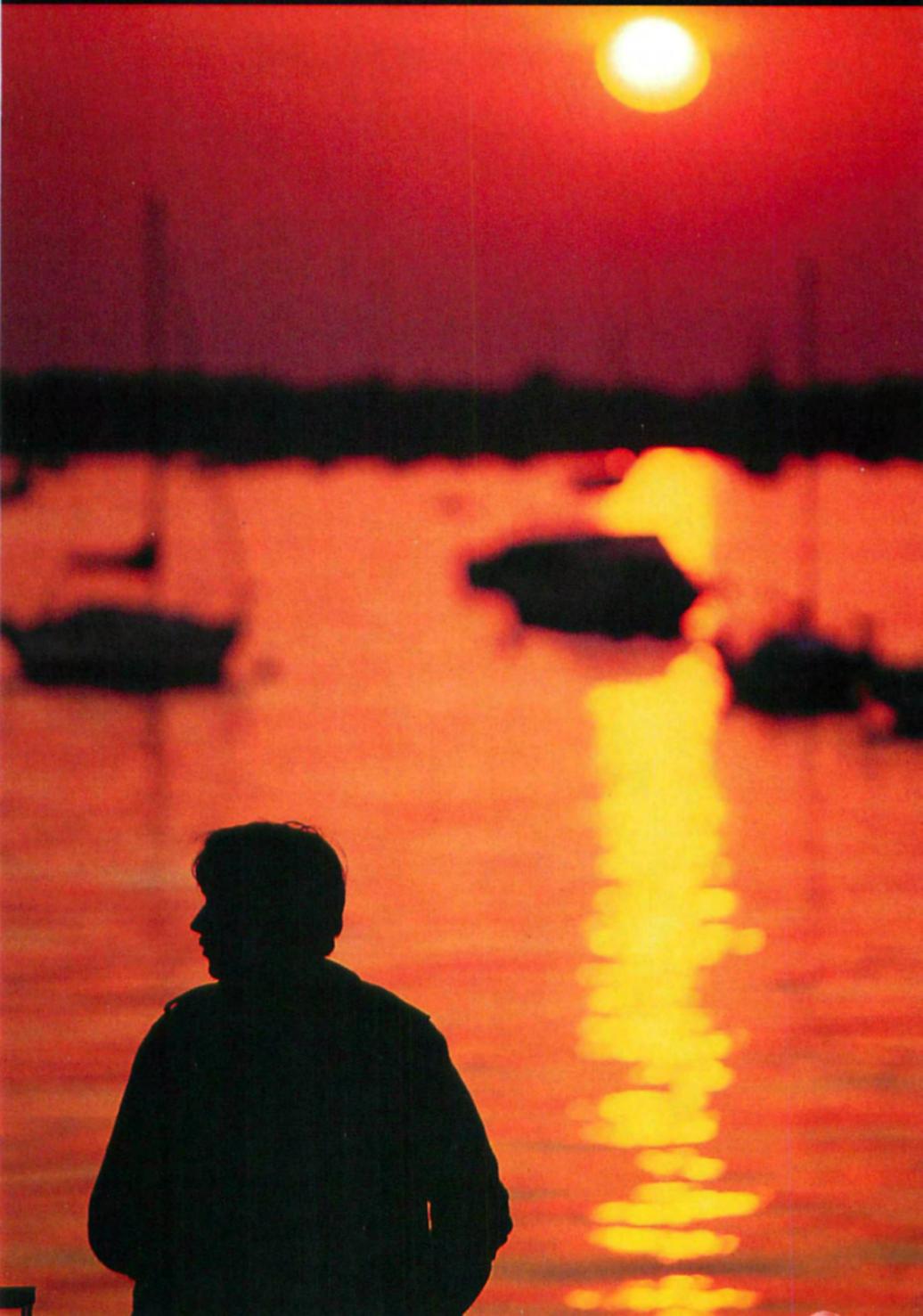


**Nikon**

**GUIDE**

**To SLR Photography**

# FOREWORD



# Nikon®

Although you may be new to Single-Lens-Reflex (SLR) photography, the name Nikon is probably not new to you. Nikon has made 35mm SLR cameras since the 1950's, and has a reputation as the first choice among professional photographers. Nikon's expertise for making 35mm cameras also includes the Nikon Touch family series of fully automatic compact autofocus cameras with built-in flash. Nikon also makes a selection of SLR models for beginners and amateurs. Many also include a compact yet powerful built-in flash. With their built-in flash, these cameras are very convenient and easy to use. They combine the advantages of SLR cameras, such as interchangeable lenses, with the ease-of-use of compact point-and-shoot automatic cameras. Available also from Nikon is a complete family of Advanced Photo System cameras, including easy-to-use Nuvis point-and-shoot models and Pronea Single-Lens-Reflex cameras.

This book will help you learn to use almost any SLR camera. It explains the fundamentals of photography and will help you enjoy personal picture taking through knowledge and education. It can help you to get better pictures than you may have thought possible.

Nikon, a recognized leader in fine photography, wants to help you understand the potential of your camera and to enhance your enjoyment of photography.

Photography means different things to different people. It may be a fine art, a satisfying profession, or simply a most enjoyable and exciting hobby. We sincerely hope that this book will help photography find a place in your life.

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# INTRODUCTION

Have you ever looked at a modern Single-Lens-Reflex (SLR) camera? Do all those numbers, switches, dials and settings intimidate you? Well, you aren't alone. Many people take one glance at the assortment of controls and say to themselves: "I guess I'll stick to my simple camera."

That is why Nikon has developed this short learning book. It's for those of you who want to take advantage of the many features common to an SLR camera, but have been frightened off by an appearance of complexity or your lack of familiarity with this type of camera.

To begin, today there is a wide variety of SLR models available. There are completely automatic models, many of which are simple point-and-shoot designs with a flash unit built in. These cameras are as easy to use as compact, fixed-lens cameras. Other models can be more capable, and in some cases become slightly more complex. Some of the basic feature sets can include combinations of:

- The ability to change lenses, which is a feature common to all but a handful of SLR cameras. As you learn about interchangeable lenses, you will begin to realize what a big difference they can be to help you get better, more interesting pictures. You'll want to be sure that your SLR has interchangeable lenses, not just a permanently mounted zoom lens.
- Manual focus operation
- Automatic focusing
- Manual exposure (set by the photographer) by way of a built-in light meter
- Partially or completely automatic exposure modes where the camera makes exposure adjustments for you. Here too, a built-in light meter will be used by the camera to determine exposures.
- Varying degrees of ability to easily override all or some of the camera's automatic features.
- Motorized film advance, either built-in or as an optional motor drive or auto-winder.
- Data imprinting capabilities

Most of today's SLR cameras are easy to use, even for beginners. You generally don't have to understand all the dials and settings to take genuinely good pictures. With the basic methods outlined in this book, you can start taking great SLR pictures now.

Regardless of which camera you start with, if you'll give us a bit of your time for some simple experiments, you'll soon discover that the SLR is not a forbidding or mysterious machine.



*“You’ll soon discover that the SLR is not a forbidding or mysterious machine.”*

Instead, it’s a remarkable tool that enables you to respond visually to what you see. You live in a world teeming with images, all vying for your visual attention. With your eyes you may focus only passively, without emotional, intellectual or physical response. Taking a photograph requires a decision-making response about which images you want to record, and how you want others to see them.

Imagine that you’re clutching your camera in the rush-hour traffic of a city street. Ahead you see a stream of moving figures or the waving patterns of the crowded sidewalks. Your eye is caught by the person sitting wearily at a bus stop while the police officer frantically directs unwilling traffic. At your side is your own child, visibly bewildered at the city’s crowds. From this single vantage point, a variety of photographs beg to be made. All of the choices belong to you. You can freeze the action or shoot a blur of movement. You can focus from a distance to make the street look like a bustling colony of human ants or get a close-up portrait of a single face. Regardless of your view of any photographic situation, city street or your family at the park, you can produce pictures that are sharper, clearer, and better than you have ever imagined.

Whatever your desires, the exercises in this book are designed to introduce you to the operation of SLR cameras and to some simple and basic photographic techniques. As you learn the basics, we hope you’ll also discover some of the secrets of making good photographs (as opposed to simply taking pictures).

However, you must find out for yourself what SLR cameras are capable of. You’ll need to invest some of your time and the cost of a few rolls of film. In return, when you’ve applied what you’ve learned from this book, you will have a good understanding of how SLR cameras operate and confidence in your ability to make the great pictures you always wanted.

## **Introducing the SLR Camera**

### **Getting Ready**

1. Buy or borrow an SLR camera.
2. Get a small pad for notes.
3. Buy one roll of color negative film, Kodak ISO 200 would be a perfectly suitable film to begin with.
4. Ask a friend to act as a subject.

If you borrow a camera, ask someone to teach you the following steps for the specific camera model you're using before you start the exercises in this book. If you've already purchased a camera, review the camera's instruction manual so you know beforehand:

1. How to load the film and batteries into the camera and how to rewind it.
2. How to fire the shutter and advance and rewind the film.
3. How to manually and/or automatically focus and set exposure controls.
4. How to take the lens off the camera and properly place it back on. (Make sure you're shown how to do this properly.)
5. How to turn the camera's exposure system on and off and how to make sure the batteries are fresh.
6. How to operate the light meter both for manual and automatic operation.

7. How to set the film speed setting (ISO) - have your friend set the speed that corresponds to the film you will be using. If it sets automatically using the DX system, make sure you use a DX coded film.
8. If the camera is an automatic model, have your friend show you how to put it on "auto" and on "manual."

After you learn this preliminary information, pick an overcast day or a time of day when the light is not too bright (three hours before sunset or early morning) and start the exercises in this book. Practice this first section without film in the camera or use a dummy roll of film.

## **Holding the Camera**

One of the most important things when taking a photograph is to hold the camera as steady as possible. A steady camera yields a visibly sharper photo. Pick up the unloaded camera, put the strap around your neck and hold the camera firmly, as if you were going to take a picture.

Look at the photograph (with check mark) and place your hands on the camera as shown in the picture. It doesn't matter whether you are right or left-handed, or whether you use your right or left eye, you should still hold the camera this way.

Whether your camera has a built-in motor drive to advance the film, or the film advance is manually operated, the handling method is the same.

Using this technique, you support the weight of the camera with the palm of your left hand. You steady the camera and push the shutter release button with your right hand.

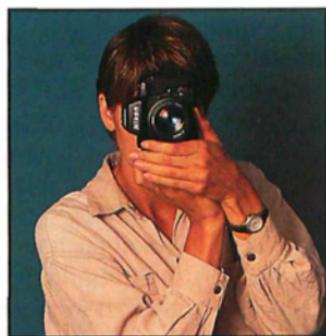
Pressing the shutter release: Hold the camera in front of you and press the shutter release, grasping the camera body with your right hand, while pressing

the release itself with your index finger only. Did you notice whether you moved your whole hand or just the index finger?

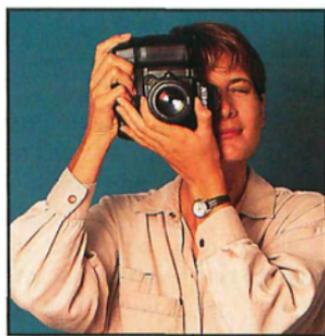
Practice firing the camera a few times while you hold it in front of you, concentrating on keeping the camera steady as you fire it. Where are your arms in relation to your body? Out at the sides or tightly alongside your body? If your arms are kept alongside your body there is less room for them to move around or be bumped, and this will help you keep the camera steady.



Concentrate on keeping the camera steady and keeping your arms in close.



When holding a camera vertically, invert it so your elbows stay tucked into your body.



Many Nikon SLR cameras have a vertical shutter release option, creating a bigger body surface to hold onto.

## The Lens and Focusing

Take a look at the lens. Numbers and markings all over it, right? Well, there are only two things on the lens that you must use.

First, the aperture control ring with that series of numbers (22-16-11-8-5.6-4...) is usually on a ring which is near the back of the lens. These numbers are referred to as f/stops.

Whenever we refer to a number preceded by an f/, it means we are talking about aperture, the size of the opening of the lens. When you turn the aperture ring, a diaphragm, like the iris in your eye, opens and closes letting more or less light pass through the lens to the film. We will return to this point in a moment.

Second, there is the focusing ring which may be either in the middle of or towards the front of the lens. Most lenses, whether manual focusing types or those with autofocus ability, have grooves or ridges on the focusing ring to give you a good grip.

Now to practice using the focusing ring. If you are manually focusing an autofocus SLR, be

sure to properly disengage the autofocus mechanism. Most AF SLRs offer a simple means by which this can be accomplished.

To do these exercises: if you are using a camera which has autofocus operation, you should set it for manual focusing. On most Nikon AF SLR cameras, this is done by turning a lever on the front of the camera to the M (Manual Focus) setting. Please refer to your instruction manual for details.

### Manual Focusing

Hold the camera up to your eye. As you look through the finder, you will see the image that your lens is seeing. If the subject is "fuzzy," you need to focus the lens by rotating the focusing ring until the image appears sharp in the camera's viewfinder. Regardless of the focusing aids built into the focusing screen, when you have set the focus at the correct distance, the subject will appear sharp in the finder. The Nikon F3HP, FM2 and FM10 are manually-focusing cameras.

Manual focusing SLR cameras have focusing aids of some type to help you know when focus is sharp - usually a split image rangefinder. Today's Nikon autofocus SLR models have an accurate Electronic Rangefinder built in. No matter how good a photographer's eyes might be, they will appreciate the confirmation of an Electronic Rangefinder. Unlike the combination of the human eye and brain that tries to overcome for a slightly out of focus picture, the Electronic



Rangefinder looks for reality. It only knows in focus and out of focus. When the camera's built-in focus confirmation signal lights up, the picture is in focus. When the AF signal is absent or an AF warning appears, the picture is out of focus. In many AF SLRs, by turning the focusing ring in the direction of the AF arrows in the viewfinder, accurate manual focus is accomplished. There is no guessing. Electronic Rangefinder focusing is a wonderful benefit of today's technology that never gets in the way of taking the picture. Whether used with autofocus or manual focus lenses, the same fuzzy-to-sharp will be seen as focusing is accomplished. They are particularly useful when you are tired and suffering from eye fatigue, or if lighting conditions make it more difficult for you to focus sharply.

For cameras with only manual focusing, look through the viewfinder again and you may see a circle containing what looks like small glass beads. These beads are prisms. When focus is sharp, the prisms seem to disappear. This microprism ring is one type of focusing aid which helps

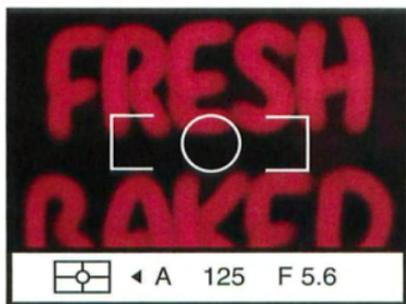
accomplish sharp focus. Another popular focusing system is the split-image rangefinder. With this, the rangefinder circle splits the image in two parts. To focus correctly, turn the focusing ring until the two split images come together (top and bottom). Focus is sharp when the subject is no longer split in half and the subject is sharp.

