

Classroom in a Book Instructor Notes

Adobe® Photoshop® CS2

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Adobe® Photoshop® CS2 Classroom in a Book® for Windows® and Mac OS.

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Printed in the U.S.A.

Introduction

The *Adobe® Photoshop® CS2 Classroom in a Book™* course presents students with tips, techniques, and solutions for using the Adobe Photoshop software.

The Instructor Notes are intended to complement the information in the *Adobe Photoshop CS2 Classroom in a Book®*. The information is organized to follow the sequence of instruction in each lesson.

About the workbooks

It is recommended that each student in the class have an individual copy of the *Adobe Photoshop CS2 Classroom in a Book*. Students will use this book as you lead them through projects. Additionally, the book can be used as a self-paced tutorial.

You can buy more copies of the *Adobe Photoshop CS2 Classroom in a Book* for your students, or you can refer them to a local bookseller to purchase the book. For additional information, call Pearson Education at 800-922-0579.

Course strategy

If you're teaching a 15-session class, you can teach approximately one chapter of this book per class. Because there are 16 lessons in the book, some of the lessons may need to be combined with related shorter lessons in a single class. For example:

- Lessons 1 and 2 are both focused on learning about the Photoshop user interface and file management.
- Lessons 3, 4, and 8 cover aspects of photo retouching.
- Lessons 5 and 7 both are about making selections. Also, Lessons 7 and 12 cover effects that are based on masking and selections.
- Lessons 6 and 11 deal specifically with layers, although layering is a crucial element in almost every lesson following Lesson 6.

- Lessons 13 through 15 are all Web-related.

We recommend that, at an absolute minimum, you teach Lessons 1 through 6. The majority of the most basic Adobe Photoshop features and the Photoshop work environment are covered in these lessons. However, completing all the lessons through Lesson 10 would make a far superior introduction.

Managing student projects

One way to simplify file storage and retrieval in classroom situations is to ask students to create a folder on their hard disks, name it Suzie's Lessons (use the student's name here), and then copy each project folder into the main Lessons folder. Having students keep all their working files in their own Lessons folder makes it easy for you to clean up files when a class is over.

Additional resources

Instructors and users of Adobe Photoshop rely on a variety of resources to supplement their knowledge of the program. You may find the following resources useful to explore.

Adobe Photoshop CS2 User Guide This guide contains feature descriptions. It's useful for learning about areas of the program that are outside the scope of the *Classroom in a Book*.

Photoshop Help The Help installed with Photoshop contains complete descriptions of all features, including topics not covered in the User Guide, as well as step-by-step tutorials on key features and concepts. Click More Resources in the Help Center to access many of the resources on the Adobe Web site and to create a list of frequently visited user groups, Web sites, and valuable contacts.

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Resources and Extras CD The Adobe Photoshop application includes a Resources and Extras CD with a great deal of useful content. The Technical Information folder contains several documents in PDF, fully searchable and optimized for printing. These documents provide conceptual and reference material on various in-depth topics. The Resources and Extras CD also includes the entire Help content optimized for printing. (Note that the Help content includes everything in the printed User Guide, plus much more.) The Resources and Extras CD also includes a Goodies folder that contains bonus content and files for use with Photoshop.

Adobe Web site The U.S. Adobe Web site (www.adobe.com) contains a variety of Photoshop training and support resources. The Downloads area includes free updates, tryouts, and other useful software. The Plug-ins section of the Adobe Store offers access to thousands of plug-ins from third-party developers, helping you automate tasks and customize workflows. The User-to-User Forums are a great place for students to learn from more experienced users. The Support area offers additional information about free and paid technical-support programs.

Adobe Studio Adobe Studio (<http://studio.adobe.com>) provides a wealth of tips and tricks, tutorials, and instructional content in video, Adobe PDF, and HTML, authored by experts from Adobe and its publishing partners. You can search the entire collection or sort by product, topic, date, and type of content; new content is added monthly. Adobe Studio also includes Adobe Studio Exchange,

an online community where users share free actions, plug-ins, and other content for use with Adobe products.

Total Training Video Workshop CD Presented by experts in their fields, Total Training videos provide overviews, demos of key new features, and tips and techniques for beginning and advanced users. Look for accompanying step-by-step instructions to selected Total Training videos in monthly updates at Adobe Studio. Short Total Training Web videos on a variety of products and topics are also available at Adobe Studio, and complete Total Training courseware can be purchased online from the Adobe Store.

Adobe Certified Expert (ACE) program This program is designed to validate an expert skill level of Adobe Photoshop CS2. Careful testing of candidates ensures that each ACE has demonstrated expert product knowledge of the current release of Adobe Photoshop, resulting in increased marketability and an added credential.

Training for the ACE program is available through Adobe Authorized Learning Providers (AALP) and self-study. For more information about this program, send e-mail to certification@adobe.com or visit the Adobe Web site at <http://www.adobe.com>.

Note that several resources mentioned here are available directly from the Help menu in Photoshop, such as online Help and Photoshop Online.

Lesson 1: Getting to Know the Work Area

The first lesson presents an introduction to the Adobe Photoshop application. Using the basic commands, tools, and palettes, your students will learn general techniques for understanding where they are, how to get information about the image in front of them, and how to select the tools or enter the values needed to change the image.

Goals for this lesson

How much time you should schedule for this lesson depends on whether or not all your students already have any knowledge of Photoshop and on their computer skills in general. The overall objective for Lesson 1 is to make them sufficiently familiar with the user interface that they can locate the controls they need to do the procedures in the rest of the lessons. In general, there are two generic types of elements they should be able to identify.

- They should be able to find and name the key areas of the interface, including the toolbar, palettes (in general), image windows, and the tool options bar.
- They should also be able to open not only the main menus and submenus across the top of the work area (File, Edit, and so forth) but also context menus and palette menus.

Subordinate to this goal is gaining a familiarity with the different means of getting information about Photoshop. By learning how to help themselves, they gain confidence and independence. The lesson describes three ways to do this:

- A second method is to take advantage of the tooltips to identify tools, buttons, and other controls.
- A third method is to use Photoshop CS2 Help. It is important to emphasize that Help not only contains all the information in the printed User Guide, but it also includes many other topics that are useful even to novice users.

Finding tools in the work area

You may want to introduce students to the Photoshop environment by providing a general tour of the screen. This helps orient the students and provides a review of the names of the elements on the screen. For example, you may point out the title bar and remind the students that it indicates which publication is currently active. Then point out the menu bar, the rulers, the page icons, the palettes, and the toolbox.

Students may already be used to keyboard shortcuts as a simple alternative to using the mouse. Photoshop and other Adobe products are designed to allow keys to be used simultaneously with the mouse.

A common working technique used by many Photoshop professionals is to keep one hand on the mouse, and the other hand over the keyboard to switch tools and modes. You may want to demonstrate how this method allows the mouse pointer to remain directly over the part of the image that's being edited, since you're not always having to move the pointer back and forth between the image and the toolbox or menus.

You don't have to encourage students to work this way in the beginning. They probably won't be ready to use the shortcuts until they have a good understanding of when they'll want to use each tool.

Using the tool options bar

Students should understand that the tool options bar is not the same as the toolbar (or button bar) found in products such as Microsoft Office. In Photoshop, the controls that appear on the tool options bar change depending on the selected tool, whereas controls on a (Microsoft Office) toolbar do not. Similarly, the tool options bar cannot be customized because it always represents options for the current tool. Take care to refer to the tool options bar by its complete name and not as a "toolbar" or "button bar" yourself.

Using the View menu

It may be useful to point out that the View > Actual Pixels command (same as double-clicking the Zoom tool) displays one image pixel for each monitor pixel, which also means that this magnification will display an image at exactly the same size as it will appear in a Web browser. But because monitors can be set to different resolutions, the real size of an image when viewing in Actual Pixels (or a Web browser) will vary depending on the monitor in use.

Many users are unaware that the monitor resolution can be changed. You may want to demonstrate this, showing how increasing the resolution makes more room for palettes and images on screen, but with the tradeoff of making everything smaller.

Finally, you may want to demonstrate how to see a single image at two magnifications simultaneously, by choosing Window > Arrange > New Window for *image filename*, and setting a different magnification for each window. This is handy for making detailed changes while zoomed in, while also viewing the full image in another window to see the changes in context.

Scrolling an image

You can also scroll using the keyboard. In addition to scrolling up and down using the Page Up and Page Down keys, respectively, the Home and End keys scroll to the top left and bottom right corners, respectively, and Shift–Page Up and Shift–Page Down scroll left and right, respectively.

Photoshop is one of those rare programs that lets you scroll and zoom while you are in most dialog boxes. This feature is very helpful when applying filters or other adjustments from a dialog box. You can demonstrate this now, or just keep this in mind when teaching lessons about dialog box–based filters, effects, and corrections.

