



Exploring Photography

UNIT II,
MEMBER'S MANUAL



4-H Photography Program

Unit 1: *Adventures with Your Camera*

Unit 2: *Exploring Photography: Advanced Picture-Taking Techniques*

Adventures with Adjustable Cameras

Darkroom Techniques

Action! Making Videos and Movies

Advanced Skill Guides (pamphlets on portraiture, slide shows, etc.)

4-H Photography Awards

County

Four Gold Medals of Honor in Photography

State

Expense-paid trip to National 4-H Congress

National

Six educational scholarships of \$1500 each. A scholar incentive grant of \$500 is given to national winners whose grades rank in the upper half of their class during the semester they use the \$1500 scholarship.

This manual is published by National 4-H Council, 7100 Connecticut Avenue, Chevy Chase, Maryland 20815, with the cooperation of Eastman Kodak Company, in behalf of the Extension Service, United States Department of Agriculture and the Cooperative Extension Services of the State Land-Grant Universities.

The use of specific product or trade names for illustration in this document does not imply an endorsement by USDA or the Land-Grant Universities.

Programs and Educational Materials of these groups are available to all persons regardless of race, color, sex, age, religion, national origin or handicap. All are equal opportunity employers.

Cover photos (left to right, clockwise) by 4-H'ers,
Joel Witmeyer, Neenah, Wisconsin;
Christina Marie Nagy, Cleveland, Georgia;
Christa Foels, Postville, Iowa;
Dee Dee Krein, Kensington, Kansas.



© Eastman Kodak Company, 1990

CONTENTS

	Chapters	Pages
1	Introduction	2
2	Film Selection.....	3
3	Camera Control	8
4	Composition	16
5	Action Pictures	24
6	Lighting	28
7	Special Effects	32
8	Ideas to Try	34
	Glossary.....	38

1 Introduction

Exploring Advanced Techniques with a Simple Camera

In Unit 1, you learned how photographs are created from five necessary ingredients:

- Film
- Camera
- Light
- Subject
- Processing (developing and printing the film).

You also learned some basic tips for better pictures:

- Hold the camera steady.
- Get close to the subject.
- Keep the picture simple.
- Move around for different angles.
- Use flash for pictures of people.

Now it's time to move beyond the basics.

In Unit 2, you will learn advanced techniques to help you take better pictures of more subjects. The goal is to improve your *control* of your photographic results.

All you need is film and a simple or automatic camera. Projects will help you explore techniques and *see* how to make your pictures more dynamic.

2 Film Selection

Have you ever wondered why there are so many different types of film, and which type is best for you?

Your choice of film has an important effect on your pictures. First, decide what kind of pictures you want. You can choose film for color prints, black and white prints, or color slides. Then select the film with the degree of light sensitivity you want, as explained in the next section called "The Number In the Name."

Color Prints

Film for color prints is the type used most commonly.

You can carry prints around, put them in albums, and hang them on the wall. Prints are easy to view and share with your friends and family.

After developing, the film itself becomes a negative image. The negative film produces a positive image when a print is made on photographic paper. When prints are made, exposure and colors can be adjusted. That means it's easy to get good results. You can overexpose or underexpose slightly when you take the picture and still get good prints. Also, you can use the same film with any type of light — from bright daylight to the lamps in your living room.

Color Slides

With color slides, you do not get paper prints. The film itself is what you show, using a slide projector. Each frame of film is returned mounted in cardboard or plastic, ready to be projected. Projecting slides makes it easier to share pictures with a group of people, but you need a projector, a screen, and a darkened room.

Exposure must be more accurate with slide film than with film for color prints. If you goof up on the exposure a little bit, your slide will show it. Of course, using an automatic camera will give good exposures of most scenes.

When selecting a slide film, you must choose between a "daylight" or "tungsten" type. Daylight slide film is used outdoors and with flash. Tungsten film is specially designed for best results with artificial lights (household lamps and stage lights). Unlike film for color prints, slide film should not have both outdoor and indoor pictures on the same roll. Daylight slide film used indoors will give very yellow pictures. Tungsten film used in daylight will give very blue pictures.

The Number in the Name

You've noticed that films usually have numbers in their names, such as Kodacolor Gold 200 film. And there are choices of different numbers with each type of film, such as 100, 200, 400, and 1600. The numbers indicate different "film speeds" based on standards set by the International Standards Organization (ISO). They are sometimes called "ISO numbers."

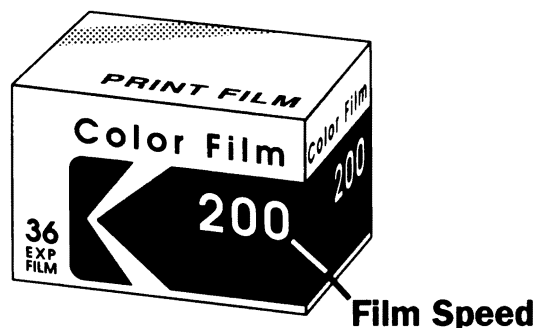
"Speed" is a measure of a film's sensitivity to light. High speed films (also called "fast" films) are more sensitive to light. "Slow" films are less sensitive to light. High speed films allow you to take better pictures in dim light.

If you use an automatic camera, film speeds won't change the way you take pictures. But they can change the way your pictures look.

Images are formed when grains of film chemicals are exposed to light. Smaller grains show tiny details better. They are used in slow speed films. Larger grains capture light faster. They are used in high speed films.

Slow Speed Films (ISO 25 to 100)

- The *sharpest* films
- Use in bright light
- Ideal for enlargements



Medium Speed Films (ISO 125 to 200)








- The best *general-purpose* films
- Use with a variety of lighting
- The most popular choice for automatic cameras



High Speed Films (ISO 400 to 1600)




- For *dim light* (without flash) and to *freeze fast action*
- Extra sensitivity adds extra distance to flash range with automatic cameras
- Used primarily with adjustable cameras

Which Film is for You?

Use the chart below to help select the best film for different situations. Remember: for general picture-taking, use a medium speed (ISO 200) film.

		Film Speeds				
		25	100	200	400	1600
	Beaches & Snow	★★★★	★★★★	★★★★	★★	★★
	Scenery - Bright Days	★★★★	★★★★	★★★★	★★	★★
	People & Activities	★★	★★★★	★★★★	★★★★	★★
	Scenery - Overcast	★★	★★	★★★★	★★★★	★★
	Fast Action	★★	★★	★★★★	★★★★	★★★★
	Night Scenes	★★	★★	★★	★★★★	★★★★
	Museums & Stage Shows	★★	★★	★★	★★★★	★★★★

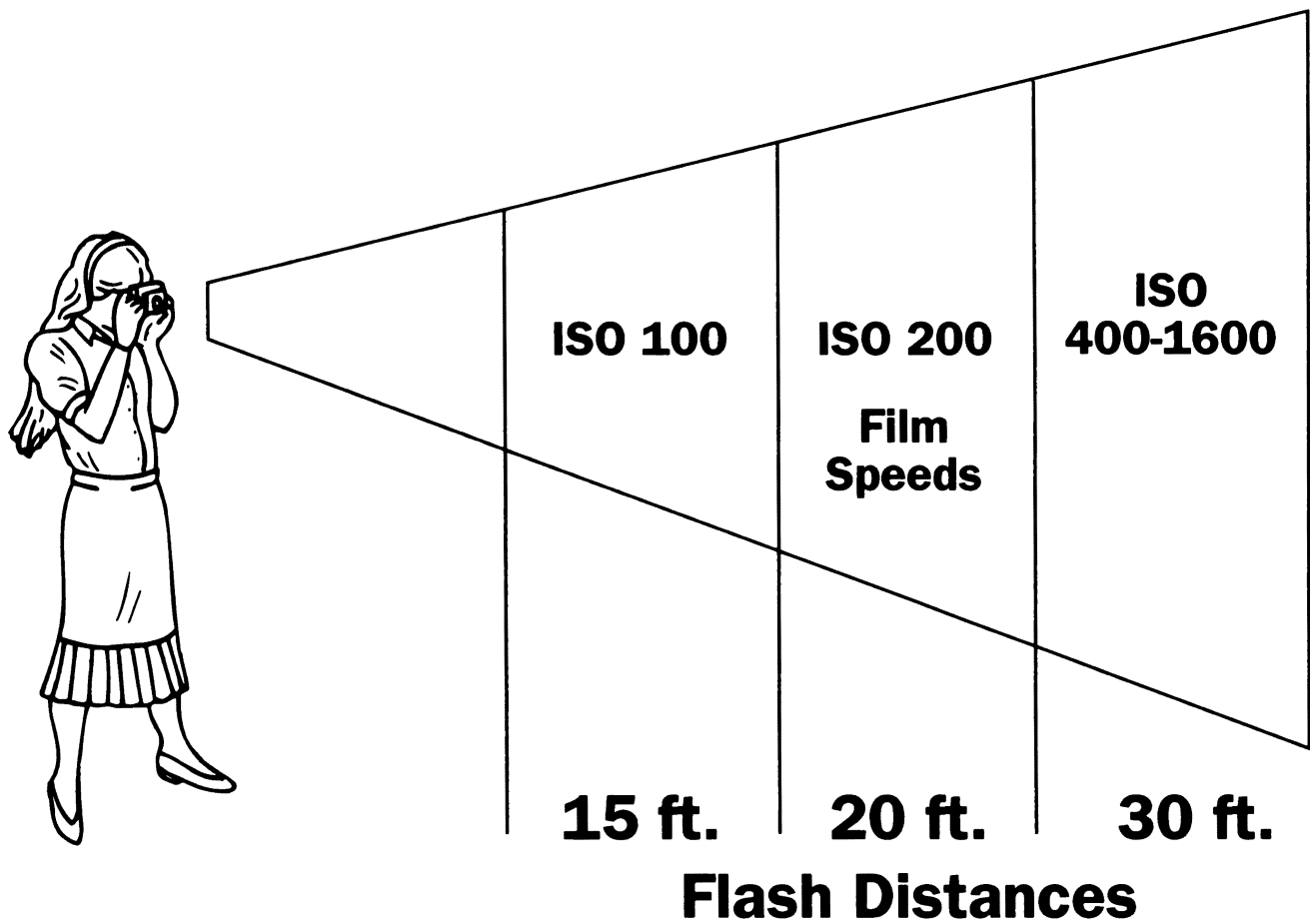
	General Use	
Slow and Sharp		Extra Fast

Key	 Not a good film to use	 A good film to use	 An excellent film to use
------------	--	--	--

NOTE: Use a tungsten slide film when taking slides of subjects your flash can't reach, such as stage shows or large objects in a museum.

Flash Pictures and Film Speed

The flash on your camera normally provides enough light for subjects as far as the length of a car, as you learned in Unit 1. The extra sensitivity of higher speed films helps your flash reach farther.



