

**Consumer Decision Making Contest
2001-2002 Study Guide
Cameras**

Photography is a popular American pastime and new camera technology has expanded consumer choice. In today's marketplace, cameras come in a wide range of prices and styles.

The first thing to decide when buying a camera is to determine your needs. Will you be taking a lot of pictures or will you only take a few pictures occasionally? Do you consider yourself a casual photographer or a serious photographer? Do you prefer to "point-and-shoot" without worrying about camera settings? Or would you rather have full control over camera settings? Do you want to invest time in learning how to use a camera or would you prefer a simpler approach? Do you want to stick with traditional cameras or do you want to expand to digital cameras? Are you interested and willing to invest the time needed to learn how to use a new camera effectively? How much can you afford to spend on a camera? Your answers to these questions will determine what type of camera you should consider.

Cameras for non-professional photographers can be classified in two categories: **film cameras** and **digital cameras**. This Study Guide will help you learn the basics about these two classes of cameras and their main features. Knowing what features are available will help you get the most for your money. This Study Guide is designed for the knowledge needed by an amateur camera-user to compare and select a camera to meet personal needs.

Film Cameras

Film cameras vary widely in their features, quality and price. Three basic types of film cameras are most commonly used by the amateur photographer: compact 35mm cameras, APS cameras, and 35mm single-lens reflect (SLR) cameras.

Compact 35mm cameras are also called rangefinder models. They are small, light-weight and inexpensive. They can take very good photos. In a rangefinder camera, the image you see through the viewfinder is not seen through the lens itself but is separate from the lens. A viewfinder like this serves well for most pictures as the camera moves closer to its subject. The viewfinders in most rangefinder models offer clear, bright viewing and may be simpler to use than SLR viewfinders. The more expensive the camera, the more likely that it will include a variety of automated features and a zoom lens. Most all will include a built-in flash. These cameras are simple to operate and give very good results for point-and-shoot photography. Some can shoot in panoramic mode so that you can take a picture that will give a photo that is 3.5 inches by 10-inches or 4 inches by 11.5 inches. 35mm film can be processed very quickly, making one-hour processing shops popular. The price range is \$6 to \$12 for single-use cameras; \$20 and up for fixed-focus models; \$60 and up for automatic, non-zoom cameras; and \$80 and up for a model with a zoom. You can also spend over \$200 on a compact 35mm camera with lots of features and controls.

APS cameras are newer on the market than compact 35mm cameras. APS stands for Advanced Photo System. APS cameras use film that you never see out of the cartridge. A special magnetic coating on the film can store information about processing instructions and snapshot dates. These cameras are lighter in weight than compact 35mm cameras because APS film is smaller than 35mm film. Film handling is very easy, since the film is never out of the cannister. You can switch formats (regular to wide or semi-panoramic to panoramic) in mid-roll. One-hour processing is less widely available than for 35mm film. APS film and APS processing cost more than for 35mm film. The price range for APS models is about the same as for compact 35mm cameras, but the overall operating cost of APS cameras is more because of the higher cost of APS film and processing.

35mm SLR (single lens reflex) cameras are larger and bulkier than either the compact 35mm or the APS cameras. The main difference between SLRs and the other film cameras is that SLR cameras use interchangeable lenses that allow you to see exactly what the camera sees through the lens, which means you can compose a shot exactly. With the non-SLR cameras, when you look through the viewfinder, you are not seeing exactly what the camera sees. As a result, your non-SLR shots are less precise. The precision offered by an SLR camera offers great artistic control. Also, SLR cameras produce the highest quality photos. Many SLR cameras offer a feature which will let you convert them to automatic operation similar to that of compact 35mm cameras. SLR cameras are usually sold without a lens (you buy lenses separately to meet your needs - - there is a wide array of lens formats available) or are sold bundled with a zoom lens. These cameras use the same type of film as compact 35mm cameras. 35mm SLR cameras are more expensive than the other types of film cameras discussed. Expect to pay \$200 and up for the camera body and \$100 and up for a moderate range zoom lens. Professional photographers and serious amateurs are most likely to use a 35mm SLR camera.

