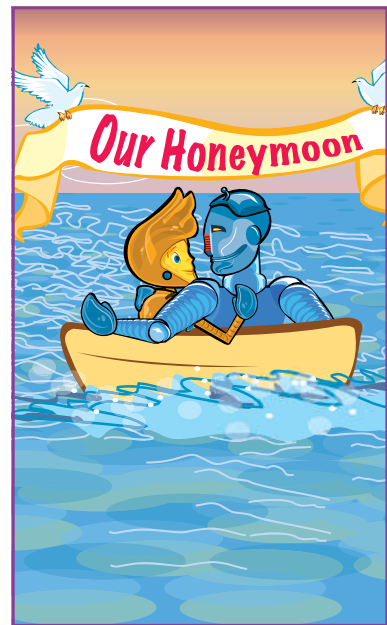


# Table of Contents



## Creating Transitions, Titles, and Other Video Effects

Explore Elements of Video Look and Feel .....	242
Learn About Software Plug-ins .....	244
Explore Lens Filters for Effects .....	246
Create Titles for Video in iMovie .....	248
Add and Replace Video Transitions in iMovie .....	250
Create Video Transitions in Adobe Premiere Elements .....	252
Create Titles for Video in Adobe Premiere Elements .....	254
Make Your Video Look Like Film .....	256
Export a QuickTime Movie from iMovie .....	258
Export a Movie to iTunes .....	259
Archive a Project in Adobe Premiere Elements .....	260
Explore Color Correction Possibilities .....	262
Learn the Basics of Shooting for Green Screen Effects .....	264
Replace Backgrounds in iMovie with Green Screen Effects .....	266
Replace Backgrounds in Adobe Premiere Elements with Green Screen Effects .....	268



# chapter 12

## Sharing Your Video with the World

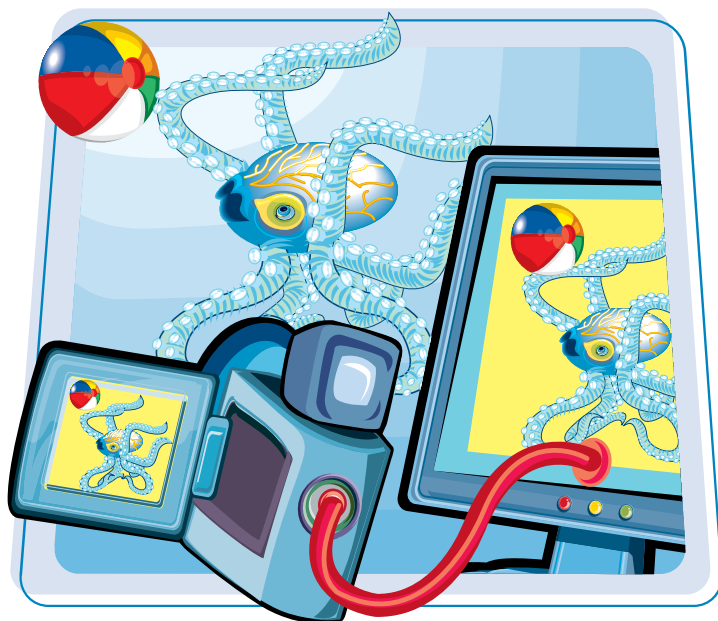
Burn a DVD . . . . .	272
Create a DVD with Apple iLife . . . . .	274
Put Your Video on the Internet . . . . .	278
Bring Your Movie into iWeb . . . . .	280
Publish Directly to YouTube in iMovie . . . . .	284
Prepare a Project for DVD Burning in Adobe Premiere Elements . . . . .	286
Create a DVD with Adobe Premiere Elements . . . . .	290
Burn a Standard DVD or Blu-ray Disc with Adobe Premiere Elements . . . . .	292
Share iMovie Projects to Your MobileMe Account . . . . .	294
Send Movies to iTunes for Download to an iPod . . . . .	296
Share to Mobile Devices with Adobe Premiere Elements . . . . .	298



# CHAPTER

# 1

## Understanding Digital Video



Are you ready to learn more about how digital video works? This chapter introduces you to the concept of digital video, the benefits of going digital, the different types of digital video cameras, the digital video workflow, and essential digital video terms.



<b>What Is Digital Video? .....</b>	<b>4</b>
<b>Understanding the Benefits of Going Digital .....</b>	<b>6</b>
<b>Discover Digital Video Cameras .....</b>	<b>8</b>
<b>The Digital Video Workflow .....</b>	<b>10</b>
<b>Essential Digital Video Terms .....</b>	<b>12</b>



## What Is Digital Video?

Digital video is a relatively inexpensive, high-quality video format that utilizes a digital video signal rather than an analog video signal. Consumers and professionals use digital video to create video for the Web and mobile devices, and even to create feature-length movies.



### Analog versus Digital Video

Analog video is variable data represented as electronic pulses. In digital video, the data is broken down into a binary format as a series of ones and zeros. A major weakness of analog recordings is that every time analog video is copied from tape to tape, some of the data is lost and the image is degraded, which is referred to as generation loss. Digital video is less susceptible to deterioration when copied. You can convert analog video to digital video with the proper hardware and software configurations, but you cannot increase the quality of the analog signal.



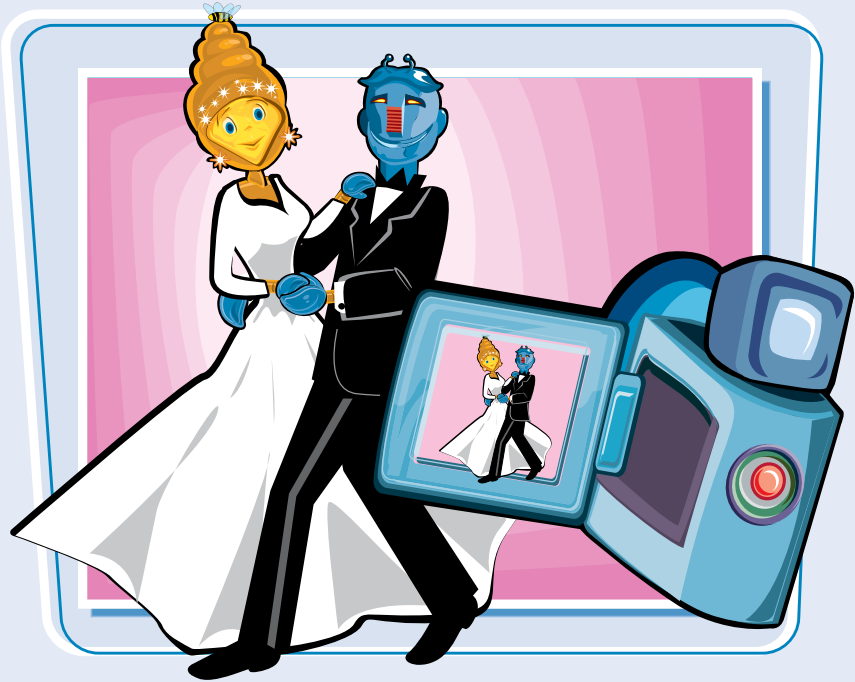
### Recording Media versus Format

The recording medium is essentially the physical device on which the digital video is recorded, like a tape or solid-state medium (a medium without moving parts, such as flash memory). The format refers to the way in which video and audio data is coded and organized on the media. Three popular examples of digital video formats are DV (Digital Video), HDV (High Definition Video), and AVCHD (Advanced Video Codec High Definition).



### Acquiring Digital Video

Digital video can be acquired from a range of sources, including cell phones, some digital still cameras, as well as digital video cameras. Digital video can be recorded to a tape, DVD, flash memory card, or hard disk drive. Some digital video cameras offer more than one of these methods of acquisition. If you buy a video camera today, it will most likely be a digital video camera.



### Using Digital Video Technology

You can attach your digital video camera, mobile device, or digital still camera with video capability to a TV set for previewing or to a computer. After you transfer the video from the device to a computer, you can edit your video, add graphics, and add music to make your own video production. You can then take your video work of art and create your own DVD, or upload it to popular video sites such as YouTube, MySpace, and Vimeo to share with the world.

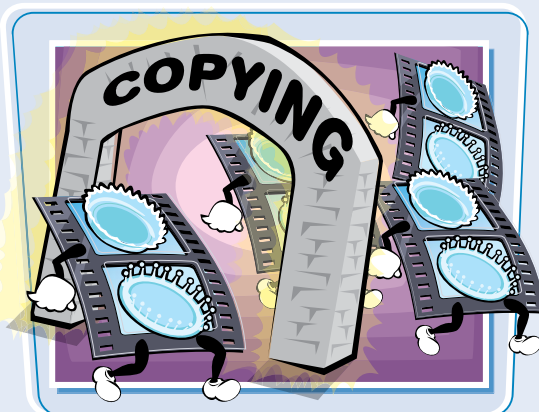
## Understanding the Benefits of Going Digital

Digital video provides you so much more than just the ability to capture great footage; it provides you with the flexibility to share those moments with others. You can create sleek video presentations of your footage with video editing programs, and then make DVDs of the footage and send copies to family and friends. You can even create your own Web page showcasing your videos.



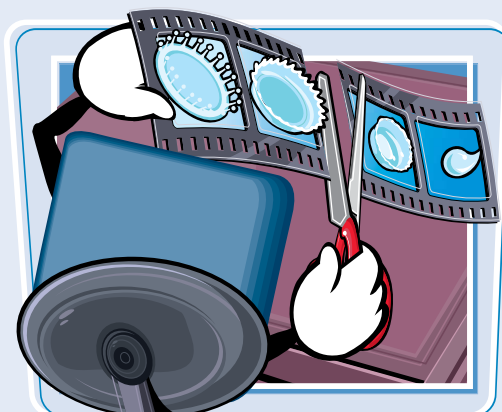
### Maintain Picture Quality When Copying

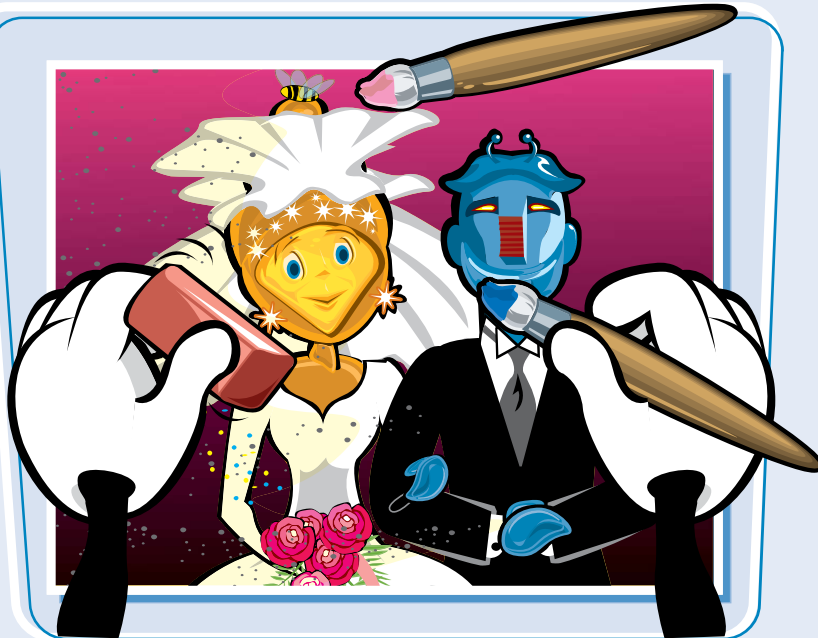
When you view a copy of a copy of a wedding, shot over 10 years ago in analog format, image deterioration is noticeable. Digital video data is broken down into defined, individual bits of data, a binary format as a series of ones and zeros. Because of this, it is not susceptible to what is referred to as generational loss, as experienced with analog video when copied.



### Take Advantage of Video-Editing Software

Digital video can be transferred from your video camera to a computer to take advantage of powerful video-editing applications. Programs such as Apple iMovie and Adobe Premiere Elements give you the ability to manipulate video footage, add effects and music, and even create titles. Many video editing programs also provide various means for sharing your video with others.



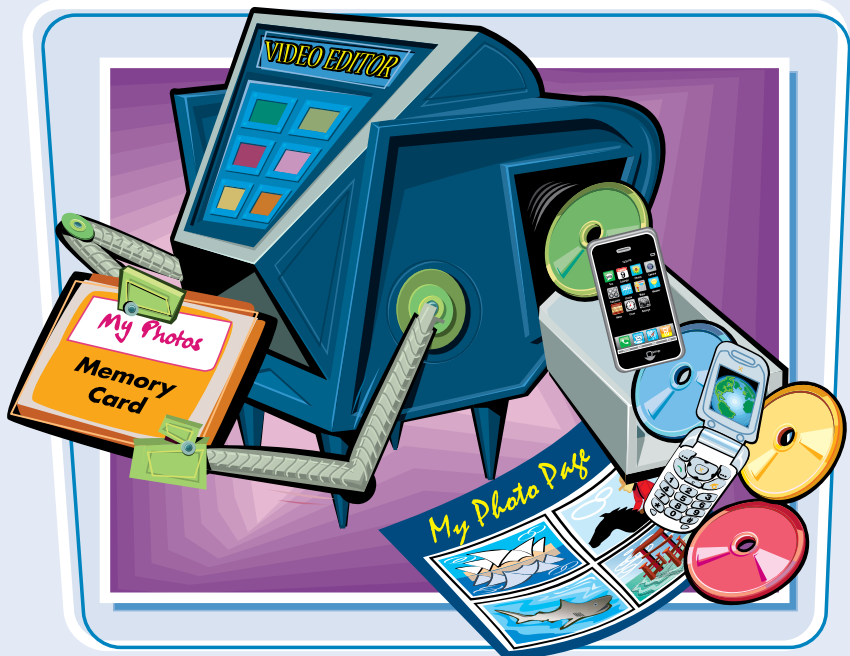


### Digitize to Restore, Enhance, and Preserve Old Video

You can digitize old videos of weddings, birthday parties, and special moments that were captured with non-digital cameras. Converting your old VHS tapes to digital form stops the deterioration process caused by heat and humidity due to improper storage of videotapes. You can use a video editing application with color correction tools to help enhance the colors and minimize some of the effects of aged video. Your captured digital files can then be organized and archived on hard drives, DVDs, and CDs.

### Distribution Options

Your digital video files can be edited within a video editing program and made into a high-quality DVD to be shared with friends and family. Many video editing programs come already bundled with software that enables you to create DVDs and share your video on popular Internet sites such as YouTube. Programs such as Apple iMovie and Adobe Premiere Elements have special export options for getting your video onto mobile devices such as video-capable iPods.





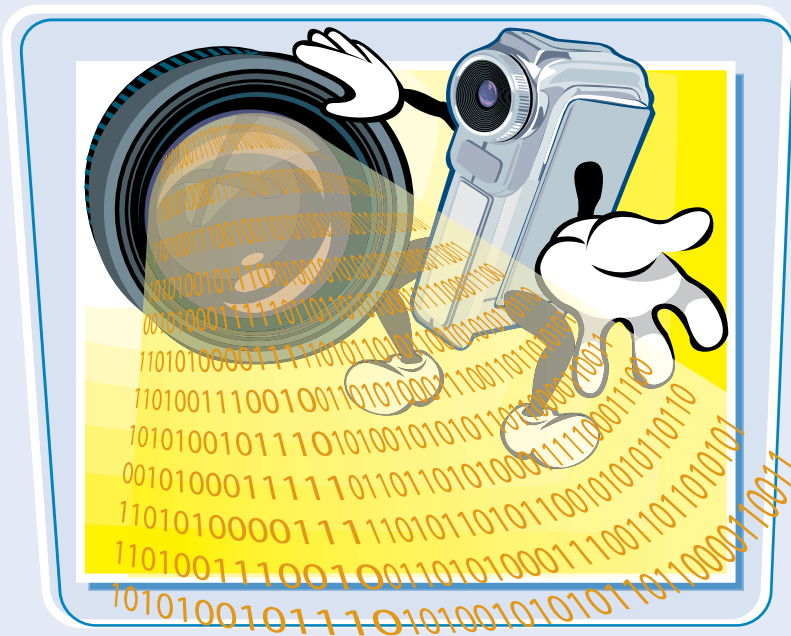
## Discover Digital Video Cameras

When you understand how a digital video camera works, you are able to make more informed decisions when it comes to investing in a camera. Understanding how a camcorder works also helps you to take higher-quality video footage.



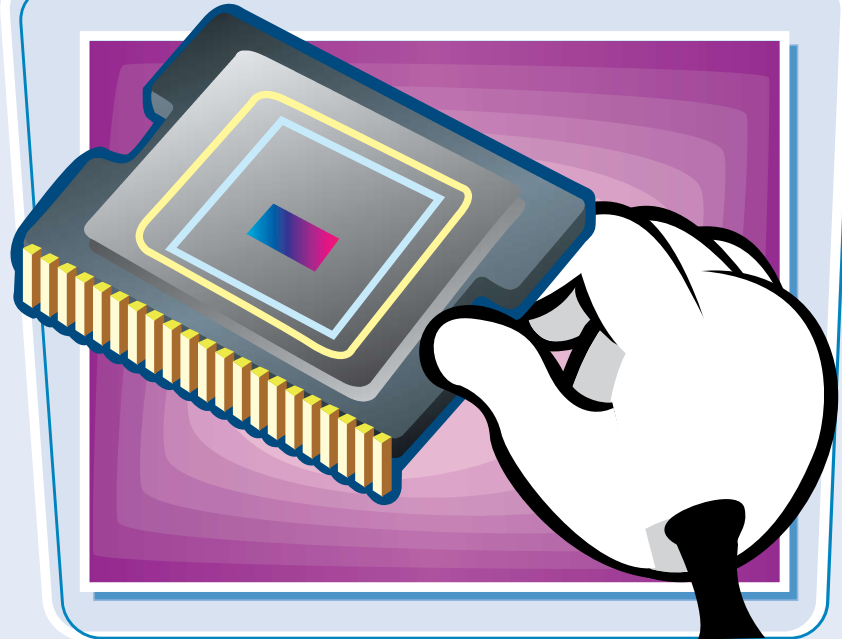
### How Digital Video Cameras Record Pictures

Digital video cameras translate the analog information received through the lens into bytes of data. Light from the image you are shooting enters the camera lens and is focused onto an image sensor located behind it. Some higher-end cameras utilize multiple sensors for a higher-quality image. The surface of the sensor(s) is covered with millions of light-sensitive pixels, the building blocks of all digital images. The moving image data, including colors, is then converted into a stream of zeros and ones, and then stored as digital video.



### Types of Image Sensors

The majority of digital video cameras on the market use one of two types of image sensors: a charged-coupled device (CCD), or a complementary metal-oxide semiconductor (CMOS). You are likely to find less-expensive consumer cameras using a CMOS sensor or a single CCD. The more-expensive, higher-end cameras utilize three CCDs. Although there are some differences between CCD and CMOS technology, they both are capable of creating high-quality images.

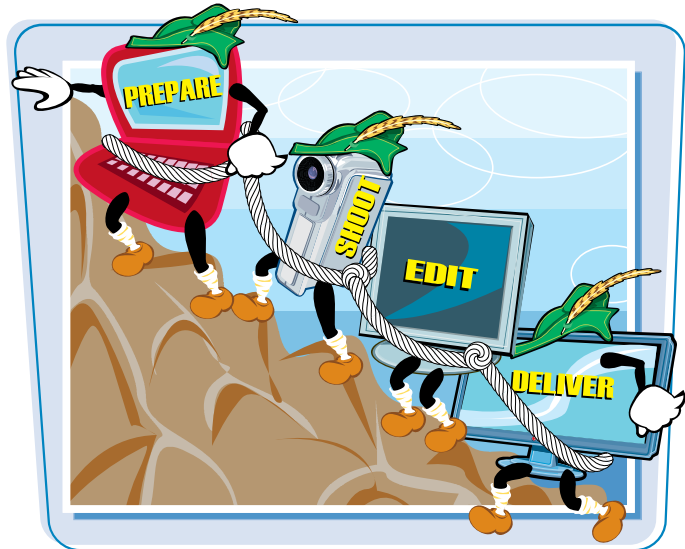


### Resolution and Image Quality

The quality of the image that a video camera can produce is largely dependent upon the resolution, which is a measure of pixel density. By and large, the greater the number of pixels on an image sensor, the cleaner and crisper the image. The physical size of the CCD also plays a role in picture quality. Many entry-level high-definition camcorders have a resolution between 3.3 and 5 megapixels, which is 3.3 million or 5 million pixels.

