Macworld SUPERGUIDES

Digital Photography SUPERGUIDE

The Mac User's Guide to Digital Photography

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Buy a Camera

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 are dropping constantly, 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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Choose a Type of Camera

There are a daunting number of cameras to choose from. 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, flexibility, and image quality. By determining early on what your priorities are, you can quickly eliminate a large number of the models. These categories are listed in order from the smallest and most basic to large advanced models.

Camera Phone

It doesn't get any simpler than a camera phone. Smartphones, such as the 5-megapixel iPhone 4 and Android, are constantly upgrading the quality of their built-in cameras. Many even shoot 720p HD video. While the image caliber of these cameras is still catching up with the most basic point-and-shoots, their popularity has skyrocketed. These camera phones have a lot of features that other cameras don't, including easy access to fun and creative editing apps so users can touch up photos without taking a trip to a computer. The phone is always in your pocket, so there's always a camera handy when unexpected moments come up. They're also incredibly small, which makes it easy to capture scenes without drawing attention to yourself. Finally, the simplicity of the camera tools on smartphones makes them the ultimate entry-level camera.

Pros: Always with you; access to in-camera editing apps; built-in Wi-Fi and carrier's network allow instant uploading and sharing of images; incredibly easy to use.

Cons: Lack of control over camera settings; minimal features; sensor size, image quality, and glass quality haven't quite caught up to those of point-and-shoot cameras. Yet.

Basic Point-and-Shoot

A basic point-and-shoot camera is a no-brainer pick for anyone who just wants an easy-to-use camera to have on hand at all times; most of them even shoot 720p HD video now. In-camera automation is getting better and better, meaning that these cameras basically drive themselves; you don't get manual controls that help you fine-tune your photos, but point-and-shoots normally have very good Auto modes and scene selections that choose the appropriate in-camera settings for your shot.

Compact point-and-shoots have small sensors, so don't fall into the trap of buying an inexpensive camera with a very high megapixel count. Packing more megapixels into a small sensor usually leads to image noise, especially when you're shooting at higher ISO settings.

Although they won't offer the same optical zoom reach as a more-expensive camera, a good thing to look for in a basic point-and-shoot camera is wide-angle coverage (ideally around 28mm on the wide-angle end). That extra wide-angle coverage comes in very handy for group shots, arm's length self-portraits, and landscape shots.

Pros: Very easy to use; inexpensive; small enough to fit in a pants pocket; usually have a large number of scene modes that select the right in-camera settings for your shot.

Cons: Usually don't have any manual controls; image quality can be mediocre, especially in low light; inflated megapixel counts.

Advanced Point-and-Shoot

Not all point-and-shoot digital cameras can live up to the scrutiny of a DSLR-toting pro, but an advanced point-and-shoot often gets the pick as a pro shooter's secondary, more-portable camera. These cameras have manual controls for setting the aperture, shutter, and ISO, letting you fine-tune your shot more granularly than you can with a basic point-and-shoot. Although you don't get the zoom range of a pocket megazoom, image quality is often better, and you don't get the distortion you sometimes see with a high-zoom lens. These cameras also often have wider apertures, so that you can accomplish a greater depth of field and shoot at higher shutter speeds.

Pros: Better image quality than most fixed-lens cameras; manual controls over shutter speed and aperture settings; good secondary cameras for DSLR owners; good learning tool for novice shooters.

Cons: More expensive than a basic point-and-shoot; can be more complicated to use than a basic point-and-shoot; smaller optical zoom range than pocket megazooms.

Megazoom Point-and-Shoot

These cameras are called "mega-zooms" because they offer a whopping 20X to 30X optical zoom lens, usually serving up impressive wide-angle shots and telephoto reach. Megazooms don't give you the same lens-swapping versatility as a DSLR or compact interchangeable-lens camera (CILC), but they are the most versatile fixed-lens cameras available.

Most megazooms also offer DSLR-like manual controls for aperture and shutter, as well as good image stabilization to help steady full-zoom shots. Because of the versatility of their lenses, they're good cameras for landscape photography (they can capture both wide-angle vistas and faraway details), sports photography (you can sit in the crowd and still get tight shots of in-game action), and animal photography (because you really shouldn't get too close to that bear).

Although a megazoom camera is smaller than a DSLR, it's about the same size as some interchangeable-lens compact cameras, and it won't slip into a pocket. You'll probably need a backpack or bag to tote it along with you.

Pros: A very high optical zoom range; manual controls; normally have excellent image stabilization; better lenses than standard point-and-shoot cameras.

Cons: Bulkier than a point-and-shoot camera; slightly expensive; not much smaller than an interchangeable-lens camera.

