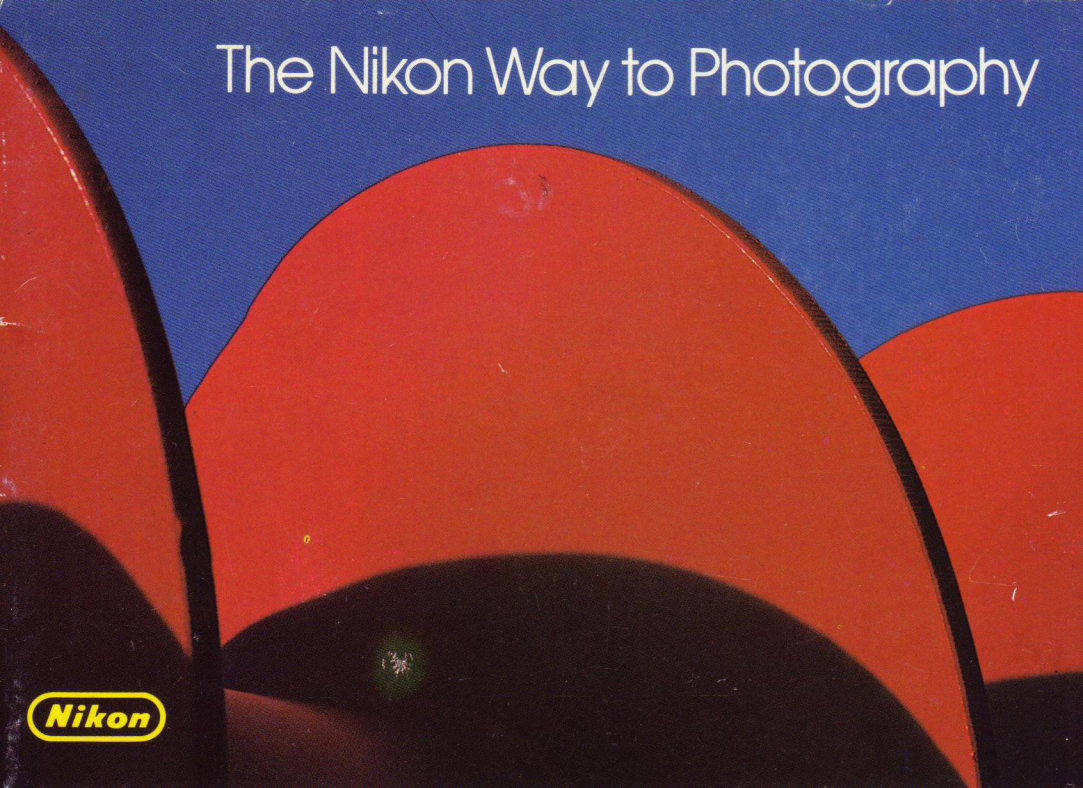
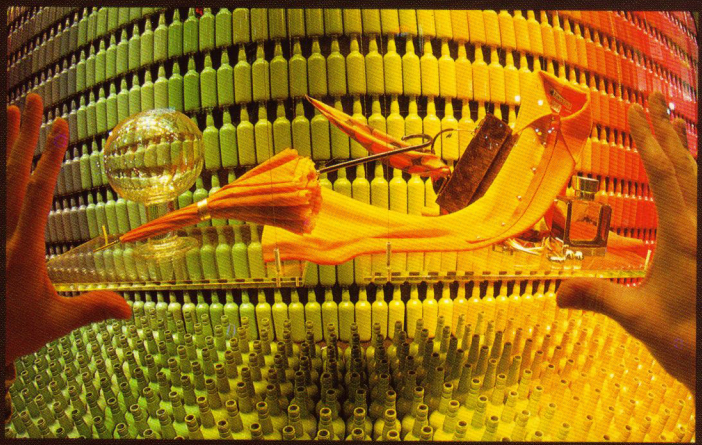
WILSONWERKS ARCHIVES

The Nikon Way to Photography



Nikon



Reach Out!

Show the world how you see things. Record your own special vision with the finest toois ever created for the purpose. Your Nikon camera lets you shoot close up, far away, fast action, and still life. The familiar and the unfamiliar, the subtle and the provocative. Reach out. Explore the world around you and the world of your own imagination.

Parties

The object, of course, is to show people enjoying themselves and having a good time together. So move right in. Make taking pictures as much a part of being there as having a conversation with your friends.

Use near-normal lenses: 35mm and 105mm are about as extreme as you'll need. For groups, use the 35 to show people interacting with each other. For a closer look, short telephotos like the 85 and 105 fill the frame with a head-and-shoulders shot, ideal for a kind of impromptu party portrait. A normal lens is useful, too, because of its high speed and intermediate angle of view. Lighting for daytime outdoor parties is easy because you can rely on natural light. But evening parties, whether indoors or out, will require some kind of artificial light, and electronic flash has some definite advantages. For one thing, the short flash duration can capture fast action with no blurring. These units are ready to fire again a few seconds after shooting. And the color temperature of electronic flash is matched to outdoor color film, so you can use the same film for both outdoor and flash photography.

When shooting in dark situations, try to keep your subjects from looking directly into the camera. This can lead to the condition known as "red eye" in which the eyes show up on the film as red dots. Off-camera flash, using a connecting cord, is another way to avoid this problem.

Like any other kind of action and unposed photography, the secret of good party shots is knowing exactly when to push the shutter release. You know your friends, and you may know how they'll react to certain entertaining situations, so try to anticipate. Don't wait until you see the expressions you want, keep ahead of things and just wait for the action to catch up to you.

