Enhancing
Learning with Video

This chapter addresses ISTE NETS-T Standard 2.

1. Define video literacy and list the five core concepts of viewing and producing video.

2. Explain how student learning is enhanced by the application of video in each instructional domain—cognitive, affective, psychomotor, and interpersonal.

3. List and describe how the four types of educational video support student learning.

4. Describe three attributes of video and how they impact classroom instruction.

5. Compare and contrast digital versus analog video formats.

6. Outline the process for selecting and evaluating video for classroom use.

7. Describe techniques for video production by students and teachers.

Goal

Understand appropriate applications of video in the PK–12 classroom

This chapter's ASSURE Classroom Case Study describes the instructional planning used by Scott James, a fifth-grade teacher in a school with students coming from low- to middle-income homes. Mr. James realizes that students learn best when lessons reflect real-world situations. He has also seen increased student motivation and interest when computers are integrated into his lessons. Scott's school recently purchased a digital video camera and iMovie software for the lab computers. To take advantage of these resources, Mr. James designs a multidisciplinary lesson on natural disasters that incorporates the use of the new digital video camera as part of building students' expository writing skills. During the lesson, student pairs create digital videos of natural disaster "news broadcasts" they have scripted. One student assumes the role of news anchor while the other is the "on the scene" news reporter.

To view the ASSURE Classroom Case Study Video for this chapter, go to the MyEducationKit for your text and click on the ASSURE Video under Chapter 10 to watch how Mr. James engages students in the use of digital video. He also offers suggestions and discusses the benefits and limitations for using video to achieve 21st century learning environments.

Throughout the chapter you will find reflection questions to relate the chapter content to the ASSURE Classroom Case Study. At the end of the chapter you will be challenged to develop your own ASSURE lesson that incorporates use of these strategies, technology, media, and materials for a topic and grade level of your choice.

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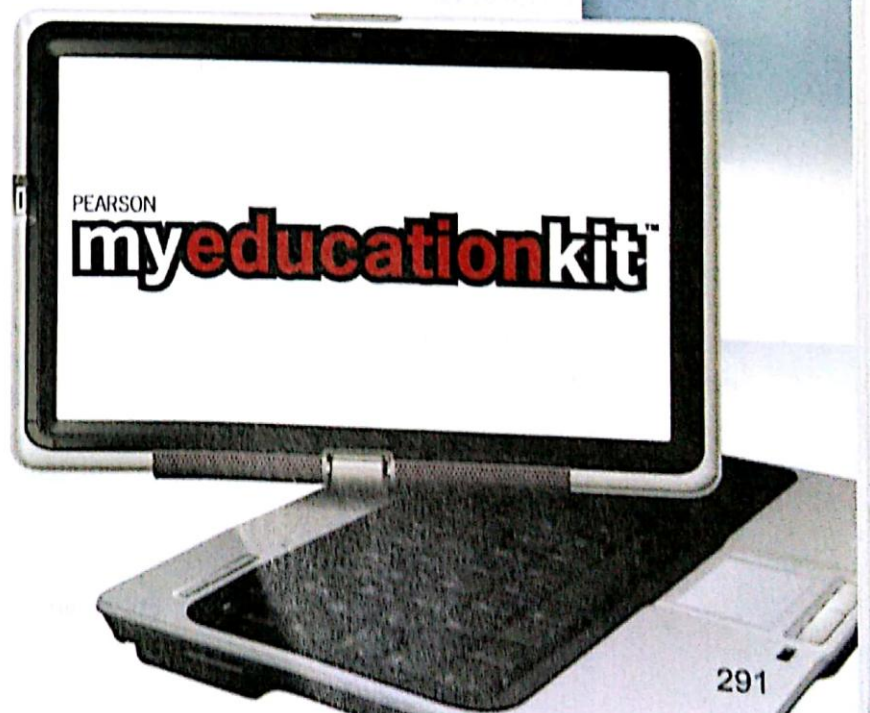
INTRODUCTION

Today's PK–12 students are experiencing an explosion of enhanced learning through viewing and creating videos. At the click of a mouse, teachers can select from a vast array of online videos to support and enrich instructional experiences. For example, Discovery Education provides online access to more than 80,000 video clips to over one million educators and 35 million students (Discovery Education, 2010). In addition, video production equipment is rapidly becoming the next technological "wave" in PK–12 schools. A May 2010 survey of over 600 educational administrators and technology coordinators indicates that over half of the respondents "are likely" to buy video equipment during the next year with 80 percent reporting that technology plays a role in "improving how students learn" and in "helping prepare students for the workforce of the future" (Carter, 2010). In this chapter we explore the characteristics and effective uses of video in learning.

VIDEO LITERACY

"No longer is it enough to be able to read the printed word; children, youth, and adults, too, need the ability to critically interpret the powerful images of a multimedia culture" (Thoman & Jolls, 2004, p. 18). Video literacy is critical for success in the 21st century.

Any electronic media format that employs "motion pictures" to present a message can be referred to as **video.** In this text we use the term to refer to electronic storage of moving images (e.g., DVDs or computer-based and Internet video).

Video literacy encompasses the knowledge and skills needed to "consume" or meaningfully view video as well as to produce video. Five core concepts are fundamental to understanding video literacy: (1) An author constructs the message; (2) the format is unique for each message; (3) each viewer interprets the message differently; (4) points of view and values are part of each message; and (5) most messages are organized to promote a specific purpose (Jolls, 2008).

VIEWING VIDEO

Students have several options for watching educational videos, including whole-class programs with a digital projector or large-screen television monitor as well as smaller-scale viewing on computers and mobile devices such as netbooks, iPads, and iPhones. When teaching students to "critically"

view video, the process involves all levels of Bloom's taxonomy (knowledge, analysis, comprehension, application, synthesis, and evaluation). The viewing process can be guided by asking questions addressing core concepts.

1. Who created this message?
2. What creative techniques are used to attract my attention?
3. How might various people understand this message differently?
4. What values, lifestyles, and points of views are represented or omitted?
5. What is the purpose of the message? (Jolls, 2008, p. 37)

PRODUCING VIDEO

The core concepts also play an important role in helping students increase video literacy knowledge and skills to produce video. Once again, producing video requires students to engage in higher-order thinking skills in order to first plan the format that will "tell the story" and then develop, edit, and evaluate the final video to ensure the intended message is shared. Once again address core concepts with key questions to guide student production of video.

1. What am I authoring?
2. Does the message reflect understanding in format, creativity, and technology?
3. Is my message engaging and compelling for my target audience?
4. Have I clearly and consistently framed values, lifestyles, and points of view in my message?
5. Have I communicated my purpose effectively? (Jolls, 2008, p.37)

USING VIDEO IN THE CLASSROOM

According to Nugent (2005), many teachers use video to introduce a topic, to review content, to provide remediation, or to promote enrichment. Video is suitable in all instructional environments and works with whole classes, small groups, and individual students. They can take the learner almost anywhere and extend students' interests beyond the walls of the classroom. Organizations from companies to national parks provide video tours to observe phenomena as varied as assembly lines and the wonders of nature. Objects too large to bring into the classroom are studied as well as

those too small to see with the naked eye. Events too dangerous to directly observe, such as an eclipse of the sun, are studied safely. Videos are available on almost any topic for every type of learner in all the domains of instruction.

VIDEO AND THE DOMAINS OF LEARNING

The multifaceted nature of videos makes them an excellent educational resource to expand student learning in the four major domains: cognitive, affective, psychomotor, and interpersonal.

