JACK & SUE DRAFAHL

Digital Resolutions

DIGITAL HAS GROWN FROM A TRADITIONAL FILM FORMAT FOUNDATION. UNDERSTANDING THIS EVOLUTION WILL HELP YOU PICK THE DIGITAL CAMERA THAT'S RIGHT FOR YOU.

■ Plunging into the world of digital photography is a big and sometimes costly leap, not unlike your initial steps into traditional photography. In a sense you are starting over again – new equipment, new techniques and new terms. Before you make the plunge, understanding a few basic digital terms will help you correctly choose your new equipment and help you understand the limitations of digital techniques.

One of the most confusing digital imaging terms is megapixel resolution, and it's one you hear all the time. A digital image consists of pixels (short for picture element), which are individual pinpoints of colored light. A megapixel is one million pixels, and is reference point for measuring a digital camera's ability to provide image resolution. But megapixels alone are not a fair yardstick for measuring a camera's quality, and this is where things get a bit confusing.

The quality of a digital camera is primarily dependent on the size of its charge-coupled device – commonly called the CCD chip – and how that device translates data to an image file. Although each chip has a specific resolution based on its size, not all cameras use the chip in the same manner.

In the infancy stages of digital, a field of experts decided that the file size for the photo CD should approximate the resolution of film. Their extensive calculations indicated an 18-megabyte file size was needed to allow digital to give film a run for its money. Since file size is three times the megapixel designation, an 18-megabyte file equals 6 megapixels. But most digital cameras today have only about 3 megapixels, mainly due to cost limitations. (There are some 6-megapixel cameras available, but they carry hefty price tags. As technology improves and prices drop, 6 megapixels will become the norm.)

To closely simulate the format of 35-mm film, digital cameras crop the image that the chip records, thus lowering its resolution. Many of the newer digital cameras give you the option of using the cropped 35-mm format or the full-chip size that closely simulates television format.

SMART SHOPPING The key to understanding resolution when buying a digital camera is to look at the specifications of the physical chip size and just how many actual megapixels it will hold. Even then you can still find variations if the values are identical from one digital camera to the next. Many digital cameras do some firmware enhancements to the data recorded on the CCD chip, which enables them to come up with a higher resolution. Some cameras will interpolate, pixel-shift or extrapolate data. Whatever terminology or technology they use, these methods take the captured data and insert new data between the pixel values, thus increasing the resolution.

We've been comparing digital resolution for more than 10 years and have determined that increasing image resolution levels off at 3 megapixels. Camera image quality steadily increases from zero to 3 megapixels (0- to 8-megabyte file sizes), but from 3 to 6 megapixels (8 to 18 megabytes) the improvement in quality is less noticeable.

PURCHASING PIXELS So how many megapixels are enough? Every digital expert in the field has an opinion, but it all boils down to the fact that perception of quality is in the eye of the beholder. What looks great to one person is unacceptable for another. The more megapixels your camera records, the larger the captured data file will be. Thus, you will be capable of higher-quality prints in larger sizes.

Cameras with less than 3 megapixels are really not meant to produce prints larger than 8 by 10 inches. That's not a problem, considering that 97 percent of the images taken by amateur photographers never get printed larger than 4 by 6 inches. Cameras with 3-megapixel capacities can easily make 11- by-14-inch prints, and some can even make very spectacular 16-by-20 prints on inkjet printers.

If you want snapshots, then almost any digital camera will make great-looking small prints. You should consider a 3-megapixel camera if you want to make enlargements to hang on your wall. If you are looking to challenge film, then you are going to have to cough up the big bucks for a camera with 6-plus megapixels.

The resolution and image quality in digital cameras are here. The only remaining question: Which camera are you going to buy?

■ BASED ON THE 35MM FILM FORMAT, TRANSFERABLE STORAGE DISKETTES ARE THE MEDIA FOR CAPTURING IMAGES IN THE DIGITAL WORLD.