

Macworld Digital Photography Superguide

Third Edition



Foreword



Eight years ago, my wife and I were expecting our first child. During one of our weekend walks around town together, we debated the latest crazy technology purchase I was advocating: a digital camera. I was worried about the cost of printing photos compared with getting prints made at the local drugstore. We were both worried about image quality and, of course, the cost of the camera.

A lot has changed in my life in the intervening years—and not just the typical parent stuff. These days, my family and I live in a nearly all-digital world. In fact, I'm astonished when I discover someone taking snapshots with a film camera, as if I'm watching a woolly mammoth stumble out of the forest looking for food. Our carefully calculated cost analysis of ordering prints from a photo-printing service versus our local drugstore is almost laughable now, since we've all but stopped ordering prints anywhere, opting instead for Web photo galleries and semiannual photo books. And my kids have never known the long, painful wait between hearing that shutter snap and seeing the results.

My point is this: in less than a decade the world of photography has transformed completely. Today's cameras and photo software use impressive technology to give us staggering flexibility and quality. But all of that power comes at a price. Sometimes these devices and programs aren't as easy to use as they could be. And beyond that, photography is still as much about art as science: someone who tends to take awful pictures can do it just as easily on a \$1,000 digital SLR as they did on an old 35-millimeter film camera.

That's why *Macworld* writes about digital photography on a regular basis—to provide tips, tricks, and advice that help you get the most out of your camera and your digital photo library. And that's why we've created this book—to collect everything we've learned about digital photography, make sure it's up-to-date, and give it to you in one easy package. Whether you're shopping for a new camera, aching for tips on shooting better photos, trying to come to grips with a massive (and ever-growing) library of photos, or simply interested in using software tools to make your photos look their best, our team of digital photography specialists have assembled this book to provide you with the expert advice you need.

As for that walk my wife and I took all those years ago, obviously, we did finally decide to buy that digital camera. What pushed me over the edge? I didn't want to have to take photos of our new baby, run them to the one-hour photo lab, and then scan them in to my Mac so I could e-mail them to our far-flung families.

We made the right decision. Every photo I've taken since then is in my photo library on my Mac at home. I wouldn't have it any other way.

—Jason Snell, Editorial Director, *Macworld*
San Francisco, July 2009

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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

Maybe you're buying your first digital camera. Maybe you're looking to upgrade to a newer, lighter, or more capable one. Either way, prices have dropped significantly (you can pick up an entry-level camera for about \$100) while the list of features continues to expand. But with so many choices, how do you find the right camera for you? You might be tempted to base your buying decision on looks alone. But 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 set foot in the store. We'll show you what to look for when comparing cameras and explain which features are truly essential—and which are just hype.

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What Type of Camera Is Right For You?

The first step in narrowing the field of contenders is to decide which type of camera best suits you. Most digital cameras offer a trade-off between size and flexibility. By determining early on what your priorities are, you can quickly eliminate a large number of the models. Digital cameras typically fit into one of three categories:

Inexpensive Point-and-Shoot Cameras

If you want a camera for quick snapshots and don't want to spend a bundle, you'll find plenty of compact point-and-shoot models to choose from. These lightweight cameras fit nicely into a pocket or a purse and start at around \$100—though you'll spend more for a super-slim model.

Although cameras at the low end of the scale don't come with many of the fancy features you'll find in more advanced models, most take decent photos without a lot of hassle. The cameras offer automatic modes that do the work of adjusting settings for you, making them a great place to start for beginners who know nothing about photography. And with resolutions ranging from 7 to 10 megapixels, you'll have room to crop. That's important because most compact cameras also have relatively limited zoom lenses—typically in the neighborhood of 3X.

What you won't get from an inexpensive point-and-shoot camera are high-quality lenses, manual features for assuming more photographic control, and sturdier bodies. One way a manufacturer can lower the price of a camera is to use a lower-quality lens. This means not only does it have trouble rendering fine details, but when you zoom in, areas of what should be smooth color may be somewhat mottled. However, most of these problems won't show up on a 4-by-6-inch print. Since you're often limited to using programmed exposure modes, you also may have trouble with tricky lighting or in situations with lots of action.