Weddings

To ensure success, get all the details of the ceremony beforehand so you can be in the right place at the right time. And, of course, don't intrude on the ceremony and call attention to yourself when all eyes should be on the bride and groom. Find out before whether or not you can use flash during the ceremony. If you can't, have plenty of high-speed film on hand and go into the room ahead of time to check the lighting, your position, and possible distractions like a bright window or a heavy vertical column. Knowing these things ahead of time can make the difference between really successful pictures and disappointment.

When you go to the reception, bring your flash unit with you, as receptions are often held indoors under less than ideal lighting conditions. Try to mix traditional poses of the bride and groom and their families with more informal pictures of people talking, dancing, and reacting to the day. The traditional pictures are necessary, of course, but emotions are more likely to come through in less posed situations.

Your choice of lenses is important. You'll have to move around as the wedding progresses from one stage to the next, and you may not have access to all the equipment you might like. A telephoto is usually necessary during the ceremony to fill the frame from a distance. A wide-angle lens will be handy at the reception, since it will allow a number of people into the popular "group shot." And, of course, a zoom lens, like the 35-70mm, will allow you to frame your pictures exactly from wherever you're standing. Finally, don't forget to take plenty of film with you. There's nothing worse than discovering that you've run out of film as the couple is kneeling at the altar.

Child Photography

The key to great pictures of children is spontaneity—don't make it happen, let it happen. To facilitate that, try to get technical problems out of the way before you begin. Either use a flash unit that allows you to move in or back without changing apertures, or adjust room lighting for good effect and use fast film. When you don't have to worry about proper exposure, you can relax a little and think about composition.

For younger children, try to get them involved in something they like to do so the camera won't distract them. If they like to paint or draw, provide some materials and help them get involved in the creative process. Then, while they're making their picture, you can make yours. If the photographic session is enjoyable for them, the result is bound to be a series of pleasing shots for you. As with any kind of portraiture, try not to be the "stranger behind the camera." If you feel comfortable, your young subjects are sure to feel your mood and respond naturally.

For lenses, choose telephotos, especially those in the 85 to 105mm range. They'll let you work at a short distance from your subject, minimizing the child's self-consciousness. A wideangle lens is a good choice if you want to show the child in relation to what he's doing (for example, a picture of a child on a swing). Outdoors, watch those shutter speeds. Children move just as fast on cloudy days as they do on sunny days. You may have to sacrifice a little depth of field to be sure that motion is captured sharply. Shutter speeds no lower than 1/125 sec. are recommended for outdoor pictures of children in motion. Use a motor drive and shoot several frames per second to be sure of capturing the exact actions or expressions you want.

Andy Barker

Animals

If your subject is familiar to you, like the family pet, you can often coax just the expression you want. But if you're shooting a wild animal or an animal in a zoo, your job will be a little more difficult. The family pet is often considered a family member and will probably be eager to please, up to a point. Proper preparation before the session will keep you from taxing an animal's limited patience with camera adjustments and lighting changes. Get everything ready and then bring on your subject. In general, you should avoid cliche props like pillows and velvet backdrops unless you particularly like that style. If you pose your pet in familiar surroundings, both he and you will find it more natural. Of course, some animals just don't like to be confined to one area. Most, however, will respond to a tasty bribe.

As for pictures of zoo animals, each animal has its own habits. The more you know about a particular animal, the more you'll be able to anticipate its moods and reactions. As in almost every kind of photography, the photographer's knowledge of his subject shines through the image and shows the viewer something unique. By learning about your subject, you'll take better pictures.

The equipment you'll need for animal pictures varies with the type of animals you intend to photograph. Wild animal photography almost always requires a long telephoto since these animals can rarely be approached at close range. Lenses in the 200 to 500mm range are recommended, as are teleconverters like Nikon's TC-14. Pets, of course, are less camera shy, so almost any lens will do. A short telephoto of about 105mm will fill the frame while still keeping you at a comfortable distance. Motor drive is also a very useful tool in many kinds of wild animal and fast-action photography.

Landscapes

With landscapes, light becomes the factor which brings your subject to life. In the early morning hours, sunlight on a clear day has a distinctly yellowish cast which gives the land a fresh, glowing quality. Later in the day, the light becomes increasingly white, giving a flat, shadowless rendering to distant subjects. Late in the afternoon, the sun becomes redder and warms up everything you see. Shadows become longer and texture is highlighted.

Distant subjects, such as mountains, are apt to appear blue in your photographs because of the presence of ultraviolet light in the atmosphere. Correct it by using a UV haze filter to absorb this invisible portion of the spectrum. To reduce or eliminate reflections from glossy surfaces and give your pictures richer colors, use a polarizing filter. Your through-the-lens meter will take care of all exposure increases needed when using filters.

As for lenses, a very wideangle lens is not always the best choice. It may take everything in, but it will also give the appearance of pushing everything farther from the camera. To get a feeling of immediacy, use lenses of normal or slightly wide angle. Telephoto lenses will bring in distant mountains so they seem to hover over a small cottage. When composing, try to create some strong foreground interest. A tree, a rock formation, or even a fence will provide perspective and give your landscape a three-dimensional quality.

In general, closer is better. But if you want to get more in without pushing everything away, use the Nikon panorama head and place two or more pictures together to form a large picture.

Alfred Gregory

Underwater Photography

For practical, reliable underwater shooting, there's nothing like the Nikonos IV-A. You can use it at depths of up to 50 meters (160 feet) without any additional housing, and its compact size and automatic exposure control make it ideal for handling in this rather difficult environment.

