

Get the most out of your digital camera

Tips on choosing a camera and taking good pictures

Text and photos by Bruce Philpott

Friends ask me how they should choose the digital camera that's right for them or how they can take better pictures with their digital (or film) cameras. All I can offer are a few tips and some of my prejudices, and maybe a few techniques I use in photography. I've tried to write something here for everyone: I hope beginners will benefit from the first part of this article but they may not be ready for the more technical parts... yet! (Just wait!) Intermediate photographers may find they already know most of the first part of this article, but I encourage them to read on. It's likely there's a technique in here they don't use... yet!

I wish I could simply say, "The Camera model 123 is the best for you." Life's not that simple. Digital photography's certainly not. In reading this I hope you'll learn enough to choose the camera that's right for you.

Make a list

Make a list of everything *your* camera *must* have. My list starts off like this (and goes on to things beyond the scope of this brief article). Of course, your list will be different.

Excellent optics
5+ megapixels
Zoom lens

Minimal shutter lag
Aperture *and* Shutter priority auto exposure
Manual exposure control

You and I have to rely on people who have the ability to test cameras and lenses. I listen to people other than those who are trying to sell me their cameras and lenses. I read impartial reviews of any camera I'm considering on these web sites:

<http://www.dpreview.com/>

<http://www.steves-digicams.com/>

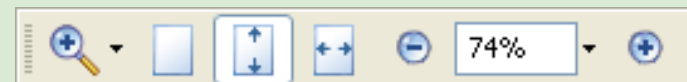
http://www.epinions.com/user-howard_creech

<http://www.nordicgroup.us/digicam/>

Optical quality

No matter what other features a camera has, optical quality is my most important factor. I don't just want to *record* an object or an event, I want to create a photo I can enlarge and hang on my wall, so the optics have to be good. If a reviewer is lukewarm about the optics of a camera, I stop reading and look for another camera.

You'll need to use the Zoom Tools at the top of your PDF screen to really see my example illustrations.



SLR?

A **S**ingle **L**ens **R**eflex camera, where you look through the eyepiece and see through a prism and mirror right through the lens, will (in addition to that advantage) have detachable lenses. This is a terrific advantage in a camera, enabling you to later add a stronger telephoto or wider angle lens, but it definitely adds to the expense.

Megapixels

The number of megapixels your camera will have (how many thousands of dots your photo will be made up of) is the one of the most important decisions you'll make in choosing a camera, so I've written a "sidebar" on this page.

Zoom

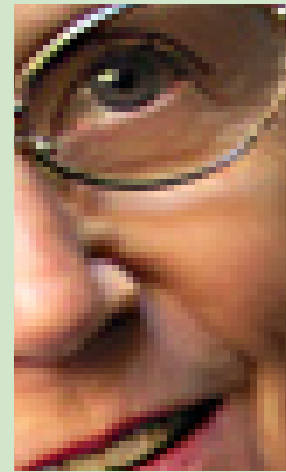
Zoom lenses lend versatility to a camera. Want a "rule?" Ignore *digital* zoom. Yes, many cameras have a digital zoom, but (although it gives you a bigger picture on the camera's screen) it degrades image quality just as if you'd enlarged that number of pixels when you had the image on your computer, so I *never* use digital zoom. Optical zoom, on the other hand, enlarges the picture that's put on those pixels. It's the same as the zoom lens on a film camera: What you see is what the "film" is recording. How much an optical zoom enlarges (say 10 times compared to four times) should be a factor in your decision to buy a camera. (Many cameras have both digital and optical zooms.) The greater the optical zoom range, the more versatile the camera will be. The question only you can answer (like the megapixel question) is whether or not a broad range zoom is worth the money to you.

Shutter lag

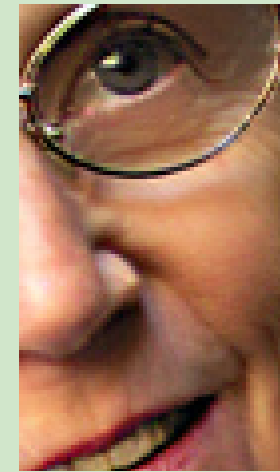
Shutter lag is the time between the moment you press the shutter release and the moment the camera actually takes the picture. I rarely shoot sports, but I want to at least capture a fleeting facial expression with my camera. Using the sports analogy, with some cameras you'll see a baseball player start to swing at a pitch, and you'll squeeze the shutter down to take the photo and he's half way to first base by the time the camera takes the photo. I find this really frustrating!