The distance to your subject is very important with flash pictures. Check the camera instructions and the flash instructions to answer these two questions.

Q: “How *close* can I be for sharp pictures?”

A: Most automatic cameras focus as close as 3 or 4 feet.

Q: “How *far* can I be for flash pictures?”

A: This distance varies with the power of the flash and the speed of your film.

Activity

Flash Distance

Try judging the distance of 5 subjects indoors -some near and some far away (up to 30 feet). You will need a camera (with or without film) and a ruler or yardstick.

- Select the subject.
- Use your camera to frame the scene.
- Guess the distance.
- Measure the distance.

3 Camera Control

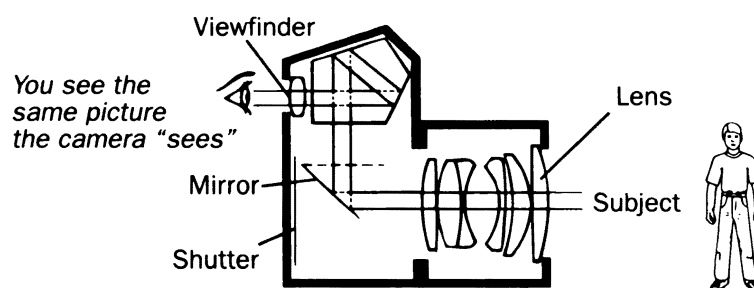
Extra care will bring extra quality to your pictures -even with a simple, automatic camera. This section will help you improve your control of:

- Viewing
- Automatic exposure
- Automatic focus.

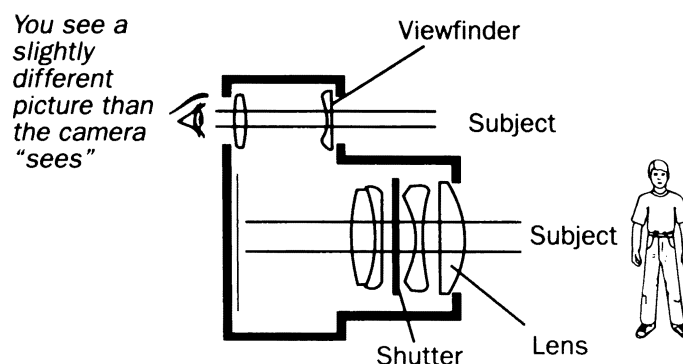
Viewing Close-Ups

There are two types of camera viewing systems. The single lens reflex system shows exactly what every picture will look like. That's because you view the scene through the same lens used to take the picture.

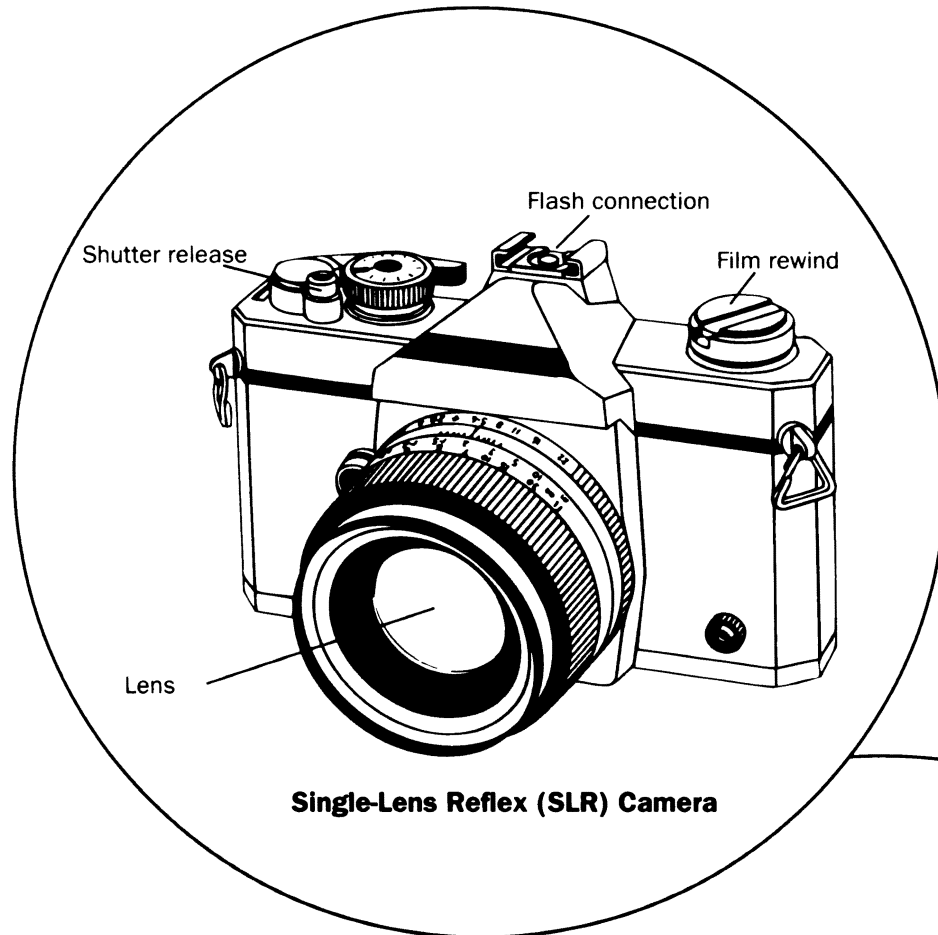
Most automatic cameras have *two* lenses on the front of the camera — one to take the picture, and a separate lens for viewing the scene. Check the front of your camera to see which type of viewing system you have.