Stepping up into a higher priced category—\$200 to \$250—will get you more comprehensive controls and improved image quality. Many of the cameras in this category also offer creative features like artistic filters and image stabilization.



Canon PowerShot A470 The \$100 Canon PowerShot A470 offers everything you need for quick snapshots.

Advanced Point-and-Shoot Cameras

While there are a few compact cameras that offer full manual control, in general if you're interested in exploring some of the creative possibilities of digital photography, then you'll need a slightly more expensive camera—either an advanced point-and-shoot or a digital SLR (single lens reflex) camera.

Although most advanced point-and-shoots probably won't fit in your shirt pocket, many are significantly smaller than an SLR. And they often include an impressive array of features that rival those of the professional models, such as hot-shoes for external flashes, manual controls, image stabilization, and faster response times. Some even offer impressive zoom lenses. All of this can make a huge difference in photographing special events, 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. If you like having the flexibility to also shoot video, advanced point-and-shoot cameras still have the advantage over SLRs; while some SLRs can shoot movies, the process is more cumbersome.

One downside to these cameras is that they don't offer interchangeable lenses. 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. Also, because their image sensor is typically smaller than an SLR's, advanced point-and-shoot cameras tend to fare worse in low light than SLRs.

HOW TO BUY A DIGITAL CAMERA



Pentax X70 This advanced point-and-shoot camera features an impressive 24X optical zoom.

SLR Cameras

For the greatest flexibility and creative control, most professional photographers rely on SLR cameras. These cameras use the same lens for viewing and capturing a picture, which means that you can see the effect of any filters or lens attachments that you use. And the interchangeable lenses on SLRs let you quickly switch from a telephoto shot of a faraway bird to a wide-angle shot of a meadow. Resolutions on digital SLRs can range from 6 megapixels to 22 megapixels. And their internal electronics are often optimized to produce less image noise and faster response times. (SLRs don't suffer from annoying shutter lag, which afflicts many compact cameras and decreases your chance of getting the shot you wanted.) Also, an SLR often has more-advanced features than you'd find on a point-and-shoot: faster burst rates for shooting images in sequence; speedier playback and navigation; the ability to shoot images in the camera's Raw format; manual modes that afford you a high degree of creative control; and interfaces and control layouts that let you quickly and easily configure parameters while shooting.

In recent years, SLRs have adopted consumer-focused features, making the jump from point-and-shoot models less intimidating. For example, it used to be true that you couldn't use the LCD on the back of the camera to frame your shots. But many recent SLRs feature a Live View mode that lets you do just that. And some are now shipping with face detection and special program modes. A few can even capture video—though working with video on an SLR can be more complicated than on a compact camera.

In the right hands, digital SLRs can capture stunning photos that would be all but impossible with other digital cameras. Of course, all of this flexibility comes at a significant cost. Digital SLRs start at around \$500 and can cost thousands of dollars.

SLR in a Compact Body?

If you like the flexibility of having interchangeable lenses, but don't relish the idea of toting around a large SLR, you may want to consider a camera based on the Micro Four Thirds standard. Cameras in this relatively new category (primarily promoted by Olympus and Panasonic) use the same sensor size as a regular SLR camera, but leave out or miniaturize other components. The traditional viewfinder and mirror box are gone, for example. That means there's no optical viewfinder built into the camera. Instead, you compose shots on the LCD screen. This reduces the area needed for the back lens flange and results in a much smaller camera body. But the larger sensor means you'll generally get better low-light performance than with a compact point-and-shoot. One downside is that there currently isn't a large selection of available lenses.

The bottom line: if you're willing to give up the built-in optical viewfinder, you get in return DSLR capabilities in a smaller package



Olympus E-P1

They're also considerably larger and heavier than other digital cameras—especially if you're carrying around multiple lenses.



