Digital Photos – Beginning to End

Part 2

Topics
Pixels
Resolution
Digital memory
Transferring files from the digital memory to the computer

Definitions of Pixel and Resolution

Pixel

A pixel is a tiny dot of light on the monitor. "Pixel" stands for Picture Element. It is the smallest part of every image you see on the monitor. Pixel also refers to the tiny "cells" that gather information in a digital camera. The term "megapixel" which is found on most digital cameras, means one million pixels.

If you blow up a picture, you can get an idea of how the separate pixels work together to create a picture. Each square is the equivalent of one pixel. Each (colored) pixel is made up of three "rays" of light: red, green, and blue (RGB). Each ray of color is energized to different intensities, creating a range of colors perceived as the mixture of these dots. Black is all three dots dark, white is all dots light.

Resolution

Resolution is the degree of sharpness of a displayed or printed character or image. On a computer monitor screen, resolution is expressed as a matrix of pixels. For example, the resolution of 640x480 means 640 pixels across each of the 480 lines. The same resolution looks sharper on a small screen than a larger one because the individual pixels are smaller.

Demonstrate this by opening an image in software for editing digital photos, then clicking on the zoom control for 100%. This is high resolution. Notice the quality of the image. Can you see any pixels or dots? Now click on the zoom control again, and then click on 1600%. This is low resolution. Can you see any pixels or dots?

The higher the number of pixels, the better the resolution. The higher the resolution, the larger and higher quality prints you can make. Higher quality photos take up more space on your media card, but they will give you the best prints.

This guide will give you a very general idea of what to expect in terms of megapixels and output size:

# of Pixels	Print Size
Less than 1 megapixel	Good for emailing
1 megapixel	4 x 6 inch prints
2 megapixels	5 x 7 inch prints
3 megapixels	8 x 10 inch prints
4 megapixels	11 x 14 inch prints
5 megapixels	16 x 20 inch prints

Keep in mind everyone's perception is different. You may be happy with an 8 x 10 inch print made from a 1-megapixel digital camera, but your quality-conscious neighbor may think it looks too "jaggy." If you figure out the largest print size you will ever want to make, and then buy the digital camera, based on the chart above, with the megapixels to match, you'll probably be satisfied with your digital camera.

Using a digital camera

Megapixels
File size

My camera is 2 mega pixels.   1600 x 1200   = 1,920,000 pixels = 1.9 mega pixels

▉ Number of storable pictures left
Number of still pictures that can be taken

Recording mode		Number of pixels	File	Memory capacity (Image only/Image with sound)					
				2MB	4MB	8MB	16MB	32MB	64MB
TIFF*		1600x1200	TIFF	0/–	0/–	1/–	2/–	5/–	11/–
		1280x960		0/–	1/–	2/–	4/–	8/–	17/–
		1024x768		0/–	1/–	3/–	6/–	13/–	27/–
		640x480		2/–	4/–	8/–	17/–	34/–	68/–
SHQ		1600x1200	JPEG	1/1	2/2	5/5	11/11	22/22	45/44
HQ		1600x1200		4/3	8/7	16/15	31/30	64/60	128/120
SQ	HIGH (quality)	1280x960		2/2	4/4	8/8	17/16	34/33	69/67
	NORMAL			6/5	12/11	24/22	49/45	99/90	199/181
	HIGH (quality)	1024x768		3/3	6/6	13/12	26/25	53/51	107/102
	NORMAL			9/8	18/16	38/32	76/66	153/132	306/265
	HIGH (quality)	640x480		8/7	16/14	32/29	66/58	132/117	265/234
	NORMAL			21/15	40/30	82/61	165/123	331/248	664/498

Digital memory

Memory stick

CompactFlash

SmartMedia

xD Picture card

Secure Digital card

MicroDrive

MicroCD is built into the camera. Only the micro CD is removable.

Transferring files from the digital memory to the computer

			Serial or USB cable from camera to computer
SanDisk 8 in 1 Reader	6 in 1 Reader	Cradle	

Note: images on web pages and email can be 1 pixel. They can be the same color as the background so you can't see them. They can contain instructions to open a file. Thus your computer can get a virus by viewing a web site or email.

Part 3
Scanning a printed photo.
Output file format
Resolution and file size
Editing a digital photo file.

Web links
See web links from Day 1 class hand-outs.

prices for memory card readers
pricegrabber.com, then search for "memory card reader"
http://www.pricegrabber.com/

Use www.google.com for searching