Keep in mind that focusing aids of all types are used to help focusing. After you have accomplished sharp focus, you don't necessarily have to keep them centered over the subject as you take the picture. Provided the distance between you and your subject remains the same, you can place the subject anywhere in the frame. For those of you who are using an autofocus model, you'll want to pay special attention to your instruction manual's explanation of how to properly focus when the main subject is not in the center of the viewing area.

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*Keep in mind that focusing aids of all types are used to help focusing.*

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◀ Indicates that the subject is located closer than the closest focusing distance of the lens. Move away from the subject and refocus.



● Focus is confirmed with the in-focus indicator (●).

## ***Automatic Focusing***

Most of the newest cameras include an electronic focusing system. While performance characteristics can vary, the autofocus systems in today's SLRs are highly accurate and reliable. Just as when you use a manual focusing system, place the autofocus sensing area (typically located in the center of the viewing area) on the main subject and lightly press the shutter release. The focusing operation will occur automatically and you will see the image become sharp. Watch through the camera's viewfinder as the autofocus swiftly locks on to your subject and captures even the most fleeting of moments. Focus Tracking technology actually follows the movement of a subject, keeping it in sharp focus. Whether you're photographing the Grand Canyon or a jet skier at full speed, out of focus images are a thing of the past. Most of today's AF SLR cameras offer both a wide area and a spot type AF sensor, facilitating fast and accurate focus under most photographic conditions. Nikon SLR cameras with autofocus capabilities are the F5, F100, N90s, N80, N65, and Pronea S.

**Focusing by touch:** Later it will be important for you to be able to feel the difference between the focusing ring and the aperture control without any need to look at the lens. With your eye up to the camera's viewfinder, practice focusing and adjusting the aperture control

ring. If your lens' aperture ring has a locking device, used when the camera is set to the automatic mode, unlock it for these exercises. You can lock it again later if you want to use automatic operation.

Moving the aperture ring will not affect the focus; you won't see any noticeable difference. What way do these rings feel different? The major difference is that the focusing mount turns smoothly; the aperture ring has periodic detents or click stops for each of its calibrated settings.

Some electronically controlled camera lenses do not have an aperture ring. For those models, the aperture is usually set using controls built into the camera body. Some other cameras which are completely automatic, do not have any facility to manually adjust the lens' aperture. Disregard this section if your camera is like this.

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## ***Shutter Speed***

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In order to understand shutter speed, remove the lens and look straight at the mirror inside the camera. Do not touch the mirror! When you take a picture, the mirror swings up and the shutter (directly behind it) opens and closes to let the light reach the film. Press the camera's shutter release while looking at the mirror. You are seeing just what the film would see. The mirror rises, the shutter opens and closes at different speeds

(depending on the shutter speed that has been selected). After the shutter operates, the mirror returns to the viewing position. The mirror movement is why the finder becomes dark, momentarily, each time you take a picture. **(Some automatic cameras won't operate the shutter when there's no film in the camera. Disregard this test for such cameras or put some film in the camera.)**

Find the shutter speed control and take a good look at it. (With some automatic cameras, the exposure indicator may only be shown in the viewfinder. It could be a scale of shutter speeds, or might be a lighted symbol.) The numbers you see on it refer to fractions of a second - i.e. you should always mentally put a 1/ before the number to imagine what this speed means. Some shutter controls offer very long exposure speeds, longer than one second, but you probably won't use them until you've learned more, and are ready to experiment creatively. Shutter speeds of one second or longer are generally indicated with a (") symbol. The fast speeds, needed to freeze action, are most likely to be used. A shutter speed of 1/2000 or faster is very fast because it means you are opening and closing the shutter in two-thousandths of a second. A shutter speed of 1/2 means the shutter opens and closes in one half second.

The longer the shutter stays open, the more light will strike the film. Therefore, one aspect of

shutter speed is to control the amount of time the light (image) has to reach the film.

Set the shutter speed at 1/1000 and fire it. Now set the shutter speed to 1/15 and fire it. What did you hear? At which shutter speed do you think more light will reach the film? (If your camera's shutter can only be automatically controlled and there is no shutter control dial, carry out the experiment by changing the aperture control. You will notice that adjustment automatically changes the shutter speed. You can see the change on the shutter speed scale in the viewfinder.)

## Capturing Motion

There is another aspect of shutter speed which will affect the final photograph: subject motion. Let's say someone is running by and you want to take a photo. If you shoot the picture at, for example, 1/2 second while they are running by, what kind of photo will you get? In 1/2 second that person will move right by you - so on your film all you will get is a blur.

Now, if you take the same picture at 1/2000 second, the shutter speeds up by 1000 times to freeze the action. So there is a second aspect of shutter speed - it can be used to stop action (or deliberately slowed to show action, as a blur).

## Professional Tip

A closely related point to shutter speed and sharpness is how still you can hold the camera. Do you think you can remain completely motionless for one complete second? Hold your hands out in front of you and see how steady they are. For most people, every time your heart beats, your hands pulse a little. So photographers generally try to shoot their photographs at the highest shutter speed possible. This is so important that most automatic cameras have a built-in signal, either audible or visual, or both, that alerts you whenever the speed is getting too slow. Generally, the slowest speed at which you should try to hand-hold the camera is the equivalent of the fraction created by taking 1/focal length of the lens you're using. For example if you're using a 50mm lens, then the slowest speed for hand-held photography must be about 1/50 second (or next fastest speed). If you're using a telephoto or zoom lens, let's say a 135mm lens, then the slowest speed you should use is about 1/135 second. This doesn't mean you can't use a slower speed; it only means that you're likely to get a less than sharp picture due to camera shake.

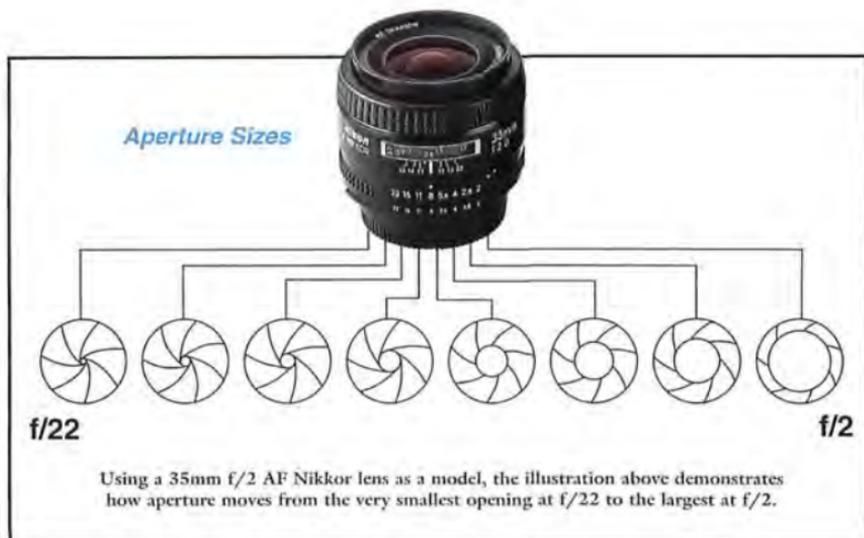
## Aperture Control

Shutter speeds, as you have just learned, control the amount of time that light is permitted to enter the camera and reach the film. The lens' aperture can also control the light.

Take the lens off the camera. With your fingers on the aperture control ring, look into the back of the lens. Starting with the aperture set at f/16 or some smaller aperture, begin moving the aperture ring a click at a time. Do you see how the aperture opening gets bigger? Each number on the lens corresponds to a specific opening size.

One thing you should remember about f/stops is that they are the opposite size than their f/number seems to indicate. In other words f/16, or whatever the highest number may be on a particular lens (f/22, f/32) is the smallest opening; f/1.4 or f/1.8 (refer to the diagram for examples) is the largest. Looking at these numbers, you probably would have guessed just the opposite, right? It is important that you learn which numbers show a large opening and which ones are small. As long as you remember the reverse logic, it's easy.

"All that's great", you say -- so what? How does that affect the picture? Recalling what you have learned about how speed affects the photo, you'll remember that a faster shutter speed lets in less light (the shutter



opens and closes quickly) and a slower shutter speed lets in more light. A lens aperture can control light in a similar way. A large opening lets in a lot of light, a smaller opening lets in progressively less. So, the aperture you choose, or the one the camera chooses automatically, will determine the shutter speed selected, and thus the potential sharpness, or lack of sharpness of the picture.

## Inside the Camera

Have you ever wondered why SLR cameras make the sounds they do? Many people associate the sound with the shutter opening and closing but it's a combination of the shutter, a mirror moving and, for cameras with a built-in motor, the motor operation. SLR cameras are

specially designed so that the movement of the mirror will not affect your picture-taking.

To observe what we're talking about, with the lens still off the camera, look again inside the camera from the front. See the mirror? Once again, never touch it; it is easily scratched. Press the shutter release and watch how the mirror moves. (Movement of the mirror varies among camera models. Some models won't allow the mirror to move if the lens is off or if there's no film in the camera.)

Can you guess what the mirror does? While it is in the down position, it reflects the image from the lens up into the viewfinder where you can see it. When you



press the shutter release, it flips up (making the viewfinder momentarily dark), out of the way, letting the light pass to the film. After the shutter operates (opens and closes) the mirror moves down again, so you can continue to view, and you're ready to take the next picture. All this happens automatically in a very precise sequence. You don't do anything but take the pictures.

## **Speed + Aperture = Exposure**

Shutter speed and lens aperture, working together, control the amount of light reaching the film for an amount of time.

Imagine you have a glass you want to fill with water. There are a lot of ways you can fill it; a drop at a time for hours, or by running the faucet at full speed for a few seconds. The exposure meter in the camera tells us how large the glass is (how much light we need to make the picture). It is up to us to decide how to fill it. We can choose to let the film have the amount of light needed by taking the photo at a very slow speed (1/30), while letting in less light (f/11), or we could achieve the same exposure by taking a fast shutter speed (1/1000) while letting in a lot of light at f/2.

Look at the following combinations of shutter speed and apertures. All these settings let the same amount of light hit the

Speed	Aperture
1/1000	f/2
1/500	f/2.8
1/250	f/4
1/125	f/5.6
1/60	f/8
1/30	f/11
1/15	f/16

film. Notice that as shutter speed slows down, the aperture required gets smaller.

As far as exposure is concerned (the effective amount of light hitting the film), all will be identical. However, there is more involved; the effect on action and depth of field.

## **Automatic vs. Manual Exposure Control**

Whether you are setting exposure manually, using the camera's exposure meter, or you are letting the camera automatically adjust the exposure, the results and logic are the same. Experiment using both the manual and the automatic operation. Later, when you look at your pictures, see if you can tell the difference.

Your camera may have one or more automatic controls. Programmed automatic means the camera sets both the aperture and the shutter speed. This is the most automatic control and

makes picture taking the easiest. Some cameras have more than one Program mode, but they all work on the same principle. Shutter Priority automatic means that you select the shutter speed, and the camera's automatic system will select the corresponding aperture for the best exposure. Your choice of the shutter speed will probably depend on how much action-stopping effect you want. Aperture Priority automatic means that you select the aperture, and the camera's automatic system will select the corresponding shutter speed for the

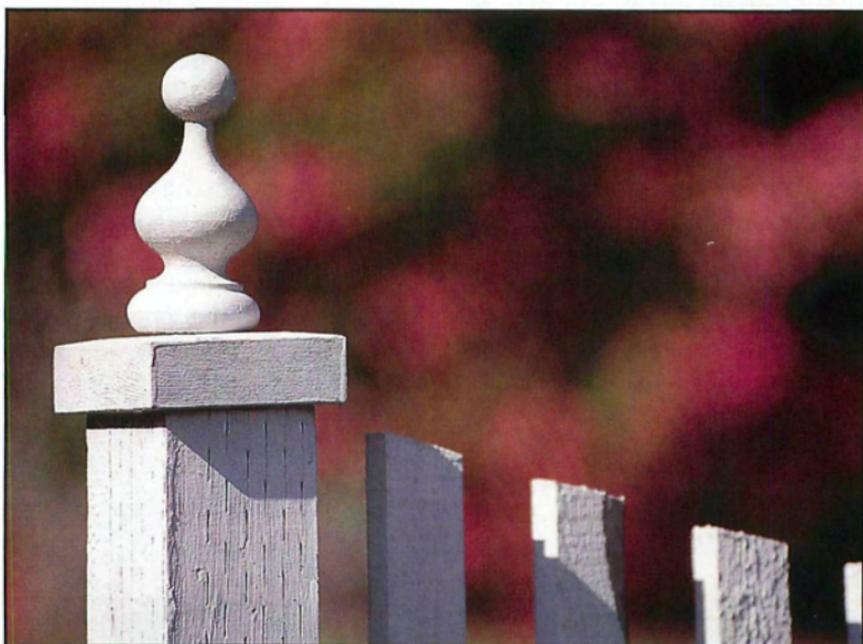
best exposure. Your choice of aperture will probably depend on how much depth of field you need. (Depth of field is the zone of sharpness in front of and behind the focused subject.)

In any case, you can creatively choose among the various operating modes offered by your camera and experiment. Automation makes the picture taking process faster and less complicated, and some people feel it adds to the pleasure of picture taking -- because it's easier. Any way you go, the idea is to enjoy your photography!

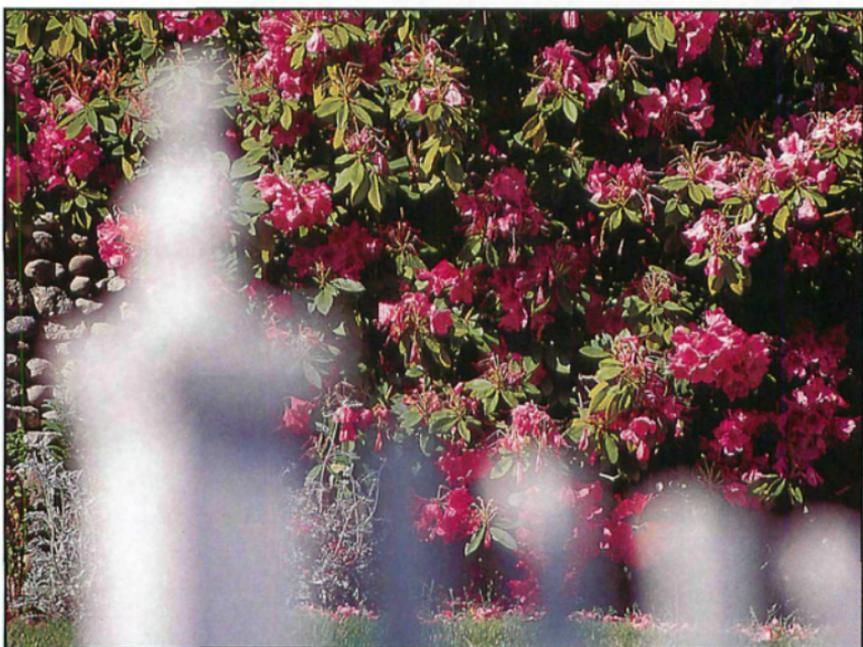


Nikon photographers always seem to enjoy making pictures.

