

7 To select the zoom tool from the keyboard, hold down spacebar+Ctrl (Windows) or spacebar+Command (Mac OS). Click to zoom in on the desired area, and then release the keys.

8 To select the zoom-out tool from the keyboard, hold down spacebar+Ctrl+Alt (Windows) or spacebar+Command+Option (Mac OS). Click the desired area to reduce the view of the image, and then release the keys.

Scrolling an image

You use the hand tool to scroll through an image that does not fit in the active window. If the image fits in the active window, the hand tool has no effect when you drag it in the image window.

1 Resize the image window to make it smaller than the image.

2 Click the hand tool in the toolbox. Then drag in the image window to bring another skater into view. As you drag, the image moves with the hand.

Like the zoom tool, you can select the hand tool from the keyboard without deselecting the active tool.

3 First, click any tool but the hand tool in the toolbox.

4 Hold down the spacebar to select the hand tool from the keyboard. Drag to reposition the image. Then release the spacebar.

5 Double-click the zoom tool in the toolbox to return the 01Work image to a 100% view.

Using the Navigator palette

The Navigator palette lets you scroll an image at different magnification levels without scrolling or resizing an image in the image window.

1 Make sure that the Navigator palette is at the front of the palette group. (If necessary, click the Navigator palette tab, or choose Window > Show Navigator.)

2 In the Navigator palette, drag the slider to the right to about 200% to magnify the view of the skater. As you drag the slider to increase the level of magnification, the red outline in the Navigator window decreases in size.

3 In the Navigator palette, position the pointer inside the red outline. The pointer becomes a hand.
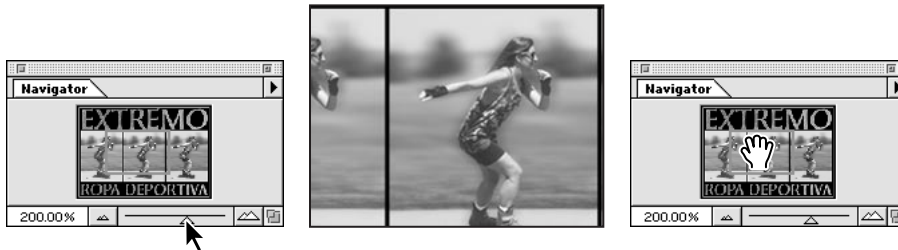
Dragging slider to 200%   *200% view of image*   *View in Navigator palette*

4 Drag the hand to scroll to different parts of the image.

You can also drag a marquee in the Navigator palette to identify the area of the image you want to view.

5 With the pointer still positioned in the Navigator palette, hold down Ctrl (Windows) or Command (Mac OS), and drag a marquee over an area of the image. The smaller the marquee you draw, the greater the magnification level in the image window.

Using the Info bar

The Info bar is positioned at the lower left corner of the application window (Windows) or of the image window (Mac OS) and provides information about a file's view, size, disk space and memory, and placement on the printed page.

Info bar displaying view percentage and document sizes

By default, the Info bar displays the view percentage and the document sizes: the left number represents the amount of data sent to a printer, which is the same as a flattened file in Adobe Photoshop format; the right value represents the file's approximate size in its layered format.

1 Move the pointer to the arrow in the lower left of the window and hold down the mouse button to display the pop-up menu.

2 If desired, choose from the following options:

• Scratch Sizes displays information on the amount of RAM used to process the image.

• Efficiency shows the percentage of Photoshop operations being performed using RAM (as compared to using scratch disk space).

• Timing displays the amount of time it took to complete the last operation.

3 If you changed the display, choose Document Sizes from the pop-up menu.

Working with palettes

Palettes help you monitor and modify images. By default, they appear in stacked groups. To show or hide a palette as you work, choose the appropriate Window > Show or Window > Hide command. Show displays the selected palette at the front of its group; Hide conceals the entire group.

Changing the palette display

You can reorganize your work space in various ways. Experiment with several techniques:

• To hide or display all open palettes and the toolbox, press Tab. To hide or display the palettes only, press Shift+Tab.

• To make a palette appear at the front of its group, click the palette's tab.
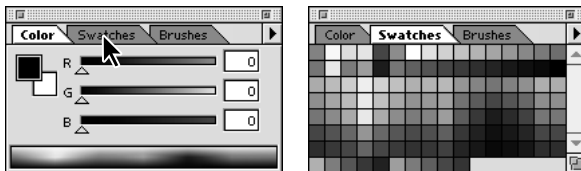
Click the Swatches tab to move it to the front.

• To move an entire palette group, drag its title bar.

• To rearrange or separate a palette group, drag a palette's tab. Dragging a palette outside of an existing group creates a new group.
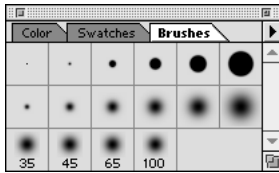
Palettes are grouped.
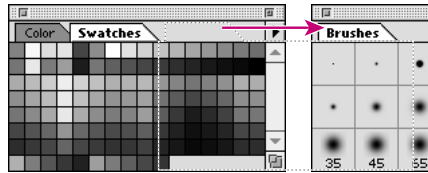
Click the palette tab, and drag the palette to separate it from its group.

• To move a palette to another group, drag the palette's tab to that group.

• To display a palette menu, position the pointer on the triangle in the upper right corner of the palette, and hold down the mouse button.
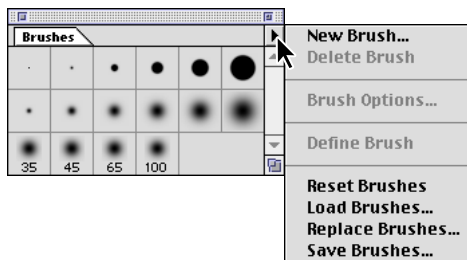
• To change the height of a palette (except the Color, Options, or Info palette), drag its lower right corner. To return the palette to its default size, click the minimize/maximize box (Windows) or the resize box (Mac OS) in the right of the title bar. (A second click collapses the palette group.)
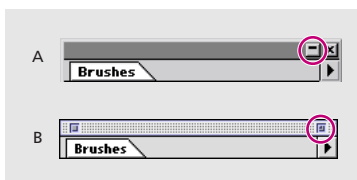
Click to collapse or expand palette.
***A.** Windows* ***B.** Mac OS*

• To collapse a group to palette titles only, Alt-click the minimize/maximize box (Windows) or Option-click the resize box (Mac OS); or double-click a palette's tab. You can still access the menu of a collapsed palette.

Setting the positions of palettes and dialog boxes

The positions of all open palettes and moveable dialog boxes are saved by default when you exit the program. Alternatively, you can always start with default palette positions or restore default positions at any time:

• To reset palettes to the default positions, choose File > Preferences > General. Click Reset Palette Locations to Defaults.

• To start always with the preset palette and dialog box positions, choose File > Preferences > General. Deselect Save Palette Locations. The change takes effect the next time you start Adobe Photoshop.

Using context-sensitive menus

In addition to the menus at the top of your screen, context-sensitive menus display commands relevant to the active tool, selection, or palette.

To display context-sensitive menus, position the pointer over the image or over an item in a palette list. Then click with the right mouse button (Windows), or press Control and hold down the mouse button (Mac OS).

This example shows the eyedropper tool. The Sample Size options appear in the tool's context-sensitive menu. (You access these same options by double-clicking the tool to display its Options palette.)
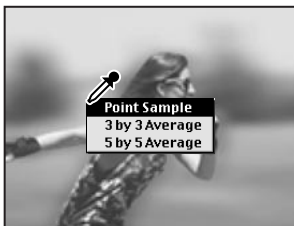
Using online Help

For complete information on using palettes and tools, you can use online Help. Online Help includes all of the information from the *Adobe Photoshop LE User Guide*, plus keyboard shortcuts and some additional information. All of the illustrations in online Help are in color.

Online Help is easy to use, because you can look for topics in several ways:

• Scanning a table of contents.

• Searching for keywords.

• Using an index.

• Jumping from topic to topic using related topic links.

First you'll try looking for a topic using the Contents screen.

1 Display online Help:

• In Windows, press F1 to display the Help Contents menu, choose Help > Contents, or choose another topic from the Help menu.

• In Mac OS, choose Help > Help Contents.

The Adobe Photoshop 5.0 LE Help Contents screen appears.

In Windows, you can also use context-sensitive Help. Press Shift+F1 (a question mark appears next to the pointer), and choose a command or click in a palette to display the appropriate Help topic. Or with a dialog box open, press F1 to display the Help topic for that dialog box.

2 Click Contents at the upper left of the Help screen to display the Contents menu.

3 Drag the scroll bar or click the arrows to navigate through the contents. The contents are organized in a hierarchy of topics, much like the chapters of a book. Each book icon represents a chapter of information in Help.
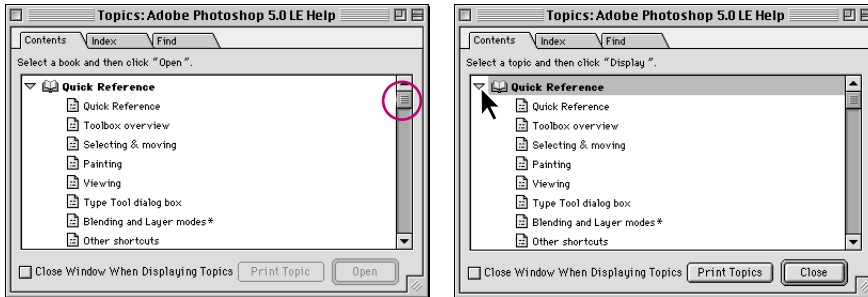
4 Position the pointer on the Quick Reference book, and click to display its contents.

5 Locate the Toolbox overview topic, and double-click to display it. An illustration of the toolbox and toolbar shortcut information appear.

The online Help system is interactive. You can click any red underlined text, called a *link*, to jump to another topic. The pointer icon indicates links and appears when you move the mouse pointer over a link or a hot spot.

6 Position the pointer over a tool in the toolbox, and click. The tool topic appears. At the top of the tool topic, click Next to display the next topic. You can continue to click Next or Previous to display the individual tool topics. You can also click Print to print the topic.
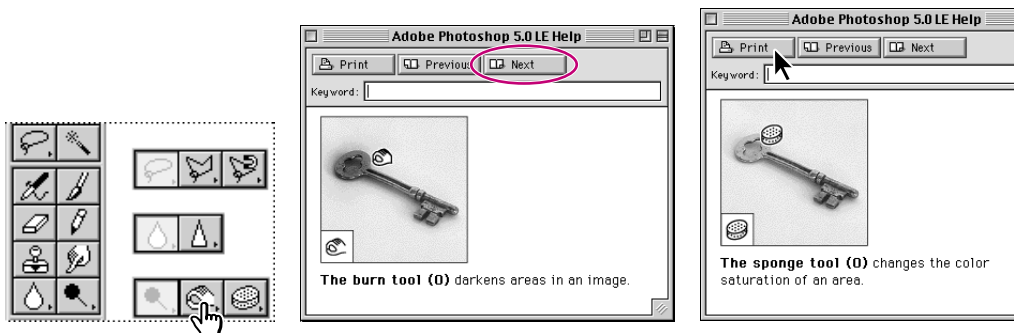
Click a tool.   *The tool topic appears.*   *Show the next tool topic.*

7 When you have finished browsing the topics, click the Close box to close the topic and return to the toolbox overview.

Using keywords, links, and the index

If you can't find the topic you are interested in by scanning the Contents page, then you can try searching using a keyword.

1 Move the pointer to the Keyword text box, and begin typing the words **Correcting mistakes**. Notice that as soon as you type *Cor*, the entire phrase appears in the text box. Press Enter or Return to go to that topic.

2 Read through the topic, and if desired, click some of the links to go to the related topics. When you have finished browsing, click the Close box to close the topic window.

You can also search for a topic using the index.

3 In the Topics window, click Index to display index entries. These entries appear alphabetically by topic and subtopic, like the index of a book.

4 In the text box under the instructions in step 1, type the word **background**. Notice that entries for *background* appear as you begin typing. Add an **s** to the entry to change it to **backgrounds**. Then find the subentry adding to an image and select it.

5 Click Display to display the entry.
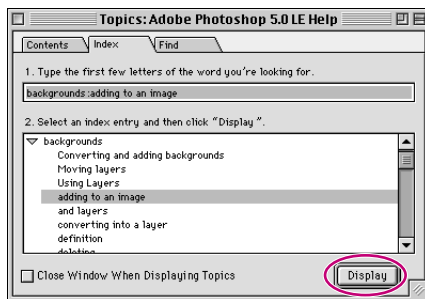
6 Close the topic, and then close the Help Contents window.

Using Adobe online services

Another way to get information on Adobe Photoshop or related Adobe products is to use the Adobe online services. If you have an Internet connection and a Web browser installed on your system, you can access the U.S. Adobe Systems Web site (at http://www.adobe.com) for information on services, products, and tips pertaining to Photoshop.

1 If you have an Internet connection, choose File > Adobe Online, or click the icon at the top of the toolbox. The first time you do this, click Refresh, and download the latest version of Welcome to Adobe Online. Then you can click a topic to go to the Adobe Web site.

2 In the next screen, click Support.

You can easily find information specifically on Photoshop—including tips and techniques, galleries of artwork by Adobe designers and artists around the world, the latest product information, and troubleshooting and technical information. Or you can learn about other Adobe products and news.
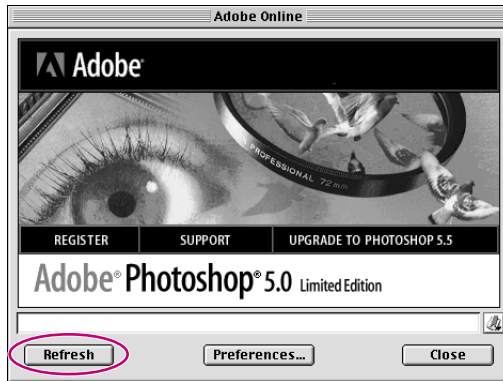
3 When you have finished browsing the Adobe page, close the browser and exit it.

4 Close the Adobe Online window.

5 Choose File > Close to close the lesson file.

You're ready to begin learning how to create and edit images.

Review questions

1 Describe two ways to change your view of an image.

2 How do you select tools in Photoshop?

3 Describe two ways to get more information about the Photoshop program.

4 Describe two ways to create images in Photoshop.

Review answers

1 You can select commands from the View menu to zoom in or out of an image, or fit it to your screen; you can also use the zoom tools in the toolbox and click or drag over an image to enlarge or reduce the view. In addition, you can use keyboard shortcuts to magnify or reduce the display of an image. You can also use the Navigator palette to scroll an image or change its magnification without using the image window.

2 To select a tool, you can either click the tool in the toolbox or you can press the tool's keyboard shortcut. For example, you can press M to select the marquee tool from the keyboard. Selected tools remain active until you click a different tool.

3 Adobe Photoshop contains online Help, with all the information in the *Adobe Photoshop LE User Guide*, plus keyboard shortcuts and some additional information and full-color illustrations. Photoshop also has context-sensitive help about tools and commands and online services, including a link to the Adobe Systems home page for additional information on services, products, and tips pertaining to Photoshop.

4 You can create original artwork in Adobe Photoshop, or you can get images into the program by scanning a photograph, a slide, or a graphic; by capturing a video image; or by importing artwork created in drawing programs. You can also import previously digitized images—such as those produced by a digital camera or by the Kodak PhotoCD process.

2 | Image Basics

Whether you create artwork for display on-screen or for print, you must understand several basic concepts about how Adobe Photoshop LE works with images before preparing your images for final output.

In this lesson, you'll learn how to do the following:

• Recognize the difference between the two basic types of computer images—vector and raster.

• Recognize the differences between electronic images and printed images.

• Recognize three types of resolution—image, monitor, and output device resolution—and their relationship to one another.

• Recognize a variety of ways to get images into Adobe Photoshop.

• Determine the correct scan resolution for an image based on the method of final output.

• Resample an image, which is the process of increasing or decreasing the resolution of an image.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

Vector and raster images

Computers generate two basic types of images—vector and raster. As you begin working with Adobe Photoshop, knowing the difference between these image types will help you understand how Adobe Photoshop defines and interprets images.

Vector images, such as those created by Adobe Illustrator™, are composed of mathematically defined lines and curves called *vectors*. For example, a figure drawn in a vector-based program can be moved, resized, or rotated as an independent object because the program retains the definition of the figure mathematically. For this reason, vector-based programs work best for type and other shapes that require crisp, clear boundaries.

Raster images, such as those created by Adobe Photoshop, are composed of a grid, or *raster* of small squares, called pixels. For example, a figure drawn in a raster-based program is composed of a group of pixels in a particular location, which create the appearance of a figure. To edit a raster image, you edit a group of pixels instead of a mathematically defined object. Raster- or pixel-based images work best with photographic images or with images created in painting programs.

Digital images versus printed images

Most photographs are called continuous-tone images, because the method used to develop the photograph creates the illusion of perfect continuous tone throughout the image. Digital, or pixel-based images, like those created in Adobe Photoshop, also create the illusion of continuous tone, because each pixel can be colored independently, creating a smooth, continuous transition of color throughout the image.

Printing presses are not capable of reproducing continuous tones in an image, and so create the illusion of continuous tone using *halftone dots*. Halftone dots are rows of small, variously sized dots that create the appearance of different shades of color when printed.

What is resolution, and how does it affect an image?

In broad terms, *resolution* refers to the unit of measurement used to determine the size of an image, the way an image is displayed on your monitor, and the device on which an image is output.

Specifically, you must consider three types of resolution when preparing images in Adobe Photoshop:

• *Image resolution* refers to the size of the file in pixels, called pixels per inch (ppi).

• *Monitor resolution* determines how your image is displayed on your monitor, called dots per inch (dpi).

• *Output device resolution* determines the quality of a final printed image, which is measured in both dots per inch (dpi) and lines per inch (lpi).

The following sections describe each type of resolution in detail, and will help you understand the relationship each has to the others.

Image resolution

Digital images are represented in pixels. *Image resolution* refers to the number of pixels in the image and is generally measured in pixels per inch, or *ppi*. The more pixels per square inch of the image, the higher its resolution, and subsequently, the larger the file. For example, a 1-inch square of an image scanned at 72 ppi contains 5,184 pixels (72 pixels wide x 72 pixels high), and has a file size of 6K, while the same 1-inch square of an image scanned at 144 ppi contains 20736 pixels (144 pixels wide x 144 pixels high), and has a file size of 21K.

To see how image resolution affects an image, you'll open two identical images scanned at different resolutions and examine the differences between them.

1 Choose File > Open, and open the Skate72.psd file, located in the Lessons/Lesson02 folder. An image of a skater appears at a 100% view on your desktop.

2 Choose Image > Image Size. At the top of the dialog box, the pixel dimensions (file size) and the width and height of the image appear.
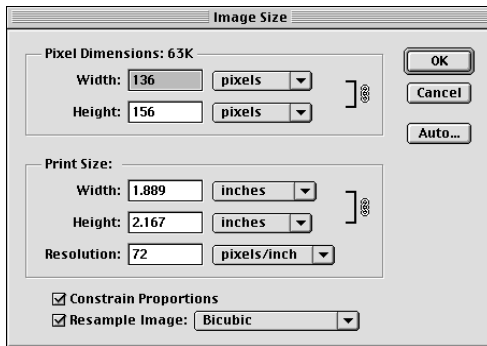
3 Make a note of the pixel dimensions and the width and height of the image, and then click Cancel to close the dialog box.

Now you'll open an image of the skater scanned at a higher resolution and compare the differences between the files.

4 Choose File > Open, and open the Skate144.psd file, located in the Lessons/Lesson02 folder.

The second skater image appears larger on-screen than the first image (You'll learn why in the next section, "Monitor resolution" on page 43.*)*

5 Choose Image > Image Size. Notice that although the print dimensions remain the same as those of the first image, the file is larger and the resolution is higher.
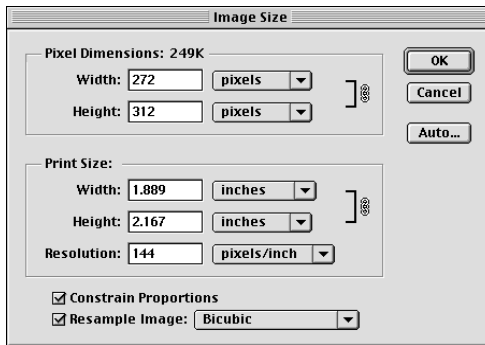
6 Click Cancel to close the dialog box.

7 Align the two images side by side on your screen, and make sure that the Skate144.psd image is the active window.

8 Choose View > Print Size. The Print Size command displays the size at which each image will be printed, which in this example is the same size.

9 Choose File > Close to close the skater files. If prompted, do not save changes.

Next, you'll discover why the second skater image, scanned at a higher resolution than the first, appeared larger on your monitor than the first image, even though the print size for each image was the same.

Monitor resolution

Monitors have a fixed resolution, determined by the manufacturer. Typically PC monitors display images at 96 dots per inch, and most Macintosh monitors display images at 72 dpi.

The monitor's resolution determines the size of the image displayed on-screen, and should not be confused with image resolution. Because an image may have a higher resolution than the monitor on which it's displayed, an image with a higher resolution will appear larger on-screen than in print.

In this example, the first file, Skate72.psd, is displayed on the monitor in actual size—the monitor in the example displays 72 pixels per inch (ppi), and the image is scanned at 72 ppi.

The second file, Skate144.psd, with a resolution of 144 ppi appears at twice its actual size on the 72 dpi monitor, because only 72 of the 144 ppi can be displayed in 1 inch on the monitor.

72-ppi image displayed on a
72-dpi monitor

144-ppi image displayed on a
72-dpi monitor

In addition to the resolution at which a monitor displays pixels, each pixel has a particular depth, called *bit resolution*. Bit resolution measures the amount (number of bits) of color information stored per pixel. The bit resolution of a pixel is a measurement of the amount of color information stored in a single pixel. The greater the pixel depth, the larger the range of available colors, resulting in a more accurate representation of the colors in an image. For example, a pixel with a bit depth of 1 has two possible values: on or off (black or white). A pixel with a bit depth of 8 has 2^8, or 256 possible values; a pixel with a bit depth of 24 has 2^{24}, or 16 million color values.

Note: *For best results when working with Adobe Photoshop, it is recommended that you use a 24- or 32-bit monitor.*

Output resolution

Output device resolution refers to the number of dpi that the output device produces. For example, laser writers typically have a resolution of 300 or 600 dpi, and a high-quality imagesetter can print at a range between 1200 dpi and 2400 dpi or higher.

Coupled with the dpi resolution of an output device is its *screen frequency.* Screen frequency determines the number of halftone cells printed per inch in a grayscale image or a color separation. Also known as the screen ruling or line screen, screen frequency is measured in lines per inch (lpi). The combination of resolution and screen frequency determines the detail in a printed image. For example, newspapers are usually printed with a line screen of 75 lpi to 85 lpi, while a high-quality art book might be printed at a line screen as high as 200 lpi.

Color models and modes

A color model is a method for displaying and measuring color. The human eye perceives color according to the wavelength of the light it receives. Light containing the full color spectrum is perceived as white. When no light is present, the eye perceives black. The *gamut* of a color model is the range of colors that can be displayed or printed. The largest color gamut is that viewed in nature. The RGB gamut is smaller than the natural color gamut.

Adobe Photoshop can use a number of color modes for displaying, printing, and storing images. The red, green, and blue (RGB) mode and the hue, saturation, and brightness (HSB) mode are based on established color models for describing and reproducing color. In addition to modes based on color models, Photoshop includes modes with restricted color ranges, such as Bitmap, Grayscale, and Indexed color modes.

HSB model

The HSB model is based on the human perception of color. In the HSB model, all colors are described in terms of three fundamental characteristics:

• *Hue* is the wavelength of light reflected from or transmitted through an object. More commonly, hue is identified by the name of the color such as red, orange, or green. Hue is measured as a location on the standard color wheel and is expressed as a degree between 0° and 360°.

• *Saturation*, sometimes called *chroma,* is the strength or purity of the color. Saturation represents the amount of gray in proportion to the hue and is measured as a percentage from 0% (gray) to 100% (fully saturated). On the standard color wheel, saturation increases as one approaches the edge of the wheel; saturation decreases as one approaches the center.

• *Brightness* is the relative lightness or darkness of the color and is usually measured as a percentage from 0% (black) to 100% (white).

In Photoshop, you can use the HSB model to define a color in the Color palette or Color Picker dialog box.

Note: Adobe Photoshop LE offers all of the features from the Adobe Photoshop 5.0 application designed for producing professional-quality images for electronic publications. Adobe Photoshop 5.0 includes additional features, such as CMYK color model editing, spot color, color management, and color separations for professional-quality print publications.

The RGB color model

A large percentage of the visible spectrum of color can be represented by mixing three basic components of colored light in various proportions. These components are known as the *primary colors*: red, green, and blue (RGB). Because various percentages of each color are added to create new colors, the RGB color model is known as *additive color.* Equal amounts of red, green, and blue produce white.

All monitors display color using a mixture of the primary additive colors of red, green, and blue. As a general rule, you should edit your color images in the RGB model for the following reasons:

• RGB files are smaller than files created in other color models.

• Monitors display RGB colors best.

• The RGB color model provides a larger color spectrum than other color models on a monitor.

Bitmap mode

Bitmap mode uses one of two color values (black or white) to represent the pixels in an image. Images in Bitmap mode are called *bitmapped,* or 1-bit, images because they have a pixel depth of 1.

Grayscale mode

Grayscale mode uses up to 256 shades of gray to represent an image. In Adobe Photoshop, every pixel of a grayscale image has a brightness value ranging from 0 (black) to 255 (white). The values between 0 and 255 correspond to points on the grayscale spectrum. Grayscale values can also be measured as percentages of black ink coverage (0% is equal to white and 100% is equal to black). Images produced using black-and-white or grayscale scanners are typically displayed in Grayscale mode.

You can convert both Bitmap-mode and color images to grayscale. Grayscale mode lets you convert a color image to a high-quality black-and-white image. In this case, Adobe Photoshop discards all color information in the original image; the gray levels (shades) of the converted pixels represent the luminosity of the original pixels.

When you convert a grayscale image to an RGB image, the color values for each pixel are assigned that pixel's previous gray value.

Indexed color mode

An indexed-color image is a single-channel image and is based on a palette of at most 256 colors. When you convert an image to indexed color, Photoshop builds a color lookup table, which stores and indexes the colors in the image. If a color in the original image does not appear in the table, the program matches the color to the closest color in the color table or simulates the color using the available colors.

Indexed Color mode is useful when you want to limit the palette of colors used in an image—for example, when you want to use the image in a multimedia animation application or on a Web page. Using an indexed color table lets you reduce the file size of an image while maintaining the visual quality that you need.

Measuring color

You'll begin work in the lesson by looking at an image of an RGB color model, and then you'll learn how to measure the colors in the model using the Info palette.

1 Choose File > Open, and open the RGB.psd file, located in the Lessons/Lesson02 folder. The RGB color model image appears.

Now you'll use the Info palette and the eyedropper tool to measure the color information in the RGB model. When you position the eyedropper over the colors in an image, the Info palette displays the color values, depending on the color model you're working in.

2 Choose Window > Show Info to open the Info palette.

3 Select the eyedropper tool ( ) in the toolbox, and move the tool onto the image area.

4 Position the eyedropper tool over the red area of the color model image. The Info palette displays a value of 255 for red, 0 for green, and 0 for blue.

5 Position the eyedropper tool over the green area of the color model image. Now the Info palette displays a value of 0 for red, 255 for green, and 0 for blue.

6 Repeat the process for the blue portion of the color model image.

7 Position the eyedropper in the white area of the color model, where the three colors intersect. Notice that the value is 255 for each of the red, green, and blue color values, indicating that equal portions of red, green, and blue create white.

8 As a final step, position the eyedropper anywhere in the black area of the color model image. Notice the value is 0 for each of the red, green, and blue color values, indicating the absence of color.

9 Choose File > Close to close the RGB.psd file. If prompted, do not save changes.

Getting images into Photoshop

There are several ways to get images into Adobe Photoshop. You can use a scanner to scan an image or import vector artwork from a drawing application like Adobe Illustrator. Images can also come from a digital camera or from a photo CD. The rest of this lesson focuses on scanned images.

Scanning basics

This section provides general information about scanning techniques to help you determine the best input settings for your images.

Each scanner has its own software that controls how it works. Scanning software may be a plug-in module to Adobe Photoshop, or it may be a stand-alone application. For information specific to your scanner, consult your scanner documentation.

Before you scan

The choices you make before scanning an image affect the quality and usefulness of the resulting digital file. Before scanning an image, be sure to do the following:

• Determine the scan resolution of the image, based on the desired quality of the final output. (See "Scanning for electronic publication" on page 52.)