Using the Info bar

Some of the status bar options are useful in certain situations. You might demonstrate how clicking the black arrow opens the pop-up menu, and then discuss the following three options on that menu:

- The Current Tool option is useful to display when the toolbox is hidden.
- The Efficiency option can help gauge whether or not you have enough RAM to run Photoshop efficiently, when working with images that are typical for you. Anything less than 100% indicates that you may need more RAM.
- The Document Profile option is useful when you're working in a color-managed workflow, because you'll know exactly what color profile each image uses.

Working with palettes

You may want to point out the two reasons why the Tab keyboard shortcut is so useful. Hiding and showing all palettes instantly allows quick evaluation of images without the distraction of palettes, and when working on a small screen it more easily allows use of the entire screen for image editing.

In this lesson, students will learn about custom workspaces that are available in Photoshop, and in Lesson 15 they will create and save a custom workspace for designing GIF animations in ImageReady. You do not need to go into detail about custom workspaces now, avoiding the risk of information overload in the first lesson.

Using context menus

Demonstrate how context menus change depending on the content under the pointer. Right-click (Windows) or Control-click (Mac OS) over the following examples:

- Different layers
- A selection
- Text with an insertion point
- In any list palette

If your students use graphics tablets, encourage them to program their stylus button to display context menus.

Jumping to ImageReady and Adobe Bridge

Keep in mind that jumping to ImageReady and Bridge requires a certain amount of RAM. The amount of unused RAM in each student's computer must be enough to run Photoshop and ImageReady and/or Bridge concurrently.

Using Help

Students may not be aware that the online Help for Photoshop and other Adobe products include information not available in the printed User Guide. This includes detailed descriptions of filters and important guidelines for using them. Combined with the fact that it's faster to search for a term in the online Help, many students may find it more valuable to go to online Help before reaching for the printed User Guide.

Using Adobe online services

Students may inquire about privacy concerns related to the Adobe Online service. You can reassure them that no personal or configuration-related information is sent from their computer, except that which is explicitly typed in by the user as part of the voluntary online registration process.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 What do you do if you can't find a tool that you know exists?
- 2 How can you find out the keyboard shortcut for a tool without opening the User Guide or Photoshop Help?
- 3 How can you instantly hide or show all palettes?
- 4 What's the quickest way to type in a specific zoom percentage?
- 5 What magnification is the best representation of an image's size on a Web page?

6 What do you do if you can't find a palette that you know exists?

7 What is the difference between a palette and an image window?

Review answers

- 1 The tool you want may be hidden in a pop-up list. Look in the toolbox for a related tool with a small black triangle. That triangle symbol indicates that holding down the mouse button on that tool opens a list of hidden tools at that location.
- 2 Hold the pointer over the tool until the tooltip appears containing the keyboard shortcut for that tool.
- 3 Press the Tab key (when you're not editing text).
- 4 Type it into the Navigator palette.
- 5 Actual Pixels.
- 6 Choose the Window menu and look for the palette name. If the palette is already open and in front of the other palettes in its palette group, a checkmark appears in front of the palette name on the Window menu. If you don't see a checkmark, click the palette name. The palette will open in the front of its palette group.
- 7 A palette contains a set of related controls that you select and use to work on your file. You can have many palettes open, group them, hide them, and separate them, among other things. The image window displays the image file. You can have multiple image windows open simultaneously, displaying different image files. If you close an image window, you close that file.

Lesson 2: Using Adobe Bridge

Lesson 2 is entirely devoted to the Adobe Bridge visual file browser, including some automated features that can be executed either from Bridge or from within Photoshop, using the File > Automate command. The students will not make any changes to the appearance of the original sample files other than to save rotated versions of a couple of them. But they will rename them, delete a few truly unworthy snapshots, and add some metadata and keywords to the remaining files.

Bridge will be especially useful to students who work with digital cameras. It takes the sting out of sorting through large numbers of photographs that do not have descriptive filenames, looking for the image you want. Students who have used previous versions of Photoshop will recognize similarities between Bridge and the File Browser. Indeed, Bridge is more fully featured, stand-alone version of that old feature of Photoshop.

Goals of this lesson

At the conclusion of this lesson, you students should know how to use Bridge to find an image they want to open in Photoshop. They should also be familiar with the other Bridge functions: renaming files, ranking files, rotating images, and previewing images and data associated with those files.

Previewing and opening an image

You should make sure your students understand that they do not have to use Bridge to open a file.

If your students are intermediate or advanced computer users, they will already be familiar with the standard methods of selecting multiple items. Make sure they understand the meaning of the word *contiguous*.

Renaming image files in Bridge

This procedure introduces the process of doing something in batches—that is, applying a change in an automated way to multiple items. You might emphasize that this is more than merely making the same change to multiple items, and mention that they can look forward to learning how to create their own automated actions in Lesson 12.

Adobe Stock Photos

Adobe Stock Photos is a new service that is built into Bridge. In this lesson, students will get a taste for shopping for royalty-free image content using this service. Using Adobe Stock Photos requires an Internet connection, but for this lesson, students will not actually purchase images or be charged on their credit cards.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 What similarities and differences are there between Bridge and the desktop Explorer (Windows) or Finder (Mac OS)?
- 2 How does rotating an image file in Bridge affect the image?

Review answers

1 In both Bridge and the desktop Explorer or Finder, you can navigate through folders, find files, and open them by double-clicking or selecting File > Open. Both can display thumbnails of files. If you delete or rename files in one of these places, the files are also deleted or renamed in the other. In Bridge, you can also preview, rank, view metadata about the file, and even rotate the image itself. These functions are not available in the desktop Explorer or Finder.

2 Two things happen when you rotate an image file in Bridge. First, the thumbnail and preview image of the file appear rotated in Bridge. Second, the image will also be rotated when it is opened in Photoshop. Rotating does not affect the data in the image file.

Lesson 3: Basic Photo Corrections

Lesson 3 might have been titled “Photoshop 101” because it gives the students experience with the most basic and commonly used features—the *sine qua non* of digital photo editing. Even rank beginners are eager to learn such practicalities as how to straighten images that have been scanned in at a crooked angle, crop them, and fix the colors to compensate for a problem with the exposure.

Lesson 3 also introduces another important concept: image resolution.

In addition to the lessons in this book, encourage students to do additional study about scanning, tonal correction, and color correction. This chapter merely scratches the surface of image correction—a skill set that is very deep, extremely valuable, and involves concepts well beyond the scope of both this book and the Photoshop documentation. Many books on correction and retouching are available from Peachpit Press.

Scheduling this lesson

Lesson 3 and Lesson 4 contain closely related subject matter. In Lesson 3, students use the Dodge and Sponge tools to make color changes to a limited area of the image. Lesson 4 is entirely devoted to making similar kinds of changes, but using different tools.

Organizing an efficient sequence of tasks

The steps listed here are the most efficient sequence of retouching steps, so they should usually be done in the order presented. For example, tone correction should be done before color correction because correcting tones can have the side effect of correcting a color cast, reducing the amount of color adjustment needed.

Adjusting your process for intended uses

Students should be clear on the concept that the specific settings applied at many of these stages will differ depending on the final output. For example, the best resolution and sharpening values for print and Web are very different. In addition, settings that are best for one medium are often detrimental in another. If students know that an image will be used in more than one medium, they should maintain a full-resolution master image, and from it, derive versions of the image that are optimized for print, Web, or other uses.

Resolution and image size

The topic introduces the issue of resolution, which is a concept that students will grapple with many times in the future.

At this point, dealing with this issue may seem less rewarding to your students than changing the geraniums from muddy maroon to clear red, for example, or other tasks that have more sizzle and pop to them. You may need to emphasize resolution in your class discussions so that students start thinking about it.

One method of focusing students’ attention on resolution would be to discuss its implications. For example, you might ask students to describe the issues and tradeoffs involved in some scenarios, such as the following:

- What’s wrong with adjusting the image resolution after you correct and retouch it?
- What’s the problem with just leaving an image at maximum resolution?
- Somebody sends you a family photograph in e-mail that takes a long time to download. When you open the image in your Web browser, you can see only one small area of the picture so that you have to scroll to get an idea of the whole shot. What should the sender have done to avoid these annoyances?

- What's so terrible about making the file as efficient as possible and then scaling it up to the size you want?
- How do you increase resolution? Or can you?

Straightening and cropping an image

Students may want to know how to crop without locking proportions. To do that, simply delete the dimensions in the options bar.

Adjusting the tonal range

Beginners will often adjust tones by going straight to the Image > Adjustments > Brightness/Contrast commands, probably because the command names sound like familiar TV controls. However, it's best to discourage use of Brightness/Contrast for most situations.

The Levels and Curves commands can make an image lighter or darker while preserving the lightest highlights and darkest shadows. Because of the way Brightness/Contrast works, it's far more likely to delete useful tonal information, especially in highlights and shadows.

Students may ask what the Brightness/Contrast command is for. Because it performs linear changes on an image's tones, it can be very useful when working with non-image channels such as masks. But it isn't very useful when handling photographic images. In other words, beginners are not likely to need to use the Brightness/Contrast command.

