ADOBE® PHOTOSHOP® CS4

CLASSROOM IN A BOOK®

Instructor Notes

Adobe

INSTRUCTOR NOTES

Getting Started

The Adobe® Photoshop® CS4 Classroom in a Book™ course presents students with tips, techniques, and solutions for using the Adobe Photoshop CS4 software. The Instructor Notes are intended to complement the information in the Adobe Photoshop CS4 Classroom in a Book®.

The information is organized to follow the sequence of instruction in each lesson.

Course strategy

If you're teaching a 15-session class, you can teach approximately one chapter of this book per class. The book contains 14 lessons, some of which may take a while to complete. If you are teaching a 10-session class, you may want to combine some of the lessons in a single class. For example:

- Lessons 1 and 13 are both focused on learning about the Photoshop user interface (including Adobe Bridge). However, because Lesson 13 also covers features in Photoshop CS4 Extended, it may be better suited for advanced users.

- Lessons 2 and 6 cover related aspects of photo retouching.

- Lessons 3 and 5 both are about making selections. Also, Lessons 5 and 10 cover effects that are based on masking and selections.

- Lessons 4 and 9 deal specifically with layers, although layering is a crucial element in almost every lesson following Lesson 4.

- Lessons 8 and 9 both cover vector graphics. If your students are already competent in the use of drawing programs such as Adobe Illustrator, they may be able to skip straight to the project with the Saucer.psd file in Lesson 8.

- Lesson 14 addresses printing issues and topics related to color management; after basic photo correction, Lesson 2 touches on four-color printing.

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 [*Student's*, for the student's name] Lessons, 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.

Lesson 1: Getting to Know the Work Area

The first lesson presents an introduction to the Adobe Photoshop CS4 software. Using the basic commands, tools, and panels, your students will learn general techniques for using the work area efficiently, obtaining information about the image in front of them, and selecting tools or entering values to change the image. This lesson also introduces students to the History panel, a valuable tool in undoing and stepping backwards in their work.

Goals for this lesson

How much time you should schedule for this lesson depends on whether 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. Additionally, by learning how to help themselves, they gain confidence and independence. In general, they should be able to do the following:

- Identify and name the key areas of the interface, including the Tools panel, panels (in general), image windows, and the options bar.

- Open the main menus and submenus across the top of the work area (File, Edit, and so forth), context menus, and panel menus.

- Use tool tips to identify tools, buttons, and other controls.

- Access and search Adobe Community Help, which includes the full Photoshop CS4 Help, as well as links to other Adobe and third-party Photoshop resources online.

Finding tools in the work area

You may want to introduce students to the Photoshop environment by providing a general tour of the work area. 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 students that it indicates which publication is currently active. Then point out the menu bar, the rulers, the page icons, the panels, and the Tools panel. Students may already be used to keyboard shortcuts as a simple alternative to using the mouse. Photoshop and other Adobe products allow you to combine keys with mouse clicks to perform tasks quickly.

Many Photoshop professionals keep one hand on the mouse and the other over the keyboard to switch tools and modes. You may want to demonstrate how this method allows you to keep the pointer directly over the part of the image that you're editing.

Encourage students to use commands at first, so that they understand what they're doing and how it relates to the application. As they become more comfortable with the tools and concepts, remind them that shortcuts can help them accomplish tasks more quickly.

Using the application frame and the application bar

New to Adobe Creative Suite 4 are the application bar and, in Mac OS, the application frame. By default, the application bar is enabled and the application frame is not. Many lessons include steps that use the application bar, so it's best for students to leave it visible, though they may prefer to hide it when they work on their own.

If your students on working in Mac OS, suggest they enable the application frame to minimize distractions from other applications and items on the desktop. If you reset preferences at the beginning of each lesson, as we recommend, you'll need to enable the application frame each time.

Viewing images

Choosing View > Actual Pixels (or double-clicking the Zoom tool) displays one image pixel for each monitor pixel. This magnification displays 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 viewed in Actual Pixels view or in a web browser will varies depending on the monitor in use.

Many users are unaware that the monitor resolution can be changed. You may want to demonstrate this. Increasing the resolution makes more room for panels and images on the 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. To do so, choose New Window from the Arrange Documents button in the application bar, and then select a 2 Up option. You can zoom into one view to make detailed changes while viewing the full image in another window to see the changes in context.

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 unusual in that you can 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 options bar and panels

Students should understand that the 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 options bar change depending on the selected tool. Similarly, the options bar cannot be customized because it always represents options for the current tool. Take care to refer to the options bar by its complete name and not as a "toolbar" or "button bar" yourself.