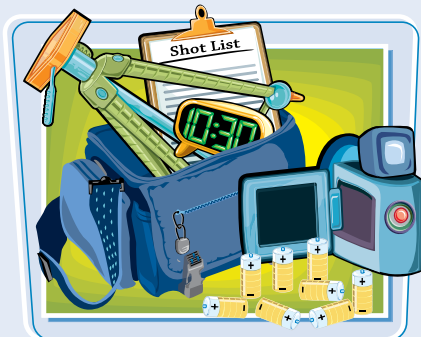
## The Digital Video Workflow

There are a series of steps you need to follow, known as a workflow, in order to take a video production from concept to finish and share your work with others. Understanding the digital video workflow enables you to better execute a plan in the field to achieve the highest-quality video possible.



### Prepare to Shoot Great Video

How well you prepare for the shoot can be as important as the shoot itself. You should carefully consider what you may need before you leave for the event. Know how long you will be shooting, and make sure that you charge your batteries the day before you go. Create an equipment list, as well as a possible list of shots you want to get during the shoot. Will you require a tripod, or will you be shooting in close quarters with minimum space? Print your checklist and mark each item off as you place it into your camera bag.



### Shoot the Video

The acquisition of the video footage can be quite an adventure. When you hit the record button on your video camera, the lens becomes your eyes and it is your job to find the story. Make your shot selection deliberate and purposeful, and always make sure you are safe. By recording from a variety of interesting angles and clearly identifying a main subject, you will have plenty of footage, thus setting yourself up for success in the editing room.





### Edit the Video

The editing process is where you bring the story together by putting the video clips into sequence and fine-tuning the relationship between clips. During the editing process, you can add titles to the project, record narration, add music, add still photographs, balance colors, adjust audio levels, and even add special effects.

### Deliver the Video

After your project is complete, it is time to share it with the rest of the world. There are many avenues available to you for getting your video seen, such as DVD authoring, video sharing sites, and mobile devices. Consider purchasing a video editing program that includes delivery options such as these as part of the program. You can also create your own Web site to showcase your movies and maintain your own video blog.





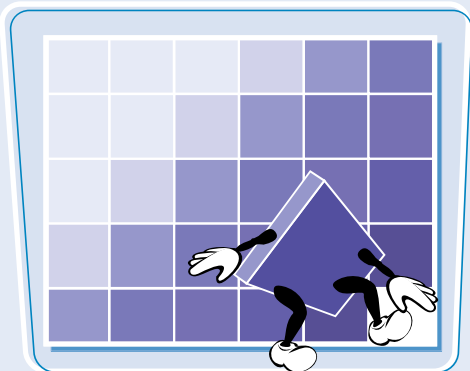
## Essential Digital Video Terms

Learning common digital video terms enables you to make better decisions about what video camera to purchase and helps you to understand the digital video process.



### Master the Megapixel

Digital video resolution is measured in megapixels. *Pixels* are collections of tiny dots that comprise a digital video image. One megapixel is equal to 1 million pixels; therefore, 5 megapixels equals 5 million pixels. A high density of pixels in a picture results in a larger, crisper, sharper image. A low density of pixels results in a lower-quality image. A good rule of thumb is that the higher the megapixel count of the camera, the higher quality the image it can produce.



### Aspect Ratio

The *aspect ratio* is the width of an image to its height on a viewing screen. Standard-definition video has an aspect ratio of 4:3, and the aspect ratio for high definition is 16:9. The standard-definition 4:3 aspect ratio is the most common and has been seen on television for years. The 16:9 aspect ratio, often referred to as widescreen, is usually associated with cinematic viewing, but with the rise in HD programming and HDTVs, it is becoming increasingly popular. Many of today's digital camcorders can record in both the 4:3 and 16:9 aspect ratios.



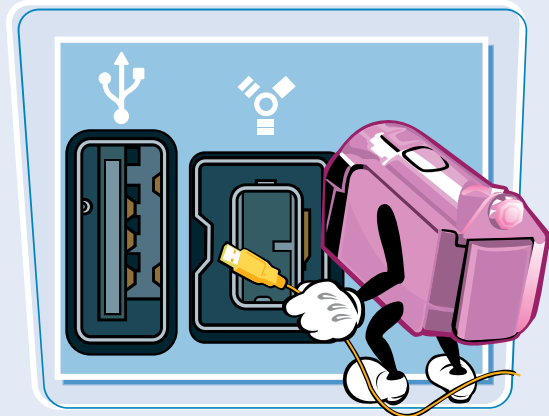
### Interlaced versus Progressive Scan Video

The video that you see on television is usually drawn as a series of horizontal lines that comprise the entire image on screen during a scanning process. *Interlaced video*, which is often signified with an (i), such as 60i, is drawn in two passes, with every other line drawn on each consecutive pass to create the picture that you see. *Progressive scan video*, which is often signified with a (p), such as in 24p, is referred to as *non-interlaced video*, and all resolution lines are drawn in one pass. Most consumer camcorders record interlaced video, and many cameras offer progressive recording modes.



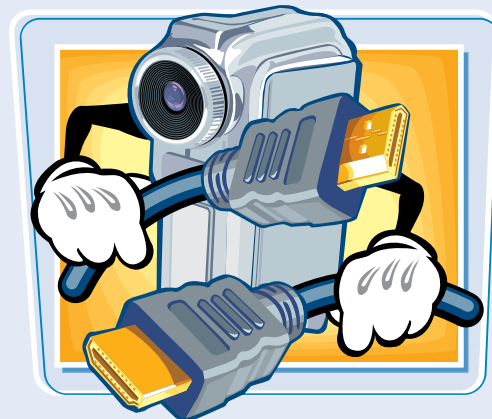
### FireWire and USB Connections

Nearly all Mac and PC computers come equipped with a FireWire (IEEE-1394) and USB port. The IEEE-1394 connection is called FireWire by Apple and i-LINK by Sony. Depending on which digital camera you purchase, a FireWire or USB connection is used to connect the camcorder to the computer to transfer digital video, audio, and timecode, which is a system for identifying individual video frames with units of time. FireWire 800 and USB2 Hi-Speed boast faster speeds than their previous versions.



### The HDMI Interface

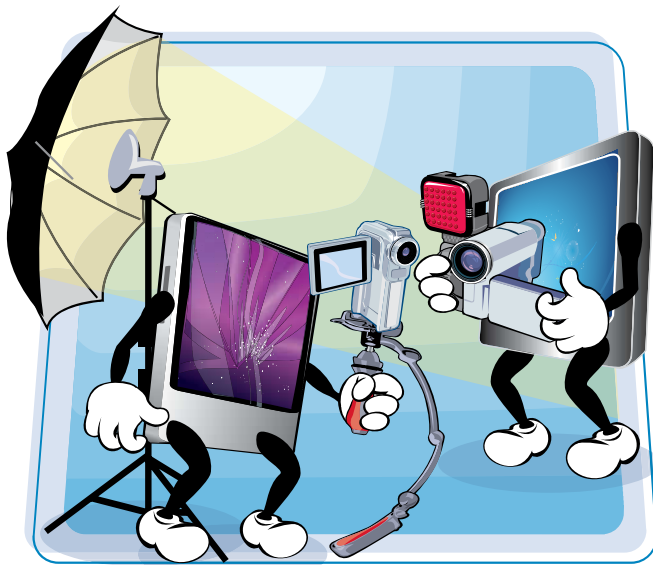
Connections made with the High Definition Multimedia Interface (HDMI) terminal give you the highest-quality playback, transporting high definition video and audio through a single connection. This connection can be made only with a high definition camcorder and an HDTV. HDMI cables are somewhat expensive, and are usually not shipped with high definition camcorders or HDTVs.



# CHAPTER

# 2

## What You Need to Get Started

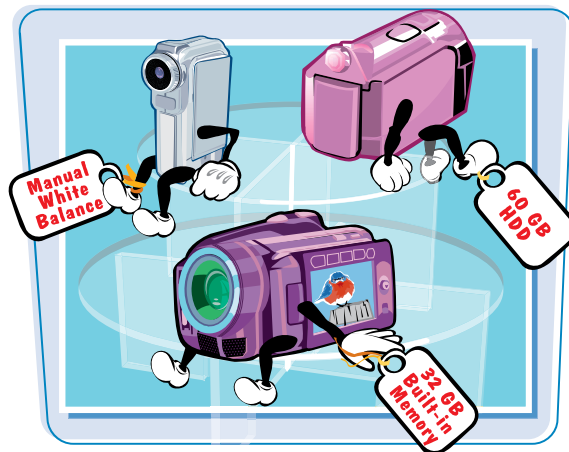


Creating your own video productions is a very exciting venture. If you are new to digital video, feeling a little overwhelmed in the beginning is natural. Understanding the nuts and bolts of what it takes for you to record, edit, and deliver high-quality digital video is essential to your success. In this chapter you learn what features to look for when buying a video camera, as well as what accessories help you get the most out of your camera. Editing and distributing digital video takes formidable computing power, so you also learn what to look for when purchasing a computer for digital video work, and how to upgrade the computer you may already have.

<b>Explore Popular Digital Video Camera Features.....</b>	<b>16</b>
<b>Explore Consumer High Definition Video .....</b>	<b>18</b>
<b>Explore Aspect Ratios.....</b>	<b>20</b>
<b>Choose the Right Digital Video Camera.....</b>	<b>22</b>
<b>Know the Parts of a Digital Video Camera .....</b>	<b>26</b>
<b>Consider Digital Video Camera Accessories.....</b>	<b>30</b>
<b>Explore Battery Options and AC Adapters.....</b>	<b>34</b>
<b>Explore Computer Essentials for Video .....</b>	<b>36</b>
<b>Upgrade Your Mac.....</b>	<b>38</b>
<b>Explore Video Editing Applications for a Mac.....</b>	<b>40</b>
<b>Upgrade Your PC.....</b>	<b>42</b>
<b>Explore Video Editing Applications for a PC.....</b>	<b>44</b>
<b>Choose the Proper Lighting Gear .....</b>	<b>46</b>

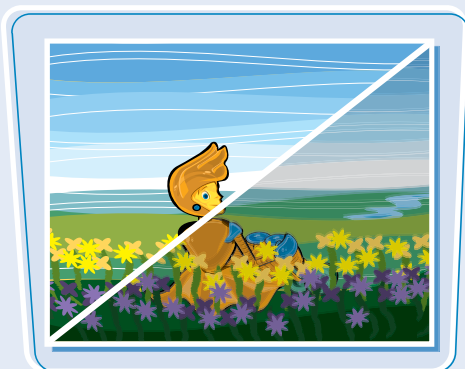
## Explore Popular Digital Video Camera Features

Besides your personal budget, features and performance are the two most important factors in deciding which digital video camera to buy. Features are the selling points of the camera, such as how many megapixels it has, or if it boasts cinema mode for added control over the image. To gauge the performance of a camera requires trying out the camera and reviewing footage before buying. Looking for some of the following camera features can help you identify a solid camcorder.



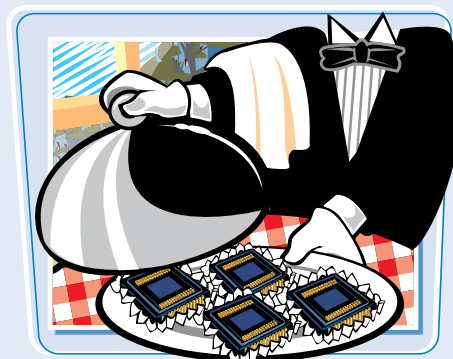
### Evaluate High Definition and Standard Definition

Although quite a few standard definition video cameras are still being sold, the industry is definitely trending toward high definition. High definition (HD) is the latest technology in the digital video field, offering more vibrant colors and clearer picture quality than standard definition. High definition camcorders record images at a resolution of 1080 interlaced pixels or 720 progressive pixels from top to bottom of the picture. One thing to consider is that when viewing on a television set, you do not get the full effect of HD recording if you do not have an HDTV. With that being said, the video quality is still impressive.



### Explore Sensors and Megapixels

Higher-end, more expensive cameras utilize multiple sensors for a higher quality image. If your plan is to do professional-level work, a camera that utilizes three image sensors is the way to go. Most consumer cameras use CMOS sensors. Although the CMOS and CCD technologies have differences, they are both capable of high quality video. The number of pixels located on the surface of the sensor also influences the quality of the video captured, as well as the size of the sensor. The greater the number of pixels on an image sensor generally means the cleaner and crisper the image. The size of the chip is usually measured in fractions of an inch. In the arena of one-chip cameras, you can arguably achieve a better quality image with a camera that has a physically larger image sensor and fewer pixels than a camera with a physically smaller sensor and more pixels. The actual size of the pixels themselves also play a role in picture quality, so more pixels does not always mean a better camera.



### Examine Record Media

Digital video cameras offer several media on which to record, each with benefits and shortcomings. Some cameras use solid-state storage (no moving parts), such as internal flash memory or memory cards. HDD (Hard Disk Drive) video cameras utilize internal drives ranging from 40 to 120 gigabytes of space. The advantage of these cameras is that you do not have to bother with tape, which is especially beneficial when you are ready to import video footage into your computer. Cameras that use actual hard drives tend to be more fragile, and some memory-card-based cameras offer less recoding time than conventional tape.



### Automatic and Manual Settings

Just about all digital video cameras on the market have automatic settings with the exposure, focus, and audio are controlled completely by the camcorder. Automatic settings work well in general shooting situations, but for more professional video, you need the option of manual control over these settings to control the look of your video. In less-than-perfect shooting environments, automatic settings can become confused and can yield less-than-desirable results. Choose a camera that provides you both automatic and manual control.



### Cinema Features

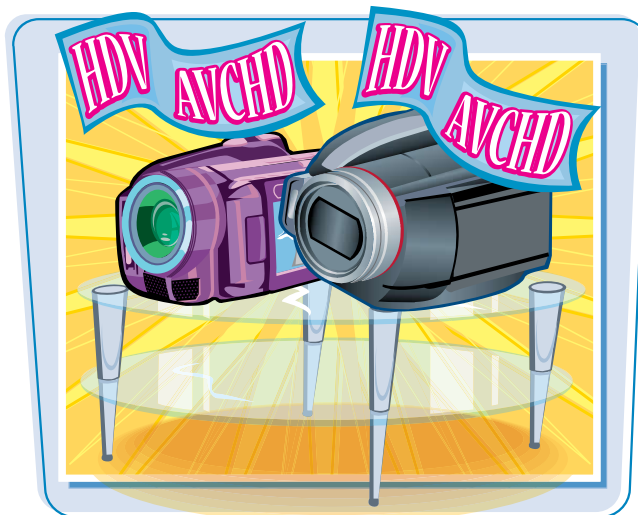
Some video cameras enable you to give your video a cinematic look by adjusting color and tonal characteristics, so it appears similar to film. This feature is often offered with a 24-frame-per-second progressive frame rate (24p), providing filmlike motion characteristics to further enhance the cinematic look of your video. This is a great feature if you are an independent filmmaker who wants to capture the aesthetic of film for your work.





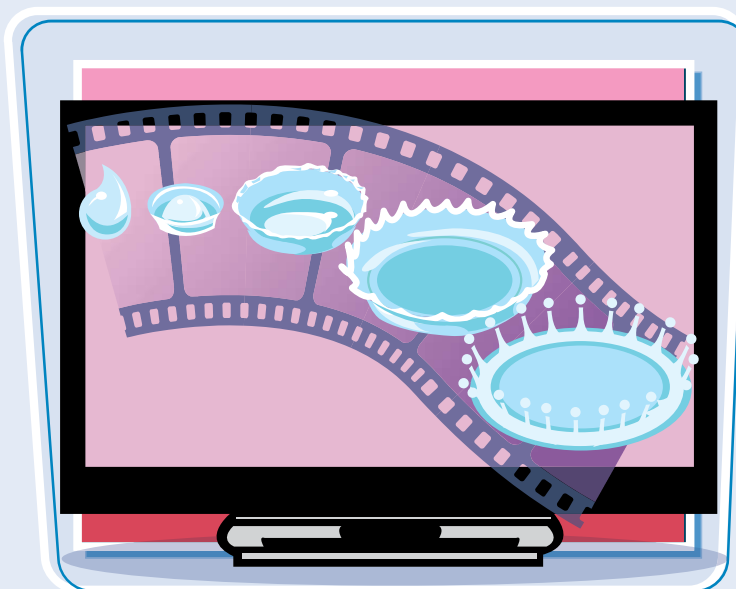
## Explore Consumer High Definition Video

High definition video comes in a variety of flavors. The fundamental difference between the formats is the compression method, or how the images are stored on the record media. Becoming familiar with popular high definition video formats can aid you in choosing the best camera for your needs.



### High Definition (HD) Specification

The important thing to note about HD video is that manufacturers and software developers universally recognize it as a specific technical specification, most noticeably in the areas of frame size and image dimensions. Standard definition (SD) images have fixed dimensions of 720×480 pixels for NTSC and 720×586 pixels for PAL. NTSC, National Television System(s) Committee, and PAL, Phase Alternating Line, are the two standard analog television encoding systems used in broadcast television. NTSC is used in North America and Japan, and PAL is used nearly everywhere else in the world. High definition video displays resolutions of 1280×720 pixels and a larger 1920×1080 pixels. These two HD specifications are often referred to as 720p or 1080i, the *p* and *i* standing for progressive and interlaced scanning.



**Get To Know HDV**

The HDV (High Definition Video) format brought high definition video to inexpensive cameras and is still one of the most popular high definition camera formats on the market. HDV stores 16:9 high definition video supporting resolutions of 1280×720 and 1920×1080 while recording to the same Mini-DV tapes used for standard definition. Not all HDV cameras record in both the 1280×720 and 1920×1080 resolutions. This format was developed by JVC and later supported by Sony, Sharp, and Canon as an HDV consortium.

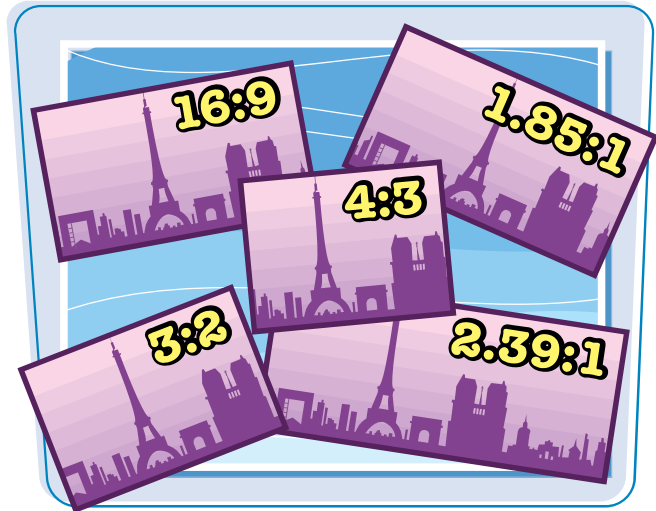
**Discover AVCHD**

AVCHD (Advanced Video Codec High Definition) is quickly becoming the most popular consumer HD video format on the market. This format offers a variety of resolutions including 1080p (progressive), 1080i (interlaced), and 720p. Cameras that record in the AVCHD format can also record to a number of media such as flash memory, memory cards, hard disk drives (HDDs), and DVDs. Quality between consumer HDV and AVCHD cameras remains debatable, but increases in technology, specifically bit rate, and variety in record media have placed AVCHD at the head of the game.



## Explore Aspect Ratios

Aspect ratio describes the ratio of the width of an image to its height on a viewing screen. Learning about aspect ratios helps you understand how the video that you shoot is displayed.



### Video Dimensions

Width and height are very important visual characteristics used when discussing video. The width and height of digital video is measured in pixels, which is also referred to as its dimensions. For faster playback, a video played over the Internet may have rather small dimensions such as 320×240, meaning that the video is 320 pixels wide and 240 pixels high. A video downloaded and then played on the desktop may have larger dimensions, such as 640×480. Consumer DV cameras can produce 720×480 images, and high definition video can have dimensions as high as 1920×1080.



**Understand Standard 4×3**

4×3, sometimes shown with a semicolon as 4:3, is an aspect ratio used for traditional televisions or SDTVs (Standard Definition Televisions) and is the aspect ratio of standard definition video. In a nutshell, aspect ratios depict the fractional relation between a video's width and its height. So, a 320×240 video and a 720×480 video can both be considered 4×3 video.