One of the secrets of successful underwater photography is to do as much of the thinking as possible on dry land. Then, when you're underwater, you can concentrate on subject matter rather than camera technique.

Exposure is more of a problem underwater than above it. The angle of the sun, the depth, and the clarity of the water all contribute to the amount of light that actually reaches an object underwater. To compensate for this tremendous variation in light intensity, the Nikonos IV-A adjusts its own shutter speed automatically to give you the correct exposure.

Another problem in underwater photography is that the blueness of the water increases the deeper you go. By 10 meters (33 feet) or so, reds and oranges have all but disappeared. To restore natural colors to the undersea world, use the Nikonos Speedlight SB-101. Everything about this flash unit is automatic, from the setting of the shutter speed at 1/90 sec. for proper flash synchronization to automatic regulation of the light output for proper exposure.

One final hint: When something colorful captures your attention, move in close to reduce the amount of water between you and your subject. Wideangle lenses will help you do this while still providing an ample field of view.

Buildings and Interiors

Buildings, because they're usually composed of strict geometric shapes, present some unique problems to the photographer. While landscapes and human subjects are forgiving of the distortions caused by camera angle, the right angles and straight lines of buildings are not. Some convergence in both the horizontal and vertical planes may actually be desirable, but too much convergence of verticals will give the viewer the uneasy feeling that the building or room is falling over. To prevent this, keep the camera level, watch the vertical lines of the building in the viewfinder, and keep them parallel to the camera's frame lines.

For both interior and outdoor shots, it's hard to move back far enough to get everything in. The answer, of course, is a wideangle lens. Lenses between 24 and 35mm are common in outdoor architectural photography, while lenses between 20 and 28mm are helpful for tight interiors. Even with wideangle lenses, however, the problem of keeping the camera level remains unless you use the technique of lens shifting. Nikon makes two perspective control (PC) lenses which allow you to move the image up or down while the film plane remains stationary. So you can shoot a tall building without tipping up, or an interior without tipping down.

In exterior photography, choose a cloudy day for a soft look or a bright day for something more stark with interesting shadows. Use polarizing filters to reduce reflections from windows and increase contrast. For interior shots, stick to daylight shooting, using flash to fill in dark corners where necessary. And be sure to turn off incandescent lights unless you want the very reddish look they give.

Francisco Hidalgo

Night Photography

The first essential piece of equipment for night photography is a sturdy tripod. For most night pictures, you'll be making long exposures that require absolutely no camera movement for periods of up to several minutes. Nikon's locking cable release will also come in handy.

For city pictures at night, position your camera so your composition shows a pleasing relationship between light and dark areas. Generally speaking, you'll find that meter readings are almost impossible at night since so little of the frame is illuminated. Exposures will depend on your film and the lights. Most new high-speed films come with an exposure guide. To be on the safe side, though, make several exposures using different lengths of time exposure.

Bad weather is a time when many amateurs leave their cameras at home, but, combined with street lights after dark, wet pavement provides a literal "splash" of color. Lights that are moving will result in a "finger-painted" look as the long time exposure tracks their progress. Experiment with different lengths of exposure and different camera angles to get different effects and patterns.

Multiple exposure techniques are especially effective in night photography because the black background allows you to position your images in the frame without clashing backgrounds. Try making a montage of different neon signs or overlapping fireworks. Or shoot one exposure in perfect focus, and then expose the same frame again with the lights slightly out of focus—the result will be a fascinating halo look. Multiple exposures using different zoom ranges will give a kaleidoscopic look. And for a very pretty effect, take a picture of a building at dusk when there is still some natural light. Then expose the same frame about half an hour later, after the sun has gone down and the lights are lit inside the building. The mixture of natural and incandescent lighting makes a very unusual and effective image.

Akira Sato

Candids

Candid photography does not necessarily mean secret photography. In many cases and many places it is rude to shoot a picture of someone by surprise. The camera should not be used as a weapon to intrude on someone's personal life, and good candid photography does not rely on the element of surprise. Good candid pictures often show people who are aware of the camera, but the essential element is one of candor or honesty. The judgment of the picture should be whether it tells the truth about its subject.

While it's not always necessary to hide your camera, you shouldn't be emphasizing it either. The way you approach the picture-taking situation will often determine how your subject responds to having his picture taken. If it feels natural to you, it will be more natural for him. The best candids are often made when the subject or subjects are too busy with what they're doing to be concerned about your presence. Very often you'll get good candid photographs by looking away from the place everyone else is looking at; spectators are apt to be more interesting than an event itself.

Lenses for candids vary. Long lenses are useful for unwilling subjects, but, if used for informal portraits, your photos may lack a feeling of immediacy even though the face fills the frame. Wideangle lenses are very good for showing pictures of people in relation to their work or their surroundings. Because of their great depth of field, wideangle lenses can show the subject in the foreground while the background remains sharp.

Anyone who interests you is a good subject for a candid photo. You probably won't have much time to wait for the expression you want or to make camera adjustments, so take care of technicalities beforehand. Then anticipate the expression you want. Sometimes a subject looking right into the camera makes the most candid picture of all.

City Life

There aren't any special techniques for shooting in the city since what you want to photograph will determine how you go about it. To capture the flow of people on the sidewalk at a busy time of day, consider a high vantage point and a telephoto lens to compress the crowd. On the other hand, to communicate the feeling of desolation on an empty street corner, use a wideangle lens to expand the foreground-to-background distance.

Shutter speed can be used to do the same thing. To show the hustle of a railway station during rush hour, choose a slightly slow shutter speed but keep your camera anchored steadily. The busy commuter will cause a partial blur against a sharp background.

