Composition, Cameras, & Film

Introduction

Taking pictures is easy, but taking good photographs requires knowledge and skill. In this activity you will be introduced to the camera, the film that will record your images, and some techniques that will allow you to take better pictures.

You probably have a picture album or a box of pictures you have taken of your friends. These are commonly called "snapshots" because you used a simple camera to "snap", or make an exposure of a "shot" or picture. In this activity you will learn techniques that will make your snapshots better, helping you become an accomplished photographer who can produce not just snapshots, but well composed photographs of even simple subjects.

Composition involves the arrangement of material within a picture; good composition utilizes techniques that will create better, more interesting photographs. There are some simple rules you can follow that will help you avoid common problems. Later you will learn how to use your camera to create some exciting "compositions".

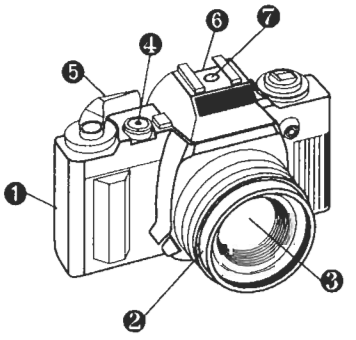

Figure 1 - A Basic Camera

Cameras are light-tight boxes that contain some basic parts. These include the **lens** used to collect and focus the light as it enters the camera body; an **aperture**, or lens opening, that allows the light to enter; a **shutter** that opens and closes to control light when it enters, and a **film holder** and **film advance system** so you can take more than one picture. (See Figure 1.)

Activity Description

In this activity you will use a simple camera to make a series of photographs using composition techniques to improve the quality of your photographs. You will be using black-and-white negative film for this assignment. Since you will take pictures both indoors and outdoors, you will use Kodak Plus-X Pan film, which is a middle range speed film with a speed of ASA 125. If you want to take pictures in low light situations, you can use a faster film such as Kodak Tri-X Pan film, which has an ASA rating of 400. However, the Plus-X film has a finer grain than the Tri-X and will make better enlargements. You could use color film for this assignment, but you would have to send your film to a lab for processing.

Materials and Supplies

To complete this activity, you will need the following materials:

simple fixed focus camera with flash
roll of black & white film
exposure guide (from film box)

What is Film?

Film is a material that records the picture you have taken as a latent image. It consists of a light-sensitive **emulsion** on a plastic **base**. The base holds and supports the emulsion, which is the active part of the film that gives your film its image-recording ability. The emulsion is made of millions of light-sensitive silver halide crystals. When you open your camera shutter and light strikes these crystals, a reaction takes place that preserves on film the image of what the camera has seen. Although the image is there, you can't see it yet. It is **latent**, and it has to be processed before it becomes a picture that you can see.

How does film work? First consider black-and-white film. When you take a picture, light is reflected off a subject and passes through a lens onto film. Even though the shutter opened for only a fraction of a second, enough light strikes the emulsion so that the silver halide crystals are rearranged. When the film is placed in the **developer**, these light-struck silver halide crystals react chemically with the developer to form black grains of silver which remain in the film. After the developer is removed and the film rinsed, it is placed in a chemical **fixer**. The fixer removes the crystals which were not exposed to light. What is left of your original film is now called a developed **negative**.

