UNIT 8

Believe It or Not

FACTS AND INFORMATION
• In Nonfiction
• In Media
Where do you get your FACTS?

You don’t go a single day without needing to gather some facts. With message boards, magazines, books, and directories all offering you information, where do you turn when you need an answer you can count on? It depends on what kind of facts you’re looking for, and what you need to know.

**ACTIVITY** Work with a partner to analyze where you get your information.

- Make a list of five or six facts that you might look for in a typical day.
- Next to each fact, write one or more sources in which you might find it.
- Share your list with others. Do you get most of your facts from printed material, from the Internet, or from somewhere else?
- Discuss which of these sources are most trustworthy and which are easiest to use.
# Preview Unit Goals

## Included in this unit:
- R1.2, R2.1, R2.3, R2.4, R2.5, R2.6, R2.7, W1.6, W2.5, W2.6, LC1.5, LS1.9

### READING
- Identify main ideas and supporting details
- Identify and analyze organization of ideas
- Distinguish between fact and opinion
- Adjust reading rate to purpose
- Summarize main ideas in an article
- Take notes
- Use text features to comprehend and locate information
- Interpret and evaluate graphic aids

### WRITING AND GRAMMAR
- Write instructions and business letters
- Capitalize titles correctly
- Use commas correctly after introductory words and phrases

### SPEAKING, LISTENING, AND VIEWING
- Interpret how events and information are presented in the news
- Compare how different media cover the same event
- Create a Web site

### VOCABULARY
- Apply knowledge of base words, affixes, and root words to determine the meaning of words
- Use word origins to help understand how other languages have influenced English word meaning

### ACADEMIC VOCABULARY
- main idea
- supporting details
- summarize
- graphic aids
- text features
Reading Informational Text

You are living in an age of information. In a matter of minutes, you can find magazine articles, Web sites, and blogs on just about any topic, from global warming to cell-phone technology. But how can you be sure you’re getting the most out of what you’re reading? What’s the best way to wade through all those facts and figures? Learning a few strategies can help you navigate through a sea of information, find answers to your questions, and remember what you’ve learned.

Part 1: Text Features

Time is money in the fast-paced, modern world. So, it’s important to be able to find information quickly when you’re searching through Web sites, books, and magazines. One way to locate useful information at a glance is to notice the text features writers use. Text features include titles, subheadings, captions, sidebars, boldfaced words, bulleted lists, and links. These elements allow you to see the most important ideas without having to read every word.

Consider the following article from the back of a “Fun Facts” pamphlet. By scanning the text features, you can anticipate what information the article include before deciding to read further.

The History of Hot Dogs

Hot Dogs in Europe

There are several different theories about the origin of the hot dog. Traditionally, Frankfurt-am-Main, Germany, is credited with originating the frankfurter.

All-American Dogs

Another story points to the Louisiana Purchase Exposition in 1904. A concessionaire sold hot dogs as plain sausages, and provided customers with white gloves for easier eating. After the gloves were not returned, he consulted a baker, who designed the “hot dog bun” to protect eaters’ fingers.

One of the more credible stories comes from Barry Popick, a prominent hot dog historian at Roosevelt University. He claims the term began appearing in college magazines in the 1890s. Yale students kept referring to wagons selling hot sausages in buns outside their dorms as “dog wagons.” It didn’t take long for the use of the word dog to become “hot dog.”

Hot Dog Specialties

- In the South, people like their hot dogs “dragged through the garden” with a cole-slaw type topping.
- New Yorkers like their hot dogs served with steamed onions and pale yellow mustard.
- Folks in Kansas City enjoy hot dogs with sauerkraut and Swiss cheese.
MODEL: TEXT FEATURES
Skim the text features in this Web article. What information do you think the article will provide? Now read the full article and answer the questions.

DANGER from the Sky
That’s not Swiss cheese up there. The craters that cover much of the Moon’s surface were caused by collisions with space objects billions of years ago. In 1953 an astronomer even caught on film the bright flash of an object hitting the Moon. With so much evidence of objects hitting our nearest neighbor, scientists wonder when another large object from space will strike our planet.

Impacts on Earth
Earth’s atmosphere protects us from collisions with small objects, which burn up in the air. However, when a large object strikes Earth, the atmosphere can spread the effects of the impact far beyond the crater. A large collision may throw dust high into the air, where it can be carried around the globe. The dust can block sunlight for months and sharply lower global temperatures.

About 65 million years ago, a large space object struck Earth. At about the same time, most species of organisms died out, including the dinosaurs. Many scientists think that the results of this collision caused the global devastation.

Risk of a Meteorite Collision
When will the next space object hit Earth? A collision is probably occurring as you read this sentence. Tiny particles hit Earth’s atmosphere all the time. Some of these particles have enough mass to make it through the atmosphere.

Objects that reach Earth’s surface are called meteorites. Most meteorites splash harmlessly into the ocean or hit unpopulated areas. However, every few years a meteorite damages a home or other property.

—by Miguel Lopez

Close Read
1. If you were doing a report on meteorites, would this article be useful to you? Explain which text feature helped you find the answer.

2. Summarize the information that appears under the subheading Impacts on Earth. Write another subheading that the author could have used.

3. What additional information does the sidebar provide?
Part 2: Main Idea and Supporting Details

After you preview a text, you’re ready to examine it more closely. To do this well, you need to know how to identify main ideas and evaluate texts.

IDENTIFYING MAIN IDEAS

The topic of a piece of nonfiction is what the text is about. A topic can usually be stated in a word or two, such as pets or dog training. The main idea is the most important idea that a writer wants to share about a topic. A main idea can usually be stated in a sentence, such as “The key to good dog training is consistency.”

Often, the main idea of a paragraph or section of an article is directly stated in a topic sentence, which is usually the first or the last sentence in that paragraph or section. Sometimes, however, the main idea is implied, which means that it is not actually stated outright but, rather, suggested by supporting details. Supporting details are facts, examples, and other kinds of information that reinforce or elaborate upon the main idea.

As you read, be on the lookout for the main ideas of paragraphs and sections of text. Then, add up those ideas to identify the text’s larger main idea or message.

EVALUATING TEXTS

The next important step in reading informational text is evaluating it. After all, just because the text is about real people, places, and events does not mean that it is true or even well written. To evaluate a text, ask yourself the following questions.

• Is this information accurate, reliable, and trustworthy? If you’re not sure, you can learn how to determine credibility on page 1009.

• Does the text have unity? In other words, do all the details in each paragraph support its main idea? Do all the paragraphs support a larger main idea?

• Is the writing coherent? Specifically, do the sentences connect smoothly and logically? Do text features and the text’s structure make it easy to navigate?

• Does the writing have internal consistency? Internally consistent text has a clear structural pattern. It also uses transitions that make sense together, such as at first, later, and afterwards (as opposed to first, later, and primarily).

• Is the writing logical, or can you spot logical fallacies? If you’re not sure how to recognize logical fallacies, you can learn more about them on page R24.
MODEL 1: MAIN IDEA AND DETAILS

Read this article about a lifelike robot created by a Korean scientist.

Female Android Debuts

Article by Victoria Gilman

These school-age tots seem to be making friends with EveR-1, a female android that made her debut in South Korea. The robot was built by Baeg Moon-hong, a senior researcher with the Division for Applied Robot Technology at the Korea Institute of Industrial Technology in Ansan, just south of Seoul.

Meet EveR-1

EveR-1 is designed to resemble a Korean female in her early 20s. Fifteen motors underneath her silicon skin allow her to express a limited range of emotions, and a 400-word vocabulary enables her to hold a simple conversation. The android weighs 110 pounds and would stand 5 feet, 3 inches tall—if she could stand. EveR-1 can move her arms and hands, but her lower half is immobile.

Not Alone

Researchers at Osaka University in Japan unveiled their own life-size female android, Repliee Q1. That robot could “speak,” and gesture and even appeared to breathe but, like EveR-1, was only mobile from the waist up.

MODEL 2: MAIN IDEA AND DETAILS

This article is about deadly poisons. Skim the title and the subheading, and answer the first Close Read question. Then read the article more closely to help you answer the second question.

Night falls in an Israeli desert. A cockroach skitters across the sand. Suddenly, a scorpion grabs the cockroach in its pincers. It injects searing venom into its victim through its stinger. The venom causes paralysis. The cockroach cannot move. It can do nothing to fend off the scorpion’s attack.

Toxic Treatments

It’s hard to believe, but the deadly venom that paralyzed the cockroach can be used to heal rather than harm. Scientists are experimenting with the Israeli scorpion’s venom. Some of them believe it has the power to shrink brain tumors. For hundreds of years, scientists have been experimenting with poisons extracted from animals and plants. They have found that the same toxins that can injure or kill can also be used to treat health problems.

Close Read

1. The main idea of the Meet EveR-1 section is boxed. Identify the details that support it.

2. What is the main idea of the section with the subheading Not Alone?

3. Is there an internal consistency to this article? Explain your answer.

Close Read

1. Based on the title and the subheading, what do you think the main idea of the article will be?

2. Identify the main idea that the boxed sentences are supporting.

3. Does this article exhibit unity and coherence? Explain your answer.
**TAKING NOTES**

Have you ever read an article on a fascinating subject—life-saving poisons, for example—and later realized that you couldn’t recall a single thing about it? Taking notes as you read can help you prevent that. You can use any number of formats for notes—outline, bulleted list, even a Y-chart. Just use a format that will help you quickly recognize what’s most important when you glance back over your notes later. Here are two ways of recording the same information from an article you just read. Notice that the Y-chart emphasizes similarities and differences while the outline captures all the supporting details of each subject.