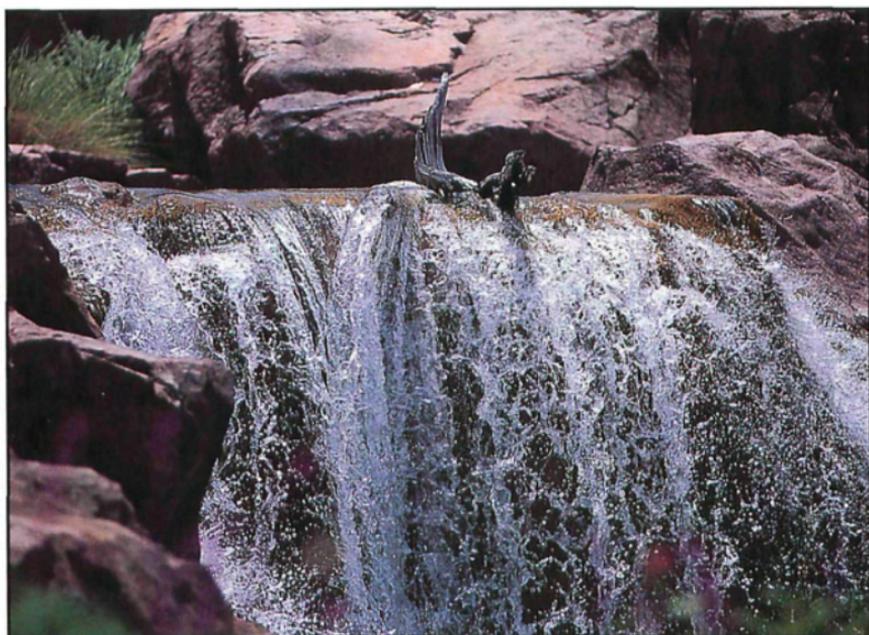
## **Aperture Priority: You Select the Aperture & the Camera Selects the Shutter Speed**



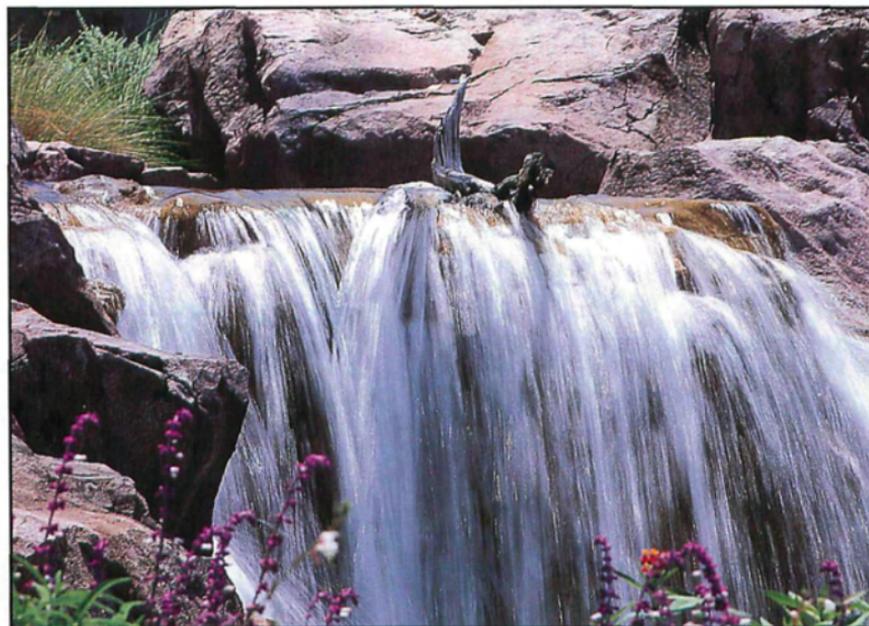
Focus on foreground at  $f/2.8$ , isolating the subject from the background (above), and at  $f/2.8$  focusing on the background, isolating the subject from the foreground.



**Shutter Priority: You Select Shutter Speed to Catch Movement, Camera will Automatically Set Aperture.**



At a fast shutter speed, the waterfall is frozen sharp.  
At a slow shutter speed, the waterfall becomes a soft blur.



## Depth of Field

Sometimes you can improve a photo by purposely putting the background and foreground out of focus, while keeping the subject in sharp focus. Other times you may want to have everything in focus to show how the subject and the background are related to each other. Adjusting for the depth of field allows you to control the areas of focus in your photo. It allows you to place emphasis on your subject by selectively controlling the background and foreground focus.

The aperture setting, besides controlling the amount of light entering the body of the camera, also allows you to control the depth of field. While taking your picture from the same distance, the smaller your aperture, the sharper the background and foreground in your photo becomes. The larger the aperture (for example,  $f/2.8$ ) the less sharp the background and foreground become.

Let's look at some examples. In Photo A, the lens was set to its

widest aperture (we used  $f/2.8$ ). We focused on the middle card object. Since we had a shallow depth of field, only the object we

**Photo A:**  
*At  $f/2.8$ ,  
only the  
middle card  
is sharp,  
creating a  
shallow depth  
of field.*



**Photo B:**  
*At  $f/8$ ,  
more  
cards are  
in focus.*



**Photo C:**  
*At  $f/22$ ,  
all the cards  
are in focus,  
creating  
a large  
amount of  
depth of  
field.*



### Professional Tip

As we make the aperture smaller, we say that the depth of field is becoming deeper, and conversely, as we make the aperture larger, we say the depth of field is becoming shallower.

concentrated on is in focus. The rest of the objects are out of focus. To achieve the results in Photo B, we changed the aperture setting (with a corresponding change in the shutter speed to keep the correct exposure). This time our f/stop was f/8. As you can see, the first and third objects are beginning to get sharper but the third object is still out of focus. In Photo C, we closed the aperture to the smallest setting (f/22 on our lens). Now all the objects are in focus.

You can control depth of field with any SLR camera. If your camera is an automatic model, doing it is much easier if the camera includes Aperture Priority automatic exposure control. With this feature, pre-set the desired f/stop and the camera automatically sets the shutter speed required for a good exposure. Moreover, you don't need to guess how much depth of field a given shot will show. Just refer to the lens' depth of field scale (or in the case of some newer AF lenses, the chart included with the lens) to see what distances will be sharp, or if available, use the camera body's depth of field preview button. The depth of field control enables the photographer to close the lens to the actual shooting f/stop. Doing this while viewing permits you to see what will and won't be sharp in the finished photo. Refer to the instruction sheet for more details about your lens' and camera's operation.

Automatic cameras which offer Programmed automatic op-

eration, may have a variety of "programs", often referred to as normal, high-speed or multi. The basic difference is that the high-speed program tends to choose higher shutter speeds to stop action, and correspondingly larger f/stops. As you can imagine, the depth of field, using the high-speed program will be shallower, while the normal program will give a little more depth of field but slower shutter speeds. Cameras with multi-program are able to change their program setting according to the focal length of the lens being used. This is useful to help signal the photographer if the shutter speed is becoming too slow for hand-held photography. (Remember the 1/focal length principal previously explained.)

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## ***Exposure Metering***

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Let's figure out next how your exposure meter knows how much light is needed to properly expose the film. First, look for the dial on your camera which has the letters ISO; for older cameras it will be called ASA. The newest cameras set the ISO number automatically through electronic sensors which pick up the ISO number from the film cartridge's DX code. Don't let the names and codes throw you off. It's all automatic, and you don't need to worry about setting the ISO number if your camera has an automatic system that has not been overridden.

If your camera operates manually, here is an explanation of how it works. Different films have different sensitivities to light, meaning some films require more or less light to get proper exposure. The International Standards Organization (ISO) film speed number is a setting you make on the camera. This setting signals the exposure meter, whether manual or automatic in operation, how sensitive this kind of film is to light. The ISO sensitivity of the film will be marked on the film box.

The camera's exposure meter helps us to manually set the correct combination of shutter speed and aperture or it controls an automatic camera for the same purpose. In Nikon cameras, the exposure meter is a computer system. The capability of the exposure meter depends upon how advanced and powerful the computer and its built-in programs are. We won't dwell on the computer. You should just rest easy knowing that it is doing all the complicated work, while you enjoy your picture taking. When manually operating the camera, you set either the shutter speed or f/stop at which you want to shoot. The exposure meter will tell you (and with automatic cameras, automatically set) the corresponding f/stop or shutter speed for best exposure.

Now, turn the meter on and look through the viewfinder. With manual cameras (or automatic cameras in manual mode) you'll see either a needle or index marker which uses bright glowing

lights known as Light Emitting Diodes (LED) or a Liquid Crystal Display (LCD). To set the exposure, you turn the aperture ring or shutter speed dial until your camera's viewfinder signal shows the correct exposure. Since the signals differ among models, be sure to check with your friend (or the camera's instructions) for specifics.

Now, let's say you are outside on a very bright day using a manual metering camera (or an automatic camera in manual mode). You have set the shutter to 1/125. Even with your lens all the way closed (f/16 or f/22), there may still be too much light reaching your film to get a good exposure. Your meter may show overexposure. Since your lens is set at its smallest opening, you must make the shutter speed faster.

The opposite problem can occur if you set a manual speed which is so fast that even with the lens set all the way open (your lowest f/stop setting), enough light cannot enter. The meter registers underexposure. Since the lens is opened all the way, you must make the shutter speed slower.

Can you think of any other ways your exposure meter can get confused? What if you set your aperture at f/16 and it's a dark, dismal day outside? At that setting, not much light can get through your lens, and since it's dark outside to begin with, there isn't much light to get through the lens anyway. So your meter may say, "Shoot this photo at 1/2 of a

When the camera exposes  
for the back-lighting,  
your subject is  
under-exposed and dark.



Correctly exposed for  
subject instead of  
bright background.



second." That means it's either time to grab a tripod or make the lens opening larger, because almost no one can hold the camera steady enough to take a sharp photo at 1/2 second.

If you have an automatic camera, it may have a signal which recommends when to use flash. These signals are helpful in getting your attention when you get wrapped up in studying the subject.

With an automatic camera, it's a good idea to pay attention to the settings chosen by the meter. Automatic exposures are fine for the majority of subjects and scenes, but some situations make special exposure-control features a definite plus. For example, some cameras have an "exposure compensation button." When you press it as you take the picture, the meter automatically increases or decreases the amount of light that reaches the film. Other automatics let you "Lock Exposure" by memorizing the setting from one position, retaining it for the actual picture taken from another position. Still others offer "EV Compensation" which lets you dial in some adjustment to the ISO setting. This lets you "fine-tune" exposure, just to your taste.

Some of the newest and most advanced automatic cameras offer very powerful computer controlled metering systems. These "Multi-Sensor" systems take several exposure meter readings from various areas of the scene and analyze them using a built-in computer. The

results from these cameras are startling, and they simplify the picture taking process. While with manual control, you would need to evaluate the light yourself, with these very automatic systems, the computer does the analysis for you. It all works instantly and lets you concentrate on taking the picture.

This is enough about automation. While it's one of the greatest advantages of today's technology, we're here to learn the basics. That's the best place to start, right?

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*The results from these cameras are startling, and they simplify the picture taking process.*

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## Exercises

We ask that you do the following exercises in the late afternoon, about three hours from sunset, or in the early morning. Before beginning, check that you have properly loaded the film into the camera. For cameras with a manual film rewind, a way to check loading is to take the rewind knob and turn it clockwise until you feel resistance. This is taking up the slack in the film cartridge. Now, as you advance the film, watch the rewind knob -- it should turn, showing that the film is properly engaged. For cameras with a power film rewind, the camera will usually have a visual aid built into the back or somewhere within the camera's display panel. The aid will confirm film movement without going through the previously described process.

You should have a pencil and notepad to record the speed and aperture settings you use for each photo. Also, make a note of where you are standing during these exercises and try to stay in the same place so you can compare photos afterwards.

## Review of Camera Works

Each time, before taking a photo, you should check that you

have done the following:

1. Lens properly attached.
2. Lens properly set.
3. Exposure meter and film speed properly adjusted (ISO setting).
4. Holding the camera correctly.
5. Shutter cocked for a manual camera; motor turned on for a camera with built-in motor.
6. Camera focused (for these exercises use manual focus even with an autofocus camera).

### Exercise 1:

Set the lens to  $f/16$ . If you're using a manual camera or an automatic model set for manual operation, adjust the shutter speed while looking through the finder until the meter indicates correct exposure. Hold the back of the camera to your ear so you can hear the sound of the shutter. Now, press the shutter release.

### Exercise 2:

Open your lens all the way (with manual cameras set the correct shutter speed accordingly). Now shoot another frame. Can you hear the difference in the sound of the shutter?

Try to mentally picture what is happening inside the camera. Sit down and make a list of what happens when you push the shutter button. (Meter automatically sets correct speed, aperture, or both in automatic cameras). . . mirror flips up . . . lens closes down . . . shutter opens, exposes the film, and closes . . . lens opens . . . mirror flips back down.

## Shutter Speed and Motion

Now let's try some experiments to test what we have discussed about the effect of shutter speed on your photograph. In this exercise you want to focus on a friend's hands from about three feet away. Shoot each of the following exercises:

### Exercise 3:

Close the lens to  $f/16$  or some small aperture which will let you take the picture with a shutter speed of about  $1/15$  second. (With a manual camera, use the shutter speed control to make the meter read-out show correct exposure.) Shoot two frames while your friend rotates his hands.

### Exercise 4:

This time, open the lens up to  $f/2.8$ , requiring a much faster speed (again, adjust the meter of manual cameras by moving the shutter speed control). Now, shoot two more frames of your friend's spinning hands.

## Review Questions

1. What major difference do you expect to see in these two shots?
2. What will be the same in both photos?
3. Did you have any difficulties in shooting this photograph?

## Shutter Speed and Horizontal Motion

For this exercise, instruct your friend to ride or run past you at a moderate speed. Now each time as he comes into the frame, shoot a photo. This might be a little tricky if your friend is going too fast, so tell him to take it easy. Shoot each of these exercises twice.

### Exercise 5:

Set the fastest possible shutter speed while still being able to adjust the aperture to get a good exposure meter reading. (With automatic cameras, set to Aperture Preferred automatic, turn the aperture control ring until the indicator shows the fastest shutter speed.) Focus on a fixed spot where your friend will cross. As he runs by, shoot the photo.

### Exercise 6:

Try it again, this time adjusting the camera for the slowest shutter speed possible at whatever  $f$ /stop gives correct exposure.

### Exercise 7:

Keeping your shutter speed at a slower speed, this time follow your friend with the camera (we mean you should keep him in the frame -- not that you should move yourself). When he goes by the same point as before, shoot the photo, continuing to keep the camera panning with him.

## Exercises 3 and 4



At a slow shutter speed ( $1/30$  and slower), motion is seen.



At a fast shutter speed ( $1/250$  and faster), motion is frozen.

The best way to pan is to imagine where your friend will end up and point your body in that direction. Rotate the upper part of your body to face your friend as he starts to run, following through on the pan like you would in a golf swing. Shoot at a designated point.

### **Exercise 8:**

Set the shutter speed high (adjusting aperture accordingly) and take this panning shot one more time (remember to face in the direction in which you'll end your pan).

We have just taken four photos of a friend running by us. What can we predict will be on the frame? Keep in mind what we have discussed about shutter speed and its effect on motion.

### **Results:**

**Exercise 5:** Your friend will be sharp - caught or frozen as you snapped the photo.

**Exercise 6:** Your friend will be blurred, but the rest of the photo will be sharp.

**Exercise 7:** Your friend should be sharp, but the background will be blurred as if it were in motion.

**Exercise 8:** Your friend will be sharp, and so will the background.

Note: this exercise recommended manual control. If you want to experiment with an automatic exposure camera, we suggest making these same pictures

with each of the camera's automatic modes. We think that you will find considerable difference in the way each of the automatic modes can handle different conditions. Some modes will work more easily than others, some will be more "creative" in their application. The key is to experiment so you'll learn how your camera works best for your photography.

