MOVIEMAKING

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"Enhancing our youths' competitive edge through merit badges"

Scouting America

Requirements

Always check <u>scouting.org</u> for the latest requirements.

1. Discuss and demonstrate the proper elements of a good motion picture. In your discussion, include visual storytelling, rhythm, the 180-axis rule, camera movement, framing and composition of camera shots, and lens selection.

2. Do the following:

   (a) In a three- or four-paragraph treatment, tell the story you plan to produce, making sure that the treatment conveys a visual picture.

   (b) Prepare a storyboard for your motion picture. (This can be done with rough sketches and stick figures.)

   (c) Demonstrate the following motion picture shooting techniques:

      (1) Using a tripod

      (2) Panning a camera

      (3) Framing a shot

      (4) Selecting an angle

      (5) Selecting proper lighting

      (6) Handheld shooting

(d) Using motion picture shooting techniques, plan ONE of the following programs. Start with a treatment and complete the requirement by presenting this program to a pack or your troop, patrol, or class.

(1) Film or videotape a court of honor and show it to an audience.

(2) Create a short feature of your own design, using the techniques you learned.

(3) Shoot a vignette that could be used to train a new Scout in a Scouting skill.

3. Do ONE of the following:

(a) With your parent or guardian's permission and your counselor's approval, visit a film set or television production studio and watch how production work is done.

(b) Explain to your counselor the elements of the zoom lens and three important parts.

4. Find out about three career opportunities in moviemaking. Pick one and find out the education, training, and experience required for this profession. Discuss this career with your counselor. Explain why this profession might interest you.

Contents

What Is Moviemaking?

Moviemaking is a way to tell stories visually through the art and science of motion picture photography. A cinematographer uses framing, camera movement, and lighting to set a mood and tell a story. Although "canned" or stock photography and technical processes are vital to moviemaking, the art and science of the moving picture are truly what give life to a picture.

This merit badge pamphlet describes the fundamentals of producing motion pictures, focusing on the video and digital formats rather than film. Video and digital imaging equipment is readily available and less expensive to use than film. Although there are some who prefer working with film, most major movies these days are produced using digital technology.

A cinematographer learns to use effective light, accurate focus, careful composition (or arrangement), and appropriate camera movement to tell stories. This pamphlet will also teach you how to develop a story and describe other pre- and post-production processes necessary for making a quality motion picture.

Earning this merit badge can

- Provide tools for the storyteller to express ideas visually for a greater audience.

- Strengthen communication skills.

- Build a foundation for a career in making movies.

History of Making Movies

It is amazing to think how far moving pictures and the making of movies have come in a relatively short time. It is also remarkable to think of what a strip of movie film actually is—a series of individual still photos recorded in a camera at a certain speed (about 24 frames per second) and projected onto a screen at the same or a similar speed. On a filmstrip, the frames are separated by thin, dark lines. When the filmstrip is loaded into a projector, a rotating shutter opens and closes to obscure those lines and permits each frame to be flashed twice on the screen. An audience watching a film in a theater actually sees only the pictures depicted on each of the frames (and sits in darkness in between). What appears to be the flowing movement of action on the screen is just an illusion through a natural effect your eyes provide called "persistence of vision."

By the time photography was invented in 1826, hundreds of optical toys were already in existence. These gadgets used images on cylinders with shutter devices to produce the illusion of motion. The phenakistoscope (Greek for "deceitful view") of 1832 and the zoetrope (Greek for "live turning") of 1834 had "phase drawings" (like a rider mounting a horse) on the inside of a rotating disk that, when viewed through slots, seemed to move. By 1849, the drawings had been replaced with phase photographs—for example, a horse and rider jumping trestles—that were set up and posed, not recorded from a live event.
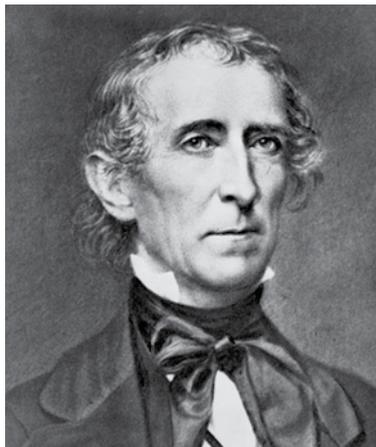
With wet plate photography, people had to hold a pose for several minutes until the plate dried so that the image would not blur. This photo of President John Tyler was taken circa 1860–1865.

In 1876, the wet plate negatives used in photography were replaced with dry plates. The use of dry plates reduced the exposure time from minutes to as little as one-hundredth of a second. The rapid speed allowed "series" photography.

Photographer Eadweard Muybridge (1830–1904) gained worldwide fame by photographing animal and human movement that could not be perceived by the human eye. In 1872, he used photography to prove that there was a moment in a horse's gallop when all four hooves were off the ground at one time. In his test, 12 cameras were triggered in succession, showing the horse's stages of galloping motion.

Two years after Muybridge photographed a galloping horse, hand-drawn, tinted drawings based on series photos were mounted on a circular glass disk and projected with a magnifying lens and light source onto a wall in a dark room. In 1882, a "chronophotographic gun" (it looked like a rifle) recorded the first series of photos of live action in a single camera that imprinted images on a rotating glass plate. In 1883, the glass plate became a roll of paper film. By 1887, celluloid was used to make the roll of film.

Eadweard Muybridge spent the latter part of his career producing thousands of images that capture progressive movements within fractions of a second.

Celluloid was originally invented as a substitute for ivory in billiard balls.

In 1889, inventor Thomas Edison developed the *kinetograph,* a motion picture camera that used a stop-motion device to ensure regular movement of the film through the camera. Holes in the celluloid filmstrip let clawed gears pull it through the camera and projector. One of Edison's first film subjects was the famous cowgirl Annie Oakley. She was a crack sharpshooter with Wild Bill Cody's Wild West Show, a traveling live entertainment show of that era. Edison filmed Oakley shooting at balls in the air from a kneeling position, standing, and while jumping over a table.

Thomas Edison's kinetoscope

One of Thomas Edison's assistants, W.K.L. Dickson, captured this series of a man sneezing using Edison's kinetograph.

Edison's kinetograph led to the wildly popular *kinetoscope*, a coin-operated viewing device the size and shape of a small icebox. From the kinetograph, a person could view short movies such as boxing matches, ballets, or vaudeville or variety routines. These movies ran on spools between an electric lamp and shutter. As they became the rage after debuting in New York City, the Edison Manufacturing Company began supplying 60-second "shorts" to run on kinetoscopes.

By 1893, the first movie studio was created. It was a small room with a section of roof that opened to admit sunlight. The studio moved on a circular track, which allowed the moviemakers to "follow" the sun across the sky. Hundreds of shorts were produced in this studio, but only as recordings of a particular event or subject, not as stories to be told. Editing such things was unheard of, because no one wanted to edit "reality."

A new kind of projector was invented that broke the film less often than earlier machines, leading to films of greater length (six minutes). These longer films were soon shown to larger audiences and showed politicians' speeches, narrated tours of foreign cities, barbers cutting hair, and the like. It was not until 1900 that the revolutionary idea arose to use this new medium to tell a story. This trend led to artistic innovations such as fading to black between scenes (like the curtain coming down during a stage play); combining interior and exterior settings; cutting or "shifting" between staged scenes and stock footage (which came from the Edison archive); and using the first special effects (enhancing a gun battle with extra bursts of smoke).

By 1907, a million people per day were seeing movies in nickelodeons across the United States. Sound and color were added. Filmmakers in countries around the world began producing their own works. Westerns, musicals, comedies, horror films, documentaries, gangster films, romantic tearjerkers, science fiction, suspense, epics, and blockbusters—all of them came to the big screen in just 40 years.

> Nickelodeons, popular in the early 20th century, were small, neighborhood movie theaters where admission was only a nickel. Often, a pianist accompanied the action on the screen.

Elements of Moviemaking

Moving images that are flashed across television screens and the big screens at motion picture theaters have a tremendous and immediate impact on people. Live news pictures that are collected from events—sometimes at the moment they occur—stir a wide range of emotions in viewers around the world. On the other hand, some images on the screen have been painstakingly crafted to create deep impressions on viewers. Live images are the work of news photographers and camera-people, but "manufactured" images—called imagery—form the art of the moviemakers.

With imagery such as what you see in weekly dramatic television programs and theatrical motion pictures, the director and the production team can generate the same heartfelt feelings conjured by live images. However, movies can take the viewer a step further by creating visual environments that may not exist in real life. Motion pictures might also capture a moment from an actor that would be nearly impossible to record in a live event. The entire moviemaking team, then, collaborates by combining technical skills with visual storytelling to help create a compelling story.

Since the late 1800s, when the first big-screen movies were made, the process of telling a story on film has evolved as an art form. Telling a visually compelling story with lighting, camera angles, an eye for composition and detail, and special effects is the ultimate goal.

Simply videotaping family or friends could be your start in moviemaking.

Visual Storytelling

In TV and moviemaking today, filmmaker John Stone said it is still most common to make movies using a single camera.

Independent filmmaker John Stone says one of the most important ways to expand a story visually is to show the action from a number of different perspectives. "Cinematography is all about that: capturing the same dialogue, the same action, the same characters, in various ways to evoke the intended emotion from the audience," he said. "For film and TV, where you are creating a drama or comedy or live-action film, using a single camera allows you to create the most ideal lighting from whatever perspective you are shooting. You film the same scene over and over from lots of different perspectives, and then during the editing process, it is pulled together to most effectively tell the story."

