Chapter 1: Getting started + Painting

Web Resources

Course web site

http://online.santarosa.edu/course/homepage/?811

Adobe in Education: Academic pricing, tutorials, and other resources for learning Photoshop and other Adobe products: www.adobe.com/education

National Association of Photoshop Professionals (NAPP) www.photoshopuser.com

Planet Photoshop: http://www.planetphotoshop.com

Ben Willmore's Ultimate Photoshop Guide: http://www.benwillmore.com/ultimateguide

ExamAids—software to help you prepare for Adobe Certification: http://www.examaids.com

Creative Studio's Photoshop page: http://www.creativepro.com/software/home/57.html

Stock.XCHNG, "the leading FREE stock photo site:" http://www.sxc.hu/

Adobe Certified Experts (ACE)

What is an ACE?

"An ADOBE CERTIFIED EXPERT is an individual who has passed an Adobe Product Proficiency Exam for a specific Adobe software product. Adobe Certified Experts are eligible to promote themselves to clients or employers as highly skilled, expert-level users of Adobe software. The ACE designation is a recognized worldwide standard for excellence in Adobe software knowledge." (Adobe Web site)

One goal of the these notes is to prepare students to pass the ACE test in Photoshop. You will find the relevant ACE topics at the beginning of each chapter of these notes.

Adobe often lets students take the ACE test at a 50% discount. For more information, go to http://www.adobe.com/education/educators/ace_program.html.

An ADOBE CERTIFIED INSTRUCTOR must pass ACE tests for any Adobe products he/she teaches, and either have teaching credentials or otherwise meet Adobe's criteria for instructor excellence.

What is an Adobe Certified Training Center?

In an Adobe Certified Training Center, all instruction is done by Adobe Certified Instructors, and teaching labs meet Adobe standards for hardware and software.

ACE Preparation Topics

Each chapter will begin with topics from the ACE Certification Bulletin for Photoshop CS2.

Painting

- Given a tool, paint an object by using that tool (Tools include: Brush Tool, Pencil Tool, Eraser).

- Adjust the tonal range of an image by selecting the proper options and using a curves adjustment layer.

- Explain how blending modes are used to control how pixels are effected when using a painting or editing tool.

- Create and use patterns and gradients.

- Create and edit a custom brush.

Using these Notes

These notes are "advanced," meaning that we assume you already have at least six months working with Photoshop, or have taken a reasonably rigorous introductory training course. But, as we cover each topic, you will often see a brief review of what we consider the key points of the tool, command, or technique being covered. That is because Photoshop is a tough program—with so many features, options, and ways of accomplishing the same task—that we know you might forget something basic. Then, we move on to more complicated aspects of the topic at hand. For many of the topics, we provide an example file for you to open and work with as you read the notes. The more you experiment with each tool, command, palette, etc., the more proficient you will become in using Photoshop effectively and creatively.

Brush Tool

Brushes are used by many Photoshop tools such as the Brush, Pencil, Clone Stamp, Pattern Stamp, History Brush and Art

History Brush Tools. We are going to start out by using the Brush Tool, called the Paintbrush in earlier versions of Photoshop, to show you some advanced techniques for creating, saving, and using custom Brush Tool settings. There are three places to view and change Brush options: the Options Bar, the Brush Preset Picker, and the Brushes palette.

As with other Photoshop tools, the **Options Bar** displays the most common Brush settings for the chosen tool, and lets you modify those settings. Let's review these options from left to right, and then use the Brushes palette to define and use new brushes.
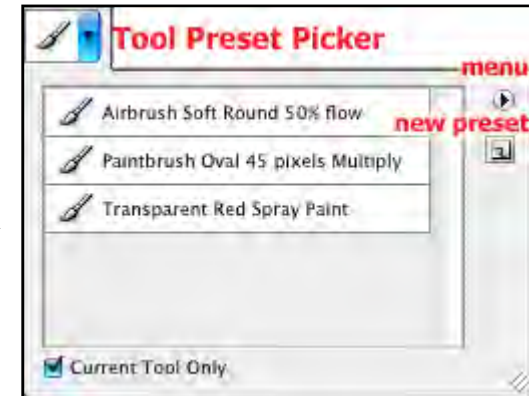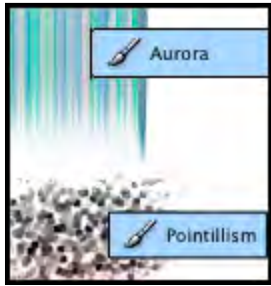
The Tool Preset Picker

A TOOL PRESET captures all the settings for a particular tool, and saves them to use again. A Brush Tool preset can include a custom defined brush, all the Options Bar settings, and even the foreground color. Click the down arrow to the right of the **Tool Preset Picker** to view its preset list. By default, it is a short list.

If you click the Tool Preset Picker menu, and choose **Brushes**, towards the bottom of the menu (shown on the next page), you can load more brushes to work with. Be sure to choose **Append** so that the new Brush Tool Presets appears at the bottom of the

list, instead of replacing the current list. some of the premade Brush Tool presets. After you work with the other settings in this chapter, you can click the **New Preset** button to make Brush Tool presets of your own.

Brush Preset Picker

Click the down arrow to the right of the Brush Preset picker to view the palette of defined or Preset brushes. This palette lets you choose among the Preset brushes the Brush Tool or any other brush-using tool can employ, and change a few settings on the fly—without altering the Brush presets themselves.

To temporarily change the size of the currently chosen brush, drag the (Master) Diameter slider, or type in the desired size. Likewise, drag the Hardness slider from 0% for a soft or feathered brush to 100% for a hard or crisp brush. Photoshop will use these adjusted settings until you change tools (e.g., from Brush to Pencil) or pick a different preset brush.
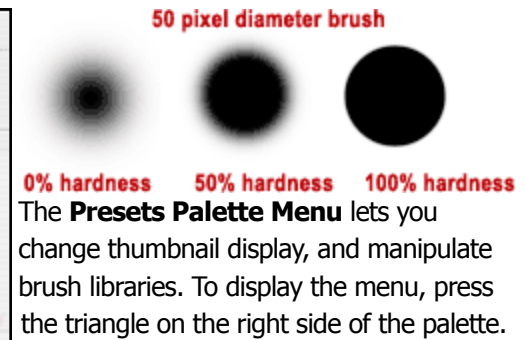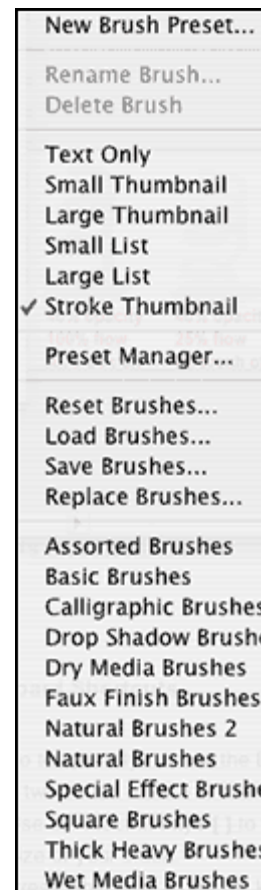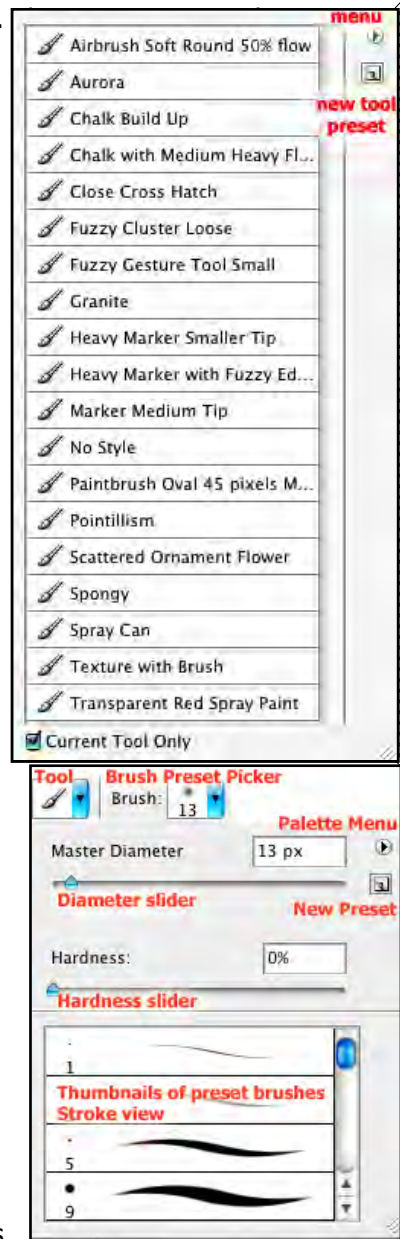
The **Presets Palette Menu** lets you change thumbnail display, and manipulate brush libraries. To display the menu, press the triangle on the right side of the palette.