## **Depth of Field**

Have your friend stand about three feet in front of you and to the side of a tree. In this exercise you'll use three different aperture settings, f/2.8, f/8 and f/16, and you'll have to adjust the shutter speed to get the correct exposure. If you are using an automatic camera, we suggest you use the aperture priority automatic setting. It's the easiest to use for this exercise.

If there is too much or too little light to achieve correct exposure at each f/stop, try moving your friend into a darker or brighter area until your camera meter registers correct exposure. You should remain in the same place while shooting each of these pictures.

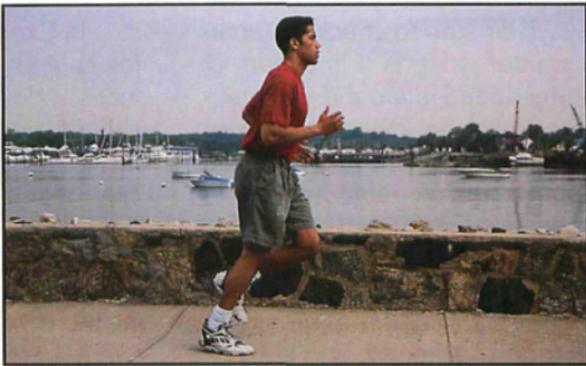
### **Exercise 9:**

Set the aperture at f/2.8, focus on your friend and shoot. With manual control cameras, for this and following shots, remember to adjust the shutter speed until correct exposure is indicated.

## Exercises 5 - 8

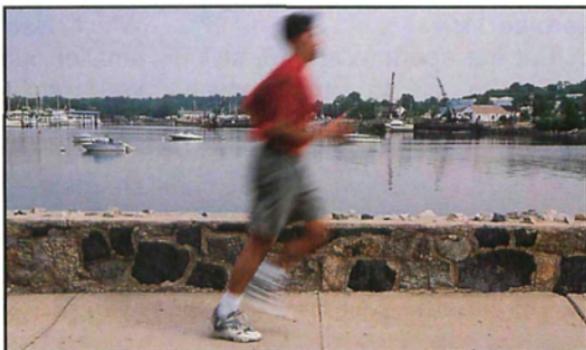
### EXERCISE 5

*This photograph was shot at a fast shutter speed, keeping the camera pointed at a fixed spot.*



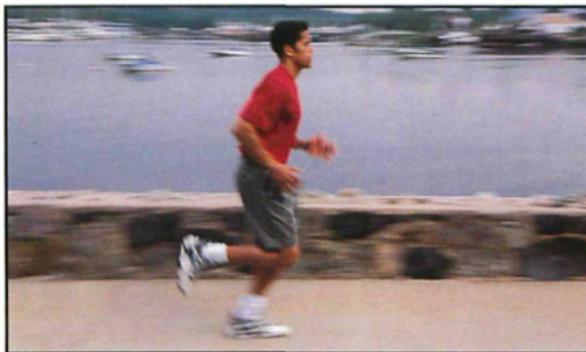
### EXERCISE 6

*This photograph was shot at a slow shutter speed, again with the camera pointed at a fixed spot.*



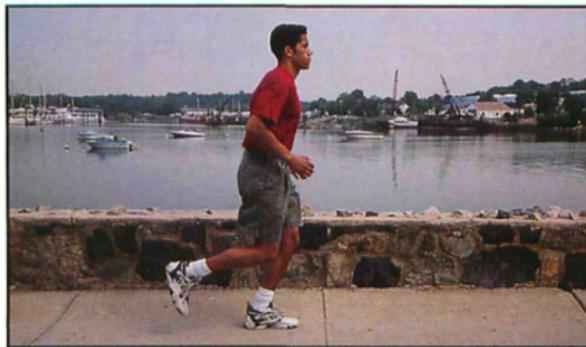
### EXERCISE 7

*This photograph was shot at a slow shutter speed, but this time the camera was panned with the subject.*



### EXERCISE 8

*This photograph was shot at a fast shutter speed, again panning with the subject.*



Always be sure to check the actual shutter speed. If the correct shutter speed is around 1/30 second or slower, make sure your friend is not moving while you shoot, and you must not move either.

**Exercise 10:**

Set the aperture at f/8, again focus on your friend, and shoot.

**Exercise 11:**

Set the aperture at f/16, still focusing a bit to show how aperture settings relate to depth of field.

---

*Place emphasis on your subject by selectively controlling the background and foreground focus.*

---

In Exercise 9 your friend is in focus and the boats are out of focus. Why? Because when you use a wide aperture like f/2.8, you have a very shallow depth of field, meaning only the one thing (the plane of focus) you have focused on will be sharp.

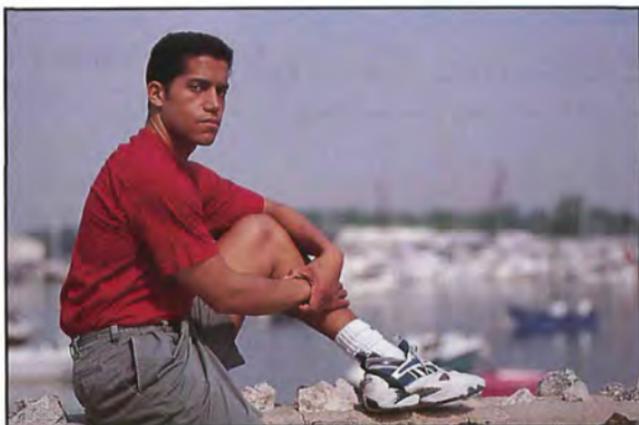
In Exercise 10, your friend is in focus, the boats are much sharper (more in focus), but the background is still out of focus. Why? Because aperture f/8 is a smaller opening and just as with your vision, when it is very bright the iris of your eye becomes smaller, and things look generally sharper!

In Exercise 11, your friend, the boats, and the background will all be in sharp focus.

## Exercises 9 - 11

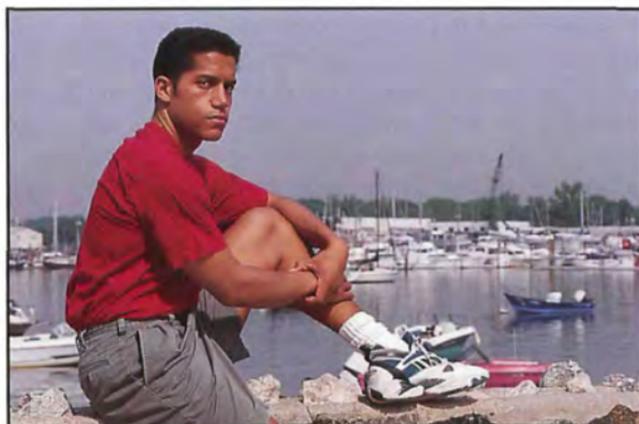
### EXERCISE 9

*Your friend is in focus and the boats are out of focus with the aperture at  $f/2.8$ .*



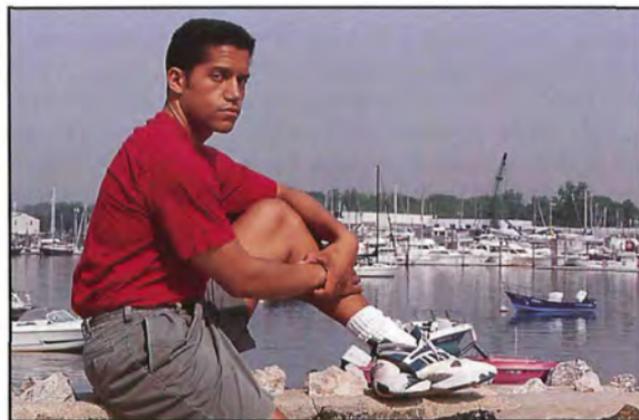
### EXERCISE 10

*Your friend is in focus, the boats are sharper (more in focus) with the aperture at  $f/8$ .*



### EXERCISE 11

*Your friend, the boats, and the background are all in sharp focus with the aperture at  $f/16$ .*



## Exposure Control

At one time, an exposure meter was something many photographers carried on cords around their necks. Before taking a photograph they would have to walk up to the subject, measure the light, walk back to where they wanted to shoot from, set the aperture and shutter speed, and then take the photograph.

With built-in through-the-lens exposure meters and automatic exposure control cameras, photography is now much easier. Whether your camera sets exposures automatically or not, the creative photographer will always want to become involved in the process, helping to make the picture more personal and memorable.

There are three basic lighting situations you should know something about -- front lighting, side lighting, and back lighting. Front lighting is the way most people were taught to take photos. The rule here is to keep the sun behind you when shooting a photo. While this approach is fine for many situations, it does have two disadvantages. First, your subject will be looking into the sun and it might be hard for them not to squint. Second, front lighting tends to make a picture look

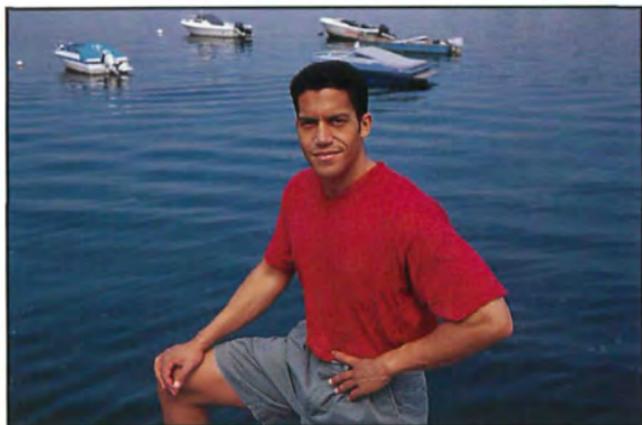
"flat," without much feeling of depth because there are little or no shadows in the picture.

A good way to add a feeling of depth to a photograph is to use light coming from the side of the scene (side lighting) as your principle source of light. The resulting shadows can create an impression of three-dimensional depth in your photograph.

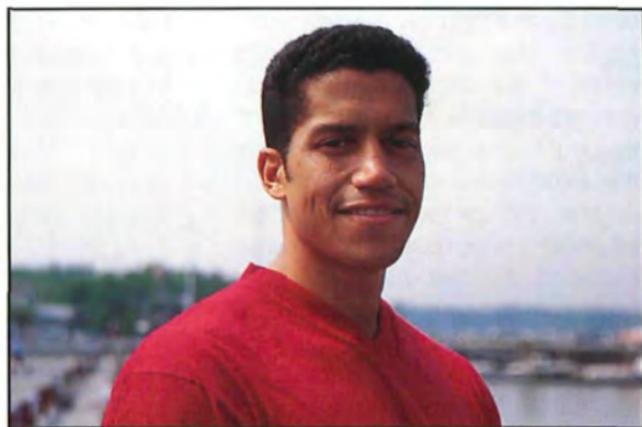
Sometimes light seems to come from all directions, as on a cloudy or foggy day. Don't be afraid to shoot on these days. Many photographers prefer to shoot portraits on cloudy days because there are no harsh shadows. You can even shoot in the rain or in thick fog, as long as you take care not to get your camera wet.

Back lighting, another way to employ light in an interesting way, can pose some problems for your camera's exposure meter. To a certain extent, most built-in meters respond to all of the light that enters the camera. As a result, a very bright background behind a very dark subject can cause exposure errors. The new generation of automatic exposure multi-sensor meters (mentioned earlier) are computer controlled and can deal with many of these lighting problems. In many Nikon models these meters are called Matrix Meters, and using advanced computer control, they automatically adjust for those unusual light situations which can fool ordinary meters.

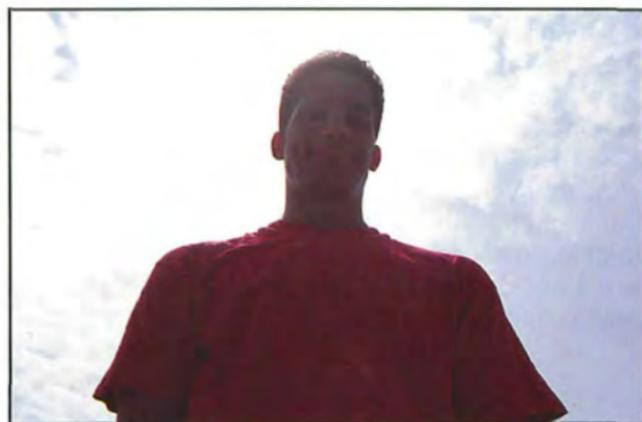
**Front lighting:**  
*Can be flat and unflattering. Watch out for squinting.*



**Side lighting:**  
*Gives a more three-dimensional look to the photo.*



**Back lighting:**  
*The camera generally exposes for the bright background, causing underexposure.*



To illustrate how back lighting would adversely influence an ordinary exposure, let's have your subject stand in the shadows under a tree where there is a lot of sunlight falling on the grass behind them. Place the subject in the center of the viewfinder taking note of the exposure reading. Gradually shift the center of the finder so that the brighter background is partially in the center. Notice what happened to the exposure setting as a result of the brighter light. Now, let the center of the finder be completely covered by the brighter background. Notice the exposure settings again. As the brighter background became more prominent, its brightness began to dominate the exposure setting. The result is that the person would have become progressively underexposed as the brighter background dominated the exposure setting. The illustrations on the prior page show how back lighting can affect the main subject exposure.

To help overcome the results of back lighting, cameras include a variety of controls to help. The most automatic cameras - those with Matrix Metering - adjust automatically.

There is at least one other way to overcome the effect of backlighting: using a flash to brighten the dark subject. Later in the booklet we'll give you some advice on this technique.

## Composition

Before we ask you to finish shooting this roll of film, we'd like to ask you to think a little bit about the elements that go into making a good photograph. While your subject is, of course, very important, the background and the way you position your subject in the frame will be important.

Put your camera up to your eye and analyze what you see. Remember that everything you see through the viewfinder will be in your final photo. Pick a person or an object you want to photograph. Make believe you are going to take the photo and ask yourself these questions:

- How does your subject look in relation to the background?
- Is the background distracting or does it tell us more about the subject?
- How can we eliminate a background (review what you've learned about aperture and depth of field)?
- What effect do camera angles have on the photo?
- Can you add or eliminate anything to the way you have framed your photo?

### Exercise 12:

While you remain standing, ask a friend to sit on the grass so you can frame the picture from above. Analyze the scene. What

does this angle do to the background? Shoot the photograph.

**Exercise 13:**

Try kneeling so you are still looking down on your friend but not from such a drastic angle. Does seeing more background look better? Shoot this angle.

**Exercise 14:**

Now sit in front of your friend

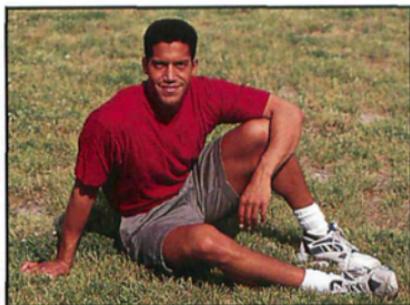
and take a third shot. How does this work?