Stone developed his first film, *Down and Derby,* about the competitive Scouting event known as the pinewood derby. (He was a Cub Scout as a child and had competed in a pinewood derby. As a father of three sons, he has also been a Scout leader on the West Coast.) The movie ends with a big pinewood derby race. In real time, a derby race lasts about 3 seconds; that would have been very anticlimactic in the movie.

To slow down the race, a variety of techniques were used—not just slow motion. "You show the race action, the crowd, individual expressions, close-ups, and faraway shots," Stone explained. "In the end, what we were able to do is to extend a 3-second race into a 53-second sequence."
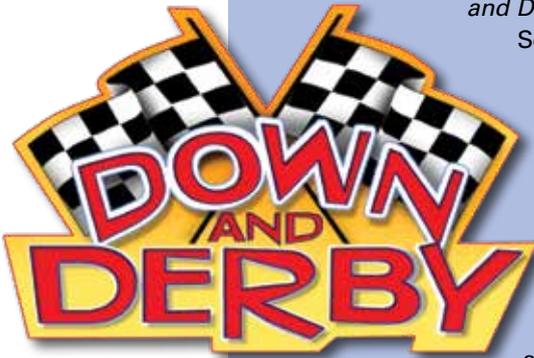
In some movies, you will see aerial views of landscapes or cityscapes. Those types of scenes give the audience perspective of where the action is taking place. In *Down and Derby,* a camera was mounted on a dolly so it could ride down the track behind and in front of the pinewood derby cars. "Visually you bring moviegoers in as if they are right in the action," he said. In other words, the moviegoer sees what the characters in the movie see.

The combination of great creativity by the entire production team, good writing, and the ability of a talented director to bring all of these elements together in a visually pleasing and interesting way are what make moviemaking so fascinating.

A Moviemaker's Tools

When working on feature films and cable and TV productions, a variety of tools and techniques can be used to create the images sought by directors and producers. Just as an artist works with many colors on a palette, the cinematographer has a variety of tools that can be mixed and matched to create desired effects. But instead of paint, the cinematographer uses cameras, different lenses, and lighting to create the mood.

Many effects are achieved by talented editors and special-effects professionals who use computer-generated imagery. The sound of a movie is also very important. Having just the right music or sound effect can have a very large impact on an audience.

Cameras

Quiet, synchronized-sound film cameras are used for dialogue scenes, while loud, high-speed cameras capture special effects and action. A camera that runs at 500 frames per second will take a one-second live-action event and make it appear on screen for almost 21 seconds. This ability to warp or slow down time is just one part of movie magic.

Lenses

Professional motion picture cameras accept prime and zoom lenses. **Prime lenses** are designed and built to offer only one field of view for the camera. A **zoom lens** lets you change the magnification of an image without changing lenses. Video cameras usually have a single zoom lens instead of a selection of prime lenses, but that does not mean you have to zoom (close in or pull back from a subject) during a shot. Many professional cinematographers use a zoom as a "variable prime lens," selecting the *focal length* appropriate for each scene without having to mount a different prime lens for each shot. This ability to quickly change focal lengths speeds up the photography process.

Prime lens

Zoom lens

Parts of a Zoom Lens

Three basic parts of a zoom lens are the focus, zoom, and aperture.

- The camera operator uses the focus to adjust the sharpness of an image.

- The zoom changes the lens' focal length.

- The aperture controls the amount of light passing through the lens (or distance away from the subject).

The focal length is the distance between the film and the optical center of the camera's lens when it is focused. The larger the focal length, the greater the amount of zoom.

Three sets of numbers are used to describe lenses.

F-stop. The lower the f-stop number (such as f/4), the wider the aperture (opening) of the lens and the more light it passes to the camera and, therefore, the film. Prime lenses generally have wider apertures and are helpful when shooting in low-light situations.

| f/16 | f/11 | f/8 | f/5.6 | f/4 | f/2.8 |
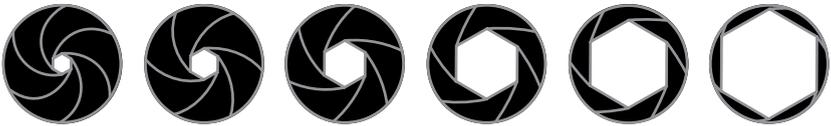
Aperture openings and f-stops

Millimeter. This number represents the focal length of the lens. A low number represents how "wide angle" the lens is and how wide the camera's field of view is. A high number indicates how "long," "tight," or "telephoto" and how narrow the angle of view is. A zoom lens is adjustable, giving you a range of focal lengths in one housing.

Zoom range/ratio. Dividing the larger millimeter number by the smaller millimeter number determines the range of magnification a zoom lens can deliver. A zoom with a 100mm telephoto and a 10mm wide angle is considered a 10-to-1 zoom ($100/10 = 10$). If the zoom were 210mm to 14mm, the zoom range would be $210/14 = 15$, a 15-to-1 ratio. When shopping for a workable zoom lens, look for the widest aperture (a low f-stop) and the greatest zoom range.

Depth of Field

Depth of field is the area in front of and behind the subject in which it appears in acceptably sharp focus. If you zoom a lens to its full telephoto position, the long lens will "narrow" the depth of field and provide only a few inches of focus in front of and behind the subject's position. This "shallow" depth of field is the same as when viewing through a pair of binoculars. You have to continuously maintain focus when the subject moves toward or away from the camera because the depth of field is very narrow.

On the other hand, selecting a wide angle on a zoom lens produces a great or "deep" depth of field where everything in front of and behind the subject is in focus. This infinite depth of field is similar to that of a front door peephole. Everything is in focus; your subject may move around yet you won't need to refocus your lens to follow the movement.

Film

These are the two most commonly used sizes of film.

35mm. Major motion pictures have been photographed for many years on 35mm film. However, more and more motion pictures are now being shot on high-definition digital video. Cameras that use 35mm film are normally large and bulky. These cameras are mounted on cranes or special dollies. Up on the movie screen, 35mm film shows less grain than 16mm. It is used mainly by the motion picture industry.

16mm. This type of film was more lightweight, faster, and less expensive to produce than 35mm. Many low-budget, educational-type, or independently produced films used the 16mm format. Videotape became a typical substitute, and today many cinematographers and producers use high-definition digital video for creating high-value projects at a reduced cost.

Digital Recording

Regardless of how images are acquired, they can be edited and enhanced with special effects by using computer software. With a digital video camera, the cinematographer shoots raw footage and edits many of the images through the lens while recording. The video camera can be plugged into a computer with a cable and viewed on a TV or saved on the computer's hard drive. From there, the production can be edited and special effects can be added.

Lighting Equipment

Professionals have at their disposal many sizes of lights and special effects techniques to create moods for any shot envisioned by a director. Like a theatrical set, lights can be placed around the action in a scene for illumination or to cast shadows. For a dramatic sequence, the cinematographer may use a single lightbulb to create an eerie, high-contrast scene. Yet, when photographing a court of honor, the cinematographer may choose to use only the candles available in the room. This is called **available lighting.**

In some situations, using only available lighting imparts a special effect.

Sound Equipment

Depending on your circumstance, there are various types of microphones that can be used. When recording a dramatic scene, for instance, you would likely want to use a microphone that cannot be seen. During interviews or on newscasts, microphones are often visible, as they do not detract from the storytelling.

To complete your moviemaking project, you will follow the same basic steps as used in the motion picture and TV industry, but along the way you will need to wear a variety of hats.

The Importance of Preproduction Work

Before you can begin producing your film, you need to know what your film will be about and what style you will use to tell your story. So, your first priority is to select a category from the three options in the requirements: documentary, drama, or demonstration piece.

Documentary

A motion picture production that captures a news event or records information on a particular topic with little or no fictionalization does not need a lot of preproduction. However, it requires being in the right place at the right time with a "story" you want to tell. Examples might include the demolition of a historical building, the opening of a new city park, or a day in the life of your town's mayor or police chief.

Dramatic Story

A made-up story with characters and action and/or emotion requires a script, cast, and rehearsal before shooting begins. Any logical and tasteful scenario you can think of can become a worthwhile production project.

Staged Demonstration

Shooting a procedure presented by an expert will benefit from a script and some predetermined camera angles to show elements an audience would not be able to see in person. Plan for interesting close-ups that show unusual elements. You might show other Scouts how a blacksmith shoes a horse or how a Scout starts a fire without matches. Discuss with your counselor the subjects you might explore. Once you have a firm idea, go to the next step: preproduction.

Interviewing Techniques for Documentaries

Augie Heibert, an Alaskan television pioneer who was a Lone Scout in the 1930s, has been lauded by the national radio and television industry for his work to bring high technology capabilities to remote Alaskan Bush villages. Heibert offers the following tips about interviewing subjects on camera.

- Remember the subject, if not versed in being a model or experienced as an actor, will be nervous. Treat the subject with kindness and respect by giving suggestions on what you want, not harsh or rude demands.

- Remember, a friendly subject is one who will perform for you more naturally than one who has an unfriendly or antagonistic attitude or demeanor.

- Common courtesy and the Scout Law work!

Good Planning Ensures Success on the Set

Good moviemaking requires working with a team. Many elements are planned to come together on the same day and at the same time. It is always best to have a preplanned shooting schedule in place to help minimize any surprises.

Preproduction involves all the preparation that occurs up to the day of shooting—from deciding on a story to determining locations and securing equipment. In preproduction, you must seek to eliminate problems that could sabotage a project once it is in actual production. Preempting glitches in preproduction is part of having what are called high production values and avoiding failure.