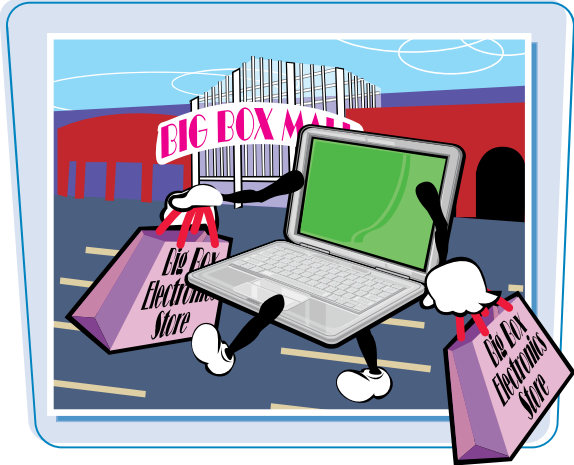
**Widescreen 16×9**

16×9, sometimes shown with a semicolon as 16:9, is an aspect ratio used for modern HDTV (High Definition Television) and is the aspect ratio of high definition video. With its wider horizontal viewing area, the widescreen image is more comparable to how the human eye views the world than the standard image. 1280×720 and 1920×1080 high definition video are both in the 16×9 aspect ratio. Some high definition cameras have the ability to shoot in 4×3 and 16×9. Some standard definition camcorders have the ability to manipulate a standard image into a widescreen format.



# Choose the Right Digital Video Camera

It can be overwhelming to walk into an electronics store and wade through all of the camera options available. Before you put your hard-earned money into a camera, you need to know exactly what you are looking for. You need to define your intentions for the camera, read reviews, choose the features that help you achieve your goal, and perhaps most importantly, determine a budget.



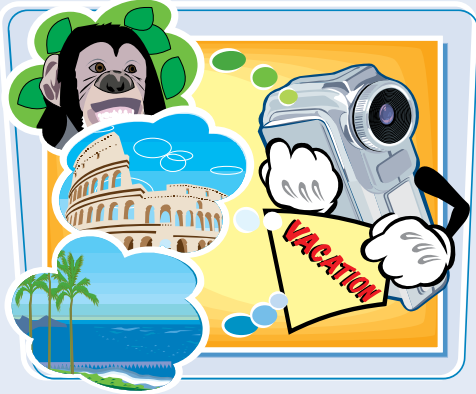
### Determine Your Budget

Price is probably the single most influential factor in deciding which digital video camera to purchase. If you are looking to spend around \$300 or less, you are most likely going to end up with a consumer standard definition camera or an ultra compact HD camera. If your budget is a little more flexible and you can pay about \$600, you slowly enter the more versatile higher-end consumer cameras.



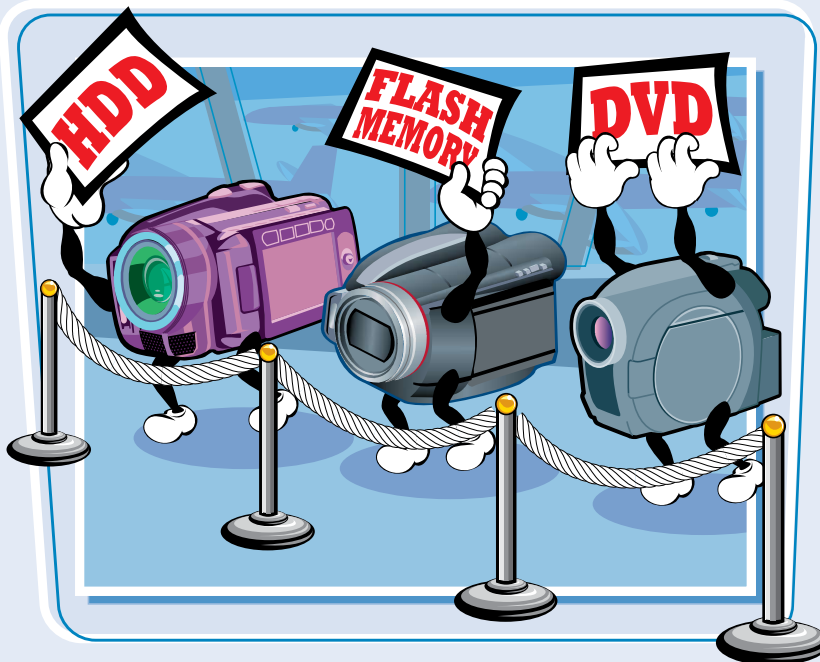
### Define Your Intentions

What are you planning to shoot with your camera? Will it be strictly used for home and vacation moviemaking, or are planning to start your own video service where you build a clientele of paying customers? If only friends and family will see your videos, a less expensive entry-level camera may suffice. If you are looking to get paid for your work, the advanced features of a prosumer camera may help you edge out the competition by offering a superior product. Ask these tough questions to help you gauge how much camera you need and determine which features are essential to your goal plan.



### Read Reviews

Reading reviews and viewing sample videos on the Internet are good ways to help you gauge the performance of a camera. Many sites such as [camcorderinfo.com](http://camcorderinfo.com) and [cnet.com](http://cnet.com) post reviews for new camcorders and provide forums for discussion. Pose questions to owners of the camera you are looking at and make them aware of your intentions. There is a good chance that you can find another user who has “been there, done that” and can steer you in the right direction.



### Choose a Recording Medium

For some camera owners, the recording medium of the camera is the deciding factor as to which camera they purchase, especially if they have had bad past experiences with another. Perhaps you prefer a camera that records to a hard disk drive because you want to free yourself from tape, and like that it offers larger storage capacity than cameras that record to memory cards. Maybe you do not trust hard drives because they have failed you in the past, and so you go the solid-state route.

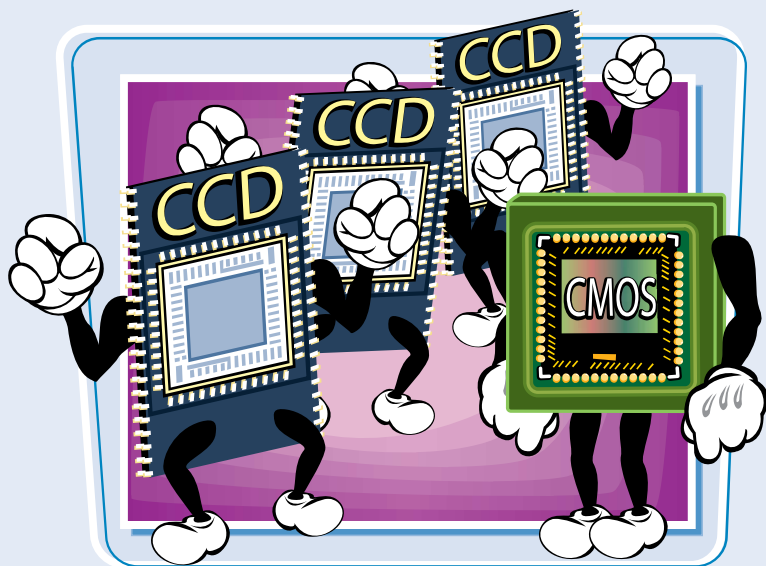
continued

## Choose the Right Digital Video Camera *(continued)*

Getting the right camera for the job is crucial when investing in a digital video camera. Take into consideration the camera's image sensor or sensors for achieving the picture quality you desire. For the maximum amount of control over your recordings, choose a camera that provides manual adjustment options for exposure, white balance, shutter speed, as well as audio recording levels. Try out the camera before you make a purchase and always buy from a reputable dealer.

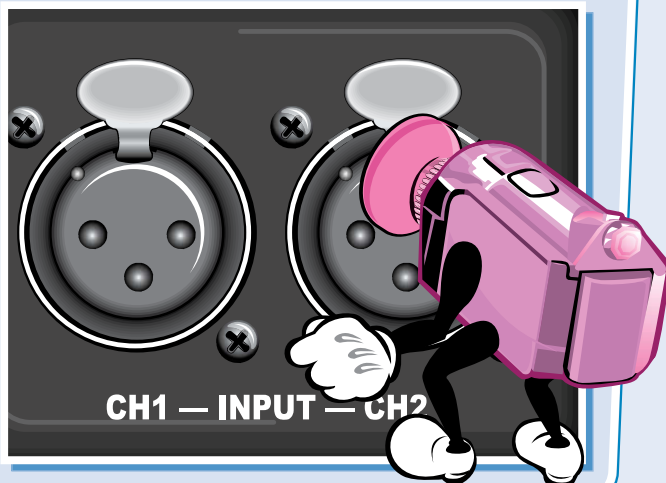
### Evaluate Image Sensors and Megapixels

A camera that utilizes multiple image sensors can yield more professional results in the realm of picture quality, but it is more expensive than its single chip counterparts. Most of the consumer cameras under \$1,000 utilize a single CMOS chip. The number of pixels on an image sensor and the size of the pixels also affect the image in terms of resolution. In general, a higher pixel count can yield a higher quality image. Expect to pay more for cameras with higher pixel counts.



### Determine Sound Needs

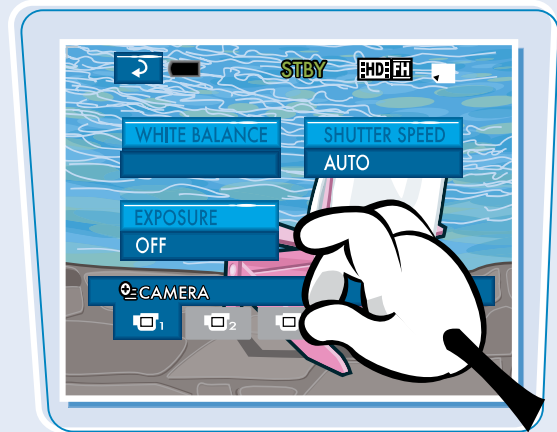
The more expensive prosumer cameras possess professional audio inputs known as XLR inputs. XLR inputs enable you to connect to professional microphones and pro audio equipment for the best audio. If your plan is to shoot events for money, most of the sound equipment used at events use professional XLR connectors, so you may want to consider a higher-end camera. There are also XLR adapters you can connect to cameras that use a simple mini jack, but if your camera is very compact, the adapter can prove very bulky for handheld shots.





### Evaluate Manual Settings

The more the camera lets you manually adjust settings such as exposure, white balance, shutter speed, and audio, the more control you have over the image. The more manual control you have over the image, the more flexible you can be to get the best video under changing conditions. The automatic settings perform well and are a great convenience, but no automatic system can get it right every time.



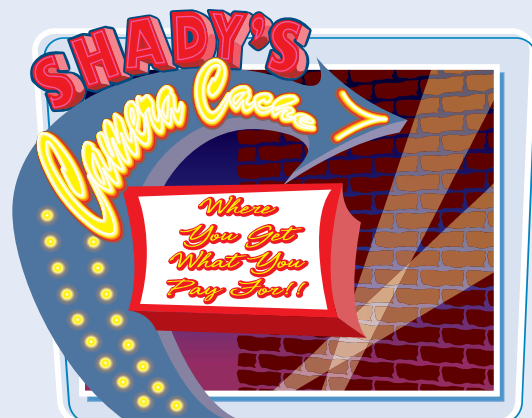
### Try It Out

You would not buy a car without driving it first; do not buy a camera without getting some hands-on time. You do not want to buy a camera and discover that your fingers are too large for the buttons, or the menu or button layouts are not intuitive and are frustrating. Even if you have found a good deal online for a camera, go to your local electronics store and get it in your hands first.



### Buy Reputable and Shop Around

Always buy from a reputable dealer; this is more of an issue when you are shopping online for a digital video camera. Shop around and look for the best deal, but if you see a dealer with a price hundreds of dollars lower than the competitors, be diligent and do your research. Some sell gray market units from other countries whose warranties will not be honored. Others may charge you extra for accessories that are actually included with the camera.



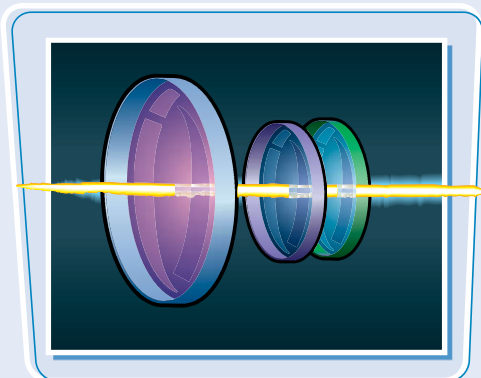
## Know the Parts of a Digital Video Camera

Digital video cameras place plenty of creative power at your fingertips. Manufacturers have designed them for ease of use, some being more successful than others, but before you can tap into that creative power, you must know your way around your camera. Being able to identify some of the major parts of a digital video camera helps you conceptualize many of the future topics discussed in this book.



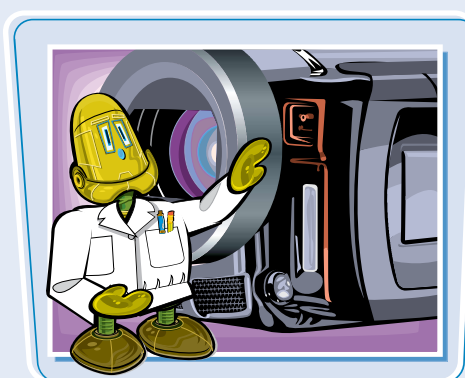
### Lens

Modern camera lenses utilize several optical elements called *lens elements* to cancel out lens aberrations. Lenses also utilize a special coating to minimize lens flares and ghosting. To save money, many of the consumer digital video cameras offer limited optical zoom range supplemented with a digital zoom, which simply magnifies the image to make it appear closer. You can purchase lens converters that can lengthen the camera's optical zoom or provide a wider angle. Check to see if your lens accepts filters, and then take note of the filter size for your lens if you plan on buying them.



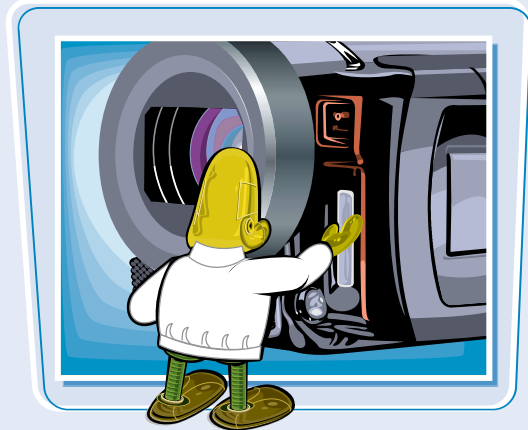
### Sensor

Digital video cameras also utilize sensors located on their fronts to help them perform an accurate automatic focus. The sensor determines the distance between the camcorder and the subject, and quickly adjusts the lens so that the image is in sharp detail. The automatic focus can quickly shift to a new subject without your intervention.

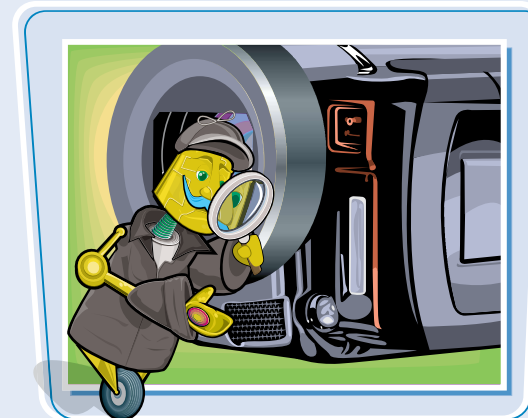


**Flash**

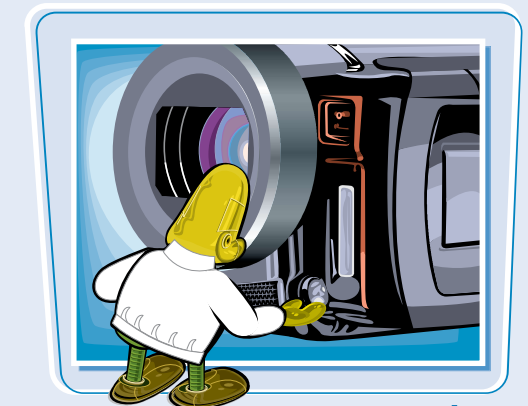
Many digital video cameras are also digital still cameras, and have a flash located on the front of the unit. Just like a still camera, the flash can help your images by adding extra light when shooting still images in very dim locations. Some also offer a red-eye reduction function and various states for the flash such as auto, on, and off. The flash is only useful for taking still photos.

**Stereo Microphone**

The microphone is generally located under the lens of the camera. The stereo microphone captures sound as you record your movies without the help of extra sound-recording equipment. Built-in microphones are notorious for picking up plenty of ambient noise in all directions, so you have to keep them at a relatively close distance to the subject for the best audio. Digital video cameras can also allow for higher quality audio accessories to be attached by an audio input.

**Mini Video Light**

Some video cameras have a built-in video light located on the front of the camera that offers more light in dim shooting conditions. You can turn on the mini video light in dark places to illuminate your subject while shooting video or taking still photos. This light is very concentrated and can be much like shining a flashlight. This light tends to be effective up to about five feet.



continued



## Know the Parts of a Digital Video Camera (continued)

The more comfortable you are navigating your video camera, the quicker you can respond to your subject matter while recording in the field. If you take time to practice with your camera before you begin the actual shoot, you set yourself up for a more enjoyable shooting experience.



### Viewfinder

Depending on the camera, you may not have a viewfinder but only an LCD to peer through the eye of the camera. The viewfinder is the place where you place your eye to the camera so you can compose the scene. If the camcorder does have a viewfinder, you can mostly likely find a dioptic adjustment lever that enables you to adjust the viewfinder for your particular eyesight. If you have a problem focusing on the scene while looking into the viewfinder, you may need to adjust this lever. If you still have problems focusing after you have adjusted the dioptic lever, you may simply not have focused the camera properly.



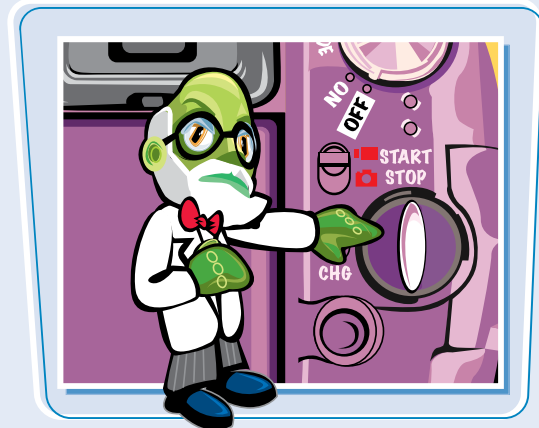
### LCD Screen

Many video cameras are equipped with a widescreen multiangle LCD panel to monitor your images. The LCD screen works much like the viewfinder; it is a window that you look through to compose your scenes. However, the LCD screen is more versatile than the viewfinder. The versatility of movement you can achieve with this screen makes it possible to shoot and view your subject from many different angles. More and more, manufacturers are starting to equip video cameras with LCD panels only, without viewfinders. Some video cameras that possess both a viewfinder and an LCD display also utilize the LCD as a built-in light. You would simply activate the video light and flip the screen toward the subject.



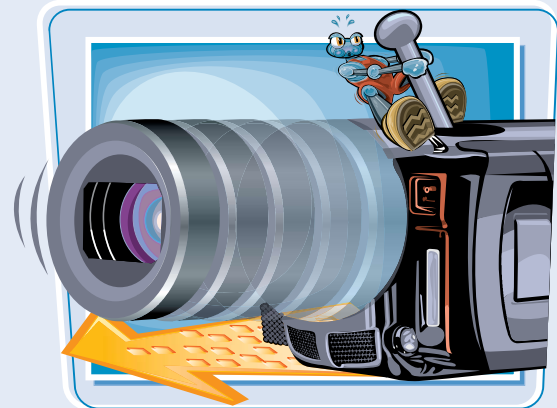
### Record Button and Thumb Controls

Digital video cameras are designed with the buttons you use the most conveniently placed at the tip of your fingers, namely the record or start/stop button. When holding your camera as if you were shooting, the record button is operated with the thumb. You can also find a camera mode button in the vicinity of the thumb controls, for cameras that you have to place in various modes of operation such as video and photo.