Using the History panel

You can use the History panel simply to undo steps, or to use the past as a resource for painting. It can enable you combine two versions of an image into a single image that represents the best of both worlds. Make sure students understand that history states aren't saved with the document. You can suggest that if students want to keep different versions across sessions,they should set up an image's states as separate layers or documents instead.

To supplement the information in this section of the book, you can tell students about the New Document command in the History panel menu. This is even faster than using the Save As command or other multi-step methods of creating new documents. Point out that they can use this feature by selecting any available history state or snapshot and then choosing the New Document command. Then, they can go forward to the latest History panel step of the original document and continue working, secure in the knowledge that they can always go back to the new file they created if they want to start over at that point.

Using panels and panel menus

The Tab keyboard shortcut lets you hide all panels instantly, so that you can quickly evaluate images without distraction. When you're working on a small screen, it also lets you use the entire screen to edit images. The Tab key returns the panels just as quickly.

Show students how easy it is to collapse panels to icons, and then expand the panels again with a click. In this lesson, students will look at customizing a workspace. In Lesson 12, they will define a custom workspace in Photoshop that shows and hides specific panels, based on the type of task they are performing.

You do not need to go into this feature in-depth now, to avoid the risk of information overload in the first lesson.

Using a context menu

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

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

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

Using Photoshop Help

Choose Help > Photoshop Help opens Adobe Community Help, which includes the entire Photoshop Help as well as links to other online resources. Show students that Photoshop Help includes detailed descriptions of filters and important guidelines for using them.

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.

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 the keyboard shortcut for a tool?

3 How can you instantly hide or show all panels?

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 How can you open a panel?

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

Answers

1 Look in the Tools panel 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 tool tip 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 panel.

5　Actual Pixels.

6　Choose Window > [panel name].

7　A panel contains a set of related controls that you select and use to work on your file. You can have many panels open, group them, hide them, and separate them, among other things. The image window displays the image file. If you close an image window, you close that file.

Lesson 2: Basic Photo Corrections

Lesson 2 might be 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 2 also introduces two important concepts: resolution issues and adjustment layers.

Image retouching can be overdone. Help students learn how to look closely at before images, to see what needs correcting, and at the results, to make sure that the image has been improved enough—but not so much that it no longer looks realistic.

In addition to the lessons in this book, encourage students to learn more about scanning, tonal correction, color correction, and image repair and retouching. 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.

Goals for this lesson

At the end of this session, your students should be able to describe the strengths and limitations of the various retouching strategies, and know which tools to use for specific repairs.

Scheduling this lesson

Lesson 2 and Lesson 6 contain closely related subject matter. In Lesson 2, students use the Dodge and Sponge tools to make color changes to a limited area of the image. Lesson 6 is entirely devoted to making similar kinds of changes, but using different tools.

If your class sessions are long enough, you could group these two lessons into a single session. If you do so, the students will have to cope with a few very simple but less familiar techniques, such as making a selection (covered in depth in Lesson 3)

and working in an image with two layers (covered in Lesson 4). However, the use of these techniques in Lesson 6 is so elementary that it should not present a serious problem.

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 much different. In addition, settings that are best for one medium are often detrimental in another. If a student knows that an image will be used in more than one medium, the student 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 cap color, 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.

Supplementing the resolution topics

One way to get students to think about resolution is to demonstrate opening two images at two different resolutions, cutting and pasting a selection from one to the other, and pointing out the mismatch. Another way to focus students' attention on resolution is 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 email that takes a long time to download. When you open the image in your 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.

Manually adjusting the tonal range

Beginners will often adjust tones by going straight to the 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 controls 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 nonimage 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.

Using adjustment layers

You may want to demonstrate the difference between using the Levels command and using a Levels adjustment layer. The Adjustments panel makes it easy to add adjustment layers, which are nondestructive. That is, adjustment layers make changes on separate layers, so they do not affect the actual pixels of the image. Students will have the opportunity to use adjustment layers throughout the lessons in this book.

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 oversaturation by using the Proof Colors and Gamut Warning commands on the View menu.

Applying 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 set in Edit > Color Settings. 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.

Supplemental information: Comparing the retouching tools

Usually, students have little trouble understanding how the Clone Stamp tool works after they get some hands-on experience with it. However, even after students become competent in using the Healing Brush tool or Patch tool, they may have

difficult 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 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.

Supplemental information: Best practices

You may want to encourage students to think about these issues before they begin making adjustments. They should:

- Work with a monitor that's calibrated and profiled. For critical image editing, this is absolutely essential. Otherwise, the image on the monitor will look different when printed.

- Be judicious in correcting images. Any color or tonal adjustment to an image discards some image information.

