

# 6

## MASKS AND CHANNELS

### Lesson overview

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

- Create a mask to remove a subject from a background.
- Refine a mask to include complex edges.
- Create a quick mask to make changes to a selected area.
- Edit a mask using the Properties panel.
- Manipulate an image using Puppet Warp.
- Save a selection as an alpha channel.
- View a mask using the Channels panel.
- Load a channel as a selection.



This lesson will take about an hour to complete. Please log in to your account on peachpit.com to download the lesson files for this chapter, or go to the Getting Started section at the beginning of this book and follow the instructions under “Accessing the Lesson Files and Web Edition.”

As you work on this lesson, you'll preserve the start files. If you need to restore the start files, download them from your Account page.



PROJECT: MAGAZINE COVER IMAGE

Photography © Andrew Faulkner

Use masks to isolate and manipulate specific parts of an image. The cutout portion of a mask can be altered, but the area surrounding the cutout is protected from change. You can create a temporary mask to use once, or you can save masks for repeated use.

# Working with masks and channels

In Photoshop, masks isolate and protect parts of an image, just as masking tape protects window panes or trim from paint when a house is painted. When you create a mask based on a selection, the area you haven't selected is *masked*, or protected from editing. With masks, you can create and save time-consuming selections and then use them again. In addition, you can use masks for other complex editing tasks—for example, to apply color changes or filter effects to an image.

In Photoshop, you can make temporary masks, called *quick masks*, or you can create permanent masks and store them as special grayscale channels called *alpha channels*. Photoshop also uses channels to store an image's color information. Unlike layers, channels do not print. You use the Channels panel to view and work with alpha channels.

A key concept in masking is that black hides and white reveals. As in life, rarely is anything black and white. Shades of gray partially hide, depending on the gray levels.

## Getting started

First, you'll view the image that you'll create using masks and channels.

- 1 Start Photoshop, and then immediately hold down Ctrl+Alt+Shift (Windows) or Command+Option+Shift (Mac) to restore the default preferences. (See “Restoring Default Preferences” on page 5.)
- 2 When prompted, click Yes to delete the Adobe Photoshop Settings file.
- 3 Choose File > Browse In Bridge to open Adobe Bridge.
- 4 Click the Favorites tab on the left side of the Bridge window. Select the Lessons folder, and then double-click the Lesson06 folder in the Content panel.
- 5 Study the 06End.psd file. To enlarge the thumbnail so that you can see it more clearly, move the thumbnail slider at the bottom of the Bridge window to the right.

In this lesson, you'll create a magazine cover. The model for the cover was photographed in front of a different background, and the background isn't a single color, so it may be a challenge to mask. You'll use Select and Mask to quickly isolate the model over the final background.

- 6 Double-click the 06Start.psd thumbnail to open it in Photoshop. Click OK if you see an Embedded Profile Mismatch dialog box.
- 7 In the Layers panel, make sure both layers are visible.

● **Note:** If Bridge isn't installed, you'll be prompted to install it when you choose Browse In Bridge. For more information, see page 3.

## About masks and masking

Alpha channels, channel masks, clipping masks, layer masks, vector masks—what’s the difference? In some cases, they’re interchangeable: A channel mask can be converted to a layer mask, a layer mask can be converted to a vector mask, and vice versa.

What they have in common is that they all store selections, and they all let you edit an image nondestructively, so you can return at any time to your original. Here’s a brief description to help you keep them all straight.

- An **alpha channel**—also called a *mask* or *selection*—is an extra channel added to an image; it stores selections as grayscale images. You can add alpha channels to create and store masks.
- A **layer mask** is like an alpha channel, but it’s attached to a specific layer. A layer mask controls which part of a layer is revealed or hidden. It appears as a blank thumbnail next to the layer thumbnail in the Layers panel until you add content to it; a black outline indicates that it’s selected.
- A **vector mask** is essentially a layer mask made up of vectors, not pixels. Resolution-independent, vector masks have crisp edges and are created with the pen or shape tools. They don’t support transparency, so their edges can’t be feathered. Their thumbnails appear the same as layer mask thumbnails.
- A **clipping mask** applies to a layer. It confines the influence of an effect to specific layers, rather than to everything below the layer in the layer stack. Using a clipping mask clips layers to a base layer; only that base layer is affected. Thumbnails of a clipped layer are indented, with a right-angle arrow pointing to the layer below. The name of the clipped base layer is underlined.
- A **channel mask** restricts editing to a specific channel (for example, a Cyan channel in a CMYK image). Channel masks are useful for making intricate, fringed, or wispy-edged selections. You can create a channel mask based on a dominant color in an image or a pronounced contrast in an isolated channel, for example, between the subject and the background.

## Using Select and Mask

Photoshop provides a set of tools focused on creating and refining masks, collected in a task space called Select and Mask. Inside Select and Mask, you’ll use the Quick Selection tool to get a fast head start on the mask that will separate the model from the background. Then you’ll refine the mask using other Select and Mask tools.

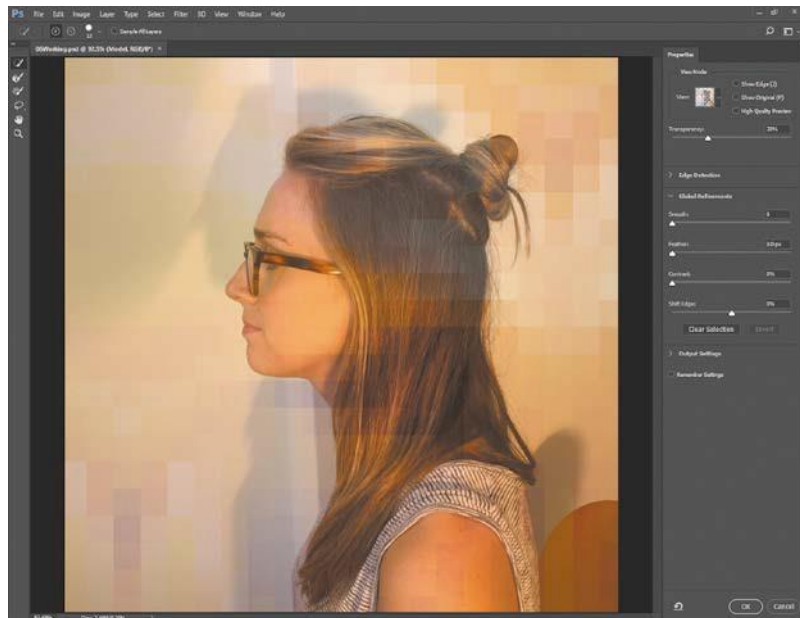
- 1 Choose File > Save As, rename the file **06Working.psd**, and click Save. Click OK if the Photoshop Format Options dialog box appears.

