Video Storytelling Guide

Harness the Power of Visual Communication!

Contents

An Introduction to Video Storytelling: Atomic Learning Style!

Good news! It's never been easier to shoot and edit video. Video cameras are commonplace in homes and schools. Better yet, digital video (DV) has become the standard.

Thanks to personal computers and programs like Apple's *iMovie* and Microsoft's *Movie Maker*, editing video no longer means dealing with complicated videotape systems. Editing digital video on a computer, called non-linear editing, makes it easy to combine images, sounds, music and narration into a single finished production.

Since this is a "primer" it is not intended to be a comprehensive guide to the entire world of video production. I've tried to keep it as simple as possible while at the same time including the details that my students have found to be the most helpful. That being said, let's get to it!

The power is in your hands

We are bombarded with visual images in magazines, television, videos, movies and the web. These images are designed to inform, convince, or in some way engage our emotions. In short, they are designed to communicate messages. Video images can be composed and combined in specific ways to convey a desired message, much like words can be combined into sentences, paragraphs and stories. There is a "visual grammar" that has its own set of rules, most of which were discovered in the early days of motion pictures. They form the foundation upon which all films and videos are based today. Knowing the rules, and knowing when to use them or break them, gives you the power to tell your stories visually. When you combine that knowledge with the production tools widely available to individuals and schools today, you have the makings of a video revolution. Power to the people!

Tell the story you want to tell

"Quality television is a rare medium well done." --PBS slogan

Make no mistake about it, however your edited video turns out, it will communicate something. The trick is to communicate what you set out to communicate. You'd like the response from your audience to be something other than what was that supposed to be? Effective storytelling with video is something that you learn, like you learn to compose stories with words. The difference is that making videos is more fun!

Composing basic camera shots

A new take on home movies: the "grammar" of video

In written expression, the basic building block is the word. The video equivalent of a word is a camera shot. I'll be defining the various types of shots and showing you video examples of each soon. For now, let's define a shot as whatever the camera records after you press the record button and before you hit pause. Using that definition, many traditional "home movies" would consist of only one or two shots, even though they might last five minutes each.

Don't be a hoser!

That style of shooting is often referred to as the "garden hose" approach. As you water your shrubs, the water continually flows while you wave the hose nozzle from side to side, up and down, concentrating the spray here and there, making sure the whole garden gets a good soaking. The "garden hose" video maker will stand in one spot with tape running, wave the camera from one side of the scene to the other, up and down, merrily zooming in and zooming out, trying to capture the whole scene in one shot. If that shot were a written sentence, it would run on . . . and on . . . and on . . . and on . . . . and on . . . . . Good writing is composed of well-chosen words, combined into thoughtful sentences and logically organized paragraphs. Good video follows a similar structure.

Shoot to edit

The ability to edit what you shoot gives you access to the same compositional tools as the pros. It also requires you to think about how your shots will be combined together *before you take them*. That doesn't mean that every single edit needs to be planned in advance, but it does require that you have a sense of what shots you'll need later when you sit down at the computer. I'll be exploring that subject more in the sequences section. Also, record your shots for a longer amount of time than you think you will use, adding time at the start and the end of each shot. That will give you more flexibility in editing, where you can always trim the excess.

Basic camera shots

Shots are usually defined by how much of the scene you show in your frame (what you see in your viewfinder). This can be controlled a couple of different ways. One would be to change the distance between the camera and your subject by physically moving the camera closer or farther away. The other would be to change the focal length of your lens, which controls the angle of view. A zoom lens, which virtually all camcorders have, is a combination wide angle, normal and telephoto lens. You change the angle of view by zooming in to a narrow angle of view (telephoto) or zooming out to a wide angle of view. Here are the basic shots:

Long Shot (LS)

A long shot frames a wide field of view of your subject and its surroundings. It usually requires a greater distance between your camera and your subject. Most likely you would choose a wide-angle lens setting (zoomed out). Long shots are also referred to as wide shots or establishing shots. An establishing shot establishes the subject's location for your viewers by revealing its surrounding. It might also be used to cover broad action involving several people in a large area. Use long shots

sparingly! Details are lost in long shots. Overuse of long shots is boring.

Medium Shot (MS)

A medium shot frames more of your subject while still revealing some of the background. If your subject is a person, a medium shot would show the person from about the waist up. Medium shots provide more detail than long shots, which makes them more interesting to your viewer.

Closeup Shot (CU)

A close-up focuses your viewer's attention on specific details. It demands that the viewer concentrate on the information you are giving them. In storytelling, close-ups have great emotional impact. They can also be used to give the audience information the characters in your video don't have. For example, showing a close-up of a sign reading "wet paint", right before a medium shot of your character in the process of sitting down on a painted park bench, would build anticipation and set up the audience for the laugh. You will most likely need to use a camera support, like a tripod, in order to get a steady shot. Check out the camera-handling section. A close-up of a person would frame the subject from the top of the head to the top of the shoulders. Human emotions are best revealed in close-ups!

Extreme Closeup Shot (XCU)

An extreme closeup shot frames only a portion of your subject. It is a very dramatic shot that can generate great visual excitement. XCUs might be used to show the face of a wristwatch or words being typed on a computer screen. Like the long shot, extreme closeups should be used sparingly, when it is important that your viewers see great detail. In most instances you'll want to choose a wide-angle lens setting (zoomed all the way out) and move the camera lens as close to the subject as necessary. Use of a camera support, like a tripod, is a must. Check out the camera-handling section for more info.

An extreme close-up of a person's face would detail the eyes, nose and mouth. When framing an extreme closeup of a face, be sure to include the chin and sacrifice the forehead. The reason for this has to do with how our imaginations fill in spaces we can't actually see on the screen, using something called *psychological closure*.

When framing human subjects, proper closure can be achieved by avoiding putting *natural cutoff lines* of persons (neck, elbows, wrists, waist, knees, ankles) at the bottom of your frame. Instead, frame your shots to include the area slightly above or below these natural body joints. Your shot will look awkward if you don't supply enough visual information for your viewers to project what lies outside the frame. Television has been described as a closeup medium. That's because many TV sets have a diagonal measurement of 32 inches (81 cm) or less. Images that appear small on the screen get lost. Shoot mostly medium shots, with a generous supply of closeups to keep the audience engaged.

A matter of degrees

You'll find words like "big" or "extreme" are also used with shot descriptions, as in "big close-up" or "extreme long shot," to further qualify a shot. Another popular way to describe shots of people is to include the number of people in the shot as part of the description. For example, a medium shot of two people might be called a "medium two-shot". The medium two-shot is perhaps the most used shot in movies and television.

Start out playing by the rules

Some people feel that rules restrict them too much. However, if you're trying to control the visual messages your video is sending, you need an understanding of traditional rules of composition. Then when you go about breaking the rules, you'll be able to do so with purpose and intent! Many centuries ago, artists developed rules to guide them when painting or positioning objects in a rectangular frame. They discovered that certain placements were more pleasing and that the eye was drawn to some areas of the canvas more readily. You can use what they discovered to help tell your stories more effectively.

The Rule of Thirds

An offshoot of those artistic rules, used in still photography and video, is called the rule of thirds. The rule of thirds states that you should mentally divide the frame (what you see in the viewfinder) into thirds, both vertically and horizontally. What you get is like a tic-tac-toe board overlaying your screen. When you shoot your video, according to this rule, you should place your key subject elements along those lines. Where the lines intersect will be the best place for your subject. That means that centering your subject in the frame will create a less interesting composition.

In most cases you will have control over where you are with your camera. When framing your subject, move the camera so that the prominent subject elements fall along one of the third lines, preferably at a point where those lines intersect. If you can't move the camera to a good spot, try to move the subject (kind of tough if you're shooting a mountain!).

A case in point would be the placement of the horizon line in an outdoor shot. Don't center the horizon on your screen. Place the horizon on either the top or bottom third line. Which one will depend upon your subject. If you're shooting a sailboat on the ocean, do you want to show more of the ocean or more of the sky? That would be your artistic choice! Which one looks the best to you?

The point is to take control of the situation and try to frame the most appealing shot. Don't just accept whatever happens to appear in your viewfinder!

Room at the top

Headroom refers to the amount of space between the top of a person's head and the top of your frame. Too much headroom makes the person appear to be sinking. Most novice photographers and videographers will frame shots of people with too much headroom. Take a look through some old family photos if you don't believe me.

Too little headroom places visual emphasis on the person's chin and neck. When framing shots of people, pay attention to where the eyes appear. Follow the rule of thirds and place the subject's eyes on the upper third line.

Reminder: When framing shots of people, don't forget to avoid placing the edge of your frame at one of the body's natural cutoff lines: neck, elbows, waist, knees and ankles.

Lead them on

Lead space refers to space in front of your subject. Leave extra space in the direction your subject is

looking. You might also see this space referred to as look space or nose room. Leave extra space in front of a moving person or object, like a runner, bicycle, or automobile when following the action. Not doing so will make it look like your subject is in danger of running into the edge of your frame!

What's in the background?

Most of your shots will include background elements that are part of the location where you're shooting. Make sure what's in the background of your shot doesn't draw your viewer's attention from your main subject. We've all seen live TV interviews, shot on location, where somebody in the background is waving or making faces at the camera. This is one type of distracting background you need to try to avoid. Always check what's in the background of the shot you are framing. Background clutter or distracting objects, like an overflowing garbage bin, can usually be avoided by repositioning your camera (moving it left or right, framing a tighter shot, changing the camera angle) or moving your subject. You might also be able to put the background out of focus by decreasing the depth of field in your shot. See the screen depth section for more information on controlling depth of field.

Mergers are another form of distracting background. Background objects or strong vectors that visually merge with your subject can not only be distracting, they can be down right humorous. Again, reposition the camera or the subject to avoid mergers.

Moving Right Along: Camera Movement

Pan

A pan is the horizontal pivoting of the camera from a fixed point, left to right or right to left. It is used to follow screen action or to reveal more of a location without zooming or repositioning the camera. It is a shot that is abused and overused by many beginning videographers. It might be used as an establishing shot, to follow a moving subject, or to reveal the relationship of one subject to another. A pan shot should have a beginning, middle, and end. Once started, a pan should continue smoothly in one direction, at the same rate of speed, until coming to a smooth stop on a well composed shot. Keep the camera recording as you hold it still at the end of your pan. You've chosen to lead your viewers to this shot by panning to it, so give them a chance to see what it is they were led to. You can always choose to cut the shot off when editing. Generally speaking, don't string multiple pan shots together or pan one way and then back the other way.

Pan tip #1: Move the camera slowly when panning. Most novices tend to pan much too fast. The rate of your pan should match the pace of the scene you are shooting for. A very fast pan, often called a swish pan, can sometimes be used as a transition between scenes to signal a change of location and time.

Pan tip #2: Have a good reason for choosing to use a pan. Most of the time a pan can be replaced by multiple stationary shots with a more satisfying result. Don't use pans because you are too lazy to shoot sequences!

Pan tip #3: Hold the camera still for a few seconds at the start of the pan as well as at the end.

Pan tip #4: Practice the pan shot before recording it, making sure you know where to end the shot.

If you're going to be editing your footage you can always just record the shot again and use the best take for your edited program.

Tilt

A tilt occurs when you pivot your camera up or down from a fixed position. As with the pan, a tilt should start and end with a stationary shot that is held for a few seconds. The same tips described in the pan section apply to tilts as well.

Arc

An arc shot is created by shooting while moving in a semicircle around your subject. This shot has become common on TV dramas. You need to have good control of your camera to perform it smoothly.

Pedestal

A pedestal shot is the vertical or up and down movement of the camera, without changing the camera angle.

Tracking

Tracking shots usually involve the use of some sort of wheeled camera support for smooth camera movement. The pros will actually lay down a section of train-like tracks for the camera to be pushed along. If you don't have access to such equipment, you might try substituting a tripod on wheels (called a dolly) or you could have your cameraperson hold the camera while riding on an office chair, grocery cart, or wheelchair. It's generally best to use a wide-angle lens setting to keep camera shake to a minimum.

Tracking shots come in two basic varieties:

Trucking

Trucking is the lateral movement of the camera at right angles to the subject. It makes the background of the shot appear to move. Think of Fred Flintstone running through his cave house. The wall of his house appears to be moving as the camera appears to run along side Fred. Actually, since it's a cartoon, it is the drawing of the wall that is moving! In real life, a trucking shot might be used to follow two people in conversation as they walk along a path. A trucking shot differs from a pan in that with a trucking shot, the camera changes location. In a pan shot, the camera stays put and the direction it is pointed changes. The terms trucking and tracking are sometimes used interchangeably.

Dollying

A dolly shot is performed by moving the camera toward or away from a subject. The effect can be vastly different than leaving the camera in a stationary position and zooming (see below). A dolly shot has the effect of bringing your viewer closer to or farther away from the subject, while zooming reduces or magnifies the subject and the field of view.

Zooming

First off, let me point out that the zoom shot is probably the most overused shot of lazy or novice videographers. Your video can improve dramatically by resisting the temptation to press the zoom toggle every time you want a different view. You seldom see a zoom shot on television or at the movies. That being said, there are some good reasons to use the zoom:

Reframing

The zoom is a convenient way to quickly reframe a shot in situations where it is impractical to physically move the camera. You might have just recorded a long shot of a crowd of people at a sporting event. You now want to pick up a few medium shots of small groups or individuals in the crowd. Use the zoom to quickly reframe those shots and record them. You might even choose to leave the camera on record between shots, with the intention of eliminating the in-between zoom footage when editing. Zooms that serve no purpose are boring.

Don't try to follow action with the camera zoomed in. You'll quickly make you audience seasick.

So, what's a good purpose for a zoom?

A zoom in can serve to concentrate the viewer's attention to particular subject or detail not evident in a wider shot. It is more dramatic than a cut from the wider shot to the zoomed in view, but takes longer. Have a good reason for making your audience wait.

A zoom out can serve to reveal the location or context of the thing that is framed at the start of the zoom. Picture this. A shirtless young man sporting several facial piercings is sitting in a room with twenty other people. The camera slowly zooms out from a closeup of his face to reveal the other people in the room, who are all senior citizens in formal attire!

