Chapter 1 - Light Matters

It doesn't matter if you're shooting with a $1,000 camera or a $50,000 camera, or if you're shooting on VHS-C or MiniDV. It doesn't matter if you've hired the Director of Photography from *Saving Private Ryan* to shoot your home video for you. If your lighting is crummy, your video is crummy. End of story. Lighting is the single most important factor in videography.

Combine a little lighting knowledge with your own creative vision and you will enhance the quality of your home videos by leaps and bounds. If you're willing to settle for ordinary looking home video footage, camcorders are incredibly versatile and designed to shoot in all kinds of light conditions. But if you want your videos to look more professional, it requires that you pay close attention to the amount of light hitting a scene, the angles in which it's hitting and the creative mixture of light and dark areas in your picture. And if you think you have to be a millionaire to afford all of the accessories needed to design with light, think again. Get ready to become a lighting professional with a few simple items you have lying around the house.

What Makes Light Tick?

You don't have to be a physicist to understand the nature of light and learn how to harness its power for your home videos. With a few basic principles under your belt, you'll be able to magically flick lightning rods from your fingertips. That's because light behaves in a very predictable way, and once you figure out its little quirks, your videos will look better than they ever have.

One of the most interesting aspects of light behavior is perhaps its most puzzling. It's called the "Inverse Square Law," and it has a great effect on how close or far you place your subject away from the light source. It works like this: Since light travels in a circular pattern away from the source, the intensity is cut by a factor of 4 every time you double the distance from your subject. In other words, just because you've moved the light twice as far away, it doesn't mean you'll have half the light. You'll have much less, 25 percent to be exact. With this in mind, it makes it easier to adjust the lighting in your videos by adjusting your subject's distance from the light source. After experimenting and playing back your footage, you will develop a good feel for the effect that distance plays on lighting.

Another predictable aspect of light behavior is that it always travels in a straight line until it is absorbed or bounced in another direction. If you've ever aimed a flashlight at a mirror, you'd know what I'm talking about. Once you've figured out how to make light go where you need it, you can fill in shadows, soften bright lights and creatively tinker with your lighting design.

If you are using a lighting kit, most of the individual lights come with "barn doors" (see figure) which are side and top flaps that allow you to increase or decrease the amount of light hitting your subject. You can also aim the light more accurately while creating subtle shapes and shadows.

Color Temperature

If you are reading these words right now, it can be deduced that

- Somewhere nearby or overhead there's some kind of electrical lamp, fireplace or candlelight illuminating the room.
- You are outdoors or near a window and reading this by sunlight.
- It is night, and you are catching adequate rays from the full moon to read this book.

No matter what kind of light source it is each emits a slightly different color. This is called *color temperature,* and it is measured in degrees on the Kelvin scale. This has a big impact on the overall color of your videos. Let's say you're wearing a white T-shirt. If you shot video of the shirt both indoors and outdoors and then compared the footage side by side, you would notice a difference in the shade of white. The human eye automatically and continuously corrects for different color temperatures. Unfortunately, your camcorder can't do this as effectively.

Light sources with higher color temperatures have a bluish quality, while lower ones tend to be more orange. While shooting, if you combine too many lights with different color temperatures, it can wreak havoc on your footage and throw your camcorder's auto-white balance into a funk. If you have a basic idea of the color temperature of the light sources that you're using, it's easy to learn how to mix and match.

Temperature	Typical Sources	
1000K	Candles; oil lamps	warm colors
2000K	Very early sunrise; low effect tungsten lamps	
2500K	Household light bulbs	
2850K	200-watt light bulb	
3000K	Studio lights, photo floods	
3200K	Quartz studio light	
4000K	Clear flashbulbs	
4500K	Warm white fluorescent lamp	
5000K	Typical daylight; electronic flash	
5600K	The sun at noon	
6000K	Bright sunshine with clear sky	
6500K	Daylight fluorescent lamp	
6600K	High-intensity arc light	
7000K	Slightly overcast sky	
8000K	Hazy sky	
9000K	Open shade on clear day	
10,000K	Heavily overcast sky	
11,000K	Sunless blue skies	cool colors
20,000+K	Open shade in mountains on a really clear day	

Let's say you're using a lighting kit, and you decide to add a few standard household bulbs into the mix, along with some sunlight that's creeping in through a window. You'll notice that the household lights look yellow and the sunlight looks blue. Sometimes a mix of different color temperatures can be pleasing to the eye, but it takes a lot of practice to master the art. When you're starting out I'd recommend sticking with as few sources with different color temperatures as possible. If you're getting a blue tint in your video, figure out which light is causing it and shut it off and pull another light closer to the subject to make up for missing light.

Here are a few light sources that can easily sneak their way into your videos. They all vary in color temperature and, when mixed together, can have an ill effect on the overall color dimension of your video.

- Direct or indirect sunlight
- Overcast sky
- Car headlights
- Fireplaces
- Candles
- TV sets
- Fluorescent lamps

Director's Cut

Here's a professional solution that you can employ in your own videos. Whenever you're shooting in a room with windows, cover the entire window with a special film that prevents the color temperature of the sunlight to clash with the indoor lights. This film can be purchased for a few dollars at photo/video stores and looks a whole lot better than just closing the shades.

Just the Right Amount of Light

If you shoot with inadequate light, your video suffers from intense grain and unrecognizable colors. If you use too much light, your video will look washed out and harsh to the eyes. To shoot aesthetically pleasing video you must land somewhere in the middle.

My dad works at ABC in Manhattan as a video editor. When I was a kid, he used to take me to see *World News Tonight with Peter Jennings,* and I was amazed at how brightly lit the studio was. I even had the opportunity to sit in Jennings' chair once, and when my dad flipped on the studio lights, I felt like I was being abducted by a UFO! The intensity and heat was overwhelming and I remember wondering how Peter sits night after night without swimming away in sweat!

So when I started making my own home videos, my first instinct was to grab every light in the house and attack my subjects with a barrage of rays. But unlike the professional ABC studio cameras that thrive on bright light, my camcorder didn't react

well to the high beams. The colors in my video were running, blotchy, and the picture was just plain overexposed.

In any home video project, too much light can leave lens flares, spots and bleeding. Thanks to your camcorder's ultra-sensitive CCD and iris, your video doesn't need a strong light source to record images. It can record in everyday light situations, but it records best in a predetermined range of light intensity that, depending on the camcorder, is geared toward consumer uses.

Outdoors, you can control the amount of light hitting the CCD by using a neutral density filter. This cheap and easy-to-find filter goes a long way in salvaging video that would have otherwise been blown-out and unwatchable.

The best way to become familiar with the lighting scheme that works best with your camcorder is to experiment. Try grabbing some common household lamps and experiment using the three-point lighting method (see below: Basic Three-Point Lighting). Keeping in mind the Inverse Square Law, change the distance of your subject from the light source. Before you know it, you'll find the perfect balance and your video will be teeming with vibrant colors, and attractive contrast and shadows.

Too Much Light and Dark in One Place

Comparing the human eye to your camcorder's CCD, your camcorder can only handle one-eighth the contrast range that your eye can. It's a huge difference that's often to blame for one of the most common lighting mistakes: poor contrast. If something looks good to the naked eye, it doesn't mean that it's going to look good to your camcorder.

Once you can recognize the calling card of poor contrast, then you've made it past one of the biggest home video roadblocks. The easiest way to control contrast is to simply splash more light on dark areas of your picture, or take light away from bright areas. The goal of this is that you still want to be able to make out detail in both the dark and light areas of your video. But since lighting for video is more art than science, you must figure out how to create attractive light areas and interesting dark areas. Like most
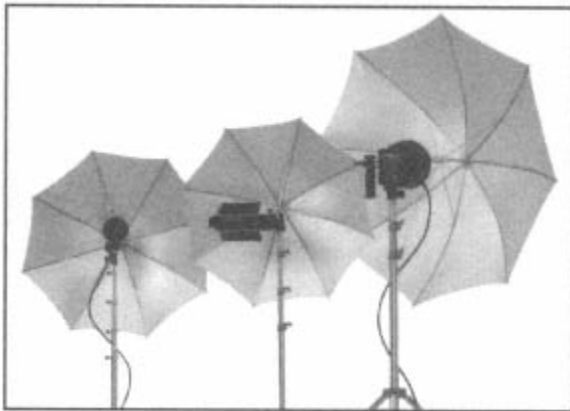
lighting techniques, the best way to become a master of contrast is practice.

Outdoors, the biggest contrast problem is the sun (see the "Director's Cut" sidebar below). Reducing harsh light/dark areas usually means moving the subject into shade, or diffusing the sunlight before it hits the subject. (Some easy techniques are discussed below under, "Let the Sun Shine in Your Videos.")

Indoors, you'll run into problems when the lighting scheme creates a lot of shadows in your shot. The best way to manage shadows is to fill them in with additional illumination (see "Basic Three-Point Lighting," below), or to filter out or redirect the light rays. Two common methods of doing this are using a colored filter over the light itself, or to use an umbrella to soften direct rays. You can buy either of these accessories at any photo/video store.

Basic Three-Point Lighting
Whether it's too much or too little light, contrast or mixed color temperatures, there seem to be so many things that can go wrong with lighting. But once you've worked past making lighting mistakes that can ruin your videos, it's time to get really creative. There's a lighting design for every video that you shoot, and whether you've got a lighting kit, the sun at your back, or the nightlight in the hallway, you can make your own home videos look like real movies.
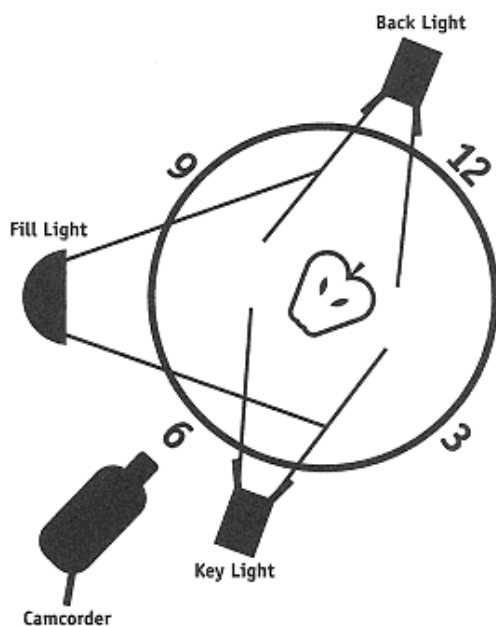
Whether your video is happy, sad, romantic, scary, or bursting with action, a combination of your newly found knowledge of light characteristics, and a simple technique called three-point lighting, will take you to the next level of home videography. Three-point lighting is a technique that is specially designed to help you choose the right lighting intensity, the right mix of lamps with different color temperatures, and to paint pictures with contrast. The three points are:

- Key light
- Fill light
- Back light

Here's how three-point lighting works. All you need to know are the basics to get started and a little bit of practice to get really good.

The Key Light
The most direct and intense light in the three-point scheme, the key light casts most of the illumination that falls on your subject. Lighting professionals commonly use the comparison of a clock to illustrate how three-point lighting works. Think of your subject smack in the middle of the clock, (as viewed from above) and the camcorder is at 6:00. The key light is commonly found somewhere in-between 4:00 and 5:00 and elevated to an angle of 30 to 40 degrees over the subject, low enough to keep light from directly shining into the subject's eyes. This is usually referred to as the neutral position.

With the key light in this position shadows are created, giving your picture a three-dimensional feel. When you vary the placement of the key light, you change the mood and feel of the shot. If you're looking to create a dramatic or romantic mood, you can move the key light toward the 3:00 position. This will create a dramatic half-shadow across the subject's face. By placing the key light behind the subject at the 12:00 position, a halo or ring forms around the subject, creating a weird or scary look. If you place the key light at the 6:00 position, you will create a flat, shadowless image. This is a common lighting design for newscasts and interviews. Key lights have two categories that they fall under, "hard" and "soft," and which one you choose has more of an impact than where you place these lights.

- *Hard light* intensifies the subject's outline, and makes even the slightest detail pop out of the screen. What's confusing is that "hard lights" are smaller, more distant sources like the sun.
- *Soft light,* on the other hand, reduces lines, especially on the face, and sets forth a much warmer, film-friendly look. "Soft lights" are usually larger and closer to the subject.

The Fill Light

The second light in the three-point mix, the fill light is usually larger and softer than the key light. Its primary function is to fill in shadows. Both indoors and outdoors, you can also use a reflector as a fill light. Some lighting experts argue that the fill light plays a more crucial role than the key light in the three-point lighting scheme because it is often used to help establish the time of day and the mood in a scene.

Candid Camera

If you are shooting indoors and there are no windows visible in the shot, the fill light tells the audience whether it is day or night outside. A higher intensity fill can help simulate daylight while a lower intensity fill suggests nighttime.

The neutral position for the fill light is across from the key light at the 8:00 position, elevated at an angle of 20 to 30 degrees above the subject's head. This position greatly reduces shadows cast by the key light. When you adjust the intensity of the fill light, the overall mood of the scene, which is greatly influenced by shadow, can change from straightforward to dramatic.

The Back Light

The third link in the three-point chain, the back light is called upon to separate the subject from the background. Similar to placing the key light behind the subject, the back light creates a halo around the subject's head and shoulders, creating a more three-dimensional image. The back light is usually placed somewhere around 11:00 and at a higher angle than the key or fill lights.

