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Digital Photography – Primer and Resource Guide (updated 5/31/07)

Photography for you and me has gone digital. This article will introduce you to the joys, wonders, and challenges of digital photography, combining your computer with a digital camera. There are a large number of choices in camera from pocket-sized subcompact camera through digital single-lens-reflex (SLR) cameras, the “gold standard” of camera buffs. The article contains many reference web sites. Thus, a brief disclaimer is in order. The sites are commercial sites; however, they contain good reviews of specific topics and product information and serve a good first resource for general and specific information that may lead you to the information that you seek. Neither the AAP nor the Section for Senior Members endorses either the specific web sites, or the specific products found on the web sites. The web site addresses are provided for information only!

The bottom line in digital photography is that for optimum results one needs the 8 Rights:

- Right Plan
- Right camera
- Right technique
- Right PC
- Right Software to: i) organize your photos, and ii) edit them
- Right on-line photo-editing and storage
- Right photo printing and on-line photo-sharing strategies
- Right Place to Buy

Let's go!

Right Plan: The investment that you will be making in digital photography can be significant in terms of time and dollars. Creating the right plan before you begin to purchase and/or use your equipment is a good idea. Ask yourself; what are the advantages and disadvantages of digital photography?

Am I a *snapshotter*?

I want to take photos that I can e-mail to friends and family, post on the Web, or print in sizes smaller than 8x10 inches. I'd like a digital camera that is easy enough for the whole family to use and small enough to take anywhere. I'll be printing on an inexpensive, all-purpose inkjet printer, though I'll consider buying a photo printer if I like the pictures enough. I plan to spend \$150-\$500 for my system.

Or am I a *serious Amateur*?

I want to shoot stills and video clips for the Web, use creative effects when shooting and manipulating images, have professional-level control, output prints that are 8x10 inches or larger on a high-quality photo printer, and use accessories and different lenses. I'll probably spend >\$500 in total.

Or am I *Undecided*?

I want a camera that's easy to use but that I can grow into if I get hooked on digital photography. I want to be able to print good-looking photos at sizes smaller than 8x10 inches on my inexpensive inkjet printer, but I'd like prints that will look OK if I decide to print larger or get a better printer. I want to spend less than \$600.

At [c/Net Reviews](#) – [“What kind of digital camera is best for me?”](#) you will find examples of system configurations exist based on your characterization of your photography desires.

In the long run, digital photography provides the opportunity to save money (fewer pictures to be commercially developed), infinite storage time (somewhat controversial), pictures that are easier to catalog, retrieve, personally customize and create “keepsake” albums to share with relatives and friends,. Each choice, leads one to another topic to explore. [Short Courses.com](#) (<http://www.shortcourses.com>) is a popular on-line resource for general information about such topics as: [Choosing a Digital Camera](#), [Using Your Digital Camera](#), [Digital Photography Equipment](#), [Displaying and Sharing Digital Images](#). Each of these short courses provides a Table of Contents, and good, illustrated, introductory information on the topic. Another “must-see” web site is [“Digital Picture Imaging Guides”](#) (<http://www.myceknowhow.com/digitalimaging.cfm>)

The menu of interactive guide selections is shown below. Views animated PowerPoint slide presentations on your screen, or download an Adobe pdf file for later review. To view the interactive guides, one needs to have Macromedia Flash player installed. If not present, the site facilitates download. A cool tool!

Interactive Guides
How To Choose The Camera That's Right For You
Editing Digital Images
Printing Digital Images
Sharing Digital Images
Storing Digital Images
Digital Camcorders

In this article, I will attempt to cover the “big picture”. Researching these sites, and others (Google ‘digital photography review’), will enable you to prepare the Right

Plan. Finally, [Sites You Must See](#) is a unique element of the ShortCourse.com web site that links you to many other sites with information on specific topics.

