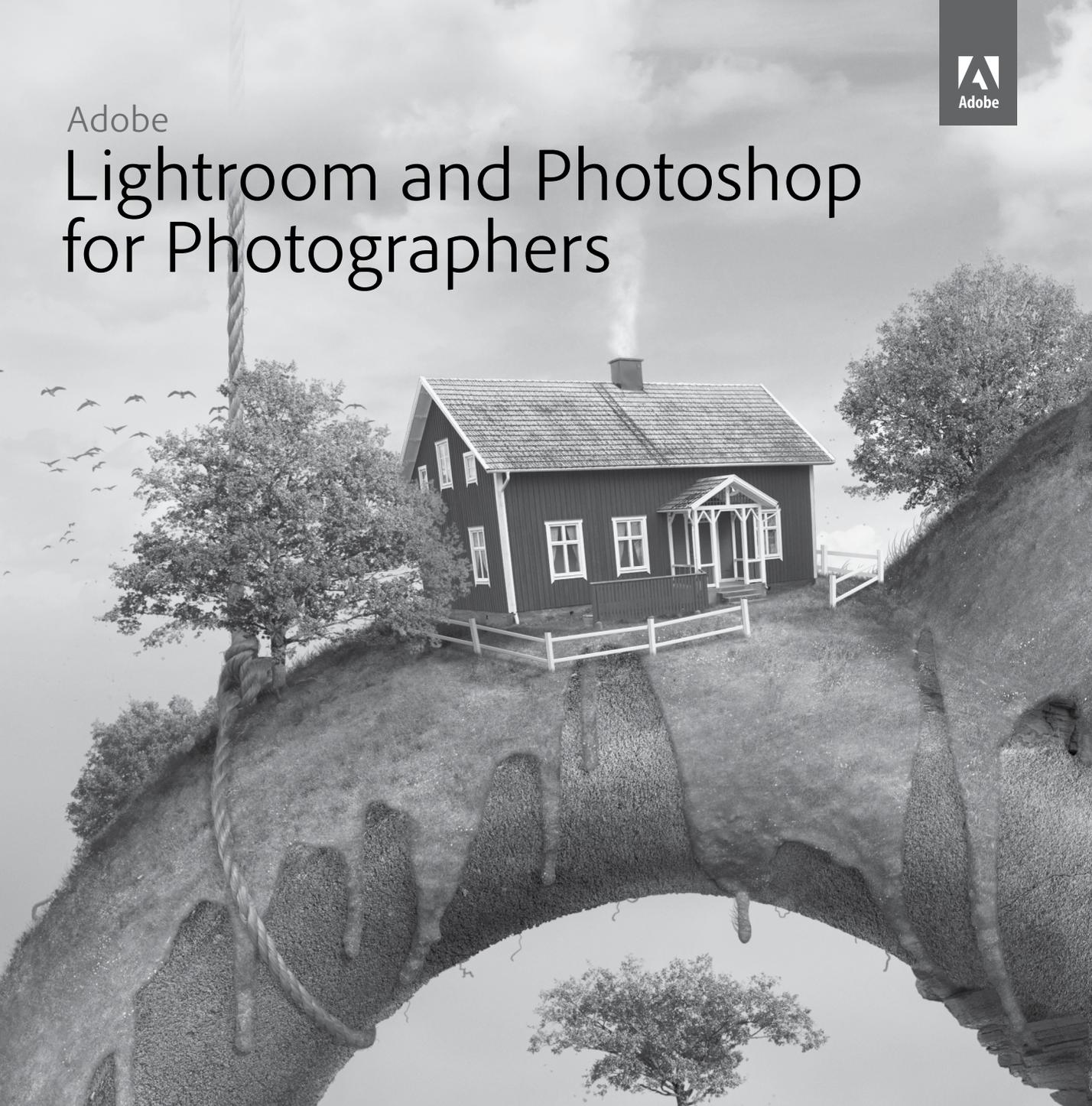




Adobe

Lightroom and Photoshop for Photographers



CLASSROOM IN A BOOK[®]

The official training workbook from Adobe

Instructor Notes

Adobe® Lightroom® and Photoshop® for Photographers Classroom in a Book®, Instructor Notes

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INSTRUCTOR NOTES

Introduction

Adobe Lightroom and Photoshop for Photographers Classroom in a Book provides students with solutions and techniques for using Adobe Lightroom and Adobe Photoshop software to process their photographs. These instructor notes complement that book, providing instructors with behind-the-scenes information and insights.

These instructor notes are sequenced to follow the lessons in *Adobe Lightroom and Photoshop for Photographers Classroom in a Book*.

About the Classroom in a Book

We recommend that each student in the class have an individual copy of *Adobe Lightroom and Photoshop for Photographers Classroom in a Book*. Students will use the book as you lead them through projects. Alternatively, students can use the book as a self-paced tutorial to complement your classroom instruction.

Course strategy

The book contains nine lessons, including the “Getting Started” lesson. If you’re teaching a 10-session course, you can teach one lesson per session, reserving the final session for review and critique of students’ work. If you’re teaching a 16-session course, you can teach one lesson every other session, interspersing the instructional lessons with practice sessions.

Classroom requirements

Install Lightroom 5 or later, Photoshop CC or later, and the latest Camera Raw plug-in for your version of Photoshop on each classroom workstation. At home, students can use older versions of the software back to Lightroom 4 and Photoshop CS6, although some of the exercises in the book will not work the same way in older software versions.

Each workstation should meet Adobe’s minimum system requirements for the software, as described in Adobe’s help files:

<https://helpx.adobe.com/lightroom/system-requirements.html>

<https://helpx.adobe.com/photoshop/system-requirements.html>

Each student should have a digital camera memory card reader and memory card for use in Lesson 1, “Importing from a camera.”

Managing student projects

The “Getting Started” lesson instructs each user to create a folder named LPCIB to contain both the lesson files and a Lightroom catalog for those files. To simplify file storage and retrieval in the classroom environment, include the student’s name in the title of that folder: *student name* LPCIB. The work a student produces during the course will be located inside that folder, both in the Lightroom catalog that resides in that folder and in derivative photographs generated by using Lightroom and Photoshop together. (Derivative photographs are versions of files saved from Photoshop during the Lightroom–Photoshop roundtrip workflow. They are automatically saved to the same location as the original photographs from which they are derived, as explained in Lesson 2.)

Store each *student name* LPCIB folder on the student’s workstation or on an external drive, rather than on a server or network drive. Adobe does not recommend storing and using Lightroom catalog files on a network.

You can view and evaluate a student’s work during the course by opening the Lightroom catalog located in that student’s *student name* LPCIB folder. If you want to view a student’s work on another computer (the instructor computer), copy the entire *student name* LPCIB folder from the student’s classroom workstation to the instructor computer or to an external drive. Launch the Lightroom application on the instructor computer while holding the Alt/Option key. In the Select Catalog window that opens, select the copy of the LPCIB Catalog.lrcat file that is on the instructor computer or external drive and click Open. Lightroom may indicate that files and folders are missing, because this catalog is still linked to the files on the student’s classroom workstation. However, you can still view and evaluate missing images from the instructor computer.

If for some reason you want to make Develop module adjustments to missing images from the instructor computer, you must re-link the images. To do that, go to the Folders panel in the Library module on the instructor computer, right-click/Control-click the question mark on the top-level folder that contains the lesson files (the Lessons folder), and choose Find Missing Folder. In the window that opens, navigate to the *student name* LPCIB folder > Lessons folder you copied to the instructor computer or external drive. For more on re-linking missing files and folders, see the “Moving a folder and files outside Lightroom” sidebar and “Re-linking missing files” section in Lesson 3.

Getting Started

The Getting Started lesson is an important one to cover with your students for two reasons:

- This chapter explains when and why to use Lightroom and Photoshop together.
- This chapter includes some of the logistics for the provided lesson files. It explains where to find the lesson files, how to download them, and how to create a Lightroom catalog for use with those files.

Why to use both Lightroom and Photoshop

Emphasize that there are good reasons to use both Lightroom and Photoshop rather than rely exclusively on either one of these applications.

Explain how the two applications differ in terms of their purpose and structure:

- Lightroom is a photo-centric application, designed to meet the needs of photographers. Photoshop is used not only by photographers, but by other creative professionals too. This fact affects the features available in each program. For example, Photoshop has compositing, graphics, and retouching capabilities you won't find in Lightroom.
- Photoshop is focused on image editing. Lightroom addresses other aspects of a photographer's workflow too, from importing and organizing photos to outputting and sharing photos.
- Lightroom offers efficient ways to process lots of photographs relatively quickly. Photoshop's many editing options make it ideal for fine-tuning a single image.
- Photoshop is a pixel editor; it changes an image by altering its pixels. Lightroom is a parametric editor. This means that Lightroom does not alter pixels; it simply keeps track of information about a photograph, including all editing parameters that you adjust in the Develop module. This has many practical consequences for working in the two programs. For example, there is no Save command in Lightroom like there is in Photoshop, because the changes you make in Lightroom are automatically recorded in the Lightroom catalog.

Explain that the differences in Photoshop and Lightroom cause each program to excel at different tasks, and the ideal workflow is one that takes advantage of the strengths of each application. Introduce the kinds of tasks that are best done in Lightroom and those best done in Photoshop. These are summarized in the "Getting Started" lesson and detailed throughout the book.

Lightroom's strengths include:

- Photo management and organization
- Conversion of raw files
- Streamlined photo processing
- Batch processing multiple photographs
- Outputting and sharing photographs

Photoshop's strengths include:

- Combining photographs
- Precise photo adjusting using selections and masks
- Retouching and removing content
- Adding text, graphics, and special effects

Downloading the lesson files

Sample image files, called lesson files, are provided for use with the exercises in the book. Download a copy of the lesson files to each classroom workstation, following the steps in “Downloading the lesson files” in the book. You have the option to download a Lessons folder that contains all the lesson files for the entire book or lesson files for individual chapters.

Store the lesson files on each workstation and in the folder structure detailed in this section of the book, with one exception for the classroom environment: This section of the book suggests creating a folder titled LPCIB to hold the lesson files and Lightroom catalog. Instruct each student to include his or her name on that folder (*student name* LPCIB), as recommended earlier in this guide in “Managing student projects.” This will help you identify a particular student's work during the course.

Creating a Lightroom catalog for use with this book (and course)

Explain that a Lightroom catalog is a database that contains a record of each photograph included in the catalog. That record includes data from the digital camera with which a photograph was shot, organizing information added in Lightroom, and instructions about how a photograph is adjusted in Lightroom. For more on catalogs, see “Understanding catalogs” in Lesson 1.

Instruct students to create a separate Lightroom catalog for classroom use by following the steps in this section of the book. Executing the steps will generate Lightroom catalog files in the *student name* LPCIB > LPCIB Catalog folder on each

student's classroom workstation. When Lightroom is closed, the catalog files are those ending in .lrcat and .lrdata; when Lightroom is open, there are some additional, temporary catalog files.

At this point the student's Lightroom catalog will be empty. Wait until the Lesson 1 section, "Importing from a drive," to introduce importing lesson files into the catalog. This will allow you to use the Lesson 1 files to simulate the process of importing any photographs that are already on a computer drive, which is an important real-world step when students are working with their own photographs outside of class.

Have students import files lesson by lesson at the beginning of each of Lessons 2 through 8. This will reinforce the importing process and give you the opportunity to teach individual lessons independently.

Getting Help

The book focuses on using Lightroom and Photoshop together. If you or your students want additional help with either application, consult the links and resources listed in "Getting Help" in the book.

Help in the Applications

Complete Help documentation is accessible from the Lightroom and Photoshop applications when an Internet connection is active. In Photoshop CC, choose Help > Photoshop Help. In Lightroom 5, choose Help > Lightroom Help.

The first time a module is opened in Lightroom, a series of tips specific to that module is displayed. Those tips can be displayed again by choosing Help > [*module name*] Module Tips.

Help on the web

The most comprehensive and up-to-date help for Lightroom and Photoshop is located online at:

- helpx.adobe.com/lightroom/topics.html
- helpx.adobe.com/photoshop/topics.html

Help PDFs

PDFs of Help documentation for Lightroom and Photoshop can be downloaded from:

- helpx.adobe.com/pdf/lightroom_reference.pdf
- helpx.adobe.com/pdf/photoshop_reference.pdf

Additional Resources

Other useful resources for Lightroom and Photoshop are listed in “Additional Resources” in the book, including resources specifically for educators: www.adobe.com/education and edex.adobe.com.

Adobe TV is an excellent online video resource for expert instruction and inspiration about Lightroom, Photoshop, and other Adobe products: tv.adobe.com.

Adobe Learn and Support is a comprehensive resource for tutorials, support, and new feature information: helpx.adobe.com/support.html.

Lesson 1:

Getting Ready to Use Lightroom with Photoshop

This lesson is about preparing to use Lightroom and Photoshop together. It covers Lightroom’s catalog system, where to store photographs for use with Lightroom, importing photographs into Lightroom, and setting up Lightroom and Photoshop so they work together smoothly.

Preparing for this lesson

This section instructs students how to launch Lightroom at the beginning of each classroom session. Although there are other ways to launch Lightroom, encourage students to use this method in class to ensure they are working in the correct catalog for your course—the LPCIB catalog they created earlier in the “Getting Started” lesson.

Understanding catalogs

Explain that a Lightroom catalog is a database containing information (metadata) about the photographs you choose to include in that catalog. The catalog does not contain actual photographs—a common misconception.

An effective teaching tool is to compare a Lightroom catalog to a card catalog in a traditional library. A library card catalog contains a card, or record, for each book in the library system. That card contains information about the book, including where it is located. Obviously, the books themselves are not inside the card catalog; a particular book may be on a shelf in the library or perhaps off-site.

Similarly, a Lightroom catalog contains a record of each photograph in the catalog, including a link to the location where the photograph is stored. This record also contains information from the camera with which the photograph was shot (like camera settings, date and time, and more), and descriptions of everything added to the photograph in Lightroom (such as keywords, Develop module adjustments, and more). The photograph itself is not located inside the Lightroom catalog; it is located in a folder on the computer or perhaps on an external drive. The Lightroom catalog keeps track of that location even if the photograph is on a different drive than the catalog and even if the photograph is on a drive that is currently offline.