Removing a color cast

A 24-bit monitor is needed to see a color cast. For best results, that monitor should also be calibrated, otherwise it may not be clear whether the cast is in the monitor or in the image.

For students who have some familiarity with earlier versions of Photoshop, you can explain how the Auto Color feature makes it unnecessary to create an adjustment layer and tinker with the Color Balance by hand. It is still possible to use those techniques in Photoshop CS2, but it's not necessary unless the situation is special or you are trying to create unusual effects.

Replacing colors in an image

Be sure students understand that they should complete general tone and color corrections before they perform specific color corrections such as the Replace Color command or using the Color Replacement tool.

Adjusting lightness with the Dodge tool

When using the Dodge, Burn, or Sponge tools, the key to believable results is subtlety. Suggest to your students that they use these tools at low Pressure/Exposure settings and build up their effects gradually.

Adjusting saturation with the Sponge tool

Caution students about saturating a color past the point that the output medium can handle. This can easily happen on print jobs, since most colors will exceed the CMYK gamut long before they appear oversaturated on a monitor. You can show students how to watch out for over-saturation by using the Proof Colors and Gamut Warning commands on the View menu.

Apply the Unsharp Mask filter

You might suggest that the Threshold value should be increased for surfaces that would become too grainy if sharpened at a Threshold value of 0. For example, it's common to set the Threshold to a value of 8 or higher for skin areas.

Saving the image for four-color printing

You might make the following points about converting to CMYK:

- The way Photoshop converts to CMYK depends on the CMYK Working Space in the Color Settings dialog box. For example, if the Settings chosen at the top of the Color Settings dialog box are U.S. Prepress Defaults, the CMYK Working Space is U.S. Web Coated (SWOP). When working on a job for press, students should always confirm with their printer which CMYK working space is the best match with the printer's equipment.

- The appearance of an image after converting to CMYK is often disappointing. Overall saturation is usually lower and some colors may shift. Reassure students that Photoshop is simply being honest about what colors can actually be achieved in the CMYK gamut (assuming that all Color Settings are set correctly).
- The Byte Order setting in the TIFF Options dialog box isn't usually critical because most professional graphics programs (such as Adobe products) read both Mac and IBM PC byte orders.

Supplementing the lesson

You may want to demonstrate the difference between using the Levels command and using a Levels adjustment layer (a concept not introduced until Lesson 11). You'll have to assess the readiness of your class to absorb this added information.

If you decide that your students can handle this, start your demonstration with two copies of the same image. On the first image, use the Levels command to apply three dramatic changes, pressing OK after each change. Do the same thing with the second image, but using the Levels adjustment layer. Then compare the histograms of the two images. The histogram of the image edited with the adjustment layer should show that far more tonal levels were preserved.

Before converting the final, corrected RGB image to CMYK, tell your students to choose File > Save As, and save a copy of their work using a different filename.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 In the Replace Color dialog box, how do you select the color to be replaced?
- 2 How can you lighten a small area of an image?
- 3 What is a color cast, and what's the fastest, surest way to remove it from an image?

- 4 Why do some images need to be converted to CMYK?

Review answers

- 1 Click the eyedropper on the color you want to change.
- 2 Use the Dodge tool.
- 3 A color cast is an imbalance in the color of an image, which might be caused by anything from problems with the camera exposure settings to the deterioration of the original photograph scanned in to create the image file. The simplest way to remove the color cast is to choose Image > Adjustments > Auto Color. The Auto Color command automatically reads and corrects the color balance in the image.
- 4 An image must be converted to CMYK in order to print properly on a CMYK printing press.

Lesson 4: Retouching and Repairing

In this lesson, students learn the basics of touching up a photograph. The lesson presents the concepts of resolution, cropping, tonal and color correction, retouching, and sharpening.

Although this lesson covers three different retouching projects instead of just one, the tasks are relatively easy to do and understand. Be aware of that when you budget your class time.

Scheduling this lesson

In this lesson, students will learn two very simple but less familiar techniques—making a selection and working in an image with multiple layers—that aren't covered in depth until Lesson 5 and Lesson 6, respectively. However, the use of these techniques is so elementary that it should not present a serious problem. In addition, if your schedule requires you to combine this with another lesson, it makes sense to combine this lesson with Lesson 3, “Basic Photo Corrections,” which serves as a foundation for this lesson. You could even skip to Lesson 8 after this lesson, and then proceed to Lessons 5, 6, and 7 afterward.

Goals for this lesson

At the end of their session, the successful student is able to explain the uses of and differences between the Clone Stamp tool, the Spot Healing Brush tool, Healing Brush tool, and Patch tool. The student also knows how to create snapshots and use them to compare versions of an edited image.

Repairing areas with the Clone Stamp tool

Encourage students to work in short strokes with the smallest brush size that makes sense. If the brush size is too large or the strokes are too long, areas of the image will start to visibly repeat, and the image will no longer look natural.

Using the Healing Brush to remove flaws

When using the Healing Brush, students are instructed to leave the Sampled option selected as the Source (on the tool options bar). However, you might ask them to speculate about the Pattern option. Then you can invite them to experiment with that option, selecting a pattern in the Pattern pop-up, and applying the pattern to an image with the Healing Brush tool or Patch tool. This applies the pattern according to the properties of the selected retouching tool. Be sure to tell your students to discard their experimental changes before continuing with the lesson.

Comparing the retouching tools

Usually, students have little trouble understanding how the Clone Stamp tool and Spot Healing Brush tools work after they get some hands-on experience with them. However, even after students become competent in using the Healing Brush tool or Patch tool, they may have difficulty explaining how the tool does what it does.

If this lack of understanding makes some of your students uneasy, you might explain to them that the Healing Brush and Patch tools have to do with reading the texture and color information separately. Thus, Photoshop collects texture information about the area selected to be the resource for the retouching (such as the unblemished areas around the rock climber) and combines it with information about color it collects from the area designated to be retouched to create unique results.

If the students don't care why the tools work, there's no need to require them to understand or explain it. As long as they can use the tools comfortably, that's fine.

Review questions

The following questions are not in the student's *Classroom in a Book*.

1 What's another way, besides using snapshots, to safeguard your retouching work?

2 Name one advantage of using the History Brush tool to restore images.

Review answers

1 You can safeguard your retouching work by performing it on a duplicate layer of the original image. When you finish retouching, you can blend the two layers. This enhances the results, making your touch-up work look more natural and realistic.

2 The History Brush lets you restore limited areas of an image. As a result, you can keep the successful retouching effects you've made to some areas of the image and restore other, less satisfactory retouching areas to a previous state, and then redo them.

Lesson 5: Working with Selections

Selecting is a critical skill necessary for precise control over corrections and effects. This lesson provides students with an in-depth understanding of selection tools, options, and techniques.

Emphasize to your students the importance of mastering selection skills. Students can avoid a great deal of editing rework and produce higher-quality results just by knowing the best way to select an area and how to adjust and fine-tune a selection.

Goals for this lesson

At the end of this lesson, you students should be able to describe the strengths and limitations of the various selection tools, to demonstrate how to transform a selection, and to accurately distinguish between the pixels within a selection and the selection itself.

The techniques for selecting are pretty easy in themselves. However, the concepts of selecting, selection borders, and selected areas leads to more complicated ideas and processes, such as masking, alpha channels, and so forth. It is imperative that your students be completely comfortable with their mastery of selection procedures before they move on to more advanced lessons.

The next level of advancement for this topic comes in Lesson 7, when students work with masks.

Selection tool overview

The Single Row Marquee and Single Column Marquee tools are useful for correcting special cases, such as wiping out film scratches and scanner artifacts.

Selecting and deselecting an area of an image

You may want to ensure that your students understand the difference between moving a selection and moving pixels, because it's easy for beginners to confuse the two.

Moving selection contents

There are a several transformation commands in the menus, but they all require you to think ahead. Suggest to the students that in most cases they might want to go for the Free Transform command first, for several reasons. It can perform any transformation (so you don't have to think about which command to choose), and it can transform interactively, which means it's the most fun and intuitive way to transform. The other transformation commands are most useful when a precise transformation is required, such as an exact horizontal flip.

Be alert for potential confusion about the transformation command on the Select menu: Transform Selection, should your students discover it. The difference between this command and the transformation commands on the Edit menu is that the Edit commands transform the pixels in the selection. In contrast, Transform Selection (on the Select menu) is the command to choose when you want to transform the selection border *without* altering the pixels. You may want to demonstrate this difference. They both come in handy, but using the wrong one can be frustrating.

Selecting and deselecting an area of an image

You might emphasize the importance of deselecting. In Photoshop, you can't deselect an area just by clicking a spot outside the selection or by selecting a different tool, as you can do in many other applications, from word processors to Web browsers.