You can also choose to use a back light with a hard or soft quality. The brighter the back light in the scene, the more dramatic it looks. Pay close attention to the hair color of your subject. The lighter the hair, the less back light you should use.

In addition to using back lights, also consider using a background light to illuminate the background area in your shot. This creates a feeling of depth and helps to separate the different elements in your scene.

Let the Sun Shine in Your Videos?

Through the eyes of a lighting designer, that enormous ball of fiery gas at the center of our solar system is actually considered a small light source. It may give us life, dictate our seasons, and turn night into day, but it doesn't do much for your home videos except cast harsh shadows, increase areas of light and dark (contrast) and highlight surface flaws in people's skin and the environment. Any skillful lighting designer, however, can work around the limitations of shooting in direct sunlight.

Shooting on Borrowed Time

Unless you are shooting breaking news or a live sporting event, the easiest way to deal with sunlight is to avoid shooting in it at all. But if you have no choice but to shoot, the time of day will greatly affect the lighting condition.

Schedule your shooting time in the morning and late afternoon when the sun is at more of an angle in the sky, perfect for dramatic lighting design. Sometimes called "the Golden Hour," it's a time that videographers and moviemakers utilize to the fullest extent.

If you're stuck shooting midday in bright sunlight, keep one thing in mind: shade is your best friend. If you can shoot under an awning, the shady side of a tall building, or under a tree, your video is going to look much less washed out and overexposed.

Recently, I was shooting a documentary in Sydney, Australia, and with only a week to get all of our footage, we were on an extremely tight schedule. On the third day, the sun was shining bright and we were packed wall to wall with locations. In an emergency, we sent the production assistants to find a location for a two-hour long interview. They came up with a beautiful tree canopy that ran through the middle of Hyde Park. It was about a quarter of a mile long, but the canopy enabled us to do a walking and talking shot the entire length of the park in beautiful lighting conditions.

Director's Cut

"Whenever I'm planning an outdoor shoot and I suspect that it's going to be a bright, sunny day, I try to schedule shooting between 8:30 am and 11:30 am, and later in the day from 4:30 p.m. to about 6:30 or 7:00 p.m. When the sunlight is coming in from an angle, it's easier to avoid or use to your advantage than when it's directly overhead."
—Chris Ward, Senior Writer/Producer, Showtime Documentaries

Reflecting Sunlight

The sun emits enough light that you can use the sun's own rays to help eliminate the harsh shadows that the sun itself creates. Reflection is the name of the game and it is one of the most common methods that lighting designers use in direct sunlight. In fact, a reflector of any kind is one of the most valuable items you can keep in your lighting toolkit, and you don't have to be a millionaire to buy one.

Professional reflectors are reasonably cheap items at any photo-video store, but if you don't feel like shelling out the bucks, you can use just about anything that reflects light. White Oak tag (or foamcore) works well because one side is usually shiny and the other one is flat. The shiny side is great when you have really dark shadows that need to be filled. The flat side is perfect for softening harsh rays. You can also use aluminum foil, matte-board, or even large sheets of white paper.

Try experimenting with using reflectors in your shots. Place your reflecting mechanism of choice at different angles and different distances from the subject. With a

little practice, you'll figure out the perfect mix of distance and angle to best fill shadows. Here's the only catch. You're probably going to need at least one other person either shooting or doing the reflecting, because reflecting light is something that you can't leave to its own devices. You need to constantly move and readjust the reflector as your subject moves. Or, you can purchase more professional reflectors that mount on stands. These can be easily redirected with the turn of a screw.

Diffusing Sunlight
While reflection is great for eliminating harsh shadows in your video, diffusion is used by lighting experts to reduce the harsh contrast that sunlight creates. You can easily diffuse sunlight by actually placing an object between your subject and the sun. This can also be done using simple materials that you can find at home.

Since diffusion actually blocks the sun's rays and cuts down on the overall intensity of the light, it's a more comfortable method of sunlight control for your subject. If it's done properly, diffusion gives you most of the benefits of shooting outdoors on a cloudy day, including colors that are sharp and bright, and balanced lighting with little or no contrast or shadows.

I often use stark white bed sheets to diffuse light, but you can use anything that is thin enough to allow light to pass through. In gardening supply stores you can buy shade netting made to protect greenery from direct sunlight. Or, you can use drop cloths for painting that are commonly found in hardware or paint stores. Photo and video stores also sell inexpensive fabric diffusers that can be neatly folded up.

The next challenge is finding a way to prop your diffusion material above your subject and out of the video frame. I had my friend who enjoys carpentry as a hobby build me a frame made out of wood. It's light enough to hold over my head and large enough to diffuse whatever I'm shooting. If you want a lighter frame, you can build it out of PVC tubing.

Another sure-fire method of diffusing sunlight is the use of lens filters for your camcorder. Polarizing, neutral density, U/V (ultra-violet), or diffusing filters are invaluable tools in softening the harsh rays of the sun. This is especially true on humid days when the air is full of moisture, creating hazy sunlight conditions that can cause all sorts of problems with your footage.

Hollywood Lighting on a Shoestring Budget
You don't need a van filled with expensive professional equipment to get close to the same results that Hollywood lighting professionals get in movies. In fact, most shoots can be pulled off without one piece of professional gear.

Any light that you have at home that can be unplugged and moved is a useful commodity for your production. If the light isn't providing enough illumination, slide it forward. Thanks to the inverse square law, most lamps that you can get your hands on will provide adequate illumination.

Here's a list of easy-to-find household items that are perfect for your lighting toolkit:
- **Quartz-halogen shop lights:** These low-cost lights usually cost anywhere from $10 to $20 and sometimes come with their own stands.

- **Car sunshades:** These come in different sizes, shapes, and colors and are great light reflectors. The best kind for video are the ones that have silver on one side for reflection and white on the other for soft reflection and diffusion.
- **Foamcore:** This cheap, lightweight board is great to have in your lighting bag of tricks. It can be shaped into any size that suits your production, and can be used as a reflector or diffuser.
- **Bed sheet:** Any thin, white sheet is perfect for diffusing harsh light.
- **Shade netting:** This is normally found in gardens to protect plant life from direct sunlight. Works just as well as professional video diffusion fabrics in blocking the light of the sun.
- **Aluminum Foil:** Taped to cardboard or any other flat surface, aluminum foil is one of the best reflective sources you can find. The shiny side is great for hard shadows, the dull side perfect for soft. If you crumble the foil and then unfold it, the light that bounces off the surface is nicely diffused, creating soft shadows.
- **Clothesline and clothespins:** Perfect for draping and suspending diffusion material like bed sheets and diffusion netting.

Whether you're a novice looking to experiment with how lighting can improve your home videos, or a more serious shooter with plans to make a major motion picture with your camcorder, a basic knowledge of lighting fundamentals will help you bring your videos to the next level. And as you can see, you don't need to spend thousands on lighting gear since most of what you need is already at your fingertips.

The Least You Need to Know

➤ Understanding the nature of light will help you control and direct it in your home videos.

➤ A basic three-point lighting scheme is the best way to achieve balanced, professional-looking footage.

➤ Shooting in direct sunlight isn't as easy as you may think.

➤ You don't have to be a millionaire to put together an arsenal of professional lighting gear.

Chapter 2 – Setting Up Your Shots

Sometimes we forget that the eye of the camcorder is in reality the eye of our audience. Even though home video is an extension of the way you see the world, sometimes it's important to free the camcorder and let it see things independently from your body. A variety of camera angles can inject life into your work. It provides a sense of visual variety and can add a new and welcome dimension to your programs. In this chapter you'll learn about different camera angles and how they can improve your videos. You'll also learn a few tricks of the trade that will give you a whole new perspective on setting up shots.

Why Mess with the Angle?
Not too long ago, a friend asked me to edit some footage together that he shot of his kids at their annual Halloween party. He had recently purchased the JVC DVM50, which is an ultra-compact MiniDV camcorder that is capable of delivering great looking images. (See Chapter 5, "Meandering the Maze of Manufactures," for more info on the JVC DVM50.) He was more concerned with his camera work than image quality, so I assured him that after some clever editing, his video would look like something that could air on TV.

Boy was I surprised when I watched the tape. I really didn't think that it was going to be that bad! My stomach sank, and I knew that I had a big problem on my hands. Even though the images looked great, the content was extremely boring because my friend had made the mistake of shooting from a vantage point off to the side, preventing the audience from seeing his children's faces. To make matters worse, he was standing up the entire length of the raw footage. It looked more like security camera video than home video.

I tried to pull off a post-production miracle but was left with an unflattering, two-dimensional version of what really went on at his Halloween party. After watching what I had come up with, my friend was anxious for advice, so we spent some time watching video that I had shot of my son. I suggested that he should try to shoot from several different angles instead of just one. After seeing my footage, he was convinced.

A few weeks later he returned, excited to show me his latest Florida vacation video. It was like night and day. Just a few simple perspective changes had brought his video to life!

The moral of the story: Don't be afraid to experiment with different camera angles (even if they're wacky!). This will help you figure out what looks good, what works, and what doesn't. It's also a great primer for when you plan to try out some more serious video projects.

Unglue That Camcorder from Your Eye!
Shooting home videos can open up a world of unlimited creativity in your life. It isn't often that you get the unique opportunity for an audience to see the world through your eyes. But this fact shouldn't be taken too literally. The camcorder doesn't necessarily have to be an extension of your eye. In fact, hold it against your head as little as possible! You can place it anywhere that gives you the best view of your subject, or wherever you can find the most unique or creative angle to capture the action. It's completely your call.

But it's instinctive for beginners to lock the camcorder to their eye like my friend did. You see everybody else doing it, why shouldn't you? Because audiences far and wide are accustomed to watching network and cable TV shows and bore easily when exposed to lifeless home videos.

You can blame it on modern TV directors, producers, cameramen, and editors who employ a vast array of production techniques to make the programs more watchable. But I'll let you in on a little secret. Special effects and fake explosions aside, one of their biggest tricks for dynamic programs is to use a wide variety of camera angles to give viewers different perspectives on each scene.

The next time you find yourself shooting with your camcorder, do a little experiment. Hold the camera to your eye for a few minutes and shoot as you would normally. Then pull the camcorder away from your eye and shoot from any number of different angles, high, low, medium, moving, and so on. Upon playing back the footage you'll discover that some of the angles look artsy, some look goofy, but after a while you'll figure out the best mix that will spice up your production.

You might be surprised to know that many major motion pictures are shot with only one camera. That means scenes are acted out again and again so there's adequate coverage for the editor to slice together a nice variety of angles. On TV, angles change so often because there's usually more than one camera on hand. But if you have the time and plan to edit your videos, you can pull off the same miracles as the professionals.

Shoot Three Dimensions with One Camcorder

Just because your TV screen is a flat surface, it doesn't mean that your home videos have to look two-dimensional. Think of blockbuster movies like *Star Wars, Titanic,* and *Jurassic Park,* for example. They might spend tens of millions on special effects, but the directors also call for a wealth of creative camera perspectives to help give their action a feeling of depth and a three-dimensional look. And if they can do it, so can you.

The best way to add a third dimension is to carefully scout the area before shooting. Choose a main angle to shoot from and then search for angles anywhere else keeping a three-dimensional framework in mind. Shoot from behind, above, below, off to the side or any other perspective that strikes your fancy. It's completely possible to drag your audience into the third dimension!

Recently, I went to a birthday party for my cousin's daughter Samantha at a play space for kids. My cousin was busy schmoozing with the guests and manning the still camera, so I grabbed his camcorder and started shooting. At that point, Samantha and one of the party planners were in the process of giving away party favors, so I quickly assessed the shooting situation and figured out all of the angles that I wanted to shoot from. First, I stepped all the way into the corner of the room to get a wide establishing shot of the scene. Then from the same angle I moved closer for some more detail. Next, I sunk low and began to move to where Samantha was actually sitting. I slowly inched forward on my knees while shooting to make the footage a little more dynamic. Once Samantha was in front of the camcorder, she smiled and made all kinds of funny faces while goofing around with the camera. I then panned down and took some close-up shots of the party favors, and followed her hand motion as she gave them out to the guests. The next shot was fun … I took a look at the gift list and noticed that my niece Jesse was going to be called next. So I sat down behind her and shot the scene from her point of

view. When her name was called, I crouched down, held the camcorder just behind her ear, and followed her all the way up. I wasn't looking through the viewfinder, but I was feeling confident that I was shooting great footage. After that, I just shot some low-reverse angles from behind them and one last wide-angle shot from a different corner.

This kind of multi-angle shooting offers viewers a multitude of different perspectives on the action. In this case, I knew that my cousin probably wasn't going to edit the video together so I started and stopped the camcorder without too much extra (boring) footage (see Chapter 18, "Editing on the Fly"). If, at a later date, he did decide to edit the footage together into a more interesting program, the edit would be a snap since the coverage is more than adequate and there's a boat load of interesting shots and angles to choose from.

The More the Merrier
It's unlikely that you will ever exceed the camera angle limit for home videos because there isn't one. Besides giving viewers a unique perspective and adding a third dimension to your pictures, visual variety is a common tactic to stimulate audiences.