Have students look inside their *student name* LPCIB > LPCIB Catalog folder to see the .lrcat and .lrdata database files that make up the Lightroom catalog. Emphasize that these catalog files are separate and distinct from the photographs they’ll include in the catalog, which are located in the *student name* LPCIB > Lessons folder.

How many catalogs to use

Clarify to your students that although they have made a separate catalog for this course, it's good practice outside of class to use a single catalog for all their photographs. A single catalog is easier to manage and facilitates finding particular photographs, because Lightroom can search only one catalog at a time.

Storing your photographs

Help students manage their personal photographs outside of class by offering these tips:

- Photographs do not have to be stored on the same drive as the Lightroom catalog. It's common to store photographs on one or more large external drives and keep the relatively small catalog files on a computer.
- Organize existing photographs into folders before importing them into Lightroom. This may take some time, but the effort will pay off later in Lightroom with a well-organized folder structure in Lightroom's Folders panel that will be easy to build upon as new photographs are imported. There is no special, required folder structure. To see an example of a simple date-based folder structure that many photographers use, open the Lesson 1 folder outside of Lightroom.
- Put all the folders of photographs inside one top-level folder and give that folder an inclusive name like Lightroom Photos. This will make it easier to relocate the photos to a larger drive if and when they outgrow the current drive. At that point, just copy the Lightroom Photos folder to a larger drive and point Lightroom to the copy (by right-clicking/Ctrl-clicking the Lightroom Photos folder in the Folders panel, choosing Update Folder Location, and navigating to the copy of the Lightroom Photos folder on the larger drive).

Importing photographs into Lightroom

Importing is a prerequisite to working with the lesson files or any photographs in Lightroom. Explain that importing does not bring actual photographs into Lightroom, as the term *import* implies. Rather, importing creates a record of photographs in a Lightroom catalog.

This section covers two import methods: importing existing photographs from a drive, and importing new photographs from a digital camera. We suggest you teach the simpler process of importing from a drive first, using the Lesson 1 files. Then teach importing from a digital camera, using camera memory cards that students bring to class.

Importing from a drive

This section walks students through importing photographs that have already been offloaded from a digital camera to a computer or external drive. When Lightroom “imports” these photographs, it simply makes a record of them in the Lightroom catalog.

Students will import the Lesson 1 files located on their workstations into the LPCIB catalog created in the “Getting Started” lesson.

Teaching the process of importing from a drive is important for two reasons:

- This is the method students will use outside class to import photographs from their own drives into their own Lightroom catalogs. The Lesson 1 files are organized into folders to represent how they might organize their own existing photographs.
- This is the method students will use at the beginning of each subsequent lesson to import the files for that lesson.

Lightroom’s Import window is large and offers many options. As you work through this window with students, simplify it by breaking it down into three areas: source settings in the left column, import method settings in the bar at the top of the center section, and additional options in the right column.

Explain that Add is usually the best import method for importing photographs that have been organized on a drive, because it leaves them where they are, without moving or copying them, and just adds a record of them to the catalog. In this exercise, choosing the Add method ensures that the lesson files will remain in the *student name* LPCIB > Lessons folder.

Importing from a camera

This section covers importing photographs from a camera’s memory card. When Lightroom imports these photographs, it does two things: It offloads the photographs from the memory card to a designated drive, and it makes a record of them in the Lightroom catalog.

There are no lesson files for this exercise. Instead, ask each student to shoot some photographs with a digital camera and bring the camera and its memory card to class. A compatible memory card reader or cable will be necessary to import these photos to the student’s classroom workstation.

The only available import methods for importing photographs from a camera are Copy and Copy as DNG. This exercise uses the Copy method. Copy as DNG is explained in a sidebar in the “Importing from a drive” section.

Point out that there are more panels and options on the right side of the Import window when importing from a camera than when importing from a drive,

including the To field at the top of the right column, the File Renaming panel, and the Destination panel, each of which is addressed in this section.

Note that the default settings in the Import window's Destination panel automatically import photographs into subfolders labeled by shoot date. The instructions in this section suggest alternative destination settings that allow customizing the import destination folder. Have each student customize the destination settings to suit the particular photographs they are importing. The destination a student chooses is not critical, because these photographs are not used again in the lessons in the book.

Preparing Lightroom and Photoshop for integration

This section covers technical prerequisites for using Photoshop and Lightroom together: setting Lightroom preferences, setting Photoshop preferences, choosing Photoshop Color Settings, and keeping Lightroom and Camera Raw updates in sync.

You'll see the terms *RGB file* and *RGB image* used in this section and throughout the book. These terms refer to TIFF, PSD, and JPEG format files, as distinguished from raw files. This distinction is important, because raw files and RGB files are treated differently in the Lightroom–Photoshop roundtrip workflow, as covered in Lesson 2.

Setting Lightroom's External Editing preferences

Lightroom's External Editing preferences control image properties with which files are passed between Lightroom and Photoshop. It's important to go over these preferences with students now, because these preferences affect the behavior of Lightroom and Photoshop throughout the rest of the course.

Configuring primary external editor preferences

The first section of Lightroom's External Editing preferences contains the primary external editor preferences, which are the most important preferences for purposes of this course. These preferences determine initial image properties with which files open into Photoshop when it is used as Lightroom's primary external editor. The primary external editor is the default editor to which Lightroom passes files. It is listed first in Lightroom's Edit In menu (the menu used to pass files to external editors) and is invoked by the keyboard shortcut Ctrl-E/Command-E.

The latest version of Photoshop installed on a computer automatically becomes the primary external editor.

The steps in this section of the book walk students through setting the properties with which the lesson files will open from Lightroom into Photoshop on their classroom workstations. Use the explanations in each step to discuss the best choice for

each setting, which varies depending on use case. The options used for the lessons in the book are:

- File Format: TIFF
- Color Space: ProPhoto RGB
- Bit Depth: 16 bit
- Resolution: 240
- Compression: None

After setting these options, have students hand off a photograph from Lightroom to Photoshop as the primary external editor so they can see that the options they chose in Lightroom will be applied in Photoshop. The following instructions for doing that are supplementary to this section of the book:

- 1 In Lightroom's Library module, select any Lesson 1 image and press Ctrl-E/Command-E to open it into Photoshop.
- 2 In Photoshop, click the information area at the bottom of the document window and choose Document profile.

Notice that the color space and bit depth reported there are the same as those chosen in Lightroom's preferences.

- 3 Click that same information area and notice that the resolution reported there is the same as the resolution chosen in Lightroom's preferences.

The initial color space, bit depth, and resolution are not permanent; they can be changed in Photoshop. The file format chosen in Lightroom's preferences (TIFF) does not yet appear in the filename in the document tab, because the rendered image exists only in memory until it is saved in Photoshop.

- 4 Choose File > Save and notice that the filename in the document tab now has a TIFF suffix. Close the image in Photoshop and return to Lightroom's External Editing preferences.

Configuring Additional External Editor preferences

The Additional External Editor preferences, located in the second section of Lightroom's External Editing preferences, are not critical to the main workflow in this course, so feel free to treat this subject lightly in class. The Additional External Editor preferences are relevant only if the student has another editor installed in addition to Photoshop and is passing an image from Lightroom to the additional editor.

Setting the stacking preference

The term *derivative file* is used throughout the book to mean the additional image that is generated when a source file is saved from Photoshop during a Lightroom–Photoshop workflow.

The stacking preference in Lightroom's External Editing preferences affects whether a derivative file will appear in a stack with its source file in Lightroom's Library module grid and in Lightroom's Filmstrip. If students uncheck the stacking preference, advise them to set the Sort menu in Lightroom's Library module toolbar to File Name or Capture Time, so derivative files end up near their source files in Lightroom.

Setting the file-naming preference

The file-naming preference in Lightroom's External Editing preferences determines the names of derivative files generated during a Lightroom–Photoshop workflow.

By default, derivative files will have the original filename followed by *-Edit* and then the suffix of the file format set in the primary external editor preferences. This section explains how to customize derivative filenames using the Filename Template Editor.

This is the same Filename Template Editor used to rename files in the Import window, the Export window, and elsewhere in Lightroom. If you covered the Filename Template Editor earlier in this lesson in “Importing from a camera,” students already know how to use it.

Configuring Photoshop's Color Settings dialog

The next two sections take place in Photoshop, rather than Lightroom. This section suggests setting Photoshop's RGB working color space to ProPhoto RGB to match Lightroom's native ProPhoto RGB color space so that colors in an image appear consistent in Lightroom and Photoshop on a student's workstation.

Configuring Photoshop's Maximize Compatibility preference

This section explains how to enable Photoshop's Maximize Compatibility preference to ensure that Lightroom can read layered Photoshop files.

Keeping Lightroom and Camera Raw in Sync

To avoid the appearance on students' workstations of mismatch warnings (like the one shown in the “Encountering a Lightroom–Camera Raw mismatch” sidebar in Lesson 2,) keep Lightroom, Photoshop, and Camera Raw up to date on all classroom workstations.

Lesson 2: Lightroom–Photoshop Roundtrip Workflow

This is the most critical lesson in the course. Use it to walk students through the steps of a complete Lightroom–Photoshop roundtrip workflow. The steps covered in this workflow are:

- Making initial, nondestructive adjustments to a raw file in Lightroom
- Rendering the raw file to an RGB file by passing it from Lightroom to Photoshop
- Making layered edits in Photoshop (adding type and removing content)
- Saving the RGB derivative file (a TIFF) from Photoshop
- Adding more adjustments to the TIFF in Lightroom (converting to black and white)
- Taking the TIFF back to Photoshop for another round of editing (re-editing the type layer)
- Exporting a copy of the file from Lightroom with all the Lightroom and Photoshop edits

Related topics covered in this lesson include:

- Using each of the three options for passing an RGB file from Lightroom to Photoshop (Edit Original, Edit a Copy with Lightroom Adjustments, and Edit a Copy)
- The differences involved in starting a Lightroom–Photoshop workflow with a JPEG

Preparing for this lesson

This section, which is found at the beginning of each of Lessons 2 through 8, reminds students to take the preparatory steps introduced in the “Getting Started” lesson if they haven’t already done so: setting up a *student name* LPCIB folder to house the student’s lesson files and Lightroom catalog, downloading the lesson files to the LPCIB folder, and opening the LPCIB catalog.

It is recommended that students import the lesson files into the LPCIB catalog on a lesson-by-lesson basis. Step 4 consists of step-by-step instructions for importing the Lesson 2 files into the LPCIB catalog. For more detail on any of these import steps, refer to Lesson 1, “Importing from a drive,” which covers using the same import method to import any photographs from a drive into Lightroom.

Taking a raw file from Lightroom to Photoshop

Before walking students through the roundtrip Lightroom–Photoshop workflow detailed in this lesson, summarize the workflow.

The workflow starts in Lightroom because that’s where the hook between Lightroom and Photoshop—the Edit In menu—is located. It makes sense to start in Lightroom for a number of other reasons: The comprehensive photo management system in Lightroom’s Library module (described in Lesson 3) is home base for many photographers, and developing photographs in the same application in which they are managed is convenient and seamless. The adjustments made in Lightroom are nondestructive of the original image; they are just text-based instructions stored in the Lightroom catalog. And frankly, adjusting photographs using Lightroom’s intuitive Develop module controls is easier for many users than editing in Photoshop.

However, sometimes Lightroom’s capabilities aren’t enough. Compositing with layers, stitching panoramas, blending HDR images, complex masking, advanced retouching, and the other enhancements addressed in the book are tasks for Photoshop. And that’s where the roundtrip workflow comes in.

The roundtrip workflow in a nutshell is this: Apply initial, nondestructive adjustments to source images in Lightroom, pass those photographs from Lightroom to Photoshop for pixel-based editing, and save derivative images from Photoshop that can be managed back in Lightroom along with the source images. Additional round-tripping between Lightroom and Photoshop to add more edits in both programs is also an option.

Students may ask you about Camera Raw and how it compares to Lightroom. The Camera Raw plug-in for Photoshop offers nearly the same features as Lightroom’s Develop module. Camera Raw and Lightroom are both raw converters, they use same raw conversion engine, and Camera Raw is often responsible for rendering photographs behind the scenes from Lightroom to Photoshop as explained in this lesson. So a common question is why you would use Lightroom rather than Camera Raw to process photographs. One reason is that Lightroom is built on a database; Camera Raw is not. Lightroom’s database structure supports many powerful features in Lightroom that Camera Raw does not have (offline browsing, Smart Previews, virtual copies, and perpetual history, to name just a few). A related reason is that Lightroom includes a sophisticated photo manager—the Library module. Although Camera Raw can be used with Adobe Bridge, Bridge is a just file browser, not a database with the sophisticated photo management features found in Lightroom.

Making initial adjustments in Lightroom

Have students make some Basic panel adjustments to the Lesson 2 DSCF0431.dng file, a raw photograph of clouds behind a mountain. The specific adjustments are not of consequence for this exercise. The idea is just to make some adjustments in Lightroom before passing this file to Photoshop. Choosing Basic panel settings is covered in detail later in Lesson 4, “Adjusting color and tone in the Basic panel.”

If your students want guidance with Basic panel adjustments for this image now, suggest increasing Contrast slightly, decreasing Highlights significantly to recover detail in the clouds, increasing Shadows to recover detail in the dark trees, increasing Whites to set a white point, decreasing Blacks to set a black point, increasing Clarity for midtone contrast, and increasing Vibrance slightly for color saturation.

In this section and throughout the course, do not require students to use the same adjustment values that are displayed in the illustrations in the book or that you use in classroom demonstrations, because each monitor may be calibrated differently. Allowing students to choose settings themselves also encourages creativity, self-expression, and experimentation.

Students will continue working with this same image throughout much of this lesson, so they should leave it open at the end of each section and continue using it in the next section unless the instructions indicate otherwise.

Rendering a raw file into Photoshop

In this section, students use Lightroom’s default Edit In command to hand off to Photoshop the raw source file with its initial Lightroom adjustments, in order to add text and remove content in Photoshop.