This may seem to your students like a disadvantage at first—because it seems to add an extra step. You might explain its benefits are central to the advanced uses of Photoshop. The advantage of making a selection is that you can then apply a change to the selected area, often by using another tool. How ridiculously counterproductive would it be if selecting a new tool caused the area to be deselected?

You might remind your class that the “extra step” is also a safeguard. Intricate selections can be time-consuming. Because you must actively deselect, you cannot accidentally deselect something that you have painstakingly selected.

Selecting with the Magic Wand tool

For a complete understanding of the magic wand, have the students observe how the selection changes when they:

- Change the Tolerance value in the options bar.
- Leave the Tolerance value unchanged, but click pixels of different values

Moving and duplicating simultaneously

You might brainstorm with your students about other uses of this technique in combination with using Shift key to constrain movement, such as when creating Web buttons or other repeating patterns.

Combining selection tools

This is a good section in which to point out the flexibility of Photoshop when making selections. Some students may find selecting to be a tedious and stressful operation if they feel they have to get it absolutely right the first time. If you observe this, reassure the students by telling them that it isn't necessary to achieve a perfect selection right away. Point out that as Photoshop users become experienced, they'll perform a selection in multiple passes. On the first pass, an approximate selection is good enough. On subsequent passes it's simply a matter of using any combination of selection tools and techniques (such as the ones in this topic) to fine-tune a selection until it's perfect.

Cropping an image and erasing within a selection

You may want to point out how the Crop tool can be customized in the tool options bar for precise crops.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 Which selection tools can draw straight lines?
- 2 What's the fastest way to make a semicircular selection?
- 3 How do you move a selection with the keyboard?
- 4 If you make a selection and you missed an area, what's the fastest way to correct it?
- 5 How do you switch from the Magic Wand tool to the Magic Wand Plus tool or the Magic Wand Minus tool?

Review answers

- 1 The Polygon Lasso tool, or the Lasso tool when you hold down Alt/Option.
- 2 With the Elliptical Marquee tool, hold down Shift and draw a circle. Then with the Rectangular Marquee tool, hold down Alt/Option and draw a rectangle over half of the circle to subtract it from the original circular selection.
- 3 Nudge a selection by pressing the arrow keys.
- 4 Just press Shift and use any selection tool to add the missing area.
- 5 You must use keyboard shortcuts to select these tools because there is no pop-out list on the toolbox for the Magic Wand tool. To add to a selection with the Magic Wand Plus tool, hold down Shift and click the Magic Wand tool on the area you want to add. To subtract, hold down Alt (Windows) or Option (Mac OS) and click.

Lesson 6: Layer Basics

Layering is one of the key features of Photoshop. Using layers, students can take full advantage of the digital nature of Photoshop to create complex images with sophisticated visual richness.

Beginners often see Photoshop as a simple digital version of a painting canvas or photograph, but this view does not do justice to the potential of the Photoshop application or the opportunities it provides the user.

Goals and objectives for this lesson

Your goal in this lesson is to move your students from treating the screen as a single canvas (either blank or containing an image) to thinking of it in terms of a structured document with parts (layers) that can be edited independently. Successful students will understand that thinking in terms of layers gives them the flexibility to change their mind at any time, adapt work at the last minute to incorporate client-requested changes, leverage files to create alternate versions of an image within the same file, and to do other things that would be a great deal more trouble on a real paint canvas or in a darkroom.

As subordinate objectives for this lesson, aim to make students able to correctly explain the following concepts and to describe their importance or relationships to other aspects of the lesson:

- Basic types of layers (background, image, text)
- Transparency (transparent pixels)
- Opacity (semi-transparency of pixels)
- Stacking orders of layers
- Visible layers and hidden layers
- Active (selected) layers and inactive layers

Getting started

Now that the students have completed a few lessons, many of them probably feel confident enough to start Photoshop without even reading the “Getting started” section. This might be a good time to reinforce the idea of restoring default preferences at the beginning of each lesson.

Renaming and copying a layer

Here is one of the key benefits of layers. By keeping the shell, letter, paper texture, and photo images each on its own layer, they can be reused in other documents very easily and never have to be tediously extracted from a busy background.

Selecting and removing some pixels from a layer

A common stumbling block for the novice Photoshop user is forgetting that a layer must be active (selected) in order to be changed.

Sometimes students who are used to working in applications such as Adobe Illustrator or Adobe InDesign think that they can just click an item they know is on a separate layer to make that layer active. For example, a student might assume the clicking the door or the garden background of the lesson image file might switch the active layer to the one containing that subject matter.

The good news is that because a selection border is independent of the pixels shown inside it, users can apply a selection to another layer just by clicking the layer name in the Layers palette.

Changing the opacity and the mode of a layer

If the concept of blending mode isn't clear to the students, you might want to explain that blending mode determines *how* layers combine, while opacity determines *how much* layers combine.

It's a good idea to break out the different levels of opacity and blending modes here.

You might want to ensure that students understand that both opacity and blending mode are options not just for layers, but for layer effects and painting tools, too.

Because of all the combinations, it can be confusing to determine exactly how to apply or edit an image. Suggest that students apply blending modes and opacity in the following sequence:

- Blending mode by layer
- Opacity by layer
- Blending mode by effect
- Opacity by effect
- Blending mode by tool
- Opacity by tool

The reasons for this suggested order are:

- Blending mode has more of a fundamental effect on appearance, so it should be adjusted earlier.
- Opacity is a good tool for lowering the intensity of an existing effect, so it's good to adjust later.
- Layer blending mode/opacity and styles can be changed at any time, so they should be adjusted first so that you can change your mind.

Adding a gradient to a layer

This lesson introduces students to the use of the buttons or icons at the bottom of a palette. You might remind students that these are convenient shortcuts for commands available elsewhere in the user interface: on menus (such as File or Edit), context menus, and palette menus. However, many of the palette buttons include extra functionality, such as the ability of the New Layer button to duplicate a layer that you drag onto it.

It's a good idea to make sure that students understand the difference between Foreground to Transparent and Foreground to White.

Applying a layer style

You may want to do a quick demonstration to point out the advantages of layer styles over traditional filters. Make a copy of an image. On the first image, apply a layer style (such as Drop Shadow), and on the second image, apply the same effect with a traditional filter. Show how the layer style is easily editable while the traditional filter is not. Point out that many of the long, complicated recipes for special effects covered in older Photoshop books are no longer necessary because you can now apply an instant and editable layer style to achieve the same effect. Students should develop an attitude of looking for the most efficient way to do things.

Caution students that the single-key shortcuts in Photoshop (such as V for Move tool, C for Crop tool) don't work when you're entering text because they enter characters in that mode. Make sure they learn how to exit text-editing mode so that they can safely switch to other tools. For example, Ctrl-Enter (Windows) or Command-Return (Mac OS) will apply changes and exit text mode, while Esc will cancel changes and exit text mode.

Flattening and saving files

When preparing files for use in a page layout program, it's best to use flattened copies of files because they take up less space and are more widely compatible with other applications.

Students must understand that once a file is flattened, there is no way to un-flatten a file. That is as impossible as un-baking a cake into its original ingredients. This is why all users should archive an un-flattened (layered) original of their work, in case something needs to be changed.

You may want to point out that there is an Always Maximize PSD and PSB File Compatibility preference under Edit > Preferences > File Handling. If this is selected, Photoshop always saves a flattened version with the file. However, it's usually recommended that this be turned off, because it makes a file take up more disk space.

About layer comps

You can challenge students to think of other ways that layer comps would be a time-saving or practical advantage. There's more use of layer comps in Lesson 15, for the creation of a GIF animation. The examples for useful times to use layer comps given in this lesson and in Lesson 15 are simple, making the concept easy to grasp, and students should have little trouble imagining other scenarios in which layer comps would prove useful.

Supplementing the lesson

If your students are eager to learn more about layers, you might invite them to explore the options at the top of the Layers palette (the blending mode pop-up menu, Opacity, Fill, and Lock options).

In addition, you can emphasize the importance of knowing which layer is active by having the students experiment with this. One easy and dramatic way to do this is to make a duplicate layer of a single-layer image file by dragging the original layer onto the New Layer icon at the bottom of the Layers palette. Then, in the Layers palette, select the lower layer so that it is the active layer. Select any color from the Swatches palette and then use the Paintbrush tool and drag it around the image. Because the active (lower) layer is hidden behind the duplicate layer, the display in the image window appears unchanged. However, when you click the eye icon for the upper layer to hide it, the paint strokes you made early are now revealed on the lower layer.

You can set up another demonstration by selecting half an image and choosing Layer > New > Layer via Cut so that you have half the original image on one layer and half on another. Then create a selection border that overlaps the boundary between the two halves. When you make changes (such as to move, transform paint, burn, or dodge) to or within the selection, ask your students to explain why you get the results you do.