- For critical work and maximum preservation of image data, it's best to work with images with 16 bits per channel (16_bit image) rather than 8 bits per channel (8_bit image). Data is discarded in making tonal and color adjustments. The loss of image information is more critical in an 8_bit image than a 16_bit image. Generally, 16_bit images have a larger file size than 8_bit images.

- Work on a copy of the image file, not the original.

- Remove any flaws such as dust spots, blemishes, and scratches from the image before making color and tonal adjustments.

- Use adjustment layers to adjust the tonal range and color balance of an image rather than applying an adjustment directly to the image layer itself. Adjustment layers allow you to return to make successive tonal adjustments without discarding data from the image layer. Keep in mind that using adjustment layers adds to the file size of the image and demands more RAM from your computer.

- Consider using tools like the Info or Histogram panel in Expanded view, to provide invaluable feedback on adjustments.

- Make a selection or use a mask (Lesson 5) to confine color and tonal adjustments to part of an image. Or set up a document with image components on different layers (Lesson 9). Color and tonal adjustments are applied to only one layer at a time and affect only the image components on the targeted layer.

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   How do you sample a selection with the repair tools?

Answers

1   Using the eyedropper, click 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   The Clone Stamp or Healing Brush tool allow sampling sources in the current document or any open document in Photoshop. To set the sampling point, select the Clone Stamp tool and Alt-click (Windows) or Option-click (Mac OS) in any open document window. You can set up to five different sampling sources at a time in the Clone Source panel. To set another sampling point, click a different Clone Source button in the Clone Source panel. (In Photoshop Extended, you can clone video or animation and set sampling points in the current frame you're painting or sample sources in a different frame, even if the frame is in a different video layer or in a different open document. To clone video or animation frames, use the Animation panel, select the timeline animation option and move the current-time indicator to the frame with the source you want to sample.)

Lesson 3: Working with Selections

Goals for this lesson

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

The selection techniques are fairly easy in themselves. However, the concepts of selecting, selection borders, and selected areas lead to more complicated ideas and processes, such as masking, alpha channels, and so forth. For success later, students should master selection procedures before moving on to more advanced lessons.

Lesson 5, which covers masks extensively, provides the next level of advancement for this topic.

About selecting and selection tools

The Single Row Marquee and Single Column Marquee tools, which aren't covered in the book, are useful for correcting special cases, such as wiping out film scratches and scanner artifacts.

Quick Selection

The Quick Selection tool lets you accurately select an irregularly shaped object without having to manually trace the object's edges. You may want to encourage students to consider this their default selection tool for anything that isn't a regular rectangle or circle.

Selecting with the Magic Wand tool

Ask students to observe how the selection changes using the Magic Wand tool when they change the Tolerance value in the options bar or leave the Tolerance value unchanged, but click pixels of different values.

Moving a selected area

It's easy for beginners to confuse moving a selection with moving pixels, so it's a good idea to verify that students clearly understand the difference.

Several transformation commands appear in the menus, but they all require you to think ahead. In most cases, try the Free Transform command first: 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 objects. The other transformation commands are most useful when a precise transformation is required, such as an exact horizontal flip.

If your students discover the Transform Selection command in the Select menu, explain the difference between it and the transformation commands in the Edit menu. The Edit commands transform the pixels in the selection. In contrast, the Transform Selection command transforms the selection border without altering the pixels. They both come in handy, but using the wrong one can be frustrating.

Emphasize the importance of deselecting. In Photoshop, you can't deselect an area simply by clicking a spot outside the selection or by selecting a different tool, as you can do in many other applications. This may seem like a disadvantage because it seems to add an extra step. However, its benefits are central to the advanced uses of Photoshop. You can apply a change to the selected area, often by using another tool. It would be counter-productive 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 time-consuming. Because you must actively deselect, you cannot accidentally deselect something that you have painstakingly selected.

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.

Moving and duplicating simultaneously

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

Cropping an image and erasing within a selection

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

Refine Edges

Encourage students to try out other Refine Edges option with a selection, to see the usefulness of different matte colors and backgrounds.

Isolating and saving selections

Point out to students that it's a good work habit to rename selections meaningfully. It helps them easily find their work, and keep their work organized.

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 semi-circular 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?

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.

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 offers.

Lesson 4: Layer Basics

Goals and objectives for this lesson

In this lesson, students begin to think of Photoshop files as structured documents with parts (layers) that can be edited independently. Successful students will understand that layers give 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.

After completing this lesson, students should be 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 order of layers
- Layer groups
- 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 up Photoshop without even reading the "Getting Started" topic. Reinforce the idea of restoring default preferences at the beginning of each lesson so that they see what the book describes.

Renaming a layer and copying a layer

By keeping the photo, shell, letter, and paper texture 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 layers

One 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 that clicking the shell or the paper texture background would 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, you can apply a selection to another layer just by clicking the layer name in the Layers panel.