Saving a working version of the file lets you return to the original if you need it.

**Tip:** The first time you use Select and Mask, a tutorial tip may pop up. You may view it before you continue with the lesson, or you can click Later or Close.

**2** Choose Select > Select and Mask.

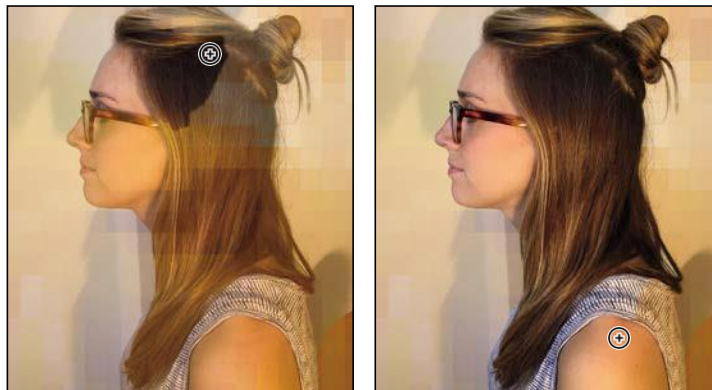
Select and Mask opens with the image. A semitransparent “onion skin” overlay indicates masked areas, which are represented by a checkerboard pattern. For now, the checkerboard pattern covers the entire image, because you haven’t yet identified the areas to unmask.



**3** Make sure the Quick Selection tool  is selected. In the options bar, set up a brush with a size of **15 px** and hardness of **100%**.

**Tip:** For more help making selections, refer to Lesson 3, “Working with Selections.”


**4** Position the Quick Selection tool within the outline of the model, and then drag while keeping the tool within the hair, face, and shirt areas. Where you drag teaches Select and Mask which areas should be revealed and not part of the mask. It’s OK if you release the mouse button and drag more than once.



## Getting better and faster results with Select and Mask


When using Select and Mask, it's important to use different tools for image areas that should be fully revealed, areas that should be fully masked, and for partially masked edges (such as fuzzy dog hair). Try these recommendations:

- The Quick Selection tool is often the fastest way to create a mask. As you drag it, it uses edge detection technology to find mask edges automatically. Don't drag it on or over a mask edge; keep it fully inside (in Add mode) or outside (in Subtract mode) areas that should be revealed.
- To paint or draw solid mask edges manually (without using any automatic edge detection), use the Brush, Lasso, or Polygonal Lasso tool. These also have an Add mode for marking revealed areas and a Subtract mode for marking masked areas.
- Instead of having to switch between Add and Subtract modes with the toolbar, you can leave a tool in Add mode, and when you want to temporarily use the tool in Subtract mode, hold down the Alt (Windows) or Option (Mac) key.
- To improve the mask along edges containing complex transitions such as hair, drag the Refine Edge Brush along those edges. Do not drag the Refine Edge brush over areas that should be fully revealed or fully masked.
- You don't have to do all of your selecting inside Select and Mask. For example, if you've already created a selection with another tool such as Color Range, leave that selection active, and then click Select > Select and Mask in the options bar to clean up the mask.

 **Tip:** In Select and Mask, the Polygonal Lasso tool is grouped with the Lasso tool.

As you drag the Quick Selection tool over the model, the onion skin overlay disappears from the areas that you are marking to be revealed. Don't worry about total perfection at this stage.

Do not drag the Quick Selection tool over or past the model's edge to the background. If you do, and this adds unwanted areas to the mask, either choose Edit > Undo, or reverse the edit by painting over it with the Quick Selection tool in Subtract mode. To enable Subtract Mode for the Quick Selection tool, click the Subtract From Selection icon (⊖) in the options bar.

 **Tip:** You can adjust the transparency of the onion skin by dragging the Opacity slider under the View Mode options.

**Tip:** When a selection tool is active, you can click the Select and Mask button in the options bar instead of having to find the command in the menus.

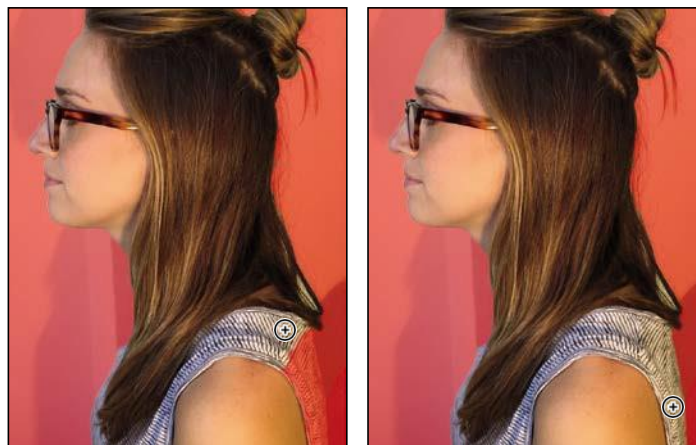
- 5 Click the View menu in the View Mode section, and choose Overlay. The masked area is now shown as a semitransparent red color instead of the onion skin checkerboard.