Previews of the various thumbnails are shown here. By default Photoshop displays brushes by **Stroke Thumbnail** unless you are picking a brush tip shape; then it displays **Small Thumbnail**.
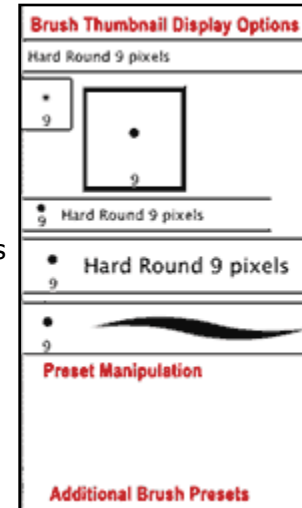
Reset Brushes restores the brushes to the default, deleting any custom brush presets you may have created.

The brush presets at the bottom of the menu are specialty **brush libraries** that ship with Photoshop, but are not loaded into the Brushes palette by default. To load one or more brush library, simply pick it from the menu, and then choose Append from the dialog box that follows. When you append a brush library to your list, it becomes available to any tool that uses a brush.

These keyboard shortcuts will help you to change brush options more efficiently:

To temporarily access the Brush Preset Picker in the document window, click the right mouse button with a two button mouse or **ctrl + click** with a one button mouse.

Use the bracket keys **[** and **]** to the right of the **P** key on the keyboard to quickly increase **]** or decrease **[** the size of your brush.

Press **Shift** plus a bracket key to increase **]** or decrease **[** the hardness of the brush.

Painting Modes

We tend to think of BLEND MODES as interactions between layers, but you can also use them as PAINTING MODES, where the colors of what you paint—the BLEND—interact with the color of the pixels currently on the layer you are painting on—the BASE—to produce the RESULT, the colors that actually appear on the document. Painting modes all occur on the single layer you are painting on, and permanently alter the document pixels.

Two modes are unique to painting—but you can only use them on layers, not the Background, where they are dimmed.

- **Clear** will turn your brush into the Eraser, and remove pixels based on the brush settings. It's not "clear" why you would want to do this instead of just using the Eraser tool. But, you can also use Clear with the Paintbucket tool, which can be a lot more useful.

- **Behind** works best on layers with some transparency because it only paints on transparent and translucent regions. The color will apply as long as you keep the mouse button down. When you release the mouse, those painted areas are no longer transparent, so the next stroke you paint will be applied behind them as well.

Colorful images work well for experimenting with painting modes. This crayon circle image was downloaded from the stock.xchng. It was taken by Marja Flick; Aalsmeer; NH; Netherlands: http://www.sxc.hu/photo/317127.


Since painting, even with modes, alters the document pixels, you might want to duplicate the background layer before you paint.

As you experiment, try two techniques:

- Choose medium gray as your foreground color, and paint with overlay, multiply, and color dodge for interesting results.

- Sample colors from within the images themselves, and paint with a variety of modes and opacities.

Opacity, Flow, and Airbrush Options

OPACITY sets the maximum amount you can see through a brush stroke. It controls the entire brush stroke. Without releasing the mouse, no matter how many times the painted area overlap, the opacity stays as set.

100% opacity 100% flow   25% opacity 100% flow   100% opacity 25% flow
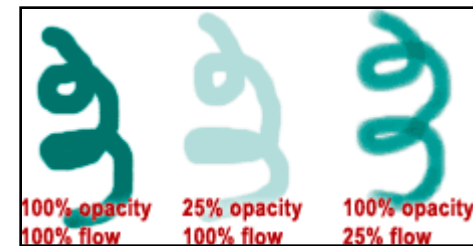
FLOW determines how quickly the color paints, so that you end up with the specified opacity. Notice that the painted area darkens where it overlaps—up to the specified opacity.

✓ Normal
Dissolve
Behind
Clear

Darken
Multiply
Color Burn
Linear Burn

Lighten
Screen
Color Dodge
Linear Dodge

Overlay
Soft Light
Hard Light
Vivid Light
Linear Light
Pin Light
Hard Mix

Difference
Exclusion

Hue
Saturation
Color
Luminosity

AIRBRUSH lets you apply gradual tones to an image, simulating traditional airbrush techniques. Combined with low flow values, you can get a great deal of control over your painting, especially if you use a tablet and stylus instead of a mouse. You try it!

1. Open up a new, blank document.

2. Choose a fairly dark color.

3. Select the Brush Tool and choose a medium to large brush size in the Brush Preset Picker

4. Set the Opacity in the Options Bar to 50%. If you leave the Brush in one spot and keep the mouse button depressed, the color will not get any stronger than the Opacity setting.

5. Take the brush and paint over the same spot repeatedly, releasing the mouse after each stroke. The paint will accumulate until it reaches 100% of the color chosen.

6. Choose the Airbrush setting in the Options Bar. Do the same thing you did before, keeping the mouse depressed while you hold the brush in the same spot. You will see that the Airbrush functions as a real world airbrush; the paint will accumulate where you pause with the Brush Tool.

Wacom is the leading manufacturer of drawing tablets. http://www.wacom.com/productinfo/index.cfm Even the smallest tablet, that can usually be purchased for under $100, is very useful. Some of the educational software houses offer tablets with academic discounts.

Brushes Palette

Photoshop brushes let you simulate the effect of real world paint media such as oil paint, watercolors, pastels, charcoal and crayons. The Brushes palette provides many options for viewing, modifying, and creating brushes. Whenever a tool uses brushes, the Brushes palette button appears near the right end of the Options bar. You can access the Brushes Palette by clicking this button or by choosing **Window > Brushes**.

We have already looked at Brush Presets. Now let's take a more in depth look the organization of the Brushes palette, the settings used to configure those presets, and how to change these settings to make your own custom brushes.

The left side of the palette lists categories or SETS of options, with check boxes to enable or disable an entire set. The right side of the palette lets you control the options for the specified set.

If your Brushes palette does not show the list of options, choose Expanded View from the Brushes palette menu.

You must click the set name, not its check box, to have the right side of the Brushes palette display its associated options.

Brush Tip Shapes

If you click **Brush Presets**, the right side of the palette will resemble the Brush Preset Picker. If you click **Brush Tip Shape**, the right side of the palette includes some the options shown above. The bottom panel shows a grayscale preview of the brush as a stroke thumbnail using the current palette settings.
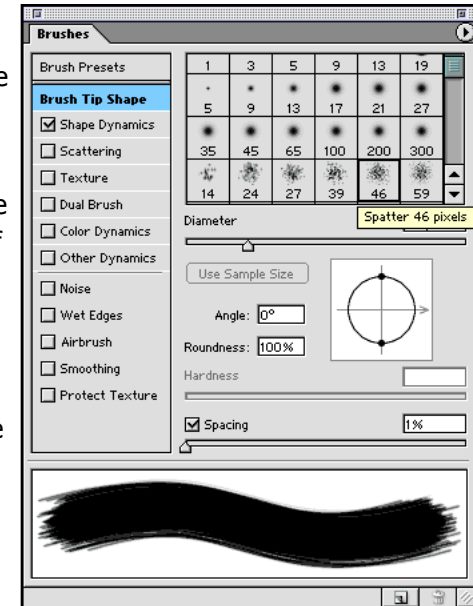
There are two kinds of brush tips, standard and sampled. STANDARD BRUSH TIPS are either round or elliptical; SAMPLED BRUSH TIPS can be made from selections of any bitmapped Photoshop document. Sometimes these are called "custom" brush tips.