Playing the angles: what's your perspective?

I happen to be a couple of inches over six feet tall. Does this mean that all the video I shoot is from my eye level? Of course not! That would result in video that was predictable, monotonous, and boring. Worse yet, I'd be missing some great opportunities to help tell my stories by emotionally impacting my audience.

A variety of camera angles can add considerable interest to your stories. Showing them the world from different perspectives can help emotionally draw your viewers into your story. Those are good things to do! When you change the height of your camera in relationship to your subject, you are providing your viewers with a new perspective. The perspective you choose can have a stunning psychological effect on viewers.

Flat shot

A flat shot is a shot where the subject and the camera are at the same level. There is little emotional impact. This might be a shot of another person taken from their eye level.

High angle

A high angle shot occurs when the camera is raised to a position higher than the subject. A slight difference makes the viewer feel somewhat superior to the subject. Raise the camera to a more extreme high angle and the viewer becomes clearly dominant. Frame a closeup shot of a person from an extreme high angle and the viewer becomes a threatening monster!

Low angle

A low angle shot occurs when the camera is lowered to a position below the height of the subject. This can make the subject appear larger than life, exaggerating its importance. There's a reason why the King and Queen have their thrones on a raised platform. It's the same reason professional wrestlers and football players are often photographed from a low angle.

Point-of-view shots (POV)

The first motion pictures were really nothing more than stage plays that were filmed from a fixed position in the back of the theater. The point of view was that of somebody in the audience, and it never changed. Directors slowly discovered that changing the point of view, by repositioning the camera to show things from the perspective of the actors, added a whole new dimension of interest to their films. Of course it required the film to be edited, which also opened up new worlds of creative opportunity!

Like those motion picture pioneers, beginning videographers often shoot only from the perspective of an observer. That can become very boring, and makes every shot appear flat. It's often refreshing to place your audience in the middle of the action, putting your camera in the position of the eyes of the people you're shooting. Show your viewers the world as the participants in your video see it, and you'll add instant interest to your scene. Start mixing in some POV shots!

The movie *Raising Arizona* makes extensive use of POV shots. In one scene, Nicolas Cage's character is attempting to coral a room full of toddlers scampering around a huge bedroom. The camera provides numerous shots from the point of view of the babies, as they look up at Cage (low angle shot) and he looks down at them (high angle shot). It travels close to the floor, providing viewers with a "baby's eye view" as he crawls across the carpet (tracking shot). The camera provides a floor-level, side view, as it travels along side another crawling toddler (trucking shot). The use of POV shots makes the scene thoroughly engaging. Buy or rent the video for many, many more visual treats and ideas for creative shots.

Over the shoulder (OTS)

An over the shoulder shot (OTS) is a type of POV shot. It is often used when it is impractical for the camera to be in the same position as the person whose point of view you are showing. It's also used a lot when depicting a conversation between two people.

Reaction shot

Showing a subject's reaction to something that just occurred in your scene is aptly called a reaction shot. This shot conveys the impact of the moment. In a fictional story, it can be used to give your audience insight into what a character is thinking. Common reaction shots are closeups of faces that portray alarm, delight, fear, laughter, suspicion…whatever the moment calls for. Reaction shots are

usually cutaways from the primary action, shown from the point of view of someone viewing the occurrence. When you're watching a televised performance of a comedian, and the view suddenly switches from the comedian to a closeup of somebody laughing at the last joke, that's a reaction shot. If you don't want to miss any of the main action, try to record reaction shots before or after the main event. You can edit these into the production later, wherever they would be appropriate to the action.

Creative camera placement

Today's small camcorders can fit into spaces that the camera operator can't. You could create a shot from inside a locker of somebody opening the door. The same could be done from inside the refrigerator as your subject opens the door and reaches for a soda (a quick trip to the fridge won't hurt the camera, but don't leave it in very long). The mailbox is another place. Make sure you zoom out to a wide-angle shot before positioning the camera.

I once had a student take a camera on a downhill ski run. He got a nice POV shot for his video as he careened down the slope, but he was taking a chance on damaging the camera. Use common sense when placing a camera for a creative POV shot, especially if you're using a borrowed unit!
The Horizon line

Carpenters use levels to make sure the doorways they construct aren't leaning sideways and kitchen countertops don't slant to one side. The world is full of vertical and horizontal lines. We expect vertical objects, like trees and the sides of buildings, to be at right angles to the ground. We expect horizontal things, like where the ocean meets the sky (the horizon line) to be, well, horizontal! If you tilt your head to one side, the view or the world you get is an unnatural one. Things seem off kilter and a bit unsettling. That's the same effect you will have on your viewers if you compose shots where the horizon line is not parallel to the top and bottom of your frame.

Reaching for new horizons

However, if your goal is to create tension and add drama to a scene, tilting the camera sideways to created a slanted horizon would be a good way to do it. Combine a tilted camera with severe angles and your audience will start to become anxious. It generally works best to use extreme tilts.

Screen depth

Television is a two-dimensional medium. The screen is pretty much flat. Shots that appear to have depth are more engaging. Adding a 3-dimensional quality to the two-dimensional medium of video is a matter of illusion. Here are some things that can help you pull off this magic act.

Step aside

A simple way to give a shot a feeling of depth is to show perspective by framing your shot so your subject is at an angle. Instead of shooting a side view of your car, choose a corner of the car (say left front) and shoot facing that part of the car. This will create a foreground and a background, which is

what you need to show depth. Use this technique on other things, like buses, buildings, bridges, etc. Using a wide-angle lens setting will help with this trick (as explained below under depth of field).

Near and far

Making sure there are objects in both the foreground and background of your shot (and possibly points in between) can also establish screen depth. Again, wide angles lens settings are the best for this (see depth of field). Televised football games often will feature a ground level shot of the field with a football in the immediate foreground, seemingly almost touching the lens. Since everyone knows the relative size of a football, the goalpost in the background at the far end of the field seems indeed very far away. They use an extreme wide-angle lens for that shot, which helps keep both the football and the far goal post in focus.

A deep subject

Depth of field refers to the range of objects that are in focus at the same time, from your camera lens to the farthest object in the distance. To borrow from geometry, you could say every shot has an y axis (horizontal line, screen left to screen right) and a x axis (vertical line, bottom of screen to top of screen). Depth of field would fall on a third axis, the z axis. This is a line extending out from the camera lens into the distance.

A shot with a great, or wide depth of field, will have objects in both the foreground and background in simultaneous focus. One with a narrow, or shallow depth of field will have either background or foreground objects out of focus. Controlling focus along the z axis gives you some useful creative control.

Pack 'em in

Choosing a lens setting with a narrow angle of view (zoomed in) creates a narrow depth of field and tends to visually compress the distance between objects in your shot along the z axis. You could use this effect to make a group of people seem more crowded together than they actually are, or make a line of cars seem bumper to bumper.

It's all just a blur

You can control what your viewers concentrate on by controlling what part of your scene is in focus. A distracting background or foreground object can be obscured by placing it out of focus. You'll probably need to switch to manual focus to achieve this effect.

Your ability to selectively focus on objects will depend upon your lens setting, your distance from the subject, and the distance between the subject and the background.

In most cases you'll need to narrow the angle of view by zooming in. Regardless of lens setting, screen depth is always greatest when focused on the background. Focusing on the foreground creates a shallower depth of field, helpful in putting the background out of focus. The closer the foreground object is to the camera, the shallower the depth of field. You'll also find that it is more difficult to achieve screen depth in low light situations.

You'll most likely need to zoom out to a wide angle setting if you want to keep objects in motion in focus at all times.

Rack 'em up

A rack focus shot is achieved by shifting focus during a shot in progress, typically between the foreground and background. You'll need to switch to manual focus to accomplish this shot. You can use this technique to quickly shift the viewer's attention between something (someone) in the foreground and something (or someone) in the background.

Coming right at you

Movement toward and away from the camera, along the z axis, has a stronger impact than movement across the frame on the x axis. Shooting with a wide angle lens setting will expand the depth of field and keep your subject in focus. An added bonus is that you won't have to move the camera to keep the action in your frame.

The Camera

Camcorder types

Camcorders can be classified by the type of tape they use. There are professional tape formats and consumer tape formats. Picture quality is measured in lines of resolution. Simply put, the more lines, the better the picture quality. You're most likely using one of these consumer formats:

1. VHS • The regular tape you play in your home VCR. VHS tape records 240 lines of resolution.

2. VHS-C • (C for compact) The same VHS tape in a smaller case with a corresponding shorter maximum tape length. Camcorders using this format can be made smaller than those using regular VHS tapes. Adapters allow you to play these smaller tapes in home VCRs.

3. S-VHS • (S for super) This is a higher resolution version of VHS tape. S-VHS camcorders can record in regular or "S" mode. When in S-VHS mode they record 400 lines of resolution and will not play back in standard VCRs.

4. S-VHS–C • A compact version of the S-VHS format.

5. 8MM • The first consumer compact tape format. It records the same number of lines (240) as VHS tape.

6. HI-8 • This tape is the same size as the 8MM. It does for 8MM what S-VHS does for VHS. It records 400 lines of resolution.

7. Digital 8 • Developed by SONY to record a digital signal on any of the 8MM tapes. Digital formats record 500 lines of resolution.

8. MINI DV • The true all-digital recording format, recording 500 lines of resolution.

9. DV-PRO • Not really a consumer format, this tape is slightly larger than Mini-DV, but it records in exactly the same digital format with 500 lines of resolution.

10. DVD • DVD camcorders are small, fairly portable, and share some of the same features as Digital8 and Mini DV camcorders. Most DVD camcorders use recordable DVD media like DVD-R, DVD-RW or DVD-RAM. Some use the mini 3-inch size DVD disc.

11. Hard Drive/Flash Media • These camcorders record onto an internal hard drive built into the camcorder or flash memory media. This provides for quick transfers of your video files to other media types. There are compatibility issues however, due to the different file formats used by various hard drive camcorder manufacturers. The video quality achieved by inexpensive hard drive camcorders is generally inferior to that of similarly priced Mini DV camcorders.

12. High Definition (HDV) • HDV camcorders record onto a variety of media. The difference is in the increased video quality resulting from recording at a higher video resolution. Of course, you'll need to play back your video on a high definition video monitor to get the full effect. Many newer

versions of video editing software will let you edit HDV, but the work done by your computer behind the scenes is much different than with other digital formats, requiring more computing power.

Non-digital (analog) camcorders output a standard video and audio signal (NTSC in North America, PAL in most of Europe and many other parts of the world) that is common to all monitors and VCRs. In addition to the standard signals, S-VHS camcorders also output a higher quality video signal. Receiving it requires VCRs and monitors that have a special S-VHS video jack.

Digital camcorders often output (and sometimes input) both standard and S-VHS signals. They also have a special DV jack that is used to directly connect them to computers and other digital devices. This is called a FireWire (Apple's tradmark), iLINK (Sony's trademark) or ieee1394 (industry standard name) port. I'll standardize on FireWire, since Apple invented it. A FireWire port carries the digital video and audio signal in either direction, so it's both an input and output connection. It also carries other digital data that allows you to control the camcorder's functions from a connected computer.

If you combine a digital camcorder, a computer equipped with a FireWire connection (like all current Macs), and editing software (like iMovie, Final Cut Pro, Premiere) you are all set-up to do non-linear digital editing.

Some digital camcorders do not have a FireWire port. They use a USB2 connection for transferring digital video. Your computer will need to have a matching USB2 port in order to transfer video via USB2. In addition, the video editing software you use will need to recognize digital video coming through the USB2 port. As an example, if you are using Premiere Elements editing software, and connect to a DV camcorder via USB2 instead of FireWire, you will need to verify your DV camcorder supports the USB Video Class 1.0 driver (sometimes advertised as USB over DV, DV Motion, USB 2.0 DV streaming). Mac users will not be able to directly import video through the USB2 port into iMovie.

The digital advantage

The final product of tape-to-tape analog video editing, your edited master, is always a 2nd generation copy of the tape you recorded your shots on with your camcorder (the 1st generation tape). In non-digital (analog) formats, copies always suffer a generational loss. That is to say, a copy does not have as good a picture quality as the tape it is made from. Digital is different. You can download (input) your camcorder footage to your computer, edit it to your heart's content, and send your edited version back out to digital tape without *any* loss of picture quality. If you have two digital camcorders, you can make digital-to-digital copies (through the FireWire ports) of that edited tape without any noticeable generational loss.

Since most people still have a VHS VCR, that may be the format you'll use for copies of your programs you want to share with others. Each VHS copy you make from your digital edit master tape will have all the signal quality that VHS can handle. Conversely, when you make a VHS copy from an analog edit master, you end up with a 3rd generation tape that has a very noticeable loss of quality. If you'll be distributing your video on a DVD, starting out with digital footage will assure that your DVD will display the highest quality video signal possible for that medium.

If you want to edit on a computer and you don't have a digital camcorder, all is not lost. You'll need to purchase an interface device that converts the standard analog video and audio signals to digital. There are several converters available, from companies such as SONY, ADS, Canopus, and Pinnacle

Systems (a division of Avid). They will convert analog to digital or digital to analog. However, most camcorders can't be controlled by a computer when using it (the exception would be when using a SONY Media Converter 2 with some SONY VCRs and compatible editing software). That just means you'll have to use the playback and record controls that are on the camcorder itself, instead of the control functions of your editing software.

Go digital!

If you have a choice, digital is the way to go. The quality can't be beat by any other consumer format. The interaction of digital camcorders and computers makes transferring content back and forth a snap. Non-linear editing is a major miracle to anyone who ever wrestled with tape-to-tape editing systems. If you are in the market for a digital camcorder, look for one that has analog inputs. That way you'll be able to transfer your old VHS and 8mm tapes to digital. Then you can transfer that footage to a computer without having to buy a separate media converter.

Camera basics

You need to spend some quality time with your camera. It's your second most important tool for visual storytelling, ranking right behind your brain. Most consumer camcorders can operate in a fully automatic mode, which does a good job under most conditions. Many camcorders also allow you to shut off some of those automatic controls, making it possible for you to manually control or adjust things like white balance, exposure and focus. Knowing how to take advantage of these controls can mean the difference between getting an exceptional shot versus a merely acceptable one. You may want to (gasp!) read through your camera's manual to see what features your particular camera has.

