

Digital Photo Tips:

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Making pictures that look like good `ole photographs:

When you use a digital camera, you move the quality control department from Kodak Park in Rochester N.Y. to your address!

Here are some suggestions to make digital picture taking more successful.

1) Camera Resolution and Quality:

Always use the highest resolution and quality settings. This gives you the ability to make bigger prints of your best photos and allows cropping photos with little image quality loss. Using the highest resolution gives the smallest number of photos on the memory card, but cards are becoming very inexpensive and larger in capacity. Resolution and quality settings of digital cameras control two different events. Resolution controls the sharpness and detail recorded by the image sensor. Higher resolution equals more sharpness and detail and larger image files. <http://www.netprintz.net> can take your files and make incredible digital prints.

Quality controls how well the resolution of the image sensor is stored. The quality setting actually controls file compression. The more the file is compressed, the lower the quality of the final image. Higher quality equals less compression, bigger files and fewer compression artifacts. This allows bigger enlargements or cropping photos with less loss of quality. High resolution and high quality make the biggest files. This means fewer photos on a memory card. It's worth buying more memory for the improved picture quality. You paid for all those pixels when you bought the camera, use each and every one. Use the highest resolution and highest quality settings. Then send your work to . <http://www.netprintz.net>.

Buy more memory. Shoot high and fine. Get better pictures.

2) Color quality settings:

Most cameras offer several color quality settings. Settings like Natural Color, Enhanced Color, Saturated Color, Black and White, and Sepia Tone. Unless you are shooting for "artsy fun," use the natural color setting. This gives the best color quality for most photos. The other effects can be introduced later in image editing software. If you shoot in black and white, you can't go back to color. Shooting in natural color gathers the most image information that can be later modified.

3) Digital Zoom:

Digital zoom is a supposed feature on cameras that have permanently attached lenses.

Digital Zoom is a lie.

Optical zoom is real. Digital zoom lowers resolution. It is in-camera cropping. Don't use it. Digital zoom is a non-beneficial feature. I can't say enough bad things about digital zoom. There is a way to turn it off in the setup menu of the camera, please do so. If you want to crop, do it later on the computer using a larger view of the photo and the better controls of the image processing software. A 10 megapixel camera using a 2x digital zoom makes a 2.5 megapixel image, 4x makes a 0.64 megapixel image. This means that your picture quality takes a really big hit. If you need to make your subject larger, get closer or buy a camera with a bigger zoom lens to start with, or, if available, a telephoto attachment lens for the camera. The images will be better.

Digital tele-converter is a new feature on some digital SLR cameras with interchangeable lenses. This is the same as digital zoom with another name. It just crops the pictures in the camera, reducing resolution. SLR designers should know better, so should the camera owners.

4) ISO Setting:

A little film history: For us "old folks of photography", ISO, ASA, ANSI and film speed are the same thing. ISO speed is a way to quantify the sensitivity of the film or camera sensor to light. To shoot in less light with a film camera we use faster film, or, film with a higher ISO speed. When we use higher ISO (faster) speed films, we expect pictures with larger grain as the silver particles in the film are bigger to make the film more sensitive to light. The choice is usually faster film with larger grain or no pictures. This is the way it is and it's readily accepted in the film arena.

Back to the present: Digital cameras have a resident speed, similar to the ISO speed of film. Higher ISO settings make the sensor seem more sensitive by amplifying the signals from the sensor so photos can be made in lower amounts of light. This amplification makes the image stronger, but it makes the noise stronger by the same amount. This makes the photos look "grainy" and reduces the tonal range making the photos look more contrasty. You can see this happen by making photos of the same subject at all the different ISO settings and comparing them on your computer screen. Different cameras have different levels of noise at similar settings, so test your camera to decide what ISO speed is acceptable. The most recent cameras (2008 and later) do a good job of controlling noise and making it acceptable at ISO settings up to 800. Above that the noise starts to be noticeable. This is always a subjective judgement-one's noise is another's artistic effect. Many times in low light without flash, the choice is noisy pictures or no pictures. Change the sensitivity, ISO setting, in digital cameras to a higher speed only when absolutely necessary. As always your mileage may vary.