Selective focus is another technique. By using wide apertures and fast lenses, you can put your subject in sharp focus while eliminating elements that would weaken the composition. A face in a crowd, for example, can be picked out with great precision with a high-speed telephoto lens. Careful use of a wideangle lens can give pictures with enormous depth—everything in focus from a few inches out to infinity. This technique is good for illustrating the clutter and complexity of cityscapes with their signs, construction sites, taxis, and billboards all fighting for attention.

And don't forget that you're part of the city yourself. Take pictures of the places you normally go, just for the record. If anything holds true for a city, it's that cities are always changing. Why not preserve some of it on film before your favorite restaurant gives way to a new apartment building. Get up early to capture the special feeling that a city has before the day really begins. Or stay out late to capture the glare of city lights at night.

Francisco Hidalgo

Festivals

To successfully capture the spirit of a festival, you should be well versed about what's going to happen and when. One of the most reliable ways to do this is to contact the organizers and quiz them. Be sure that you know what will happen in case of bad weather, and be prepared for this possibility yourself. Although rarely, special permission may be required to shoot certain portions of a festival, and while contacting the organizers you should arrange to get this permission.

Generally speaking, take less equipment but more film than you think you'll need. A festival often moves quickly and you'll want to have the mobility to move right along with it. Four lenses (24, 35, 85 and 105mm) are all you should carry, and an extra camera body will reduce the number of lens and film changes you'll have to make. If you know you'll be shooting from a distance, bring longer lenses.

Some festivals run well into the night, and others are strictly nighttime events. In these cases, you'll need to have a flash unit with you. Electronic flash makes the most sense since it can deliver a lot of light, is ready to fire again and again, and can freeze fast action like dancing and sports competitions.

As for how to shoot them, festivals are so naturally photogenic that almost every technique works if carefully executed. You can go ahead of a parade and photograph it as it comes toward you, or move right in close with a wide-angle lens, becoming part of the festivities yourself. Always remember that the interplay between the "players" and the crowd is an important part of any festival. So get pictures of small children watching, food stands, and the other little vignettes that accompany the main events.

Special Events

The crowd itself is the main obstacle when shooting a special event. People often push as close to the action as possible, making photography more difficult. To avoid this, acquaint yourself with the schedule of events so you'll be prepared for what's going to happen. Know the who, what, when, and where of the occasion, and have your camera ready to go when the moment comes. If working close to the action, a wideangle lens makes focusing less critical, and, at the same time, allows the action to fall well within the frame even if it takes a sudden, unexpected turn.

A good flash unit is one tool that the professional photographer almost always has along. Motor drive will allow you to shoot several frames a second so you can keep up with fast action and capture that special expression. A technique that can be used with or without motor drive is holding the camera overhead and firing blindly. Sometimes there's just no other way to get a clear shot of your subject. For these cases, use a wideangle lens and do your best with the camera held high above the heads of other onlookers. Some of the best news photographs ever taken have been made just this way.

If you're farther away from the action, a telephoto lens will be important. Position yourself for an unobstructed view and then focus carefully. Since a telephoto lens is often stopped down for depth of field and requires slower-than-normal shutter speeds, fast film is recommended.

Akira Sato


CGS

Small World

Your normal lens has a surprising close-focusing ability, but to go beyond this point you'll need some extra equipment. Screw-on close-up lenses which attach like filters can be used in combinations to achieve different magnifications. Another effective and inexpensive closeup technique is to reverse your normal lens or any of a number of wideangle lenses with a reversing ring. Or use extension tubes—metal cylinders of differing lengths which fit between your camera and the lens. The greater the distance between your lens and the camera, the greater the magnification.

The most versatile close-up instruments are the Micro-Nikkor lenses. They allow you to focus all the way from infinity down to half life-size, and you can go anywhere and focus quickly to achieve excellent results in almost every circumstance. For industrial and scientific applications, the Medical-Nikkor incorporates a color-coded system of close-up lenses and a built-in ring flash for shadow-free illumination of hard-to-see areas.

As for what to shoot, the possibilities are limitless. Everything takes on a new dimension when viewed up close. Lighting, though, becomes of primary importance when your camera is very close to the subject. Lighting from behind can easily cast a shadow, and backlighting has to be carefully managed to prevent flare from spoiling the effect you want.

You can keep things simple, however, by using a tripod and basic lighting, and then carefully previewing each picture for shadows, texture, and contrast. Flowers generally look more alive when light is transmitted through the petals rather than reflected off them. A low-angle shot, looking up at a flower, is another way to get the same effect.

Focusing, too, becomes more critical the closer you get to your subject. Since viewing in Nikon cameras is done at full aperture, you'll notice that only a small portion of your subject is in focus. To get greater depth of field, you'll need to stop down the lens considerably, often to its smallest aperture. When you do this, of course, the image in the viewfinder will become dark. So do your focusing first, then push the depth-

of-field preview button gradually and watch as more of the picture comes into focus.

Outdoors, flash is very useful since it mixes well with natural sunlight and provides a lot of illumination where you need it. Even automatic units can be used to take the estimating out of close-up flash. A dark card used as a backdrop will make the subject stand out boldly against a black background, while a white card will create a reflected backlit effect and capture highlights.

If you want greater magnification than life-size, you can use a bellows attachment to create photos of enormous impact. The corner of a postage stamp can fill a frame, as can one small portion of a flower blossom.

At these very high magnifications, you'll find that depth of field has become your number one problem. It will now be almost impossible to have all of a three-dimensional subject in focus. Even stopping down doesn't really help too much. In the case of the postage stamp, of course, this shallow focus is no problem. But for any subject with depth, your choice of what to focus on becomes an important creative decision. And because light falls off at high magnifications, some kind of auxiliary lighting will be required for all but the brightest days.