Pocket Megazoom Point-and-Shoot

If you're attracted by the versatile fixed lens of a megazoom camera but want something a bit more portable, a pocket megazoom is your best option. These compact cameras offer optical zoom ranges from about 10X to 15X, and although they're definitely more compact than a full-size megazoom or DSLR, some of them still aren't quite small enough to slip in a pants pocket. A jacket pocket or purse should be big enough, however.

Although many pocket megazoom cameras have manual controls such as aperture and shutter priority, not all of them do, so be sure to check the specs if you'd like those features. These cameras normally have very good optical image stabilization to bolster their high-zoom lenses.

Pros: Very high optical zoom range for a pocketable camera; portable but versatile; normally have excellent image stabilization; many of them have manual controls.

Cons: Some are a bit bulky; more expensive than basic point-and-shoot cameras; some lack manual controls.

Ruggedized Point-and-Shoot

These are the ultimate cameras for extreme-sports enthusiasts, mountaineers, snorkelers, and the just plain clumsy. Quite a few waterproof, freezeproof, dropproof, and dustproof cameras are available, and they're great for taking underwater shots of fish, lugging to the beach, or taking on a snowboarding trip.

Due to their unique looks and often limited feature sets, these cameras aren't the first choice for everyday on-the-go use. Image quality can be a mixed bag as well: They're rugged, but they usually don't have the best optics or biggest sensors. But they're durable, and sometimes that's a more important trait to have.

Pros: Can withstand drops, crushing, water, freezing, and sand.

Cons: Usually have fewer features than a standard point-and-shoot camera; sometimes have subpar image quality.

Compact Interchangeable Lens Camera

A popular and fast-growing category, compact interchangeable lens cameras (CILCs) have a combination of the features offered by point-and-shoot and DSLR cameras.

The cameras in this category have larger sensors than point-and-shoot models, and offer the flexibility of interchangeable lenses in a far more compact body than a typical DSLR's. To fit these DSLR features into smaller packages, CILCs 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 of the main problems is deciding which of the emerging CILC formats to buy into, because, like DSLR lens mounts, they're incompatible with other types: Panasonic and Olympus both use the Micro Four Thirds System lens mount; Samsung's NX10 uses its own NX lens mount; Sony's NEX series uses the new E-Mount system; and other companies are bound to release their own formats. Because this is a newer kind of camera, there aren't as many lens options to choose from, either. Adapters are available that let you use full-size DSLR lenses with these cameras, but they often cost a hundred dollars or more.

Pros: More compact than a DSLR; excellent photo and video quality; no shutter lag; versatile interchangeable lenses; manual controls for exposure and focus.

Cons: No through-the-lens optical viewfinder; can be expensive; fewer lenses available than for DSLRs; still a bit bulky for everyday use.

DSLR Camera

For the greatest amount of flexibility and creative control, consider a digital single-lens reflex (DSLR) camera. 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 DSLRs let you quickly switch from a telephoto shot of a faraway bird to a wide-angle shot of a meadow.

DSLRs have the largest sensors and have higher resolutions—anywhere from 6 to 22 megapixels. SLRs don't suffer from 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; and manual modes that afford you a high degree of creative control. Many recent SLRs feature a Live View mode that lets you frame your shots and video on the LCD screen. Many can even capture video—though working with video on an SLR can be more complicated than on a compact camera.

In the right hands, DSLRs 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. DSLRs start at around $500 and can cost thousands of dollars. They're also considerably larger and heavier than other digital cameras—especially if you're carrying around multiple lenses.

Pros: Superb photos, videos, and low-light shooting; no shutter lag; versatile interchangeable lenses; manual controls for exposure and focus; through-the-lens optical viewfinder.

Cons: Expensive; lack of portability; can be complex and intimidating.

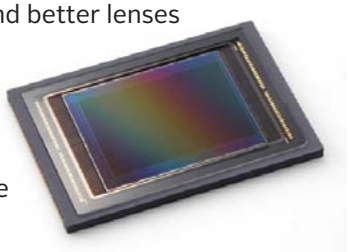
Features to Consider

Once you've settled on the type of camera you want, you should have narrowed your search to a more manageable number of cameras. From this point on, you can base your decision on features and performance. If your camera is hard to navigate or doesn't have the controls you need, you probably won't use it. Here's a breakdown of what to look for when making your decision.

Camera Size A full-size DSLR is larger and heavier than a point-and-shoot camera, so comfort is key. A camera that fits comfortably in one person's hand may be too large or small in someone else's. If size and weight are a serious concern, you may want to consider a point-and-shoot. If you want more features, CILCs are only slightly larger. Keep in mind that opting for a camera that uses interchangeable lenses means you'll probably start carrying additional lenses in your camera bag.