The tools used to produce a film—camera, batteries, support equipment, and additional lighting—are the same items that may cause defeat. If you are hesitant about camera operation or if your batteries are not charged, these things can ruin an otherwise well-planned shooting experience.

Check out sites thoroughly, even if you are shooting in familiar surroundings.

Just as months of planning go into preparing an Indy 500 race car to cross the finish line, you need to plan before your first video can be shown, or screened. In fact, before you take your first camera shot, you will have greater success if your budget, staff, and equipment needs have been carefully planned. Using a checklist may help you keep tabs on your equipment and preparation.

Budget

Figure how much money is available for your production; that is your budget. Remember, a car cannot run without gas. Consider the equipment you may need—such as camera(s), tripod, lighting equipment, and a digital software program along with the accompanying financial considerations. Take the time to understand each process of production. Realistically determine how much time and money it will take. Doing so will help you avoid one trap novice filmmakers sometimes fall into: an unfinished film.

The preproduction checklist is an essential tool for planning all aspects of the project. Here is a sampling of steps for the different aspects of production.

SAMPLE PREPRODUCTION CHECKLIST

Budget
- [ ] Determine the funds available for the project.
- [ ] List the equipment needs and other expenses.
- [ ] Determine whether the budget is sufficient; make adjustments to fit the budget.

Crew
- [ ] Determine what kind of staff is needed; enlist volunteers.
- [ ] Assign responsibilities to crew members (lighting, audio, camera, etc.).

Script and Storyboard
- [ ] Write the script; create the dialogue for each character.
- [ ] Create the storyboard.
- [ ] Develop scenes based on the script and storyboard; write out special instructions for shots on the script.
- [ ] Have the cast rehearse the script and act out the scenes; fine-tune the script.

Location
- [ ] Review the script to develop a list of possible locations.
- [ ] Scout the locations and secure permissions.
- [ ] Make a timetable for shooting scenes at the different locations.

Video and Audio
- [ ] List all the equipment necessary, including camera, tripod, lighting, and sound.
- [ ] Determine needs for background music and special effects.
- [ ] Set up and test all equipment on-site.

Crew

Determine what kind of staff you will need, if any. Decide whether you want to assign any responsibilities to other people. Here are some of the positions related to film and video/digital production. Depending on your budget and your ability to enlist volunteers and secure donations, you may be able to get help in these areas. Remember, though, that as the filmmaker, you should be involved in all these facets of your production.

The **producer** is in charge of the entire production and bears responsibility for its success. This person hires everyone connected with the project, including the director, the designers, and the cinematographer. The **associate producer** helps the producer and usually stays on the set during production.

In consultation with the **producer** and **casting director,** the **director** of a movie usually hires and guides the **actors.** It is the director's vision that will ultimately appear on screen. Writers prepare and update the script. The **cinematographer** is responsible for creating the look, the mood, and the feel of the visuals.

The **camera operator** frames the shot in the camera and plans moving shots. The **assistant camera operator** works with the camera operator to move the camera from setup to setup; adjust the focus; keep track of batteries, tape, and film stock; and take notes as they relate to the camera department.

The **lighting director** or **gaffer** controls the lighting before and during the shoot. The **best boy** serves as chief assistant to the lighting director or gaffer. The **set designer** creates the artificial settings for scenes.

The **key grip** controls most of the hardware for the production such as the dolly track, camera platforms and rigging, and overhead sunlight and control with butterflies and scrims. As the gaffer controls the light, the key grip controls the shadows. The grip sets up equipment to create shadows, which give a scene depth.

Engineers manage the machines that control or mix sound, lighting, and special effects, and the **editor** or **cutter** selects the scenes that tell the story effectively.

Write a Treatment

Whether you are planning a documentary, drama, or demonstration piece, put the story of your idea together and write it in a few paragraphs. This is called a treatment. It will make you focus on the visual way you are going to tell the story. It will help define your "artistic canvas." You will find that self-imposed limits on a project will make you work harder to produce smarter. Present the treatment to your counselor for review so you can move on to writing a script and making a storyboard.

Create a Script and Storyboard

A script is made up of written or typed pages, while a storyboard has rough pictures to represent the scenes to be shot. A script or storyboard should clearly state the video and audio elements and what the characters will be doing. Write the script as if you were going to give it to someone else to direct; include what will be said, along with some idea of what will be seen. Number each scene. Be sure everyone who needs a script has a copy well ahead of shooting and that all questions have been reviewed.

Make a simple but accurate storyboard, numbering each scene with those in the script. Use it as a guide during the filming process, but look for better angles and coverage while shooting. The primary thing to remember with a storyboard is its purpose. You are creating a tool to help you in the *production* of your movie. Use colored drawings and/or simple black-and-white stick figures. Visualize each scene in your mind's eye, then draw the scene in the approximate field size (wide, medium, or close-up shots).

The storyboard affords an objective preview of the finished project—in other words, what it will look like on the screen. For example, you might want to insert a shot of the moon between two interior sequences to tell the audience that the second scene occurs at night. This also establishes a different time frame. A shot of a sunrise tells an audience that what follows occurs on a different day.

Inserted exterior scenes help establish locations and time frames for interior action. They also add variety and depth to stories that take place mainly indoors.

You might see from the storyboard that there are too many close-ups. Perhaps too much of the action takes place in the same location or from the same angle. Many potential problems can be worked out in preproduction by using a storyboard.

The storyboard

Lines From a Typical Script

Internet Predators*

Characters:

Laura: 17, high school senior

Alan: 17, high school senior and Laura's friend

Luke: 22, pedophile, Internet predator (nonspeaking extra)

FADE IN:

SCENE 3:   INT. SCHOOL HALLWAY

          Laura pulls Alan back around the corner.

          LAURA—Will you promise not to tell my mom or dad any of what I'm gonna tell you?

          ALAN—Sure, what's the problem?

          LAURA—That guy's name is Luke . . . and he's been stalking me.

          ALAN (SKEPTICAL)—Stalking you?! Come on, Laura!

          LAURA—No, really! It started out pretty innocent. I met him in an Internet chat room. We had some common interests, so I gave him my e-mail address.

ALAN LOOKS
MILDLY SHOCKED.
LAURA RESPONDS.

          LAURA—Hey, I figured, what could it hurt? It's not like I told him where I live or anything.

WAVY GRAVY DISSOLVE TO (A TERM USED TO DENOTE THE PASSAGE OF TIME):

SCENE 4:   FLASHBACK - INT. LAURA'S ROOM - NIGHT

As Laura recalls, we flashback as she sits at her COMPUTER. Camera slowly tracks around until we see the screen. . . .

          LAURA (V.O.)—Anyway, we sent e-mails back and forth for about three months and got pretty close. Well, I mean, how "close" can you get in cyberspace, but he really seemed to "know" me. I was gettin' kinda interested in him. You know . . . curious. Then he asked me what I looked like. I told him I'd upload a picture of myself if he'd do the same for me.

*These lines are from Vignette #2, "Youth Protection Training," produced by the Boy Scouts of America, ©1998.

DIGITAL E-MAIL
PICTURE OF
LUKE POPS
ONTO SCREEN. . . .

> LAURA (V.O.)—We exchanged pictures. He's a little older than I thought he was . . . but good-looking. Anyway, he asked me for my phone number, and I thought that was safe enough, so I gave it to him.

WAVY GRAVY DISSOLVE TO:

SCENE 5:   INT. SCHOOL HALLWAY—DAY—PRESENT

WE RETURN TO
LAURA AND ALAN. . . .

> LAURA—We talked a couple times on the phone, and then all of a sudden he shows up at my house one day. Then he surprises me at the mall last weekend.

> LAURA—Now, today he stops me on the way into school and says he'll give me a ride home tonight. He's cute, Alan, but he seems a little weird. I'm kinda scared of him.

> ALAN—Laura, you gotta be really careful what information you give out on the Internet.

> You know, I've heard that all they have to do is get your name and they can find out anything they want to know.

> I mean, your phone number, alone, gave him a way to start narrowing what part of town you live in . . . and what school you'd probably be going to. Pretty easy to find you after that.

> If he's into the Internet, he prob'ly traced your address through your phone number.

> LAURA—I really screwed up. Bad.

> ALAN—Hey, you're not the first. Guys like this Luke are out on the Internet every day.

LAURA LOOKS DESPERATE. . . .

> LAURA—But what am I gonna do now?!

FADE OUT:

Scout for Locations

Professionals plan very carefully and scout locations before the shooting begins. Here are some of their concerns.

- Is the on-site power sufficient to run all the equipment?

- Can meals be served easily, and are bathrooms nearby?

- Can vehicles get in and out?

- Will traffic or airplane noise interfere with sound quality or the picture's time element?

- At what time of day will the location be prettiest? When will the site be needed?

- What special problems will need to be solved?

Carefully Choose Audio Options

The audio in your project can be as important as the visuals. Some elements and options to consider include music, narration (called a voice-over or V/O), the talking head (talent on screen talking in real time with the scene), special effects (SFX) like thunder or footsteps, or any combination of the above.

The simplest method is to use the audio that surrounds the scene you are shooting. But be sensitive to the continuity of the sound levels and background noises that may come and go, which could cause serious problems during editing.

The lighting director or gaffer might also come along to determine what special equipment, such as a bounce card or reflectors, will be needed.

Here are some considerations pertaining to the soundtrack of a movie.