Decision Considerations: Film Cameras	
Choose APS if you want:	Choose 35mm if you want:
A very light and compact camera.	A very wide choice of film for color or black-and-white prints, or slides. (APS currently only comes in three speeds of print film.)
Foolproof drop-in film loading; you never have to touch the film itself	A flash with slightly longer range.
In-camera choice of three print formats-C, the "classic" snapshot shape; H, a wider view; P, a long, skinny panorama. You can switch formats from one shot to the next.	Widely available, inexpensive one-hour processing.
Source: Alive and clicking. (2001, January). <i>Consumer Reports</i> , 66(1), pp. 41.	

Key Features of Film Cameras

Zoom lens allow you to magnify your subject two or three times. The 35 mm zoom lenses range from about 38 mm (fairly wide angle) to about 105 mm (a moderate telephoto). APS zoom ranges are similar. The “faster” the lens, the more expensive it will be. What this number refers to is how much light is allowed into the lens. For example, a 100mm zoom lens that opens to f/3.5 and allows in more light will cost more than a 100mm zoom lens that opens to f/4.5 maximum aperture.

Aperture refers to how widely the camera will open the lens when you shoot a picture. The wider the aperture a lens can handle, the better the quality of indoor photos taken without a flash. More light would be let in. This lens would cost more than another that could not handle an aperture as wide.

Shutter speed controls how long the aperture stays open during a shot. Fast shutter speed (1/1000 to 1/8000 of a second or so) lets you shoot fast-moving objects.

Auto exposure regulates shutter speed and aperture to get a picture that is properly exposed in both low light and bright light. Some cameras have exposure-compensation features to prevent underexposure. SLRS can set the speed or aperture automatically, and leave the other setting manually adjustable as needed. Advanced compact camera models may have several preset exposure modes.

Autofocus is useful feature that allows you to take good pictures without having to focus the camera. Cheaper cameras cover a limited preset range. More expensive cameras have more precise focusing. Multi-area focusing helps avoid accidental focusing on the background area instead of the subject of the photo. Focus lock allows you to “freeze” the focus on whatever is in the center of the viewfinder. In-the-viewfinder signals let you know if you are too close to the subject to be in focus or if the subject is outside of the flash range.

Motorized film handling automatically advances the film and rewinds it at the end of the roll. With APS cameras, you only have to drop the film cannister into the camera; you can also reload partially exposed rolls of film in some APS cameras if they have the mid-roll change feature. You may not change film in the middle of the roll with SLR or compact 35mm cameras.

Flashes cover distances ranging from 4 or 5 feet to 10 feet or more. The “smartest” flashes work in conjunction with the zoom lens. Flash on demand lets you fill in shadows in bright, sunlit shots. Red-eye reduction uses a light before the main flash to reduce the “red eye” that results in photos when a flash reflects off people’s and animal’s retinas.

Weatherproof cameras are handy if you plan to take pictures in damp, humid areas, such as at the beach.

Cost. Many other features may be included with particular camera models. It is important to consider which features are the most desirable for your needs and then determine if the cost warrants their consideration. Compact 35mm cameras and APS cameras are usually less expensive than SLR models. However, programmable and fully outfitted compact cameras will cost more than many manual models of SLR cameras. Compact 35mm cameras range in price from about \$25 to over \$200. Cost of SLR cameras can rise almost indefinitely depending on the accessories added to them. Cost of a basic SLR camera is comparable to a compact with the same features.