Megapixel Count A high megapixel rating doesn't mean better image quality. However, it does give you more flexibility when making enlargements or cropping. These days most cameras offer a resolution of at least 10 megapixels, which is overkill for most shooters. A 5-megapixel image is enough to make a sharp 8-by-10-inch print. An 8-megapixel image is enough to make a sharp 11-by-14-inch print. A 10-megapixel file can produce acceptable prints of up to 13 by 19 inches, though they may lose some detail. Images from a 13-megapixel camera look good at 13 by 19 inches and can be pushed to 16 by 24. Many DSLR cameras today exceed 13 megapixels—all the better to creatively zoom in and crop your images. Keep in mind that higher megapixel counts also produce larger files, which in turn take up more room on your hard drive.

Sensor Size Cameras with larger sensors and better lenses normally take better shots, regardless of the megapixel count. This is why DSLRs take such stunning photos. If you can't get any hands-on time with a camera before deciding whether to buy it, look at the specs to see how big its sensor is.



Zoom Type and Range Look at optical zoom and ignore digital zoom. Though digital zoom offers a longer zoom range, the image quality isn't as good as with optical zoom, as it is essentially just cropping your image. If you choose a camera with a long zoom lens (generally anything over 5X), make sure it also offers optical image stabilization to help minimize the likelihood of blurry photos from camera shake (more on that in a moment). If you're looking for a compact camera but are concerned that the typical 3X zoom (the equivalent of a 35mm–105mm lens) won't be sufficient, consider investing in a camera with 8 megapixels or more so you'll have room to crop later. If you do a lot of nature or sports photography, you may want to look for a camera with at least a 10X optical-zoom lens.

TIP

Get a Guide Mode

Many cameras, especially entry-level DSLRs, now feature in-camera Help or Guide modes. These guides walk new users through the basics of using manual controls and explain what settings to use to get specific types of photographs. If you're buying your first camera with manual controls, look for one with a Guide mode.

Manual Controls Some people just want to set their camera to Auto mode and shoot. Photographers interested in having more control over their shots should choose a camera with manual settings. Full manual settings include the following modes: Program, Shutter Priority, Aperture Priority, and Manual. Some cameras have Shutter and Aperture Priority modes, but not all the manual modes.

Wide-Angle Lens If you're looking at a point-and-shoot camera, you should consider one with a wide-angle or ultra-wide-angle lens. A wide-angle lens is below 50mm equivalent focal length. An ultra-wide-angle lens is 24mm equivalent or smaller. Photographers salivate over these lenses because they can capture an unusually broad view, such as a sweeping landscape, a skyscraper from base to peak, or a yard full of people at a family reunion. Going ultra-wide also creates an exaggerated sense of space, which can make a living room look cavernous or a line of fence posts appear more spread out.

When shopping for a wide-angle compact camera, you'll see that most are advertised as having a zoom multiplier, such as 3X or 10X, but this doesn't tell you how wide the lens is when fully zoomed out. To determine the wide angle of a lens's view, look for the 35mm film-camera equivalent focal length in the camera's specs. A 50mm equivalent focal length is the same angle of view the human eye sees, and any number lower than that amount is considered wide angle. As a lens goes wider and this number goes lower, each millimeter makes a bigger difference. By 24mm, pictures show about twice as much of a scene as 35mm, and they can actually fit in more than the naked eye can see at one time.

Flash When buying a camera, you'll want to know what type of flash it has and how much control it gives you over flash settings. Some DSLRs and most point-and-shoots have a small built-in flash, some have a hot-shoe mount—a bracket that lets you attach an external flash to the camera—and some cameras have both. If a camera has a mount but no flash, check to see if an external flash is included as part of the kit or if you'll need to buy it separately. A built-in flash is extremely handy to have, but it's not going to be as high quality as an external flash. If you plan on using a DSLR camera for casual photography or if traveling light is key, a built-in flash will be useful.

If you're an advanced photographer who wants to greatly improve the quality of your flash photography—and you aren't concerned about the heft of the camera—choose a camera with a hot-shoe mount. External flashes throw light wider and farther than built-in flashes can, producing more-consistent light. They also raise the flash head above the lens, which helps reduce red-eye. Some external flashes even have rotating heads that let you bounce the light off ceilings for a diffused, natural look. Finally, external flashes don't drain your camera's batteries.