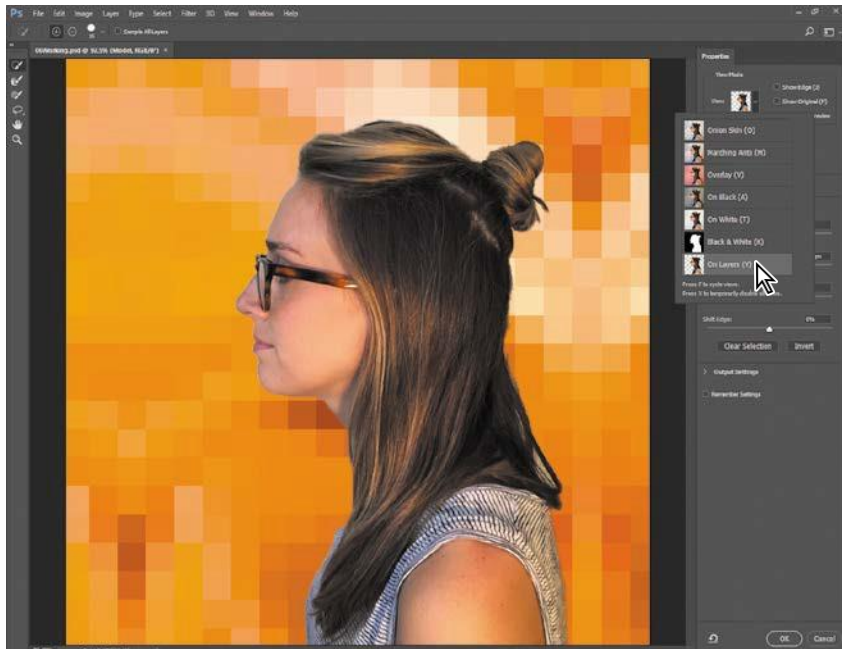
The different View Modes are provided so that you can see the mask more easily over different backgrounds. In this case, the red overlay more clearly shows any missed areas and edges where loose hair isn't properly masked.

**Tip:** Dragging the Quick Selection tool in Subtract mode tells Photoshop which areas should be masked and not visible.

- 6 Look for areas of the model that are within the red mask overlay but that should be revealed, and drag the Quick Selection tool to include them in revealed areas. Increase the magnification if it helps you see missed areas more easily.



- 7 Click the View menu in the View Mode section again, and choose On Layers. This shows you how the current Select and Mask settings look over any layers that are behind this layer. In this case, you're previewing how the current settings will mask the Model layer over the Magazine Background layer.



Inspect the edges around the model at a high magnification, such as 200%. Some of the original light background may still show between the model's edge and the magazine background, but overall the Quick Selection tool should have created clean edges for the shirt and face. Don't worry about edge gaps or imperfect hair edges, because you'll take care of those next.

## Refining a mask

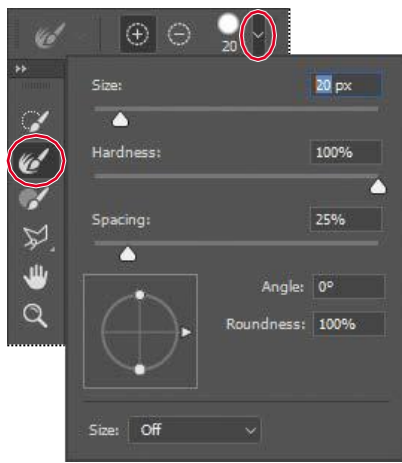
The mask is pretty good so far, but the Quick Selection tool couldn't quite capture all of the model's hair, such as the strands coming off of the bun on the back of the model's head. In Select and Mask, the Refine Edge Brush tool is designed to mask edges with challenging details.

- 1 At a magnification of 200% or higher, inspect the hair edges at the back of the model's head.

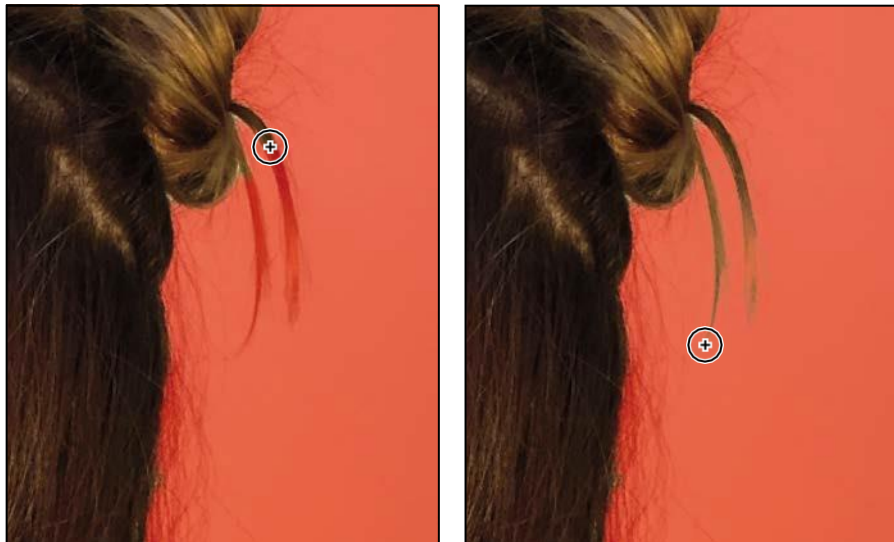




- 2 Select the Refine Edge Brush tool (🖌️). In the options bar, set up a brush with a size of 20 px and hardness of 100%.



- 3 Choose Overlay from the View Mode menu, so that the missing hair is visible.
- 4 Drag the Refine Edge Brush tool between the hair bun and the ends of the hair, where the selection needs to be improved. As you drag the Refine Edge Brush tool over the complex hair edge, you should see that the hair strands falling from the bun are now included in the visible areas.



- 5 Scroll down to the loop of hair that falls over the back of the shirt. The original image background shows inside the loop. That background needs to be replaced with the magazine background, so you'll use the Refine Edge Brush to add that loop interior to the mask.

Julieanne Kost is an official Adobe Photoshop evangelist.

## Tool tips from the Photoshop evangelist

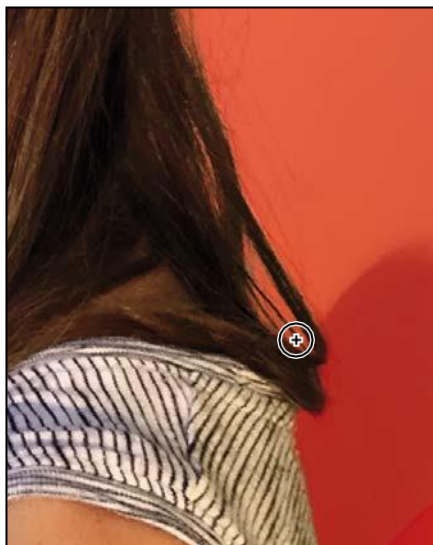
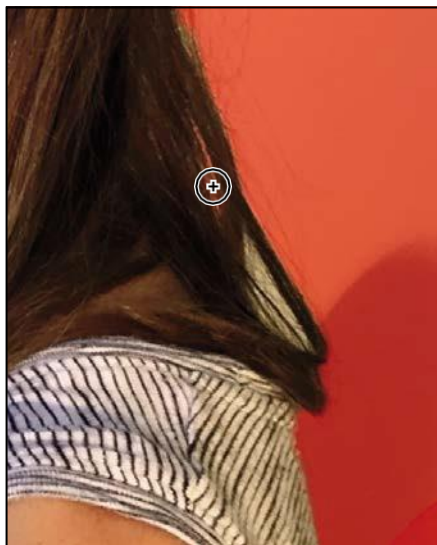