IN GOD
LIBERTY

Sports

Naturally, sports action that moves quickly poses a challenge. Shutter speeds of at least 1/250 sec. are generally needed to freeze action clearly. The closer you are to the action, the more critical the high shutter speed becomes. To get any depth of field at all with these high shutter speeds, you should use one of the new high-speed color films.

Indoors, flash is recommended because its very short flash duration (often 1/1000 sec. or less) stops action just like a high shutter speed. Set your camera to the highest shutter speed that will synchronize with the flash, use your flash at full power, and use the smallest aperture possible.

Sometimes the best way to convey the feeling of action is to show the moving figure as a blur against a sharp background, or as a sharp image against a blurred background. In both instances, reduce the shutter speed to 1/30 sec. or less. For the blurred figure against the sharp background, keep the camera steady and let the moving figure enter the viewfinder from one side. Anticipate the moment and press the shutter release button. For the sharp figure against the blurred background, follow the figure with your camera while trying to keep the subject perfectly framed. Push the shutter release button while you pan the camera.

For most spectator sports, a telephoto lens lets you fill the frame with action while you remain at a proper distance. Telephoto lenses are very critical in their focusing, though, so small apertures are necessary to be sure that your subject is in focus. An 80-200mm zoom is also handy, as it lets you follow the action from close to far away, as well as from left to right.

To capture the exact moment in sports that tells the story, motor drive is indispensable because it allows you to anticipate the action and then fire a rapid burst to be sure of getting just the picture you want.


110

Theater

Lighting and exposure are two problems that arise immediately when doing any shooting of a performance. In many cases the lighting is very selective, leaving large areas of the stage black. Fortunately, your Nikon camera employs a center-weighted metering system which measures principally the light at the center of the frame. Still, depending on the amount of black in the frame, it's advisable to stop down one or more stops to keep from overexposing the subject. As you gain experience, you'll begin to feel how much to vary from the reading your camera gives.

Before going any further, you should know that there are often rules governing the taking of pictures during public performances. To be on the safe side, always check with the management beforehand to be sure you can take pictures during the performance.

Flash, where allowed, is an excellent way to supplement stage lighting to reduce harsh shadows. In general, though, lighting is one important visual element in a theatrical production and you should try to rely on it as much as possible.

Long lenses are a great help to the theater photographer, as is high-speed film. Under even the best circumstances, the lighting will be barely adequate, so you'll have to focus very carefully and keep the camera steady.

Composition is usually not a problem since the director does most of the work for you. But you can add to the quality of your photographs by trying different angles and positions. Very often a shot from the far right or left of the stage makes a more dramatic composition than the same subject shot from straight on.

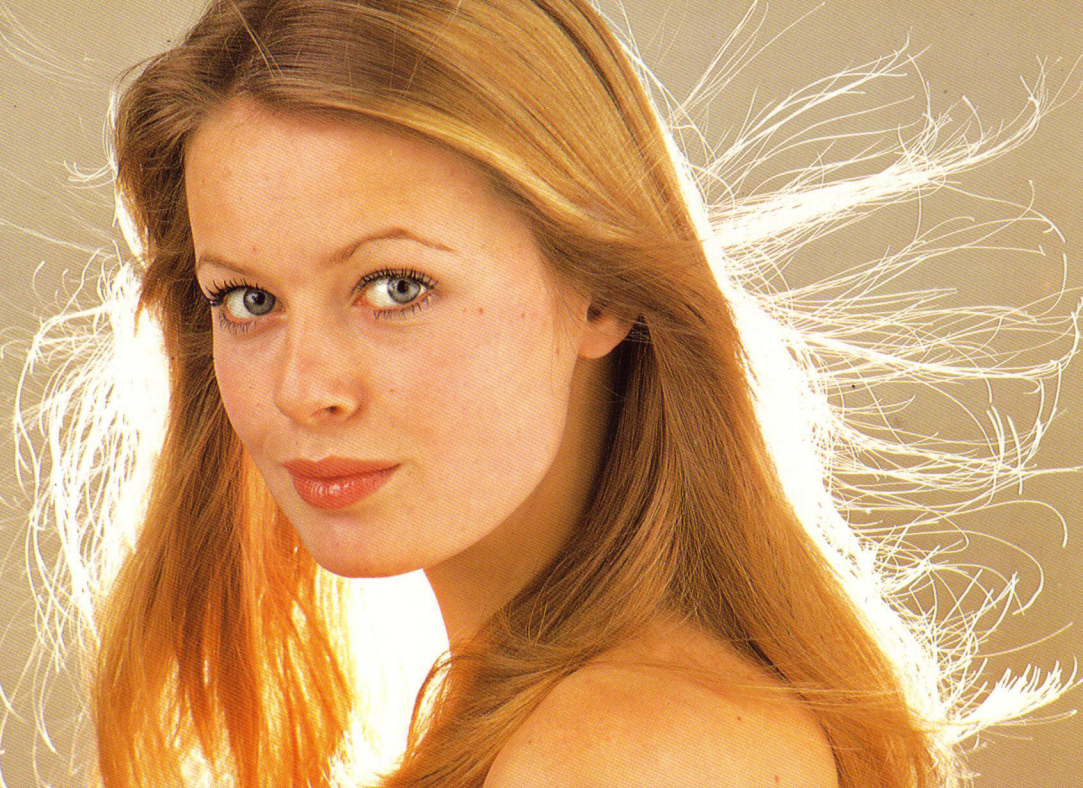
Norihiko Matsumoto

Portraits

The first element in successful portraiture is lighting. Whether indoors or out, the angle, color, and intensity of light are all important ingredients. Professionals call it "modeling"—the way that light on a person's face or body highlights different contours. Generally speaking, light aimed straight ahead, as from a camera-mounted flash unit, produces little or no modeling. To avoid this, try to have light strike your model from an angle—about 30° to the side and above is best—to cast a shadow on the far side of the face. By using a reflector, you can soften this shadow while still maintaining a pleasing modeling effect.

