

ADVENTURE 12



ADVENTURE OBJECTIVES

- Listens for a specific purpose
- Follows oral and written directions
- Responds to reading experiences in ways that reflect understanding
- Develops vocabulary through meaningful experiences
- Learns new vocabulary by listening, reading, and instruction
- Relates new vocabulary to prior knowledge

MODULE 1

- Draws conclusions and makes inferences
- Identifies cause-and-effect relationships
- Utilizes information presented in diverse media
- Follows a multistep procedure when carrying out experiments

MODULE 2

- Demonstrates the ability to read at grade level
- Compares and contrasts information
- Sequences events
- Uses digital media and visual displays to increase understanding

MODULE 3

- Draws conclusions and makes inferences
- Predicts and verifies outcomes
- Demonstrates the ability to read at grade level
- Utilizes information presented in diverse media
- Follows a multistep procedure when carrying out experiments

MODULE 4

- Identifies facts and details
- Develops fluency in adding, subtracting, multiplying, and dividing whole numbers

DESTINATION

Analyze the fundamental elements of television.



ITINERARY

Understand the science behind moving pictures and animation.

Sequence the life of an animation pioneer.

Compare and contrast animation technologies.

Predict the future of television after learning the past.

Keep a record of weekly television viewing.

BACKGROUND

Television

The word *television* is made up of two words: *tele*, a Greek word that means far away, and *videre*, a Latin word that means to see. Television had its origins in film, or animated photographs, as they were first called. The French scientist Étienne-Jules Marey invented the first camera capable of recording moving images in 1882. In 1887, Thomas Edison developed the kinetograph, the first camera to use roll film. In 1895, the Lumière brothers set up the world's first movie theater in Paris.

Persistence of Vision

Before the days of moving pictures, people used optical devices to create the illusion that a series of pictures were moving. One of the earliest of these devices was the thaumatrope. It consists of a disc that is attached to two pieces of string. When twirled, the images on the sides of the disc appear as one image. The device works on the principle of persistence of vision.

When our eyes see an object, the image remains on the retina for a few seconds even after the object has left our field of vision. So when our eyes perceive two slightly different pictures, one after the other, they appear to be moving. The eye can register 12 pictures per second as separate images, so if the pictures appear more rapidly than this, the eye perceives them as moving pictures. Motion pictures appear at the rate of 24 photographs, or frames, per second. The process of turning still pictures into moving pictures is called animation.

VOCABULARY

Introduce the vocabulary before you begin the Adventure. Use the words in a context sentence for Voyagers to help them understand. Have Voyagers add the words to the vocabulary logs in the back of the Voyager Adventure Book. Provide multiple exposures to the words throughout the Adventures.

complementary (adj) relating to one of a pair of contrasting colors that produce a neutral color when combined

pixels (n) the small dots that when seen together make up an image

principle (n) a basic truth, rule, law, or belief

three-dimensional (adj) relating to an object in which the length, width, and height can be seen

transition (n) a passage from one stage to another

underestimate (v) guess less than the actual amount



PREPARATION

Create a thaumatrope and flipbook before Module 1.

Collect digital cameras for use in Module 1.

If necessary, cut film into sections for students to study in Module 1.

Familiarize yourself with the assigned articles in *Cobblestone: Hooray for Hollywood* magazine.

Place Clipboard Notes 12.1 on the clipboards for Module 1.

Queue the *Media Magic* DVD for Module 1.

Provide computer access in Module 1.

Queue the *Media Magic* DVD for Module 2.

Have students bring a photo for Module 3.

Place Clipboard Notes 12.3 and the pixelated images on the clipboards for Module 3.

Queue the *Media Magic* DVD for Module 3.



INSTRUCTIONAL MATERIALS

- *Cobblestone: Hooray for Hollywood* magazines
- *Media Magic* DVD
- Pixelated Image Cards
- Voyager Adventure Books
- markers, colored pencils, crayons
- construction paper
- blank paper
- rulers
- index cards
- string or yarn
- scissors
- film samples



TECHNOLOGY CONNECTION

Use a streaming video Web site or a video-sharing Web site to find examples of 3-D animated films. Remember to always preview video clips for appropriateness and availability.

If computer access is available, allow students to create their flipbooks using digital cameras and slide show software for Module 1.



TEACHER'S NOTE

Preview the video clips from the *Media Magic* DVD. Depending on the climate of your school, some clips may not be recommended.