### Zoom tool shortcuts

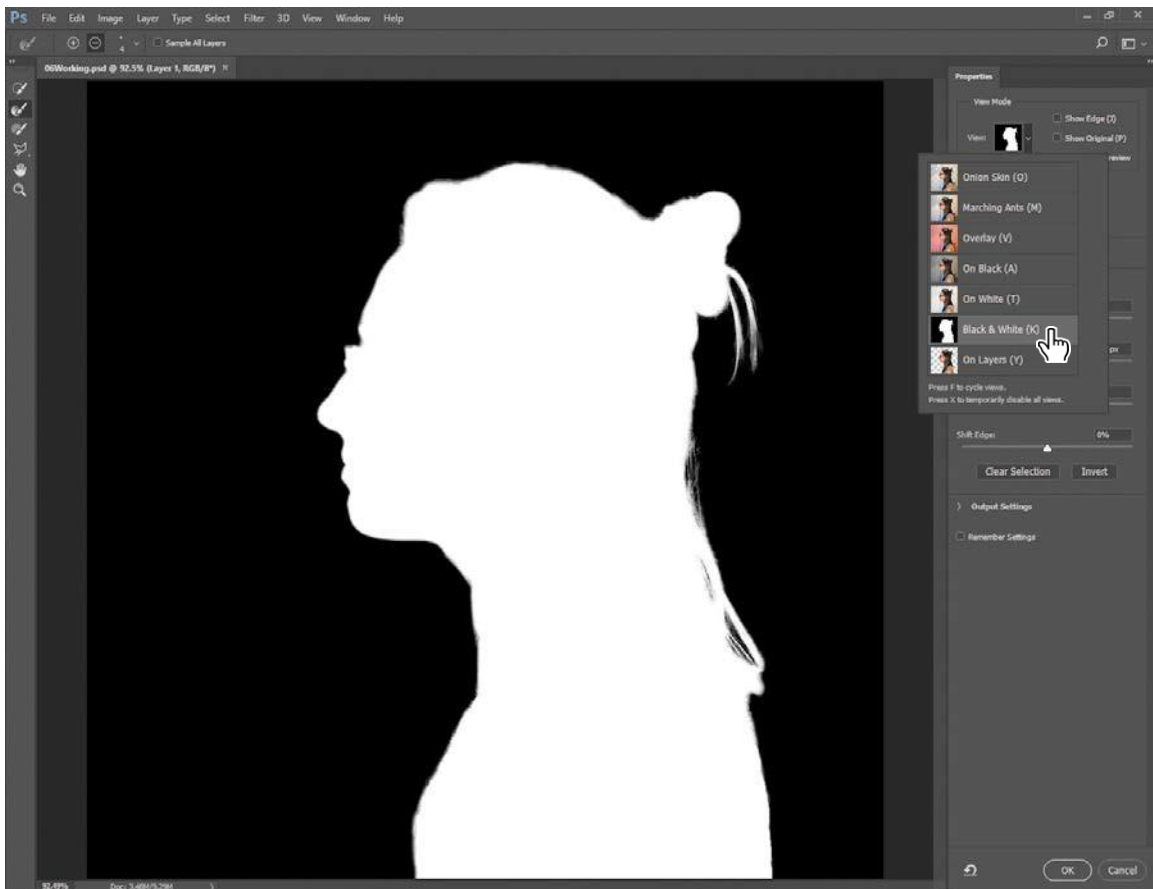
Often when editing an image, you'll need to zoom in to work on a detail and then zoom out again to see the changes in context. Here are several keyboard shortcuts that make zooming faster and easier.

- With any tool selected, press Ctrl (Windows) or Command (Mac) with the plus sign (+) to zoom in, or with the minus sign (–) to zoom out.
- Double-click the Zoom tool in the Tools panel to return the image to 100% view.
- When Scrubby Zoom is selected in the options bar, just drag the Zoom tool to the left to zoom out or to the right to zoom in.
- Press Alt (Windows) or Option (Mac) to change the Zoom In tool to the Zoom Out tool, and click the area of the image you want to reduce. Each Alt/Option-click reduces the image by the next preset increment.

- 6 In the options bar, set up a Refine Edge brush with a size of 15 px, with hardness at 100%.
- 7 Drag the Refine Edge Brush tool over any obscured hairs to reveal them. You should see two things happen: Gaps in the mask within the loop of hair should become masked, while fine hairs are added to the visible areas.



- 8 Click the View option, and choose Black & White. This is another good way to check your mask. Inspect the mask at different magnifications, and when you're done, choose View > Fit on Screen.



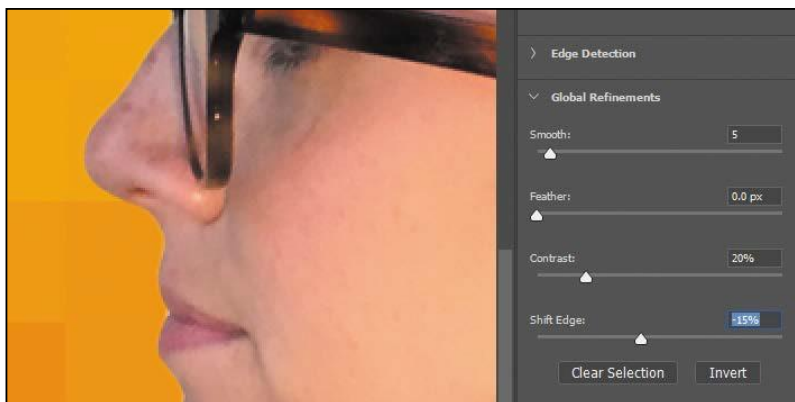
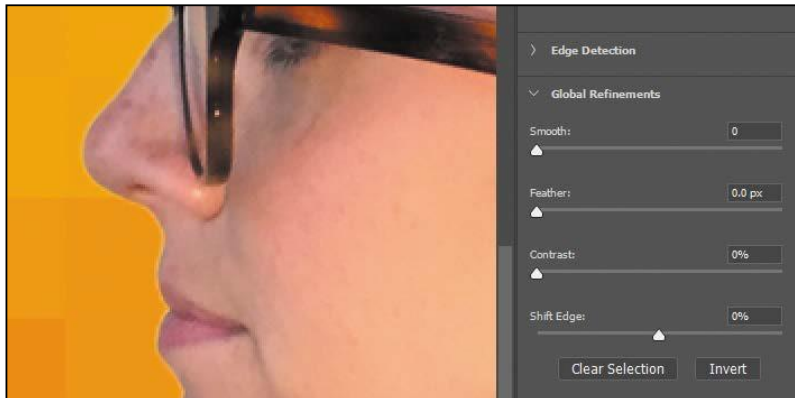
If you see hairs or other details that are masked but should be revealed, drag the Refine Edge brush over them. The finer the details you want to mask, the smaller you should set the Refine Edge brush size. It's OK if the brush size is slightly larger than the details you want to mask, and you don't have to drag the Refine Edge Brush tool precisely.