Cognitive Domain. In the cognitive domain, learners can observe dramatic recreations of historical events and actual recordings of more recent events. Color, sound, and motion make personalities come to life. Video can enhance the textbook by showing processes, relationships, and techniques. Students can read books in conjunction with viewing videos. Students can read before viewing as an introduction to the topic, or you may use the video to interest students in reading about the topic.

Affective Domain. When there is an element of emotion or the desire for affective learning, video usually works well. Role models and dramatic messages on video can influence attitudes. Because of its great potential for emotional impact, video can be useful in shaping personal and social attitudes. Documentary programs have often been found to have a measurable impact on student attitudes. Documentaries made during the Great Depression, for example, bring the hardships of that era to students who have never known hard times. Cultural understanding can be developed through viewing video depicting people from all parts of the globe.

Psychomotor Domain. Video is great for showing processes involving the use of motor skills. For example, there is a short educational video called Colonial Cooper that shows how an 18th century artisan makes a barrel at Colonial Williamsburg. Demonstrations of psychomotor skills are often more easily seen through media than in real life. If you are teaching a step-by-step process with a DVD, you can show it in real time, use fast forward for an overview, stop the action for careful study, or move forward one frame at a time. Students' own performances can also be recorded to video, which enables learners to observe their efforts and receive feedback from peers, teachers, or others.

Interpersonal Domain. By viewing a video program together, a diverse group of learners can build a common base of experience as a catalyst for discussion. When students are learning interpersonal skills, such as dealing with conflict resolution or peer relationships, they observe the behavior of others on video for demonstration and analysis. Students then practice their interpersonal skills before a camera so they can observe themselves and also receive feedback from peers and teachers. Role-play vignettes can be analyzed to determine what happened and to ask learners what they would do next. Open-ended dramatizations present unresolved confrontations, leaving it to the viewers to discuss various ways of dealing with the problem.


ASSURE Case Study Reflection

Review the ASSURE Classroom Case Study and video at the beginning of the chapter. How does Mr. James use video to develop the cognitive, affective, psychomotor, and interpersonal skills of his fifth-grade students? Which of the four domains are reinforced during student creation and editing of the natural disaster videos? In what ways did the lesson activities reinforce learning?

TYPES OF EDUCATIONAL VIDEOS

Although there are vast numbers of commercially produced educational videos appropriate for use in PK–12 classes, most videos can be grouped into four common types: documentary, dramatization, video storytelling, and virtual field trips.

Documentary. Video is the primary medium for documenting actual or reenacted events and bringing them into the classroom. The documentary deals with fact, not fiction or fictionalized versions of fact. Documentaries attempt to depict essentially true stories about real situations and people. Many nonprofit organizations, such as the Public Broadcasting System, regularly produce significant documentaries. For example, the video *To the Ends of the Earth* allows students to "experience" the story of a perilous sea voyage based on William Golding's novel of the same name. The Civil War miniseries is a documentary of a critical period in U.S. history. Programs such as *Nova* and National Geographic specials offer outstanding documentaries in science, culture, and nature, many of which are available for viewing on the
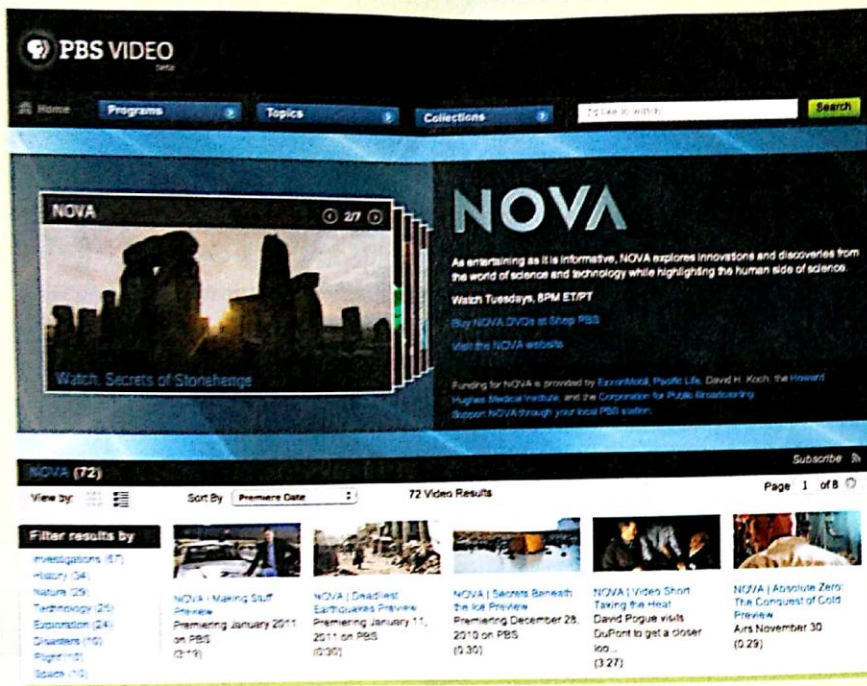
Figure 10.1
PBS Documentaries

Public Broadcasting Service (PBS) offers a wide variety of free science and technology documentaries that are viewed from the Internet.
Source: http://video.pbs.org/program/979359664#result. Courtesy of PBS and NOVA/WGBH-TV Boston, © 1996–2010 WGBH Educational Foundation.

free Arctic Stories video series (Figure 10.2). Storytelling is also an important skill to develop in students of all ages. Video storytelling allows students to be creative while developing their writing, visual literacy, and video production skills. The goal is to teach students to express ideas through stories. In the process, students can both teach and learn from each other. See Taking a Look at Technology Integration: Bridges to Understanding for additional information on video storytelling.

Virtual Field Trips. Videos can take students to places they might not be able to go otherwise. You can visit the Amazon rainforest, the jungles of New Guinea, or the Galapagos Islands. Students can also go on a virtual tour of the Egyptian pyramids, walk on the Great Wall of China, or explore the Acropolis in Athens, Greece. Videos enhance and build on knowledge gained from reading textbooks, Internet descriptions, or listening to lectures.
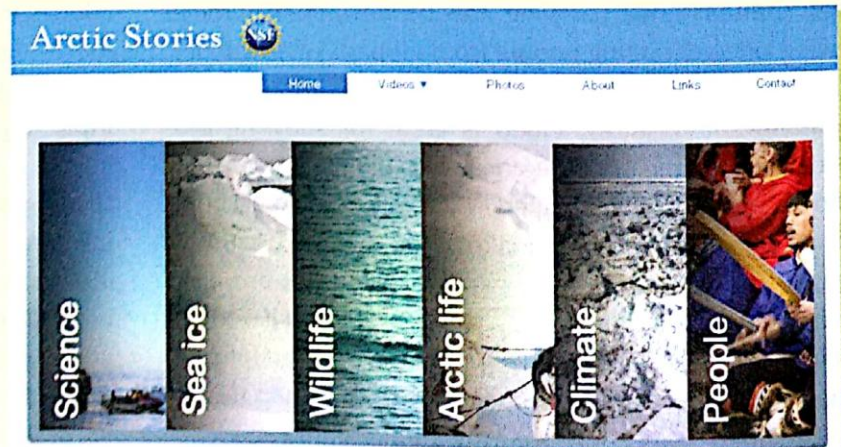
Internet (Figure 10.1). Virtually all television documentaries are available for purchase.