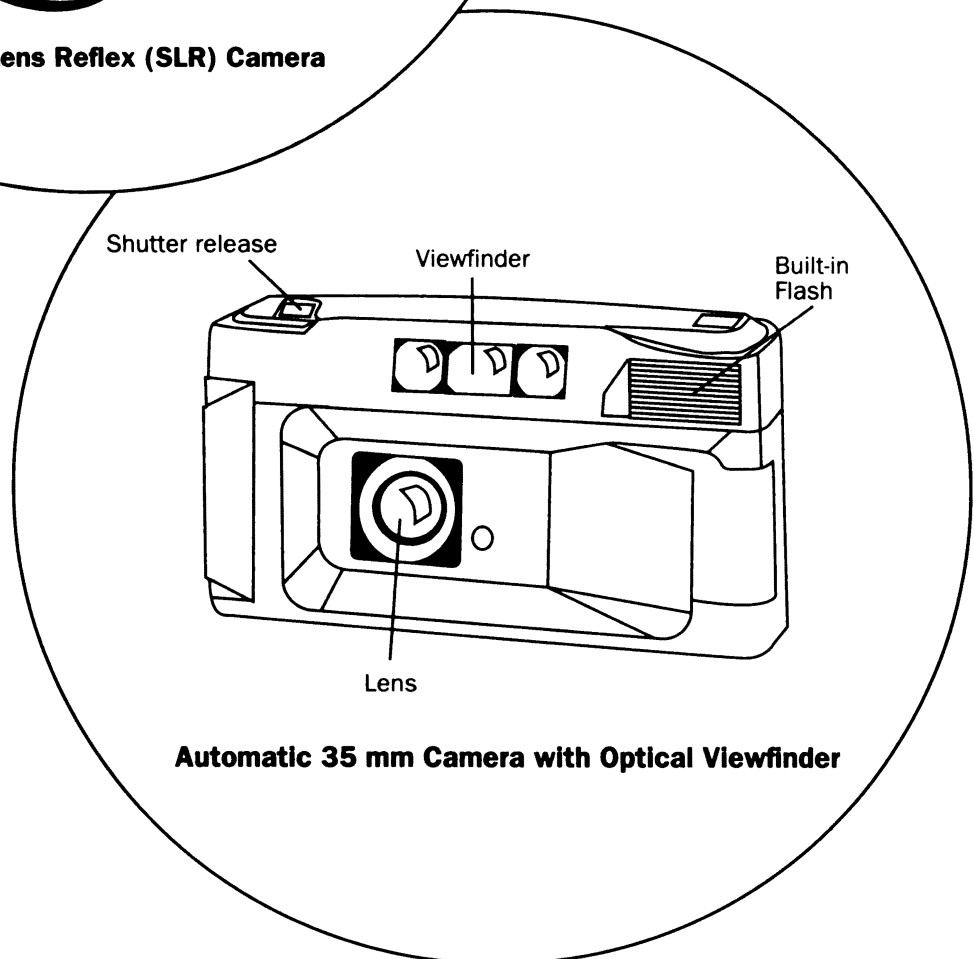
Single-Lens Reflex Viewfinder



Optical Viewfinder



Single-Lens Reflex (SLR) Camera

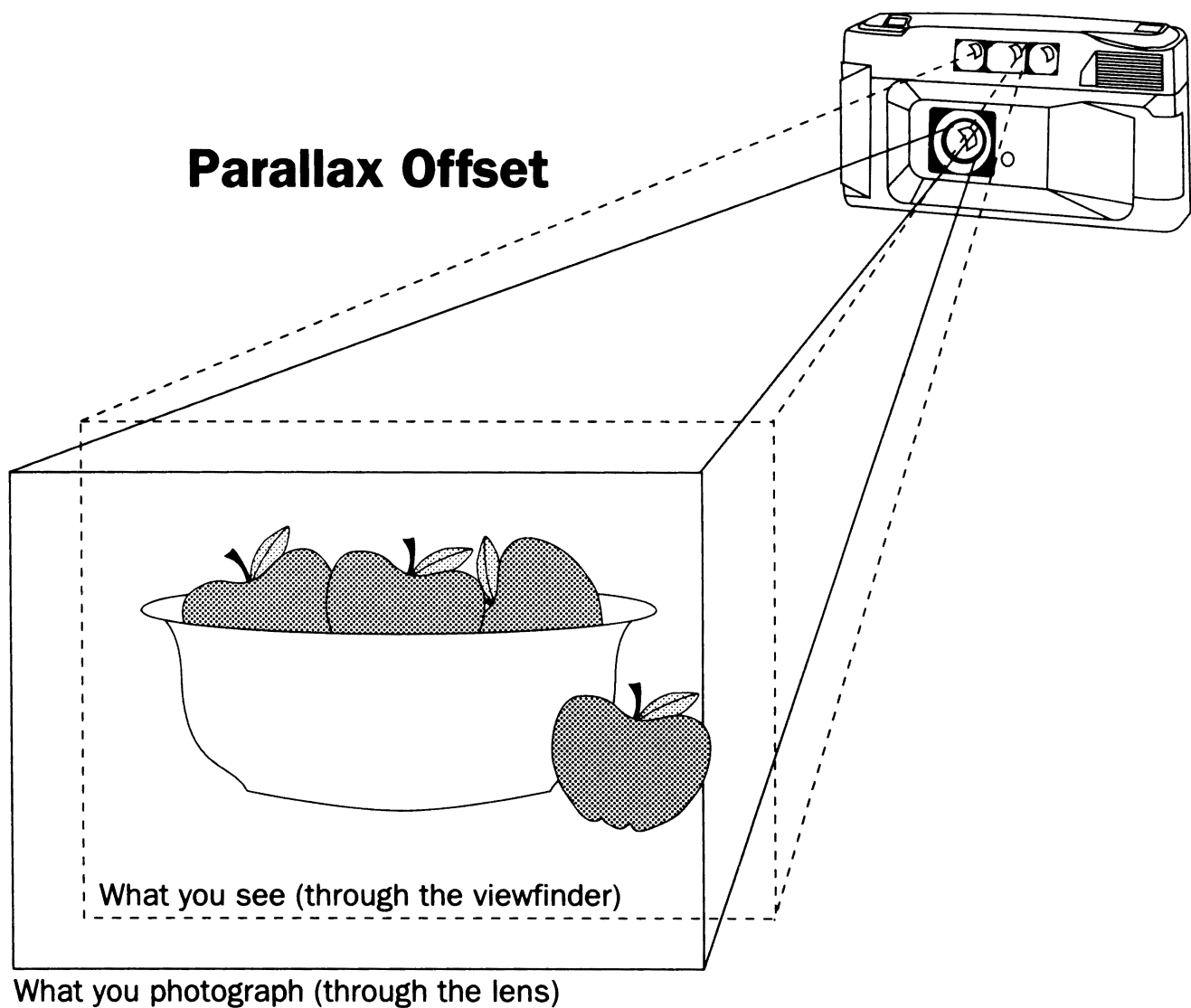


Automatic 35 mm Camera with Optical Viewfinder

Camera Control

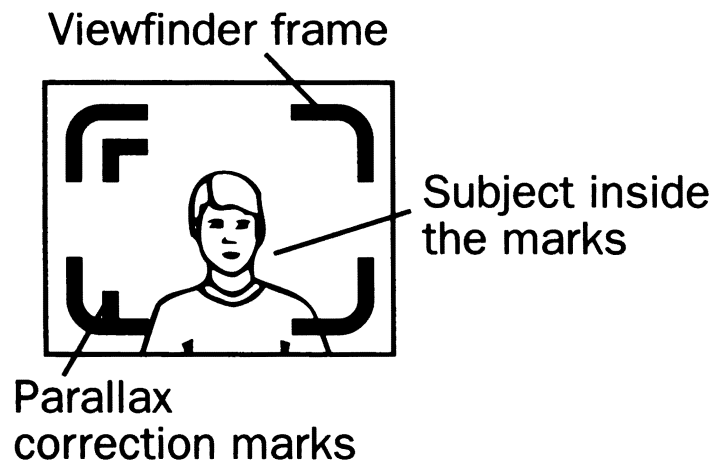
Both types of viewfinders work fine for most pictures. Close-ups are an exception. They require special care with a two lens viewing system.

There is a slight difference in position between the lens you look through and the lens the film "looks" through. This difference is magnified as the subject gets closer. When the subject is *very* close, there can be a difference between the picture you view and the picture you see in your prints. This difference is called *parallax*.



Most cameras have special marks in the viewfinder to correct for parallax. When taking close-ups, you can position the subject more precisely by using these marks. Check your viewfinder and read the camera manual.

Be careful not to correct too much, since the difference is usually very slight.



Activity

Viewing Close-Ups With a Two-Lens System

You need a camera with a two-lens viewing system and special marks in the viewfinder for this project.

- Place the subject as close as possible to be in focus (usually 3 or 4 feet away).
- Take a picture that looks best in the viewfinder without trying to correct for close-up viewing.
- Take a second picture using viewfinder marks to correct for close-up viewing.

Compare the pictures. Did you correct enough? Did you correct too much?

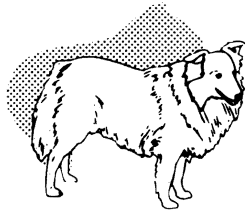
Automatic Exposure

Years ago, setting the proper exposure was a complicated job that was repeated for every single picture. With most of today's cameras, accurate exposures are set automatically.

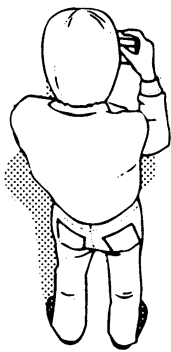
Be aware, however, that very strong backlighting may confuse your automatic exposure system. The camera adjusts automatically for the best overall exposure. However, your subject may be a person who is backlit or placed against a bright background and is a small part of the overall picture. In this case, the person will probably be underexposed since the camera adjusts for the brightness level in the whole picture.

There is an easy solution. Change position! Just move yourself or your subject to a position where the light is more even.

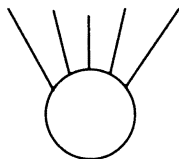
Frontlighting



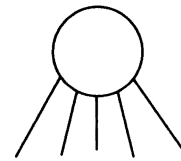
Subject
(Subject brightly lit)



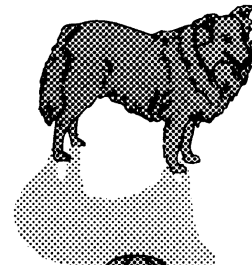
Camera



Light source
(Behind Camera)



Light source
(Behind Subject)



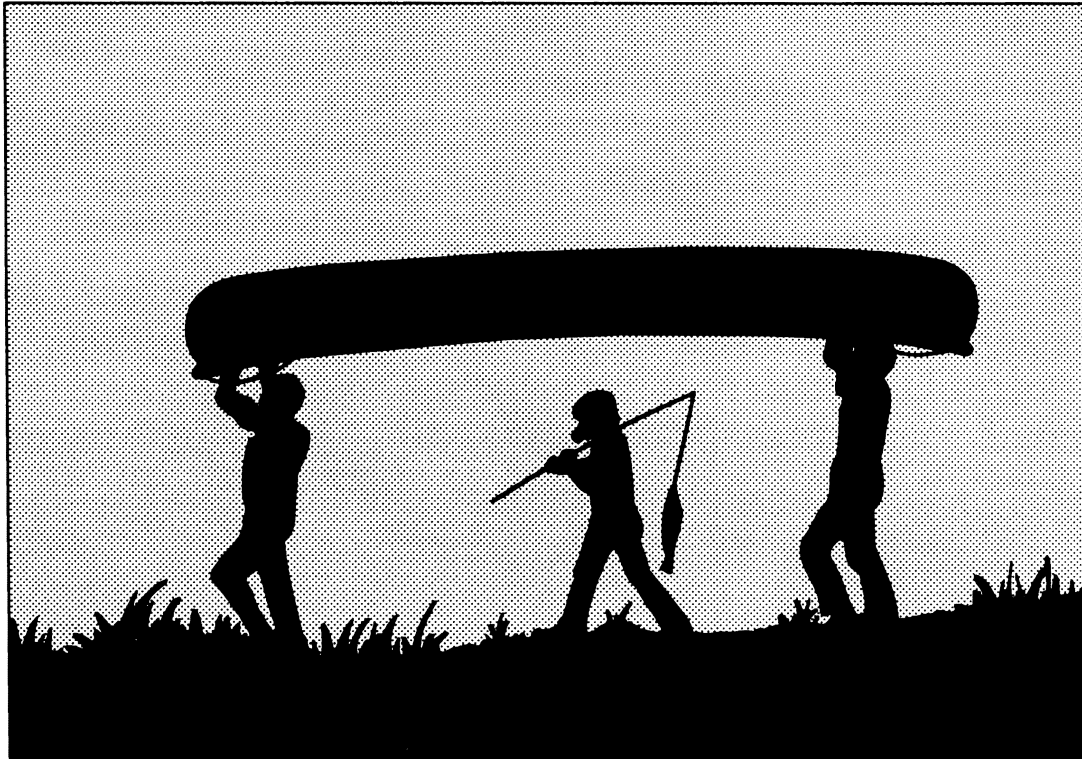
Subject
(Subject in Shadow)



Camera

Backlighting

You can use this effect to take silhouettes. Place your subject against a light background (try the sky) so that the subject stays completely dark. This works best at sunrise and sunset, when there is less reflected light. The result will be an interesting study in shape and form, surrounded by the pleasing warm colors of sunrise or sunset.



Activity

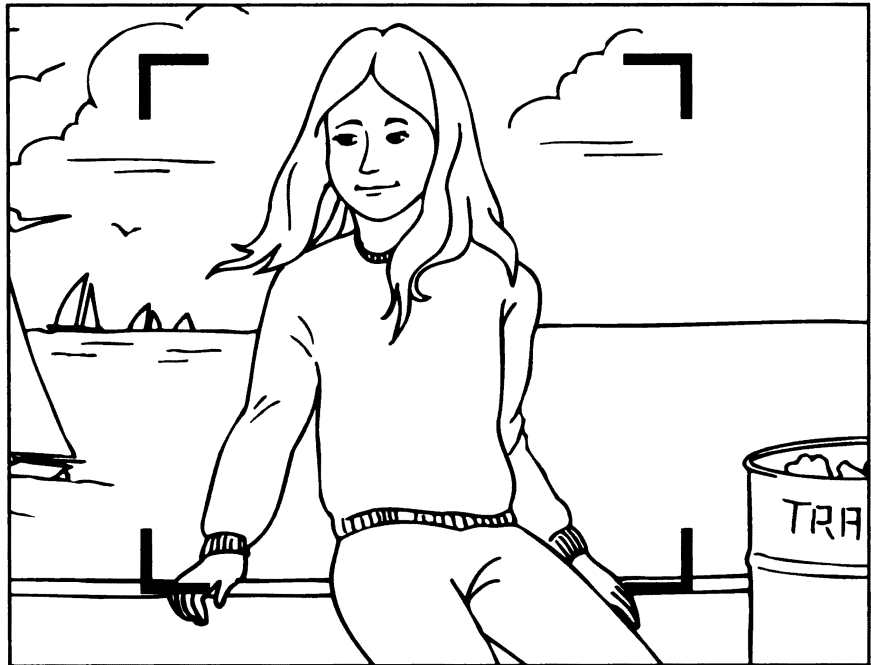
Use Backlighting to Create a Silhouette.

- Take a picture of a friend with *front-lighting* at sunrise or sunset.
- Move so your friend is *back-lit*. Get low so the sky fills most of the picture. Take the picture.