Or, instead of a reflector, you can use a second light, called a "fill," to soften the shadow caused by the main light source. If the main light source is the sun, be sure you use a flash unit or a reflector for fill. Incandescent lighting has a much redder cast, and the combination of light will not be pleasant.

As far as lenses go, normal and short telephoto lenses are preferred because they don't distort the size relationship between the nose and the rest of the face. For a full-frame face portrait, a telephoto lens is almost a necessity. With telephotos, though, you'll have to be careful that all your subject is in focus. The best way to do this is to mount your camera on a tripod and stop down the aperture for maximum depth of field. Modern portraiture generally dispenses with traditional props and uses either plain backgrounds or familiar surroundings. Use the selective focus qualities of telephoto lenses to throw distracting backgrounds out of focus. Then center attention on the character of the person in the picture.



Nude Photography

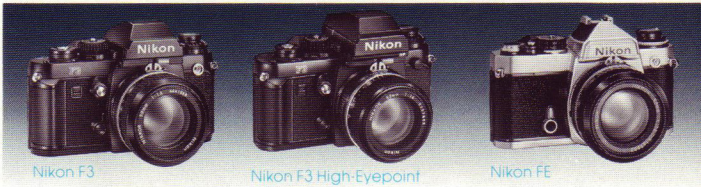
Some photographers stage unusual poses to show the limits of the human shape, while others strive for a more natural look. Some use stark lighting to create strong shadows and sharp contrasts, while others use a very diffused light for a soft, pastel look. You can go to either extreme or anywhere in-between.

Lighting in nude photography is much the same as in portrait photography. The body is full of contours, and your choice of lighting can accentuate or minimize them. Strong side lighting with no offsetting fill will produce hard angular shadows with very high contrast between the bright and dark areas. Backlighting will create a silhouette of the body against a light background. Normally, however, standard portrait lighting is used to give a natural effect. Arrange standard photofloods in such a way that the light areas are about one stop brighter than the dark ones. For natural effects, indirect lighting, like flash bounced from a wall or ceiling, will give a soft, even illumination. Soft-focus lens attachments can be used to create an even dreamier look.

In general, make the model the center of attention in your pictures by keeping distracting backgrounds to a minimum. Anything you include with the model should contribute in some way to the overall composition. The textures of furniture or grass, for example, may be used to contrast with skin texture, or the shape of a tree might be echoed in the pose of the model's body. Just as with still-life photography, the photographer is free to use any lens that suits his purpose. Normal lenses are usually perfect for a full-body, full-frame pose, but telephotos and even wideangles can be used to great effect when parts of the body make up the total composition.

Hideki Fujii

Cameras



Nikon F3 | Nikon F3 High-Eyepoint | Nikon FE

The Nikon F3

The ultimate for any photographer. Automatic exposure control gives perfect results with the correct shutter speed set steplessly from 8 to 1/2000 sec. And the selected speed is displayed in the viewfinder to keep you fully informed. On manual, 16 discrete shutter speeds are quartz controlled for unprecedented accuracy. Like the F and F2 before it, the Nikon F3 has a full range of interchangeable viewfinders, and metering is possible with each one.

Other professional features include automatic film advance of up to 6 frames per second with the MD-4 Motor Drive, and completely automatic, through-the-lens flash exposures when using the new SB-11, SB-12, or SB-14 Speedlight. Add to this a choice of 20 interchangeable focusing screens, multiple-exposure capability, and virtually 100% viewfinder coverage, and you have a formidable photographic instrument.

Nikon F3 High-Eyepoint

A special model of the F3 designed for eyeglass wearers which allows the entire frame, including all exposure information, to be seen with the eye up to 25 mm away.

Nikon FE

The compact automatic from Nikon. Just set the aperture you want; the camera's sensitive metering system automatically sets the correct shutter speed. Interchangeable focusing screens are available, as is a lightweight motor drive unit, the MD-12.

Nikon FM2

The fastest SLR available today; manual shutter speeds up to 1/4000 sec., flash sync. at 1/200 sec. Other features include three interchangeable focusing screens compatible with the

Nikon FE, multiple-exposure capability, and motor drive photography using the MD-12.

Nikon FM

Nikon quality in a compact, lightweight package. The proven Nikon center-weighted metering system, coupled to an LED display for super-precise exposure control. Full information viewfinder shows aperture, shutter speed, and correct exposure. You never have to take your eye from the finder. The FM makes perfectly registered multiple exposures, even with its motor drive, the MD-12.

Nikon FG

Nikon's selective-exposure SLR features three exposure modes to fit any situation: total-exposure programming, aperture-priority automation, and full manual control. To assure perfect exposure, the FG offers an exposure compensation dial, exposure compensation button, and an audio warning system. Made to match the Speedlight SB-15, Motor Drive MD-14, and Data Back MF-15.

Nikon EM

This compact, lightweight automatic sounds an alarm if your exposure isn't perfect. Available with its own motor drive and a special companion flash unit, the EM is versatile and easy to use.

