Macworld DIGITAL PHOTOGRAPHY SUPERGUIDE
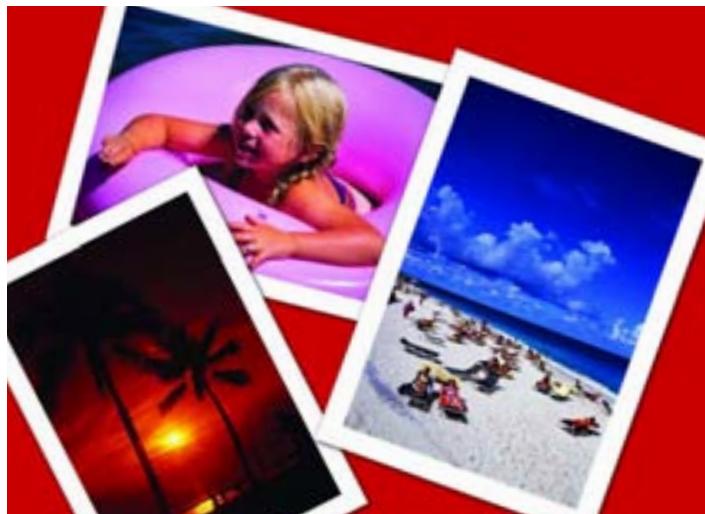
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HOW TO BUY
A DIGITAL CAMERA

Get the Features You Need and a Model You'll Love | By Derrick Story

Maybe you're just now joining the digital age—you've been lured by low camera prices and exciting new options for working with your photos. Or maybe you bought a digital camera years ago but are now looking to upgrade to a newer, lighter, or more capable model. Whatever your reason, there's never been a better—or a more confusing—time to buy a digital camera. Store shelves are overflowing with camera options.

With so many choices, how do you choose the right camera for you? You might be tempted to base your buying decision on looks alone. Boy, would that be a mistake! Beneath those sleek exteriors are features and capabilities that determine whether you have a camera you love or one that collects dust on a shelf.

The trick to finding your perfect match is knowing which features are most important to you *before* you step foot into the store. I'll show you what to look for when comparing cameras, and I'll explain which features are truly essential—and which are just hype.

WHICH TYPE OF CAMERA
DO YOU NEED?

The first step in narrowing the field of camera contenders is to decide which type of camera best suits you. Most digital cameras offer a tradeoff between size and flexibility. By deciding early on what your priorities are, you can quickly eliminate a large number of the models on the market. I typically divide digital cameras into three categories:

COMPACT CAMERAS

If you need a good camera while on-the-go, I recommend looking at compact models. These lightweight cameras fit nicely into a pocket or a purse—so they're likelier to be on hand for unexpected photo opportunities. They're also relatively easy on the wallet; prices range from $150 to $400.

Compact cameras typically have a resolution of 2 to 5 megapixels—enough for online photo galleries and most standard print sizes. However, they don't usually offer the array of features and controls that larger models do. For example, you're often limited to using programmed exposure modes, so you may have trouble with tricky lighting or in situations with lots of action. Most compact cameras also have relatively limited zoom lenses—typically in the neighborhood of 3×.

ADVANCED AMATEUR CAMERAS

Compact cameras are great for point-and-shoot photographers who like to carry their camera around with them to immortalize life's surprises. But they don't offer a lot of flexibility. If you'd like more control over your photos, or if you want to explore some of the creative possibilities of digital photography, then advanced amateur cameras might be the ticket. Although one of these cameras probably won't fit in your shirt pocket, it won't put too much of a strain on your shoulder, either. And these cameras often include an impressive array of features that rival those of professional models, such as hot-shoes for external flashes, manual aperture and shutter-speed controls, and faster response times. Some even offer a 10× optical zoom. All of this can make a huge difference in photographing special events (such as weddings and birthdays), wildlife, and sports. Even if you're not ready to use all of these advanced features right now, they may become handy as your skills improve—which means that you won't quickly outgrow your camera.

One downside to advanced amateur cameras (and compact cameras) is that they don't offer interchangeable lenses, so your optical options are somewhat limited. Although you may be able to add a few accessory lenses over the camera's existing optics, these add-ons can't really compete with the range of lenses available for professional cameras—for example, telephoto or fish-eye lenses. Advanced amateur cameras typically offer resolutions of between 4 and 8 megapixels—plenty for most printing endeavors. Prices range from $300 to $900.