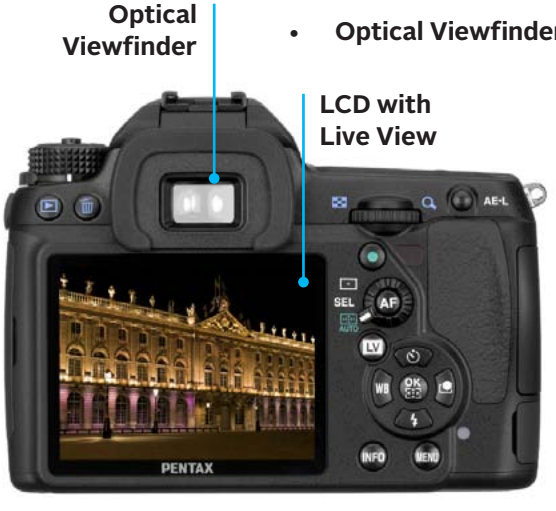
Flash Modes Make sure a camera gives you quick access to flash modes, including On (which forces the flash to fire even if the camera detects enough light), Off (to prevent your flash from firing even in low-light situations), and Slow Sync (sometimes referred to as Nighttime mode). This last mode is particularly useful, as it tells your camera to use a slow shutter speed in combination with the flash, thereby preventing background detail from getting washed out. Some cameras also include a nifty Flash Exposure Lock (FE Lock) feature. This lets you tell the camera what the most important aspect of the scene is and then provides just enough flash to illuminate it.

Autofocus While shopping you'll read a lot about different autofocus systems. The most common thing you'll find is that some systems have more "points" than others. This simply means that they can detect a subject in more parts of the frame. Having more points is better, but the speed of the autofocus mechanism is equally important. Also, DSLRs don't have the shutter lag that many point-and-shoot cameras have. But autofocus speed is important, and focusing a DSLR requires pressing the shutter button halfway. If you can get a hands-on experience with a DSLR before you buy, check the autofocus speed.

Viewfinders Cameras come with one or more of three basic types of viewfinders. Optical viewfinders (OVFs) and electronic viewfinders (EVFs) are both eye-level viewfinders. An LCD screen with Live View is the third type. Most current DSLRs have an LCD screen in addition to an eye-level viewfinder. When evaluating a camera, make sure that its viewfinder is bright, that you can see from edge to edge, and that the focusing screen is clear.

- **LCD with Live View** Live View on an adjustable LCD screen is useful when you need to shoot over your head, down low, or in other positions where looking through the viewfinder is impossible. If an LCD screen isn't adjustable, Live View still makes for more relaxed tripod-mounted shooting. Unfortunately, LCD screens can have reflections and glare, making them difficult to see in bright light. Also, in Live View mode on most cameras, SLRs typically don't have the ability to autofocus (some new cameras have continuous autofocus in Live View, including the Sony a55 and Nikon D3100).

- **Electronic Viewfinder** Found on many of the CILCs, EVFs take up less space in a camera, which means a smaller and lighter body. They are projected video feeds, and as such can have low resolutions. They also don't show you the full dynamic range of the scene, making it harder to make creative decisions about how you want to expose your shot. They have a slight lag time, which can be a deal breaker for sports photographers. What they *can* do is overlay more information and show a preview of what an image will look like with your chosen aperture, shutter speed, and ISO settings.



- **Optical Viewfinder** OVFs are found primarily on DSLRs. They show exactly what the lens sees, but often with a small amount of cropping around the edges. They are the preferred choice for many pro photographers as they have all the dynamic range of the human eye, and no lag time. They can sometimes make you feel like you're looking through a tunnel. The OVFs on more expensive cameras are better quality.

For a more expansive look at the pros and cons of different viewfinders, check out this comparison: macworld.com/7113.

LCD Quality Inexpensive cameras in particular tend to suffer from poor LCDs that show streaks of light in bright sunshine. When you're comparing LCDs, the image should be sharp and saturated, even in bright lighting. As you pan the camera, make sure that the LCD's image is able to keep up with the motion; it shouldn't be jerky or delayed (a particularly common problem with compact cameras).

You'll also want to consider what settings and parameters are displayed on the screen when shooting. Ideally you want a display of the number of pictures remaining, battery life, shooting mode, current ISO setting, white balance setting, and exposure compensation setting. To assess exposure, serious photographers will want the option of displaying an image's histogram while in Playback mode.

Touchscreen Inspired by camera phones, some point-and-shoot cameras and a few more advanced cameras are adding touchscreen capabilities to their LCDs. The effectiveness of the touchscreen user interface varies wildly from camera to camera, but if executed correctly, it can be easier to learn and use than traditional buttons and settings.

Continuous Shooting Mode If you take photos of sporting events, kids, pets, or any other fast, unpredictable subject, a Continuous Shooting (or Burst) mode will make a huge difference in your photography. This mode lets you hold down the shutter button to shoot multiple photos in rapid succession. The number of pictures you can record in one burst is determined by your camera's electronics. To be effective, a Continuous Shooting mode should capture images with at least 3 fps (frames per second) or faster at the camera's highest resolution.

Image Stabilization Some cameras offer image stabilization (also called antishake) as a shooting mode or as a feature. This is helpful when you're shooting photos in situations where it's difficult to get a sharp image, such as in low light when the shutter has to stay open longer. Many camera manufacturers offer cameras and lenses that include image-stabilization technology. But there are different approaches to image stabilization, each with unique advantages and disadvantages.