Another frustrating delay on some cameras is called "write to memory" speed. That's the time it takes your camera to "digest" the photo it's just taken.

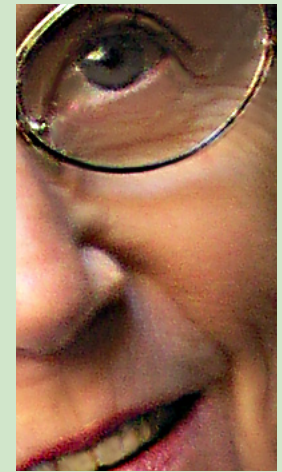
How many megapixels do you want in a camera? or, "what does 'image resolution' mean?"



2 megapixel camera



3.5 megapixel camera



5 megapixel camera



The entire photo

The number of megapixels will determine how enlargeable your photos will be. If you *crop* your photos, you lose some enlargeability because you're beginning with fewer (of the) pixels. The cropped slices (above) of the full photo are portions of an 8"x10" enlargement.

The larger the print size you're "shooting for," the more you need lots of megapixels. The problem is that when you're shooting pictures "just for fun" is when you find you've taken something you want to make into a huge wall enlargement.

Many Cameras have a slow "write to memory" speed. If they have a lot of megapixels to "write," the delay between taking pictures can be frustrating. Large megapixel images take up proportionately more space on the camera's memory card, too, so this additional expense must be planned for.

Minimize what a camera has to do between when you depress the shutter and it does its job: Pre-focus on your subject by pressing the shutter release button down halfway. If your camera makes a cute artificial shutter noise, shut it off if you can, because it can actually delay the shutter on some cameras.

New cameras are coming out so often that recommendations of particular cameras would be out of date very soon. I asked my fellow photographers on the [Digital Photography Forum](#) what their experiences with shutter lag had been on inexpensive digital cameras, and they recommended:

Nikon Coolpix

Panasonic FZ-series

Nikon 5900

Casio EX-p600 and EX-p700

Also, higher end

SLRs have no

perceptible

shutter lag.

Exposure control

I want to have complete manual control of my exposures, but I also want to be able to hand my camera to someone unfamiliar with it and just say, "Press here halfway (to auto focus), then press all the way down."

That means I want a camera that has "modes" of use. That may be just one programmed automatic mode where I have no control at all, and another mode that's fully manual and gives me no exposure information. That's a difficult choice. I like more choices of how to control my exposure.

Before I speak about deciding upon methods of controlling exposure, let's talk about exposure. A very brief lesson: The amount of light that is recorded (light which reaches the "film" or CCD) is controlled by three things *together*:

(1) The **shutterspeed** (how long the shutter is open) and (2) the size of the "aperture," or **f-stop**, the hole the "film" sees through. Those are funny numbers like f/2 and f/5.6 (that's what the f stands for... funny numbers).

All you have to know is two things: Obviously the larger the hole, the more light comes in. Funny numbers are backwards, though: The larger the number the smaller the hole. f/8 lets in half as much light as f/5.6. If you cut the light in half with f-stop, you have to double it with shutterspeed to balance the light. The better automatic modes let you choose *either* shutterspeed or f-stop, and the camera will compensate the one you didn't adjust to balance the exposure.

Choosing a Shutterspeed



A fast shutterspeed (top) will freeze the action, but it makes for a static, "parked car" photo. A slow shutterspeed will allow the action to blur. Best of all, pan your camera with the 80 mph car to freeze the subject and give motion blur to the background (bottom).

Oh, yes, the other thing you need to know about f-stops: That's the cool thing... f-stops control how deep your depth of field is!

Depth of field? That's how deep the plane is that's in focus. (See photos at the right.) There's an area out there which your camera is focused on, say that tree 50 feet away. Now using a deep depth of field you'll have many things in front of and behind the tree also in focus. Using a shallow depth of field, maybe just the tree will be in focus. Now here's the cool, easy to remember part:

The larger the f-number the deeper your depth of field! You can think of: "At f/2 I have two things in focus; at f/8 I have eight things in focus."