MASTER THE BASICS
OF DIGITAL PHOTOGRAPHY

BY BEN LONG AND DERRICK STORY

Almost all digital cameras provide auto modes that do much of the difficult photographic work for you. But as sophisticated as they are, even the best auto modes can't get it right every time.

If you're constantly struggling to fix images that are too dark, washed out, or just not the shots you were hoping to capture, you're probably not taking advantage of everything your digital camera offers. We'll take an in-depth look at your digital camera's controls and show you how to get great photos—even in some notoriously challenging situations.

CHOOSE YOUR FILE FORMAT

Before you even raise the camera to your eye, you should know what kind of images you're going to be capturing. This will have a big impact on both how you work with your images when it's time to import them to your Mac and how many images you can fit on your memory card.

JPEG VERSUS RAW

Most compact digital cameras capture picture data, process the information right away, and write it to the memory card as a JPEG. Equipment manufacturers have worked hard to perfect in-camera processing, so data is transformed into a pleasing photograph. JPEGs are also compressed, so you can squeeze more of them onto a memory card.

Many advanced cameras also let you save image data in a Raw format (you may need to switch to one of your camera's manual modes to access this option). Unlike JPEGs, Raw images aren't processed at all. You do that later on your Mac, using additional soft-

ware. This process is more like taking a negative into a darkroom and adjusting exposure until you get the perfect image. For example, finding the right white balance can be difficult at the moment of exposure—especially under fluorescent or mixed lighting. When you shoot in JPEG mode, you have to make an immediate decision, and if you're wrong, you have to figure out how to correct it later. In Raw mode, it doesn't matter which white-balance setting you have when you shoot the picture. The camera records the raw data and lets you fill in the blanks later.

Before iPhoto 5, you had to use Adobe's Camera Raw software—included with both Photoshop CS2 and Elements 3—or the program that came with your camera to convert this raw data into a usable photograph. Now iPhoto 5 offers similar tools. And recently, Apple introduced a new pro application, called Aperture ($499; www.apple.com), that organizes, edits, and manages Raw files non-destructively, making it easier than ever to work with raw data.

The downside to Raw files is that they are much larger than JPEGs. A high-quality JPEG from a 6-megapixel camera can be as large as 3MB. When saved as raw data, the same image takes up more than 8MB. They also require more work at the editing stage.

Do you need this level of quality and control for snapshots of Aunt Susie's birthday party? Probably not. In most cases, you can continue letting your camera do the photo processing, and focus instead on taking great shots. But when you want the highest quality and most-accurate color balance possible—as well as the flexibility to change your mind later—consider using the Raw format. (For more information about the Raw format, see "Editing Raw Photos" in "How to Bring Out the Best in Your Photos").
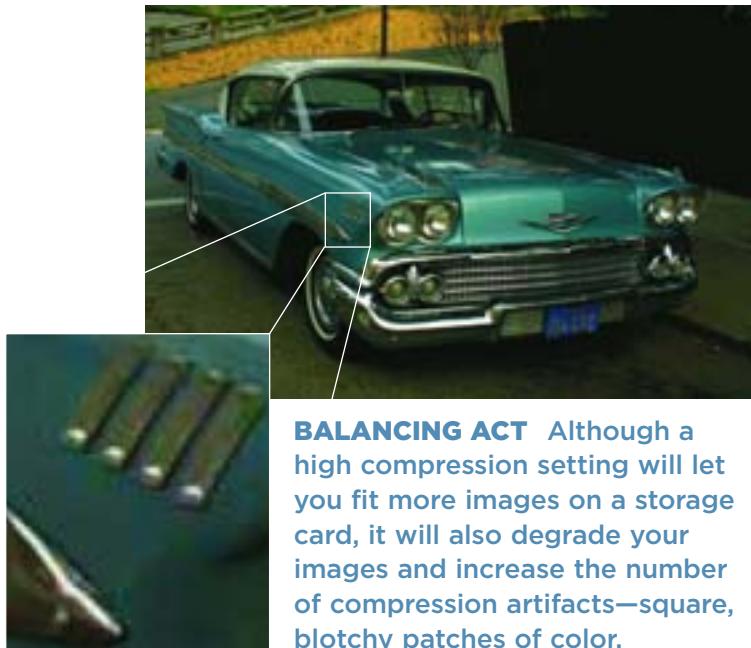
BALANCING ACT Although a high compression setting will let you fit more images on a storage card, it will also degrade your images and increase the number of compression artifacts—square, blotchy patches of color.