Right Camera (find out more - Google “digital camera review”)

You have the Right Plan! Now, what do you need/want in a camera? For example, do you want a “Point and Shoot” automatic in contrast to a manual SLR digital camera with interchangeable lens? How much weight are you willing to carry? Do you want a mini-camera to fit in your pocket, compact to wear on your waist in a case, or a Digital SLR “luggable” in a camera bag? What camera resolution/megapixel rating do you need? There are always trade-offs with size. While being able to place your camera in a pocket, subcompact cameras have lower battery life, are more prone to camera shake, and their tiny controls can be more challenging to operate than those on a larger body camera.

How many megapixels do you need? Today, digital cameras regularly come as 7, 8, or 10-megapixel cameras. Do you really need that much? Higher resolution does not necessarily produce better prints and the images that they save onto your PC will take up a lot of room. Remember, you only need a minimum 3MB to print 5X7 photos, 4MB or more to print 8X10 photos or greater. A camera with 5-6 megapixel resolution will give most people all the image resolution that they need.

How about memory size and type (key to the # and quality/resolution of the pictures that you take)? How many pictures at what resolution can your memory hold? What is the costs/benefits of different types of memory? What memory card is easiest to transfer pictures to my PC? More questions remain:

- What will be my power source (disposable/rechargeable batteries vs. proprietary lithium ion long lasting battery)?
- How easy is it to use the camera?
- How fast, and in what settings will you be taking pictures? Will you need flash? How about capturing indoor family gatherings? Grandchildren in sports activities move quickly. Thus, the shutter lag time (and flash recharge time) is an important factor.
- How close do you want to be to your subject? Point and Shoot cameras with flash are most effective at a distance of 8 ft. or less. How much optical zoom capability do you need and want to carry (the higher the optical zoom, the heavier and more costly is the camera)?
- Check out the new and some say “key features”. For example, an image stabilize is especially useful with an optical zoom lens greater than 3x which amplifies camera shake or with a subcompact which is often difficult to hold in a steady manner. Face detection is also new. This is the ability of the camera to automatically lock in on faces to keep them in focus and properly exposed.
- And finally, don’t forget that you may prefer an optical viewfinder on the camera. This is not simply a throwback to your long years of camera use;

it may make it easier for you to compose shots, especially in bright light when LCD's are difficult to see. Look for this feature; it is rapidly disappearing from low-price cameras!

Finally, always look for web sites that contain consumer reviews! They can be very helpful. [Digital Photo Review](http://www.dpreview.com/) (<http://www.dpreview.com/>) is a web site enabling one to search for cameras by brand name, read reviews, and to obtain competitive pricing. The "[Buying Guide Features Search](#)" at this site is unique. Learn about different camera feature options, select and place those features that are important to you into an online form, and view a list of cameras that meet your specifications.

[C/Net digital camera reviews](http://www.cnet.com) (www.cnet.com) provides camera reviews, and enables you to search for different cameras by price, resolution, manufacturer or other criteria. This site provides "Editors Choice" information and a list of "No-brainer" digital cameras with relatively low prices and pocket-friendly designs. In a similar fashion, surf to [PC Magazine](http://www.pcmag.com) (www.pcmag.com) and select Digital Camera from the PC Magazine Product Guide Menu for product information by camera type, price, company, megapixels including their product reviews and "Editor's Choice" information. One also will find buying guide information and resources at the site. PC Magazine is a popular magazine for computer users. Their reviewers address the challenges of integrating the different pieces of camera and computer hardware and software equipment. And don't forget to check out Consumer Reports, July 2007 for their views on the latest digital cameras.

Right Technique

You've heard this before: "Digital cameras do all the work. You just push the button and great pictures magically appear." "The better the camera, the better the photos." Isn't that right? Not quite! It's not the camera that makes beautiful images; it's the photographer. Here are some tips that will enable you to take better pictures without maxing out your credit card on a lot of expensive equipment.