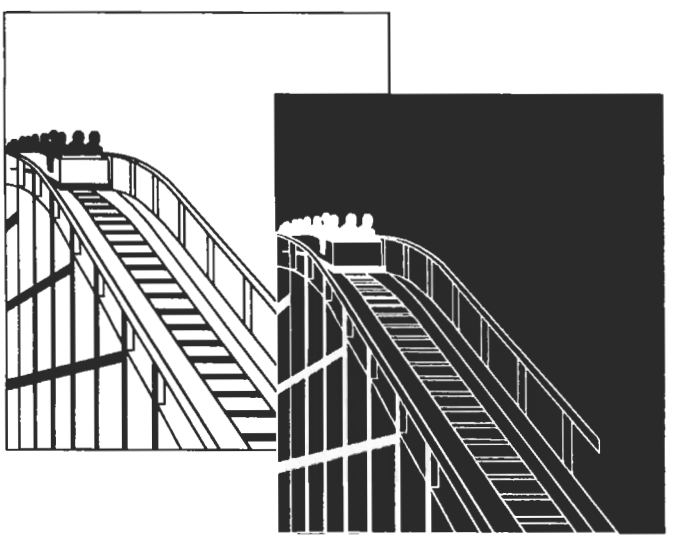

Figure 2 - Print and Negative

A negative is a reverse image of the picture you took. The blackest areas show where the densest concentration of black silver grains are, or where the greatest amount of light struck the emulsion. The lightest part of the negative, where there is little or no black at all, shows where the scene had been darkest and had reflected no light onto the emulsion. All other areas are shades of gray, varying in proportion to the brightness of each individual subject in the scene. This is why this type of photography is called **continuous tone**. From your negative, you will need to make a **positive** image. To do this, we pass light through the negative and onto photographic paper. This special paper is coated with light sensitive silver compounds just like the film. The exposure of your negative upon photographic paper is called making prints. (See Figure 2.)

Film comes in a variety of types and speeds. You must be able to select film for the type of picture you are going to take. **Film speed** indicates a film's sensitivity to light, and is designated by its ASA or ISO rating. Slow film reacts to light slowly, so it takes more light to make an exposure. Fast film reacts more quickly to light, so less light is required to make an exposure.

Why Some Films Produce Color Pictures

Instead of just one layer of emulsion, color film has several layers, with each emulsion layer recording a different color. Negative color film, just like black-and-white, is used to print the finished picture on photographic paper. With **reversal film**, also known as slide film, a transparent image is produced. It is a complicated process to develop and print color negatives, slides, and prints. Additionally, it is much more expensive to process color film than black-and-white. Both of these are reasons that color work is usually not done in the school darkroom.

Loading Your Camera with Film

Film should be loaded in a cool, shady location. Avoid hot, sunny locations like the beach when loading film in your camera.

The camera back must be opened, and the film placed in the film chamber. If you are using 35mm roll film, pull out a few inches of the film and place it so that it will wind onto the take-up spool.

With most automatic cameras, you now close the back and the motor wind will advance the film to the first **frame**. If you have a manual camera, press the **shutter release**; then wind the film forward. Continue this until a number #1 appears in the **film window**.

Film now has a DX code on the cartridge. Most new cameras will read this bar code to set the proper film speed. If your camera is unable to read the DX code, set the ASA rating on your camera for the film you are using.

Using the Camera Viewfinder

Cameras have a window which you look in to "see" what you are going to photograph. These windows are usually rectangular in shape, like the film frame. You may change the position of the camera to alter the format of your picture. Hold the camera horizontally, and the format is horizontal. If you rotate the camera to the vertical position, the picture format will be vertical.

Determining Exposure

Open your film box, and fold it out flat. You will find a simple **exposure guide** printed on the inside of the carton. You can use this to help you determine the correct exposure if you have a camera that is not automatic.

Using Your Flash Attachment

A **flash attachment** is a tool for providing light when the exsisting light is not adequate for the exposure of your film. Flash attachments do not take the place of the sun, and the amount of light they produce is limited. Each flash unit has a **guide number** which will help you determine the output of your flash, as well as how far away you can be and still have a correct exposure. Flash attachments on most simple cameras are limited to 15 to 30 feet, which means that objects farther away will not receive enough light to make the exposure. Check your flash and determine how far the flash will be effective for the speed of the film you are using. If you have an adjustable aperture, you will need to determine the exposure for each shot, based on the distance you are from the subject.

Composition Techniques

Photographic composition is simply the selection and arrangement of subjects within the picture area. Some arrangements are made by placing figures or objects in certain positions. Others are made by choosing a **point of view**. By moving the camera a few inches or a few feet, you can change the composition. Although some chance shots will have good composition, most good pictures are created. How do you create a good picture?

Have a strong **center of interest**; this is your **subject**. Have a single subject in your picture. If you decide to include a secondary subject, make sure it doesn't detract from your main subject. (The main subject could be a group of people, the group being the one center of interest.) Avoid putting the center of interest in the center of your picture. A main subject in the middle of the picture can look static and uninteresting. For better composition, try placing your center of interest according to the **rule of thirds**. Divide the picture area into thirds, both vertically and horizontally. Place your center of interest at one of the four places where the lines intersect. (See Figure 3.)