Nikonos IV-A

Compact and ruggedly built, the Nikonos IV-A is the perfect camera for underwater (down to a depth of 50 mm, or 160 ft) or all-weather photography. Its automatic exposure control makes picture taking easy, and four interchangeable lenses are available.

The Lenses

More than 60 interchangeable models, including Series E lenses, from the 220° Fisheye-Nikkor to the awesome 2000mm Reflex-Nikkor. Each one is specially matched to Nikon cameras for total resolution from the front element all the way to the film plane. Nikkor lenses are unmatched in terms of optical quality and mechanical reliability, and most incorporate the AI facility which automatically matches the maximum aperture of the lens to the camera's meter system. Since Nikon is one of the few lens makers to actually make its own optical glass, Nikon designers are able to use the latest developments in glass for superior optical designs like the CRC (Close-Range Correction) System, the NIC (Nikon Integrated Coating) and the Nikon ED (Extra-low Dispersion) glass and IF (internal focusing) lenses.

Lens \ Descriptions	Picture angle	Minimum f-stop	Closest focus m (ft)	Filter (mm)	Weight (g)	Dimensions ■ ϕ × L (mm)
Wideangle						
13mm f/5.6 Nikkor	118°	22	0.3 (1)	Provided	1200	115 × 88.5
15mm f/3.5 Nikkor	110°	22	0.3 (1)	Provided	630	90 × 83.5
18mm f/3.5 Nikkor	100°	22	0.25 (0.82)	72	350	75 × 61.5
20mm f/3.5 Nikkor	94°	22	0.3 (1)	52	235	63 × 40.5
24mm f/2 Nikkor	84°	22	0.3 (1)	52	300	63 × 51.5
24mm f/2.8 Nikkor	84°	22	0.3 (1)	52	250	63 × 46
28mm f/2 Nikkor	74°	22	0.25 (0.82)	52	360	63 × 58.5
28mm f/2.8 Nikkor	74°	22	0.2 (0.7)	52	250	63 × 44.5
28mm f/3.5 Nikkor	74°	22	0.3 (1)	52	220	63 × 46.5
35mm f/1.4 Nikkor	62°	16	0.3 (1)	52	400	67.5 × 62
35mm f/2 Nikkor	62°	22	0.3 (1)	52	280	63 × 51.5
35mm f/2.8 Nikkor	62°	22	0.3 (1)	52	240	63 × 46
Normal						
50mm f/1.2 Nikkor	46°	16	0.5 (1.7)	52	380	68.5 × 47.5
50mm f/1.4 Nikkor	46°	16	0.45 (1.5)	52	250	63 × 40
50mm f/1.8 Nikkor	46°	22	0.45 (1.5)	52	210	63 × 37
Telephoto						
85mm f/1.4 Nikkor	28°30′	16	0.85 (3)	72	620	80.5 × 64.5
85mm f/2 Nikkor	28°30′	22	0.85 (3)	52	310	63 × 52.5
105mm f/1.8 Nikkor	23°20′	22	1 (3.5)	62	580	78.5 × 80.5
105mm f/2.5 Nikkor	23°20′	22	1 (3.5)	52	435	64 × 69.5
135mm f/2 Nikkor	18°	22	1.3 (4.5)	72	860	80 × 93.5
135mm f/2.8 Nikkor	18°	32	1.3 (4.5)	52	435	64 × 83.5
135mm f/3.5 Nikkor	18°	32	1.3 (4.5)	52	420	64 × 81.5
180mm f/2.8 Nikkor ED	13°40′	32	1.8 (6)	72	800	78.5 × 130

Lens \ Descriptions	Picture angle	Minimum f-stop	Closest focus m (ft)	Filter (mm)	Weight (g)	Dimensions ■ ϕ × L (mm)
Telephoto						
200mm f/2 Nikkor IF-ED	12°20′	22	2.5 (10)	122	2400	138 × 214
200mm f/4 Nikkor	12°20′	32	2 (7)	52	510	65 × 116
300mm f/2.8 Nikkor IF-ED	8°10′	22	4 (13)	39	2500	138 × 241
300mm f/4.5 Nikkor	8°10′	32	3.5 (12)	72	1200	78.5 × 194
300mm f/4.5 Nikkor IF-ED	8°10′	32	2.5 (10)	72	990	80 × 192
400mm f/3.5 Nikkor IF-ED	6°10′	22	4.5 (15)	39	2800	134 × 296
400mm f/5.6 Nikkor IF-ED	6°10′	32	4 (15)	72	1200	85 × 254
600mm f/4 Nikkor IF-ED	4°10′	22	6.5 (25)	39	6300	177 × 460
600mm f/5.6 Nikkor IF-ED	4°10′	32	5.5 (20)	39	2700	134 × 374
800mm f/8 Nikkor IF-ED	3°	32	10 (35)	39	3300	134 × 452
1200mm f/11 Nikkor IF-ED	2°	32	14 (45)	39	3900	134 × 569
Reflex						
500mm f/8 Nikkor	5°	—	4 (13)	39	1000	93 × 135
1000mm f/11 Nikkor	2°30′	—	8 (25)	39	1900	119 × 233.5
2000mm f/11 Nikkor	1°10′	—	18 (60)	Built-in	17500	262 × 593.5
Zoom						
25-50mm f/4 Nikkor	80°40′—47°50′	22	0.6 (2)	72	600	75 × 104
35-70mm f/3.5 Nikkor	62°—34°20′	22	0.35 (1.16)	62	520	66.5 × 96.5
43-86mm f/3.5 Nikkor	53°—28°30′	22	1.2 (4)	52	450	66.5 × 73.5
80-200mm f/4 Nikkor	30°10′—12°20′	32	1.2 (4)	62	810	73 × 154
50-300mm f/4.5 Nikkor ED	46°—8°10′	32	2.5 (8.5)	95	1950	98 × 239
180-600mm f/8 Nikkor ED	13°40′—4°10′	32	2.5 (8.5)	95	3600	105 × 395
200-600mm f/9.5 Nikkor	12°20′—4°10′	32	4 (13)	Series IX	2500	89 × 374
360-1200mm f/11 Nikkor ED	6°50′—2°	32	6 (20)	122	7900	125 × 696