1. **Read your camera manual and experiment with its different features before you take important pictures!** Remember, the beauty of digital photography is that the picture is instantaneously available to you without the cost and time of developing. If you don't like it, delete it!! Many cameras have "Scene" features built-in. For example, select "Fireworks" to take night photos outside; select "Backlight" if the sun is behind your subject; select "Beach/Snow" for bright outdoor shots; or "Sunset" for the romantic picture at dusk, and so forth. The preset selections may not work for you; but then again, they just might work fine. For more information about making specific settings to manage focus, aperture, etc. for your digital SLR, see [Using Your New Camera: Technical skills](#).

2. **Experiment with and Use the “fill flash” or “flash on” mode in lieu of the automatic camera setting especially with outdoor portraits.** In flash on mode, the camera exposes for the background first, and then adds just enough flash to illuminate your portrait subject. The result is a professional looking picture where everything in the composition looks good. Wedding photographers have been using this technique for years. Or use “fill flash” to illuminate the subject in a bright background situation out of doors. Use the pre-focus button (depress the shutter part-way) to focus on the subject, and then re-frame your picture and place your subject anywhere you choose. Your subject will be properly illuminated
3. **Keep the camera level** – many of the newer digital cameras lack a viewfinder. Photographers often have a hard time holding the camera level when using the LCD monitor. The result can be cockeyed sunsets, lopsided landscapes, leaning and drunk-looking people, and tilted towers. Outside, look for nature's horizontal lines and use them as guides. Sometimes you can use the line where the sky meets the ocean, other times you can use a strip of land as your level. Look for vertical structures (walls, lamps) or horizontal structures (floor, top of couch) and use them to line up the picture indoors. If you practice level framing of your shots, over time the process will become easier.
4. **Figure out the memory you need, and then buy the next size up!** If you have a 3 Megapixel camera, get at least a 256MB card, 512MBs for 4 Megapixel models, and 1GB for 6 Megapixels and up. That way you'll never miss another shot because your memory card is full. I like to carry a spare memory card just in case my memory card fails while I am out in the field. Digital memory card prices are falling. Look for sales and special promotions!
5. **Use the High Resolution camera setting all of the time!** Now that you have purchased a large memory card, provide yourself the flexibility to print larger size prints or to optimally crop your picture later. For example, if you take a beautiful picture at the low 640 x 480 resolution, that means you can only make a print about the size of a credit card, not exactly the right dimensions for hanging in the museum. On the other hand, if you record the image at “Hi Rez” (4 Megapixel) or larger, then you can make a lovely 8- x 10-inch photo-quality print suitable for framing. Remember that lower cost/lower weight cameras are equipped with only a 3-4X optical zoom lens. Thus, having extra pixels enables you to crop your image and still have enough resolution to make a decent sized print. Digital images can always be scaled down and compressed for other purposes, e.g. email, later.
6. **Don't use, or be cautious with using your digital zoom.** Digital zoom is different from optical zoom. Digital zoom does not capture any more detail than the maximum optical zoom of your camera. Instead digital zoom uses interpolation to make a portion of the image larger by adding extra pixels. Whether you are using optical or digital zoom, the closer you zoom in on a subject, the harder it is to get correct focus and exposure. Any problems

created by camera shake are intensified. So an image that is captured with digital zoom is more likely to turn out *worse* than one captured at maximum optical zoom, then cropped and resampled in your photo editing software.

7. **Minimize the JPEG compression setting on your camera.** JPEG compression makes your file sizes small, so you can fit more pictures on your digital storage card. Using reasonable levels of compression can significantly reduce file size without noticeably reducing the image quality. JPEG is a compressed file format that permanently, irreversibly loses quality each time the image is saved. There are various levels of JPEG compression. High compression produces lower quality and smaller files. Lower jpeg compression equals higher quality and higher file sizes. The quality lost from compression can not be restored--ever--so if you later decide to edit your already over-compressed photos (even just to crop them), the quality is further reduced. For most, the middle setting usually offers a good compromise between quality and size. If you plan to do a lot of post processing in a photo editor, use the highest quality setting. You can always compress the image more later after the originals have been safely archived.
8. Back up you digital photos regularly, using more than one medium (e.g. computer, CD/DVD, external hard drive)