Nikon D5000 This SLR can also capture video, something cameras in this class traditionally couldn't do.



Take Better Photos

How to Take Advantage of Your Camera's Controls

Thanks to the technology in most digital cameras, you don't need to know anything about photography to get decent shots. You just point and shoot. But if you want to go beyond "decent" to get truly beautiful and unique shots, you'll need to understand how your camera sees the world. That means delving into its menus and settings to make some smart choices about light, exposure, and focus.

In this chapter, we'll walk you through the different parts of your digital camera to explain how they affect your shot, and give you strategies for taking control of those settings. We'll also help you master the most essential element in photography: lighting. Once you've gotten the basics, learn how to troubleshoot challenging photo situations and experiment with unusual shots.

PHOTOGRAPH BY GOZDE OTMAN

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Troubleshooting Difficult Shots

Some photographers seem to have a sixth sense for taking perfect shots. But for most of us, the photography process is full of wonder and mystery—wonder at how things went so wrong, and mystery as to what to do next.

Shots such as a dimly lit party scene or the view from an airplane window can befuddle even the best camera. But in most cases, the solution is just a menu option away. Although these scenarios require a little extra work on your part, they also present opportunities for getting images that are far more interesting than the typical snapshot.

Capturing Speedy Kids

Kids are hard enough to keep up with in real life. Capturing them on the small LCD of a digital camera can seem nearly impossible. By the time you frame the shot and push the shutter button, you've already missed the action. While it's unlikely that you'll convince the kids to sit still, you can speed up your camera so you can keep pace. To get good shots of children at play, use the techniques that sports photographers use.

TIP

Think Like a Kid

When you're photographing children, try to get down to their level. It will make your shots more engaging. Sure, you might get a few grass stains on your knees, but the shots will be worth it.



PHOTOGRAPHS BY DERRICK STORY AND KELLY TURNER



On the Go To photograph speedy subjects, such as children at play, try to anticipate where the action is headed and have the camera ready. A fast shutter speed also helps.

INCREASE YOUR SHUTTER SPEED Fast shutter speeds help freeze action. First check to see whether your camera offers a shutter-priority mode—most digital SLR and advanced amateur cameras do. This mode lets you specify a shutter speed and then has the camera set the proper aperture. Start with a setting of 1/250, 1/500, or 1/1000 of a second. If your camera warns you that there isn't enough light for your desired shutter speed (often by flashing a red light), try changing your ISO setting to 400. This increases the sensitivity of your image sensor. If you still get a warning, dial back the shutter speed one notch—from 1/500 of a second to 1/250, for example. If your camera doesn't offer a shutter-priority mode, search its menus for a sports setting—these settings often use the same approach.

Your flash can also help freeze action—assuming the kids are within its range, which is typically about eight feet. Set your flash to its flash-on mode, which will force it to fire even in well-lit situations.

ANTICIPATE MOVEMENT Your chances of getting a good shot will increase if you can capture the subject at the peak of the action (see “On the Go”).

When a basketball player tries to make a basket, for example, he or she jumps into the air, waits to achieve maximum elevation, and then releases the ball. At the jump's peak, there's actually less move-



In the Clouds This shot of Hoover Dam was captured from a helicopter with a Panasonic DMC-TZ5 using the aerial scene mode.

ment, making it easier to capture a clean shot with less motion blur and a more interesting composition.

Developing good timing takes practice. Complicating the process is the problem of *shutter lag*, the time between when you press the button and when the camera actually records the image. Compact models in particular suffer from this.

You can help reduce shutter lag by setting your focus to its infinity or landscape mode (often represented by a mountain icon). This locks the focus so your camera doesn't have to waste time determining the right setting before firing the shutter. Another trick of the pros is to focus on an area that you expect the action to move to. Pick your spot and hold the shutter button halfway down. This locks in both the focus and the exposure settings. Continue holding the button until just before the action reaches your spot, and then press it the rest of the way.