5) File Terminology:

Digital images are computer files, just like an e-mail, a letter from Aunt Joan, an MP3, or a spreadsheet file. With the correct software, image files make digital images. These files can be saved, stored, altered, corrupted and lost like any other computer file. In this booklet, I use the terms "digital photo", "photo", "image file" and "file" interchangeably, as they are the same thing. I also use the term "memory card" and "card" interchangeably.

6) File Numbers:

On most cameras, in the setup menu, there is a setting for file numbering. This can be set to start over at 0001 with each empty memory card or to continue numbering to 9999 without starting over. Set this so that the camera doesn't start at 0001 when you change cards or start a clean card. This is sometimes called continuous numbering. This protects you from writing over your last set of photos when you download the next set by causing all photos to have a unique name. The instruction book will help with this setting. This is usually found in one of the menus of the record mode. You usually only have to set this once for the life of the camera.

7) File folders in the camera:

The camera makes folders on the memory card. It stores the photos in the folders. Many cameras have a choice of methods of naming the folders either with numbers or a date.

Using the date method, each folder gets a unique name that is not repeated. Using the numbering method, the numbers are usually repeated starting over with a fresh card. The date method makes it possible to download the files to the computer without renaming folders. I usually rename the folder once its

downloaded to the computer with a reverse order date (YYYY MM DD) and a short description of the photos. "YYYY MM-DD short description". for instance "2009 05-23 Trip to Indianapolis". This makes the computer sort the folders by date and makes the folders easier to find.

Do NOT change the names of the files or folders while they are on the memory card. This can cause corruption of the image files and total loss of all the photos on the card. Download THEN rename, for safety. Also, do not load a memory card with renamed files into the camera. This can cause the camera to be really confused about what is on the card. Immediately after downloading and folder renaming, I burn a CD to archive and protect the files from accidental deletion or modification.

8) File storage:

Memory cards are not designed for permanent image storage. One card maker sells "shoot and store" cards, this is almost as honest as "digital Zoom." Memory cards are easily erased or formatted while in the camera. This destroys all the files on the card. Download picture files and save them to a CD as soon as is practical.

You don't have to fill the memory card to download it. You can use the card over and over. A memory card is not harmed by downloading a card that is not full. Burning image files to a CD makes a permanent archive that cannot be accidentally written over by the computer. If you only have the image files on a hard drive, you can make a "save file" or "delete file error that destroys the original file and you have nothing to go back to. Nothing like discovering that you made a photo into a small image file for e-mail and saved it over your prize photo that you want to print at 11x14. It's better to store images on CD's rather than the hard drive. Images take a lot of space and accumulate quickly all of a sudden there are 90 gigabytes of image files on the hard drive. It's easier to burn the image files to CD's as you go rather than letting the hard drive get too full and doing it then. Always check that the CD is readable before deleting your files from the cards or hard drive. Hard drives die. It's not if, it's when. Any files - images, letters, e-mail, financial information, anything important on your hard drive when it fails.....gone.

Keep your photos safe-BURN CD's

9) USB Card Reader/Writer:

A USB card reader/writer plugs into a USB port in the computer and reads and writes to a memory card like it is a small disk drive. The USB port of the computer powers it. Use the card reader/writer to copy the image files from the memory card to the computer. To move the image files to the computer from the card, you can just drag and drop the files in the computer where they are wanted. It's safer and faster than using the camera to download files. As a bonus, it uses no power from the camera. This makes your battery last longer. (If your camera uses a docking station, using a card reader is less important, but still suggested.) Use the camera to format the memory card or delete images from the card, it's the safest method to clear the card for reuse.

10) Memory Cards:

Use several smaller cards instead of one huge one. To my way of thinking, two one gigabyte cards are safer than one two gigabyte card. Having images on several cards allows "sorting" images more easily by changing cards in the field when shooting. Keep the cards in a case when not in the camera to keep them clean and protect them from damage. Put your name and phone number on the cards so they can be easily

identified, and may be returned to you if you lose one.