Right PC Hardware

Selecting PC equipment to use with your digital camera is straight-forward and most of you probably own adequate PC equipment, at present. For more details, I refer you to a previous Senior Bulletin article on this topic. Here is a list of basic requirements:

PC

- Fast CPU, especially if you plan to do a lot of photo-editing.
- Large hard drive – 80 GB or larger to store photos
- CD/DVD writer – to enable one to easily archive photos; consider double density DVD writer for more capacity. A CD-R can typically store 650 MB (insert approx # photos) worth of photos and a DVD-R can store 4GB of photos.
- External hard drive – option to assure safe storage of archived photos “off-site” in case your PC crashes. 260GB can be purchased for \$100-150.
- Premium video card to get best screen colors
- Large monitor – 17” or larger with low dpi (dots per inch) providing high resolution
- Built-in multi-card memory reader: to transfer pictures, these devices enable you to insert your memory card directly into the PC for automatic transfer of pictures in lieu of connecting your camera to your PC.
- Comfortable, ergonomic chair – you will be spending a good deal of time at the PC
- Ergonomic arm rests – it is not too late to get repetitive stress disorder

Right PC Software for photo-editing and organizing your digital photos

The fun part of digital photography comes after you transfer the images to your PC, and use software that can organize, store, find, edit and share these images. You may choose to use the software in your PC operating system, e.g. Microsoft Photo Gallery or Apple IPhoto or the supplied software that came with your digital camera. For example, software provided for Pentax, Olympus and Panasonic were rated highly by Consumer Reports (July 2007).

The basic elements that you are looking for in photo-editing software are:

- Red-eye removal
- Photo retouch
- Auto-fix functions (a one-touch bundle of “quick-fixes” for the novice)
- Rotate and Crop - to remove cluttered surroundings that draw attention away from your subject.
- Color balance – be able to play and experiment with colors. With image editing you can make the leaves purple, change the entire photo to black and white, and add a sepia effect - almost anything you want. A good photo editing program will have automatic color balance options to adjust color defects in your pictures.
- Special effects, e.g. blurring, or Sepia
- Resizing - If you're emailing a picture to a friend, you'll want to resize and compress the picture down to a much smaller size to ease the challenge of emailing the picture. If you're printing the photo on a greeting card, you can scale down the image to the size of a 4x6 print.

However, in general, software made and sold by third party manufacturers specifically for photo-editing are often easier to use and superior in producing quality prints than either camera supplied or operating system provided software. Many photo-editing programs and books for the novice and expert are reviewed at About.com. This article focuses on the following popular software that is widely recommended for beginners.

Let's start with [Picasa](http://picasa.google.com/), a free software download from Google. At (<http://picasa.google.com/>)

Every time you open Picasa, it automatically locates all your pictures (even ones you forgot you had) and sorts them into visual albums organized by date with folder names you will recognize. You can drag and drop pictures to arrange your albums and make labels to create new groups. Picasa makes sure your pictures are always organized. Picasa also makes advanced editing simple by putting one-click fixes and powerful effects at your fingertips. And Picasa makes it a snap to share your pictures – you can email, print photos home, make gift CDs, instantly share via Hello™, and even post pictures on your own blog or web

album. Picasa is fine for casual digital shooters who just want to find all their pictures, sort them into albums, do quick edits, and share with friends and family. Pros and more serious photographers may choose to look elsewhere.

Other low cost and popular software exists. Some samples are below:

[Adobe Photoshop Elements 5.0](#) – **my personal favorite**. Part of the famous Photoshop family of products, Elements 5.0 has all the tools novices need to organize, edit and share digital photos. Besides standard image-editing options, there are also photo enhancement tools like red-eye removal and color cast adjustment. It has more power than most novices will use.

[ACDSee Photo Manager 9](#) – newly certified for the Microsoft Vista Operating System is inexpensive and easy to use.

[Roxio Easy Media Creator Suite](#) - This software is affordable and comes with great extras like templates, fun effects and project ideas. It's wonderful for the beginner who wants a simple-to-use and fuss-free photo editor.

