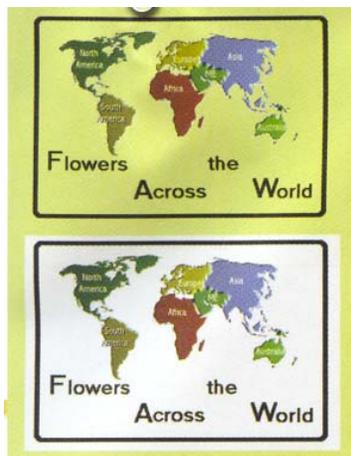


Graphics/Image Effects

One of the most enjoyable aspects of using graphics management software is the ability to modify graphics quickly and easily. Each software program comes with its own special abilities, but some common functions are found in all. It is important to be aware that special effects must be used with care. It's easy to let the fun of the changes cloud good judgment. Generally, special effects should be used sparingly and only when they communicate a message. They should not be used just to show off your image management skills or to make a splash.

Transparency

One of the simplest image effects is a transparent background for images saved as GIF files. This option removes the background color of an image and allows the background of a page to appear in its place, thus making the GIF image appear to "float" on the page. The figure below makes it easy to see the difference between an image with a transparent background and one without. Notice how the white background separates the image from the page on which it appears. Both the background of the page and the transparent background of the original GIF must be a single color for this to be possible.

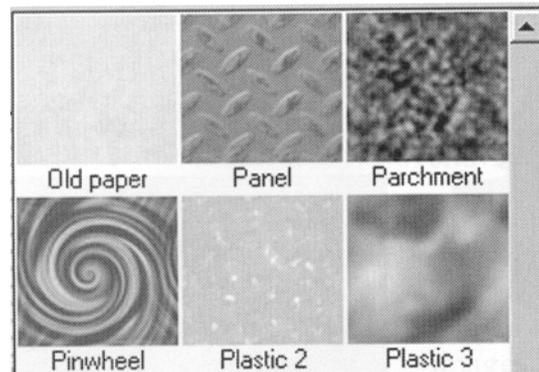


Filters

Filters are special effects that can be applied to an image or part of an image. Filters can be used to blur or sharpen an image, create a mosaic effect, or distort the image with noise. Filters are available with the program and additional filters can be purchased from third-party vendors. To apply a filter in Adobe PhotoShop, you can use the Lasso, Magic Wand, or Marquee to select the area and then apply the filter to that area alone or you can apply the filter to the entire image. A dialog box enables you to preview the result of the filter before you apply it.

Textures

Basically, textures enable you to create filters for the colors you use. The figure below gives examples of different textures.



Gradients

Gradients enable you to stretch an array of values of one color from one side of an image to another. Photoshop includes gradients on the basic toolbar. Gradients can be a series of slight changes from one shade or color to another or can be more dramatic, moving from a light shade to a very dark one. It makes for an interesting special effect. The figure on the next page demonstrates a gradient that spreads from the upper left to the lower right corner.



Feathering

One of the nicest features, feathering slightly blurs the edges of an image to create an attractive effect. Yolanda uses this technique to add a special quality to some images. For a May ad campaign designed to attract June brides, she uses a picture of a bride surrounded by feathered edges, as seen in figure below.



Feathering of the oval around the bride enhances the quality of the image.

Channels

Another option in high-end image software is channels. Channels enable you to separate an image into its basic colors. An image in RGB can be separated into three channels: red, green, and blue. An image in CMYK can be separated into four channels: cyan, magenta, yellow, and

black. Once the image is split into channels, you can then modify just the single channel. Use of channels is a sophisticated technique reserved for those with considerable knowledge of *color theory*. Channels are also used to create masks, however, which do not require the same level of knowledge of color theory.

Masking

A specialized channel called the **alpha channel** is used to create and store masks, which are a means of modifying an image without actually changing the original. Masks are areas that are selected much as you would use a lasso tool, but this process provides far more control of your image. With a mask, you can select an area and then go back and add to or subtract from the selection area because the mask is saved to the alpha channel rather than on the actual image. Your original image is left untouched as you adjust the mask to meet your needs.