### Zoom Lever

The zoom lever, or rocker, is operated by the pointing finger and is strategically placed on the top of the camera in the vicinity of the pointing finger. Depending on which camera you have, the zoom may be operated by moving the lever from side to side or the rocker from front to back. Some digital video cameras enable you to choose from various zoom speeds, which enable you to perform either very fast or very slow zooms.



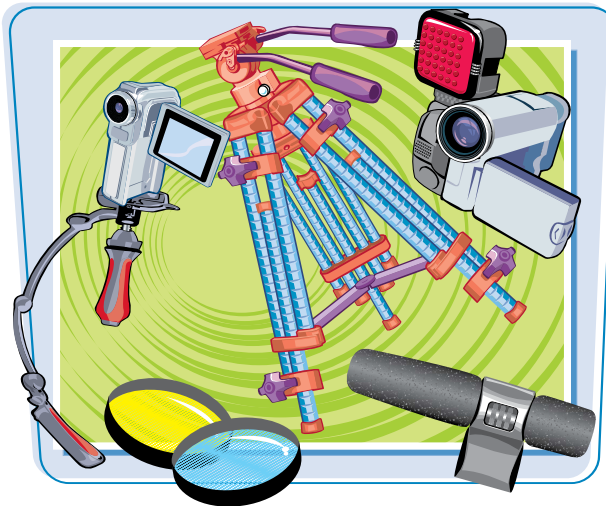
### Camera Modes

Video cameras offer various setups to access their various operating modes. Some offer a series of buttons, switches, dials, or even touch screens to change the camera between video mode, still image mode, and other playback modes. You may also find that many of the functions offered by a given digital video camera may only be accessible when the camera is in a specific mode.



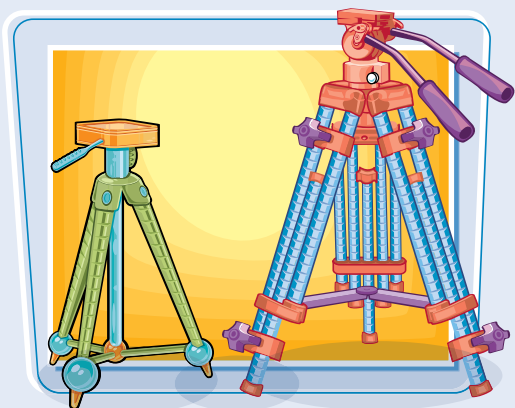
## Consider Digital Video Camera Accessories

Most digital video camcorders are capable of recording amazing images right out of the box, but whether you plan to use it for home videos or independent films, your camera needs to be versatile. Accessories help you adapt to various shooting environments where the bare minimum just will not cut it. This section offers essential accessories as well as some wish list items you will find intriguing for your video camera.



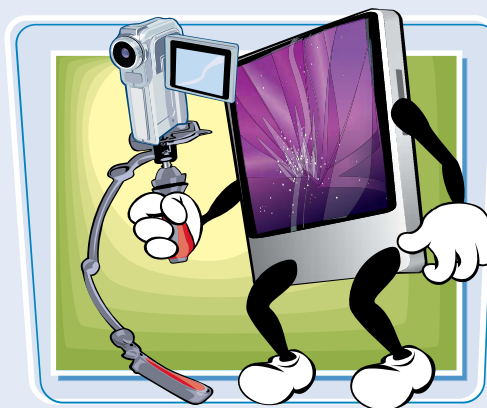
### Tripods

The tripod is perhaps the most essential accessory that you can buy for your camcorder. A tall, sturdy, lightweight tripod is what you need for steady shots, smooth pans, and tilts. You get what you pay for, so make sure that you get the best tripod you can afford. Make sure that the tripod you purchase is made for a video camera. Tripods made for still photography might not have the proper handles for panning or tilting, or they may allow for too much movement with no way to lock down vertical movement for smooth pans. A fluid-head tripod offers the smoothest motion. A monopod has a single leg setup and can work well in tight shooting situations where there is not a lot of standing room.



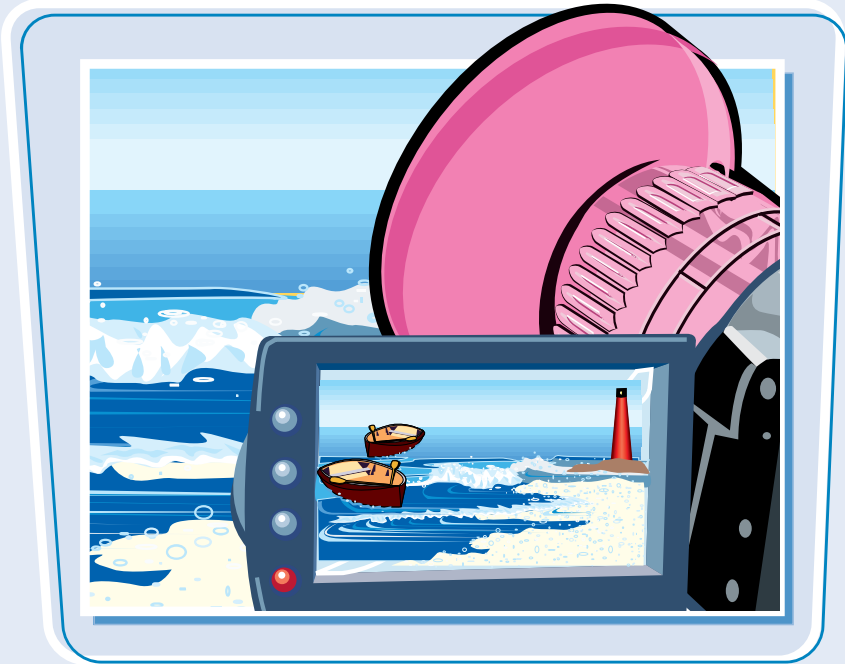
### Alternative Camera Stabilizing Devices

If you are recording on the move and require a steady shot, a camera support system may be just what you need. If you Google "stabilizing systems for camcorders," chances are your search results will return a bunch of professional rigs for larger cameras. Some companies do offer devices for smaller, lightweight cameras. These devices offer weighted support and balance that reduce shaking when running or walking while recording. Make sure that you try out these devices before you make a purchase.



### Lens Converters

The lens of your camcorder works fine in typical shooting conditions, but there are occasions where you need to get up close to the action, and moving physically closer to the action is not possible. Alternately, you may be shooting in a cramped area and cannot fit the entire subject matter into the shot. If your camera allows, you can screw on a telephoto lens converter or a wide-angle lens converter to get closer to the action or achieve a larger angle of view.



### Lens Filters

Lens filters can be quite advantageous for video cameras that can accept them. Lens filters are specifically crafted pieces of glass that attach right to the lens of your camera and manipulate light as it passes through the camera lens. A simple lens kit with a circular polarizing filter, a warming filter, and an ultraviolet filter provides you recording flexibility, creative aesthetics, and lens protection while shooting in various conditions. Keep in mind that whatever effects you achieve with lens filters become a permanent part of your video.

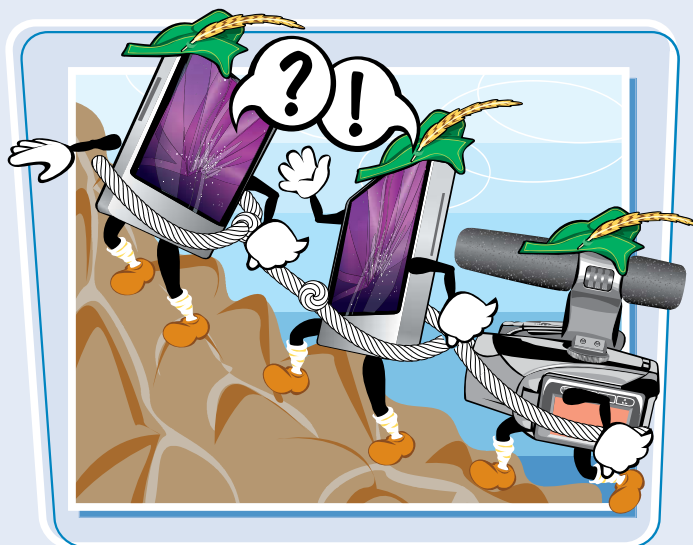
continued

## Consider Digital Video Camera Accessories *(continued)*

Extra batteries and chargers, extra recording media, and a good camera bag are essential accessories for your digital video camera. Consider lighting accessories for those less than perfect lighting situations so you can record the best video possible.

### External Microphones

When the shoot requires better quality audio than is possible using the built-in stereo microphone, you can use external microphone accessories with cameras that have external audio capabilities. Depending on the camera, the Mic terminal or XLR input, as well as the advanced accessory shoe, enables you to attach camera-mounted microphones, handheld microphones, and lavalier and lapel microphones for the best audio possible.



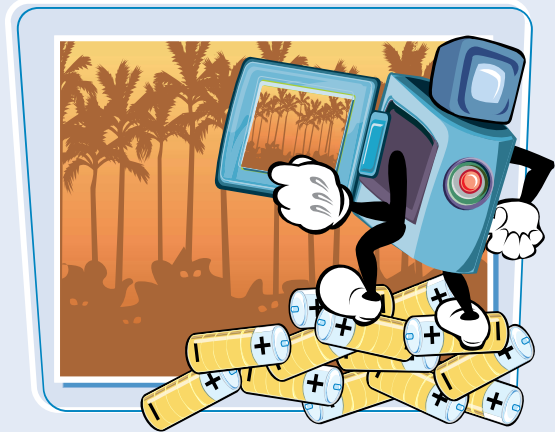
### Lighting Accessories

Some digital video cameras enable you to attach a light source to the hot shoe located on top of the camera. A camera-mounted light can offer you minimal lighting setup for recording in dark environments. For more lighting options, you can add a basic lighting kit that consists of floodlights, stands, and umbrellas for diffusion.



### Extra Batteries and Chargers

Extra batteries are an essential part of your camera accessories. It is also good to keep a mixture of different battery capacities on hand for longer shoots where you do not have access to an electrical outlet. Most batteries are charged while attached to a camera while using an adapter. You can purchase an extra charger so that you can recharge extra batteries while you are using another to shoot.



### Extra Recording Media

Make sure that you purchase plenty of extra tapes, DVDs, or memory cards, depending on which type of digital video camera you have. The amount of recording time a memory card offers depends on whether the footage is standard definition or high definition and the capacity of the card. Make sure that you purchase the proper memory card for your camera.



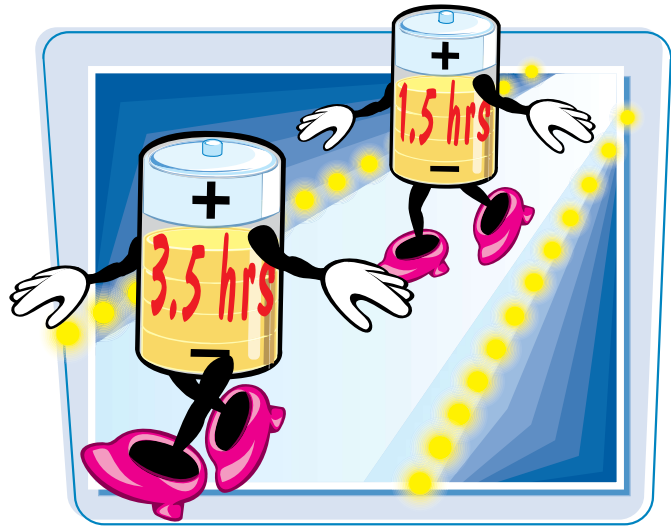
### Get a Good Camera Bag

A good bag is essential for protecting your camera. When traveling with your camera, you need space to pack a power cord, batteries, extra tapes, DVDs, memory cards, and other accessories, so make sure it is large enough. Most camera bags have interior dividers fastened to the wall of the case by Velcro, providing compartments for your accessories. Make sure that the bag is weather-resistant and can take a tumble. A good bag is also useful for storing your gear when not in use.



## Explore Battery Options and AC Adapters

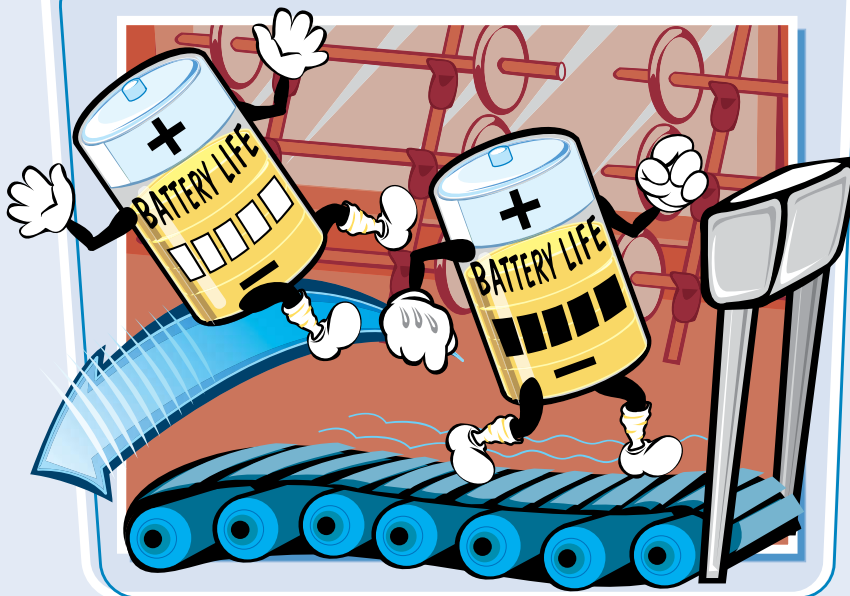
Batteries are often marketed by how long they last in the field. The more expensive batteries are generally the longer lasting ones, but beware of off-brand batteries because some of them may not perform as well as stated. You can get the most out of your batteries if you know which ones to look for and how to take care of them.



### Choose Batteries Carefully

An important thing to keep in mind when buying extra batteries is to always use the recommended batteries and the manufacturer's AC adapter for your camera. Many off-name brands boast higher capacities at cheaper prices, but the truth is that the guts may not be the same. It is not unheard of to buy an off-brand battery that is unable to hold a charge. At the end of the day, you really do get what you pay for.



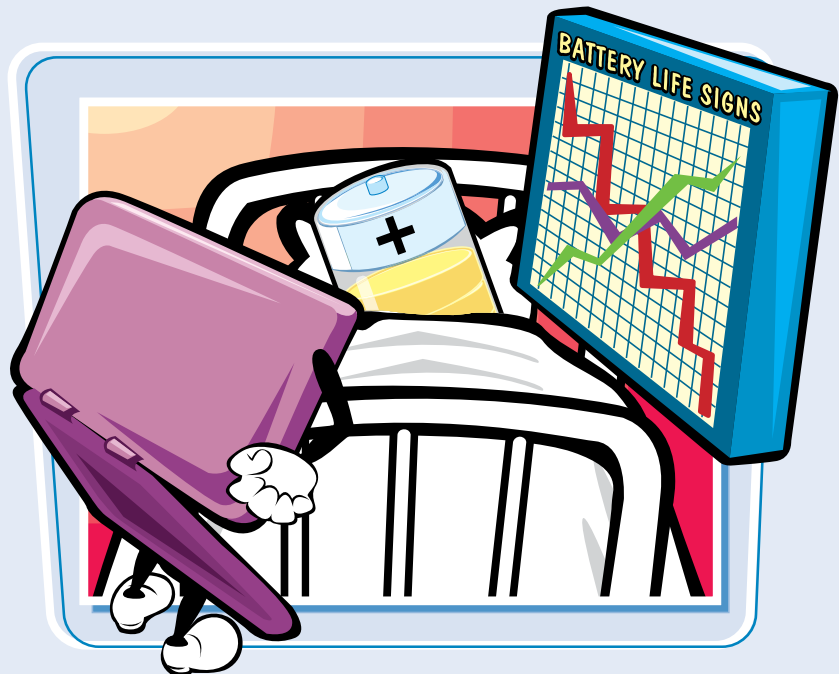


### Explore Battery Life

Be mindful of the weather in which you use your camera and store your batteries. Extreme temperatures, hot or cold, have an effect on the performance of the battery and can even cause damage. Keep the battery in a climate-controlled environment as long as possible, before you begin shooting. Whether you are shooting outdoors in Alaska in the winter or Phoenix in the summer, consider keeping the batteries in your car with the heater or air conditioner running until it is time to shoot.

### Proper Battery Care

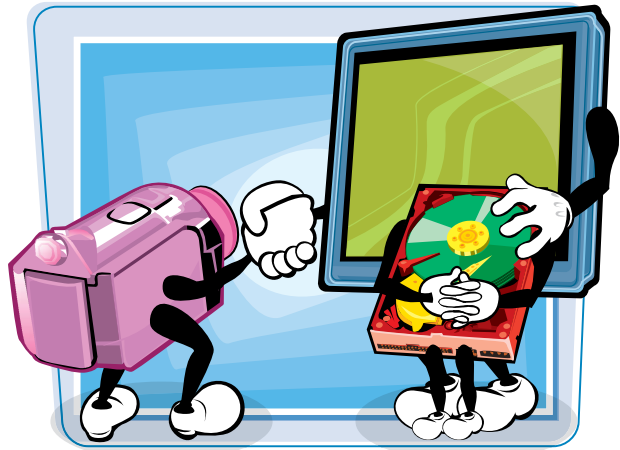
Do not overcharge your batteries. Make sure that you remove the battery from the camcorder after the indicator says that the battery is full. Overcharging the battery has an adverse effect on its performance. A partial charge puts less strain on the battery than a deep one, so it is also a good idea to fully recharge the battery even if it has not been fully discharged. This ultimately increases the longevity of your batteries. Do not fully charge or discharge your battery if you plan on storing it for a prolonged period. Charge the batteries to about 40 percent and store them in a cool and dry environment to ensure a stable storage condition.





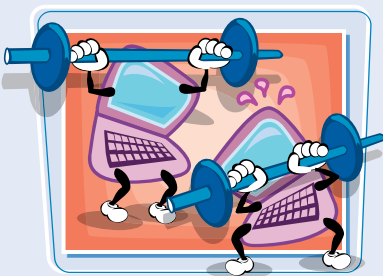
## Explore Computer Essentials for Video

Digital video requires a powerful processor, lots of memory, a big hard drive, a FireWire or USB port, or a memory card reader. As you go up the digital video food chain, the hardware requirements become more demanding and more specific. Most Macs are ready for consumer-level digital video. Because the PC arena has a wider range of performance levels, you need to know what you are looking for. By understanding what to look for in a computer, you can assess if your system is ready for digital video.



### Macs and Processing Power

Whether you are a Mac or PC person, keep in mind that the more power the better. Each new Mac comes equipped with iMovie installed and is ready for consumer-level video work. A new Intel Mac is compatible with the newer high definition formats (AVCHD). Entry-level MacBook laptops can do basic editing but cannot handle the more professional applications. Basically the more expensive Mac you purchase, the more high-end the system will be.

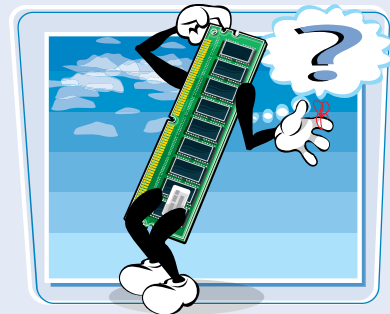


### PCs and Processing Power

Power is supreme and dual processors are great, especially when dealing with higher-end video editing applications. The important thing to keep in mind is that capturing and processing digital video requires more computing power than your standard applications. Go for a 3GHz (gigahertz) processor and do not go below a 1GHz processor.

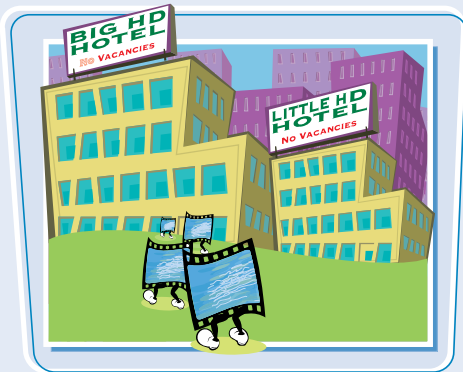
### The Importance of Memory

Next to the processor, memory is one of the most important elements for speed on your computer. A machine with a fast processor can be made sluggish when faced with an insufficient amount of RAM (Random Access Memory). Video editing applications require a lot of RAM, so the more the better. Get a system with at least 2GB of RAM. Anything less than 1GB may not be adequate.