Lightroom’s default Edit In command is Edit In Adobe Photoshop CC (or the latest version of Photoshop installed on the student’s workstation). That command is the first option in Lightroom’s Edit In menu. The Edit In menu is accessible from a number of places—the Photo menu in the menu bar at the top of the Library, Develop, and Map modules, and the contextual menus that pop up when you right-click/Ctrl-click an image in many of Lightroom’s modules. The keyboard shortcut for the default Edit In command is Ctrl-E/Command-E.

Explain that passing a raw file from Lightroom to Photoshop appears to be seamless, but behind the scenes the Camera Raw plug-in is working to render the raw file to pixels so that it can be viewed and edited in Photoshop. If you were to open a raw file from outside of Lightroom (for example, from Adobe Bridge), the Camera Raw window would appear. However, when a raw file is passed from Lightroom to Photoshop using the default Edit In command, the Camera Raw window does not appear. Instead, Camera Raw goes to work behind the scenes to render the raw file and open it directly into Photoshop.

The image opens in Photoshop with the initial Lightroom adjustments that students made in the last section of this lesson. The color space, bit depth, and resolution of the image in Photoshop are those that students set in Lightroom's preferences in Lesson 1. The filename at the top of Photoshop's document window still displays a raw suffix (.dng), because the rendered image exists only in memory until it is saved in Photoshop.

Encountering a Lightroom-Camera Raw mismatch

If the versions of Lightroom and Camera Raw on a classroom workstation don't match, when a student uses the Edit In command to pass an image from Lightroom to Photoshop a warning like this may appear: "This version of Lightroom may require the Photoshop Camera Raw plug-in version [xx]."

Consult the sidebar "Encountering a Lightroom-Camera mismatch," located later in Lesson 2, for information about which option to choose in this warning. To avoid this warning in the future, keep the classroom workstations continuously updated with the latest versions of Lightroom, Photoshop, and Camera Raw.

Editing in Photoshop

In this section, students make two edits to the rendered image in Photoshop—adding text (ASPEN) and removing content (the jet trail in the sky). These edits add a type layer and a pixel layer in the Layers panel. Although Lightroom has some features with which you could attempt these edits (the Identity Plate in Lightroom's Print module for adding small amounts of text, and the Spot Healing Brush tool in Lightroom's Develop module for removing content), Photoshop has more full-featured tools and options for accomplishing both.

If students are Photoshop beginners, you may want to precede this section with an introduction to Photoshop. *Adobe Photoshop CC Classroom in a Book* is a useful resource.

Saving an RGB file from Photoshop to Lightroom

In this section, students save the image they edited in Photoshop in the last section. Saving that image using Photoshop's Save command generates a derivative copy that is automatically included in the Lightroom catalog.

Emphasize the importance of using Photoshop's Save command rather than the Save As command to ensure that Lightroom recognizes the derivative file as related to the source file and includes it in the Lightroom catalog automatically.

The source file in this exercise happens to be a raw file. The derivative file saved from Photoshop is an RGB file, which is always the case in a Lightroom–Photoshop workflow. The format of this derivative file is TIFF, because that's the file format option that students set in Lightroom's primary external editor preferences in Lesson 1.

Point out the differences between the two related files that are now visible in the Lightroom catalog:

- The raw source file displays the initial Lightroom adjustments (Basic panel adjustments). These adjustments remain editable in Lightroom.
- The derivative TIFF file displays both the initial Lightroom adjustments and the layered Photoshop edits (the text ASPEN and the absence of a jet trail). The Lightroom adjustments in the TIFF are baked in and no longer editable, but the Photoshop layers in the TIFF can be accessed and re-edited in Photoshop using Lightroom’s Edit Original command, as students will do shortly.

Making more adjustments in Lightroom

If you plan ahead, a single roundtrip from Lightroom to Photoshop and back to Lightroom may be sufficient to accomplish all edits. However, the derivative file can be fine-tuned with additional rounds of editing in Lightroom and/or Photoshop, as the next few sections demonstrate. In this section, students add another Lightroom adjustment (a black and white conversion) to the derivative TIFF file in addition to the previous Lightroom and Photoshop edits.

Taking an RGB file back to Photoshop for further editing

This section introduces a new concept: passing an RGB file—a TIFF, PSD, or JPEG—from Lightroom to Photoshop. This workflow is not as seamless as handing off a raw file. With an RGB file, after you invoke the Edit In > Edit in Adobe Photoshop [xx] command, there are three editing options to choose from: Edit Original, Edit a Copy with Lightroom Adjustments, or Edit a Copy. (Depending on which version of Photoshop CC you have installed, this command might read Adobe Photoshop CC or Adobe Photoshop CC 2014. Photoshop [xx] is used throughout this guide to stand for versions of the command.)

Students should understand what each of these options does and when each option is most useful.

Edit Original option

Explain that Edit Original is the option to choose when you have a TIFF or PSD file in Lightroom that contains layers that you want to edit in Photoshop. This means that if you add layers in Photoshop during a Lightroom–Photoshop workflow, you’ll be able to access those layers again in Photoshop for re-editing (although the Edit Original option works the same way even if you’re starting with a file that acquired its layers outside of a Lightroom–Photoshop workflow).

In this section, students continue to work with the derivative TIFF from the preceding sections (the black and white version of the photograph of clouds behind a mountain). This image was already passed from Lightroom to Photoshop earlier in the lesson, when it acquired its ASPEN type layer. In this exercise, students pass the derivative TIFF from Lightroom back to Photoshop to edit that type layer.

This TIFF file was converted to black and white in Lightroom in the last section, and it appears black and white in Lightroom. Students may be surprised that when they pass the file from Lightroom to Photoshop using the Edit Original option, the image appears in color in Photoshop rather than in black and white. This is due to the Edit Original option, which displays an RGB file as it was before the last adjustment in Lightroom. Reassure students that the black and white Lightroom adjustment is not gone forever. After editing the TIFF in Photoshop (changing the type layer ASPEN to Colorado) and saving it again, back in Lightroom the TIFF displays the black and white Lightroom adjustment, as well as the change to the text made in Photoshop.

Later in this lesson, in “Completing the workflow in Lightroom,” students will work with this TIFF again. So tell students to be sure to keep this TIFF, with all its adjustments, in their Lightroom catalog. In the meantime, they’ll use other lesson files to explore the other RGB options.

Edit a Copy with Lightroom Adjustments option

Explain that Edit a Copy with Lightroom Adjustments is the most useful option when you’ve made several rounds of Lightroom–Photoshop edits and you want a comprehensive RGB file that displays all your Lightroom and Photoshop adjustments.

This section starts with a different Lesson 2 file, P1100132.psd, a color photograph of spring tulips. This source file is an RGB image—a layered PSD with several Photoshop adjustment layers.

The exercise instructs students to convert this image to black and white in Lightroom and then to pass it to Photoshop using the Edit a Copy with Lightroom Adjustments option. This opens a copy of the image in Photoshop.

The Edit a Copy with Lightroom Adjustments option has the following effects on the copy that’s open in Photoshop: The adjustment made in Lightroom (the black and white conversion) has been embedded and is visible in this copy. The Photoshop adjustment layers that were in the PSD source file have been applied to the copy and flattened (so they are no longer editable).

The exercise instructs students to add a new layer to the copy that’s open in Photoshop (a type layer with the text Spring) and save the file. The resulting RGB derivative file is a TIFF (in accordance with Lightroom’s External Editing

preferences). The TIFF is automatically included in the Lightroom catalog, where there are now two related files:

- The source PSD image displays the Lightroom adjustment (the black and white conversion) and retains the original, editable Photoshop adjustment layers (which could be edited in Photoshop using the Edit Original option).
- The derivative TIFF image displays all the Lightroom and Photoshop adjustments. However, the only adjustment that remains editable is the newly added Spring type layer (which could be edited in Photoshop using the Edit Original option). The other adjustments have been baked into the derivative file.

The following is supplemental to the instructions in the book: If you want to demonstrate that the Lightroom adjustment (the black and white conversion) remains editable in the source file, have students open the PSD source file in Lightroom's Develop module and click the Reset button to change the PSD from black and white back to color. Ctrl-Z/Command-Z will undo that change. To demonstrate that the Lightroom adjustment (the black and white conversion) is not editable in the derivative file, have students open the derivative TIFF in the Develop module and click the Reset button. The TIFF does not change back to color; it remains black and white.

Edit a Copy option

Explain that Edit a Copy can be a useful option when you have a layered RGB image, you've added adjustments in Lightroom, and you want another copy that retains the layers but not the Lightroom adjustments.

This section starts with another Lesson 2 file, P1090025.psd, a color photograph of thistles. This source file is an RGB image—a layered PSD with a hue-saturation adjustment layer.

The exercise instructs students to convert this image to black and white in Lightroom and then to pass it to Photoshop using the Edit a Copy option. This opens an RGB copy of the image in Photoshop.

The Edit a Copy with Lightroom Adjustments option has the following effects: The adjustment made in Lightroom (the black and white conversion) is not visible in Photoshop. The layers that were in the original source file are visible and accessible for editing in Photoshop. A black and white copy of the source image in PSD format automatically appears in Lightroom although the image has not yet been saved from Photoshop.

The exercise instructs students to add a new layer in Photoshop (a type layer with the text Thistle) and save the file. This updates the PSD copy in Lightroom, which now displays the Thistle text but not the black and white Lightroom conversion. There are now two related files in Lightroom:

- The source PSD displays the Lightroom adjustment (the black and white conversion), which remains editable in Lightroom, but it does not display the new Thistle type layer.
- The derivative file (the PSD copy) displays the new Thistle type layer. (The layers could be edited in Photoshop by using the Edit Original command.) But this derivative file does not display the Lightroom adjustment (the conversion to black and white); it is a color image like the original.

Starting with a JPEG

The Lightroom–Photoshop workflow is different if you start with a JPEG in Lightroom, pass the JPEG from Lightroom to Photoshop, and add layers in Photoshop. When the file is saved from Photoshop, Lightroom does not recognize it as a derivative of the original and does not automatically include it in the catalog. This section starts with another Lesson 2 file, DSCF3037.jpg, a color photograph of snail shells in JPEG format.

The exercise instructs students to add a sepia-toned preset to the JPEG in Lightroom, and then to pass it to Photoshop using the Edit Original option (which causes the Lightroom sepia toning not to appear in Photoshop). Students then add a new layer in Photoshop (a type layer with the text PROVENCE) and choose File > Save. This does not automatically save the file and include it in the Lightroom catalog. Instead the Save As dialog opens. Students are instructed to manually choose TIFF as the file format in the Save As dialog to keep the layers intact.

There is now only one version of the image in the Lightroom catalog—the JPEG with the sepia tone preset that was added in Lightroom. The TIFF that was saved from Photoshop is not present in Lightroom. Students are instructed to use the Synchronize Folder command to manually import the TIFF version of the image into the Lightroom catalog. The following files are now visible in Lightroom:

- The original JPEG displays only the Lightroom adjustment (the sepia toning), which remains editable in Lightroom.
- The TIFF version of the image displays only the PROVENCE text added in Photoshop—not the sepia toning added in Lightroom. In essence, Lightroom is treating the TIFF as a separate image from the original JPEG.

Completing the workflow in Lightroom

In this section, students complete the Lightroom–Photoshop workflow, fine-tuning an image in Lightroom and then exporting a copy of the final image with all its Lightroom and Photoshop edits.

This section starts with the TIFF version of the photograph of clouds behind a mountain as it was at the end of the “Edit original option” section earlier in this lesson. This file should be in the students’ Lightroom catalog as DSCF0431-Edit-P.tif. This version of the image is not in the original lesson files; it was generated during this lesson as a derivative of the Lesson 2 DSCF0431.dng file. You’ll find a summary of all the adjustments that were made to this file so far in this section.

Tweaking the RGB file again in Lightroom

This section instructs students to make a few final adjustments to the final image, DSCF0431-Edit-P.tif, in Lightroom (adjusting the Lightroom black and white conversion applied earlier in this lesson, and adding a vignette).

Counsel students to think of the resulting image in Lightroom as the master file. It contains all the adjustments added in both Lightroom and Photoshop through a series of roundtrip edits. It hasn’t been reduced in size, compressed, or otherwise compromised. This is the file to return to whenever someone needs a copy of the final image for a particular purpose.

Exporting from Lightroom

Photoshop users are accustomed to outputting images by saving and often end up saving multiple versions of an image in different formats and sizes for different purposes. There is no save command in Lightroom. Instead, students can use Lightroom’s Export dialog to efficiently generate a copy of an adjusted image at any time with whatever output parameters are needed at the moment.

This section walks students through the process of exporting a copy of the “master file” they generated during the Lightroom–Photoshop workflow in this lesson, DSCF0431-Edit-P.tif. They’ll set all the parameters they need to export a copy of the file to post online, including file format, size, color space, filename, sharpening, and more.

You can supplement this section by discussing how to set these parameters for other use cases, like printing a large print on matte paper, or printing small cards on glossy paper.

If students have access to a printer, you could have students print a copy of the completed lesson file one of two ways:

- Export a copy of the file with the proper export parameters for print. Open the exported file into Photoshop, and print from there.
- Print the image directly from Lightroom’s Print module. For information about the Print module see *Adobe Lightroom 5 Classroom in a Book*.

Lesson 3: Managing Photos in Lightroom’s Library Module

Lightroom’s Library module is a powerful photo manager. It offers multiple ways to view, organize, rank, find, and share photographs, including iterations produced during a Lightroom–Photoshop workflow. This lesson introduces the Library module and demonstrates how and when to use its major features.

Preparing for this lesson

This section instructs students to import the Lesson 3 files to the LPCIB catalog. It is the same as the section of the same name in Lesson 2 and subsequent lessons.

The Library module workspace

This section describes the Library module layout and features, navigation basics (zooming, panning, selecting, and viewing photos), and ways to customize the Library module workspace.

This material lends itself to lecture-style teaching, interspersed with a few exercises.

There is a lot of information in the subsections of “The Library module workspace” section. The teaching points to emphasize follow.