MODULE 1

1. Voyagers will understand the basis of movie making.
 - A. **We have been talking about motion pictures. The principle, or basic truth, behind motion pictures is the ability of your eyes to trick your brain. Your eyes trick your brain into seeing things that aren't there. Take a look at this image.** Play Illusion from the *Media Magic* DVD.
 - B. **In the picture, we see a moving purple dot. In actuality, the dot is not moving—it is being erased. One of the disks disappears briefly (for about 0.1 second), then the next (about 0.125 second later), and the next, and so on, in a clockwise direction. If you stare at the image long enough, the dot appears to erase itself. This is because the dot produces an afterimage that is green, the complementary color of the original dot.** Review the definition of *complementary* with Voyagers. **When the green afterimage combines with the purple dot, a gray dot is produced, exactly the same color of the background.**
 - C. Have Voyagers get in their learning teams. Assign Team Leaders and distribute necessary supplies. As each team goes to its assigned area, briefly meet with Team Leaders and discuss Clipboard Notes 12.1 with them. Have teams complete the activity “A Persistent Eye.”
 - D. Discuss the persistence of vision and the thaumatrope. Ask Voyagers how this could be related to movies.

TEACHER'S NOTE

Flipbooks can be made on the computer using a digital camera and a program to create a slide show (like PowerPoint). High-quality animation speed is 32 frames per second, but for a flipbook, between 2 and 10 frames per second is sufficient.

2. Voyagers will participate in basic animation.
 - A. **We have talked about reels of film. Now let's look at some.** Distribute film samples to learning teams and have them examine the film and see if they can determine what is on the film. **Most frames are either 16 millimeters or 35 millimeters. Film is produced and shown at 24 frames per second. This is the speed the human eye needs to see things in motion—at a standard speed. Slower than that, and you get slow motion. Faster than that, and you get fast motion. All cinematic animation, film, and video is made up of many individual frames that leave their unmoving images frozen in the eye until the next image flashes before it, tricking the brain into thinking it is seeing one thing moving instead of many things standing still. Let's see if we can re-create standard motion.**
 - B. Direct Voyagers to the back side of Clipboard Notes 12.1, “Flipping at the Speed of Film.” Have Voyagers make the flipbook.
 - C. When teams finish, discuss the flipbook technology and explain that this was, in essence, how original animation was done. **This is basic stop-motion animation. Stop-motion is used for many animation productions using physical objects rather than images of people, as with traditional animation. An object will be photographed, moved slightly, and then photographed again. When the pictures are played back in normal speed, the object will appear to move by itself.**
 - D. Play Galloping Horse from the *Media Magic* DVD. Ask Voyagers how their flipbook compares with the horse. **In 1878, a horse and rider galloped down a track lined with cameras. A string was attached to the shutter of each camera, and as the horse passed, it snapped the strings, each of which tripped a shutter, and a picture was taken. Because the cameras were all at different points, each picture was at a different point in the horse's stride. This was a major step in the development of motion pictures.**

1. Voyagers will sequence the life of an animation icon.
 - A. **Now that we have talked about how motion pictures work and created our own animations, we are going to talk about animated films.** Tell Voyagers what your favorite animated film is. Ask them about their favorites. **How have animated films changed?** (discuss three-dimensional animation compared with one-dimensional)
 - B. Show *Humorous Phases of Funny Faces* from the *Media Magic* DVD. **Produced in 1906, *Humorous Phases of Funny Faces* is considered to be the first animated film. In the film, what appear to be cartoon drawings of people move from one pose to another. This is done by moving jointed cutouts of the figures frame by frame between the exposures. However, there is a very short section of the film where things are made to appear to move by altering the drawings themselves from frame to frame, which is how standard animated cartoons have since been made.** Have Voyagers compare the animation with current trends.
 - C. **When you think of animated films, what name comes to mind?** (Guide Voyagers toward Walt Disney.) Have Voyagers get in their learning teams. Assign Team Leaders and distribute *Cobblestone: Hooray for Hollywood* magazines.
 - D. **As a team, generate a list of all the Disney movies you can think of.** Pause for teams to write. **How many movies are on your list? Walt Disney has had a major impact on animation, and his studios are still in the forefront of new technology.** Have learning teams read pages 16 and 17, "Walt Disney: Animation Pioneer."
 - E. **You are going to sequence Disney's life. Remember to use words such as first, then, next, after, and finally.** Have Pathfinders complete page 66, "Disney in Sequence," in the *Voyager Adventure Books*. Review the answers as a class.

ELL

Increase comprehension for English Language Learners by using graphic organizers that illustrate sequence. It is also helpful to teach words and phrases that signal sequence, such as *eventually, finally, next, then, following, first, second, third, and subsequently*. Create an ongoing list of sequence words in the classroom as the words are discovered in text.

2. Voyagers will compare and contrast technologies.
 - A. **Most animated movies today are produced on a computer, and most are three-dimensional. What does three-dimensional mean?** (an object that has height, width, and depth, like any object in the real world) **How are three-dimensional objects made on a computer screen? Let's find out.**
 - B. Direct learning teams to *Cobblestone: Hooray for Hollywood* magazines. Have them read pages 34–36, "Making Movie Magic," and page 37, "Computer Magic." Have teams read the articles and complete page 67, "The Magic in Movies," in the *Voyager Adventure Books*.
 - C. Ask volunteers to share their choices for the movies they would remake. Discuss a movie that you would remake from your childhood and why it would be better today.
 - D. **With the right computer program, anyone can try animation. Have any of you ever tried?** Play CGI from the *Media Magic* DVD. Have learning teams discuss the process. If possible, show a segment of a 3-D animated movie and have students discuss the differences between 1-dimensional cartoons and the new animations.