If you see Refine Edge Brush tool mistakes that need to be erased, such as inner areas incorrectly added to the mask, drag the Refine Edge Brush tool over the mistakes while holding down the Alt (Windows) or Option (Mac) key.

## Adjusting Global Refinements

At this point the mask is in good shape, but needs to be tightened up a little. You can tune the overall appearance of the mask edge by adjusting the Global Refinements settings.

- 1 Click the View menu in the View Mode section, and choose On Layers. This lets you preview adjustments over the Magazine Background layer, which is behind the Model layer.
- 2 In the Global Refinements section, move the sliders to create a smooth, unfeathered edge along the face. The optimal settings depend on the selection you created, but they'll probably be similar to ours. We moved the Smooth slider to 5 to create a smoother outline, Contrast to 20% to make the transitions along the selection border more abrupt, and Shift Edge to  $-15\%$  to move the selection border inward and help remove unwanted background colors from selection edges. (Adjusting Shift Edge to a positive number would move the border outward.)

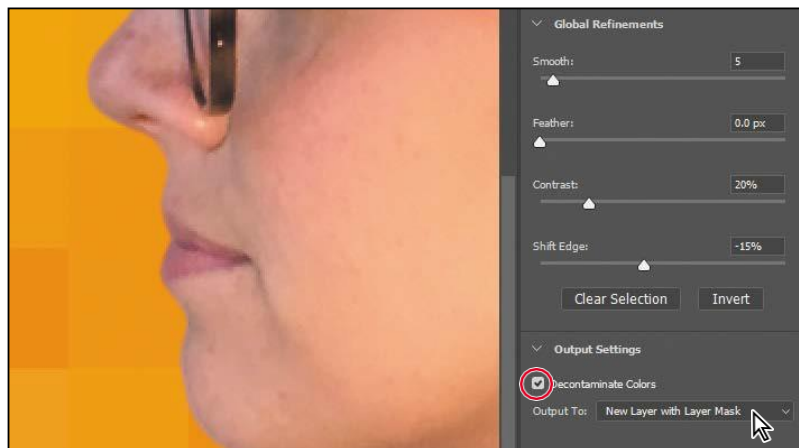
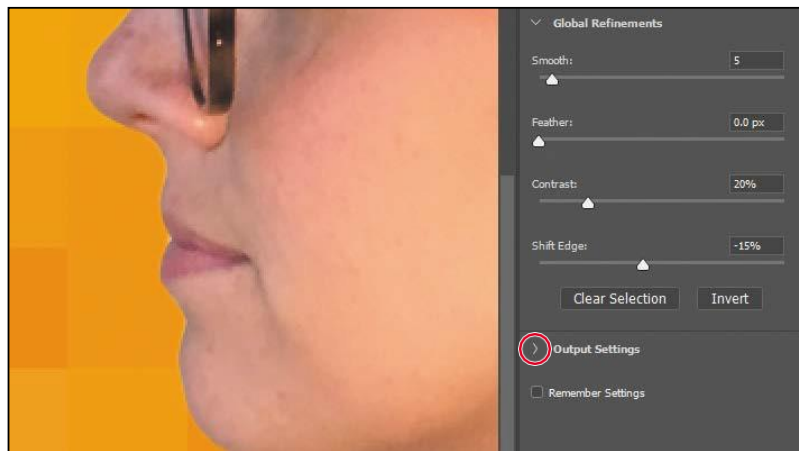


- 3 Take one more look at this preview of the current mask over the Magazine Background layer, and make any remaining corrections as needed.

