

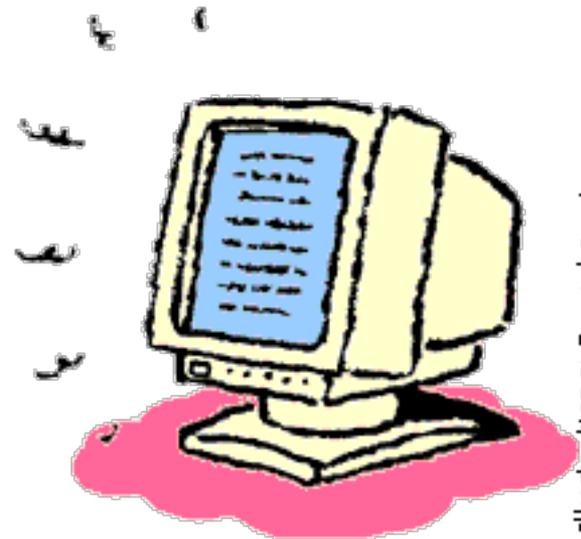


Digital cameras in the classroom

by Kathy Schrock

Contents ▼

- FEATURE: Kathy Schrock's Tech Quest



Improvements in technology and reduced prices have encouraged many teachers to purchase digital cameras. Having a digital camera in the classroom is fun. You can easily add photos to everything from your school Web site to personalized notes to parents. It is also a practical teaching and learning tool. Let's take a look at some features you should consider when buying a digital camera. Then we'll discuss some useful and innovative ways you can use digital cameras in your classroom.

Buying a digital camera

With the myriad of choices in digital cameras on the market, there are a few important things you should think about before purchasing one. Price is probably the first thing you will consider. For a quality digital camera, plan on spending \$350 to \$600. But price isn't the only factor that you should think about when looking at the various models. You will also need to look at the following features:

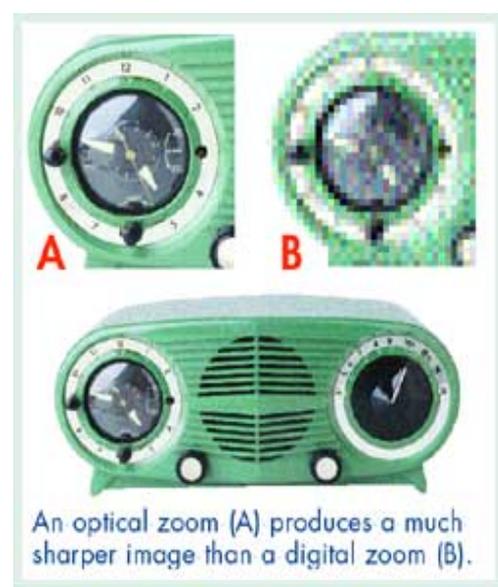
Resolution Digital photographs are made up of tiny squares called pixels. The number and density of the pixels in an image is referred to as its resolution. The higher the resolution, the more pixels there are in the image and the sharper the image will be. The resolution of

Lens Digital camera lenses come in three varieties: fixed focus, optical zoom, and digital zoom. Fixed-focus lenses are comparable to the ones on point-and-shoot cameras that do not allow you to zoom in or out.

an image can be stated in two ways: by the number of pixels in the length and width of the image (e.g., 1024 x 768) or by the total number of pixels in the image (e.g., 2 megapixels, which means there are 2,000,000 pixels!). If you want to print out pictures that are no larger than 5" x 7", a 1.3 or 2 megapixel camera will be fine. But if you plan to print 8" x 10" or larger pictures, a higher-priced 3 megapixel camera would better meet your needs.



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An optical zoom lens reduces the amount of the scene that is actually photographed and produces a sharp, quality picture. These lenses usually are identified in terms such as "a 5X optical zoom." The higher the number, the closer the camera lens can zoom in.

A digital zoom lens captures a normal-sized image and then enlarges or reduces the picture using internal software. The enlarged photograph uses the same number of pixels that are in the original, and the software fills in the areas between the pixels. The resulting photograph, when viewed or printed out, is usually not as clear as one taken with an optical zoom or fixed-focus lens. Many lower-priced cameras come with the lower-quality digital zoom lens. Better cameras include the higher-quality optical zoom lens as well as the digital zoom lens.

Preview screens and viewfinders

Most digital cameras have a monitor on the back called an LCD (liquid crystal display) screen which allows you to preview and then review your digital shots. You can usually use it to replay all the images that you have taken. This is an especially helpful feature if you want to delete earlier images to make more space to store photos. In bright sunlight, however, it is often hard to see images on the LCD screen. These screens also use up precious battery life. I suggest looking for a digital camera that has both a traditional eyepiece (optical viewfinder) *and* an LCD preview screen. It's also helpful and practical if the camera includes a feature that allows you to turn off the power to the LCD viewfinder when it isn't needed.