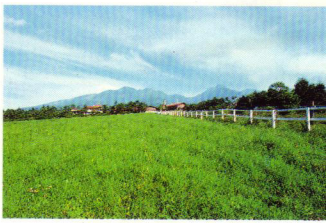
Lens \ Descriptions	Picture angle	Minimum f-stop	Closest focus m (ft)	Filter (mm)	Weight (g)	Dimensions ■ ϕ × L (mm)
Fisheye						
6mm f/2.8 Nikkor	220°	22	0.25 (0.9)	Built-in	5200	236 × 160
8mm f/2.8 Nikkor	180°	22	0.3 (1)	Built-in	1100	123 × 128
16mm f/2.8 Nikkor	180°	22	0.3 (1)	Provided	330	63 × 55.5
Special Purpose						
28mm f/3.5 PC-Nikkor*	74°	22	0.3 (1)	72	380	78 × 64.5
35mm f/2.8 PC-Nikkor*	62°	32	0.3 (1)	52	320	62 × 61.5
58mm f/1.2 Noct-Nikkor*	40°50′	16	0.5 (1.7)	52	465	74 × 51.5
55mm f/2.8 Micro-Nikkor	43°	32	0.25 (0.86)	52	290	63.5 × 62
105mm f/4 Micro-Nikkor	23°20′	32	0.47 (1.55)	52	500	68.5 × 96
200mm f/4 Micro-Nikkor IF	12°20′	32	0.71 (2.34)	52	800	67 × 172
120mm f/4 Medical-Nikkor IF	18°50′	32	0.26 (0.86)	49	890	98 × 142
Nikon Series E Lenses						
28mm f/2.8	74°	22	0.3 (1)	52	155	62.5 × 35
35mm f/2.5	62°	22	0.3 (1)	52	150	62.5 × 35
50mm f/1.8	46°	22	0.6 (2)	52	155	62.5 × 27.5
100mm f/2.8	24°20′	22	1 (3.5)	52	215	62.5 × 49.5
135mm f/2.8	18°	32	1.5 (5)	52	395	62.5 × 80.5
36-72mm f/3.5 Zoom	62°—33°30′	22	1.2 (4)	52	380	67 × 63
75-150mm f/3.5 Zoom	31°40′—17°	32	1 (3.5)	52	520	65 × 117
70-210mm f/4 Zoom	34°20′—11°50″	32	0.56 (2)	62	730	72.5 × 148
Teleconverters						
TC-14	—	—	—	—	165	64.5 × 22
TC-200	—	—	—	—	230	64.5 × 44
TC-300	—	—	—	—	280	64.5 × 83

■ Length dimension denotes lens extension from mounting flange.
* Preset.

Focal Length and Picture Angle

8mm

13mm

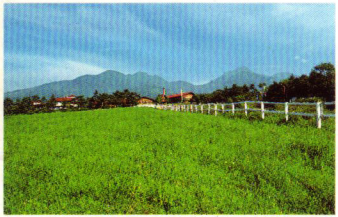


20mm

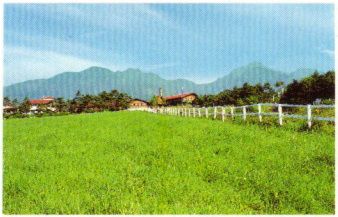
85mm

135mm

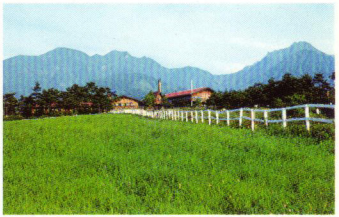
200mm



28mm



35mm



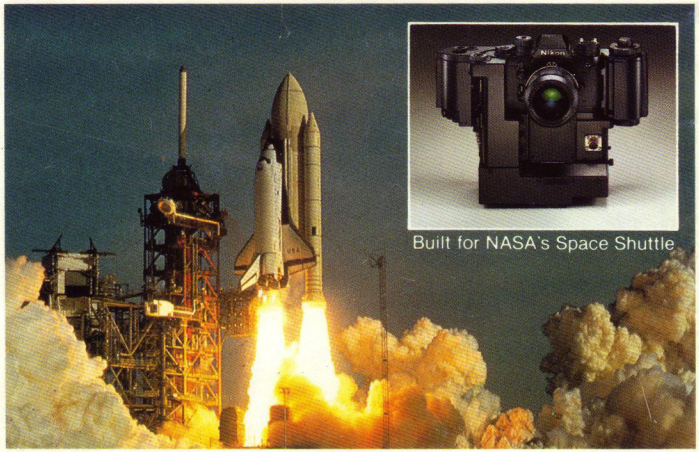
50mm

300mm

600mm

1200mm

Specifications and designs shown herein are subject to change without notice.



Built for NASA's Space Shuttle

Nikon cameras have been flying in space on NASA's manned spacecraft program ever since the APOLLO program. This also includes SKYLAB and the joint venture APOLLO-SOYUZ.

Nikon

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