Way back in high school, I remember spending days on a bicycle video that my father and I shot and edited together for film class. It didn't have much of a plot, just myself and a bunch of friends going up and down a "half pipe," a curved ramp that looks like a giant tube cut in half. My dad was unusually quiet during the editing process. When I finally showed the tape to my class, I discovered why.

The class's initial reaction was good: a few "Wow"s and "Oh my God"s, but after a minute or two the teacher said, "It's amazing how quickly this stuff gets boring." I dropped my head in shame.

Looking back, the video was a far cry from the exciting B.M.X. footage you'd see on ESPN with kids flipping and spinning 10 feet in the air. If my father and I had added just a few more perspectives to our limited shot repertoire, we might have been able to hold the class's attention for the length of the program.

Playing All the Angles
There are many more names for camera angles than actual camera angles. But whether it's a bird's-eye angle or a worm's-eye angle, don't worry so much about learning the lingo. All you need is a basic knowledge of the kinds of shots available to get your videos off the ground. What follows are more formal names for common camera angles that you can easily take advantage of in your home videos.

simple high angle   simple low angle

Simple High and Low Angles

Simple high and simple low angles are the most common types of shots in home video. Unfortunately, in the case of videotaping children, simple high angles are all too common and are notorious for robbing the audience out of precious moments that usually take place well below sea level. But overall, you'll find these kinds of angles very useful, and very hard to avoid.

Simple high angles are also more common when you want to diminish your subject, making it look smaller or weaker in the scheme of things. This is a very common technique if you ever plan to shoot short fictional movies with your camcorder, or just to dramatize special events like weddings, graduations and birthday parties. I often use this angle when I have my subject approaching something sizeable or formidable, like a person walking through a huge city for the first time. High angle shots can also be sprinkled throughout a program to give viewers an above-the-hairline picture of your subject.

Simple high angle shots are easy to pull off. In fact, if you're tall, just standing up straight with the camcorder is enough to be considered a simple high angle. Otherwise, you can step up on a stable chair, box, bed, and so on, to give you the ups that you need.

Simple low angles, on the other hand, can make the subject look powerful and dominating. And you don't have to be lying on the floor to get this type of shot, just lower yourself slightly and shoot upward on an angle. This works well when you're on vacation and you want to make the scenery or landscapes appear larger-than-life. It's also a great way to make children look more significant in size on the screen instead of seeing the tops of their heads.

Get a Little Closer

Close-up shots are common in movies, home videos, newscasts, and documentaries. In home video, you're bound to see a lot of close-ups because the camcorder user has discovered and fallen in love with the zoom feature. In Hollywood, documentaries, or any other dramatic form of programming, close-ups are used when the talent is about to say something important or receive vital information. They are also used simply to get a close identification shot of a talent (sometimes referred to as an "ID shot").

Depending on the purpose of your video, close-ups are invaluable. Not only do they work well for getting a close look at people's faces and their changing expressions. Close-ups can be used when your talent is performing a task or demonstrating something on camera. You can easily get a tight shot of the object and edit it in later.

I would recommend experimenting with a few different ways to shoot close-ups. Try moving very close to your subject with the camcorder zoomed all the way out. Then try shooting from further back by zooming in. The two shots will look very different and can aesthetically have a subtle impact on your production.

In addition, there are a few different types of close-up shots that you can use when videotaping people in your videos.

- **Medium close-up (MCU):** A shot that crops from the top of the head to just above the belt line.
- **Head and shoulder close-up:** A close-up shot that crops from the top of the head to just below the shoulder line.
- **Extreme close-up (XCU):** This shot includes only a small part of the subject's face full frame. This usually includes the eyes or mouth for the most dramatic impact.
- **Low or high angle close-ups:** Simple variations from above or below. Generally used to add variety to a video.
- **Bird's eye or worm's eye close-up:** Takes the low or high angle close-up shots to an extreme and can be a lot of fun to watch, especially when videotaping children. These kinds of shots can be taken from directly over someone's head, or from directly under their chin on a slight angle.

too much headroom

well-framed shot
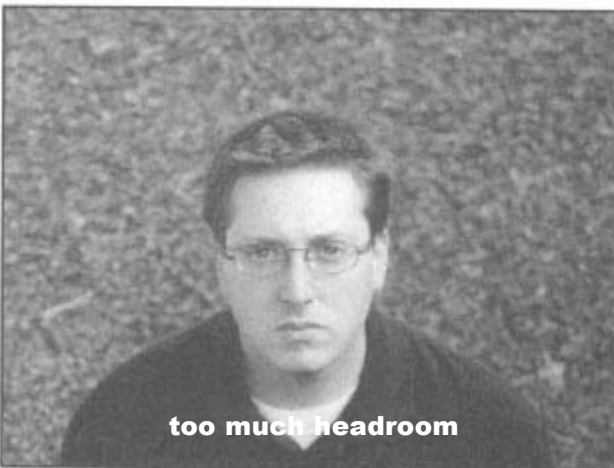
One very common mistake that many new videographers make is to improperly frame a person in the shot by allowing too much headroom. This happens when the subject is centered smack in the middle of the picture. It is more pleasing to the eye to place the head closer to the top of the frame.

Middle of the Road

Medium shots (MS) are often referred to as loose shots and, when shooting people, tend to fit half of their standing height in the frame. A medium shot offers less detail than close-up shots and is great for transitioning from wide-angle to close-up. At typical home video events like a birthday party, medium shots are common simply because the shooter is a comfortable distance from the action.

Shoot a Little Longer
Long shots are great for establishing location and giving viewers a sense of place. When shooting people, long shots are often referred to as full figure shots and as a general rule try to fit most, if not all of their standing height in the frame.

In home video, long shots are becoming more popular because resolution has improved by 50 percent over the last 10 years. Where a long shot on a VHS camcorder looks like little more than a blur, on MiniDV you can make out your subject as clear as day.

Telephoto
A telephoto shot differs from a close-up in that the camera is usually much further away from the subject. Professionals utilize telephoto angles to deplete their image of depth, giving it a flat, two-dimensional appearance. This is perfect for stylized shooting, to make a background pop out, or to paint pictures with abstract moving video images.

In your home movies you can use telephoto angles to help exaggerate impending doom in a scene, such as a chase scene. Telephoto shots will visually place the chaser and the chased a lot closer together than they really are.

Telephoto shots have many other uses in home video. If you shoot wildlife or land-scapes telephoto is a great way to get close to action without disturbing the scene or putting yourself in harm's way. On my honeymoon in Italy, I got a great zooming-out telephoto shot of my hotel from a tower across town in Florence that we used at the end our wedding video for the credit roll.

Bird's-Eye
Here's an angle that always adds a nice twist to your program. Unfortunately, it is the most underused shot in home video because, unless you have a crane at your disposal, in many cases

a bird's-eye view is difficult to pull off.

But if you can figure out a way to elevate yourself above the scene for a shot or two, it's a great way to establish your location and to let your audience see the subject and setting in ways that would otherwise be impossible using a normal angle. This is especially true if you're using a wide-angle lens converter. With a little effort, you can really pack a lot of your scene into the frame.

I use bird's-eye angles when I'm looking to portray my subject as a small part of a much bigger picture such as someone walking down a city street or on a beach. It also works well when you want to give your audience the sense that they know something that your subject doesn't, like someone sneaking up on them from behind.

Worm's-Eye
This is one of my favorite camera angles, especially when the focus is on my son. Getting down low while shooting can be entertaining or dramatic. The applications of a worm's-eye angle are unlimited.

Even though my Canon XL-1 doesn't have a pop-out LCD viewfinder, it's easy to get a worm's eye shot because it has a well-placed handle that can be used while bending down to navigate near the floor. As my son zips around while dismantling our apartment, I capture the action from his viewpoint with the XL-1. Everything looks big and imposing down there, and all of the shelves, covered outlets and chairs look so enticing.

What's Your Angle?
With a basic knowledge of the kinds of shots available to you as a home videographer, all it takes is a little experimentation to get really good at giving your audience different perspectives. You can also learn a lot by checking out the variety in camera angles on TV. Decide which shots you think look cool and try to implement them in your own productions.

Before my son was born, I didn't have much experience at all videotaping children. As we started to watch more and more children's programming, I found myself taking pointers from PBS on the best way to capture my son in action.

There's one show in particular that has caught my eye morning after morning. It's called *Zaboomafoo,* and it airs weekday mornings on PBS (check your local schedule). You can learn a lot about production from these kinds of shows, especially techniques to keep a captive audience. Content aside, children's programming is pure bubblegum TV aimed at an audience cluster that has the shortest attention span on the face of the planet. But morning after morning, children across the land sit transfixed by the visual experience of *Zaboomafoo* and other fine programs.

There's also something else at work here that goes a long way in attracting children and parents. It's called imaginative camera angles, and if you can figure out how to implement them in your home videos, audiences far and wide will flock to your TV set. Cameramen for these shows obviously don't hesitate to get their clothes dirty. They crawl on the floor, climb trees, and hang from ropes if they have to. Whatever it takes to get an interesting angle.

Here are a few suggestions that you can try at home:
- **Wheelchair:** If you have access to one, a wheelchair can help you with smooth motion, low angles, and POV shots.

- **Bicycle:** If you can ride one-handed, a bicycle shot may work for you. These shots look similar to wheelchair shots, but a bicycle is faster and more maneuverable.
- **Roller Blades/Skateboard:** This is an ultra-smooth way to capture action. With both hands free, you've got more of an opportunity to hold the camcorder steady. It's also helpful to have someone pushing and guiding you from behind, freeing you up to fully concentrate on your camera work.
- **Car:** This is an obvious one, but only shoot out of a car window if you have someone else driving. If you hold the camera steady against the frame of an open window, you can get reasonably smooth tracking shots if the road isn't bumpy. Never hang your body or sit outside of the window.
- **Boat:** If you can employ a boat to cruise the shoreline while you're shooting, you're going to come away with some nice looking footage. Since a boat ride can be significantly bumpier than a car, it may help to lock your camcorder down with a small tripod or hold it at arm's length to reduce rocking.
- **Roof:** If you have access to a non-slanted roof, by all means, take a few shots from there. We're not talking the top of the Empire State Building, however. Make sure the roof is low enough for you to make out the action below. Telephoto lenses work well in this situation.

Setting the Stage with Visual Composition

Another factor to keep in mind while choosing a camera angle is the art of visual arrangement within your video frame. Think of your TV as a painter's palette, a blank slate to fill with whatever you see fit. It could be an element in the foreground or background that helps convey a message or a clever prop or any visual image that complements the action of your scene. Composing your images on the screen takes a little bit of thought, a good sense of visual balance, and a lot of practice.

Keep an Eye on the Foreground and Background

Simply put, the background is the area behind your subject and the foreground is the space between your subject and the camcorder. Choosing the right background is a key element in visual composition, yet it can be tricky business. Generally, you don't want to shoot against a bland background like a white or gray wall. Aim for a visual background, either moving or still, which helps your subject pop out on the screen and not blend into it. If your subject is wearing a white shirt and you're shooting up against a white wall, the only thing you'll see is a floating head and a walking pair of blue jeans.

Working with visual elements in the foreground can be even trickier because they are often in motion. This problem is amplified whenever you set the camcorder in motion. Sometimes you don't know what's going to pop into the frame at any given moment. The only way around this is to practice your shot a few times before rolling tape. This way you'll be more prepared for the unexpected snafus that pop up from time to time.

Balance is Key

I spent the first few years of my career typing on-air graphics for the local news and I picked up something there that I've put to use not only in my career as a TV producer and

editor, but in producing my home videos. It's the simple rule of balance for achieving an on-screen symmetry in the elements that comprise your picture.

Sometimes referred to as the rule of thirds, you chop up the screen into three parts vertically and horizontally, and balance your visual elements in the cross-lines of those sections. If your subject is sitting on a park bench and there's a tree in the foreground hanging into the frame, adjust the camcorder so that the tree is all the way in the right or left third, and place your subject all the way to the other side.

Visual balance is an advanced concept. A sense of visual composition is innate (and hard to learn if you didn't inherit it). The best way to get a handle on a concept like the rule of thirds is to practice.

Ostracize Unwanted Images
Sometimes the elements that you choose to keep out of your video frame are more important than what you choose to leave in. A misplaced element on camera could mean the difference between professional looking footage, and footage that was shot in your childhood bedroom.

How often have you watched video where there's a chair in the way, a car or some other moving obstruction, or someone busy doing something else in the background? Controlling what ends up on screen goes a long way in reducing overall audience distraction.

Here are some elements you may want to keep out of your pictures:
- Too much furniture
- Moving cars in the foreground
- TV sets that are on while you're shooting
- Walls—indoor and outdoor
- Fences
- Shooting through windows or screen doors
- Excessive greenery like tree branches or leaves leaking into your picture

What they do on TV, you can do at home. TV producers, directors, and camera operators are constantly dipping into a vast array of camera angles and positions to keep viewers interested. In the NBA, there's a "jam-cam" mounted on the very top of the backboard aiming directly down at the rim. This bird's-eye angle offers sports fans a perspective they would never see in the real world. Similarly, the "catcher-cam" gives baseball fans a view of the game directly behind home plate. People look forward to these kinds of shots. Interesting angles are visually relieving, especially if they are used to add variety to any program.