This lesson is also a good time to introduce a related feature: the capability to auto-select a layer using the Move tool. Have your students select the Move tool, and then select the Auto Select Layer check box on the tool

options bar. Then, when they click in a multilayer image files—such as the 06start.psd file—the layer of the object under the pointer is selected automatically when clicked by the Move tool. This is a convenient way to select a layer for moving and transforming it. Also, have students try right-clicking (Windows) or Control-clicking (Mac OS) anywhere in a multilayer image with the Move tool. The context menu that appears lets them select any layer.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 What's the easiest way to change the appearance of a layer?
- 2 How can you change the way in which layers combine visually?
- 3 How can you make a layer partially transparent?
- 4 How can you remove pixels of a specific color range?
- 5 Suppose you have a selection border perfectly drawn around an area of the image you want to work on, but discover that the wrong layer is active. What do you do now?
- 6 Give an example of how you might exploit the fact that selection borders in Photoshop are independent of the pixels within them.

Review answers

- 1 Apply a layer style, which can include any number of effects and is reversible at any time.
- 2 Apply a blending mode.
- 3 Change the opacity of a layer.
- 4 Use the Magic Eraser tool.
- 5 Easy—you just find the name of the layer you really want in the Layers palette and click it to make it active. The selection border now applies to the pixels on that layer, so you can continue with your work.
- 6 Answers will vary, but one example might be for cutting identical “holes” in multiple upper layers to reveal that shape in a lower layer. Another example will be evi-

dent later, when they do Lesson 12: to repeat a shape by applying filters or other properties in another part of the image without reproducing the original selection contents.

Students may suggest many ways to use the independent selection border, some of which we may not have thought of ourselves. You might make note of their suggestions, and then revisit this question at the end of Lesson 6 and ask them if they can do all these same things using alpha channels.

Lesson 7: Masks and Channels

Masks are a powerful way to control both where and how much an effect changes an image. This lesson guides students through the various levels of the extensive Photoshop masking features. Students start with the easy-to-use Quick Mask. Then they learn about the relationship between selections, masks, and channels.

This lesson builds on Lesson 5, “Working with Selections,” so make sure your students are competent in that area before launching into Lesson 7. The next level of advancement for this skill area will follow in Lesson 10, which builds on both Lessons 5 and 7.

Working with masks and channels

To a beginner, the differences among selections, Quick Mask mode, channels, and layer masks can be very confusing. You might explain it in terms of the following key differences:

- Quick Mask mode is fundamentally a selection marquee that’s shown in a different form. Both are temporary because they disappear as soon as the current selection is changed.
- An alpha channel (a channel used for selection) is like a Quick Mask that can be saved with the document, but it doesn’t apply to any layer until you load it as a selection.
- Make a distinction between alpha channels and the channels that make up the printable image (for example, the Red, Green, and Blue channels in an RGB image). You apply alpha channels to image channels.
- A layer mask is an alpha channel that’s tied to a specific layer. Layer masks aren’t covered in this lesson, but you’ll want to keep this distinction in mind when layer masks appear later in the book.

Creating a quick mask

Quick Mask mode is great for students because it’s much more forgiving than drawing a selection marquee. In Quick Mask mode, there is never any danger of accidentally “dropping” a carefully drawn selection.

Extracting an image

Caution students that they should always use the Extract feature on a copy of an image, because areas affected by the Extract feature are not simply hidden, but completely removed from the file.

Extracting an object from its background

Students may find the Highlighter tool easier to use if they understand that what they are doing is helping Photoshop recognize the edges of the object that they want to isolate.

Applying effects using a gradient mask

It’s important for students to understand that this is not just an exercise about using a gradient to fade an effect. The real point of this is that you can use shades of gray in a channel or mask to control the intensity of an effect anywhere in an image. Darker parts of a channel will apply an effect more intensely. You may want to demonstrate another common example of this—using a feathered circular mask to create a vignetting effect.

Supplementing this lesson

One of the concepts that might benefit from additional emphasis is the idea of loading a selection. Although students rarely have difficulty following the directions for doing this, some of them forget how it was done with equal ease. They’ll do this again later in the book, when they’re working in ImageReady.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 How does painting with black, white, and gray in a channel affect an image?
- 2 How does the Extract feature recognize an edge?
- 3 How do you apply a saved mask to an image or layer?

Review answers

- 1 Black areas completely protect an image from changes. White areas are completely subject to change. In gray areas, lighter areas are more subject to change than darker areas.
- 2 Extract recognizes an edge by finding where the contrast is highest within the area you highlighted.
- 3 Choose Select > Load Selection, and then select the mask (alpha channel) you want to use. For other methods and shortcuts for loading saved selections, see the sidebar on page 202 of *Adobe Photoshop CS2 Classroom in a Book*.

Lesson 8: Correcting and Enhancing Digital Photographs

The use of digital photography is growing phenomenally among creative professionals as well as hobbyists, and Photoshop has many, many features that streamline the handling and routine processing of digital photographs. From correcting red-eye to adjusting Camera Raw settings, this lesson covers a span of beginner to advanced digital image-editing techniques. Be prepared for this lesson to generate a lot of interest among your students.

Goals and objectives for this lesson

Your goal in this lesson is to give your students a well-rounded understanding of how they can perform many routine corrections to digital photographs. This lesson is aimed at the advanced hobbyist and/or professional photographer who wants to use Photoshop to clean up images captured by digital cameras. Most of the topics and techniques have to do with basic image clean up—eliminating red-eye and adjusting the white point and other settings of Camera Raw images, but it also includes some more advanced techniques, such as the Lens Correction and Vanishing Point filters.

Getting started

This lesson builds on the techniques that were covered in Lessons 3 and 4, and as such, you may want to consider teaching it on the heels of those lessons, and then proceeding to Lessons 5 through 7.

Processing camera raw files

Camera raw is a digital image file format that is fast growing in popularity because it gives photographers control over image data that previously was determined by the camera. Many digital cameras support the Camera Raw format, which allows photographers to adjust white point, tonal range, contrast, and many other settings directly in Photoshop. Emphasize to your students

that Camera Raw is a flexible, powerful file format and that once they understand how to use the Camera Raw dialog box, they'll have greater artistic control over their images while still being able to preserve the original raw files.

Note that the Camera Raw dialog can be accessed from within Bridge or Photoshop. The same features and functionality are in both.

The filmstrip that appears on the left side of the dialog box when students open the three mission images will not be there when only one image is open in the dialog.

Reassure students about the yellow caution triangle that appears in the upper right corner of the images in Bridge. The warning disappears after a few seconds; it's nothing to be alarmed about. It simply appears while the settings are being applied to the camera raw image files.

Reducing noise

The noise in the portrait of the mother and son might be difficult for some students to see. Be sure to have them zoom into the sky, where it is more noticeable.

Defining a grid

Defining a grid in the Vanishing Point dialog box using the Create Plane tool is like stretching a rubber band. As the students start to click, they wrap the band around the side of the house in the image. A blue outline indicates a valid plane. Red indicates an invalid plane—Vanishing Point cannot tear off a perpendicular plane from an invalid plane. Students may simply press Backspace (Windows) or Delete (Mac OS) to delete the last node if the outline appears red. Or, after drawing, drag an corner node to adjust the plane. It will turn blue as soon as

it becomes valid. To help with node placement, tell students to press and hold the X key to zoom into the preview image as they place the nodes.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 What is *white balance* and when/how should you edit it?
- 2 What is the Vanishing Point filter and when would you use it?
- 3 Describe four types of camera lens distortion and how to fix them.

Review answers

- 1 White balance sets the color balance of the image to reflect the lighting conditions under which the photo was taken. It comprises temperature, which determines the “coolness” or “warmness” of the image, and tint, which compensates for magenta or green color casts in the image. It is the first setting you should adjust in the Camera Raw dialog, which initially displays the white balance at the time of exposure. You can choose from predefined settings, or specify custom Temperature and Tint values.
- 2 The Vanishing Point filter lets you define a perspective plane in an image so that you can then paint, clone, and transform images according to that perspective. You can even create multiple planes that are related to one another, and paint, clone, and transform across these planes through an image.
- 3 *Barrel distortion* is a lens defect that causes straight lines to bow out toward the edges of an image. *Pincushion distortion* is the opposite effect: straight lines bend inward. *Vignetting* occurs when the edges of an image are darker than the center. And *chromatic aberration* appears as a color fringe along the edges of image objects. You can fix these all of these distortions using the Lens Correction filter.

Lesson 9: Typographic Design

Many designers don't realize that the typographic tools in Photoshop are extremely robust and sophisticated. Among the type features are support for OpenType, extensive character and paragraph formatting capabilities, and support for a wide variety of effects and transformations (such as positioning text on a path and warping text). This lesson covers an extensive array of type features in Photoshop.

Goals and objectives for this lesson

Students who have used Photoshop over the years may be used to working on images in Photoshop, but switching to Illustrator to work on the type for their composition. This lesson is designed to show them that they don't need to switch applications to create great-looking type in image compositions. The project involves creating type for a mock-up of a label for a new product (a new brand of olive oil). If students ask why this work isn't done in Illustrator, explain that the work could be done in that application, but the idea is for designers who primarily use Photoshop to learn that they can do the same work in the application with which they're most familiar and comfortable, without switching.