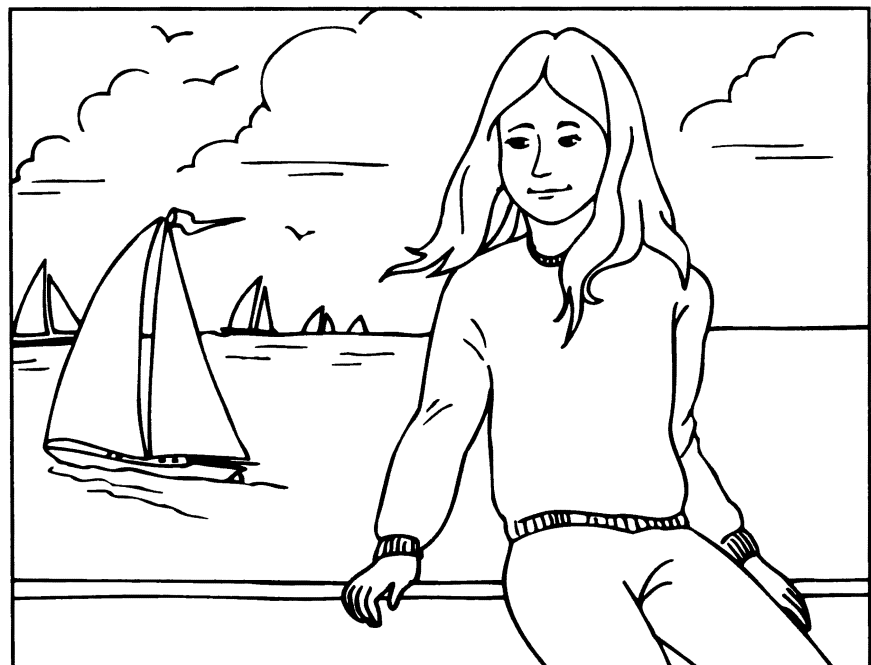
Your friend should look like a shadow.

Automatic Focus

Focus on
subject...



...then
recompose
the picture!



Sometimes you need to take special care to get sharp pictures with automatic focusing cameras. Here's how.

Amateur cameras normally have *automatic* focus or *fixed* focus lenses. You can use either type of camera to take sharp pictures without setting the focus. There is a difference between these focusing systems, although you can't see it.

- ❑ **Fixed focus lenses are made to take sharp pictures without changing the position of the lens. Cameras with these lenses cannot take sharp pictures closer than about 4 feet.**
- ❑ **Automatic focus systems measure the distance to the subject using special beams. Then they change the lens position to keep the subject sharp. They have the advantage of taking sharp pictures at closer distances.**

Most automatic systems focus on the center of the scene. Usually there is a mark in the center of the viewfinder to show where the camera is focusing. However, sometimes the center of interest in a picture may not be in the center of the frame.

For example, you may have two friends standing side-by-side, with a distant background between them. Or you may place the main subject off-center to make the composition more interesting. These examples can result in pictures that are out of focus with some cameras.

Most automatic focus cameras allow you to avoid this problem by *prefocusing*. Move the camera to prefocus on the main subject, then move it again to recompose and take the picture. See your camera instructions for details.

Activity

Prefocusing

Test your camera to see if you can prefocus on subjects that are off-center.

Read your camera instructions. Then duplicate the scenes shown on the previous page, taking one picture that is prefocused and one that is not prefocused.

4 Composition

Composition is the arrangement of the items within a photograph. The goal of composition is simple: to find the most appealing and interesting view. The examples below show good and poor composition of the same scene. Notice how one seems strong and the other seems awkward.

You don't need special tools or techniques to control composition. You just need to keep your eyes and mind active. Look for a more interesting angle or point of view. Move close to make the subject appear larger. Climb up high or crouch down low. Walk around the subject for a back or side view.



Isolating the Subject

In the bottom left picture, you see a boy and ten other things.

To the right, you see him more clearly. The left-hand picture is too cluttered. The right-hand picture isolates the boy to focus attention on him. That's good composition.

How do you isolate a subject? First, you have to recognize that the scene is cluttered. When looking through the viewfinder, many people overlook distractions because they are interested in the subject. You have to be alert, watch for clutter, and try to eliminate it.



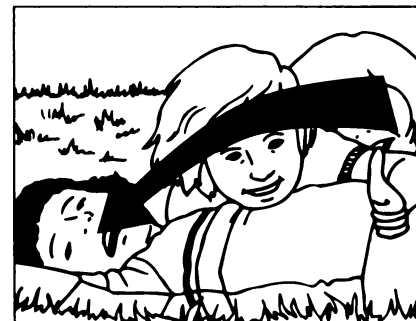
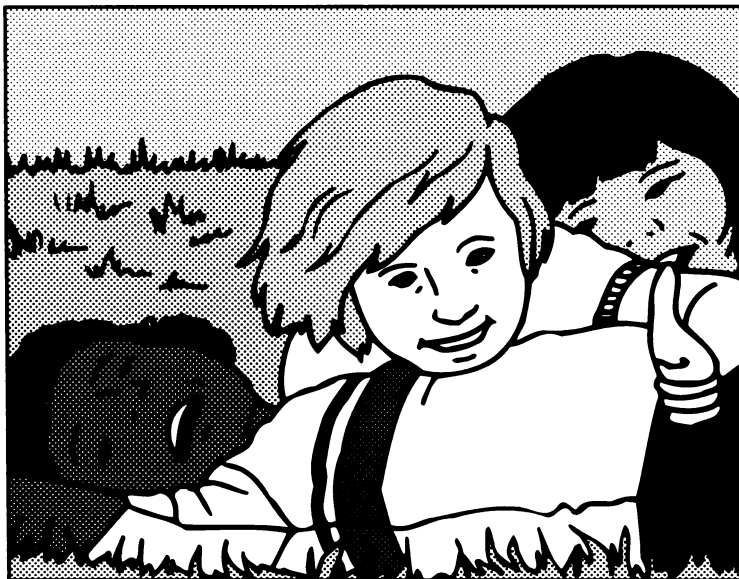
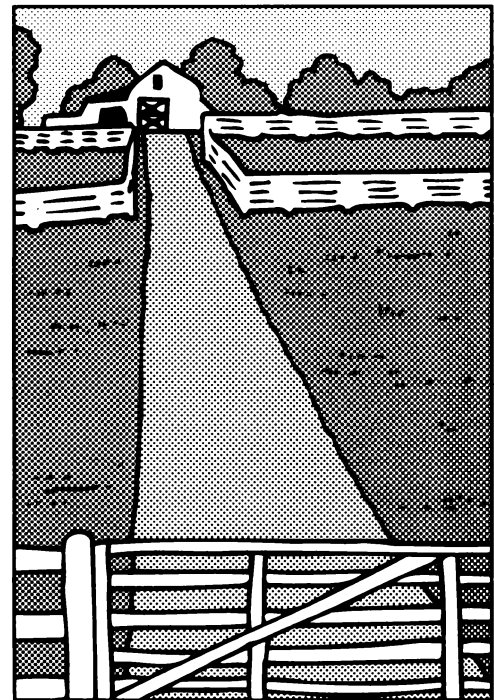
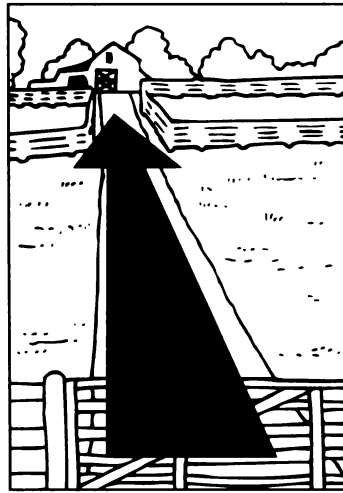
Try these ideas:

- Remove extra things from the picture area.
- Move your subject. Go to an uncluttered area.
- Move yourself. Find a different viewpoint that isolates the subject.
- Move close. Let the subject fill the viewfinder.

Seeing Lines, Shapes, Patterns, and Colors

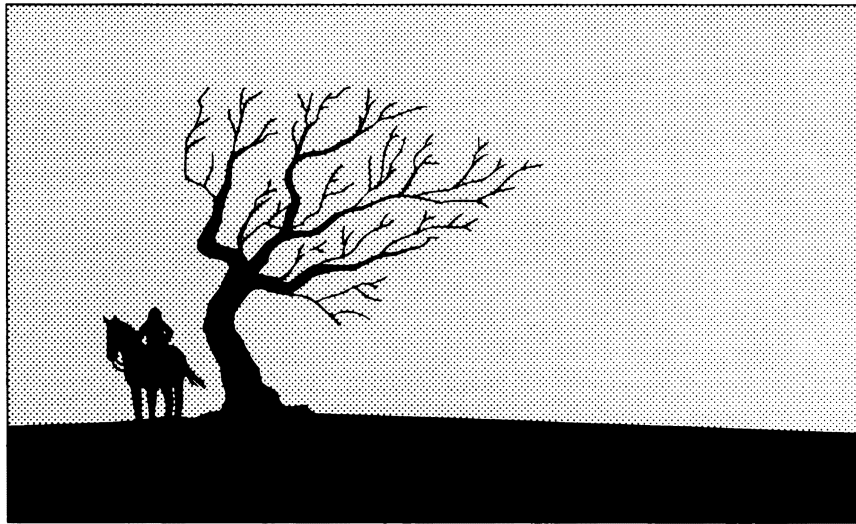
To achieve good composition, you need to see the subject and *more*. You need to see the lines, shapes, patterns and colors all around you.

The human eye is attracted to lines, shapes, patterns and colors. Sometimes these are obvious. Fences, roads, and rivers form strong lines. Others are not so obvious. They are hidden, as if waiting to be drawn together in a connect-the-dots picture. Hidden lines can also have a real effect on the viewer. Look for them.



Positioning the Subject

A simple way to make composition more interesting is to place your subject off-center.

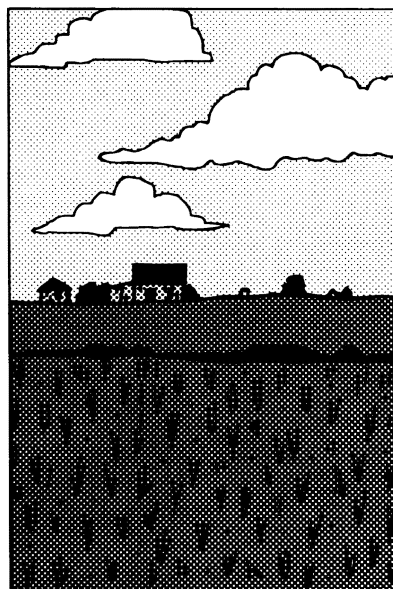


When you take scenic pictures, keep the horizon line off-center. If you place the horizon low, the sky in the background will give your pictures a sense of airiness and freedom. If you place the horizon high, the picture will emphasize the area in the foreground.