Here's one camera setting you need to guard against. Every camcorder I've seen will include the date and time on the screen if that feature is turned on. Unless you're shooting surveillance video, turn date and time off! Once it's recorded over your shots it is there forever. As a general rule, if you can see the date and time displayed in the viewfinder or on the LCD screen, it will be recorded!

Here's another basic. Protect your camera's lens with a skylight or UV filter. They are very inexpensive insurance against lens scratches that can ruin your camera (or at least cause a very expensive repair).

Defining white

All camcorders will automatically adjust their electronics to render accurate colors in different lighting situations. This is called auto white balance. White balancing is necessary since varying light sources have different color qualities. Sunlight is different than light coming from a table lamp, etc. Some camcorders have special modes for shooting outdoors and for shooting indoors under halogen bulbs. Many camcorders will also allow you to manually set the white balance while filling the viewfinder with a white object, like a piece of paper or somebody's t-shirt. Essentially what you're doing is telling the camera "this is what white looks like under this light". Manual white balance must be reset if the lighting conditions change.

For effect, you may want to intentionally trick the white balance system by choosing the wrong setting for the light you're shooting in. Some camcorders will also have a separate adjusting wheel you can use to tint the picture red, blue, or green.

An expose´ on exposure

Camcorders will automatically attempt to adjust the exposure of each shot so that your picture has good contrast between the dark and light areas. Shots with poor contrast appear dark and murky, or bright and washed out.

The camera controls exposure by adjusting the lens aperture, or iris, and the camera's shutter speed. These things determine the amount of light reaching the camera's image sensor. It's kind of like what your eyes do when you're in a brightly lit room and suddenly the lights go out. Your eyes start to adjust to the new light level automatically.

In extreme low light situations, camcorders will attempt to electronically boost the video signal (gain). This will improve the contrast, but the result is often a very grainy picture. Controlling your light source is the only way to achieve the best quality pictures. Check out the lighting section for more information.

Better camcorders will allow you to manually adjust the exposure by setting a specific shutter speed or lens aperture. Others will allow you to incrementally adjust exposure using a + or – exposure dial.

Isn't that special!

Special lighting situations may require overriding the camera's auto exposure system. Since camcorders balance exposure by averaging the bright and dark areas of the scene, shots with extreme differences in lighting can yield undesired results.

Shots with large bright areas behind your subject, called backlighting, will fool your camera's auto exposure system. A medium shot of a man standing in front of a window on a sunny day will most likely result in a nicely contrasted outdoor scene behind the dark silhouette of the man. If your goal is to get a recognizable shot of the person and not his silhouette, you need to change the exposure. The easiest way may be to move the subject so he's not standing in front of the window! If that can't be avoided, your camera may have a backlight button that will force the lens aperture fully open, or you may be able to do it manually. That will tend to washout the background of the shot, but the subject will have proper contrast.

Spotlighted shots can have the opposite effect. The auto exposure system may over expose and washout your subject while trying to compensate for large areas of blackness in the background. You'll need to manually adjust the exposure to correct this. Some camcorders have a special spotlight mode you can select that automatically adjusts the camcorder settings for this situation.

Some locations, like beaches and ski slopes, may be too bright for your camcorder to handle. Too much light can produce color blooming and smearing. You can correct that by using a neutral density filter that screws on to the end of your lens. The ND filter will block the bright spots, kind of like what a pair of sunglasses does for your eyes. They can be had for about $30.00 USD or so. Your camcorder may have a built-in neutral density filter that you can activate or that is automatically employed in brightly lit situations. Check the manual.

You must stay focused

Automatic focus systems do a good job trying to keep your shots in focus, but there are situations where they can be fooled. A shot that won't hold its focus draws attention to the mechanics of your

program and distracts viewers from following your story. Professional camerapeople rarely use autofocus for just such reasons. They will preset their focus for zoom shots (a trick you can use too) and adjust the focus manually as the situation calls for it.

There may also be times when you want your shot to be out of focus. Perhaps you need a point of view shot of somebody who is rubbing their eyes or about to pass out. In editing, a shot that goes out of focus, followed by another shot that comes into focus, can be used as an effective transition.

Breaking up is hard to view

Digital camcorders often come with digital zoom enhancement that can electronically magnify the image captured by your lens. The zoom ratio achieved can be as much as 100 to 1, allowing you to get a close view from a great distance. The problem is that the more you magnify the image, the more it breaks up into blurred digital fragments. That makes high magnification digital zooms a mostly unsatisfactory feature, unless you're trying to show the point of view of a cyborg or somebody using high-powered binoculars.

Now hear this: audio for your video

A production's sound track has a deeper effect on the apparent quality of a production than most people realize. A good sound track can evoke emotions, clarify the action, and shift the mood. It can make the difference between an average production and an outstanding one. This important aspect of video making is relatively simple, yet is often underestimated by the beginner.

Sound for your video consists of several different components:

- **Ambient sound** – the background sounds that come from the environment you shoot in, such as birds chirping, cars going past, hum from fluorescent lights, etc.

- **Primary sound**, like on-camera dialog

- **Music** that you might add to your sound track during editing

- **Sound effects** added in editing

- **Voice over (VO)** – voice narration added during editing

Let's look at the first two. The others will be covered in the editing section.

Camera mics never sleep

Camcorder microphones are always on when you are recording video. On most cameras, the only way to shut off the built-in mic is to plug something, either another mic or a terminator plug, into the mic in jack.

Most camcorder mics operate with an automatic gain control (AGC) that adjusts the mic sensitivity to the level of sound it detects. Low noises are amplified and very loud noises are suppressed to avoid distortion. Camcorder mics are also usually omnidirectional, which means they pick up sound

equally well from all sides. The sound of your finger tapping on the camera body will be readily recorded. It will also cause the AGC to momentarily lower the mic sensitivity, so that other sounds you are trying to record may be missed. You'd be surprised how well the cameraperon's chuckles, coughs and comments are picked up by the camera mic. Keep things quiet around the camera.

What was that again?

Dialog that can't be heard clearly will ruin your video. Your audience will have to concentrate so much on understanding what is being said that all your stellar video work will be ignored. Worse, they'll loose interest in your story. Make sure what people say on camera is recorded at a high enough level. You can help make that happen by shooting in a relatively quiet location, without loud ambient sound. Most importantly, get the camera mic as physically close as possible to the person or people doing the talking. Instead of standing in the corner and using the zoom lens to frame a tight shot, zoom out and move the camera, and thus the microphone, closer.

Investing in a wireless lavaliere mic is a good idea. Placing it on your subject will result in a warmer and more intimate sound, minimizing unwanted ambient noises. A wireless handheld mic, or a transmitter that attaches to a wired mic making it perform as a wireless, is nice to have for interview situations. Make sure you monitor the sound through headphones while recording with external microphones to make sure the connection is solid.

Sizing up the screen

The standard television set has a screen ratio of 4 to 3, meaning it is 4 units wide for every 3 units of height. Movie screens and most newer televisions have a ratio of 16 to 9, making them much wider. You can't make a standard sheet of A4 or 8 1/2 X 11 inch printer paper conform to a 4 to 3 format. Shooting a picture or graphic that fills that paper will reveal what's behind the paper on at least two sides. To avoid showing the background you would have to crop the image. Keep the aspect ratio you are shooting at in mind when creating or selecting graphics cards.

Playing it safe

Our home television sets are over-scanned because more video information is broadcast than TVs can display. This is done to compensate for the widely varying picture adjustments on televisions. It assures that the image will fill the screen of everyone's TV, no matter how badly adjusted. But we don't see the entire picture, the edges being lost beyond the border of the screen. The *safe action area* is designated as the area of the picture that is "safe" to put action that the viewer needs to see. This amounts to about 90% of the total picture area. It is symmetrically located inside of the picture border.

Graphics and text need to be positioned on your screen within what is called the *safe title area*. It is inside the safe action area and amounts to about 80% of the total picture area. Titles and text are usually kept within the safe title area to make sure they can be seen in their entirety. Video that is designed for web playback, like QuickTime for Flash, doesn't have these limitations.

Get a handle on it: controlling your camcorder

It may seem like a paradox, but today's small, lightweight camcorders are in some ways harder to handle smoothly than the big, clunky shoulder-mounted ones. Holding the camera steady is the first step to shooting good video. The little camcorders are very easy to move, making them harder to hold still. They can't be rested on your shoulder for support. The big camcorders, like the giant SONY Pro Beta cams still favored by many professionals, require a lot of effort to move. Hence, they're easy to hold still, if you have the strength to hoist one up on your shoulder and $50,000 USD or so to buy one! The rest of us need to develop techniques to control the littler ones.

Hand-holding

The techniques for holding your camera steady without a camera support will be dictated, in part, by the camera's size and design. Small camcorders are designed to be held in front or your face, with the cameraperson viewing the image on either an LCD screen or through the viewfinder. It's easier to hold the camera steady if you provide multiple points of support, so using the viewfinder is best. It allows you to steady the camcorder against your hands and your head. Using the LCD screen is convenient for high and low angle shots. Glare off the screen can make the LCD display hard to use outdoors or under bright lights.

It's a good idea to take advantage of things in the shooting environment you can use to help brace yourself: walls, furniture, trees, railings, etc. Holding your breath or shallow breathing while recording can also keep your camera steady.

Modern cameras often have built-in image stabilization electronics. These systems can help minimize camera jiggle, but they can also result in a loss of picture quality. Cameras that feature optical image

stabilizers help steady your shot while maintaining picture quality.

Support your local camcorder

It is nearly impossible to hold a steady shot when you are zoomed in using the telephoto setting of your camcorder lens. Zooming magnifies your image, but it also magnifies every movement of the camera. Even the slightest hand movement will be noticeable when zoomed in. It can look like you're shooting while standing up in a canoe that's careening down a river rapids. When you want your shot to be still and solid, use a wide-angle lens setting. The other choice is to use a camera support.

The most common camera support is the tripod. Good video tripods will allow you to smoothly pan and tilt the camera. Tripods designed for still cameras generally lack this feature. Use a video tripod that is designed to carry the weight of your camcorder. You must make sure the tripod is level before shooting. I generally start by adjusting the legs to the approximate height I want. Many tripods will have a balancing bubble on the top (head) of the tripod that you can use as a guide in fine adjusting the tripod legs. If not, you'll have to level the tripod by mounting your camcorder and checking the horizon line in your viewfinder as you pan from far left to far right.

Monopods, as the name implies, are one-legged camera supports. They help you steady the camera, set up quickly, and are easy to transport. They are, however, more difficult to keep level when panning. Camera supports that feature a "quick release" mounting system let you rapidly switch from using the support to hand-held shooting.

A handy camera support you can make yourself is a small beanbag. Make sure there are just enough beans to allow it to mold around your camera. Just set your camcorder on top of the beanbag and adjust the angle. You'll be able to get some steady shots that you can't capture with any other kind of camera support.

Getting "Real"

If you want your video to look like it was shot by an amateur (or a chimpanzee), forget about all the techniques you have developed to keep viewers from paying attention to your camerawork. This style has become a technique all its own. Camera shakiness, long drawn-out shots, constant panning and frequent zooming (the garden hose approach) is a way of saying that you're watching "home video". This lack of sophistication in shooting style is sometimes used to imply honesty or immediacy. *The Blair Witch Project* movie made a few million bucks with this style. You also see it crop up on some television commercials, reality TV programs like *Cops*, some documentaries, and multiple programs on MTV.

One more camcorder tip

Some camcorders have a tally light on the front that comes on or flashes when the camera is in record mode. Turn it off. It makes the people you're recording nervous and can cause them to act prematurely. Tally light (or lamp) on/off is usually a camcorder menu item. If there isn't an on/off control, cover the lamp with a piece of black electrical tape. Hey, that's how most people get their home video recorders to quit flashing 12:00 AM, isn't it?

Getting it Together: The Editing Process

The ability to edit video like the pros is now available to anyone with a computer and a camcorder. That includes a lot of people! Every Macintosh comes equipped to capture and edit video right out of the box. Laptop Macs, like the iBook, let you do so in any location, completely unplugged.

Just having the tools of the trade doesn't automatically make you a competent video producer. I own an impressive array of basic carpentry tools, but you wouldn't want to live in any house I would build using them! I don't know how to use those tools to build anything that resembles the work of professionals. I've seen thousands of houses, so I know what a well-built one looks like. I just have never learned any of the construction basics all carpenters know and use.

Like carpenters need specialized skills to construct homes from raw lumber, constructing an effective edited video requires an understanding of the techniques visual storytellers use to combine their raw materials, images and sounds, into a cohesive story.

Now cut that out!

The most basic use of editing would be to "cut out" the parts of your program you don't want to keep. That's what the early filmmakers did. They took a scissors to their film, snipping off the pieces that didn't work out and had to be re-shot. Then they pasted the film back together again, minus the "bad" footage.

Filmmakers soon learned that they could also use this cutting and pasting process to rearrange the order of the pieces of film. That marked the birth of the art of filmmaking. It led to the development of the editing techniques still used today by visual storytellers like you and me.

Electronic editing

In electronic editing, the tape that you take out of your camcorder is never physically cut. Electronic editing using multiple tape decks, called linear editing, involves the electronic transfer of only the raw footage that you want to use on to a new tape. That new tape is called an edit master and is your final program tape.

Electronic editing using a computer involves digitizing, or capturing, the video from your tape on to the computer's hard drive. Using software, like Apple's *iMovie*, you can then select the parts of the captured footage you want to include in your project. You can manipulate the order of the shots as much as you want before sending your program out of the computer and on to videotape (or another format like QuickTime). This is called non-linear editing.

Transitions: making connections

The Cut

When editing, you need something to bridge the gap between shots. These bridges are called transitions. The term cut became synonymous with the instantaneous switch from one shot to another. It is the transition that is used almost 90% of the time in film and video editing. It's also the simplest and most powerful transition in the editor's toolbox. Hollywood film editor Walter Murch has called the cut "the filmmaking equivalent of the discovery of flight." What would earn it such high praise?