The Folders panel

- Selecting a folder displays all the photographs in that folder and its subfolders.
- The number to the right of a folder reveals the number of photographs in that folder and its subfolders.
- The Folders panel does not display all the folders on a drive for the sake of brevity. To display a folder one level up from a visible folder, right-click/Ctrl-click the visible folder and choose Show Parent Folder. You can repeat this up the folder hierarchy. To hide a parent folder, right-click/Ctrl-click it, and choose Hide This Parent.

The Histogram panel

- The histogram represents the tonal values in a selected photograph from dark tones on the left to bright tones on the right.
- There is useful information under the histogram about the camera settings used to shoot a selected photograph.

- This histogram in the Library module is useful when you're reviewing images after a shoot. There is also a live histogram in the Develop module to consult while you're adjusting a photograph.
- Click on various thumbnails in the Library module grid so students can see the histogram for different images.

The Quick Develop panel

- Quick Develop panel adjustments are relative rather than absolute.
- The Quick Develop panel is useful for applying presets. Presets can also be applied from the Preset panel in the Develop module.
- Most adjustments are done in the Develop module rather than the Quick Develop panel.

The Keyword panels

- There are two keyword panels. The Keywording panel is for creating and applying keywords. The Keyword List panel displays a list of all keywords.
- Keywording is covered in more detail later in this lesson.

The Metadata panel

- The Metadata panel displays information about a selected photograph, some of which comes from the camera and some of which is created in Lightroom.
- A quick way to change the name of a single selected photograph is to type a new name in the Metadata panel's File Name field.
- You can add copyright information to photographs using the copyright fields or the Preset drop-down menu in the Metadata panel.

The toolbar

- The keyboard shortcut T hides and shows the toolbar. If you don't see the toolbar at the bottom of the Library module, press T to bring it into view.
- Useful default tools on the Library module toolbar include buttons for switching image views (Grid view, Loupe view, Compare view, and Survey view), the Sort menu for reordering thumbnails in the grid, and the Thumbnails slider for sizing thumbnails in the grid.
- The keyboard shortcut for Grid view is G; the keyboard shortcut for Loupe view is E (not L as you might guess). These shortcuts are used often.
- The toolbar can be customized by clicking the arrow on its right side and choosing other tools.

The Filmstrip

- The Filmstrip displays thumbnails of all photographs in the source selected in the Catalog, Folders, or Collections panel.
- The Filmstrip is most useful when working in Loupe view, Compare view, or Survey view.
- Hide the Filmstrip when you need more room to view images. To hide or show the Filmstrip, click the black border below the Filmstrip.
- The bar at the top of the Filmstrip has useful information, including Go Back and Go Forward buttons and the path to the selected photograph.

The Module Picker

- Click a module name in the Module Picker to switch to that module, or use keyboard shortcuts like D for the Develop module and G for the Library module.
- The Module Picker bar includes a customizable Identity Plate in which a photographer can display his or her identity by entering text or inserting a premade graphic.
- Hide the Module Picker bar when you need more room to view images. To hide and show the bar, click the black border above it.

Zooming and panning

- The zooming and panning options in the Library module are similar to those for the Develop module covered later in these notes.

Selecting

- When you select multiple thumbnails, one will be *most* selected, which means that it will be the source of settings if you synchronize settings among the selected images. Synchronizing is covered in the exercise in this section.
- Get in the habit of selecting the thumbnail frame rather than the thumbnail image for the reason described in the sidebar “Selecting the thumbnail frame.” But do select the thumbnail image to drag an image into a folder or collection in the Library module.

Customizing the Library module

The Library module offers several ways to view photographs. Advise students to memorize the keyboard shortcuts for Grid view (G) and Loupe view (E), because they’ll switch between those views often as they review their photographs in the Library module.

- Grid view (G) displays small thumbnails of many photographs arranged in a grid pattern. To allocate more room to the grid, press Tab to collapse the left and right columns, or press Shift-Tab to collapse all the bars and columns. To collapse a single bar or column, click the thin black border outside that bar or column.
- Loupe view (E) offers a large view of a single photograph that's useful for evaluating the image. Enhance that view further by isolating the image against a darkened background. Press L several times to cycle between Lights Off, Lights Dim, and Lights On views.
- You can also cycle among screen views by pressing Shift-F.

Ranking Photographs

Evaluating and ranking photographs is an important photo management task. The exercises in this section and its subsections suggest some practical ways to employ flags, star rankings, and color labels, and to find photographs by filtering on those attributes.

Emphasize that you do not have to use all these organizational tools.

Suggest using different tools for different purposes to avoid confusing redundancy. For example, students might use flags to indicate picks and rejects and use color labels to indicate photos in a series of panorama or HDR shots.

Urge students to use the tools in a way that makes sense to them. For example, if they decide to use star rankings, they don't have to apply all five of the star categories; it may be more meaningful to use just three-star categories to rank photographs.

Organizing with collections

This section and its subsections demonstrate the power of collections and smart collections to keep track of related photographs without moving them out of their folders.

Teach how to create collections manually first. Suggest using collections in unique ways that are not redundant with folders. For example, rather than using collections as subject matter albums, students could use them to keep track of photographs for use in projects, like a book or website.

Make sure students understand that a photograph can appear in more than one collection and that removing a photograph from a collection does not delete the photograph from the catalog or drive.

Move on to the more sophisticated concept of smart collections. An analogy you may find useful for explaining a smart collection is that it is like a saved search that automatically updates to include each new photograph that meets the search criteria.

The exercise in the section “Building smart collections” uses just a few simple search criteria and rules. You can expand on this lesson by having students create more complex smart collections using different criteria and more rules.

Keywording

Keywording is a powerful way to categorize and find photographs by subject matter. This section and its subsections show how to create keywords, apply keywords to photographs, and use keywords to find photographs.

In addition to using the exercises to demonstrate the mechanics of keywording, supplement the lesson with tips for creating a successful keyword system. Emphasize that the purpose of creating keywords is to build a list of terms that will help a photographer find one or more photographs among many. The key to doing that is to be consistent about keywording. A good time to keyword is right after importing new photographs from a shoot, so the task doesn’t become so large that it overwhelms. And advise students to customize their keyword lists to contain terms they personally would use when searching for a particular photograph.

Moving files and folders

It’s common for novice Lightroom users to end up with question marks on folders and exclamation marks on files in the Library module, indicating that files and folders are missing from the catalog. This section and its subsections clarify what causes those problems, how to avoid them, and how to fix them if they do occur.

The main point is that files that have been imported into a Lightroom catalog should not be moved between folders outside of Lightroom. Doing so breaks the link between the images and the Lightroom catalog, so that from Lightroom’s point of view the files and sometimes the folders are missing. (This problem can also occur if files or folders are renamed outside of Lightroom.)

The section “Moving files inside the Library module” demonstrates how to avoid the problem. The section “Re-linking missing files” shows how to remedy the problem. And the sidebar “Moving a folder and files outside Lightroom” suggests an alternative method for moving large numbers of files to a new location.

Don’t let the warning against moving Lightroom photographs scare you away from viewing student work on another computer or allowing students to take their work home. That is possible if you follow the instructions at the beginning of these Instructor Notes in the section “Managing student projects.”

Lesson 4:

Processing Photos in Lightroom's Develop Module

The Develop module is where students will spend much of their time in Lightroom throughout this course and outside the classroom. So it's important that they understand the layout of the Develop module and how to use its major features—which are the focus of this lesson.

Preparing for this lesson

This section instructs students to import the Lesson 4 files to the LPCIB catalog. It is the same as the section of the same name in Lesson 2 and subsequent lessons.

How Lightroom's editor works

Introduce this lesson by explaining the parametric editing system that underlies Lightroom's Develop module. Use the information in this section to describe how it works, how it differs from pixel editing in Photoshop, and the benefits it offers (nondestructive editing and flexible editing features).

Photo editing workflow

Advise students to take the time to plan a Lightroom–Photoshop workflow in advance so that most fundamental adjustments to photo quality (correcting basic tone and color, removing spots, reducing noise, performing initial sharpening, fixing lens-related issues, and in some cases making local adjustments) are done in Lightroom first before passing files to Photoshop for specific enhancements.

The advantage of this workflow, if the original is a raw file, is that fundamental adjustments are applied while the file is still in its raw state and has maximum editing latitude. Another advantage, whether or not the original is a raw file, is the relative ease with which standard editing tasks can be accomplished using the intuitive controls in Lightroom's Develop module.

The Develop module workspace

This section and its subsections introduce the Develop module interface and offer tips for working in the Develop module, including customizing the Develop module workspace, zooming and panning in the Develop module, undoing adjustments, and comparing before and after views of adjustments.

Interface overview

Take your students on a quick tour of the layout and major features in the Develop module, which are summarized in this section. The first illustration in the “The Develop module workspace” section is a reference map for the Develop module features mentioned in the text.

► **Tip:** By default, the panel columns are set to collapse and expand automatically (Auto Hide & Show) when you hover over the border outside each column. Students may find it more useful to control that behavior manually. To set that up, right-click/Ctrl-click the border outside each column and choose Manual. Then click that border to manually collapse or expand the column. The same option is available for the top and bottom bars as well.

Customizing the Develop module

This section suggests some ways to customize the Develop module, including collapsing bars and panel columns for more working space, and setting the panels in the right column to Solo Mode (which is particularly useful on a small laptop screen).

The sidebar in this section is a useful collection of shortcuts for customizing the Develop module.

Zooming and panning

This exercise shows how to toggle between zoom levels and pan around a zoomed-in image in the center work area. Some points to mention in class are:

- The default zoom levels are Fit (which zooms out until the entire image is visible in the work area) and 1:1 (which displays one image pixel in one screen pixel).
- The 1:1 zoom level is the best for evaluating noise, sharpness, and focus.
- Simply click the image in the work area to toggle between the default zoom levels.
- There is a menu of specific zoom levels at the top of the Navigator panel. Changing that option (for example, choosing 4:1) changes the default zoom levels (which would then toggle between Fit and 4:1). To reset to the original default zoom levels, click 1:1 at the top of the Navigator panel.

Undoing adjustments

The Develop module offers multiple ways to undo and redo adjustments. Methods covered in this section include:

- The undo and redo commands (and their keyboard shortcuts) for rolling backward and forward one step at a time
- The Reset button, which removes all Develop adjustments
- Creating and activating a snapshot of all adjustments to access a particular state of adjustments
- Accessing a history state in the chronological History panel, which remains available even after closing and opening Lightroom (unlike the History panel in Photoshop)

Developing photographs

This section is critical to understanding the essential adjustment tools in the Develop module. The subsections are presented in the optimal order for ease of use and performance, although the results don't depend directly on the order of operations since all Develop module adjustments are just instructions (see "Order of adjustments" in this lesson). The Develop module workflow used in this section is:

- 1 Make fundamental global adjustments (adjustments that affect the entire image) to tone and color in the Basic panel.
- 2 Make additional global adjustments, if needed, in the Tone Curve panel and HSL panel.
- 3 Perform global noise reduction and capture sharpening in the Detail panel.
- 4 Clean up dust spots using the Spot Removal tool.
- 5 Perform Lens Corrections, if needed. Do this after spot removal to maximize performance.
- 6 Apply local adjustments (adjustments that affect part of the image) using the Graduated Filter tool, Adjustment Brush tool, and/or Radial Filter tool.
- 7 Optionally, save metadata to the file, which stores adjustments in the image so that other programs can read them.

The image is ready to pass off to Photoshop if needed.

The lesson files for this section are raw files (although Develop module controls can be used to adjust PSDs, TIFFs, JPEGs, and PNGs too). Explain that the initial appearance of a raw file is just Lightroom's default conversion from raw data to visible image; the Develop module controls give users the ability to fine-tune the initial conversion.

Remind students not to worry about using the exact adjustment values in the illustrations, but rather to use adjustment values that look best on the image on their monitors.

Adjusting color and tone in the Basic panel

The Basic panel contains the most essential Develop module controls, so it should be covered thoroughly. Have students work through all the exercises to get practice applying the Basic panel controls.

Working with the sliders

Draw students' attention to the efficiency tips in this section for using the sliders in the Basic panel and throughout the Develop module:

- To change the value of a slider, either drag it or use the methods in this section to increase or decrease its value in more controlled increments.

- To return a slider to its default value, double-click the slider control or label.
- To compare a Before and After view of just one slider, perform the preceding tip; then press Ctrl-Z/Command-Z to return the slider to its last adjusted value.
- To compare a Before and After view of all sliders in the Basic panel, use the History panel. There is no toggle switch in the Basic panel, as in other Develop module panels.
- To compare a Before and After view of all adjustments made anywhere in the Develop module, toggle the Backslash key [\] on the keyboard or use the Before and After views, as described earlier in this lesson in “Comparing Before and After views.”
- To return all sliders in one of the sections of the Basic panel (WB, Tone, or Presence) to their default values, double-click the name of that section.
- To understand which part of the histogram is primarily affected by a slider, hover over that slider to invoke a gray overlay on that part of the histogram.

White balancing

Introduce each of the three white balance controls—the Temp and Tint sliders, the drop-down menu of white balance presets, and the White Balance Selector tool (the eyedropper icon), which can be used individually or in combination.

Point out that although the official purpose of the white balance controls is to neutralize unwanted color casts, they also can be used to convey mood through color.

Explain that with a raw file, there is complete latitude to adjust white balance in the Develop module from scratch. However, that is not the case with an RGB image, like a JPEG. Hence, the values on the Temperature and Tint sliders and the number of options in the white balance preset menu are different for RGB images than for raw files.

Adjusting exposure and contrast

Describe the difference between exposure (which affects the overall brightness of a photograph) and contrast (which affects the overall range of tones in a photograph).

Adjusting highlights and shadows

The Highlights and Shadows sliders are useful for bringing out detail in light areas (like clouds) and dark areas (like the foreground in a landscape), respectively. Have students hover over both the Highlights and Shadows sliders to see which tones in the Histogram panel each of these sliders primarily affects.

Mention that the Highlights slider does a great job of recovering detail in what may appear to be blown-out highlight areas (bright areas with no detail). This is

particularly true when working with raw files. However, you need to capture some highlight detail to bring it back with the Highlights slider.