**Exercise 15:**

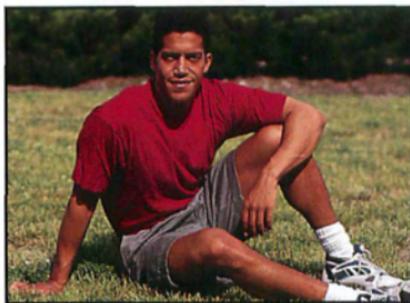
Have your friend stand up while you shoot from below.

Each of these approaches gives the photo a different feeling. Very often the whole feeling of a photograph can be enhanced by merely changing the angle from which you make the picture.

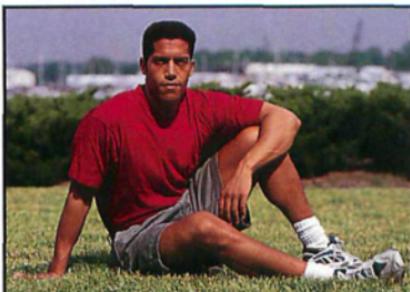
## Exercises 12 - 15



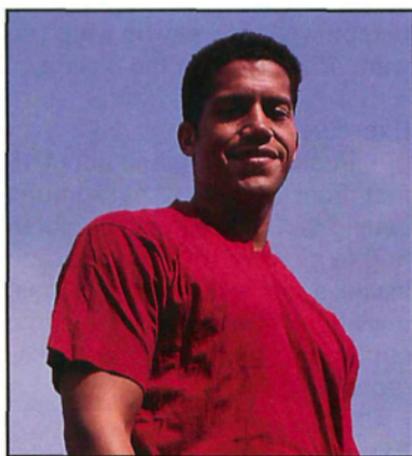
Ex. 12: High camera angle



Ex. 13: Photographed while kneeling



Ex. 14: Photographed while sitting;  
subject is even with background



Ex. 15: From below.  
Low camera angle photographed

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*This exercise will  
help you compose  
your photos.*

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### Getting Closer

Most people, when they start photography, tend to shoot too far from their subject. In this exercise, you should take three separate shots of the same person -- one at a moderate distance, another closer to the subject, and a third as close as you can get (see illustrations). You want to see how close you can get to the person while still saying what you want about them in the picture.

#### Exercise 16:

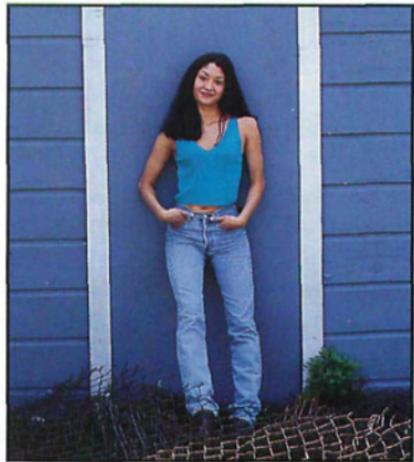
Position your friend about 15 feet from you in a background setting that tells something about her (e.g. next to a tree, sitting inside a car with the door open, anywhere). Now shoot the photo capturing her and the background.

#### Exercise 17:

With your friend in the same position, move to within four feet of the scene and shoot another photo, again capturing as much as you can about both the person and the background.

#### Exercise 18:

Now move to within two feet of your subject and take another photo.



## Exercises 19 - 21

### Framing Movement

While no rule in photography has to be observed, in every shooting situation it is helpful to know what the rules are. When a person is moving or looking out of the frame (exercise 19) it makes us uncomfortable because we have no feeling of where the person is headed or what they are seeing. The space behind the person usually doesn't help us know anything about the person's movement.

#### Exercise 19:

Duplicate the scene in this illustration by having your friend stand to the far right of the scene.

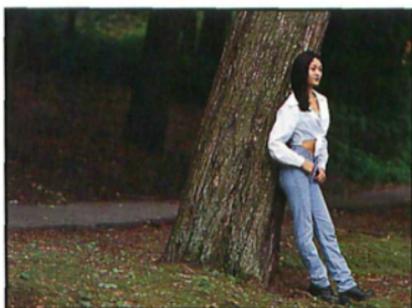
#### Exercise 20:

Duplicate this illustration having your friend located in the center of the frame. In this photograph, the person seems to be comfortable in the frame. The space ahead of the person helps the viewer to feel the location of the subject.

#### Exercise 21:

If you are trying to create a natural flow of action, it is generally best to have the elements of the frame arranged from left to right, as in this example.

Some of the best photos have been made by people who purposely disregard all the conventions.



Ex. 19: Looking out of the picture frame makes the viewer feel uncomfortable.



Ex. 20: Typical photograph, the subject is in the center.



Ex. 21: Having the subject move from left to right creates a natural flow of action.

## ***Framing a Scene***

By framing a scene we create a feeling of depth in the photo while keeping the viewer's attention on the action in the photo. You can use any foreground element, such as overhanging branches or a gate, to help

contain the action in the frame as was done in the accompanying illustration.

### **Exercise 22:**

Position your friend slightly to the side of a low-hanging branch with full foliage. Try to structure the frame so that the foliage acts as a motif surrounding your friend. Shoot this photo.

## **Exercise 22**



A "framing" device helps you to isolate your subject.

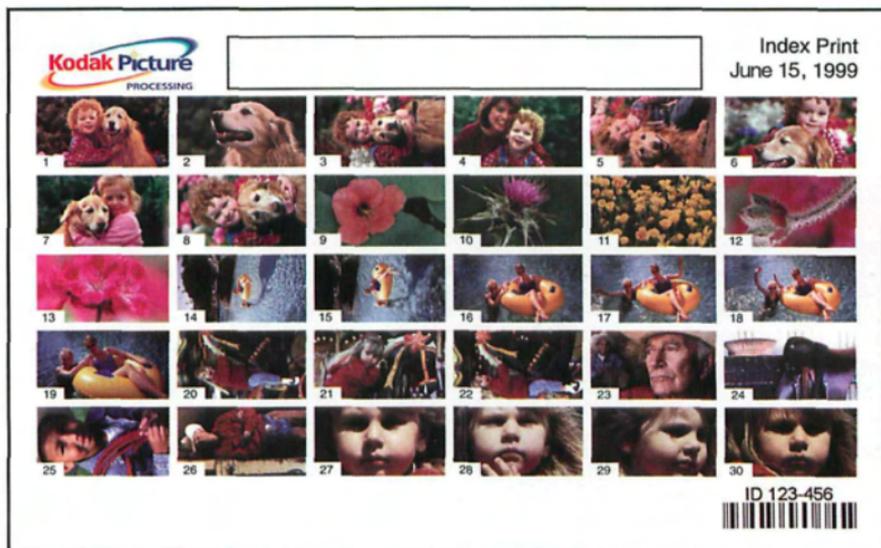
## Index Print/ Proof Sheet

You probably find all these new terms and all the decisions you have to make each time you want to take a photo a bit confusing. You have to remember that all the camera controls are tools, and you are in control.

An additional tool that can be useful will be something called the Index Print / Proof sheet. This is a proof sheet which shows each photo you took, numbered in the order taken. The Index print is returned automatically when you send in Advanced Photo System film for processing

and is now being made available at some photo-finishers for 35mm film. The Index Print becomes a great reference for choosing reprints, to see how the picture was cropped, or simply just looking at an entire roll of film at one time. A proof sheet is made by placing the negatives on a sheet of sensitized photo paper and placing a sheet of glass over them, to hold them flat. The assembled negatives and paper are briefly exposed to light, then the paper is developed.

We recommend that when you take your first roll of black and white film, you ask your photo dealer to develop and make a proof print. When you look at the contact sheets you can then decide which photos are worth printing in larger sizes.



Index print from an Advanced Photo System roll of film lets you look at all the photos you took at one time.

## Learning Review

We are going to ask you several questions about some of the material you've been reading. Answers are given at the end so that you can see how well you understood everything.



1. Which of the two photographs on this page creates a feeling of tension because of the way the action moves through the frame? Why?

2. What did the photographer do to freeze the motion of this scene?



3. The photograph on the left is darker than the one on the right. This means that not enough light reached the film. You can be sure that when taking a photograph, the exposure meter will show what it thinks is correct exposure. What could be one thing the photographer forgot? How did the photographer get the photo on the right? (The answer could vary, depending on whether an automatic or manual camera is used. Answer it for the camera you used.)

4. Name two ways a photograph can be made to be un-sharp.

5. What is the slowest shutter speed that usually assures blur-free pictures?

6. Say you are taking a photo for your local newspaper. They have asked you to photograph the mayor, who is in a huge crowd of people. Assuming you can get close enough to the mayor, what technique could you use to make the mayor stand out from all the people behind him?

7. You are outside in bright sunlight trying to photograph your grandmother but no matter how you change the f/stops on your lens, the exposure meter shows overexposure. What's wrong? How can you adjust the camera for correct exposure? The answer could be different for an automatic vs. a manual camera: answer for your kind of camera.

8. Place these f/stop settings in order from smallest to largest. 5.6 - 11 - 2.8 - 16 - 8 - 4.

9. What would be the result of setting the ISO incorrectly? Give two examples.

10. Why does your viewfinder become dark during the instant that the camera is taking the photograph?

11. If your exposure meter wasn't working, how else could you figure and set exposure?

12. You see some friends walking down the street and you want to take a photo of them without their knowing. The problem is that you aren't sure where to take a light reading since you don't want them to notice you. Assuming the light falling on you is the same as the light falling on them, how can you get the proper light reading?

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*Take your first roll of black & white film to your photo dealer to develop it and make a contact sheet.*

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## Learning Review Answers

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1. The photograph on the bottom, because in this photo the subject is moving out of the picture area.

2. The photographer was able to freeze the motion by using a faster shutter speed.

3. In the case of the photo on the left, the photographer was shooting into the sun and thus the exposure meter in his camera indicated that there was more light on the subject than there actually was. The way he got the photo on the right was to take a light reading off the subject's face by adjusting the aperture or shutter. Another solution is to add fill-flash to lighten the shadows.

Using an automatic camera, the photographer could have obtained the same improvement by using the camera's exposure compensation button to let in more light, or by "memorizing" the light reading from the subject's face, according to the camera's specific features.

4. Two ways to make a photo un-sharp are to shoot motion at a slow shutter speed thus causing the subject to appear blurred, or to simply be out of focus.

5. The speed of 1/30 second is generally the slowest speed at

which most photographers can hold a camera steady when using a 35mm or shorter focal length lens. Shooting at a slower speed raises the risk of blur, caused by movement of either camera or subject, or both.

6. If you wanted the mayor to be in focus and the rest of the crowd blurred to make the mayor appear to stand out from the crowd, you could get the effect by taking the picture at a wider aperture, say about  $f/2.8$ .

7. With manual metering, you're probably trying to shoot at a shutter speed which is too slow, making too much light hit the film. The solution is to use a faster shutter speed. (If that doesn't do it, move the subject into a darker location.)

8. The  $f$ /stop settings in order of smallest to largest would be 16 - 11 - 8 - 5.6 - 4 - 2.8.

9. If you set the ISO incorrectly, you will get either underexposed or overexposed photos.

10. The viewfinder becomes dark while the camera is taking a photo because the mirror inside the camera moves up to let the light pass to the film.

11. With manual cameras, just check the instruction sheet supplied with your film for recommended settings.

12. If you're sure the light falling on you is the same as the light

falling on your friend, you can take a light reading from a patch of grass near you and then shoot the photo of your friend.

With automatic exposure control cameras, use one of the "memory lock" features, while taking a light meter reading off the grass.

## ***In Summary***

So far in this book, we've tried to give you a brief taste of how easy SLR photography can be. Of course these exercises are only the beginning. "When I first started, I was very, very bad", says the young photographer, "so I just made lots of pictures." Thus, the photographer experimented and through that experience learned more and enjoyed more.

You'll find that photography is a very forgiving medium. You can make many mistakes and still create good photos while you learn. Although this booklet stresses that you learn the fundamentals, you can later rely on the many automatic controls available to help you work faster and be more carefree. As we said at the beginning of this guide, our goal is to help you enjoy your photography for years to come.

## **Flash Photography**

Most new photographers will "flinch" when they are confronted with a need to take a flash picture. "My flash pictures always come out so light and washed out," say many people. "I can't deal with all those calculations," say others.

Such concerns are a thing of the past! Today's automatic flash systems make flash photography really easy: literally as easy as taking automatic daylight pictures. Because using a flash is so easy, you'll probably want to use it more often, especially if your camera has one of the newest built-in flash units.

Check the instruction manual for your camera. If it mentions a feature such as automatic fill-flash, you've got one of the special new types of cameras which can really make a difference in your photography.

### ***Automatic Flash Photography***

Using one of the new TTL (through-the-lens) controlled flash units (whether an accessory flash or built-in) really simplifies taking a flash picture. The operation of a TTL flash system is too complex to describe in just a few words, other than to say: "Just like the camera's light meter which measures the available daylight, a camera that includes a TTL controlled flash meter auto-

matically detects the flash illumination and controls it to get the right flash exposure."

Because there are so many different flash units available and operation from one model to the next can vary considerably, we're going to refer you to your flash unit's instruction manual for operation. This booklet will only deal with when you'll want to and when you should use flash.

### ***For Dark Conditions Outdoors and Indoor***

Unlike daylight photography where you can stand virtually any distance from your subject -- from near to far -- when making a flash picture there are limits to how near or far from the subject you must stand. Each flash is a little different, so depending on its flash-power, check the flash unit's instructions. The distance you can stand will also vary depending on the ISO of the film you are using. The instructions should also tell you about that. The distance to the subject is just about the only limitation with which you'll need to be concerned.

You'll even want to use flash for pictures outside when it is dark under conditions where the camera's light meter indicates very slow shutter speeds. Remember, your camera may have a signal which recommends when to use flash.

Although most people don't think about using flash for outdoor pictures, it's really a good way to brighten the picture and improve the results.

With flash you can take pictures in total darkness, either indoors or outdoors, and the operation is basically the same. Your camera's automatic TTL flash control system takes care of the exposure. You just make sure you don't stand too near or too far.

When using a camera with a Programmed flash system, you usually don't need to do anything special except make sure of your distance from the subject. Just be sure you stand the right distance indicated by the flash unit's instruction manual. The camera's exposure control system will automatically set the correct shutter speed, f/stop, and then control the flash for the right exposure.

If you decide to use any other exposure control mode you'll be taking control, and we recommend that you study and experiment to learn about how each method works.

Here's a typical indoor picture situation. To help you decide whether you want to use flash or try to take the picture with the available light from a window, take a look at our sample pictures. The picture on the top was made using just the window light, while the picture on the bottom used flash. The difference is very noticeable. Which do you prefer? In this case, there's no right or wrong way. It's really a matter of personal choice.



Available window light creates a soft, tranquil look.



Automatic Fill-Flash was used to balance flash with ambient light.

## Using Flash Outdoors

Using flash for making an outdoor picture can really make a difference in your photography. In the past, the steps necessary to make an outdoor picture in bright sunlight with flash was just too complicated: even for an advanced photographer. Many photographers shy away from the technique -- even though the results can be great.

Although your camera and flash may not include the special feature known as "automatic fill-flash," we want to tell you about it, because it is so easy to use and can make a big difference in your pictures.

Several camera companies offer models which have the feature known as "automatic fill-flash." Nikon's SLR models used with Nikon's SB-28 and SB-27 AF Speedlights or another Nikon TTL controlled flash unit, which allow automatic fill-flash are the N65, and Pronea S (Advanced Photo System), N80, N90s, F100, and F5 cameras. In addition, the N65, Pronea S, and N80 have fill-flash capability when you use them with their built-in flash units.