Putting cuts to work for you

Defy orders

The cut allows you to shoot your video out of sequence and out of order. You can assemble the shots in the order that you choose when you edit, using a cut as the transition or "bridge" between the shots. You can take all of your shots at a particular location at one time, then move to the next location and take all of those shots. When you're done shooting, you can assemble shots from all your locations into the final production.

Manipulate time and space

It might take a man five or six minutes to leave the twenty-fifth floor on an office building, ride down the elevator, walk through the lobby, and emerge outside the front door at street level. Actual time would probably depend upon how many stops the elevator made to drop off and pick up passengers. If the cut had never been discovered, showing him leaving the building for our video would take the full time, say six minutes. The cut lets us eliminate showing our audience the boring ride down (along with avoiding the dreadful elevator music). We could do it with two shots. The first shot would show the man getting into the elevator. The second shot would be from outside the building as the man walks out the front door. The transition between the shots would be a cut. Instead of six boring minutes, we could communicate what we need to in just a few seconds.

You can use a simple cut to transverse great distances in just seconds of screen time. Say a director wants a character to travel from London to New York. We all know such a trip would take many hours and include riding to the airport, checking in, waiting in lines, the actual flight, retrieving luggage, and lots of other miscellaneous happenings. Our director could make this happen in a matter of seconds. Shot one would show our character disappearing out the door in London, after announcing that she was off to New York. Shot two would be of a jetliner taking off. Shot three would be a shot of the Statue of Liberty. In shot four our character would be getting out of a taxi in New York. Time of trip: about six seconds! The audience would view this as perfectly natural.

A cut is the least obtrusive transition. Done right, it is not even perceived by your audience. It simply indicates a change in visual information. I'm not going to attempt to explain why people are able to comfortably account for all the missing time and sudden change of location. It's enough to know that we somehow do. Make it a point to watch how cuts are used on television and in the movies. You'll find a lot other tricks you can use too.

Watch out for jump cuts!

Cuts bridging images that don't have a logical connection or images that don't follow a logical order, will be jump cuts. Jump cuts do not make sense to the viewer. They call immediate attention to themselves.

Jump cuts break the flow of action and have a disorienting "what the heck just happened?" effect on your audience. Jump cuts are also created when editing together two shots that are just slightly different in framing or angle. The resulting edit makes the subject appear to suddenly jump to a new position on the screen. Make sure that consecutive shots of the same subject are substantially different in field of view (like a MS to a CU) and/or are substantially different in angle (like flat shot to a high angle shot).

If two consecutive shots are exactly the same, except objects within the frame are added or removed in the second shot, those objects will suddenly appear or disappear on the edited tape. It's jump cut magic.

Another way jump cuts can happen is if you break the 180° rule by crossing the action line when shooting. Let's say you and a friend are shooting video at a basketball game. You set up your camcorder on the south side of the gym at mid court. Your friend sets up at mid court on the north side. You both record a player driving for the basket on a fast break. Later, when editing, you cut together the start of the play from your tape and the end of the play from your friend's tape. The result will be a jump cut, as the player seemingly reverses direction in mid drive. (See also the screen direction section)

There may be occasions when you'll find yourself forced into a situation where you must edit two shots together, even though the resulting transition is a jump cut. For example, the video you're editing shows a continuous medium shot of a speaker addressing a crowd. You've been assigned to edit out some of the speaker's comments. If you cut out part of the speech, you may end up with nicely flowing audio, but the edit will make the speaker look like he suddenly jerked his head. Luckily you also have some video of the audience reacting to the speech that you can briefly insert to cover the jump cut. That inserted video is known as a cutaway shot. Cutaways are often used to hide jump cuts when editing single camera interview footage. If you use a cutaway to mask an edit point, make sure you cut to something related to the scene, or familiar to the audience. If you use an awkward or unfamiliar shot to cover the jump, you may confuse the audience, and simply trade one problem for another.

Most of the time jump cuts are mistakes that draw unwanted attention to your edits. There might be times when you want to alarm, disturb, startle, or make your viewers feel ill at ease. You might also want to stage a disappearing act. In those cases, jump cuts could be useful. My point is this: learn to recognize how jump cuts occur. Then you can plan your shots to avoid them, or to create them for effect.

Fade

In a fade, the picture gradually darkens to black (*fade out or fade to black*) or vice-versa (*fade in or fade up from black*). It is often used to indicate the end or beginning of a program or a scene within a program. It can signal a major change in time and place. The audience will expect something substantially different after a fade to black within your program.

Dissolve

A dissolve is a gradual transition from one shot to the next, during which the two images overlap and blend. A dissolve indicates a strong relationship between the images. A slow dissolve gives viewers time to consider that relationship and provides the smoothest transition. A dissolve can be used to indicate a change of location. It can also indicate the passage of time, or a change of location and time.

Wipe

A wipe seems to push one image off the screen as it reveals the next one. Wipes communicate a deliberate change. If dissolves are soft transitions, wipes are more active and lively. Like the fade, a wipe generally indicates the end of one scene and the beginning of another. Before computers, there were only a few classic wipes available. Computers provide an endless array of wipes and other unique digital transitions. Television programs like *Home Improvement* invented new wipes for every show (you might still catch an episode - it's in syndication).

Just say no!

Resist the temptation to spontaneously use the bevy of "gee whiz" digital transitions available, just because they're new and look cool. Save them for a special time when you really want to wow your audience. Using lots of different digital transitional effects can get in the way of your story, drawing unwanted attention to the editing process.

The storytelling power of editing

The Hollywood touch: sequences shot in the classical style

The majority of scenes in Hollywood movies, even the big-budget motion picture blockbusters, are shot using only one camera. So why does it look like they use three or four? Simply put, they shoot multiple takes of the same scene, repositioning the camera between takes. The actors perform some of, or even the entire scene again for each camera position. That might include a wide master shot, shots from various angles, closeups, over the shoulder shots, reaction shots and the rest. The film editor uses pieces from each take to stitch together the final edited scene. Additional sounds and visuals might be added during editing as well. It's called the classical shooting style.

> David Tattersall was 16-years-old when he saw *Star Wars*. He still has vivid memories of that day - the magical characters and story, and the excitement that rippled through the audience. "It played in my hometown cinema for 10 months. I saw the movie half a dozen times," he recalls. "*Star Wars* definitely planted the idea of becoming a filmmaker in the back of my mind." Some 16 years later, Tattersall photographed *Star Wars, Episode I - The Phantom Menace*. He says that director George Lucas totally pre-visualized all the principal photography.

> "He was very organized and prepared. Every frame was storyboarded. He wanted a traditional, classical style of shooting - the five Cs (camera angle, continuity, cutting, close-ups and composition). There was no radical camerawork or lighting, and nothing to draw attention to the photography. He was particular about wanting good coverage that he could play with in editing."
>
> *Kodak In Camera* newsletter, July 1999

It might seem absurd to associate a science fiction movie that pushed the limits of special effects with the term classical style, but that's exactly how much of all the *Star Wars* films were shot. You can add the same touch to your videos by borrowing a few of Hollywood's time-tested techniques.

Shooting sequences can be as easy as 1, 2, 3

The key to telling visually compelling stories with video is to use sequences. Instead of taking one long monotonous shot, full of pans and zooms, do what the pros do and keep your audience involved by showing them multiple views.

The time to think about editing is when you are storyboarding and shooting your raw footage. You have to visualize how the shots you take will fit together. If you don't, you won't record the shots that you'll need. You'll have nothing to edit with but a string of unrelated images. Not even a master editor could save your program. As the saying goes, you can't make chicken salad out of chicken droppings.
A tried and true method of organizing your shots is with a visually narrowing sequence, referred to as a 1 - 2 - 3 sequence.

1. Start with a wide shot that establishes the location for your viewers.
2. Go to a medium shot that tells them who or what to look for at the location
3. Add a closeup of significant detail

Of course you'll want to shoot variations on this formula, such as using consecutive medium or closeup shots. Most of your shots should be medium shots or medium-closeup shots!

The multiple camera look: playing the match game

Shooting Hollywood-style sequences requires more planning before shooting. Storyboarding is the best way for novice and even professional videographers to plan and visualize a sequence. The idea is for the action within your sequence to look uninterrupted, even though it is actually made up of multiple distinct shots. To accomplish this, you'll have to repeat the action in each of the shots you plan to edit together. When you edit, you'll make your cut where the action in each shot matches.

Here's what I mean. Let's say you want to depict a conversation between two people who are sitting at a table. Set up your camera for a side view of the table with both actors, A and B, facing each other. Record this master shot as they deliver their lines and perform any actions (like drink water, look at watch, frown, smile, scratch head, etc.). Move the camera and record an over the shoulder shot (OS) of B from behind A while the actors repeat their lines and actions, exactly like they did in the master shot. Do the same with an OS shot of A from behind B. You could give yourself even more editing options by also recording the scene from different camera angles or recording separate closeup

reaction shots. Remember the 180° rule to avoid jump cuts!

When you cut to a shot that includes some element or elements of the preceding shot, you are making a match cut (also called an insert or cut-in). Match cuts are less noticeable than cutaways, since the shot you cut to contains visual elements the viewer is familiar with. In our example, cutting from the master shot to an over the shoulder shot of A or B would be a match cut, since both A and B are visible in the master shot.

You'll want to look for opportunities to match the action in each shot and make your cuts during it. Cutting on action helps smooth the edit and convey the illusion of continuous motion. This is where editing on a computer is really handy. It lets you easily experiment with different shots and edit points until you find just the right ones to create the multi-camera illusion.

You can apply the Hollywood touch to even the most humble productions. I often have students in my production classes produce edited tapes that tell a simple story in five or six shots. We're not talking *Gladiator* here! A typical video will have a story line such as *sharpening a pencil*, *opening a locker*, *getting a drink of water*, or *walking to the media center*. By using various angles and fields of view, repeating action, and using match cuts, these simple events can become interesting little "mini dramas." Including such sequences in larger stories will give your productions a real professional shine.

Here's an example of a simple story sequence that uses these techniques. A girl gets into her car and drives away. As you watch the sequence, pay attention to the use of match cuts and the concept of cutting on the action. You should also be able to appreciate the various camera positions, angles, and fields of view that were used. Then check out the "see how we did it" movie to catch our cameraperson in action!

Visual and sound continuity issues

Positional continuity

Here are a few things from the movies you may not have noticed.

> *When Jack hands Rose the note at the dinner table the paper is yellow. Later when the note is read, the paper is white. Titanic (1997)*
>
> *When the companions are walking down the corridor to the wizard's room, Toto is on their left side. Then, the camera view cuts to a shot from behind them, and Toto is suddenly on their right side. Wizard of Oz (1939)*
>
> *In the scene in front of the hotel on the night before Rafe ships out to England, Kate Beckinsale puts a scarf around his neck. There is a camera shot from his back: no scarf. Then another one from his front, and he's wearing the scarf again. Pearl Harbor (2001)*
>
> *During the battle of Carthage, Hagen stands alone with an arrow in his shield. A couple of shots later, no arrow. A couple of shots later still, an arrow hits his shield. Gladiator (2000)*
>
> *When Will Smith is dragging the unconscious alien across the desert, the sky alternates between*

overcast and perfectly sunny. It depends if it's a closeup or a long shot of Will. Independence Day (1996)

In the scene where Jeff Goldblum is getting a bottle out of the refrigerator, he opens the door and it is full of food. When his ex-wife puts the bottle back in the fridge, it's virtually empty. It's full again when Jeff reaches in to get the bottle back. Independence Day (1996)

At the end, a victorious Maverick is hoisted on the shoulders of the guys. As he goes up, he isn't wearing sunglasses. His head goes out of the shot, and when he comes down, he's wearing a pair. Top Gun (1986)

All the above are examples of continuity problems. "Real life" goes on during the time the camera is stopped. Scenes that are shot out of sequence, or consist of shots taken at different times, can lead to these types of problems. To maintain the illusion of continuous action when editing, you need to make sure everything is in the same relative position in all the shots of your sequences and scenes. Clothes and accessories need to match. Actions need to match too. Hollywood directors have script supervisors especially hired to watch for these things, and they still miss a lot. In addition to positional continuity concerns, you also need to pay attention to the direction action is moving from shot to shot.

Directional continuity

Audiences expect movement on the screen to be logical. Remember, they can only see what you show them. As you plan, shoot, and edit your sequences you need to maintain the direction of motion. People, pets, bikes, cars and other things that are mobile must be pointed in the same direction from shot to shot. This will help cement your shots together. If screen direction continuity is not maintained, your viewers will become disoriented and won't be able to follow your storyline.

Here is what you need to know about screen direction:

1. There are only two directions to worry about: right and left.
2. Screen direction doesn't have to equal "real world" direction.
3. You need to follow the 180° rule.

The action line, an imaginary line separating the camera from the subject, is established by the camera's position in the first shot of your sequence. It shows the viewers what direction, toward screen left or toward screen right, the subject (person or object) is facing. If you always keep the camera on its side of the line and the subject on the other side, screen direction will be consistent. If you cross the line, the subject's screen direction will reverse. You might want to review the basketball game example from the "Watch out for jump cuts" section of the transitions page.

Let's say you're shooting a sequence of a girl riding her bike to the store. In the first shot she leaves the driveway and heads toward the left of the screen until she rides out of the frame. As we follow her progress in the shots that follow, she should also be heading toward the left side of the screen. She should arrive at the store by entering the frame from the right, again moving toward the left side of the screen. In the real world, the girl could change direction and head north, south, east or west. But if we always record her from the same side of the action line, the video will show her headed toward the left of the screen in every shot. If the video showed her heading screen left in one shot and screen right in the second, it would appear to the audience that she was going back home.

Road trip!

People are used to looking at maps that have north at the top. Their mental geographic map tells them that motion toward the right of the screen is heading east and motion towards screen left is heading west. Keep that in mind if your subject is a car driving from Chicago to New York, or if it's a person watching the sun set, or rise, over the Pacific.