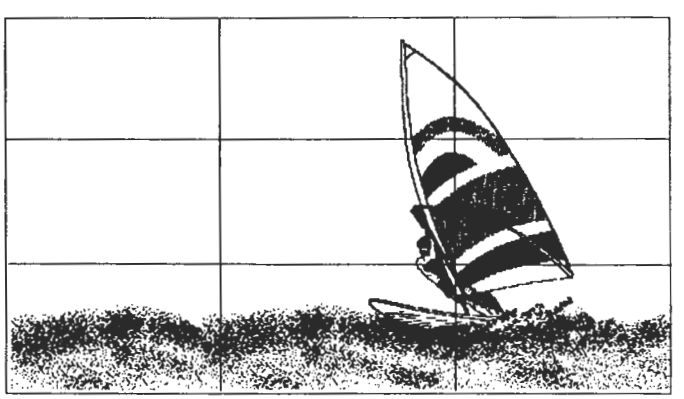

Figure 3 - Rule of Thirds

Know the **angles**. When you find a subject, don't just walk up to it and snap the shutter. Instead, study it from all angles. Then select a **viewpoint** that shows your subject best. Outdoors, shooting from a low angle provides an uncluttered sky for a background. Consider the **horizon line**. Avoid cutting your picture in half by placing the horizon line in the middle of your picture. You can also alter the background by shooting downwards. Get up on something and take your

picture looking down. The ground, grass, or gravel can make an interesting background.

Move in close. Some beginning photographers look through the viewfinder and start backing away from the subject. This is bad for composition. As you look into the viewfinder, move in close to your subject. You can then eliminate anything that will distract from your subject.

Use lines for **unity** and interest. Predominate lines should generally run into the picture - not out of it. The same is true with people and things. For example, a person running out of the frame is poor composition, while running into the frame creates a better "feel".

Watch the **background**. Before you shoot, stop a minute and look around. Is there a telephone pole growing out of your subject's head? Look at the background. Is it pleasing, or does it interfere with the subject? Remember to look behind your subject!

Add interest to your scene. Frame it with an interesting **foreground** such as a tree or branch. In scenic shots, people should look into the scene, not into the camera.

Taking Your Pictures

Now you are ready to take pictures! You are going to expose a roll of film of 24 frames for this assignment. Each "shot" will be described for you. This will help you create more interesting photos as you experiment with some useful techniques in photography.

Use the handout provided with this package. As you take each shot, mark it off so you do not repeat any assigned exposure. Remember the composition techniques discussed in this package as you are taking your various shots.

Vocabulary

camera body
lens
aperture
shutter
film back
slide film
color print
negative
positive
latent image
developer
silver halide
composition
guide number
speed
reversal film
DX code
emulsion

Safety

Read all instructions on your camera and film box. Be careful when working with a camera in position; as you move, your field of vision becomes limited. Avoid backing up with a camera to your eye.

Ecology

Dispose of film boxes, wrappers, and packages as directed. Don't litter! Plastic film containers have a lot of uses; save and/or recycle them.

On Your Own

1. Write to Eastman Kodak and ask about the "Young Photographer's League". Address your letter requesting information to: Eastman Kodak Company; Department 841; 343 State Street; Rochester, NY 14650.

2. Go to your school or local library and look for magazines and books on photography. Study the photographs in these sources. Try to decide what makes a photograph good.

Office of Vocational, Adult, Career, and Community Education
Technology Education
Dade County Public Schools • Miami, Florida

Shooting for Composition

You are going to expose a roll of film of 24 frames for this assignment using the description of the shot provided here. This will help you create more interesting photographs as you experiment with some useful techniques in photography. As you take each shot, mark it off so you do not repeat any assigned exposure.