Diameter and Hardness

Diameter and Hardness settings work the same as in the Brush Preset Picker. These samples compare different roundness settings. Brush sizes can range from 1-2500 pixels. When you make your brush tip larger, its cursor size increases. You can only set hardness for standard brush tips. Hardness can range between 0 and 100%.

Spacing

As you drag the mouse or stylus across a document with the Brush tool, it looks like you are applying a single stroke of paint. In actuality, what happens is that as you drag the mouse, the paint is repeatedly applied in the shape of the brush tip. The spacing setting determines how frequently the paint is applied.
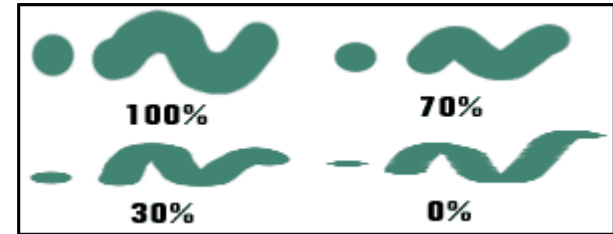
By default, spacing is set to 25%, which means that a new brush tip is applied after you have moved a quarter off the original. This works fine for perfectly round brushes, but can cause unexpected results with brush tips of other shapes.

If you want a smooth appearance to your painting, you can decrease the spacing setting to as low as 1%. If you want to have more distance between the brush tips, increase the spacing. Spacing can get as wide as 1000%.
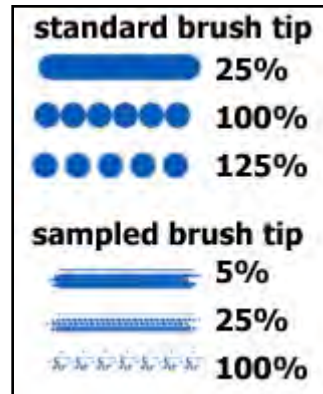
Roundness and Angle Settings

Think of **Roundness** as the setting that can make calligraphic strokes. A 100% Roundness setting maintains a brush with a round tip. Bumping down the Roundness flattens the tip, making it oval or in the extreme, a flat edge. You can also change the roundness of sampled brushes, to distort them.

You can change the angle of any brush tip, but it will not affect a 100% round brush. The **Angle** setting rotates an oval or sampled brush.
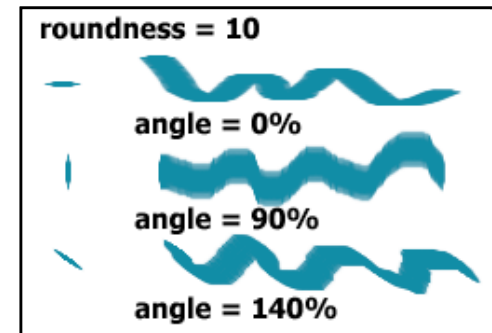
Sampled Brush Tips

The preset brushes that are not round brushes such as texture brushes (e.g. spatter and pastel brushes), are brushes that were created by sampling images. You can easily create a brush from your own image. This process works best with distinct shapes on a white or transparent background.

Even when made from color images, brushes paint in grayscale. They paint with the foreground and sometimes the background color, depending on your brush settings. White reads as transparent.

Here is an example. The source file is **butterfly.jpg** in the **ch01 folder** inside the **student_files_3** folder if you want to try it yourself.

1. Open the image from which to sample in Photoshop, or paint your own brush-to-be on a white background.

2. Select the part of the image to become your brush, in this case the butterfly

3. Choose **Edit > Copy** or **Edit > Copy Merged** for a layered document.

4. Open a new Photoshop document, clipboard size, and choose **Edit > Paste**.

5. Choose **Image > Image Size** to downsample image if necessary. In most cases, your brush should be smaller than 200 pixels.

6. Choose **Edit > Define Brush Preset**.

7. Name your brush preset from the Brush Name dialog box.

   The new brush preset will appear somewhere in the Brush Presets palette—not necessarily at the bottom.

8. Test your brush and adjust the Spacing if necessary. We made the spacing samples at the top of the next column by pressing the Shift key and then dragging to the right to make a straight stroke.

Each new sampled brush is assigned a spacing of 25%. For your
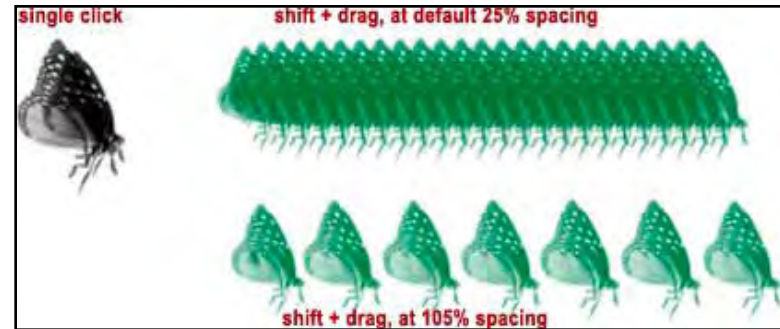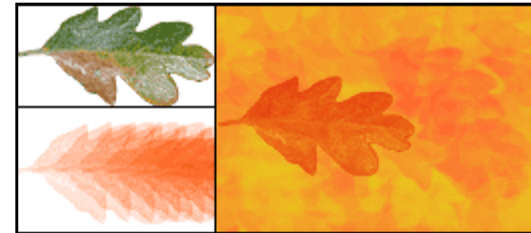

image to be recognizable as it was sampled, increase the spacing to at least 100%. The leaf example shows a leaf that was sampled as a brush. Left, bottom shows the leaf brush

painted with the default Spacing setting of 25%. On the right side, with the Spacing increased to over 200%, a texture

was created by painting repeatedly with the brush with different colors.

The **Use Sample Size** button appears with the Diameter setting in the Brushes Palette when you choose a sampled brush. This command activates if you change the size of a sampled brush.
Click the Use Sample Size button to restore the Diameter

setting to the original size of the sampled area. Be careful: if you upsample a brush tip, you degrade its quality.
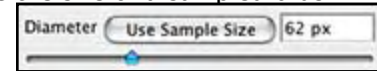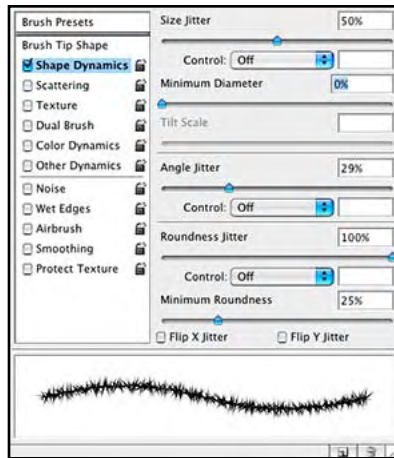
More Brush Settings

The next six listings under Brush Tip Shape offer ways of adding randomness, variation and taking advantage of a pressure

sensitive tablet. These settings can help make the brush stroke look more natural.

- Click a setting name, such as **Shape Dynamics** or **Scattering**, to view the right side of the dialog box and access its settings.

- Click a setting check box to apply the last settings used for that listing without changing the dialog box view to see the setting choices.

Many of these settings have a control called Jitter. JITTER is variability. The higher the Jitter number, the more the brush stroke will change as you extend it.

Shape Dynamics

Looking at the Shape Dynamics settings above, locate the **Size Jitter**, **Angle Jitter** and **Roundness Jitter** controls. Activating all these on a flat brush makes a "fuzzy" brush with varying size, angle and roundness. **Size Jitter** created a stroke with vertical spiky ends. **Angle Jitter** made the spiky ends splay out in many directions.