- **Optical Stabilization** Used in compact cameras and SLRs, optical stabilization is the most common image-stabilization method. Optical stabilization uses gyroscopes within the camera or the camera's lens to detect camera shake, and then steadies the path of the image as it makes its way to the camera's sensor (charge-coupled device, or CCD). In SLRs, the gyroscopes are often located in the lens.

- **Sensor Stabilization** This technology works similarly to optical stabilization. With sensor stabilization, gyroscopes located in the camera body detect shake and then move the image sensor to counteract the motion. Although it's available on some point-and-shoots, sensor stabilization is more commonly used in SLRs.

- **Digital Stabilization** Digital stabilization attempts to make a picture clearer by simply changing the camera's settings or by altering the image after it has been captured. There are several approaches to digital stabilization. One of the most useful is Intelligent ISO. Used primarily in compact cameras, an Intelligent ISO feature automatically increases the ISO, or light sensitivity, setting when the image sensor detects a moving object. As a result, the camera is able to use a faster shutter speed to snap a picture, thus freezing the motion of the subject and reducing blur. Digital stabilization is less effective than optical stabilization.

Raw Files By default, all digital cameras shoot JPEG images. When you shoot in JPEG mode, your camera does a bunch of processing and image correction before finally compressing the image as a JPEG file and storing it on the card. However, some cameras can also shoot in Raw mode, in which case the camera doesn't perform any processing on the image. Instead, it simply stores the data that comes directly off the camera's sensor. You can fit fewer raw images on a card, but you'll be able to perform much more sophisticated edits and adjustments later. If you enjoy spending time in an image editor, and you want the option to get the best photos you can, a camera that supports raw files can be a great asset. All digital SLRs shoot raw, but only a few higher-end point-and-shoots do.

White Balance Settings In many cases, a camera's automatic white balance does a good job of adjusting to different lighting situations to make sure you get accurate colors. But if it messes up, you need easy access to additional white balance options. Check to see whether you can change the white balance setting from the back of the camera or a top-level menu. You shouldn't have to scour your camera's menus each time the lighting changes.

If you often shoot without a flash to better capture ambient light, you should also make sure that your camera offers a custom white balance setting. With this mode, you simply point your camera at a white surface; the camera then measures the light and applies the appropriate color correction. This takes the guesswork out of choosing the correct settings.

Camera Modes Point-and-shoots offer shooting modes that automatically set the camera based on your situation. For example, a Portrait mode keeps a foreground subject in focus; a Sports mode is good for fast-action shots. If you like to tinker with camera settings, look for a point-and-shoot with manual shooting modes. Another handy mode to look out for is HDR, which shoots three images at varying exposures and then combines the best parts of each into one image. For more information on common camera modes and how to use them, see the *How to Take Photos* chapter.

Face Recognition One of the more useful modes on many cameras is Facial Recognition. In detecting people's faces, the camera aims to optimize both focus and exposure for the subjects. We've found the results to be very helpful, especially for candid shots in a group or party setting, and think it's worth spending a little extra to get this feature. Some new cameras even have smile recognition, which will automatically take a picture when someone in the frame smiles; this feature may help with baby pictures or when shooting an otherwise moody subject, but it's not an essential feature.

User Interface When evaluating a camera, consider how easily you can navigate common settings—resolution, Macro mode, flash, and exposure adjustments—and how easily you can play back just-taken images. Too many buttons, and you waste time trying to figure out which button does what; too many menus, and you waste time digging through them.

In-Camera Editing Not every image needs to take a trip to a desktop image editor. If you want to tinker with your photo on a camera's LCD screen, find a camera that offers simple in-camera edits such as brightness, contrast, color correction, and cropping. Art filters are also catching on, thanks in part to the success of iPhone editing apps. Now, on cameras like Olympus's PEN line, you can add fun filters to your photo in-camera, including tilt shift, soft focus, and film effects.

Battery Options Some cameras use AA batteries, while others come with a proprietary rechargeable battery. If you plan to be out and about with your camera, consider the battery type and figure out what you need to do to have an extra battery at hand. AA batteries are readily available (you can even use rechargeable ones). A proprietary rechargeable battery can carry a charge longer than AA batteries but is more expensive to replace.

Video Many point-and-shoots and most newer DSLRs are able to shoot HD video, either at 1280 by 720 or at 1920 by 1080. Most sub-$100 point-and-shoots only let you record videos at 640 by 480 or 320 by 240 resolution, or either. The iPhone 4 and other smartphones can also shoot HD video. The video quality often isn't as good as you'll get with a dedicated camcorder, but it will do in a pinch. Dirt-cheap camera models don't usually offer this feature.