Take a look at the top picture. It was made in daylight using just the sun for illumination. Notice how the subject's face is in shadow while the background is properly exposed. Now, look at the next picture taken using automatic fill-flash. You can see a big difference. The background is still well exposed, but now the subject's face is no longer in shadow. It's brightened so you



Subject's face covered by shadows



Fill-Flash lets you see all the details without overpowering the background.

can see the face but without getting washed out. That's fill-flash at work.

Look at the next example. It's typical of a picture taken in really bright sunshine. The subject's eyes are darkened and the subject is squinting. Not a very flattering picture. Just as you might, we asked the subject to turn around so that the sun was behind her. The subject stopped squinting but now she's strongly backlit and darkened in comparison to the scene's bright background. Finally, we used automatic fill-flash, and look at the results. Quite a difference!



Bright light/squinting



Subject turned around



Subject turned around and Fill-Flash was used

## ***Flash Can Be Fun***

We hope these examples have caught your eye. We can assure you that making fill-flash pictures, such as these, is really easy when you use the newest

automatic SLR models. Automatic fill-flash and other exciting features will really enhance your picture taking without complicating the process. It's all accomplished very automatically.

## **Flash Synchronization**

Whenever you are making a flash picture, it is important that the flash fires at precisely the right moment. You may have taken that operation for granted, but that's probably because so many of today's cameras take care of it automatically when used with the camera manufacturer's flash unit. But it's useful to understand how it operates, because there are new features offered with some camera/flash combinations that will enable you to make some different and creative pictures when using flash.

To understand how flash synchronization works, imagine looking through a window that has a shade on it and someone is outside. Your eyes are closed and the shade begins to open. If you open your eyes before the shade is completely open, you can't see through the entire window. Right?

The shutter on your camera opens and closes just like a window shade. So, if when you're taking a picture, the flash fires before the shade (shutter) is completely open, your film (your eyes) can't see the entire picture area. The flash must fire only when the shutter is completely opened. We refer to this as correct flash synchronization.

Now for the creativity. With some of today's cameras it's possible to set the flash so that it will fire either at the beginning of the exposure (Normal Synchronization) or at the end of the

exposure (Rear Synchronization). Don't worry about the technical names. They come from many years ago when systems weren't automatic.

It's the effect that can be achieved, not the name, that's important. To begin, the difference between the two effects only becomes evident when you are making your picture using a slow shutter speed: the slower the speed, the more visible the effect. When using faster speeds, there's practically no visible difference between the effects seen in the pictures.

Let's look at our two examples. The first was taken at a slow shutter speed but with the flash set on Normal Synchronization. Notice how the subject's movement (illustrated by the lights) appears to be coming from the front of the toy motorcycle in an unnatural way. In the second picture, notice how the subject's motion appears to be falling behind the toy motorcycle producing a more natural effect. This was achieved by selecting the Rear Curtain Sync option from the flash or camera. Practically speaking, you could not manually time the firing of the flash for the beginning or the end of the picture's exposure. It's the automatic capability of some of today's cameras that make these varying creative effects possible.

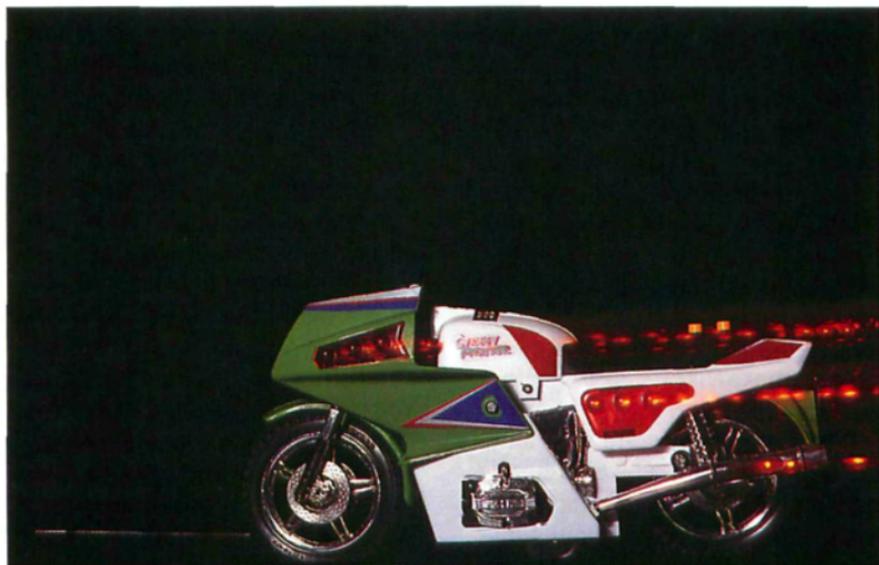
Remember: all cameras have Normal Synchronization but only some of the latest cameras, like Nikon's F5, F100, N90s, N80, and N65 have Rear Synchronization capability built into the camera.

If you have any of these models, you'll want to experiment with different moving subjects. The effect becomes more visible

whenever the background of the scene is dark and when using relatively slow shutter speeds. Try it, you'll like it.



Normal Synchronization-where the flash fires at the beginning of the exposure.



Rear Synchronization-where the flash fires at the end of the exposure.

# WHY NIKON...

## ***Building Your Personal SLR System***

When you've mastered the basics of photography, you'll begin to have more ambitious ideas. Some of your ideas may lead you toward more sophisticated or otherwise featured cameras and possibly additional pieces of equipment, such as interchangeable lenses and accessories for close-up photography. We earnestly hope you'll decide to choose your lenses and accessories from the continually growing Nikon System.

Why Nikon? Just ask some of the toughest customers a camera maker can serve: the best photojournalists of the world. The overwhelming majority choose Nikon. They'll tell you that Nikon cameras and Nikkor lenses deliver incomparable image integrity and offer historically superior ruggedness and versatility. You'll get the same response from NASA, which has used Nikon on every manned space mission since Apollo 15. Professional photographers who have made expeditions to the top of the highest mountains and others who have gone beneath the sea to the lowest spots on earth, agree that Nikon is the clear choice.

Which Nikon camera is right for you, for your specific needs and ambitions? This section was designed to help you make the right choice, then to begin building your personal Nikon system in a logical way.

## ***The Camera***

Among the cameras in the Nikon system, there is certain to be one that is just right for you. All are built to Nikon's high standards, and are engineered with unequaled Nikon precision.

**Reliable Nikon Metering:** Some Nikon models incorporate a Spot meter and Nikon's Center-Weighted Metering. Still others have Nikon's most advanced computer controlled multi-segment meter, called the Matrix Meter. Each meter is designed for achieving the best exposure. Matrix Meter is for automatic operation and is ideal for quick-changing situations. The Center-Weighted meter is ideal for taking personal control. The Spot meter is for those who really understand how to control exposure and is primarily for manual operation.

**Advanced Accurate Shutters:** Nikon introduced the first high-speed 1/4000 second shutter and 1/250 flash sync. Nikon also offers 1/8000 top speed in some models, the world's fastest, to provide expanded picture-taking capability, expanded exposure control, and sharper pictures. You'll really appreciate these features as your experience grows.

**Matchless Image Quality:** with quickly interchangeable Nikon lenses - interchangeable among all Nikon SLR bodies.

Choose from a wide assortment of Nikon SLR bodies.

## Choose from a wide assortment of Nikon SLR bodies:

### Nikon F5 Professional

The Nikon F5 features the world's first 3D Color Matrix Meter, which uses a 1005 pixel CCD sensor and the new Nikon Multi-Cam 1300 AF Sensor with



the world's first Wide-Area Cross-Type Array. The AF sensor features five detection areas for use with Nikon's new Dynamic Auto-focus Operation plus Single Area Auto-focus detection. The new F5 allows photographers to use motor speeds up to 8 frames per second with full Auto-focus performance, including Nikon's exclusive Focus Tracking with Lock-On™. A complete selection of exposure modes and shooting modes as well as 24 built-in Custom Settings give professional photographers ultimate control. The F5 offers leading edge technology to meet the demanding needs of today's photographers.

### Nikon F100

The Nikon F100 features precise and responsive autofocus including the Multi-CAM 1300 AF Sensor with Wide-Area Cross-Type Array (the same as the F5),



exclusive Dynamic Autofocus, and Focus Tracking with Lock-On™.

Dynamic Autofocus works superbly with every AF Nikkor and AF-S Nikkor lens, better ensuring accurate auto focusing even if your subject moves from the selected focus area. Dynamic AF will automatically shift auto focusing to the focus area in which the subject has moved. During focus tracking operation, even if something interrupts focus detection, Autofocus with Lock-On™ will continue to track it, keeping sharp focus for subsequent frames. All this operates at frame rates of up to 5 frames per second (with optional MN-15 NiMH battery in MB-15 Multi-Power High Speed Grip). This ability makes the F100 ideal for a wide variety of photography. The F100 provides Nikon's sophisticated 10 segment 3D Matrix Meter with over 30,000 actual scenes in its Database for remarkable exposure control developed through decades of experience and innovation. Additionally, the F100 offers photographers 5 Spot meters and 75/25 Center-Weighted Metering. Nikon's Automatic Balanced Fill-Flash System gives you that touch of extra light for more pleasing and natural looking exposures. Flash features include: Normal, Slow and Rear Sync, Flash Bracketing, Red-Eye Reduction as well as 1/250 flash sync and FP sync to 1/4000 of a second. Also included are: all mode Depth of Field Preview, Multiple Exposure Control, Dual Command Dial System, AF Start

Buttons, and Interchangeable Focusing Screens. There are 22 custom Settings built in, including an auto rewind and auto load function. The Nikon F100 is constructed with rugged magnesium alloy throughout and meets many photographers' needs for a smaller, lighter professional SLR that does not sacrifice performance or ruggedness.

### Nikon F3 High Eyepoint

Has ruggedness similar to the F5. Uses an optional accessory motor drive, features interchangeable finders and focusing screens, and includes Nikon's 80/20 Center-Weighted meter.



The F3 High Eyepoint is designed for professional requirements that do not include

such features as framing rates of 8 frames per second, autofocus or a matrix balanced fill-flash.

### Nikon N90s

Features an advanced exposure control system using 3D Matrix Metering and 3D Matrix Automatic Balanced Fill-Flash. It also includes a Center-Weighted and Spot Meter. For TTL flash



control the N90s features a 5 segment flash sensor and provides 3D Matrix Automatic Balanced Fill-

Flash. By using Nikon's world-class F mount, the N90s is compatible with all AF Nikkor, AF-S Nikkor, AF-I Nikkor and AI-S type Nikkor lenses, plus many more Nikon special optics. Additional features include a top shutter speed of 1/8000 second, EV compensation from +5 to -5 EV, Vari-Program, Flexible Program, Shutter and Aperture Priority, and Manual control. Used with the Nikon SB-28 or SB-27 AF Speedlights, flash sync is possible at speeds up to 1/4000 second! Auto-focus operates with Nikon's wide-area AF Sensor at speeds up to 4.1 frames per second, and includes Focus Tracking with Lock-On™. The N90s includes Single Servo AF and Continuous Servo AF operation - and with the optional MF-26 Multi-Control back, Freeze Focus is possible. The Nikon Photo Secretary for the N90s adds additional performance including custom camera operation, data recording, remote control and more.

### Nikon N80

The Nikon N80 features precise and responsive autofocus incorporating the Multi-CAM 900AF Sensor with Wide Area Cross Type Array (similar to technology in the



F5 and F100) and exclusive Dynamic Autofocus and Focus

Tracking with Lock-On™ to 2.5 fps. Dynamic Autofocus operates with every AF Nikkor and AF-S Nikkor lens, better ensuring accurate auto focusing even if your subject moves from the selected focus area. Dynamic AF will automatically shift auto focus detection to the focus area to which the subject has moved. During Focus Tracking operation, even if something interrupts focus detection, AF with Lock-On™ will continue to track it, keeping sharp focus for subsequent frames. This ability makes the N80 ideal for a wide variety of action photography. The N80's Nikon Advanced Viewfinder Display System has AF sensor indicators that illuminate as Black in bright lighting conditions and shift to Red when the ambient light grows dim. Additionally, the AF areas change intensity as the light changes. To help insure better pictures, the N80 includes Nikon's exclusive On Demand Grid Line Screen System that, through one of 18 user-programmable Custom Functions superimposes composition-assist grid lines in the viewfinder. This important feature is ideal for classic rules of composition as well as for lining up different subjects during multiple exposure techniques. The N80 provides Nikon's sophisticated 10-segment 3D Matrix Meter with over 30,000 actual scenes in its Database for remarkable exposure control developed through decades of experience and innovation. Additionally, the N80 offers photographers 5 Spot

meters and 75/25 Center Weighted Metering. N80's on board built-in speedlight offers Nikon's Automatic Balanced Fill-Flash System giving you that touch of extra light for more pleasing and natural looking exposures. Flash features include; Normal, Slow and Rear Sync, Flash Compensation from +1 to -3 EV in 1/2 EV steps, Slow Sync with Red-Eye Reduction, Red-Eye Reduction as well as 1/125 flash sync. Also included is an all mode Depth-of-Field Preview, Multiple Exposure Control, an ISO threaded cable release socket and Dual Command Dial System for optimum control. There are 18 Custom Settings built-in, including an AF Illuminator On/Off, DX after film speed has been set manually and many more. The Nikon N80 is compact and lightweight meeting many photographers' needs without sacrificing performance.

## Pronea S Advanced Photo System

Combine compact size, light weight and easy handling with unique design and Nikon quality and you have a new kind of SLR camera. The Pronea S is the



ideal camera for people on the move who want to capture t h e

moments of their lives with ease and spontaneity. It's very easy to use because the technology is

extremely advanced. Seven built-in exposure modes are available for virtually any picture-taking opportunity. A 6 segment Matrix meter takes care of exposure calculations even in difficult lighting situations. Automatic Focusing is extremely quick and accurate and even automatically detects moving subjects. The Pronea S features a built-in flash for Matrix balanced Fill-Flash. The Pronea S takes advantage of the Advanced Photo System and features drop-in film loading, mid-roll film change, title imprint, and choice of three picture formats.

## Nikon N65

Powerful technology plus simple operation all in a compact and lightweight body is at the core of the 35mm N65. Just turn the Mode dial to select the type of picture you want to take and let the N65 do all the work. Select from Portrait, Landscape, Close-Up, Sport Continuous and Night Scene exposure modes.



Aperture, Shutter Priority and Manual modes are also available. Nikon's 6 segment 3D Matrix Meter will ensure superior exposures even in difficult light. N65's built-in speedlight provides a powerful (GN 39) flash that's there when you need it. Matrix Balanced Fill-Flash automatically provides the right amount of light for your pic-

tures. N65's five area AF system with Dynamic AF operation provides high performance and is so advanced it can even detect whether a subject is moving or stationary.

## Nikon FM2

A manual exposure control camera for students, serious



photographers and those who aspire to become professionals. It

includes a 60/40 Center-Weighted meter with LED display, and speeds to 1/4000 second and flash sync to 1/250. An accessory motor-drive may be added.