SHOOT FAST AND OFTEN If you're still having trouble getting the shot, select your camera's burst mode. Your camera will continue to shoot for as long as you hold down the shutter button—or at least until the camera's buffer fills up. Odds are that one or two of those frames will be pretty good. And if all else fails, try bribery. Entice your kids to slow down a bit by offering them a snack.

Shooting from Behind Glass

Whether it's an exotic land seen from an airplane window or a shark cruising inside a public aquarium, some of the world's most interesting subjects are on the other side of glass. But if you're not careful when setting up the shot, you'll end up with a self-portrait instead—or worse, a picture of your flash's reflection.

CHECK YOUR MODES Some cameras offer special scene modes for aerial shots or aquariums. These can make the process much easier. For example, the Panasonic TZ5 offers an aerial scene mode, which adjusts the color balance to compensate for the bluish tint you get at high altitudes, speeds up the shutter, and activates the camera's image stabilization features. If your camera doesn't offer an appropriate mode, set your white balance to Cloudy for aerial shots and to Auto for aquarium shots.

CUT OUT REFLECTIONS The mistake many people make in this situation is to stand too far from the glass. When you do this, you pick up all the light sources in the room reflected in the shiny surface.

The key, then, is to eliminate these reflections by turning off your flash, turning on image stabilization, and placing the front of your lens barrel as close to the glass as possible. This makes the glass just another lens filter. The best way to do this is to screw a rubber hood onto the front of your lens and then press that hood against the surface. You can pick one up at most camera-supply stores for less than \$10. This lets you tilt the camera a little in any direction as you compose the shot, without losing contact with the glass.

You can also use a rigid lens hood for this, but you'll have to shoot straight on to maintain contact with the glass. If you don't have a lens hood with you, cup your hand around the edge of the lens barrel and then place it against the glass. Some light may still leak into the shot, but you'll eliminate most of the glare. (Never place the front surface of your lens directly against glass. Most lens barrels have a front lip that prevents this, but you should double-check.)



Fun Photo Projects

Turn Your Favorite Photos into Books, Movies, Gifts, and More

Prints are great, but let's be honest—there are only so many ways to display a 4-by-6-inch photo. And ultimately, most of these end up being stashed in a drawer or forgotten on the fridge. When you're ready to think outside the frame, take advantage of the creative tools built into iPhoto or available online. Whether it's a book, calendar, massive work of art, comforting nightlight, or multimedia extravaganza, there have never been more ways to turn your digital masterpieces into one-of-a-kind keepsakes. After all, shouldn't you have as much fun sharing your photos as you had taking them?

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Turn Photos into Posters

Want to show off your digital photos in a way that will really get noticed? The next time you make a print of your favorite photo, don't settle for a measly 8 by 10 inches. Supersize it. With a little work, you can turn a favorite snapshot into a stunning 16-by-20-inch or larger print—all for less than the cost of a print at the poster store.

Know Your Limits

Your first decision when making a large print is how big you can go before your image loses too much detail. This is primarily determined by the number of pixels your camera captures and how closely you pack those pixels together when printing.

Although we usually recommend printing photos at a resolution of at least 240 pixels per inch (ppi), poster-size prints are typically viewed from farther away. Unless you hang out with photo geeks, most people who look at your print will not get up close to examine every fine detail. So you can get by with a lower resolution—perhaps even as low as 150 ppi for very large prints. For example, to print a 16-by-20-inch photo at a resolution of 240 ppi (which translates to 3,840 pixels tall and 4,800 pixels wide), you'd need an 18.4-megapixel image. But to print the same im-



age at 180 ppi (or 2,880 pixels by 3,600 pixels), you'd need just 10.3 megapixels—while that's still high, it's within the range of what many of the latest consumer cameras are capable of.

But what if you don't have a 10-megapixel camera? In that case, you'll need to resize your image using a process called *resampling*. When you resample an image to make it bigger, the image editor uses an interpolation algorithm to calculate new pixel data—essentially filling in the blanks around existing pixels so you can reach your intended output size. (When you're making an image smaller, resampling intelligently throws away the pixels that aren't needed.)