"Look at me when I'm talking to you"

Here's another screen direction consideration. If you are showing both ends of a phone conversation, the people talking should be facing in opposite screen directions. The audience will expect them to be facing each other when they talk, even though they aren't even in the same room. Go figure!

Sound continuity

> *Trinity flies through the window, tumbles down the stairs, and looks back up at the window. You can see and hear the squeaky light swinging. The next shot shows the light completely still, but the squeaky sound is still there. The Matrix (1999)*

Matching the sound in each shot also provides continuity and disguises edit points. The first consideration is keeping a consistent volume. Your viewers shouldn't have to reach for the volume control to adjust the sound from one part of your video to the next. You can balance the sound if all your audio sources were recorded at a high enough level. The biggest problem occurs when the sound on your source tape isn't loud enough. This will happen if the camera mic was too far away from the people speaking during taping. When the sound from the mic is not strong enough, boosting the volume of that track during editing also amplifies the background noise to an annoying level.

"Hey, turn the volume down!"

That's what my dad used to tell me if I played my guitar "too" loud. Now it's my wife who gives me the same message when I crank up the *Stratocaster*. But, I digress.

Music shouldn't drown out the dialog or narrations. If background music is played during speaking parts, it's volume should be brought down so that the speech is heard clearly. This is referred to as bringing the music under the level of the competing audio. The music volume can be brought back to normal volume during lulls in speech. If your music is on a separate audio track, its level can be adjusted during editing.

"It sure is quiet …….too quiet!"

Every shooting location has its own ambient, or general background sound. Shots in the same location should have the same sound ambience. Let's say you're shooting a scene that takes place in the school cafeteria during lunch. Later, while reviewing your footage, you find that you forgot to shoot a couple of important closeups. It's no problem to go back to the cafeteria later in the day and shoot the missing shots. The problem is that the ambient sounds captured at lunchtime will be missing from the new shots taken later in the day. When you insert your freshly shot closeups, the change in background sound will be quite noticeable, because the sound continuity will be broken. You need to add the missing ambient sound to your sound track when editing the closeups. Luckily you remembered to record some extra room ambience as part of the noontime shoot. You did, didn't you? Radio broadcasters refer to times when there is no sound being transmitted as "dead air." Don't

have moments of "dead air" in your program.

There are techniques you can use to change screen direction without confusing your audience. That's covered in the *So you want to . . . . .* section.

Making "sound" decisions

Voice-overs, music, and sound effects are sound elements you can add to your video during the editing process.

Voice-overs

In certain formats, like documentaries, you may need to record voice-overs. I like to record voice-overs after the video has been edited. Of course, I always make sure my video segments are long enough to accommodate the length (time) of what I need to say. I've seen too many cases where students wrote voice-overs that were way too long for the video segments they edited. It's easier to adjust the voice-over content than to scramble for more video to cover the time.

Most inexperienced scriptwriters tend to write for readers, not viewers. The text of their voice-overs is padded with unnecessary rhetoric and detail. The voice-over should provide a framework for the content, not be the content. Remember, you're producing video, not radio. Voice—overs introduce or bridge video segments, or they serve to highlight what is shown on the screen. The voice-over needs to compliment the video. There are few things more confusing than listening to a voice-over that doesn't relate to what you're watching.

You can record a voice using two basic methods. One is to record to tape, using the camcorder and either the built-in mic or an external mic plugged into the camcorder. You then import the audio from the tape to your program. For example, iMovie users would import the video to iMovie as a video clip. Then they would extract the audio (the recorded voice-over) and trash the video portion of the clip. The other method would be to connect a mic to your computer and record the voice-over as a sound file. All video editing software allows for recording narration from within the application, usually as a separate narration track. Avoid using built-in computer mics. They yield generally poor results. Matching an external microphone to your computer can be a bit tricky. If your computer has a standard mini-jack for a mic input, you can adapt most any mic to fit by getting the proper adaptor. However, the mic you have may not produce a high enough signal level to let you record at an acceptable volume. In that case you may need to put a powered amp or mic mixer in line between your mic and the computer. Like I said, this can get a bit tricky.

If your computer doesn't have a mic input but does have a USB port, you'll need to invest in a USB microphone or a USB interface device. There are some relatively inexpensive USB microphones on the market that do a decent job of voice recording. These range in price from $39.00 to $200.00 USD. Check out the *MicFlex* from MacMice, the *Snowball* from Blue Microphones, and the *Samson C01U* from Samson International. USB audio adapters and interfaces allow you to use a wide variety of non-USB mics by providing input jacks for various types of plugs commonly found on the end of microphone cords. They convert the signal to USB. These range from simple converters, starting around $30.00 USD, to more elaborate interface devices that have multiple types of input/output jacks, signal mixing, preamps, phantom power for condenser mics, and a host of other features. They start at around $150.00 USD and go up from there, depending on features.

Music

The music you add to your video can greatly effect how your video is perceived. More often than not, first-time or novice video producers abuse its use. They use music that is inappropriate to the subject matter, tone, or pace of the video message. Not all videos require music, although most videos can be enhanced by it. We're getting into the realm of artistic taste here, but there are a few absolutes. Don't use a particular piece of music just because you like it. This may seem obvious to most people, but a hard-driving alternative rock selection might not fit your video about the senior citizen center. Music with lyrics has to be used very carefully, since your audience will expect the lyrics to match everything they are watching. The lyrics become a form of narration. The whole message of your video can be changed with music. Imagine a video of hockey game action that includes all the arena sounds, accompanied by a heavy metal soundtrack. Now image the same video footage with a classical orchestra playing the *Blue Danube Waltz* as the only sound.

Where do you get music? Understand that almost all commercially produced music is protected by copyright. There are provisions within the copyright guidelines for some educational "fair use" of copyrighted music, but that would certainly limit the distribution of your video. Someone has paid a royalty to the copyright owner for all the music you hear on television programs and commercials. You can buy libraries of "royalty free" music on CD. The music is usually grouped by length of cut, tempo, and style. There are also places on the Internet where you can pay a royalty to download and use production music, such as Sounddogs.com.

Another option is music production software, such as *Sonicfire Pro* from SmartSound. Software like this makes it easy to custom make sound tracks by choosing from a library of sound cuts and building your own songs. Apple's *GarageBand* software is a great choice for Macintosh OS X users who want to compose their own soundtracks from the sound loops it provides, or who want to create original music scores. Windows users may want to check out Avid's *M-Audio*, an inexpensive piece of music creation software that comes with a basic USB audio converter. Sony's *Acid Music Studio* is another solid and inexpensive choice for the Windows set. The list goes on, with new software hitting the market seemingly all the time.

You can also use preset music patterns or make your own original music using a digital rhythm machine. The *DR-5 Dr. Rhythm Section* from Roland is a virtual "band in a box." I've used one to score parts of several productions.

One way to help tie your program together is to use the same music for the close that you used for the opening. Your opening music is kind of the "theme song" for your video. If you bring this theme in right before you start your conclusion, you send a signal to your audience that the show is wrapping up. It can help segue from the main body of your story to the ending statement.

Sound FX

Television and movies add special audio effects to just about every scene. Things like screeching tires, karate chops landing, forest sounds, and shopping mall background noises are all added, ironically, to provide "realism." Sound helps sell the action, so professionals use what is called a "foley artist" to "sweeten" sound tracks. Much or all of the "native sound", sound that actually occurred at the time of shooting, is replaced during editing.

You probably don't need to go to that extreme, but there may be occasions when you'll want to reinforce the native sound or add a new sound for dramatic or comic effect. There are many

inexpensive sound effects CDs available, lots of digitized sounds can be found online. Your video editing software probably has a sound effects library too.

A refreshing change of pace

Ever heard the expression "too much of a good thing?" Even the best video can become monotonous if it moves at the same pace for too long. This applies to a heart-pounding lightning pace as well as a peaceful snail's pace. Varying the pace within your program helps keep interest alive. You can slow down or speed up the pace of your scenes by controlling certain variables.

The length of your shots is perhaps the most basic way to affect pace. Using short shots will create a fast pace. Staying with each shot longer before moving on to the next one will slow the pace down.

Your video will develop it's own ebb and flow as you orchestrate the length of your shots. This can be compared to the rhythm of music. Matching video to the pace of a music track would be one way to establish rhythm, but you don't need music to do it. Think about a time when you were a young child listening to stories read aloud. If the reader droned on in a robotic monotone, chances are your mind wondered to thoughts of lunch or recess. But, if the reader used expression, talking louder and faster during the exciting parts and softer and slower during lulls, you probably hung on every word. When you edit, make sure you periodically play back your work and feel the rhythm of what you are creating.

A variety of kinds of shots can also be used to change the pace. It is generally acknowledged that the most deadly boring video of all time is the *talking head*, a continuous shot of a person talking. If that's the only video shot that was captured, there's not much you can do to liven it up during editing. But if you also captured some cutaways, shots taken from a variety of angles, you could use them to add some visual variety and keep things a bit more interesting.

The transitions you choose between shots can have a strong impact on pace. Cuts offer the most immediate changes whereas slow dissolves, fades, wipes, and digital effects are more leisurely. Faster versions of these transitions can increase the pace. Overall, the speed of the transition is more influential then its type.

Feel the beat

Wherever you use music, your video's pace will be controlled by the tempo of that music. When selecting music it's often preferable to audition various music cuts until you find one that matches the pace you want for a particular sequence. Then you can edit your video to match the pace of the music.

A final thought on pacing

Put yourself in the shoes of your intended audience. Then play back your edited scene. If it tends to drag, make some changes to pick up the pace. If it goes by so fast your viewers' heads will spin, maybe you need to give them a break somewhere.

Titling your videos

Adding titles to your videos can give them a professional look. The key word here is can. Just like with music, the use of titles can be abused. The purpose of titles is to provide information without speaking it. Some camcorders permit you to add titles to your shots, but be careful! Titles recorded while you shoot are even more permanent than tattoos. They are there forever and can't be changed. That's fine for video you know you will never edit, but in all other cases you should add your titles during the editing process. Here are some possible places to include titles:

• **The title of your program at the beginning**. These are usually centered on your screen. Centered titles demand the attention of the viewer.

• **The names of people appearing on camera**.

• **The names of places or locations**.

• **Dates and times**. These are usually placed in the lower third of the frame. Viewers are used to reading information here without losing the meaning of what is being said.

• **Production credits and acknowledgements at the end**. Include everyone who helped in any substantial way. These titles are usually either scrolled from bottom to tope or are presented in a series of screens.

• **Copyright notice**, the "c" in a circle followed by the year and your name or organization's name. Example: ©2007 Greg Beck Productions Note: On a Mac, the © symbol is achieved by holding down the option key while typing the letter "g".

• There is no need to include a "The End" title in documentary format programs.

Don't make it worse!

Poorly designed titles can diminish an otherwise excellent program. So what's good design? Here are some factors to consider:

Background: You can choose to place your titles over motion video, still frames, colors or gradients. Choose a background that will contrast with the fonts you use so that they will stand out. Some editing programs will let you put the background slightly out of focus or apply some other effect that can help.

Style: There can be a dazzling array of font styles available on your computer. Each font has its own overall character, or feel. You want to match the feel of the font to the feel and mood of your story. A story about computers shouldn't use an Old English or other ornate font style. A Greek myth shouldn't be titled with some modern techno-style font. A serious program should have a formal font, a comic program a more casual and frilly one.

Uniformity: Don't mix in a bunch of different fonts just to show them off. Typically a program will use one or possibly two font styles throughout. That's it. If you need to have certain words on a page stand out more, try using italics or bold face versions instead of tossing in yet another font.

Size: You have to use big fonts. How big? You may need to experiment. Make sure you preview your video on a TV and not just the computer screen. Television sets do not have nearly as good a resolution as computer monitors. What looks good on the computer might disappear on a TV.

Color: White is the easiest to see, followed by yellow. They will need to be offset by a darker background. Add a small dark drop shadow if you can. Some programs will let you place a semi-transparent background placard behind your titles, which can also help the stand out. Avoid overly bright colors for fonts. Stay away from bright reds, greens, purples and pinks. These colors can bleed off the edges of the letters, especially when transferred to VHS. Many editing programs will limit the range of colors you can choose to those that look best on TV's limited color scheme.

Lighter colors tend to be easier to read and convey happiness, while darker colors suggest a more ominous tone. Some color combinations have their won cultural ties. Red and green say Christmas. Black and orange say Halloween.

Duration: Your titles need to be on the screen long enough to be read, but they shouldn't overstay their welcome. A rule of thumb is to leave titles up long enough to be read 3 times. A title that is also spoken with a voice-over can be dropped right after it's spoken.

Transition: You may have choices as to how your titles enter and leave the screen. The most gentle and subtle is the dissolve in/out, the most abrupt the pop in/out. In between those are the fly-ins, bounce-ins, drop downs, typewriter single letters, and the rest. As with all digital transitions, use them sparingly and only where they add to, not distract from, the visual message you are trying to convey. Fancy transitions work best with modern, lighter topics. Reserve scrolls for credits or long explanatory passages.

Placement: Center items you want to make sure everyone reads. Personal and place names go on the lower third of the screen. Work with the background when placing titles. Watch for light and dark areas of background that might washout your titles. Sometimes titles can be used to balance the background shot.

Safe title area: If you're producing for broadcast or distribution on videotape, be sure to observe the *safe title area* boundaries.

Spelling: Yes, spelling counts! Make sure it's correct. If you want you and your story to be taken seriously, get the words spelled write. (Hey, I did that on purpose!) People really dislike it when their name or the name of their town isn't spelled correctly. Make sure you take note of the correct spelling of every person or place you plan to create a title for.

Specialty titles: The computer isn't the only place to be creative with titles. You can often identify a place by taking a closeup of an existing sign, like 'You Are Now Entering Yellowstone Park" or "Central High School."

Other things in the environment can also be used. A title in chalk on a blackboard might be good for a story that takes place in a school. Words drawn in beach sand might work for a story with a beach locale. Plastic magnetic letters arranged on a refrigerator might be appropriate for a children's story. A title hot-branded into a rough-sawn board might be just the thing for a western.

Interviewing: "Can I ask you a few questions?"