Related exercises or demonstrations

To demonstrate the importance of knowing which layer is active, have students make changes on a layer of a multilayer image and then use the layer visibility icons to view the changes.

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 panel. Then, in the Layers panel, select the lower layer so that it is the active layer. Select any color from the Swatches panel 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.

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 the blending mode determines how layers combine, while opacity determines how much is visible beneath the layer.

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

There are a few reasons for this suggested order:

- Blending modes have a more fundamental effect on appearance, so should be adjusted earlier.
- Opacity lowers 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 layer

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

Applying a layer style

You can quickly demonstrate 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.

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

Students must understand that once a file is flattened, there is no way to unflatten it. You can describe it as trying to unbake a cake into its original ingredients. This is why you should archive an unflattened (layered) original of a file before flattening, in case you need to return to make changes later.

Using layer comps

Challenge students to think of ways that layer comps provide a time-saving or practical advantage. They'll create layer comps in Lesson 9, when they put together packaging prototypes.

Supplementing the lesson

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

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 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?

5 Give an example of how you might exploit the fact that selection borders in Photoshop are independent of the pixels within them?

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   Easy—you just find the name of the layer you really want in the Layers panel 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.

5   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 evident later, when they work with Lesson 11: 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. You might make note of their suggestions, and then revisit this question at the end of Lesson 5 and ask them if they can do all these same things using alpha channels.

Lesson 5: 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 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 3, "Working with Selections," so make sure that your students are competent in that area before launching into Lesson 5.

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.

• Alpha channels are different from 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.

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 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.

Colorizing with an adjustment layer

In this procedure, students make a clipping group of the Hue/Saturation adjustment and paper texture. In the next procedure, "Grouping and clipping layers," they copy this clipping. Grouped layers cannot be clipped; only individual layers can be.

Supplementing this lesson

You may want to provide additional emphasis on the concept of loading a selection. You may also want to walk students through all the options in the Masks panel.

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 do you apply a saved mask to an image or layer?

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 Choose Select > Load Selection, and then select the mask (alpha channel) you want to use.

Lesson 6: Correcting and Enhancing Digital Photographs

Photoshop provides 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. For more practice with the Vanishing Point filter, see Lessons 9 and 13.

This lesson builds on the techniques that were covered in Lesson 2, so you may want to consider teaching it following Lesson 2, and then proceeding to Lessons 3 through 4.

Processing camera raw files

Camera raw files are native digital image files that give photographers control over image data that previously was determined by the camera. Many digital cameras support raw formats, which allow photographers to adjust white point, tonal range, contrast, and many other settings directly in Photoshop. Emphasize to your students that camera raw files are incredibly flexible and give them access to powerful editing features and more artistic control. However, also point out that you can now open and edit JPEG and TIFF images in Adobe Camera Raw, as well.

The filmstrip on the left side of the Camera Raw dialog box only appears if more than one image is open. 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 a 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.

Supplementing this lesson

Using other lesson start files or your own examples, discuss with students how they would go about retouching and correcting flaws, color imbalances, artifacts, and other anomalies in their images. You may want them to name the various tools they could use, and how, as well as other Photoshop features they would use to accomplish their goals. Try to develop multiple scenarios, and get students to suggest likely correction strategies.

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?

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.

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.

Lesson 7: Typographic Design

Typographic tools in Photoshop are 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 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 demonstrates that you 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 4, "Layer Basics," and Lesson 5, "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 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'll 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, 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, you can press the Enter key on the numeric keypad; press Ctrl+Enter

(Windows) or Command+Return (Mac OS); select any other tool in the Tools panel (besides the Type tool); or click in the Layers, Channels, Paths, Actions, History, or Styles panel.

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 smooths type edges by partially filling the edge pixels. The Anti-aliasing menu includes the following options:

- 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
- Smooth, which makes type appear smoother

Sharp is a common choice for print design, and does a good job of reducing unwanted "jaggy" edges. You may want to ask students to zoom in to the type and toggle through the 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 it 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 explore the paragraph type controls.

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 undo a drag, and their warp doesn't have to be completely accurate or perfect.

Supplementing the lesson

Point out some of the the OpenType options in the Character panel menu. If you can, bring in examples of well-set type, compared with ordinary type. Discuss with students typographical features that make type appear finished—for example, adjustments to tracking, leading, kerning, and baseline shift.

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?

4 What is a true fraction and how do you create it?

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. To access OpenType features, choose OpenType from the Character panel menu.