Flat Brush: Diameter = 21
Angle = -90, Hardness = 25%
Spacing = 25%

Shape Dynamics:
Size Jitter = 50%
Angle Jitter = 29%
Roundness Jitter = 100%

Minimum settings restrict the range that a Jitter setting can vary by. Here, the top brush stroke was painted with the brush configured in the previous example. Underneath
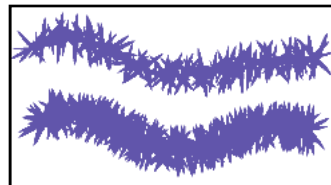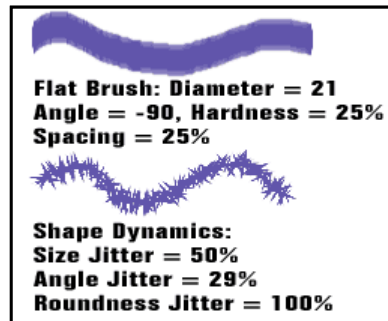

it is the same brush after changing the Minimum Diameter from 0% of 83%. This reduced the amount of size variance, so the middle is thicker.

Each **Control** setting is accompanied by a drop down menu where you can choose various ways of limiting the Jitter. By default, most **Controls** are set to **Off**, so the Jitter settings will apply all the time. Two control choices, **Pen Pressure** and **Pen Tilt**, require a tablet and stylus. If a control is set to one of these settings without a tablet installed, the setting will display a warning triangle.
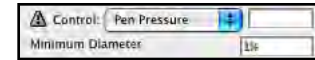
One control setting that does not require a tablet is **Fade**. Here is an example of **Size Jitter** with a **Fade** setting of **125** meaning that the brush stroke reduces in size in 125 steps or paint daubs until it reaches 1% of the

Size Jitter set to Fade in 125 steps to a Minimum of 1%
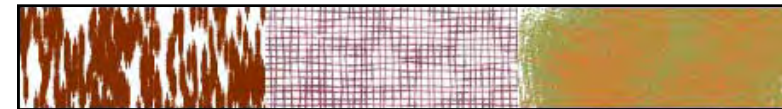
brush diameter size. The Minimum Diameter was set to 1% (the default setting). There are many more settings you can experiment with on your own that are too numerous to cover here.

Check out the **Scattering** setting, where you can scatter the paint daubs vertically, or along both axes. In the example above, on the left the flat paint brush used in the earlier Roundness example was set to Scatter vertically. To the right of the Scatter example you can see how you can paint with texture by playing with the settings under Texture. Note that if you do not add some Spacing (click back on the Brush Tip Shape to access the

Spacing setting), the texture won't show because all the textured paint daubs will run together as a solid stroke.

Play around with Color Dynamics where you can paint with more than one color such as the third example. Note that the brush preview at the bottom of the Brushes Palette only views your brush in grayscale. You will not be able to see what the color look like until you paint.

Under Other Dynamics you will find a setting to Jitter the Opacity. The Dual Brush settings will let you paint with two brushes at once.

The bottom 5 settings on the left side of the Brushes Palette are choices that you simply toggle on and off. In the right section of the preceding example, the **Wet Edges** setting was used to simulate using a watercolor brush, where the paint will collect at the edges of the brush strokes.

Your settings will be remembered by Photoshop when you next open the Brushes Palette. It's easy to get so many settings going that you may at some point want to start over from the defaults. To quickly turn off all the settings but **Smoothing** for a particular brush to its defaults, choose **Clear Brush Controls** from the Brushes Palette pop-out menu, the tiny triangle next to the word Brushes.

Saving Brush Presets

Any time that you choose a brush from the presets and then make changes to it, in effect you have created a new brush. The preset has not been changed; it will always give you the same settings when you click on it. If you click on any preset, your customized brush will disappear. If you want to save a brush that you have customized, you can do it in a number of ways.

To save a brush as a new preset, you can click on the **New Brush Preset** button in the **Brush Preset Picker** or choose **New Brush** from the pop-out menu of either the **Brushes Palette** or **Brush Preset Picker**. Either way, Photoshop will automatically name the brush based on the preset you started with. You will have the option to change the name when you save the brush. Your new brush will show up somewhere—not necessarily at the bottom—of the **Brush Preset Picke**r and the preset area of the **Brushes palette**.

Be aware that your brush is not saved forever. Any of the following will wipe out your customized preset brush:

- Choosing **Reset Brushes** from the pop-out menu of either the Brushes Palette or Brush Preset Picker.

- Choosing **Replace Brushes** from the pop-out menu of either the Brushes Palette or Brush Preset Picker.

- Choose a brush library from the list in the pop-out menu of either the Brushes Palette or Brush Preset Picker and choose to **Replace** in the dialog box (which is the dangerous default) by clicking **OK**.

To save your brushes more permanently, you have two choices: to save a new library of brushes, or save an individual brush as a tool preset.

To save a new Brush library

1. From the Brushes Palette, make sure that the **Brush Presets** is highlighted at the top, left of the Brushes palette.

2. Choose the **Save Brushes** command from the **Brushes palette** pop-out menu or the **Brush Preset Picker** menu.

3. Enter a name for the new brush library. The extension **.abr** for a brush library will already be entered.

4. Browse to where you want to save the Brushes. By default it will be set up to save in the **Adobe Photoshop Only** folder

inside the Brushes folder hidden inside the Presets folder inside your Adobe Photoshop CS2 application folder.

If you don't change your save location, when you re-launch Photoshop, your new brush library will be a choice in the pop-out menu of both the Brushes Palette and Brush Preset Picker. If you don't want to re-launch, you can use the Load Brushes command from the pop-out menu. Saving a library will save all the preset brushes currently showing in the Brush Presets of the Brushes Palette or the Brush Preset Picker into the library.

It is also a good idea to save an additional copy of an important brush library elsewhere on your computer—this way it won't get accidentally deleted when you next upgrade your copy of Photoshop.

To save a brush as a Tool Preset

1. With the Brush Tool chosen (or whatever tool you want to save the brush for), in the Options Bar, click on the arrow next to the **Current Tool** icon to open the **Tool Preset Picker**.

2. Click on the check box next to **Current Tool Only** at the bottom of the Picker.

3. Click the **Create New Tool Preset** button that looks like a page icon.

    A dialog box appears.

4. Click the **Include Color** check box if you want to include the current Foreground color with the preset.

5. Click **OK**.
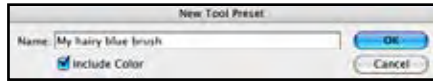
Saving a Tool Preset will make it easy to choose this precisely formatted brush from the Tool Preset Picker. The brush will not appear in the Brush Preset Picker or Brushes Palette. You can also save the tool preset as a Tool Preset Library, as shown at the end of this chapter.

## Loading, Downloading, and Sharing Brushes

Because you save brushes to a file when you save your brushes as a library, you can easily share your brushes with others, or travel with your brushes from one computer to another.

The **.abr** file that you create when you save your brushes to a library can be saved anywhere on your hard drive, on removable media such as a zip disk or a CD, or you can even send them via email as an attachment.

As stated earlier, when you save your .abr libraries of brushes to the Adobe Photoshop preset folder, the name of the library will appear in the list of libraries in the pop-out menu of the Brushes Palette or Brush Preset Picker. If you save somewhere else, you can easily load up the library by choosing **Load Brushes** from the pop-out menu. You will be given the choice to browse to where your .abr file is located.

If you explore the Internet, you will find sites that offer up Photoshop brushes free for the downloading. Our favorite is: **Adobe Studio Exchange**: http://share.studio.adobe.com/ Default.asp. There you can download actions, brushes, custom shapes, gradients, patterns, styles, etc. You will need to establish a user name and password in order to download, but it won't cost you any money—and you won't get piles of junk email. For custom brushes, choose Brushes from the Adobe Photoshop area.

The Pencil Tool
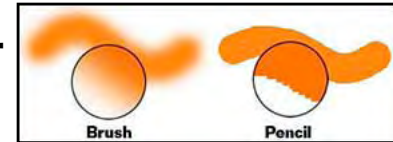
The Pencil tool differs from the Brush Tool in one key way. The Pencil always paints hard-edged, non anti-aliased lines or areas. The Brush Tool always paints with anti-aliasing, even at 100% hardness.