Coming up with different angles isn't rocket science. If you're videotaping your children, there's nothing they can do that you can't. Get in the tub with them, climb a tree with them, even hop on the back of a tricycle if you have to. All you need is a camcorder and the gumption to go out there and get the shot!

The Least You Need to Know

➤ Different camera angles add depth, visual variety, and different perspectives to your home videos.

➤ Learning all of the camera angles means that there's a good chance you'll use them in your next project.

➤ There are all sorts of techniques to get different perspectives while shooting.

➤ Strong visual composition of your video frame makes for balanced, dynamic-looking footage.

Chapter 3 - Taking the Jerk Out of Your Camera Work

Most home videos can be spotted a mile away. You can see them shake and wiggle on shows like *America's Funniest Home Videos* or *The world's Most Amazing Videos* on NBC. It's the jerky camera motion that sets home video apart and can take even the best quality MiniDV footage and make it look like it was shot on a trampoline. So if you can figure out how to terminate the twitch, your home videos can look as good as anything you'd see on TV.

But this isn't an easy thing to do since camcorders are smaller than ever and almost impossible to keep in one place. A tripod is always your best weapon against the wobbles, but a sturdy tripod is cumbersome and can be a real drag to tote around in everyday shooting situations. So you must rely on equipment that you have at your disposal, your own body being the best alternative, to help you keep your video on an even keel. And once you master some simple handheld techniques, you can easily pull off professional looking camera moves that will impress viewers and keep them away from the Dramamine.

Poetry in Motion

"Never mistake motion for action."
—Ernest Hemingway

I recently lent my camcorder to a friend to take with him on vacation. When he got back, he talked me into watching some of his footage. The tape was cued to a shot of his daughter on a beach building a sandcastle with a shovel and a pail. He was standing about 15 feet away from her, and for a full five minutes (which in TV terms is an eternity), repeatedly zoomed in and out without moving himself or the camcorder an inch. To top it off, the zooms weren't very smooth. His daughter's image danced from the top of the screen to the bottom every time he changed the camcorder's focal length. My friend had committed one of home video's biggest sins: trying to replace real action with motion, in this case unnecessary camera motion.

Misdirected motion, however, is one of the most common mistakes and a tough concept to get a handle on. If your video is perfectly still, you audience will be bored to tears. Too much and they will lose interest even quicker. The challenge for videographers is to strike the perfect balance somewhere in between.

The reason motion can become such a problem is that there's an inherent difference between your TV set and your own image processing system. Your eyes and your brain are one of the most advanced image stabilization systems on the planet. Try staring at an object hanging on a wall and begin to shake your head really fast. It's easy to keep the object perfectly centered in your field of vision. Even if you get up and jog in place, the object stays reasonably still.

On a TV screen, it's difficult to conceal movement because the actual screen, which represents a tiny fraction of your field of vision, is a non-moveable object. This means that every little jump or shake within that screen is amplified because there's nothing to counterbalance it. In reality, when you walk from place to place, the images that you see

are bouncing around just as much as the images in your home videos. But your vision is not confined to a 27-inch still frame, so the motion can hardly be seen.

But remember, it's the shake, rattle, and roll that you're looking to eliminate. Camera moves, if done right, can look perfectly smooth and can easily add visual variety to your videos.

Steady Shots without Gettin' Jiggy wit it!
As I've mentioned, a tripod can be the most valuable weapon you have in the battle of the bounce, but tripods may not be convenient to carry around. So, in the absence of true support, with a little practice, you can teach your body to act like a tripod. It's a technique that's easy to learn and once you've got it mastered, you can begin to pull off some smooth camera moves with your newly discovered steadiness.

Becoming a Human Shock Absorber
In our quest for steadier shots, we should take advice not from soldiers, but athletes. If you think that sturdy camera work means that you'll have to stand as stiff as the Terminator with your sneakers bolted to the ground, you're in for a pleasant surprise.

I compare the shooting posture that I'm about to teach you with the defensive stance that athletes use in basketball, tennis, or even wrestling. With your legs spread a little bit farther than shoulder-width apart, bend your knees slightly and put your arms out in front of you for balance. It gives you the low center of gravity that you need for stability and to absorb shock. Plus, it's subtle enough to take the spring out of your step without leaving you looking totally foolish.

When playing sports, you need to be ready to quickly move in any direction while remaining light on your feet. If you use this stance as a videographer, you're more prepared to deal with the occasional bump in the road or wind gust that may come your way.

In the Palms of Your Hands
No matter how good your stance is, if you don't know what to do with your hands, you're not going to get the steady shot you're looking for. The best way to stabilize your camera is by holding it with two hands. Whether you're using a tiny MiniDV or a full size VHS camcorder, both hands will help you lock down your shots and will cause your upper torso and arms to absorb much of the shock.

Whenever possible, dig your elbows into your sides or abdomen for added stability. Also, take advantage of anything you can to remove the strain from your arms, especially when you're holding the camcorder out in front of you, away from your face. No matter

how light camcorders are, after a while of holding it front and center, it starts to feel like a lead weight.

Try the Knee-Pod on for Size

Wherever possible, seek the assistance of any surface or object that can help you steady your camcorder. It could be a table, doorknob, wall, banister, a friend's shoulder, or even the top of his or her head. Once you position the camcorder, you can either bend down to get a glimpse through the eyepiece, or you can use your trusty pop-out LCD viewfinder. You can also use furniture, floors, or moldings to get high or low shots for variety.

After my son was born, I found myself searching for a better way to get steady shots down on his level near the floor. It's pretty challenging and tough on the back to constantly bend down while looking through the viewfinder. Sometimes I would attempt holding the camera at my feet while trying to frame the shot without looking, but the results were nominal at best. And when you're trying to shoot children, pets, or anything else that takes place at ground-level, good video moments are rare and in order to capture them, you need to be in the right place at the right time.

So, in order to increase my odds of being there when something incredible happened, I came up with the "knee-pod" shot. It's as simple as dropping as close to the floor as possible with one knee forward and as high as possible while putting the other leg behind you for stability. (See preceding figure.) Place the camcorder on your knee and voila! You've got a knee-pod! Your knee acts as a little platform that works very much like a tripod. You can smoothly pan from side to side, and tilt up and down.

Here are a few other tips to help you achieve steady shots:
- Use an external or pop-out LCD screen as much as possible while holding the camcorder away from your body.
- Try keeping both eyes open when you shoot. It takes a little practice, and is especially hard when you're manually focusing. But it helps you keep track of the bigger picture and that ultimately results in smoother shots.
- Try to avoid holding the rubber part of your camcorder's eyepiece directly against your eye. Even if you're holding it an inch away, your camcorder won't be affected by sudden head movements.
- Breathe slowly and deliberately. Camcorders are so sensitive that they can pick up slight movements in your chest and other parts of the body.
- In potentially bumpy situations, use the widest lens angle that the situation will allow. Wide-angle lenses are much less sensitive to movement than telephoto.

Getting Funky with Camera Moves
Now that you've got the stance mastered, you're ready to put that camcorder to work. Even the most professional-looking camera moves are completely doable without any additional equipment. It's videomaking the natural way!

Camera moves are appropriate when the action of your subject calls for it. This is totally open to interpretation and a whole lot of creativity. Let's go back to the video of my friend's daughter playing in the sand for a minute. While her entire body isn't moving very much, her hands are certainly busy enough. So instead of hanging out 15 feet away playing with the camcorder's zoom, my friend could have left the lens in wide-angle and slowly walked over to his daughter and panned down to get a close-up shot of her hands. While walking forward, the viewer gets a good feel for the scenery of the shot and before boredom sets in, the shot changes to reveal what the little girl is doing.

There are all kinds of camera moves that you can use to help make your videos more visually impressive. Once you learn the following techniques, you can easily try them out in the field to find out which ones work best for you.

Panning and Tilting
Panning and tilting are by far the most basic and commonly used camera moves. A pan is simply a side-to-side move, and a tilt is up and down. While there's relatively little camera movement involved besides rotating the camcorder on an axis, pans and tilts are very tricky to execute without a tripod. But with a little body-finessing your pans and tilts will look super-smooth.

Before you attempt a panning shot, take a careful look around to make sure that you have a clear frame. Let's say you want to get a shot of someone riding by on a bike. Plant your feet firmly on the ground and assume shooter's posture. In this case, you shouldn't move your feet at all; you can use the natural flexibility in your hips to help you rotate with the action.

There's actually one other method that I use to stabilize the camera that works especially well when panning without a tripod. Hold the camcorder close to your eye with your right (or left) hand. Now take the other arm and cross forearms. Then grab the triceps muscle of your shooting arm (that's the one along the back of your upper arm). You'll look like a genie about to grant a wish, but the camcorder wont move an inch. This position also works very well when titling the camera up and down.

Keeping Your Video on Track
Tracking shots bring panning and titling to the next level. Unlike a pan or tilt, the camcorder and the shooter both are physically moving with the action. Either back and forth, side to side, or up and down, if you can figure out a way to pull it off, your videos are going to look very cool. And all you really need to make it happen is a set of wheels.

Back and Forth
When you move the camcorder toward or away from your subject, it is considered to be a "dolly" shot. These are great for point-of-view shots or just to give your audience a unique perspective on the subject and scene. Professionals pull off this shot with highly functional tripods that can be rolled smoothly along most surfaces. But you don't need a

million-dollar piece of equipment. A dolly can be done with stuff you can easily get your hands on at home.

In low-budget filmmaking, the wheelchair is one of the most commonly used dolly devices. With large rear wheels and front wheels that soak up a lot of shock, you can get pretty smooth dolly shots with one. And you can rent one if you anticipate doing a number of dolly shots.

In case you can't get your hands on a wheelchair, the next best thing is an office chair with wheels. The one benefit that an office chair offers is that it usually allows you not only to navigate in any direction, but you can also swivel in the seat offering a high-tech pan, and with some chairs you can even tilt up and down

If you can't pin down an office or wheelchair, you can dolly with almost anything that has wheels. A car is always great for dollying. In fact, many big-budget productions use cars and other motor vehicles for this kind of shot. Not only can you control the speed with great accuracy, a car also has its own built in shock absorber system. A bicycle is also a great dolly tool, but it is a little more dangerous to navigate. If you're using a bicycle, never hold the camcorder directly to your eye. Use either a pop-out LCD viewfinder or blindly frame the shot as best you can. You should also wear a helmet.

Another more obvious method is simply walking with the camcorder. Unfortunately the easiest way to do something isn't always the most effective. Unlike a car or wheelchair, it's extremely hard to keep the camcorder perfectly still while bouncing up and down while walking. But if it's the only choice you have, implement the fundamentals of smooth handheld shooting, and your shots will look fine. Try bending your knees a little bit more than you normally would. You might look like a gorilla strolling along, but sometimes you have to stretch the limits of vanity in order to get good shots.

Personally, I love to use in-line skates for dolly shots. It's safer than bicycles and easier to film with one eye while gliding along. You also have more flexibility in that you can maneuver and quickly change direction without much effort. If you plan on taking the in-line skate approach, again, remember to wear a helmet!

Dolly shots are considered to be more advanced types of shots, so they warrant a little practice beforehand. If possible, take the camcorder out of automatic mode. Excessive movement in any kind of shot can throw the focus or exposure off. Do a dry run of your shots two or three times or until you get it right.

Side to Side

Unlike panning from side to side, a "truck" shot is a more dramatic move from side to side, also in which the camcorder and the shooter are moving. Truck shots are usually performed in a perfectly straight line. An "arc" shot is actually a combination of a dolly and truck shot where the camcorder moves around the subject in an arc.

Truck shots are harder to swing because they're harder to navigate and shoot while motoring from side to side. I've actually taken some nice truck shots while standing sideways on a skateboard. An assistant holds me tightly in place from behind and slowly moves me where the shot calls for me to go. With additional support, the skateboard doesn't fly out from underneath my feet. Thanks to the swivel motion of an office chair, you can get nice looking truck shots, but a wheelchair is out of the question because it's very hard to twist completely sideways while trying to shoot.

Up and Down
Ever see a movie where the camera seems to effortlessly move up and down, over cars, bushes and fences like they weren't even there? What you're not seeing is the million-dollar crane on wheels supporting a platform for the camera. It's actually a classic Hollywood image… to have a director perched high atop the scene on a crane looking through the camera with a bullhorn in hand.

This type of shot is called a "pedestal" or "crane" shot and I can honestly say that Hollywood professionals have a clear advantage over home videographers in this case. If you want to physically move your camcorder up and down from a high vantage point to a low one, or vice versa, one step short of renting a crane, it's very difficult to do. Other non-ground based equipment like helicopters, hang-gliders, small planes, even tightropes are all hard to come by, expensive to rent, and potentially dangerous.

If you want to try a pedestal shot, you'll probably have to rely on your own body to get a good shot. So far, our own bodies have served us well when it comes to camera movement. The same is so when moving from high to low or from low to high. The hard part is actually squatting down or standing up without hitting a rough spot. You can also stand on a sturdy table, or slowly step down a ladder or even a staircase to achieve the effect of a crane shot. This will give you more depth than relying on your standing height alone. The key here is do whatever you're going to do very sloooooowly. Especially if you practice a couple of times, you'll find that you can easily change your vertical position without bumping around.

To Zoom or Not to Zoom
This is a tough one to avoid, because chances are the zoom is your favorite feature on the camcorder. But it's definitely worth mentioning when talking about smooth camera motion because a zoomed-in lens is the easiest way to put all of your anti-jerk efforts to waste.