4 A true fraction displays the numerator as a superscript, the denominator as subscript and replaces the slash with a fraction bar. PostScript and TrueType fonts have true fractions in their character set: ¼, ½ and ¾. You can also make custom fractions using a OpenType font. Simply type fractions as usual—for example, 1/2—and then select the characters, and from the Character panel menu, choose OpenType > Fractions. Photoshop applies the true fraction.

Lesson 8: Vector Drawing Techniques

This lesson introduces vector paths as a way to create smooth lines and as an alternative method of selection. Students will 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 with shape tools and custom shapes. At first glance, the Pen tool and paths may seem peripheral to Photoshop, as 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.

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.

Goals for this lesson

At the end of this lesson, students should be able to use the Pen tool to draw both straight and curved paths, know how to select and deselect a path, and be able to edit a path with the path selection tools. The student should also understand the difference between vector and raster artwork.

Using paths with artwork

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 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.

Point out that because you can freely switch a segment between being curved and straight, there's no need to draw a path perfectly the first time. In fact, some people like to rough out a path by clicking a series of corner points, and then refine the path by adjusting the points and dragging out curves as necessary.

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:

- Using selection tools

- Creating alpha channel masks using painting tools

- Drawing paths with the Pen tool

Discuss when to use each technique and when it might be a good idea to convert a selection from one form to another.

Creating vector objects for the background

Point out that the shapes created with the shape tools can be fully customized. You can even demonstrate how a shape can be used as a starting point for a more complex path, such as by drawing a rectangle and adding a point to it.

Make sure students understand the difference between the Rectangle tool and the Rectangular Marquee tool, so that they don't select the wrong tool by accident.

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 options bar for the Pen tool and the shape tools. 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 not white.

1 Create a new file (File > New) and use one of the shape tools to draw a couple of shapes in the image. Draw the first shape 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 removes 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 panel out of the Layers panel group so that students can see both panels simultaneously.

5 In the Layers panel, 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 in the 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 panel (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 perform 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.

Subtracting shapes from a shape layer

Point out how each path in the Paths panel can actually contain multiple subpaths, and how any number of subpaths are selectable for stroking or filling.

Rotating the canvas

Students may note that you could easily create the text and rotate it, rather than rotating the canvas to place it. Discuss with students times that rotating the canvas might be more necessary, such as when you're touching up an image with elements at different perspectives.

Supplementary discussion

You may find it useful to make sure students retain clear understandings of the distinctions, interactions, and relationships between selections, alpha chanels, layer masks, work paths, and vector paths.

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 Which tool can change corner points to curve points and vice versa?

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 5?

5 How do you customize the Polygon tool?

6 (Use only if you have done and discussed "Supplementary demonstration: shape options," in this lesson's Instructor Notes, with your class.) Why would the Fill Pixels option dimmed (unavailable) when the Pen tool is selected in the Tools panel?

7 How do you save a work path?

8 When do you lose a work path forever? Is there any recourse?

Answers

1 Click in an empty area in the Paths panel.

2 In the Paths panel, double-click the path to name it.

3 The Convert Point tool.

4 You could select the spaceship 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. In the image of the astronaut 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 Use the options in the options bar when a shape tool is selected.

6 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.

7 You can save a work path by double-clicking it in the Paths panel 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.

8 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 get recover a lost work path, you can try using either the Undo command or the History panel to go back to an earlier step.

Lesson 9: Advanced Layering

In this lesson, students learn and review advanced methods for adjusting a layer's appearance, combining layers, and controlling the visible areas of layers. They also work with layer comps, introduced in Lesson 4.

Other lessons have already presented many of the concepts and techniques in this lesson. For that reason, this chapter makes a good review of the students' class work so far.

Goals for this lesson

By the time students complete this lesson, they should be comfortable working with layers and performing more advanced tasks with them, including creating clipping layers and merging layers. They should know how to hide and show layers, create layer comps, and determine whether to flatten their image or merge layers when they're ready to save a file.

Clipping a layer to a shape

Remind students of the fundamental rule that the image to be clipped (masked) must reside above the object that clips it.

Setting up a Vanishing Point grid

This lesson gives students additional practice using the Vanishing Point filter to add three dimensions to their image. It's helpful to point out to students as they work through these steps that precise alignment of the artwork is important to replicate the results in the final artwork.

Placing imported artwork

You may wonder why the Place PDF dialog box appears when placing Illustrator artwork into Photoshop. Artwork exported from Illustrator is saved in the vector PDF format if the Illustrator preferences for File Handling And Clipboard are set to PDF and the AICB (No Transparency Support). When these preferences are set, placing images from Adobe Illustrator into Photoshop displays the Place PDF dialog box. These preferences import or paste art as a Smart Object, rasterized image, path, or shape layer. When the Illustrator PDF and AICB (No Transparency Support) preferences are deselected, the artwork is automatically rasterized.