Pixel Editing

The Pencil tool is best used for drawing a straight line or editing on a pixel by pixel basis. For example, in the extreme close-up view of this illustration, the Pencil tool could be set to draw with a one pixel width brush making it easy to edit the two stray pixels next to the arrow, making them brown.
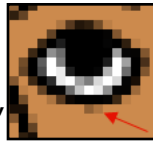
Fill Tools

FILL TOOLS replace an entire layer or a selected area with a color, pattern, or gradient.
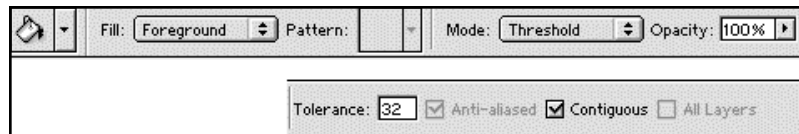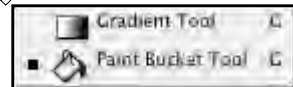
Paint Bucket Tool

The **Paint Bucket** tool fills a layer or selection with the foreground color or a pattern.

Change the **Fill** choice to toggle between the **foreground** color or a **pattern**. When you choose **Pattern**, the last pattern used appears in the **Pattern** box. **Mode** and **Opacity** control how the color or pattern will paint.

When the layer/selection contains pixels of varying colors or tones, **Tolerance** controls how the Paint Bucket will fill the selection. The star in the left bear head shows where the Paint Bucket clicked with the hot pink foreground color. The middle bear head was filled with the tolerance set to 32, the right bear with a tolerance of 150.

Like all other tools, the Paint Bucket can only change pixels on an individual layer. When **Use All Layers** is checked, tolerance applies to all visible document layers.

Even with tolerance to the max (255), you may need to click the Paint Bucket more than once to completely fill an area. Some Photoshop experts, such as Deke McClelland, recommend avoiding the Paint Bucket tool because it is so hard to set its tolerance to fill the area you want. Instead, choose **Edit > Fill** and fill 100% to fill a selection completely in one step.

The Gradient Tool

The **Gradient** tool paints transitions of color or tone across a layer or a selection. At 100% opacity in Normal painting mode, the gradient will replace all the pixels currently on the active layer or selection.

By default, the Gradient tool draws gradients using the foreground and background colors displayed in the Toolbox, using the Linear Gradient style. Results depend on where and for what distance you set the angle and length as you drag the tool across the document. These examples use a linear gradient from red to blue at 100% opacity.
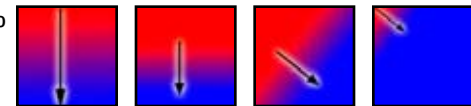
The Gradient tool has five style options, **Linear**, **Radial**, **Reflected**, **Angle**, and **Diamond**, as shown on the Options bar. You've already seen samples of the linear gradient. Here are the other four:
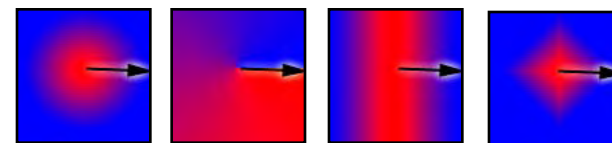
Radial   **Angle**   **Reflected**   **Diamond**

The **Reverse** option (not checked above) paints the gradient from right to left instead of the default left to right.

When checked, **Dither** minimizes banding or striping in the gradient, especially when it is printed.

If **Transparency** is not checked, the gradient will paint with solid color, without any transparent regions—even if they are edited into the gradient.

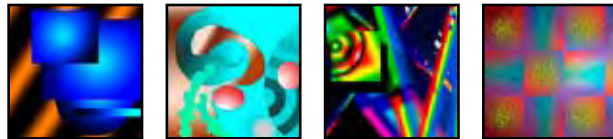Gradients are particularly effective when placed on their own layers and blended with other layers. To get more experience with the possibilities the gradient tool provides, try making a Photoshop document using nothing but gradients. Here are examples from some of our students:
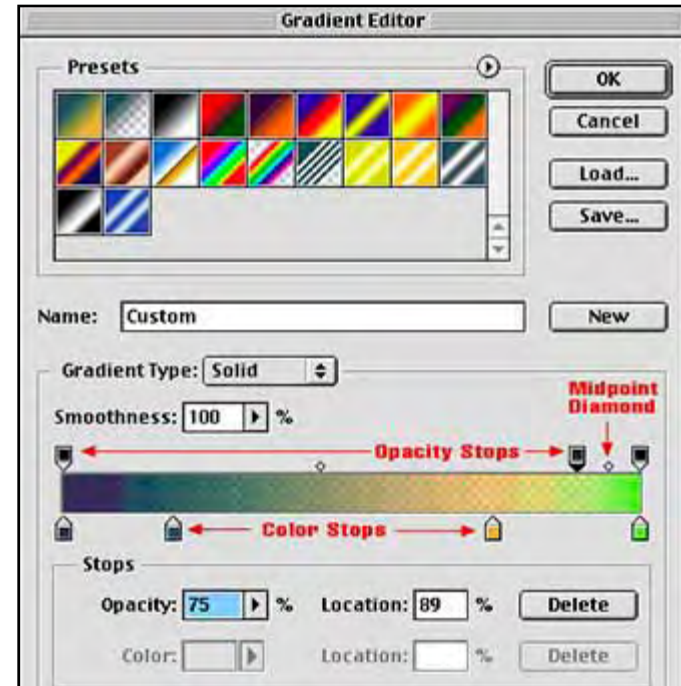
Gradients

Gradients are gradual transitions between specified colors. The Gradient tool, the Gradient Overlay layer effect, and Gradient Fill layers all use gradients.

Like brushes, Photoshop has additional gradient libraries that you can load from the Gradient Picker pop-out menu. Besides being useful on their own, they give you examples from which to construct your own custom gradients. Typically you will want to begin with a gradient similar to the one you want to make, and edit it.

New Gradient...

Rename Gradient
Delete Gradient

Text Only
✓ Small Thumbnail
Large Thumbnail
Small List
Large List

Preset Manager...

Reset Gradients...
Load Gradients...
Save Gradients...
Replace Gradients...

Color Harmonies 1
Color Harmonies 2
Metals
Noise Samples
Pastels
Simple
Special Effects
Spectrums

To edit a gradient

Click to Open the Gradient Editor   Click to Open the Gradient Picker   Gradient Styles

1. Choose the Gradient tool.

2. Click the gradient preview in the Options bar to open the **Gradient Editor**.

Gradient Editor

Presets

OK
Cancel
Load...
Save...

Name: Custom   New

Gradient Type: Solid

Smoothness: 100 ▸ %

Midpoint Diamond

← Opacity Stops →

← Color Stops →

Stops

Opacity: 75 ▸ %   Location: 89 %   Delete

Color: ▸   Location: %   Delete
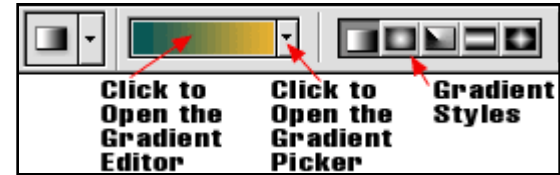
3. Edit the gradient as you choose. Suggestions follow these instructions.

4. Rename the gradient if desired. The default name of an edited gradient in the Name box is **Custom**.

5. Click the **New** button. Your new gradient will appear at the end of the Gradient Picker.

Gradient Editor Specifics

The Gradient Editor shows a large sample of your gradient as a bar across the middle of the palette. The little polygon shapes at the top and bottom of the gradient bar are called STOPS. The **Opacity Stops** on the top of the sample set opacity. The **Color Stops** on the bottom of the sample set colors.

To change gradient color, click its color stop to select it. When it is selected, its triangle will become black. Then, either click a color from an underlying open image or click the **Color** box to choose a color from the Color Picker.

Drag individual color stops to affect how much of a chosen color will fill the gradient bar. Drag the little midpoint diamond between the stops to control where the blending midpoint of the blending between the two colors will be. (You will only see the diamond, when a color stop is active.)

To add a color stop, click in a blank area underneath the gradient bar to add a stop. Then change its color by either click a color from an underlying open image or click the Color box to choose a color from the Color Picker.