• On the scanner bed, define the area of the image you want to scan; then crop the area a bit larger than the actual size of the area you want. You should do final cropping in Adobe Photoshop *after* scanning.

• Determine the optimal dynamic range (if your scanner lets you set black points and white points).

• Check for *color casts* (imbalance in one or more colors) that should be eliminated during the scan.

The following sections describe how to select the correct resolution for electronic or printed images. The exercises show you two different methods for determining scan resolution.

Determining the scan resolution

The optimal resolution of an image depends on the desired output of the final image. If an image's resolution is too low, Adobe Photoshop may use the color value of a single pixel to create several halftone dots. This results in *pixelization*, or very coarse-looking output. If the resolution is too high, the file contains more information than the printer needs and becomes unnecessarily large.

Scanning for printed publication

In general, the combination of image resolution and screen frequency determines the detail in a printed image.

As you learned earlier in this lesson, screen frequency is measured in lines per inch (lpi) and determines the number of halftone cells printed per inch. (To determine the screen frequency for an image you're going to print, check with your printer.) If you plan to print your images, a good rule of thumb is to scan the image at 1.5 to 2 times the screen frequency to be used for printing.

The following table shows the typical screen frequency (line screen) and scan resolution used by various types of publications.

Publication	Screen frequency	Scan resolution
Newspaper	85–150 lpi	125–225
Magazine	135–175 lpi	200–265
Art books	150–200 lpi	225–300

When setting a scan resolution, the goal is to balance the resolution with a manageable file size.

If you plan to print your image using a halftone screen, the range of suitable image resolutions depends on the screen frequency of your output device. You can have Photoshop determine a recommended resolution for your image based on your device's screen frequency.

In this section, you'll look at the attributes of the Auto Resolution dialog box. You won't be entering settings for the dialog box; you'll just become familiar with how the settings work.

1 Choose File > New. Accept the default settings and click OK to open a new, blank image. (You must have a file open to use the Image Size command.)

2 Choose Image > Image Size.

3 Click Auto.

4 For Screen, enter the screen frequency for the output device. If desired, choose a new unit of measurement. Note that the screen value is used only to calculate the image resolution; it does not set the screen for printing.

Important: To specify the halftone screen frequency for printing, you must use the Halftone Screens dialog box, accessible through the Page Setup dialog box. For more information on defining halftone screens, see "Selecting halftone screen attributes" in the Adobe Photoshop LE User Guide.

5 For Quality, select one of the following options:

• Draft, to produce a resolution that is the same as the screen frequency (not less than 72 ppi).

• Good, to produce a resolution that is 1.5 times the screen frequency.

• Best, to produce a resolution that is 2 times the screen frequency.

6 Click Cancel to close the Auto Resolution dialog box; then click Cancel to close the Image Size dialog box.

Adobe Photoshop software supports the Microsoft push model for scanners under Windows 98. Check with your scanner manufacturer to find out if your scanner supports this scanning model. You can use the Windows 98 Scanners and Cameras Control Panel to notify an application that a scanner wants to initiate a data transfer.

To have a scanner choose Adobe Photoshop as the application to initiate a data transfer:

7 In Windows 98, choose Start Menu > Settings > Control Panel > Scanners and Cameras.

8 Select the scanner you want to configure and select Properties.

9 Click the Event tab.

10 From the pop-up menu list, choose Scanner Event. Select Photoshop.

11 On your scanner, push the Scan button to activate the scanner's date transfer. Windows 98 launches Adobe Photoshop and displays the scanner's Import dialog box.

Scanning for electronic publication

If you are preparing images for on-screen viewing, the scan resolution need not be greater than the resolution of the target monitor. However, keep in mind that on-screen images are displayed at a 1:1 ratio (1 image pixel to 1 monitor pixel), so the size of an image may vary based on the dpi of the monitor on which the image is displayed.

Scanning using the file size setting

The best way to ensure that you have all the data you need for your Adobe Photoshop image is to create a dummy file that tells you exactly how much data—that is, what file size—you need for your final output.

Using this method is helpful if you have an original image that is smaller than the final image you want to produce. For example, if you want to increase a 2-inch-by-3-inch original image to create a 4-inch-by-6-inch scanned image printed at a line screen of 150 lpi, use the file size method to determine how much data you'll need.

Now, you'll use the File > New method using the information from the previous example.

1 Choose File > New.

2 Enter **4** inches for Width, **6** inches for Height, and **300** for Resolution. (The resolution should be 1.5 times to 2 times the screen frequency you will use to print, which you've determined to be 150.)

The New dialog box displays the image size above the dimensions. The final image is 4 inches wide by 6 inches high, printed at a screen frequency of 150 lpi (hence the 300-lpi resolution, which is two times the line screen). The file size must be 6.18 megabytes.
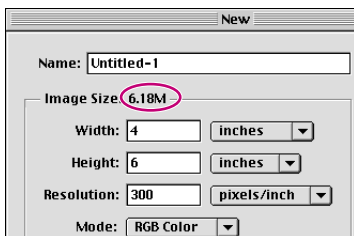
To produce the scan, select the area of the image you want to scan. Then adjust the resolution up or down until the file size is equal to or larger than the file size in the Photoshop File > New dialog box. You can fine-tune the image size and resolution later.

Once you have scanned the image and imported it into Photoshop, use the Image Size command to enter the correct width and height for the image.

Scanning using the resolution setting

If you can't use file size as the determining factor in choosing your scanner settings, you can calculate a scan resolution using the original and final image dimensions and the screen frequency of your output device.

1 Multiply the screen frequency by 2. (Two is the typical ratio of image resolution to screen frequency needed to produce a good-quality image.) For the typical screen frequency by publication type, see "Scanning for printed publication" on page 50.

2 Multiply the result in step 1 by the *size change factor* (the ratio of the final image dimensions to the original) to get the estimated scan resolution you need.

For example, suppose you are scanning an image that is 2 inches wide by 3 inches high. You want to produce a final image that is 6 inches wide by 9 inches high. You are using a screen frequency of 85 lpi.

To calculate the scan resolution, you first multiply 85 (the screen frequency) by 2 to get 170. You then multiply 170 by 3 (the ratio of the final image to the original image dimensions) to get a scan resolution of 510 ppi.

Different printing procedures may require different ratios of image resolution to screen frequency. It's a good idea to check with your service provider or printer to finalize your requirements before you scan the image.

Resampling an image

Resampling refers to changing the pixel dimensions (and therefore the file size) of an image. In Adobe Photoshop, you can change the pixel dimensions directly, or you can change the pixel dimensions by changing either the print dimensions or the resolution while the Resample Image option is selected.

When you *sample down* (decrease the number of pixels), Photoshop deletes information from the image. When you *resample up* (increase the number of pixels), Photoshop creates new pixel information based on the color values of the existing pixels. In both cases, Photoshop uses an interpolation method to determine how pixels are added or deleted.

Downsampling and then resampling up to the original resolution causes the quality of an image to deteriorate. This is because once an image has been downsampled, some of the original color information is lost. When Photoshop resamples the image back up, it attempts to reconstruct the image data based on the new color information. Because the added pixels are interpolated (inserted) from the new downsampled color information, the resulting image can appear blurry or out of focus.

It's best to scan in or create your image using a high enough resolution so that you don't have to increase the pixel dimensions from within Adobe Photoshop. If you want to preview the effects of changing the pixel dimensions on-screen, or print proofs at different resolutions, resample a duplicate of your original file.

Sampling down the skater image

You'll start by sampling down the skater image, and then sample it back up to see how resampling affects the image.

1 Choose File > Open, and open the Skate144.psd file, located in the Lessons/Lesson02 folder.

2 Choose Image > Image Size. First, make sure that the Constrain Proportions and Resample Image options are selected.
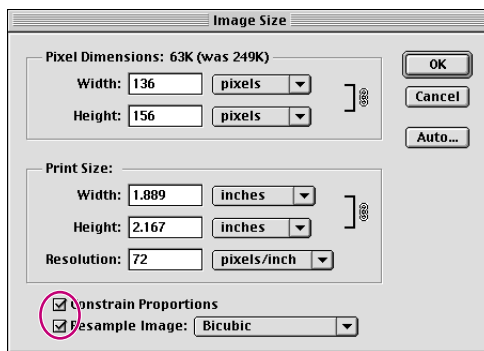
3 Enter **72** in the Resolution text box. You'll notice that the pixel dimensions of the image change, but the print size remains the same.

4 Click OK. Because information was deleted from the Skate144.psd image when the image was sampled down to a lower resolution, the quality of the image remains intact.

Sampling up the skater image

Next, you'll sample up the 72-ppi image. You'll see how the image quality deteriorates when you increase the resolution after having decreased it, while maintaining the print size.

1 Make sure that the Skate144.psd window is still active; then choose Image > Image Size.

2 Enter **300** in the Resolution text box.

Notice that although the pixel dimensions increase, the print size remains the same.

3 Click OK. The image is badly out of focus, because the image was sampled back up by inserting color information from the sampled down file.

4 Choose File > Close, and do not save changes.

You have completed the Image Basics lesson. For in-depth information about all the image options, see Chapter 2, "Getting Images into Photoshop," in the *Adobe Photoshop LE User Guide*.

Review questions

1 What is the difference between a vector image and a raster image?

2 Define resampling. How does sampling up an image differ from sampling down an image?

3 Name two or three ways to get images into Photoshop.

4 How do you determine the resolution at which an image should be scanned?

5 How does scanning an image for electronic publication differ from scanning an image for printed publication?

6 What is screen frequency, and what effect does it have on a printed image?

Review answers

1 Vector images are composed of mathematically defined lines and curves called vectors. Raster images are composed of a grid of small squares called pixels.

2 Resampling is the process of removing pixels from an image or adding pixels to an image. Sampling up adds pixels to an image, and so increases file size, while sampling down discards pixels from the image and so decreases file size.

3 You can use a scanner to scan an image, or import vector artwork from a drawing application like Adobe Illustrator. Images can also come from a digital camera or from a photo CD.

4 You determine the scanning resolution of an image by determining where the image will be output. For example, if an image is going to be output to screen, the resolution need not be higher than the screen resolution; if the image is going to be output to print, the resolution should be 1.5 to 2 times the line screen of the printing device.

5 The scan resolution for an electronic image is typically lower than the scan resolution for a printed image.

6 The screen frequency, or line screen, of an image is the number of lines per inch printed by the output device. The higher the screen frequency, the higher the quality of the printed output.

3 Working with Selections

Learning how to select areas of an image is of primary importance when working with Adobe Photoshop LE—you must first select what you want to affect. Once you've made a selection, only the area within a selection can be edited. Areas outside the selection are protected from change.

In this lesson, you'll learn how to do the following:

• Use the marquee, lasso, and magic wand tools to select parts of an image in various ways.

• Reposition a selection marquee.

• Deselect a selection.

• Move and duplicate a selection.

• Constrain the movement of a selection.

• Adjust a selection with the arrow keys.

• Add to and subtract from selections.

• Rotate, scale, and transform a selection.

• Combine selection tools.

• Crop an image.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

You'll start the lesson by viewing the final lesson file to see what you'll accomplish.

1 Restart Adobe Photoshop.

2 Choose File > Open, and open the 03End.psd file, located in the Lessons/Lesson03 folder. An image of a face, constructed using various types of fruits and vegetables, is displayed.

3 When you have finished viewing the file, either leave the End file open on your desktop for reference or close it without saving changes.

Now you'll open the start file and begin the lesson.

4 Choose File > Open, and open the 03Start.psd file, located in the Lessons/Lesson03 folder on your hard drive.

5 Choose File > Save As, rename the file **03Work.psd**, and save it in the Lessons/Lesson03 folder.

Important: *Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.*

Tool overview

In Adobe Photoshop LE, you can make selections based on size, shape, and color using three basic sets of tools—the marquee, lasso, and magic wand tools. In addition, you can use a fourth tool, the move tool, to reposition the selections you create.
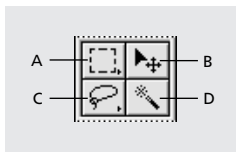
A. *Marquee tool*
B. *Move tool*
C. *Lasso tool*
D. *Magic wand tool*

The marquee and lasso tool icons contain hidden tools, which you can select by holding down the mouse button on the toolbox icon and dragging to the desired tool in the pop-up menu.

The *rectangular marquee tool* (⬚) lets you select a rectangular area in an image. The *elliptical marquee tool* (◯) lets you select elliptical areas. The *single row and single column marquee tools* (⟷) (⫶) let you select a 1-pixel-high row and 1-pixel-wide column. You can also use the *crop tool* (⌗) to crop an image.

The *lasso tool* (◠) lets you make a freehand selection around an area. The *polygon lasso tool* (▽) lets you make a straight-line selection around an area. The *magnetic lasso tool* (▽) lets you draw a freehand border that snaps to the edges of an area.

The *magic wand tool* (✎) lets you select parts of an image based on the similarity in color of adjacent pixels. This tool is useful for selecting odd-shaped areas without having to trace a complex outline using the lasso tool.

Selecting with the rectangular marquee tool

You'll start by practicing selection techniques using the rectangular marquee tool.

1 Click the rectangular marquee tool (⬚) in the toolbox.

2 Drag the tool diagonally from the top left to the bottom right corner of the melon to create a rectangular selection.

Initial selection   *Marquee tool placed within selection*   *Selection border repositioned*
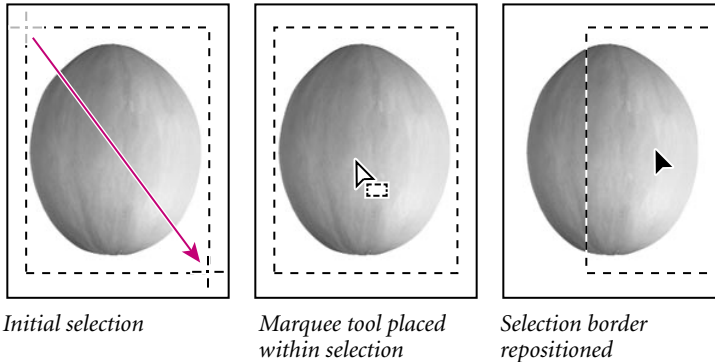
You can move a selection border after you've created it by positioning the tool within the selection and dragging. Notice this technique changes the location of just the selection border; it does not affect the size or shape of the selection.

3 Place the marquee tool anywhere inside the selection surrounding the melon. The pointer becomes an arrow with a small selection icon next to it.

4 Drag to reposition the border around the melon.

Note: Repositioning techniques for selection borders work with any of the marquee, lasso, and magic wand tools.

If you are still not happy with the selection after repositioning it, you can deselect it and redraw it.

5 Deselect the selection by using either of these methods:

• Choose Select > None.

• Click anywhere in the window outside the selection border.

6 Reselect the melon using the rectangular marquee tool.

Note: To back up one action at any point in the lesson, choose Edit > Undo.

Selecting with the elliptical marquee tool

Next you'll use the elliptical marquee tool to select eyes for the face. Note that in most cases, making a new selection replaces the existing selection.

1 Select the zoom tool (🔍), and click twice or three times on the blueberry to zoom in to a 300% view.

2 Hold down the mouse button on the rectangular marquee tool, and drag to the elliptical marquee tool (⬭).

3 Move the pointer over the blueberry, and drag it diagonally from the top left to the bottom right edge of the blueberry to create a selection. Do not release the mouse button.

Repositioning a selection border while creating it

If a selection border isn't placed exactly where you want it, you can adjust its position and size while creating it.

1 Still holding down the mouse button, hold down the spacebar, and drag the selection. The border moves as you drag.

2 Release the spacebar (but not the mouse button), and drag again. Notice that when you drag without the spacebar, the size and shape of the selection change, but its point of origin does not.
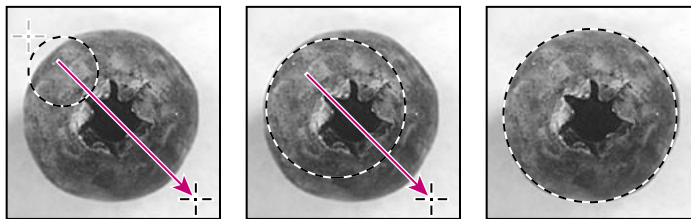
Incorrect point of origin   *Corrected point of origin*   *Adjusted border*
(click and drag)   *(spacebar depressed)*   *(spacebar released)*

3 When the selection border is positioned and sized correctly, release the mouse button.

Selecting from a center point

Sometimes it's easier to make elliptical or rectangular selections by drawing a selection from the center point of the object to the outside edge. Using this method, you'll reselect the blueberry.

1 Choose Select > None.

2 Position the marquee tool at the approximate center of the blueberry.

3 Click and begin dragging. Then without releasing the mouse button, hold down Alt (Windows) or Option (Mac OS), and continue dragging the selection to the blueberry's outer edge. Notice that the selection is centered over its starting point.

4 When you have selected the entire blueberry, release first the mouse button and then Alt/Option.

If necessary, adjust the selection border using one of the methods you learned earlier.

Moving a selection

Now you'll use the move tool to move the blueberry onto the carrot slice to create an eye for the face. Then you'll duplicate and move the selection to make a second eye.

1 Make sure that the blueberry is selected.

2 If necessary, zoom out or double-click the zoom tool to return to a 100% view.

3 Click the move tool (⊹), and position the pointer within the blueberry's selection. The pointer becomes an arrow with a pair of scissors to indicate that dragging the selection will cut it from its present location and move it to the new location.

4 Drag the blueberry onto the carrot slice.
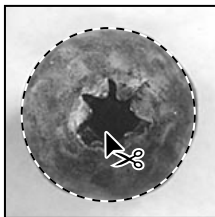
Move tool placed within blueberry selection
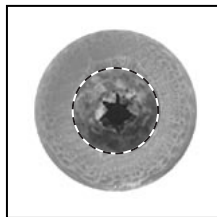
Blueberry moved onto carrot slice

5 Choose Select > None.

6 Choose File > Save.

Moving and duplicating simultaneously

Next you'll move and duplicate a selection simultaneously.

1 Choose View > Fit on Screen to resize the document to fit on your screen.

2 Select the elliptical marquee tool.

3 Drag a selection around the carrot slice containing the blueberry. If necessary, adjust the selection border using one of the methods you learned earlier.

4 Click the move tool, then hold down Alt (Windows) or Option (Mac OS), and position the pointer within the selection. The pointer becomes a double arrow, which indicates that a duplicate will be made when you move the selection.
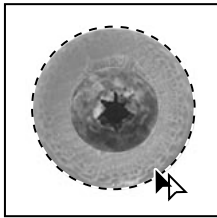
5 Continue holding down Alt/Option, and drag a duplicate of the eye onto the left side of the melon face. Release the mouse button and Alt/Option, but do not deselect the eye.

Holding down Shift when you move a selection constrains the movement horizontally or vertically. Using this technique, you'll drag a copy of the left eye to the right side of the face so that the two eyes are level.

6 Hold down Shift+Alt (Windows) or Shift+Option (Mac OS), and drag a copy of the eye to the right side of the face.

7 Choose File > Save.
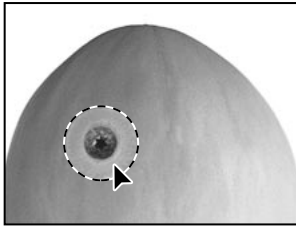
Eye moved onto left side of face
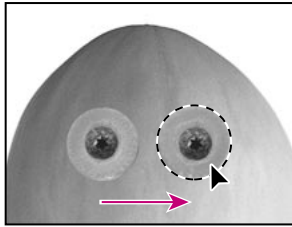
Duplicate of eye moved with Shift+Alt/Option

Moving with a keyboard shortcut

Next you'll select the kiwi fruit for the melon's mouth and then move it onto the melon using a keyboard shortcut. The shortcut allows you to temporarily access the move tool instead of selecting it from the toolbox.

1 Select the elliptical marquee tool from the toolbox.

2 Drag a selection around the kiwi fruit using one of the methods you learned earlier.

3 With the marquee tool still selected, hold down Control (Windows) or Command (Mac OS), and position the pointer within the selection. A pair of scissors appears with the pointer to indicate the selection will be cut from its current location.

4 Drag the kiwi mouth onto the face. Do not deselect.
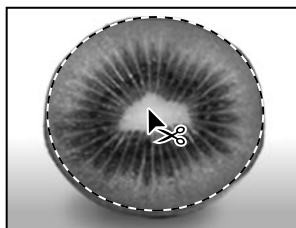
Selection to be cut
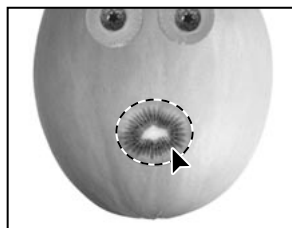
Selection moved onto melon

Moving with the arrow keys

You can make minor adjustments to the position of a selection using the arrow keys, which allow you to nudge the selection 1 pixel or 10 pixels at a time.

Note: The arrow keys adjust the position of a selection only if you've already moved the selection or if you have the move tool selected. Using the arrow keys on a selection that has not yet been moved adjusts the selection border, not the part of the image that is selected.

1 Press the Up Arrow (⬆) key a few times to move the mouth upward. Notice that each time you press the arrow key, the mouth moves in 1-pixel increments. Experiment with the other arrow keys to see how they affect the selection.

Sometimes the border around a selected area can distract you as you make adjustments. You can hide the edges of a selection temporarily without actually deselecting and then display the selection border once you've completed the adjustments.

2 Choose View > Hide Edges. The selection border around the mouth disappears.

3 Now hold down Shift, and press an arrow key. The selection moves in 10-pixel increments.

4 Use the arrow keys to nudge the mouth until it is positioned where you want it. Then choose View > Show Edges.

5 Choose File > Save.

Selecting with the magic wand tool

The magic wand tool lets you select adjacent pixels in an image based on their similarity in color. You'll use the magic wand tool to select the pear tomato, which you'll use as a nose for the face.

1 Double-click the magic wand tool (✎) in the toolbox to select the tool and display its Options palette. Notice that the Options palette has moved to the front of the Info/Navigator/Options palette group.

Note: Most tools in the toolbox come with their own Options palettes, which allow you to change the way the tools work.

In the Magic Wand Options palette, the Tolerance setting controls how many similar tones of a color are selected when you click an area. The default value is 32, indicating that 32 similar lighter tones and 32 similar darker tones will be selected.

2 For Tolerance, enter **50** to increase the number of shades that will be selected.
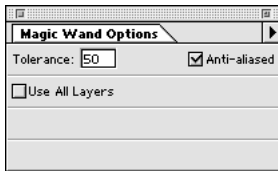
3 Click the magic wand tool anywhere within the pear tomato. Most of it will be selected.

4 To select the remaining area of the pear tomato, hold down Shift, and click the unselected areas. Notice that a plus sign appears with the magic wand pointer indicating that you're adding to the current selection.
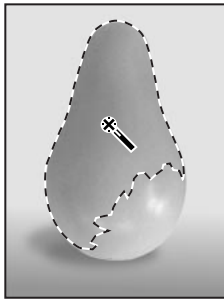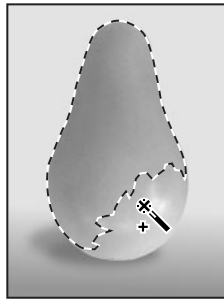
Initial selection   *Adding to selection*   *Complete selection*
                              (Shift key depressed)

5 When the pear tomato is completely selected, hold down Control (Windows) or Command (Mac OS), position the pointer within the selection, and drag the tomato nose onto the melon face.

6 Choose Select > None.

7 Choose File > Save.

Selecting with the lasso tool

You can use the lasso tool to make selections that require both freehand and straight lines. You'll select a bow tie for the face using the lasso tool this way. It takes a bit of practice to use the lasso tool to alternate between straight-line and freehand selections—if you make a mistake while you're selecting the bow tie, simply deselect and start again.

1 Select the zoom tool, and click twice or three times on the bow tie pasta to enlarge its view to 300%.

2 Select the lasso tool (⌐). Starting at the top left corner of the bow tie pasta, drag to the right to create a freehand outline across the curves at the top of the bow tie. Continue holding down the mouse button.

3 To select the right edge of the bow tie, hold down Alt (Windows) or Option (Mac OS), release the mouse button, and then begin outlining with short, straight lines by clicking along the edge. (Notice that the pointer changes from the lasso icon to the polygon lasso icon.) When you reach the bottom right corner of the bow tie, do not release the mouse button.
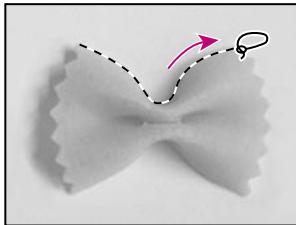
Freehand outline with lasso tool
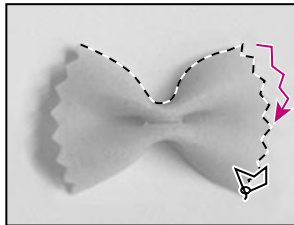
Straight-line outline with polygon lasso tool
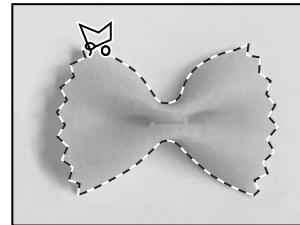
Completed selection (outline crosses starting point)

4 Release Alt/Option, and drag to the left to create a freehand outline across the bottom of the bow tie. (The pointer returns to the lasso icon.)

5 Hold down Alt/Option again, and click the mouse button along the left edge of the bow tie to draw straight lines.

6 To complete the selection, make sure that the last straight line crosses the start of the selection, release Alt/Option, and then release the mouse button.

7 Choose View > Fit on Screen to resize the document to fit on your screen.

8 Hold down Control (Windows) or Command (Mac OS), and drag the bow tie selection to the bottom of the melon face.

9 Choose File > Save.

Adding and subtracting selections

Holding down Shift while you are selecting an area adds to the current selection. Holding down Alt (Windows) or Option (Mac OS) subtracts from the selection. You'll now use these techniques with the lasso tool to perfect a rough selection of the mushroom image. The mushroom will become a hat for the melon face.

1 Select the zoom tool, and click twice on the mushroom to enlarge its view to 300%.

2 Select the lasso tool, and drag a rough outline around the mushroom (include some of the area outside the mushroom and some of the stem).

3 Hold down Shift. A plus sign appears with the lasso tool pointer.

4 Drag the lasso tool around an area you want to add to the selection. Then release the mouse button. The area is added to the current selection.
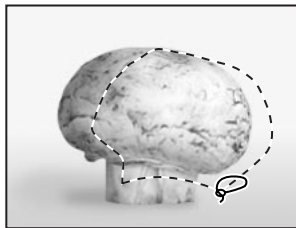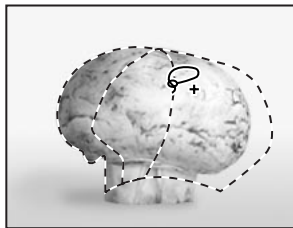
Initial selection *Adding to selection* *Result*
 (Shift key depressed)
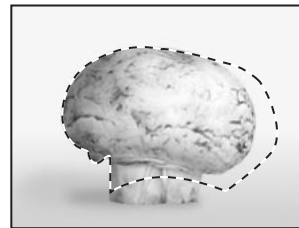
Note: If you release the mouse button while drawing a selection with the lasso tool, the selection closes itself by drawing a straight line between the starting point and the point where you release the mouse. To create a more precise border, end the selection by crossing the starting point.

Next, you'll remove, or subtract, part of the selection.

5 Hold down Alt (Windows) or Option (Mac OS). A minus sign appears with the lasso tool pointer.

6 Drag the lasso tool around an area you want to remove from the selection. Then repeat the process until you've finished removing all the unwanted parts of the selection.
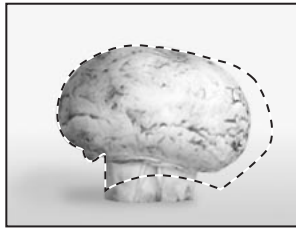
Selection
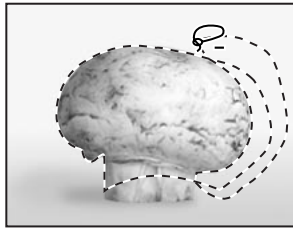
Subtracting from selection (Alt/Option depressed)
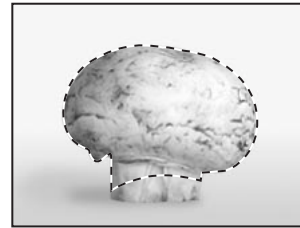
Result

7 Choose View > Fit on Screen.

8 To move the mushroom hat onto the melon head, hold down Alt+Control (Windows) or Option+Command (Mac OS), and drag a copy of the mushroom to the top of the melon.