- ❑ 1. Select a friend as a model. Arrange your subject so that you move in close for a head and shoulder shot. Then alter your position; shoot up, using the sky as a background.
- ❑ 2. Select several friends for a group shot and arrange your subjects. Position your camera above six feet; shoot down, paying attention to the background.
- ❑ 3. Take a picture of a scene, such as a boat on a lake, a sunset, or a field of flowers. Watch where you place the horizon; don't put it in the center. Use the rule of thirds.
- ❑ 4. Take a picture of a person in action, such as a bicycle rider or runner. Pan the camera with the action. This will blur the background.
- ❑ 5. Take a picture on a street, using the street as a leading line. Place a subject in the frame. The leading line should direct your eye to the subject.
- ❑ 6. Place a subject in front of your camera so the sun is behind the subject. This will create a silhouette.
- ❑ 7. Select a subject such as a sculpture in a park. Shoot it from eye level.
- ❑ 8. Now shoot the same subject from a low angle.
- ❑ 9. Next shoot the same subject from a high angle.
- ❑ 10. Select three of your friends as models. Have them stand together, arms over each other's shoulders. Move in close for a shot of their faces.
- ❑ 11. Repeat the above shot, but this time move back so that your shot includes their entire bodies. Watch your background.
- ❑ 12. Select a friend for an action shot. Place your subject in your picture doing something like shooting a basketball, swinging a bat, or throwing a ball. Move in close so you can see the action. Watch your background.
- ❑ 13. Select two friends for a scenic shot. Place them in your frame looking into the scene instead of the camera. Place them according to the rule of thirds.
- ❑ 14. Select a friend as a model. Arrange your subject under a tree. Use a low hanging tree branch to frame your subject.
- ❑ 15. Take a picture of a subject of your choice outside. The subject should be a strong center of interest. Place the subject using the rule of thirds. Watch your background. If the object is moving, it should move into the picture.
- ❑ 16. Take a picture inside, using your flash. Move in close; remember the rules of composition.
- ❑ 17. Take a picture inside, using your flash. Place several people in the picture. Remember to move in close.
- ❑ 18. Take another picture inside, trying a different angle. Make sure you keep within the range of your flash.
- ❑ 19. Take a picture of an object in motion. Do not pan the camera. Hold it still. Allow the action to move into your frame; then snap the shot.
- ❑ 20. Select a subject you can use to make a series of pictures that tell a story on how to do something. Take five pictures to tell your story.

TEACHER GUIDE
COMPOSITION, CAMERAS, AND FILM

Objectives: Upon completion of this assignment, students will be able to:

- Describe film type and speed.
- Demonstrate how to load and handle a simple camera.
- Demonstrate an understanding of photographic composition.
- Demonstrate how to use a flash attachment and flash guide numbers.
- Describe the basic components of a camera.
- Describe the process of photography and how an image is recorded on film.

Helpful Hints:

1. Write to Eastman Kodak and ask for a copy of "Outline for Teaching a Course in Basic Photography", Publication AT-105.

2. Write to Eastman Kodak, and ask about the " Young Photographers League" Contact:

   Eastman Kodak Company
   Department 841
   343 State Street
   Rochester, NY 14650

3. The following Kodak Publications (Kodak Customer Service Pamphlets) will also be helpful:

   Composition (AC-11)
   Photography How It Works (AC-41B)
   How to Set Your Adjustable Camera (AC-27)
   How to Use an Eye Level Viewfinder (AA-23)
   Picture Taking in Five Minutes (AC-13)
   Exposure With Electronic Flash (AC-37)
   Kodak B-W Films for General Picture Taking (AF-3)
   Kodak Color Films for Still Cameras (AE-41)
   Loading and Handling 35mm Cameras (AE-46)
   How to Make and Use a Pinhole Camera (AA-5)
   Some Questions and Answers about Camera Lenses (AA-3)
   A Glossary of Photographic Terms (AA-9)

   Contact :

   Eastman Kodak Company
   Dept. 454
   343 State Street
   Rochester, NY 14650

TEACHER GUIDE
COMPOSITION, CAMERAS, AND FILM (Cont'd.)

4. Kodak has a program for teachers which offers disposable 35mm cameras loaded with black & white film. These are not available to the general public. The "kit" comes with 24 cameras loaded with film, developer for the film, photo paper, paper developer, fixer, and instructions.