Dramatization. Video has the power to hold your students spellbound as a drama unfolds before their eyes. Literature classics available as video, such as *Anne of Green Gables*, *Hamlet*, and *Moby Dick*, expand student learning opportunities as they compare and contrast the differences between the text and video. Historical fiction, such as *Shogun* and *War and Peace*, use a combination of fiction and facts to dramatize historical events. Dramatization is also an excellent venue to build positive student character and attitudes in such areas as multiculturalism, disabilities, self-esteem, and working cooperatively.

Video Storytelling. Humans are "storytelling animals." We love to hear and tell stories because they are entertaining and informative. Stories can be incorporated into instruction through videos, such as the

**Figure 10.2**
Arctic Stories

The Arctic Stories website provides free videos of the science, sea ice, wildlife, Arctic life, climate, and people of the Arctic.
Source: www.arcticstories.net. Reprinted by permission of Don Congdon Associates, Inc. Copyright © by Peter Lourie.

Enhancing Learning with Video

Bridges to Understanding

Bridges to Understanding (www.bridges2 understanding.org) is a nonprofit organization that connects middle and high school students in classrooms around the world via its interactive website. Bridges' mission is "to empower and unite youth worldwide, enhance cross-cultural understanding, and build global citizenship using digital technology and the art of storytelling." Bridges' curriculum leads small student teams in the creation and sharing of digital stories about their lives, communities, and global issues. Students also use Bridges' discussion forums to post questions and responses, learning directly about other students across the globe.

BRIDGES 2 UNDERSTANDING

Empowering and uniting youth worldwide, enhancing cross-cultural understanding and building global citizenship
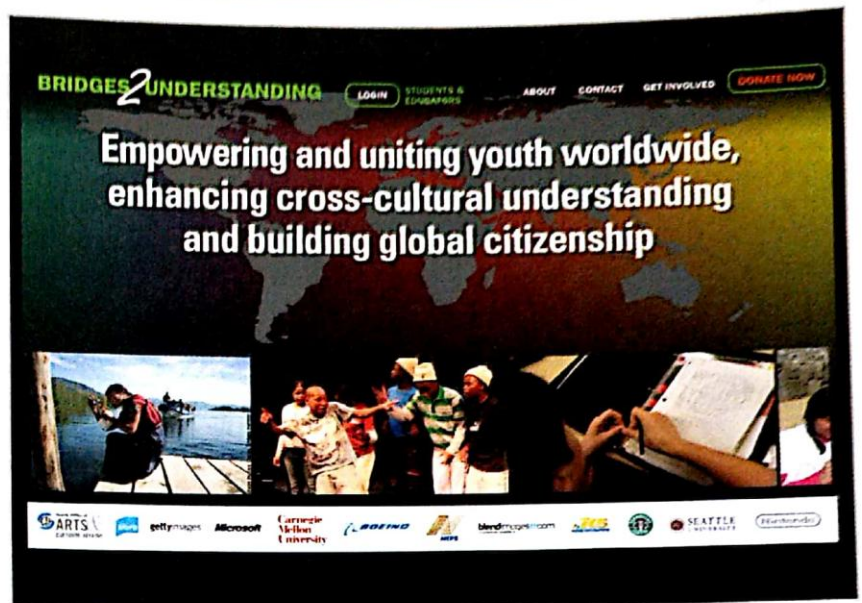
www.bridges2understanding.org. Reprinted by permission.
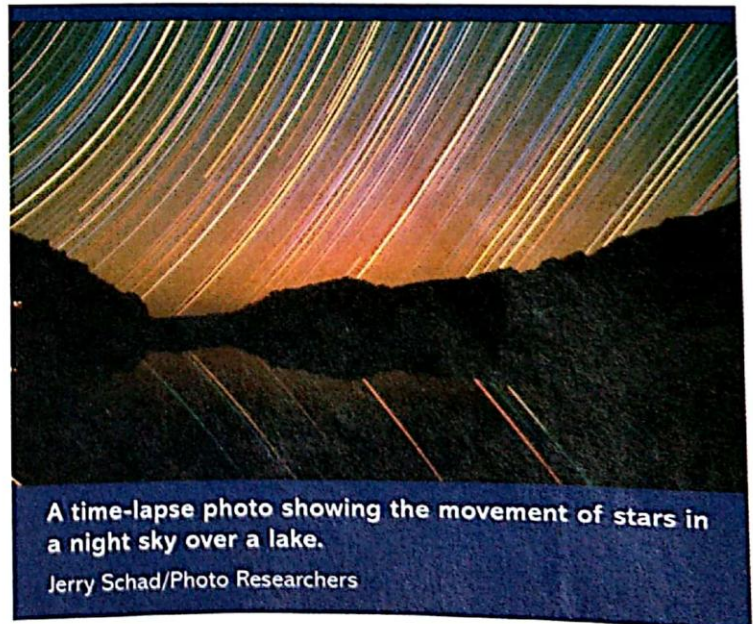
SPECIAL ATTRIBUTES OF VIDEO

Because most of us think of video as a medium designed to produce a realistic image of the world around us, we tend to forget that a basic attribute of video is the ability to manipulate temporal and spatial perspectives. Manipulation of time and space, use of animation, and other video conventions not only serve dramatic and creative ends but also have important implications for instruction.

MANIPULATION OF TIME

Video permits us to increase or decrease the amount of time required to observe an event. For example, it would take a very long time for students to actually witness a highway being constructed, but a carefully edited video of the different activities that go into building a highway recreates the essentials of such an event in a few minutes.
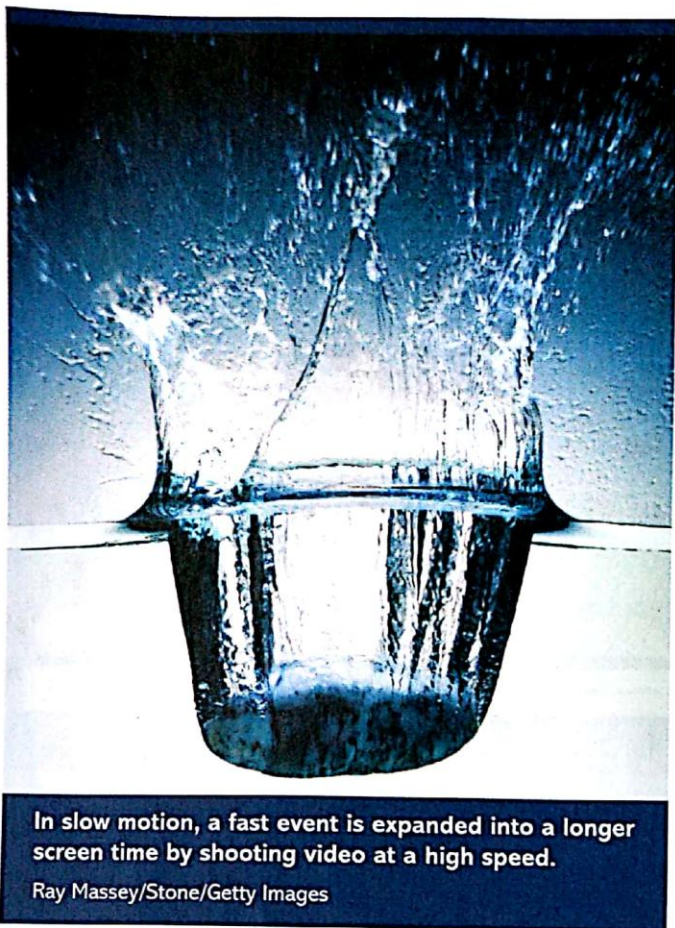
Removal of Time. Video can delete segments of time. For example, you are familiar with the type of sequence in which a scene fades out and then fades in the next day. Time has been taken out of the sequence, but we accept that the night has passed even though we did not experience it in real time.