Macworld's Camera Recommendations

New cameras are released all the time. We test, review, and compare all the latest models on Macworld.com. To find the latest and greatest cameras, check out these ranked lists, organized by category. They are updated constantly, and reviews include sample images and videos from each model.

Top Basic Point-and-Shoot Cameras: Macworld.com/7042

Top Advanced Point-and-Shoot Cameras: Macworld.com/7043

Top Megazoom Point-and-Shoot Cameras: Macworld.com/7044

Top CILC Cameras: Macworld.com/7045

Top DSLR Cameras: Macworld.com/7046

Memory Cards If you have an existing storage card that you'd like to use with your new camera, make sure that it's compatible with your new purchase. Most cameras on the market today use SD (Secure Digital) or SDHC (Secure Digital High Capacity) format cards. SDHC cards are more expensive, offering storage capacities up to 32GB, but they're not backward compatible with standard SD slots. There's also a new format on the block: SDXC, which supports storage capacities up to a whopping 2TB; those are even more expensive, and they aren't compatible with all SD and SDHC card slots.

There are a couple of other formats. Some cameras support microSD or microSDHC cards, a smaller version of the SD card format that isn't compatible with full-size SD slots. Older Sony cameras take Memory Stick cards, and older Olympus cameras use the XD card format; both companies' new cameras now support SD and SDHC cards.

Included Software Bundles Almost all point-and-shoot cameras work with Apple's iPhoto or Image Capture software for importing pictures from the camera. You can also access the memory card using a card reader, and use the card like you would any other storage device. All cameras come with software, but the included Mac software is often outdated. You're better off using iPhoto, Preview, or Image Capture to manage your pictures and to make minor adjustments.

Wi-Fi If you like to upload photos to an Internet photo-sharing site, consider a camera with built-in Wi-Fi. When connected to the Internet via a Wi-Fi hotspot, these cameras let you upload directly to the site. Currently, camera phones are way ahead of regular cameras on the sharing front, thanks to built-in Wi-Fi and cellular network connections. With the press of a button, you can upload an image taken on your phone to the Web, e-mail it, or pop it in a text message.

Specialty Features In addition to these more common features, there are a number of newer and niche features. These features aren't for everyone, but if you take advantage of them, they can add significant value to your camera. Some items to consider include a rugged or water-resistant body for outdoorsy photography. If plain old 2D photos aren't doing it for you, pick up a camera that shoots 3D images.

Accessories

A camera body is only the first part of a proper camera kit. Once you've settled on a camera type and model, it's time to accessorize. This is especially true for DSLRs and CILCs, where half the fun is buying lenses and other external gizmos and gadgets.

Lenses

If you purchased your DSLR or CILC as part of a kit, you got a basic lens that takes pretty good pictures. However, part of the attraction of this type of camera is that you can switch out lenses to get the best shot in any situation. From powerful zooms that get you up close to high-speed lenses that specialize in low-light settings, you have plenty of options for your second lens. The real question is: How do you find the right one for your needs?

To understand what makes one lens different from another, you first need to be familiar with a few basic concepts:

Focal Length Technically speaking, a lens's focal length (represented in millimeters) is the distance between the rear element of the lens and the focal plane, where the parallel beams of light entering a lens converge to a point. This matters because the focal length determines the lens's viewing angle. The shorter the focal length, the wider the field of view, and the more of a scene your camera can capture. As you increase the focal length, the field of view narrows so you see less of the scene—and objects appear magnified in relation to their environment.

In the world of traditional 35mm film, focal lengths ranging from 16mm to 35mm are generally considered wide angle. A 50mm lens is referred to as "normal" because it comes closest to covering the same field of view as the human eye, and anything over 100mm is considered telephoto. However, focal length is a bit more complicated when it comes

TIP

What Lens to Buy First?

The zoom lens included with many SLR kits offers a focal length range of 18mm to 55mm. This takes you from a moderate wide-angle view to a slight telephoto. These lenses aren't bad—they're lightweight and take good pictures when you're shooting outdoors in daylight or indoors with a flash. However, they tend to be slow, which means they don't do well in low-light conditions. When you're ready to expand, consider investing in a prime lens (which has a single focal length) or a longer zoom lens.

to SLRs. That's because the cameras' image sensors are smaller than 35mm film, so they crop out some of the image and give the effect of a longer focal length. To get a sense of how this discrepancy will affect the viewing angle of your lens, you have to multiply the digital camera's crop factor—which you'll find in its manual—by the focal length of the lens. A Nikon D40, for example, has a crop factor of 1.5X. As a result, a 35mm lens has a field of view equivalent to that of a 52mm lens when placed on the D40.