## Nikon FM10

For total manual control and affordability, the Nikon FM10 is a great choice for a first 35mm



SLR. Complete manual operation from film advance and rewind to focusing and exposure control. The FM10 features a time-proven and very accurate Center-Weighted light meter. Shutter speeds are available from Bulb to 1/2000th second. The F-mount allows the manual focus control of both Nikkor AF and non-AF lenses. Double-exposure capability and depth of field preview button are also provided.

## Advanced Photo System: New Technology, New Opportunity

The main features of this new system include: a smaller film cartridge with drop-in loading, new film size called IX 240, negatives returned in cartridge, three print types to choose from in camera - C - Classic for 4x6 prints, H - High Vision for 4x7 prints and P - Panorama for 4x11 prints, IX Information Exchange that records information about the scene you have just photographed, and index prints (discussed earlier) with a thumbnail image of each picture on the roll of film. Advanced Photo System cameras are small and light, making them the ideal travel companion.

### Nikon Lenses

Nikon's optics are widely acknowledged to be among the finest made and are famous for their professional quality, unsurpassed sharpness, image clarity, and faithful color rendition.

All Nikon SLR models have the famous Nikon F lens mount. The Nikon F lens mount is made using a special hardened brass which is chrome coated. Its triple-claw holds securely to the Nikon body mount and can endure the most demanding professional requirements. Body mounts are made from stainless-steel and include a series of interface controls which match its operation with the corresponding controls on Nikon lenses.



#### Abbreviated Nikkor Lens Description Glossary

<b>AF</b>	autofocus
<b>AF-S</b>	autofocus with Silent Wave Motor integrated into lens for ultra-fast AF operation
<b>D</b>	Distance Information Technology
<b>ED</b>	Extra low Dispersion glass for superior optical performance. Used most effectively in longer telephoto lenses.
<b>IF</b>	Internal Focus mechanism incorporated, eliminating exterior barrel rotation and changes in length and balance as focusing takes place.
<b>NIC</b>	Nikon Integrated Coating
<b>CRC</b>	Close Range Correction

Nikon-made lenses are called Nikkor lenses. A number of acronyms accompany various Nikkor lenses, helping to identify certain features and/or technology that the lens may offer. These designations can be, at first glance, confusing. The above abbreviated glossary should be helpful.

AF-S Nikkor, AF Nikkor D, and AF Nikkor models include a micro-computer for electronically controlled automatic operation.

Highest performance is achieved when they are used with the newest Nikon SLR models, but AF Nikkor lenses also work perfectly with all previous Nikon SLR models. Nikon's commitment to defy obsolescence is epitomized by exceptional interchangeability of Nikon lenses among Nikon SLR cameras. This adds to and protects the value of your Nikon SLR system. A new AF Nikkor lens is ready to work with the exciting features found in Nikon's newest SLR models as well as being compatible with earlier models.

Nikon is one of the world's largest manufacturers of superior optical glass. By making their own glass, Nikon designers have special advantages to create some of the world's foremost optics.

Pioneering designs such as Internal Focus led Nikon to make lenses which can be focused using very light touch. This led the way towards today's Nikon lenses which can operate with autofocus ease.

Nikon's Extra low Dispersion (ED) glass results in Nikon telephoto optics which are the envy of others.

Nikon Integrated Coating (NIC) is applied to every Nikon lens to optimize contrast and color purity. It also assures that from lens to lens, Nikon optics will have unexcelled color match.

One of the great reasons why professionals choose Nikon cameras is because only Nikon cameras work perfectly with Nikon lenses.

## ***The Normal 50mm Lens***

Sometimes selected as the first lens for a new camera buyer, the 50mm lens is called normal because the size of the image you will see in the viewfinder is about the same size as it is viewed in real life. The normal lens is offered in a moderately priced version with maximum aperture of f/1.8 or a high speed version of f/1.4.

The normal lens is the perfect starter's lens and it will remain an important component in any selection of lenses you choose through the years.

## ***The Basic 2-lens System: 28-80mm Zoom & 70- 300mm Zoom***

If you want to be prepared for a wide array of photo opportunities with the minimum number of lenses, this combination is an excellent choice. It also ranks high in portability -- and is also ideal for travel.

The 28-80mm Zoom encompasses the range around the normal 50mm focal length and extends from a moderate 35mm wide to 80mm portrait telephoto. It's compact and a good choice if you want to carry only one lens. Moderate wide angle to moderate telephoto zoom lenses such as the 28-80mm have, in recent years, far surpassed the popularity of the venerable 50mm lens as the normal lens on an SLR. For even greater control and increased impact in wide-angle composition, consider a lens like the 24-120mm f/3.5-5.6D.

Zoom lenses such as the 70-300mmG AF Nikkor Zoom often take care of the balance of the pic-

ture opportunities. At the longest focal length setting both can be effective candid, portrait, and wildlife tamers.

### ***The Travel System: 24mm, 60mm Micro, AF Zoom Micro Nikkor ED 70-180mm f/4.5-5.6D***

Many combinations of wide, normal, and long lenses make ideal travel packages but here is an especially versatile one.

The 24mm wide angle combines an extremely wide angle of view with superb sharpness, near and far, a result of Nikon's Close Range Correction (CRC) optical design. It can be used for general scenes, and the possibilities for creative perspectives can be marvelous!

The 60mm f/2.8D AF Micro Nikkor does double duty as a super-sharp normal focal length lens and a lens for dramatic close-up photos. The AF Nikkor version can focus continuously from infinity to life-size on the film without accessories. This single lens equips you for extreme close-ups of small detailed subjects such as flowers or insects yet can capture longer shots of the entire building. If you expect to encounter low-light situations, a faster normal lens such as the 50mm f/1.4 or f/1.8 AF Zoom Micro-Nikkor should also be considered.

With this ensemble, the AF Zoom Micro Nikkor ED 70-180mm f/4.5-5.6D covers your scenic distance shots and is very compact and easily hand-holdable. With macro focusing down to a reproduction ratio of about 1:1.3, this lens covers an extraordinarily wide picture taking range.

### ***The Basis for Choosing Between a Fixed Focal Length vs. a Zoom Lens***

Fixed focal length lenses are generally more compact, lighter, and have larger maximum apertures than zoom lenses. The larger aperture makes viewing brighter. This is especially useful when taking pictures under dim light conditions. Even if you are using an autofocus camera, it's also important because it is easier for you to compose your picture when the image is brighter and easier to see.

The smaller size and lighter weight make these lenses easier to carry and hold steady when you're using them. That is a real benefit if you like to take pictures when the light is dim. Don't forget that a larger aperture also lets you choose a higher shutter speed for sharper pictures!

The Zoom lens provides unequalled versatility and you can choose between lenses which cover a very wide range. The 28-80mm f/4-5.6D AF Zoom-Nikkor covers wide scenic to moderate portrait telephoto. The 28-105mm f/3.5-4.5D AF Zoom-Nikkor gets you out a little farther but with a more modest wide coverage and the versatile 5x 24-120mm f/3.5-5.6D AF Zoom-Nikkor gives you creative freedom from ultra-wide to telephoto. The 80-200mm f/2.8D AF Zoom-Nikkor and 70-300mm f/4-5.6D ED AF Nikkors are a great traveler's lens and can capture distant candid subjects. The basic advantages of versatility mean a trade off for slightly larger size, weight, and smaller maximum apertures.

For some, the trade-off is logical. Most photographers should consider keeping a selection of both for their outfits.

### **Quality Has No Substitute**

Professionals will tell you that as your system grows, your investment in your selection of lenses will undoubtedly be greater than the cost of one's camera bodies. So lens quality, ruggedness, and general handling should be among your most important considerations.

Nikon lenses are made to Nikon engineers' exacting standards. Only the finest materials will be used.

Nikon lenses are precision crafted and operate perfectly with the camera body's stainless steel mount. No soft aluminum here. It's not acceptable for a Nikon.

Precision helicoids are made from a combination of composite materials and aluminum alloy. Smooth, finely-prepared grooves make the focusing move silky smooth whether focused manually or with high-speed autofocus operation.

Glass fiber reinforced polycarbonates make the exterior components resistant to corrosion. They are resilient, resist denting, and resist showing shiny spots when bumped. They also make the lens lighter and easier to maintain.

A Micro computer in each AF-S Nikkor, AF D Nikkor, AF Nikkor, and Nikkor P type lens enables fast communication between lens and selected electronically controlled camera bodies. Lens computers working in tandem with those camera's electronics have brought the Nikon system beyond your expectations without

losing Nikon's renowned lens compatibility. If you use the camera's electronics, the lens' electronics work in tandem. If you use a Nikon camera without the electronic interface, the lenses work perfectly too. No matter which camera you use, the lens' electronics are transparent to you and never interfere with your photography.

Nikon Optical Glass: only Nikon glass is used in Nikon lenses. Nikon's reputation for excellence in the manufacturing of optical glass provides Nikon with rare opportunities to excel. Nikon design, engineering, and masterful production technology result in lenses of extraordinary performance. Sharpness, color fidelity, and crisp contrast are all the reasons why Nikon cameras take the world's greatest pictures.

## **Electronic Exposure Metering System**

Nikon offers a wide array of exposure metering systems including:

- *Center-Weighted (in varying ratios, depending on camera model)*
- *Variable Center-Weighted in the Nikon F5*
- *Narrow-angle Spot metering,*
- *Spot metering integrated with AF detection areas (F5 & F100)*
- *And Nikon's most advanced photographic light measurement system, Matrix Metering.*

The available combination of metering systems varies among Nikon models, and the attributes of each meter can be explained as follows:

80/20 Center-Weighted metering is offered in the professional Nikon F3 and is perfectly suited for selective manual and automatic light metering operation used in connection with the Exposure Lock control.

75/25 Center-Weighted metering is offered together with Matrix Metering in the Nikon F5. Photographers using the F5's built-in Custom Setting Menu can change the size of the center circle sensing area to 8mm, 15mm, 20mm, or they can choose a simple averaging meter — making the choice based upon the subject's size. 75/25 Center-Weighted metering is also offered together with Matrix Metering in the Nikon F100, N90s, N80, and N65 and is suited for both manual and general use automatic metering operation. The combination of 75/25 Center-Weighted and Matrix Metering provides wide range versatility.

Spot metering is offered in the Nikon F5, F100, N90s, and N80 models and is best suited for manual exposure meter operation. This meter operates with automatic exposure control when used with the Exposure Lock control. This type of meter requires considerable skill to be effectively used.

Matrix Metering is, in part, a powerful multi-sensor computer-controlled meter, and is the most advanced automatic metering system covering a wide and dynamic range of brightness and contrast conditions. With computer-managed exposure control and exposure compensation, Matrix Metering allows the photographer to con-

centrate on picture composition while the computer takes care of exposure control. Matrix Metering is a perfect meter for fast automatic operation. Several types are available: The F5 makes powerful use of an exclusive 3D Color Matrix Meter incorporating 1,005 CCD pixels that go so far as to take the color content of a scene into consideration while determining the correct exposure. There is a 10 segment Matrix in the F100 and N80, an 8 segment 3D Matrix Meter can be found in the N90s, while a 6 segment 3D Matrix Meter is in the N65 and Pronea S.

## Close-up

This is one of the most exciting fields of photography, and Nikon offers a selection of accessories accommodating both technical and personal photography.

Choose any Micro Nikkor lens including the 60mm, 105mm, 200mm, AF Zoom Micro Nikkor ED 70-180mm, and PC Micro 85mm f/2.8D lenses. Use Nikon extension tubes, auxiliary close-up lenses, bellows, and slide copiers together with all your Nikon lenses.

Shoot with available light or choose any Nikon speedlight for spectacular, vividly colorful close-ups. Use the Nikon Close-up speedlight (Model SB-29 Macro Speedlight) for shadowless, low contrast close-ups. You can even combine several Nikon speedlights for professional multi-flash lighting all automatically controlled with through-the-lens (TTL) accuracy. Plus, Nikon's new Matrix Metering System can even integrate the avail-

able light and the flash light exposure control for beautiful, balanced fill-flash pictures.

## Balanced Fill-Flash

Great pictures are easy to make using the Nikon system; and most Nikon SLR models will enable virtually anyone to get pro-like fill-flash results, simply and automatically.

At the heart of Nikon's automatic flash system is the same computer that controls automatic exposure settings. When taking flash pictures, it coordinates the camera's exposure control with the compatible Nikon flash's operation.



Many pictures have been spoiled because of harsh, dark shadows which obscure the subject's face. Backlighting pictures are a typical example. Sometimes you want to take a picture with the subject "backlighting", because the lighting can be very dramatic. In such situations and in others, contrasty, shadowy lighting can spoil the picture.

Nikon designers know that professionals have long-since overcome these problems by using flash together with their daylight pictures.

However, their pro techniques are generally too complicated for all but the most advanced amateurs. Recognizing a need, they developed Nikon's Balanced Fill-Flash as a feature of the Matrix Meter's operation. Now, just put a Nikon flash on selected Nikon SLR models and when you want to use the flash in daylight to overcome many kinds of difficult lighting, just turn on the flash and take the picture. Special settings on the flash will automatically balance the flash operation with the available light giving you professional-like fill-flash pictures with little more than the basic settings of your Nikon SLR.

## In Conclusion

We are proud of the vast array of products that make up the Nikon System of Photography, and we're proud of the wonderful pictures that Nikon owners make. Whether you're just beginning, or you've been taking pictures for years, we believe that you want and will appreciate truly great pictures. Pictures you'll cherish forever, share with family and friends, and be proud to display in your home or office.

Choose Nikon and you'll understand why we say...

**Nikon**<sup>®</sup>  
We take the world's  
greatest pictures.<sup>®</sup>  
Yours.

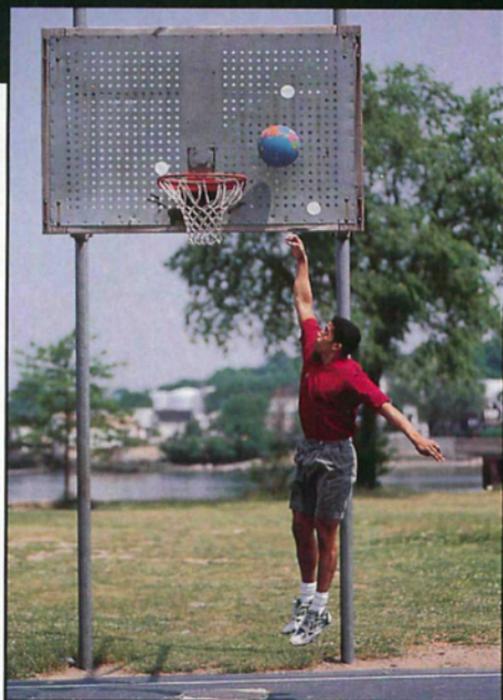
# TAKING BETTER PHOTOS: SHOOT LIKE A PRO



## Shutter Speed

A fast shutter speed lets you capture the action with pin-point accuracy.

*Nikon F5 with 80-200mm  
f/2.8D AF Nikkor lens  
Aperture: f/4.0  
Shutter: 1/1000 sec.*



A slow shutter speed lets you see the motion of your subject.

*Nikon F5 with 80-200mm  
f/2.8D AF Nikkor lens  
Aperture: f/22  
Shutter: 1/30 sec.*

## Selective Focus



Create a new dimension to your photos.