### OUTLINE

I. EveR-1 resembles a Korean female in her 20s.
   A. Made in South Korea
   B. Can show emotion, talk, and move her arms
   C. Can only move the top half of her body

II. Repliee Q1 is another life-size female android.
   A. Made in Japan
   B. Can talk, move her arms, and looks like she’s breathing
   C. Can only move the top half of her body

### GRAPHIC ORGANIZER

<table>
<thead>
<tr>
<th>EveR-1</th>
<th>Repliee Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Made in South Korea</td>
<td>• Made in Japan</td>
</tr>
<tr>
<td>• Shows emotion</td>
<td>• Looks like she’s breathing</td>
</tr>
</tbody>
</table>

**Both**
- Female android
- Can talk
- Moves her arms
- Only top half moves

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**SUMMARIZING**

**Summarizing** is the art of briefly retelling in your own words the main ideas and most important details of something you read, heard, or saw. It is a useful way to share your knowledge on a test, in a research report, and in a conversation.

To summarize a text, begin by taking clear and thorough notes—preferably in your own words. Then, restate the main ideas and most important details in two or three complete sentences. Keep in mind that a good summary is always shorter than the text it is summarizing. Here’s an example:

The South Korean EveR-1 and the Japanese Repliee Q1 are both lifesize female androids that can talk and move their arms as well as the top half of their bodies, but only the EveR-1 shows emotions and only the Repliee Q1 looks as if she’s breathing.
Part 3: Analyze the Text

Preview this article and answer the first Close Read question. Then read the article more closely, using the other questions to help you take notes. Then use your notes to summarize the article.

**THE GREAT CHICAGO FIRE OF 1871**

**Recipe for Disaster** Chicago in 1871 was already a big city, bustling with more than 334,000 residents. Its streets, sidewalks, and most of its buildings were made of wood. Hay and straw were inside every barn. To make the situation worse, people used candles and oil lamps. Fires had been common that year because of the dry weather. The Chicago Fire Department was overworked and underequipped. On Saturday, October 7, firefighters began putting out a fire that wiped out four city blocks. It took them 16 hours. By Sunday evening the men were exhausted. Then around 8:45 p.m., a fire began in the barn of Patrick and Catherine O’Leary.

“EVERYTHING WENT WRONG” Human error then made a bad situation worse. One firefighter later said, “From the beginning of that fatal fire, everything went wrong!” A watchman atop the courthouse saw smoke rising from the O’Leary barn, but he assumed it was coming from the previous fire. When he finally realized a new fire was blazing, he misjudged its location. His assistant sent a message to the fire stations, but he mistakenly directed horse-drawn fire wagons to a location about a mile from the burning barn. When the fire department finally reached the barn, its equipment was no match for the blaze. The new fire raged on.

**Out of Control** As the fire blazed, there arose a deafening roar—wood crackling as flames devoured it, cries for help, explosions from oil and gas tanks, the crash of falling buildings. The fire department could do nothing to stop the fire. Around 4 A.M. the next day, the fire destroyed the city’s waterworks, shutting off water to the fire hydrants. Firefighters had to drag water in buckets from Lake Michigan and the Chicago River. City officials made a desperate call for help to other cities, but their forces arrived too late. The fire kept burning—totally out of control.

**The Aftermath** The Great Fire burned until October 10, when rain finally fell. Thousands of buildings had been destroyed. About 300 people had died in the blaze, and more than 100,000 were left homeless.

**Close Read**

1. Preview the title and subheadings. What information do you think this article will provide?

2. Describe the main idea that the boxed details support. Copy the main idea and details into your notebook. Add letters as necessary.

   **I.**
   A.
   B.

3. The main idea of the second section is listed here. Copy it into your notebook, along with the supporting details.

   **II.** Human error made a bad situation even worse.
   A.
   B.

4. Identify the main idea and details in the third and fourth sections. Add the information to your outline.

   **III.**
   A.
   B. The fire destroyed the city’s waterworks.

   **IV.**
   A. 300 people died.
   B.
The Spider Man Behind Spider-Man
Feature Article by Bijal P. Trivedi

What is your dream job?

KEY IDEA Ever since you were little, people have probably asked you what you want to be when you grow up. Now that you’re older and know yourself better, your dream job might be coming into focus. Is it a job that would take you outdoors? Onto a movie set? Into a sports arena? Your ideal career probably reflects your individual talents, interests, and personality. In the following article, you’ll read about a man who turned his passion into a dream job.

SURVEY Interview several classmates to find out what their dream jobs would be. Ask these students why they chose the jobs they did. How do their dream careers compare to your own?

<table>
<thead>
<tr>
<th>Name</th>
<th>Dream Job</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kayla</td>
<td>Veterinarian</td>
<td>1. Likes taking care of animals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Gets good grades in science</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Enjoys learning about animals</td>
</tr>
</tbody>
</table>
**ELEMENTS OF NONFICTION: TEXT FEATURES**

Nonfiction articles often utilize text features, design elements that highlight the structural patterns of the text and help you identify key ideas. Common text features include

- **headings**—the title of the article
- **subheadings**—headings that signal the beginning of a new topic or section within a written piece
- **sidebars**—additional information set in a box alongside, below, or within an article
- **bulleted lists**—lists of items of equal value or importance.

This list of text features is an example of a bulleted list.

As you read “The Spider Man Behind Spider-Man,” notice how the text features help you locate information on particular topics.

**READING STRATEGY: SUMMARIZE**

Have you ever told a friend about a movie you just saw? If so, you probably gave your friend a summary. When you summarize a piece of writing, you briefly retell the main ideas or key points. Summarizing is a way to check your understanding, and it can help you remember information. As you read “The Spider Man Behind Spider-Man,” use a chart to take notes on the key points. Later, you’ll use these notes to summarize the article.

<table>
<thead>
<tr>
<th>What Steven Kutcher Does</th>
<th>His Training and Background</th>
<th>His Spider-Man Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**VOCABULARY IN CONTEXT**

The boldfaced words help the author describe one man’s interesting career. Try using context clues to figure out what each word means.

1. He has the **perseverance** necessary to finish the job.
2. Bill is an **engaging** person whom everyone likes.
3. Maria has the **potential** to become a first-rate scientist.
4. Ashley’s watercolor **rendition** of her dream earned praise from her art teacher.
Entomologist Steven Kutcher is the spider man behind *Spider-Man*. “He’s the guy to call in Hollywood when you need insects—he is the ultimate insect trainer,” says Robin Miller, property master for the movie *Spider-Man.*

“I know how to get a cockroach to run across the floor and flip onto its back. I can get cockroaches, beetles, and spiders to crawl to a quarter four feet away on cue. I can make bees swarm indoors and I can repair butterfly wings,” says Kutcher. He has even made a live wasp fly into an actor’s mouth. “I study insect behavior, and learn what they do and then adapt the behavior to what the director wants,” says Kutcher.

**Passion for Bugs**

Kutcher’s love of insects began as a toddler when he collected fireflies in New York. But he was also influenced by very “positive early childhood experiences in nature” when his family would spend summers in the Catskills.1 “Something about seeing fish, catching butterflies, lit a fire within me,” says Kutcher.

Kutcher followed his passion for bugs and studied entomology in college, receiving his B.S. from the University of California, Davis, and later an M.A. in biology—with an emphasis on entomology,2 insect behavior, and ecology3 from the California State University in Long Beach. He had planned to pursue a Ph.D.,4 but when he wasn’t accepted at the graduate school of his choice he decided to reevaluate his career options.

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1. **Catskills** (kāts’kliz’): the Catskill Mountain region in New York state. It is a popular vacation area.
3. **ecology** (ě-kōl’ə-jē): the study of relationships among living things and their environment.
4. **B.S.; M.A.; Ph.D.** Bachelor of Science, an undergraduate degree; Master of Arts, a graduate degree; Doctor of Philosophy, a graduate degree that is usually more time-consuming and difficult to earn than a master’s degree.
ANALYZE VISUALS
Based on this photo of Steven Kutcher, what can you infer about his interests and personality?
One day he received a call from his former academic advisor asking him to baby-sit 3,000 locusts that were to be used for the movie *Exorcist 2*. Kutcher had to place the locusts wherever they were needed, including on the stars Richard Burton and Linda Blair. That was his first job, and it has been Hollywood creepy crawlies ever since.

After doing a long survey of movies Kutcher found that about one third of all movies had an insect in it. “I saw immediate job potential,” Kutcher says.

Almost 25 years after his first job Kutcher now holds an impressive list of movie, television, music video, and commercial credits that include his biggest movie, *Arachnophobia*, the comedy-thriller in which a California town is overrun with deadly spiders. He also supervised the bug and spider stunts in *Alien*, *Contact*, *Jurassic Park*, *Pacific Heights*, and *Wild Wild West*.

“He is a very observant and engaging guy,” says Lucinda Strub, a special effects person who worked with Kutcher on *Arachnophobia*. “One of his main goals is to educate the public about how fascinating and interesting insects are. He is really out to teach people about bugs,” says Strub, who then . . . clarified that “of course spiders are not bugs, they are arachnids.”

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**So You Want to Be an Entomologist?**

Do you get grossed out when you see a spider or earwig crawling up your wall? Or does the spider’s web and the inchworm’s movement fascinate you? If the latter question describes you, then entomology could be the perfect career for you.

Entomologists study the classification, life cycle, and habits of insects and related life forms, and plan and implement insect surveys and pest management programs. They also investigate ways to control insect pests and manage beneficial insects such as plant pollinators, insect parasites, and insect predators.

**Interests and Skills**

Entomologists need the intellect, curiosity, creativity, patience, and **perseverance** required to pursue answers to complex research questions about bugs. Because there are thousands and thousands of insect species, entomologists must also have a good memory. Entomologists must be able to work well both independently and as part of a team.