### The Importance of Hard Drive Space

Video takes up a lot of space on your hard drive. Five minutes of standard definition video eats up about 1GB of hard drive space. When dealing with high definition video, your hard drive space can disappear fast. If you are planning to do a lot of video editing and burn DVDs, you need a place to store all that video. 200GB should be the absolute minimum, and 400GB of internal hard drive space is much better.



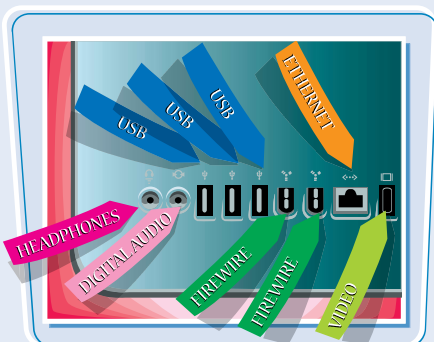
### Monitors

The LCD (Liquid Crystal Display) monitors on the market come in two flavors: the standard 4×3 ratio and widescreen 16×9, which is the same format as HDTVs. Widescreen computer monitors are a better choice for video editing, and the higher the resolution the better. Do not go below a 1280×800 resolution. Also, unless you have a 30-inch Apple or Dell monitor, consider using two monitors for more screen real estate.



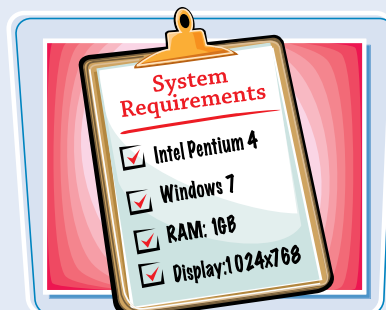
### FireWire and USB Ports

Depending on which camera you have, you need a FireWire (IEEE 1394) or USB port to import video from your camera onto your computer hard drive. With the exception of the MacBook Air, just about any Mac that you purchase has these ports, but you need to make sure that your PC does. If you already have a PC, you may need to install a FireWire card to get it ready for digital video. Keep in mind that Sony also refers to the FireWire connection as an i.LINK.



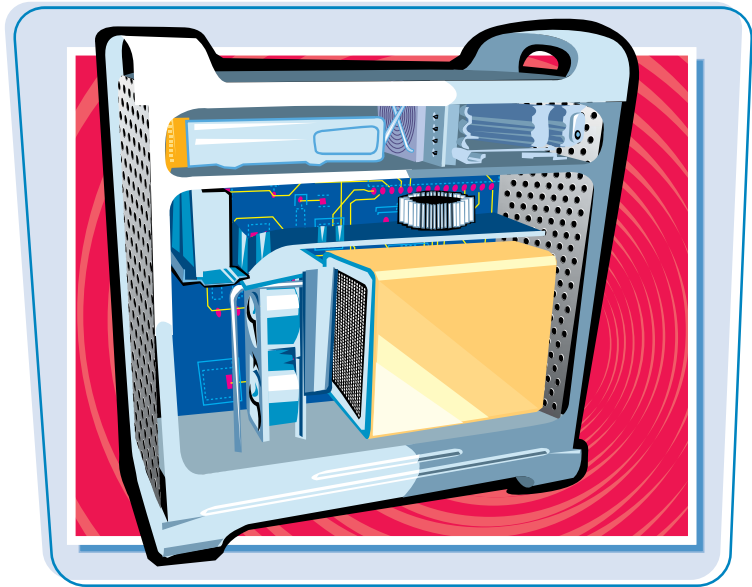
### Check Compatibility and Optimize

Make sure that the video editing software that you purchase is compatible with not only the hardware specifications, but also the operating system. Windows systems use software tools known as *drivers* to operate the various components of a PC. If you update your hardware, operating system, or video applications, but let your drivers become outdated, you may experience a drop in the performance of your PC. In this scenario, outdated drivers can even cause the computer to crash (become unresponsive). Make sure that your video display drivers are always updated.



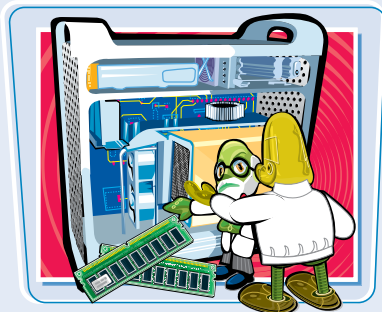
## Upgrade Your Mac

Most new Macs made in the last three to four years work well with consumer-level digital video. If you are dealing with a Mac that does not have at least a G5 PowerPC processor or more, it may be more practical to buy a new or even refurbished Mac than to upgrade. By upgrading your Mac you can improve the performance when it comes to digital video.



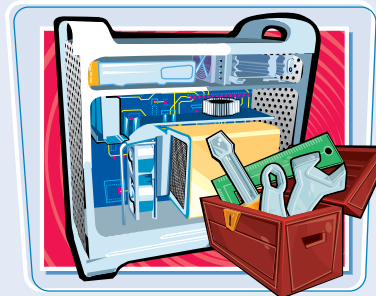
### Upgrading Memory

Digital video editing is memory intensive. Sometimes by upgrading your memory, you can see a definite increase in the performance of your computer. The important thing is to make sure that you purchase memory specifically designed for your Mac model, its processor type, and speed. Mac memory comes on little cards named DIMMs (Dual In-Line Memory Modules) and snap into memory slots on the computer's motherboard.



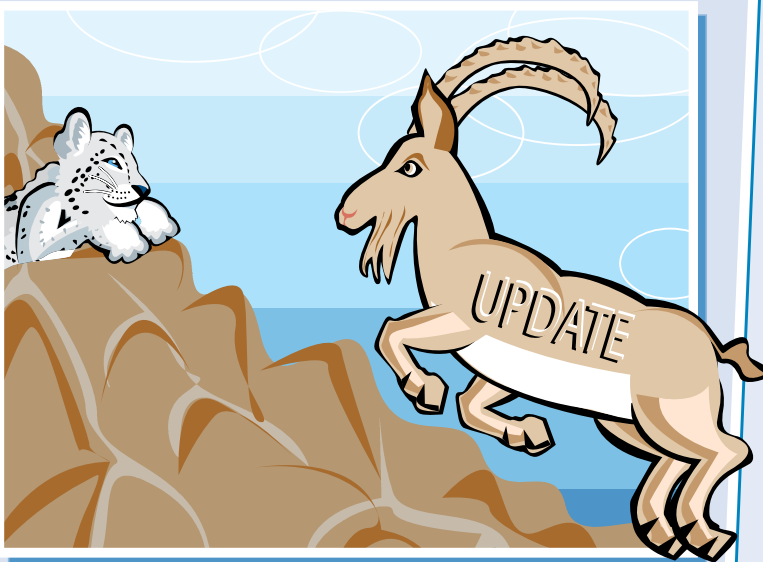
### Upgrading Hard Drives

You can personally replace a hard drive in virtually all Mac desktops with a bigger one. The all-in-one iMac is not so easy. When you buy an iMac, make sure that you configure it with the biggest drive you can afford at the time of purchase, because it is not practical to upgrade it later. Only buy hard drives that have been recommended for your specific Mac model and make your purchase from a Mac retailer. Replacing your drive with a bigger one means you have to reinstall the operating system, so make sure you can locate the installation disk. Consider adding an external FireWire or USB drive for video storage.



### Upgrading the Operating System

To use the latest and greatest video editing applications, you may need to upgrade your operating system so that the applications are compatible. Make sure that you back up all of your important files on your hard drives to an external drive before you perform the upgrade. Backing up important files provides you added security in case something goes wrong with the upgrade. To be safe, also make sure that you have the install disks for all of the applications currently installed on your computer. Make sure your computer meets the hardware requirements for the upgrade.



### Upgrading Mac Programs

For optimal system performance, it is important that you keep the software on your computer updated. Apple is constantly providing free software updates for its computers. Mac OS X automatically checks for updates each week, making it convenient for you to keep applications running smoothly. To manually check for updates, click the Apple symbol in the top-left corner and choose System Preferences. You can click an update in the list to read a brief description.

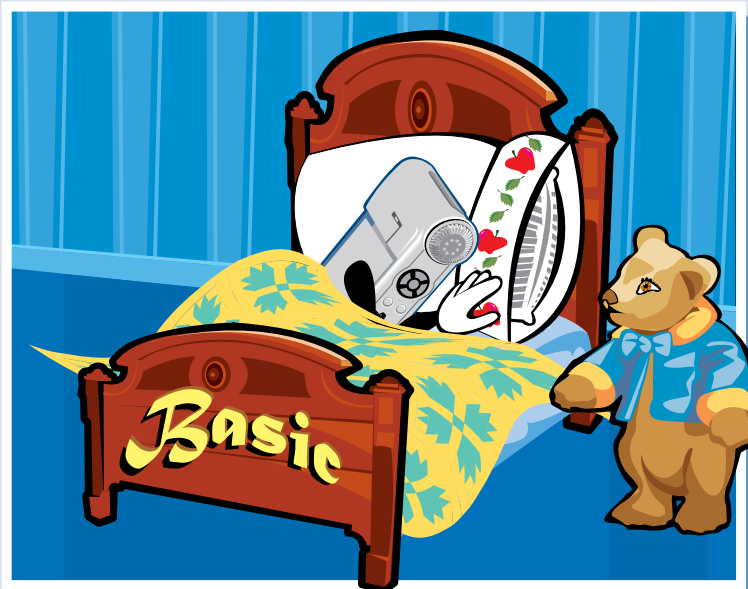
## Explore Video Editing Applications for a Mac

Apple does a fantastic job supplying you with powerful, easy-to-use video editing applications. The iLife suite of software comes preinstalled on each new Mac and offers a variety of digital video software. As you outgrow basic video editing applications, it is very easy to move into more professional applications produced by Apple and other software developers such as Avid and Adobe.



### Apple iMovie

If you have recently purchased a Mac computer, you already have access to popular digital video applications preinstalled on your computer. iMovie is a high-quality, entry-level video editing application that is part of the iLife suite and ships with each new Mac computer. The iLife suite also includes iDVD for DVD creation, GarageBand for music creation, and iWeb for designing your very own video blog.





### Apple Final Cut Express

Final Cut Express is a more robust video editor for your Mac, but without the professional sticker shock. In the hierarchy of Apple-produced video editors, Final Cut Express is in between iMovie and Final Cut Pro on the totem pole. You can purchase Final Cut Express for around \$199. The great thing about Final Cut Express is that it uses a nearly identical interface to Apple's Professional video editing application, Final Cut Studio, which makes for a smooth transition.



### Professional Video Editing Applications

Professional applications pack professional price tags but provide you the most options and power. Avid produces one of the most popular and advanced video editing applications on the market with its Avid Media Composer software for around \$2,000. Apple Final Cut Pro has possibly become the hottest video editing application sold. Final Cut Pro comes bundled in a suite of high-end, well-integrated digital video production applications called Final Cut Studio for around \$1,000. Adobe Premiere Pro offers another high-end video editing application for Macs for around \$800.

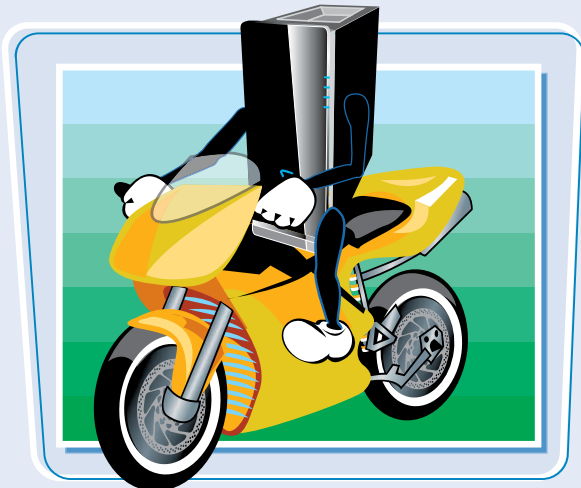
## Upgrade Your PC

If you own a PC it could quite possibly benefit from an upgrade, but it may or may not be easy. Upgrading your computer hardware requires expertise and a clear game plan. Start with the computer's manual to see what types of upgrades are possible for your particular computer. If your computer is still under warranty, make sure that you read the terms because some upgrades may render the warranty void.



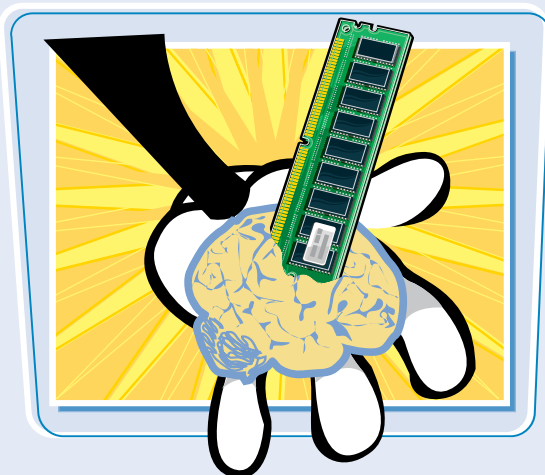
### Install a New Hard Drive

The price of storage has come way down over the last few years, and you can find a big drive for a really good price in just about all the major electronics stores. Make sure the speed of the drive is at least 7200 rpm (revolutions per minute). A drive's speed is usually listed on the packaging. Check your computer documentation to see if the type of drive you are looking at is compatible with the system. If you are replacing the system drive, you will need to install the operating system on the new drive, so make sure you can locate the installation disk.



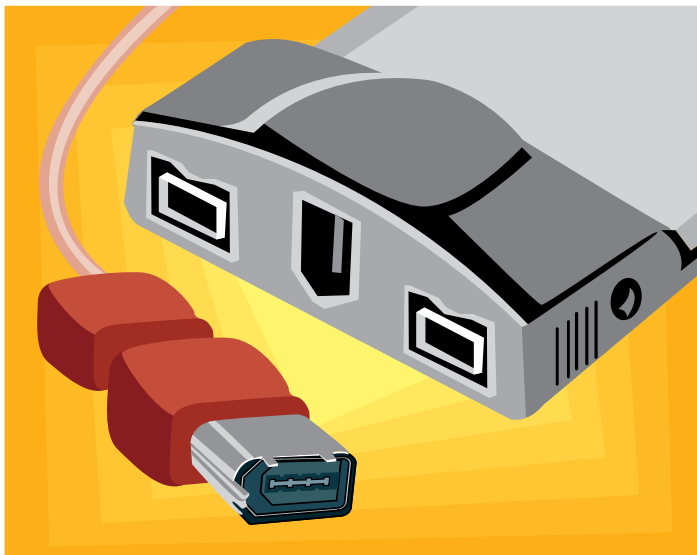
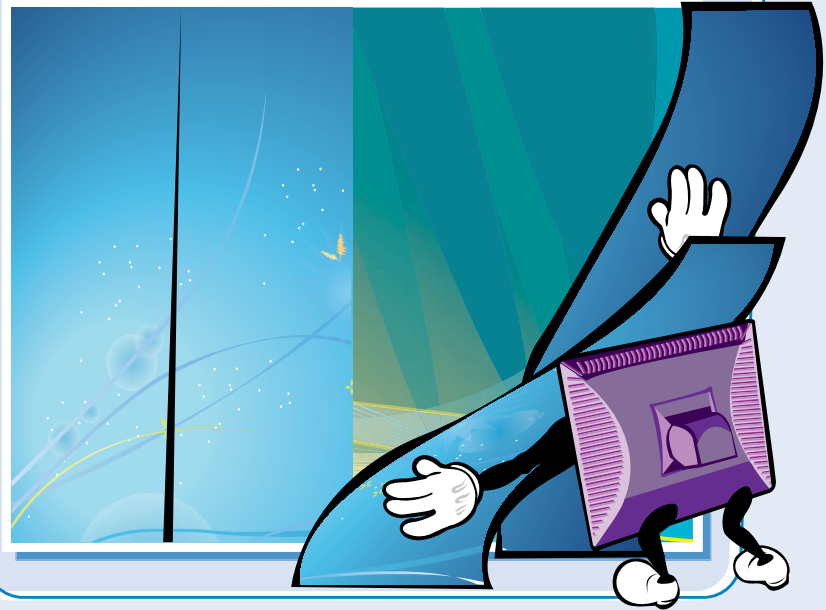
### Upgrade Your PC Memory

Perhaps the quickest way to improve the performance of your computer is to add more memory. A motherboard has a limited number of slots, so make sure that you gauge how much room you have for new memory before you buy. The memory you choose must also be compatible with your system, so check the documentation to see which type it accepts. The bare minimum of memory may get you up and running, but if you want to edit more efficiently, add as much memory as you can. Upgrading your memory is a very cost-effective way to keep your computer performing at an acceptable level for a longer period of time.



### Upgrade Windows

If you are currently running Windows XP, you can use Microsoft's online Upgrade Advisor to ensure that your computer is ready for Windows 7. The Upgrade Advisor inspects your computer system to see if there are any compatibility problems. Back up all of your important documents and consider using the clean install option rather than the upgrade option to prevent future issues. Check for online updates after installation.

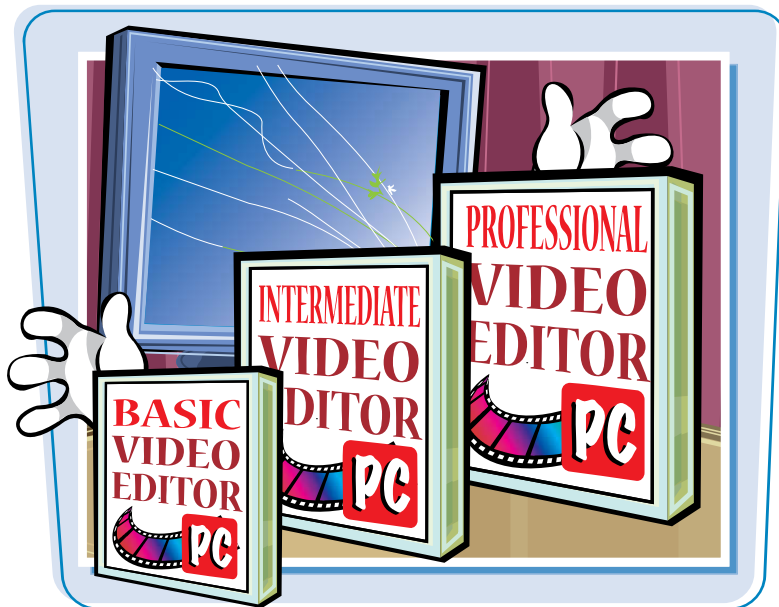


### Install a FireWire Card

In order to connect a video camera that uses a FireWire connector to your computer and transfer images, you need a FireWire port on your computer. If your PC does not have a FireWire port, you need to install a FireWire card. To install a FireWire card you need to have an empty PCI (Peripheral Component Interface) slot used for attaching hardware devices. Before you purchase a FireWire card, read the box to make sure that your computer meets the standard system requirements. Some FireWire cards also come with a video editing program.

## Explore Video Editing Applications for a PC

There are way too many options for video editing software for PCs on the market to list them all here. You can read reviews and participate in forums to find out which is the best for you. What you can find here is a list of some of the most popular video editing applications that can get you going in the right direction.