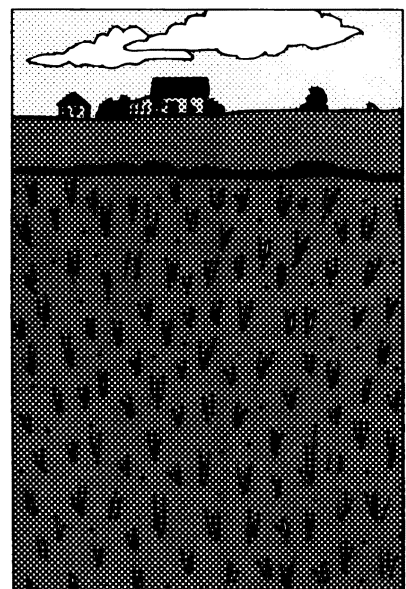
Ask yourself, "Am I trying to show the sky and clouds? Or am I trying to show the ground and things on it?" Then position the horizon depending on your answer.



Low horizon: spacious sky



Mid-horizon



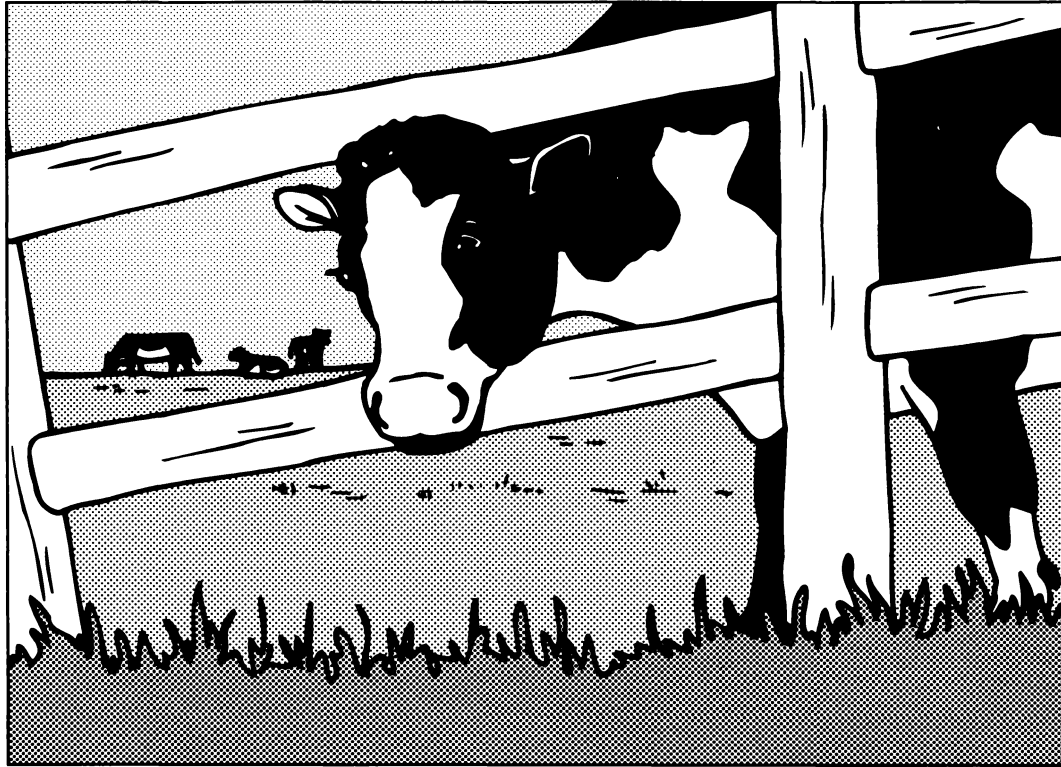
High horizon: spacious earth

Framing the Subject

Framing is another way of emphasizing the main subject. Framing calls attention to your subject just as a real picture frame separates a painting or photograph from its surroundings. Use anything as a frame: a pair of legs, a window, the crook of a tree, or an overhanging branch.

Framing can help to get rid of a dull sky or block out an object you don't want to see.





Activity

Put Composition to Work

Take two pictures showing different examples of these techniques.

- Isolating the subject.
- Seeing lines, shapes, patterns and colors.
- Positioning the subject.
- Framing the subject.
- Adding depth.
- Showing size.

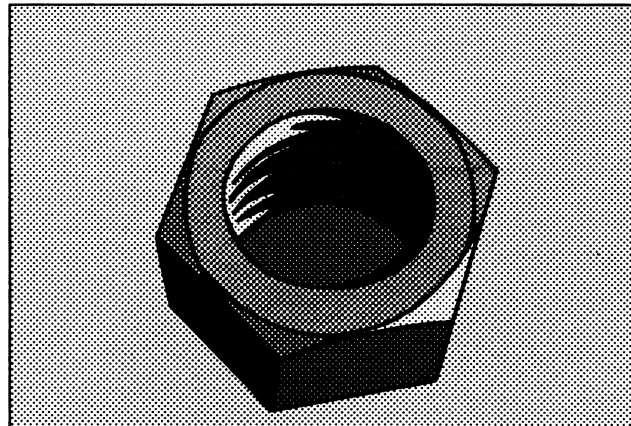
Adding Depth

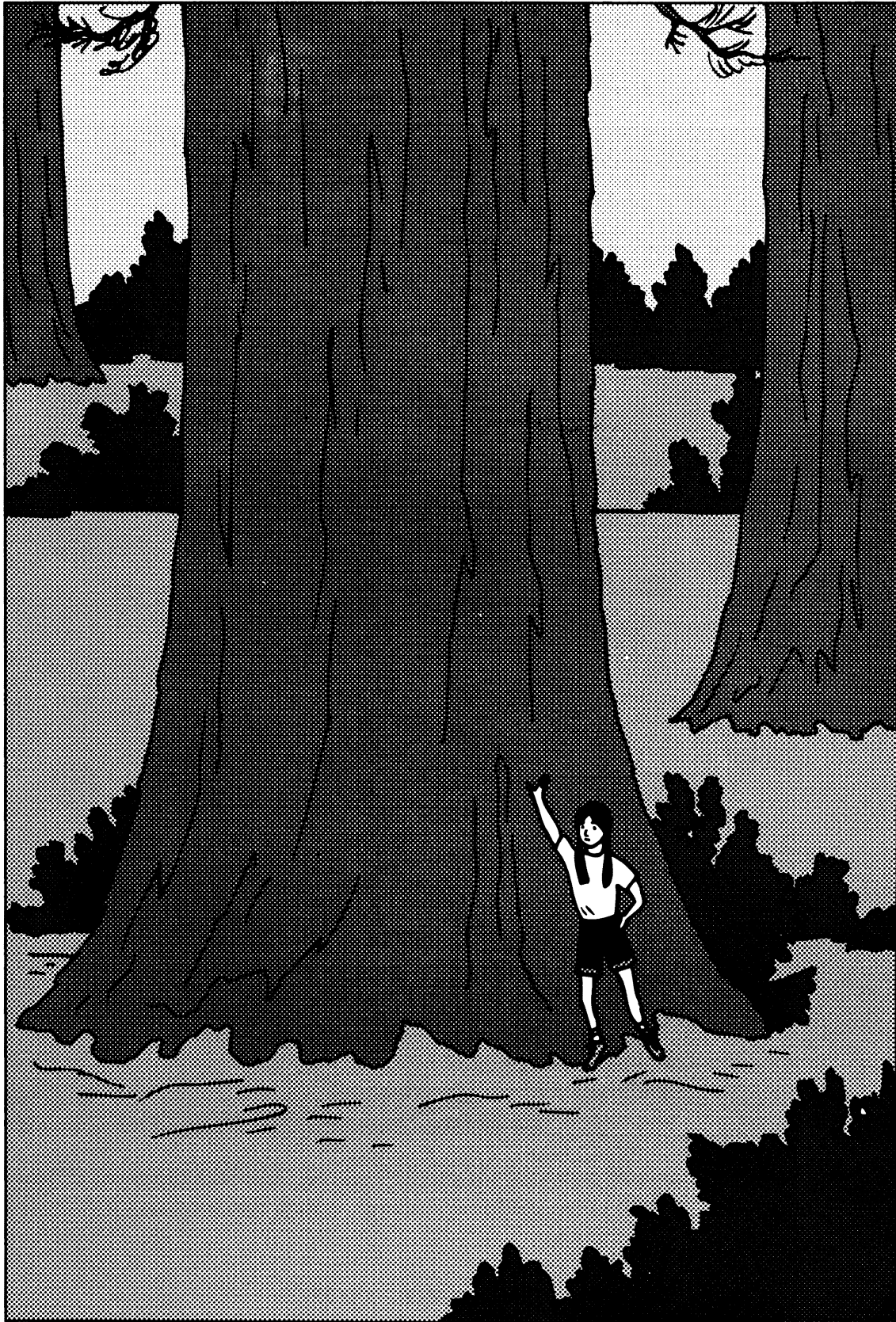
Photographs are flat pieces of paper with only two dimensions: width and height. The real world has a third dimension: depth. How can you show that third dimension in your pictures?

You can do this by adding nearby objects to your pictures of distant scenes. Get down low to include things on the ground like flowers, grass, a toy or a bucket. Showing a fence is a perfect way to add depth, since the viewer can see the same object getting smaller and smaller in the distance.