SQUEEZING THE MOST OUT OF YOUR MEMORY CARD

When you're shooting in JPEG mode, most cameras let you specify the image's resolution and compression. In truth, you probably won't change these settings very often, but since they directly affect the quality of your images and how many shots you can take, it's important to understand the trade-offs involved with each.

Your digital camera's resolution setting (expressed in width and height) determines the number of pixels the camera uses to capture an image. Images with higher resolutions show more detail, but they also consume more space—so your camera's storage card can't hold as many of them. The compression setting affects the overall quality of your image. Low compression rates result in larger files and better-looking images. The more you compress an image, the more its quality degrades. (Confusingly, some cameras express compression in terms of image quality—for example, good, better, and best. In these cases, higher settings actually result in lower compression rates.)

Unless storage space is a concern, I recommend saving images at the highest quality and lowest compression rates. This will give you the most options for how you use your

images. But when you're running out of room and want to squeeze in a few more images, here are some strategies for adjusting your camera's file settings:

If you plan on printing your images, set the resolution as high as possible and increase the compression. This may introduce some compression artifacts, but these won't degrade print quality as much as a low resolution will (see "Balancing Act").

If your destination is e-mail, video, or the Web, image size isn't much of a concern. In this case, set the compression to the best quality (lowest amount of compression) and decrease the resolution. In most cases, you can set the resolution as low as 640 by 480.

LEARN TO SEE YOUR LIGHT

Developing a keen eye for light quality is an essential part of getting great shots. Each time you prepare to shoot in a new location, you need to make some quick decisions about the available light. How bright is it? What's the source? The answers will help you choose the correct ISO (light sensitivity) and white-balance settings for your images.

ISO

Different types of film have different characteristics. Some film is formulated for indoor shooting while some is for outdoor use; other film, due to its increased sensitivity to light, is best suited to shooting in low light. You can also adjust your digital camera for different types of light. But unlike film cameras, which carry only one type of film at a time, digital cameras can be adjusted on a shot-by-shot basis, so you don't have to commit to a particular light sensitivity for all your shots.

Why It Matters Light sensitivity is measured using a scale called ISO. Many digital cameras provide a choice of ISO values— usually 100, 200, and 400. Some advanced cameras offer ISO values of 800 or higher. As the ISO value increases, the digital camera becomes more light-sensitive—which

sharpen

brighten colors

blur background

delete   crop

fix backlighting

delete

HOW TO BRING OUT
THE BEST IN YOUR PHOTOS

Simple Editing Tricks That Give Photos Professional Polish

Almost all images can benefit from some tweaking, whether it's with a simple sharpening filter or by full-fledged color correction. These minor nips and tucks can mean the difference between just another humdrum vacation photo and a frame-worthy work of art.

If you're not sure where to start, begin with your monitor—making sure you can trust the colors you see onscreen. Then we'll show you how to take on some of the most common image problems, using three of the most powerful and most widely used editing programs on the Mac—Apple's iPhoto 5, Adobe Photoshop Elements 3, and Adobe Photoshop CS2. You'll be surprised by just how easy it is to turn a bland photo into something you can be proud of.

OUT-OF-FOCUS IMAGES

Most digital images benefit from a little sharpening. You can drag the Sharpness slider **E** slightly to the right make details appear crisper. But don't go too far or you'll add too much contrast to the image and create unsightly artifacts. Keep in mind that no amount of sharpening will bring a truly blurred image back into focus.

DULL OR OVERLY BRIGHT COLORS

Want colors that really pop? Dragging the Saturation slider **F** to the right will make your photo's colors more intense. If you drag the slider all the way to left, on the other hand, you'll remove all of the color—turning it into a black-and-white photo.