- Respect the intellectual property of others. Use only music that you have appropriately obtained.

- Popular or well-known tunes tend to distract an audience from visuals. Unless there is a strong reason for using them, avoid doing so.

- Repetition can become boring, so avoid repeating the same tune during the film.

- Music that has pronounced loud and soft passages is hard to mix, so avoid this type of music.

- Avoid music that contains many passages by instruments such as flutes that may cover the pitch range in which the narrator's or actors' voices fall and render them unintelligible.

- No law says a movie must have an uninterrupted musical accompaniment from start to finish. Fade it out when it seems desirable, and fade it back in when it will help enhance the visuals.

- If a narrator is used, select one with care. Make sure the narrator has read the script aloud several times before recording begins. Doing so will enable the narrator to give proper voice emphasis to those passages that require it.

Mix the music at a low enough level so it does not cover up either the live sound or narration, but not so low that the audience has to strain to hear it. A little practice will help pinpoint the correct level.

The music selected to accompany the movie should, like the camera, not attract attention to itself but complement the visual story being told.

Picking the Right Equipment for the Project

Your first production may not get you an Oscar nomination, but do not despair. Take this time with the camera equipment to refine your skills in composition, camera movement, and lighting. These elements are as important as the story being told. As you move through the badge requirements, you will develop greater moviemaking techniques and skills.

Selecting the Right Equipment

After determining the budgetary limits during the preproduction stage, review the equipment needed to shoot your project. For your first projects, use a consumer video or digital camera you either own, borrow, or rent. These cameras give the new cinematographer almost every important element needed to make a first production. Today's video cameras are relatively easy to use. There are various settings to help with exposure and lens settings. They also integrate easily with home computers to upload your material for editing.

If you decide to rent a camera, be sure to reserve it, so it will be available when you need it.

Video Cameras and Lenses

Most lenses on video cameras are auto-focusing zoom lenses rated with a ratio such as 6-to-1. This means the lens can expand the view to a full scene that is six times as wide as what the telephoto saw. Newer camcorders have 8-to-1 zooming, while professional/industrial cameras can accommodate 12-to-1 and 14-to-1 zooms and cost thousands of dollars.

Many camera lenses have a manual aperture control that opens the iris of the lens wider or makes it narrower, just like the iris in your eye widens in dim light and narrows in bright light. The iris can be manually controlled for forced fading and/or special effects with light. The aperture is rated in changeable f-stops. Video cameras automatically make aperture adjustments.

A large number indicates a small opening in the iris of the camera. A small number indicates a large opening.

Keep in mind the following rules of optics concerning the f-stop on a lens.

When shooting on bright days:

- You may need a small opening in the iris (a small aperture).

- Use a high f-stop number, such as f/16.

- You will have a large *depth of field* (the amount of focus in front of and behind the subject).

- You will need less light for a usable picture.

When shooting on gray (or low-light) days:

- You may need a large opening in the iris (a wide aperture).

- Use a lower f-stop number, such as f/4.

- You will have a limited depth of field (could be inches).

- You will need more light for a usable picture.

> To create a moving tripod or dolly, you need a heavy object on rubber tires and a smooth surface, not to mention a volunteer to push you and your equipment around. A wheelchair can be used as a serviceable dolly.

Camera Supports

Using a tripod is the best way to hold a camera steady. Most tripods have panning heads that allow smoother movement. They have adjustable legs that can be locked into position. On more expensive models, casters can be added to make the tripod somewhat mobile. When selecting a tripod, request one with a fluid head if you plan to pan in your shots. Even if you are shooting only static objects (as in a demonstration) or "talking heads" (as in an interview), plan to use a tripod.

Recording Your Story

Video cameras record to various types of media. Some cameras have built-in hard drives, while others may use memory cards. Always be sure to have enough memory in your hard drive or storage devices to record multiple "takes" of each scene. A good rule of thumb to consider would be having 10 times more record time and storage available than the total estimated time of your project.

Microphones (Audio)

Determine if you need an external microphone for audio. Most cameras and camcorders come with microphones that usually are attached to the camera. However, they are so sensitive that they might also pick up distant sounds, motor noises, and even the camera operator's breathing, all of which can be a distraction.

> A microphone may be clipped onto a subject's clothing, used as a table mike, attached to a stand, or clamped to an aluminum pole for use as a "shotgun" mike.

A lavaliere microphone can provide flexibility and set a professional tone during shooting.

If you feel your production requires it, you can budget an external microphone and a 50-foot extension cable with heavy-duty molded ends. Because some microphones experience audio loss with extension cables, ask before you rent. A common handheld microphone usually is less expensive than a miniature microphone that can be clipped to clothing (called a lavaliere microphone). If you plan to record talent (the person you are shooting), a lavaliere can add realism and professionalism to the shoot.

Lighting Equipment

Lighting from the sun is free, and video loves sunlight. If you must shoot indoors, try to use available indoor light. Guiding your subject to the light keeps your lighting budget at zero dollars. If you must light a scene, use spotlights bouncing off white sheets or walls and ceilings to keep the subject from being "hot," or losing detail in the lightest areas. Renting a spotlight and its holder can be pricey, so it makes sense to use available light whenever possible.

You may also need a light stand or large alligator-type clips to clamp the lights to support poles. Gaffer's tape, also known as plumber's tape in hardware stores, works well in awkward situations. You also will need insulated gloves to handle hot fixtures.
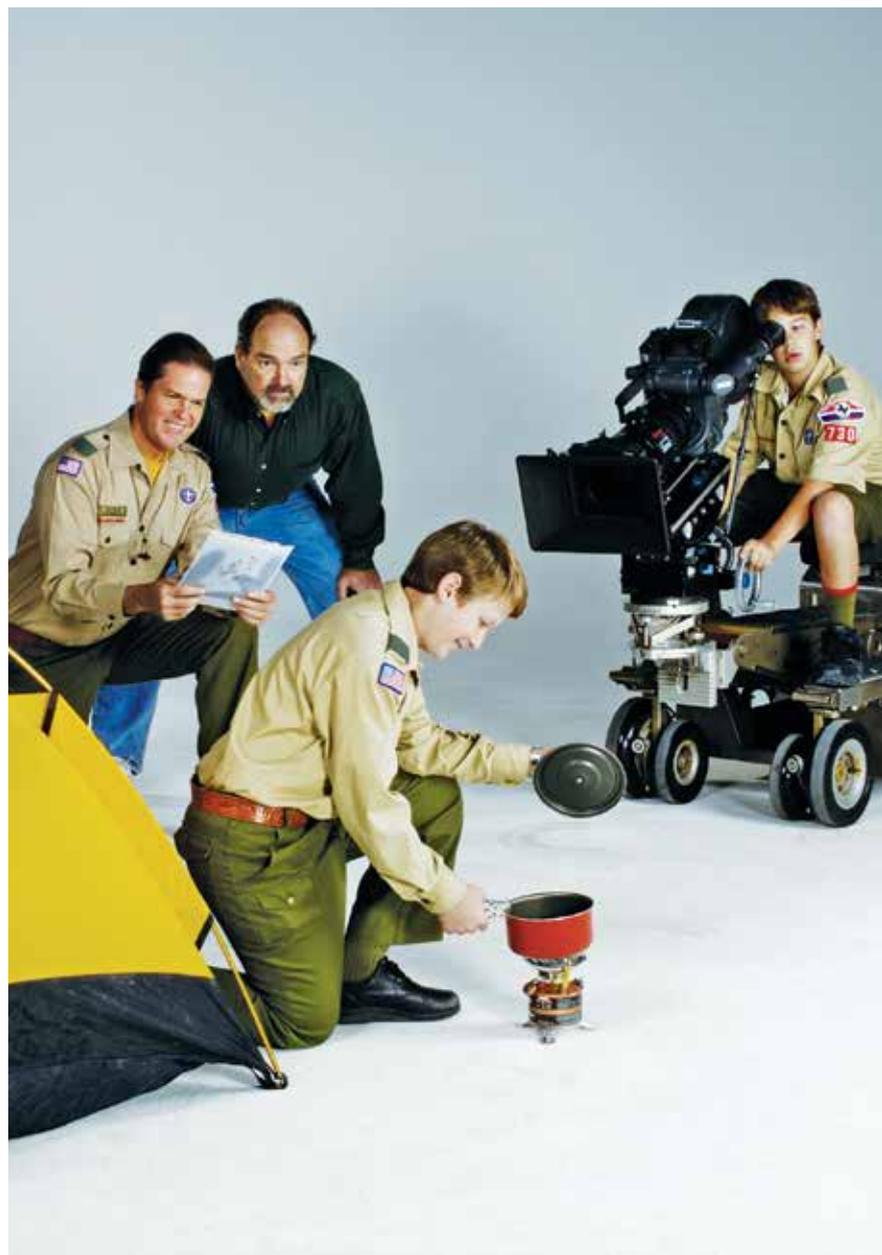
Basic Techniques for Shooting Your Project

You have read bits and pieces that apply to shooting a story (for example, the need for a tripod or dolly, lighting, budget considerations, preproduction). Now that you are ready to step behind the camera to begin shooting your story, here are some other basics to remember.

- Break down and organize your script before filming begins. Save valuable time by shooting the common scenes together, even though they may not run together in the final piece. As you shoot each scene, mark it as it is completed.

- Plan the day or days of shooting and follow your schedule. Following this schedule helps keep volunteers motivated for the next shooting day or project.

- Have cast and crew on the set at least an hour before shooting. Provide proper directions (if you are going to a site), and have timetables understood.