Scheduling this lesson

This lesson stands on its own quite well. It doesn't have to be taught in lesson order, but students would do well to first complete Lesson 6, "Layer Basics," and Lesson 7, "Masks and Channels," before tackling this topic. Those lessons provide a solid foundation for the material covered in this lesson.

Adding point type

Students must press Enter (Windows) or Return (Mac OS) after entering the point size in the type options bar to make the setting stick (step 1). Pressing Tab or simply clicking on another option, such as the Font Family pop-up menu, will cause the size to revert to

the previous value. Students may be frustrated if they don't press Enter or Return and can't get the size value to stick.

Also, make sure your students understand and remember to click the Commit Any Current Edits button (step 2). If they don't, they remain in text-edit mode. This means that the type layer name on their screen won't match the name in the book, which can be confusing to students. Also, they might have difficulty continuing with the exercise and performing other operations, such as applying layer effects. A common mistake among new Photoshop users is to not commit changes, and then try to enter more type on a new layer, but find the new type is on the *same* layer. Show them that in addition to clicking the Commit Any Current Edits button to exit text-edit mode, students can press the Enter key on their numeric keypad; press Ctrl-Enter (Windows) or Command-Return (Mac OS); select any other tool in the toolbox (besides the Type tool); or click in the Layers, Channels, Paths, Actions, History, or Styles palette.

Making a clipping mask and applying a drop shadow

Students may also complain (in this exercise or others) that pressing Shift and dragging doesn't affect the drag operation—that is, it doesn't constrain movement. The effect can be subtle. They might see it better by dragging more slowly, or by dragging and then pressing Shift after they start, to see the difference. In any case, all positioning of type in this label is approximate. Text elements don't have to be perfectly centered or positioned. Students can eyeball it.

Creating a design element from type

This lesson doesn't explain much about the Anti-aliasing menu, but it's a topic that you may want to explore further with your students. Anti-aliasing lets you produce

smooth-edged type by partially filling the edge pixels. This causes the edges of the type to blend more smoothly into the background. The choices are:

- None, which applies no anti-aliasing,
- Sharp, which makes type appear the most sharp,
- Crisp, which makes type appear somewhat smoother,
- Strong, which makes type appear heavier, and
- Smooth, which makes type appear smoother.

Sharp is a common choice for print design, and does a good job of reducing unwanted “jaggy” edges. If you’d like, have your students zoom in to the type and toggle through the various anti-aliasing settings to see the difference. Be sure to have them zoom back out to see the effect at normal size (double click the Zoom tool to see at 100%).

Adding paragraph type from a sticky note

Depending on the typeface that students choose and the exact dimensions of their text box, they may not need to compensate for gaps in the second-to-last line of the paragraph. Conversely, they may need to finesse spacing elsewhere in the paragraph. This is a good opportunity for students to play and explore the paragraph type controls as they desire.

OpenType in Photoshop

This sidebar requires jumping into Adobe Illustrator to preview OpenType glyphs. Make sure your students’ computers are all equipped with Illustrator CS or CS2 before performing the tasks described. Alternatively, if you don’t have the software, simply play the QuickTime movie for students. The movie comes on the Classroom in a Book CD.

Warping with Smart Objects

Dragging the warp grid may be tricky for some students. The exercise instructs students to drag guides onto the image window to assist them, but if they click the wrong handle or an off-center part of a line, the desired contour

warp will easily be distorted or difficult to achieve. Tell students not to worry. They can use Control/Command-Z to undo a drag, and their warp doesn’t have to be completely accurate or perfect.

Review questions

The following questions are not in the student’s *Classroom in a Book*.

- 1 What is the function of the Commit Any Current Edits button?
- 2 How do you create vertical type in Photoshop?
- 3 What is OpenType and how is OpenType supported in Photoshop?

Review answers

- 1 Clicking the Commit Any Current Edits button takes you out of text-edit mode so that you can perform such operations as applying layer effects and styles.
- 2 Select the Vertical Type tool, hidden under the Horizontal type tool, and click and type in an image window.
- 3 OpenType is a cross-platform font file format developed jointly by Adobe and Microsoft. It supports widely expanded character sets and layout features, such as swashes, ligatures, and fractions. You can access OpenType features and characters by choosing OpenType from the Character palette’s pop-up menu, and then choosing from the available options.

Lesson 10: Vector Drawing Techniques

At first glance, the Pen tool and paths may seem peripheral to Photoshop, since they are vector tools in an image-editing program. This lesson shows the value of the Pen tool as a way to make selections that are more precise and easier to adjust than with other selection tools. Students will also learn how to use vector paths to create complete drawings and to control transparency. Students will also be introduced to easy ways to create vector shapes, such as shape tools and custom shapes.

Students will find that the Pen tool is the best tool to use for drawing the following types of selections:

- Simple shapes (except regular polygons, which are best drawn with the shape tools)
- Synthetic shapes with smooth, regular outlines, such as a coffee mug
- A complex series of straight lines, like a city skyline

While all of these shapes could be drawn using other selection tools, they will be much easier to edit and refine if drawn as paths by the Pen tool.

This lesson will probably be quite easy for students who have experience with Adobe Illustrator. For them, all the introductory projects, which involve tracing shapes on the template drawings, will be primarily review. For other students, getting the hang of the Pen tools can be a frustrating and slow process.

About paths and the Pen tool

Encourage students to learn the keyboard shortcuts for the Pen tool and path drawing. As pointed out in Lesson 1, keeping one hand over the keyboard for tool switching and the other hand on the mouse can facilitate efficient, uninterrupted drawing. The most important shortcut to learn is the Ctrl (Windows) or Command (Mac OS) key for temporarily switching to the Path Selection or Direct Selection tool.

Converting paths to selections

After students finish this procedure, you might review all the ways they have learned in this and earlier lessons to create and store selections:

- As selections drawn with selection tools
- As alpha channel masks created with painting tools
- As paths drawn with the Pen tool

You could have a discussion about when students would want to use each technique and when it might be a good idea to convert a selection from one form to another.

Supplementary demonstration: shape options

The book itself doesn't explain much about the three buttons (Shape Layers, Paths, and Fill Pixels) that appear on the tool options bar for the Pen tool and the shape tools. You could open up this topic in discussions, which would definitely be of value to your beginning students and improve their understanding of Photoshop.

The crux of the difference between the Shape Layers and Paths options is the difference between drawing a shape and drawing a work path.

The key difference between the Shape Layers option and the Fill Pixels option revolves around the distinction between vector images and rasterized images, so this makes an excellent opportunity to review and deepen your students' knowledge of these distinctions.

You can demonstrate this very simply. Before you begin, make sure that the Foreground color is either black or some color other than white.

1 Create a new file (File > New) and use one of the shape tools to draw a couple of shapes in the image: drawing the first one with the Fill pixels option selected and the second with the Shape Layers option selected.

2 Zoom in but make sure that you can see at least a small area of each of the two shapes. Then select the Eraser tool.

3 Select the layer with the first shape on it and try to erase it. THEN select the layer with the second shape and try to erase it. Discuss the results with your class.

In the first case, the eraser will remove the colored pixels. If you've zoomed in sufficiently, the bitmap nature of the shape will be obvious. In the second case, an error message appears, saying that the contents of the layer are not directly editable—that is, they can't be erased because painting and erasing are features of rasterized images, not of vector drawings.

To illustrate the difference between the Shape Layers and Paths options, continue the demonstration, using the same simple drawing.

4 Drag the Paths palette out of the Layers palette group so that students can see both palettes simultaneously.

5 In the Layers palette, select the first layer (the one with the rasterized shape you drew).

6 Make sure that the same shape tool that you used earlier is still selected, and then select the Paths option on the tool options bar.

7 Draw the shape in the image window, making it a different size than the earlier shapes.

(Optional) You can reinforce the difference between the vector items and the bitmap shape by attempting to add an anchor point to each of the three shapes you drew:

8 For each of the two vector items, in turn, do the following:

- Select the layer or work path in the appropriate palette (Layers or Paths).
- Use the Direct Selection tool to select the shape.
- Using the Pen tool, click anywhere along the vector path bounding the shape to add a point, and then drag the point to change the shape.

9 Try to do step 8 with the third shape, the one drawn with Fill Pixels selected, and ask your students to explain why you can't apply this change to that shape.

Now, your entire class should be able to see and accurately discuss the difference between the work path and the layer vector mask, as well as the difference between a shape and a path.