5. Kodak also has a bulletin available to teachers called, "Your Programs from Kodak", which lists free film and slide shows you can obtain on a loan basis from Kodak.
   Contact:
   Eastman Kodak Company
   Photo Information
   Department 841
   343 State Street
   Rochester, NY 14650

6. Obtain a 35mm camera and several rolls of slide film. Shoot examples of the assignment. Use your examples to explain the assignment and demonstrate "good composition".

7. Pinhole cameras can be made from coffee cans or 126 size film cartridges.
   See Kodak publication:
   AA-5, Kodak Customer Service Pamphlet
   How to Make and Use a Pinhole Camera

LANGUAGE ARTS APPLICATION
COMPOSITION, CAMERAS, AND FILM

_____
Student Name

In all types of jobs you will find that you need the ability to communicate your ideas effectively. Writing skills are necessary in all occupations. Here are a few examples of how writing skills are related to this activity.

You may have heard the cliché "A picture is worth a thousand words". A good photograph can portray many types of emotion, show action, or record historic events. As you become more familiar with good composition, you will be able to reflect your feelings into photographs.

1. Photography is an excellent way to "tell a story". Write a short description of an activity, process, hobby, or other action event shown in one of the photographs you have taken.

_____

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2. Choose one of your best photographs and explain why you feel it has good composition .

_____

_____

_____

LANGUAGE ARTS APPLICATION
COMPOSITION, CAMERAS, AND FILM (Cont'd.)

3. Choose one of your least favorite photographs and explain why you feel is has bad composition.

MATH APPLICATION
COMPOSITION, CAMERAS, & FILM

_____
Student Name

In all types of occupations you will need the ability to apply mathematics effectively. Here are a few examples of how math skills are used in relation to this activity.

When shopping for camera equipment you want to get the best value for your dollar. Many stores run sales which reduce your cost by offering discounts. The discount is the amount the price is reduced. This is usually stated by discount percent (example: 20% off regular price). The sale price is the price after the discount has been subtracted.

Example: A camera store advertises 30% off on a complete camera package. The regular price of the package offered is $450.00. What is the discount and what is the sale price?

Solution:

Discount = discount percent x regular price

Let d = the discount
d = **30%** x **$450.00**
d = **0.30** x **$450.00**
d = **$135.00**
The discount is $135.00

Sale price = regular price - discount

Let p = the sale price
p = **$450.00** - **$135.00**
p = **$315.00**
The sale price is $315.00

Try these: Find the discount and the sale price.

1.	Regular Price: $16.00	Discount _____
	Discount Percent: 25%	Sale Price _____
2.	Regular Price: $200.00	Discount _____
	Discount Percent: 40%	Sale Price _____
3.	Regular Price: $84.00	Discount _____
	Discount Percent: 50%	Sale Price _____
4.	Regular Price: $500.00	Discount _____
	Discount Percent: 15%	Sale Price _____
5.	Regular Price: $350.00	Discount _____
	Discount Percent: 25%	Sale Price _____
6.	Regular Price: $168.00	Discount _____
	Discount Percent: 66.6%	Sale Price _____
7.	Regular Price: $59.95	Discount _____
	Discount Percent: 20%	Sale Price _____

MATH APPLICATION
COMPOSITION, CAMERAS, & FILM (Cont'd.)

8.	Regular Price: $79.95	Discount	_____
	Discount Percent: 15%	Sale Price	_____
9.	Regular Price: $1500.00	Discount	_____
	Discount Percent: 25%	Sale Price	_____
10.	Regular Price: $475.00	Discount	_____
	Discount Percent: 10%	Sale Price	_____

Try these other types of percent problems:

11. Jean wants to purchase a video camera and has found the model on sale at two different camera stores. Find both sale prices and compare to see which is the best deal.

Store A	Store B
Regular price:$899.95	Regular price:$849.95
Discount percent: 20%	Discount percent: 15%

The best price will be found at store _____

12. Ben is buying a used camera. The regular price is $149.95. The salesperson tells Ben that if he waits until next week used cameras will be reduced 35%. How much will Ben save if he waits until next week?

Ben will save $ _____

13. The original cost of an underwater camera was $579.95. What is the sale price if the camera is reduced 20%?

The sale price of the underwater camera is $ _____

QUIZ
COMPOSITION, CAMERAS, AND FILM

_____
Student Name

Multiple Choice: choose the answer that best describes the question.