Compression of Time. Video can compress the time it takes to observe an event. A flower can appear to open before our eyes, or stars can streak across the nighttime sky. This technique, known as **time lapse,** has important instructional uses. For example, the process of a chrysalis turning into a butterfly is too slow for easy classroom observation. However, through time-lapse videography, the butterfly can emerge from the chrysalis in a matter of minutes.

A time-lapse photo showing the movement of stars in a night sky over a lake.
Jerry Schad/Photo Researchers

Enhancing Learning with Video

In slow motion, a fast event is expanded into a longer screen time by shooting video at a high speed.

Ray Massey/Stone/Getty Images

takes advantage of **persistence of vision** to give motion to otherwise inanimate objects. **Animation** is basically made up of a series of photographs, drawings, or computer images of small displacements of objects or images. If such an object is shown on a single frame, then moved a very short distance and reshown, moved again, reshown, and so on, the object when viewed will appear to continuously move through space.

With the continuing evolution of computer software that can manipulate visual images, we are experiencing a rediscovery of the art of animation through video. Computer-generated animation sequences are being used more and more in instructional video programs to depict complex or rapid processes in simplified form.

VIDEO CONVENTIONS

Video devices and techniques to manipulate time and space employ what are for most of us readily accepted conventions. We understand that the athlete whose jump is stopped in midair is not actually frozen in space, that the flashback is not an actual reversal of our normal time continuum, that the light bulb does not really disintegrate slowly enough for us to see that it implodes rather than explodes. Teachers, however, must keep in mind that the ability to make sense out of video conventions is an acquired skill. When do children learn to handle flashbacks, dissolves, jump cuts, and so on? Unfortunately, we know very little about when and how children learn to make sense of video's manipulation of reality, and much research on the matter remains to be done.

Video is not alone in its reliance on accepted conventions for interpretation and appreciation. Flashback techniques are regularly used in literature and usually accepted by readers. Playgoers readily go along with the theatrical convention of the aside. The following anecdote about Picasso illustrates how a new artistic convention may seem to the uninitiated as merely a distortion of reality rather than, as intended, a particular and valid view of reality. It also illustrates how a convention (in this case a convention of photography) can become so readily accepted and commonplace that we are amusingly surprised at being reminded it exists.

Picasso showed an American soldier through his villa one day, and on completion of the tour the young man felt compelled to confess that he didn't "dig" Picasso's weird way of painting, because nothing on the canvas looked the way it really is. Picasso turned the conversation to more acceptable matters by asking the soldier if he had a girlfriend back in the States. The boy proudly pulled out a wallet photograph. As Picasso handed it back, he said, "She's an attractive girl, but isn't she awfully small?" (Forsdale & Forsdale, 1966, p. 609).

Expansion of Time. Time can also be expanded by video through a technique called **slow motion.** Some events occur too fast to be seen by the naked eye. By photographing such events at extremely high speeds and then projecting the images at normal speed, we can observe what is happening. For example, a frog catches an insect too rapidly for the human eye to observe; high-speed videography can slow down the motion so that we can observe the process.

MANIPULATION OF SPACE

Video allows us to view phenomena in both macrocosm and microcosm—that is, at extremely close range or from a vast distance. Your students can view the earth from the space shuttle (macro view) and at the other extreme, observe cell division under a microscope (micro view). Live TV allows our students to observe two events occurring simultaneously but many miles apart on split screen. This technique is often used in news events in which one reporter is located in the station while the other is "live" on the scene, often a different country.

ANIMATION

Time and space can also be manipulated by animation. This process, which can involve several different techniques,

Enhancing Learning with Video

VIDEO FORMATS

Like most media, video is generated in both digital and analog formats. Digital is the most popular form of video. Technically speaking, digital video signals are in the form of 1s and 0s that are displayed via light and color intensity of fixed dots, whereas analog video signals are produced as waves that are displayed by a series of scans. Digital is the newer technology, with many advantages over analog, but both formats are widely available.

DIGITAL VIDEO

Digital video images can be manipulated, stored, duplicated, sent from one computer to another, and replayed without loss of quality. DVDs provide approximately 500 lines of resolution, which is double that of an analog videocassette. The digital camcorder has decreased in cost and increased the ease and portability of video recording. It allows video production to be taken into the field, wherever that might be: the science laboratory, the classroom, the counseling office, the athletic field, the factory assembly line, the hospital, the neighborhood, and even the home. Equally important, the simplicity of the system has made it feasible for nonprofessionals, teachers, and students alike to create their own video materials.

Another advantage of digital video is that editing can be done on a computer using software that makes it easy to manipulate the sequence of images. The quality of the video image will not degrade during editing and copying, as happens with videocassettes. Digital video can also be viewed at varying speeds, allowing students to study images from very slow to accelerated motion. Still images can also be captured from digital video files and inserted into a digital video. Finally, it is quick and easy to transfer large video files to the computer using a high-speed connection. Common digital video formats include DVD, Blu-ray Discs, computer-based files, and Internet video.

DVD. A digital videodisc (DVD) is a medium offering digital storage and playback of full-motion video. DVDs did for movies what the CDs did for music. The disc is the same physical size as an audio CD but can hold enough data for nine hours of video with high-quality soundtracks. Like CDs, DVDs have instant random access and are highly durable. There is no distortion when you watch a DVD in slow motion. DVDs provide superior sound and picture quality compared to standard videocassettes, and, unlike videotape, DVDs do not deteriorate over time.

Blu-ray Disc. Blu-ray Discs (also known as BD) store high-definition video, games, and other data on discs noted with
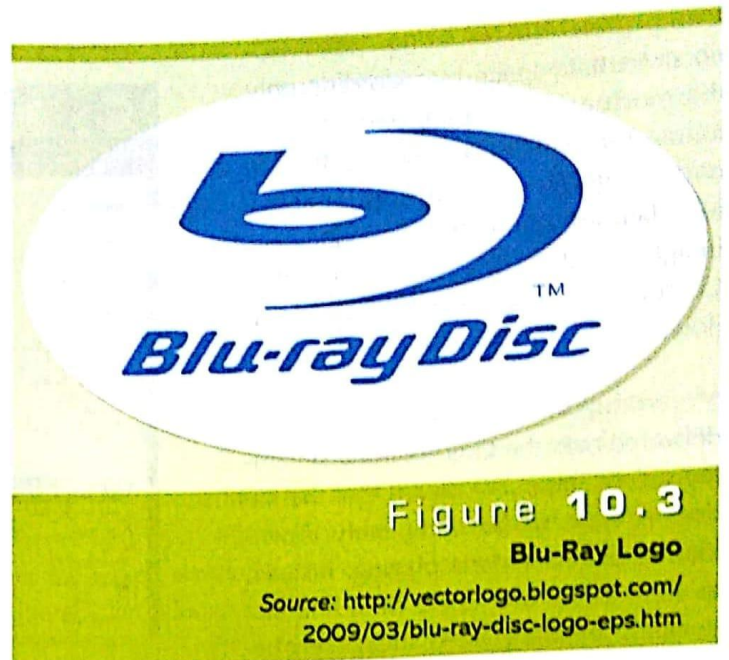

Figure 10.3
Blu-Ray Logo
Source: http://vectorlogo.blogspot.com/2009/03/blu-ray-disc-logo-eps.htm

the BD Logo (Figure 10.3). The name comes from the blue laser used to read the disc, meaning BDs can only be viewed on BD video players (which can also play DVDs). Although BDs are the same size as standard DVDs, they store almost ten times more data than a DVD.