I have a general rule when it comes to using telephoto lens angles. I only zoom all the way in when I am too far from the action and have no way of getting any closer, or when I've taken my tripod along. As I've said before, when you're zoomed all the way in, it's almost impossible to keep a steady image while holding the camcorder.

It's also important to remember that using the telephoto setting changes some fundamental qualities of your video by compressing images and masking distance. In some cases this can be an esthetically pleasing technique. But if you want your viewer to get the feel of the scene, telephoto just isn't going to cut the mustard.

By using wider angle settings, you're guaranteeing much steadier shots and you have the additional benefit of recording clear audio when you're closer to the subject. Even though zooming is fun, resist the temptation. Your home video viewers will thank you for it!

The Least You Need to Know

➤ Too much camcorder movement is extremely distracting to your viewers and diverts attention from the real action in your scene.

➤ You can use your own body to stabilize the camcorder.

➤ Using your body and other simple items you have lying around, you can pull off Hollywood style camera moves.

➤ Zoom only when absolutely necessary. Telephoto angles are much less stable than wide-angle shots.

Chapter 4 – Editing on the Fly

With very few exceptions, every TV program, commercial, documentary, and movie has, in one way or another, been through the process of editing. National newscasts and other high-end productions like the Superbowl, the Academy Awards, and the Olympics are usually edited live while the event is taking place by a director and a team of technicians in a control room. Big-budget films, TV shows, and other forms of programming undergo a more rigorous post-production process that can take weeks, even months, to complete. Without editing, footage from even the most professional camera operators would drive most avid TV watchers insane!

Edting is no longer just for professionals. You, too, can edit your videos. But you can do it at your own pace and according to your own budget. As you'll learn in this chapter, all you really need is your camcorder and a little creativity to make interesting and entertaining videos. At first, editing is an unnatural procedure, but it makes your programs feel more natural to watch. And with a few of the basics and a lot of practice, editing can be a snap. So get ready to do some cutting and pasting!

So, What Is Editing, Anyway?
Simply put, editing is the process of eliminating unwanted footage and the sculpting and organizing of the good footage into a coherent program package that is more viewer-friendly than the raw footage in its entirety. Video editing is a fine art and a craft that has been in the making for at least 40 years. However, video editing got off to a rocky start. Up until the mid 1950s, the broadcast television industry shot their programs on film. Then Ampex Corporation hit the scene with the first black and white video recorder that used 2-inch-wide tape. When my father first began editing at ABC in the late 1960s, they were still using 2-inch tape and were editing their footage by physically cutting the videotape with razor blades and then reconnecting the desired footage with thin, adhesive tape.

As video technology emerged, more advanced electronic editing systems took over, virtually eliminating the need for splicing tape by hand. In 1967 a new system called timecode made editing even more precise by assigning each video frame a number based on a 24-hour clock. Now, editors could pinpoint a frame, enabling them to edit more precisely than ever before. Soon after, SMPTE (Society of Motion Picture and Television Engineers) developed a standardized system called SMPTE Timecode that is still in use today.

As edit control systems got more advanced, videotape technology started to bolt ahead and the physical tape size got smaller and smaller. Suddenly, a higher-quality 1-inch tape replaced the 2-inch tape. Then 1-inch became ¾ inch and then ½ inch and now there are tapes that are no thicker than 8mm or ¾ inch. Consumer grade VHS (Video Home System) tapes are ½-inch wide, as are many of the higher-end professional tape formats like DigiBeta and BetaCamSP. As the tapes shrunk, so did the equipment, making editing even more accessible on a non-professional level.

Linear vs. NonLinear Editing

Today, as a consumer, you can choose between linear edit control systems where one tape is edited onto another, or nonlinear editing systems where the actual footage is transferred and edited on a computer. Many industry folks believe that linear editing is going to be totally replaced by nonlinear editing and in 10 years or less will be a distant memory.

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Linear editing is the process of assembling clips from a "source" tape or tapes and compiling them onto a "master" tape. Depending on your edit system, multiple video sources can be blended together in a video mixer to create effects like dissolves, wipes, and picture-in-picture. The main drawback with linear editing is that once you've compiled a bunch of clips together into a program, it's difficult to fix mistakes and change things. It usually requires dubbing off an entire segment and reassembling onto a new master. If your tape isn't digital, this could mean that you're loosing another video generation, which negatively affects video quality.

Nonlinear editing, on the other hand, takes place entirely in the digital domain and is the most advanced editing technology to date. Video clips are "captured" or downloaded onto a hard drive where they are visually represented as clips in nonlinear editing software such as Adobe Premiere. The clips can then be manipulated in any way you see fit, from simple cuts and dissolves to more advanced motion and special effects. Super-fast hard drives and processors that spin anywhere from 7,000 to 10,000 rpms are needed to play back the video footage, which requires a tremendous amount of data processing.

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SMPTE Timecode is a system of assigning each frame of video a number that's based on a 24-hour clock. Some camcorders have timecode that you can see in the viewfinder and possibly use for editing later on.

With even the simplest nonlinear editing program, you can cut and paste video images as easily as you can manipulate words with word processing software. Just a few years ago, you had to shell out tens of thousands of dollars just to get in at ground level. (Unfortunately, that's when I got in.) But now you can have nonlinear capabilities for not much more than the price of a new computer.

What Editing Can Do for You

Since both linear and nonlinear editing systems are available to consumers at ever-decreasing prices, editing can easily become a natural and integral part of the home video experience. Once you understand the basics of editing, your videos will never look the

same again, even if you're simply performing basic edits with your camcorder alone. Editing opens up a brand new world of creativity, and allows you to manipulate images to convey any message that you want. This can be a powerful tool, and a new way to entertain, amuse, and inform. Now, the only difference between you and professional editors is what your imagination is capable of creating!

In Chapters 19 through 21, we'll discuss the actual editing systems and how to use them. But before we do, it's a good idea to think about editing before you shoot and how you can shoot with editing in mind.

The Art of Continuity and Combining Shots
We experience smooth continuity on TV every day. In fact, it's so subtle that we don't even think about it. But on rare occasions when continuity breaks down, it sticks out like a sore thumb. The typical home video, for instance, can be plagued with disruptive continuity. Video instructors often compare shaky, zoom-riddled home video shots with little or no continuity to long, run-on sentences without any commas or periods.

That's not to say that poor continuity doesn't occur on the professional level. It's just that professionals are adept at covering their tracks. Most movies have at least one or two continuity issues, some are chock-full of errors and it can be challenging and a lot of fun to catch one. The last one I caught was in a big budget Hollywood movie that will remain nameless. The actor, a very famous actor mind you, was wearing a tie for the first half of the scene. Then suddenly, when the camera cut back to him, the tie was gone. Oops! There's also a famous scene in *Gone with the Wind* where Scarlet enters Ashley's birthday party. The next shot is of Melanie. In the following shot of Scarlet, she has an obviously different hair style.

Combining a Variety of Shots and Angles
A well-shot and edited home video utilizes a comfortable blend of wide-angle, medium, and close-up shots. In addition to varying distance, a hearty mix of camera angles can also be used to increase visual variety that ignites viewer interest.

Let's say you want to put together a funny little video sequence of a man who has been doing battle with a little mosquito that's been terrorizing his house. Right now the man is lying peacefully on the couch reading a newspaper.
1. You could begin your mini-movie with a wide-angle shot establishing the room and the man on the couch.
2. Next, you can cut to a medium shot from a different angle to get a closer look at the man's face, and the fact that he's very interested in what he's reading. All of a sudden, we *hear* a slight buzzing sound.
3. Cut to a close-up of the man's face as he looks around curiously.
4. Cut to a close-up shot of a tiny mosquito that's landed on the wall near the man's legs.
5. Cut to a medium low-angle shot of the man inching up slowly as he rolls the newspaper into a thin tube.
6. Cut to an extreme close-up of his hands as they roll the newspaper.
7. Cut back to a medium shot of the man as he slams the paper full force into the wall. We hear buzzing as the mosquito escapes the attack and zips by the man's head.

8. Cut to wide-angle shot of the man bowing his head in frustration as he drops back into reading position.

In this example, you can see how a variety of angles and scale changes helps to tell the story in an interesting manner on screen. Based on this outline you could put together a storyboard that will give you an even better idea of what angles you need to shoot. After you're done editing, the action will flow continuously and flawlessly. The viewer will never have a clue that the action didn't take place in real time and that the camera stopped to set up for each shot. In fact, it will look like there were two or more cameras shooting the action.

Moving in the Right Direction

Another major factor that contributes to the continuity in your home videos is screen direction. Again, it's something that you might not recognize until you see someone botch it up (or you botch up it yourself). It's a simple concept that requires you to keep the action happening in the same direction on-screen. But sometimes it's not as easy as it sounds, especially when you're editing with just your camcorder or when you have more than one camera on location.

Let's say you're taping your brother as he jogs through a neighborhood. You begin the sequence by waiting for him at the end of the block. As he approaches and passes the camera, you are on his right side. This would make him appear to be coming from the left of your screen. If in the next shot you reverse the side that you're shooting, your brother would be going from right to left. The resulting sequence from the two shots would make the runner appear as if he'd reversed directions somewhere along his path and began running the other way. In other words, your brother has "crossed the imaginary line" with the camera since his screen direction exceeded 180 degrees.

Screen direction can become a major hassle during live sporting events where there are multiple cameras for the director to choose from at any given moment. This also happens in wedding videos very often where there are two cameras. If there is one camera in front of the bride and groom during the ceremony, and another in the audience, it would appear as though they were switching positions every time there was a camera change.

Another neat trick that you should be aware of that's related to screen direction is the timing of entering and exiting the video frame. This is especially important if you're going to be doing in-camera editing. It means that you have to pay close attention to your subject as it enters and exits the camcorder's field of vision. For example, in one scene of a video that I produced there's a shot of my mother as she goes to turn on a television. As she bends down to turn it on, I cut to a close-up of the TV before her hand enters the frame, and cut away after she's pulled her hand away. If I were to cut to the next shot before her hand left the frame, the continuity of the action would be disrupted. This is considered to be one form of a "jump cut."

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A **jump cut** is an inappropriate and disruptive edit that results in an eye-catching breakdown in continuity. Jump cuts are often used intentionally in music and sports programming where smooth action is secondary to moving the action forward.

You can also use entrances and exits to pass time in your video. The one rule you must keep in mind, however, is that there needs to be at least one clean entrance or exit to make the transition appear seamless.

A man leaves his house on a bicycle and is going to the supermarket to pick up some milk. You don't want to have to tape his entire journey, so you shoot him leaving the house, and arriving at the store. Upon leaving, you need to have a clean exit. If the man doesn't leave frame before you go to the next shot, then you need to allow for a clean entrance on the other end instead of cutting to him as he's arriving at the store to make up for passage of time.

Squeezing Wasted Time Out of Your Videos

So we agree that instead of recording every single action as they occur in real time, we need to take shortcuts in order to crunch out the boring stuff and leave in the stuff that people are going to want to watch. In order to do that, at the very beginning it's important to determine what scenes are necessary, then figure out how to create transitions to allow the video to flow seamlessly. Besides allowing for clean entrances and exits in order to compress time, you can also use dissolves from one shot to another, or fades to black as transitional devices. A dissolve is a nice transition where one video picture slowly melts away as another picture replaces it. Dissolves are mainly used to signal to the viewer that there has been a passage of time.

Director's Cut

If I can't dissolve or fade to black, another great way to signal the passage of time is to zoom all the way in on your subject until the auto-focus blurs out. Then I start the next shot all the way zoomed in and blurry and pull out to reveal the subsequent scene.

Until very recently dissolves were only available in high-end production facilities. Now, many new camcorders come with a digital version of the transition built in. A fade-to-black transition is also available on most camcorders. Similar to a dissolve, a fade is more final of a transition usually signaling the beginning or end of a program or segment.

Another method to compress time that works really well is to pick out action that repeats itself from scene to scene and focus in on it. Back to the jogging video, if you slowly zoom in on your brother's feet as he's running, you can quickly cut to another close-up of his feet after he's gotten to where he's going. Then simply zoom out to reveal his new location.

Similarly, swish pans can also be used to move the action along in your videos. A swish pan is a rapid pan with the camcorder's lens zoomed in as far as possible. This works best when you have your camcorder mounted on a tripod and creates a lot of fast motion in your video. It's as easy as swishing into or away from the action. But remember the law of screen direction. If you swish pan in two different directions the transition won't make sense to the viewer.

The most common method for crunching time in any TV or film production is using "cutaway" shots. These shots can be any angle or any scale, from wide to close-up, to low or high and are related to the main action of the scene, but offer the viewer a different vantage-point by revealing more or less detail. Cutaways are commonly used as a transition, or to cover up just about any imperfection in video, from jump cuts or a flubbed line of dialogue to poor focus or collapsed continuity. Cutaways can also show more or less detail that can help the flow and the dramatic impact of a program. Cutaways can also create the illusion that several shots blend together perfectly in real time when in actuality the shots were taken at different times. And, cutaways are totally consumer-friendly and easy to do directly in your camcorder, or with simple post-production equipment. Without cutaways, editing video would be one of the most difficult professions on the planet.