That's one of the most important exposure facts. Taking this a tiny step further, you can see that if you do want a very deep depth of field, (as I do) you'll be using a small (large number) f-stop, (a tiny hole) so the camera (or you) will have to increase the light hitting the "film" by slowing down the shutter speed.

Either you or your camera must balance f-stop and shutter speed to find one of the possible combinations that will allow the appropriate amount of light to reach the "film."

Different films are more or less sensitive to light than other films are. A roll of film is rated at a specific sensitivity, or **ISO** (formerly ASA). This is the third exposure variable. (You wondered when I'd get to this, didn't you?) ISO 200, for instance, is twice as light sensitive as ISO 100, thus it only needs half as much light. On our digital cameras we get to *choose* the ISO for *each individual shot* if we want to! So you can, if you want, double the amount of light that's coming to the sensor (by your choice of f-stop and shutter speed) and tell it to be half as sensitive (by changing your ISO) and still get a good picture!

From what you've learned in these four pages, you know that you need to have a tiny f-stop (large number) to have "everything" in focus... that means a slow shutter speed to compensate. Now you've learned that you can "cheat" and just increase your ISO to compensate! Why not *always* use ISO 1600? Sorry, (you knew this was coming) but if you use a high ISO your pictures will have colored speckles all over them. That's called "noise." So to avoid noise, we try to stick with as low an ISO as possible., usually ISO 100.

Some cameras let you choose only the shutter speed. What many people don't realize is that by choosing your shutter speed, you're forcing the

Choosing a Depth of Field



A shallow Depth of Field (bottom) is what you get by using a small number f-stop. You'll have more in focus at a larger number f-stop (above).

Think of: f/2 = two in focus, f/8 = eight in focus.

(automatic) camera to a certain f-stop. A slow shutter speed will force a deep depth of field.

Some cameras let you choose only the f-stop... it doesn't make any difference: you'll force the shutter speed to change when you change the f-stop! Way cool!

I used to point out to my students that a deep depth of field distracted from the main subject (say, in a portrait) which should be the only thing in focus. That's when we took photos on film and didn't have the control of them afterward that we do now using Photoshop or Photoshop Elements.

Nowadays, with auto-focus ("ought to focus"), I can lean more towards a deep depth of field because I know I can blur the background in Photoshop later if I want to. (I cover this in my article on Photoshop basics.) I want to be sure everything I want is in focus when I take the photo. Sometimes you won't realize your subject is out of focus until you enlarge it, so I go for a deeper depth of field.

As I mentioned, to get this deep depth of field, you'll often wind up with a relatively slow shutter speed, which means using camera support.

I have a wonderful ten pound tripod I no longer have to use. Little point and shoot cameras don't make a shutter vibration when they take a photo, so all you need is a little bit of help like a \$20-\$30 tripod from WalMart. Get one that has a gizmo that attaches to the bottom of your camera full-time, allowing you quickly snap your camera onto and off the tripod. These little tripods (eye level when you're standing and they're fully extended) are light enough to take hiking and compact enough to store in the car.

I want a camera to have a fully automatic "program" mode for me to hand it to someone to take my picture (every camera has this), an aperture (and) or shutter priority **automatic mode** (where I change one and it changes the other), and (*this is important*) **the ability to override its exposure decision!**

When I push my "review" button after taking the photo to see how it turned out and I see that everything is exposed nicely except my subject(!), I get to tell the camera to allow more or less light to reach the "film" on my next try.

If I'm photographing a backlit subject, say someone walking on a roof with the bright sky behind them (even if the sun is behind me or even hidden behind the house), the camera's going to try to compensate for all of that bright background by turning the rest of the photo (the subject) far too dark.

I'm often photographing a dark sculpture against our white house and have to override the exposure as is explained in the camera's manual. (Cameras are all very different about their buttons although they do the same thing.) Thank heavens for that "review" button!

Camera Tips

A lofty point of view

If I'd like a higher vantage point, such as when all I can see through the camera is the backs of a bunch of heads, I put my camera on my tripod with its legs extended but together, set my exposure and put the camera on self-timer. I then hold the tripod up in the air by its feet, holding it as steadily as possible. After the shutter has gone off, I check the results using the "preview" button.