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5. **earwig** (ər-wĭg): an insect that has two pincers protruding from the rear of its abdomen.

6. **pollinators** (pŏl′ĭ-nət′ərēz): animals that carry pollen from one plant to another, causing the plants to produce fruit.
Even with his busy filmmaking schedule, Kutcher still finds time to teach once a week at a local community college. He also started the annual Insect Fair at the Los Angeles Arboretum.

The Perfect Match

Kutcher’s most recent challenge has been finding the perfect spider for the movie Spider-Man. . . . The concept designer for the movie produced a computer rendition that combined traits of up to four arachnids to create an image of the mutant spider that bites Peter Parker (a.k.a. Spider-Man) and endows him with spider powers.

“I was given this drawing of a spider that didn’t exist and told to find a real spider that matched it,” says Miller, whose responsibilities include assembling all the props in the entire film. The spider resembled a black widow, which wasn’t an option because its bite is too dangerous.

Miller contacted Steven Kutcher and showed him the picture. Kutcher then arranged a “spider Olympics” for Spider-Man director Sam Raimi. Kutcher brought in different types of spiders to showcase the talents of each, says Miller. “He literally had the spiders doing tricks.” One spider

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**Typical Tasks**
- Study the evolution of insects
- Discover and describe new species of insects
- Conduct research into the impact and control of insect pest problems
- Conduct field and laboratory tests of pesticides to evaluate their effect on different species of insects under different conditions
- Curate museum insect collections
- Prepare publications that make it possible to identify insect, spider, mite, and tick species
- Coordinate public awareness and education programs

**Educational Paths**
Students interested in a career working with insects should prepare for college by taking a variety of science classes. Many students get a general undergraduate degree in biology or zoology and then specialize in entomology at the post-graduate level. For those wishing to lead research teams or teach at the university level, a Ph.D. is a requirement.

**Average Earnings**
- **Maximum Salary:** $71,270
- **Average Salary:** $47,740
- **Entry Level Salary:** $29,260

**TEXT FEATURES**
- Reread the subheading and first sentence of this section. What “perfect match” does the subheading refer to?
- What does this bulleted list help you better understand?
- What does the information presented in the blue sidebar add to your understanding of Steven Kutcher and his career?
could jump, another was able to spin webs very quickly, and yet another was able to produce a drag line and essentially swing out of the way—all activities that Spider-Man can do.

The spider that Raimi selected was *Steatoda grossa*, a brown spider with a smooth, swollen body and thin twiggy legs. The problem was that the color was wrong, “we needed a spider that had metallic blue and a radioactive red-orange color to it,” says Miller.

The answer was spider make-up. Originally Kutcher wanted to make an entire costume for the spider, but the timing came down to the wire and he finally settled on body paint. “I had to find a non-toxic paint, design a little harness to hold the spider as he was painted, and supervise the artist painting Steatoda.”

“I need the spider to go from A to B to C and Steve can train it to do that,” says Miller, who has worked with Kutcher on several movies. “He is very creative; he can figure out how to get the creature to do what he wants while being very delicate,” says Strub.

Why, in this age of computer-generated special effects, did the director simply not animate the spider? “The real thing always looks best, especially when it fills the whole movie screen,” says Miller. And computer-generated graphics are very expensive, although the scene where the mutant spider bites Peter Parker is computer-generated.

“People find me, and I’m off on these adventures,” says Kutcher, “problem solving, and exploring, and teaching, and educating people about insects.” But Steven Kutcher’s hat best describes his life, his love, and his philosophy: “Bugs are my business.”

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8. radioactive (rā’dē-ō’-āk’tēv): exhibiting radiation emissions that possibly result from a nuclear explosion.

9. non-toxic: not poisonous or otherwise life-threatening.
Comprehension

1. **Recall** What was Steven Kutcher’s first experience on a movie set?

2. **Recall** Why did the makers of *Spider-Man* want to use a real spider instead of a computer-generated spider for most of the spider scenes?

3. **Clarify** Why was it such a challenge for Kutcher to find the perfect spider for the movie *Spider-Man*?

Critical Analysis

4. **Examine Text Features** Which text features help you find the following pieces of information? Note your answers in a chart like the one shown.

<table>
<thead>
<tr>
<th>Information</th>
<th>Text Feature That Helps You Find It</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad focus of the article</td>
<td></td>
</tr>
<tr>
<td>Kutcher’s interest in bugs</td>
<td></td>
</tr>
<tr>
<td>Typical tasks performed by entomologists</td>
<td></td>
</tr>
<tr>
<td>General information about entomologists</td>
<td></td>
</tr>
</tbody>
</table>

5. **Compare Summaries** Using the chart you made as you read, write a summary of the entire article. Next, trade summaries with a classmate. Compare the summary you received with the article to see if the summary accurately captures the main ideas, important details, and underlying meaning of the article. Share your findings with your classmate, and then revise your summary as needed.

6. **Draw Conclusions** Reread lines 11–15 and 35–42. Why do you think Kutcher wants other people to have a better understanding of insects?

7. **Evaluate Text** Now think about the text critically. Does it have unity and coherence? Is its structure easy to identify and follow? Explain why or why not. If you need help recalling what unity and coherence are, see page 844.

Extension and Challenge

8. **Big Question Activity** What was your answer to the big question on page 848? Using books or the Internet, find out what skills or education you might need for this career. Present this information in a format similar to the sidebar on pages 852–853.

9. **Creative Project: Music** Alone or in a small group, create a song or rap from the point of view of an insect who “works” for Steven Kutcher. Look back at the article to help you recall some of the things these creatures have been trained to do and Kutcher’s attitude toward what some people call “creepy crawlies.” Share your song or rap with the class.
Vocabulary in Context

VOCABULARY PRACTICE
Decide whether the words in each pair are synonyms (words with similar meanings) or antonyms (words with opposite meanings).

1. perseverance/laziness
2. rendition/interpretation
3. engaging/disagreeable
4. potential/promise

VOCABULARY IN WRITING
Imagine that you are applying for a job as Steven Kutcher's assistant. What makes you a good candidate? Using at least two vocabulary words, write a paragraph telling Kutcher why he should hire you. You might start this way.

EXAMPLE SENTENCE
Because of my perseverance, I earned top grades in school.

VOCABULARY STRATEGY: RECOGNIZING BASE WORDS
To understand an unfamiliar word that has affixes (prefixes and suffixes), it helps to identify the base word first. Look within the word for a word that is familiar to you, even though the spelling may be different. For example, in the word engaging, you might notice the base word engage. In cases where you do not recognize a base word, using context clues may help you to figure out the meaning.

PRACTICE Find the base word in each boldfaced word. Think about its meaning. Then try to define the whole word. Use a dictionary if necessary.

1. If you do not understand an idea, ask your teacher for clarification.
2. President Lincoln spoke to a small assemblage.
3. My classification system is based on size, shape, and color.
4. Mayor Diaz will give a speech about the city’s high unemployment rate.
5. What adaptations help desert plants to cope with their environment?
# Reading-Writing Connection

Explore Steven Kutcher’s career further by responding to these prompts. Then complete the Grammar and Writing exercise.

## Writing Prompts

### A. Short Response: Describe the Subject

In the article “The Spider Man Behind Spider-Man,” Steven Kutcher is described by several people who have worked with him on movie sets. Using your own words, combine these accounts into a one-paragraph description of Kutcher.

### B. Extended Response: Write a Job Advertisement

Imagine that you are a movie director looking to hire someone to train insects for your next film. What type of person do you want to hire? Write a two- or three-paragraph advertisement giving the education, skills, and interests needed for this career. Include a subheading for each section.

## Self-Check

### A thorough description will . . .

- not include direct quotes but will restate the information given
- give details about Kutcher’s talents, skills, and interests

### A strong advertisement will . . .

- incorporate details from the article and sidebar about the education and skills needed
- give a description of the job, including the name of the movie and a brief summary of its plot

---

## Grammar and Writing

**CAPITALIZE CORRECTLY** The titles of books, movies, articles, songs, magazines, and other works should be correctly capitalized. When writing titles, always capitalize the first and last words and all other important words within the title. Unless they appear as the first or last words in the title, articles, coordinating conjunctions, and prepositions of fewer than five letters should not be capitalized.

**Original:**  the Top Careers For Science Majors

**Revised:**  The Top Careers for Science Majors

**PRACTICE**  Rewrite each title, correcting the capitalization errors.

1. The amazing spider-Man
2. Field Guide To North American Insects And Spiders
3. Movie magic: Creating Special Effects For The Big Screen
4. National geographic

For more help with capitalizing titles, see page R51 in the Grammar Handbook.
KEY IDEA  Most people avoid danger. They buckle their seat belts when they fly on a plane. They take care not to anger mean dogs, not to swim where there are sharks, not to walk on thin ice. But then there are other people—the ones who dream of skydiving and who soar through half-pipes on their skateboards. The man featured in the article you’re about to read belongs to this group. He’s willing to risk his life to photograph mysteries of the earth.

WEB IT  What dangerous activities are also popular pastimes? What is it about these activities that makes people willing to risk their safety? Use a web to explore the reasons why these activities can be viewed as both fun and dangerous.
Elements of Nonfiction: Graphic Aids

If you’ve read a magazine article lately, chances are you’ve come across a graphic aid, a visual representation of information. Writers use graphic aids to highlight or summarize important concepts and to explain things in fewer words. Common graphic aids include photographs, maps, diagrams, graphs, and timelines.

As you read “Over the Top: The True Adventures of a Volcano Chaser,” note the graphic aids that are included. What do they help you understand? Take notes in a chart like the one shown.