9 Choose File > Save.

Selecting with the magnetic lasso tool

You can use the magnetic lasso tool to make freehand selections of areas with high-contrast edges. When you draw with the magnetic lasso, the border automatically snaps to the edge you are tracing. You can also control the direction of the tool's path by clicking the mouse to place occasional fastening points in the selection border.

You'll now make an ear for the melon face by using the magnetic lasso to select the red part of the grapefruit slice.

1 Select the zoom tool, and click the grapefruit slice to zoom in.

2 Hold down the mouse button on the lasso tool in the toolbox, and drag to the magnetic lasso tool (🔾) to select it.

3 Now click once at the lower left corner of the red flesh of the grapefruit slice, release the mouse button, and begin tracing the outline of the flesh by dragging to the right over the curved upper edge. Notice that the tool snaps to the edge and automatically puts in fastening points.

If you think the tool is not following the edge closely enough (in low-contrast areas), you can place your own fastening point in the border by clicking the mouse button. You can add as many fastening points as you feel necessary. You can also remove fastening points and undo portions of the path by pressing Delete and moving the mouse back to the last remaining fastening point.

4 When you reach the lower right corner of the grapefruit flesh, double-click the mouse button, which signals the magnetic lasso tool to return to the starting point and close the selection. Notice that the tool automatically follows the remaining edge of the flesh as it completes the border.
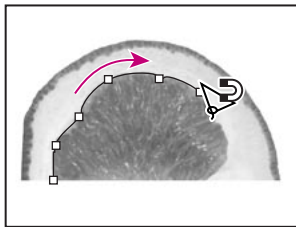
Laying down fastening points   *Removing fastening points*   *Double-clicking at corner to close path*
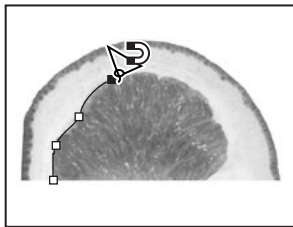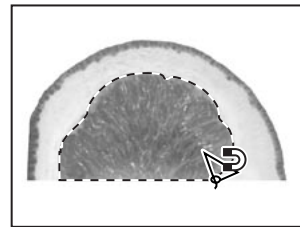
You can now move the selected part of the grapefruit next to the melon.

5 Double-click the hand tool (✋) to fit the image on-screen.

6 Click the move tool, and drag the grapefruit ear to the middle of the left side of the melon face. Do not deselect.

7 Choose File > Save.

Transforming a selection

Next you'll use the Transform command to rotate and scale the melon's left ear, and then you'll duplicate and flip a copy to create a right ear.

1 Choose Edit > Transform > Rotate. A bounding box appears around the ear selection.

2 To rotate the ear, position the pointer outside a corner handle until you see a double-headed arrow, and then drag in the direction you want the ear to rotate.

3 Press Enter (Windows) or Return (Mac OS) to apply the transformation change. The bounding box disappears, but the ear remains selected.

4 To scale the ear, choose Edit > Transform > Scale. Position the pointer directly on one of the corner handles, and drag to reduce the size of the ear. To scale the ear proportionately, hold down Shift as you drag.

5 To reposition the ear, place your pointer within the bounding box and drag.
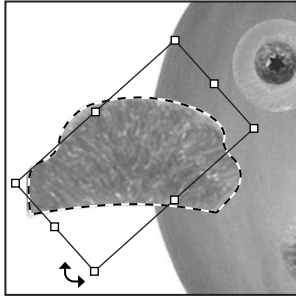
Dragging outside border to rotate ear
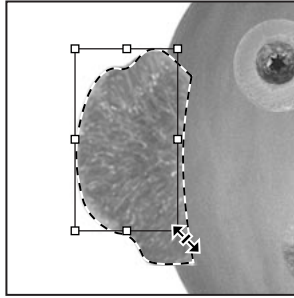
Dragging on corner to scale ear
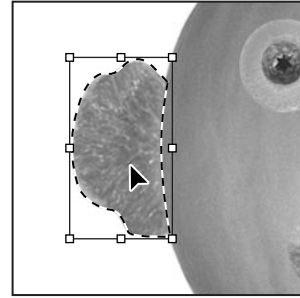
Dragging within border to reposition ear

💡 *If you don't like the results of a Transform command, press Esc and start over.*

6 When you have the ear positioned correctly, press Enter (Windows) or Return (Mac OS) to apply the transformation. The ear remains selected.

You will now move a copy of the ear to the right side of the face, flip the ear horizontally, and fine-tune its placement.

7 Position the pointer within the ear selection, hold down Shift+Alt (Windows) or Shift+Option (Mac OS), and drag a copy of the ear to the right side of the face.

8 Choose Edit > Transform > Flip Horizontal.

9 If necessary, place the pointer within the selection, and drag to reposition it next to the melon face.

10 If necessary, choose Edit > Transform > Rotate, rotate the ear to fit the right side of the face, and press Enter (Windows) or Return (Mac OS) to complete the transformation.

11 Choose File > Save.

Combining selection tools

As you already know, the magic wand tool makes selections based on color. If an object you want to select is on a solid-colored background, it can be much easier to select the object and the background and then use the magic wand tool to subtract the background color, leaving the desired object selected.

You'll see how this works by using the rectangular marquee tool and the magic wand tool to select radish eyebrows for the face.

1 Hold down the mouse button on the elliptical marquee tool, and drag to the rectangular marquee tool.

2 Drag a selection around the radishes. Notice that some of the white background is included in the selection.

At this point, the radishes and the white background area are selected. You'll subtract the white area from the selection, resulting in only the radishes being selected.

3 Click the magic wand tool in the toolbox; then hold down Alt (Windows) or Option (Mac OS). A minus sign appears with the magic wand pointer.

4 Click anywhere in the white area surrounding the radishes. Now only the radishes are selected.
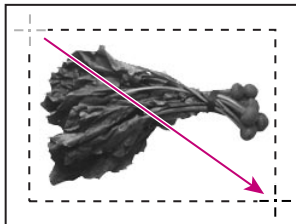
Initial selection
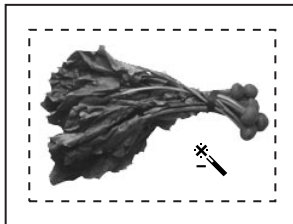
Subtracting from selection with Alt/Option magic wand
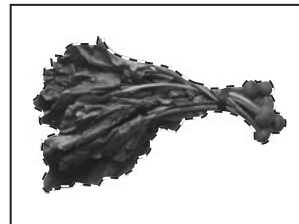
Result

5 To duplicate and move the radish eyebrow to the melon face, hold down Alt+Control (Windows) or Option+Command (Mac OS), and drag the radish above the left eye on the melon face. Do not deselect.
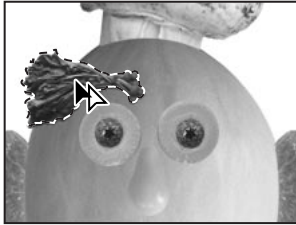
Left eyebrow placed with Alt+Control/ Option+Command

Right eyebrow placed with Shift+Alt+Control/ Shift+Option+Command

Right eyebrow flipped horizontally

6 Hold down Shift+Alt+Control (Windows) or Shift+Option+Command (Mac OS), position the pointer within the selection, and drag to duplicate and reposition another eyebrow above the right eye.

7 Choose Edit > Transform > Flip Horizontal to adjust the right eyebrow. If you like, reposition the eyebrow using any of the methods you've learned.

8 Choose File > Save.

Cropping the completed image

To complete the artwork, you'll crop the image to a final size.

1 Choose the crop tool (⊞) from the toolbox. The crop tool is located in the Hidden Tools palette under the marquee tool.

2 Move the pointer into the image window, and drag diagonally from the top left to the bottom right corner of the completed artwork to create a crop marquee.
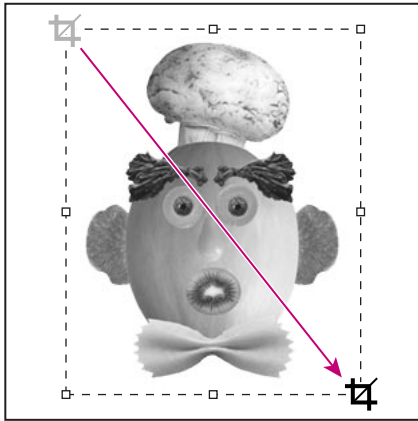
3 If you need to reposition the crop marquee, position the pointer anywhere inside the marquee and drag.

4 If you want to resize the marquee, drag a handle.

5 When the marquee is positioned where you want it, press Enter (Windows) or Return (Mac OS) to crop the image.

6 Choose File > Save.

The fruit-and-vegetable face is complete.

7 Choose File > Close to close the file.

Review questions

1 Once you've made a selection, what area of the image can be edited?

2 How do you add to and subtract from a selection?

3 How can you move a selection while you're drawing it?

4 When drawing a selection with the lasso tool, how should you finish drawing the selection to ensure that the selection is the shape you want?

5 How does the magic wand tool determine which areas of an image to select? What is tolerance, and how does it affect a selection?

Review answers

1 Only the area within the selection can be edited.

2 To add to a selection, hold down Shift, and then drag or click the active selection tool on the area you want to add to the selection. To subtract from a selection, hold down Alt (Windows) or Option (Mac OS), and then drag or click the active selection tool on the area you want to remove from the selection.

3 You can move a selection as you draw it by continuing to depress the mouse button, and then holding down the spacebar and dragging to reposition the selection.

4 To make sure that the selection is the shape you want, end the selection by dragging across the starting point of the selection. If you start and stop the selection at different points, Photoshop draws a straight line between the start point of the selection and the end point of the selection.

5 The magic wand selects adjacent pixels based on their similarity in color. The Tolerance setting determines how many shades of color the magic wand will select. The higher the Tolerance setting, the more shades the magic wand selects.

4 | Layer Basics

Adobe Photoshop LE lets you isolate different parts of an image on layers. The artwork on each layer can be edited as a discrete image, allowing for unlimited flexibility in editing.

In this lesson, you'll learn how to do the following:

• Organize your artwork on layers.

• View and hide layers.

• Select layers.

• View the transparent area of a layer.

• Reorder layers to change the placement of artwork in the image.

• Create a new layer.

• Apply modes to layers to vary the effect of artwork on the layer.

• Move layers from one file to another.

• Erase objects on layers and delete layers.

• Link layers in order to affect them simultaneously.

• Merge like layers to reduce the size of a file.

• Save a layered file.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

You'll start the lesson by viewing the final lesson file to see what you'll accomplish.

1 Restart Adobe Photoshop.

2 Choose File > Open, and open the 04End.psd file, located in the Lessons/Lesson04 folder. An image of a figure on a beach is displayed.

3 When you have finished viewing the file, either leave the End file open on your desktop for reference or close it without saving changes.

Now you'll open the start file and begin the lesson.

4 Choose File > Open, and open the 04Start.psd file, located in the Lessons/Lesson04 folder on your hard drive.

5 Choose File > Save As, rename the file **04Work.psd**, and save it in the Lessons/Lesson04 folder.

Important: *Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.*

Organizing artwork on layers

Every Adobe Photoshop image contains one or more *layers*. Every new file is created with a *background,* which can be converted to a layer. When you scan an image and open it in Adobe Photoshop LE, it is placed on the background.

Layers in Adobe Photoshop are analogous to placing portions of a drawing on sheets of acetate—when the sheets are stacked, the entire drawing is visible, but individual sheets of acetate may be edited, repositioned, or deleted without affecting the overall drawing.

In Adobe Photoshop, the order in which the layers of a drawing are organized is called the *stacking order*. The stacking order of layers determines how the image is viewed—you can change the layer order to make certain parts of the image appear in front of or behind other layers.

Viewing a layered document

All layers in an image are transparent until you add artwork (pixel values) to the layer. After you've added artwork to a layer, the areas that remain transparent are represented by a checkerboard.

Using the Layers palette

The Layers palette lets you control the layers in your document. You can create new layers, reposition layers, delete or merge layers, and apply effects, called *modes,* to individual layers.
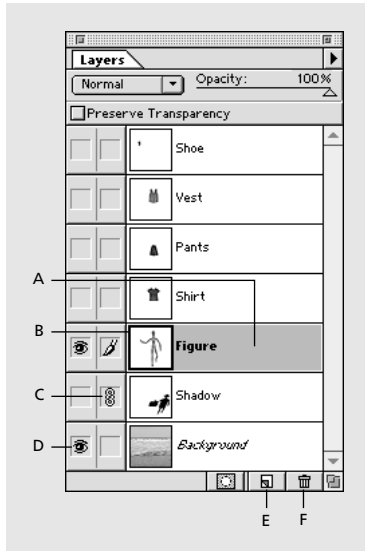
A. Selected layer is active B. Selected layer icon
C. Link/unlink D. Show/hide E. New layer F. Trash

1 If the Layers palette is not visible on your screen, choose Window > Show Layers.

2 Click the maximize box (Windows) or the size box (Mac OS) in the top right area of the Layers palette to expand to the full size of the palette. (The palette size depends on the number of layers in the document.)

Windows

Macintosh
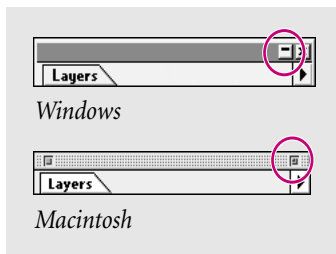
Click to collapse and expand palette.

The Layers palette displays the layers in the active window from top to bottom. A thumbnail of the layer appears to the left of the layer name and is automatically updated as you edit the layer.

Viewing and hiding layers

The eye icon in the column to the left of the layer names indicates that a layer is visible. You can view or hide one or more layers by clicking the eye icon next to the layer name you want to view or hide. You can also drag through the eye column to turn multiple layers on or off.

1 Drag through the eye column from the top to the bottom to turn on all layers in the image.
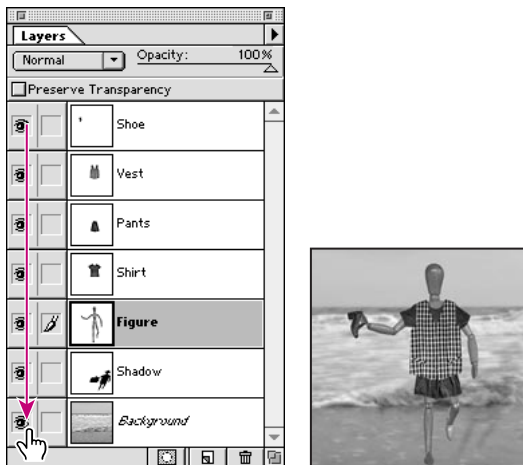
2 Drag through the eye column again from the top to the bottom to turn off all the layers and the background in the image. The entire image disappears because all the layers and background are hidden.

The checkerboard indicates that with all the layers hidden, the image area is transparent.

3 Try showing and hiding different combinations of layers by clicking, or by clicking and dragging the eye column next to various layers.

4 Drag through the eye column from the top to the bottom to turn on all the layers in the image.

You can also hide all but a single layer.

5 To hide all but a single layer, Alt-click (Windows) or Option-click (MacOS) the eye icon to the left of the layer you want to display. All the layers except the layer you clicked are hidden.

6 To display all the layers, Alt-click (Windows) or Option-click (MacOS) the same layer again.

Selecting layers

You can select and edit a single layer at a time. The selected layer is called the *active layer*. When a layer is active, a paintbrush icon appears to the left of the layer name next to the eye column.

1 In the Layers palette, click the Vest layer (on the name or on the thumbnail) to make it the active layer.

Notice that the name of the active layer appears in the title bar of the image window.
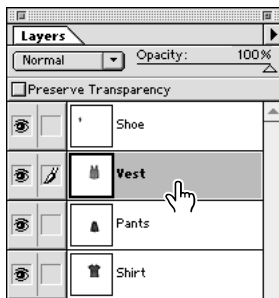
2 Drag the Opacity slider triangle in the Layers palette to about 50%.

The Vest layer becomes 50% opaque, and you can see the shirt and the pants underneath. The change affects only the artwork on the Vest layer.

3 Drag the Opacity slider back to 100%.

4 Click the eye icon next to the Vest layer to turn off the layer.

Next, you'll rearrange layers to change the order in which they appear.

Rearranging layers

You can rearrange layers to change the stacking order of the elements on individual layers. You'll rearrange the Shirt layer to move it in front of the Pants layer.

1 Click the Shirt layer in the Layers palette to select it, and then drag upward to position it above the Pants layer. When you see a thick black line above the Pants layer, release the mouse button. The Shirt layer moves in front of the Pants layer.
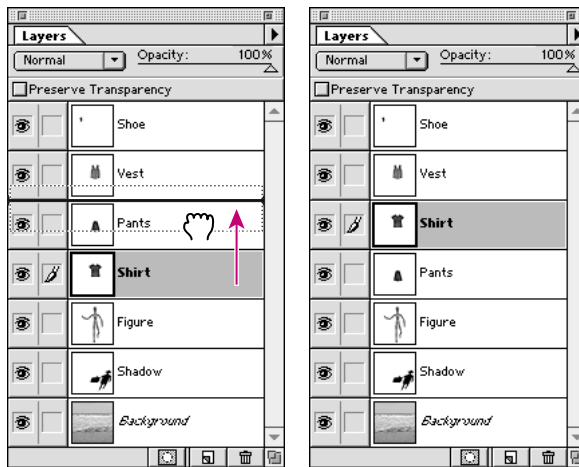
Repositioning layer   *Result*

Renaming layers

You can change the name of a layer using the Layer Options dialog box.

1 In the Layers palette, double-click the Pants layer.

2 In the Layer Options dialog box, enter the name **Shorts** and click OK.

3 Choose File > Save to save your work.

Editing the background

By default, the background in an image cannot be moved and always appears in italic type at the bottom of the Layers palette. If you try to move the background, an icon appears to indicate that it can't be moved. If you want to move the background or change its opacity, you must first convert it to a layer by renaming it.

1 In the Layers palette, double-click the background to open the Make Layer dialog box.

2 Type the name **Seascape** and click OK. The background is renamed and can be edited as any other layer in the file.
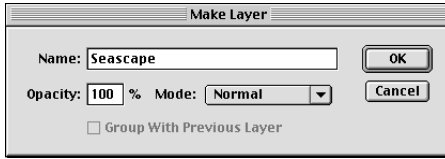
3 In the Layers palette, drag the Opacity slider to about 60% to make the Seascape layer semitransparent.

Changing the view of the transparent areas in an image

At the beginning of this lesson, you learned that the transparent areas on a layer or in an image are represented by a checkerboard. You can modify the color and size of the checkerboard, or you can make the checkerboard invisible.

1 In the Layers palette, Alt-click (Windows) or Option-click (MacOS) the eye icon next to the Figure layer to turn off all the layers except the Figure layer.

The area surrounding the figure is transparent, as indicated by the checkerboard.

2 Choose File > Preferences > Transparency.
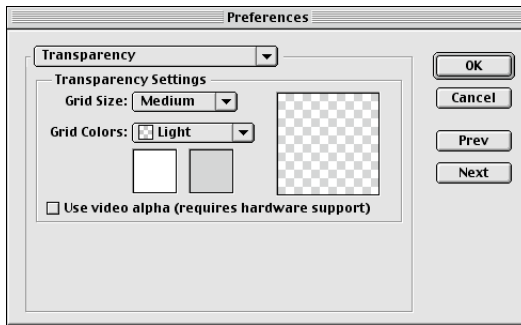
Checkerboard indicating transparency

3 For Grid Size, choose Small to change the size of the squares in the checkerboard.

4 For Grid Colors, choose one of the predefined colors to change the color of the checkerboard.

5 Experiment with various checkerboard sizes and colors.

6 Before closing the Transparency dialog box, choose None for Grid Size to turn off the grid.

Note: When you choose None for the Checkerboard option, the white area surrounding the artwork on a layer represents the transparent area.

7 Click OK.

8 In the Layers palette, Alt-click (Windows) or Option-click (MacOS) the eye icon next to the Figure layer to turn on all the layers in the image.

Adding a new layer

Next, you'll create a new layer and add a gradient to it.

1 In the Layers palette, click the Seascape layer to make it the active layer.

2 Choose New Layer from the Layers palette menu.
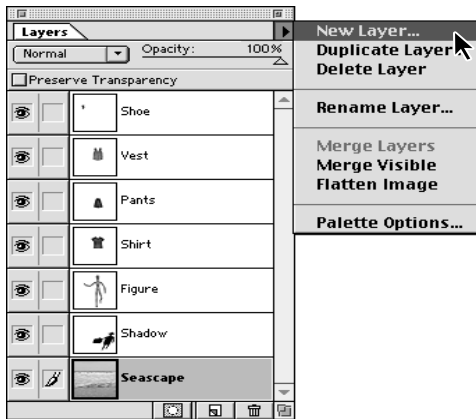
3 In the New Layer dialog box, type the name **Gradient** and click OK. The Gradient layer appears above the Seascape layer in the Layers palette.

4 Click the maximize box (Windows) or the size box (MacOS) in the Layers palette to display the full size of the Layers palette.

Adding a gradient to a layer

A gradient is a gradual blend from one color to another. The transition from one color to another may be subtle or sharp, which can be controlled using the gradient tool. You'll apply a gradient to the layer above the Seascape layer.

1 Double-click the gradient tool (▦) in the toolbox to select the tool and to open its Options palette.

2 In the Gradient Tool Options palette, for Gradient choose the Foreground to Transparent option.
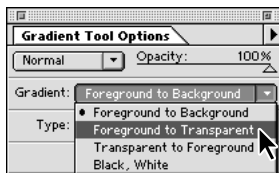
3 Click the Swatches palette tab to bring it to the front of its palette group. You'll select a shade of purple for the starting color of the gradient.

4 In the Swatches palette, click a shade of purple that appeals to you.

5 Make sure that the Gradient layer is the selected layer in the Layers palette.

6 In the image window, drag the gradient tool from the top of the image to the bottom of the image.
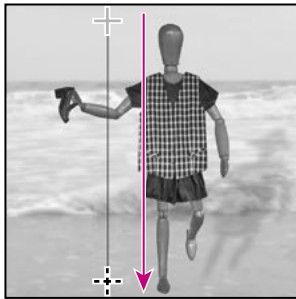
The gradient is applied over the length of the layer, starting with purple and gradually blending to transparent.

7 In the Layers palette, drag the Opacity slider to 60% to lighten the gradient.
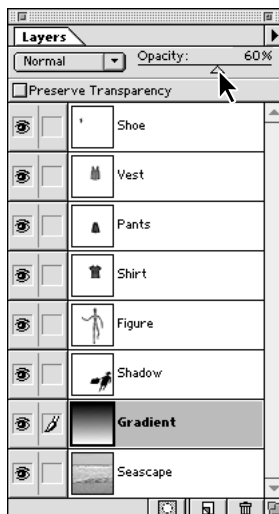
Note: If you are working on a 256-color monitor, you may see banding in the gradient.

Applying modes to a layer

Blending modes let you change the effect of artwork on a layer. For example, if you want to add color to a grayscale image to create a hand-painted look, you would select a mode. You'll experiment with a few modes on the Gradient layer to see how they affect the gradient and the Seascape layer beneath it.

1 With the Gradient layer still the active layer, choose Darken from the mode menu (to the left of the Opacity slider in the Layers palette).
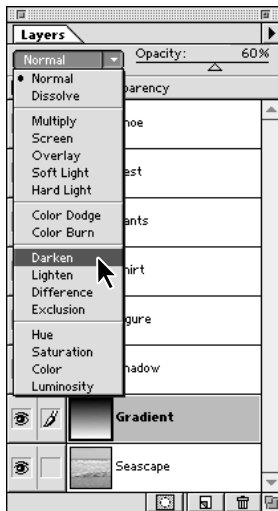
The Darken mode applies the colors in the gradient to only the pixels on the Seascape layer that are lighter than the gradient colors.

2 Next, choose Lighten from the mode menu.

The Lighten mode applies the colors in the gradient to only the pixels on the Seascape layer that are darker than the gradient colors.

3 Experiment by selecting other modes to apply a variety of effects to the Gradient layer.

For a complete explanation of each layer mode, see the *Adobe Photoshop LE User Guide*.

4 Choose File > Save to save your work.

Moving layers between files

You can drag and drop layers from one file into another. You'll drag a layer containing three hats from one file into the 04Work.psd file.

1 Choose File > Open, and open the Hats.psd file, located in the Lessons/Lesson04 folder. An image of three hats appears, and a single layer named Three Hats is displayed in the Layers palette.

You'll drag and drop the Three hats layer from the hats file into the 04Work.psd file.

2 Position the pointer on the Three Hats layer in the Layers palette. Click and hold the mouse button as you drag the layer onto the 04Work.psd window. Release the mouse button when an outline appears in the 04Work.psd image.

3 Notice that the Three Hats layer now appears in the 04Work.psd Layers palette. When you dragged, the layer was duplicated and added to the Layers palette, above the selected layer (Gradient).

4 Drag the Three Hats layer to the top of the Layers palette to position it at the top level of the image.
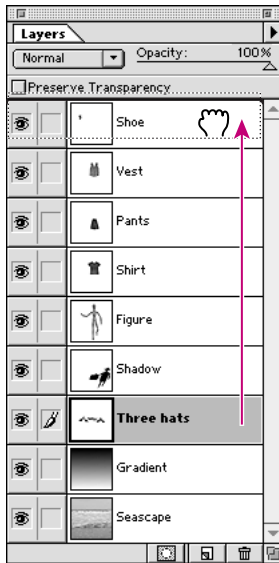
5 Close the hats file and do not save changes, if prompted.

Moving selections on layers

You can use the move tool to reposition the artwork on individual layers.

1 Click the move tool (▸⊹) in the toolbox.

2 In the Layers palette, make sure that the Three Hats layer is the active layer.

3 Decide which hat you want to place on the figure's head. Then with the move tool, drag the hat into position. (Don't worry about the other two hats just yet.)

Erasing artwork on a layer

You can erase parts of a layer or an entire layer. You'll use the eraser tool to edit the image a few different ways.

1 Double-click the eraser tool (⌀) in the toolbox. The Eraser Options palette appears.

2 Choose Block from the Erase Options menu; then move the eraser tool into the window. The eraser becomes a square block.
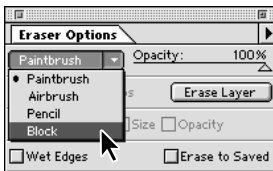
3 With the Three Hats layer still selected, drag the eraser over the hats you didn't select.

4 In the Layers palette, click the Figure layer to make it active.

5 In the Eraser Options palette, select the Paintbrush option, set Opacity to 65%, and then drag the eraser tool over the figure's right leg to immerse it in the water.

Deleting a layer

You can delete unwanted or unused layers from an image.

Delete the Shoe layer in either of the following ways:

• Make sure that the Shoe layer is the active layer, and then choose Delete Layer from the Layers palette menu.

• Drag the Shoe layer in the Layers palette onto the Trash button at the bottom of the Layers palette.
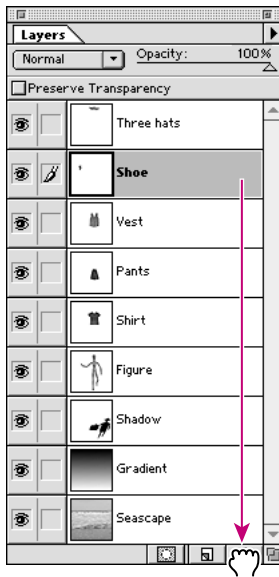
Scaling and rotating objects

You can scale and rotate a selection using the Transform command in the Edit menu. You'll rotate a basket and then scale it for the figure.

1 Choose File > Open, and open the Basket.psd file, located in the Lessons/Lesson04 folder.

2 In the Layers palette, position the pointer on the Basket layer, and drag the layer onto the 04Work.psd window. Release the mouse button when an outline appears in the 04Work.psd window.

3 Close the basket image and do not save changes, if prompted.

4 Click the move tool in the toolbox, and then drag the basket into position on the figure's right arm.

5 Choose Edit > Transform > Rotate. The transformation boundary appears around the basket.

6 Rotate the basket by positioning the pointer outside one of the handles and dragging.
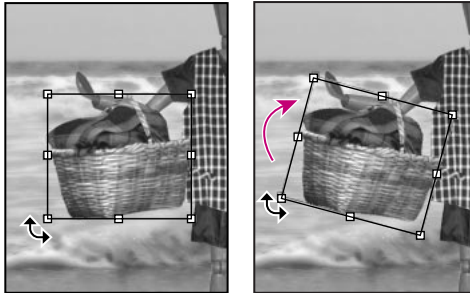
Position pointer outside handles. . .   *and drag to rotate an object.*

7 Press Enter or Return to apply the transformation.

8 Scale the basket to a smaller size by choosing Edit > Transform > Scale. The transformation boundary appears around the basket.