Digital cameras. Digital cameras are increasing in popularity as the quality of the cameras increases and prices continue to fall. Consumers like digital cameras because they allow complete creative control....adjustments to color and contrast and cropping....formerly available only through darkroom procedures, are available to the digital camera user. What's more, prints can be made from the images by printer or they may be shared over the Internet. However, digital cameras are still more expensive than the film cameras discussed previously in this Study Guide. *Consumer Reports* estimates that among its readers, one in four camera purchasers bought a digital camera. Expect to pay at least \$300 to \$350 for a digital camera if you expect to do more with it than send an occasional photo via e-mail. In a recent report, *Consumer Reports* advises consumers to avoid disappointment by avoiding low price, low resolution digital cameras.

Digital cameras allow you to take pictures without using film. Memory cards are used to store the images. If you already own a computer and inkjet printer and want to improve the appearance of photos you take by using the image-handling software that comes with the camera, then a digital camera may be a good choice, provided it fits into your budget. Because this technology is still relatively new, it is still evolving. However, understanding a few key features will help you evaluate these new products.

Pixels and performance. Pixel stands for "picture elements." Digital cameras at the time of this writing come in 1-megapixel, 2-megapixel or 3-megapixel settings. A 1-megapixel camera has an image sensor that contains a million pixels. The more pixels, the more-detailed photos that can be enlarged successfully and clearly. You can make the biggest enlargements from a 3-megapixel camera, but even a 1-megapixel camera produces very sharp 5 by 7 inch prints and very good 8 by 10 inch prints. However, the more pixels, the more memory used on the memory card that stores the photo images you are taking. The higher the megapixel setting, the more expensive the camera.

JPEG mode. JPEG is the most common type of digital image file. Look for a digital camera that saves images as JPEG files. The digital camera will compress the picture data when in JPEG mode. This feature is important because JPEG files take up less space on the memory card, making it possible to take and store more photos with your camera.

Zoom lenses, autofocus, and autoexposure are features available with digital cameras.

Batteries. Most digital cameras use AA rechargeable batteries, usually provided with a charger while others may use alkaline batteries. Some cameras may even use lithium camcorder batteries which are expensive to replace. A separate small battery is for clock and options settings. If rechargeable batteries are not used, the operation of a digital camera can be quite expensive, as the batteries will be used quickly with extended use of the camera.

Memory cards. Digital cameras will use one of several types of memory cards to store photos, but the kind of storage device doesn't affect picture quality. The number of photos that can be stored on the memory card depends on pixel and compression settings (see JPEG discussion). For example, an 8-megabyte card may hold as few as 13 images at a resolution of 1,024 x 768 pixels, or as many as 82 images at 640 x 480 pixels. Memory capacity varies by type of device. Image files are transferred to your computer via a cable to the computer's serial or USB port or with a card-reader accessory. At least one camera permits direct transmission of images to a printer.

The final decision is yours!

Once you have decided on the type of camera you want, take time to look at several models before making your purchase. Read the latest product performance reviews before you make your final decision. *Consumer Reports*, both in its printed and online versions is a good source of objective information. Professional photography reviews may be helpful as well. And, talking to a photographer you know will also provide you with additional information.

Look for a camera that is comfortable to use. Are the controls easy to operate? Could you operate the camera if you were wearing gloves? Do you understand all of the settings on the camera? Is the instruction booklet easy to understand?

Be sure you know what you are paying for. Take nothing for granted. Do not assume that the complete camera you are shown comes for the price quoted. Lenses or other accessories may be extra. Get a total price for the total system.

Do not be talked into a camera you do not want. You may encounter a strong sales pitch. The camera business is very competitive, so it pays to know what you want and stick with it.

Ask about the warranty. Some cameras are serviced under warranty by the store. Others must be sent to a U.S. representative of the manufacturer or are required to be sent overseas for service. Cameras made by a U.S. company may be easier to get serviced.

Once you have narrowed your camera choices to a few acceptable models, plan your purchase strategy. Cameras vary widely in price, depending upon where they are purchased. Through careful price comparison you may be able to save a substantial sum of money. Check out local stores, mail-order catalogs, and online e-stores to find the best price for the camera you want. But if you do not buy locally, be sure you know what your return and servicing options are in case something goes wrong.

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