Filtering Smart Objects

You may want to suggest to students that they try out other filters and apply them to the artwork. Filters applied to a Smart Object are nondestructive and can be adjusted at any time. Lesson 10 introduces Smart Filters and compares their nondestructive effects to other filters.

Adding an adjustment layer

If you didn't demonstrate the advantages of adjustment layers earlier in your teaching, you can do it here.

Working with layer comps

Discuss possible uses of layer comps. This lesson treats them as product prototypes. But they're also useful for showing different versions of a design, works in progess, and editions in different languages. You can also compare this use of a snapshot of a state in the Layers panel to a snapshot of a state in the History panel.

Managing layers

Remind students of good work habits: organize their work into layers and layer groups so that related artwork stays together and is easier to update, and name layers and groups so they can recognize the contents easily.

Flattening a layered image

In addition to reducing the file size, a flattened version is more compatible with some other programs (especially nonAdobe applications) or with older versions of Photoshop. It's useful to remind students of their options when they've completed work on an image:

Flattening an image merges all layers into a single background, greatly reducing the size of the file. Merging layers lets you choose which layers to flatten; this technique combines all selected or visible layers in one layer. Stamping combines the benefits of flattening an image while keeping some layers intact; it flattens two or more layers and places the flattened image into a new layer, while leaving other layers intact.

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   So far, how many techniques do you know for distorting images?

Answers

1   You would use a layer mask, rather than an alpha channel if you wanted a sharply defined mask, or one that's easy to edit.

2   The distortion methods used in this and earlier lessons include transforming and warping text and objects. Each of these has its own limitations and advantages and can be used only with specific types of elements.

Lesson 10: Advanced Compositing

In this lesson, students practice colorizing parts of layers or entire layers, and work with filter effects. Students have an opportunity to create a panorama. This lesson

also presents techniques for recording and playing automated actions. Of course, automating tasks is not restricted to the use of filters or any other features.

Goals for this lesson

This lesson is more about being creative with Photoshop than about strict techniques. Students have a chance to explore some of the more artistic applications of Photoshop as they composite four images into a postcard and then create a panorama.

Mastering filters

The range of possibilities for using filters goes beyond the scope of this book because the possibilities are virtually unlimited. Students who are serious about using Photoshop to create special effects will quickly discover two things:

- It's worth the time to read about filters in Photoshop Help.
- The best way to understand filters well is to experiment with them, using them in different combinations and with different settings to see who they affect images.

Be sure that your students understand that Photoshop Help has a great deal of valuable information about filters.

Creating a layer and choosing a blending mode

Suggest that students press Alt (Windows) or Option (Mac OS) while clicking the New Layer button in the Layers panel. This keyboard shortcut opens the New Layer dialog box, which includes options for grouping layers, designating a color code, (not a fill color, as some students assume), assigning a blending mode, and setting opacity. Discuss why you would use each option, and why it might be handy to set them as you create the layer.

Applying painting effects

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

Saving selections

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

Applying Smart Filters

When introducing students to Smart Filters, you can compare them to adjustment layers. Smart Filters are nondestructive: they can be adjusted, turned off and on, and deleted, at any time. In contrast, regular filters permanently change an image; once

applied, they cannot be removed. Unlike adjustment layers, however, Smart Filters can be applied only to a Smart Object layer. You may want to suggest to students that they duplicate and hide layers that they want to keep in bitmap form before they convert them to Smart Objects.

Extra Credit

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.

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 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 can be an important issue for two reasons: you cannot apply filters to bitmap-mode or indexed-color images, and some filters work only on images in RGB mode.

• Some filters are processed entirely in RAM.

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.

Answers

1   The Color mode.

2   Just add a Hue/Saturation adjustment layer and click its Colorize option.

3   Photoshop Help.

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 11: Preparing Files for the Web

Up to this point, most of the lessons in this book have been geared toward print output. This lesson is the first oriented specifically toward web images.

Lesson 11 introduces slices, rollovers, and GIF animation, as well as optimizing files for the web. With slices, you can define and link isolated areas of a graphic rather than having the entire image as a hotspot for just one URL. Students also learn how to add rollovers to slices, and add interactive visuals as well as links to other web pages. Note that it's a good idea to finalize a design before creating rollovers for it.

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 eyecatching animation.

We encourage students to design in Photoshop and then use Adobe Dreamweaver to add HTML coding, interactivity, and web functionality to their designs.

Getting started

Students may miss seeing the logo animate in the upper-left corner when they open their web browser (it animates only once). If they miss the action, instruct them to use their browser controls to refresh or reload the page.

Selecting a web design workspace

Encourage students to explore the other workspaces supplied with Photoshop.