- Do not record people, private homes (outside or inside), or business locations unless you have secured prior written permission. (Secure these permissions in writing during the preproduction phase.)

- Have more than enough storage to record to, batteries, cables, and light-reflective materials.

- Plan to serve any volunteers a meal or refreshments. Provide beverages on the set to keep volunteers from wandering away.

Try to stick to your scenes, but if you imagine a scene you had not planned, shoot it. The worst that could happen is that it is never used. The best that could happen is that the scene saves the day.

The filmmaker keeps these points in mind during filming.

• Each new framing will lead the audience to the next part of the story.

• Each composition helps define your intentions with the mood of the story being told.

• Each angle will nudge the audience toward the desired impact.

Basic Techniques of Lighting and Continuity

A moviemaker wants to tell a story in a way that will hold the attention of the audience and keep people interested without any annoying distractions. Here are some points to consider relating to lighting and continuity.
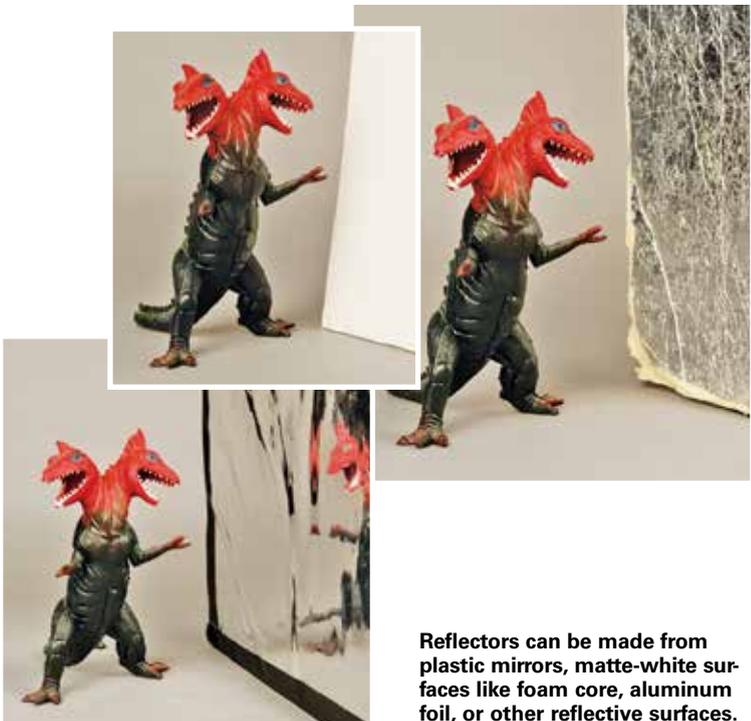
Reflectors can be made from plastic mirrors, matte-white surfaces like foam core, aluminum foil, or other reflective surfaces.
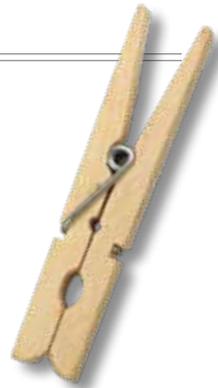
Lighting

Strive to compose each shot carefully and make each as photographically beautiful as possible. Outdoors, you should usually keep the sun roughly beside you and the camera. Avoid shooting outdoors at noon and during the middle of the day; the high sunlight causes black shadows under trees and shrubs in scenics and under the eyes of your actors—very unflattering. If you are in a backlit situation, have a helper hold a reflector so it reflects a little sunlight onto the actors' faces. But pay attention and do not overdo it.

When using sunlight as the light source, move the subject until the sun makes an interesting source. Many times backlight is the most flattering for dramatic shots, but you may want the benefit of three-quarter front light to effectively illuminate all elements of a demonstration.

If you cannot get the natural lighting you need, shoot at a different time of day or add reflective lighting to compensate. For the most dramatic lighting, shoot early in the morning and shortly before sunset.

When shooting indoors, set lights carefully. For most shots you will not need many—perhaps a single floodlight bounced off the ceiling of a room to pump up the overall level of illumination, with maybe a few low-wattage spots. Aim one spot on each actor's face and another on any object the actors might focus on. Set the lights so the shadows they cast fall outside the scene. Adjust the intensity of lighting by moving the lights farther away or closer to the subjects.

Know that a light moved twice as far from a subject cuts the light falling on the subject by a factor of four. If you have a small color television set, patch or connect it to your camcorder to see the effect of lighting before you shoot the scene, and adjust the lighting if necessary.

Make little scrims or filters out of pieces of window screen and fasten them over the lenses of the spots with wooden clothes pins. In general, a single thickness of window screen will cut the intensity of the light by half an f-stop, while a double thickness will cut the intensity by half.

Lighting Terms

intensity. Brightness (affects exposure).

quality. Hard (shadow-forming) or concentrated; soft (shadowless) or diffused.

contrast. A ratio between the lightest and darkest areas in the shot.

Proper Light Intensity Needed

The camera may not operate properly if

- There are low light levels.
- The lens aperture is too small.
- The filter being used is too dense.

Too little light may cause **picture "noise," smearing,** or **trailing effects** with some cameras.

High light levels can be compensated for by

- Moving the subject away from hot lights
- Adjusting the f-stop
- Using a filter or switching off lights
- Using a dimmer or placing diffusing material over a light (but not touching the bulb!)
- Bouncing the light off a wall or white surface

Continuity

To be effective, a movie must have the events flow in an orderly, logical manner. Continuity is one of the important reasons for preparing a script, storyboard, and scene long before shooting a movie.

Continuity errors can be either glaring or subtle. In either case, they create a distraction for an audience, and viewers are apt to lose their understanding of the story. A glaring continuity error may evoke laughter from an audience during a serious moment. A subtle continuity error may make an audience feel uneasy, distracting them from focusing on the story.

For example, if you establish in your movie that Scout camp is to the left as viewed on screen and the river is to the right, whenever your actors move from the camp to the river, they must always move from left to right across the screen. When they return to camp, they must always move from right to left. This is called *screen direction*. An error in screen direction is a subtle error that will almost always cause a sense of unease in an audience.

Similarly, if one of your actors is wearing a green sweatshirt in a long shot of a certain scene, he or she must still be wearing it in the following close-up, unless the audience saw

him or her remove it on camera. The same goes for inanimate objects shown in a scene. If, say, an alarm clock is present on a bedroom nightstand in the first shot of a bedroom, it must be present and in the same position in each subsequent shot of that set. Likewise, if it is absent in the first shot, it must not appear as if by magic in subsequent shots.

The list goes on and on—the actors' clothing, the time of day as determined by the position of the sun in outdoor shots, cloudy versus bright days. To record in writing the content of each scene and help prevent continuity errors, a professional production employs what is called a script supervisor.

Some moviemakers utilize visual effects to join together separate segments of movies, and this technique can be effective. For example, a "lap dissolve"—the beginning of the next scene appears before the end of the last scene completely disappears—may be used to denote a change in time. A fade-out or fade-in may be used to denote a change in place. Some cameras have preset effects such as dissolves, wipes, or fades built in. However, these effects are more commonly used during the postproduction editing phase.

> When shooting a scene, be aware of the following.
>
> - **Continuity.** Try to ensure audio levels of different shots of the same scene match.
>
> - **Effects.** Record typical background noises, if necessary, for later mixing.

The Rhythm of a Movie

Every well-made cinematic story has a definite *rhythm,* or development of the story or action, and *syntax,* a harmonious arrangement of parts or elements. When the rhythm is smooth, an audience is comfortable and knows what to expect. When the rhythm becomes rougher, the audience becomes vaguely uneasy in new and possibly unfamiliar surroundings. This means the cinematographer has a responsibility to introduce the audience to a new place without turning off the viewers. Therefore, each scene of your project should flow smoothly and logically to the next. For example, you would not cut from a brightly lit camping scene to a dimly lit court of honor and back to the outdoor shot without a good reason for doing so.

It is perfectly acceptable to use flashbacks in movies to establish events that led up to the situation being currently portrayed. But if you do so, the audience must be aware that what you are showing is a flashback (revealing a close-up of a calendar with a previous year, for example).

Cinematic Elements to Remember

During the past century of cinematic development, certain practices in moviemaking have become *de rigueur*—standards and techniques that are easily understood parts of a moviemaker's everyday language. Here are some points to consider as you begin shooting your first film.

The 180-Degree Axis Rule

Imagine entering an elevator where two people are already in conversation. The individual on your left, a man, is looking to your right. The other person, a woman, is looking to your left to respond. If you were filming this conversation in close-up shots, only one person might be seen speaking at a time. If the man changes the direction he is looking, the audience will be confused as to who is talking to whom.