Mention that increasing the Shadows slider is useful for revealing detail in shadow areas but that it can leave a photograph looking washed out or flat. Decreasing the Blacks slider can compensate for that.

Setting white and black points

The Whites and Blacks sliders are useful for boosting contrast by setting the brightest areas of a photograph to bright white and the darkest areas to rich black, respectively. Have students hover over both the Whites and Blacks sliders to see which tones in the Histogram panel each of these sliders primarily affects.

Remind students to use the Highlight Clipping warning, as demonstrated in this section, to avoid losing too much detail in the highlights. The Shadow Clipping warning is less crucial but can also be useful.

Adding positive or negative clarity

In this section, students use the Basic panel's Clarity slider in the positive direction to add punch to a photograph. Positive clarity increases midtone contrast and adds edge definition. Warn students not to increase Clarity too much if they want a photograph to have a natural look.

Remind students that the Clarity slider offers another effect—the soft, diffuse glow of negative clarity—that often looks good on a portrait.

Controlling color saturation

Both the Vibrance and Saturation sliders in the Basic panel can be used to make color more or less intense.

Explain the difference between the two sliders. Increasing the Saturation slider intensifies all colors to the same degree, whereas increasing the Vibrance slider has a stronger effect on desaturated colors and protects colors common in skin tones from oversaturation. Encourage students to experiment with each slider and even to try applying them in combination.

Fine-tuning contrast in the Tone Curve panel

Adding a tone curve on top of Basic panel adjustments is optional. Curves are a relatively advanced subject, but the good news for all users is that Lightroom's Tone Curve panel simplifies the process of creating curves. Curves can also be applied in Photoshop, but it makes sense to apply a Tone Curve to a raw file in Lightroom before rendering the image into pixels in Photoshop.

This section introduces several ways of creating curves in the Tone Curve panel—dragging sliders in the Parametric Tone Curve panel, working directly on the image

with the Targeted Adjustment tool, and creating curves in the more advanced Point Curve panel. For more about curves in Lightroom, see “Adjusting contrast using the tone curve” in *Adobe Photoshop Lightroom 5 Classroom in a Book*.

Fine-tuning color in the HSL panel

This section covers changing three properties of color—hue, saturation, and lightness—in the Develop module’s HSL panel.

Emphasize that HSL adjustments affect a color everywhere it appears in an image. Adjusting color in just one part of an image is a job for the Adjustment Brush tool and other local adjustment tools, which are covered later in this lesson.

Reducing noise in the Detail panel

This section covers two kinds of digital noise—color noise and luminance noise—and teaches how to reduce both in the Develop module’s Detail panel.

For this section, students switch temporarily from the photograph they’ve been using for most of this lesson to another photograph in which there is more visible digital noise. Digital noise is most likely to be present in dark areas of a photograph and in a photograph shot with a relatively high ISO.

Remind students to zoom in to 1:1 view to accurately view noise and evaluate its reduction.

Capture sharpening in the Detail panel

This section covers how to perform capture sharpening using the sliders in the Develop module’s Detail panel. The key point is that the sharpening done in the Detail panel is just the first of several rounds of sharpening commonly applied to a photograph. The purpose of capture sharpening is to counteract the softness that is inherent in digital capture. Later, a photograph may also undergo creative sharpening, such as sharpening the eyes in a portrait using the Adjustment Brush tool in Lightroom or the Sharpen tool in Photoshop. And when the final image is ready for output there usually is another round of sharpening geared to the type of output—print or screen. In the Lightroom–Photoshop roundtrip workflow in the book, final output sharpening takes place in Lightroom’s Export module, covered in Lesson 2, “Exporting from Lightroom.”

Caution students that capture sharpening in the Detail panel should not be overdone, because it is likely to be just one of several rounds of sharpening. Also, remind students to zoom in to 1:1 view to evaluate the sharpening they perform in the Detail panel accurately.

Retouching with the Spot Removal tool

The Develop module's Spot Removal tool is useful for hiding spots caused by dust on a lens or sensor, blemishes, and other small pieces of content that fit within a circular patch. Lightroom's Spot Removal tool can also hide some noncircular content, but not always with as much success as Photoshop's content-aware retouching tools.

This section shows how to use Lightroom's Spot Removal tool to make a tiny dust spot visible, remove it from one photograph, and synchronize that correction to other photographs that are marred by the same bit of dust (see the sidebar "Syncing spot removal").

This exercise serves two teaching purposes. Not only does it demonstrate the Spot Removal tool but it also serves as a good example of the ease and power of batch-processing multiple images in Lightroom.

Making lens corrections

This section covers how to fix various lens-related issues in the Lens Corrections panel in Lightroom's Develop module.

Selecting two checkboxes in the Lens Corrections panel's Basic tab—Enable Profile Corrections and Remove Chromatic Aberration—is often all that's needed to fix lens-related geometric distortions, vignetting, and color fringing (see the sections "Applying a lens profile" and "Removing chromatic aberration").

Correcting perspective with Upright

The Upright feature in the Develop module's Lens Correction panel is a powerful way to correct perspective distortions. One common example of perspective distortion is when a tall structure shot from street level appears to be leaning back.

Instruct students to check the Enable Profile Corrections and Remove Chromatic Aberration check boxes in the Lens Corrections panel's Basic tab before applying Upright. Then simply experiment with the four Upright options—Level, Vertical, Full, and Auto—to find the one best suited to a particular photograph.

Making local adjustments

Local adjustments are corrections that affect just part of a photograph. Photoshop's selections and masks are particularly good at isolating corrections, so it makes sense to pass photographs from Lightroom to Photoshop for certain local adjustments, like those covered in Lesson 6. However, some local adjustments can be accomplished efficiently in Lightroom's Develop module using the tools addressed in detail in this section and its subsections.

The Graduated Filter tool (covered in "Working with the Graduated Filter tool"), the Adjustment Brush tool (covered in "Using the Adjustment Brush tool"), and the Radial Filter tool (covered in "Applying the Radial Filter tool") have a lot in

common. So once you demonstrate one of these tools, students will be quick to catch on to the other two. Each of these tools can apply a cocktail of the same adjustments to a local area defined by a mask. The main difference between the tools is the shape of the mask each one builds.

The Graduated Filter tool creates a mask in the shape of a linear gradient. One good use for the Graduated Filter tool is to act like a graduated neutral density filter on a camera lens to even out the exposure between sky and foreground in a landscape.

The Radial Filter tool creates an oval or circular mask. Adjustments can be applied outside a radial filter, which is useful for making flexible vignettes that can be placed off-center and to which multiple effects can be applied. Alternatively, effects can be applied inside a radial filter, which is useful for spotlighting pieces of content.

The Adjustment Brush tool allows the user to create a mask of any shape with brush strokes. This powerful brush can be used to sharpen, dodge, burn, color, enhance, and adjust almost any part of an image.

Multiple adjustments can be made with any of these tools, each represented by a pin that is visible when that tool is selected. Selecting a pin allows you to edit adjustments in the area associated with that pin.

Lightroom's local adjustment tools lend themselves to creative experimentation and artistic expression. Give students time to experiment with these tools on additional images, either in a classroom session or an assignment.

Saving metadata to files

All changes made to a photograph in Lightroom's Develop module or in other modules are automatically recorded in a Lightroom catalog, so there is no requirement to save edits made in Lightroom as there is in Photoshop. However, Lightroom does offer the option to save metadata to files, which will cause all changes made to an image in Lightroom to be stored not only in the catalog but in or with the file as well. This section explains why you might choose to save metadata to files and how to accomplish it.

Working with virtual copies

One of the practical advantages of processing photographs in Lightroom's Develop module over Photoshop's Camera Raw or Photoshop is the ability to create and work on virtual copies in Lightroom. This section briefly explains what a virtual copy is, the benefits it offers, and how to create and adjust a virtual copy.

Cap off this lesson with a work/play session in which students make several virtual copies of a photograph and experiment with applying different looks to each virtual copy, making use of some of the many features and techniques they've learned in this lesson.

Lesson 5: Lightroom to Photoshop for Combining Photos

Lessons 5 through 8 address practical scenarios in which Lightroom and Photoshop are often used together. These practical lessons build on foundational skills covered in the previous lessons.

This lesson walks students through several common scenarios in which Lightroom and Photoshop are used together to combine multiple photographs. Each exercise results in a particular type of composite (a layered design, an HDR image, or a panorama) and demonstrates the best way to move photos between Lightroom and Photoshop to make that kind of composite. You can approach each exercise in this lesson as a distinct subject.

Preparing for this lesson

This section instructs students to import the Lesson 5 files to the LPCIB catalog. It is the same as the section of the same name in Lesson 2 and subsequent lessons.

Creating a layered composite

This exercise has dual purposes:

- It illustrates that when you are managing images in Lightroom that you want to combine into a layered composite, you must pass those photographs to Photoshop for the compositing work. This is one of the most common scenarios in which Photoshop is used with Lightroom.
- It introduces the Open as Layers in Photoshop command in Lightroom's Edit In menu.

Making initial adjustments in Lightroom

The first step in the layered composite exercise is to make adjustments in Lightroom to the photographs you'll be compositing in Photoshop (referred to here as "component photographs"). Teaching points for this section include:

- Do as much adjusting as you can in Lightroom before compositing in Photoshop.

Although Lightroom and Photoshop offer photo adjustment features, it's a good idea to adjust the component images in Lightroom before passing them to Photoshop for compositing. This takes advantage of the relative ease of use of Lightroom's Develop controls, and if the component photographs are raw files, you'll have more editing latitude if you adjust them in their raw state in Lightroom before they are rendered into pixel-based images in Photoshop.

This section instructs students to make a few adjustments in Lightroom's Basic panel. When students are working on their own photo composites, they could use any of the global and local adjustment features Lightroom offers on the component images at this stage.

- As you make adjustments to component photos in Lightroom, try to achieve uniformity of tone, color, and texture so the photographs will look like they go together later in the composite.
- If you need to apply the same adjustments to multiple component photos, it's more efficient to do that in Lightroom than in Photoshop.

When you're working with multiple component photographs that can benefit from the same adjustment, it's simpler to synchronize adjustments among photographs in Lightroom than to batch-process in Photoshop.

- You can synchronize Develop module adjustments in Lightroom in several ways. One method is the manual Sync feature, described in the Lesson 4 sidebar "Syncing spot removal." The alternative Auto Sync feature is introduced in this exercise.

Remind students that when they are finished using Auto Sync, they should turn it off by clicking the toggle switch to the left of the Auto Sync button. This avoids Auto Sync being inadvertently applied to other photographs in the future.

After synchronizing adjustments among photographs, you can continue to make adjustments to individual component photographs, as students do with the Adjustment Brush tool on the photograph of cupcakes in this section.

Using Lightroom's Open as Layers in Photoshop command

The last command in Lightroom's Edit In menu (the menu of commands for passing photographs from Lightroom to Photoshop) is Open as Layers in Photoshop. This command saves time when you're passing multiple photographs from Lightroom to Photoshop for compositing. It opens each selected photograph into Photoshop as a separate layer in a single image.

Alternatively, you could select multiple photographs in Lightroom and choose Edit In > Edit in Adobe Photoshop [xx]. But that would cause each photograph to open as a separate document in Photoshop, and you would have to take extra steps in Photoshop to combine them into one document.

Building out the layered composite in Photoshop

This section uses some basic Photoshop compositing techniques to design a layered composite, including converting layers to Smart Objects so you can transform them without risking loss of image quality, transforming multiple layers to scale down their contents, positioning layered images with the Move tool, and aligning layers with Move tool options. The point of this section is not to teach all the nuances of compositing in Photoshop—which is a big topic in itself—but rather to include some representative compositing techniques in the context of using Lightroom and Photoshop together.

At the end of this section, you'll find some suggestions for other things that could be done to the composite layers in Photoshop, such as adding layer styles or layer masks. Use these ideas to spark students' creativity if you have additional time to devote to Photoshop compositing.

Saving the composite back to Lightroom

The critical point in this section is to use the File > Save command, not the Save As command, to save the finished composite in Photoshop. Doing so ensures that Lightroom will automatically import the saved composite into the Lightroom catalog.

When you choose File > Save, the composite is automatically saved from Photoshop in the format chosen in the first section of Lightroom's External Editing preferences. In this case, the composite is saved as a TIFF, because that is the format set in Lightroom's External Editing preferences in Lesson 1.

The TIFF composite is automatically saved to the same folder on your drive as the most selected of the component photographs that you opened from Photoshop into Lightroom. When you select multiple photographs in Lightroom, the one you select first is deemed the most selected photograph, as explained in the "Selecting" section in Lesson 3.

Finish the exercise by returning to Lightroom's Library module to see there is now a TIFF composite in addition to the four component raw files from which the composite was built in Photoshop.

A common question related to this workflow is whether Lightroom retains the layers in a composite. The answer is that if you create a composite in this way, although you can't access the layers in Lightroom, they are still there and can be accessed in Photoshop. For example, to access the layers of this TIFF composite, you could reopen the TIFF composite from Lightroom into Photoshop by choosing Edit In > Edit in Photoshop [xx] and then choosing the Edit Original option, which is covered in detail in the "Edit Original option" section in Lesson 2.

Working with embedded Smart Objects

This section demonstrates how and why to place photographs as embedded Smart Objects into a layered Photoshop composite that is managed in Lightroom.

An embedded Smart Object is a separate image contained within a Photoshop document. Embedded Smart Objects have the following properties that are useful in a composite, as this exercise demonstrates:

- If a photograph you use in a composite is a raw file (like `gordes.dng` in this exercise), and you place it in a Photoshop composite as an embedded Smart Object, double-clicking the Smart Object's thumbnail in Photoshop's Layers panel opens the photograph into Photoshop's Camera Raw plug-in (not into Lightroom as you might expect). In Camera Raw, you can edit the Smart Object layer using Camera Raw controls that are similar to those in Lightroom's Develop module. The benefits of this workflow are that it lets you use familiar, intuitive editing controls during the Photoshop phase of the workflow without returning to Lightroom's Develop module for editing at this point, and it lets you apply those editing controls to a single layer in a composite.
- In addition, you can copy an embedded Smart Object layer, apply different adjustments to each copy in Camera Raw, and then blend the results using a layer mask. This lets you use Camera Raw as if it were a graduated neutral density filter, correcting for varied lighting in different parts of an image, as students do in this exercise.