Many sites exist to review photo-editing software of varying types e.g. (<http://graphicssoft.about.com/od/findsoftware/>). Also view (<http://graphicssoft.about.com/cs/imageediting/tp/>). Here, one can link to the following reviews:

- [Top 5 Beginner Photo Editors for Windows](#) -
- [Top 8 Free Photo Editors for Windows](#)
- [Top 5 Advanced Photo Editors for Windows](#)
- [Top 4 Beginner Photo Editors for Macintosh](#) – Apple is generally lauded for its built-in image editing software that is excellent for all users.

Right Way to Store and Share Your Photos

Effective storage of your digital photos involves memory cards for your camera, hard disk storage on your PC, disposable archive media e.g. CD or DVD, and on-line secure storage. Let's briefly look at all options:

Using Memory Cards

Digital photography can lead to lower costs with use over time since one can choose to selectively print certain photos rather than printing an entire roll and save money. One may take and store all photos electronically and display them with a variety of devices in lieu of printing. One way to 'store' your images is to leave them all in your camera's memory card. Unfortunately, this is not a very good idea. Most cameras come with 0 – 16 MB of built-in memory with the option

to add “memory cards”. Although the cost of memory cards continues to drop and memory cards are now as large as 1 GB, you will periodically need to clear out space in your camera’s memory card to take more photos. Buy a minimum of 256MB memory card if your camera is 3-4 MB pixel resolution or below: if >4 megapixels, purchase at least a 512MB card. Consider carrying a spare if you travel often.

Using Hard Drives

After you import your images from your camera to your computer (usually via a USB cable), you will store those pictures stored in your hard drive. Hard drives are also pretty cheap these days. For \$100, you can get a branded 160 GB hard disk (that’s enough to store about 32,000 pictures at 5 megapixel resolution each!). However, even with “reliable” hard drives there is the uncertainty of the data safety due to hard disk crashes and virus infections. To avoid the loss of a lifetime of family memories, use CDs, DVDs, external hard drives or even web-servers as your back-up option in lieu of printing each picture.

Using CDs and DVDs

To use CDs or DVDs, you need a CD burner or a DVD burner, along with a CD or DVD burning software to burn those photos. DVD’s can save about 4 GB of pictures in contrast to 700 MB for a CD, almost 6 X as much data. If one sets each DVD to be a multi-session DVD, one can use it for multiple sessions before the space is exhausted. Today’s PC usually have CD-ROM/DVD readers and writers built-in. If not, they can be obtained at very reasonable cost.

Storing Your Photos Online

Another good option is to store your photos online. CD-Rs can become unreadable in as little as 2 years, even if stored properly? Especially the inexpensive CD-Rs are subject to becoming unreadable. And, they are sensitive to heat, moisture, and light. Another common issue is that most people keep their backup CD-Rs in their home – usually in or on the same desk as their PC. In the event of theft, fire, flood, or other unpredicted disaster, the backup media is likely to be destroyed as well – and you will have lost everything. The safest way to preserve your precious photos is to back up your pictures to a separate location.

How about combining storage and sharing of digital photos? Emailing digital pictures as attachments can bog down email systems. It often is not practical. Consider using online storage and/or photo sharing sites (e.g. [Phanfare](#), or [Snugmug](#) – both are or were PC Magazine's Editor's Choice for online storage and/or photo sharing) or “newbie” [Sharpcast](#) as well as [Google Picasa](#). You may also upload them to your own website provided by your ISP (Internet Service Provider). There are many great ways to share your photos with friends and

family without the hassles of emailing photos. Some of the photo sharing sites (most have free trials) allows you to specify logon passwords for specific users to come online and view private photos, and they often contain a choice of templates for displaying your pictures and photo-editing capabilities. Additionally, there may be a selection of presentation styles including thumbnail, thumbnails plus images, slide shows, and journals where you can include text. Google “photo storage sites” for more information and to find what’s right for you.