When you develop a scripted conversation between two actors, there is an imaginary line called the axis line. A scene will be easier for an audience to follow if the camera position does not cross this line. Think of what might happen if the camera "crossed the axis" during a football game. Imagine the ball carrier running from screen left to screen right. If a director were to cut to a camera angle on the other side of the "axis," it will seem like the player is running right to left, which would be physically inaccurate and visually confusing.
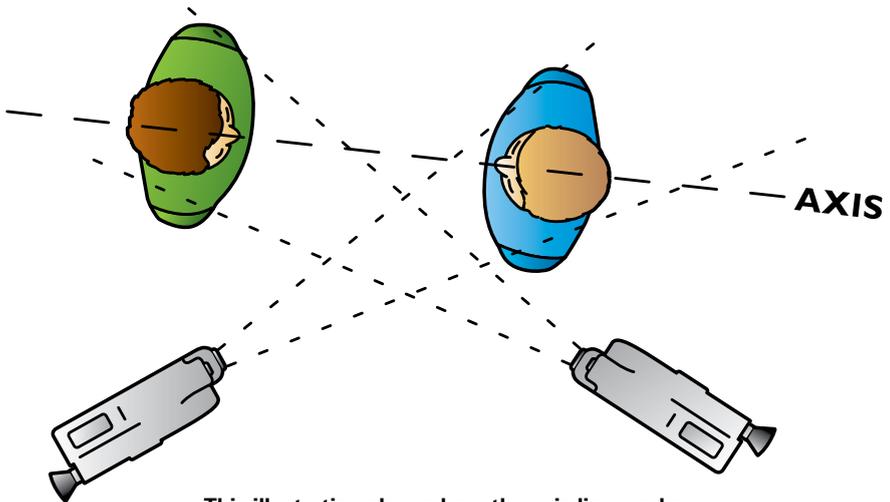
This illustration shows how the axis line works.

Camera Movement

The camera functions as an invisible observer of scenes. Camera movement follows and frames the action and helps the viewer become aware of the environment and understand new information about the story being told. Unless the concept of your movie is different, handle the camera so that it will attract as little attention as possible. Use a tripod to avoid shaky pictures that will distract an audience.

Keep both eyes open as much as possible when you shoot. This allows you to better follow the action. If necessary, find something stable for support while shooting.

A well-framed, stable shot will provide an audience a solid point of reference from which to start. A frame that nervously searches the scene as a result of an unsteady, handheld camera will signal your audience to be nervous, too. If your intention is to make the audience uncomfortable, use the camera in this way. Otherwise, keep the horizon level. Take care to level the camera on a tripod by adjusting its legs to conform to the slope of the ground every time you position a new setup; it is easy to accidentally tilt the camera.

Remember that wide-angle lenses and the wide-angle position of zoom lenses minimize camera shake because of their wide fields of view, while telephoto focal lengths amplify camera shake.

Handheld cameras are extremely lightweight and must be held steady. To keep the camera steady without a tripod, try some of the following tips.

- Practice until you find a stance that provides the easiest shooting and best results.

- Position your eye firmly against the view-finder eye cup and assume a comfortable, stable position.

- Relax your shoulders, and put your elbow firmly against your side to help stabilize the camera.

- Rest both elbows on your knees while seated on the ground.

- Walk with your knees bent (moving backward is suggested rather than forward).

- When kneeling, keep one knee firmly on the ground for the most stability.

- To better follow the action and anticipate other movements in the scene, keep both eyes open when you shoot.

- Whenever possible, lean against a tree, the side of a building, or something else stable when shooting.
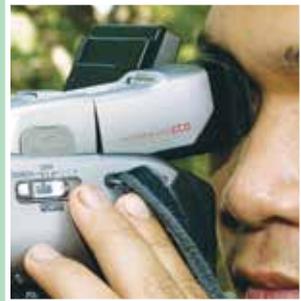
Pan and Tilt

Camera moves advance a story. Use pan, tilt, and zooms only to "frame" the action in the scene. If there is no action to follow, resist using the camera to "point." To make an audience look toward a particular window in a wide shot of a building, stop the camera, reframe with a longer lens, and then roll. This "cut" will provide the same emphasis to the window as a zoom would but will keep viewers from becoming "seasick." Begin the pan with a static shot of a well-composed A scene and end with a static shot of a well-composed B scene. Otherwise, the pan is incomplete. The same is true for tilts and combinations of the two.

Limit the number of pans, tilts, and zooms. Too many can distract an audience, particularly if they are made too fast. Shoot them half as fast as what seems to be the right speed, and they will seem about right on the screen.

There is nothing wrong with letting actors walk into a frame, play their parts in front of the camera, then walk out. You do not have to pan with them. However, if you are panning with a moving object, such as a running animal or a sports car, keep the subject centered in the frame; do not get ahead of it or behind it.

Frequently change the shooting angle to add interest to scenes. For example, shooting down on someone from a stepladder makes that person seem less significant cinematically. Shooting up at someone from near floor level makes that person seem dominant, perhaps even sinister or threatening. Use camera angles to enhance your shots, but be careful not to overdo it.

Use pans and tilts to reveal story elements and not as much to establish environments.
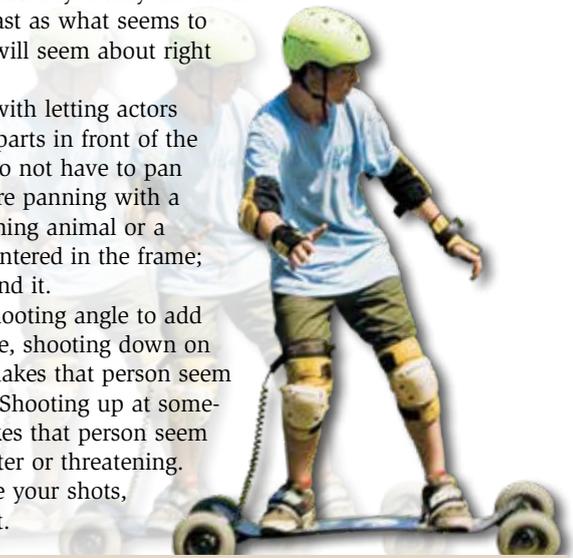
Use a dolly when you want to move a camera along with actors or better define an environment. Because pictures are two-dimensional, full depth of a scene is often lost without camera movement. For instance, when looking at a forest with hundreds of trees, a dolly move will show the foreground trees moving through the frames more quickly than the distant ones—a powerful effect when a complicated environment must be defined. A busy office will look and feel much more hectic if the camera moves and gives the viewer the benefit of depth.
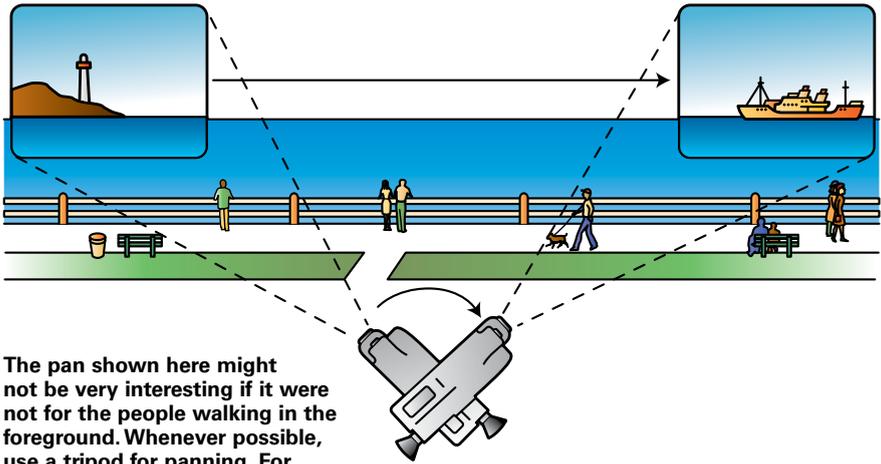
The pan shown here might not be very interesting if it were not for the people walking in the foreground. Whenever possible, use a tripod for panning. For best results, lock the tripod to prevent tilt.
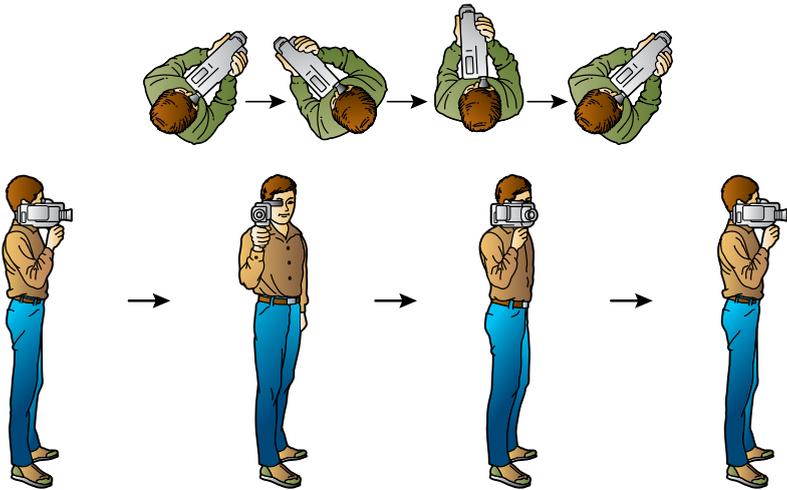
Panning

To make professional-looking handheld pans:

- **First, stand so you face in the direction where the pan will end.**
- **Without moving your feet, rotate your upper body so your camera faces the direction where the scene will begin.**
- **Start shooting. Rotate your body slowly to the point where the pan will stop.**
- **Hold your breath while panning; the result will be much smoother.**
- **Avoid repeated pans of the same scene.**

Framing and Composition

Cinematographers use a combination of focal length, camera angle, and composition to visually frame stories. There is no right or wrong way to shoot a scene, but there are always stronger or weaker shots as they relate to telling a story.

The Long Shot (LS). A visual story of a troop's court of honor will benefit from an opening (or establishing) wide-angle (or long) shot. The long shot defines the environment, establishes the participants, and helps the audience get a feeling of the overall mood.