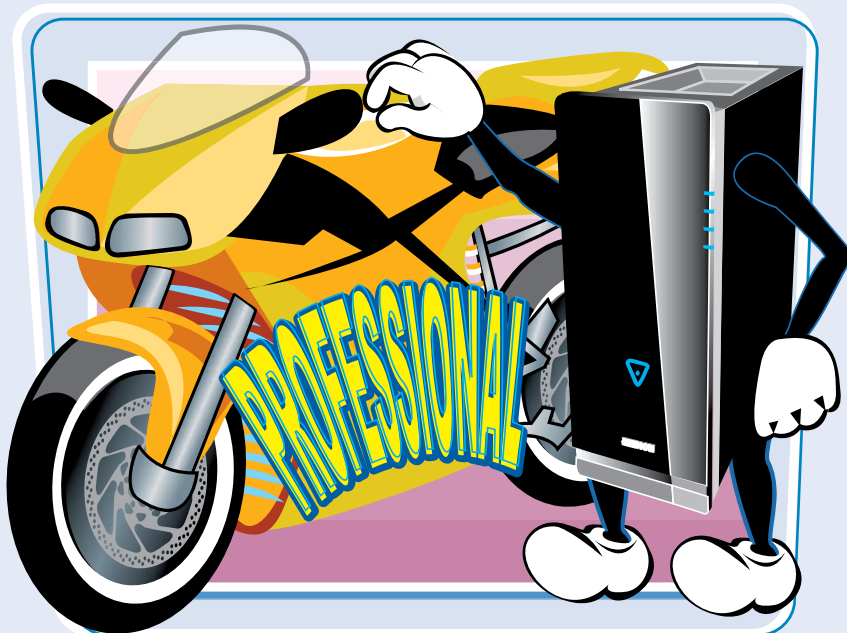
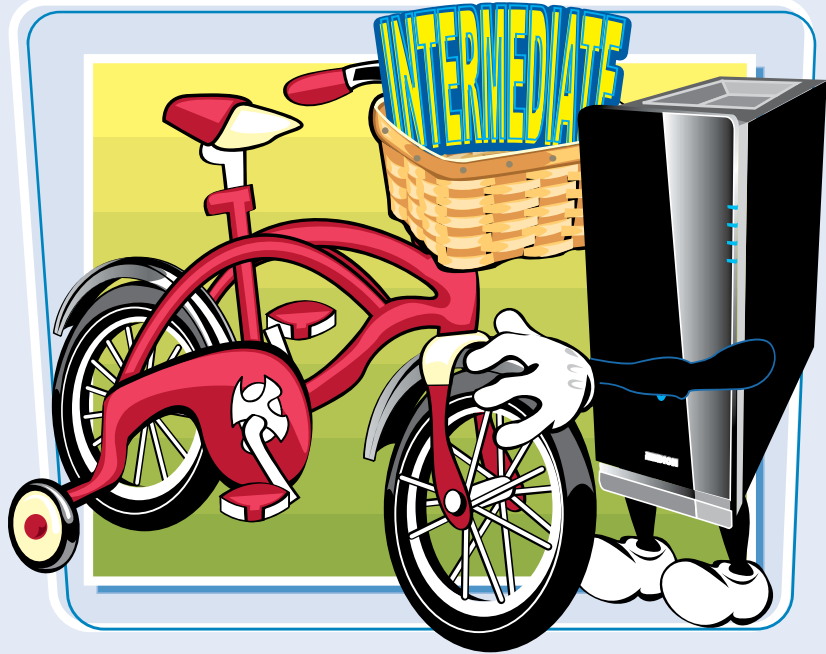
### Basic Video Editing Applications

There are low cost, even free, video editing applications such as Windows Movie Maker (known as just Movie Maker if you are running Vista), which is bundled with the operating system. Inexpensive FireWire cards often come with video software such as Ulead VideoStudio. Some digital video cameras also come with a video editing application, such as Pixela ImageMixer does with the Canon VIXIA high definition camcorders. These programs are very basic and offer limited features.



### Intermediate Video Editing Applications

The intermediate level of video editing software is where you can find more advanced features at an affordable price. Adobe Premiere Pro Elements is one of the popular ones in this category for around \$100. Pinnacle Studio and CyberLink PowerDirector are other applications that provide affordable video editing, effects, titles, and graphics to your work. These programs also give you the ability to create and burn DVDs of your video projects.



### Professional Video Editing Applications

Professional video editing applications provide you the most creative options, but at a premium price. On the lower end of the price scale is Sony Vegas Pro for around \$600. Other options include Adobe Premiere for \$800 and the long-time industry leader in video editing, Avid, with its Media Composer software for about \$2,000.



## Choose the Proper Lighting Gear

The ability to adapt to light is a crucial part of recording great video. As a videographer, you need to be able to adapt your camera at a moment's notice to an environment where there are less-than-perfect lighting conditions. Extra lighting equipment can help you produce better video when there is too little light.



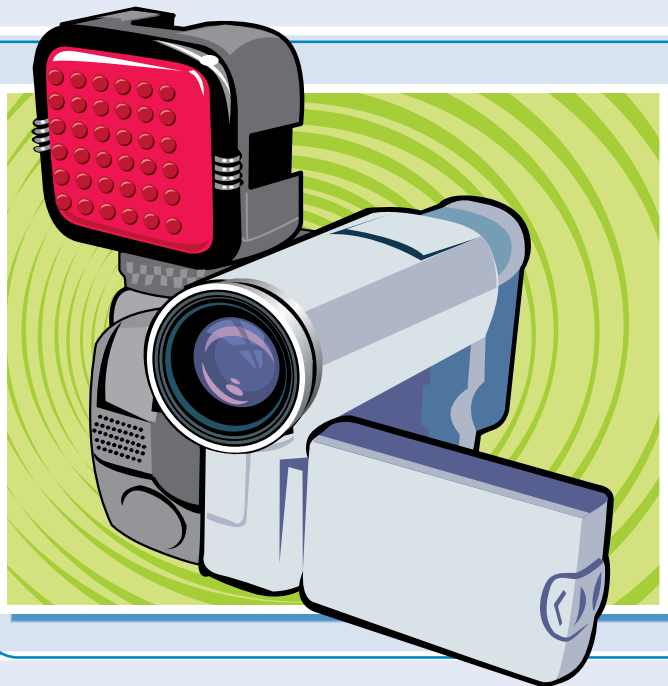
### Consider a Lighting Kit

Producing a high-quality image in very low light situations is very difficult. Adding an inexpensive lighting setup into the equation changes the game by giving you more options. You can close the blinds and supply your own light. You can design creative lighting setups for a more dramatic scene. As little as one floodlight, stand, and umbrella can serve as your lighting kit when you need it the most.



### Reflectors and Diffusers

Video loves soft, even lighting. News reporters often conduct interviews in the early morning or at night with a single light, stand, and diffuser that goes over the light called a *soft box*. This casts a soft, even light on the subject. You can also consider using umbrellas to diffuse a simple floodlight while conducting interviews or simply adding more light to a room. Light kits, reflectors, and diffusers can be purchased at photography and video stores.



### Camera-Mounted Lights

A simple camera-mounted light can act as your light kit. Some video cameras have a hot shoe located on the top of the camera that enables you to attach a light source. Some manufacturers also produce infrared LED lights that enable the camera to record in complete darkness. Make sure that you get the right light for your camera's hot shoe. If you buy your camera online, many times the compatible accessories are featured alongside the video camera.

# CHAPTER

# 3

## Preparing to Shoot Video



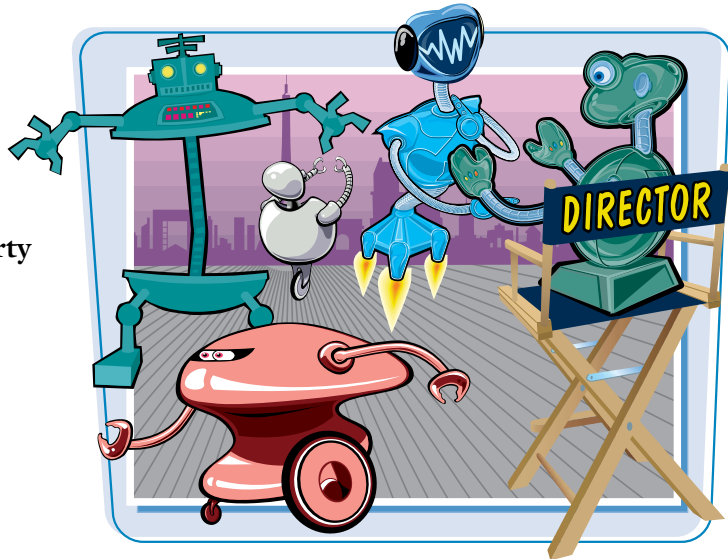
Good preparation for a video shoot can help pave the way for the success of a project. When the time comes to shoot, you want to be able to hit the ground running. You need to know if there are any legal matters concerning the shoot. You will want to plan the shots you will record, pack all necessary equipment, and know your recording environment.



<b>Explore Legal Issues.....</b>	<b>50</b>
<b>Plan a Video Shoot.....</b>	<b>52</b>
<b>Create an Equipment List .....</b>	<b>54</b>
<b>Choose the Proper Camera Bag.....</b>	<b>56</b>
<b>Know Your Recording Environment.....</b>	<b>58</b>

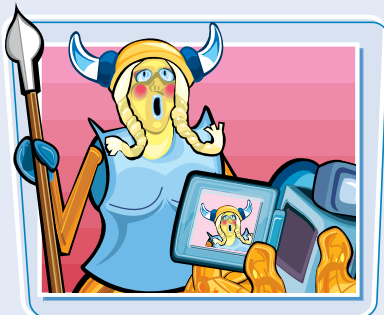
## Explore Legal Issues

If you are planning to shoot a video for commercial purposes, be aware of the legal restrictions and regulations that apply. Make sure that you have the permissions and proper release forms signed to protect yourself in the event that someone challenges your right to have a person or piece of property appear in your video. General shooting that will be viewed at home and among friends does not require release forms.



### Model/Talent Release Forms

Individuals have the right to control commercial use of their image. No matter how briefly someone appears in a video that you plan to broadcast on television, in a film you plan to distribute, or for promotional purposes, you need to have them sign a talent release. This also includes video you plan to show on the Web. A release form is a formal agreement between you and the talent to use footage of that person in your video.



### Property Release Forms

In general, shooting in public places is permitted, but make sure you are familiar with your local laws because property regulations can vary from state to state. Keep in mind that stores and shopping malls are not public places and are privately owned. You need permission to shoot in these locations. Even when shooting in your friend's or neighbor's house, get a release form signed. You do not want to find out later that you are being sued because your video shows something that violates city code in a friend's or neighbor's yard. A property release form helps to cover your back.





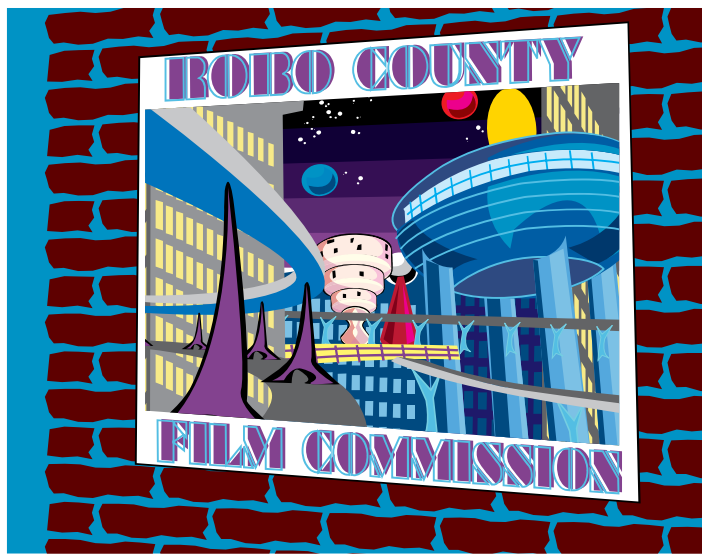
### Age Requirements

A person must be of legal age to sign a release form. The legal age for signing releases in the United States is 18 years old, so if you have someone less than 18 in your video, be sure to have a parent or legal guardian sign the release. You must be very sensitive about recording any children who are not your own. Contact an attorney to understand your local laws regarding videotaping minors.



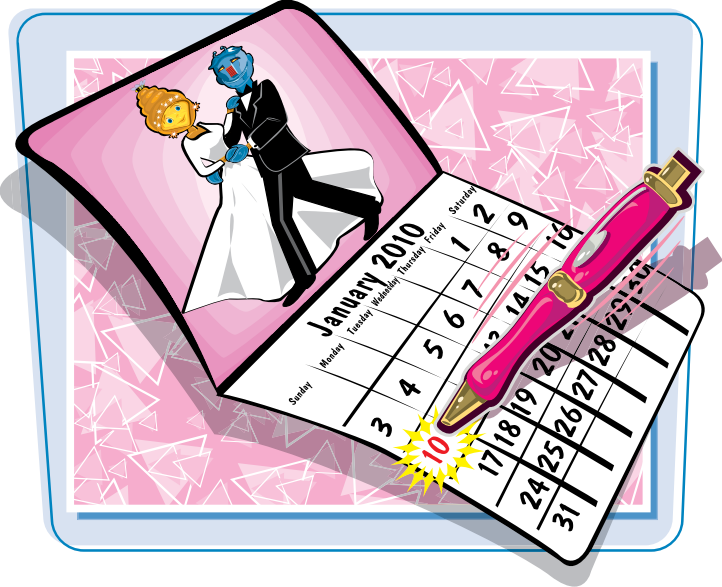
### Contact the Film Commission

You can find sample release forms online that you can modify for your own purposes, but make sure that you do your homework because not all cover the proper legal loopholes. If your state has a film commission, you can contact it for the proper forms. If you do not have a film commission and are unsure about a city law, contact the local authorities. The time has never been better to get your video seen, but make sure that you protect yourself legally before you do so.



# Plan a Video Shoot

How you prepare for a video shoot can either make or break your success. Although not all video shoots require the same amount of preparation, whether you are recording a birthday party or your first movie, having a clear plan of action helps things go more smoothly. You can never be too prepared.



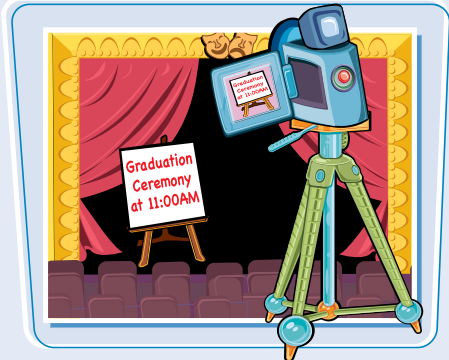
### Define the Purpose and Audience

A great place to start when planning a video production is to ask yourself what is the purpose of the video and who is the audience. Are you capturing a graduation, recital, or vacation for friends and family to enjoy, or are you creating a promotional video or launching a film career? Knowing the answers to these questions can help you visualize the overall presentation and place the proper emphasis on the main subject.



### Scout the Location

Go to the location of the shoot before the day you are to begin recording. If this is not possible, get to the shoot early. Scouting the location before you begin recording can help you anticipate problems that may pop up during the shoot. Will you be recording in an area where there is a lot of foot traffic? Will there be enough room to use a tripod? Are there electrical outlets where you will be shooting, or will you need to purchase more batteries? What is the lighting situation?



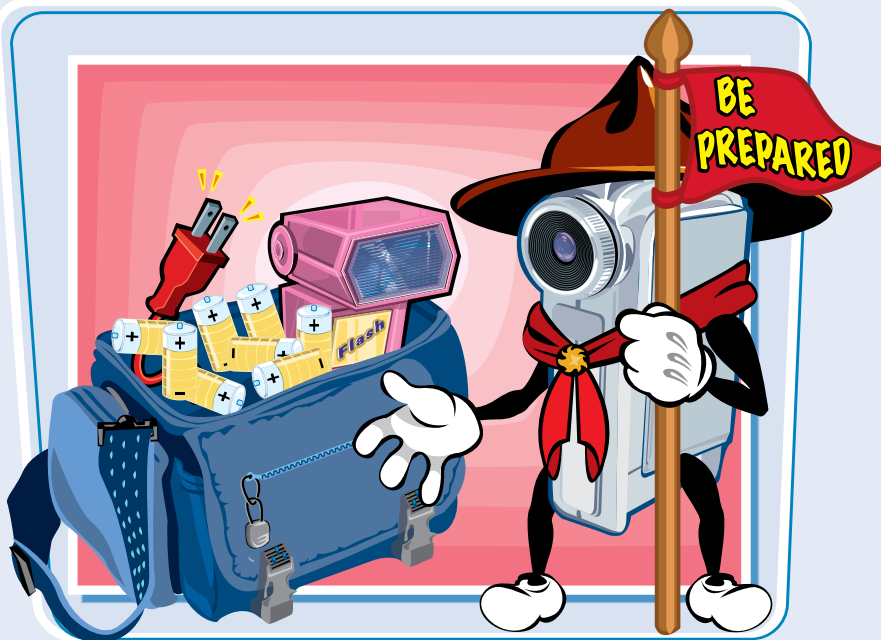
### Plan What to Shoot

A great way to make sure that you capture all of the highlights of an event is to make a list of all the shots you want to capture. If the event has an itinerary, use it to devise a plan. If you are shooting from a script, break it down into days with the scenes you need to shoot. Always plan to shoot much more footage than you think you will need, so that you can have some options when you edit the video later. You do not want to be editing your video and then discover that you need more footage.



### Plan for the Unexpected

Having a clear, laid-out plan helps to ensure the success of your video production, but do not be surprised when the unexpected occurs. Perhaps the event has to be held in a different room at the last minute, where there is less light and the electrical outlet is out of reach. Pack extras in your camera bag, such as a camera light and an extension cord, to give you options.



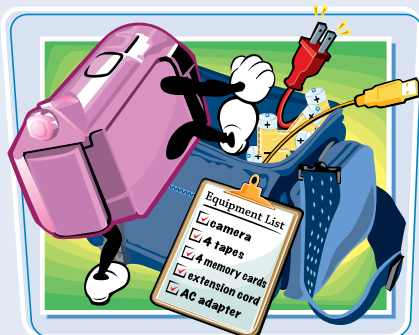
## Create an Equipment List

An equipment list is a very important part of the planning process, especially when dealing with larger video productions. The main purpose of an equipment list is to make sure that you do not forget anything when you go out for a shoot. Some key things should be on your list other than the most obvious, the camera.



### Make a List

Create an equipment checklist in Microsoft Excel or Word before an event that you can print off and use when packing your camcorder bag. Do not assume that something is in the bag, and make sure that all of the equipment on the list has been visually accounted for in the bag and checked off of the list, especially if more than one person uses your equipment. The last thing you want is to discover at the shoot that a memory card you thought was in your camera is actually inserted into the card reader at home.



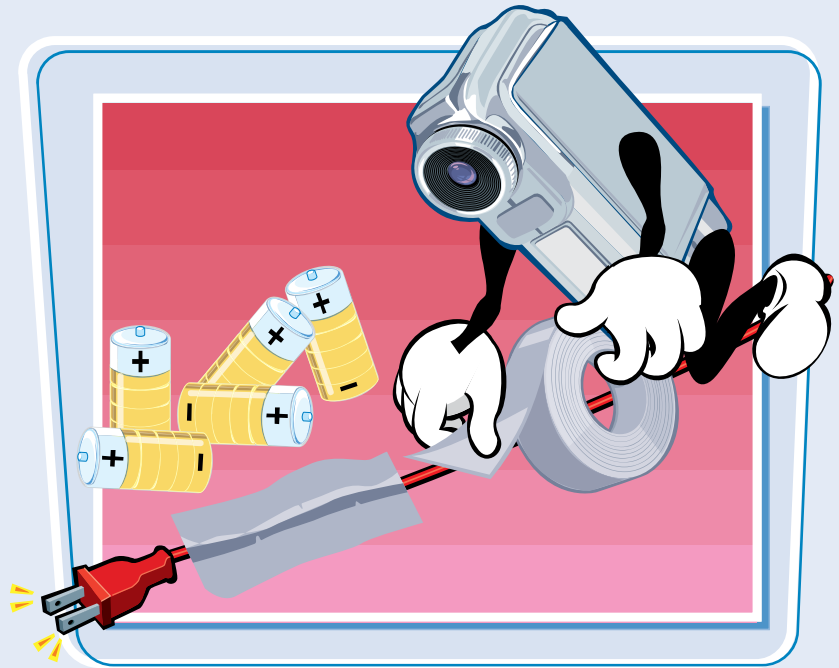
### Bring Extra Recording Media

Whether your camera records to tapes, memory cards, or DVDs, you need to make sure that you have packed plenty of extras before you go on a shoot. If the event is only one hour, bring more than one 1-hour tape, just in case the event goes over, or if one of the cassettes has been damaged. Packing more record media than you need helps protect yourself from unwanted surprises in the field.