Showing Size

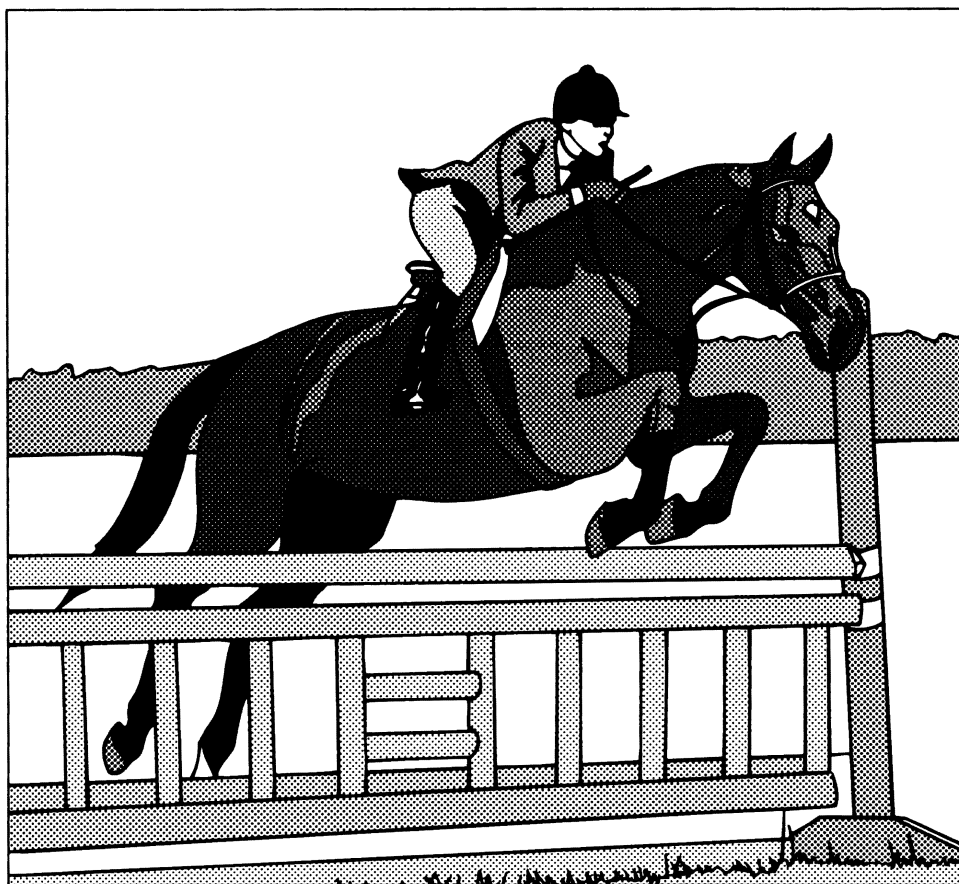
To show that a subject is massive or tall, show something of a known size next to it, such as a hand or a person.





5 Action Pictures

Action subjects make exciting pictures!



Catch the Peak of the Action!

With up-and-down movements like jumping, the motion stops for a split-second at the highest point. This happens with basketball players, cheerleaders, kids on swings, and dogs jumping for treats.

The peak of the action is the ideal moment for picture-taking. It offers the most dramatic view. It is also a moment when motion is frozen for an instant, which can improve the sharpness of your picture.

It's a challenge to match your timing with the action. *Try it!*



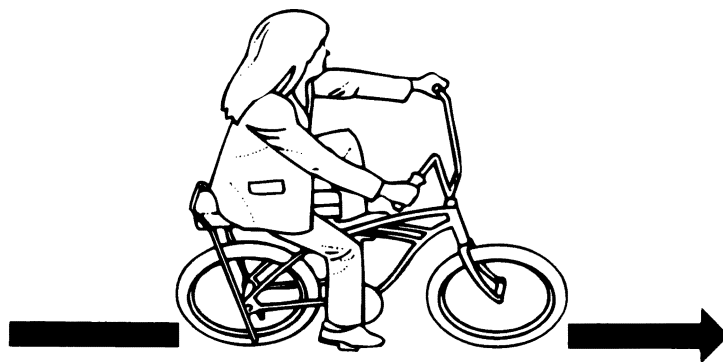
Action Pictures

Pan with the Action!

Panning the camera to follow the action can produce dramatic action pictures, especially with very fast-moving subjects.

Get the subject in your viewfinder and follow it, turning your body. Snap the picture while you're turning. The trick is to keep the subject in your viewfinder while pressing the shutter release. This takes practice, so try it a few times before you snap the picture.

Moving the camera may cause the background to be blurred, but the subject will be sharper than the background. This creates a dynamic-looking picture that suggests high-speed action.



Before you pan, focus on the spot where you expect the subject to pass when you take the picture. As you pan, pick up the subject early and follow it in your viewfinder. When the subject reaches the spot you focused on, press the shutter release, being sure that you continue to track the subject with the camera. Be sure that you are moving the camera -with the subject in the viewfinder — when pressing the shutter release. If the camera isn't moving, you won't get that great blurred background.



Positioning Action Subjects

Composing a scene with a moving subject is no different from composing a still scene, except for one thing. Usually, a picture will be more pleasing if the subject appears to be headed into the picture, rather than out of it. Give your subject some room to “move” into the picture. This is especially important when panning.



Which do you like best?

Activity

Action Shots

- Take four pictures of a bicycle crossing in front of you as you pan the camera.
- Take four pictures of a friend jumping. See if you can catch the action at its peak!

6 Lighting

Without light, you cannot take pictures. When you *control* light, your pictures become more pleasing or dramatic.

In Unit One, you experimented with frontlighting, sidelighting, and backlighting. Sidelighting creates shadows. Shadows are visual “clues” which help you see shapes and textures.

Dark shadows on a bright subject will look totally black in your pictures. Black shadows can add drama. For pictures of people, however, you will want to lighten or eliminate black shadows.

Controlling Shadows

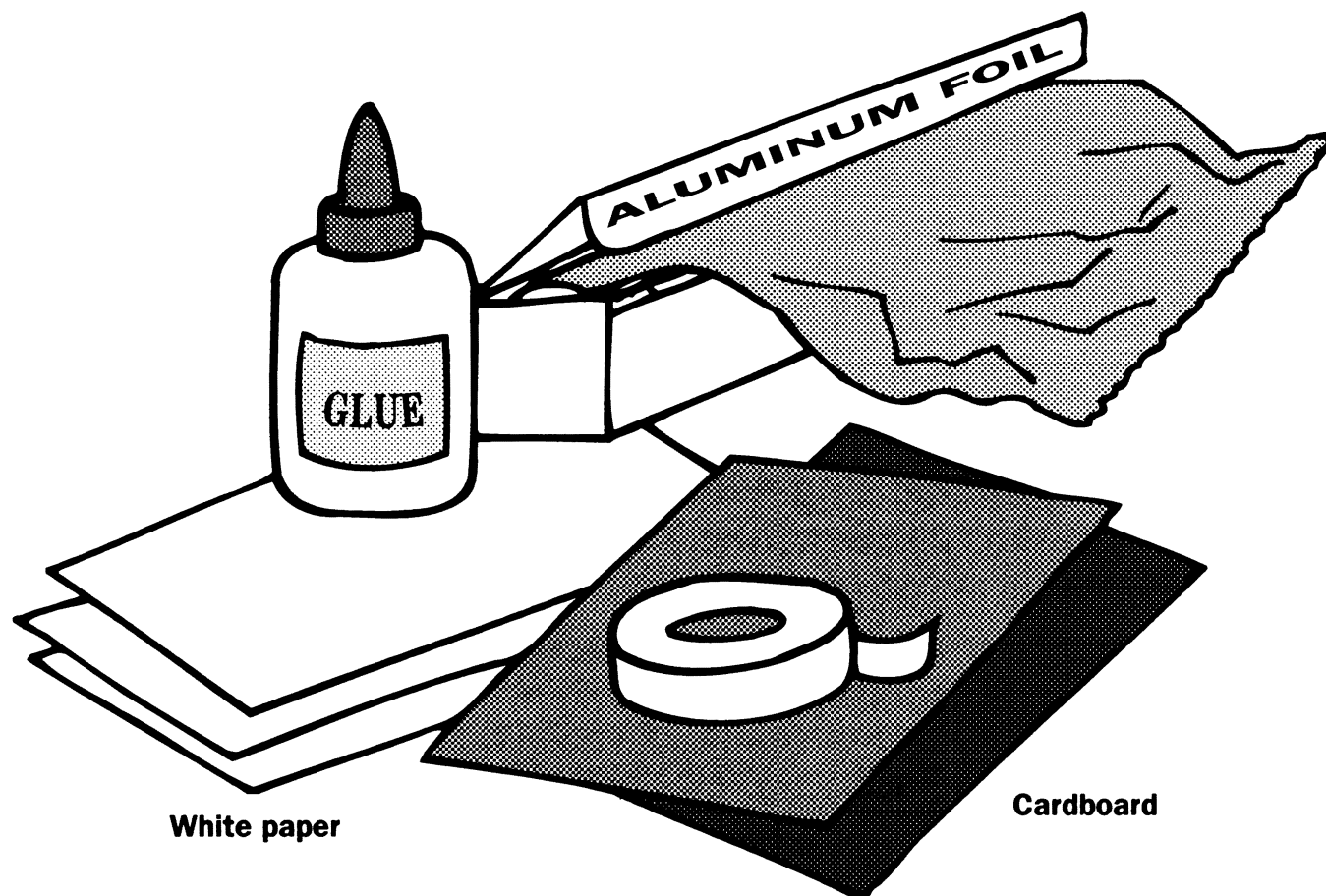
When photographing people outdoors, you can control shadows in three ways:

- Move your subject**
- Use flash**
- Use a reflector**

On a bright sunny day, you can *move your subject* into a shaded area. The shade of a tree can eliminate shadows or improve the balance between light and dark areas.

You can stay in the bright sun and *use flash* to lighten shadows. Professional photographers call this “fill” or “fill-in” flash, because the flash fills in areas that would be black without it.

You can also *use a reflector* to lighten shadows. Position the reflector so it bounces light into shadow areas. Using a reflector allows you to see the amount of light you are adding. Change the light by moving the reflector closer or farther away.



Activity

Make a Two-Sided Reflector

Find a piece of cardboard or light plywood about two feet square or larger. Completely cover one side with white sheets of paper. Attach the paper using glue or tape. Cover the other side with aluminum foil.

The foil side will reflect more light than the paper side. You can control the amount of light by trying both sides and by changing the distance from the subject.

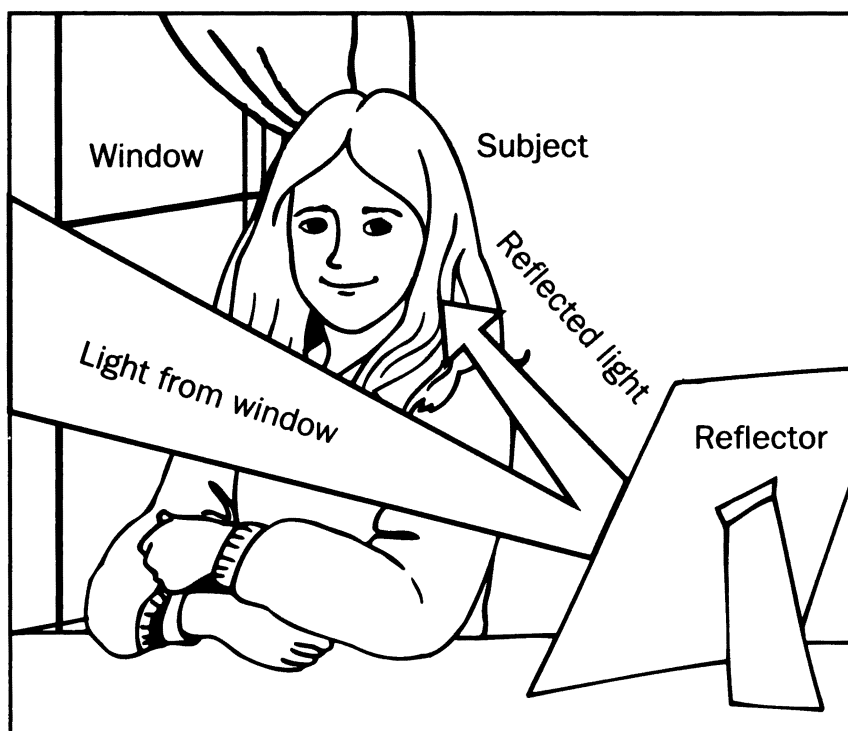
Window Light

Take indoor pictures with sunlight! Early portrait photographers used windows and skylights to bring sunlight indoors. Use any window for your own portrait studio. Use it for pictures of people, pets, craft projects or models you've built.