To remove a Color stop, drag it below the gradient bar.
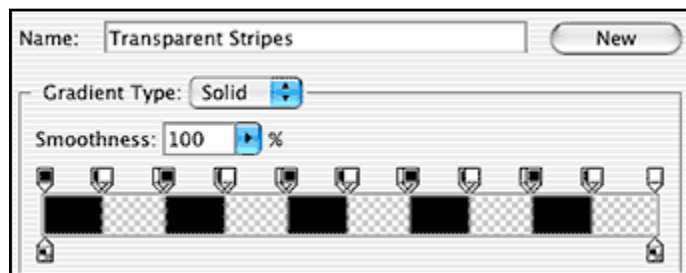
You can edit the Opacity stops above the gradient bar much like the Color stops. The Opacity box at the bottom of the dialog box lets you set opacity from 0-100%. Less than 100% opacity shows as a gray checkerboard in the gradient bar. Bands of zero opacity make gradients with bands of color. Check out this tutorial in three pages for more gradient instruction:

http://www.planetphotoshop.com/tutorials/PeteBauer38.html
http://www.planetphotoshop.com/tutorials/PeteBauer39.html
http://www.planetphotoshop.com/tutorials/PeteBauer40.html

Clone Stamp Tool

The Clone Stamp and Pattern Stamp tools are grouped together in the toolbox. The tool icons are so similar it is easy to confuse them.

The **Clone Stamp** tool lets you paint with images. It uses brushes to selectively copy from one area of an image to another, or from one image to another. A common use of the Clone Stamp tool is to paint out unwanted parts of an image, by using other parts of the image.

For example you can use the Clone Stamp Tool to paint out high wires. The starting image is "Telegraph Road" by Evert-Jan van Scherpenzeel, Amsterdam, Noord Holland, Netherlands. http://www.sxc.hu/photo/175753 According to the stockxchng web site, he shot the image "from a train somewhere between Groningen and Zwolle."

We don't recommend that you remove wires from an image like this, where the wires form such an integral part of the photograph, but a close up of the top of the telegraph pole provides a good learning example.

If you were painting out the wires, you probably would do most of the work with the **Healing Brush** or **Spot Healing Brush** Tools. However, those tools work by trying to match the tones of the underlying image about 20 pixels beyond the outline of the brush tip, and they have trouble when they get too close to a sharp change in tonality.

Notice the smudging on the side of the telegraph frame, where the wire was removed with the Spot Healing Brush. Here's how to finish the repair:

1. Make a new layer to hold your cloning, so you don't clone over the original image pixels. Better to be safe!!

2. Choose the **Clone Stamp** tool and set its options.

   Aligned is unchecked so that we can sample the sky color once, and paint it several times. It is best to clone in short strokes to get effective coverage.

   Sample All Layers is checked so that we can use the composite of all visible layers as our source.

3. Choose a small soft brush.

4. **Alt + Click** (Windows) or **Option + Click** (Mac) to set your source point.
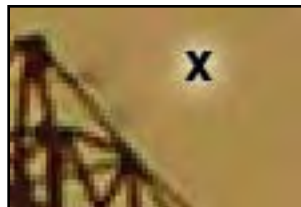
If you forget to set your source point, you will see this warning:
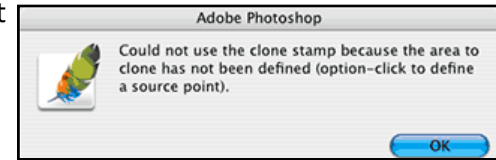
5. Clone-paint onto the blank layer to protect the original. This image was very easy to clone because the sky is so uniform in color. If the image had more detail across the wires, it would have been more time-consuming.

For a real cloning challenge, try removing the wires and the pole from this grayscale photograph of a photograph of the Sonoma Hotel in Sonoma, California that was originally taken in the 1920's.

The picture was originally taken before there were underground utilities, and these wires detract from, rather than enhance the image.

Located in **ch01** of the **student_files_3** on the notes CD, the file is named **sonomahotel.jpg**.

Another common use of the Clone Stamp tool is to clone from one open document to another as shown with these cats eyes.

Here you can see the distinction between cloning with aligned on (checked) or off. With **Aligned on**, or checked, you paint in alignment with the original sampled spot. With **Aligned off** or unchecked, each time you begin making a brush stroke, you start again from the sampled area.

The middle image shows Clone tool painting with Aligned on. The left eye was the sample spot from the image on the left. The eye was painted in and then the cursor was moved before continuing to paint, which ended up painting in the nose in alignment with the eye as in the original image. On the right example, Aligned was turned off. The first eye was painted in as in the Align On example. Moving the cursor and painting with the brush again caused the same sample of the left eye to be painted in.

To experiment with clone stamp settings on your own, make an eye image.

1. Begin with the file called **cat_eyes.psd.** It is inside the **ch01 folder** inside the **student_files_3** folder.

2. Make a new document and fill it with a gradient or pattern of your choice.

3. With **Aligned** unchecked, set the source point at the center of the cat's left eye,

4. Use a big enough brush to clone the entire eye in one click, like 80 pts., and set brush hardness to zero

5. With just a click of the mouse, clone from the left cat image onto your second image.

6. Repeat steps 4 and 5, setting brush hardness to 100%, and then repeat at 75% and 50%.

7. Now go eye-stamp crazy. Experiment with aligned on and off as you click or drag to paint eyes or more of the kitty. Then, change the Clone Stamp painting mode in the Options Bar, and see the results.

Pattern Stamp Tool

The **Pattern Stamp** tool, hiding under the Clone Stamp tool, paints with the pattern of your choice, chosen from the **Pattern Picker** accessed from the Options Bar. Small, subtle patterns are often used for retouching; large patterns are used for painting and decoration. Try pattern-painting with the some of the texture patterns, especially at varying opacities.

Patterns

A PATTERN is a square or rectangular swatch that repeats or tiles throughout a layer or selection. Patterns are used by the Pattern Stamp tool, the Paint Bucket tool with the pattern option chosen, the Pattern Overlay layer effect, Pattern Fill layers or when choosing **Edit > Fill** and filling with a pattern. Patterns are organized in the Pattern Picker.

One way to view the Patterns picker:

1. Choose the **Pattern Stamp** tool (under the Clone Stamp tool by default).

2. Click the triangle next to the Pattern preview in the options

bar to view the **Pattern Picker**.

Like gradients, you can load and use additional pattern libraries from the Pattern Picker menu. You can also define your own patterns. There are two ways to define patterns, either by rectangular selection or by using the Pattern Maker Filter. These patterns were made using the **butterfly.jpg** image inside the **ch01 folder** inside the **student_files_3** folder.

To define a pattern by selection

1. With the rectangular marquee,

   select the area to become your tile, like this section of butterfly.

2. Choose **Edit > Define Pattern**.

3. Name the pattern in the **Pattern Name** dialog box that appears, and click **OK**.

New Pattern...

Rename Pattern...
Delete Pattern

Text Only
✓ Small Thumbnail
Large Thumbnail
Small List
Large List

Preset Manager...

Reset Patterns...
Load Patterns...
Save Patterns...
Replace Patterns...

Artist Surfaces
Color Paper
Grayscale Paper
Nature Patterns
Patterns 2
Patterns
Rock Patterns
Texture Fill 2
Texture Fill

butterfly spots (30 by 31 pixels, RGB mode)

The pattern will appear at the end of the Pattern Picker.

4. Use your pattern.

The left sample was painted with the Pattern Stamp tool, and the right sample was filled using the Paintbucket tool.
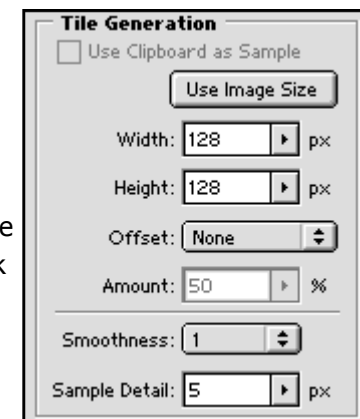
The Pattern Maker Filter

The Pattern Maker filter can generate many variations of a pattern by reshuffling pixels from a selected area. You can either use this filter to fill your layer with the pattern or use it to define a preset pattern to use with the tools and commands that use patterns. To use the Pattern Maker filter, find an image where you like the colors and overall texture. You can select an area with the Rectangular Marquee tool or select the whole layer.