Shooting While You Edit
Editing video on the fly with your camcorder is a great way to jump in on the ground level of post-production and to sharpen your visual and creative skills if you ever plan to edit with real equipment. In-camera editing requires that you carefully select your shots (either in advance or on the spot) and stop and start the camcorder at preselected moments, thereby telling a story while keeping your footage precise and visually interesting.

This technique was widely attempted in the days of 8mm and super 8mm film cameras. Instead of shooting hours upon hours of footage like we do with our home video cameras, film shooters would shoot more sparingly, waiting for key moments before pulling the trigger. This was basically because film stock was more expensive than videotape is today, and they had the additional cost of developing. Unfortunately, their footage still looked comparably as bad as home video with jump cuts, crazy zooms, and pans. A basic knowledge of simple editing concepts like angle and scale changes, screen directions, and transitioning time would have taken film shooters a long way. For them, it's a little too late. For us, we can still do something about it!
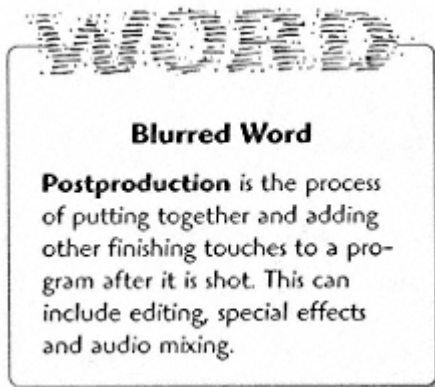
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Postproduction is the process of putting together and adding other finishing touches to a program after it is shot. This can include editing, special effects and audio mixing.

Additionally, the benefits of in-camera editing far outweigh the negatives. First and foremost, the tape that you yank from your camcorder when you're finished shooting is the final product. No long hours of editing to worry about. It's all done! And there's always the added benefit that the footage is first generation, first quality. That means that the picture is clean and pristine, exactly the way camcorder manufacturers intended the video to be viewed. Most other forms of linear editing require that you edit from one tape to another, taking your final program down at least one whole generation.

The only major drawback to editing on the fly is that you have limited creative control over what your final program looks like. A lot of the time your shots don't look exactly as you might have envisioned them and once they're down on tape, there's not

really much you can do about it. This is another situation where practice will make all the difference.

The Art of Starting and Stopping
When editing on the fly, you need to have precise control over the starting and stopping of your camcorder in order for your shots to begin and end exactly when you want them to. Before camcorder technology became so advanced, in-camera editing was extremely difficult because the camcorder wouldn't start and stop accurately. Additionally, every edit point would contain an ugly glitch that would disrupt the sync and continuity of the program for as long as 2 to 3 seconds, completely defeating the purpose of editing in the first place.

Almost all camcorders on the market today come with flying erase heads that let you stop and start the camera without causing any glitches along the edit line. You'll notice that flying erase heads work by rolling the tape back slightly, perfectly aligning the frame and tracking of the tape, creating a seamless edit that picks up exactly where you left off.

I'd suggest not to pause the camcorder too closely to a key moment, like when the bride and groom have just finished giving their vows at a wedding. Give the moment a few seconds of breathing room before stopping to prevent the possibility of the camcorder rolling back and recording over the footage.

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Flying erase heads allow you to start and stop the camcorder without creating any distracting glitches across edit points. You can start recording again exactly where you left off, leaving a clean edit point no matter how much time passes in between shots and how many times the camcorder has been turned on and off.

Oops…Can We Do That One Again?
If you're editing a video on the fly in your camcorder, you will inevitably record a shot that you want to shoot over. On some camcorders there is an edit search or review feature that allows you to get close to the unwanted portion of your shot and record over it.

Since this method isn't frame accurate, the best way to do a re-shoot is to change the angle or scale of the replacement shot. This can help you cover your mistake by simulating an intended edit.

Blooper

No matter how advanced the camcorder, sometimes it's very hard to time exactly when the camcorder will start and stop rolling. It may sound like it stopped at the right moment, but upon playback you might discover that you chopped off a key moment. Once you practice this method, however, your camera's internal timing becomes second nature and you'll be able to start and stop on a dime.

Can I Add a Shot or Two?
In most cases you'll want to avoid attempting this. Whenever you try to record new footage over already existing footage, you usually get a clean edit on the in-point, but the out-point is almost always marred by that ugly glitch problem we talked about earlier.
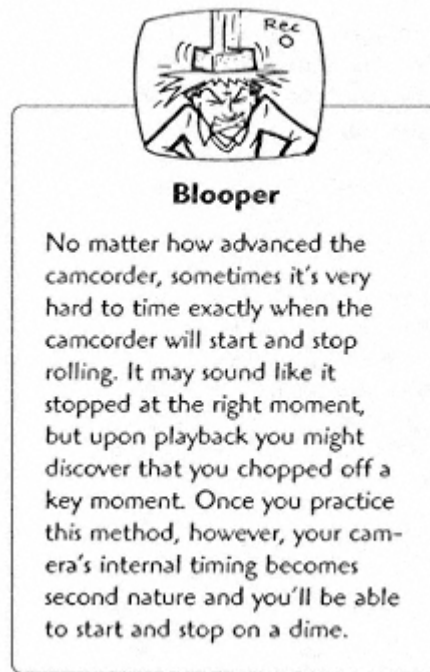
The only work-around here is to either dub off the shots that you want onto another tape and re-shoot the bad scenes, or you can simply start from scratch. The second option is usually the least desirable, especially when you're pleased with the footage or performances that you've already captured.

If you plan to do a lot of editing on the fly with your camcorder, (and I think that this is a good option for everyone to consider from time to time) make sure the camcorder you buy has all the appropriate features to accommodate this. This includes:

- Flying erase heads
- Fade to black button
- Digital transitions like wipes and dissolves

Shooting to Edit

Shooting to edit is a completely different gig than editing in your camcorder, and is a common method of shooting for both amateurs and professionals alike. It allows you to shoot a scene as many times as you want, changing the angle, performance, scale, and so on, giving you the most creative choice. It also helps you create the illusion that there are several cameras recording the event and that you're effortlessly cutting from one to the other. This is definitely an advanced way of shooting meant for people who plan to edit their final footage. Most movies, documentaries, music videos and most other programs that you can think of are shot in this style. Not only does it expand creativity, but also it eliminates the horrible pressure of having to nail something on the first take.

The Least You Need to Know

➤ Video editing has taken 40 years or so to emerge into the advanced craft of today.

➤ Editing is easy and effective when you have a wide variety of different shots to choose from.

➤ Passing time in your videos can be done with a few simple editing techniques.

➤ You can edit full-length programs effectively directly in your camcorder without ever popping the tape out.

➤ When you plan to edit your video at a later time, you have more creative freedom and room for experimentation while shooting.

Chapter 5 – Nonlinear Editing

The term *nonlinear editing* is enough to strike fear in the hearts of millions of home videographers across the land. But if more people understood the fundamentals of nonlinear editing, they'd realize that it's not only an easy and fun way to make great home videos, it opens up an entire universe of creative possibilities.

And with the falling prices and blazing fast speeds of today's computers and peripherals, it's relatively inexpensive to hop in on the ground floor. In fact, most modern home computers, if outfitted with the essentials, can be configured and optimized for nonlinear editing without much effort. This incredibly versatile tool that was once nothing more than an editor's fantasy, is now in the hands of the everyday consumer.

Nonlinear Editing: The Inside Scoop

In a nutshell, nonlinear editing is the process of transferring your home video to the hard drive of a computer where you can manipulate, edit, rearrange, and organize the images in just about any way under the sun. When you're done doing your digital magic, you can then send the final product back to videotape, or distribute it on the Internet, CD-ROM, or even by e-mail.

Digital nonlinear editing became available to consumers in the early to mid-1990s. The intentions were good, but computers at the time were simply too slow to handle the tremendous amount of number-crunching it takes to digitally manipulate full screen video images. Today, processing power is no longer a problem. Not only are computers pushing the blazing fast 500-600 MHz mark, the hard drives needed to store and play back digital video are increasing in capacity while rapidly decreasing in price. Today, if I priced the nonlinear editing system that bought 2½ years ago I'd get really depressed. It probably would cost me less than half of what I originally paid. The 200 MHz Power Macintosh computer that is the brain of my system is a turtle in today's terms. In fact, the 400 MHz Macintosh PowerBook G3 that I'm writing this manuscript on is not only faster than my desktop computer, with a video capture board that I bought for less than $200, it doubles as my portable nonlinear editing system. This is ultra convenient when I'm away from my home studio or on a shoot when I need to quickly see how scenes are going to cut together.

The Digital Domain

Digital video looks so much better than analog video because it is highly resistant to noise that can disrupt picture quality. To record an analog signal onto videotape, it takes a continues signal to keep the image looking crisp. Unfortunately, noise signals are also continuous, and can often come into conflict with the analog signals.

Digital video, on the other hand, translates the analog video signal into a series of pulses, (or ones and zeroes) that are much more resistant to noise. It is also these zeroes and ones that end up on your hard drive for editing. This is why you can make perfect copies of digital videotapes, or from your hard drive to digital tape. Overall, digital video is superior because right now, it's the only format available to consumers that eliminates generation loss.

The Journey from Videotape to Hard Drive
The path that video takes from videotape to your computer is less complicated than you may think. The simplest nonlinear setup consists of:

- A fast computer and hard drive.
- A video capture card and/or a FireWire port.
- A VCR and/or camcorder.
- A TV.

The video capture card serves as the heart of the operation by "digitizing" the analog video stream passed along by the VCR and turning it into digital information that can be stored and played back on a hard drive.

As video is being digitized it can typically take up 4.5 megabytes per second which adds up in a hurry. In order for the computer to keep up and be able to process the tremendous file sizes of digitized video, the computer uses a "CODEC" (compression/decompression) scheme in which the video is crunched as small as possible when it's captured and then expanded upon playback. You might have heard of a few of the CODECs: MJPEG, MPEG, MPEG-2 and so on. Most video-capture cards also capture audio at the same time as video. Once the video is stored on the hard drive it's ready for editing.

Hooking your VCR or camcorder up to the video capture card is a snap:

1. Locate the video in jack (composite-yellow jack or Y/C) on the video capture card and plug in one end of an RCA cable or S-Video (Y/C) cable.
2. Plug the other end into the video out jack (composite or Y/C) on your camcorder or VCR.
3. Locate the left and right audio in jacks on the video capture card and plug in both RCA cables (red for right, white for left).
4. Plug the other ends into the corresponding audio out on your camcorder or VCR.

If you have opted for a DV nonlinear editing system, the process is a little different. In fact, there's no digitizing that takes place at all because your video is already in a digital format. ("Digitizing" took place in the camcorder at the time of shooting.) Instead of a video-capture card you'll need a FireWire card or a computer with a FireWire port built in to directly transfer digital video information from your MiniDV or Digital8 camcorder to your computer hard drive. Technically, it's the same thing as copying files from one disk to another.

And Now the Fun Begins!
Computers are amazing devices. Combine them with video editing and you've got a miracle on your hands!

Since computers have instant access to the data on hard drives, shots and scenes can be located and recalled at any time, completely eliminating winding back and forth with a slow VCR. Any limitations that you experienced with linear editing setups are virtually eliminated. Now you're free to concentrate on creative editing instead of tinkering with equipment.

The typical nonlinear software interface is often compared to word-processing software. You can cut, paste, delete, move, and rearrange video clips, and if you don't like something, you can always hit the undo button.

And that's only the beginning. With the click of a mouse you can also transition between shots, use filters, special effects, and layer more video and audio sources than you'll ever need in your lifetime. Video editing is done on a "timeline" or "sequence" that is a virtual representation of a record-master videotape.

Here's a great feature that leaves linear editors drooling. Not only are you able to cut and paste just single shots, you can also shift entire segments of your program around. Let's say you want to insert a quick interview with a guest in the middle of your wedding video to break up the monotony or to transition between segments. No problem. Simply highlight the segment you want to move and drag it over. You can do the same with music, titles, photos … or anything else that you can dream up.
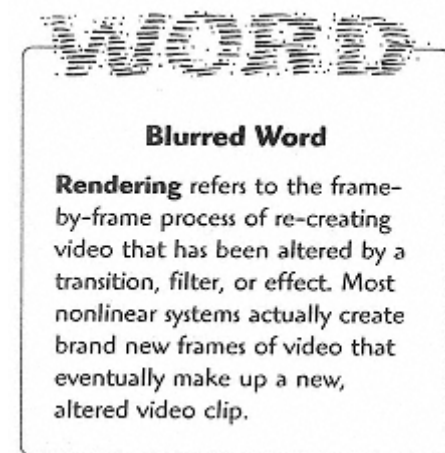
Your Digital Future
Nonlinear editing has not only taken the home video market by storm, it has already romanced the professional film and video market. Long ago, editors and video engineers across the globe recognized the potential and power of nonlinear, and it is their vision that has paved the way for the nifty consumer products that are hitting the market full-force.

Think about the movies, programs, commercials, and other forms of video and film programming that very well may represent the biggest source of relaxation and entertainment worldwide. You can bet that most of the films, shows, and promotions have been edited on high-end nonlinear systems like the AVID Media Composer or Media 100, to name a couple.