Once the mask is complete and saved to the alpha channel, you can then apply it to a layer to select a specific area. Once you have loaded a selection onto the original layer or channel, you can use it to make a number of changes by applying a single action to the selected area. For example, a mask could be used to blur a selected area or change its contrast. One of the nice benefits of using a mask is that even after you have saved the mask to the alpha channel, if you realize that the selection is not quite right, you can return again to the alpha channel and make further modifications.

Masks fall into two categories: quick and alpha. *Quick* masks give you the same control that an alpha channel does, but they do not save the channel information for another use.

To make it easier to see the mask area, a red tint covers the image. When you are working in the alpha channel, you remove the red tint with a white paintbrush to unmask the painted area. To add a mask you paint with a black paintbrush. It takes a little practice to become proficient with masks, but it is an image management skill that will serve you well.

Layers

Another wonderful feature of image-editing programs is their capability to add layers. **Layers** are different levels in a document. For example, in every PhotoShop document there are at least two layers, a background layer and a foreground layer. When pixels appear on a layer, the layer is opaque; otherwise, it is transparent and the background or previous layer is allowed to show through. On each layer, you can draw, paste images, or reposition artwork without affecting the pixels on any other layer.

Blending

Blending allows you to create a series of intermediate colors and shapes between two selected objects. Illustrator and other drawing programs do an excellent job of blending one object into another. This process is often called **morphing**.

Grouping

When you use a drawing program to create a graphic image, each part of the image is considered a separate piece. Stated differently, we could say the image is **ungrouped**. If you wanted to resize, reshape, or rotate the entire image, you would have to modify each piece of the image separately. This would be an inefficient and time consuming way of working with an object. Therefore, drawing programs allow you to **group** the pieces together. After individual pieces are grouped together, the pieces become one object. The drawing program and other programs recognize all of the pieces of the object as one unit. For example, by selecting all of the pieces of the image and using the group command, the pieces become one object that can then be manipulated as one unit instead of as many smaller pieces.

Rasterize

Each time items on a screen change, the entire screen must be redrawn. This is called the **refresh rate**. Because performance is critical in multimedia applications, a fast refresh rate is also

critical. On screen, bitmapped graphics are sometimes considered superior to vector-based images because the refresh rate of a screen containing bitmapped images is faster than the refresh rate of a screen containing vector images. With vector-based images, the computer must recalculate all of the vectors each time the screen is redrawn. As you might imagine, this can take time depending on the complexity of the image. For this reason, most of the graphic file formats supported by Web browsers are bitmapped file formats. Many drawing programs, including Adobe Illustrator, allow images to be exported to a bitmapped format so that they can be used on a Web page. This feature gives you the best of both worlds. You can edit your images with the flexibility of a drawing program yet export them as bitmapped graphics for the Web. The process of converting a vector-based image to pixels is called **rasterizing** and the resulting bitmapped graphics are often called **raster graphics**.

Arranging

Arranging objects is the process of positioning and orienting them. As you can imagine, arranging objects is very important when you are trying to create a realistic three-dimensional scene. An object's spatial relationship to other objects is particularly important. This means resizing objects as they change position may also be necessary. Setting lighting and cameras is important in establishing a perspective, and is another part of arranging objects.

Shading

The process of assigning surface properties such as color, texture, and finish to an object is called **shading**. The surface properties are called shaders. Shaders determine whether an object appears rough or smooth, shiny or dull, transparent or opaque.

Rendering

Rendering is the process of capturing a view of a three-dimensional scene and saving it as a two-dimensional image. When a scene is rendered all of the forms, colors, and textures of all objects, as well as the lights and surfaces, are analyzed and converted. Rendering produces a two-dimensional, photorealistic, bitmapped image of a scene. Therefore, in order to open an image in another program,

such as an image-editing program, it must be rendered first. Rendered scenes can be saved in a variety of popular image file formats.

Brightness, Contrast, and Color Correction

Slider controls allow you to adjust the brightness and contrast of an image. As you use the slider, you can preview the change in a preview box and establish just the effect that you want. Because it is rare that an image you scan will appear on your screen with the same color values as the original, you can also adjust the hue, saturation, and luminosity of a color using color sliders; or you can completely change the colors in an image.