INCORRECT COLOR

If you shoot without a flash while in the shade, your photos will likely take on a bluish tone. Shooting indoors next to a lamp can produce yellowish images. If your photo suffers from a color cast such as this, you can use the Temperature and Tint sliders **G** to bring the photo's hues back in line. For example, you'd move the Temperature slider to the right to add warmth to a bluish photo. Finding the correct settings for your image's temperature and tint can take some experimentation. For best results, you can use the histogram at the bottom of the Adjust panel to help line up your tones (see "Learning to Read a Histogram").
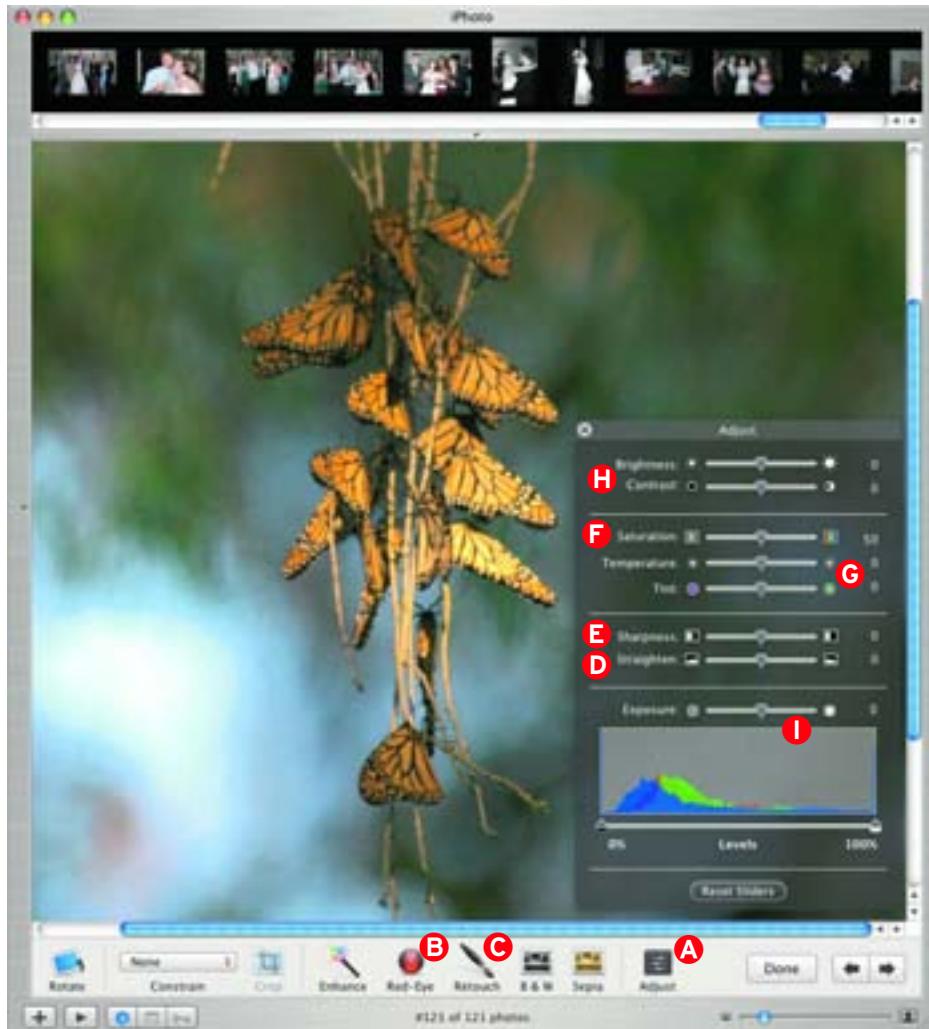
IMAGE IS TOO DARK

iPhoto actually offers a couple of tools that will adjust your image's tones. The first two are the Brightness and Contrast sliders **H**. The Brightness slider lightens or darkens the entire image, while the Contrast slider creates stronger or weaker contrast between the image's highlights and shadows. However, I recommend avoiding both of these sliders. Because Brightness and Contrast affect the images highlights and shadows equally, they tend to create more problems than they solve.

A much better approach is to use the Adjust panel's Exposure Controls **I**. The Exposure slider and the Levels histogram let you control an image's highlights and shadows *independently*—giving you much more control over the image's tones.

ADVANCED EDITING
WITH LAYER MASKS

BY JIM HEID

Sometimes you don't want to apply the same degree of editing to every part of an image. For example, when removing image noise, parts of the photo with fine details often require lower settings than areas with less detail where the noise tends to be more obvious. So how do you accommodate both?

With the help of layer masks, you can get the best of both worlds. Layer masks let you selectively blend a filtered layer with the original layer beneath it. Not only does this give you greater control over which part of the image is affected by changes, it also allows more freedom to experiment without worrying about permanently altering your image.

IN PHOTOSHOP CS2

Step 1 In the Layers palette, select the layer that contains your image. Then duplicate the layer by pressing ⌘-J.

Step 2 With the duplicated layer selected, edit the image as you'd like. For example, you might apply the Remove Noise filter or sharpen the image.