9 To scale the basket maintaining the correct aspect ration, move the pointer to one of the corner handles. When the pointer changes to a diagonal arrow, drag to resize the basket.
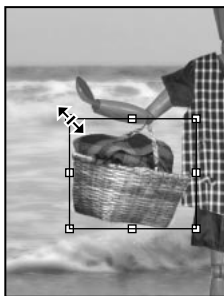
10 Adjust the position of the basket by moving the pointer inside the transformation boundary and dragging to the desired position.

11 Press Enter or Return.

To make the basket handle fit the figure's arm, you'll use the eraser tool.

12 Zoom in on the figure's arm.

13 Double-click the eraser tool in the toolbox. In the Eraser Options palette, drag the Opacity slider to 100%. In the Brushes palette, select a small brush. Then erase a portion of the basket handle to fit it on the figure's arm.

14 Double-click the zoom tool to return to a 100% view.

Linking layers

You can link two or more layers in a document to affect them as a group. You'll link all the layers except the background Seascape layer.

1 In the Layers palette, click the Basket layer to make it the active layer.

2 Next, click the small box to the right of the eye icon in each of the remaining layers, with the exception of the Gradient layer, the Shadow layer, and the Seascape layer.

When you click in this box, a link icon appears. (The active layer does not display a link icon, but it is part of the linked layers.)
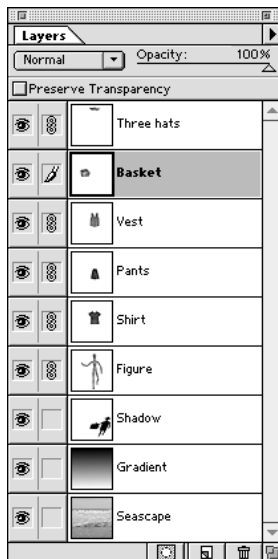
3 Click the move tool in the toolbox, then position it in the image window and begin dragging. You'll notice that the figure, the clothing, and the accessories move simultaneously. Align the figure with the shadow to complete the image.

4 Unlink all the linked layers by clicking the link icon next to each linked layer.

How layers affect file size

Each layer you add to an image increases the file size. The amount that the file size increases is related to how much pixel information is on the layer—transparent areas of the layer do not add to the file size. To keep the file size manageable, it's a good idea to merge layers you've finished working with and delete any unused layers in the image. However, don't merge or delete layers until you've made final design decisions.

Merging layers

You can merge all visible layers in a file, or you can merge all of the layers below the selected layer. You'll use the Merge Visible Layers command to merge only the visible layers in the image.

1 In the Layers palette, click the eye icon next to the Shadow, Gradient, and Seascape layers to hide them.

2 Choose Merge Visible from the Layers palette menu.
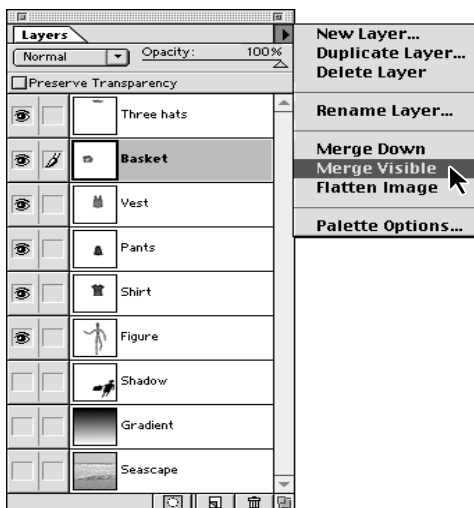
All of the layers are merged, with the exception of the Shadow, Gradient, and Seascape layers. You can rename the merged layer by double-clicking the layer name in the Layer palette or choosing Rename Layer from the Layers palette menu.

3 Drag through the column next to the Shadow, Gradient, and Seascape layers to make them visible before continuing.

Flattening files

When you have edited all the layers in your image, you use the Flatten Image command to merge all the layers in the image into a single background layer, thus greatly reducing the file size.

In most cases, you shouldn't flatten an image until you are absolutely certain that you have finished all of your design decisions.

1 Choose File > Save As to save a copy of the 04Work.psd file.

It's a good idea to keep a copy of the layered version of the file, in case you need to edit it later.

2 From the Layers palette menu, choose Flatten Image.

All the layers in the 04Work.psd image are merged onto a single background.

3 Choose File > Save As, rename the file **04Flat.psd**, and save it in the Lessons/Lesson04 folder. Choose File > Close to close the image.

To compare the flattened image with the layered version of the file, you must close the file.

4 To see the difference in the size of the two files, choose File > Open, and select the 04Work.psd and 04Flat.psd file in turn in the Lessons/Lesson04 folder. When you select a file in a list of files, its size is displayed at the bottom of the Open dialog box.
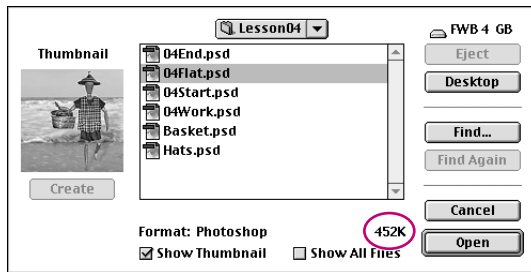
5 Choose File > Close to close any open lesson files.

You've completed the layer basics lesson. In Lesson 8, "Advanced Layer Techniques," you'll learn advanced layer concepts.

Review questions

1 What is the advantage of using layers?

2 How can you make artwork on one layer appear in front of artwork on another layer?

3 How can you move a layer from one image into another image?

4 How can you adjust multiple layers simultaneously?

5 When you've completed your artwork, what can you do to a file to minimize its size?

Review answers

1 Using layers lets you edit different parts of an image as discrete objects.

2 To reposition artwork on one layer in front of that on another layer, drag the layer name in the Layers palette or use the Layer > Arrange > Bring to Front command.

3 To move a layer from one image to another, drag the layer name from the Layers palette onto the image window of the image to which you want to move the layer.

4 You can link the layers you want by clicking the square box to the left of the Layer name in the Layers palette.

5 You can merge layers that don't need to be maintained as individual layers. You can also flatten the image, which merges all the layers in an image onto a single background.

5 | **Painting and Editing**

The Adobe Photoshop LE painting tools let you create original artwork or retouch existing artwork. You can apply paint at various opacity levels, creating a transparent effect, and you can select from several different types of painting tools.

In this lesson, you'll learn how to do the following:

• Use the painting tools to create original artwork and to apply a variety of painting effects to existing artwork.

• Understand the relationship between a painting tool, its Options palette, and its brush size.

• Select paint colors from the Color palette, the Swatches palette, and the Adobe Photoshop color picker.

• Select options for the painting tools to enhance the behavior of the tools.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

You'll start the lesson by viewing the final lesson file to see what you'll accomplish.

1 Restart Adobe Photoshop.

2 Choose File > Open, and open the 05End.psd file, located in the Lessons/Lesson05 folder.

3 When you have finished viewing the file, either leave the End file open on your desktop for reference or close it without saving changes.

You'll begin by opening a black-and-white line drawing of the coyote, and then you'll color the drawing using a variety of painting tools and options.

4 Choose File > Open, and open the 05Start.psd file, located in the Lessons/Lesson05 folder on your hard drive.

5 Choose File > Save As, rename the file **05Work.psd**, and save it in the Lessons/Lesson05 folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

As you work with the painting tools to complete the drawing, don't worry about selecting the "right" colors or creating an exact replica of the drawing. The purpose of the lesson is to help you become familiar with the various painting tools to create a piece of artwork that reflects your personal preferences.

Using the painting tools

In general, the airbrush tool, the paintbrush tool, the line tool, the pencil tool, and the rubber stamp tool are referred to as the painting tools. Sometimes the paint bucket tool, the eyedropper tool, the eraser tool, and the gradient tool are also included in this category.
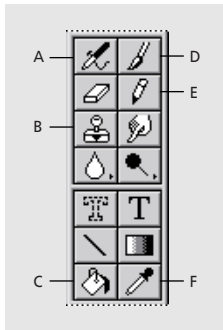
A. Airbrush B. Rubber stamp
C. Paint bucket D. Paintbrush
E. Pencil F. Eyedropper

Tools, tool size, and tool options

By default, each painting tool is of a certain size and paints at a particular opacity. The default size of a painting tool is displayed in the Brushes palette; the default opacity of a tool is displayed in its corresponding Options palette. It's very important to understand the relationship between a tool, its brush size, and its Options palette, because they have a cumulative effect when you paint.
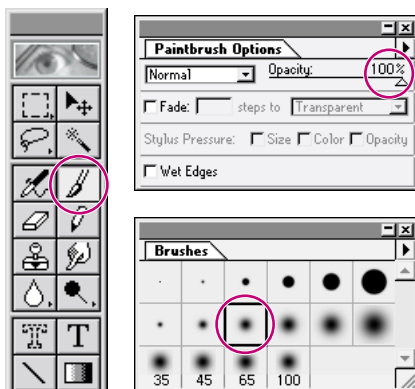
Selected tool, its Options palette, and current brush size

1 Double-click the paintbrush tool (✐) in the toolbox.
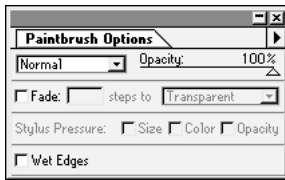
Notice that the default Opacity setting in the Paintbrush Options palette is 100%.

2 Now, click the Brushes palette tab to bring the palette to the front of its group. The default brush size for the paintbrush tool is highlighted.
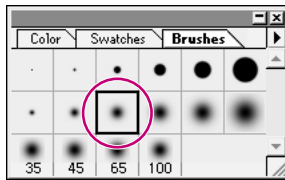
Displaying painting tools

Each tool has a *hot spot*, the point from which the tool's action begins. By default, when you select a tool and move it into the image window, the pointer becomes an icon of the tool in the toolbox.

For painting tools, it's helpful to change the way they're displayed so you can see the actual size of the painting tool in pixels.

1 Choose File > Preferences > General to open the Preferences dialog box.

The Preferences dialog box contains several groups of settings that apply to various aspects of the program. You can select a group of settings from the menu at the top of the dialog box, or you can click the Next and Prev buttons to move through the settings.
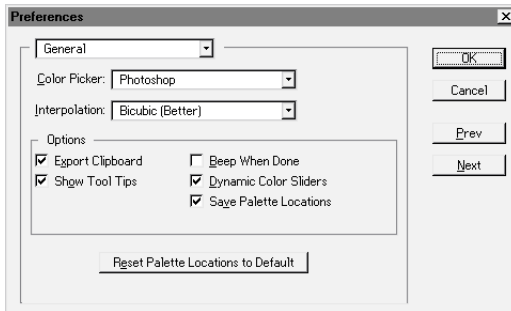
2 Click the Next button twice to get to the Display & Cursors section of the Preferences dialog box.

3 In the Painting Cursors section of the dialog box, click Brush Size.

4 Click OK.

5 Position the paintbrush tool in the window again; the pointer displays the paintbrush by its size in pixels.

6 Drag with the paintbrush tool to try out the cursor. Then choose Edit > Undo.

You'll reset the cursor so that you can continue to see the tool icon as you work.

7 Choose File > Preferences Display & Cursors. Reset the Painting Cursor setting to Standard, and click OK.

Changing brush opacity

The transparency of brush strokes is determined by the opacity level set in the Paintbrush Options palette. The lower the value you set, the more transparent the paint.

1 Click the Paintbrush Options tab to bring the palette to the front of its group.

2 Change the opacity level of paint in either of the following ways:

• By dragging the Opacity slider in the painting tool's Options palette.
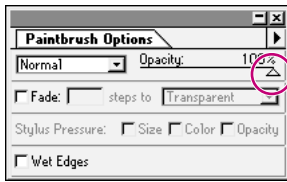
Opacity slider

• By typing a number on your keypad. If you type a number from 1 to 10, the opacity changes in 10% increments. (If you want to set the opacity to an increment other than 10%, type the two-digit number quickly.)

Note: For Windows, the NumLock key must be on to use the keypad to set brush opacity.

Take a few moments to experiment with both of these options before you begin painting.

Selecting foreground and background colors

Adobe Photoshop uses the *foreground color* to paint, to fill selections, and as the beginning color for gradient fills. The *background color* is displayed when you delete pixels in a transparent area of color, and as the ending color for gradient fills. Think of the background color as the canvas behind a painting—when you remove paint, the canvas shows through.

The default foreground color is black, and the default background color is white. The current foreground and background colors are shown in the *color selection boxes* in the toolbox.

Clicking the switch colors icon reverses the colors. Clicking the default colors icon returns the foreground color to black and the background color to white.
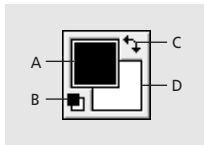
A. Foreground color
B. Default colors
C. Switch colors
D. Background color

Take a few moments to try the color selection box options.

Adding detail to the line drawing

You'll begin working with the pencil tool to add detail to the cactus in the line drawing. The pencil tool draws hard-edged lines.

1 Select the pencil tool ( ) in the toolbox. You draw with the pencil tool in the same way that you draw with a pencil on paper.

2 Draw some detail lines and prickly stems to add detail to the cactus.

Note: If you don't like your results, you can use the Undo command to undo your last stroke or you can use the eraser tool to erase multiple strokes.
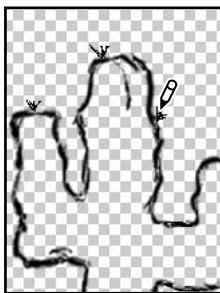
Next, you'll extend the horizon line using the line tool.

3 In the toolbox, double-click the line tool ( ). For Line Width, enter a value of **2**. Make sure the opacity level is set to 100%.

4 Hold down Shift, and drag to extend the horizon line to the cactus and from the edges of the cactus to the edge of the drawing. Holding down Shift constrains the line to a straight line.

Selecting a new foreground color

Next, you'll select a new foreground color from the Swatches palette and paint the coyote.

The Swatches palette contains 122 color swatches from the default Adobe Photoshop palette. To select a foreground color, you click the desired swatch. When you click a color swatch, the new color appears in the foreground color selection box in the toolbox.

1 Click the Swatches palette tab to bring the palette to the front of its group. (If the palette is not visible, choose Window > Show Swatches.)

2 Click one of the brown swatches that appeals to you; the foreground swatch in the toolbox is updated to reflect the change.

3 In the toolbox, select the magic wand tool.

4 Click within the coyote's body. Then hold down Shift and click within the coyote's head and tail.

When you select an area, any painting you do affects only the area within the selection. By selecting the area within the coyote first, you won't get any paint outside the edges of the selection.
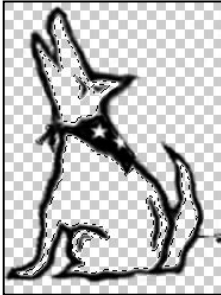
Before you begin painting, you'll create a new layer on which to paint so you can edit your painting repeatedly without affecting the black-and-white line drawing.

5 In the Layers palette, click the New Layer button.

6 Double-click the layer, enter the name **Painting**, and then click OK to rename the layer.

Now you'll paint within the selection of the coyote using the paintbrush tool.

7 In the toolbox, double-click the paintbrush tool (✎) to select it and to open its Options palette.

8 Make sure that the opacity is set to 100% in the Paintbrush Options palette.

9 Paint a few areas within the coyote selection (don't fill in the selection completely).
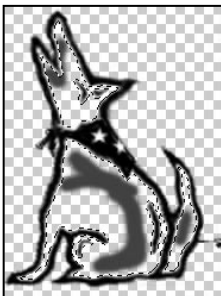
Notice that where you applied the brown paint at an opacity level of 100%, the checkerboard is no longer visible.

10 Now drag the Opacity slider to about 60% in the Paintbrush Options palette.

11 Select another shade of brown (or any other color you like) and continue painting within the selection until you've painted the entire selection.

Notice that where you painted with the brown color at 60% opacity, part of the checkerboard shows through, indicating partial transparency.

12 Choose Select > None to deselect.

13 Choose Filter > Blur > Gaussian Blur.

Make sure that the Preview option is turned on. If the selection does not appear in the preview window, move the pointer into the window. When the pointer changes to a hand, click and drag to reposition the selection in the preview box.

Experiment with the Gaussian Blur effect by dragging the Radius slider to the right. The higher the value in the Radius text box, the more blurred the colors in the selection. Click OK to apply the blur.
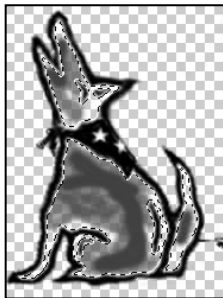
Painted areas   *Gaussian Blur applied*

At this point, you'll turn off the checkerboard so you can easily see the changes you make.

14 Choose File > Preferences > Transparency. For Grid Size, choose None; then click OK.

15 Now that you've painted the coyote, drag the Painting layer down to position it below the Drawing layer in the Layers palette (so that the outline of the coyote remains black).

16 Choose File > Save to save your work so far.

Painting with the airbrush tool

The airbrush tool applies paint in the same way as a traditional airbrush. The default opacity for the airbrush tool is 50%, but the rate at which you drag the tool also influences the density of the paint. The more slowly you drag, the more dense the application of the paint.

You'll paint the clouds using the airbrush tool. To choose colors for the clouds, you'll select them from the Swatches palette and from the existing colors in the border of the drawing. Choosing a color within an image is called *sampling* a color. You can save sampled colors for future use by storing them in the Swatches palette.

1 In the Layers palette, make sure that the Painting layer is the active layer (so you can paint without affecting the black-and-white line drawing).

2 Double-click the airbrush tool (✏) in the toolbox to select the tool and its Options palette. Notice that the default pressure for the airbrush tool is 50%.

3 Click the Brushes tab and select a small soft-edged brush from the second row of brushes.

4 In the Swatches palette, click a gray swatch and paint a portion of the clouds using the airbrush. Don't worry if you paint a bit outside the outlines of the clouds.

Next, you'll sample a color from the border of the image to add as a color for the clouds.

5 With the airbrush tool still selected, hold down Alt (Windows) or Option (Mac OS). The pointer becomes the eyedropper (✐).

6 Click the eyedropper in the green border to sample the green color and to make it the new foreground color.
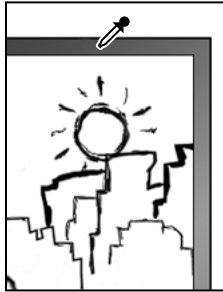
7 Release Alt/Option. The pointer becomes the airbrush tool again. Continue painting the clouds with the airbrush tool.

Note: Although you can always select the eyedropper tool from the toolbox to sample a color, you can select the eyedropper tool using Alt (Windows) or Option (Mac OS) whenever a painting tool is selected.

Before you select another color, you'll save the green color in the Swatches palette.

8 Click the Swatches palette tab.

9 Position the pointer in the blank area at the bottom of the Swatches palette; the pointer becomes a paint bucket.
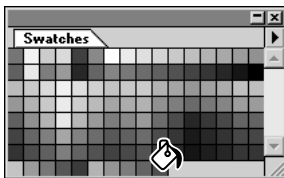
10 Click the paint bucket in the blank area; the green color is added to the Swatches palette.

Note: You don't have to save a sampled color to work with it—you've done it here just to learn how to save colors in the Swatches palette.

11 Finish painting the clouds using either sampled colors or colors from the Swatches palette.

As a final touch, you'll use the smudge tool to smudge the colors in the clouds. The smudge tool moves and mixes different colored pixels as you drag.

12 Select the smudge tool ( ) and drag to create swirls in the clouds.

Creating gradients

As you learned in Lesson 4, "Layer Basics," a gradient is a gradual transition from one color to another over the length of a selection. You can choose from several predefined gradients in the Gradient Options palette, or you can create your own gradients.

You'll create your own gradient and apply it to the cactus.

1 In the Layers palette, make sure that the Painting layer is the active layer.

2 In the toolbox, double-click the lasso tool ( ) to select the tool and its Options palette.

3 In the Lasso Options palette, enter a value of **3** in the Feather text box.

4 Create a rough selection around the inside of the cactus using the cactus outline as a guide. (Don't worry if the selection is a little inside or outside the outline of the cactus, you can add to or subtract from the selection later.)

5 End the selection by crossing the starting point.

6 Double-click the gradient tool ( ) in the toolbox.

7 In the Gradient Tool Options palette, for Gradient select a gradient that appeals to you. A sample of the gradient you select based on the current color selection appears at the bottom of the Gradient palette.

8 Drag the gradient tool from the bottom of the cactus to the top of the cactus. The gradient is applied within the selection.
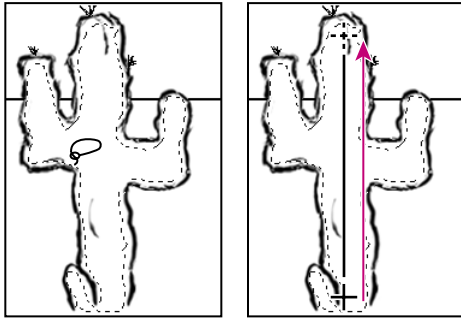
Create the selection.   *Drag the gradient tool.*

9 Choose Select > None to deselect.

Next, you'll apply a radial gradient to the sun.

10 Select the ellipse marquee tool (⬭) in the toolbox. If it is not visible, choose it from the hidden tools under the rectangle marquee tool (▭).

11 In the Marquee Options palette, enter a value of **2** in the Feather text box.

12 Hold down the Alt (Windows) or Option (Mac OS) key and then drag from the center point of the sun to the outside edge to create a circular selection.

13 Click the gradient tool in the toolbox. In the Gradient Tool Options palette choose Foreground to Background, and choose Radial for Type.

14 Using the Swatches palette, change the foreground color to orange and the background color to yellow. (See "Selecting foreground and background colors" on page 104.)

15 Drag from the center of the sun to the outside edge to apply the gradient.
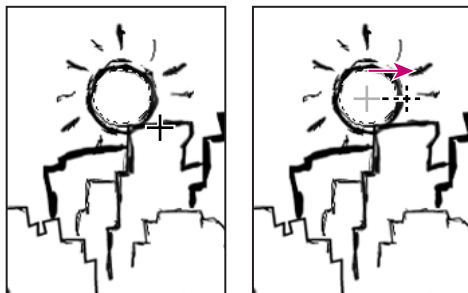
Create a circular selection.   *Drag the gradient tool.*

16 Choose Select > None to deselect everything.

Making paint fade

You can use the Fade option to cause paint to fade to the background color or to fade to transparent over the length of a brush stroke. You'll use this option to create rays around the sun.

First, you'll learn another way to select a foreground color using the Color palette. The Color palette contains sliders and a color bar that let you change the foreground and background colors. The current foreground and background colors are displayed in the Color palette; the swatch with the outline determines which swatch is selected.

1 Click the Color palette tab to bring it to the front of the palette group.

2 Make sure that the swatch in the top left corner of the Color palette is selected. When a swatch is selected, it has a border.
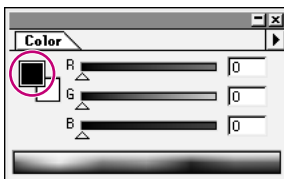
Active swatch (foreground color)

Note: If the swatch is already selected and you click it, you'll open the Adobe Photoshop color picker. If necessary, click Cancel to close the color picker.

You can select colors in the Color palette either by dragging the sliders or by dragging in the color bar at the bottom of the palette. You'll select a color from the color bar.

3 Position the pointer in the color bar; the pointer becomes an eyedropper.
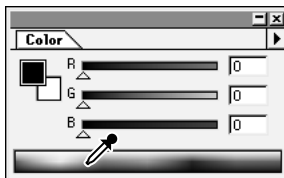
4 Just for fun, hold down the mouse button and drag the eyedropper through the color bar to see how the foreground swatch changes color as you drag.

5 Select a reddish-brown color from the color bar to paint the rays around the sun.

6 Double-click the airbrush tool in the toolbox to select the tool and its Options palette.

7 In the Airbrush Options palette, turn on the Fade option and then enter a value of **15** in the Fade text box.

The value you enter in the Fade text box determines how long the painting tool will apply paint before it begins to fade. The higher the value you set, the longer the brush paints before beginning to fade.

8 Make sure that Transparent is selected in the Airbrush Options palette.
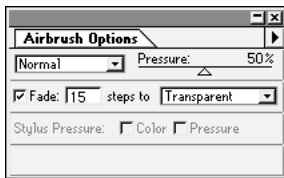
9 Click the Brushes palette tab to bring it to the front; then select a small, soft-edged brush to paint with.
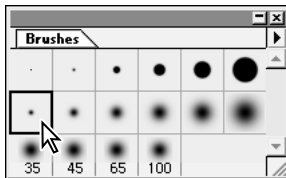
10 Position the pointer in the window and drag to draw rays around the sun. You'll notice that they begin to fade as you drag.
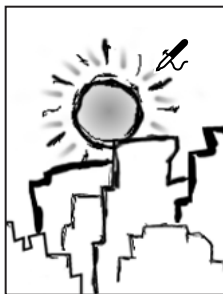
Painting with a watercolor effect

The Wet Edges option creates a watercolor effect by building up (darkening) the edges of brush strokes. You'll paint the mountains using the Wet Edges options with the paint-brush tool.

To choose colors for the mountains, you'll use the Adobe Photoshop color picker. The color picker lets you select the foreground or background color from a color spectrum or enter values to define a color.

To open the color picker, click the foreground or background swatch in the toolbox.

1 In the toolbox, click the foreground color swatch to open the Adobe Photoshop color picker.

The swatch in the top right of the Color Picker dialog box indicates the current foreground color.
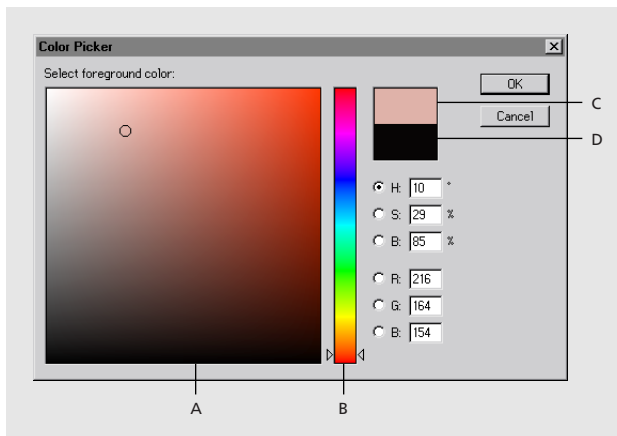
A. Color field B. Color bar C. New foreground color swatch
D. Current foreground color swatch

2 Drag the triangles along the color bar to find a color range that appeals to you for painting the mountains.

As you drag, the swatch at the right side of the dialog box is updated. The top half of the swatch displays the new color, and the bottom half of the swatch displays the previous foreground or background color.

3 To select a different shade of the new color, click the desired shade in the color field at the left side of the color picker.

4 Click OK to close the color picker.

The foreground color selection box in the toolbox displays the new foreground color.

5 Double-click the paintbrush tool in the toolbox.

6 In the Paintbrush Options palette, turn on the Wet Edges option.

7 Move the paintbrush into the window and begin painting the mountains. Don't worry if you paint a little outside the edges of the mountains. You'll have a chance to clean up any stray paint in the next section.

If you'd like to paint with some straight lines, hold down Shift as you drag the paintbrush.

8 Select a variety of foreground colors to add different colors to the mountains as you paint.

9 Choose File > Save to save your work.

Making changes

You use the eraser tool to delete pixels in a drawing. Depending on the option you choose, you can erase all of the pixels in an area, or you can erase only the pixels that were not saved with the last version of the image.

1 Click the eraser tool (⌀) in the toolbox and move the pointer into the image area. By default, the eraser is the same shape and size as the default paintbrush.

2 Drag the eraser tool over any area around the mountains where you want to erase any stray paint.

Applying a background to the drawing

To add a background to the drawing, you'll create a new layer and apply two gradients— one for the sky and one for the ground.

1 In the Layers palette, click the New Layer button to add a new layer.

2 Double-click the layer, enter the name **Gradients**, and click OK.

3 Drag the Gradients layer to the bottom of the Layers palette, to position it behind the rest of the artwork.

4 Select the rectangle marquee tool (⬚) in the toolbox. Drag a selection marquee from the horizon line to the top of the image.
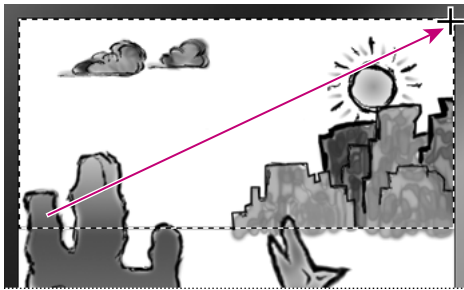
5 Select a foreground color and a background color that appeal to you. In the Gradient palette, for Type select Linear; for Gradient select Foreground to Background.