<table>
<thead>
<tr>
<th>Type of Graphic Aid</th>
<th>What It Explains</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Review: Text Features

Reading Strategy: Adjust Reading Rate to Purpose

Effective readers change the speed at which they read to suit their purpose. Try this as you read the following article.

<table>
<thead>
<tr>
<th>When your purpose is to</th>
<th>Adjust your rate like this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get an overview of the article</td>
<td>Skim before you begin. This involves quickly reading the title, subheadings, and any graphic aids.</td>
</tr>
<tr>
<td>Find key words or particular information</td>
<td>Scan the text. This involves moving your eyes quickly over the text, looking for the words or information you need.</td>
</tr>
<tr>
<td>Gain a full understanding of something, or clarify information</td>
<td>Read the material at a slower pace, and reread if necessary.</td>
</tr>
</tbody>
</table>

To use the best strategy for your purpose, stay mindful of why you’re reading and whether you need to adjust your rate.

Vocabulary in Context

The following vocabulary words help Renee Skelton tell about a man with a dangerous job. To see how many you know, match each word with its numbered synonym.

<table>
<thead>
<tr>
<th>WORD LIST</th>
<th>cavernous</th>
<th>pinnacle</th>
<th>searing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>labyrinth</td>
<td>scale</td>
<td>straddle</td>
</tr>
<tr>
<td>1. climb</td>
<td>3. top</td>
<td>5. maze</td>
<td></td>
</tr>
<tr>
<td>2. vast</td>
<td>4. span</td>
<td>6. hot</td>
<td></td>
</tr>
</tbody>
</table>
Over the Top

The True Adventures of a Volcano Chaser

Renee Skelton
Dangling from a climber’s rope, Carsten Peter slowly lowers himself into the fiery throat of Ambrym volcano. One slip, or a direct blast of hot, poisonous gas from the boiling lava lake below, and this descent could be his last. For most people this would have been terror time.
But for Peter it was all in a day’s work. The daredevil photographer roams the world, scaling mountains and dropping into erupting volcanoes to photograph these fiery mountains at their most frightening—and most beautiful. Does he get scared? “Sure,” Peter says. “You wouldn’t be normal if you didn’t get scared.” But volcanoes are a window into Earth’s scorching center. And for Peter, peering through that window with his camera is worth the risk.

**Into a Boiling Pit**

Ambrym is a tiny South Pacific island that consists of a flat-topped volcano. The volcano erupted violently about 2,000 years ago. The explosion left the...

---

**GRAPHIC AIDS**

Look carefully at the map and its caption. What facts does it offer that you don’t get from the text?

---

**ADJUST READING RATE**

What is the tallest volcano on Earth? Scan these captions to find the answer.

---

1. **Mount Vesuvius** (vī-sōv’-vē-ə): a volcano located in southern Italy.
2. **Indonesia** (īn-dō-nē’zhə): an island nation located in Southeast Asia.
3. **Mount St. Helens**: volcano located in southern Washington state.
seven-and-one-half-mile-wide caldera, or wide crater, that now forms its top. Peter hoped to use one of the vent openings in Ambrym's caldera as a porthole into the volcano's fiery center.

When Peter arrived at Ambrym, the volcano was rumbling, its craters belching steam, gas, and ash. He and his group set out right away, hacking through dense jungle and climbing 4,000 feet up the side of the volcano. They emerged from the jungle onto the caldera’s rim—a moonscape of boulders and gray-black ash.

After several days of exploring the caldera's surface, Peter decided to descend into Marum, one of Ambrym’s pitlike craters. Wearing protective gear, he attached one end of a climbing rope to an anchor hammered into the ground and the other end to his descent device. Peter then disappeared over the edge of Marum’s clifflike rim, camera equipment mounted on his helmet and tethered to his back and waist. Peter descended 1,000 feet down the face of the crater’s steep walls, as heat rising from the searing lava lake blasted him. Pockets of gas and water trapped in the lava expanded and exploded, sending out booms that echoed and shook the crater walls. “The Earth was trembling all around me,” Peter says. “And I felt the vibrations all through my body.”

Peter had to be careful. A sharp rock could have cut his rope, dropping him into the cavernous pit. Tremors could have pried boulders from the cliff above, sending them crashing down on an arm or leg. Peter paused partway down, clutching the rope as volcanic ash stung his eyes and intense heat and sound from the blasting lava rose around him. “If the volcano had exploded then, it would have been the last eruption I ever saw,” he says. He drew as close as possible to the spitting, belching lava lake at the bottom. Glowing lava bombs were bursting like fireworks from its surface as Peter snapped photos all night.

4. tremors (trĕm’ərz): shaking or vibrating of the earth.

Peter captures images of the 2002 eruption of Mount Etna in Sicily.
The next morning, exhausted, Peter attached his rope and pulled himself up to safety on Marum’s rim. It was time to leave Ambrym for new adventures.

**Fire and Ice**

Half a world away in Iceland, the challenge was more ice than fire. Because of Iceland’s location, many volcanoes are hidden below its thick glacial ice. Iceland straddles the mid-Atlantic ridge, where two of the plates that form Earth’s crust are pulling apart. The results are frequent tremors and volcanic eruptions. When volcanoes under Iceland’s glaciers erupt, they burn through ice at the glacier’s base. Escaping heat carves out spectacular formations under the ice.

5. **Iceland**: an island nation located in the North Atlantic Ocean near the Arctic Circle.

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**Signs That “It’s Gonna Blow!”**

1. In and around a volcano, the frequency and intensity of earthquakes increase.
2. The ground at the eruption site deforms or bulges.
3. The amount of gas released by the volcano increases.

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Intense heat from a volcano created this ice cave inside a glacier in Iceland.
Peter’s goal was to photograph these underground wonders. After a jolting jeep ride over part of the glacier, Peter continued on foot—leaping crevasses, sloshing through icy rivers of meltwater, and scrambling over jagged ice pinnacles. “The heat created chambers inside the ice we were passing over,” says Peter. “We had to be very careful.” Peter found that out the hard way. Crossing an area of ice that looked solid, Peter stepped on a thin section and crashed through into a hidden river of icy water. He struggled to keep his head and cameras above water. The cameras didn’t make it. Luckily Peter did, thanks to two friends who pulled him out of the frigid water.

Exploring the surface ice, Peter discovered a collapsed ice chamber that led to a labyrinth of ice caves and tunnels inside the glacier. “It was beautiful, but we were in potential danger because the chamber could have collapsed at any time,” Peter says. “Also, we were in a region where earthquakes and floods are common occurrences.” But using carbide lights to illuminate the dark tunnels, Peter took incredible photos of the formations in the glacier’s frozen heart.

As you read this, Peter is probably perched on the rim of another volcano, camera in hand. He’s withstanding heat from 2,200 degrees Fahrenheit lava flows and dodging deadly clouds of gas to get close to nature at its most extreme. Earth’s geology continues to fascinate him. “Volcanoes are very powerful,” he says. “When you feel these eruptions, it’s the greatest experience you can have.”

6. carbide (kär’bid’): a very hard material made partly of carbon.
Comprehension

1. Recall What could have killed or injured Carsten Peter as he photographed inside the Ambrym volcano?
2. Recall What did Peter go to Iceland to photograph?
3. Represent Using the information provided by the captions on page 898, draw a simple timeline that shows the order in which three famous volcanoes erupted.

Critical Analysis

4. Analyze Reading Rate What part of the article did you read most quickly? When did you have to change your reading rate? Explain which strategy you found most useful as you read.
5. Draw Conclusions Why do you think Carsten Peter feels it is important to photograph volcanoes in spite of the danger involved?
6. Compare and Contrast In what ways are the careers of Steven Kutcher (“The Spider Man Behind Spider-Man,” page 850) and Carsten Peter alike? In what ways are they different? Complete a Y-chart like the one shown to compare and contrast the two men and their careers. Record the differences in the top part of the Y, and the similarities in the bottom.
7. Evaluate Graphic Aids Look back at the chart you made as you read. What information do you get from the graphic aids? Would this information have been more or less clear if it had been included with the main text but without any visuals? Explain.

Extension and Challenge

8. Readers’ Circle Carsten Peter obviously believes that the risks he takes are worth the results. Imagine that he is a member of your family, such as your brother, uncle, or father. Would you support his choices, or would you urge him to find a safer career? Discuss your ideas.
9. SCIENCE CONNECTION How are volcanoes formed? What causes them to erupt? Research these questions about volcanoes, and ask one additional question of your own. Present your findings to the class in the form of a “slide show,” either on paper or the computer.

For more on volcanoes, visit the Research Center at ClassZone.com.
Vocabulary in Context

VOCABULARY PRACTICE
For each item, choose the word that differs most in meaning from the other words. Refer to a dictionary if you need help.

1. (a) searing, (b) scorching, (c) frigid, (d) sweltering
2. (a) descend, (b) scale, (c) climb, (d) ascend
3. (a) slant, (b) tilt, (c) straddle, (d) lean
4. (a) maze, (b) labyrinth, (c) network, (d) beeline
5. (a) gaping, (b) shallow, (c) deep, (d) cavernous
6. (a) pinnacle, (b) bottom, (c) base, (d) foot

VOCABULARY IN WRITING
Using at least two vocabulary words, write a paragraph about a daring sport or exciting hobby that you’ve tried or want to try. You might start like this.

EXAMPLE SENTENCE
I was terrified as we climbed slowly to the pinnacle of the mountain.

VOCABULARY STRATEGY: WORD ORIGENS
Many common words in the English language have interesting histories. For example, the vocabulary word scale comes from the Latin word scalae, meaning “ladder.” It makes sense, then, that to scale something means to climb it.