If your camera has more than five megapixels, buy high-speed memory cards so your camera can be ready for the "next shot" more quickly. The files get pretty big on the high megapixel cameras and a faster card will save lots of time when you are transferring files to your computer from the card. Faster cards are only a few dollars more and really worth it for the speed and convenience.

11) SD memory card confusion:

When you first get your camera, find out EXACTLY which cards are compatible with your camera before you buy any cards. Most memory cards of a type are compatible, except the most popular type - SD cards. If your camera uses SD type cards, be particularly careful. SD cards are available in capacities up to 2 gigabytes. There is a new style SD card with capacities up to 32 gigabytes-and soon more. This new card is called SDHC. Devices designed for the SD cards, before the the SDHC card was introduced, are not compatible with the SDHC card. This means cameras, built-in card readers in computers, printers with card slots, and stand-alone card readers. The SDHC cards are NOT backwards compatible with older equipment. The newer equipment is backward compatible with the SD cards. To help with this confusion, new SDXC cards are on the way. Did I mention that these cards all fit the slots and look like they will work? The only difference in appearance is the label.

12 Memory Stick Confusion:

The Sony Memory Stick family has a similar compatibility dysfunction to the SD card family. The family consists of :# Memory Stick PRO-HG Duo "HX", Memory Stick PRO-HG, Memory Stick PRO, Memory Stick Micro (M2), # Memory Stick (with MagicGate) and Memory Stick Duo. Be sure to find out which work with your equipment before buying the wrong memory cards.

13) Traveling with your digital camera:

When you are away from the AC outlet and your computer, the concept of too much memory or too many fresh batteries does not exist. Always carry more than you think you need. Use the instruction book to figure out how many pictures you can take on your memory cards, then figure out how many you can shoot on your battery. Use this information to match the quantity of images on the memory cards with the battery capacity. Buy enough batteries to match the memory capacity. Remember, it doesn't cost any more to shoot more images with a digital camera and more images give you a better chance to get that great one.

Shoot many - edit well.

If you are traveling extensively, investigate the availability of a battery charger that works from a car outlet. You can charge your battery while driving. There are 110 volt power supplies available that plug into your car power outlet. The small ones will power most chargers and power supplies for electronic devices. These were expensive in the old days, but are now available for less than \$30.00. These will let you use the camera power supply or battery charger in the car.

Many cameras that come with a rechargeable battery and charger come with a multi-voltage charger that automatically switches to the correct input voltage. This means that when you travel to a country that has a different voltage, anywhere from 100 volts to 250 volts, all you need is a physical plug adapter for the foreign outlet. Check the camera instruction book for this feature and proper use. Many photo labs and service agencies will download your memory cards and make a CD for a nominal charge, usually about five dollars per CD. This can extend your shooting and make your photos more secure when you are traveling.

14) Crashes - Errors and Recovery.

Don't remove the card while the camera is turned on. Don't insert a card while the camera is turned on. Doing either of these actions may corrupt the memory card causing your images to become not available. Most card "corruptions" are caused by removing or inserting a card while the camera is active. Watch the battery indicator on your display. When it indicates the battery is getting low, change it or charge it. If the battery dies while the camera is writing a file to the memory card, the card will be corrupted and you can lose all the images on the card. When this happens, file recovery services or software can save many of the files, but not usually all of them. If the card is corrupted or accidentally formatted and you want to save the files, don't use it until the files have been recovered and the card is reformatted. Better Image has image file recovery services for most memory cards.

15) Proper Batteries:

The wrong batteries can damage your camera. Use only the batteries approved by the camera manufacturer. If the camera requires a special battery, use only batteries made by the original manufacturer or an approved battery with a recognized brand name. There are reports that some aftermarket batteries sold at very low prices may not have the internal safety features of OEM batteries. Some reports tell of batteries exploding and causing damage to equipment and injury to users. Be safer for a few bucks more.

If the camera uses multiple AA batteries: Check the instruction book for the approved types. Most use alkaline or lithium batteries as a minimum requirement. Most like NiMH (nickel-metal Hydride) rechargeable batteries. NiMH batteries have much higher capacity than alkaline and therefore allow more photographs per charge than a single set of alkaline batteries. The capacity of batteries is rated in milli-amp hours or MAH.