Supplementary discussion

At this point in their learning, students sometimes start to experience some confusing, so that similar functions start to overlap, merge, and intermingle in their minds. You might work with them to make sure they retain clear understandings of the distinctions, interactions, and relationships that may exist between items in the following list:

- Selections
- Alpha channels
- Layer masks
- Work paths
- Vector paths

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 How do you deselect a path?
- 2 How do you make sure that a path is saved with a document?
- 3 How do you customize the Polygon tool?
- 4 What are the advantages of using the Pen tool to create a mask? Why not just use the Quick Mask feature, as done earlier in Lesson 7?
- 5 (Use only if you have completed and discussed the "Supplementary demonstration: shape options" exercise outlined in these notes with your class.) Why would the Fill Pixels option be dimmed (unavailable) when the Pen tool is selected in the toolbox?

Review answers

- 1 Click in an empty area in the Paths palette.
- 2 In the Paths palette, double-click the path to name it.
- 3 Use the options on the tool options bar when a shape tool is selected.
- 4 You could select the space ship using the Quick Mask method, but by using the Pen tool to create the mask, you create a vector mask that retains its crisp, sharp edges at any zoom level. The contrast between the space ship and the black sky is an abrupt change, and the ship itself has many long, regular lines, so it makes a good candidate for the Pen tool selection process.
- 5 The Fill Pixels option pertains to rasterized (bitmap) images and layers. The Pen tool is a vector tool, and cannot draw or edit rasterized images.

Lesson 11: Advanced Layer Techniques

In Lesson 11, students learn and review advanced methods for adjusting a layer's appearance, combining layers, and controlling the visible areas of layers. This lesson also introduces students to the Liquify filter.

Other lessons have already presented many of the concepts and techniques in this lesson, although the Liquify filter is new to the students. For that reason, this chapter makes a good midterm review of the students class work so far.

Creating paths to clip a layer

You may want to compare the Ellipse tool to the Elliptical Marquee selection tool to make sure that students understand the difference between them.

If you haven't already done the supplementary demonstration suggested for Lesson 10, it would be equally relevant here. See "Supplementary demonstration: shape options" in the notes for Lesson 10 of this document. If you have already completed the demonstration, you might review how selecting the Paths option will affect the Ellipse tool.

If a student's circles aren't perfectly aligned, you may want to guide the student through the Layer > Align Linked commands to line them up.

After completing a row, students can select the entire row of paths and duplicate that. It's faster than continuing to duplicate individual paths.

Creating layer sets

Layer sets are great for turning multiple adjustment layers on or off, for example, when you've made complex adjustments to make a document print properly on a specific printer.

Creating an adjustment layer

If you didn't demonstrate the advantages of adjustment layers as described in the Instructor Notes for Lesson 3, you can do it here.

Duplicating and clipping a layer

At this point, you may want to have the class compare layer masks and work paths, studied earlier. Both are ways to control the visible parts of a layer, so you may want students to discuss when they would want to use each method.

Liquifying a layer

Recommend that students perform the Liquify command on a copy of an image, since it permanently alters an image. Also, when they work with an image that is layered or contains vector shapes, it should be rasterized and merged into a single layer for the Liquify command to affect it uniformly.

Some of the areas open to further exploration include the Reconstruct tool and the idea of freezing and thawing different areas of the image. Also, the options available for the mesh could be examined in further detail.

The potential of the Liquify filter goes beyond turning ordinary images into Dali-esque surrealism. To see examples of practical, real-world uses of the Liquify filter, encourage students to look on the Adobe Studio Web site, where they'll find examples, such as using it to curl straight hair, turn mirror images into watery reflections, or give a realistic twists to painted-in steam rising from a hot liquid. Ask students to brainstorm about other ways they might use this filter.

Creating a border layer

Borders are best kept on a layer separate from the main image, as in this procedure, so that they can be turned off if necessary.

Flattening a layered image

In addition to reducing the file size, a flattened version is more compatible with other programs or with older versions of Photoshop.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 Why would you use a layer mask instead of an alpha channel?
- 2 How do you duplicate a path?
- 3 Why would you create a layer set?
- 4 How do you save a work path?
- 5 When do you lose a work path forever? Is there any recourse?
- 6 So far, how many techniques do you know for distorting images?
- 7 How many tools in the Liquify dialog box will gradually distort the image in place—that is, without the user moving the mouse?

Review answers

- 1 You want a sharply defined mask, or one that's easy to edit.
- 2 Hold down Alt (Windows) or Option (Mac OS) as you drag the path with the Direct Selection tool.
- 3 Layer sets help organize documents with many layers, make it easy to turn a specific range of layers on or off, and easily allow a layer to affect multiple layers.
- 4 You can save a work path by double-clicking it in the Paths palette and renaming it. Or, if you apply a work path to a layer (Layer > Add Vector Mask > Current Path), the path is saved as a layer mask and automatically named.
- 5 You lose a work path whenever you start drawing a new work path—that is, start drawing a new path on another layer—without saving the original work path.

If you want to recover a lost work path, you can try using either the Undo command or the History palette to go back to an earlier step.

6 The distortion methods used in this and earlier lessons include transforming, warping text, and using the Liquify filter. Each of these has its own limitations and advantages and can be used only with specific types of elements.

7 Several—try them and see! (It's sort of fun to watch the image gradually melt or twist under the influence of a tool you're not moving.)

Lesson 12: Advanced Compositing

In this lesson, students practice colorizing parts of layers or entire layers, and work with filter effects. Students have already had some experience in earlier lessons with items on the upper section of the Filter menu, including Extract, Liquify, and Vanishing Point. They also used the Colored Pencil filter (on the Artistic submenu), in the lower portion of the Filter menu, in Lesson 7.

This lesson also presents techniques for recording and playing automated actions. Actions, of course, are not in themselves restricted to filters or to any other options or features.

About gaining mastery of filters

The range of possibilities for using filters goes beyond the scope of this book and even beyond the imagination of any one user, because there are virtually unlimited possibilities here. Students who are serious about using Photoshop to create special effects will quickly discover two things:

- That any time they invest in reading about Photoshop filters in Help is time well-spent.
- That there is no substitute for just spending time playing around with the filters, and experimenting with various combinations and settings to see what they'll do in different images and on various layers.

Be sure that your students understand that Photoshop online Help has a great deal of valuable information about filters, much of which is not included in the printed *Adobe Photoshop CS2 User Guide*.

Saving selections

Remind students that selections should be saved whenever there is a chance that a difficult or time-consuming selection might need to be reused.

Creating a layer and choosing a blending mode

You can suggest a keyboard shortcut that students can use when they create a new layer: Press Alt (Windows) or Option (Mac OS) while clicking the New Layer button to open a New Layer dialog box. Then draw your students' attention to the options available in this dialog box, including not only a Name option, but options for grouping the layer, designating a color code (not a fill color, as some students assume), assigning a blending mode, and setting opacity.

Applying painting effects

Students can compare the colorized version to the original desaturated version by turning the Paint layer off and on.

Changing the color balance

Again, students can get a before/after view by turning the adjustment layer off and on.

Supplementing this lesson

Encourage your students to experiment with the different filters on their own. You could say that the real fun of complex images builds on a foundation of multiple layers that include multiple filter effects, multiple opacity settings, and multiple blending modes.

At the same time, make sure that your students are aware of the following issues about the filters (also listed in online Help, under "About using filters"):

- The last filter chosen appears at the top of the Filter menu.
- Filters are applied to the active, visible layer or to a selected area on that layer.

- The image mode (the command selected on the Image > Mode menu) can be an important issue for two reasons: Filters cannot apply to Bitmap-mode or indexed-color images, and some filters work only on images in RGB mode.
- Some filters are processed entirely in RAM.

Again, remind students that while the printed *Adobe Photoshop CS2 User Guide* devotes very little ink to the subject of filters, there is a wealth of information on the subject in Photoshop Help.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 Which blending mode changes the hue of a layer without affecting the tone?
- 2 How can you quickly colorize an entire layer without making any selections?
- 3 Where would you start looking for more information about filters?
- 4 What are some of the differences between filters and blending modes?

Review answers

- 1 The Color mode.
- 2 Just add a Hue/Saturation adjustment layer and click its Colorize option.
- 3 Photoshop Help includes many pages of information about filters that are not found in the printed *User Guide*.
- 4 Typically, blending modes apply either at the layer level or to painting tool properties. You can apply filters to layers or to selected areas of an image layer.

Lesson 13: Creating Links Within an Image

This lesson introduces slices and image maps in one project, so that students learn how to define and link isolated areas of a graphic rather than having the entire image as a hotspot for just one URL.

About slices

Students should be aware that slicing an image does not make it download faster. In reality, a sliced image takes more time to download because each additional piece of a Web page requires additional overhead for transmission over the network. Images should be sliced only when necessary for interactivity.

Make sure that students understand what slices are *not*: selections, shapes, or masks. You might discuss the differences between slices and these other items.

More about creating slices

If the design of a Web page is not final, layer-based slices may be the best to use, because they will automatically resize to match the layer on which they are based. If editing a layer changes its size, you won't have to re-do its slice to match.

Jumping to ImageReady

This is a good place to have students check out the Slices palette. Have them select another slice, and in the Slice palette, point out the Name, URL, and Target options, and explain how filling in these options here means that they don't have to do it when coding the HTML, especially if the graphics are edited and exported to HTML again.