You can find a word’s etymology, or the history of the word, in most dictionaries. Understanding etymologies can help you connect the word’s meaning to something you already know. Here is an example of an etymology:

expand (ik-spänd’) v. to become greater in size, quantity, volume, or scope [Middle English expanden, to spread out, from Latin expandere: ex- + pandere, to spread]

PRACTICE Look up the etymology of each word in the dictionary. Write the word’s origin, and tell how knowing the word’s history can help you remember its meaning.

1. intense 3. sparse 5. danger
2. grief 4. glacier
What’s the SOURCE?

**KEY IDEA** Recall a time you watched a TV news report in which someone was making statements to a reporter. What was the circumstance? Did the statements appear to be ones you could trust? In news reporting, it’s not just the events that matter but what people have to say about them. In this lesson, you’ll see how quotes can help you fully understand a news event.

**Background**

**Fireworks in Space** July 4, 2005, was a day of celebration at the National Aeronautics and Space Administration (NASA). As part of a major mission called “Deep Impact,” NASA launched a space probe that hit a comet so hard, it burrowed through its surface—then exploded. Scientists and engineers cheered as the probe’s nearby mother ship transmitted images of the spectacular event. NASA realized it had gathered a wealth of scientific data about the comet that would help in future research.

To explore how news reporters gather and support their facts, you’ll watch a TV newscast and read a magazine article that cover this remarkable event.
Media Literacy: Sources in the News

A source is a person who provides information for a news report. A reporter usually uses sources while creating a news report. In printed news, the reporter includes quotations, words spoken by the sources to the reporter. In a TV or radio newscast, these statements are called sound bites, which are edited from interviews with the sources. Here are the types of sources usually quoted in the news.

**STRATEGIES FOR ANALYZING SOURCES**

- Identify a source by name and determine his or her role.
- Question why a source is included in a news report. Ask yourself: What is this source helping me to understand about the event?
- Be aware that what you hear or see is not the entire interview. Think about how the sound bites, quotations, or images support certain facts.
- In reports that include countering or opposing sources, check to see that the two sides are balanced or are represented equally. It’s important that a news report be neutral and fair to all sides.

**TYPES OF SOURCES**

**Witnesses and Officials**
Witnesses are present at the time of an event or are directly affected by it. Officials are people who represent the government, a business, and so on.

**Experts**
Often experts are quoted after an event occurs. They’re qualified to share their knowledge about what happened.

**Visual Sources**
Photographs or videotape can also be sources. News photographers take still photographs and video footage that are included in news articles and broadcasts.

**Sources as Counterpoints**
One source may give one side of an event or an issue. In the same report, another source may have a very different view.
Viewing Guide for News Reports

You’ll watch the CBS network news report that first aired at the time of the event. Then you’ll read an article that appeared a few days later in the weekly newsmagazine Science News. As you examine each one, look for the people who make statements. Take notes about the sources or about any striking feature of each format. Answer these questions to help analyze the news reports.

**NOW VIEW**

**FIRST VIEWING: Comprehension**

1. Clarify NASA had created an animated model, or simulation, of the comet explosion. According to the TV newscast, what makes the simulation remarkable?

2. Recall Which one of the sources is an investigator from Brown University?

**CLOSE VIEWING: Media Literacy**

3. Analyze Print Sources The sources who are quoted in the magazine article are quoted directly or are paraphrased. This means the reporter has restated what he was told in his own words. In a science-related article, why might he have chosen to paraphrase?

4. Interpret TV Sources The “Deep Impact” report combines sound bites of experts with footage of Mission Control technicians celebrating. Why do you think both of these sources were included?

5. Compare News Sources Use a chart like this to identify and compare the types of sources of both news reports.

<table>
<thead>
<tr>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Deep Impact”</td>
</tr>
<tr>
<td>“A Grand Slam”</td>
</tr>
</tbody>
</table>
Write or Discuss

Evaluate Sources  You encountered a number of sources in the TV newscast and in the magazine article. Now choose one of the news reports and make your own statement. In a short paragraph, tell how effectively you think the sources are used. Consider:

- what types of individuals and visuals are used as sources
- your basic impressions of these sources
- what the sources helped you to understand in the news report

Produce Your Own Media

Create an Interview Plan  In small groups, brainstorm at least three possible news stories to cover in your school or neighborhood. Once these are determined, imagine you’re a team of reporters preparing to interview different sources for the news reports. Use your ideas to help you create an interview plan. This plan will help you to determine the most likely people to contact for an interview. It can also help you prepare interview questions.

HERE’S HOW  To help you devise your interview plan, use these tips.

- For this planning stage, list the possible sources. Jot down a detail that describes that person’s connection to the news story.
- For each source, jot down questions that you think would clearly relate to the news story.
- Try to create questions that are open-ended. The best sound bites start with questions like these. Avoid questions that lead to a simple “yes” or “no” response.

STUDENT MODEL

<table>
<thead>
<tr>
<th>Possible News Stories:</th>
</tr>
</thead>
<tbody>
<tr>
<td>the opening of a school's time capsule from 1990</td>
</tr>
<tr>
<td>the new neighborhood garden project</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sources:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Camacho—He originally installed the time capsule.</td>
</tr>
<tr>
<td>Ms. Evans—School principal</td>
</tr>
<tr>
<td>Tara Sebring and Jamal Humphrey—They’ve assembled a new capsule.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possible Questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why now for opening the capsule?</td>
</tr>
<tr>
<td>Will there be some sort of ceremony to mark the opening?</td>
</tr>
<tr>
<td>What does the new capsule contain?</td>
</tr>
</tbody>
</table>

Tech Tip

If available, record your interview plans as electronic files.
What does music say about us?

KEY IDEA Imagine someone you’ve never met, who knows nothing about you but your three favorite songs. What could she guess about you based on this information? Could she tell what you think is important? what makes you happy? what makes you sad? In the following interview, journalist Brian Handwerk talks to a woman who has made a career of learning about other people through their music.

CHART IT Copy this chart in a notebook. Then decide whether you agree or disagree with each statement. After you read “Interview with a Songcatcher,” you’ll revisit this chart.

<table>
<thead>
<tr>
<th>Anticipation Guide</th>
<th>Before Reading</th>
<th>After Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>People with different tastes in music probably don’t have much else in common.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The words of a song are not as important as the melody.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Politics and social conditions have little impact on a culture’s music.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interview with a Songcatcher
Interview by Brian Handwerk

Before Reading
ELEMENTS OF NONFICTION: INTERVIEW

If you’ve ever read an entertainment magazine, you have probably read an interview. An interview is a conversation between two people in which one person asks questions and the other responds. An interview
• often includes both the reporter’s questions and the interviewee’s responses
• typically provides long, uninterrupted quotations that give readers a sense of the person speaking

As you read “Interview with a Songcatcher,” notice how the format of the interview helps you follow who is speaking.

READING SKILL: DISTINGUISH FACT AND OPINION

A fact is a statement that can be proved true from personal observations, by consulting a reliable source such as an encyclopedia, or even by conducting an experiment. An opinion is a statement that cannot be proved because it expresses a person’s feelings, thoughts, or beliefs.

Fact: The Chicago White Sox won the 2005 World Series.

Opinion: The Chicago White Sox are a great team.

When you read nonfiction, it’s important to distinguish between facts that you can rely on and opinions about which people could disagree. To practice telling the difference, use a chart to note at least four facts and four opinions as you read this interview.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Fact or Opinion?</th>
</tr>
</thead>
</table>

VOCABULARY IN CONTEXT

The words in column A help one woman tell how she’s learned about people’s music. Match each word with the word in column B that you think is closest in meaning.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. circumstance</td>
<td>a. undeveloped</td>
</tr>
<tr>
<td>2. composer</td>
<td>b. innermost</td>
</tr>
<tr>
<td>3. informant</td>
<td>c. situation</td>
</tr>
<tr>
<td>4. intimate</td>
<td>d. distant</td>
</tr>
<tr>
<td>5. primitive</td>
<td>e. songwriter</td>
</tr>
<tr>
<td>6. remote</td>
<td>f. speaker</td>
</tr>
</tbody>
</table>

Background

Ethnomusicology Each culture has a unique way of expressing itself through music. The study of ethnomusicology (eth’no-myūz’ik-al) is dedicated to preserving the music of all the world’s cultures. Ethnomusicologists—also called songcatchers—travel to remote areas to record music from different groups. In addition to studying songs and instruments, songcatchers also study the ideas and methods that lead to the creation of music. For example, Henrietta Yurchenco (hēn-re-ē’tə yūr-chen’kō), the songcatcher featured in this interview, spent two years studying and recording music in isolated areas of Mexico and Guatemala. Today, a number of universities and colleges offer courses in ethnomusicology.

MORE ABOUT THE AUTHOR AND BACKGROUND

To learn more about Brian Handwerk and songcatching, visit the Literature Center at ClassZone.com.
Interview with a Songcatcher

Ethnomusicologist Henrietta Yurchenco spent over 60 years traveling the world in search of the unrecorded music of small cultural groups. Yurchenco recorded the music of various groups and tribes in Mexico, Central and South America, Spain, and Morocco. Her collection of world music is now housed in the United States Library of Congress, preserved for future generations of music lovers.

A INTERVIEW
Who is asking this question? Tell how you know.

circumstance (sûr'kam-stâns') n.
a condition that affects or relates to an event or series of events

You’ve had such an incredible career, how did it all begin? A

To tell you the truth, I think that most of the things that happened to me in life happened with absolutely no plan whatsoever—just a set of funny circumstances.