Window light has many advantages.

- It is soft light (if you use a window that doesn't get direct sunlight).
- It is sidelighting with a strong sense of direction. Famous painters like Rembrandt used light with a strong sense of direction in their masterpieces.
- Film for color prints produces its very best color when used with sunlight.

Your reflector will help balance the light. Bounce sunlight onto the shaded side of your subject to lighten shadows.



Here are some more tips.

- ❑ **Be sure you don't point the camera out the window, or the bright background will cause an incorrect exposure on your indoor subject.**
- ❑ **Try turning indoor lights off and on. Experiment, watching the balance of light and dark areas on the subject and background. When you find the best lighting, take the picture!**

O Outdoor Night Lighting

You can photograph brightly lighted outdoor subjects without a flash. Lighted buildings, monuments, signs, windows, and streets make interesting pictures. Look for reflections of colored lights on wet streets on rainy nights. A high speed film is your best choice for night pictures, unless you are using a tripod to steady the camera during exposure—then, any film is fine.

Activity

Night Photography

Take pictures of two brightly lit subjects at night. Use high speed film (ISO 400 to 1600).

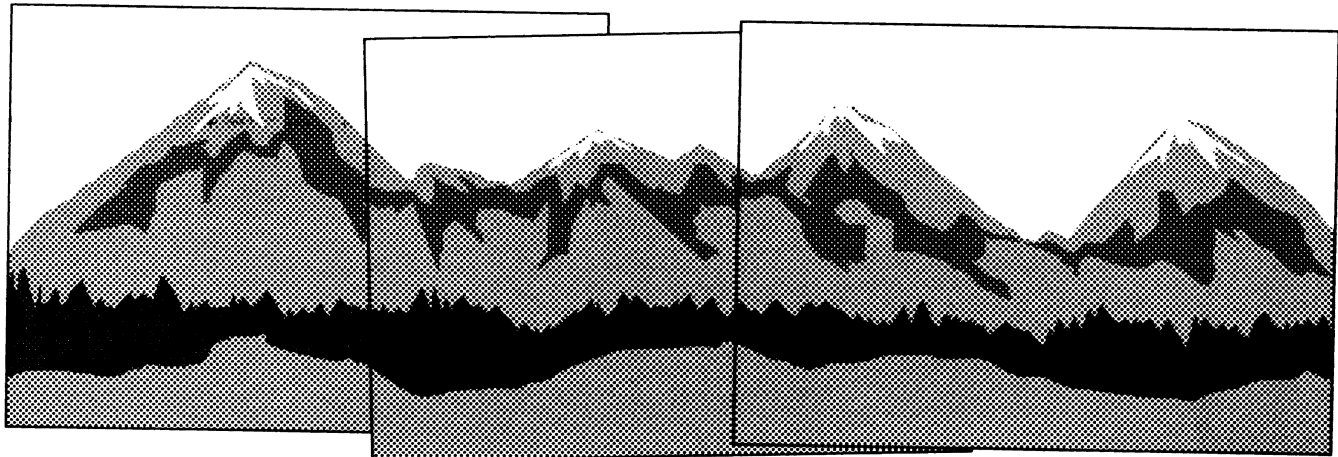
Do not use flash. If the flash on your camera cannot be turned off, choose subjects beyond the flash range, which usually extends to about thirty feet with high speed film. Examples include a city street, a large barn, or your school building at night.

7 Special Effects

Panoramas

A panorama is a wide view of a scene. Special cameras take panoramic pictures with very wide angle lenses. You can make a paste-up panorama with *any* camera by taking several shots.

- Keep the camera level. Use a tripod or find a point of reference like the horizon that you can line up in the viewfinder.**
- Slightly overlap each frame so you can overlap the finished prints.**



Activity

Making A Panorama

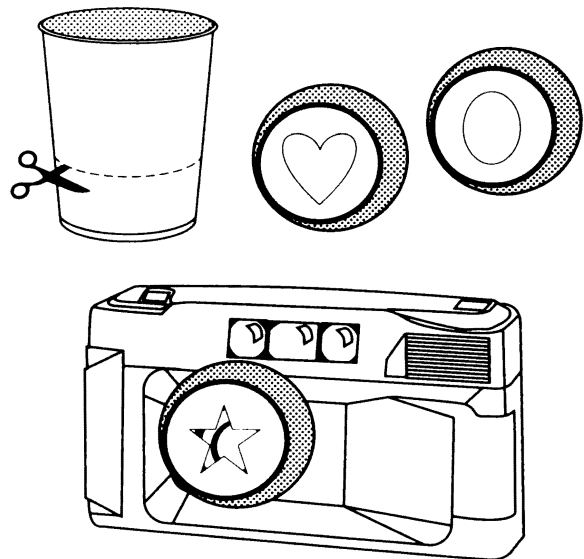
Make a paste-up panorama of any scene you choose. Include at least three pictures slightly overlapped.

Filters

Filters are placed in front of the camera lens to create special effects by adding color or patterns. Camera stores sell filters made of transparent plastic or glass. These filters can be attached easily to interchangeable lenses on adjustable cameras.

You can make your own filters to work with a simple automatic camera. You can hold the filter in front of the lens or attach it with tape. Here are some ideas.

- ❑ You can buy *color filters* in a camera store or find a sheet of transparent colored plastic. Try orange or red for sunset pictures.
- ❑ A door or window screen will become invisible when held close to the lens, but it will create “stars” from strong points of light. Try it with street lights at night or with backlighting water.
- ❑ A nylon or mesh stocking stretched over the lens creates a *soft focus* look. Try it with pictures of people.
- ❑ Shooting through patterned glass or *frosted glass* makes interesting pictures. Try it with close-ups of colorful flowers.
- ❑ A *vignetted* picture is surrounded by soft edges that are out of focus. You can create vignettes by cutting a circle shape in the bottom of a plastic cup. Hold it over the lens to create a soft, pleasing “frame” for portraits of people. Try cutting other shapes, too.



NOTE: Be sure to center the cup over the lens that takes the picture — not the viewfinder!

8 Ideas to Try

Cut Your Prints

Use scissors to be creative with your pictures! Of course, you should never damage your negatives, in case you want to get more prints made later, but there are lots of reasons to cut your prints.

To fit a picture frame

You may have to cut your prints to fit a small picture frame. Some special frames include several spaces of different shapes to hold lots of pictures.

To improve composition

There may be an even better picture hiding inside your print. Is there too much sky in the print? You can cut it out!

Professionals “crop” their photographs to change the shape and improve the composition. Look at any newspaper or magazine and see how many different picture shapes and sizes you see.

To make your photo album more fun

Try cutting out the subject — a person or group, a house or animal. Or you can make your own shape — a diamond, a heart, a rounded top — any shape you like.

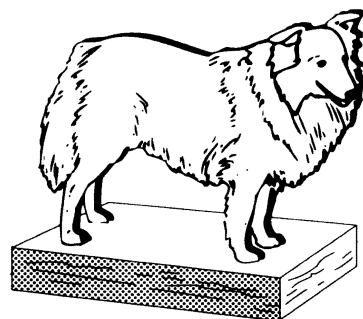
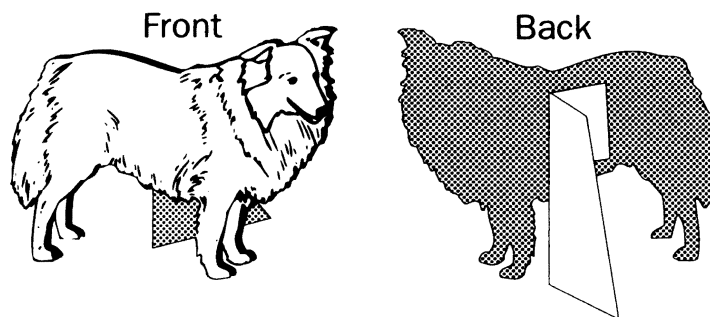
To make eye-catching exhibits

Photo display boards come to life when you add one or two cut-out pictures.

To make a photo statuette

The next activity explains how to make a cut-out statuette (a small “statue”) from a print. Try making a 3-dimensional display using more than one print. You could combine cut-outs of your family, your pet, and your house — or any other subjects.

Cardboard stand



Wooden block

Activity

Make a Photo Statuette

You will need:

- a print to cut out
- a stiff board that you can cut
- glue
- scissors.

Glue the print to the board, then cut around the subject in the picture.