Computer-Based Video. Students can prepare video reports, class presentations, and digital portfolios on computers. Starting with video sequences or images from materials they have recorded or from DVDs, they can use video editing software such as iMovie or Movie Maker to manipulate the images and sounds similarly to rearranging information in word processing or presentation software. For example, students can employ a multimedia approach when creating an oral report. Students begin by researching a topic with books, databases, videos, CDs, and other media. Relevant content is "captured" on video, edited, and student narration added before presenting the final report. Remember that copyright laws also apply to the use of video created by others. See Copyright Concerns: Video.

Digital videos are also an important component in computer-based student portfolios as the videos capture actual student reflections and performance over time. This enables the students, teachers, and others to follow student progress through the archived videos.

Internet Video. Many websites now offer Internet broadcasts of events or activities at their sites, including newsworthy stories, scientific activities, and cultural presentations. Some of the broadcasts are live and others are recorded. "Live cams" can "take" students to a museum, a national park, zoo, historical landmark, or an aquarium to observe activities in real time (Figure 10.4). These Internet broadcasts use compressed video or streaming video.

Compressed Video. Compressed video saves data space by recording only the moving or changing parts of each frame. The parts of the picture that are not changing are not recorded; hence less data are needed to reproduce the image, resulting in smaller video files. Compressed video is used to upload and download video files over the Internet.

Streaming Video. Video also can be delivered over the Internet using streaming video. *Streaming* means that the file doesn't have to be completely downloaded before it starts playing. Instead, as soon as the user clicks on a link that contains streaming video, the content begins to play. The video content is actually downloading to the user's computer in a series of small information packets that arrive shortly before the viewer sees the material. Any video materials can be delivered over the Internet using the streaming technique. The content is not stored on your computer. It "flows" into your active memory, is displayed (or played), and then is erased.

ANALOG VIDEO

Many schools and media resource centers still have a library collection of videos in all subject areas stored on videocassettes. Most classrooms have ready access to a large-screen TV or digital projector connected to a VCR. It is also common to see classrooms equipped with ceiling-mounted TVs that are connected to a central station that will play a requested video at a designated time. These same systems are used for students to create and present a morning information (news) broadcast that is distributed schoolwide.

ASSURE Case Study Reflection

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Review the ASSURE Classroom Case Study and video at the beginning of the chapter. What are the advantages for Scott James and his class in using digital or analog video for the lesson on natural disasters? How could you use video in your teaching?

Figure 10.4

Monterey Bay Aquarium

The Monterey Bay Aquarium website offers eight live web cams to observe kelp, underwater kelp, sea otters, wading birds, penguins, the outer bay, aviary, and Monterey Bay.

Source: www.montereybayaquarium.org/efc/cam_menu.aspx. © 2010, Monterey Bay Aquarium. Reprinted by permission.

ADVANTAGES

- *Motion.* Moving images have an obvious advantage over still visuals in portraying concepts and processes in which motion is essential to learning (such as Newton's Laws of Motion, erosion, metamorphosis).
- *Risk-free observation.* Video allows learners to observe phenomena that might be too dangerous to view directly, such as an eclipse of the sun, a volcanic eruption, or warfare.
- *Dramatization.* Dramatic recreations bring historical events and personalities to life. They allow students to observe and analyze human interactions.
- *Affective learning.* Because of its great potential for emotional impact, video can be useful in shaping personal and social attitudes, such as "going green." Documentary and propaganda videos have often been found to have a measurable impact on audience attitudes.
- *Problem solving.* Open-ended dramatizations are frequently used to present unresolved situations, leaving it to the students to discuss various ways of dealing with the problem.
- *Cultural understanding.* We develop a deep appreciation for other cultures by seeing depictions of everyday life in other societies. The whole genre of ethnographic video serves this purpose. Feature-length ethnographic

Enhancing Learning with Video

W H E N to U S E Video

Use when student learning will be enhanced by . . .

Guidelines	Example
motion	High school students watch video clips of various chemical reactions to determine the environmental impact of using gasoline engines.
processes	Elementary students watch a video that shows each step of the recycling process to learn how aluminum cans are recycled.
risk-free observation	Middle school students view a video of a Hawaiian volcano eruption.
dramatization	Elementary children watch a video showing the evolution of transportation.
skill learning	Art students in a middle school view a video that shows step-by-step techniques used to draw shadows.
affective learning	Kindergarten students watch a video to better understand the feelings and challenges of children with disabilities.
problem solving	Middle school students in an interdisciplinary gifted class view documentaries explaining the overpopulation concerns of some large U.S. cities and then discuss possible solutions.
cultural understanding and establishing commonality	High school students in a school with a growing population of English language learners from multiple ethnic backgrounds view videos that highlight the commonalities between ethnicities.

soundtracks can be aimed at different types of learners. Text can be displayed in multiple languages and used to subtitle or annotate video content. DVDs offer many tools for adaptation and access, including index searching by title, chapter, track, or time-code for quick navigation. As another example, barcodes are often added to text materials to access specific video segments on a DVD. Some DVDs even offer the ability to view an object from different angles with up to nine different camera views that can be selected in real time during playback.

There are multiple benefits for integrating student production of video into instruction. Understandably, increased student engagement and motivation are at the top of the list because is it is fun to create videos. Additional benefits include use of higher-order skills to solve ill-defined but authentic problems through the collaborative production of a video that demonstrates a solution for a real audience (Schuck & Kearney, 2008). Student creation of video also aligns and supports achievement of the six NETS for Students.

When planning lessons, keep in mind the prominent features of video that will help to enhance student learning—depicting motion, showing processes, offering risk-free observations, providing dramatizations, and supporting skill learning. Scenarios portrayed in videos are tools to build affective learning, introduce open-ended problem solving vignettes, and develop cultural understanding and establish commonality. See When to Use Video for examples of each guideline.
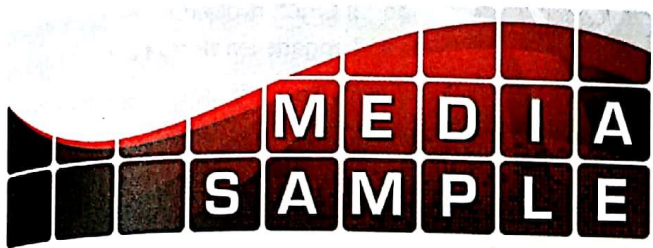
SELECTING VIDEO

As seen, there are many advantages for integrating video into PK–12 instruction. The first step to integrating these useful resources is to locate videos that are directly aligned to and support achievement of your lesson objectives. The second step is to evaluate the selected video to ensure that it *actually* aligns to your objectives and will meet the needs of your students.

Locating Videos. In most educational settings, teachers have access to numerous educational videos from a variety of sources. As mentioned in the introduction, school districts totaling more than one million teachers provide online access to over 80,000 Discovery Education digital videos. The Internet also offers vast educational video options, with most being freely available for classroom viewing. School library media specialists are a key resource for locating video owned by the school, district, or regional resource center. They also assist with locating other providers of sponsored videos.