6 Select the gradient tool (▦) in the toolbox.

7 Drag from the top of the image to the horizon line to apply it to the selection.

Note: The length of the line you draw with the gradient tool determines how gradient colors are applied. If you draw a short line with the gradient tool, a sharp transition from one color to the next occurs. The longer the line you draw, the softer the transition from one color to another.

8 Choose Select > None. Drag the selection marquee to select the opposite area of the image (the ground).

9 To apply a gradient to the ground, select a new foreground color and background color.

10 Drag from the bottom of the selection to the top of the selection to apply the gradient.

11 In the Layers palette, drag the Opacity slider to lower the opacity of the gradient.
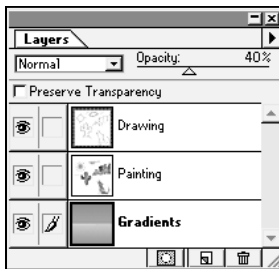
Working with brushes

In addition to the round brushes, Adobe Photoshop provides several additional brush shapes you can paint with, and even lets you create your own custom brush shapes.

You'll start by painting with a star-shaped brush, and then you'll create your own brush shape to add a final lizardy touch to your drawing!

1 In the Layers palette, make sure that the Painting layer is the active layer.

2 Click the Brushes palette tab; then choose Load Brushes from the Brushes menu.
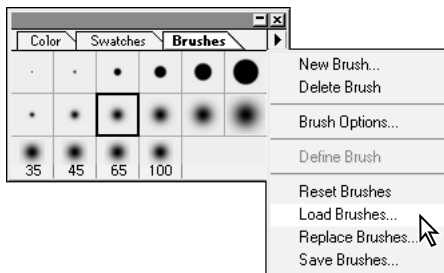
3 In the Lesson05 folder, select Assorted.abr, and then click Open to add the custom brushes to the Brushes palette.

Note: For this lesson, we've placed the custom brushes in the Lesson05 folder. For future reference, the custom brushes are located in Adobe Photoshop 5.0 LE/ Goodies/Brushes.

4 In the toolbox, click the default colors icon to reset the color selection to black and white, then click the switch colors icon in the color selection box area to swap the default colors: White becomes the foreground color.

*Switch
colors icon*

5 Select the paintbrush tool, and then select one of the star brushes and add some stars to the sky. If desired, vary the opacity of the stars by changing the opacity level in the Paintbrush Options palette.

Next, you'll define your own brush and use it to create a footprint in the desert.

6 Choose File > Open, and open the Gekofoot.psd file, located in the Lessons/Lesson05 folder on your hard drive.

7 Choose Select > All to select the entire image; then choose Define Brush from the Brushes menu. The gecko footprint is added to the Brushes palette.
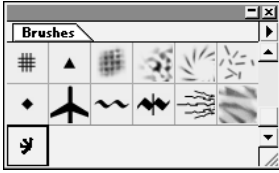
You can create a brush shape from any selection.

8 Double-click the gecko brush. In the Brush Options dialog box, enter **200** in the Spacing text box; then click OK.
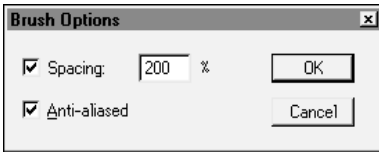
The amount you enter for brush spacing controls the distance between brush strokes. (We used a spacing of 150% for the stars.)
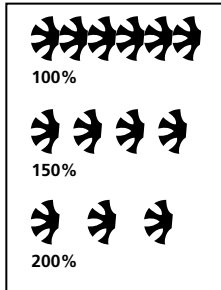
Brush spacing set to different values

9 Select a green color from the border of the drawing by holding down Alt (Windows) or Option (Mac OS), and sampling the color from the border.

10 In the Paintbrush Options palette, enter a fade rate of **8** and select Transparent for the fade option.

11 Drag to create a footprint in the desert that fades over the length of the brush stroke.

12 Choose File > Save to save your artwork.

13 Choose File > Close to close any open lesson files.

You've completed the painting lesson. You're well on your way to learning Adobe Photoshop!

Review questions

1 What is the benefit of making a selection before starting to paint in an area?

2 How are a painting tool, its Options palette, and the Brushes palette related? For example, if you click the paintbrush tool in the toolbox, what effect do the Brushes palette and the Paintbrush Options palette have on the tool?

3 How can you display a painting tool by its size in pixels?

4 How do you create a custom brush?

Review answers

1 Once you've made a selection, you cannot paint outside the boundary of the selection marquee.

2 When you select a painting tool, the Brushes palette displays the size of the painting tool, and the tool's Options palette displays the opacity, the mode, and any other options you may have previously selected. If a tool does not perform the way you expect it to, check the Brushes palette and the tool's Options palette to make sure the options are set the way you want.

3 To display a painting tool by its size in pixels, choose File > Preferences > Display & Cursors, and then choose Brush Size from the Painting Cursors section of the Preferences dialog box.

4 Select the area you want to define as a brush, and then choose Define Brush from the Brushes palette menu.

6 Creating a CD Cover

Once you've learned the basic techniques for selecting, painting, and layering, you can begin to focus on using Adobe Photoshop as a design tool. You'll use the techniques you've learned, plus a few new ones, to design and create a CD cover.

In this lesson, you'll learn how to do the following:

• Use the Info palette to measure a selection.

• Set the marquee tool to a constrained size to make selections of the same shape.

• Select blending modes to apply various color effects to parts of an image.

• Use the type tool and the type mask tool to create type.

• Paint type while preserving the transparent areas around the type.

• Use the Brightness/Contrast command to adjust a selection.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

You'll start the lesson by viewing the final lesson file to see what you'll accomplish.

1 Restart Adobe Photoshop.

2 Choose File > Open, and open the 06End.psd file, located in the Lessons/Lesson06 folder.

3 When you have finished viewing the file, either leave the End file open on your desktop for reference or close it without saving changes.

Now you'll open a partially completed file, to which you'll add images and type to complete the CD cover.

4 Choose File > Open, and open the 06Start.psd file, located in the Lessons/Lesson06 folder on your hard drive.

5 Choose File > Save As, rename the file **06Work.psd**, and save it in the Lessons/Lesson06 folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

Using the Info palette

The Info palette displays information about the location of the pointer in the image window, as well as information about the size of selections and the color values in an image. Depending on the tool you're using and the action you're performing, the Info palette may display additional information, such as the selection's angle of rotation.

You'll use the Info palette to measure a selection, and then use the information to set an aspect ratio option for the marquee tool.

1 Click the Info palette tab to bring the palette to the front of the group. (If the palette is hidden, choose Window > Show Info.)

2 Drag the palette by its tab from its group so that you can also see the Options palette.
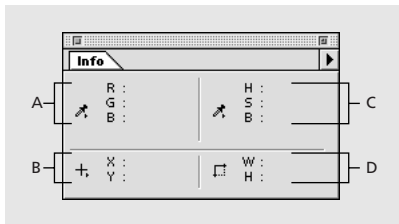
A. Actual color values B. Pointer location
C. Hue, saturation, brightness values
D. Selection size

3 Choose Palette Options from the Info palette menu.
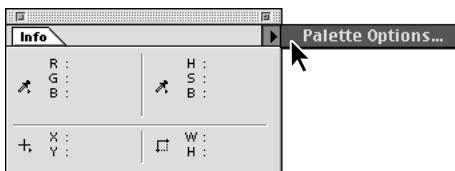
4 In the Mouse Coordinates section of the Info Options dialog box, choose Pixels as the unit of measurement. Click OK.
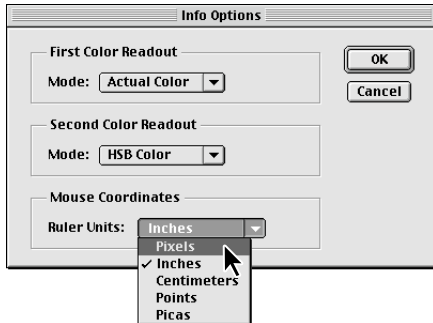
You can use any unit of measure you're comfortable with; in this example, we've used pixels.

5 Select the zoom tool (🔍) in the toolbox, and then click the zoom tool once on the flower in the upper right corner to magnify its view.
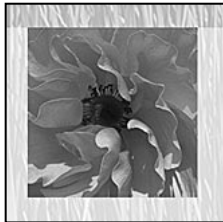
6 Select the rectangular marquee tool (⬚) in the toolbox, and move the pointer into the window. The pointer becomes a cross hair (-¦-).

Sometimes it can be difficult to get an accurate measurement using the default tool pointer. To display a tool's *hot spot*—the point from which any action takes place—you can turn on the Precise Cursor option by pressing the Caps Lock key.

7 Press the Caps Lock key to turn on precise cursors. You'll notice a single pixel at the center of the marquee cross hairs (-¦-), indicating the tool's hot spot.

8 Position the pointer hot spot at the top left corner of the flower, and drag diagonally to the lower right corner to select the flower.

💡 *To adjust the position of the selection marquee over the flower while creating the selection marquee, hold down the spacebar and drag as you draw the marquee and before releasing the mouse.*

9 As you drag, watch the W(idth) and H(eight) values in the Info palette. Once you've selected the flower, the width and height should be the same (a square).

When a selection is square, it has a 1:1 aspect ratio, meaning that the width and height are identical. You'll set a 1:1 aspect ratio in the Marquee Options palette to select the remaining flowers for the CD cover.

10 Choose Select > None to deselect the artwork.

11 Double-click the zoom tool in the toolbox to return the display of the image to actual size.

12 Select the marquee tool in the toolbox. In the Marquee Options palette, for Style, choose Constrained Aspect Ratio. The default ratio is 1:1.
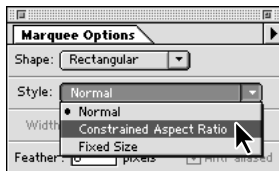
You'll open and select two additional flowers for the CD cover using the constrained aspect ratio, ensuring that each selection is square.

13 Choose File > Open, and open the Dahlia.psd file, located in the Lessons/Lesson06 folder. If necessary, reposition the window so you can see part of both windows.

14 Using the rectangular marquee tool, drag diagonally from the top left corner of the flower to the lower right corner. (You won't be able to select the entire flower because the Constrained Aspect Ratio option is turned on, allowing you to select only a square area.)
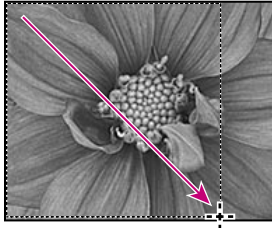
15 To adjust the position of the selection marquee after drawing it, press the Shift and arrow keys to move to the right or the left in 10-pixel increments, or position the pointer within the selection and drag to reposition the marquee.
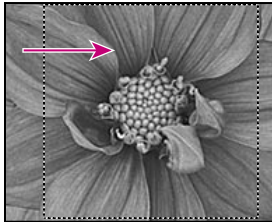
16 In the Info palette tab, note its values. The width and height of the selection are identical.
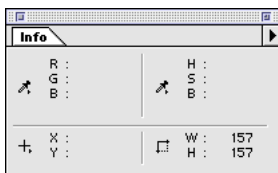
17 Select the move tool (▸⊕) in the toolbox and drag the dahlia into the CD window.

18 With the move tool still selected, drag the flower into the lower right corner of the CD window to align it at the bottom right corner of the image.
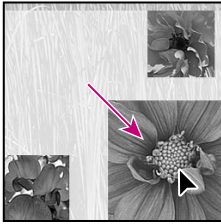
💡 *Once you've positioned the flower approximately where you want it, use the arrow keys to align it precisely.*

At the top of the Layers palette, a new layer named Layer 1 appears. Each time you move a selection from one image to another using the drag-and-drop method, a new layer is created automatically for the selection.

19 In the Layers palette, double-click Layer 1, rename it **Dahlia**, and then click OK.

20 Close the Dahlia.psd file without saving changes.

21 Choose File > Save to save your work.

Changing the size of an image

The Image Size command lets you change the dimensions and resolution of an image. For this part of the project, you'll open a flower image and resize it to fit the CD cover. The CD cover and image have the same image resolution, so you won't need to adjust that. For information about changing the resolution of an image, see "What is resolution, and how does it affect an image?" on page 41.

1 Choose File > Open, and open the Rose.psd file, located in the Lessons/Lesson06 folder. If necessary, reposition the window so you can see part of both windows.

2 Choose Image > Image Size.

In the Pixel Dimensions section of the dialog box, the link icon to the right of the Width and Height text boxes indicates that the width and height of the image are proportionately linked. If the value in either of the text boxes is changed, both values change. The Constrain Proportions option at the bottom of the dialog box controls the link between the width, height, and resolution of an image.
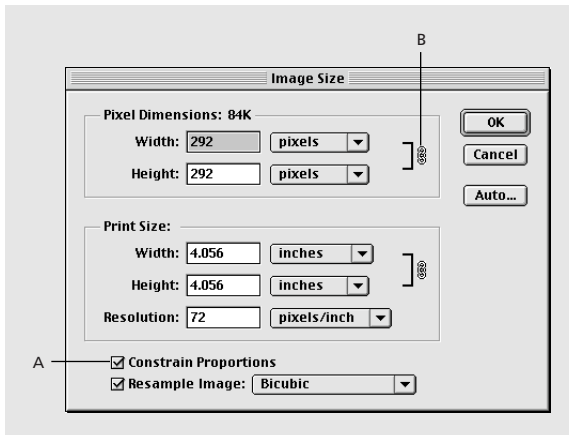
A. Constrain proportions B. Link icon

3 In the Pixel Dimensions section, for Height, enter **188**. The value in the Height field is automatically adjusted, as are the values in the Print Size section of the dialog box.

4 Click OK to resize the rose image.

5 Select the move tool in the toolbox, position the pointer in the Rose.psd window, and then drag the rose into the CD cover window.

6 Align the rose with the top left corner of the flower located in the upper right corner of the image.
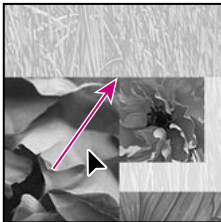
7 If necessary, select the zoom tool in the toolbox, and drag a marquee around the top right corner of the rose to zoom in and verify that the rose is properly aligned.

8 If you need to adjust the rose, hold down Ctrl (Windows) or Command (Mac OS) and press the arrow keys.

💡 *When a tool other than the move tool is selected and you want to use the arrow keys to move a selection, hold down Ctrl (Windows) or Command (Mac OS) to select the move tool from the keyboard; then press the arrow keys to move the selection.*

A new layer named Layer 1 appears at the top of the Layers palette.

9 In the Layers palette, double-click the new layer, rename it **Rose**, and click OK.

10 Close the Rose.psd file without saving changes.

11 In the Layers palette, drag the Rose layer beneath the Dahlia layer to reposition the rose behind the dahlia.
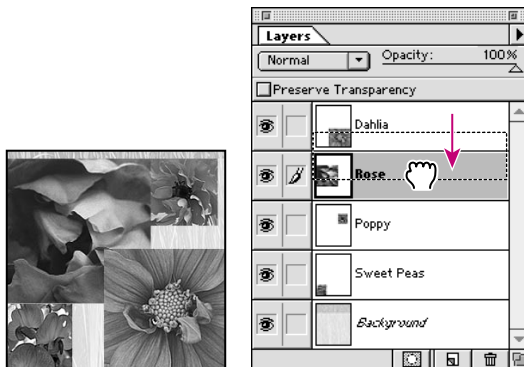
Repositioning Rose layer beneath Dahlia layer

12 Choose File > Save to save your work.

Using blending modes

At this point, you've combined all the elements of the CD cover into a single image. Now you'll paint the flowers using a variety of painting tools and blending modes.

In Lesson 4, "Layer Basics," you learned about selecting modes for layers to produce different effects on individual layers. You can also select modes for painting tools, called *blending modes,* for different effects. When selecting blending modes, it's helpful to think of the effects in terms of the following three colors:

• The *base color* is the color of the pixels in the original image.

- The *blend color* is the color you're painting with (the current foreground color).

- The *result color* is the color produced when the base and blend colors are mixed.

1 In the Layers palette, make the Poppy layer the active layer.

Next, you'll select the artwork on the Poppy layer using a shortcut.

2 In the Layers palette, Ctrl-click (Windows) or Command-click (Mac OS) the Poppy layer.
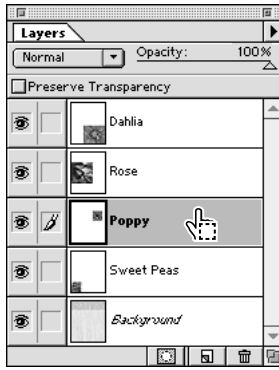
When you use this keyboard sequence to create a selection, only the areas containing pixel values (in this case, the poppy image) are selected. Any areas that don't have pixel values are considered transparent and are not selected.

3 Click the Swatches tab to display the Swatches palette; then click a color that appeals to you.

4 Choose Edit > Fill, for Mode select Color, enter **70** in the Opacity text box, and then click OK.
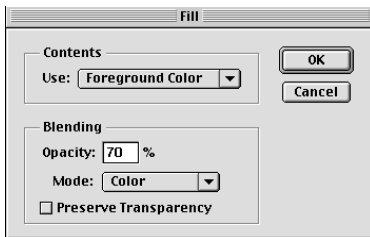
The Color blending mode adds the luminance of the original color in the image to the hue and saturation of the blend color (the color you selected from the Swatches palette). The Color mode preserves the gray levels in the image and is useful for coloring grayscale images.

5 Choose Select > None to deselect everything.

6 Choose File > Save to save your work.

7 In the Layers palette, make the Dahlia layer the active layer.

Now you'll select an area of the dahlia before painting it, to create a mask effect.

8 Double-click the lasso tool (✎) in the toolbox. In the Marquee Options palette, set a Feather value of **1**.

9 Using the lasso tool, drag a fairly accurate selection around the center of the flower.

10 In the Swatches palette, select a yellow foreground color. You'll use this color to paint the flower's center.

11 Choose File > Preferences > Display & Cursors. For Painting Cursors, select Brush Size, and then click OK.
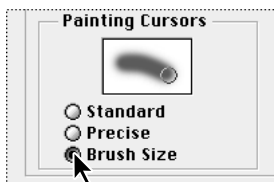
12 Click the paintbrush tool ( ) in the toolbox. In the Paintbrush Options palette, set the opacity to about 50%; for Mode select Color.
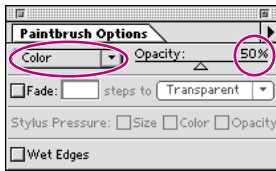
13 Paint the center of the flower using the paintbrush.

The Color mode maintains the luminance of the pixels in the underlying image while replacing the hue and saturation with the yellow color you selected.

14 Choose File > Save to save your work.

Now, you'll paint the flower petals.

15 In the Layers palette, select Preserve Transparency.

16 With the center of the flower still selected, choose Select > Inverse. Although the selection marquee will appear around the entire layer, the changes you make will affect only the nontransparent pixels in that layer.

17 Select a new foreground color from the Swatches palette for the flower petals.

18 In the Paintbrush Options palette, set the opacity to about 50% and choose the Multiply mode.
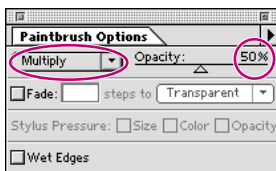
The Multiply mode multiplies the base color by the blend color. Each time you paint over a part of the image, the color is built up, resulting in a darker color.

19 Click the Brushes palette tab and select a large, soft-edged brush. (If necessary, turn off the Caps Lock key.)

20 With the paintbrush tool, paint the petals without lifting the brush.

21 Now choose a smaller soft-edged brush from the Brushes palette, and paint around the inside edges of the petals to multiply (darken) the paint color.

22 Choose Select > None to deselect everything.

23 Choose File > Save to save your work.

Creating a gradient

Now, you'll create your own gradient and apply it to the rose image.

1 Using colors from the Swatches palette, select a foreground color and background color that appeal to you. (To select a background color, hold down Alt (Windows) or Option (Mac OS) before clicking a color in the Swatches palette.)

2 Double-click the gradient tool (▨) in the toolbox.

3 In the Gradient Options palette, for Gradient, choose Foreground to Background. Set the opacity to 55%; for mode, choose Color; and for Type, choose Radial.
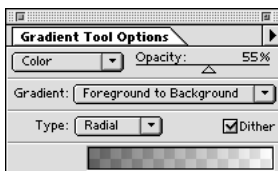
4 In the Layers palette, select the Rose layer; then Ctrl-click (Windows) or Command-click (Mac OS) to load the rose as the selection.

5 Drag the gradient tool from the center of the rose to the outside edge of the selection.
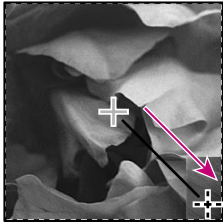
The gradient you created is applied to the rose selection.

6 Choose Select > None to deselect everything; then choose File > Save to save your work.

Now you'll continue painting the other flowers.

7 In the Layers palette, select the Sweet Peas layer; then Ctrl-click (Windows) or Command-click (Mac OS) the layer to load the sweet peas as a selection.

8 Choose a new foreground color that appeals to you.

9 Double-click the paintbrush tool in the toolbox.

10 In the Paintbrush Options palette, for mode, choose Screen.

The Screen mode multiplies the opposite of the original image color with the selected painting color, to produce a lighter color.

11 Set the opacity to about 60%.

Press a number on the keyboard to set the opacity in 10% increments, where 1 is 10%, 9 is 90%, and 0 is 100%. Press two digits in quick sequence to set the opacity precisely; for example, press 45 for 45%.

12 In the Brushes palette, choose a large soft-edged brush. Paint the sweet peas.

13 Choose Select > None to deselect everything.

14 Choose File > Save to save your work.

Merging layers

To complete the flower compositions, you'll merge the individual flower layers onto a single layer and then outline them. Merging layers reduces the size of a file, but shouldn't be done until you've finalized design decisions and finished editing individual layers within the image.

There are two ways to merge layers. You can either merge all the visible layers, or you can use the Merge Down command to merge one layer at a time. You'll use both of these methods to get an idea of how merging works.

1 In the Layers palette, select the Dahlia layer to make it the active layer.

2 Choose Merge Down from the Layers palette menu. The Dahlia layer is merged with the Rose layer.
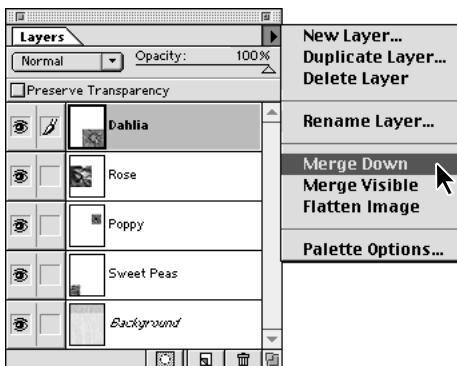
To use the Merge Visible command, turn off the layers you don't want included in the merge operation.

3 Click the eye icon next to the background layer to turn it off; then choose Merge Visible from the Layers palette menu.
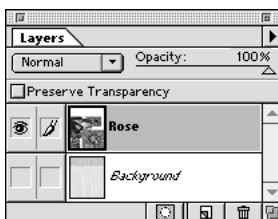
4 Click the eye icon next to the background layer to make it visible.

5 Double-click the remaining flower layer (Rose), name it **Flowers**, and then click OK.

6 Now you'll add a border to all the flowers.

7 In the Layers palette, Alt-click (Windows) or Option-click (Mac OS) the New Layer button to create a new layer. Name it **Outlines**, and click OK.

8 In the Layers palette, Ctrl-click (Windows) or Command-click (Mac OS) the Flowers layer to load all the flowers as a selection.

9 Click the default colors icon to set the foreground color and background color to their default colors (black and white).

10 Choose Edit > Stroke. For Width, choose 1 pixel; for Location, choose Center. Click OK to draw a border around the flowers.

11 Choose Select > None to deselect everything.

To add the border where the images intersect, you'll use the pencil tool.

12 Click the zoom tool in the toolbox, and then click once over the area where the two large flowers intersect.

13 From the toolbox, select the pencil tool ( ). Click the pencil at the top left corner of the dahlia where the flowers intersect; then hold down Shift, and click to the right where the first border ends.
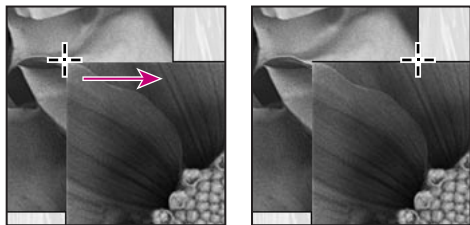
14 Repeat the previous step to add the border along the left side of the image.

15 Double-click the zoom tool in the toolbox to return to a 100% view.

16 Choose File > Save to save your work.

Adding canvas around an image

Now you'll add some area around the flowers to make room for the name of the CD. Using the Canvas Size command, you can increase the area around an image without changing the size or resolution of the image data.

1 Choose Image > Canvas Size. Select Pixels from the menu to the right of the Width text box; then for Width, enter **350**. Click the middle square in the far right row to indicate that the image should be positioned to the right of the added area; then click OK.
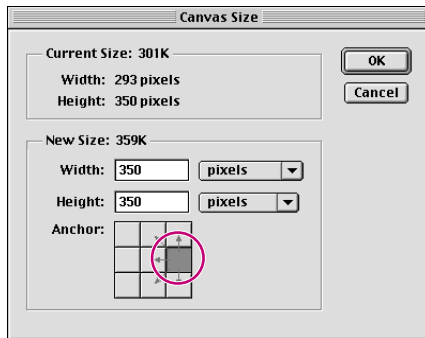
You'll create a new layer for the border and fill it with black, and then add type to the border.

2 In the Layers palette, Alt-click (Windows) or Option-click (Mac OS) the New Layer button, name the layer **Border**, and then click OK.
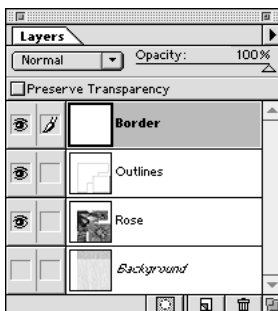
3 Click the rectangle marquee tool in the toolbox. In the Marquee Options palette, choose Normal for Style.

4 Drag a marquee the size of the new area to select it.

5 Select the paint bucket tool (🖱) in the toolbox. Then click within the rectangular selection to fill it with black (the current foreground color).

6 Choose Select > None to deselect everything; then choose File > Save to save your work.

Adding type

To complete the CD cover, you'll add type to the cover and paint the type. When you create type in Adobe Photoshop, it is automatically placed on a separate layer.

1 In the Layers palette, make sure that the top layer (the Border layer) is selected.

2 Click the switch colors icon (🔁) in the toolbox to make the foreground color white and the background color black.

3 Click the type tool in the toolbox; then position it near the top left area of the black border and click. The Type dialog box appears.

4 Select a font and size. (We used 16-point type.) Type **THE** in the text box at the bottom of the dialog box, and then click OK. The type is placed on its own layer and is added to the image.
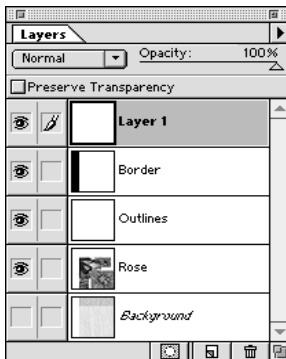
5 Press Ctrl (Windows) or Command (Mac OS) to select the move tool, drag the type into position at the top left area of the black border.

💡 *To select the move tool without deselecting the type tool, hold down Ctrl (Windows) or Command (Mac OS), and drag.*

6 Position the type tool under the word *The* and click to open the Type dialog box.

7 Select the Vertical Centered text option. Choose a font and size for the type. (We used 38-point type.) Type **ARCHIVE** and click OK.
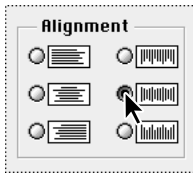
8 Drag the type or press the arrow keys on the keyboard to nudge the type into place.

9 Each time you add type, a new layer is created in the Layers palette. To merge the two type layers, choose Merge Down from the Layers menu. Both words are now on the same layer.

As a final step, you'll paint type with different colors from the artwork.

10 In the Layers palette, make sure that the Preserve Transparency option is selected for the Type layer.

The Preserve Transparency option lets you paint only where there are already pixel values on the layer. In this case, with the Preserve Transparency option selected, you'll only be able to paint only on the type.

11 Select the eyedropper tool ( ) in the toolbox; then click a color you like in the artwork. The color becomes the foreground color.

12 Double-click the paintbrush tool in the toolbox. In the Paintbrush Options palette, set the opacity to 100% and for mode, choose Normal.