Aperture The other key component in evaluating a lens is its aperture. The aperture is one of the mechanisms that controls the amount of light that passes through the lens to the image sensor. The aperture is usually referred to in terms of f-stops, and is represented by a number such as f/2.8. The smaller the number, the *larger* the opening, and the more light it allows into the camera. Because it collects more light, a lens that opens to a wide aperture lets you maintain faster shutter speeds in low light. This can be essential for obtaining sharp images from a handheld camera. Wider apertures also provide more creative control, giving you the option to throw backgrounds out of focus.

The speed of a lens is described by its maximum aperture. Some lenses, for example, max out at f/4.5, while others can open all the way to f/2 or wider. If you're looking at a zoom lens, which has a range of focal lengths, you'll see the maximum aperture listed as a range, such as 55mm to 200mm and f/4 to f/5.6. This lens zooms from 55mm, with a maximum aperture of f/4, to 200mm, with a maximum aperture of f/5.6. This means your camera will choose a slower shutter speed as you zoom in. Keep in mind that faster lenses, with smaller maximum apertures, are generally both heavier and more expensive than slower lenses.

Image Stabilization At slower shutter speeds, an imperceptible move on your part can create a blurry photo, but a lens or camera with stabilization can counteract this shaking, letting you shoot handheld shots in low light. Canon lenses with image stabilization have IS in their name, while Nikon uses the term *vibration reduction,* or VR. You'll pay a bit more for image-stabilized lenses, but they're generally worth it. Of course, you won't need stabilized lenses if your camera body offers image stabilization. (If you have one of Nikon's entry-level SLRs—the D40, D40x, or D60—note that the autofocus feature on older Nikon lenses won't work with those cameras. You can still take pictures with the camera, but you will have to focus manually before pressing the shutter button.)

TIP

Try Before You Buy

While you can walk into a camera store, ask a few questions, and walk out with an expensive lens, doing a little research ahead of time can help prevent buyer's remorse. One of the best ways to determine if a lens will work for you is to rent it. Many camera stores that cater to the pro photographer will let you rent popular lenses for a weekend. If you can't find a local store, go online. Rentglass.com (rentglass.com) rents lenses for Canon and Nikon DSLRs on a weekly basis. Make sure you opt for the insurance coverage or check with your credit card company about damage claims.

Tripod

No matter how much you've spent on gear, it's often a tripod that can make the difference between a successful shot and a blurry, useless smear. What a tripod gives you is stability for using longer shutter speeds, which let you work in low light. Tripods are also essential if you need to repeatedly shoot the same scene—say, for a time-lapse sequence or HDR. With modern digital sensors, you can work with less light than you can when shooting with film, but a tripod is still required to get sharp shots.

Tripods run the gamut from inexpensive units that work OK but can be frustrating due to their lack of stability and versatility, to high-end, very expensive units made from lightweight carbon fiber and metal alloys. For more on the many types of tripods and some buying suggestions, check out macworld.com/7114.

Memory Cards

PHOTOGRAPH BY PETER BELANGER

While some cameras come with a small starter card, most don't. In either case, you'll want to invest in a good card with lots of room for your pictures. For the most part, SDHC cards have replaced older SD memory cards. Both cards use the same form factor (24mm by 32mm); however, SDHC cards feature larger capacities and higher data-transfer speeds (SDHC cards range from 4GB to 32GB, where older SD cards top out at 2GB). Nearly all SD-compatible cameras sold today accept both SD and SDHC cards, so either will work. Where this could become an issue is if you have an old camera manufactured before the SDHC standard was adopted. The easiest way to check this is to refer to your camera's specifications, either online or in your owner's manual.

Faster cards (20MB to 30MB per second) may improve performance of DSLR cameras in burst mode, and decrease the time it takes to offload large files using a fast card reader. If you shoot video with your digital camera, then a Class 4 card should be fast enough to cover your needs, unless otherwise stated by the camera manufacturer.

Flash

If your camera has a hot-shoe mount or remote flash capabilities, one of your first accessories should be an external flash. Most flash mounts are universal, meaning you can use any brand of flash with the same mount. Unfortunately, some cameras have proprietary hot-shoes, meaning you must purchase flash units made specifically for that mount, usually from the maker of your camera.

Camera Cases

A good camera bag is comfortable to carry, protects all of your equipment from bumps and the elements, and fits your shooting style. The type of bag you ultimately choose is determined by a number of factors: how much equipment you're carrying, comfort and ergonomic concerns, quick and easy access to equipment, personal style, and protection from bumps and the elements. Some very good companies make only camera bags, including Lowepro (lowepro.com), Tamrac (tamrac.com), and Crumpler (crumpler.com).

Other Accessories

Part of the fun of photography is using high- and low-tech accessories to augment or improve your photos. Once you're comfortable using your camera, consider purchasing some minor accessories: Filters and gels can add a color tint to images; flash diffusers can help bounce or soften light; and underwater housing can keep your camera dry. The ultimate accessory for many photographers is the right piece of editing software. For more on photo editors, see the *Edit Photos* chapter.