Interviews are often an important part of documentary stories. You're going to need to gather facts, which means you'll be talking with those most closely involved with the subject. Comments from those "in the know" lend credibility to your story. If you ask your questions while the camera roles, you'll get video and audio clips you can use. It's usually more effective to have the participants provide pieces of story information on-camera than it is for you to provide the same information in a voice-over. A mix of both helps vary the pace. Remember, the purpose of the interview is to get information and quotes you can use to execute your story plan. Here are some ways you can improve your chances of getting usable responses from the people you interview.

• Whenever possible, conduct a "pre" interview. Do this well in advance of the actual on-camera interview. This will give you time to prepare the questions you'll ask when the tape is rolling. If you have a good idea of what kind of information you'll get from the interview, you can start figuring out how and where you want to use it in your story.

• Try to have your equipment all set up and ready to go before your subject arrives. Watching you set up can make the interviewee nervous.

• Take time before the interview starts to put the person you're interviewing at ease. Let him/her know, in a general way, the types of questions you will be asking. Ask if there are some things they would like to make sure are included. Lead with a question you think they would enjoy answering. Have the tape rolling during this warm-up. You might get some good responses you can use. Let them know that the interview will be edited, so if they flub up an answer you can ask the question again.

• Ask open-ended questions. These are questions that can't be answered with a simple yes, no, or other one-word reply. Instead of asking "do you like being a firefighter?" ask "what are the things you like most about being a firefighter?" A natural follow-up question would be "what are the things you least like about your job?"

• Ask simple questions, not two-part or other compound questions with long lead-ins.

• If you can, conduct the interview some place associated with the person or with the subject of your story. This might be a teacher's classroom, principal's office or other school setting, mechanic's workshop, scientist's laboratory, etc. People feel more at ease in familiar surroundings, plus you'll likely be able to get some shots could use as cutaways, such as things the subject talks about, known as B-roll.

• Set the tone for the interview. If you're enthusiastic, chances are the subject will be too. If you're somber, he or she will probably follow that lead as well.

• Don't interrupt answers with your own comments. If the subject pauses for a moment, don't jump right to the next question. Given a chance, he or she will often continue.

• Try to maintain eye contact. Listen intently and react to the answers you get with a nod, smile, look of agreement or surprise.

• Don't try to wrap-up each answer by saying things like "I see" or "OK then." Watch out for the

echo syndrome, where you habitually repeat your subject's last words:

Subject: " ...and I really enjoy working with children."
Interviewer: " ...you really enjoy working with children, huh?"

• If the person's answer is unclear to you, rephrase your question and ask it again. You must have had a good reason for asking it in the first place, so try to get an answer you can use.

• Make sure to graciously thank anyone who cooperates with your story by giving you an interview. A follow-up thank you note can go a long ways toward boosting your reputation.

• With the tape rolling, ask your subject to say and spell his or her name. That way you'll be able to get the spelling right for titles and credits, and you'll have the correct pronunciation for voice-overs.

• You may wish to consider having you subject sign a release form if you will be showing you video in public (which includes the classroom).

Interview editing considerations

Most of the time a documentary style program doesn't include a shot of the interviewer, or audio of the questions being asked, in the final edited version. The interview is recorded by framing a closeup of the person answering the questions. The interviewer is positioned off-camera, just to the camera's left or right: the basic interview shot. That will direct the subject's attention, and eyes, away from the camera. This is not a speech; it's an interview answer! The subject should be seen as talking to a person off-camera, not directly talking to the audience.

In this type of situation, ask the people you interview to include the question in their answer.

Question: "What are some of your favorite TV programs?"
Answer: "Some of my favorite TV programs are . . . . . "

Answers that contain the implied question give you more choices when you edit.

Some bright ideas on lighting

There really is no substitute for good lighting. Entire books have been written about it. Lighting is often the last thing beginning videographers consider, if they consider it at all, and that fact shows in their work. Video lights (the kind you set up on supports, not the ones built-in to or attached to the camcorder), are usually the last things purchased. Lighting is really more of an art form than a science. My purpose here is just to get you to think about light when you shoot, recognize problems, and be able to make some adjustments that can help.

Situation one: backlit subjects

This was mentioned earlier, but is worth repeating. Avoid backlit subjects. The auto exposure feature of your camcorder will overcompensate for the light, throwing your subject into shadows.

Remedy:

- Reposition your subject.
- Reposition your camcorder.
- Override the auto exposure feature by manually opening the camcorder's iris or activating the camcorders backlight feature, which opens the iris fully. The trade-off is that this will also tend to overexpose or washout your background.
- Add light to the front of your subject.

Situation two: strong overhead lighting

This is common when shooting outside in the sunlight or inside in a classroom or office that has ceiling mounted lights. The result can be human subjects that have dark shadows on their face, especially under the eyes. I call them raccoon eyes.

Remedy:

- Reposition the sun (just kidding).
- You can try opening up the iris manually, but you're likely to overexpose the non-shadowed areas. The backlight button may washout the whole image.
- Add light to the front of your subject.

In the situations above you can probably solve the problem by adding fill light. There are a couple of ways to get fill light. One is to reflect light from the existing light source (sun, ceiling lights, etc.). The cheap solution is to use a piece of white Styrofoam poster board to direct light at your subject. You can also buy reflectors. The best one I've had is called the *Chameleon* system. It comes in different circular diameters, from a 22 inch to a 42 inch model. This reflector system allows you to switch to either a white, silver (cool tone), or gold (warm glow) cover. It also comes with a soft white diffuser to tone down bright light sources and a black side to block light. The whole thing collapses into a small carrying pouch: very handy, especially for outdoor work. Prices run from $50.00 to $100.00 USD, depending upon size.

The other way to get fill lighting is to buy a light on a stand. If you can only buy one light (and they are expensive) get one that comes with a stand and a soft diffuser. That will give you a nice, soft fill light, which is often all you'll need. The alternative is to get a light with an umbrella. The light is pointed away from the subject into the special attached photo umbrella, which reflects softer light back onto your subject.

It is sometimes possible to get fill lighting from a camera-mounted battery powered light in locations that are generally well lit. If these lights are used as the primary light source, however, be prepared for harsh bright spots, deep shadows, and people with that "deer in the headlights" expression.

Three Point Lighting

The professional approach to lighting utilizes special lights that allow you to adjust the direction, pattern and intensity of each source. Three point lighting refers to the use of three light sources. The main or "key" light and a softer fill light are placed at 45 degree angles from the subject, on opposite sides of the camera. They usually shine down at a 45 degree angle toward the subject. The third light is the backlight. It is placed above and behind the subject. It shines down to light the edges of the subject to set it apart from the background.

This lighting scheme works well in a studio with hanging lights, but I'm guessing that's not where most of the people reading this will be working.

So you want to . . . . editing for effect

Indicate time passing

In this case we want to indicate that time is passing as we watch. Dissolves between shots of the same location at progressive time intervals can do the trick. You've surely scene these (corny but effective) visual time-passing devices: sunset [dissolve to] sunrise; hands on the clock turning faster and faster; pages being torn off a calendar; a montage of historical sights and sounds.

Move character to new location

Look for a shot in which your actor, or moving object, leaves the frame. Hold the empty frame for a beat before cutting to the new location. That moment of empty frame allows the moving subject travel time before the new location is introduced. This method works just as well the other way: cut to an empty frame and let the subject enter it.

Create excitement and build tension

In this example, shots of events happening simultaneously are cross-cut. The length of the shots gets progressively shorter, which adds excitement. The screen direction indicates that the car and guy are headed for a showdown, building anticipation.

Imply a relationship between shots happening at the same time in different locations.

A dissolve implies some kind of relationship between the two shots it bridges. The audience will try to discover what the relationship is.

Depict what a person is looking back on: flashback

A slow zoom in to the person having the flashback, a far-away look in the person's eye, stroking of the chin, the sound of a harp being strummed, the person's image going out of focus and the flashback scene coming into focus – these are the classic ways to indicate a flashback scene. If you have the ability to do a water ripple transition to the flashback you might try that as well. David Letterman uses this for the flashbacks to his staged comic remembrances. Yes, it is corny, but it makes the point.

Change screen direction

You can't keep action going one way indefinitely, so you need a way to switch screen direction without drawing attention to the change. The most obvious way to reverse direction is to have the moving object make a turn, right on the screen. That way your audience can watch it happen The next best alternative is to insert a neutral angle shot. Here's an example. Let's say you have two shots of a moving car, but the car is moving in different screen directions in each shot. You can insert a shot of the car coming directly toward the camera, between shots of the car heading in opposite screen

directions. That buffer shot will help smooth the transition in screen direction. Another solution is to insert a cutaway shot, perhaps of the driver, taken from inside the car (as done in the example movie).

Make your audience anxious

The stock-in-trade of horror films. Erie music helps. Extreme tilted camera angles and unsteady camerawork will also unsettle viewers. Watch The Blair Witch Project (preferably not after a full meal) for an extreme example of extreme camera shakiness. The films of Alfred Hitchcock are very good at using tilted camera angles to cause anxiousness, plus they're a lot more sophisticated (and they're easier on the stomach).

Indicate a change in scene

Fade to black at the end of scene one and up from black to scene two, or dissolve between the scenes. Fading to black is a definite indicator that time has passed. Slower fades indicate a longer passage of time between the scenes.

Cover a jump cut

Insert a cutaway to a related shot between the two shots you want to join. When you're out on location shooting, look for extra footage you can take in case you need shots to use as cutaways. Shoot location signs, long shots of the location, close-ups of specific details, name placards, or any other things relevant to your story. You'll be glad you have those shots when you're working at the editing station.

Draw attention to what a person is saying

Zoom or cut to a CU of the person's mouth as he or she talks.

Pick up the pace

Fast-paced music, quick cuts or other short transitions, and high-energy narration all help create a fast pace. Thirty-second car commercials, especially those for local dealerships, tend to utilize all these techniques to get people to buy cars. Hopefully you will have a more noble purpose ;-)

Slow down the pace

Pretty much do the opposite of the above: slow music, long-running shots with little or no motion, slow dissolves, soft and gentle narration.

Startle audience to attention

Use a cut from a black background to a dramatic opening shot to begin your video. Cutting straight from black makes viewers feel as though they missed something. That feeling makes them want to "catch up" with what's happening in the scene, getting them involved in watching right away.

The Story

Generating story ideas

Tell a story that interests you! You could be spending quite a bit of time on your video project, so make sure the concept and subject matter appeal to you in some way. Budding writers are often advised to write about what they know. Videographers in search of story ideas might use the same process. Think about your hobbies and interests, groups you belong to, people you know, events you will take part in. Maybe there is something you'd always wanted to know more about. Turn the results of your research into a video.

Whatever you do, start out small. Don't make your first project too complicated and involved. I've witnessed too many student projects that were intended to be feature-length epics but ended up being agonizingly long mock sword fights on the football field. Simple stories can be the best. A well-done five minute video is no small undertaking. Have a few of those under your belt before taking on Hollywood.

You may already have a backlog of stories waiting to be told, but if not, looking through these formats and examples might help spark an idea.

Documentary

Informational

- *Everything you always wanted to know about getting into college.*
- *How the United Way supports our community.*
- *Careers for the 21st century*
- *Tree to table: the process of making maple syrup*

Investigative report

- *What's behind the increase in student activity fees?*
- *Does our town need a BMX track?*
- *Should our school switch to block scheduling?*
- *Should the school store sell healthy foods instead of candy and pop?*

Event

- *Track and field day at Monroe Middle School*
- *Homecoming week*
- *The Governor visits our school*
- *All-school reunion week*

Historical

- *The story behind the old 1st National Bank building*
- *How the lumber industry shaped our community*
- *Our town's Civil War heritage*
- *How immigration changed the face of the county*

Biography

- *A talented local artist and her work*
- *Famous graduates of Central High School*

Interview

- *New teachers at our school: their hopes for the future*
- *Principal Martinez on the new attendance policy*

Fiction: comedy

Satires or parodies are often easiest for your audience to relate to. *Saturday Night Live* does a lot of parodies of things like movie scenes, TV commercials, game shows, and talk shows. One of the best parodies I've ever seen on TV was a take-off on the Beatles, called *The Rutles: All you need is cash*. You might be able to rent it at the video store. Of course, if you're not familiar with the original, a parody won't be all that funny to you!

Fiction: drama

One of my students once wrote and produced an interesting teleplay about teenage drinking and driving. You might also try a retelling of a fable, myth or tall tale.

Music video

These can either be representations of live performances or they can visually tell a story that is suggested by the lyrics. Matching the visuals to the beat of the music is very important. Your local garage band will love it if you make a video featuring their best song!

Promotional / Motivational

Products, services and events are all things that might benefit from a promotional video. Schools and non-profit groups are often looking for help in promoting their programs and events.

Instructional

Video can be a great teaching tool. A "how to" video could be useful anywhere groups of people have a need to be trained in some procedure.

Video montage

In a video montage, selected images centering on a specific theme are sequenced to convey a

particular mood or meaning. A montage is often, but not always, accompanied by music. The montage might be related to a poem that would be read on the sound track. For example, a montage entitled *Signs of Autumn* might include pictures and sounds of colorful woodlands, leaves falling, people raking leaves, birds migrating, kids waiting at the school bus stop and high school football games.

What's the big idea?

If you haven't decided on a story idea on your own, get together with one or more other people and conduct a brainstorming session. In a brainstorming session, every idea shouted out should be accepted without being judged. Record all the ideas on paper or on a computer. Another person's idea might trigger more ideas in you or others in your group. Take a look at the collective ideas and sort out the more workable ones. A computer program like *Inspiration* can be valuable in organizing your ideas into categories and subcategories, refining your ideas until you find one you like that seems right.

Story planning

The most important phase of production is pre-production.

Some people don't want to hear that truth. Maybe you're one of them! If you heed that advice, however, you'll be following in the footsteps of all the successful television and motion picture directors in the business. Unless you're taping a "news as it happens" story, you should have a very good idea of what your finished program will look like *before you take out the camera*.

What's it for?