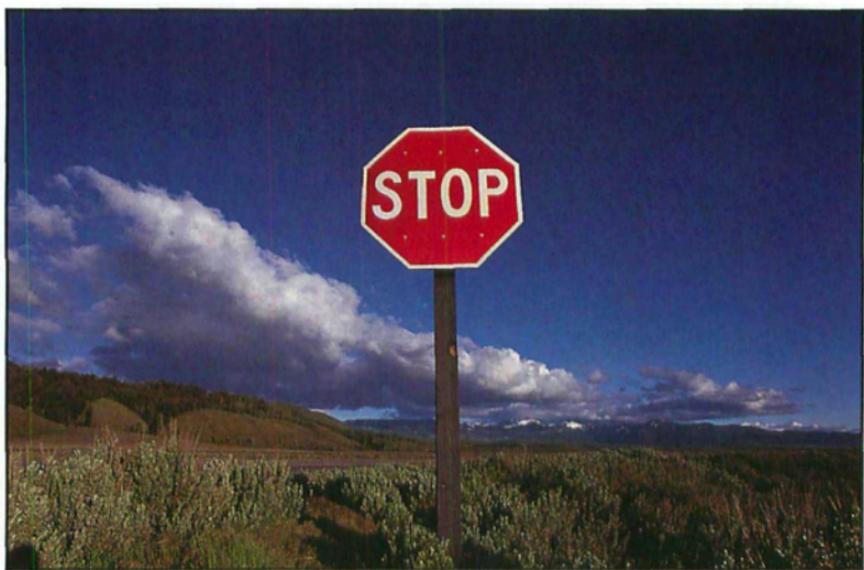
*Each creates a different feeling.*

*Focusing on the house draws the viewer into the photograph.*

*Focusing on the sign isolates the subject from the background.*



## *Perspective*



When choosing a location, learn to use shapes, lines and angles to your advantage.



## Metering



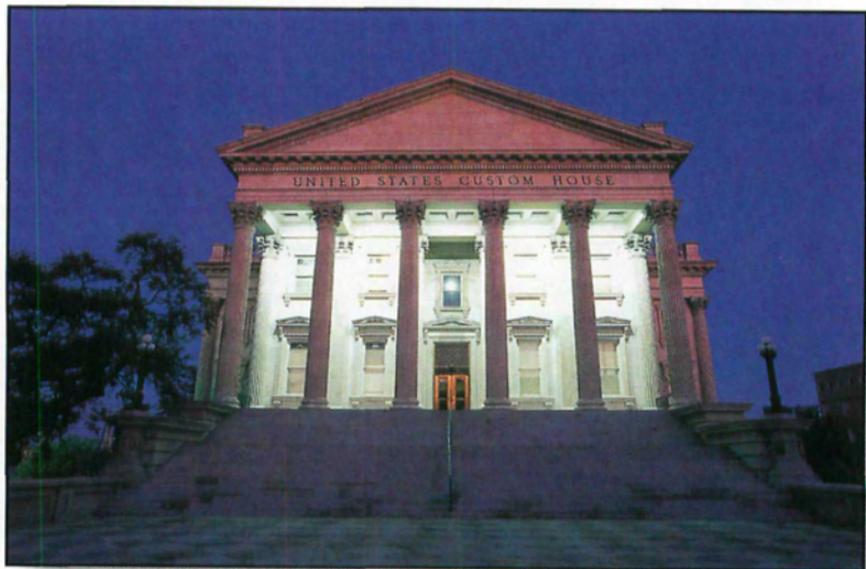
Matrix Metering is ideal for complex and changing lighting conditions.  
*Nikon F5 with 80-200mm f/2.8D AF Nikkor lens.*



Spot Metering enables you to expose your subject accurately, in difficult lighting conditions.  
*Nikon N80 with AF-S 80-200mm f/2.8D ED Zoom-Nikkor lens. Left AF sensor linked to spot meter selected.*



Center-Weighted Metering makes a difficult lighting situation easy to solve.  
*Nikon N90s with 35-70mm f/2.8D AF Zoom-Nikkor lens.*



Having access to different light meters lets you be creative in any type of lighting.  
*Nikon N80 with 28-105mm f/3.5-4.5D AF Zoom-Nikkor lens.*

## ***Use a Speedlight to Accent Details***



Nikon Speedlights offer a variety of controls, helping you make photographs that are well balanced, well exposed and easy to reproduce.



## Using Your Flash Outdoors



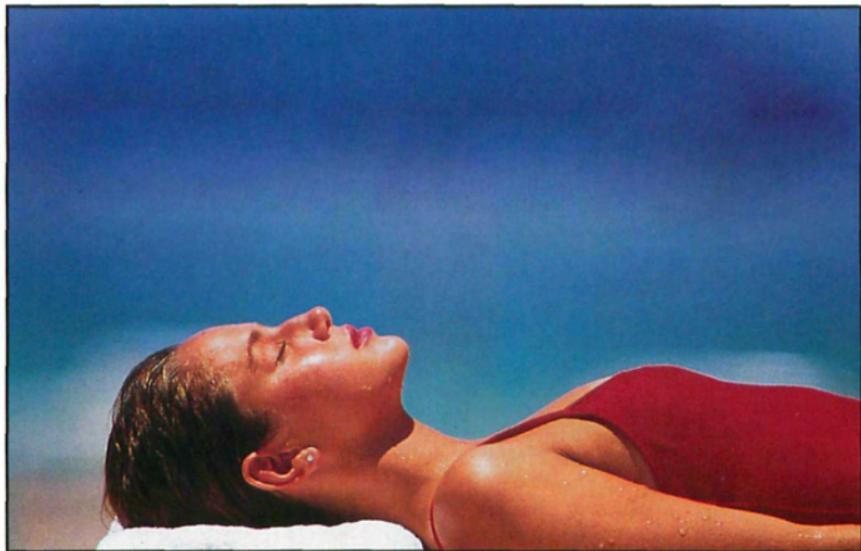
Bright sunlight...and yes, you need your flash, even outdoors!

*Nikon N90s with 28-70mm f/3.5-4.5D AF Zoom-Nikkor lens.*

*Without flash (above), with flash (below).*



## Composition



The position of the models in their environment is important. Also be aware of the shapes created by the figures and props. Above: Nikon N90s with 300mm f/2.8D IF-ED AF-S Nikkor lens. Below: Nikon F5 with 24-120mm f/3.5-5.6D AF Zoom-Nikkor lens.





Your environment is rich with color and shape. Just when you think you have a subject covered, move in closer. *Both photos shot with Nikon N90s and 105mm AF Micro Nikkor lens.*



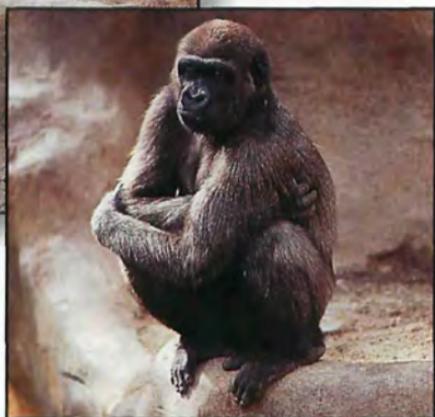
## Framing a Scene



The position of the models in their environment is important. Also be aware of the shapes created by the figures and props. *Top: N90s with 80-200 f/2.8D AF Nikkor.*  
*Bottom: F5 with 135mm f/2 AF DC Nikkor.*



## Moving Up Closer



Using the environment creates an establishing photograph, then move in for a tight close-up.

*Nikon N90s with 70-300mm f/4-5.6D AF Nikkor.*

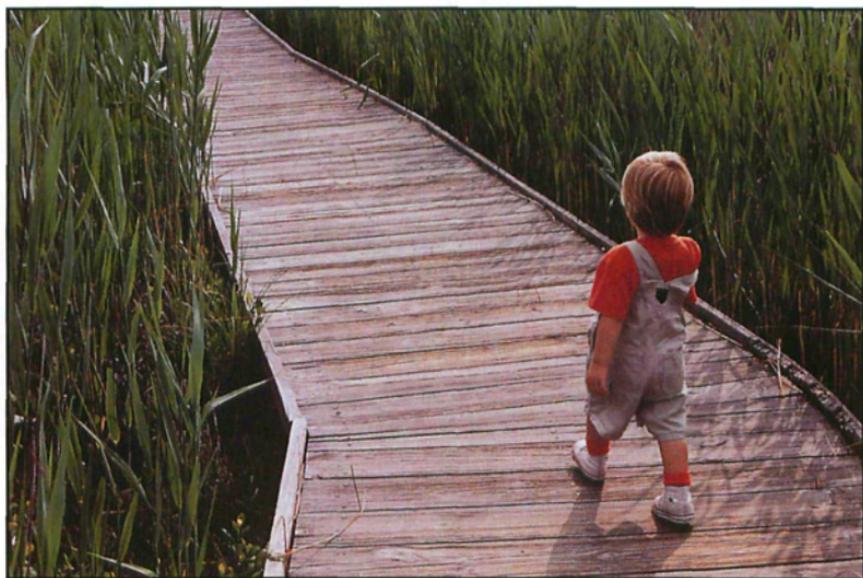
## Freeze Movement



Use flash to freeze motion by using a high flash sync (1/250 sec). The butterfly's motion was frozen against the static background.

*Nikon F100 with 70-300mm f/4-5.6D ED AF Zoom-Nikkor lens and SB-29 Macro Speedlight set for TTL.*

## Portraits



Unique picture formats are available with Advanced Photo System cameras.  
*Nikon Pronca S with 30-60mm f/4-5.6 IX Nikkor lens in C Format.*

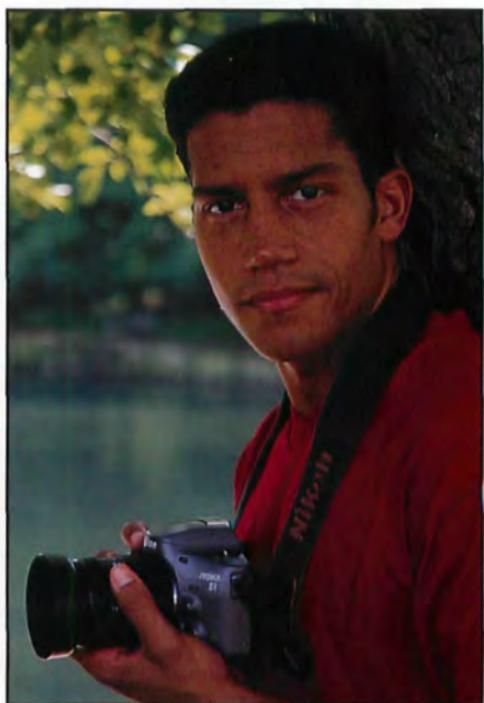


A beautiful face on a beautiful day.  
*Nikon N90s with 180mm f/2.8D AF Nikkor lens.*



Spontaneous expressions can make portrait photography fun.

*Nikon N65 with 28-80mm f/3.5-5.6D AF Zoom-Nikkor lens with a built-in flash.*



This photo captures the strong confident character of the subject.

*Nikon F5 with 24-120mm f/3.5-5.6D AF Zoom-Nikkor lens.*

## Exposure Lock

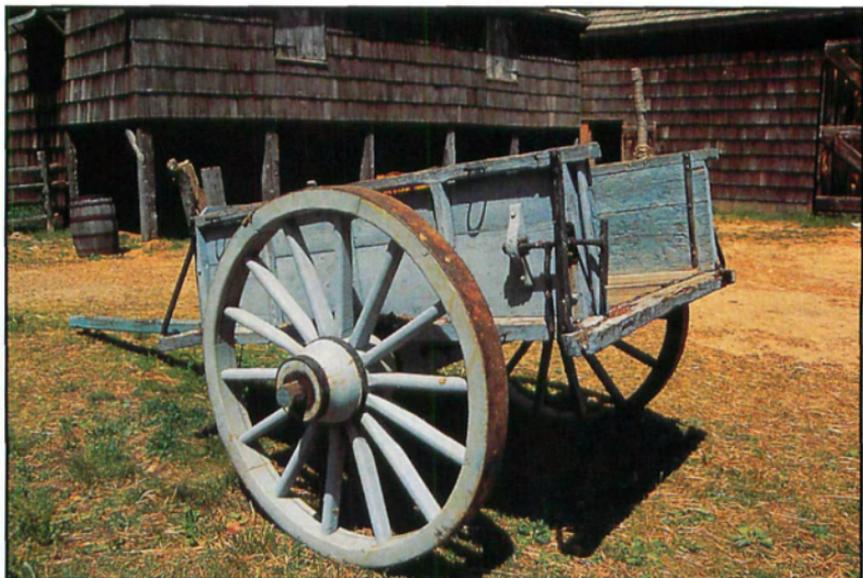


A quiet setting and soft available light create a nice environment.  
*Nikon N90s with 35-70mm f/2.8D AF Zoom-Nikkor lens.*



Back-lighting can produce subtle highlights on your darkened figure.

*Nikon N90s with 300mm f/2.8D AF-S Nikkor lens, Aperture: f/8 Shutter: 1/250 sec.*



Try taking pictures of the same subject at different height levels. Sometimes the best way to get a natural view of the subject is to lie on the ground, squat or climb up high on a ladder.





Use a Micro-Nikkor to get dramatic close-ups - and let Nikon automation take care of the rest. Nikon's versatile line up of AF Micro-Nikkors include: AF Micro-Nikkor 60mm f/2.8D, AF Micro-Nikkor 105mm f/2.8D, AF Micro-Nikkor 200mm f/4D ED-IF, AF Zoom Micro-Nikkor 70-180mm f/4.5-5.6D ED and the PC 85mm f/2.8D.





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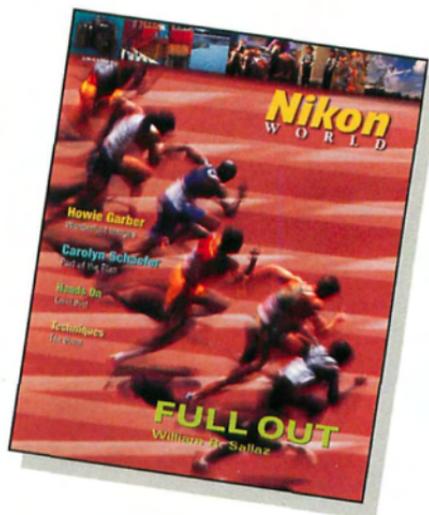
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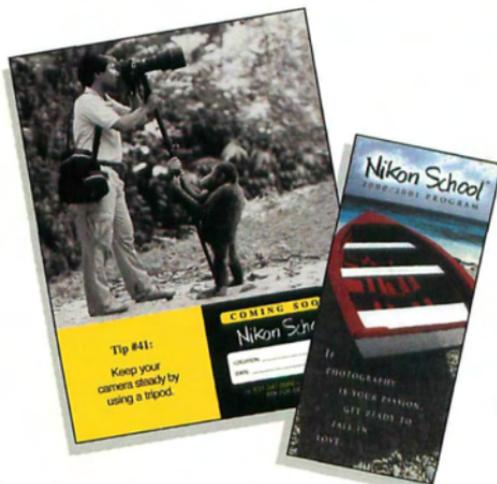
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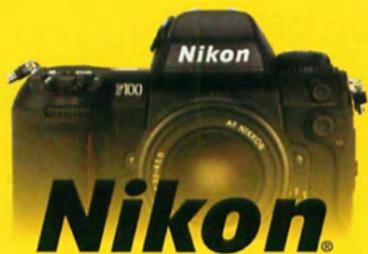
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