Private companies, associations, and government agencies sponsor videos for a variety of reasons. Private companies may make videos to promote their products or to enhance their public image. Associations and government agencies sponsor videos to promote causes, such as better health habits, conservation of natural resources, and proper use of park and recreation areas. Many of these sponsored videos are worthwhile instructional materials that have the advantage of being free or inexpensive.

A certain amount of caution, however, is called for in using sponsored videos for instructional purposes. Some privately produced materials may be too flagrantly self-serving. Or they may deal with products not suitable for instructional settings, for example, the manufacturing of alcoholic beverages or cigarettes. Some association and government materials may contain a sizable dose of propaganda or special pleading for favorite causes. You *must always preview* sponsored materials. When properly selected, many sponsored materials can be valuable additions to classroom instruction. Modern Talking Picture Service is one of the major distributors of sponsored videos.

Evaluating Video. After you have located some potentially useful videos, use an evaluation tool to assess alignment with your lesson. Some schools and online teacher websites offer standard evaluation forms from meticulous evaluations involving numerous factors to others that are much more perfunctory. A good appraisal form is brief enough not to be intimidating but complete enough to help teachers choose materials that will enhance student learning. In some cases, evaluation results help decide on purchase or rental of specific titles.

The Selection Rubric: Video at the end of this chapter includes the most commonly used criteria, particularly those

MEDIA SAMPLE

Video

Abraham Lincoln: Animated Hero Classics

www.nestfamily.com/Animated-History-Biographies-C1518.aspx

This video biography of Abraham Lincoln is a "Kids First" award winner that presents highlights of Lincoln's personal and political life. The story, targeted for age 7 to 12 students, depicts the human side of Lincoln and his passion for civil liberties for all Americans. (Nest Family Entertainment)

Math . . . Who Needs It?

www.fasestore.org/default.asp

This video is aimed at parents and their kids. It gives a perspective on the rewards and opportunities open to anyone with good math skills. It challenges myths about math, pokes fun at society's misconceptions of the subject, and provokes viewers to think and talk about math in a more positive way. (FASE Productions)

The Supreme Court

www.ambrosevideo.com/items.cfm?id=1217

A winner of eight prestigious awards, including the 2008 Parents' Choice Gold Award, this four-part video series about the Supreme Court is appropriate for high school history and social studies classes. The videos use archival footage, interviews with the justices, and digital graphics to explore and personalize the history and impact of the Supreme Court. (Ambrose Video Publishing, Inc.)

One Woman, One Vote

www.pbs.org/wgbh/americanexperience/films/OneWomanOneVote

Witness the 70-year struggle for women's suffrage, from fledgling alliances to a sophisticated mass movement. This video documents the history of the women's suffrage movement from the Seneca Falls Convention in 1848, when Elizabeth Cady Stanton demanded the right for women to vote, to the last battle for passage of the 19th Amendment in 1920. (PBS Video)

Are You Addicted?

www.hrmvideo.com/items.cfm?action=view&item_id=2307&search_keywords=Are%20You%20Addicted%3F

An award-winning video, directed toward adolescents, focuses on three young people dealing with addictions. Two medical experts provide a definition of addiction and guide students through the signs and symptoms that can lead to an addiction. The end of the video emphasizes recovery. (Human Relations Media)

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USING
Video
in the Classroom

The following tips apply to the enhancement of video presentations to students:

- *Sightlines.* Check lighting, seating, and volume control to be sure that everyone can see and hear the presentation.
- *Light control.* When using digital video projection, dim or turn off lights if dimming is not available. When viewing with a TV, use normal room lighting and dim the lights above and behind the monitor if possible.
- *Mental set.* Briefly review prior content and ask questions about the current topic to get students mentally prepared for use of video.
- *Advance organizer.* List and introduce the main points to be covered in the presentation.
- *Vocabulary.* Preview any new vocabulary.

- *Short segments.* Show only 8 to 12 minutes of a video at any one time (even shorter for younger students). Rather than showing a 30-minute video from start to finish, increase viewer learning and retention by using the following technique: Introduce the first segment and show about 10 minutes of the video, stopping at a logical breaking point. Discuss the segment and then introduce the second segment, tying it to the first. Show the second 10-minute segment and repeat the procedure. Keep in mind that all video segments should directly align with lesson objectives.
- *Role model.* Most important, get involved in the program yourself. Watch attentively and engage learners at appropriate times during the video.
- *Follow-up.* Reinforce the video content with meaningful follow-up activities.

that have research-based evidence of effectiveness. Specific areas of importance in evaluating video are pacing and the use of cognitive learning aids, such as an overview or summary. Cues are another aid, pointing learners to important aspects of the video, such as a flashing arrow pointing to parts of a flower as each is being presented. In evaluating videos, you also have the opportunity to make notes for class discussion of the key topics as well as areas that need further explanation or emphasis to enhance student learning.

PRODUCING VIDEO

Student video production promotes learning by engaging critical thinking about cultural, political, scientific, financial, and environmental issues. At the same time, creating videos helps to build technology literacy skills. Students' passion for technology can fuel active exploration of their world. Combining these two characteristics can ignite a passion for learning because the experience is creative and fun. Student video production aligns with and supports ISTE NETS-S in encouraging student awareness, the development of creativity, the potential for engagement, and a bridge to life outside the classroom. Teachers can also produce video by customizing visual materials for their lessons. Remember, you and your students must follow copyright guidelines when producing video.

Videography, or the creation of video, enables students to explore any curriculum subject through the active process of making a video about it. In addition to video production skills,

students learn problem solving, scheduling, analysis, research, planning, imagination, and communication—all real-world skills required for 21st century careers. They become better thinkers, better communicators, and better problem solvers.

Once the video equipment (cameras, microphones, computers, and software) has been purchased, the production of in-house video is inexpensive when compared to educational benefits such as the following:

- Dramatization of student stories, songs, and poems
- Immediate feedback to improve performance
- Skills training (e.g., how to use digital science probes)
- Interpersonal techniques (e.g., how to work cooperatively)
- Student documentaries of school or neighborhood issues
- Preservation of local folklore
- Demonstrations of science experiments and safety drills
- Replays of field trips for in-class follow-up

PLANNING

As with all media production, preproduction planning is necessary. Actively involve students in designing videos they are to produce. Planning can involve storyboarding, scripting, and preparing outlines for recording and revising their video productions. To provide each student with a variety of experiences, rotate roles among writers, editors, camera operators, and on-camera "talent."

Video

The Copyright Act of 1976 did not cover educational uses of video copies of copyrighted broadcasts. A negotiating committee composed of representatives from industry, education, and government agreed on a set of guidelines for video recording of broadcasts for educational use. The following guidelines apply only to nonprofit educational institutions.

You may do the following:

- Ask your media/technology specialist to record the program for you if you lack the equipment or expertise. The request to record must come from a teacher.
- Retain the recording of a broadcast (including cable transmission) for a period of 45 calendar days, after which you must erase the program.
- Use the recording in class once per class during the first 10 school days of the 45 calendar days, and a second time if instruction needs to be reinforced.
- Have professional staff view the program several times for evaluation purposes during the full 45-day period.
- Make a limited number of copies to meet legitimate needs, but you must erase these copies when erasing the original recording.

- Use only a part of the program if instructional needs warrant.
- Enter into a licensing agreement with the copyright holder to continue use of the program.