Build a Collage

Don't want to limit yourself to just one big photo? Use your poster to create a collage of your favorite shots. Zykloid Software's **Posterino** (\$25; www.zykloid.com) is the slickest and easiest way to get the job done. The program offers a variety of templates, with grids of identically sized frames or with mixtures of shapes and sizes. Adding photos from iPhoto or elsewhere is a cinch. You can have Posterino fill the frames for you, or you can drag and drop images manually for more control. You can also change the size and shape of individual frames, and adjust the placement of each image within its frame. Export options let you send your finished poster to iPhoto or Flickr, hand it off to your e-mail program, or save it elsewhere on your hard drive.



Resampling

You can't use iPhoto to enlarge images; the program can make photos *smaller* but not larger. However, many other image editors can enlarge. If you're using Mac OS X 10.5 you can use Preview; it offers resizing tools very similar to what you'd find in Photoshop.

To get started, drag a photo from your iPhoto library to the desktop, and open the file in Preview (located in your Applications folder). Select Tools: Adjust Size to get started. (If you're using a third-party image editor, you'll find the process similar.)

TEST YOUR RESOLUTION If you can avoid resampling, you should—even if it means printing at a slightly lower resolution. To see just how big you can go without resampling, deselect the Resample Image option, and then enter your desired resolution in the Resolution field. Start with 240 ppi. When you enter a resolution, the Width and Height measurements will change to reflect the new print size. If the resulting print size is *larger* than you need, you're all set. Simply type in the correct width and height—you'll end up with a higher resolution than you need, but your image will print fine.

In most cases, though, the resulting print size will be *smaller* than you want. When this happens, try lowering the resolution—say, to 180 ppi. If you're still far from your target, you'll need to resample.

RESAMPLE IF NECESSARY While still in the Image Size dialog box, enter a resolution, select the Resample Image option, and then enter the desired output size in the Width or Height field (see “Bigger Is Better”). You'll notice the image's pixel dimensions increase as the program calculates new pixels to fill in the missing data. When you're done, click on OK.

Printing Your Photo

If you don't have your own wide-format printer, you'll need to send your image off for printing.

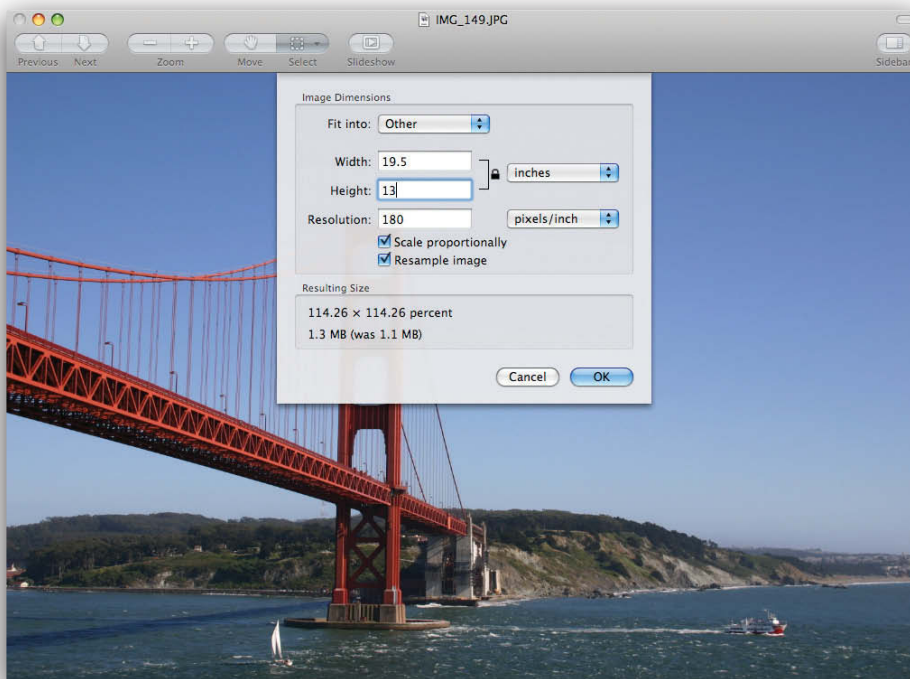
PRINT SHOPS Your local FedEx Kinko's can print your image on a large-format inkjet printer. You can submit images via the Kinko's Web site (macworld.com/2373), or bring the file on a CD or a flash drive to a local branch. (Your results will depend on the skills of the employee operating the machine.) You don't have to submit your images at the desired print size; Kinko's can also resize it for you. However, you'll have more control over the results if you do it.