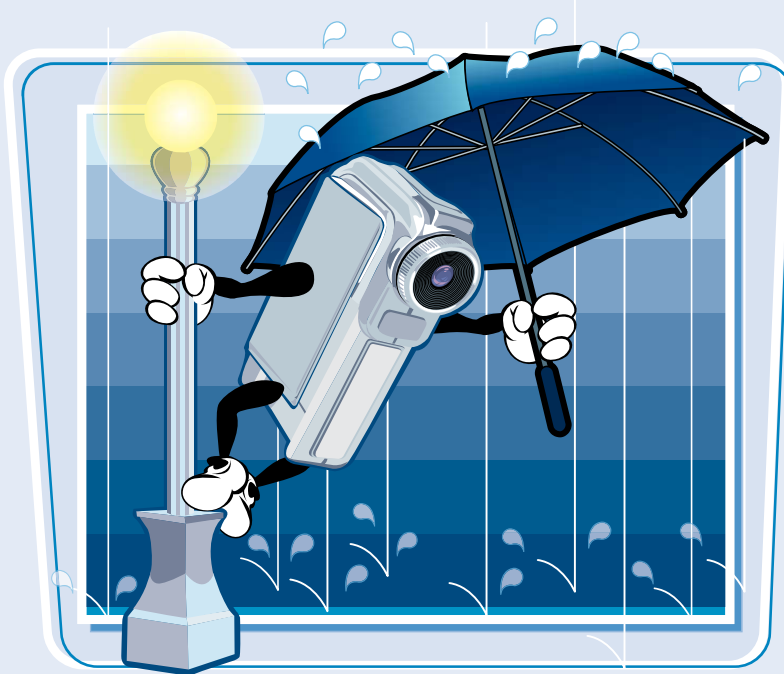
### Pack Extra Batteries, an Adapter, and Duct Tape

Have all your batteries charged the day before the shoot and make sure that you pack extras in the camcorder bag. The last thing you want is for the program to run longer than expected and you miss part of the event because you did not bring enough batteries or have access to an electrical outlet. Pack an AC adapter just in case you have a chance to use an electrical outlet, and keep an extension cord handy if the outlet is far away. If you have to use an extension cord in an area where there is a lot of foot traffic, consider packing duct tape to tape down electrical cords, so no one trips.



### Protect Your Camera

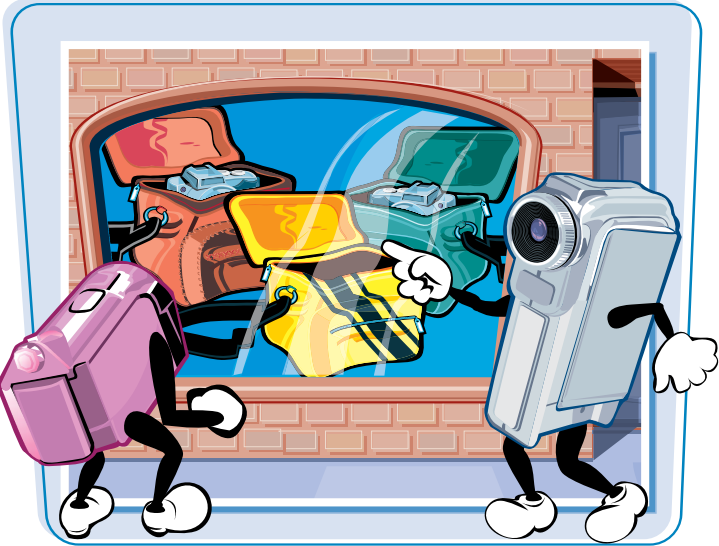
If you shoot outdoors you may occasionally get caught in the rain or snow. Make sure that you not only take the proper rain attire for yourself, but also for your camera. You may purchase a rain cover made especially for your camera or use a plastic department store bag, but make sure that you protect your camera by keeping it dry, as well as dust- and sand-free.





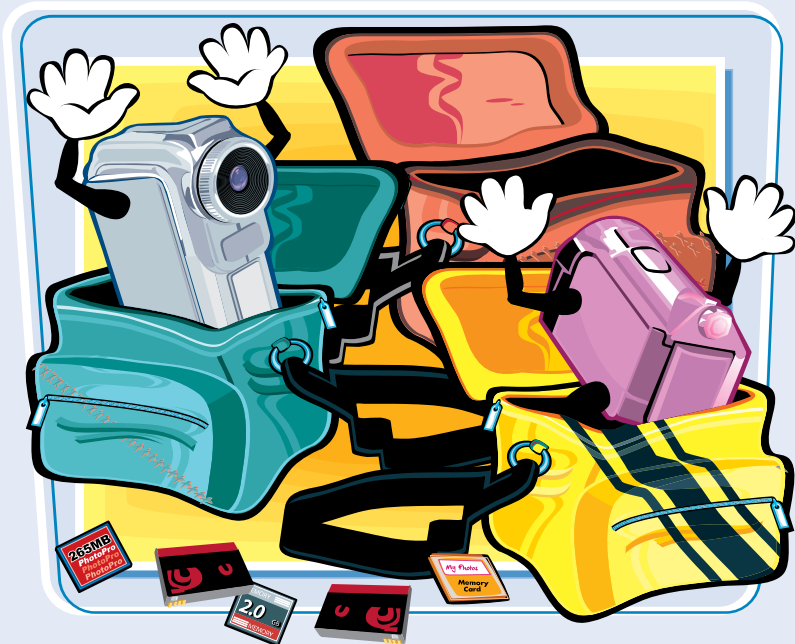
## Choose the Proper Camera Bag

Your camera is the most important piece of equipment in your digital video arsenal, so you must ensure that it is well protected. The proper carrying case can shield your camcorder from moisture and dirt, and can even take a tumble, leaving the camera unharmed. There are some key attributes to look for when purchasing a bag for your camcorder.



### Camera Bag Size

A good camera bag not only protects the camera, but is also large enough for you to store your accessories such as the power cord, batteries, extra tapes, DVDs, flash card, and other necessities. Most camera bags come with interior dividers fastened to the walls of the case by Velcro, providing compartments to place accessories. Make sure that the camera can be packed securely in its own compartment and does not roll around when you are walking. Camera bags usually come with information about the size of camcorder they accommodate, so make sure you do your research.



### Waterproof Bags

You and your camera may occasionally get caught in the rain or snow, so make sure the bag that you choose is water resistant. A water-resistant bag also protects the camera from dust and other debris such as sand. Always make sure that you keep the inside of your bag clean and periodically vacuum the interior.

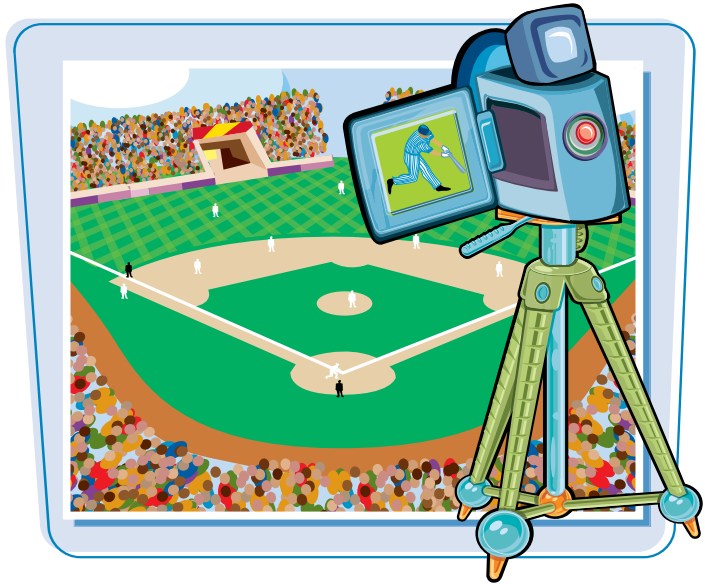


### Rugged Bags

Choose a bag made of strong material so that it can not only take a tumble and still protect the camera, but also hold up during everyday wear and tear. Nylon, canvas, or thick leather is a good choice. Ensure that the bag closes securely with a zipper to keep the camera completely concealed when transporting and when stored for long periods.

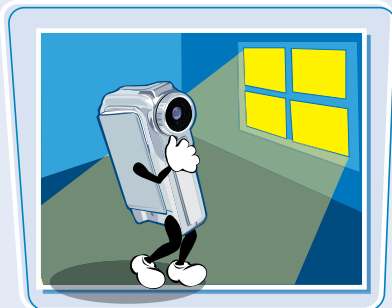
## Know Your Recording Environment

Walking around the area in which you will be recording to get a feel for the environment is very important, especially if you are recording a special event for which you are getting paid. Asking some important questions while scouting the location can help ensure a successful shoot.



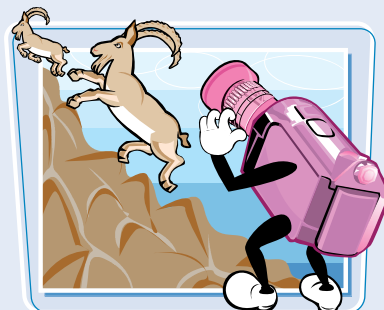
### Assess the Lighting Situation

Will you be shooting indoors under dim light, or will there be a mixture of natural and artificial light? Are you shooting outdoors in bright sunlight, at night, or will it be overcast? These questions can help you devise a plan of whether you will need to bring extra light or request it. They help you configure your camera settings in preparation for the event and allow you to make adjustments. If you are shooting at night for the first time, consider shooting some night footage beforehand so that you can become acquainted with the nuances of recording in very low light with your camera.



### Assess Your Shooting Position

How far will you be from the main subject or action? If you are shooting a sporting event or wildlife, you might want to pack a telephoto lens converter to get those close shots. If you are shooting wide vistas such as landscapes, you may want to consider packing a wide-angle lens converter. Consider the best place for you to shoot and be aware of anything that can obstruct your view during the shoot.



### Assess the Audio Situation

The ability to gauge any audio issues before the shoot can help you better prepare for them. Are you shooting next to a busy intersection during rush hour? Will you be sitting close enough to the speakers to hear the subject speak or will you be relying on a P.A. system? Become aware of any background noises that may compete with your video, such as loud music, machine noise, or even loud insects such as cicadas. With this knowledge you can adjust camera audio settings in preparation for the shoot.



### Making Special Requests

You may need to make special requests with the organizer of the event so that you can shoot the best video possible. Perhaps the best angle for you to set up for the shoot is a spot that is already occupied. You can ask the event coordinator if you can possibly set up there. This may particularly become necessary if that area has the nearest electrical outlet for a 4-hour event. You always want to be respectful of the event and the coordinators.

## CHAPTER

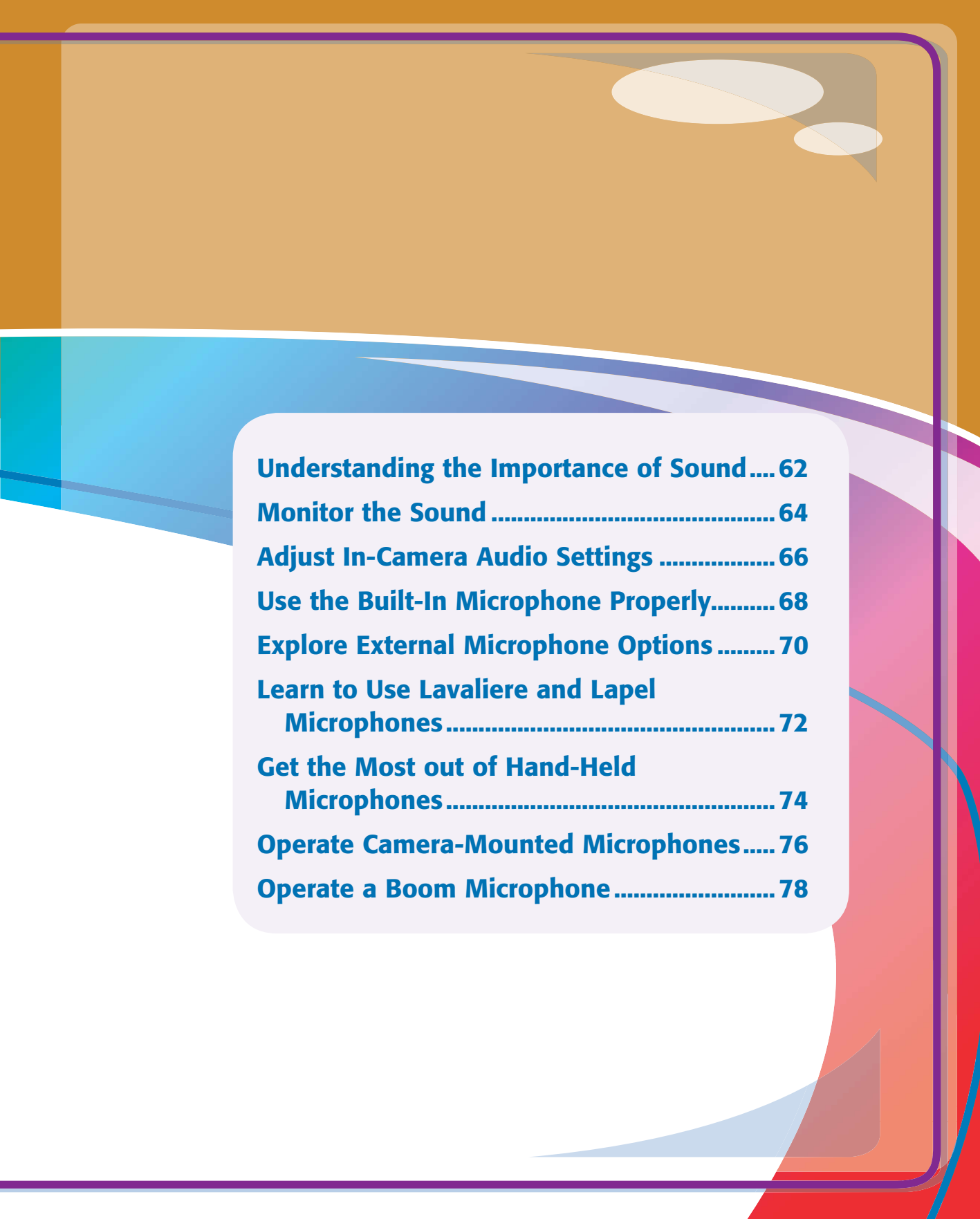
# 4

## Recording Great Audio



It is very easy to focus solely on the video and let the audio fend for itself. However, the video is only part of the equation that makes up the special moments you record. The ability to acquire clear, understandable audio is essential for the success of your videos. There is no single solution for every audio situation, so you must understand how to adapt to various recording environments and know what to listen for.

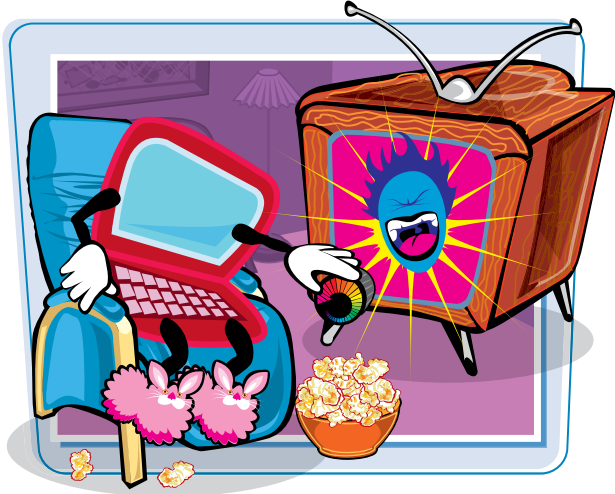




<b>Understanding the Importance of Sound</b> .....	<b>62</b>
<b>Monitor the Sound</b> .....	<b>64</b>
<b>Adjust In-Camera Audio Settings</b> .....	<b>66</b>
<b>Use the Built-In Microphone Properly</b> .....	<b>68</b>
<b>Explore External Microphone Options</b> .....	<b>70</b>
<b>Learn to Use Lavalier and Lapel Microphones</b> .....	<b>72</b>
<b>Get the Most out of Hand-Held Microphones</b> .....	<b>74</b>
<b>Operate Camera-Mounted Microphones</b> .....	<b>76</b>
<b>Operate a Boom Microphone</b> .....	<b>78</b>

# Understanding the Importance of Sound

Quality sound is essential to your video — the overall audio quality can be just as important as what is shown on-screen. You will be working with essentially four important elements of audio as you record your video and edit them into a movie: speech, ambient sound, sound effects, and music. Understanding the importance of these four elements can help you produce solid audio for video.



### Acquire Clear Dialogue

Dialogue and speech help to define the moment and provide the emotional impact that you want to relive through your videos. Hearing the bride and groom recite their wedding vows and capturing every word of the graduation speech is crucial to the success of your video. If the audience is unable to hear what is being spoken, the entire meaning can be lost. A well-produced voiceover can also help the audience understand what is going on in the video.



### Understand the Power of Ambient Sound

The ambient sounds of chirping birds in the park, five o'clock traffic, or the roar of the fans in the stadium can complement your video by providing depth. But, they can also compete with your primary audio, which may be the human voice, or the music at a summer concert. Make sure that you properly use the appropriate sound equipment to ensure ambient sound is a complement, and not a distraction.



### Use Sound Effects

Some video editing programs come equipped with their own sound effects libraries. These effects are really handy for some of your more creative work. If you need a door knock, dog bark, or the whiz of a passing car, a video editing program with a sound effects library can help you create a very believable soundscape.



### Utilize Music

Music can establish both a rhythm and emotion for your video. Some video editing programs enable you to create your own personal soundtrack for a video project, using prerecorded samples of musical instruments. The appropriate background music can make your video a hit.



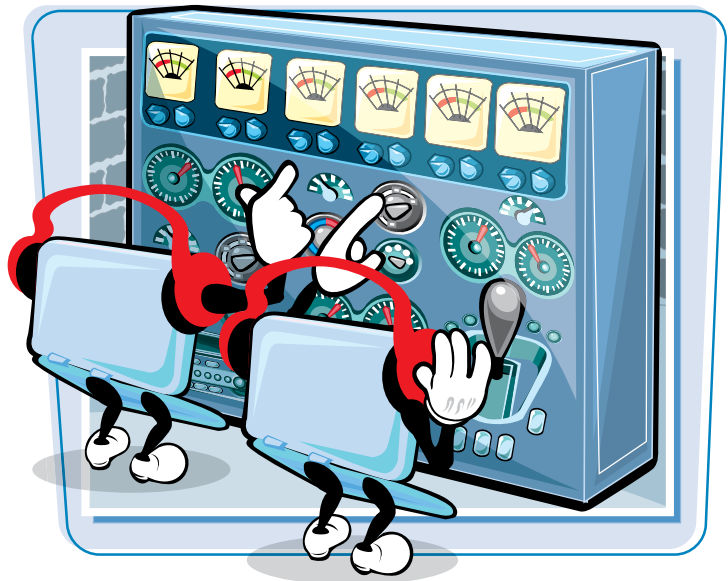
### Bring It All Together

You will use a video editing program to bring all of these audio elements together into a clear and coherent presentation. The care you took during the acquisition of the audio proves key at this stage. Although there are some audio processing techniques that can help you tweak less than perfect audio, the phrase "Garbage In, Garbage Out" remains true.



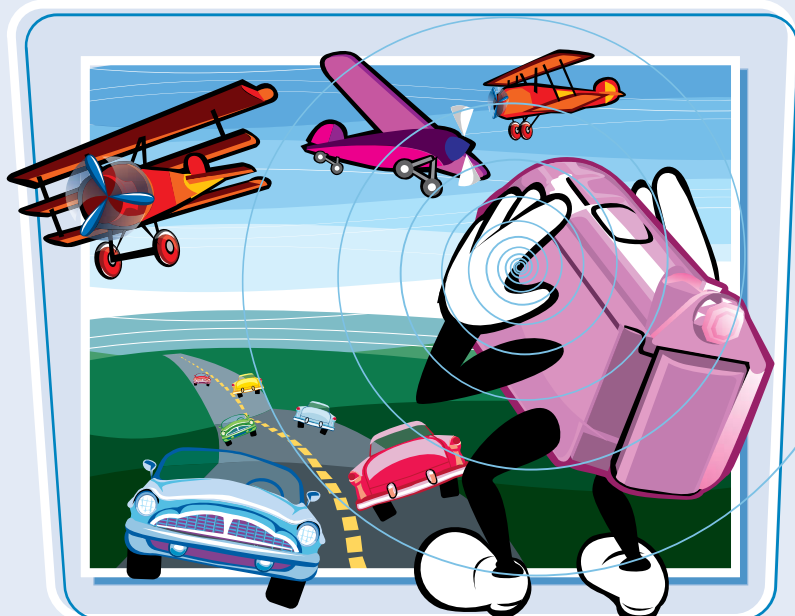
## Monitor the Sound

When you sit down to edit your video, what you acquired in the field is what you will have to use. If the recording levels were too low, too high, or a combination of both, that is simply what you have to work with. You must monitor your audio in the field as you are shooting to get the best audio possible.