Creating image maps

By all means have the students open and examine the Web Content palette, where they can see image maps on an equal footing with slices. After your class completes Lesson 14, "Creating Rollover Web Visuals," you might

return to the end results of this lesson (Lesson 13) and brainstorm about what they could do to create rollovers with these image maps. If they've learned their lessons well, they should be able to suggest a number of effects and visibility changes that a image-map rollover might trigger, either as a primary or as a remote rollover trigger or target.

Optimizing images for the Web

When optimizing images, it doesn't matter which application (Photoshop or ImageReady) you use. It's simply a matter of personal preference or convenience. If all you're doing is optimizing a photo or graphic for the Web after working on it in Photoshop, there is no need to open ImageReady. If, however, you need to add interactivity, do use ImageReady.

Using the Save for Web dialog box

Before completing work in the Save for Web dialog box, you may want to point out the button above the top right corner of the preview area. Clicking this button reveals a palette menu that changes the display of the selected preview area to simulate different display conditions. This menu is also available by right- or Control-clicking any of the preview panes.

Choosing basic optimization settings in ImageReady

Optimization options not only affect the Color Table palette, but they also affect the download time, which appears at the bottom of the window or preview pane.

Minimizing browser dither

When designing for an audience where the typical system will display more than 8 bits per color (such as a well-equipped company intranet), specifying Web-safe colors and dithers doesn't have to be a high priority.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 How do you select a slice?
- 2 Describe five types of slices.
- 3 Why would you want to use a No Image slice?
- 4 How do you decide whether to use GIF or JPEG for a Web graphic?

Review answers

- 1 Use the Slice Select tool to select the slices. The options in the Optimize palette will affect the selected slices only.
- 2 Five types of slices exist:
 - User-slices are created manually with the Slice tool.
 - Layer-based slices are created using the Layer > New Layer Based Slice Command.
 - Auto-slices are automatically generated to fill in the gaps between the slices you create.
 - Sub-slices are a type of auto-slice generated when other slices overlap.
 - No Image slices do not generate an image, but can contain a background color or text.
- 3 A No Image slice is useful for an empty area of a Web page. Because it doesn't generate an image, it can reduce a page's download time.
- 4 Use GIF for flat-color graphics or graphics that only use a few colors, such as a company logo. Use JPEG for continuous-tone images that have subtle transitions or use many colors, such as full-color photographs.

Lesson 14: Creating Rollover Web Visuals

In this lesson students learn how to add rollovers to slices. It picks up where Lesson 13 (“Creating Links Within an Image”) leaves off: using slices and image maps for interactive visuals as well as for linking other Web pages.

It’s a good idea to finalize a design before creating rollovers for it. Since editing an image edits the current rollover state only, any changes being made to the base image must be repeated on all rollover states.

Review questions

The following questions are not in the student’s *Classroom in a Book*.

1 What might be wrong if a remote rollover doesn’t produce the results you think it should?

Review answers

1 Most often, this happens when the step of dragging the pickwick to the target slice (either in the image window or the Web Content palette) is omitted. It’s not enough to just set the visibility, position, or effects changes in the Layers palette and image window. You also have to drag the pickwick.

Lesson 15: Animating GIF Images for the Web

Students can create effective animations for the Web by using Adobe ImageReady. Animating an image can be as simple as moving a layer across the screen or changing layer attributes, and the process of optimizing an animation for the Web isn't much different than optimizing a still image. In other words, it's not difficult to transform an image from a static graphic to an eye-catching animation.

Animating by hiding and showing layers

From this procedure, students should understand how valuable it is to plan and execute a Photoshop design using layers if animation is an intended use for the graphic.

Opening the image file and starting the animation process

When a graphic represents the end of the animation, it's much easier to start at the end of the animation with the final graphic and work backward to the beginning than it is to start at the beginning and try to precisely animate all the elements into their final positions.

Tweening the position and opacity of layers

Tweening is another important animation strategy that students should fully understand. They should plan their animations in terms of the points at which major changes happen, animate to those points, and tween between those points to fill in the rest. Using tweening in this way will be much easier than trying to animate every single frame by hand.

The lesson consistently tells students to choose the Tween command on the Animation palette menu. Students will probably appreciate your pointing out to them that the Tween button on the Animation palette is the easier way to open that dialog box.

At the end of the lesson, you might ask the students to guess why we included three different animations in the lesson. With any luck, they'll pick up on the essential differences between the three projects: animating only on layer visibility, animating based on layer position and opacity, and animating with vector masks.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 What role do layers play in animating an image?
- 2 How do you control the delay between frames?
- 3 How can you make an animation appear smoother?

Review answers

- 1 Layers serve as reference points for frames and for important transitional events in an animation, such as tweening.
- 2 In the Animation palette, click the Frame Delay menu under a frame.
- 3 Use tweening to create additional frames.

Lesson 16: Producing and Printing Consistent Color

Lesson 16 walks students through a basic color workflow, including printing a proof and printing separations.

Commercial printers have widely varying requirements for color management, and many still prefer to work in a more traditional workflow that avoids color management. Students should understand the importance of discussing color with the printer to understand how their particular printer prefers to receive a color job.

It's important that students understand the difference between color correction and color management. Color correction fixes bad-looking color. Color management can't do that. The purpose of color management is to create an accurate viewing environment so that you can precisely determine which colors are right and wrong.

Reproducing colors

Because the RGB gamut is much larger than the CMYK gamut, some people assume that all CMYK colors fit within RGB. However, this is not true, because the gamuts are different shapes that do not overlap perfectly. You may want to have students examine the color gamut figure on page 456 and point out the small areas of CMYK that are outside the RGB gamut. Those CMYK colors cannot be reproduced on an RGB monitor.

Specifying color management settings

The Color Settings dialog box can be intimidating, especially for beginners. You might mention that the Color Settings dialog box is convenient because you set it once and don't worry about it again unless there is a major change in your workflow.

Proofing an image

The Missing Profile and Embedded Profile Mismatch dialog boxes can be very confusing. Your class may find it helpful to understand that the warnings fall into two basic categories:

- Leave the document as it is. This means choosing either to use the embedded profile (if it exists) or leaving the document without a profile (if it doesn't exist).
- Adjust the document. If the document is missing a profile, then you can choose to assign one—either the current working space or a different profile. If you're opening a document with a mismatched profile, you can choose to discard the profile, or convert the colors to the current working space.

When a profile mismatch occurs, you can also opt to "Discard the embedded color profile (don't color manage)." That means that Photoshop will neither change the image's color values nor will it embed a profile that records the current viewing environment. This means the image may not look right on screen even if its colors are actually correct. If a commercial printer does not use color management, they may actually recommend this choice so that values in a CMYK image will not be changed. This is valuable if a CMYK image is already tuned for the press—any changes would mess it up.

The two most likely rendering intents to use for photographic images are Relative Colorimetric and Perceptual. The more an image contains colors that are outside the destination gamut, the more likely Perceptual might be a good idea. The Preview option in the Customize Proof Condition dialog box is useful when deciding which one to use.

The appearance of an RGB image after converting to a CMYK gamut is often disappointing. Overall saturation is usually lower and some colors may shift. Reassure stu-

dents that Photoshop is simply being honest about what colors can actually be achieved in the CMYK gamut at SWOP settings (assuming that all Color Settings are set correctly).

It can be useful to do this exercise with two views open. You can have students choose Window > Arrange > New Window for 16Start.tif to open a second window for the image. Leave the first window as is, and use the second window for Proof Setup. This way, a before/after comparison is possible.

Identifying out-of-gamut colors

It's best to choose a color that is clearly out of gamut so that it can't be confused with any real colors in the image. A good way to do this is to specify a bright color at maximum saturation.

You might mention exactly how Photoshop does the RGB-to-CMYK conversion. It will start from the image's RGB working space and convert to the current CMYK working space. This means that the quality of the conversion depends on proper settings and good profiles.

Adjusting an image and printing a proof

If these steps are done with Proof Setup on, the image can be corrected in the context of the CMYK output gamut.

Saving the image as a separation

Instead of switching back and forth between RGB and CMYK, students may prefer to see the two views simultaneously.

Printing halftone separations

Students should understand that in practical terms, that this procedure only works if you're printing directly from Photoshop, not if you're going to move the image into another program.

Review questions

The following questions are not in the student's *Classroom in a Book*.

- 1 What is a working space?
- 2 Why is it important to choose the proper working spaces in Color Settings?
- 3 How can you preview how an image will appear in final output?
- 4 How can you identify out-of-gamut colors?

Review answers

- 1 A working space is the color gamut within which Photoshop will adjust an image's colors.
- 2 The working spaces should be appropriate for the final output you are targeting.
- 3 Create a custom Proof Setup that uses a profile and settings that represent the final output, then make sure View > Proof Colors is on and set to that setup.
- 4 Turn on View > Gamut Warning.