When I was working at WNYC [radio station] I was introduced to music from around the world, because everyone came to WNYC. I played artists like Woody Guthrie, Leadbelly, Pete Seeger,1 and I also played music from all around the world. I was curious, you know, just plain curiosity.

One of our friends, the great Mexican painter Rufino Tamayo, called my husband and I and said “We’re driving to Mexico, do you want to go?” We did. We drove from New York to Mexico and it changed my life.

1. Woody Guthrie; Leadbelly; Pete Seeger: American folksingers and composers.
It was in Mexico where you first began field recording of remote tribes?

Yes, because of a chance letter from the Library of Congress. I was doing radio programs for the Inter-American Indian Institute. . . . Dr. [Manuel] Gamio, the head of that institute, said, “We’ve received a letter from the Library of Congress. They’ll send equipment and a little money. Are you interested?”

I almost bit his hand off. I said, “I’ll do it!” He was telling me about sleeping on the ground, long trips by animals, deadly scorpions, et cetera, but I wasn’t listening. I didn’t care. That’s what I did for the next two years in Mexico and Guatemala.

Were the practical aspects as difficult as advertised? Dealing with cumbersome early equipment, for example?

It was a horror. . . . People have asked me, “You went so far into those remote areas with just one recording machine?” One machine? I was thankful

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to have one. . . . At one point the cord broke when we were way into the mountains. My photographer was with me on that trip and he just held it together with his hands. He stayed absolutely still, didn’t move an inch, and it was a perfect recording.

On most of the trips we had a big car motor for power. We had to carry gasoline, the machine, and the aluminum or even steel discs. That’s all we had so we just hauled it everywhere. The only thing that really terrified me was deadly scorpions. It’s not comfortable sleeping on the ground when you know those things are around—but it was a great adventure.

Some places I had help from missionaries, some places I was alone with 200 pounds of equipment. Don’t ask me how it worked sometimes.

How difficult was it for you to understand the culture of these remote communities?

When I was in Mexico I visited some very primitive and isolated people who had had no contact with mainstream society for many years. I swear I saw animal sacrifices and curing ceremonies that were thousands of years old. I discovered what there was of pre-Hispanic

3. missionaries (mi’she-ə-nār’ ēz): people who are sent to do religious work in foreign countries.
4. pre-Hispanic (prē-hī’-spān’ïk): related to an era before Spanish conquerors arrived in the Americas.
music and dance at that time among 14 different tribes. After some of the recordings these people died and the younger people did not really learn the stuff. . . .

People in the field have to be very careful because they’re told things but shouldn’t believe them. You have to look behind the words. Informants might tell you what you want to hear, or not tell you something that the community won’t want you to hear. So you have to be very careful, and really observe. . . .

**How are you able to do that as an outsider with a lot of recording equipment?**

First of all it was easy because, as you’ve no doubt noticed, I’m a woman. So I’m not threatening and they did not regard a woman as threatening. Secondly, I never asked direct questions. Anthropologists go into the field with questions. I didn’t, I just went with hugs and kisses and asked “Will you please sing for me?” When you ask about music it means, “She’s interested, she likes me, she respects me.” And I’ve never met a people who didn’t respond to that.

The Yaquis, for example, who were known as a very warlike tribe, were absolutely marvelous. They were poets; their stuff was gorgeous. I said to the chieftain, “I want to get the words for all these songs”; he said, “We’ll come together before you leave and we’ll write it all down so you get it right.” Well, the entire tribe came to this little community center, babies, women, grandparents, everyone. We sweltered in there, it was 100 degrees, but we got it all down.

You had to be a good listener. I’ve sat on many, many a porch with women of all kinds and colors and just asked “So what happened after that?”

**Was the lack of a common language a problem?**

I never found that there was a distance between them and me because I didn’t understand their language. To this day I travel to one area of Mexico that has a rich musical heritage. I’ve been going there since 1942, and the

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5. **anthropologists** (ænθrəˈpɒləˌdʒɪst):** scientists who study the origin, behavior, and cultural development of humans.

6. **Yaquis** (yäˈkēz): a native people of Sonora, Mexico, who settled mainly along the Yaqui River.
wife of the main Indian composer there doesn’t speak Spanish. Every time she sees me we just hug, and she kisses me and cries. They know whether you respect them and you don’t need words. It’s better to use music than bombs to win friendships. When we were in Morocco the last time most of the Jews had left for other countries. We were sitting in Tangier in a café, and a little ensemble was playing Arabic music. I went up to them and I said, “We are musicians from New York.” They got up, gave us hugs and kisses, and said, “Please sit down and we’ll play for you.” It’s a wonderful bond. There’s nothing more emotional than the arts and music. 

There’s a voice to be heard through that emotion as well? The song to me is the basic human expression. It tells you things, or avoids telling you things, or disguises things, but you have to look at what it means.

There’s so much study of folk music and typically there’s not much study of the words. It’s like going to the opera for many people, and they don’t have the ghost of an idea what it’s about. They just hear the music. But if that’s what the composer had meant he would have just written, you know, “Blah, blah, blah.” Music itself tells you things but so do the words. You have to look at the meaning.

You’ve always been attuned to the political aspect of music as well.

I’m concerned with more than music. I’m concerned with the society, with the people more than anything. When I hear popular music I have to consider the social and political things that are going on in order to understand it. It’s the same with any music around the world, but that fact is very often neglected.

I’m not a romantic; I’m political. These romantics say “We must preserve the precious culture.” But at the cost of poverty and ignorance? Is that what you want? That’s what it means. Life changes, and with modern communications, roads, and infrastructure a lot of things will... 

8. Tangier: a northern Moroccan city.
disappear, of course. But maybe people's lives will be better—I don't just talk about music as if it were surrounded by a moat⁹ or something.

Why is the work of field recordings important, and why is it important to preserve and distribute these voices of the past 100-odd years?

It's our history. We have a written history. There are books for political history, the formation of nations, political and social struggles. But music is one of the most intimate expressions. Through music you become knowledgeable of the intimate aspects of life that aren't told in books. It's important because the people themselves tell you; it's not someone's interpretation. History books are written by the victors, but songs are the people's own words and melodies. That's what makes music a very powerful tool to understand people.

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9. moat (môt): a water-filled ditch that surrounds and protects a castle, fortress, or town.

**FACT AND OPINION**

Find one fact and one opinion in this paragraph. How were you able to identify each?

**ANALYZE VISUALS**

What can you infer from this photo about the way Yurchenco relates to the people she meets?
Comprehension

1. Recall How did Henrietta Yurchenco begin recording tribal music?

2. Clarify Why does Yurchenco think music can tell more about a culture than history books?

3. Summarize Reread lines 70–83. How is Yurchenco able to communicate with people who don’t speak her language?

Critical Analysis

4. Describe a Songcatcher What type of person is Henrietta Yurchenco? Using a chart like the one shown, write three adjectives that describe Yurchenco’s personality. Expand your chart using one statement from the interview that supports each adjective.

5. Analyze an Interview Reread Handwerk’s questions to Yurchenco. What do these questions tell you about his interest in or prior knowledge of songcatching?

6. Evaluate Fact and Opinion Look back at the facts and opinions you recorded as you read. Then exchange your list with a partner. Does he or she agree with you about which statements are facts and which are opinions?

7. Make Judgments Look again at the questions Handwerk asked Yurchenco. Were they good choices? Why or why not? If you were to continue the interview, what are another two questions you would ask?

Extension and Challenge

8. Big Question Activity Go back to the anticipation guide you started before reading. Now, fill in the “After Reading” column. Have any of your opinions about music changed after reading this interview? Explain.

9. Creative Project: Music Imagine that Henrietta Yurchenco came to your class. What music would you play for her to let her know what it’s like to be a student your age in the United States today? With a group, come up with a list of five songs. They can be songs written by recording artists, or songs written by one or all of you. Next to each song, explain why you chose it.
Vocabulary in Context

VOCABULARY PRACTICE
Show that you understand the boldfaced vocabulary words by telling whether each statement is true or false.

1. A remote village is far away from other communities.
2. A composer is someone who writes plays.
3. Most European cultures are primitive.
4. An informant is the same as a liar.
5. Most people share intimate details about their lives with no one but family members and friends.
6. A circumstance is a person who bosses others around.

VOCABULARY IN WRITING
If Henrietta Yurchenco were to write the story of her career as a songcatcher, what might she say? Write the introductory paragraph of Yurchenco’s memoir. You might start like this.

EXAMPLE SENTENCE
My first trip was to a remote village in Mexico.

VOCABULARY STRATEGY: DENOTATION AND CONNOTATION
A word’s denotation is the basic definition found in a dictionary. Its connotation is a feeling or attitude linked with that word. Connotations can influence the meaning a word conveys. For example, the vocabulary word primitive means “of or relating to a nonindustrial, often tribal, culture.” But the word has also come to mean “unsophisticated” or “crude.” Recognizing connotations can help you understand the opinions of the people you read about.

PRACTICE Replace each boldfaced word with another word with a similar meaning, but a negative connotation.

1. Marcus’s dog is overweight because the family feeds it too much.
2. Even after she left the room, Lia’s perfume left an odd scent in the air.
3. The elderly woman moved slowly as she crossed the street.
4. Michael is so clever. He always gets his way.
5. I can’t be friends with Cynthia. Her attitude is unpleasant.

For more practice, go to the Vocabulary Center at ClassZone.com.
**Why do we SING?**

**KEY IDEA** Think about the last time you sang. Was it at a birthday party? during choir practice? on the street with a group of friends? Whether it’s to celebrate, lift someone’s spirits, or express joy, almost everyone belts out a tune at some point or another. In the article you’re about to read, you’ll meet a boy whose singing helps relieve the suffering of his country.