In the year 2000, NiMH batteries had a capacity of 1300 mah or almost double that of alkalines. The capacity has improved constantly since and some batteries now are rated at 2800 mah. Look on the battery for the rating when you buy the batteries. Higher MAH=more pictures per charge. Lithium ION and NiMH batteries may be recharged up 1000 times.

Never, never, never try to recharge alkaline or lithium batteries. Doing so may cause explosion or fire.

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16) Exposure:

Digital cameras are very successful in getting the exposure right under most conditions. The biggest problem is when the scene contains areas that are extremely different from the main subject. An extremely light or dark area in the picture can fool the electronics that control the exposure. A white cat on a dark sofa makes the cat a white blob. The opposite is also true for kids building a snowman. The snow comes out gray and the kids are really dark.

Proper exposure in digital photography is critical. As in film photography, minor exposures are tolerable and can be corrected, although the tolerance is smaller than with film.

If overexposed (too light) the lightest areas of the image can be clipped. This means that there is no detail in the lightest areas. No amount of correction can fix this as nothing is there to darken. Exposures that are too light without clipping are usually repairable.

If underexposed (too dark), the darkest areas of the photograph are buried in blackness. If not too underexposed, photos may be corrected with more success than overexposed photographs, but with a loss of quality. The biggest loss of quality in an underexposed picture is in the dark areas where noise appears looking like film grain or speckles.

Back to the snowman and the cat. The dominance of snowy areas in the picture convinces the camera that there is more light in the picture than really exists. The camera automation compensates the the extra light and makes the snow gray and the picture comes out too dark. This is usually fixable after the fact by adjusting the picture in editing software. The subject on snow shooting problem is many times prevented by using the +/- feature on the more advanced cameras. Setting this function at +1 will lighten the picture and make the snow whiter and the subject in the snow lighter and more normal. For the cat, setting the +/- setting at -1 will make the cat darker and more normal.

The worst problem is overexposed and underexposed in the same photo usually caused by a bad flash picture. A subject too close to the flash is overexposed and subjects outside the flash range are extremely dark. The close subject can be moved away from to get it inside the flash's range (just back up), but the too far away subject is just that. Too far away. Check the effective distance listed in the manual for the camera. Don't plan on shooting flash farther than it says is effective. Shots taken too far away with flash will ALWAYS be too dark. Little cameras and little built-in flashes make for short effective illumination distances. With most digital cameras, raising the ISO speed will increase the maximum effective flash distance and let you shoot a little farther away. Sometimes this helps at short to medium distances.

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Some companies make auxiliary flash attachments that work in tandem with the built-in flash to help with the long distance flash situation. Check the camera manual for information from the camera manufacturer. Third party companies like Vivitar, Nissin and Metz make some flashes that work with most digital cameras. Although these flashes will augment the light from the camera, there is still a limit to their abilities. Again read the manual for the specifications and believe them.

In situations like stadiums, circus shows, stage shows, basketball games, and any other really long distances, flash does not work well at if at all. You can usually turn off the flash and raise the ISO speed to shoot without flash under these circumstances. Again, check in the camera manual for this ability. Using the flash under the very long distance circumstances only uses up battery power, makes very dark to black pictures and irritates all the people around you.

17) White Balance (Color Balance):

In digital photography, exposure is very critical. It is much more critical than film. Fortunately the cameras are very good about getting the exposure right. White balance errors are exposure errors. The photographs consist of three color channels corresponding to the red green and blue light forming the image. If the color balance is incorrect, one or more of the channels are under or over exposed. Sometimes color balance can be adjusted post exposure but usually quality suffers. Minor errors can usually be repaired, gross errors not so much, as information is missing from one or more color channels in the image file.

Digital cameras allow for adjusting some of these color problems at the time of exposure with a function called white balance. This gives the camera the ability to change color balance to match the light source from picture to picture. Some cameras do this with automatic white balance or preset color balance and some add custom white balance control. The common presets are daylight, cloudy, shade, tungsten, flash and fluorescent.