I've always thought that film editors benefit the most from nonlinear. I've worked on films where we've had up to 30 hours of raw footage digitized at one time! Having instant access to all that footage makes a huge difference to editors who, in the past, had to manually scroll through rolls and rolls of film while editing with a razor blade. I'd be willing to go as far as to say that nonlinear editing has greatly improved the quality of movies and TV shows that you see today. This is mainly due to the fact that the creative people who are responsible for making these forms of programming now have the unlimited opportunity to experiment. I've found that experimentation plays a huge part in the creative process because sometimes you stumble across something amazing by accident that you otherwise wouldn't have discovered. Just imagine the cool stuff you'll stumble across in creating your home videos!

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Rendering refers to the frame-by-frame process of re-creating video that has been altered by a transition, filter, or effect. Most nonlinear systems actually create brand new frames of video that eventually make up a new, altered video clip.

Hardware Is an Easy Nut to Crack
Your nonlinear beginner's kit starts with choosing the right hardware, and it's not an easy choice because there are many solid entry-level products to choose from. The first decision you'll have to make is whether you're going to buy a new computer or use one that you already own. You'll want to utilize the fastest computer that you can get your hands on with a large capacity hard drive. This will not only speed up the act of editing it will also increase the amount of high resolution video

that you can store, and cut down on processing time (known as rendering) when you apply transitions and special effects to your video.

Platform Wars: Mac vs. PC

Here's an argument for the ages: Mac or PC? Just when you think one computing platform is outwitting the other, the other one catches back up.

I have been editing video on a Macintosh since nonlinear editing software and hardware hit the scene. If you asked me in college, however, if I could ever imagine myself using a Mac, the answer would have been an emphatic no. But I've passed along my Windows-based PC to my parents and have become a full-fledged Mac person. I used to think that PCs were great for productivity applications like word processing, spreadsheet, and online communications and that Macs were far superior with anything involving graphics or full motion video. In recent years, however, these stereotypes have been totally smashed. In the land of video editing where Macs used to rule with a sovereign hand, PCs have quickly invaded and caught up. If you've ever browsed the digital video magazines, you'd see that a lot of the new nonlinear software and hardware releases are based on the Windows NT or Windows 98 operating systems. Whichever platform you choose, you're going to be able to edit video, and do it well. It's basically a matter of preference.

The Right Nonlinear Software Isn't Hard to Find

Like I mentioned, there are a bunch of great entry-level nonlinear editing software packages on the market. Even the higher end products have decreased enough in price to make them attractive to even the most novice nonlinear editor. Here are a few highlights from some software packages that have caught may eye:

♦ **Avid Cinema:** (Mac/PC) This is the ideal nonlinear software package for beginners. Avid is an industry leader in high-end editing systems for movies, broadcast and cable, making Cinema a solid choice. Movies like Titanic and TV shows like Seinfeld are all edited on Avid systems. This software is priced at just over $100 and was specially designed for people who are not technically savvy and have little to no experience editing video. You're not going to get all of the bells and whistles of a fully featured nonlinear editing package like Adobe Premiere (see below), but the software will actually walk you though the home moviemaking process. From storyboarding to video capture to editing to sending the movie back out, this program makes it a snap. You can also add a custom soundtrack to your movie and add effects and transitions. When you're through, you can export it for use in presentations, or send it out over the Web, via e-mail or in various other forms of multimedia.

♦ **Adobe Premiere:** (Mac/PC) One of the first nonlinear editing packages to be made available to consumers, Adobe Premiere is the granddaddy of desktop video-editing software. Premiere is loaded with high-end features for the advanced editor, yet is simple enough for novices to start cutting. The program offers a mature interface and support for frame-accurate editing, machine control, hundreds of effects, video filters, and transitions. It also features three point editing, titling, audio editing and processing, and multiple tracks of video and audio. Premiere is often used for multimedia, Web video, and even broadcast television. One of the best things about the software is that it is compatible with many video capture cards (and FireWire) and is commonly included for

free when you purchase these cards. I learned how to edit on the computer using Adobe Premiere, and it is my top recommendation for nonlinear software for consumers, prosumers, and even professionals.

♦ **Apple Final Cut Pro:** (Mac) Apple's recent contribution to the world of nonlinear editing, Final Cut Pro is a powerhouse of a program. Sporting a cool-looking interface and very advanced feature set, Final Cut Pro has attracted a strong following in the editing community. Using Apple's Quicktime technology, the software is compatible with either DV or analog footage. It also has many of the same features that both amateurs and professionals are after, like transitions, special effects, titling, and multiple tracks of audio and video. Final Cut Pro is a great choice for hobbyists who are serious about editing and getting their MiniDV or Digital8 footage to look its best. I've used the program quite a bit, and I'd also recommend it to beginners since I found that the interface is user friendly and the program is simple to install and hook up to a camcorder.

There are literally dozens of nonlinear editors, and many of them are very similar—like buying a car, it comes down to personal preference and compatibility. This is one area that's constantly changing for the better. Be sure to check out the latest video magazines, the Web, and your local reseller for the latest and greatest programs.

Nonlinear Tricks and Tips

Since video editing is a daunting task to your computer, sometimes you have to make the best out of the limited resources that you have available. Here are a few tips and tricks to help keep your system running smoothly and your video looking great.

1. Don't overuse the hundreds of filters, transitions, and effects that come standard with most nonlinear editing systems. Besides annoying your audience, special effects usually take some time to render and the resulting media files waste precious disk space.

2. If at all possible, dedicate your computer to video editing. Try to do your word processing, Internet surfing, or number crunching on a different computer if possible. Using the same computer for everything, can cause a conflict down the line that could potentially crash your system, or even worse, erase precious data by causing hardware failure. It's also taxing on your system to have multiple programs running at the same time.

3. Store all of the media files onto the dedicated high performance hard drives. Bins, sequences, libraries, or any other nonlinear project-related file should be kept on your computer's internal hard drive. Additionally, try to keep all of your files neat and in directories or folders where you can easily locate them. Also, it's usually best for the nonlinear software to reside on a different drive, if possible, than the media files you create.

4. Always protect your computer with a surge protector. You never know when a power surge or bolt of lightning is going to strike. If possible, purchase a surge protector that also protects your modem telephone line. A few years ago my modem got nuked in a thunderstorm even though I had the main power supply protected.

5. Always provide your computer system and peripherals with adequate ventilation. Your equipment needs to breathe in order not to overheat. Overheating is one of the leading causes of consumer equipment failure.

6. Always back up your important project and media files onto some kind of removable storage. The digitized footage in most cases will be too large to realistically back up, but if you happen to be working with timecode, you can always redigitize the media if you have saved the project files. (Redigitizing is a common feature of many nonlinear editing programs.)

7. Since nonlinear programs push your computer to the max of its computing ability, consider running diagnostic and disk optimization software on a regular basis to keep your machine running smoothly. One of the most popular programs of this kind is Norton Utilities.

The Least You Need to Know

➤ Nonlinear is the most versatile type of editing. Thanks to the instant access abilities of a computer, you can cut, paste, move, and affect video in infinite ways.

➤ Nonlinear editing has invaded the home video market. Almost every TV show and movie has been edited on digital systems.

➤ Most home computers have at least some capacity to edit video. The faster the computer and the larger the hard drive, the bigger and better your final picture quality.

Chapter 6 – Mastering the Mix

Guess what? You can manipulate your soundtrack just as easily as you can edit moving images. Sound editing has a great impact on your home videos and goes a long way in supporting and enhancing the picture. Now, with some simple linear or nonlinear editing gear, you can take control over a vital piece of the home video puzzle.

Becoming a sound magician requires a basic understanding of the elements and how to utilize them in your video projects. Whether it's music, sound effects, narration, dialog, or ambient sounds, these factors can all have a big impact. And even more important than placing the elements in your soundtrack is to figure out how to mix them together smoothly. A powerful, yet tasteful audio mix can add to the overall impact and continuity of your videos.

Sound Effects on a Shoestring

There's no better way to bring your video to life and round out your audio track than adding some sound effects. Besides being a powerful dramatic or comedic tool, sound effects are a load of fun to insert into your program. The trick is finding the right one.

Can you imagine a Bruce Lee movie without all of the bone-shattering kabams! and crashes? It's a pretty dull thought. Not that your videos are going to contain largescale explosions, brawls, or car crashes that you're going to need to beef up, but subtle sound effects when tastefully used can go a long way in making your work more realistic.

Sound effects libraries are also available in the same way that music CDs are available for licensing. You can locate any sound that you can possibly imagine on CD, from the flapping of a bird's wings, to the flushing of a toilet. And sound effects CDs come in all different shapes and sizes, anywhere from a single disk to 200-disk sets. I've found that sound effects disks can be as inexpensive as music CDs.

You can also have a lot of fun capturing sound effects on your own. You've already got a great tool for recording high-quality stereo sounds: your camcorder. Why not put it to work?

Sound effects are taking place all around you. All you have to do is listen, and then point your camcorder in the right direction. If you're planning to ride on a train, take a few minutes to record the whistle blowing or the sound of the metal wheels rolling on the tracks. If you're on a boat, grab some sounds of the water slapping against the side, or the sounds of Seagulls chirping overhead. Concentrate on getting the microphone as close to the sound source as possible. Similarly, if you're going to be at a tennis match or basketball game, record some sounds. Sports sound effects are always hard to come by and are very useful in many home video projects.

The Power of the Tune

When my father and I took on the task of editing my sister-in-law Pam's wedding video, we were able to save a vital piece of the program thanks to some slick music editing. Before the actual ceremony took place, there was an extremely long segment that was shot in real time where the families walked down the aisle and found their seats. There was a piano in the background playing your typical walking-down-the-aisle music. The whole segment went on for about 10 minutes, which, as my father and I found out, is an absolute audience killer. When my father and I tried to cut down the footage to eliminate the monotony, we discovered that the piano music in the background was being abruptly

cut off resulting in choppy, unnatural sounding edits. After hours of trying to finesse the edits to no avail, we shuttled the source tape ahead and discovered that the genius wedding videographer had recorded about five minutes of clean piano music with the crowd in the background. All we had to do was edit in the clean music over the section we had edited, and all of a sudden we had a smooth section on our hands.

Images aside, music is the most powerful element that you can introduce in your home videos. A song is capable of inspiring viewers by invoking feelings and emotions. Or, music can be used as a background element that has a quiet, yet dramatic influence on the audience. Think of the way big budget Hollywood filmmakers utilize music in their movies. In some scenes you can hardly hear the music bed that is softly tying everything together, and in others, a theme song marks the movie's pinnacle and instantly becomes a top 10 FM radio hit.

On many levels you can conduct the same kind of energy into your home videos. You can also use music to help dictate or even manipulate the mood of your piece. For example, let's say you're producing a commemorative video to celebrate the life of your 95-year-old grandmother. You decide to use dramatic orchestral music in several places to help paint a serious picture. Now, suppose you were to use the same orchestral music over footage of children playing on the beach. It would instantly capture the attention of your audience (whether they're aware of it or not). Subconsciously, the seemingly out of place music can spark expectations of maybe a kidnapping or shark attack.
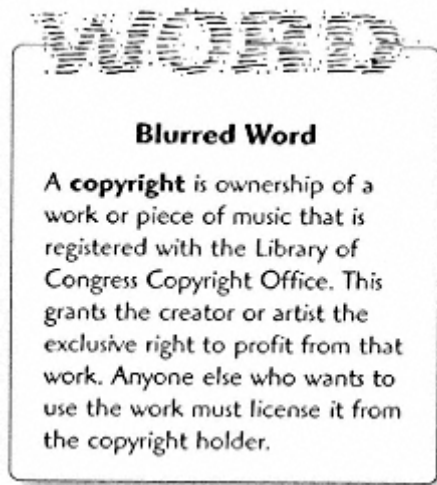
The best part about adding music to your videos is that it's relatively easy to do. As you've learned in previous chapters, all you really need is a simple editing setup with a record VCR that is capable of audio dubbing. Even better, a simple nonlinear editing setup can give you unprecedented control over every part of your soundtrack, from audio levels to special audio effects. Many makes and models of VCRs and camcorders have the audio dub feature.

A Musical Dilemma

O.K., by now you're probably amped up about giving your video the musical edge. All of the tunes you hear on the radio, MTV, VH1, and from just about every other music outlet under the sun can easily be found at the record store or via the Internet, and usually in CD digital quality. CDs sound far superior to audio cassettes and records. But if you decide to use music from your personal CD collection, you could be asking for trouble. Most music that is published today is protected by copyrights that prohibit anyone but the music's artist to profit from its use. The law views copyright infringement in the same way as any other kind of theft. In fact, even if you're using music written by a long-dead composer that's in the public domain, the performance may be copyrighted.

You may be thinking that if you're only showcasing your video to family and friends and not profiting a dime from it, how in the world can you ever get caught? I'd say that you are probably 99.9 percent right. But is that one-tenth of a percent worth the risk of getting caught and sued for copyright infringement?

A good habit to get in is to determine whether or not your production will ever have any type of public performance like a classroom, church or public access TV, or if you're planning to distribute it (for free or for profit). If so, you should get permission to use the tunes before you edit them into your program. It may not be as expensive as you think. The cost (and need) to license musical works has a lot to do with the number of people who the video is going to be distributed to, or the potential audience if it is going to air on TV or somewhere else. Getting permission after you've finished your program can be a huge hassle. And if permission isn't granted you can guarantee you'll find yourself at the controls re-editing your piece. I cut a short film a few years back and included tunes from Billy Joel, Ben Folds Five, Steely Dan and a few other artists. Just recently, I decided to send it to film festivals, but I was told that unless I had permission to use the popular music, I had to cut it out of the program. I ended up re-cutting the entire piece with cheap stock music that I got permission to use.