People will be curious about why you're making a video, especially if you ask them to participate in it! You should be able to answer the question, "so what's it for?" Remember, "just for fun" is a fine reason! If you've got more specific goals (and you probably will) you should list them. Consider your program from the point of view of your intended audience. What do you want them to gain from watching your program? What should they learn, feel, think, understand, or do?

Who's going to watch it?

You need to have an idea of who your audience will be. Will they be high school students, senior citizens, parent groups, local citizens, kindergarteners, medical doctors, college students, family members or any other group you can identify? It's important to know the general level of sophistication of your audience and their level of prior knowledge about the subject matter.

When I taught in a high school, my video journalism class produced a magazine style program of short feature stories about our school and the community. It was shown on the local cable access station, which means our audience included anyone in the local area with cable TV. Information my students took for granted wasn't necessarily common knowledge in the community. I had to remind them that non-students might not know what DECA stands for (Distributive Education Clubs of America) or who Mr. Force is (former principal). They needed to explain such things to the audience when they made reference to them in a story.

Now here's your local forecast

The local forecast is the part of the weather report that we're most interested in. It affects us directly, but it's something the network and national cable outfits don't provide much detail about. Stories about people, places, issues or events in your local school or community don't get much attention from commercial television either. You won't find any tapes or DVDs about local interest topics at the video store. But people are interested in these things! There just aren't enough of them to make it profitable for the pros to cover. That can be where you come in. A local take on a national or global story can also give it local appeal. What's the situation here? What do local people think about it?

Broadcast and cable television networks do a good job catering to mass audiences. However, they're not as likely to do a video about the high school marching band's trip to Pasadena for an appearance in the *Rose Bowl Parade*.

That sounds doable!

As was mentioned earlier, keep your project small enough to accomplish with the resources you have available. You can always produce a more ambitious sequel! You might want to rethink that story about snowboarding in the Himalayas, unless your location expense budget is a tad larger than mine.

Consider the timelines of your story. That would include the amount of time you have available to spend and the time factors of your story's subject. You might really want to do a story about the local football team, but if they don't start practice for two more months it might be impossible to get the action shots you need.

Do your research

When doing a documentary, biography or other non-fiction story, find out as much as you can about your subject during the planning stage. Working in these formats is like doing an in-depth news story. You need to get and provide answers to the *who, what, when, where, why,* and *how* questions. The more answers you have before shooting, the better you'll be able to plan your production. Visit the locations of importance to your story. Talk to the people involved. You may discover a better story lurking about than the one you had originally envisioned.

Call me Ishmael

The classic novel *Moby Dick* was written as a narrative told by the only survivor of an ill-fated whaling voyage, an interesting fellow known as Ishmael. The *Illustrated Classics* comic book version takes a bit different approach to the story. You'll need to decide how you want to approach the stories you tell with video.

A *treatment* is a brief explanation of *what* your program is all about and *how* you intend to tell the story. Anyone who reads your treatment should walk away with a clear picture of how your story will unfold. There are usually several ways you can approach the same topic. In the field of news reporting, a treatment is sometimes referred to as a story *angle* or *slant*. One treatment decision to make is the story's format. Within each format there are other choices.

If you're doing some sort of documentary, will the story be told from the point of view of an observer or a participant? Will there be an off-camera narrator or an on-camera reporter? Will there be a mix of both? If you interview people for the story, will the interviewer be shown asking questions on camera

or will you just use the answers in your edited story? If you're doing a work of fiction, will there be on-camera dialog from your actors? Will the story and dialog be read by an off-camera storyteller as the actors pantomime the action? Will there be a mix of the two, like the old *Rocky and Bullwinkle* cartoon adventures?

Let's take the topic of peer pressure. There are many formats to choose from, and each could have multiple approaches. Here are a few quick partial treatment ideas. Actual full treatments would need further explanation.

Informational

Treatment 1

This program will define what peer pressure is and give examples of how teenagers are subjected to it. An off-camera narrator will give a definition of peer pressure and describe various circumstances in which it can occur. Video of teenagers will be used to illustrate each occurrence cited.

Treatment 2

This program will show the many circumstances in which peer pressure can affect the behavior of teenage girls. The story will center on the experiences of five teenage girls who have been identified for the story. Each girl will talk about one form of peer pressure that has affected her behavior in a voice over. Video will show that girl interacting with her peers.

Investigative report

• National reports have indicated that there is peer pressure for high school girls not to get good grades or appear too smart. This story will investigate if girls at our school feel this type of pressure, and if so, why?

• Positive peer pressure can result from being involved in school activities and volunteer groups. What are the groups at our school that exert positive peer pressure?

Event

A school assembly will be held on November 9th to encourage students to resist peer pressure to become involved in negative activities. This story will take excerpts from the presentation and get the reaction from students and faculty as to the effectiveness of the message.

Historical

Using old photos (school yearbook and others), video (past editions of the school video yearbook), and interviews with people of various ages, this program will examine how peer pressure has always been a part of school life.

Interview

A school guidance counselor talks about peer pressure with a student interviewer. The video will cutaway to shots of kids exhibiting behaviors resulting from peer pressure: smoking, clothing styles, etc.

Fiction: drama

This video will tell the story of Jenny, a school athlete who gets kicked off the team, loses her drivers

license, etc. because she gave in to peer pressure to attend a party where there was alcohol being consumed.

Music video

Our original rap song *You Can't Pressure Me!* will be used as the backing soundtrack. Various kids, teachers, administrators, and others will each sing a line from the song. They will be taped at various locations around the school and community.

Promotional / Motivational

This will be a one-minute public service announcement about the positive influence of the school's Peer Helper program. It will feature current peer helpers giving one-sentence reasons why they joined, and what they think the organization has done for them and other students.

Instructional

This video will demonstrate techniques middle school students can use to counter negative peer pressure. A series of vignettes will depict students using these techniques in specific situations.
Storyboards and Scripts

These are ways to help you visualize and organize your story elements. Which one do you do first? To me, that depends upon how your mind works. Through the years I've gotten pretty good at visualizing my stories, so I usually start with a script and then storyboard the more complicated sequences. If you're new to video, I'd suggest starting with a storyboard.

Storyboards

"If I can't picture it, I can't understand it." --Albert Einstein

A storyboard provides a visual representation of your program. It helps you decide what video shots you will need to take in order to edit together good sequences. You should be able to visualize your program in your mind before shooting. A storyboard helps you clarify how your program will look on the screen. It can reveal flaws in your plan, such as possible jump cuts. *Don't rely on editing* to save a haphazardly planned scene. If a crucial shot was missed and never recorded, you won't be able to create it during the editing process. Every edited video tells a story. Just as there is in written stories, your video should have a beginning, middle, and end. You introduce your subject and characters in the beginning, expand upon and develop them in the middle, and leave your viewers with some type of conclusion. Storyboards can help you check to make sure you're telling a complete story.
Scripts

The script is where you match your video action with other story elements, such as dialog, voice-overs, music, sound effects, etc. It is especially important for dialog and acting cues, but every story can benefit from the organizational structure a script provides. This is where you transform your treatment into your story. Before writing the actual script, I usually start by making an outline in three sections that describes the story in terms of the *video and audio* I will use for each.

1. The introduction. How I am going to grab the attention of the audience and set the table for what is to come.

2. The body of the video. A sequential listing of the locations and sequences I will use to present the content of the story.

3. The conclusion: How I'm going to wrap it up. Conclusions often point to the future or review the lessons learned.

There are different script formats, but I generally prefer the AV style for most programs. You write an AV script in two sections. This is usually done by creating two columns along side each other on a page, one labeled Video and the other Audio. In the audio column, write the text of the narrations, dialog and voice-overs. Include introductions to comments you have or expect to get as answers to interview questions. Avoid introductory statements like "I asked Mr. Jones why he likes being a teacher and here are the things that he said." Instead, use something that hints at the comment, such as "Mr. Jones has some strong feelings about the teaching profession." If there is music, indicate what it will be and how long each selection will run. Also include any added sounds or effects.

On the video side, detail what video will be playing opposite each audio segment. This might be in general terms, like "sequence of shots showing students eating lunch" or it might describe each shot "LS of lunchroom", "MS of students at a table", "CU of student 1", "CU or student 2", "trucking MS along south wall". It might also indicate that this is the place to use a sequence you have made a storyboard for.

However you design your storyboards and script, you should be able to look at them and see the story unfold in your mind's eye.

10 Tips for Better Video

1. Use camera supports whenever practical, especially for telephoto shots.

2. Shoot mostly medium and medium closeup shots.

3. Tell a complete story that has a beginning (introduction), middle (main message), and ending (conclusion).

4. Shoot to edit.

5. Shoot sequences.

6. Keep it short! Just about every program could be improved by editing out shots and scenes that are too long or redundant. Cut the shot after it has delivered its message. Most people let their scenes run much too long, making viewers anxious to hit the road.

7. Vary the pace of your programs. Include a variety of shots.

8. Record 10 seconds extra on the front and back of your shot. Start the camera early, let it run long. This will give you more choices when editing.

9. The music you use must be appropriate to the video action. Use instrumental pieces (no words) for background music during narrations.

10. Avoid dressing your subjects in white or placing them in front of bright backgrounds. This can play tricks with your camcorder's auto exposure.

Video Examples List

Videos are available in the online version of the Guide @ Atomic Learning

A. Basic Camera Shots	Key #	Length
1. Angle of view	1016	0:38
2. Zooming in	1017	0:11
3. Zooming out	1018	0:13
4. Long shot	1019	0:09
5. Establishing shot	1020	0:10
6. Medium shot	1021	0:12
7. Close-up	1022	0:11
8. Close-up of faces	1023	0:15
9. Extreme close-up	1024	0:06
10. Natural cutoff lines	1025	0:35

B. Visual Composition Rules	Key #	Length
1. Rule of thirds	1026	0:50
2. Headroom	1027	0:51
3. Lead space	1028	0:40
4. Distracting backgrounds	1029	0:17
5. Mergers	1030	0:20
6. Leading moving subjects	15236	0:16

C. Camera Movement	Key #	Length
1. Pan shot	1031	0:14
2. Tilt shot	1032	0:18
3. Arc shot	1033	0:12
4. Pedestal shot	1034	0:16
5. Trucking shot	1035	0:08
6. Dolly shot	1036	0:12
7. Following action	1037	0:16
8. Zoom in for effect	1038	0:19
9. Zoom out for effect	1039	0:18

D. Perspective	Key #	Length
1. High angle shot	1041	0:08
2. Low angle shot	1042	0:20
3. Flat shot	1040	0:04
4. Point of view shot	1043	0:44
5. Over the shoulder shot	1044	0:13
6. Conversation between two people	15231	0:22
7. Reaction shot	1045	0:11

E. Creative Camera Placement	Key #	Length
1. Creative camera placement	1046	0:15

F. The Horizon Line	Key #	Length
1. Horizon line	1047	0:18
2. Tilted shots	1086	0:18

G. Screen Depth	Key #	Length
1. Framing shots to add depth	1049	0:17
2. Foregrounds and backgrounds	1050	0:19
3. Depth of field	1051	0:22
4. Visual compressions	1052	0:27
5. Focus control	1053	0:17
6. Rack focus	1054	0:13
7. Movement along the z axis	1055	0:15

H. The Camera	Key #	Length
1. Backlight	1056	0:27
2. Autofocus limitation	15232	0:19
3. Presetting manual focus	1057	0:39
4. Digital zoom limitations	1058	0:13
5. Focus as a transition	1059	0:27

I. Audio for Your Video	Key #	Length
1. Camera mic	1060	0:29

J. Sizing up the Screen	Key #	Length
1. Safe title area	1061	0:21
2. Safe action area	1062	0:23

K. Controlling Your Camcorder	Key #	Length
1. Multiple points of support	1063	0:23
2. Using the LCD screen	1064	0:26
3. Bracing yourself	1065	0:18
4. Support when zooming	1066	0:15
5. Camera supports	1067	0:33
6. Quick release	28249	0:12

L. Generating Story Ideas	Key #	Length
1. Video montage	1068	1:07

M. Transitions	Key #	Length
1. Jump cuts	1069	0:40
2. Disappear effect	1070	0:22
3. Action line	1071	0:52
4. Dissolves: a passage of time	1072	0:31
5. Dissolves: change of time and location	28248	0:26

N. Sequences	Key #	Length
1. Sequence	1073	0:14
2. Mulitple views	1074	0:12
3. 1-2-3 shot sequence	1075	0:26

O. The Multiple Camera Look	**Key #**	**Length**
1. Match cut sequence	1076	0:36
2. How we shot the match cut sequence	1077	0:56

P. Visual Continuity Issues	**Key #**	**Length**
1. Screen direction	1078	0:18

Q. Interviewing	**Key #**	**Length**
1. Basic interview shot	1079	0:44

R. Lighting	**Key #**	**Length**
1. Adding fill light	1080	0:13

S. So you want to . . . editing for effect	**Key #**	**Length**
1. Indicate time passing	15234	0:31
2. Move a character to a new location	1081	0:15
3. Create excitement and build tension	1082	0:14
4. Imply a relationship between shots and action	1083	0:49
5. Depict a flashback scene	1084	0:17
6. Changing screen direction	1085	0:29
7. Making your audience anxious	15235	0:18

Glossary

Here's a list of terms used in the Atomic Learning Video Storytelling Guide. You might also want to consult the very complete and detailed glossary from the publishers of Computer Videomaker Magazine. Also, get the magazine. It's a great resource for beginning to advanced videomakers, like you!

180° rule see "action line"

Action line or Action axis An imaginary line drawn between two subjects, or along a line of motion to maintain continuity of screen direction. Crossing it from one shot to the next will create an error in continuity. It is often referred to as the "180-degree rule."

AGC (Automatic Gain Control) Circuitry used to ensure that video and audio output signals are maintained at constant levels in the face of widely varying input signal levels. AGC is typically used to maintain a constant video luminance level by boosting weak (low light) picture signals electronically. Some equipment includes manual gain control.

Analog The term analogue simply means like or similar. Traditional recording media have been analog, such as tape cassettes and the now-ancient vinyl records. Analog video that is copied or edited several generations suffers from generation loss and is subject to degradation due to noise and distortion. Your television and VCR can be analog video devices. To be stored and manipulated on a computer, analog video must be converted to digital video.