### Visit the Location Beforehand

Whenever possible, and this cannot be stressed enough, visit the location before the shoot to assess the audio situation. Stand in the area where you will be shooting, close your eyes, and just listen. Listen for any noises and sounds that may compete with your main subject. Listening for competing sounds gives you the opportunity to configure your camera settings for the best sound prior to the shoot.



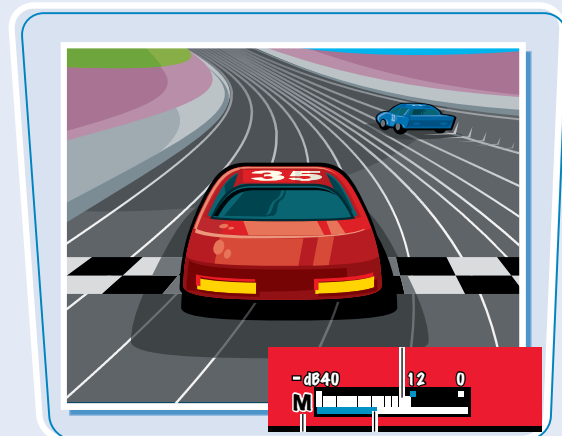
### Use Headphones

In order to ensure the quality of your audio, you need to hear what the camera hears as it records. Invest in a quality pair of headphones with padded cushions that fit over the entire ear for better sound quality. You have a better chance of avoiding an audio nightmare during the editing process by being able to make audio adjustments in real time while you are shooting.



### Monitor the Recording Levels

Many digital video cameras come equipped with an audio level indicator that lets you monitor the levels of your recorded audio while shooting. This indicator can normally be found in the Audio Video menu of your camera. The indicator is viewed either in the viewfinder or in the LCD window when flipped open. The ability to monitor the audio as you record enables you to make audio adjustments in the field, to ensure the audio is at optimal levels.



### Understand Recording Levels

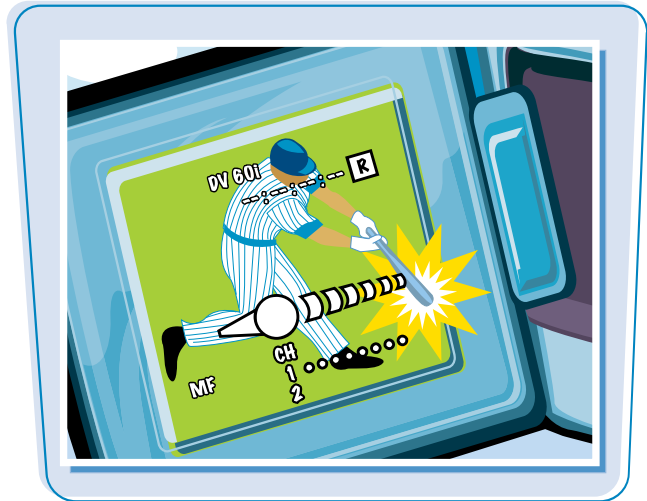
Optimal audio levels for your digital video camera are at an average of -12 decibels (dB) on the digital audio scale, with the occasional peak above and below. Anything around 0dB on the meter is way too loud and will probably be distorted. Some video cameras allow you to adjust audio recording levels manually.





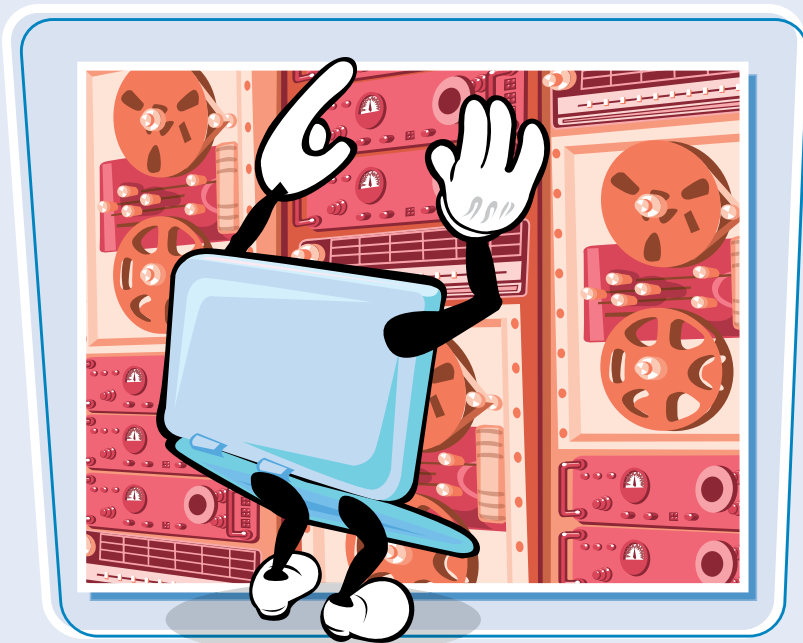
## Adjust In-Camera Audio Settings

Some digital video cameras enable you to manually adjust the audio recording levels. You can learn how to adjust the audio levels for your particular digital video camera to ensure that you acquire optimal audio levels. Understanding your camcorder's audio recording options, and performing test runs, can help you acquire the best sound.



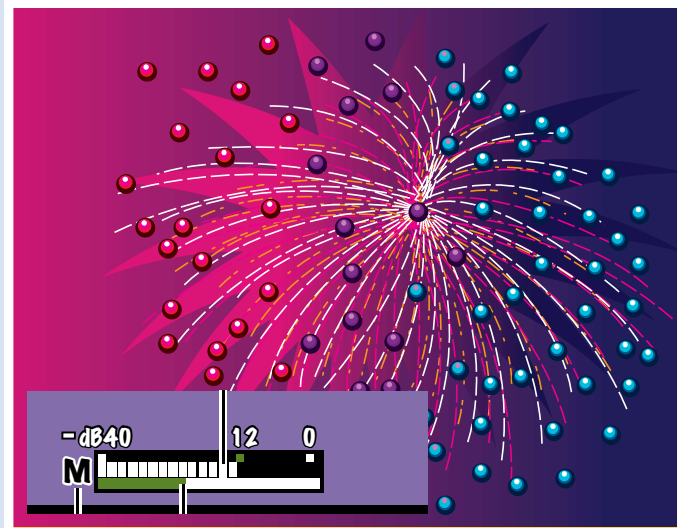
### Manual Audio Adjustments

Monitoring audio by using a set of headphones and watching the audio indicator levels gives you the ability to see if you are recording at optimal levels while in the field. Some digital video cameras allow you to perform manual audio level adjustments by accessing a Microphone (MIC) option in a setup menu. Whether you are using the built-in microphone or an external microphone, you can turn the audio up or down.



### The Microphone Attenuator

Some digital video cameras have a Microphone Attenuator (Mic Att.) option that prevents loud sounds from becoming distorted during recording. You can set this option to ON before recording fireworks, sporting events, and concerts. This option can usually be found in the Set Up menu under the Record In options of the camera.



### Test the Volume

Doing a test run to preview how the audio will actually be recorded is good practice. This is especially true if you are using talent with speaking roles. You can perform a manual audio level adjustment with your camera by having the person begin talking at the level he or she plans to speak and see if it averages around -12 dB. A test run that involves recording and actual playback of the audio can help you work out any problems before you begin the primary recording.

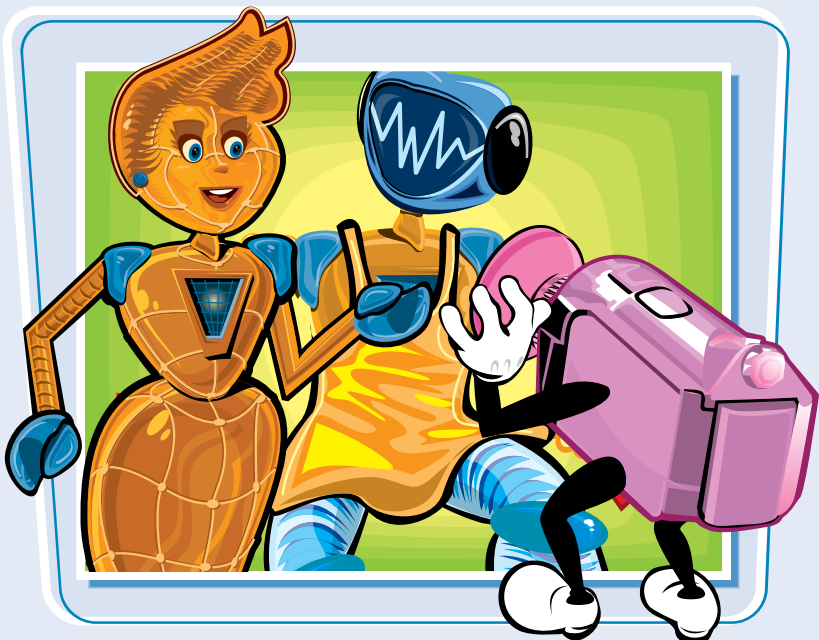
## Use the Built-in Microphone Properly

Digital video cameras are all equipped with an external microphone; some of them can record Dolby Digital Sound right out of the box. Built-in microphones have inherent limitations that you need to be aware of before you begin recording. Understanding the limitations of built-in microphones and how to address those limits can help you acquire better audio.



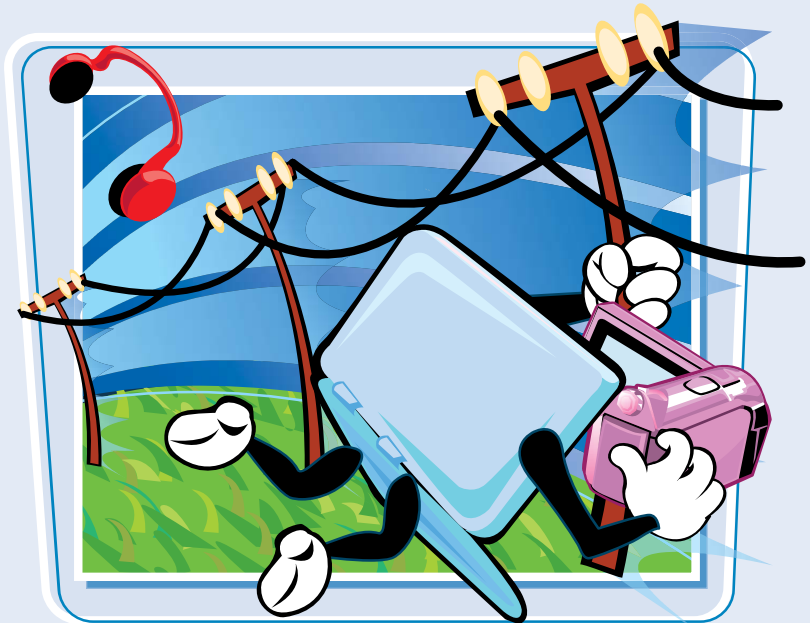
### Keep It Close to the Subject

Built-in microphones perform better when the subject is very close, and lose their effectiveness the farther away the subject is. Recordings are fuller when sound is projected toward the camera, so when possible, make sure that the subjects speak toward the camera.



### Avoid Windy Conditions

Built-in microphones are difficult to shield when shooting in windy conditions and are very likely to pick up the sound of wind. Some built-in microphones come equipped with windscreens that automatically reduce some low-frequency noises and background noises caused by wind, but the best option is to avoid recording in windy conditions.



### Pick Up Multi directional Sound

The built-in camera microphone is usually omnidirectional, which means it picks up sound from all directions, including camera handling noises. Be aware that the microphone picks up sounds that originate from behind the camera as well as those in front and on the sides. For the best audio results, shoot in a controlled environment whenever possible, where there is minimal competition between extraneous sounds and your subject.

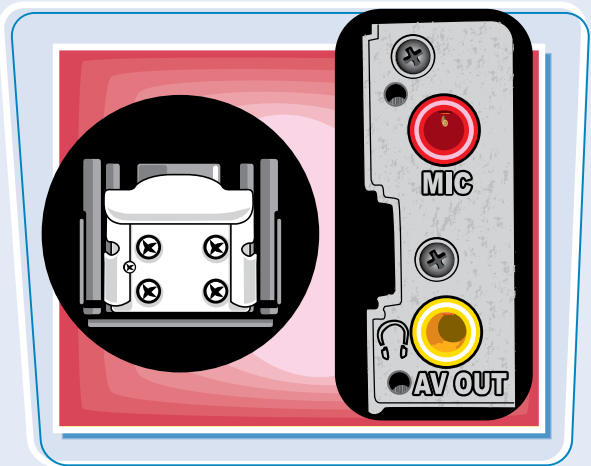
## Explore External Microphone Options

The built-in camera microphone supplies acceptable audio for general shooting purposes but can quickly become inadequate. You can use audio accessories, such as external microphones, to improve your camera's audio recording capabilities. Think of audio accessories as tools. Knowing what tool to use for a given audio situation helps you achieve higher-quality sound acquisition.



### Getting Connected

Digital video cameras can offer a couple of ways to connect audio accessories. Most consumer cameras have a 3.5mm Mic terminal that enables you to connect external audio equipment. Some have what is referred to as a *hot shoe* on the top of the camera, where external sources can be directly attached and controlled. Professional-level cameras possess XLR inputs for higher-end audio sources.



### Lavalier and Lapel Microphones

Lavalier and lapel microphones are mostly used for seated interviews, such as those on "talking head" news shows. A wire runs from the microphone down a suit coat or blouse, leading back into the camera's 3.5mm Microphone terminal. When placed properly on the subject, lavalier and lapel microphones record the human voice clearly while minimizing room noise.





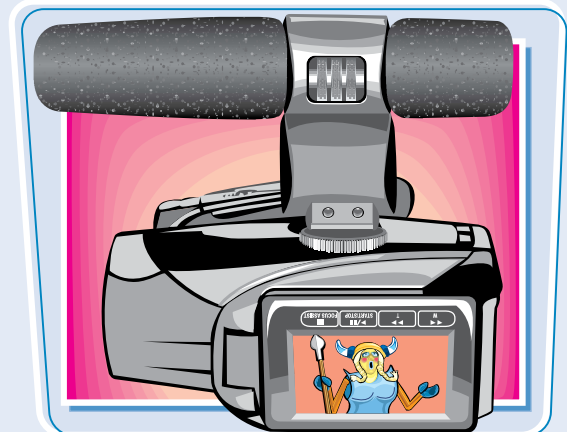
### Hand-Held Microphones

Hand-held microphones can be used for on-the-go interviews and are widely used by news reporters out in the field. These microphones can come in handy if you plan on having more than one person on camera at a time, because the speakers can just pass the microphone down the line. You can also attach a hand-held mic to a podium for a public speaker. Most hand-held microphones are unidirectional, meaning they pick up sound from one direction. Hand-held microphones attach to the 3.5mm microphone terminal of the camera and require batteries.



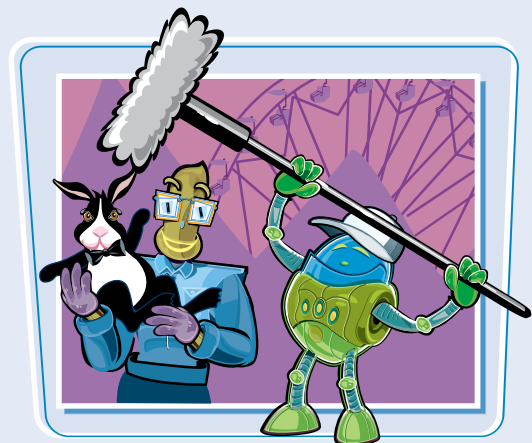
### Camera-Mounted Microphones

You can firmly attach a directional, stereo microphone to the top of a camcorder equipped with a compatible hot shoe. This microphone is sometimes referred to as a “shotgun microphone” and is a hands-free alternative to the lavalier and hand-held microphones. These microphones are usually equipped with a windscreen (a small sock covering the microphone) to shield it from wind noise. Consider this microphone for documentary-style shoots such as birthday parties, family reunions, or sporting events.



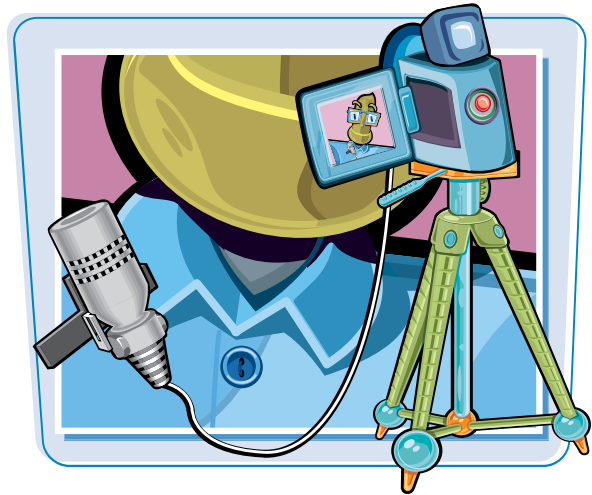
### Boom Microphones

A boom microphone is a directional microphone mounted on a pole or arm and is used to capture clean dialog. These types of microphones are very popular in television and film production. The boom microphone requires a second operator to keep the arm out of the shot and for positioning it for the best sound. Consider this type of microphone for film production.



## Learn to Use Lavalier and Lapel Microphones

Lavalier and lapel microphones are great for achieving high-quality dialog for seated interviews. Understanding the proper use of your audio accessories enables you to record the best audio available.



### Attach the Microphone Properly

Make sure that the wire of the microphone is hidden as much as possible before you begin recording. If needed, ask the interviewee to run the wire down his shirt so that there are no exposed, dangling wires. Do not conceal the actual microphone itself. Concealing the microphone with a suit coat or collar muffles the voice of the speaker, and the subtlest of movements will create noise during the interview.



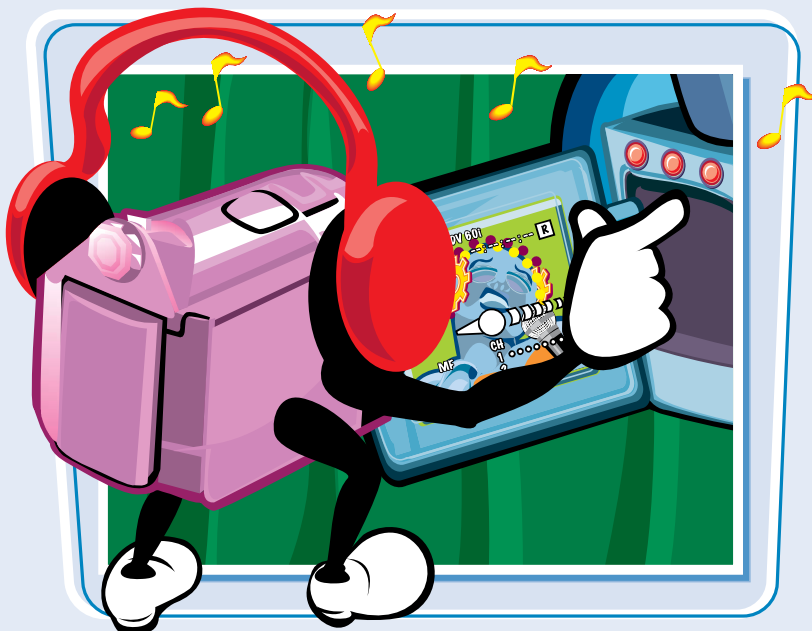
### Minimize Movements

It is important that your subject remains relatively still during the interview. Because the microphone is attached to his or her clothing, it is very easy for it to pick up the sound of rustling clothes. Properly attaching the microphone to the subject and not concealing the actual microphone can minimize this issue. Excessive movement of the subject during the interview can shift the position of the microphone. If you know the person will be moving her head during the interview — possibly to face the interviewer — you should place the microphone on the side of the person's body in the direction she will be turning.



### Test the Volume

Do a test run before you begin recording. Instruct the speaker to talk at the same level he or she will be speaking during the actual interview, and then make a manual audio level adjustment so that the levels average around -12 dB. Performing a test run can help you target and anticipate sound issues before the actual recording begins.



### Monitor the Audio During Recording

Wear headphones and monitor the audio level indicator during the interview. Many times subjects can become nervous and actually speak more loudly or softly during the interview than they did in the sound check. If you can hear the audio and see the levels, you can make the appropriate manual audio adjustments to ensure you get the best audio. If an unforeseen issue occurs, you can reshoot the video, if necessary.