Creating slices

Note 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 that slices are not selections, shapes, or masks. Discuss the differences between slices and these other items.

Creating slices based on layers

If the design of a web page is not final, layer-based slices may work best, 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.

Creating navigation buttons

This is a good place to have students check out the Slice Options dialog box. Have them select another slice, and in the Slice Options dialog box, leave its Type as Image. 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 an animated GIF

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. 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 backwards to the beginning.

Tweening the position and opacity of layers

Tweening is another important animation strategy. Plan 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. Tweening is much easier than trying to animate every single frame by hand.

Exporting HTML and images

Some students may complain that they don't see much difference between the versions of the thumbnail images they see in the Save For Web And Devices dialog box. If so, treat that as a good thing. The key information—the file size, and therefore the download time—is not apparent by looking at the images. For that, they have to compare the metadata for each of the images.

Before completing work in the Save For Web And Devices dialog box, point out the button in the top right of the preview area. Clicking this button reveals a panel menu that changes the display of the selected preview area to simulate different display conditions.

This menu is also available by right-clicking (Windows) or Control-clicking (Mac OS) any of the preview panes. Also notice the Device Central button at the bottom right of the dialog box. This button allows emulating artwork (that doesn't contain slices) for display by various models of mobile devices, such as cell phones and PDAs.

Adding interactivity

Zoomify is useful for publishing high-resolution, large format images to the web. For additional practice with this feature, you may want to suggest that students use images from the Lesson13/Maps folder.

Viewing the web gallery

Students may receive security warnings when they attempt to view the image gallery on their web pages. In most browsers, you can bypass the security measure, especially since the student is viewing pages on a local system.

If the image gallery does not appear at all, have students verify the file name they entered. The file name must match exactly for the browser to locate and play the gallery file.

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 What role do layers play in animating an image?

5 How do you control the delay between frames?

6 How can you make an animation appear smoother?

7 How do you decide whether to use GIF or JPEG format for a web graphic?

Answers

1 Use the Slice Select tool to select the slices. The Optimize Panel affects selected slices only.

2 There are five types of slices:

- 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.

- Subslices 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 Layers serve as reference points for frames and for important transitional events in an animation, such as tweening.

5 In the Animation panel, click the Frame Delay menu under a frame.

6 Use tweening to create additional frames.

7   Use GIF for flat-color graphics for images that only use a few colors, such as a company logo. Use JPEG for continuous-tone images with subtle transitions or many colors, such as full-color photographs.

Lesson 12: Working with 3D Images

It's fun to work in three dimensions. Simply being able to rotate an object fully can be very exciting. If your students have Photoshop CS4 Extended, this may be their favorite lesson. However, the 3D features are available only in Photoshop CS4 Extended, so if you don't have it, skip the lesson entirely.

For the best results, students should use computers with video drivers that support OpenGL.

Goals for this lesson

Upon completing this lesson, students should understand how the three dimensions (width, height, and depth) work together in space, and how to manipulate those dimensions using Photoshop's 3D tools. They should also be familiar with the 3D panel, and should be able to work with the 3D (Scene) and 3D (Lights) panels comfortably.

Mastering 3D concepts

Before you can use any of the 3D tools or features, you must be working with a 3D layer. There are several ways to create a 3D layer. In this lesson, we cover how to create a 3D shape from a layer, import a 3D file created in a 3D application, and create a 3D postcard from a layer. Students may also choose 3D > New Mesh From Grayscale > [any option] to experiment with that feature.

Point out how a 3D layer differs from a 2D layer in the Layers panel. Students may not understand the differences between meshes, textures, and materials yet, but they should recognize that there are many levels of complexity that can be modified to accomplish different goals.

Creating a 3D shape from a layer

In the lesson, students create a hat shape using the image of a brick wall. Invite students to try creating different shapes, including the donut, soda can, and cylinder using the same image. They can also use their own images to create new 3D shapes.

Manipulating 3D objects

Emphasize the difference between tools that move the 3D object and tools that move the camera position. You may want to demonstrate this in the real world: Invite a student to the front of the room, standing in front of a book, pen, or other object. Then, move the object while the student (acting as the camera) remains still. Replace the object, and instruct the student to move to a different position and describe the new view. Note that the object itself hasn't moved in relation to the floor, desk, etc., but that the camera provides a different perspective.

Viewing 3D cross-sections

Cross-sections are intriguing. However, students can be disappointed when they try to create cross-sections of 3D images that contain no interior details. Note that in order to provide a useful cross-section, you must create a more detailed 3D image in a 3D application. You can, of course, use cross-sections artistically without detailed interiors.

Discuss with students why cross-sections might be useful to manufacturers, scientists, educators, engineers, and professionals in other fields.