ONLINE PHOTO SERVICES Many online photo services—such as Snapfish (www.snapfish.com) and Shutterfly (www.shutterfly.com)—offer poster-size prints, as well as standard sizes. If you sign up to receive e-mail promotions from the sites, you can take advantage of occasional sales.

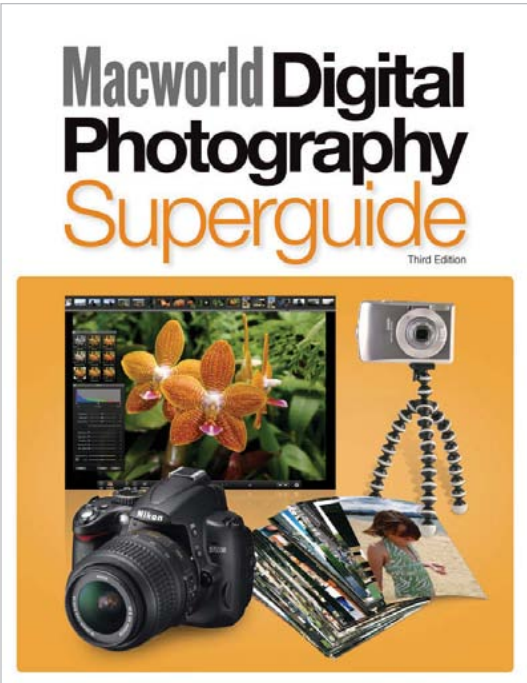
As with smaller prints, image quality can vary from service to service. Before ordering your print, check the site's return policy. Snapfish, for example, will let you return prints you're unhappy with.

SPECIALTY PRINTER After testing online services, we were most impressed with Large Format Posters (www.largeformatposters.com), which specializes in large output.

The site offers a wide range of sizes and a vast selection of paper types—all at very reasonable rates. Its prices are higher than at some other online photo sites, but in our tests, it did a better job.



Bigger Is Better With the Resample Image option turned on in Preview's Image Size dialog box, enter the desired width or height and the desired resolution of your poster.



Nobody spends more time with Apple's computers and software than the writers and editors at *Macworld*, the world's foremost Mac authority in print and on the Web.

Every year *Macworld* publishes vast amounts of photo-related advice—including tips for shooting, managing, editing, and printing digital photos. Now this wealth of information is available all in one place, updated for iPhoto '09 and organized in an easy-to-follow guide.

The *Digital Photography Superguide* is bursting with the latest insight and advice for every aspect of digital photography on the Mac. If you're shopping for a new camera, you'll find useful, up-to-date guidelines for picking the right one for your needs. Once you have a camera, this book will help you take better pictures with shooting tips and tricks from professional photographers.

As your photo collection grows, use this book to stay organized and to help bring out the best in your images with iPhoto '09, Apple's excellent photo manager and editor. We'll show you how to take advantage of the newest features, including face recognition and GPS support. We've also got tips to help you print your pictures yourself, scan old negatives and slides, get the best results from an online photo service, and have fun with unusual photo projects, Web galleries, and more. You'll also learn the best ways to back up your photos so you don't ever lose precious memories.

If you love seeing what your digital camera and Mac can do together, this is the book for you.