13 Use the paintbrush tool to paint individual letters of the *ARCHIVE* text.

14 To create multicolored text, paint a small amount with one color and then sample another color using the eyedropper tool and continue painting.

You can switch between a painting tool and the eyedropper tool as you paint by pressing the Alt (Windows) or Option (Mac OS) key.

15 Choose File > Save to save your work.

Masking a selection

As a final step, you'll use the type mask tool. This tool lets you create type that has a selection outline, but no fill color. When you use the type mask tool, only the selection appears on-screen. (It is not filled with the foreground color.)

You'll position the type mask on the background, and then adjust the brightness and contrast of the background to make it appear through the type mask for a textured effect.

1 In the Layers palette, select the background layer.

2 Select the type mask tool (𝕋) in the toolbox.

3 Click the type mask tool about 1 1/2 inches to the left of the top right corner.
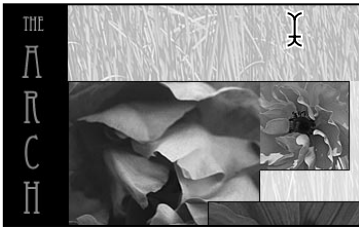
4 In the Type dialog box, select a horizontal type option; enter a font size of about **14**, and then type **VOLUME ONE** in the text box. Click OK.
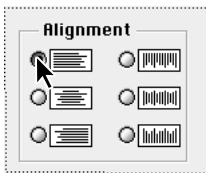
The type mask appears on the background. If you need to reposition the type, zoom in and position the pointer anywhere within the type outline and drag.

Note: When you use the type mask tool, the type mask is added to the selected layer in the Layers palette.

5 Choose Image > Adjust > Brightness/ Contrast. Enter **–40** in the Brightness text box and **50** in the Contrast text box. The brightness and contrast of the reeds are adjusted and show through the type outline.

6 Click OK.

7 To preview the adjustment without deselecting, choose View > Hide Edges.

8 If you're satisfied with the results, choose View > Show Edges to see the selection and then choose Select > None to deselect everything.

9 In the Layers palette, choose Flatten Image to flatten the file into a single layer and to reduce the file size.

10 Choose File > Save to save your work.

You've completed the CD cover image. If desired, open the 06Start.psd file and rebuild the CD cover, but this time select other blending modes to see what other effects you create when you paint the flowers.

11 Choose File > Close to close any open lesson files.

Review questions

1 What kind of information does the Info palette display?

2 How can you change the size of an image?

3 When using blending modes for painting tools, what three colors should be kept in mind?

4 How can you add to the area around an image without changing the size of the image itself?

5 What is the difference between using the type tool and the type mask tool?

Review answers

1 The Info palette displays information about the location of the pointer in the image window, as well as information about the size of the selections and color values in an image. It may also display additional information, such as the selection's angle of rotation.

2 To change the size of an image, choose Image > Image Size and type new values reflecting the desired dimensions of the image.

3 When using blending modes, you must consider the interaction among the *base color,* or the color of the pixels in the original image; the *blend color,* or the color being used to paint with; and the *result color,* or the color produced when the base and blend colors are combined.

4 Using the Canvas Size command, you can increase the area around an image without changing the size of the resolution of the image data.

5 Type created using the type tool is filled with the current foreground color. Type created using the type mask tool appears as a selection on the screen, but is not filled with the foreground color.

7 Using Quick Masks

Adobe Photoshop LE uses masks to isolate and manipulate specific parts of an image. A mask is like a stencil: The cutout portion of the mask can be altered, but the area surrounding the cutout is protected from change. The Quick Mask feature allows you to quickly and easily define the area of an image you want to modify.

In this lesson, you'll learn how to do the following:

• Refine a partial selection using a quick mask.

• Paint in a mask to modify a selection.

• Save selections using layers.

• Mask a layer.

• Create partial transparency in an image.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

You'll start the lesson by viewing the final lesson file to see what you'll accomplish.

1 Restart Adobe Photoshop.

2 Choose File > Open, and open the 07End.psd file, located in the Lessons/Lesson07 folder.

3 When you have finished viewing the file, either leave the End file open on your desktop for reference or close it without saving changes.

You'll begin your work in the lesson by opening a photograph of an egret, and then work with masks to edit the image.

4 Choose File > Open, and open the 07Start.psd file, located in the Lessons/Lesson07 folder on your hard drive. An image of an egret appears.

5 Choose File > Save As, rename the file **07Work.psd**, and save it in the Lessons/Lesson07 folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

Using quick masks

The Adobe Photoshop Quick Mask option lets you create temporary masks, which are discarded once the mask has been converted to a selection.

When you apply a quick mask to a partial selection, everything that is not selected is masked (hidden), and everything that is selected is visible. The parts of the image that are masked are covered with a red-colored overlay, which is like a traditional rubylith overlay. (You can make the overlay any color, but for now you'll work with red, the default color.)

To add to or subtract from a selection in Quick Mask mode, you "paint" or "erase" the red overlay color using the default foreground and background colors, black and white.

Painting with white *erases* the red overlay color, thereby *increasing* the selected area.

Painting with black *adds* red to the overlay, thereby *decreasing* the selected area.

Applying a quick mask

You'll begin by making a partial selection of the egret using the magic wand tool, and then you'll edit the selection using a quick mask.

Note: A partial selection must exist to see the overlay color in Quick Mask mode.

1 Double-click the magic wand tool (✎) in the toolbox to select the tool and its Options palette.

2 In the Magic Wand Options palette, for Tolerance, enter a value of **25**.

3 Click anywhere in the white area of the egret to begin the selection process.

4 Hold down Shift and click the magic wand on another white portion of the egret to extend the selection. You'll notice that when you hold down Shift, a plus sign appears next to the magic wand tool, indicating that it is adding to the selection.

Clicking to make initial selection

Adding to selection

At this point, some of the egret isn't selected. Don't add any more to the selection because you'll add to it using a quick mask.

5 In the toolbox, click the Quick Mask icon.
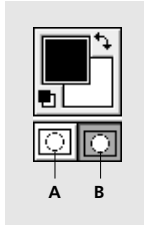
A. *Standard mode*
B. *Quick Mask mode*

A red overlay appears over the parts of the image that were not selected with the magic wand tool. This overlay color depicts the hidden, or masked, areas in the image.

Now you'll refine the selection of the egret by "painting" on the mask.

Editing a quick mask

Adobe Photoshop uses black and white to identify the hidden and visible areas in a mask. In Quick Mask mode, the red overlay color is equal to black and the transparent areas are equal to white. Where the mask is red (black), the underlying artwork is not selected; where the mask is transparent (white), the artwork is visible, or selected.

You'll edit the quick mask by painting with white to increase the selected area within the egret. As you work with the egret image, you'll move back and forth between Quick Mask mode and Standard mode to see exactly how painting in the mask alters the selected area.

1 Click the switch colors icon above the foreground and background swatches in the toolbox to make the foreground color white.

Switch colors

2 Choose Preferences > Display & Cursors. In the Painting Cursors section of the dialog box, select the Brush Size option, and click OK.

3 Click the paintbrush tool (✐) in the toolbox; then click the Brushes palette tab, and select a medium brush from the first row of brushes.

4 Move the paintbrush onto the window, and begin painting over the red areas within the egret's body. As you paint with white, the red areas are erased.

5 If desired, zoom in on the image by selecting the zoom tool from the keyboard. Hold down Ctrl+spacebar (Windows) or Command+spacebar (Mac OS) to select the zoom-in tool; then release the keys to go back to painting.

As you erase the red parts of the mask by painting with white, don't worry if you paint outside the outline of the egret's body. You'll have a chance to make corrections in a minute.

6 Click the Standard Mode icon to move from Quick Mask mode back to the selection.

Notice that the selection marquee has increased, selecting more of the egret's body.

Quick Mask mode

Edited selection in Standard mode

7 Double-click the zoom tool in the toolbox to return to a 100% view of the egret.

8 Click the Quick Mask icon again to return to the masked view, and continue painting with white to erase the remainder of the mask (red) in the egret, including its beak and legs. If necessary, use the zoom tool to zoom in on parts of the bird.

9 Click the Standard Mode icon to move from Quick Mask mode back to the selection.

Note that using a quick mask to create a selection is similar to creating a selection using a combination of the magic wand tool and the lasso tool.

If there are areas within the body of the egret that appear to still be selected, it means that you haven't erased all of the mask.

10 If necessary, go back to Quick Mask mode and erase the remaining parts of the mask.

Selection in Standard mode   *Erasing in Quick Mask mode*

11 Once you've erased all of the red areas within the egret, click the Standard Mode icon again. The entire egret is selected!

12 Choose File > Save to save your work.

At this point, if you've erased the mask outside the edges of the egret and subsequently included part of the background in the selection, return to Quick Mask mode and restore the mask to those edge areas by painting with the mask color (red).

13 Click the Quick Mask icon to return to Quick Mask mode.

14 Click the switch colors icon at the corner of the foreground and background swatches in the toolbox to make black (which will paint as red in Quick Mask mode) the foreground color.

15 From the Brushes palette, select a small brush from the first row of brushes.

You'll paint the mask back in where you erased too much of it around the edges of the egret.

16 Using the zoom tool, zoom in on an area where you need to repaint the mask.

17 Select the paintbrush tool, and repaint the mask where needed.

Saving a selection as a layer

To make sure you don't accidently lose your selection, you can copy it to a new layer.

1 Select the Standard Mode icon in the toolbox to make the selection active.

2 Choose Edit > Copy to copy the selection.

3 Alt-click (Windows) or Option-click (Mac OS) the new layer icon on the bottom of the Layers palette. Rename the layer **Egret**. The new layer is active.

4 Choose Edit > Paste. A copy of the egret is placed on the new layer.
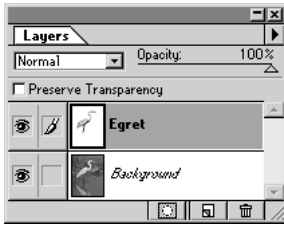
Now that you have isolated the egret, you'll adjust its tonal balance before adding a filter to the background.

5 With the Egret layer selected in the Layers palette, choose Image > Adjust > Auto Levels. The tonal balance of the egret is automatically adjusted.

6 Using the magic wand tool, click outside the egret to select the transparency on the Egret layer.

You'll apply a filter to the background. The selection you just made protects the egret image.

7 In the Layers palette, click the background layer to make it active.

8 Choose Filter > Artistic > Colored Pencil. If desired, experiment with the sliders to see the changes before you apply the filter.

If you want to preview different areas of the background, you can drag in the preview window of the Color Pencil dialog box. This preview option is available with all filters.
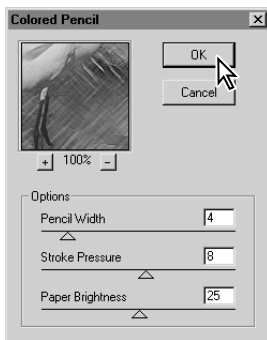
Colored Pencil filter   *Result*

9 Click OK when you're satisfied with the Colored Pencil settings. The filter is applied to the background selection.

10 Deselect the background by choosing Selection > None.

11 From the Layers palette menu, choose Merge Visible to merge the Egret layer with the background.

12 Choose File > Save to save your work.

You've successfully saved a Quick Mask selection, inverted the selection, and modified the background. To complete the background, you'll add a gradient to a layer mask.

Masking with partial transparency

In addition to using black to indicate what's hidden and white to indicate what's selected, you can paint masks with shades of gray to indicate partial transparency. For example, if you paint a mask with a shade of gray that is halfway between black and white, the under-lying image becomes partially (50%) visible.

You'll experiment by adding a gradient (which makes a transition from black to gray to white) to a layer mask and to see how the transparency levels of the black, gray, and white in the gradient affect the image.

To apply a mask to the background, you must first rename it to convert it to a layer.

1 In the Layers palette, double-click the background layer, and rename it **Gradient**.

2 Choose Layer > Add Layer Mask > Reveal All.
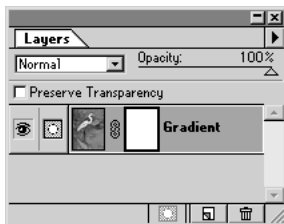
3 Select the gradient tool. Make sure that the foreground and background colors are set to their defaults; if necessary, click the default colors icon.

4 In the Gradient Tools Option palette, set the opacity to 100%. For Gradient choose Foreground to Background, and for Type choose Linear.

5 Hold down Shift, and drag the gradient tool from the center of the image to the bottom of the window. The gradient is applied to the layer.

Where the gradient is black, the background layer is not visible. Where the gradient is gray, the white background layer is partially visible. Where the gradient is white, the background layer is completely visible.

Gradient options

Dragging with the gradient tool

Result
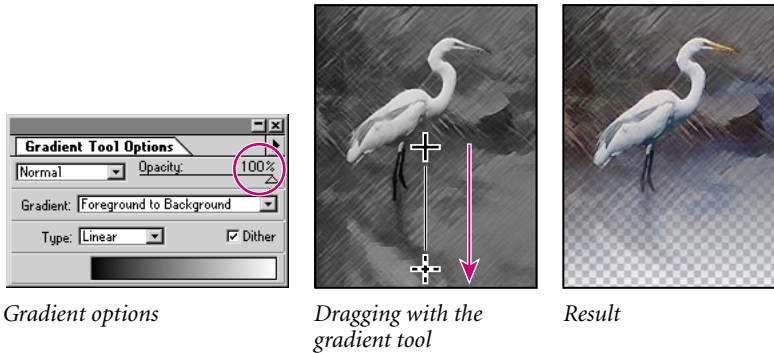
6 From the Layers palette menu, choose Flatten Image to create the final image. Notice that the layer mask has merged with the image, and the layer has been automatically renamed Background.

7 Choose File > Save to save your work.

8 Choose File > Close to close the lesson file.

You have completed the Quick Masks lesson. Although it takes some practice to become comfortable using masks, you've learned all the fundamental concepts and skills you need to get started with quick masks and layer masks.

Review questions

1 What is the benefit of using a quick mask?

2 What happens to a quick mask when you deselect?

3 How can a quick mask selection be saved for later use?

4 How can you edit a mask?

5 In addition to the brush tool, what other tool is commonly used to edit a mask?

6 How can you use layers as masks?

7 How do you add a layer mask to a background?

Review answers

1 Quick masks are helpful for creating quick, one-time selections. In addition, using a quick mask is an easy way to edit a selection using the painting tools.

2 Quick masks disappear when you deselect.

3 Before deselecting, copy the selection and paste it to a new layer.

4 You can edit a mask by painting on it with white to reveal the image through the mask; by painting on it with gray, to partially reveal the image through the mask; or by painting on it with black to hide the image behind the mask.

5 The gradient tool can be used to apply a gradient of black to white on a mask.

6 You use create a masking effect with layers by copying a selection to a new layer, and then applying changes to that layer.

7 To add a layer mask to the background, you must first rename the background to convert it to a layer. Then choose Layer > Add Layer Mask > Reveal All or Hide All.

8 | Advanced Layer Techniques

Once you've learned basic layer techniques, you can begin to create more complex effects in your artwork using layer masks and clipping groups. Layer masks let you hide or reveal parts of the artwork on a layer. Clipping groups let you define an object on one layer as a mask for artwork on another layer.

In this lesson, you'll learn how to do the following:

• Create and edit layer masks to selectively hide and reveal portions of artwork on a layer.

• Create clipping groups, using an image on one layer as a mask for artwork on another layer.

• Use the Preserve Transparency option to affect only the areas of a layer that contain pixel values, thereby preserving the transparency of the blank areas of a layer.

• Add an embossed effect to an image.

• Delete a layer mask.

• Save layered files.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

You'll start the lesson by viewing the final lesson file to see what you'll accomplish.

1 Restart Adobe Photoshop.

Choose File > Open, and open the 08End.psd file, located in the Lessons/Lesson08 folder. A photo collage of a watch suspended in clouds appears.

2 When you have finished viewing the file, either leave the End file open on your desktop for reference or close it without saving changes.

You'll start this lesson by opening an image that contains two layers, and then you'll work with various layering and masking techniques to complete the image.

3 Choose File > Open, and open the 08Start.psd file, located in the Lessons/Lesson08 folder on your hard drive.

4 Choose File > Save As, rename the file **08Work.psd**, and save it in the Lessons/Lesson08 folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

In the Layers palette, notice that there are two layers in the document—the Watch layer and the Clouds layer. At this point, you can see only the Watch layer, because the Clouds layer is positioned under the watch.
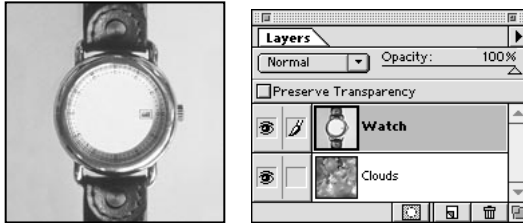
5 In the Layers palette, click the eye icon next to the Watch layer to hide it; the clouds on the layer beneath the Watch layer are revealed. Make the Watch layer visible before continuing to the next step.

Working with layer masks

Layer masks let you hide or reveal portions of the artwork on an individual layer. You can control how much of the artwork is hidden or revealed by painting on the mask using black, white, or a shade of gray.

Where you paint with black, the mask is completely opaque, hiding the artwork on the layer. Where you paint with white, the mask is completely transparent, revealing the artwork on the layer. Where you paint with a shade of gray, the mask is semitransparent, making the artwork on the layer partially transparent.

You'll start by adding a layer mask to the Watch layer. You will paint on the layer mask to hide and reveal portions of the watch, letting the clouds on the underlying layer show through.

1 In the Layers palette, click the Watch layer to make it the active layer.

2 Select the lasso tool (🔾) in the toolbox; then drag a loose selection around the watch, including a portion of the watchband.

3 Choose Select > Feather, enter **25** in the Feather Radius text box, and then click OK. Adding a feather radius to the selection will soften the edges of the selected area when you add the layer mask.

4 Choose Layer > Add Layer Mask > Reveal Selection. The Reveal Selection option displays the selected portion of the watch and makes the unselected areas on the Watch layer transparent.

In the Layers palette, a layer mask thumbnail appears to the right of the layer thumbnail of the watch, indicating that a layer mask has been added.

Two additional icons appear when you create a layer mask—a small square with a dotted circle appears in the column next to the eye icon, indicating that the layer mask is selected; and a link icon appears between the layer thumbnail and the layer mask thumbnail to indicate that the layer and the mask are linked.
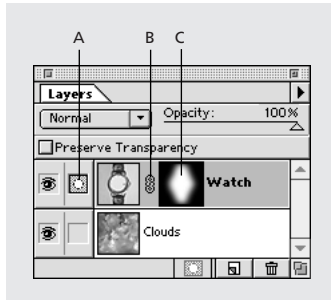
A. Layer mask selected B. Link icon
C. Layer mask thumbnail

5 Choose File > Save to save your work.

Painting on a layer mask

Now you will paint on the mask using black, white, and a shade of gray to hide, reveal, and partially reveal the clouds on the underlying layer. As a reminder, painting with black hides the artwork on the layer, painting with white reveals the artwork on the layer, and painting with a shade of gray makes the artwork on the layer partially transparent.

1 In the Layers palette, click the layer mask thumbnail on the Watch layer to make sure that the layer mask is selected.

Click the layer mask thumbnail.

2 Make sure that black is the foreground color and white is the background color.

3 Choose File > Preferences > Display & Cursors. In the Painting Cursors section of the dialog box, select the Brush Size option, and click OK.

4 Select the paintbrush tool (✐) in the toolbox. Click the Brushes palette tab to bring the palette forward, and select a large, soft-edged brush.

You'll start by painting with black to hide part of the watchband and some of the watch.

5 Begin painting on the watchband and along the outside edge of the watch. (Don't be too careful here.)

As you paint with black, the area surrounding the watch is hidden (revealing more of the clouds on the underlying layer). In the Layers palette, notice how the layer mask is altered as you paint.

Now you'll paint with white to reveal more of the watch and the watchband.

6 Click the switch colors icon (⤵) in the toolbox to swap the foreground and background colors. White becomes the foreground color.

💡 *Press x on the keyboard to switch the foreground and background colors.*

7 Begin painting with white where the clouds cover the border of the watch, and paint to reveal a bit more of the watchband. Notice how the layer mask thumbnail is updated in the Layers palette.
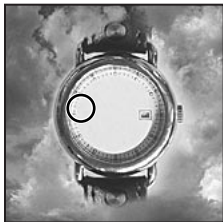
Now that you've experimented using black and white to hide and reveal the artwork on the layer, you'll paint with a shade of gray to partially reveal some of the watch.

8 Click the Swatches palette tab to bring the palette to the front of its group; then select a medium-gray color.

Note: Although you are working with an RGB image, only shades of gray are displayed in the Swatches palette when editing a layer mask.

9 Begin painting over a portion of the watch border and a small area along a part of the watch face.

As you paint, you'll notice that the watch becomes partially visible, letting you see part of the watch and part of the clouds. (The lighter the shade of gray you paint with, the more the clouds are revealed.)
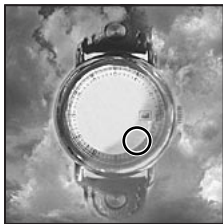
10 Choose File > Save to save your work.

Unlinking layer masks

By default, layer masks are linked to the artwork on the layer. When you move a mask or the artwork, both the mask and the artwork are repositioned. You can unlink the layer mask and the artwork on the layer if you want to move them independently.

1 In the Layers palette, click the link icon between the layer thumbnail and the layer mask thumbnail to turn off linking.

2 In the Layers palette, click the watch thumbnail in the Watch layer.

Clicking link icon   *Clicking watch thumbnail*
to turn off link

3 Select the move tool (✛) in the toolbox and drag in the image window to move the artwork. Notice that the layer mask thumbnail does not move with the artwork.
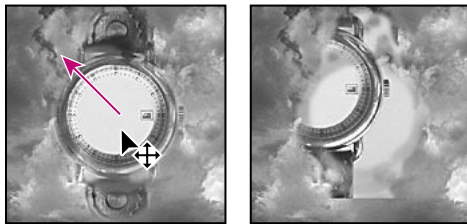
Moving the artwork on the layer

4 Choose Edit > Undo to undo the move.

5 Now click the layer mask thumbnail and drag the move tool to move the layer mask. The layer mask moves independently of the layer mask.
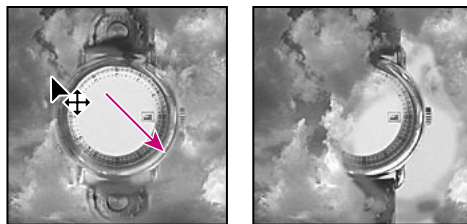
Moving the layer mask

6 Choose Edit > Undo to undo the move.

7 Click the area between the layer thumbnail and the layer mask thumbnail to relink the layer mask and the artwork.

You can also turn off a layer mask to view the artwork on the layer without the mask.

8 To turn off the layer mask, Shift-click the layer mask thumbnail on the Watch layer in the Layers palette. A large red *x* appears on the layer mask thumbnail.
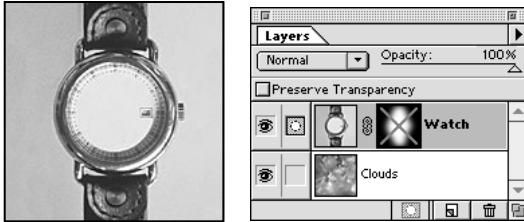
9 To turn on the layer mask, click the layer mask thumbnail in the Layers palette. The *x* disappears.

10 Choose File > Revert to return to the last saved version of the file.

Creating masks using marquee tools

Next, you'll create a new layer and use a marquee tool to draw a circle that will be used as a mask.

1 In the Layers palette, make sure that the Watch layer is selected.

2 Alt-click (Windows) or Option-click (Mac OS) the New Layer button at the bottom of the palette. In the Layer Options dialog box, name the new layer **Circle**, and click OK. The Circle layer should be at the top of the Layers palette.
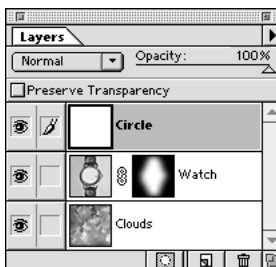
3 Select the ellipse marquee tool (⬭) from the hidden tools palette under the rectangle marquee.

4 Hold down Alt+Shift (Windows) or Option+Shift (Mac OS), and then drag from the center point of the face of the watch to the inside edge of the watch face. Release the mouse button; then release the modifier keys.

Holding down Alt (Windows) or Option (Mac OS) draws the circle from the center point, and Shift constrains the selection marquee to a circle.

Now you'll fill the circle with black.

5 Make sure that the foreground and background colors are set to black and white.

💡 *Press d on the keyboard to return to the default foreground and background colors.*

6 Choose Edit > Fill. Make sure that Foreground is selected and that the opacity is set to 100%; then click OK to fill the circle with black.
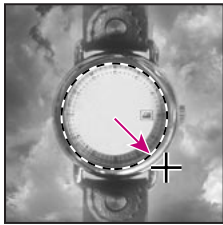
Dragging to select   Filling with black
a circle

💡 *Try the shortcut to fill a selection with 100% of the foreground color: press Alt+Backspace (Windows) or Option+Delete (Mac OS).*

7 Choose Select > None to deselect everything.

8 Choose File > Save to save your work.

Creating a clipping group

You can mask an object on one layer using an image from another layer by creating a *clipping group.* In a clipping group, the bottom, or *base layer,* of the group controls the shape, opacity, and mode of any successive layers. (You can also set opacity levels and modes for individual layers.) The layer or layers above the base layer are clipped to (or masked by) the shape of the object or objects on the base layer.

You'll use the circle you drew as the base layer of a clipping group.

1 Choose File > Open, and open the Fern.psd file, located in the Lessons/Lesson08 folder on your hard drive.

You'll move the fern image onto the 08Work.psd window and then clip the fern to the circle.

2 If necessary, reposition both windows so that you can see a part of each of them. Then click the Fern window to make it the active window.

3 In the Layers palette, hold down Shift and drag the Fern layer onto the 08Work.psd image.

Holding down Shift as you drag centers the fern in the 08Work.psd window. The Fern layer should now be positioned at the top of the Layers palette in the 08Work.psd window.
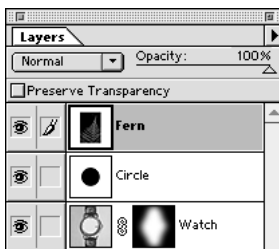
New Fern layer   *Fern centered in window*

The next step is to clip the fern to the Circle layer. (In effect, you'll be masking the fern with the circular shape.)

4 With the Fern layer selected in the Layers palette, choose Layer > Group with Previous. The fern is clipped to the circle.

In the Layers palette, the base layer in the clipping group (the circle) is underlined, and any layers above the base layer that are part of the clipping group (the fern) are indented.
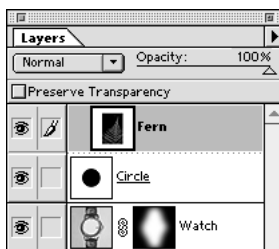
Clipping fern to Circle layer   *Result*

5 If you want to adjust the position of the fern within the circle, click the move tool in the toolbox and drag.

Next, you'll add another image to the clipping group.

6 Choose File > Open, and open the Waterfal.psd file, located in the Lessons/Lesson08 folder on your hard drive. If necessary, reposition both windows so that you can see a part of each of them.

7 In the Layers palette, hold down Shift and drag the Waterfall layer onto the 08Work.psd image. The Waterfall layer should be positioned at the top of the Layers palette in the 08Work.psd window.

You can make adjustments to each individual layer in a clipping group. You'll change the mode and opacity of the waterfall before adding it to the clipping group.

8 In the Layers palette, drag the Opacity slider to 80% (or enter **8**), and for mode choose Screen. You'll be able to see through the waterfall.
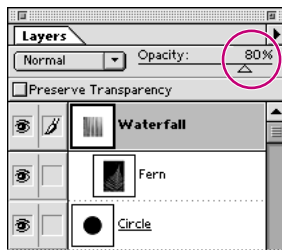
Drag the Opacity slider.   *Result*

This time, you'll try a keyboard shortcut to add the waterfall to the clipping group.

9 In the Layers palette, hold down Alt (Windows) or Option (Mac OS), position the pointer on the line between the Waterfall layer and the Fern layer, and then click to add the waterfall to the clipping group.
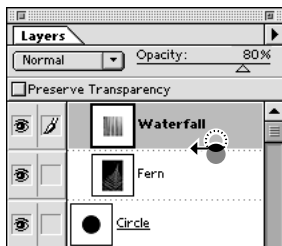
10 Close the Fern.psd image and the Waterfal.psd images, and do not save changes.

Adding an embossed effect

You'll add a face to the watch and then create an embossed effect to the watch face to add depth to the image.