**WEB IT** People sing for a variety of reasons. Fill in a web like the one shown with places and events where people sing or hear singing. What do you think is the most common reason to sing?
TIM McGIRK
born 1952

DANGER AND DETERMINATION

Reporters who travel to dangerous areas of the world often have difficult decisions to make. How bold or how careful should they be in order to get information? Tim McGirk, a reporter for Time magazine, has had to answer this question himself.

In 2001, McGirk had to decide whether to visit an island in the Philippines where rebels held kidnapped tourists and journalists and sometimes killed them. Because of the dangers involved, he chose not to go to the island. However, since 1976, McGirk has covered his share of difficult assignments, including reporting on the people and situations in Latin America and in war-torn areas of the Middle East.

BACKGROUND

TURBULENT TIMES

The late 20th century saw years of civil unrest in Afghanistan, a landlocked country in southern Asia. The Taliban, a violent Muslim extremist group, captured control of the country in the 1990s. The group imposed strict rules on the Afghan people, based on its extreme interpretation of Islam. Under the Taliban’s rule, Afghan girls lost their right to an education, art and sports were outlawed, and even music was banned. Those who violated the Taliban’s rules were often brutally punished. The Taliban fell out of power after a 2001 invasion by the United States and its allies. A new government was created, and people in certain parts of the country again enjoyed some of the freedoms they had missed for years.

VOCABULARY IN CONTEXT

Tim McGirk uses the following words to describe the challenges faced by a young musician. How many words do you know? Make a chart like the one shown, putting each vocabulary word in the appropriate column.

<table>
<thead>
<tr>
<th>WORD LIST</th>
<th>edict</th>
<th>immaculate</th>
<th>transcendent</th>
</tr>
</thead>
<tbody>
<tr>
<td>exile</td>
<td></td>
<td>puritanical</td>
<td>virtuoso</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Know Well</th>
<th>Think I Know</th>
<th>Don’t Know at All</th>
</tr>
</thead>
</table>

MORE ABOUT THE AUTHOR AND BACKGROUND

To learn more about Tim McGirk and Afghanistan, visit the Literature Center at ClassZone.com.
ANALYZE VISUALS
This photograph shows Mirwais Najrabi singing at a wedding in Kabul, Afghanistan. How would you describe the expression on his face?
Kabul’s Singing Sensation

TIM McGIRK

Text not available.
Please refer to the text in the textbook.

transcendent
(trən-sən’dent) adj. being above the material world

FEATURE ARTICLE
Reread lines 1–8. What words and phrases suggest that you are reading a feature article?
exile (ɪˈkɪl) n. enforced removal from one’s native country

MAIN IDEAS
What details help you understand the difficulties Mirwais has faced? Add these details to your outline.

puritanical (pyʊˈtɪnəkl) adj. strictly observant of religious practices; sternly moral

dict (dɪkt) n. a command from those in power

Note that Afghanistan is a mountainous country.

Text not available.

Please refer to the text in the textbook.
Please refer to the text in the textbook.
**FEATURE ARTICLE**

Identify one opinion given in this paragraph. Does the author try to be objective, or unbiased, in this article?

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**mirwais practices with his music teacher, ustaad mazari (center).**

*immaculate* (i-măk’yə-lıt)  
*adj.* spotless; very clean
Comprehension

1. **Recall** When did Mirwais first sing?

2. **Recall** From whom did Mirwais receive his musical training?

3. **Recall** What advantages do younger singers have over older singers in Afghanistan?

Critical Analysis

4. **Summarize Main Ideas and Details** Look back at the outline you created while reading “Kabul’s Singing Sensation.” Based on the main ideas and details you noted, summarize the article. Then compare your summary with the article. Decide if you’ve accurately captured its main ideas, important details, and underlying meaning.

5. **Examine Word Choice** What does Mirwais’s voice sound like? Look back at the article and find words and **imagery** that help you “hear” Mirwais’s voice.

6. **Analyze Quotations** A quotation is a direct statement made by someone. Lines 16, 20, and 63–65 contain three quotations from Mirwais. What do these quotations tell you about the young singer?

7. **Evaluate a Feature Article** Do you think Mirwais Najrabi is a good subject for a human-interest piece? Explain why most people would—or would not—be interested in reading about him.

8. **Evaluate Unity** A paragraph has **unity** if all its sentences develop one stated or implied main idea. A piece of writing has unity if each paragraph in it is unified and all the paragraphs together develop one larger main idea or message. Evaluate the unity of this article. Share what you decide and why.

Extension and Challenge

9. **Readers’ Circle** What if singing were banned in this country? How would you react to this decision? What would you be willing to risk to preserve music? Consider how Mirwais and his family reacted to life under the Taliban as you discuss these and other questions.

10. **SOCIAL STUDIES CONNECTION** What is the current state of Afghanistan? What is life like for those who live there? Research the social and political climate of Afghanistan. Share your findings with the class.

**RESEARCH LINKS**
For more on Afghanistan, visit the Research Center at ClassZone.com.
Vocabulary in Context

**VOCABULARY PRACTICE**

Note the letter of the item that you might associate with each boldfaced word.

1. **edict**: (a) a friend’s suggestion, (b) a king’s order, (c) a polite request
2. **exile**: (a) being sent away, (b) being imprisoned, (c) having to pay a fine
3. **immaculate**: (a) without decorations, (b) without wrinkles, (c) without dirt
4. **puritanical**: (a) like a new school principal, (b) like a group with strict rules, (c) like a popular athletic coach
5. **transcendent**: (a) sinking down, (b) rising above, (c) solving problems
6. **virtuoso**: (a) a beginning violinist, (b) an off-key singer, (c) a musical star

**VOCABULARY IN WRITING**

Tim McGirk used emotional language and imagery to describe Mirwais’s voice. How would you describe your favorite singer? Using at least two vocabulary words, write a one-paragraph review of his or her music. You might start like this.

**EXAMPLE SENTENCE**

Although he’s only 16 years old, Chris is already a hip-hop *virtuoso*.

**VOCABULARY STRATEGY: SUFFIXES THAT FORM ADJECTIVES**

A suffix is a word part that can be added to a root or base word to form a new word. Some suffixes, such as *-ical* in *puritanical*, can be added to nouns to form adjectives. Others, such as *-ent* in *transcendent*, can be added to verbs to form adjectives. If you can recognize the root or base word in a word with a suffix, you can often figure out the entire word’s meaning. Consult the chart for common adjective suffixes and their meanings.

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ant, -ate, -ent, -ic, -ical, -ous</td>
<td>like; having to do with; showing; causing</td>
</tr>
</tbody>
</table>

**PRACTICE** Identify the base word in each boldfaced adjective. Then define the adjective.

1. Yesterday I received the *joyous* news that my grandmother will be coming to visit.
2. Like the earth, the moon is roughly *spherical*.
3. As he waits for his food, our dog wears an *expectant* expression.
4. Can you solve *algebraic* problems?
5. Mrs. Pine is a *considerate* host who makes sure that her guests are comfortable.
Reading-Writing Connection

Demonstrate your understanding of “Kabul’s Singing Sensation” by responding to these prompts. Then complete the Grammar and Writing exercise.

**WRITING PROMPTS**

**A. Short Response: Write an Explanation**

Why do you think Mirwais and other Afghan musicians were willing to risk their lives for music? Write a **one-paragraph explanation** of Mirwais’s possible motivation.

**SELF-CHECK**

*A clear explanation will . . .*

- show an understanding of Mirwais’s background and personality
- consider the role music plays in culture

**B. Extended Response: Write a Letter**

Music can connect people across distance and culture. Write a **two- or three-paragraph letter** to Mirwais expressing your reactions to the article you just read. Then share with him some of your own experiences and thoughts about singing and music.

**SELF-CHECK**

*A successful letter will . . .*

- clearly state your opinion about what you read in the article
- make connections between yourself and Mirwais

**GRAMMAR AND WRITING**

**USE COMMAS CORRECTLY** Be sure to insert commas after introductory words and phrases to avoid possible confusion. Place commas immediately after introductory words, such as *finally* and *afterwards*, and after introductory phrases.

*Original:* In Afghanistan the Taliban ransacked the Afghan Radio and Television station.

*Revised:* In Afghanistan, the Taliban ransacked the Afghan Radio and Television station.

**PRACTICE** In each sentence, add commas where they are needed.

1. Since the age of four I’ve played the trumpet.
2. Over the summer my friends and I formed a singing group.
3. After reading the article I wanted to hear your music.
4. Fortunately you were not harmed by the Taliban.

*For more help with commas, see page R49 in the Grammar Handbook.*
How has **SCIENCE** changed our lives?

**KEY IDEA** The next time you answer a cell phone, turn on a light, or take your asthma medicine, think about the knowledge that was needed to create these things. **Science** has made it possible for doctors, engineers, and inventors to develop technologies and medicines that make our lives healthier and more convenient. In the following articles, you’ll read about some of the amazing scientific breakthroughs that have allowed people to lead longer, better lives.

**QUICKWRITE** What is one scientific development that you feel you could not live without? Think beyond obvious technological gadgets such as your computer or cell phone. Write one paragraph telling what a day might be like if this discovery had never taken place.
**ELEMENTS OF NONFICTION: ORGANIZATION OF IDEAS**

Many nonfiction texts are organized in what might be called **part-by-part order**. One idea or group of ideas suggests another, which suggests another, and so on until the end. Each idea is related in some way to the one before it and the one after it, but not necessarily in the same exact way. For example, Michel Marriott begins “Robo-Legs” with Cameron Clapp’s personal story. Then he presents information about artificial limb technology. Next he talks about how people’s attitudes toward wearing such limbs is changing. Each new idea relates to the one before it—but not in any predictable way. To follow along, you need to pay attention to topic sentences and subheadings, which introduce new parts.