Where to Buy Cameras and Accessories

TIP

Places to Buy

B&H
bhphotovideo.com

Adorama
adorama.com

Ritz
ritzcamera.com

KEH (used cameras)
keh.com

Cameta Camera
cameta.com

Amazon
amazon.com

Best Buy
bestbuy.com

Newegg
newegg.com

Photojojo (accessories)
photojojo.com

The best way to buy a camera is in person at a dedicated camera store, whether it's a national chain like Ritz Camera or a local mom-and-pop store. The brick-and-mortar store experience is driven by interaction—both with the equipment you're considering and with a knowledgeable salesperson who can answer any lingering questions you have. When you go to look at a camera in person, you can check its weight and see how it fits into your hand. Is the grip in the right place? Are the buttons and dials easy to reach? It's also important to test-drive the in-camera menu system and see if it seems logical and easy to learn.

Larger retailers such as Best Buy or Target have a more limited variety of camera brands and models than a camera-only store, but you can still get hands-on time with equipment there. Typically, the sales staff at these types of stores won't know much about the cameras beyond the basics. If you're interested in a specific camera brand, go to its Website and do a search for official vendors in your area.

Your other choice is to shop online. The benefit of this option is that Internet vendors are usually very competitive, and you can easily see which company is offering the lowest price on a specific piece of equipment. Online vendors also tend to offer more variety and specialty items than a local shop would. Shoppers looking for the lowest price or the full range of products from harder-to-find brands like Olympus or Pentax might find buying online to be their best or only option.

Wherever you make your final purchase, be sure to consider adding on a protection plan. These plans usually start around $120 through a store like Ritz Camera or direct from the manufacturer. Furthermore, make sure you are buying protection and not just an extended manufacturer's warranty, which only covers defects from the factory.

2

Take Photos

Thanks to the auto 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 down, learn how to troubleshoot challenging photo situations and experiment with unusual shots.

CONTENTS

3

Manage Pictures

Just like a garden, a photo library left untended can quickly become overgrown and uninviting. Unless you lay down some guidelines early on—and stick to them—you're likely to spend just as much time searching for a photograph as you would spend polishing it.

Luckily, several applications enable you to create an efficient workflow for managing your pictures. In this section, we'll provide an overview of these programs in addition to a how-to on importing your images; sorting, organizing, and searching through your library; and adding information like GPS data and face identification.

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4

Edit Photos

Almost all images can benefit from some tweaking, whether it's with a simple sharpening filter or 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.

We'll show you how to take on some of the most common image problems using iPhoto's built-in editing tools. You'll be surprised by just how easy it is to turn a bland photo into something you can be proud of. We'll also tell you where to turn next if you've put iPhoto's tools to work and still aren't satisfied.

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5

Share Photos

You've composed, organized, labeled, and edited your pictures to perfection. Now it's time to show off those gems to the world. Unlike traditional negatives, digital images are easy to reproduce and insert into an online gallery, a calendar or card, a slideshow, or a movie—and you can even print them out using your home printer or a professional service. After all, shouldn't you have as much fun sharing your photos as you had taking them?

CONTENTS

6

iPhone Photography

You don't need to buy an expensive DSLR or lug around a point-and-shoot to capture good photos. If you have a smartphone with a built-in camera, the only camera you need may already be in your pocket. This chapter has tips on capturing the best possible images with your iPhone camera.

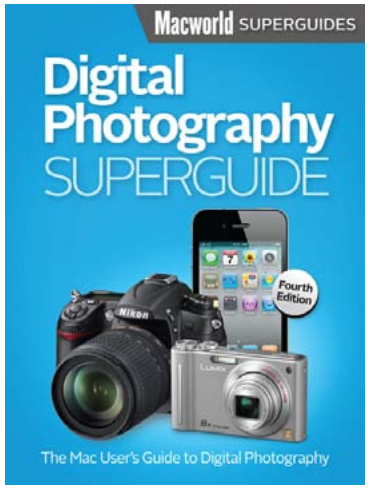
CONTENTS

7

Back Up Photos

After you've corrected, cropped, and otherwise altered your photos to your liking, it's time to think about backing up. In this chapter, you'll learn basic strategies for keeping your irreplaceable pictures safe and sound using both hardware and software tools, as well as get a few tips on preserving your older analog photos.

CONTENTS



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 huge amounts of photo-related advice—including tips for shooting, managing, editing, and printing digital photos. We've collected all this information, updated it with new information on iPhoto '11 and the latest cameras and trends, and organized it 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 '11, 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 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.

ISBN 978-0-9846158-3-4
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