Step 3 To apply the layer mask, make sure the duplicate layer is still selected in the Layers palette, and then click on the Add Layer Mask button Ⓐ at the bottom of the Layers palette (see "Behind the Mask"). Click on the new layer mask Ⓑ to select it (it's the empty rectangle next to the layer's name).

Step 4 Select the Brush tool from the Tools palette and choose an appropriate brush size from the Tool Options bar.

Step 5 With your brush color set to black, paint over the areas where important detail was lost. As you paint, you'll reveal the details in the underlying layer. If you go too far, switch the brush color to white (press the X key to do this quickly) and paint back over the area. This will return the pixels in the fil-

tered layer to full opacity. Alternate between painting with black and white until you find the best blend of the two layers.

ELEMENTS' SECRET LAYER MASK

Photoshop Elements doesn't have a layer-mask feature, but you can simulate one by using a fill layer.

Step 1 Go to Layer: New Fill Layer: Solid Color. Choose any color in the dialog box that appears. Then click on OK.

Step 2 In the Layers palette, drag the new fill layer below the layer you want to mask (in this case, the duplicate layer with the image editing applied).

Step 3 Select that duplicate layer and press ⌘-G; this groups it with the fill layer. At this point, the fill layer will act as a layer mask. As with layer masks in Photoshop CS2, paint on it with black to reveal the underlying layer, or paint with white to hide it.
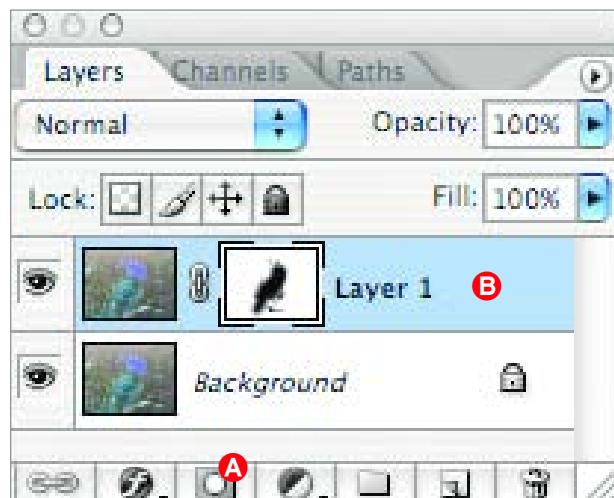
BEHIND THE MASK Clicking on the Add Layer Mask button Ⓐ attaches a layer mask Ⓑ to your filtered layer. Painting on this layer with black reveals the underlying image

CHOOSING A
PHOTO PRINTER

BY JAMES GALBRAITH

As digital photo libraries begin to overflow with sanpshots, more and more people are trying their hands at printing photos at home. If you're one of those people, you'll be happy to know that modern ink-jet printers make the process of getting prints easier than ever. In some cases, you may not even need to turn on your computer for the job.

With high resolutions, fast print speeds, and improved inks that resist fading, today's ink-jet printers make for great home photo labs. But to find the right one, you'll need to spend some time thinking about what type of prints you want and which features are most important to you.

TYPES OF PRINTERS

Are you looking for a quick way to print 4-by-6-inch photos to send off to relatives? Or do you need something that can also print out Web pages and e-mails? Most photo printers fit into one of a few categories—each specializing in a different type and range of output.

GENERAL-PURPOSE INK-JETS
If you'd like the option to occasionally print photos but spend most of your time printing less graphically intensive items—such as Web articles, e-mail, party invitations, directions, and so on—you'll be best served by a general purpose ink-jet. These jack-of-all-trades tend to focus on speed over quality—though many still produce nice-looking photos. They also tend to print sharper, more legible text than what you'll get from a dedicated photo printer. However, since most come with just three or four ink colors, they often can't produce

Hewlett-Packard Deskjet 5440

the range of tones and smooth gradations that you would get from a photo printer. They also happen to be the least expensive models; prices for a general purpose ink-jet printer typically range from $50 to $90.

However, if a vast majority of your printing doesn't require color, you may be best served by buying a laser printer—its consumables are much less expensive than an ink-jet's—and then sending your photos to an online photo service for printing (see "Should You Bother?").

LETTER-SIZE PHOTO PRINTERS
If getting great-looking photos is your main goal, look for a dedicated photo printer. These often feature additional ink colors, which help improve image quality, and photo-specific features such as media-card readers and ports for plugging in your camera.

Canon Pixma iP6600D