Right Printing of Photos

Printing your pictures at home is possible. There are three types of printers one can use to print your photos at home: a regular inkjet printer, and all-in-one printer with added functions, and a dedicated compact snapshot printer. The first two printer types are what we usually use for printing documents and other items from our PC. Snapshot printers are a good choice for quick prints and ease of use. I tried printing at home with the new types of photo printers that are either enhanced ink jets or the compact type. Personally, I’ve found that, over time, it was too expensive, time consuming and too much hassle to constantly buy paper and new ink. Color ink cartridges are costly and don't last long and photo paper is not cheap! It can cost about \$0.30-\$0.35 or more for a 4x6 to \$0.75-\$1.50 for and 8x10 print when you take into account the cost of the printer, ink and paper.

Alternatively, take your pictures (by camera or memory card or via on-line upload) down to your local photo store or photo kiosk in the drug store to make prints. The main difference is that you can crop, edit, and enhance the image before printing and selectively print only the best ones in your choice of sizes!! Wow!! Try using the Kodak or Fuji Print kiosks that can be found in drug stores, some super markets, and even the mall. An alternative choice is the online photofinishers

If one has a broad band hi-speed internet connection, it is extremely easy and convenient to upload photos to the printing service's website and presto—a few days later our film-quality prints arrived in the mail. Signing up and uploading images is free, and most photo companies offer free prints, on-line storage, personal web addresses, or other specials when you join. Mailing costs can even be avoided. [Wal-Mart Photo Center](#) or [CVS Photo Center](#) and others, offer the option or ordering online and picking up your prints at a local retail outlet.

Reviews of the following popular services can be viewed by clicking on the hyperlinks below:

[Snapfish \(www.snapfish.com\)](http://www.snapfish.com)) for low cost prints and photosharing

[Shutterfly \(www.shutterfly.com\)](http://www.shutterfly.com)) for low cost prints and photosharing

[PhotoWorks \(www.photoworks.com\)](http://www.photoworks.com)) for low cost prints and photosharing

[Kodak EasyShare Gallery \(www.kodakgallery.com\)](http://www.kodakgallery.com)) pick up your pictures at the local CVS Pharmacy.

[Wal-Mart Photo Center](#)

Note – the photo storage sites mentioned before, Phanfare, Sharpcast, Picasa as well as photo-editing software, e.g. Photoshop Elements, also enable you to print your photos after editing.

Finally – share your digital photos with the world via PhotoStamps.com . This new product allows you to make stamps from your favorite photos. Paste the stamp on the envelope and your friendly mail person will deliver it to any address!

Right Place to Buy

Try before buying is a good rule to follow. Check out cameras that you may purchase in local retail stores or “big box” electronic warehouses. How the camera fits into your hand and how you will use it is a key element. Then, go comparison shopping for the best price! Price comparison sites, sometimes called shopping agents, scan other Web outlets for products and prices. If you're looking for a specific item, these sites are a good place to start. Just be aware that payments or other favors may be being exchanged behind the scenes that affect listings and rankings. Use these sites as a guide, not as the last word. (note – Google the name or click on the hypelink)

- [C|Net Shopper](#) (a techies dream site: select category, view by price, popularity, etc. and read professional and user reviews and comments)
- [Price Grabber](#) (select your category, sort by rating, price, popularity!)
- [PriceWatch](#) (select your category of purchase, pick your price range and view your choices)
- [Shopnow](#) (provides a list of current buying sites once you select a product category)

Buying online is generally safe. However, remember to

Check reseller rankings at (www.resellerratings.com) to evaluate companies who sell computer products (e.g. hardware, software, etc.) so you can know which ones are good, trustworthy companies and which ones to avoid. Their database covers nationally advertised mail-order companies, and/or companies who do business on the Internet. All of the evaluations on the

ResellerRatings.com site are submitted by fellow Internet users. Find out what they think, where they shop, and where they've been burned, so you won't be. Alternatively, check Google Groups (<http://groups.google.com/>). Enter a name to search for and it then lists all of the postings containing that word. Here you can find a multitude of sites that address your concern. For example, it is hard to make a choice between two cameras, Google Groups provides you the option to surf to a Digital Photography Review site that enables you to view a side-by-side comparison of cameras that you select at <http://www.dpreview.com/reviews/sidebyside.asp> This site allows you to search on-line retailers such as [PC Connection](#), just enter PC Connection. This gives you a chance to hear what other people's experiences have been. Every company has dissatisfied customers so don't let one or two put you off. What you want to know is how a company handles complaints and if there is a pattern to them?