Storage and transfer There are many different ways that digital cameras store and transfer photos to a computer or printer. Some digital cameras, particularly older and less expensive ones, only have internal storage that cannot be removed or increased. This means that you regularly have to hook up the camera to a computer to transfer the photographs or erase pictures in order to make room to store new ones. Almost all digital cameras, whether they have internal or removable storage, can be hooked up to a computer to download the pictures. But in a classroom setting, this is often not practical. Sometimes the computer needs to be off before the camera is connected in order for the transfer to occur. This wastes precious time while you wait for the computer to shut down and restart. Plus, transferring photos from a camera to a computer uses a large amount of the camera's battery life.

Most digital cameras on the market today use some type of removable

In addition to the above features, it's important for a digital camera used in a classroom to include:

- ✓ recharging capability so that it is always ready to capture those "teachable moments"
- ✓ a self-timer so that everyone in the class can get into the picture
- ✓ the ability to hook up to a TV through a VCR so your entire class can view the photos (often called NTSC or video out)
- ✓ a tripod mount on the bottom of the camera for stationary shots of lab experiments, student work, etc.

Capture the moment

Educators are exploring new and innovative projects that take advantage of the digital camera's special features. Documenting a classroom or schoolwide event, creating a virtual tour in conjunction with a field trip or community service project, producing student ID cards, and making personalized holiday gifts or cards with students' pictures on them are just some of the ways you can use the camera. The digital camera's best asset for the classroom is its ability to capture a moment in time and share it *immediately* as a useful feedback tool. Photos can always be re-taken or edited on the computer with image-editing software, such as *PhotoShop* or *PaintShopPro*, to reach the desired result. Image-editing software is usually provided with the digital camera and allows you to crop, lighten, darken, color correct, and resize a photograph.

Currently, many teachers are using digital cameras to develop and create digital or electronic student portfolios. Traditionally, a student's portfolio of work included print items. With a digital camera, it is easy to include pictures of large projects, students working in a group, students performing a play or presentation, and original photo creations by students in the portfolio. If you are planning to have students create digital portfolios, it's useful to have a CD-ROM burner in the school because groups of digital photos and multimedia presentations are often too big to fit on a floppy diskette. This piece of hardware allows students to save their portfolios on their own blank CD-R (CD-ROM recordable) media. Students' CD-ROM portfolios can then be passed on from grade level to grade level.

Resources

<http://www.shortcourses.com/choosing/contents.htm>

Log on for a short course in choosing a digital camera.

<http://discoveryschool.com/schrockguide/assess.html>

This site discusses assessing students with digital portfolios.

<http://www.brunswick.k12.me.us/lon/lonlinks/digicam/teacher/home.html>

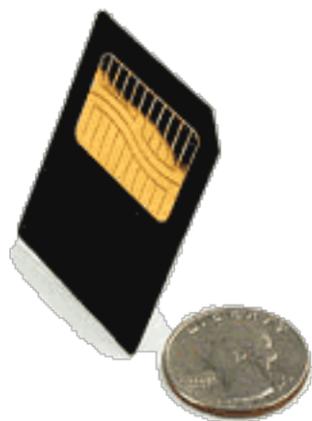
Teachers share advice about using digital cameras in the classroom.

MEETING THE STANDARDS

digital storage card as their reusable "film," so you can replace it when more "film" is needed. Being able to remove these cards rather than having to immediately download the photos to the computer is a more practical option for the classroom. Different brands of digital cameras use different types of removable storage devices.

Some cameras use floppy disks as the "film." They are easy to remove and insert into any computer to view the photographs. The trade-off, however, is that the resolution and quality of the pictures is not as good as other storage devices, and the cameras themselves are bulkier and larger than most digital cameras.

Another type of digital storage is the removable memory card, often called digital film. Four of the most widely used



types are CompactFlash cards (from SanDisk and Lexar), SmartMedia cards (from Toshiba and Samsung), MultiMediaCards (from SanDisk and other manufacturers), and the Memory Stick (from Sony and Lexar). These small devices fit into your camera as "electronic film." You can then remove and insert them into a digital film card reader (a small

device that is connected to the computer with a cable) or a FlashPath adapter, which looks like a metal floppy disk that you can use in your computer's floppy disk drive. With these options, you have the best of both worlds: it's easy to transfer the photos, there is no loss in picture quality, and you don't have to hook up the camera to the computer!