Aperture This refers to the variable opening inside a lens that regulates the amount of light available to the camera. Also known as an iris.

Artifact Distortion to a picture or a sound signal. With digital video, artifacts can result from overloading the input device with too much signal, or from excessive or improper compression.

Aspect Ratio The proportional height and width of the picture on the screen. The current standard for conventional receiver or monitor is three by four (3:4); 16:9 for HDTV.

Auto exposure Circuitry that monitors light levels and adjusts camcorder iris accordingly, compensating for changing light condition. (see also AGC)

B-roll This refers to certain video you collect. B-roll is any video that isn't the main action; that illustrates or shows examples. You might think of it as Background-roll. For example, if you are interviewing someone about BMX racing you might show footage of an actual race while the person continues to talk. That would be the B-roll footage.

Bleeding Video image imperfection characterized by blurring of color borders; colors spill over defined boundaries, "run" into neighboring areas. This is more of a problem with red color hues, and is especially evident in copies made from VHS tapes.

Capturing Refers to capturing source video for use on a computer. If analog, the captured video is converted to digital.

CCD (Charge Coupled Device) Light-sensitive computer chip in video cameras that converts images

into electrical flows. Less prone to image irregularities -- burn-in, lag, streaking -- than older image sensors.

Chrominance The color portion of a video signal.

Component Video Signal transmission system, resembling S-video concept, employed with professional videotape formats. Separates luminance and two chrominance channels to avoid quality loss from NTSC or PAL encoding.

Composite Video A video signal in which the luminance and chrominance elements have been combined into formats, such as VHS.

Contrast The degree to which your video contains very dark and very light luminance value. A high-contrast picture has more black and white values with fewer values in between. A low contrast picture has more middle tones without very dark or very light areas.

Crawl Text or graphics -- usually special announcements -- that move across the screen horizontally, typically from bottom right to left. Produced with a character generator or computer editing software.

Cross cutting Alternating views of one action with views of another. Within a scene, you might cut from one part of the action to another. For example, to present an interrogation you might cut frequently between views of the questioner and those of the prisoner. You might also cross-cut between actions taking place in two different locations. The classic example is the damsel tied to the railroad tracks. Shots of the victim alternate with shots of the approaching train and shots or our hero, galloping to the rescue. Disclaimer: don't try this at home!

Cut The instantaneous, direct switch from one picture to another.

Cutaway A single shot inserted into a sequence of shots that momentarily interrupts the flow of action, usually introducing a pertinent detail. It is frequently used as transitional footage or to avoid a jump cut.

Depth of field The amount of space within the view of the lens which will maintain an acceptable focus.

Diffused light Diffused light is experienced on overcast days, when the sun is hidden behind clouds. This type of light gives the illusion that it originates from many directions. Artificial light sources need to employ light diffusers that spread out the light. Images have a soft and gentle appearance, and are void of harsh shadows.

Digital A reference to a system whereby a continuously variable analog signal is reduced and encoded into discrete binary bits.

Digital camcorders Camcorders that record and playback digital video and audio signals.

Digitize To convert analog video, audio, or both to digital form. The process of converting a continuous analog video or audio signal to digital data (ones and zeros) for computer storage. The signal can then be copied repeatedly with no degradation.

Digitizing A method of recording in which samples of the original analog signal are encoded on tape

or disk as binary information for storage or processing.

Distortion A modification of the original signal appearing in the output of audio equipment, degrading the sound quality.

DV Abbreviation for digital video. DV can also denote the type of compression used by DV systems or a format that incorporates DV compression. The DV designation is also used to for a special type of tape cartridge used in DV camcorders and DV tape decks.

Edited master Video industry term for the tape containing the finished (edited) program.

Establishing Shot Usually a long-shot (LS) at the beginning of a scene which is intended to inform the audience about a changed locale for the scene which follows.

Exposure The amount of light available in a shot at particular lens settings. Proper exposure yields a picture with good brightness and contrast.

Fade An optical effect in which the image of a scene is gradually replaced by a uniform dark area, or vice versa.

FireWire The Apple Computer trade name for the IEEE 1394 digital video standard.

Foley Personal sound effects, like footsteps, breathing or punches used to heighten realism that are added in post production. Also the name of a small town in central Minnesota :-)

Focal length Technically, it's the distance from a camera's lens to a focused image with the lens focused on infinity. Practically speaking, it is a measurement of the field of view a lens can display. Short focal lengths offer a broad field of view (wide-angle); long focal lengths offer a narrow field of view (telephoto). Zoom lenses have a variable focal length.

Frame One complete screen on videotape, lasting 1/30th of a second. There are 30 frames in a second.

Framing Act of composing a shot in the camcorder's viewfinder for desired content, angle, and field of view -- overall composition.

Gaffer The chief lighting technician for a production who is in charge of the electrical department

Gain Video amplification of signal strength. "Riding gain" means varying controls to achieve desired contrast levels.

Generation Relationship between a master video recording and a given copy of that master. A "second-generation" tape is a copy of the original. "Third-generation" is a copy of a second-generation tape.

Generation Loss Created when editing or copying one analog videotape to another videotape. Each time you copy a tape, some quality is lost. This is most apparent in less expensive video formats, like VHS. Theoretically absent from digital video editing.

Gigabyte (GB) A unit for measuring computer memory capacity, equivalent to 1,000 megabytes (MB)

Grip A production crew stagehand responsible for handling equipment, props, and scenery before, during, and after production.

HDTV High Definition TV refers to TV sets that display the highest resolution picture formats, which is vertical lines 1,080 and horizontal pixels 1,920, or 720 vertical lines and 1,280 of horizontal pixels. The aspect ratio for HDTV is 16:9 (wide screen)

ieee1394 The interface standard that enables the direct transfer of DV between devices, such as a DV camcorder and a computer. IEEE 1394 also describes the cables and connectors utilizing this standard.

ILINK SONY's copyrighted name for IEEE 1394

Intercutting An editing method whereby related shots are inserted into a series of other shots for the purpose of contrast or for some other effect.

Iris Camcorder's diaphragm lens opening or aperture, it regulates the amount of light entering the camera.

Jump cut A jarring edit caused by the choice of shots rather than any technical imperfection. Unnatural, abrupt switch between shots identical in subject but slightly different in screen location. Awkward progression makes subject appear to jump from one screen location to another. They are usually accidental, but they can also be used for purposeful effect.

Key Grip On professional film and video sets this is the chief grip who works directly with the gaffer in creating shadow effects for set lighting and who supervises camera cranes, dollies and other platforms or supporting structures according to the requirements of the director of photography. [see Grip]

LANC The protocol defined by Sony for enabling external control of video devices and accessing status information from the device. Also referred to as Control-L.

Lavaliere A small, easily concealed, microphone, typically attached to clothing or worn around the neck for interview settings.

LCD screen Abbreviation for Liquid Crystal Display, the kind of display used on many camcorders.

Linear editing Analog, tape-based editing. Called linear because scenes are laid in line on the tape. It has many disadvantages, when compared to non-linear editing, such as the need to rewind and fast forward tapes. It also requires special editing VCRs and multiple source decks for transitions, other than cuts, between tape segments.

Luminance The black-and-white portion of a video signal that carries brightness information representing picture contrast, light and dark qualities; frequently abbreviated as "Y." [See also chrominance.]

Macro Lens capable of extreme closeup focusing, useful for intimate views of small subjects.

Master shot The shot that contains all of the action in a sequence when shooting for editing with a single camera.

Match Cut (match-action cut) A cut made during action or movement between two shots in which the action has been overlapped, either by repetition of the action or by the use of more than one camera.

Medium-closeup A way of expressing a difference between degrees of closeness, or portion of the subject that is visible in the shot. A medium-closeup would be framed somewhat less closely than a closeup in the same sequence. All shot descriptions are relative terms.

Montage The assembly of shots and the portrayal of action or ideas through the use of many short shots.

Noise Undesirable video or audio signal interference; typically seen as snow, heard as hiss.

Non-linear editing Random-access editing of video and audio on a computer, enabling edits to be processed and reprocessed at any point in the timeline, at any time. Traditional videotape editors are linear because they require editing video sequentially, from beginning to end. Also eliminates the need for rewinding and allows for multiple dubs without generational loss.

NTSC National Television Standards Committee. The organization that sets the American broadcast and videotape format standards for the FCC. Color television is currently set at 525 lines per frame, 29.97 frames per second.

Overscan The portion of a television picture that extends beyond the normal screen size.

PAL (Phase Alternating Line) The European color television standard that specifies a 25Hz frame rate and 625 lines per frame. Technically a higher quality signal that the American standard, NTSC. The two are not compatible, meaning a PAL tape cannot be played on an NTSC VCR or displayed on a NTSC monitor, and vice versa.

Phantom Power Microphones that normally require a battery can be used without a battery if supplied from a phantom power device, like certain microphone mixers, that supply power through the audio cable.

Point of view (POV) Movie Shot perspective whereby the camera assumes the subject's view, and thus viewers see what the subject sees as if through his/her/its eyes.

Post-production The stage of a film or video project during which previously shot footage is edited and assembled. Effects, graphics, titles, and sound are added in post-production.

Pre-production The planning phase of a film or video project, usually completed prior to shooting (production).

Production The phase of a film or video project that involves shooting or recording raw footage.

Psychological closure The process in which your mind makes sense of incomplete visual information by mentally projecting the image beyond the borders of the frame. See the text section and movie on natural cutoff lines.

QuickTime Short version: a standard for compressing and playing digital video and audio. Long version: Apple Computer's multi-platform, industry-standard, multimedia software architecture. QuickTime is used by software developers, hardware manufacturers, and content creators to author

and publish synchronized graphics, sound, video, text, music, virtual reality, and 3-D media.

Raw footage Original, unedited film or video footage that has not been modified

Reaction shot Cutaway view showing someone's or something's response to primary action/subject.

RF Abbreviation for radio frequency. Combination of audio and video signals coded as a channel number, necessary for television broadcasts as well as some closed-circuit distribution. Typically VCRs will include an RF converter that transforms the video and audio signals it receives into channel 3 or 4.

Resolution Amount of picture detail reproduced by a video system, influenced by a camera's pickup, lens, internal optics, recording medium, and playback monitor. The more detail, the sharper and better defined the picture.

Reverse angle A shot that is turned approximately 180 degrees in relation to the preceding shot.

Rough cut A preliminary trial stage in the process of editing a video or film. Shots are laid out in approximate relationship to an end product, without detailed attention to the individual cutting points.

Safe title area The area that comprises 80 percent of the TV screen, measured from the center of the screen outward in all directions. The safe title area is the area within which title credits—no matter how poorly adjusted a monitor or receiver may be—are legible.

Scene A sequence or multiple sequences of related shots, usually constituting action in one particular location.

Screen time The amount of time an event in a film or video takes after the raw footage is edited to remove unnecessary action. It can be vastly different from the time we know the same event actually would take in real life.

Scrubbing The backward or forward movement through audio or video material via a mouse, keyboard, or other device.

Sequence A term used in gathering video and editing. It refers to a series of related shots. For example, a sequence could be a wide shot of a classroom, followed by a medium shot of a few students, followed by a single student asking a question.

Shot All pictorial material recorded by a camera. More strictly speaking, shots are intentional, isolated camera views that collectively comprise a sequence or scene.

Shutter speed The camera shutter controls the amount of time that incoming light takes to form a single video field (a video image or "frame" consists of two fields.) NTSC video is recorded at 60 fields per second and normal camcorder shutter speed is 1/60 of a second. Faster shutter speeds, 1/250 sec. to 1/10,000 sec., are usually used to record action that would normally be blurred, such as a golf swing. The swing will be sharper when played back, but very high shutter speeds will also result in jerky motion. High shutter speeds require lots of light for proper exposure. Slower shutter speeds, 1/30 sec. or 1/15 sec., will yield an image with a softer focus. Motion will be blurred at slow speeds, which may be a way to achieve a special effect. Slower shutter speeds require less light.

Split edit Sometimes called an L-cut, a split edit is a transition from one shot to another, where the picture transition does not coincide with the audio transition. This is often done to enhance the aesthetics or flow of the video. For example, a conversation between two people can feel like a tennis match if you always cut the audio and video at the same time. A split edit allows the audience to see the reaction of the person doing the listening, or the aftermath of speaking, rather than simply the act of speaking.

Still frame A single frame of video repeated so it appears to have no motion.

Stratocaster A legendary electric guitar design from Fender.

Streaming The process of sending video over the Web or other networks to allow playback on the desktop as the video is received, rather than requiring the entire file to be downloaded prior to playback.

Sweetening Audio post-production where audio is corrected and enhanced. Music, narration and sound effects are mixed with original sound elements to "sweeten" the sound track.

Take An individual shot. When time and budgets permit, many takes may be filmed of the same shot.

Talent A generic term for the people or creatures assuming primary on-screen roles when videotaping.

Telephoto Camera lens with a long focal length, narrow horizontal field of view. Opposite of wide-angle, it captures magnified, closeup images from a considerable distance.

Time Line Editing A computer-based method of editing in which video and audio clips are represented on a computer screen by bars proportional to the length of the clip. These bars can be moved and resized along a grid whose horizontal axis relates to the time of the program. IMovie features both a "Clips" view and "Timeline" view.

Transition The change from one video clip to another.

Trimming Editing a clip on a frame-by-frame basis, or editing clips in relationship to one another.

Umbrella What the name implies, a lighting accessory available in various sizes usually, made of textured gold or silver fabric. Facilitates soft, shadowless illumination by reflecting light onto a scene.

USB Universal Serial Bus. Describes a particular type of computer interface port and its associated cables.

USB2 New high speed version of USB, allows quicker transfer of data. 480Mbits/sec data rate.

Whip Pan Another name for swish pan. Extremely rapid camera movement from left to right or right to left, appearing as image blur. Two such pans in the same direction -- one moving from, the other moving to a stationary shot -- edited together can effectively convey passage of time.

Vectors A dominant direction established by screen movement in a specific direction, by a person looking in a specific direction, or by some other screen element that directs viewer attention in a

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