Using the 3D Axis

On systems with OpenGL enabled, Photoshop displays the 3D Axis whenever a 3D layer is active. The 3D Axis can give you greater control while you manipulate the object on each axis. However, students may require a bit of practice to know which axis is active and how the movement affects the object. Encourage them to play with the 3D Axis until they feel comfortable with it.

You do not need to use the 3D Axis to accomplish any 3D task. It is a convenience, not a requirement.

Questions

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

1   How can you create a 3D layer from a 2D image?

2   How can you view a cross-section of a 3D image?

3   What does the 3D Axis represent? Which colors represent which axes?

Answers

1   Choose 3D > New 3D Postcard From Layer or 3D > New Shape From Layer

2   Select Cross-Section in the 3D panel.

3 The 3D Axis represents the three axes you can manipulate in a 3D object. The red arrow controls the x axis; the green arrow controls the y axis; and the blue arrow controls the z axis. The box at the base of the 3D Axis scales the object.

Lesson 13: Working with Scientific Images

Though this lesson is designed to benefit professionals working with scientific or technical images, it also includes some nice design techniques that can translate to many applications—including highlighting an inset selection within an image and creating dashed lines and custom borders.

Whether students have Photoshop CS4 Extended or not, it's a good idea to briefly introduce them to its capabilities—all the features in the standard edition of Photoshop, plus functions for specialized markets, including technical image analysis, film and video work, and three-dimensional design. This lesson shows how to use Photoshop Extended measurement and data analysis tools.

The students won't change the appearance of the original sample files, other than to label them. But they will rename them and add some metadata and keywords to the remaining files.

Adobe Bridge is especially useful to students who work with digital cameras. Bridge takes the sting out of sorting through large numbers of unnamed photographs that do not have descriptive file.

Lesson 13 covers enhanced functions in Adobe Bridge as well as features of Photoshop CS4 Extended. It's possible that not all classrooms will have this version of Photoshop. However, students can partially complete the lesson, up to "Measuring objects and data," and then read through the rest.

Goals of this lesson

At the conclusion of this lesson, your students should know how to use Adobe 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. They should understand how to use the Measurement feature in Photoshop CS4 Extended to measure objects and record data, and to compare and analyze the information.

Viewing and editing files in Adobe Bridge

Make sure students understand that they do not have to use Bridge to open a file. If they are not beginning computer users, they will already be familiar with the standard methods of selecting multiple items. If necessary, define the word *contiguou*s.

Creating a map border and work area

Point out to students that this technique for highlighting an inset (or an inverse selection) is useful for other designs.

Making a custom border

Students can apply this technique of creating a dashed line—as well as creating a custom border—to other design work.

Measuring objects and data

The Measurement feature lets you compute various measurements and record them in the Measurement Log panel.

The Ruler tool in Photoshop calculates the distance between any two points in the workspace. The Measurement feature in Photoshop Extended measures any area defined with the Ruler tool or with a selection tool, including irregular areas selected with the lasso, quick select, or magic wand tools.

The Measurement feature can also compute the height, width, area, and perimeter; and it can track the measurements of one image or multiple images. Measurement data is recorded in the Measurement Log panel, where it can be sorted or exported to a spreadsheet file.

Emphasize to students the importance of beginning with a control measurement against which they can verify the accuracy of other measurements.

Measuring irregular shapes

It may be useful to ask students how they would approach measuring areas and objects of different shapes. Discuss strategies for measuring irregular shapes that can't be measured neatly between Point A and B.

Measuring in perspective with the Vanishing Point filter

For accurate measurement when using the Vanishing Point filter, students need to position the pointer over the grid. A red border indicates a measurement was made outside of the grid; results won't be accurate.

Questions

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

1 How can you rank images in Adobe Bridge?

2 How can you lighten a border area?

Answers

1 Select an image or multiple images in Adobe Bridge, and then choose Label > [star ranking] or a label ranking.

2 To lighten a border area, first select the interior, and then choose Select > Inverse. Now the border is selected. Add a Hue/Saturation adjustment layer, and increase the brightness.

Lesson 14: Producing and Printing Consistent Color

Lesson 14 walks students through a basic color workflow, including printing a proof and printing separations. Commercial printers have widely varying requirements for color management. Students should understand the importance of discussing color with the printer to understand how the appropriate settings to use for the job and how to hand it off. 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 anticipate the printed output.

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 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. When you see one of these messages, yo can do one of two things:

• 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, 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 select 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. Therefore, the image may not look right on the screen even if its colors are actually correct. 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 students that Photoshop is simply being honest about which 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.

Questions

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

1 What is a working space?

2 Which working spaces should you select 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?

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.