Explore on-line auctions (e.g. eBay)

There are people who swear by Web auctions as a way to get the lowest possible price. There are even people addicted to these sites. The best thing about them is that you can enter low bids and maybe get a real deal. Before beginning, be aware that the National Consumers League, in a United States Senate hearing, listed Web auctions as the No. 1 fraudulent scheme on the Internet, based on the number of complaints they and state attorneys general received. According to the League, common complaints are that items bid for are never delivered by the sellers, the value of items is inflated, skills are suspected of driving up bids, and prices are hiked after the highest bids are accepted. Here are some of the better-known on-line auction sites.

Watch out for unbundling

When you buy a digital camera, the basic package almost always includes extras such as a battery charger, lens cap, batteries, flash memory card, and software. One of the more disreputable practices a dealer can engage in is called unbundling. These dealers remove items from the package that are normally included in the price and price them separately. To find out what should be included in the package, visit the camera manufacturer's Web site and check their specifications page. The included items are almost always listed. The user's guide that comes with the camera will also list the items that should be included as part of the camera price.

Avoid gray market products

When camera companies introduce new cameras, they frequently use different product numbers, names, and prices in different markets around the world. Some dealers buy cameras in countries with the lowest prices and then sell them in another country. Since these cameras are bought and sold outside of the

manufacturer's normal distribution channels, prices may be lower but you almost always lose warranty coverage and technical support.

Check postage rates

When purchasing a camera you have three components of the price to consider—the camera price, postage and handling, and taxes. When you purchase over the Web or by mail order from an out-of-state-company, you and not the dealer are responsible for paying state and local sales taxes. Most people aren't aware of this responsibility, or choose to ignore it. When it comes to the price and postage and handling, however, the dealer is in control. Many dealers lower the price to make the camera more attractive, then increase the postage and handling to boost their profits. With the popularity of price comparison sites, the temptation to do this is even stronger. Be sure you ask about these additional costs and take them into account when comparing prices. Most companies have deals with firms such as UPS or FedEx so their costs are \$5 or so for second day shipments. Anything over and above that is pure profit to the dealer.

Avoid extended warranties

Hesitate before accepting extended warranties. Every knowledgeable consumer expert says it's better to gamble. Most of a company's profit is in the sale of these warranties so they press, and press hard. Your job is to resist, and resist hard. The only thing to keep in mind is that digital cameras can be horribly expensive to repair. If you want peace of mind, you may want the warranty, even though it's probably overpriced. The cost of a repair can approach, or even exceed, the original purchase price.

Check return policies, restocking fees

When you buy a camera from a reputable dealer, you expect to be able to return it if you aren't satisfied. Some dealers try to discourage this by requiring a restocking fee for returned merchandise. This is always explained as a way to recover their costs of checking the merchandise and restoring the packaging you may have opened. If a dealer requires a restocking fee, my advice is to find another dealer.

Buy no extras

Buy no extras without doing research. A few dealers low-ball camera prices and make their profit on accessories or other things their high-pressure sales people can stick you with.

Shop locally-support your local economy

There's no question that you can save a little money by shopping by mail order or over the Internet. However, keep in mind that the dealers in your local community also deserve your support. Their prices aren't always higher because they are more profitable. More likely, they are higher because their costs are higher. As often as possible, it makes sense to support your local merchants. They are part of the community you live in and your dollars circulate locally, not in a distant place you care nothing about.

For more information on technology for seniors, visit the Living Well Section at the AAP Section for Senior Members at www.aap.org/seniors .

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