This exercise starts with opening a background image (`so.psd`) from Lightroom into Photoshop using Lightroom's `Edit In > Edit in Adobe Photoshop [xx]` command. The composite will be built on top of this background image in Photoshop. The background image in this exercise is a blank PSD file, but it could be a photograph or image in any format Lightroom recognizes. Starting by opening the background image from Lightroom into Photoshop, rather than just opening it directly in Photoshop, ensures that at the end of the exercise the composite will be automatically saved back to Lightroom.

Two other photographs (`gordes.dng` and `texture.jpg`) are then placed into the base image as embedded Smart Objects, each automatically appearing on a separate Smart Object layer in Photoshop. If students are on Macs, they can place these two photographs by dragging them from Lightroom into the base image that's open in Photoshop. If students are on Windows (which does not support that drag-and-drop method), they must use Photoshop's `File > Place Embedded` command, which accomplishes the same thing. Both methods are described in this exercise.

When the raw file (`gordes.dng`) is placed, it automatically opens first into Photoshop's Camera Raw plug-in, because it's recognized as a raw file. Clicking the OK button in Camera Raw places this photograph into the base image open

in Photoshop. This photograph is placed as an embedded Smart Object on a separate layer (the gordes layer).

When the JPEG (texture.jpg) is placed, it opens directly into the open base image in Photoshop as an embedded Smart Object on its own layer (the texture layer).

Now that all the component photographs are open in a single image in Photoshop, common Photoshop compositing techniques are applied. A layer blend mode and a layer Opacity adjustment are applied to the texture layer. This blends the texture layer with the photograph on the gordes layer below, giving the image a texturized appearance.

The next part of this exercise demonstrates one of the benefits of an embedded Smart Object: the ability to open it into Camera Raw to make adjustments there. First, the embedded Smart Object layer that was created from the raw file (the gordes layer) is copied. It's important to use the New Smart Object via Copy command rather than the Duplicate Layer command for this purpose, so that the Smart Object on the gordes copy layer is not linked to the Smart Object on the gordes layer.

The raw data has been preserved inside the Smart Object on the gordes copy layer and can be edited in Camera Raw. So the next step is to open the gordes copy layer into Camera Raw and use the simple sliders in Camera Raw to enhance the sky area of the gordes photograph, without regard to the effect on the foreground of the photograph. The sliders in Camera Raw's Basic panel are very similar to the sliders in Lightroom's Basic panel, so students should be comfortable using them.

The next step is to use a layer mask in Photoshop to blend the adjusted sky on the gordes copy layer with the foreground on the gordes layer. In case students are not familiar with layer masking, a "Layer Mask Primer" sidebar is included in this section.

Finally, the composite is saved using the File > Save command so that it automatically appears in Lightroom as a TIFF file, so-edit-P.tiff.

You may have noticed another command in Lightroom's Edit In menu—Open as Smart Object in Photoshop. This command also generates embedded Smart Objects, but it was not used in this exercise because it would create a separate document in Photoshop for each of the component images. Extra steps would then be required to combine the Smart Objects in each of those documents into one composite image. If students want to know more about this command, refer them to the sidebar "Lightroom's Open as Smart Object command" in this section.

A note on terminology: Embedded Smart Objects used to be called simply Smart Objects. When linked Smart Objects were introduced in an early 2014 version of Photoshop CC, Smart Objects were called embedded Smart Objects to distinguish them from linked Smart Objects. Linked Smart Objects are addressed in the next section of this lesson.

Working with linked Smart Objects

This exercise teaches students how to use Lightroom and Photoshop together with linked Smart Objects. A linked Smart Object is an external file rather than an embedded element. It comes in handy for an item you might use in more than one composite image, like a logo or a template. The benefit of a linked Smart Object is that when you update a linked Smart Object in one image, you can have that change ripple through other images that use the same linked Smart Object.

This exercise starts with opening three background images (gold.tif, aqua.tif, and purple.tif) from Lightroom into Photoshop using Lightroom's Edit In > Edit in Adobe Photoshop [xx] command.

The next step is to place another image, logo.psd, as a linked Smart Object in one of the background images (gold.tif). If students are on Macs, they can do this by holding the Option key and dragging logo.psd from Lightroom into the background image that is open in Photoshop—gold.tif. If students are on Windows (which does not support that drag-and-drop method), they must use Photoshop's File > Place Linked command, which accomplishes the same thing. Both methods are described in this exercise. Once the logo is placed, it can be scaled or transformed multiple times without degrading its quality, because it is a Smart Object. Gold.tif, with its linked Smart Object, is saved using Photoshop's File > Save command. Its name automatically changes to gold-Edit-P.tif in Photoshop, and it appears in Lightroom with the logo element. This file is left open in Photoshop.

The steps in the previous paragraph are repeated twice more with the other two background files open in Photoshop—aqua.tif and purple.tif—so the three images open in Photoshop contain the same linked Smart Object made from logo.psd. One of the three images, purple.tif, is then closed so that later you can use it to show how a linked Smart Object in a closed image is treated differently than a linked Smart Object in an image that is open in Photoshop.

Next, students make a change to the linked Smart Object in one of the open documents, gold-Edit-P.tif. This teaches them how to make a pixel-based edit to a Smart Object by opening it as a separate document, making the change, and saving.

At this point, students see the big advantage that a linked Smart Object offers. The change made to the linked Smart Object in gold-edit-P.tif automatically appears in the same linked Smart Object that is in the other open document, aqua-edit-P.tif. The point to emphasize is that changing a linked Smart Object in one image in Photoshop automatically updates that linked Smart Object in any other document that is currently open in Photoshop. However, that is not the case for a document that contains the same linked Smart Object but is not open in Photoshop. To see that, students return to Lightroom, where the change to the linked Smart Object is displayed in two of the three background images. The rest

of this exercise demonstrates how to update the linked Smart Object in the document that was not open at the time of the change—purple-Edit-P.tif.

As you consider teaching the sections on embedded and linked Smart Objects, keep in mind that Photoshop Smart Object technology is a deep topic. If your students are Photoshop novices, you may decide to skip the Smart Object sections of this lesson. If you need more information on Smart Objects, see the *Adobe Photoshop CC Classroom in a Book* (ISBN: 978-032-19280-8).

Creating a 32-bit merged HDR

There are a number of applications and plug-ins that you can use to create a High Dynamic Range (HDR) image from multiple photographs. One of the best ways to do that is using Lightroom and Photoshop together. The advantages of this Lightroom/Photoshop method is that it creates a 32-bit file, which offers the maximum amount of image data, and that it allows students to use familiar Lightroom Develop module controls to tone-map the resulting HDR image.

Explain that although HDR has become associated with a detailed, saturated image style, HDR has a more practical purpose too: It allows you to merge multiple exposures of the same scene to obtain more dynamic range than your camera can capture in just one shot. You can then tone-map the merged image to achieve a natural-looking HDR image with lots of detail across the tonal range, in highlights, midtones, and shadows.

Walk students through the steps of this technique, which are spelled out in this section. Students will use Lightroom's Edit In > Merge to HDR Pro in Photoshop command to pass multiple photographs to Photoshop, where they are merged into a single HDR image. That image is saved back to Lightroom, where familiar Develop module adjustments are applied.

Some points to mention are:

- This exercise uses three bracketed photographs, shot in bright sunlight at 2/3 of a stop apart. However, the same technique can be done with a different number of photographs (5, 7, or even 9 bracketed shots) and with photographs shot at different intervals (for example, 1 stop or 2 stops apart). The optimal number of shots and intervals depends on the brightness and contrast in the scene and the capabilities of your camera.
- Remind students that bracketed shooting for HDR should be done by varying shutter speed, rather than aperture, so that all the shots have the same depth of field.

Merging to a panorama

Photoshop is often used to stitch together multiple overlapping shots of a scene that is too wide or tall to capture in one shot. You can take advantage of Lightroom's Develop module controls to prepare photos for merging to a panorama and to keep track of the images involved.

In this exercise, students make some adjustments to multiple component photographs in Lightroom, using Lightroom's Sync command to apply the same adjustments to all the photographs. They then use Lightroom's Edit In > Merge to Panorama in Photoshop command to pass the photographs to Photoshop, where they are stitched together. The resulting panorama is saved back to Lightroom. All the steps for this process are spelled out in this section.

Offer students these tips for shooting images they plan to merge into a panorama:

- Overlap each shot with the preceding one by about 30 percent of the scene.
- Set your camera to manual focus and manual exposure so those parameters don't change as the camera moves through the scene.
- Use a tripod if you can, although it is possible to shoot a panorama handheld if you're steady.

Lesson 6: Lightroom to Photoshop for Selecting and Masking

Photoshop is often used with Lightroom in order to affect a specific area of a photograph by applying selections and masks.

The exercises in Lesson 6 demonstrate common scenarios in which photographs are often passed from Lightroom to Photoshop for selecting and masking: changing the appearance of part of a photograph, making photo adjustments to specific areas with adjustment layers, replacing a dull sky, and selecting and compositing complex objects against a background. You can approach each exercise in this lesson as a distinct subject.

Preparing for this lesson

This section instructs students to import the Lesson 6 files to the LPCIB catalog. It is the same as the section of the same name in Lesson 2 and subsequent lessons.

Why move to Photoshop for selecting and masking

This section sets the stage for the rest of this chapter. It explains why isolating a particular area for editing is a common reason for using Photoshop with Lightroom.

Granted, there are times when Lightroom's local adjustment tools are all that's needed to make adjustments to a specific area of a photograph. Lightroom's Adjustment Brush tool allows you to paint adjustments on individual areas, and its Auto Mode feature is sometimes sufficient to keep adjustments within the edges of a well-defined object. Lightroom's Spot Removal tool, Radial Filter tool, Graduated Filter tool, and Red Eye tool offer other ways to apply adjustments locally in Lightroom. However, Photoshop's selection and masking tools outpace Lightroom's local adjustment tools in two ways—precision and functionality—as explained in this section.

Precision means that Photoshop's sophisticated tools allow you to make more controlled, well-defined selections and masks than are possible in Lightroom. Functionality means that you can make a wider variety of adjustments and enhancements to an isolated area in Photoshop than in Lightroom.

Making precise selections in Photoshop

This section is a primer on Photoshop selections. It describes how to apply some of Photoshop's most useful selection tools: the Quick Selection tool for automatically selecting objects with well-defined edges, the Polygonal Lasso tool for making

straight-edged selections, the Magnetic Lasso tool for selecting complex objects with high-contrast edges, and the Pen tool for drawing precise selections. Review these sections with students to ensure they are ready to use these Photoshop tools in the exercises in this chapter.

The sidebar “Selection shortcuts” lists shortcuts for common selection-related functions: deselecting, selecting all, adding to a selection, subtracting from a selection, and inverting a selection.

Remind students they can use more than one selection method to make a single selection, as described in the sidebar “Using multiple selection tools together.”

Draw students’ attention to the utility of Quick Mask mode for fine-tuning a selection, as described in the sidebar “Cleaning up a selection in Quick Mask Mode.”

For more information on selections, refer students to *Adobe Photoshop CC Classroom in a Book*.

Changing the color of objects with fill layers

The two exercises in this section illustrate that a common reason to take a photograph from Lightroom to Photoshop is to make a change to just part of the photograph. The changes in these exercises are color changes, but students could make many other changes to an isolated area in Photoshop that go beyond the photo adjustments available in Lightroom. For example, in Photoshop a selected area could be filtered, cut, copied, transformed, and more.

This exercise illustrates two different methods of changing color in Photoshop: adding a Solid Color fill layer and applying a Gradient Fill layer.

The lesson files for this exercise are JPEGs, but the principles taught here apply regardless of the format of the photograph (raw, TIFF, PSD, PNG, or JPEG). For more on working with JPEGs in Lightroom and Photoshop, see the section “Starting with a JPEG” in Lesson 2.

Recoloring with a Solid Color fill layer

In this section, students pass a photograph from Lightroom to Photoshop to add a color tint to part of the photograph using a Solid Color fill layer.

The photograph is handed off with the Edit a Copy with Lightroom Adjustments option, which was covered in detail in Lesson 2. The Polygonal Lasso tool is used to select a straight-edged area of the photograph to edit. With that selection active, a Solid Color fill layer is added. The Color layer blend mode is applied to the fill layer to change the effect of the fill layer from a solid color to a tint. The File > Save command saves the recolored copy of the file back to Lightroom in the TIFF format, in accordance with the External Editing preferences set in Lesson 1.

Use the layer mask that comes with this fill layer to point out the relationship between selections and masks in Photoshop. Students may not realize that selections and masks are essentially two different ways of displaying the same thing—an area that has been isolated for editing.

The layer mask on this fill layer is also an opportunity to revisit how layer masks work. Every fill layer comes with its own layer mask. If a selection is active at the time a fill layer is created, the area outside the selection is automatically filled with black on the layer mask. The black area of the layer mask hides the effect of the fill layer from the corresponding part of the image. Adjustment layers and their layer masks work the same way, as students will see later in this lesson. For more on layer masking see the “Layer mask primer” sidebar in Lesson 5.

Designing with a Gradient Fill layer

This section is similar to the last, except that different Photoshop selection tools and a different method of changing color are used here.

After making a selection of an area to recolor, students apply a Gradient Fill layer. They can experiment with the Gradient Editor and Gradient Fill dialog to get a sense of the options available there.

Then students set the blend mode of the Gradient Fill layer to Color to blend the color gradient with the selected area of the photograph. They finish by applying the File > Save command to save the edited copy of the photograph in the TIFF format. Back in Lightroom, the recolored TIFF appears in addition to the original JPEG.

An important skill for students to develop is anticipating which of Photoshop’s many selection methods will be most efficient and accurate for selecting a given area. Have students try out several selection methods to make the initial selection of the yellow area of the train engine in this exercise. The Pen tool, the Magnetic Lasso tool, and the Quick Selection tool are some selection methods to try. Then have them practice subtracting the area of the door from the initial selection, using a selection tool like the Rectangular Marquee.