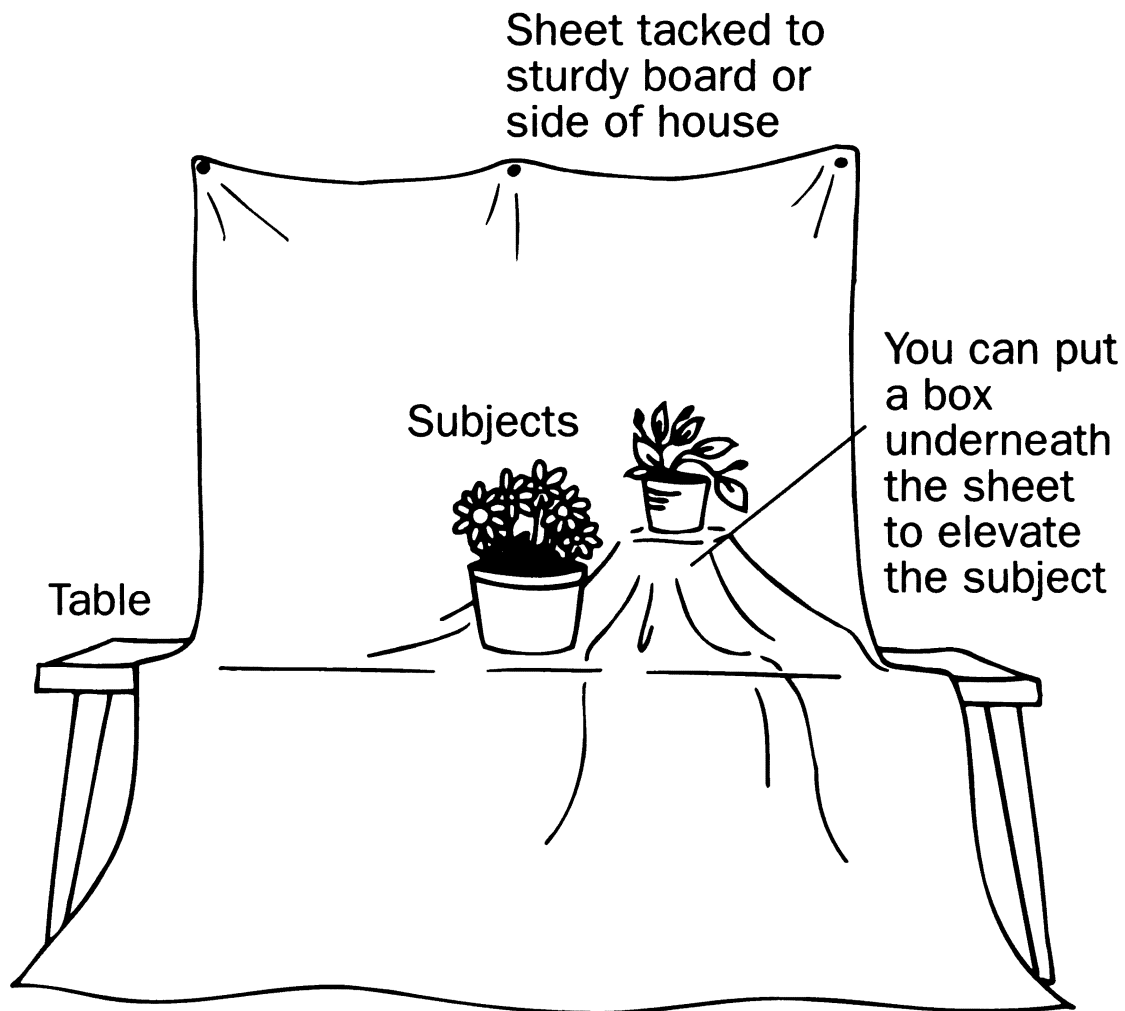
To make your statuette stand up, you can attach it to a block of wood or you can make a cardboard stand from a stiff board.

Still Life Photography

Create your own photo studio and take still life pictures! A few ideas for subjects and backgrounds are listed on the next page. There are *many* more.

You have complete control of subjects that don't move. Try experimenting with patterns, lighting, and composition. Do tricks with filters.

It's easy to make a portable studio. Indoors, you can take pictures with window light. Outdoors, all you need is a table with something taller behind it to hold up the background.



An Outdoor Studio

Subjects

Musical instruments
Jars, jugs, or pots
Flower arrangements
Craft projects
Models
Toys
Kites
Yarn
Tools
Garden hose
Fruits or vegetables

Backgrounds

Sheet
Blanket
Wallpaper
Linoleum
Coat
Shirt

Things to Watch Out For:

- Don't get closer than your camera can focus.**
- Remember how to correct for parallax when you take close-up pictures.**
- Outdoors, try to avoid setting up in windy areas.**

Glossary

Activity

Review This Glossary

Do you understand all these photographic terms? Read the definitions of words that are new to you.

Adjustable camera

A camera with manually adjustable distance settings, lens openings, and shutter speeds.

Aperture (lens opening)

The opening in a lens system through which light passes. Simple cameras have preset lens openings. Adjustable lens openings are usually calibrated in f-numbers marked on the lens.

ASA number

A rating of a film's sensitivity to light (SEE **Film speed**). Same as ISO. ASA is the American Standards Association which approves the ratings.

Automatic camera

A camera with a built-in exposure meter that automatically adjusts the lens opening, shutter speed, or both, for proper exposure. Focus adjustments are also automatic on some cameras.

Background

The part of the scene that appears behind the principal subject of the picture.

Close-up

A picture taken with the camera close to the subject.

Composition

The arrangement of all elements in a picture: main subject, foreground, background, and supporting subjects.

Darkroom

A light-tight area used for processing films and for printing and processing photographic papers.

Depth of field

The distance range which is in sharp focus. It varies with different lenses, lens openings, and subject distances. Simple cameras often use wide angle lenses and small lens openings to allow a depth of field from 4 feet to infinity (as far as you can see — and farther) so you don't need to adjust the focus.

Double exposure

Two pictures taken on one frame of film, or two images printed on one piece of photographic paper.

Emulsion

A thin coating of light-sensitive material, usually silver halide in gelatin, in which the image is formed on film and photographic papers.

Existing light (available light)

In photography, the term refers to pictures taken by dim light rather than flash. Existing light pictures are normally taken with adjustable cameras and exposed by room lights, street lamps, spotlights, daylight through windows, or the twilight sky outdoors.

Expiration date

A date printed on film boxes. You cannot rely on good results if you use the film past this date. Like food, film will spoil after a long period of time. It will last a little longer if kept refrigerated.

Exposure

The amount of light which reaches the film inside the camera. Two controls that change the exposure with adjustable cameras are the lens opening (size) and the shutter speed (time).

Exposure meter (light meter)

An instrument used to determine the exposure setting. It contains a light-sensitive cell that measures the light reflected from or falling on a subject.

Exposure setting

The lens opening and shutter speed selected to expose the film.

Fast film

A film that is very sensitive to light. It needs less light to expose a normal print. It is ideal for shooting in dim light or for stopping fast action.

Fill-in light

Additional light from a lamp or reflector used to soften the shadows caused by the main light source.

Film

A photographic emulsion coated on a flexible transparent plastic base. Basic differences among the many color films available include the following.

- Film type (film for prints or slides)
- Film size (35 mm, 110, disk film, and others)
- Exposures per roll (normally 12, 24, or 36)
- Film speed (ISO 100, 200, 400, 1000 and others)

Film speed

The sensitivity of a given film to light, indicated by a number such as ISO 200. The higher the number, the more sensitive (or "faster") the film. Higher-speed films produce best results in dim lighting, while lower-speed films produce best results in bright lighting.

Filter

A colored piece of glass or other transparent material used over the lens to emphasize, eliminate, or change the color or density of the entire scene or certain elements in the scene.

Fixed-focus lens

A lens that has been focused in a fixed position by the manufacturer. The user does not have to adjust the focus of the lens.

Flash

A brief, intense burst of light produced by a flashbulb or electronic flash unit, usually used where the lighting on the scene is too dim for picture-taking.

Flat lighting

Lighting that illuminates the subject evenly, with few shadows and little difference between bright and dark areas.

Glossary

f-number

A number used to indicate the size of the lens opening. They are marked on lenses used with adjustable cameras. Common *f*-numbers are *f*/2.8, *f*/4, *f*/5.6, *f*/8, *f*/11, *f*/16, and *f*/22. The larger the *f*-number, the smaller the lens opening. In this series, *f*/2.8 is the largest lens opening and *f*/22 is the smallest. (SEE **Exposure**)

Focus

Adjustment of the distance setting on a lens to sharply define the subject.

Foreground

The area between the camera and the principal subject.

Highlights

The brightest areas of a subject or picture.

ISO number

A rating of a film's sensitivity to light (SEE **Film speed**). Same as ASA. ISO is the International Standards Organization which approves the ratings.

Lens

One or more pieces of optical glass or similar material designed to collect and focus rays of light to form a sharp image on the film, paper, or projection screen.

Lighting

The illumination falling on a subject, particularly the direction or control of the illumination.

Negative

The developed film that contains a reversed-tone image of the original scene. Negatives are used to create prints.

Overexposure

A condition in which too much light reaches the film, producing a dense negative or a washed-out print or slide.

Panning

Moving the camera to follow the action.

Parallax

The difference between the picture you see and the picture you take, as shown in the "Camera Control" section of this manual.

Print

A positive picture, usually on paper, and usually produced from a negative.

Processing

A procedure during which exposed photographic film or paper is developed, fixed, and washed to produce either a negative or positive image.

Reflector

Any device used to reflect light onto a subject.

Shutter

Blades, a curtain, a plate, or some other movable cover inside a camera which controls the time during which light reaches the film.

Silhouette

A picture which shows the subject as a shadow, outlined against a lighter background.

Simple camera

A camera that has few or no adjustments to be made by the picture-taker. Usually, simple cameras have only one size of lens opening and one or two shutter speeds and do not require focusing by the picture-taker.

Single lens reflex (SLR) camera

A camera that allows you to view the scene through the lens that takes the picture. Inside the camera, a mirror flips down in front of the film to reflect the scene into the viewfinder.

Slide

A photographic transparency mounted for projection. The processed slide film is the final (positive) "picture," unlike negative film which requires printing to create a (positive) "picture."

Slow film

A film that requires lots of light to expose a normal print. It is sharper than fast film, so it is ideal for enlargements.

Soft lighting

Lighting that is low or moderate in contrast (the difference between light and dark areas in the scene).

Special effect

Any technique used to make pictures look different from normal. Filters are a common way to create a special effect.

Telephoto lens

A lens that makes a subject appear larger on film than does a normal lens at the same camera-to-subject distance. It has a narrower field of view (includes less subject area) than a normal lens.

Transparency

A positive image on film, viewed or projected by transmitted light (light shining through the film) unlike prints, which are viewed by reflected light (light bounced back from the surface of the print).

Tripod

A three-legged supporting stand used to hold the camera steady.

Tungsten light

Light from regular room lamps and ceiling fixtures, not fluorescent.

Underexposure

A condition in which too little light reaches the film, producing a dark slide or a muddy-looking print.

Vignette

In photography, a special effect which creates a soft edge and a light border around the picture in the center of a print.

Wide-angle lens

A lens that has a wider field of view (includes more subject area) than a normal lens.

Zoom lens

The glass elements inside this lens move to change the focal length. In effect, this gives the photographer many lenses in one.

CONGRATULATIONS!

In Unit 2, you have learned how to:

- select film**
- judge flash distance**
- correct for parallax with close-ups**
- create silhouettes**
- prefocus your automatic focus camera**
- improve composition**
- pan with action subjects**
- catch the peak of the action**
- control shadows using flash or a reflector**
- take pictures at night**
- make paste-up panoramas**
- make a photo statuette...and much more.**

If you want to learn more, see the front of this guide for a list of other 4-H photography manuals.

Now that you've completed "Exploring Photography," you're ready to EXPLORE THE WORLD AROUND YOU...WITH YOUR CAMERA.

Virginia Cooperative Extension programs and employment are open to all, regardless of race, color, religion, sex, age, national origin, handicap, or political affiliation. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. James F. Johnson, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; Lorenza W. Lyons, Interim Administrator, 1890 Extension Program, Virginia State, Petersburg.