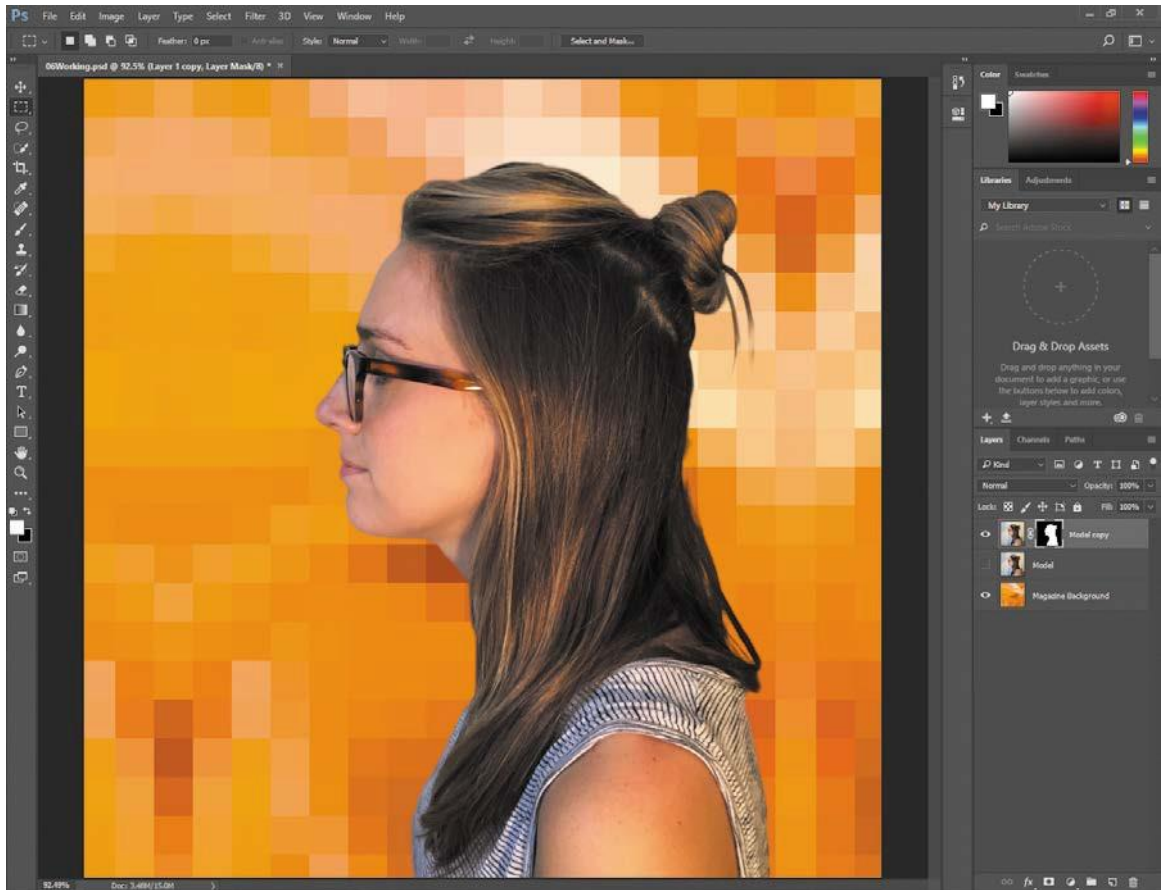
## Completing the mask

When you're satisfied with the mask preview, you can create its final output as a selection, a layer with transparency, a layer mask, or a new document. For this project, we want to use this as a layer mask on the Model layer, which was selected when you entered Select and Mask.

- 1 If the Output Settings are hidden, click the disclosure icon (>) to reveal them.
- 2 Zoom in to 200% or more so that you can more easily see the light fringing around the face edge that's due to the Model layer's original background color seeping in behind the mask.
- 3 Select Decontaminate Colors to suppress those color fringes.



- 4 Choose New Layer With Layer Mask from the Output To menu. Then click OK.



Clicking OK exits Select and Mask. In the Layers panel, the Model Copy layer now has a layer mask (pixel mask) that was generated by Select and Mask.

The layer was copied because using the Decontaminate Colors option requires that new pixels be generated. The original Model layer is preserved, and automatically hidden.

If the mask isn't perfect, you can continue to edit it at any time. When a layer mask thumbnail is selected in the Layers panel, you can click the Select and Mask button in the Properties panel, in the options bar (if a selection tool is active), or choose Select > Select and Mask.

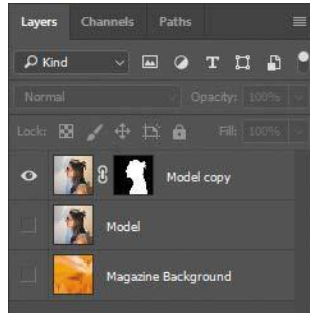
- 5 Save your work.

**Note:** If you had selected Decontaminate Colors, it would have been possible to choose a Layer Mask output option that would have added a layer mask to the Model layer without copying it.

# Creating a quick mask

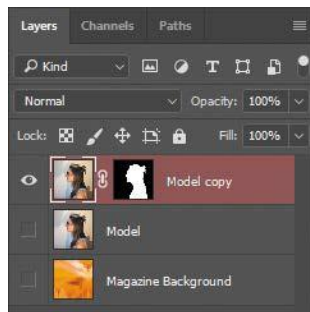
You'll create a quick mask to change the color of the glasses frames. First, you'll clean up the Layers panel.

- 1 Hide the Magazine Background layer so you can concentrate on the model.



- 2 Click the Edit In Quick Mask Mode button in the Tools panel. (By default, you have been working in Standard mode.)

In Quick Mask mode, a red overlay appears as you make a selection, masking the area outside the selection the way a rubylith, or red acetate, was used to mask images in traditional print shops. (This idea is similar to the Overlay view mode you saw in Select and Mask.) You can apply changes only to the unprotected area that is visible and selected. Notice that the highlight color for the selected layer in the Layers panel is red, indicating you're in Quick Mask mode.



- 3 In the Tools panel, select the Brush tool ( ).
- 4 In the options bar, make sure that the mode is Normal. Open the Brush pop-up panel, and select a small brush with a diameter of 13 px and a Hardness of 100%. Click outside the panel to close it.
- 5 Paint the earpiece of the glasses frames. The area you paint will appear red, creating a mask.

- 6 Continue painting with the Brush tool to mask the earpiece of the frames and the frame around the lenses. Reduce the brush size to paint around the lenses. You can stop where the earpiece goes under the hair.



In Quick Mask mode, Photoshop operates in grayscale mask mode, where shades of gray correspond to degrees of mask transparency. When using a painting or editing tool in Quick Mask mode, keep these principles in mind:

- Painting with black adds to the mask (the red overlay), subtracting from the selected area.
- Painting with white erases the mask, adding to the selected area.
- Painting with gray adds a semitransparent areas to the mask, where darker shades are more transparent (more masked).

- 7 Click the Edit In Standard Mode button to exit Quick Mask Mode.

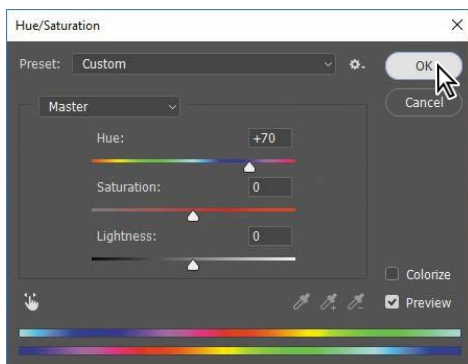
The unmasked area is selected. Exiting Quick Mask mode converts the Quick Mask into a selection.

- 8 Choose Select > Inverse to select the area you originally masked.

- 9 Choose Image > Adjustments > Hue/Saturation.

- 10 In the Hue/Saturation dialog box, change the Hue to +70. The new green color fills the glasses frame. Click OK.

**Tip:** If you want to keep this selection for future use, save it as an alpha channel (Select > Save Selection); otherwise it will be lost as soon as the area is deselected.



- 11 Choose Select > Deselect.