Cropping

Because image-editing software is used extensively to manipulate photographs, one of the first tasks you may perform is the need to remove or **crop** areas of a photograph that you don't wish to include. **Cropping** is a tool often used to modify a photograph that doesn't quite communicate the message you want. Cropping tools are standard features in all graphics software. Learning to crop well is an important skill because it allows you to refocus a photograph by using the rules of composition. Cropping can turn a muddled photograph with no point of focus into a photograph that exactly conveys the message you are trying to tell. In addition to removing items that you don't want in the photograph, cropping will also contribute to a smaller file size. The crop tool in the tool palette makes it easy for the designer to select a section of an image and remove the rest.



Graphics/Image Editing

Graphics editing programs have features for changing the sizes of images as well as their colors and other attributes. Common editing tools allow you to retouch photos, and add or move text, texture, lines, shapes, and other elements in the original image. Changing or manipulating images is part of image management – saving, editing, and storing graphics files. Graphics programs allow you to change the way images look. You can change one color in an image, some of the colors, or all of the colors. You may choose to adjust a portion of the image or the whole image. Graphics can be converted from black and white or grayscale to color or vice versa. Special effects can also be applied that alter the image so that it appears to be an entirely different image.

Dithering

When developing multimedia applications, you sometimes need to convert an image from a full-color format to an indexed color format of 256 colors. You might, for example, need to convert a full-color TIFF graphics file to the indexed color GIF format, which produces smaller files, so that it will load on a Web page faster. You can use a graphics editing technique called dithering to create the illusion that the converted image has more colors than it really has. Dithering imitates the lost colors by changing the pattern of dots in the image and peppering the pattern with similar colors from the 256 that are available in the indexed format.

Cropping

You can sometimes make an image more effective by cropping it, which is eliminating the unwanted areas. For example, suppose you are creating a Web page about bears, and you have a digital photograph of a bear in a forest. If the bottom third of the picture shows ferns and the right half shows trees, you might want to cut from the bottom and the right side to zoom in and focus more attention on the bear.

Anti-aliasing

Anti-aliasing smoothes the lines or transitions between neighboring colors and shapes to give an image a more natural, continuous tone. Graphic artists often use anti-aliasing to blend the edges of the independent images that are added to a collage or to make text more attractive against a colored background. It is also useful for softening distortion in images that have been enlarged.

Resizing

You can use graphics editing software to change the height and width of an image. However, resizing can cause problems, especially with bitmaps. Resizing a bitmap changes its resolution as well as its height and width. For example, suppose an image has a resolution of 100 pixels per square inch and is 1 inch square. If you resize the image so that it is two inches square, it becomes 50 pixels per inch, reducing the resolution by half. The low resolution of the enlargement will reduce the image's quality.

Changing one dimension of an image without changing the other, or changing them disproportionately, will distort the image. To avoid this kind of distortion, you must maintain its **aspect ratio** if you resize it. Aspect ratio is the ratio of width to height. For example, an image with an aspect ratio of 2: 1 has a width two times its height. Suppose it is 4 inches wide and 2 inches high. If you change its height to 3 inches, you must change its width to 6 inches to keep it in proportion. If you select a graphics program's option for maintaining an image's aspect ratio, you can specify the size change for one dimension, and the other dimension will be calculated. When you place graphics into a Web page, presentation program, or word processing program, you can easily resize and maintain the aspect ratio by using the handle at the corner of the graphic.

Tweening, an animation process used to generate keyframes between two images. Keyframes are intermediate frames that blend so that one image appears to change into the next.

Rollovers

Web designers often use rollovers with navigation buttons. When you move the cursor over a navigation button, it might light up, change its shadowing to look as if it has been pressed, or display a different image. When you move the cursor away from the button, it reverts to its original appearance.

A rollover is actually two or three images that are controlled by a small program. The program replaces one button image with another one, but it happens so quickly that it looks as if the change has occurred in a single instant. Rollovers are extremely important for all sorts of multimedia applications: Web pages, CBT programs, kiosks, CD-ROM training, gaming, and much more. Programs such as Dreamweaver automatically write the script for rollovers.

Morphing

The term morphing comes from the word "metamorphosis," which is the transformation of one thing into another, as when a caterpillar becomes a butterfly. Morphing software accomplishes this by creating a sequence of images, each of which is slightly different from the one it follows. For example, a photograph of one person might gradually morph into a picture of another person.

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