If you want to replace the layer with the pattern, you should copy the layer before selecting the filter or copy the selected area to the clipboard and create a new layer for the pattern.

Once you have chosen **Filter > Pattern Maker**, you will be presented with a large dialog box. If you haven't made a selection, you can make it inside the dialog box. You can move the selection marquee around in the image display. If you copied your selection to the Clipboard, click the **Use Clipboard as Sample** check box.

You control the size of the patterned tiles by setting the

Tile Generation

☐ Use Clipboard as Sample

[Use Image Size]

Width: 128 ▸ px

Height: 128 ▸ px

Offset: None ↕

Amount: 50 ▸ %

Smoothness: 1 ↕

Sample Detail: 5 ▸ px

Width and **Height** sliders in the **Tile Generation** area. The default is 128 pixels for each. Click on the **Use Image Size** button to generate one tile the same size as your image. Under the Width and Height, the **Offset** drop down menu allows you to offset the tiles horizontally or vertically. **Offset** and **Smoothness** can lessen the visibility of the tile seams. Increasing Smoothness will lower the contrast of the next generated pattern.

Click the **Generate** button at the top, right of the dialog box and the large display area will fill with a pattern generated by the selected area. On the bottom right corner of the dialog box under **Tile History**, you will see a sample tile.

The Generate button now changes to **Generate Again**. You can click on Generate Again repeatedly and each time you will get a different display and a different sample tile. Each time you hit the Generate Again buttons, a sample tile is generated and stored Tile History area.

Under the sample preview in the Tile History area, you can hit the arrow keys to cycle through the various versions you have generated, up to 20 tiles. Once you go beyond 20, the first ones will be deleted. To delete an unwanted tile, navigate to it and click the Trash button in the Tile History area.

When you see a pattern you like, click the very small **Save Preset Pattern** button (looks like a floppy disk) on the left side of Tile History. This will save the pattern to the Pattern Preset Picker where you can use it with any tools and commands that

offer a pattern option.

Each time you click the **Save Preset Pattern** button, you save a single tile, not the whole pattern shown in the large display area of the dialog box. You can choose to save as many of the sample tiles as you want. This butterfly pattern was generated from a small piece of the butterfly wing. Notice that tile borders are much less apparent when using the Pattern Maker filter.

WARNING: Click **Cancel** after you save your preset patterns to avoid replacing your entire currently active layer with the pattern. Only click **OK** or press **Enter** if you want to replace the entire original layer with the pattern seen in the filter window.
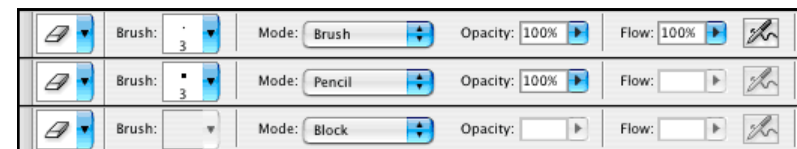
THE ERASER TOOLS
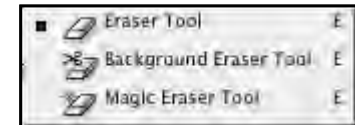
Photoshop has three Eraser tools: the (standard) Eraser, the Background Eraser, and the Magic Eraser. You might want to open **pumpkin.jpg** in ch01 in the student_files3 folder and use this image to compare the use of the three Eraser Tools and their options.

ERASER TOOL

The (standard) **Eraser tool** paints with the background color on the Background layer, and erases to transparent on other layers.

Brush and **Pencil** modes use brushes to paint with the background color or transparency. Brush mode erases using anti-aliasing; pencil mode does not.

Block changes the eraser to a square, hard-edged, fixed-

size eraser. Use Block mode to completely erase areas, or to fine-tune a highly-magnified image. As you zoom in, Block covers fewer pixels; it is zoom level dependent.

The **Erase to History** option (not shown above) lets you restore areas on the current layer from a History palette state. It only works when the current document and the History state have the same number of layers, and the image has not been resized.

Magic Eraser Tool

The **Magic Eraser tool** is like first clicking—not dragging—with the Magic Wand and then pressing the delete key to erase the selected area to transparent pixels. Its options resemble those of the Magic Wand.
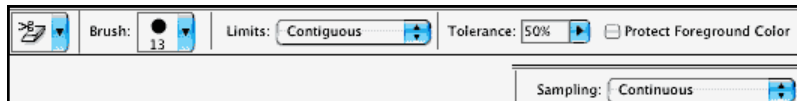
Tolerance controls the range of tonality from the clicked pixel to be removed.

Contiguous erases only neighboring pixels.

Use All Layers bases the selection on the composite image tonality rather than that of the active layer—but will only remove pixels from the active layer.

Anti-aliased gives a softer edge to the selected area.

Opacity below 100% lets you partially erase parts of a layer.

When you Magic Erase the Background layer, it automatically becomes a standard layer to support transparency.

To use the Magic Eraser:

1. Activate the layer with the pixels you wish to erase; you can only erase pixels on one layer at a time.

2. Set your options

3. Carefully position the cross hair pointer over an area with the color you wish to erase.

4. Click once to erase.

If the Magic Eraser does not perform as you had hoped, undo, adjust your tolerance, and try again. Many Photoshop authors recommend avoid the Magic Eraser because it is so primitive, preferring the enhanced control of the Background Eraser or the **Image > Extract** dialog box.

Background Eraser

The **Background Eraser tool** lets you erase pixels on a layer as you drag. By specifying different sampling and tolerance options, you can control the range of background removal and the sharpness of the removal boundary. The Photoshop Wow book describes it as "the Extract command on a wand."

To use the Background Eraser:

1. Activate the layer with the pixels you wish to erase; you can only erase pixels on one layer at a time.

2. Set your options

Limits control where erasure occurs.

- **Contiguous** erases areas of the sampled color connected to one another.

- **Discontiguous** erases the sampled color wherever it occurs in the layer within the limits of the brush shape.

Find Edges erases connected areas containing the sampled color while better preserving the sharpness of the object's edges. This setting works best with high contrast borders.

Tolerance is similar to the Magic Wand, but measured in percentage (0 to 100%) rather than 256 levels.

Sampling controls how the erasure color is chosen.

- **Continuous** adjusts erasure as you drag across different image pixels.

- **Once** only erases pixels that match the first pixel you drag across.

When **Protect Foreground Color** is checked, pixels of the foreground color will not be erased. This option works best when Sampling is set to Once.

3. Choose your brush.

4. Drag to erase. The plus in the center of the brush is the hot spot. With a soft-edged brush, erasure will be more complete at the center of the brush than towards its edges.

With **Limits** set to **Continuous**, the Background Eraser removes all the pixels in its swath, that are within the tolerance of the pixels it passes over. In other words, each pixel that passes under the center of the brush adds to the range of pixels to be deleted.

With **Sampling** set to **Once**, the Background Eraser only removes pixels within the tolerance of the color under the hot spot when you first pressed the mouse. Each time you release the mouse button, move its location, and press again, you redefine the hot spot color.

Eraser Cautions

All the Eraser Tools permanently remove pixels from the active layer. If you are unsure exactly what you want to erase, use a layer mask instead of erasing (Chapter 5 notes).

Although you can select pixels from individual layers or the composite image (Use All Layers), you can only erase pixels or remove backgrounds from individual layers.

The Magic and Background Erasers change the Background layer into a regular layer, and erase to transparent—not always in the way you hoped. Before using one of these tools, you may want to preserve an intact copy of either the layer or the image.

Web Graphics Preparation Guidelines

Many of you who are reading these notes are enrolled in a course where you submit some or all of your Photoshop documents to your instructor as electronic files. While online submission is very convenient for students, we ask that you follow the file preparation and submission instructions carefully. The bigger a file, the longer it takes to send or receive.

But this section is also applicable to those of you who are reading the notes independently. Nearly everyone, these days, sends graphics files over the Internet. These instructions will help you to prepare appropriately-sized images.

As you know, Photoshop files with enough pixels for printing, are big files—often many megabytes. This table gives sample transmission times for a 100 KB file.