MODULE 3

1. Voyagers will read a passage and make a prediction.
 - A. It has been said that television has changed the world more than any other technology before or since. Do you agree with that statement? We have been talking about film. We are now going to make the **transition**, or change, from film to television.
 - B. How was film a form of mass media? (Entertainment and messages were sent out via images to the viewers.) Information wasn't spread through film nearly as much as radio. In fact, other than wartime propaganda, government agencies weren't able to use film much at all. It was mainly a form of entertainment. Even today, the government and news companies don't use film to convey information; they use television.
 - C. Let's find out how television comes to your home. Direct Voyagers to page 68, "Television Signals," in the Voyager Adventure Books. Have them read the passage and complete the graphic organizer. Review the answers as a class.
 - D. In 1939, the first public broadcast of television as we know it occurred. This was the beginning of a new era in the United States. Direct Voyagers to pages 69 and 70, "The Rise of Television," in the Voyager Adventure Books. Have them read the passage and make a prediction.
 - E. Ask volunteers to share their predictions, and allow Voyagers to discuss the validity of the predictions.
2. Voyagers will understand how the brain interprets images.
 - A. We recently learned that all film and video is made up of many individual frames that leave their unmoving images frozen in the eye until the next image flashes before it, tricking the brain into thinking that it is seeing one thing moving, instead of many things standing still. This is one of the amazing things your brain does that makes television possible. The other amazing trick has to do with the assembly of colored dots.
 - B. Have Voyagers get in their learning teams. Assign Team Leaders and distribute necessary supplies. As each team goes to its assigned area, briefly meet with Team Leaders and discuss Clipboard Notes 12.3 with them.
 - C. When learning teams have finished, play Pixelated Image from the *Media Magic* DVD. Discuss pixels. **Have you ever seen the pixels in an image? What caused the image to appear pixelated?** Review the definition of *pixels* with Voyagers.
 - D. Display the mosaics around the classroom. Have Voyagers try to guess what each mosaic is a picture of.

TEACHER'S NOTE

Another fun exercise demonstrating the brain's ability to put together pieces to form a whole is to transpose letters in words. If time permits, share with Voyagers the following excerpt from an e-mail that circulated in 2009:

"Aoccdrnig to a rscheearch at Cmabrigde Uinervtisy, it deosn't mttar in waht oredr the ltteers in a wrod are, the olny iprmoatnt tihng is taht the frist and lsat ltteers be at the rghit plcae. The rset can be a toatl mses and you can sitll raed it wouthit porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe."

1. Voyagers will use simple math to interpret statistics.
 - A. **Today we are going to begin learning about the impact of television. Before we do, I want to get a feel for what you watch.** Ask Voyagers to write the name of their favorite show on television on a piece of paper. Explain that it is anonymous, and they need to be honest. Collect the pieces of paper in a manner that will allow them to keep their anonymity.
 - B. Direct Voyagers to page 71, “TV in America,” in the Voyager Adventure Books. Read the statistics together. Explain that the figures don’t include watching video or television on a computer or mobile device. Point out the class television statistics that are on display from Adventure 2. **How does our class compare with the average American household in 2009? Do we have more TVs or less TVs? What about the amount of TV we watch?**
 - C. Have Voyagers complete the page. As they complete the page, write the results of the poll on the board. Write the name of the program and the number of Voyagers who chose it.
 - D. Review the answers to “TV in America” as a class. Then, discuss the poll and the differences in what the class likes.
2. Voyagers will keep an account of the time spent watching TV.
 - A. **Several Adventures ago, you each estimated how much TV you watch per week for a class poll. We just revisited that information. How many of you think the information you gave is accurate? We are going to find out for sure. Many people seriously underestimate the amount of television they watch, thinking it is much less than it is. Read the information needed on page 71, “TV in America,” in the Voyager Adventure Books. You are going to keep an account of your television watching for the next week. We are going to call it a TV Log. I want to know the programs you watch, the amount of time you spend watching each one, and what it was about.**
 - B. **I am also going to ask that you watch two newscasts during that time. I know many of you don’t watch the news, but your parents might. I encourage you to sit down with them and watch it. You will need to pay attention to the different segments and how much time is spent on each one. And you will need to note any stories that are covered and what makes them important.**
 - C. **To make this process easier, we are going to create our TV Logs in class.** Guide Voyagers in creating their TV Logs with a chart they can fill out. Be sure there is a chart for the programs and a chart for the news. Allow them to decorate the log. Encourage them to add extra pages in case they are needed.

Section 1: Programs

Date
Name of program
Time it began
Network it was on
Brief synopsis
Amount of time you watched

Section 2: News

Date
Network
Time of newscast
List of segments (sports, weather, etc.)
Time allotted for each segment