About the only place where the light is a single balance light source is outdoors. Outdoors is usually daylight, cloudy or shade. The color of light is actually different with the shade and cloudy being more blue-cyan than the direct sunlight.

Most of the time the presets are close enough, but if the light source is mixed light, all bets are off. The preset should be set for the strongest light and let the rest be slightly off color. If you are shooting inside with flash, set the camera for flash balance, house lamps use the tungsten setting, and if under fluorescent bulbs, use the fluorescent setting. Setting the appropriate preset color gets closer and gives a more consistent result.

Why worry about it, my camera has an automatic white balance setting?

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Automatic white balance gets close and its a good choice when the situation is changing quickly. It is close but will allow a color variation from photo to photo, all being close, but all being slightly different in color.

The biggest problem with automatic white balance is a situation where the scene contains a large area of a strong dominate color. An example will be a room with colored walls or a studio backdrop that is a strong color. The automatic white balance sees the dominate color and corrects for it, making other colors in the scene tilted toward a color complementary to the background. People standing next to a blue wall turn yellow. People next to a pink wall turn slightly green. People in front of lots of green foliage turn a little pinkish-red. With the color balance set to a fixed value, the color does not change if there is a dominate color in the scene.

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Custom white balance sounds too technically challenging!

Custom white balance is a good thing that sounds a lot more complicated than it really is. The camera manual will explain how this is done on a specific model. This usually amounts to finding the setting in the shooting menu and point the camera at a truly white surface, filling the frame and pushing a button or two. The whole image area should be only the white surface, it need not be in focus. This simple procedure sets for white balance for the specific lighting condition in this specific location. If the color of the light changes, do it again for the new light source. The light on the side of the room near the windows will be a different color balance than the light near the lamp on the other side of the room, so reset for the new situation. The procedure varies from model to model of camera, but is usually set up to do easily, as it is an important feature.

Better color balance makes better pictures.

Trust me It's always worth the effort!

18) Portraits and group pictures: For family group photos and portraits outdoors, open, even shade, not broken or dappled shade, works better than direct sunlight. The light is more even and there is less squinting and fewer dark shadows. Set the white balance for shade. For even better results see #19.

19) Flash outdoors:

Most better digital cameras allow fill flash outdoors. Fill flash is using flash to fill in shadows and even out the illumination in the scene. This reduces dark shadows under chins and in eyes and usually gives a more professional quality to the photographs. Check your instruction book for details on using this feature.

20) Low Light Photos:

In light levels too low for handheld pictures where flash is not a good choice (sunset photos and the

like), use a tripod or other support to steady the camera. Use a release cable made for the camera or the self timer in the camera to trip the shutter so the you don't jiggle the camera on the tripod. Bigger more massive tripods make sharper pictures.

21) Editing pictures:

Editing software allows cropping, enlarging, fixing red eye, sizing photographs correcting color and adding special effects. Learn to use a good editing program to improve your photographs. Adobe Photoshop is the top of the line, but it is expensive and complicated. There are programs like PhotoDeluxe and Photoshop Elements from Adobe and others from companies like Corel and Arcsoft that do a similar job and are easier to master. A good one probably came with your camera. Be sure to only work on a copy of the file, not the original. If you make a serious error on the photo while making adjustments, you still have the original to go back to.

22) Housekeeping:

Keep the camera clean. Protect it from dust and liquids. t's electronic and it doesn't like either. Lenses on digital cameras are smaller than film cameras. A small smudge on a digital camera lens gives a much bigger effect to the image than one on a film camera lens. Clean the optics only with materials appropriate for coated optics, not eyeglass cleaning materials. A microfiber cloth works great. Memory cards that have dirty contacts can cause data errors that make the card unusable and the images unreadable. Carry the memory cards in a small case that will keep them clean and dry.

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Keep it all clean; it will be more reliable.

Shoot high and fine.

Shoot many, edit well.

Back-up, back-up, back-up all digital images before working on them.

Do not trust memory cards or hard drives for long term storage.

Learn how to master white balance.

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