You may *not* do the following:

- Record premium cable services such as HBO without express permission.
- Alter the original content of the program.
- Exclude the copyright notice on the program.
- Record a program in anticipation of use.
- Retain the program, and any copies, after 45 days.

Remember that these guidelines are not part of the copyright act but are rather an agreement between producers and educators. You should accept them as guidelines in good faith.

Students begin the process of video production by creating a series of storyboards to facilitate planning and production of video. The storyboards include a rough sketch of the scene, script, and any notes for the camera operator, such as "zoom in for close-up of face." Graphic organizer software, such as Kidspiration and Inspiration, provide useful tools for creating storyboards. When a group of students are cooperatively involved in designing a video, storyboarding is particularly helpful to organize and represent multiple viewpoints.

ASSURE Case Study Reflection

PEARSON
myeducationkit

Review the ASSURE Classroom Case Study and video at the beginning of the chapter. How does Scott James use script writing to support student learning? In what ways does Mr. James engage students in the production of digital video? What role does Mr. James play during video production?

RECORDING

Handheld cameras usually come with a built in microphone. This microphone has an automatic level control that adjusts the volume to keep the sound at an audible level; in other words, the camera "hears" as well as "sees." The problem is that along with the sounds you want these microphones amplify all audio within their range, including shuffling feet, coughing, street noises, and equipment racket. You may therefore want to bypass the built-in microphone by plugging in a separate microphone better suited to your particular purpose.

The lavaliere, or neck mike, is a good choice when recording a single speaker. It can be clipped to a tie or dress, hung around the neck, or even hidden under lightweight clothing. A desk stand may be used to hold a microphone for a speaker or several discussants seated at a table. For situations in which there is unwanted background noise or the speaker is moving, a highly directional microphone is best.

EDITING

Digital video editing refers to the means by which video can be taken apart and put back together using a computer and

Enhancing Learning with Video

editing software. With some digital camcorders there is no videotape; others use specialized videotape to record in a digital mode. After shooting video, you can watch it on the camera's built-in LCD monitor or connect the camcorder to a TV or computer to view the footage or to transfer the file to a computer. There are several methods for storing video on a computer. One format is QuickTime, for use with Mac and Windows operating systems. Many applications, such as Compton's Multimedia Encyclopedia, incorporate QuickTime "movies." The transferred video file is then edited using software such as the applications that come with iMovie for Apple computers and Windows Movie Maker for PCs. The editing software not only provides tools to delete and rearrange content, but also to add titles, music, photos, and special transitions.

A high definition camcorder offers a variety of technology tools in addition to recording HD video.
Shutterstock

ASSURE Case Study Reflection

PEARSON myeducationkit

Review the ASSURE Classroom Case Study and video at the beginning of the chapter. What recording and editing equipment did students use to create digital videos on natural disasters? Which strategies did Mr. James use to assist students who experienced trouble when creating their videos?

INNOVATION on the HORIZON

HIGH DEFINITION VIDEO PRODUCTION COMES TO SCHOOLS

Among the new technology devices that are smaller, more efficient, and less expensive are camcorders that produce high definition (HD) video. For example, Genius offers a pocket size G-Shot camcorder HD520 that sells for around $150. The G-Shot provides a variety of tools that reduce the need for additional classroom technology, such as voice recorder, digital still camera, HDMI TV/Audio-out, web camera, and brightness control for low light or backlit environments with specialized "Z Lighting."

SUMMARY

Today's students are accustomed to learning through Internet videos, TV, and other motion media. There are many exciting applications of video in the classroom. Video provides special applications in learning—particularly involving motion. Producing video engages students in higher-order thinking while reinforcing content area knowledge and skills; teacher-produced video can present material that enhances learning beyond the textbook. This chapter presented the specific attributes of video along with its advantages and limitations. It also described how to select, produce, and integrate video into student learning.

PEARSON myeducationkit

To check your comprehension of the content covered in Chapter 10, go to the **MyEducationKit** for your book and complete the Study Plan for Chapter 10. Here you will be able to take a chapter quiz, receive feedback on your answers, and then access resources that will enhance your understanding of the chapter content.

Enhancing Learning with Video

ASSURE Lesson Plan

The following ASSURE Lesson Plan provides a detailed description and analysis of the lesson in the ASSURE Classroom Case Study and video at the beginning of the chapter. To review the video again, go to the MyEducationKit for your text and click on the ASSURE Video under Chapter 10. This video, based on an interdisciplinary lesson created by Scott James, shows Mr. James implementing the lesson in his fifth-grade classroom and providing his insights for achieving successful use of student-created video.

Analyze Learners

General Characteristics. The students in Scott James's fifth-grade class are of mixed ethnicities and from low- to middle-income homes. They are fairly equally distributed with regard to gender and are either 9 or 10 years old. Student reading ability ranges from below to above grade level. Student behavior problems increase when completing traditional seatwork.

Entry Competencies. The students are, in general, able to do the following:

1. Conduct online research
2. Use iMovie software to edit digital video

Learning Styles. Mr. James's students learn best when engaged in activities that are relevant to the content and provide self-selection of topics. Their interest and motivation increase when they use technology. The students vary greatly in their comfort level with speaking and acting for the digital video news broadcasts. Differences are also seen with regard to use of graphics and sound, some using a traditional approach while others attempt more creative and fun methods for their final products.

State Standards and Objectives

Curriculum Standards. National Council of Teachers of English 4: Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. National Science Education Standards for 5–8—Earth and Space Science: Structure of the earth system. Global patterns of atmospheric movement influence local weather. Oceans have a major effect on climate, because water in the oceans holds a large amount of heat.

Technology Standards. National Educational Technology Standards for Students 1—Creativity and Innovation: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology Reprinted with permission from *National Educational Technology Standards for Students* © 2007, ISTE (International Society for Technology in Education, www.iste.org). All rights reserved.

Learning Objectives

1. Using content from conducting Internet and library research on a student-selected natural disaster, the fifth-grade students will write a script for a news anchor and an "on the scene" reporter.

Enhancing Learning with Video

2. Using the student-written scripts, the students will create storyboards that include segments for a news anchor and an "on the scene" reporter and meet the lesson criteria for storyboards.
3. Using their student-created storyboards and scripts, each student records their portion (news anchor or "on the scene" reporter) of the news broadcasts with digital video.
4. Using the digital video of their news broadcast, students will work in iMovie to produce a final edit of their news broadcast that meets the lesson criteria.

S elect Strategies, Technology, Media, and Materials

Select Strategies. Scott James selects teacher- and student-centered strategies for the natural disaster lesson. The teacher-centered strategies involve providing a detailed description of the lesson objectives and how the student pairs will conduct their research and create their news broadcasts. The student-centered strategies include conducting Internet and library research, writing scripts, developing storyboards, planning, recording, and editing their news broadcast video.

Select Technology and Media. This lesson involves student use of computers, a digital camcorder, microphones, a green screen, and iMovie to edit their natural disaster videos. Mr. James uses the following guidelines to assess his technology and media selections:

1. *Alignment with standards, outcomes, and objectives.* The library, Internet sites, and iMovie software provide the necessary tools for students to meet the learning objectives.
2. *Accurate and current information.* Students research text-based and Internet resources to find information on natural disasters.
3. *Age-appropriate language.* Students examine websites and books that are appropriate for fifth-grade students. Mr. James provides assistance and job aids for student use of iMovie.
4. *Interest level and engagement.* Students choose a natural disaster of interest to them and create a personalized news broadcast, which increases student interest and engagement.
5. *Technical quality.* Both the Internet sites and iMovie have high technical quality.
6. *Ease of use.* Student use of iMovie requires initial training and support, but is fairly easy for fifth-grade students to use after basic skills training.
7. *Bias free.* Students use multiple references for their research to better ensure bias-free content. iMovie software is bias-free.
8. *User guide and directions.* The online help features of iMovie are not very easy for fifth-grade students to follow. Therefore, students frequently ask each other or Mr. James for assistance with technical difficulties.