1 Choose File > Open, and open the Face.psd file, located in the Lessons/Lesson08 folder on your hard drive.

2 Hold down Shift, and drag the Face layer from the Layers palette into the Newwatch.psd window. The Face layer is added at the top of the Layers palette.

3 Close the Face.psd file before continuing.

Creating depth effects such as embossing and drop shadows is a simple task when using layers. All you have to do is duplicate and paint a copy of the original layer, and then reposition the copy behind the original layer.

4 Drag the Face layer onto the New Layer button at the bottom of the Layers palette to duplicate the Face layer.

5 With the Face copy layer active, click the Preserve Transparency option.

With the Preserve Transparency option turned on, you don't have to make a selection before you paint; only the areas where pixel values already exist are affected when you paint.
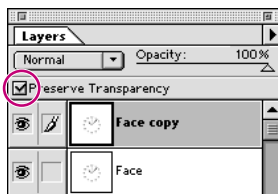
Now, you'll paint the numbers white, using a keyboard shortcut.

6 Make sure that the foreground and background colors are set to the defaults.

7 Hold down Ctrl (Windows) or Command (Mac OS), and press Delete. The hands are filled with the background color, which is white.

8 Hold down Ctrl/Command to select the move tool from the keyboard; then press the Right Arrow key twice and the Down Arrow key twice to reposition the white numbers.

9 In the Layers palette, drag the Face copy layer below the Face layer to reposition the layer. Voila! The numbers on the watch face appear to be embossed. Experiment with these techniques, substituting shades of gray and adding blur filters to create professional-looking drop shadows and other relief effects.

Lightening and darkening areas of an image

The dodge and burn tools let you lighten and darken areas of an image selectively. You'll add highlights to the watch face using these tools.

1 Select the dodge tool (🔍) in the toolbox.

2 In the Brushes palette, select a soft-edged brush from the second row of brushes.

3 In the Layers palette, click the Waterfall layer to make it the active layer; then drag a curved stroke in the upper left quadrant of the watch face. As you drag, the area becomes lighter.
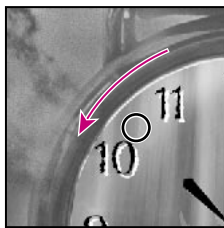
You can hold down the mouse button and drag repeatedly over the same area to lighten the area more, or you can use short single strokes to lighten the area incrementally.

4 Select the burn tool (✋) tool in the Hidden Tools palette under the dodge tool.

5 Drag the burn tool over the lower right quadrant of the watch face to darken the area.
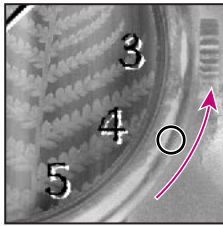
Removing layer masks

Each layer mask in a file increases the file's size. To minimize the size of your files, it's important to remove or merge layer masks after you've made final design decisions.

You'll merge the layer mask on the Watch layer with the artwork on the layer.

1 In the Layers palette, select the Watch layer.

2 Choose Layer > Remove Layer Mask.

3 When the prompt appears, click Apply to merge the layer mask with the artwork on the layer.

4 Choose File > Save to save your work.

Flattening a layered image

If you plan to print your document or publish it on the Web, it's a good idea to save two versions of your file—one containing all the layers and layer masks so that you can edit the file if necessary, and one flattened version for output.

1 First, note the file size in the lower left corner of the 08Work.psd image.

2 Choose Image > Duplicate, name the duplicate file 08Final.psd, and click OK.

3 Choose Flatten Image from the Layers palette menu. The 08Final.psd file is combined onto a single background.

4 Now check the file size of the 08Final.psd image. You'll notice that it is significantly smaller than the 08Work.psd image, because it has been flattened onto the background.

5 Choose File > Close, and close any open lesson files.

You've completed the Advanced Layers lesson. Experiment with your own work to see how you can use layer masks.

Review questions

1 Why would you paint with black on a layer mask? With white? With gray?

2 How do you turn off a layer mask to view only the artwork on the layer?

3 What is a clipping group? Can you think of how you might use one in your own work?

4 What is the purpose of flattening an image?

Review answers

1 To hide part of the artwork on a layer, you paint with black on the layer mask. To reveal more of the artwork on a layer, you paint with white on the layer mask. To partially reveal artwork on a layer, you paint with shades of gray on the layer mask. The darker the shade of gray, the higher the level of transparency.

2 Hold down the Shift key and click the layer mask icon in the Layers palette.

3 A clipping group consists of at least two layers, where the artwork on one of the layers is used as a mask for the artwork on another layer. Clipping groups are often used to "show" a texture on one layer through a selection on another layer.

4 Flattening an image consolidates all layers and layer masks in a document into one file with only a background, and reduces the file size. To flatten an image, choose Flatten Image from the Layers palette menu.

9 | Basic Image Correction

Adobe Photoshop LE's tonal adjustment and color correction tools let you make adjustments to grayscale or color images and compensate for some of the differences between the original scanned image and the final on-screen image

In this lesson you will learn how to do the following:

• Use Adobe Photoshop LE color-correction tools and commands.

• Adjust the overall contrast, or tonal range, of a color or grayscale image.

• Make adjustments to an image's color values.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

Restart Adobe Photoshop.

Determining the tonal range of an image

The *tonal range* of an image (also known as the *dynamic range*) is determined by the way its pixels are distributed throughout the image's shadows, midtones, and highlights (from the darkest pixel to the lightest pixel in the image).

Adobe Photoshop LE graphically displays the pixel distribution in an image using a *histogram.* The histogram displays the pixel values, based on their level of brightness, ranging from 0 (black) to 255 (white). The pixel values are plotted along the horizontal axis; the height of the graph at any point represents the total number of pixels in the image with that level of brightness. As you work with the color-correction tools, you can use the image's histogram to check for optimum brightness and contrast levels by choosing Image > Adjust > Levels.
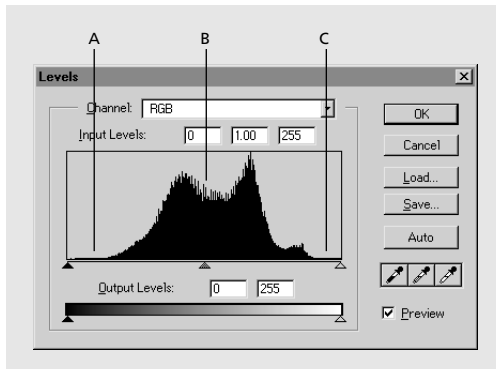
Histogram displaying pixel values and distribution
A. Shadow B. Midtones C. Highlights

Determining the image type

Before you begin using the color-correction tools, it's a good idea to identify the type of image you're working with.

Images can be classified into one of three *key types*. The key type of an image is determined by the visual distribution of the tones within the image. When an image is composed of mostly dark tones, it is called a *low-key image*; when it is composed of mostly light tones, it is called a *high-key image*; and when the light and dark tones are about equal, it is called an *average-key image*.

You'll open three images, each of which is one of the key types. You'll be able to identify the key type of the image by the way the histogram displays the distribution of the pixels in the image.

1 Choose File > Open, and open the Avgkey.psd file, located in the Lessons/Lesson09 folder on your hard drive.

2 Choose Image > Adjust > Levels to display a histogram of the image.

The Levels dialog box displays the tonal range of the image (above the black-to-white bar).

This image has an equal balance of light and dark tones, which identifies it as an average-key image.
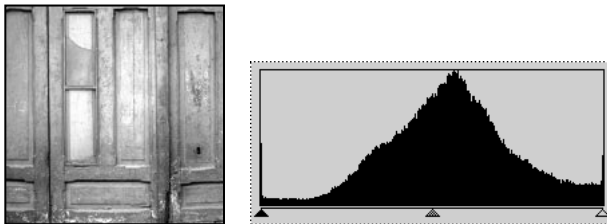
Pixel distribution in average-key image

3 Click OK to close the dialog box.

4 Choose File > Open, and open the Lowkey.psd file, located in the Lessons/Lesson09 folder on your hard drive.

5 Choose Image > Adjust > Levels.

This image is composed of predominantly dark tones, so it is a low-key image.
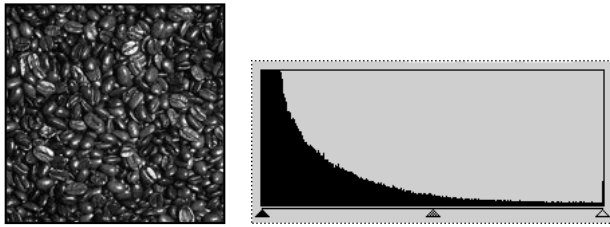
Pixel distribution in low-key image

6 Click OK to close the dialog box.

7 Choose File > Open, and open the Highkey.psd file, located in the Lessons/Lesson09 folder on your hard drive.

8 Choose Image > Adjust > Levels.

This image is composed of predominantly light tones, so it is a high-key image.
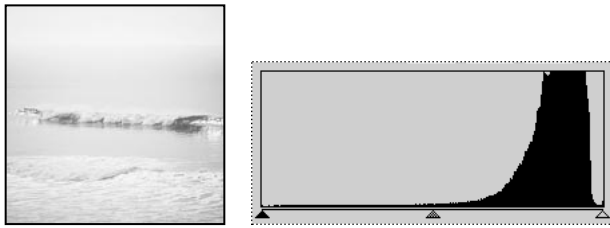
Pixel distribution in high-key image

9 Click OK to close the dialog box.

10 Once you're taken a few minutes to look at the differences in the key types, close all the images, and do not save changes.

You'll learn more about the level controls and how to adjust an image's tonal balance later in this lesson.

Working with the adjustment tools

The most commonly used adjustment tools are the Brightness/Contrast, Levels, and Curves commands. The Brightness/Contrast command provides the simplest but most limited adjustment controls. The Levels command has more sophisticated adjustment controls, while the Curves command has the most sophisticated controls of all. In addition, the Auto Levels command is useful for automatically adjusting the tonal range of an image. You'll learn more about each command as you work through the sections that follow.

Using Brightness/Contrast to adjust an image

The Brightness/Contrast command offers the least amount of control over the tonal range of an image because the adjustment affects the image globally. For example, if you increase the brightness value by 20, all pixels in the image increase in brightness by a value of 20.

Dragging the Brightness slider lightens or darkens an image; dragging the Contrast slider increases or decreases the contrast in the image.

1 Choose File > Open, and open the Bright.psd file, located in the Lessons/Lesson09 folder on your hard drive.

2 Choose Image > Adjust > Brightness/Contrast.

3 Drag the Brightness slider to 27, and drag the Contrast slider to 14. Click OK to adjust the brightness and contrast of the image.
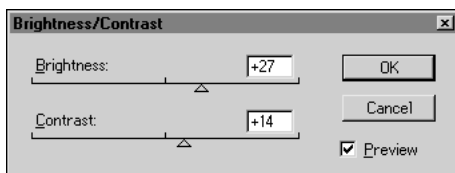
4 Click OK to exit the dialog box; then close the file. Do not save changes.

Using auto levels

The Auto Levels command adjusts the overall contrast of an image by defining the lightest and darkest (highlight and shadow) pixels in an image as white and black, and then distributes the remaining tones in the image between them. The result that Auto Levels produces is determined by the characteristics of the original image.

You'll apply the Auto Levels command to an image to see how the quality of the original scan affects the result.

1 Choose File > Open, and open the Blossom.psd file, located in the Lessons/Lesson09 folder on your hard drive.

2 Choose Image > Adjust > Auto Levels. The image looks great!

3 Choose File > Close. Do not save changes.

Note: If the Auto Levels command produces an undesirable result, use the Levels dialog box to obtain greater control of the tonal range in the image. For information about how to use levels, see the next section, "Using levels."

Using levels

While the Auto Levels command controls the tonal balance of an image by automatically setting the lightest and darkest points in the image, the Levels command lets you control the tonal balance of an image by setting the lightest and darkest points in the image yourself. You can use Levels to affect an entire image, or just a selection.

In addition, the Levels command lets you adjust the *gamma* in an image. Gamma measures the contrast that affects the mid-level grays (midtones), and can be adjusted without significantly affecting the shadows and highlights in an image.

You'll work with the controls in the Levels dialog box to adjust the highlights and shadows of an image using two methods. First, you'll drag the sliders in the dialog box to adjust the highlights and shadows, and then you'll define and set the highlights and shadows by choosing values from the image.

Adjusting the tonal range of an initial scan using Levels sliders

Most initial scans require an adjustment to the tonal balance of the image before making other color adjustments. You'll use the Levels dialog box first to adjust the tonal range of a scanned image.

1 Choose File > Open, and open the Fruit.psd file, located in the Lessons/Lesson09 folder on your hard drive.

2 Choose Image > Adjust > Levels.

The Levels dialog box displays a histogram of the image and a variety of controls that let you adjust the tonal range of the image. At this point, focus on the three triangles at the bottom of the histogram. The white triangle represents the highlight areas of the image; the gray triangle represents the midtones, or gamma, in the image; and the black triangle represents the shadow areas of the image.
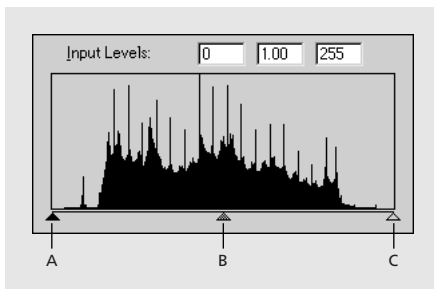
A. Shadow B. Midtones (gamma) C. Highlights

Notice that the black triangle (at the left end of the histogram) is positioned to the left of the point at which the pixels in the image actually start. The same is true of the white triangle at the right end of the histogram; it is positioned to the right of the point where the pixels in the image actually end.
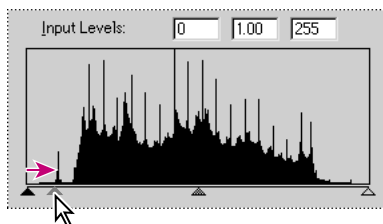
When the black and white triangles are positioned outside the actual starting and ending pixels in the image, the image looks "flat," because there is a lack of contrast in both the highlights and the shadows of the image. As a general rule, most initial scans come in flat and need an initial adjustment to redefine the black point, the gamma, and the white point.

3 Drag the black slider to the right to position it under the starting pixels in the histogram; then drag the white slider to the left to position it under the ending pixels in the image.

4 Drag the middle, or gamma, slider to the right to lighten the midtones of the image a bit. The value should be about 0.80, but each monitor looks slightly different, so the level of adjustment may vary slightly.

5 Click OK. The pixels are redistributed from black to white, extending the tonal range of the image.

6 Choose Edit > Undo several times to see the difference before and after the adjustment.

7 Choose Image > Adjust > Levels. Now the histogram reflects the redistribution of the pixels from black to white.
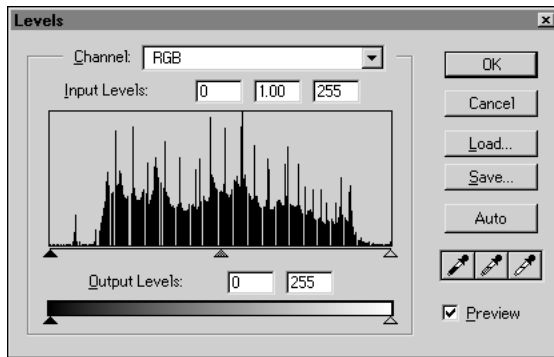
8 Choose File > Close. Do not save changes.

It's a good practice to follow this procedure for all initial scans.

Assigning values to the black and white points

Now that you've learned one method to adjust the tonal range of an initial scan, you'll use some of the other controls in the Levels dialog box to define and set your own shadows and highlights (called black and white points) in an image.

This time, instead of using the sliders to adjust the contrast of the image (by moving the triangles), you'll enter values to define the darkest and lightest points in the image.

When you define the values of the black and white points, you ensure that both areas hold detail when printed. If the highlight area of an image contains no detail, no ink is printed on the paper; this white without detail is called *specular white*. If the shadow area of an image contains no detail, the paper is saturated with black ink, producing a solid-black area.

1 Choose File > Open, and open the Market.psd file, located in the Lessons/Lesson09 folder on your hard drive.

2 Choose Image > Adjust > Levels; then double-click the white eyedropper tool to open the Adobe Photoshop color picker, where you enter values to define the white point.

3 Enter the RGB values of **244** for R, **244** for G, and **244** for B. Click OK. These values correspond to the white point (highlight area) for an average-key image.

4 Now double-click the black eyedropper tool in the Levels dialog box to open the color picker and set the value for the black point.

5 Enter the RGB values of **10** for R, **10** for G, and **10** for B. Click OK. These values correspond to the black point (shadow area) for an average-key image.

Now that you have defined the values for the black and white points, you'll use the eyedropper to select and define the black and white areas in the image.

6 With the black eyedropper tool in the Levels dialog box still selected, position the pointer in the dark area of the lower left corner of the image. Click the eyedropper tool to define this area as the darkest point in the image.

7 Click the white eyedropper tool, and then position it in the price slip labeled $1.99 near the center of the image. Click the white area to define the lightest point in the image.

8 Adjust midtones by dragging the middle (gamma) Levels slider.

9 Click OK to close the dialog box.

10 Choose Edit > Undo several times to see the difference before and after the adjustment.

11 Choose File > Close. Do not save changes.

Using curves

The Curves dialog box provides the most sophisticated controls of the tonal adjustment tools. In addition to using Curves to set the black and white points, you can control the midtones in an image with greater precision.

You'll use the Curves dialog box to adjust the midtones in an image. (The highlights and shadows have already been set.)

1 Choose File > Open, and open the Floral.psd file, located in the Lessons/Lesson09 folder on your hard drive.

2 Choose Image > Adjust > Curves.

The Curves dialog box displays a graph that represents the original and new brightness values of the pixels in the image. The horizontal axis represents the original values of the pixels, and the vertical axis represents the new (adjusted) values of the pixels. At this point, the original pixel values, called *input values*, and the new pixels values, called *output values*, are the same, because you haven't made an adjustment to the image.

The diagonal line in the graph represents the current relationship between the input values and output values. The bottom left corner of the diagonal line represents the shadows in the image; the midpoint in the line represents the midtones in the image, and the top right corner represents the highlights in the image.
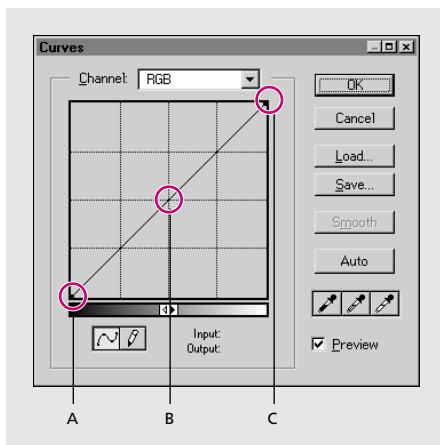
A. Shadow B. Midtones C. Highlights

Below the graph, a black-to-white bar displays the pixel brightness values from black to white (0 to 255, respectively).
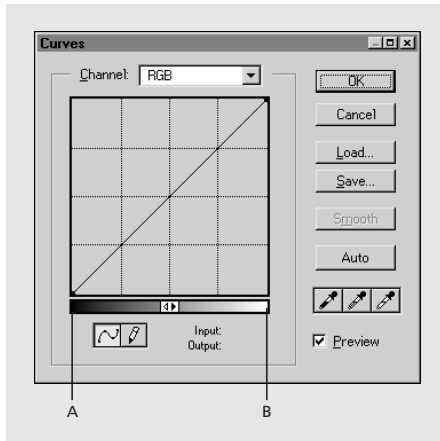
A. 0 (black) pixel value B. 255 (white) pixel value

3 To get an idea of how the Curves graph identifies pixel brightness values in an image, move the pointer into the floral image window (the pointer becomes an eyedropper). Hold down the mouse button, and slowly drag the eyedropper on different areas of the image.

As you drag, you'll notice a moving circle on the diagonal line on the graph. When you drag the eyedropper in a dark area of the image, the circle is near the lower left of the diagonal line; when you drag in a light area of the image, the circle moves toward the top of the diagonal line, representing the highlights and shadows.

Dragging the eyedropper in the image window to display the pixel values in the Curves dialog box

This image requires an adjustment to the midtone and shadow areas, but not to the highlights. To make the adjustment to only the midtones and shadows, you can set points along the diagonal line to isolate the areas you don't want affected. You'll set two points along the diagonal line.

4 Click the pointer on the quarter-tone point along the diagonal line (the curve).
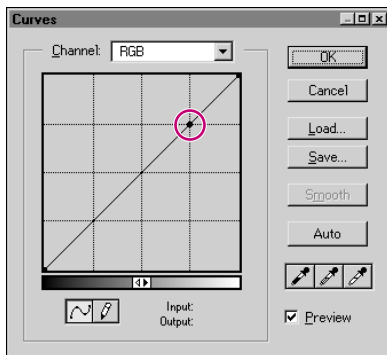
Quarter tone

5 Click the pointer on the three-quarter-tone point along the diagonal line (the curve).
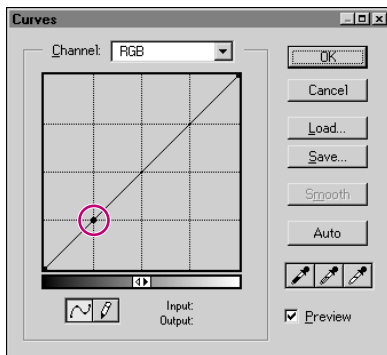
Three-quarter tone

6 Now drag the three-quarter-tone point upward to lighten the shadows and midtones in the image. By anchoring the curve at the three-quarter-tone point, none of the highlights in the image is affected.
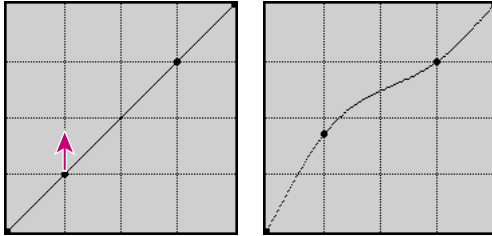
Using curves to lighten   *Result*
shadows and midtones

7 Click OK to make the adjustment to the floral image.

8 Choose File > Close. Do not save changes.

Removing a color cast

Now that you've worked with the tonal correction tools, you'll use a color correction command to remove a color cast from an image. The Color Balance command lets you change the mixture of colors in a color image. Like the Brightness/Contrast command, this tool provides generalized color correction.

1 Choose File > Open, and open the Brdhouse.psd file, located in the Lessons/Lesson09 folder on your hard drive.

2 Choose Image > Adjust > Color Balance to open the Color Balance dialog box.

3 Before you begin making adjustments, make sure that the Preview option is selected in the dialog box.

4 Drag the first slider to –22 (toward cyan); then drag the second slider to 29 (toward green). These settings remove the magenta cast from the image.
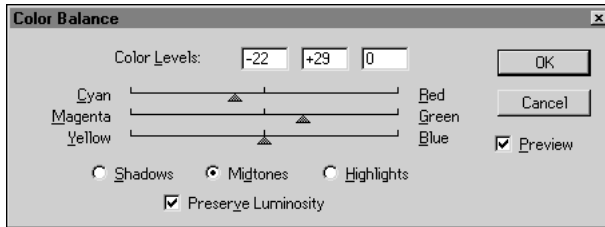
5 Click OK. To compare the effect of the new settings, choose Edit > Undo.

6 Choose File > Close to close the file. Do not save changes.

You've completed the Basic Color Correction lesson. The lesson that follows, "Photo Retouching," shows additional color-correction tools you can use once you've learned the basic techniques.

Look over the questions and answers in the Review section to help you identify and retain key concepts about color correction.

Review questions

1 What is tonal range?

2 How does a histogram depict the tonal range of an image?

3 Describe the three categories of adjustment tools, and why you would use one over another.

Review answers

1 Tonal range is the distribution of detail in highlights, midtones, and shadows of an image.

2 A histogram displays the distribution of all pixels in an image, from the shadows to the highlights.

3 The degree of precision you want determines which of the following adjustment tools you use:

• Brightness/Contrast offers the least amount of control over the tonal range of an image because the tool adjusts all image pixels the same amount.

• Levels offers more control over the tonal range by letting you adjust the highlights, midtones, and shadows in an image individually.

• Curves provides the most precise control of the tonal adjustment tools, letting you adjust up to 16 points across the tonal range of an image.

10 | Photo Retouching

In the following lesson, you will learn the basics of photo retouching using Adobe Photoshop LE. You will learn to adjust levels and color balance, as well as use special features such as the sponge and dodge tools to edit selected portions of the photograph.

In this lesson you will learn how to retouch scanned photos using the following techniques:

• Realign a scanned image.

• Crop an image to a final size.

• Remove unwanted objects.

• Make typical tonal corrections needed for a digitized image.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2.

1 Restart Adobe Photoshop.

You'll start the lesson by viewing the final lesson file to see what you'll accomplish.

2 Choose File > Open, and open the 10End.psd file, located in the Lessons/Lesson10 folder.

An image of a gondola floating in a Venetian lagoon appears.

3 When you have finished viewing the file, either leave the End file open on your desktop for reference or close it without saving changes.

Now you'll open the start file and begin the lesson.

4 Choose File > Open, and open the 10Start.psd file, located in the Lessons/Lesson10 folder on your hard drive.

This image is crooked, slightly blurred, and has a reddish cast.

5 Choose File > Save As, rename the file **10Work.psd**, and save it in the Lessons/Lesson10 folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

Cropping and straightening

In this lesson, you'll retouch a scanned photograph, making typical corrections needed for a digitized image. Adobe Photoshop contains retouching tools that let you burn, dodge, saturate, and even clone areas, as well as adjust the color balance and color levels in an image.

The photo you'll work on is crooked, slightly blurred, and has a reddish cast. In addition to fixing these problems, you'll remove the small boat in the center of the image, adjust the tonal range and color balance of the image, and even replace the current sky with another one.

The first thing you'll do is crop and straighten the image.

1 Select the crop tool (⌗) in the toolbox. Then drag to select the part of the image you want to crop.
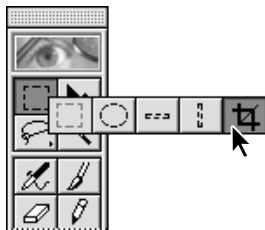
2 Move the pointer outside a selection handle; then drag counterclockwise until the crop rectangle is parallel with the image. Drag the selection handles if you need to adjust the size of the crop rectangle.

3 Press Enter (Windows) or Return (Mac OS). The image is now cropped and squared.
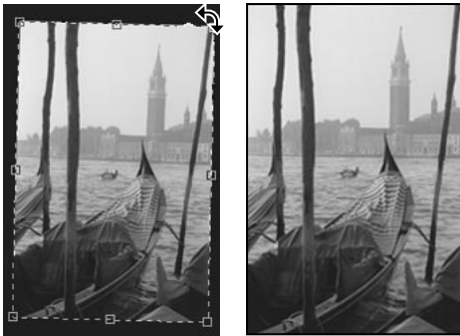
Removing unwanted objects

Next you'll eliminate the small boat near the center of the image by painting over it with a copy of the water.

1 Select the zoom tool (⌕); then click the small boat to magnify that part of the image.

2 Double-click the rubber stamp tool (⬚) in the toolbox to select the tool and display its Options palette.

3 In the Rubber Stamp Options palette, choose Clone (non-aligned). Click the Brushes tab, and select a medium-size, feathered brush.

First you'll select the cloning area.

4 Center the rubber stamp tool over the water between the large gondola and the post to its right; then hold down Alt (Windows) or Option (Mac OS), and click to sample that part of the image.

Above the rubber stamp location, you'll notice a cross hair. The cross hair represents the point from which the rubber stamp tool duplicates, or clones, the area.

5 Drag the rubber stamp tool over the boat to paint over it with a copy of the area you just sampled.

Sampling part of the image   *Painting with a copy of the sample*
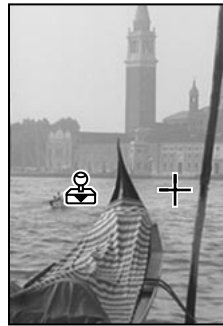
For best results, use short strokes when replacing areas of an image with the rubber stamp tool.

To vary the cloning area a bit, resample different areas of the lagoon by holding down the Alt (Windows) or Option (Mac OS) key and clicking the rubber stamp. Sampling different cloning areas makes the completed image look realistic.

6 Double-click the zoom tool (⚲) in the toolbox to return to 100% magnification.

Adjusting levels and color balance

Next, you'll expand the tonal range of the image so that the colors extend through the full range of dark to light.

1 Choose Image > Adjust > Levels, and select the Preview option.

2 Notice the histogram in the dialog box: if your image had colors across the entire brightness range, the graph would extend across the full width of the histogram. Instead, the graph is clumped toward the center, indicating there are no very dark or light colors.