Follow the wide angle with a shot of what your eye has been drawn to in the wide angle. You might look at some portion of the room, say, a group of people or objects that seem more interesting than the overall scene. In moviemaking, this is called a medium shot. It could be a shot of the color guard during the Pledge of Allegiance or a shot of the honors table gleaming with awards waiting to be presented to deserving Scouts.

Then, you could zero in on one person or object in the group that seemed for some reason to be the most interesting. In moviemaking, this is called a close-up (CU). If it were a special night to honor grandparents, then the strongest close-up might be of their faces beaming with pride.

Shooting a statuette of Baden-Powell from an angle below (an "up" angle) will honor tradition, while shooting across the statuette toward the award's recipient will connect that Scout with the tradition. Both are excellent angles, but the second may be a more compelling and a more telling shot of a court of honor.
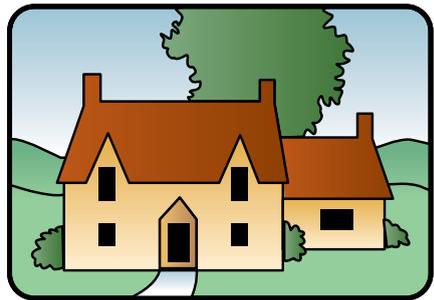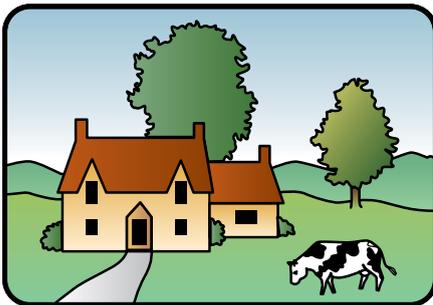
Size the scene. Mix long, medium, and close-up shots. Continuous use of long shots or close-ups gives a movie a monotonous, flat impression.

Framing people the right way takes practice. Here are tips for effectively framing basic shots.
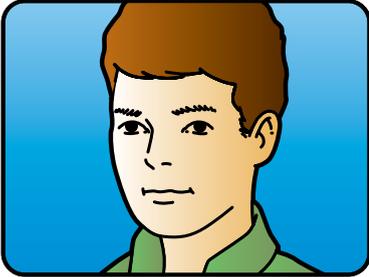
Even if you cut off the hairline, don't cut off the chin.
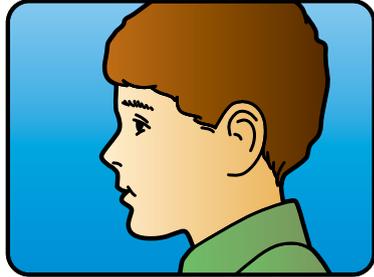
When shooting a profile, leave the space in front of the face to create a "sight line."
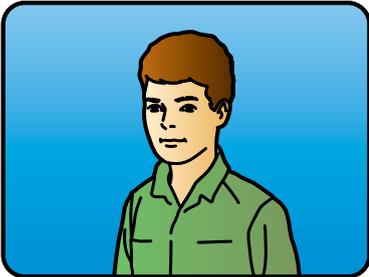
For a bust shot, focus on the chest and above.
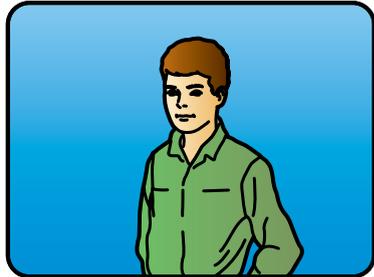
The waist shot is taken from the upper hips and above.
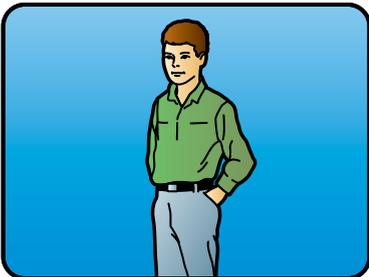
The knee shot includes the knees and above.
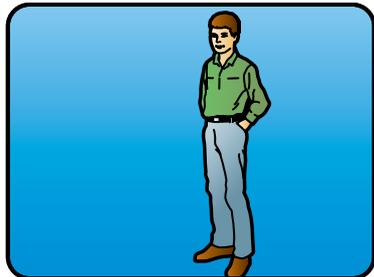
The full shot includes the entire body.

Close-Ups. Close-ups are important, and audiences love them. However, certain guidelines are as reliable in filming close-ups as a compass and a map are to hiking and backcountry camping.

• In a close-up of a person's face, it is permissible to cut off the frame at his or her hairline, but not at the person's chin or mouth (exception: extreme close-ups, known as ECUs, showing eyes only or lips only).

• If shooting the action of hands, such as picking up an object or using a tool, use a medium shot and then repeat in a close-up, making sure the action overlaps and progresses accurately to make for a smooth cut. For example, if a Scout is hammering a tent peg into the ground, a medium shot would establish a swing and hit, and the close-up would emphasize another swing and hit. Resist editing out a portion of the action—called a "jump cut"—because it will feel unnatural to the audience.

• Calling for eye contact with the camera in a dramatic story is rare, but a camera-aware Scout or presenter is always preferred to a speaker who never makes eye contact.

The close-up

These techniques establish the rhythm of a film. In general, each sequence in a movie consists of long shot, medium shot, close-up; long shot, medium shot, close-up; and so on. Frequently it is necessary to break up this sequence to tell a more interesting story. The variety of shots is what keeps an audience interested.

Editing and Showing Your Project

The images you shoot will likely need to be edited into a final product for viewing. Editing is the last step in moviemaking before showing your finished work. It is also one of the most important steps because editing determines what your final product will look like. Effective editing will give your finished project the result that you intended while keeping your audience absorbed in your story.

You probably have seen a movie you thought was too long or that included scenes that did not flow with the rest of the movie or move the story along. To create the finished video or film, a skilled editor takes out the "fluff" footage, puts together all the important elements, and watches the film from the critical perspective of an audience member.

How complicated the process of editing is may depend on how complex your project is and how the scenes are shot. A simple production—like recording a court of honor—can be shot in sequence; little editing is necessary. This is called "shooting on the fly," and the technique can be used on more complex projects with careful planning. A complicated piece may require the breaking up of sequence shooting into sections (shooting all exterior settings, then interiors), which requires more editing.
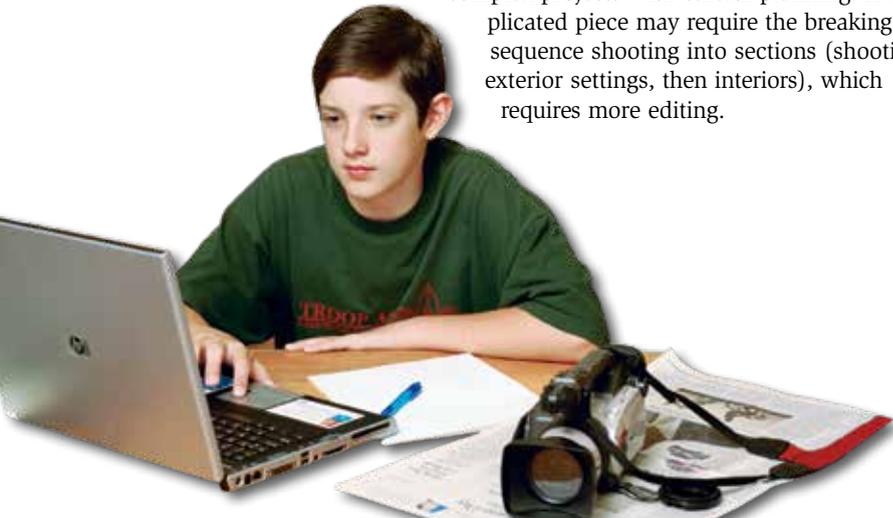
The art of editing calls for attention to things such as pace and tempo; mood, emotion, and performance; lighting, color, and tone; movement/motion and angle; sound and narration/dialogue; special effects; foreground and background; and continuity and order.

For your purposes, you might not incorporate some of these finer points of editing (that will come later, in future projects). However, in the end, your edited video should capture and clearly communicate your message and entertain the audience.

Getting Ready to Edit

In simple terms, editing means taking information from one source and selecting pieces to go to another source, enhancing picture and sound quality, correcting mistakes, and assembling it all into a whole. In your case, individual shots and scenes are added one at a time to build a story. Think of it as putting a train together: first the locomotive, then the cars, one after the other connected properly, then the caboose.

An edited production is no different; the idea does not move if the pieces do not connect. However, most editing programs allow you to assemble your story in a nonlinear way. This means you can insert each scene on your timeline and then reorder them as you determine best.

Become familiar with your editing software. Know its limitations and what it can do.

Following Your Storyboard

Pick out the scenes and the order in which they will appear on your computer software program's timeline viewer according to your storyboard. This "train" of scenes becomes the basis for your production.

Editing on a Computer

If you are not going to edit as you shoot (or "edit on the fly"), you need to learn how to edit your production on a computer. Most new computers come with image/motion software and can burn a motion DVD of your web camera movies.

Follow the software program's instructions to edit your production. This type of software usually comes with an onscreen tutorial that will guide you through the various steps of adding a title, special effects, fade-ins and fade-outs, close-ups, and stock footage, and mixing sound/music overlay.

It will probably work something like this: After you shoot your raw footage, you plug your camera into a computer using a cable. Your camera should also be plugged into a power source. Turn on your camera. Then open the software program for home movies on your computer screen.

Never erase your raw footage from your camera until you have completely finished your project on the computer and have saved it to a DVD or other permanent storage device. This practice can save the beginning moviemaker a lot of heartache down the road.