SERVICE TYPE	DOWNLOAD TIME
28.8 k modem	28 seconds
56 k modem	14 seconds
Broadband: ISDN, DSL, Cable	6-12 seconds
T1	Less than 1 second

Why should you shrink pixel dimensions for a web or email graphic?

Older Web browsers do not have zoom tools—all graphics are seen at 100%. If an image has more pixels than the monitor can display, the browser typically can't show the entire image without scrolling. You see the upper left corner of the image, and have to scroll to see the other parts.

So, you want to preserve your high-pixel image for printing, and make a smaller pixel copy for screen.

When you send a file over the Internet, either attached to an email message or uploaded to a Web page, big files can cause three kinds of problems.

1. **Big files take a long time for you to send (upload) and for the recipient to receive (download).**

   If you sent someone a 24 mb file, it might take twenty minutes for them to receive it if they use a modem to connect to the Internet (dialup connection) and maybe twice as long for you to send the file with a dialup modem.

2. **Big files can cause problems with Internet Service Providers.**

   Each Internet Service Provider typically gives each client a small amount of space, like 2-10 MB, to store all your downloaded files. If someone sends you a 24 MB file, or a bunch of people send you 1 MB files, you can quickly run out of room, and your provider may stop serving you. If students send their instructor large files, that instructor's email capabilities may be turned off until the inappropriately big files are deleted.

3. **Big files don't display well in Web pages.**

   That's because they take so long to become visible, and because they have more pixels than the width of the monitor.

Your goal is to make files that can be viewed as an email attachment or in a Web browser without scrolling. The smallest standard monitors are 640 pixels wide and 480 pixels high. Monitors, thus, are landscape (wider than they are tall). Even for folks with larger monitors, operating system and browser controls such as menus and scroll bars take some room on the screen. To allow for those controls, try to keep your Web and emailed images in this course **around 600 pixels in their largest dimension.**

How big is your file?

When we talk about the size of an image, we can refer to the DOCUMENT SIZE which reflects the size an image would print out (inches), or we can refer to the FILE SIZE: the number of bytes, kilobytes, or megabytes an image takes up on a hard drive or disk. A BIT is the smallest unit of information on a computer. A BYTE is made up of 8 bits. A KILOBYTE (K) is roughly 1,000 bytes (1,024) and a MEGABYTE (MB) is 1,024 kilobytes.

When you compress an image to send by email or put up on the web, you need a small file that will download quickly. Usually, you will be looking at kilobytes (K) unless the image is extremely small, than it will be in bytes.

Make sure that you closely watch how big (file size) your image is. Unless otherwise specified, your web or emailed files should be **under 100 K**. If you want to check the size of a file after you make it, view its **Properties** (Windows) or **Get Info** (Mac) from the desktop. When you open a compressed file in Photoshop, it temporarily expands for editing. Thus a 48 kb jpeg opens to 703 kb if you check the file size on the Status bar.

Also watch those pixel dimensions (document size), and keep them below 600 pixels in the largest direction for files to be electronically transmitted.

Here is a guided exercise we wrote for our introductory students, but we think it may benefit many of you as well:

Guided Exercise 1.1: Save a Duplicate File for the Web

1. Begin with the file called **pumpkin1.psd**. It is inside the **ch01 folder** inside the **student_files_3** folder.

2. Choose **File > Save for Web**.

   The dialog box may open very slowly if the source file is a large one. Save for Web will show one of four different views, identified by the highlighted tab in the upper left region of the dialog box.

   Original shows only the original file.

   Optimized shows only the preview of the Web file with its current optimization settings.
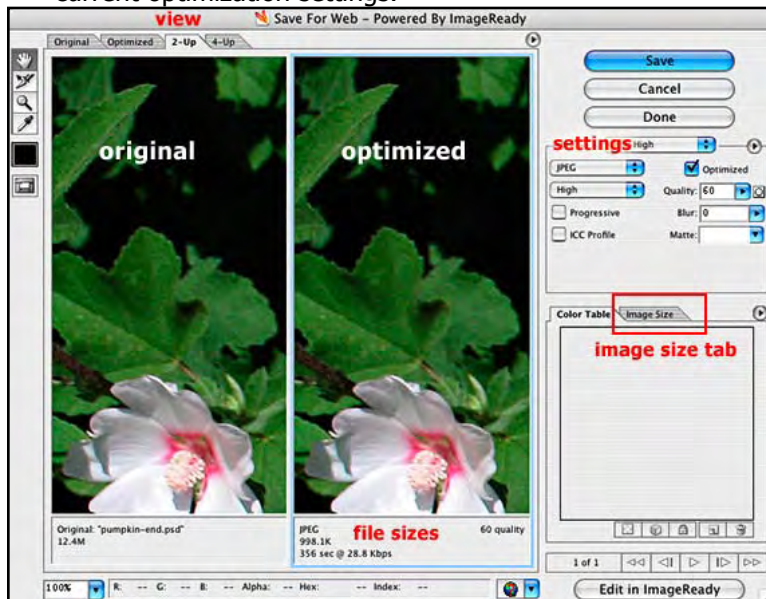
2-Up, shown here, splits the image preview into two panes, with the left one showing the original and the right one the optimized view, for easy comparison.

4-Up displays four versions of the image. The upper left image is the original. The upper right image is highlighted, as indicated by the black line around its preview.

3. **Choose the 2-up view,** if it is not already visible.

4. Reduce the number of pixels in the Web copy of the image to reduce its file size.

   a. Click the **Image Size** tab on the right side of the dialog box.

   b. Change whichever dimension is larger, width here, to 600 pixels.
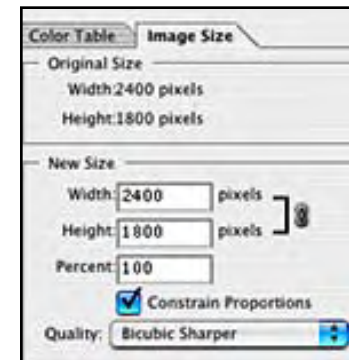
   When you type in the new width, the other values in the **Image Size** tab recalculate. This image will become 25% of its original size when the new size is applied.

   c. Choose the Quality Photoshop should use to change the Image Size. **Bicubic Sharper**, shown here, will usually give the best results when you shrink an image.

   d. Click the Apply button to change the image size. You will notice that you will be able to see more of your image in each of the panes in the dialog box.

   Note: you must click Apply, not press the Enter or Return keys on the keyboard. If the preview image does not shrink, you have not done it properly. Redo step 4c.
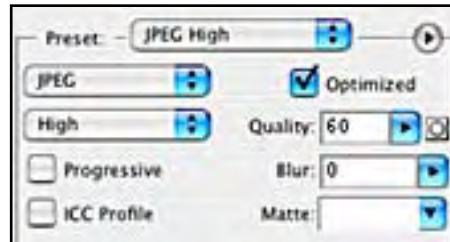
5. Check your file size.

JPEG   file format
89.56K   file size when saved
33 sec @ 28.8 Kbps   time to transmit on dialup connection

The bottom of each preview pane displays the type of format (JPEG here), the size the file will be on disk when you save it using those settings, and how long it will take to send over the Internet.

6. Set your settings to match the ones shown here.

    JPEG (not GIF).

    Quality setting should typically be 60 or High.

    If your file is still larger than 99 KB, then gradually lower your Quality to 55 or 50, or still lower if necessary.

    Progressive and **ICC Profile** should be unchecked.

6. Click **Save** to save the image using your chosen settings.

    In the **Save Optimized As** dialog box that pops up next, notice that the image is already appended with **.jpg**.

7. Name your file, make sure you are saving the file in the correct location by using the top drop down menu, and click **Save**.

    When you name files for Web or email use, try to keep the names short (under 10 characters) and avoid spaces or punctuation in the file names.

    The JPEG will be saved to the place you designated with the original, unchanged, document still open.

Resolution Review

Still having trouble understanding resolution? The Adobe Evangelists recognize how hard it is to grasp the relationship between image size, file size, and resolution. Here are a few of their PDFs that should help.

Image Size - Common Questions
www.adobeevangelists.com/pdfs/pscs2/imagesize.pdf

And, some examples: www.adobeevangelists.com/pdfs/ photoshop/tipsandtricks/resolution.pdf.