- 12 Save your work so far.



# Manipulating an image with Puppet Warp

The Puppet Warp feature gives you flexibility in manipulating an image. You can reposition areas, such as hair or an arm, just as you might pull the strings on a puppet. Place pins wherever you want to control movement. You'll use Puppet Warp to tilt the model's head back, so she appears to be looking up.

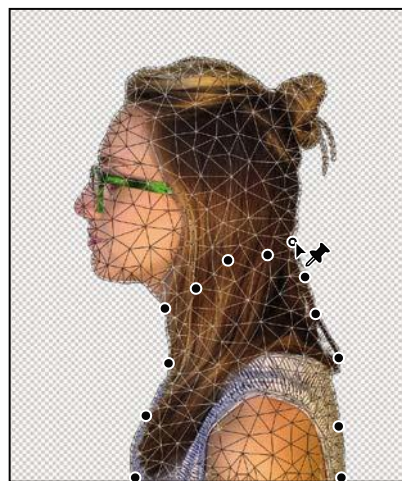
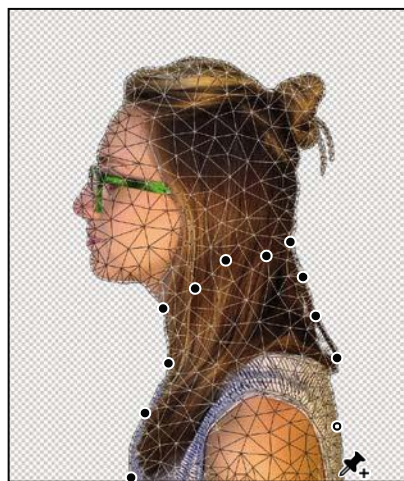
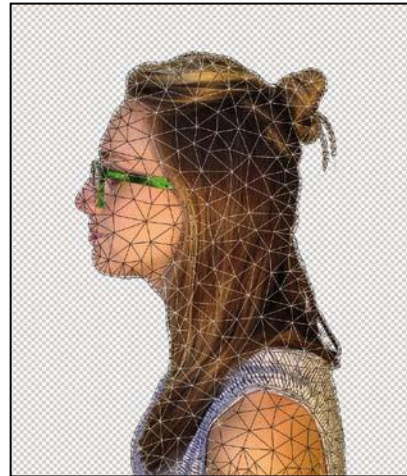
- 1 Zoom out so you can see the entire model.
- 2 With the Model Copy layer selected in the Layers panel, choose Edit > Puppet Warp.

A mesh appears over the visible areas in the layer—in this case, the mesh appears over the model. You'll use the mesh to place pins where you want to control movement (or to ensure there is no movement).

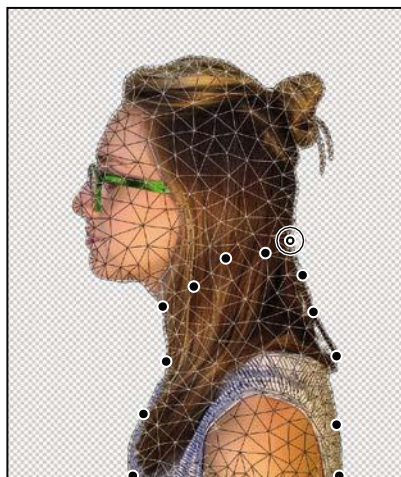
- 3 Click to add pins around the body and along the base of the head. Each time you click, Puppet Warp adds a pin. Around ten to twelve pins should work.

The pins you've added around the shirt will keep it in place as you tilt the head.

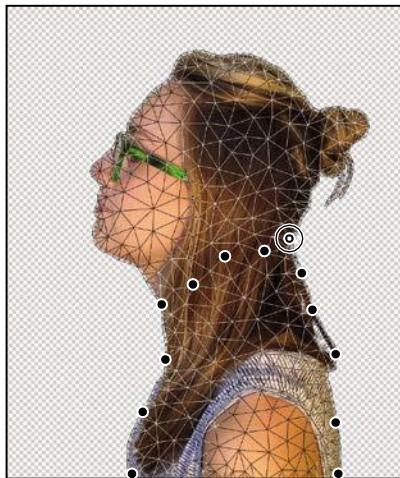
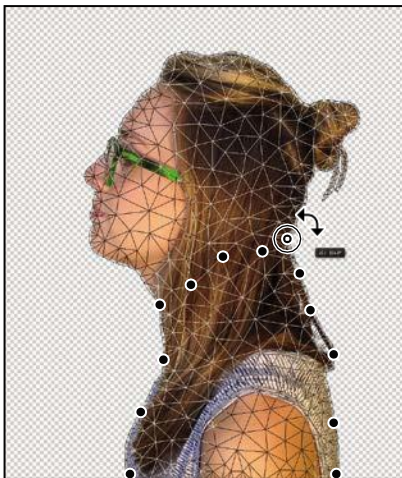
- 4 Select the pin at the nape of the neck. A white dot appears in the center of the pin to indicate that it's selected.



- 5 Press Alt (Windows) or Option (Mac). A larger circle appears around the pin and a curved double arrow appears next to it. Continue pressing Alt or Option as you drag the pointer to rotate the head backwards. You can see the angle of rotation in the options bar; you can enter **180** there to rotate the head back.
- 6 When you're satisfied with the rotation, click the Commit Puppet Warp button (✓) in the options bar, or press Enter or Return.



**Note:** Be careful to Alt-click or Option-click the dot itself, or you'll delete the pin.



- 7 Save your work so far.

## Using an alpha channel to create a shadow

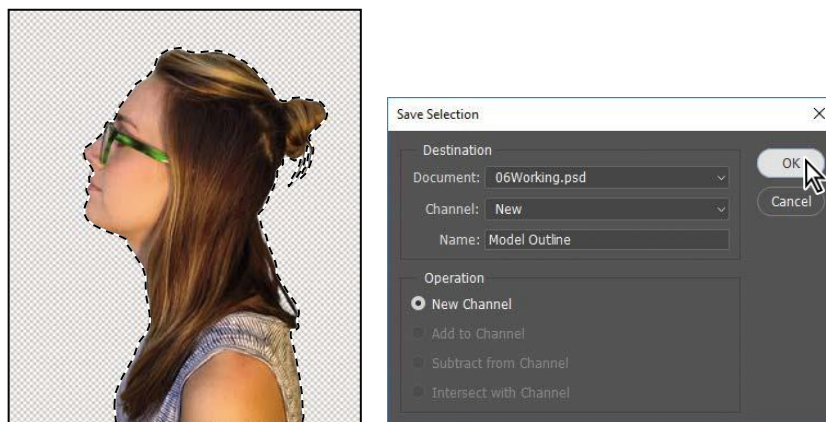
Just as different information in an image is stored on different layers, channels also let you access specific kinds of information. Alpha channels store selections as gray-scale images. Color information channels store information about each color in an image; for example, an RGB image automatically has red, green, blue, and composite channels.