The computer will prompt you to create a project name. You may be able to import only the scenes you want to save as they come up or your entire file of recorded material. Now that your clips are imported, you can switch over your computer program to "edit" mode.

Turn off your camera. "Drag" the clips from the raw footage you saved into a "timeline viewer" frame. This will allow you to see on a timeline where that clip belongs in the whole film. Or you can put the scene in "clip" mode, which will line up the clips in order so that they can be edited or rearranged.

If you extract the audio, you can normally see a graph of the sound in wavelength form with your timeline viewer. Depending on the program, you should be able to create a title in different colors and fonts, drop in still or stock photos from a library that comes with the software, and do zoom-ins, fade-ins, and fade-outs.

To save your edited work to a DVD, be aware of your file size and how many DVDs it will take to hold it. Or you can compress it into a QuickTime file. Then you simply burn the project to a disk.

If you get trapped doing something in the editing process and cannot seem to make it work, just dump it without saving and go back to your most recently saved version to start again.

Showing Your Finished Project

You must be prepared, as in the Scout motto, for the showing of your completed work. Consider the following steps.

1. Show your work to your parent or guardian and counselor. Ask if they spot any serious problems you might have missed. Correct or eliminate the problems if you can before the showing.

2. Write a brief introduction about the making of the movie to use when you introduce your work. Integrate events that occurred during production and specifically relate what you may have discovered about the art and science of moviemaking.

3. Watch the audience closely and judge viewer reactions to see if mood and environment are conveyed through your visuals.

Take negative comments politely. Listen and learn for future productions. Do not ask, "Did you like it?" or "How can I improve?" If people like it, they will tell you. If your project has weak spots, your counselor will tell you.

Be proud of your work. This is a learning process. Just think how far you came.
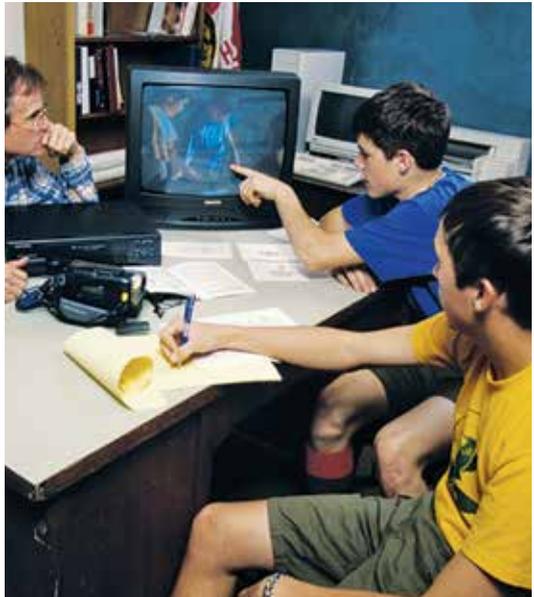
Careers in Moviemaking

You can discover a lot when you visit a movie set or television production studio and watch how professional production work is done. The world of film is a fascinating place for creative people to find their niche in an engaging career.

There are many careers related to film and video production. You should visit the library or go online to learn more about various positions in this highly competitive industry. But here is a little more information about key areas in moviemaking that you may want to research further.

Director of Photography. A cinematographer is the person filming with a motion picture camera. Generally referred to as the director of photography, this person is the chief over the camera and lighting crews working on a production. He or she is responsible for achieving technical and artistic decisions relating to the images. The director of photography is the final decision maker on both lighting and framing.

Camera Operator. The camera operator is the second person on a four-person camera crew working on a feature film for the cinema or filmed drama for television. This team is headed by a director of photography, or cinematographer. The operator's duties involve working with the director, the director of photography, and the actors in devising camera setups—angles, lenses to use—and developing camera tracking moves on dollies or cranes to best interpret the dramatic scene. When shooting, the camera operator is solely responsible for both physically operating the camera and the composition of framing throughout a shot.

Producers. Producers are the people in control of the production. Preproduction—which includes hiring actors, buying props, and booking studio time—does not start until the producers agree on a date for actual filming. Producers decide which films to bring to the screen, find the money to finance them, and make most of the planning decisions. The producer is also in charge of hiring the director, who makes the majority of the creative decisions that go into making a movie. Together, they plan the movie, develop the idea for a screenplay, and decide on a budget and shooting schedule.

Directors. The look, feel, and sound of the film is the director's venue. During shooting, the director may make edits and changes to the script or ask the writer to do so to enhance the film's impact. "A director shouldn't get in the way of the movie, the story should," quipped Oscar-nominated filmmaker Frank Darabont.

Casting Directors. Casting directors decide which actors they think should play each part. They bring their ideas to the producers and director. It may sound easy but there are few positions in the industry that are as important to the overall success of the film. Screenplays may sometimes be written for a specific actor. Finding talented actors who offer the specific qualities the film calls for in its characters is an art. Putting the right people together for a shoot calls for judgment about actors' abilities and range and the ability to figure out what their chemistry will be like together on the screen.

Location Managers. Location managers scour the country looking for places to shoot various scenes in the film. For example, if the film calls for an 1830s-era farmhouse, the location manager will scout around until he or she finds a suitable farmhouse, then contacts the farmhouse owner to get permission for use of the property, and so forth.

Screenwriters. Screenwriters take an idea or turn a book into a screenplay or a written treatment of the film to be produced. The screenwriter adapts a book or idea into a screenplay one scene at a time. Each scene in the screenplay is numbered. This position requires a lot of patience and the ability to rewrite and revise work depending on the director's desires and evolving vision for the film.

Set Designers. Set designers develop sketches and models to design the set for a production. This work may require an enormous amount of research, particularly for period productions that require adherence to specific details of the era being depicted.

Costume Designers. Costumes are important to help the audience believe what they are seeing on the screen is real, whether they are depicting actors in a scene from ancient times, the present, or some screenwriter's idea of what the future might look like. This is another arena within the film industry where much research must be done to ensure accuracy to detail. Sometimes, the same costume must be re-created numerous times in different conditions. For example, in *Gone With the Wind,* the actress who played Scarlett O'Hara (Vivien Leigh) wore many different versions of the exact same dress during the scene of Atlanta being burned by Yankee soldiers. As she made her way through the blazing city, her dress had to be changed 27 times, starting with it in perfect condition and ending with it tattered and dirty.

Special Effects Technicians. Cars explode in a fiery crash, people morph into robots, rain pours onto a bustling street scene, a gale force wind blows up. If it goes crash, boom, or bang in a film, it probably is due to the carefully planned work of a special effects technician. These technicians can use computer graphics to make the impossible possible; they can create scenes on a screen that do not exist in real life. They can use computers to animate anything from creatures to screen models.

Glossary

anncr. Announcer, the narrator.

BG. Background or "music under." With reference to music, under a narration.

crawl. A graphics effect whereby words scroll on the screen.

CU. A close-up. A tight shot on an element included in a longer shot, typically faces.

cut. The abrupt jumping from one visual to another, without a fade or dissolve. Also refers to a director's command to the crew to stop the action or to stop shooting.

depth of field. The amount of focus in front of and behind a subject being photographed.

diss. Dissolve. A film or video term referring to one shot blending into another.

dolly. A heavy cart or object with rubber wheels used to support a moving camera in a shot that "tracks," or follows, action or establishes a setting.

ECU. Extreme close-up. An extremely tight camera shot.

fade. When a picture or sound fades out or in.

FG. Foreground.

freeze; freeze frame. The freezing of a video frame or field.

grain. The often hazy quality of silver-emulsion film that is enhanced when it is magnified, or blown up.

library music. Existing, copyright-free music found in software programs.

LS. Long shot. Camera sees a wide field of view.

MCU. Medium close-up. Camera is in medium range of the subject.

mix. Refers to blending of various elements of a sound track such as music, narration, and sound effects into one master track.

nar, narr. Narrator, narration.

pan. Horizontal camera move on a tripod or support from left to right or vice versa.

postproduction. Work that goes on after the shoot until the edited master is finished.

preproduction. All the planning and budgeting necessary before production can begin.

roll; rolling titles. Words that move up or down across a picture.

set. A set can be in a studio or on location.

SFX. Special effects.

stock footage. Existing footage from a film library or commercial film source that can be inserted, or intercut, with live footage. Usually less expensive than shooting original footage.

storyboard. A series of simple sketches that depict a sequence of scenes for a production. Critical as a guide in production and postproduction.

supers; superimposition. Double-exposure of words over a video scene or film frame. A "lap dissolve" (short for overlap), for example, superimposes a fade-out over a fade-in.

tilt. Vertical camera move up or down.

track shot; dolly shot. When the camera moves along with the talent on a mobile tripod or actual "track."

V/O. A voice-over. Narration from off-screen, usually recorded independently from footage.

wipe. An optical cutting effect where one shot "wipes" another off the screen.

WS. A wide shot. Same as long shot.

zoom; zoom in; zoom out. Effect produced with a zoom lens, where the camera seems to come to, or pull away from, the action of a scene.

Resources

Scouting Literature

Digital Photo Magic; Architecture, Art, Communication, Journalism, Model Design and Building, Photography, Public Speaking, and *Theater* merit badge pamphlets

> With your parent or guardian's permission, visit Scouting America's official retail site, **scoutshop.org**, for a complete list of merit badge pamphlets and other helpful Scouting materials and supplies.

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Organizations and Websites
Creative America
creativeamerica.org

Moving Image Collections
movingimage.org/collections

Videomaker
videomaker.com

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