Select Materials. Scott James selects "kid-friendly" Internet sites and library materials for students to conduct research.

U tilize Technology, Media, and Materials

Preview the Technology, Media, and Materials. Scott James selects and previews the "kid-friendly" Internet sites, library materials, and iMovie software to ensure they have the needed features.

Prepare the Technology, Media, and Materials. Mr. James prepares an assignment sheet that describes the lesson requirements and criteria used to assess the final student products.

Prepare the Environment. Mr. James tests the Internet connections on the lab computers and ensures that iMovie is installed on each one. He also tests the digital video camera to ensure that it is working and downloads to the computers.

Prepare the Learners. The students have experience with Internet research and iMovie; thus the lesson begins with an overview of technical skills and an introduction to natural disasters.

Provide the Learning Experience. Mr. James guides student learning during video production and presentation of final videos to the class.

Require Learner Participation

Student Practice Activities. The students in Scott James's class use computers, the Internet, library materials, and iMovie to complete their natural disaster news broadcasts. Student pairs select a natural disaster and then conduct Internet and library research to find information about the topic. With this information students write the news anchor and "on the scene" reporter scripts and storyboards. Students then team to record news broadcasts on digital video, which they edit on iMovie to create a final cut of a video that is presented to the class.

Feedback. Scott James provides continuous feedback as students conduct their research, write their scripts, create storyboards, edit videos, and present their news broadcasts.

Evaluate and Revise

Assessment of Learner Achievement. Mr. James assesses learner achievement in two ways. First is demonstration of content knowledge, as seen in student scripts, storyboards, and iMovie presentations. The second is demonstration of technology skills, which is assessed according to the assignment criteria as stated in the learning objectives.

Evaluation of Strategies, Technology, and Media. Mr. James evaluates the lesson strategies through continuous communication with the students. He also examines student products to determine if the strategies were effective. Evaluation of the technology and media involves noting technical problem that occur during the lesson. This requires examining the functionality of the various software applications, Internet and library resources, and the digital camcorder.

Revision. After reviewing the evaluation results collected from student achievement measures and assessing the lesson strategies, technology, and media, Mr. James concludes that the lesson worked well, with one minor exception. He thought three weeks was too much time to devote to the designated standards and objectives. Therefore, Mr. James revised the lesson by borrowing digital video cameras from a regional media center to decrease the time needed to record all students.

CONTINUING MY PROFESSIONAL DEVELOPMENT

Demonstrating Professional Knowledge

1. Define video literacy and list the five core concepts of viewing and producing video.
2. Explain how student learning is enhanced by the application of video in each instructional domain—cognitive, affective, psychomotor, and interpersonal.
3. List and describe how the four types of educational video support student learning.
4. Describe three attributes of video and how they impact classroom instruction.
5. Compare and contrast digital versus analog video formats.
6. Outline the process for selecting and evaluating video for classroom use.
7. Describe techniques for video production by students and teachers.

Demonstrating Professional Skills

1. Preview a video and appraise it using the Selection Rubric: Video. (ISTE NETS 2.C)
2. Observe a classroom in which students are creating video to enhance content area learning and critique the classroom practices based on video production guidelines. (ISTE NETS 5.C)
3. Plan a lesson for a subject area of your choice in which you incorporate the use of a video. For that video, brainstorm a variety of assessment techniques to measure student learning of the content. (ISTE NETS-T 2.B & 2.D)
4. Create a digital video to support and enhance a topic you teach as a way to model creative and innovative thinking for your students. (ISTE NETS-T 1.A)

Building My Professional Portfolio

- *Creating My Lesson.* Using the ASSURE model, design a lesson for a scenario from the Lesson Scenario Chart appendix or create a scenario of your own design. With information from this chapter, integrate video into your instruction. Be sure to include information about the audience, the objectives, and all other elements of the ASSURE model.
- *Enhancing My Lesson.* With the lesson just designed, consider your audience again. Assume that some of your students have special needs, such as physical or learning difficulties. Also consider that several students are identified as gifted. How will you change your lesson design to ensure that these students are recognized and supported to allow them to succeed in achieving the lesson objectives?
- *Reflecting on My Lesson.* Reflect on the process used to design your lesson and meet student needs. What have you learned about aligning audience, content, strategies, and materials? What could be done to better develop your students' higher-order thinking or creativity skills? In what ways did the selected materials and hands-on activities enhance the learning opportunities for your students?

SUGGESTED RESOURCES

Print

Abrams, A., & Hoerger, D. (2009). *Award winning digital video projects for the classroom.* Eugene, OR: Visions Technology in Education.

Chenail, R. J. (2008). YouTube as a qualitative research asset: Reviewing user generated videos as learning resources. *The Weekly Qualitative Report, 1*(4), 18–24.

Theodoskis, N. (2009). *The director in the classroom: How filmmaking inspires learning* (Version 2.0). British Columbia, Canada: Author.

Watson, L. (2010). *Teach yourself visually: Digital video.* New York: Wiley.

Library Video Company

http://libraryvideo.com

A distributor of educational videos, DVDs, and audio books to schools nationwide, the company stocks over 18,000 titles covering a diverse range of topics for all ages and grade levels. Each program has been carefully reviewed and selected for content that is appropriate for the classroom setting.

neoK12

www.neok12.com/

This site provides a collection of free online educational videos, lessons, games, Web 2.0 tools, and quizzes for PK–12 students. Topic areas include physical, life, earth, and space science, social studies, math, English, and the human body. The American Library Association recognized neoK12 as a "Great Web Site for Kids 2009."

TED: Ideas Worth Spreading

www.ted.com

TED is a small nonprofit organization devoted to "Ideas Worth Spreading" regarding Technology, Entertainment, and Design (TED). The award-winning site has a collection of more than 500 free talks from the world's most fascinating thinkers and doers, who are challenged to give the talk of their lives (in 18 minutes). All of the talks feature closed captions in English, and many offer subtitles in various languages. These videos are released under a Creative Commons license, so they can be freely shared and reposted.

$ FREE & INEXPENSIVE
Videos

TeacherTube

www.teachertube.com

The TeacherTube site provides free instructional videos for teachers, students, schools, and home learners. The video collection includes teacher-posted videos designed to help students learn new knowledge and skills and professional development videos with teachers teaching teachers. Members of the site use a video rating system to provide feedback and suggestions to assist other teachers interested in using the videos. To create a safe venue, TeacherTube uses a flagging system to alert staff to remove inappropriate materials.

KidsKnowIt

www.kidsknowit.com/index.php

KidsKnowIt offers free educational movies featuring Avatar-type characters who teach basic knowledge and skills such as adjectives, acids and bases, Lewis and Clark, telling time, and tornados. Each movie ends with an interactive online quiz. New movies are added weekly.

SqoolTube

http://sqooltube.com

This site offers a wide variety of free online videos in the following categories: book related, character education, early childhood, holidays, math, music, reading and communication arts, safety, science, social studies, and Spanish.