Making selective adjustments with adjustment layers

This exercise focuses on using Photoshop to adjust a selected area that is too complex to isolate precisely in Lightroom. It also introduces Photoshop adjustment layers as a nondestructive workaround for direct pixel editing in Photoshop.

Starting in Lightroom

This exercise starts with a raw DNG photograph. Students apply some common overall adjustments in Lightroom's Develop module: adjusting exposure, chromatic aberration, and capture sharpening. Then students focus on making local adjustments to the foreground elements in the photograph. Although Lightroom's Adjustment Brush tool is a possible candidate for this work, limiting adjustments to an object with complex edges, like the statue in this photograph, is often best done with selections and masks in Photoshop.

Making an inverted selection in Photoshop

Students use several selection tools to select everything except the statue. That selection is then inverted so that only the statue is selected for editing. Make the point that it is sometimes easier to select a background and invert that selection than it is to select a complex foreground element.

Another teaching point introduced in this section is the importance of saving a complex selection so you can quickly use it again if necessary.

Creating adjustment layers with selections

This section focuses on how to use adjustment layers to edit nondestructively and to adjust part of a photograph in Photoshop.

Remind students that although Lightroom Develop adjustments are nondestructive of a photograph because they are just instructions in a database, direct Photoshop adjustments permanently change the pixels in a photograph. Photoshop adjustment layers are a workaround that allow for nondestructive editing in Photoshop. An adjustment layer can be reopened and changed at any time without altering underlying pixels, as long as an image is saved from Photoshop in a format like TIFF or PSD that retains layers.

Explain that adjustment layers, like fill layers used earlier in this lesson, come with their own layer masks. If a selection is active when the adjustment layer is created, the area outside the selection is automatically filled with black on the adjustment layer mask, hiding the adjustment from the corresponding part of the image.

With the selection made in the last section still active, students create a Levels adjustment layer to correct the exposure and contrast of the selected statue. On the Levels adjustment layer mask, the area outside the selected statue is automatically filled with black, protecting everything except the statue from the Levels adjustment. Once the layer mask is in place, students learn how to access mask options in Photoshop's Properties panel to soften the edge of the mask.

The next part of the exercise reinforces similar concepts, as students select another foreground area of the photograph and apply different adjustment layers to that

area—a Brightness/Contrast adjustment layer and a Hue/Saturation adjustment layer. These steps illustrate that more than one adjustment layer can be applied to the same selected area.

The adjusted image is saved using Photoshop's File > Save command, which creates a TIFF copy that is displayed in Lightroom along with the original raw DNG file. This is an important step because the saved TIFF is used as the starting point for the next exercise in this lesson.

Replacing a dull sky

A common use for Photoshop selections and layer masks is to replace a dull sky in a photograph with a more interesting sky. The result is a composite image that appears in Lightroom along with the component photographs.

The exercise starts with the edited TIFF saved at the end of the last exercise, `adj-statue-Edit-P.tif`. If students have not saved that TIFF, have them use the lesson file `sk-statue.tif`, which is the same image with all the adjustments from the last section incorporated.

Students pass two photographs—the statue and a dramatic, cloudy sky—from Lightroom to Photoshop using Lightroom's Edit In > Edit in Photoshop [xx] command with the Edit Original option. This step illustrates how to open multiple photographs from Lightroom to Photoshop as separate documents (as opposed to opening them as layers in the same document with Lightroom's Edit in > Open as Layers in Photoshop command, as in Lesson 5).

The next step is to select the entire dramatic sky photograph and copy it into memory. Then students click the document tab for the statue image to make that image active.

In the last exercise, students created and saved a selection of the dull sky in the statue image. In this exercise, they load that saved sky selection back into the statue image. If students did not save the sky selection in the last exercise, they are instructed to re-create that selection using the Magic Wand tool with the Contiguous option unchecked.

Photoshop's Edit > Paste Special > Paste Into command is then used to paste the dramatic sky from memory into the active sky selection in the statue image. The Paste Into command creates a new layer in the statue image with two thumbnails: the dramatic sky photograph and a layer mask that is automatically filled with white and black. The selected area (the dull sky) is white on the layer mask, revealing the dramatic sky in place of the dull sky in that area. The nonselected foreground elements (the statue and the stonework) are black on the layer mask, hiding the dramatic sky from view there.

One of the advantages of using the Paste Into command to accomplish this result is that the layer mask created by the command is not linked to the dramatic sky image. Point out to students that there is no link symbol between the photograph thumbnail and the layer mask thumbnail on the dramatic sky layer, as there is when a layer mask is created the conventional way—by clicking the Add Layer Mask icon at the bottom of the Layers panel. This allows students to move the sky around with the Move tool without disturbing the mask to get just the look they want.

The completed composite is saved using Photoshop's File > Save command. This updates the TIFF with which students started this exercise, so that Lightroom now displays the TIFF as a composite of the dramatic sky and the adjusted statue.

Isolating a complex object with a channel mask

This exercise illustrates how to replace the background of a photograph by passing the photograph from Lightroom to Photoshop for selecting, masking, and compositing using a channel mask. Although any Photoshop selection method could be used with this technique, this exercise teaches a selection method—channel masking—that is very useful for making selections of complex edges. This is a relatively advanced selection technique, so keep your students' skill levels in mind as you decide whether to teach it.

Before students start this exercise, make sure they read the Introduction to Channels sidebar in this exercise, which explains color channels in an RGB image.

Then walk students through the steps of this exercise, which demonstrate how to use a channel as the basis for a channel mask, which is used to create a selection and ultimately a layer mask. The following summarizes the steps (which are spelled out in more detail in the book):

- 1 Pass two TIFF photographs from Lightroom to Photoshop—a photograph of a dog that contains a studio background, and a photograph of an outdoor scene—using Lightroom's Edit In > Open as Layers in Photoshop command.
- 2 In the resulting Photoshop document, make sure the photograph of the dog is at the top of the layer stack in the Layers panel.
- 3 Evaluate the red, green, and blue color channels in the dog image to find the color channel with the most contrast (the most difference between light and dark values). In this case, the highest contrast channel is the Red channel.
- 4 Duplicate the high-contrast Red channel to create the Red copy channel. The Red copy channel is not a color channel like the red, green, and blue channels. It is an alpha channel, which is a special kind of channel whose function is to contain a mask.

- 5 Apply a Levels adjustment to the Red copy channel to increase the contrast in that channel so that it makes a better mask.
- 6 Make a rough selection just inside the edge of the dog. On the Red copy channel, paint with black inside that selection so that the area inside the dog is black and the area outside the dog is white on the channel mask you're creating.
- 7 If students zoom into the channel mask, they'll see that its extreme edges are gray. This is a good idea with a soft object like this dog's fur, because the gray at the edges of this mask softens the mask so that the dog will blend better with its replacement background. Mention that if an object has a hard edge, a channel mask can sometimes be improved by painting over the edges with black or white paint and a soft Brush tool set to Overlay blend mode. The Overlay blend mode would cause the Brush tool to darken (with black paint) or lighten (with white paint) only the gray areas of the channel mask, without disturbing existing areas of black or white on that mask. This would harden the edge of the channel mask.
- 8 When the channel mask is complete, use it to generate a selection by Ctrl-clicking/Command-clicking the Red copy channel. This further illustrates the point that a mask is another way of representing a selection.
- 9 Invert the selection so that only the dog shape is selected.
- 10 With the selection of the dog active, in Photoshop's Layers panel create a layer mask on the layer that contains the photograph of the dog. The layer mask reflects the selection made from the channel mask. On the layer mask, the selected dog is white, the nonselected background is black, and the transition edges of the dog's fur are gray. The black area on the layer mask hides the studio background of the photograph of the dog, revealing the outdoor scene on the layer below.
- 11 Summarize for your students what they've done so far. They've used a color channel to create a channel mask in an alpha channel, generated a selection from the channel mask, and converted the selection into a layer mask that hides the studio background on the dog photograph, revealing a different background photograph.

The next steps are optional, but fun. They illustrate how to use a specialty grass-shaped brush on another layer mask to add some grass on top of the dog's feet.
- 12 Save the finished composite using Photoshop's File > Save command. In Lightroom, the TIFF of the dog updates to display the composite you created with masks and selections in Photoshop.

Selecting hair

This exercise moves a portrait from Lightroom to Photoshop in order to place the subject against a new background. Hair, animal fur, or other soft-edged, complex objects are difficult to isolate in Lightroom. So Photoshop is the best place to do this, whether your goal is to include the subject in a composite as in this exercise or just to limit an adjustment to the soft-edged subject.

Students start this exercise by passing two PSDs—a photograph of a curly-haired model with a plain white background and a photograph of a bokeh light pattern—from Lightroom to Photoshop. They combine the two photographs into a composite.

The next step is to make a rough selection of the model. The trick is to omit from this initial selection the edges of the hair through which the white background is showing. This will help the Refine Selection Edge feature do its job in the next steps.

Most of this exercise takes place in Photoshop's Refine Selection Edge dialog. The exercise walks students through the features of this dialog, showing them how to use it to fine tune a soft-edged, complex selection like hair. The result is output as a new layer with a layer mask that hides the white background on the model layer, revealing the model and her curly hair against the bokeh light pattern on a layer below.

Lesson 7:

Lightroom to Photoshop for Retouching

Photoshop is the go-to application for all kinds of retouching, from portrait refinement, to moving objects, to removing content, to adding special effects like custom blurs. Each exercise in this chapter illustrates a different situation in which you might pass a photograph from Lightroom to Photoshop for retouching.

Preparing for this lesson

This section instructs students to import the Lesson 7 files to the LPCIB catalog. It is the same as the section of the same name in Lesson 2 and subsequent lessons.

Removing and moving objects

In this section, students change the content of a photograph by moving and removing elements.

Starting in Lightroom

The first steps in the exercise illustrate that you can sometimes successfully remove unwanted content using the Spot Removal tool in Lightroom's Develop module. Students use that tool in Lightroom to remove some unwanted grass in a photograph of sheep in a field.

However, Photoshop offers more options for changing content than Lightroom does. Photoshop has several sophisticated retouching features, including the Spot Healing Brush tool, the Healing Brush tool, the Patch tool, and Content-Aware Fill. It also has a special tool, the Content-Aware Move tool, for moving items in a photograph, which is something you can't do in Lightroom. To take advantage of some of those Photoshop features, students pass this PSD format photograph from Lightroom to Photoshop using Lightroom's Edit In > Edit in Adobe Photoshop [xx] command with the Edit a Copy with Lightroom Adjustments option.

Moving content in Photoshop

In this section, students use Photoshop's Content-Aware Move tool to change the location of an object—a lamb—in this photograph. Remind students that the Content-Aware Move tool works best if you don't try to move an object too far and if the surrounding area has a uniform texture, like the grass in this photograph.

Students use two options with the Content-Aware Move tool in this exercise:

- Students make a separate layer for this change and check the Sample All Layers checkbox in the tool's Options bar. This nondestructive editing technique protects the pixels of the photograph and gives the user the flexibility to edit or even delete the changes on the separate layer.
- Students also work with the Adaptation option to control how the moved object blends with the surrounding area.

Remind students to leave the photograph open in Photoshop for the next section.

Removing content in Photoshop

In the next sections, students use several content-aware features to remove elements from the photograph by hiding them with content sampled from elsewhere in the image. The content-aware technology built into these features helps blend the sampled content with the surrounding area.

Content-Aware Fill

Students select some unwanted content in the photograph, invoke the Edit > Fill command, and set the Use menu in the Fill dialog to Content-Aware. This causes Photoshop to fill the selection with content it automatically samples from outside the selection.

Make sure that students select the Background layer that contains the photograph before applying this command. Content-Aware Fill cannot be performed on a separate layer like other retouching methods. Content-Aware Fill is a destructive method that changes the pixels of the photograph. For that reason, some photographers copy the layer containing the photograph before applying Content-Aware Fill, although that protective step can increase file size significantly.

The Patch tool

Photoshop's Patch tool is another useful method of hiding selected content. Students select an area to remove and use the Patch tool to drag that selection to a source area of good pixels. When the mouse is released, Photoshop samples pixels from the source area, uses them to patch over the original selected area, and blends the patch with the surroundings.

Three options are used with the Patch tool in this exercise:

- Students should choose Content Aware from the Patch menu in the Patch tool's Options bar. This will cause the patch to blend with the surrounding area.
- Students should check the Sample All Layers option in the Patch tool's Options bar and create a separate layer for the patch—a recommended nondestructive editing technique. Note that the Sample All Layers option only appears in the Options bar if the Content Aware option has been selected.

- Students can experiment with the Adaptation menu choices to make the patch look as natural as possible.

The Healing tools

Photoshop's Spot Healing Brush tool and Healing Brush tool are often used for retouching, so students should become familiar with them. The main difference between these tools is that the Spot Healing Brush tool automatically samples healing pixels from the surrounding area, whereas the Healing Brush tool requires the user to manually sample healing pixels. So the Spot Healing Brush tool is quicker to apply, but the Healing Brush tool gives the user more control and can be more accurate. Both tools are content-aware and blend the healing pixels with the surrounding area.

The steps in this section of the exercise walk students through using both the Spot Healing Brush tool and the Healing Brush tool to hide content in this photograph.

After all these edits have been made to this photograph in Photoshop, the File > Save command is applied. This saves the edited photograph as a TIFF file in accordance with Lightroom's External Editing preferences, places the edited TIFF in the same folder as the original PSD file, and displays the TIFF in Lightroom along with the original PSD.

Sculpting a portrait

Portrait retouching has traditionally been done in Photoshop, so photographers often pass a photograph that is managed in Lightroom to Photoshop for retouching. However, Lightroom's local adjustment tools can accomplish some portrait editing too, as students experience in this exercise.

Starting in Lightroom

This exercise starts with a PSD format portrait in Lightroom. Students use Lightroom's Adjustment Brush tool to paint over and soften the model's skin by dragging the Clarity slider to a negative value. Point out that Lightroom is using a mask to isolate the area affected by the Adjustment brush. The Adjustment brush is set to the Erase option to omit from the negative clarity mask the eyes, mouth, and other facial features that should stay sharp.