To avoid confusing channels and layers, think of channels as containing an image's color and selection information; think of layers as containing painting, shapes, text, and other content.

You'll use an alpha channel to set up a selection, which you'll then fill with black on a layer to create the actual shadow.

You've already created a mask of the model. To create a shadow, you want to essentially duplicate that mask and then shift it. You'll use an alpha channel to make that possible.

- 1 In the Layers panel, Ctrl-click (Windows) or Command-click (Mac) the layer icon in the Model Copy layer. The masked area is selected.
- 2 Choose Select > Save Selection. In the Save Selection dialog box, make sure New is chosen in the Channel menu. Then name the channel **Model Outline**, and click OK.



Nothing changes in the Layers panel or in the image window. However, a new channel named Model Outline has been added to the Channels panel.

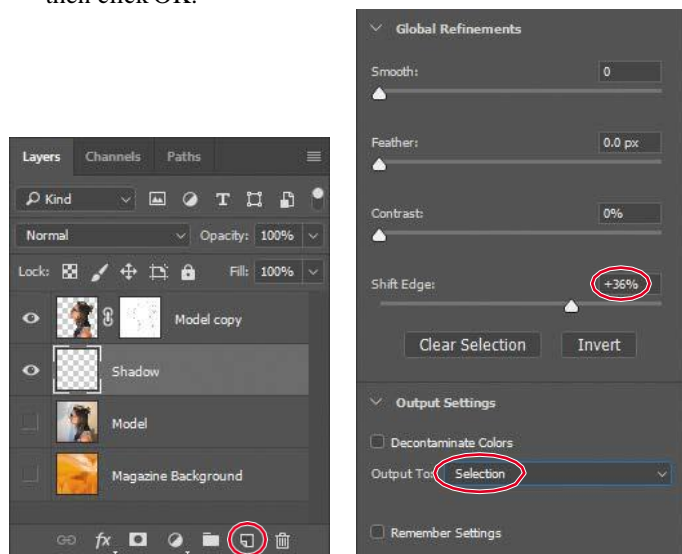
- 3 Click the Create A New Layer icon (📄) at the bottom of the Layers panel. Drag the new layer below the Model Copy layer, so that the shadow will be below the image of the model. Double-click the new layer's name, and rename it **Shadow**.
- 4 With the Shadow layer selected, choose Select > Select and Mask.

## About alpha channels

As you work in Photoshop, you will eventually encounter alpha channels. It's a good idea to know a few things about them.

- An image can contain up to 56 channels, including all color and alpha channels.
- All channels are 8-bit grayscale images, capable of displaying 256 levels of gray.
- You can specify a name, color, mask option, and opacity for each channel. (The opacity affects the preview of the channel, not the image.)
- All new channels have the same dimensions and number of pixels as the original image.
- You can edit the mask in an alpha channel using the painting tools, editing tools, and filters.
- You can convert alpha channels to spot-color channels.

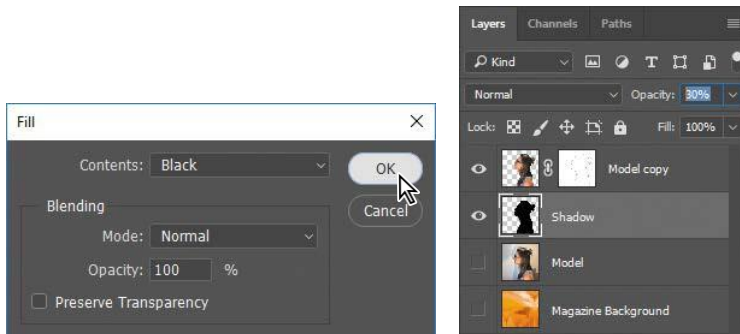
- 5 Click the View menu in the View Mode section, and choose On Black.
- 6 In Select and Mask, move the Shift Edge slider to **+36%**.
- 7 In Output Settings, make sure Selection is selected in the Output To menu, and then click OK.



- 8 Choose Edit > Fill. In the Fill dialog box, choose Black from the Contents menu, and then click OK.

The Shadow layer displays a filled-in black outline of the model. Shadows aren't usually as dark as the person that casts them. You'll reduce the layer opacity.

- 9 In the Layers panel, change the layer opacity to **30%**.



The shadow is in exactly the same position as the model, where it can't be seen. You'll shift it.

- 10 Choose **Select > Deselect** to remove the selection.
- 11 Choose **Edit > Transform > Rotate**. Rotate the shadow by hand, or enter **-15°** in the Rotate field in the options bar. Then drag the shadow to the left, or enter **545** in the X field in the options bar. Click the **Commit** button or press **Enter** or **Return**, to accept the transformation.



- 12 Click the eye icon for the **Magazine Background** layer to make it visible, and delete the **Model** layer (the one without the mask).
- 13 Choose **File > Save** to save your work so far.

Your magazine cover is ready to go!

## Review questions

- 1 What is the benefit of using a quick mask?
- 2 When you have a selection created by a quick mask, what happens when you deselect?
- 3 When you save a selection as an alpha channel, where is the alpha channel stored?
- 4 How can you edit a mask in a channel once you've saved it?
- 5 How do channels differ from layers?

## Review answers

- 1 Quick masks are helpful for creating quick, one-time selections. In addition, using a quick mask is an easy way to edit a selection using the painting tools.
- 2 As with any other selection, a quick mask selection disappears when you deselect it.
- 3 Alpha channels are stored in the Channels panel, along with the visible color channels.
- 4 You can paint in an alpha channel using black, white, and shades of gray.
- 5 Alpha channels are storage areas for saved selections. All layers set to be visible will be present in printed or exported output. But only the color channels are visible in printed or exported output; alpha channels are not. Layers contain information about image content, while alpha channels contain information about selections and masks.