_____ 1. To make good pictures, you need
A. fast film
B. light
C. a camera with an exposure control meter
D. a well-dressed subject

_____ 2. Exposure is controlled by the
A. film size
B. shutter speed only
C. combination of shutter speed and lens opening size (aperture)
D. lens-opening size only

_____ 3. Most simple (non adjustable) still cameras
A. are easy to use
B. don't take good pictures
C. are quite expensive
D. don't take flash pictures

_____ 4. Automatic cameras
A. are expensive
B. are difficult to use
C. have variable lens openings and/or shutter speeds
D. are easier to load than simple cameras

_____ 5. Most manually adjustable cameras
A. are ideal for beginners
B. have only one shutter speed
C. require more attention from the user than simple and automatic cameras
D. have only one lens opening size

_____ 6. Guide numbers are used
A. with fast films
B. to determine the correct lens opening for flash pictures made with adjustable cameras
C. for action shots
D. for outdoor movies

QUIZ
COMPOSITION, CAMERAS, AND FILM (Cont'd.)

_____ 7. One of the most important picture-taking rules is
A. don't take pictures in the shade
B. use a fast film
C. don't take pictures on rainy days
D. hold your camera steady

_____ 8. Film speed generally refers to
A. the kind of pictures the film produces--slides, movies, or prints.
B. making action pictures
C. the sensitivity of the film to light
D. the shutter speed you should use

_____ 9. F-numbers indicate
A. the size of the lens opening
B. the film speed
C. the film size
D. the shutter speed

_____10. Which of the following is a film size?
A. f-8
B. 126
C. 1/60
D. ASA 64

_____11. Flash failure is most often caused by
A. a slow film
B. a fast film
C. deposits on battery and camera contacts
D. a defective flash

_____12. The size of film your camera uses depends upon
A. your camera
B. whether you want to make prints or slides
C. whether you are taking pictures indoors or outside
D. whether you are taking color or black-and-white pictures

_____13. To make good action pictures (stop action), you should use
A. a small lens opening
B. a flash
C. a fast shutter speed
D. size 135 film

_____14. The slowest shutter speed is:
A. ASA 24
B. 1/30
C. f/8
D. 1/60

QUIZ
COMPOSITION, CAMERAS, AND FILM (Cont'd.)

_____15. For convenience, you should probably buy
A. only blue flash
B. only clear flash
C. either blue or clear flash
D. both blue and clear flash

_____16. If you are making a flash picture with a simple camera, the camera-to-subject distance should be
A. 2 - 6 feet
B. 4 - 9 feet
C. 8 - 15 feet
D. 14 - 25 feet

_____17. Flash is used primarily for
A. action pictures
B. indoor pictures
C. slow shutter speeds
D. large lens openings

_____18. The largest lens opening is:
A. ASA 125
B. 1/60
C. f/2.8
D. f/5.6

_____19. Depth of field means
A. the distance range in sharp focus
B. camera-to-subject distance
C. camera-to-horizon distance
D. subject-to-horizon distance

_____20. Depth of field is controlled by
A. the film speed
B. the size of the lens opening
C. the distance from the subject
D. the shutter speed

QUIZ
COMPOSITION, CAMERAS, AND FILM

_____
Student Name

1. The _____ is used to collect and focus light as it enters the camera body.

2. The _____ opens and closes to control the amount of light that enters the camera.

3. If you want to take pictures in low light situations, you should choose a film with a faster _____ rating.

4. The material that records the picture you have taken as a latent image is called the _____.

5. Film consists of a light sensitive _____ on a plastic base.

6. The _____ changes the exposed silver halide crystals into black grains of silver.

7. The _____ removes the silver halide crystals that were not exposed to light.

8. Film speed indicates a film's sensitivity to light, and is designated by its _____ or _____ rating.

9. The DX code on the cartridge is used to automatically set the _____ on newer cameras.

10. When there is not enough existing light to properly expose your film, you should use a _____.

ANSWER KEY
QUIZ
COMPOSITION, CAMERAS, AND FILM

1. lens
2. shutter
3. ASA
4. film
5. emulsion
6. developer
7. fixer
8. ASA or ISO
9. film speed
10. flash attachment