3 Drag the left and right sliders inward to where the histogram indicates the darkest and lightest colors begin. Click OK.
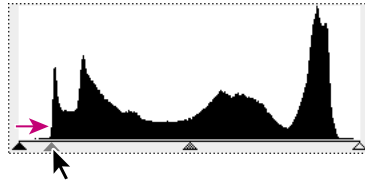
Original image   *Dragging slider to increase tonal range*

4 Choose Image > Adjust > Levels again to view the new histogram. The tonal range now extends throughout the entire range of the histogram. Click Cancel.
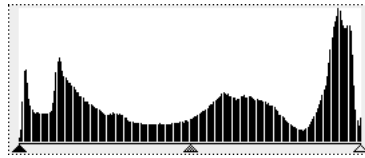
Resulting image and histogram

Notice that the image has a color cast; it's too red. To further refine color correction in the image, you'll now adjust the color balance. The Color Balance dialog box lets you adjust up to three values in the image: the shadows, midtones, and highlights.

5 Choose Image > Adjust > Color Balance. Select the Preview option.

6 To adjust the midtones so that they're less red, drag the top slider toward Cyan (we used –15) and the middle slider toward Green (we used +8). Click OK.

Using the toning tools

The toning tools include the dodge (🔍) and burn tools (✋), which let you lighten or darken, respectively, specific areas of an image, and the sponge tool (🎨), which lets you change the color saturation of an area.

Now, you'll saturate the color of the gondolas in the foreground using the sponge tool.

1 Select the sponge tool (🎨). In the Brushes palette, select a medium-size, feathered brush.
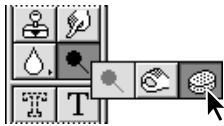
2 Click the Toning Tools Options palette tab. Choose Saturate from the pop-up menu, and drag the Pressure slider to 40% to set the intensity of the saturation effect.

3 Drag the sponge back and forth over the center gondola to saturate its color.
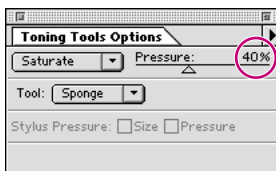
Setting saturation   *Dragging with sponge tool*

Next you'll lighten the highlights along the gondola's hull to sharpen the reflection of the water there.

4 Select the dodge tool (🔍). In the Toning Tool Options palette, choose Highlights from the menu.

5 Drag the dodge tool back and forth over the gondola's hull.

Selecting highlights   *Dragging dodge tool*
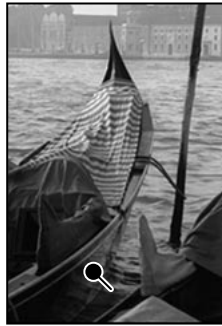
Copying textures from another file

The sky is fairly drab and overcast, so you'll replace it with a more interesting one from another file. You'll begin by selecting the current sky.

1 Select the magic wand tool (✎). Click to select part of the sky. Hold down the Shift key and click the rest of the sky to select it.

2 Choose File > Open, and open the Clouds.psd file, located in the Lessons/Lesson10 folder.

3 Choose Select > All; then choose Edit > Copy. Close the Clouds.psd file with saving any changes.

4 Choose Edit > Paste Into to paste the clouds into the current selection. Select the move tool (▸₊), and drag the clouds into the position you want.
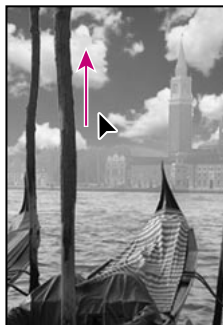
*Pasting into selection
and dragging to adjust*   *Result*

5 Press any key from 1 (10%) through 0 (100%) to set the new cloud's opacity. (We used 40%.)

6 Choose Layer > Flatten Image to flatten the images into a single layer.

Applying the Unsharp Mask filter

Now that the image is a single layer, as your final step, you'll sharpen the entire image.

The last step you take when retouching a photo is to apply the Unsharp Mask filter to the image. The Unsharp Mask filter adjusts the contrast of edge detail in an image, creating the illusion of a sharper image.

1 Choose Filter > Sharpen > Unsharp Mask.

2 Select the Preview option to view the effect before you apply it.

3 Then drag the Amount slider until the image is as sharp as you want (we used 120%). Click OK.
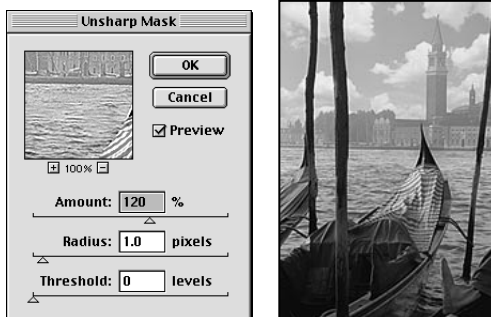
Unsharp Mask settings   *Result*

4 Choose File > Close to close the lesson file.

You've completed all of the steps necessary to retouch a photo. Try these steps and techniques on your own scanned images.

Review questions

1 How can you straighten a crooked image?

2 What tool would you use to copy a background or texture from one portion of an image to paint over another portion?

3 How can you remove a red cast from a photograph?

4 What are the toning tools and what is their effect on an image?

5 What keyboard command can be used to set the opacity of a selection that has been created using the Paste Into command?

Review answers

1 Drag the crop tool to select the portion of the image to be straightened, rotating and sizing the crop selection bounding box to fit the selection. Then press Enter or Return. The selection will be cropped and straightened.

2 The rubber stamp tool is used to copy background or texture.

3 Choose Image > Adjust > Color balance. Decrease the red level by dragging the Cyan/Red slider toward Cyan and the Magenta/Green slider toward Green.

4 The toning tools are the dodge tool, which lightens an area; the burn tool, which darkens an area; and the sponge tool, which changes the color saturation.

5 Pressing the number keys will set the opacity of the selection from 10% (1) to 100% (0).

11 | Preparing Images for Web Publication
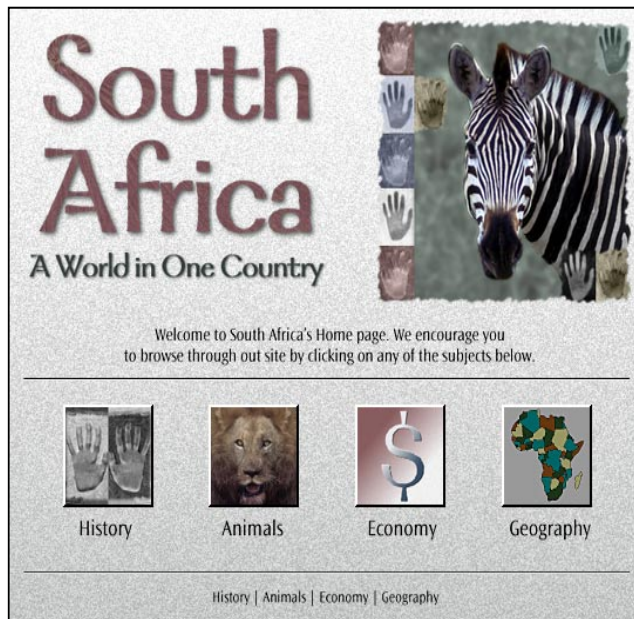
The file formats and compression options you choose for images to be distributed on the World Wide Web are determined by the image type. For example, a full-color image is saved with a different file format than a flat-color image. When preparing images for distribution on the Web, the goal is to create the smallest file possible that still maintains the integrity of the image.

This lesson shows you how to do the following:

• Determine which file formats and compression options are appropriate for publishing specific types of images on the Web.

• Use techniques that reduce the file size of images intended for the Web.

• Learn to distinguish among the different palette options for Web images.

• Prepare four types of images—grayscale, flat-color, full-color, and an image with a gradient—for distribution on the Web.

• Select, edit, and save areas that will appear transparent on the Web.

Getting started

Before beginning this lesson, you'll rename or delete the Adobe Photoshop LE preferences file to restore the application's default settings. See "Restoring default preferences" on page 2. Restart Adobe Photoshop LE.

Preparing images for the Web

This lesson shows you how to prepare four different types of images for distribution on the World Wide Web—a grayscale image, a flat-color image, a full-color image, and an image containing a gradient. It is not intended to show you how to serve images to the Web.

When preparing images for distribution on the Web, keep in mind that the smaller the image, the faster the download time. However, it's also important that your image look good, so the trick is in maintaining the quality of the image while keeping the file size at a minimum.

For future reference, the following table shows which file formats and color modes should be used when preparing specific types of images for online distribution. *Flat-color images* refer to images with areas of repetitive, solid color, such as line art, logos, and illustrations with type. *Full-color images* refer to images that contain broad color range and continuous tones, such as photographs and images with flesh tones.

Image	Color mode	File format
Flat color	Indexed color	GIF
Full color (continuous tone)	RGB or Grayscale	JPEG
Gradient	RGB or Grayscale	JPEG
Grayscale	Grayscale	Export GIF89a
Black and White	Bitmap	Export GIF89a

Turning off image previews

One of the ways you can reduce the size of images for the Web is to turn off the Image Preview option in the Preferences dialog box. Turning off the Image Preview option saves files without a preview icon.

1 Choose File > Preferences > Saving Files.

2 Choose Never Save from the Image Previews menu; then click OK.

Note: If you throw away your Preferences file, you will have to reselect the Image Preview option.

Preparing a flat-color image for the Web

For best results, flat-color images should be converted to Indexed Color mode, and then saved as GIF files. Flat-color images appear best on the Web without any *dithering*— mixing colors to approximate those not present in the image.

You'll prepare a flat-color image of a map.

1 Choose File > Open, and open the Africa.psd file, located in the Lessons/Lesson11 folder.

2 Choose File > Save As, rename the file **Africa1.psd**, and save it in the Lessons/Lesson11 folder.

Important: Rename and save a copy of the lesson files, to avoid overwriting the originals in case you need them later.

3 Note the file size of the image before continuing.

You'll start by converting the flat-color image to Indexed Color mode. Indexed Color mode converts 24-bit images to 8-bit images, which display up to 256 colors (or shades of gray). If the original image has more than 256 colors, all but 256 of the colors are removed from the image. If the original image contains fewer than 256 colors, the palette defaults to Exact and the number of colors in the image appears in the text box.

4 Choose Image > Mode > Indexed Color to convert the RGB image to indexed color.

The Indexed Color dialog box appears, where you set options for the color values and the number of colors used to display the image.

The Palette menu in the Indexed Color dialog box lets you select a color palette option, which determines the colors used to display your image.
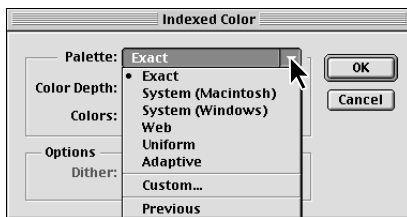
• The Exact option uses exactly the same colors for the palette as those that appear in the RGB image. No dithering option is available for the Exact palette, because all the colors in the image are present in the palette. The Exact option is available only if 256 or fewer colors are used in the RGB image.

• The System (Windows or Mac OS) option builds a color table using the color table of the system you select. It is an 8-bit palette, capable of displaying 256 colors.

• The Web palette is a cross-platform 8-bit color palette. Use this palette option if you plan to display more than one image on a page—for example, side-by-side images—so that all the images are composed of the same colors on any platform.

• The Uniform option creates a palette based on a uniform sampling of colors from the color spectrum based on the selected color depth.

• The Adaptive option builds a color table using the colors from your image. If you're displaying one image at a time, choose the Adaptive palette option.

5 For Palette, select Web.

The Color Depth menu lets you select how many colors you want to use to display the image.

6 For Dither, select None. (Dithering makes the flat color look spotted.)

Note: When the Dither option is set to None, colors in the image shift to the nearest color. Keep this in mind when designing your flat-color images.

7 Click OK to apply the color mode change to the map image.

8 If desired, choose Edit > Undo; then choose Image > Mode > Indexed Color again.

9 Choose File > Save As. Name the file **Africa1.gif**; for format choose CompuServe GIF; and then click Save.

10 In the GIF Options dialog box, select Normal for Row Order; then click OK.

11 To see how the file size of the GIF image differs from the original image, use one of the following methods:

• In Windows, use Windows Explorer to select Africa1.gif in the file list, and choose File > Properties. Note the size of the file, and close the Properties box. Repeat, selecting Africa1.psd, and note the difference in the file size.

• In Mac OS, return to the desktop, select Africa1.gif in the file list, and choose File > Get Info. For the most accurate file size, note the value enclosed in parentheses next to Size.
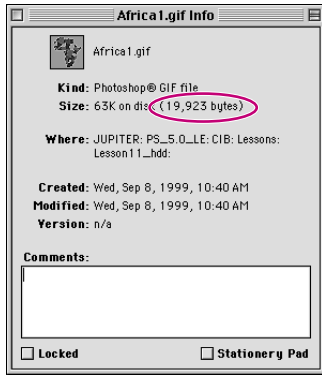
12 Repeat the step, selecting Africa1.psd, and note the difference in file size.

13 Choose File > Close, and do not save changes.

Preparing a grayscale image for the Web

Grayscale images should be converted to RGB mode and then exported to the GIF89 Export module. By converting a grayscale image to RGB mode, the GIF89a Export module lets you select the number of colors (in this case, shades of gray) you want to use to display the image.

1 Choose File > Open, and open the Hands.psd file, located in the Lessons/Lesson11 folder on your hard drive.

2 Choose File > Save As, rename the file **Hands1.psd**, and save it in the Lessons/Lesson11 folder.

First, you'll convert the hands image to RGB Color mode.

3 Choose Image > Mode > RGB Color.

Once you've changed the grayscale image to RGB mode, you use the GIF89a Export module to select the number of grays you want the image to display.

4 Choose File > Export > GIF89a Export.

Note: If the GIF89a Export dialog box doesn't appear, make sure that the GIF89a Export module is installed in the Import/Export folder in the Plug-ins folder, and then restart Adobe Photoshop.

When you export an RGB image in GIF89a format, the image is converted to indexed color (which displays an 8-bit color preview).

5 In the GIF89a Export dialog box, deselect the Interlaced option to minimize the file size.

The Interlaced option displays a large file as a low-resolution proxy first, and then redraws it at a higher resolution as it downloads it from a Web server. (In this case, you don't need to use interlacing because the file you're working with is small enough to download quickly.)

6 Click Preview to see a preview of the hands image.
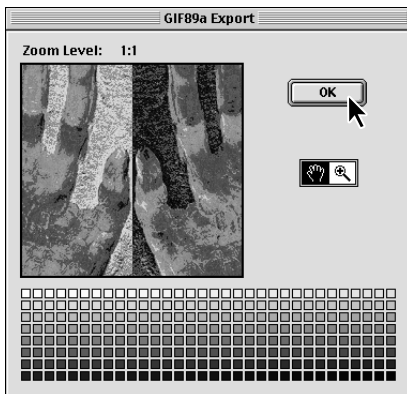
7 Click OK to return to the GIF89a Export dialog box.

8 To reduce the number of grays used to display the image, select Adaptive from the Palette menu, and enter **32** for Colors.

9 Click Preview to display a preview of the hands image with 32 shades of gray instead of the default value of 256 shades of gray. You'll notice that there isn't much difference.

10 Experiment by selecting different values from the Colors menu and then clicking Preview to see how the image is affected.

When working with grayscale images, you can usually use fewer than 256 shades of gray without significantly affecting the display quality of the image. Reducing the number of grays used to display a grayscale image reduces the file size, thus speeding download time on the Web.

11 When you've decided how many shades of gray you want to use to represent the hands image, click OK to close the GIF89a Export dialog box.

The Save dialog box appears with the current filename and a .gif extension.

12 Name the file **Hands2.gif** (for Mac OS, remove the .psd extension from the filename), and click Save to save the image in the Lessons/Lesson11 folder.

13 To see the difference between the original file and the GIF file you just saved, choose File > Open, open the Hands2.gif file, and align it next to the original file. The GIF image is about half the size of the original image.

14 Choose File > Close to close both files, and do not save changes.

Preparing a full-color image

Full-color images should be saved as JPEG files. The compression option you use determines how the color information in the image is preserved and the overall size of the file.

You'll save two copies of an identical RGB image as JPEG files using two different compression options. After you've saved the images, you'll close and then reopen them to compare the differences in file size and image quality.

1 Choose File > Open, and open the Lion.psd file, located in the Lessons/Lesson11 folder on your hard drive.

2 Choose File > Save As, and rename the file **Lionlow.jpg**. Select JPEG from the Save As menu (Windows) or Format menu (Mac OS), and then click Save to save it in the Lessons/Lesson11 folder.

Now you'll experiment with JPEG compression settings.

3 In the JPEG Options dialog box, drag the slider to the left to Small File to select low quality compression. Click OK.
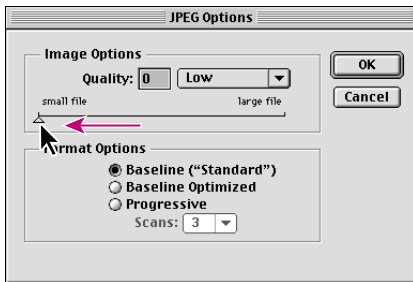
4 Choose File > Close to close the Lionlow.jpg file.

5 Choose File > Open, and reopen the Lion.psd file, located in the Lessons/Lesson11 folder.

You'll apply low compression to this file, to maintain the highest quality.

6 Choose File > Save As, rename the file **Lionhi.jpg**. Select JPEG from the Save As menu (Windows) or Format menu (Mac OS), and then click Save.

7 In the JPEG Options dialog box, drag the slider all the way to the right to Large File to select maximum quality compression. Click OK.
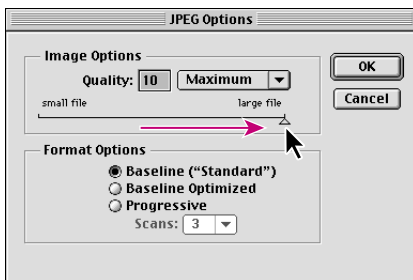
8 Choose File > Close to close the Lionhi.jpg file.

Now you'll compare the size and quality of the two images. Before you open the files, you'll check their size in the Open dialog box.

9 Choose File > Open. Locate the Lionlow.jpg image, and select it in the file list. The size of the file is displayed at the bottom of the dialog box.

10 Next, select the Lionhi.jpg image, and note its file size.

11 Now, open both the Lionlow.jpg image and the Lionhi.jpg file, and compare the differences between the quality of the images.

You'll probably notice a difference in image quality around the eyes and nose of the lion, but because the files are small, the difference in image quality is not substantial. In general, your choice of JPEG options will depend on your image size and quality needs.

12 Close all open files and do not save changes.

Preparing an image containing a gradient

Images containing gradients should be saved to the JPEG format. For gradients, the JPEG format produces a smaller file than the GIF format with an Adaptive palette. (In addition, saving a gradient to the GIF format may cause banding in the gradient.)

Now you'll work with an image containing a gradient.

1 Choose File > Open, and open the Economy.psd file, located in the Lessons/Lesson11 folder on your hard drive.

You'll duplicate the image, so that you can compare gradients at different compression settings.

2 Choose Image > Duplicate, name the copy **Gradlow.jpg**, and click OK.

3 Repeat step 2, this time naming the copy **Gradhi.jpg**, and click OK.

4 Close the original Economy.psd file.

You'll select two different compression options for these images.

5 Align the Gradlow.jpg and Gradhi.jpg images side-by-side.

6 Click the Gradlow.jpg window to make it active, and save it as a low-quality JPEG file:

• Choose File > Save As. For format, choose JPEG, and click Save.

• In the JPEG Options dialog box, drag the slider to the left to select Small File/Low, and then click OK.

7 Click the Gradhi.jpg window to make it active, and save it as a high-quality JPEG file:

• Choose File > Save As. For Format, choose JPEG, and then click Save.

• In the JPEG Options dialog box, drag the slider to the right to select Large File/Maximum, and click OK.

8 Before continuing, close both images. You must reopen them to compare the difference in image quality.

9 Choose File > Open, and open Gradhi.jpg, located in the Lessons/Lesson11 folder. Repeat the step for the Gradlow.jpg file. Align them side by side by dragging them by the title bar.

10 Compare the quality of the gradient in both images, zooming in on details in the images if necessary. You'll notice that the quality of the gradient saved with Large File/Maximum compression is significantly better than the image saved with Small File/Low compression.

Select the Medium, High, or Maximum compression options for images containing gradients; these options preserve most of the color information in the gradient.

11 Close the files and do not save changes.

Saving an image with transparency

You can create transparent areas in an image using the GIF89a Export module. To define areas as transparent, you must first convert the image to Indexed Color mode. You'll define the edges of an image as transparent to create a soft-edged effect around the image.

The transparency will show up when you export the image and view it in a Web browser; the browser must support the transparent GIF file format.

1 Choose File > Open, and open the Zebra.psd file, located in the Lessons/Lesson11 folder on your hard drive.

2 Choose File > Save As, rename the file **Zebra1.psd**, and save it in the Lessons/Lesson11 folder.

First, you'll take a closer look at the image's border.

3 Select the zoom tool in the toolbox, and zoom in on a corner of the zebra image.

Notice the solid gray background outside the scalloped edges of the image. This gray area is the area you'll define as transparent, so that only the scalloped edges are visible when the image is opened in a Web browser.

To do this, you will first isolate the border before converting the image to Indexed Color mode. You will use the magic wand tool to isolate the border.

4 Double-click the magic wand tool to select it and display its Options palette. In the Magic Wand Options palette, set the tolerance to **0**, and deselect Anti-aliased.

5 Click in the border portion of the image, near the edge of the image. Double-click the zoom tool to zoom out and view the image. You will see that the entire border is selected.

6 With the border selected, select a color from the Swatches palette that doesn't exist in the image and that stands out easily from the rest of the image. (We chose 255 red, 0 green, and 0 blue.)

Entire border selected   *Selecting a color*
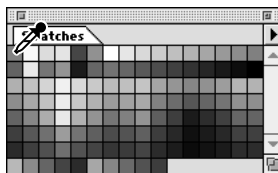
You'll use the selected color to isolate visually the area that will become transparent.

7 Select the paint bucket tool, and click anywhere in the border to fill the selection with the current foreground color.

8 Choose Select > None to deselect the border.

Now you'll convert the RGB image to indexed color.

9 Choose Image > Mode > Indexed Color. For Palette choose Adaptive, and for Dither choose Diffusion; then click OK.

Both the Adaptive and Web palettes build a color table from the image with 216 colors. If you experiment with a Web palette and no dithering, you'll notice that the Web palette makes the background appear too grainy, and no dithering makes it appear posterized.

10 Choose File > Export > GIF89a Export.

11 Click the hand tool in the GIF89a Export dialog box and drag the image in the preview window so that you can see the border.

12 Click the eyedropper tool in the GIF89a Export dialog box. You'll use it to select the colors you want to make transparent.

13 To select the area you want to make transparent, click the eyedropper tool in the border area you isolated.
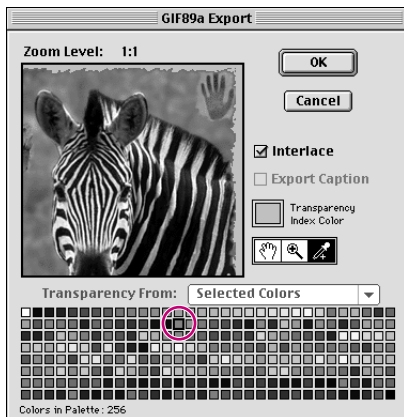
The border changes to the default transparency index color, which matches the Web browser's background color. The color you selected to be transparent is outlined in the color swatches below the preview of the zebra.

Now, you'll change the background color in the image preview to match the background color of your Web browser. Changing this preview color lets you see exactly how the image will appear in your Web browser.

14 Click the Transparency Preview Color (Windows) or the Transparency Index Color (Mac OS) swatch. (By default, this swatch matches the background color of the Netscape® Navigator browser—that is, about 192 red, 192 green, and 192 blue.)
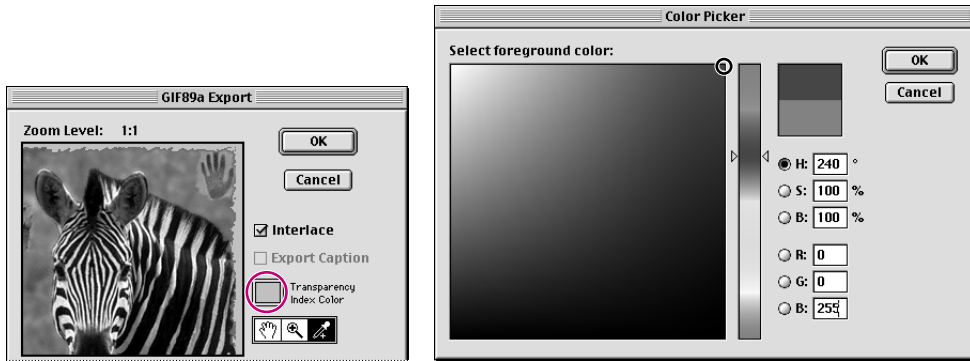
Selecting the default transparency color *Selecting a new color from the color picker*

15 Select a color that matches the background color of your Web browser. (For this example, try selecting a color that isn't present in the image so that the result is obvious.) Click OK.

The image is displayed against the background color you selected.

16 Double-click the hand tool in the dialog box to zoom out of the image. Notice that the color you just picked for your Web browser background appears only in the image's border.

The original image contained many areas of gray. By isolating the gray in the border, you confined the transparency to the border only.

17 Click OK to close the GIF89a Export dialog box. The Save dialog box appears.

18 Name the file **Zebra1.gif**, and click Save to save the image. It's important to add the .gif extension.

19 To view the GIF file you just created and compare it to the original, choose File > Open, and select Zebra1.gif.

20 Choose File > Close, and close the files without saving changes.

You've completed preparing different images for electronic publication and the Web.

Review questions

1 What determines the file format you should use when saving images for Web publication?

2 What is interlacing?

3 What is a Web palette? What is an Adaptive palette?

4 What is the benefit of selecting the Web palette when preparing images for publication on the World Wide Web?

5 In what format should you save your final image if you wish to maintain transparent portions of the image when it is displayed in a browser?

6 Describe some techniques for optimizing files for the Web so that they download more quickly.

Review answers

1 The type of image you're working with determines the file format you should use to save an image for publication on the Web.

2 Interlacing displays a large file on the Web as a low-resolution approximation first, and then redraws it at a higher resolution as the image downloaded from a Web server. Interlacing is useful for large files that take a while to download.

3 The Web palette is a cross-platform 8-bit color palette that displays colors the same on the Windows or the Mac OS platform. This palette is useful for displaying more than one image per page, so that all images share the same palette. The Adaptive palette builds a color table using the colors from an image, and is useful for displaying just one image at a time.

4 Selecting the Web palette ensures that your images are displayed using the same color palette, regardless of the platform on which the image is displayed.

5 To specify transparencies, the file should be exported as a GIF89a file.

6 Depending on the type of image, you can reduce the file size in Photoshop without compromising image quality using these techniques:

• Turn off image previews so that files save without a preview icon.

• When converting an image to Indexed Color mode, choose a palette that uses as few colors as needed to display the image at the desired quality.

• When possible, reduce the number of colors in the image.

• In grayscale images, reduce the shades of gray in the image.

• For full-color images and images with gradients, experiment with JPEG compression settings.

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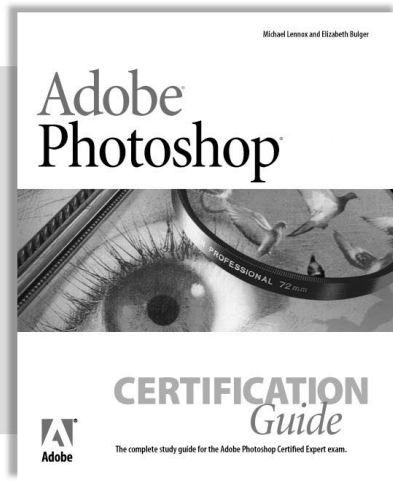
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This book was created electronically using Adobe FrameMaker. Art was produced using Adobe Illustrator, Adobe ImageReady, and Adobe Photoshop. The Minion® and Myriad® families of typefaces are used throughout the book.

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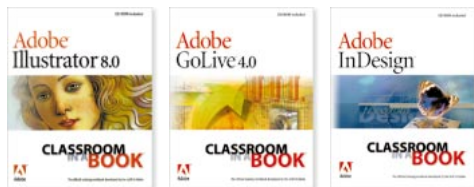
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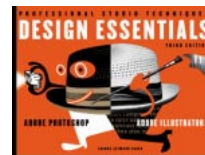
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