WORD

Blurred Word

A **copyright** is ownership of a work or piece of music that is registered with the Library of Congress Copyright Office. This grants the creator or artist the exclusive right to profit from that work. Anyone else who wants to use the work must license it from the copyright holder.

Another option you have available to you is to search for a song that is in the public domain. Simply put, this is music that is no longer protected by copyright laws and can be used by anyone for the purpose of performing, arranging, reproducing, recording, publishing, or even using in your videos. As a general rule, music or lyrics written and published in the United States before 1922 is considered to be in the public domain. In some cases, composers pass their work along to the public by choice. Tunes like "Home on the Range" and "Farmer in the Dell" are in the public domain, but a popular song like "Happy Birthday" is still protected by copyright law.

Use of public domain music is not an exact science, however. You should do the proper research and make sure the song is indeed in the public domain before incorporating it into your video. There's a Web site that has a list of safe songs and links to other public domain resources on the Internet: http://www.pdinfo.com.

The other viable option for videographers on a skeleton budget is to buy a royalty-free music library on CD. Advertisements for these can be found in the back of many video magazines, and the CDs are usually sold at reasonable prices. When you purchase a music library on CD, in most cases you are also getting a "buyout" license that gives you the legal right to use the music for all of your video needs. Or, you can obtain the music library for almost nothing, and license the tunes as you need them. This is called "needledrop" licensing. Over the long haul music libraries can make a lot of financial sense.

These music libraries contain every type of music available on the planet. Jazz, Rock, Blues, New Age, you name it. Just listen to a few television commercials, shows, or promotion. Chances are that 95 percent of the music you hear is from a music library. You can buy comprehensive sets that offer a wide variety of many different types of music, or you can buy one that specializes in just one area.

Make Beautiful Music Yourself
The last and often least desired musical option is to write original tunes yourself and use them in your videos. The key word here is "original." If you simply create a new rendition of a copyrighted work, you're venturing into infringement territory. Here's where public domain comes into play again. A church organist playing a Bach tune is fine, but playing an Elton John tune is not.

With technology seeping into the musical instrument market, music is a lot easier to make these days. With a tiny bit of talent and a whole lot of gumption, you can compose some serious, full-sounding music on synthesizers or keyboards that allow you to program chord progressions and drum beats. Or you can buy electronic drum kits that allow you to add instrumentation to your own rhythms. You can also take the computer route; there are literally hundreds of software packages that make composing a snap, and often you don't even need an instrument hooked up to your computer at all. The nice thing about these high-tech composing and instrument options is that there's usually a high-quality jack for clean sounding recordings. Or, you can save your work as a digital file that can then be imported into your nonlinear editing project. Most of these programs use compatible audio file formats like Quicktime and AIFF.

Processing Sound
Creative video effects have become a permanent part of postproduction. You can make your picture purple, flip it around, slow it down, or speed it up. The possibilities are endless.

A lot of people aren't aware that there's a wealth of effects that can be applied to the soundtrack of videos. It's done with effects processors that are either embedded in nonlinear editing software or that come as stand-alone units and can easily loop into your linear editing setup. You've probably heard of the most common ones and the most easy and fun to use in your movies…reverb, EQ (equalization) and compression. And in the jungle of professional editing tools that you can buy, the analog and digital effect processors it takes to pull off these cool audio effects are among the most affordable items. What follows are the most basic sound processing effects available that will help pump up your home videos.

Reverb
O.K., O.K., O.K.,…you've probably heard of this one. It's one of the most entertaining audio effects and is commonly used in conjunction with microphones at live events and concerts. It is also a powerful audio postproduction tool.

Reverb units simulate the natural decay or bouncing effect that happens when sound is echoed in an enclosed area or in open space like a canyon or mountain. If I were actually to speak the word "O.K.," you would hear it first at full volume, then lower repetitions of the word would ring out. Reverb effects are perfect for creating surreal, spooky or just plain weird sound design.

The reverb effect is also great for sports videos. If you're shooting basketball or volleyball in a gymnasium and you decide to add narration during editing, with a little reverb, you can make your narrator sound exactly like he/she is in the gymnasium reporting live at the event. You can also add scary sounding reverb to your Halloween videos. Children's voices are always extra-spooky sounding when injected with a little

reverb. Similarly, you can add a "chorus" effect for an even ghostlier sound. "Flange" effects can even make a human voice sound like a robot. Chances are, if your digital sound processor has a reverb effect, it will also probably have chorus and flange, among others.

Sound processing effects are all fun to experiment with and can add a new dimension to your projects. Just as anything else in home video, you should be careful not to overuse these effects as your audience can easily grow tired of hearing the same thing over and over again.

EQ (Equalization)
Ever wish you could make that muddy audio track sound a little bit crisper? What about the interview that you recorded where the speaker was practically chomping on the microphone? Or that birthday party where the screaming kids in the background drowned out just about every other sound on the video? Wouldn't it be great to bury some of the disruptive bass and make it sound more balanced?

Here's where an equalizer, commonly known as an EQ comes in. Since every sound that you hear is made up of a spectrum of frequencies, an EQ can be used to manipulate a range of frequencies. This means that you can take a little bit of high end away from a soundtrack to make it sound less like it was recorded through a tinfoil filter. Similarly, if you want to yank the disruptive sounding bass from a bad interview soundtrack, it can easily be done. EQs are a great way to balance a soundtrack and make it sound like it was professionally recorded. Just like reverb/delay effects, EQ comes as either a stand-alone processor, or built into nonlinear editing software.

Besides making your audio track more ear-friendly, you can also treat specific sections of your audio with EQ in the editing process to achieve different sounding effects. There's a neat EQ trick that Hollywood filmmakers use all the time that you can easily do in your own project. If there's someone talking on the phone or listening to a radio, you can simulate the voice on the other end by stripping it down with EQ. All you have to do is record your voice separately with your camcorder, run it through a heavy dose of EQ, and edit it into your program. If you are using a nonlinear system, (Adobe Premiere, Final Cut) it's as easy as selecting a clip in your timeline and applying an EQ filter to it.

Overall, EQ and your home videos are a good match. Since a lot of your recording is done with the omni-directional on-board camcorder microphone, you're always going to have a lot of extraneous noise to deal with. Whether it's people talking in the background, crowd noise, or even an airplane flying overhead, EQ can help you take the edge off of the harsh sounds.

Compressors
Compressor effects take you one step closer to the professional level, but the equipment is still well within reach of the average videographer. Unlike EQ which affects certain aspects of the frequency range for a certain sound, compressors adjust the overall volume (level) of a sound signal. It does this by reducing the harshness of louder sounds and bringing up softer sounds. Compressors (like EQs) result in a more even, professional sounding audio-track. In fact, most of the sound in commercials that you hear on TV are

heavily compressed to make them sound louder than the programs they are sandwiched between.

I actually use a compressor (and an EQ) in my editing setup and hardly ever have to make any adjustments to the settings. Ever since I got it I've noticed that both my professional projects and home video have more of an audible impact and the overall sound quality is crisp, clean and pumped-up. Compressors are especially useful when applied to your narration track. It helps the voice cut through music, sound effects, or any other sound you may have in your program.

If you buy a compressor or have access to one, give your video a listen with it both on and off. You're guaranteed to notice a big difference.

Beefing Up Your Soundtrack with Ambience

Very similar to the collection of sound effects while you shoot, recording ambient sound is the craft of capturing the unique "audio personality" of each location in which you're shooting. Ambient sounds comprise the combination of specific location noises and reverberations that subconsciously tell you, or your viewers, where you are. When you edit ambient sounds into your audio track, not only do you clue viewers in to the location, you can also help to maintain continuity by virtually erasing disruptive gaps in the soundtrack.

Recording ambient sound takes a few minutes and a little bit of peace and quiet. (No talking!) Upon arrival or departure at your given location, seek out a quiet spot where you can set the camcorder down and record the natural ("nat") sounds. Make sure the microphone is pointed in the direction of any one sound source that you might find useful later like a babbling brook, chirping birds, or the sound of waves crashing against the shore. If you're shooting in a busy city, hold the camcorder right outside the window and record the screeching tires of taxicabs and the wail of a distant police siren. The goal here is to get the camcorder as close to your sound source as possible.

Director's Cut

"Whenever I'm shooting with my video camera, I always make sure to record at least a few minutes of ambient sound just in case. It has saved me on more than one occasion in covering up rough spots in my programs."
—David Preisman, Enhanced Television Producer, Showtime Networks, Inc.

With simple post production techniques like audio dubbing and nonlinear editing (see Chapters 19 through 21), you can paint your videos with ambient sound. Don't worry about maintaining perfect sync from shot to shot; sometimes a little "bleeding" over the edges of your video edits goes a long way in creating a smooth feel.

Once you've collected them, try pasting different ambient sounds into different sections of your video. Just for kicks, cut in some pre-recorded crowd noise over a sporting event that you've shot. Or turn some video you shot while hiking into an urban

adventure by cutting in some city street noise. Ambient sounds are also available in CD libraries and can be a ton of fun to play with. Sometimes your ears tell you as much about your videos as your eyes.

Becoming a Mix-Master
You've rounded up your music, dialog, narration, sound effects, and possibly even ambient sounds. That's just about everything you're going to need to create a dynamic soundtrack for your project. Now, the last thing on your list is to mix all the sounds together so that they blend naturally and help the overall flow of the video.

There's nothing more distracting than trying to watch a program where the announcer seems to be screaming at you while you're struggling to hear the dialog or music. It's safe to say that most of the members of your audience have never even heard the term "audio mixing," especially where video editing is concerned, and are easily distracted and even annoyed by a bad mix. The point is, if mixing is done right, your audience won't notice it. On the other hand, if mixing is done incorrectly, it can draw attention to itself and away from the intended focus of the video.

Mixing can be a very challenging step, especially if you're working with a linear editing setup. With a little practice, however, you'll develop a real feel for tweaking the levels of each and every sound in your video. All you need to become a mix-master is a simple audio mixer or a record VCR that allows you to control and monitor the incoming volume. The good thing about mixers is that they're cheap, and the better ones usually come with EQ and possibly even reverb effects already built in.

In the world of nonlinear editing, on the other hand, audio mixing is almost as easy as tying your shoelaces. Once the media is digitized onto your hard drive, adjusting the levels is as simple as sliding a level meter up and down with a click of your mouse. In some programs you can even ride these levels up and down using "rubber band" level controls. On most nonlinear editing software packages, an audio rubber band is actually a line that runs through the middle of your audio clip. By sliding this line up and down, you raise or lower the audio level. You can also ride the levels up and down by setting "nodes" on the rubber bands. This is perfect when you need to lower music when narration begins. You can slowly ramp down the volume just before the narration begins and then ramp it back up when the narration ends. Or, you can instantly raise the level of the sound of a car as it passes by onscreen. With rubber bands, you have 100 percent control over every aspect of your soundtrack.

With your computer you can also add all kinds of audio effects to the soundtrack like reverb/delay, compression and EQ to name a few. And, if you're producing a music video for the Chipmunks, you can speed the audio up or slow it down. Or for a wild sounding effect you can play the audio track in reverse.

Another nice feature of nonlinear editing with your audio track is that you can create custom "cross-fades" in the audio that make two different audio clips sound like they're blending together. This is similar to a video "dissolve" where one video source melts away into an incoming video source.

The actual process of mixing will vary greatly depending on what tools or software you have available, but the fundamentals of good mixing are pretty much the same. Here are a few things to keep an ear out for when audio mixing:

- Always keep an eye on your recording levels. You can monitor this on the record VCR if you are linear editing, or, if you're working with nonlinear editing software, you can usually open up an audio mix window that measures incoming audio levels. If you find that the VU meters are constantly in the red, your audio is going to sound distorted and over-modulated. If this is the case, you can adjust the incoming levels either in the computer or on the record VCR until the meters are out of the red.
- Keep all of the speaking parts audible. Nothing can ruin your video quicker than leaving your audience struggling to hear what's going on. Music, sound effects, and ambient sounds are fun to include but if you don't keep a close ear on their levels, you can easily drown out a human voice.
- Don't overuse any of your sound elements. Let's say you're using a corny sound effect during a fight scene in your video. If you were to introduce that same sound effect later on in a completely different scene, your viewers will remember and give you the evil eye. Also, it's not necessary to pack your video wall to wall with music or ambient sound. Sometimes the content of a given shot or scene will work better without any sound support. With a little trial and error you will quickly learn how to tastefully utilize your audio elements.

The Least You Need to Know

➤ Music adds a whole new dimension to your videos and helps you control viewer mood and emotion.

➤ Sound effects are a perfect compliment to your audio track and are cheap to buy or easy to collect on your own with a camcorder.

➤ Sound processors let you fine-tune your audio track to get things sounding just right.

➤ Natural (ambient) audio helps to smooth out the overall soundtrack of your production and can help communicate a sense of place.

➤ Mixing everything together can be challenging and thrilling once you get the hang of it.