Reflected flash

If you're using flash, watch out for reflective surfaces. Of course, you don't point your camera at a mirror (or have your subject pose in front of a mirrored wall), but window glass behind sheer curtains or even polished furniture or paneling will cause a distracting light flare, too. Besides avoiding photographing the distracting reflection of your flash, photographing things at a slight angle often provides a more interesting composition.

My favorite portrait lighting

In the training and experience I've had as a family portrait photographer, I came to prefer a huge, soft, directional light for portraits, with just a little bit of "lack of light" from one side.

A cloudy day in the snow, for instance, gives me the best huge, soft light source I can imagine, but



it's so even that my subject will have no modeling (3D look of their facial features), so I position them next to a dark building or tree (even if it's out of the picture) to subtract some of that beautiful, soft light.

We don't often have cloudy, snowy days, but I've found how to get that soft, somewhat directional light nearly every day: I get all ready to take the photo near sundown, and take the photo just after the sun has gone over the horizon. I find a location where the sun isn't "setting" over a tall building or hillside, but near the horizon. This is most easily found at the seashore, up on a high hill, next to a lake (it doesn't have to be in the photo), or a large parking lot (hopefully it's out of the photo).

The photo on page two was taken just inside a huge warehouse door with a large expanse of sky outside. The large doorway provided my large, soft light source, and the shaded interior of the warehouse subtracted light, giving modeling to her features.

Composition

When I create a photo, I want to do more than accurately depict the subject. I want to make something which will be pleasing to the eye, even *entertain* the eye. Entire books have been written about artistic composition, but its essentials are very easy to understand.

The viewer's eye wants to come to *rest* on something in a photo (or painting). It will go to the largest area in the photo and come to rest on something that is more distinctly focused, brighter and higher in contrast.

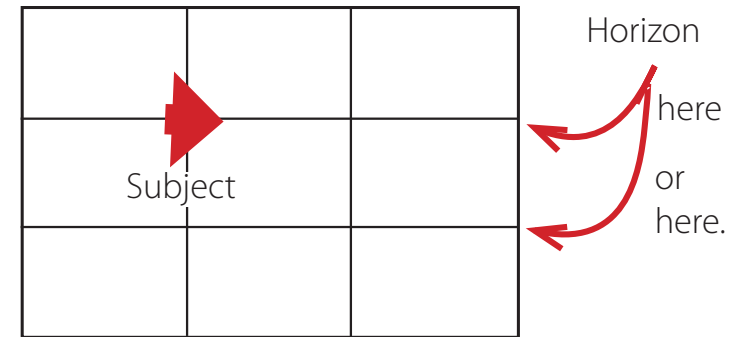
We frustrate our viewer if we divide the picture evenly in two (with the horizon, for instance), because their eye doesn't know to which half to go. Likewise if everything in a photo is equally in focus and equally bright and similar in contrast, it's as entertaining to the eye as one of those huge photos of the entire graduating class.

The rule of thirds

One simple guideline to get you started or to refer to when you want to create good composition is the "rule" of thirds.

Imagine your viewfinder to be divided into three columns and three rows like the diagram on the facing page. If you place your horizon on one of the two horizontal lines, that's a "thirds" line. If you can, position your subject

on an intersection of the thirds lines, looking towards the center of the photo, like this:



Now if your subject stands out from its background by being lighter or somehow contrasts with it and is maybe the only thing sharply in focus, the viewer's eye will be drawn to it.

Another element you can use in your photos is "leading lines." If a noticeable line in your photo "points" in the direction of your subject, this also leads the eye. Imagine a photo taken from the top of a flight of stairs. "See" how the stair railings lead your eye to the person at the bottom. Diagonal lines imply action; curved lines convey calmness and serenity.

Photoshop

After creating images with my digital camera, I improve them in Photoshop. Most photos can stand at least some cropping and exposure adjustment. I've written a few articles like this one about my favorite Photoshop techniques which you can download from:

<http://brucephilpott.com/photos>

The last photo tip I'll leave you with is perhaps the best one: There's a free online web forum of digital photographers of every level of ability and with every level of equipment. They're a friendly, international (English speaking) bunch who've helped me grow photographically and they have the answers to any questions you may have. I invite you to check out the PhotoZone:

<http://www.photozo.com/forum/portal.php>

I hope to see you there!