Lightroom's Edit In > Edit in Adobe Photoshop [xx] command with the Edit a Copy with Lightroom Adjustments option is used to pass the photograph, with its Lightroom adjustments, over to Photoshop for more retouching.

Applying the Liquify filter in Photoshop

Changing the shape of a model's features is something that can be accomplished only in Photoshop, not in Lightroom. Access to Photoshop's Liquify filter is reason in itself to transfer a portrait from Lightroom to Photoshop.

In this section, students use several tools and options in the Liquify filter dialog to fine-tune this portrait. Make sure students follow the instructions for applying Liquify as a Smart Filter so that the changes they make with it remain re-editable.

Retouching after applying Liquify as a Smart Filter

This section illustrates another consequence of using Liquify as a Smart Filter—pixel retouching can no longer be done directly on the photograph because it is now a Smart Object. In this section students learn how to make pixel-level changes to a Smart Object. They open the Smart Object as a separate document (a PSB file) in Photoshop, and then use Photoshop's Healing Brush tool to reduce puffiness under the model's eyes, remove blemishes, and hide unwanted hairs.

Remind students to use the File > Save command, rather than the Save As command, to save the edited PSB file. The changes made to the PSB file will now appear in the original PSD photograph in Photoshop.

The File > Save command is applied again to save the photograph, with all its edits, as a TIFF copy, in accordance with Lightroom's External Editing preferences. The edited TIFF appears back in Lightroom along with the original PSD.

Adding complex blur

Changing the appearance of a photograph is another form of retouching. Sophisticated filters are among the many changes that can be made in Photoshop, but not in Lightroom. In this exercise, students pass a photograph from Lightroom to Photoshop to apply complex photographic blur effects using various Photoshop blur filters.

Applying iris blur

The first exercise in this section starts with a beach photograph in PSD format that is passed from Lightroom to Photoshop using Lightroom's Edit In > Edit in Adobe Photoshop [xx] command with the Edit a Copy with Lightroom Adjustments option.

In Photoshop, the photograph is converted for Smart Filters so that filter effects applied to it can be re-edited if necessary. This process converts the photograph to a Smart Object.

Photoshop's Iris Blur filter is then applied in a way that adds multiple points of focus and blurs other areas for an intriguing look that could not be achieved in camera. Allow students to experiment with the Iris Blur filter options to change the look of the photo.

Remind students that because the photograph was converted for Smart Filters it is now a Smart Object. Therefore, any further pixel editing they may wish to do with other Photoshop tools cannot be done directly on the photograph. Instead, they will have to open the Smart Object as a separate PSB document, edit the PSB, and then use the File > Save command, just as in the preceding portrait retouching exercise. This gives students another opportunity to practice working with sophisticated Smart Objects in Photoshop.

To finish the exercise, students use Photoshop's File > Save command to save the edited image as a TIFF, in accordance with Lightroom's External Editing preferences. The edited TIFF is displayed in Lightroom along with the original PSD.

Creating tilt-shift blur

The second exercise in this section works much like the preceding exercise, except that it uses a different blur filter in Photoshop: the Tilt-Shift Blur filter. This filter makes large objects in a scene, like this cityscape, look like miniatures.

Students again pass a photograph from Lightroom to Photoshop and convert it for Smart Filters. Let students experiment with the options for Photoshop's Tilt-Shift Blur filter. They'll again save the edited photograph back to Lightroom as a TIFF copy of the original.

Lesson 8: Lightroom to Photoshop for Special Effects

Most of the changes you can make to a photograph in Lightroom involve adjustments to photo quality. Photoshop offers a wider range of features for embellishing photographs with filters, text, graphics, and other design elements. The ability to enhance photographs with effects like these is another major reason to pass photographs from Lightroom to Photoshop, as students do in this lesson.

Preparing for this lesson

This section instructs students to import the Lesson 8 files to the LPCIB catalog. It is the same as the section of the same name in Lesson 2 and subsequent lessons.

Combining text and images

In this exercise, students combine a photograph with text and graphics to create a book cover. This exercise brings together skills covered earlier in the book with some additional, useful Photoshop skills to create a sophisticated, photo-based design project. This project is more complex than other exercises in the book, so it is best taught near the end of your course, after students have absorbed the other lessons.

Using Lightroom's Open as Layers in Photoshop command

Students start by handing off three photographs from Lightroom to Photoshop using Lightroom's Edit In > Open as Layers in Photoshop command. This command was introduced in Lesson 5 in the context of making a wedding composite. It can be used with raw files, like the three DNG lesson files for this exercise, or with any of the other still formats that Lightroom recognizes—TIFF, JPEG, PSD, or PNG.

The Open as Layers in Photoshop command is useful because it automatically places each selected photograph on a separate layer in the same document in Photoshop, saving the step of combining photographs manually in Photoshop. It also will result in a single image automatically saved back to Lightroom at the end of this exercise.

Creating a book cover composite in Photoshop

In this section, students create a blended composite of the photographs they passed from Lightroom to Photoshop.

First students work with the layers, applying the following layer-related techniques:

- Changing layer order
- Converting a layer to a Smart Object

- Applying a layer blend mode
- Duplicating a layer
- Linking layers

Then students crop the image in Photoshop. There are several points to emphasize regarding cropping:

- Remind students to deselect the Delete Cropped Pixels checkbox in the Crop tool's options bar before cropping so that the crop is nondestructive and re-editable.
- When students are sizing the crop box, an info display appears near the cursor. If the info display shows the size of the crop box in inches rather than pixels, set it to pixels by doing the following:
 - 1 Click the Cancel button in the Crop tool's options bar to cancel the crop.
 - 2 Choose Edit/Photoshop > Preferences > Units & Rulers.
 - 3 Set the Rulers preference to Pixels. Click OK to close Preferences.
 - 4 Create another crop box with the Crop tool. The info display should now show the size of the crop box in pixels.
 - 5 Refer to that info display to size the crop box to approximately 2675 pixels high. This measurement does not have to be exact.
- Students are instructed to drag the image to reposition it within the crop box. Point out that this does not move the crop box, as they might expect; it moves the image instead. Click inside the crop box and drag to position the image in the crop box as illustrated in this section of the book.

Students then apply Photoshop's File > Save command to save the composite so that it appears as a TIFF in Lightroom, in accordance with Lightroom's External Editing preference for format that was set in Lesson 1. This image should be left open for the next part of this exercise.

Adding and styling type layers

In this section, students add text to the book cover composite they started creating in the last section.

Adding text can be tricky. Add the following information if necessary:

- The type tool to use for this exercise is the Horizontal Type tool. If it is not showing in the Tools panel, click whichever type tool is showing, and choose Horizontal Type tool from the flyout menu.
- If Arial Black does not appear in the Font menu in your Horizontal Type tool options bar, choose Arial Black or Arial Black Regular.

- After adding and positioning the AREA text, reselect the Horizontal Type tool in the Tools panel so you're ready to add the 271 type layer.
- After adding the text, you may have to scale it down to fit your cropped image. If so, Ctrl-click/Command-click to select both the AREA and 271 type layers in the Layers panel. With the Move tool selected, a transform box appears around all the text. (If you are using Arial Black Regular, make the text smaller by holding the Shift key as you drag from a corner anchor point of the transform box toward the center of the text.)

A selection is made of the sky and a layer mask is added to hide the text over the sky.

Then a Drop Shadow layer style is added to the text. After setting options for the drop shadow, click OK to close the Layer Style dialog.

A Color Fill layer is added, and its layer mask is adjusted in the Properties panel. To open the Properties panel, click its icon in the inner panel bar or choose Window > Properties.

The next steps teach a useful technique for filling text with a photograph. The AREA type layer is used as a clipping mask that makes the razorwire photograph visible only inside the letters of the word AREA.

The File > Save command is applied again at the end of this section. This updates the edited TIFF composite displayed in Lightroom. Students should leave this image open in Photoshop for the next section of the exercise.

Adding a vector graphic

In this section, students practice adding a graphic on a Shape layer. This kind of graphic is vector based, so it has smooth edges and can be resized without degrading its quality. Photoshop comes with lots of custom shapes to choose from, including the radioactive warning shape used in this exercise.

Students select the Custom Shape tool from a flyout menu of shape tools in the Tools panel. Then they choose a custom shape and other options in the options bar. Be sure they follow the instruction to set the first menu on the left side of the options bar to the Shape option. That will cause Photoshop to create a separate, editable Shape layer automatically when they drag in the image to create the shape.

Students then fine-tune the shape, using the Move tool to position it in the design, adding a blend mode to the Shape layer, applying the Free Transform command to resize the shape, and copying the Drop Shadow layer style from the AREA type layer to the Shape layer.

Next, students make a selection and add a Color Fill layer by clicking the Create New Fill or Adjustment Layer icon at the bottom of the Layers panel, choosing Solid Color, and choosing black in the Color Picker that opens.

Type layers are added with the author's name and the book's tagline. The text is right justified using the Right Align icon in the Horizontal Type tool's options bar and is positioned using the Move tool. If students are having trouble creating two type layers near each other, suggest that they hold the Shift key as they click in the image to start the second type layer.

The composite image is saved one last time with the File > Save command. In Lightroom the TIFF composite is displayed with all the enhancements added in Photoshop. If students want to change something in the composite, they can access its layers again by reopening it from Lightroom to Photoshop using Lightroom's Edit In > Edit in Adobe Photoshop [xx] command with the Edit Original option.

Creating type on a path

Photoshop offers much more flexibility than Lightroom when it comes to adding text and other design elements to a photograph. In the last section, students practiced using Photoshop layer masks, blend modes, and layer clipping masks to integrate text with photographs. This section teaches another way to use type in Photoshop that can't be done in Lightroom—adding text along a path.

Creating a rounded border in Lightroom

Although Lightroom's graphic capabilities are limited, some of its features can be used in creative ways to embellish photographs. For example, in this section students use the Post-Crop Vignetting controls in Lightroom's Develop module to create a rounded border around a photograph, even though this feature was originally designed for a different purpose (to add a light or dark vignette to a photograph that would survive subsequent cropping in Lightroom).

There's not much that can be done with text in Lightroom beyond some limited options to add lines of text to a print layout in Lightroom's Print module. So students pass this photograph, with its rounded border, from Lightroom to Photoshop to add decorative text appropriate for a promotional photograph.

Using vector shapes to place type on a path

The first step in Photoshop to place type on a path is to create a vector path using one of Photoshop's geometric shape tools—the Ellipse tool.

This Ellipse tool is located in the flyout menu of Shape tools in Photoshop's Tools panel. Caution students not to confuse it with the Elliptical Marquee selection tool, located closer to the top of the Tools panel.

Make sure students set the first menu on the left side of the Ellipse tool's options bar to Path, rather than Shape or Pixels.

Follow the instructions in this section to create a closed, oval path around the hot air balloon in the photograph. Note that to finish drawing the path, the mouse button should be released before releasing the Alt/Option key.

At this point, the path is a temporary work path. To convert it to a regular path, students open Photoshop's Paths panel and double-click the bar in the Paths panel that represents this path. Clicking OK in the Save Path dialog that opens saves the path. The path should remain selected in the Paths panel while students add type along its curvature.

To add text to the path, students select the Horizontal Type tool in the Tools panel and hover over the path in the image until they see the type-on-a-path cursor, which features a dotted, curved line under an I-beam. Then they click on the path and add text.

Adjusting the position of type on a path

The type may not be in the proper position on the path yet. This section illustrates how to move type into the desired place on the path using the Path Selection tool (informally known as the black arrow tool).

If the type can't be moved further along the path, look for the small x on the path, and use the Path Selection tool to move it along the path, making more room to continue to move the type.

Changing the size of a type path

One of the benefits of type on a path is that after type is applied to a path, the path can be resized, reshaped, and repositioned, and the text it contains will follow and reflow along the path. In this section, students change the size of the path, using the Free Transform Path command, to accommodate larger text.

At the end of this section, Photoshop's File > Save command is used to save the file, which appears as a TIFF in Lightroom.

Applying artistic filters

This section emphasizes that while Lightroom is great for enhancing photo quality, Photoshop allows you go beyond the purely photographic, adding artistic and decorative elements to your photographs. Photoshop has numerous creative features to explore, among them the many filters you can apply to photographs.

Creating a radial motion blur

In this section, students make some basic adjustments to a raw file in Lightroom's Develop module. They use Lightroom's Spot Healing Brush tool to remove some unwanted content. Then they pass the file from Lightroom to Photoshop to add a unique effect that could not be achieved in Lightroom—a spinning motion effect created with Photoshop's Radial Blur filter.

The edited image is saved from Photoshop as students have done throughout this lesson and is automatically added to the Lightroom catalog.

Creating a custom blend of the Oil Paint Filter

In this section, students pass a photograph from Lightroom to Photoshop for application of a realistic Oil Paint filter in Photoshop.

Unfortunately, in a recent update to Photoshop CC, the Oil Paint filter was removed from Photoshop. So you may want to use this exercise as an opportunity for students to explore other artistic filters in Photoshop.

Alternatively, if your students want to try this exercise with the Oil Paint filter, they can do so in Photoshop CS6. At this time, users with a Creative Cloud membership still can download Photoshop CS6 from the Creative Cloud (by filtering the Apps section of their Creative Cloud application to display Previous Versions) and run Photoshop CS6 on the same computer as Photoshop CC.

Exploring the Solarize filter for black and white images

This exercise introduces some unique effects of Photoshop's Solarize filter on black and white photographs. The exercise starts with a raw file that has already been converted from color to black and white in Lightroom's Develop module. Students pass the black and white photograph from Lightroom to Photoshop using Lightroom's Edit In > Edit in Adobe Photoshop [xx] command. After applying a Solarize filter effect, Photoshop's File > Save command is used to save the file back to Lightroom.

Students can experiment with a color version of the same photograph to see how Photoshop's Solarize filter looks on color photographs. To do that, before passing the original raw file to Photoshop, open the Snapshots panel in Lightroom's Develop module, and select the Import snapshot. This converts the photograph back to color, and it can be passed in that state from Lightroom to Photoshop for application of the Solarize filter there.