**READING STRATEGY: MONITOR**

When you **monitor** your reading, you pause to check your comprehension of the material. To monitor effectively, pause frequently and try the following strategies:

- **Ask questions** about the information presented.
- **Visualize**, or picture, events and details described.
- **Reread** passages that you find confusing.

Use a chart like the one shown to help you monitor.

<table>
<thead>
<tr>
<th>Where I Paused</th>
<th>What Confused Me</th>
<th>How I Clarified the Information</th>
</tr>
</thead>
</table>

**VOCABULARY IN CONTEXT**

How many of the boldfaced words do you know? Use context clues to figure out a definition for each.

1. People who lose an **appendage** can still exercise.
2. The pollution could **contaminate** the water supply.
3. **Infectious** diseases can be transmitted quickly.
4. I need **keener** eyesight to thread the needle.
5. Roberto gains **mobility** by using a wheelchair.
6. The infection was **pervasive** throughout her body.
7. Mrs. Blake needed **rehabilitation** following knee surgery.
8. The scientist’s **serendipitous** discovery led to a cure.

**Background**

**Marvelous Medical Inventions** Throughout history, scientists and inventors have worked to make life better for those with physical disabilities. The first eyeglasses were created in the 1200s. The first hearing aids, called “trumpets,” were invented in the early 1800s. Prosthetics, used to replace missing arms and legs, were made of wood or metal as long ago as the days of ancient Rome. In medieval times, a knight who lost an arm could be fitted with a metal prosthetic that held a shield during battle. In the 1800s, wooden legs were fashioned to resemble real legs. They included springs and sockets to allow movement. Today, scientists draw on robotics and a better understanding of the human body to create prosthetics that are very similar to real limbs.
ANALYZE VISUALS
This photo shows Cameron Clapp competing at the 2005 Endeavor Games. Based on his body language and facial expression, what can you conclude about Clapp’s personality?
New prosthetic limbs\(^1\) are providing increased **mobility** for many amputees—and blurring the line between humans and machines

With his blond hair, buff torso, and megawatt smile, Cameron Clapp is in many ways the typical California teenager. There are, however, a few things that set him apart: For starters, this former skater boy is now making his way through life on a pair of shiny, state-of-the-art\(^2\) robotic legs.  

“I make it look easy,” he says.

Clapp, 19, lost both his legs above the knee and his right arm just short of his shoulder after getting hit by a train almost five years ago near his home in Grover Beach, California. Following years of rehabilitation\(^3\) and a series of prosthetics, each more technologically advanced than the last, he has become part of a new generation of people who are embracing breakthrough technologies as a means of overcoming their own bodies’ limitations.

“I do have a lot of motivation and self-esteem,” Clapp says, “but I might look at myself differently if technology was not on my side.”

The technology he’s referring to is the C-Leg. Introduced by Otto Bock HeathCare, a German company that makes advanced prosthetics, the C-Leg combines computer technology with hydraulics. Sensors monitor how the leg is being placed on the ground, and microprocessors\(^3\) guide the limb’s hydraulic system, enabling it to imitate a natural step. It literally does the walking for the walker. The technology, however, is not cheap; a single C-Leg can cost more than $40,000.  

The C-Leg is one of the examples of how blazing advancements, including tiny programmable microprocessors, lightweight materials, and keener\(^4\) sensors, are restoring remarkable degrees of mobility to amputees, says William Hanson, president of . . . a Massachusetts company that specializes in developing and distributing advanced prosthetic arms and hands.

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1. **prosthetic limbs** (prōs-thē’tik līmz): artificial arms and legs.
2. **state-of-the-art**: made using the newest technology available.
3. **microprocessors**: tiny computer parts that operators can program, or give new instructions to.
4. **keener** (kēn’ər) adj. more acutely sensitive
Three Sets of Legs

For example, Clapp, who remains very involved in athletics despite his condition, has three different sets of specialized prosthetic legs: one for walking, one for running, and one for swimming. He put all of them to use at the Endeavor Games in Edmond, Oklahoma—an annual sporting event for athletes with disabilities—where he competed in events like the 200-meter dash and the 50-yard freestyle swim.

Man or Machine?

But increased mobility is only part of the story. Something more subtle, and possibly far-reaching, is also occurring: The line that has long separated human beings from the machines that assist them is blurring, as complex technologies become a visible part of the people who depend upon them.

Increasingly, amputees, especially young men like Clapp, and soldiers who have lost limbs in Afghanistan and Iraq, are choosing not to hide their
prosthetics under clothing as previous generations did. Instead, some of the estimated 1.2 million amputees in the United States—more than two-thirds of whom are men—proudly polish and decorate their electronic limbs for all to see.

Many young people, especially those who have been using personal electronics since childhood, are comfortable recharging their limbs’ batteries in public and plugging their prosthetics into their computers to adjust the software, Hanson says.

Nick Springer, 20, a student at Eckerd College in St. Petersburg, Florida, who lost his arms and legs to meningitis when he was 14, recalls doing just that at a party when the lithium-ion batteries\(^4\) for his legs went dead.

“I usually get 30 hours out of them before I have to charge them again,” he says. “But I didn’t charge them up the day before.”

**Terminator Legs**

When his legs ran out of power, he spent most of his time sitting on a couch talking to people while his legs were plugged into an electrical outlet nearby. According to Springer, no one at the party seemed to care, and his faith in his high-tech appendages appears unfazed. “I love my Terminator\(^5\) legs,” he says.

Springer also remembers going to see *Star Wars: Episode III—Revenge of the Sith* with his father. While he liked the movie, he found the final scenes—in which Anakin Skywalker loses his arms and legs in a light-saber battle and is rebuilt with fully functional prosthetics to become the infamous Darth Vader—a little far-fetched.

“We have a long way to go before we get anything like that,” he says. “But look how far humanity has come in the past decade. Who knows? The hardest part is getting the ball rolling. We pretty much got it rolling.”

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4. **lithium-ion batteries** (līth’ē-ŏm’-ĭŏn’ bāt’rēz’): very light, small batteries with a great deal of energy packed into a small space.

Eureka: Scientific Twists of Fate

. . . We are all familiar with the tale of Newton’s apple. While sitting in his orchard one day in 1665, Isaac Newton’s curiosity was sparked by a falling apple, leading him to “discover” the law of gravity. As doubtful as the story sounds, writings by Newton and his contemporaries verify the incident. Though science often seems an orderly and methodical process, history is dotted with surprising discoveries such as these. Were they merely luck? Or the results of a gifted mind? Actually, a bit of both. Sometimes scientific discoveries come from the most unexpected places, when talented people are watching out for them. Here are two examples of similarly serendipitous finds.

The Smallpox Cure

In the late 1700s, Edward Jenner, a young English doctor-in-training, was told by a local milkmaid that she was safe from smallpox because she had already had cowpox. Like its deadly cousin, cowpox also produced painful blisters, yet doctors had not made a connection between the two diseases. After extensive research, Jenner discovered that what she said was true—milkmaids exposed to a common strain of cowpox almost never contracted smallpox.

Jenner’s supervising physicians took little interest in his findings. Then, in 1796, he injected a young boy named James Phipps with tissue taken from a cowpox blister on a milkmaid’s hand. He then exposed the boy to the deadly smallpox virus. So pervasive and devastating was this disease at the time that the boy’s family was willing to take this unimaginable risk. But their gamble paid off. Young James remained completely healthy, and the vaccination process was born.

Jenner’s idea opened the door not only to the eradication of smallpox but to the subsequent perfection of the immunization procedure by Louis Pasteur. The modern

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1. Isaac Newton: mathematician and scientist (1642–1727) who developed the theory of gravity.
2. smallpox: a highly infectious, often fatal disease characterized by high fevers and blisters that leave pockmarks on the skin.
3. Louis Pasteur (lō’bō päs-tür’): French chemist (1822–1895) who founded modern microbiology and developed several life-saving vaccines.
term “vaccine,” from the Latin word for “cow,” honors Jenner and his life-saving inspiration.

Penicillin
Arguably the most important medical discovery of the 20th century came about purely by accident. Throughout the 1920s, Scottish scientist Alexander Fleming was searching for a cure for infectious disease, the major cause of death throughout much of human history. As part of his research, Fleming was cultivating several species of bacteria in separate petri dishes.

One day, Fleming noticed that a mold had contaminated the petri dish containing the bacteria Staphylococcus, a common microbe responsible for a variety of ailments ranging from the earaches to deadly post-operative infections. But before tossing away the moldy dish, Fleming realized that the intruder had actually killed off much of the bacteria culture.

The tiny, wind-born mold spore must have landed in the Staphylococcus colony during a brief moment Fleming had uncovered the dish. Fleming isolated the mold and identified it as a member of the genus Penicillium. He called the antibiotic substance it secreted penicillin.

Fleming’s further investigation found that penicillin killed off several, but not all, strains of the disease-causing microbes he was growing in his lab. Had the penicillium contaminated a different dish, Fleming might never have discovered its medicinal benefits.

Additionally, Fleming found penicillin was non-toxic to humans and animals. Realizing the strategic advantage in possessing the world’s first antibiotic, the U.S. and Britain joined forces to mass-produce the drug, and treated thousands of Allied troops wounded in the D-Day invasion of Europe. It has saved countless lives ever since. In 1945, Fleming shared the Nobel Prize in Medicine for his work on the “Wonder Drug” penicillin.

Serendipity or Smarts?
Each of these examples of serendipity helped advance the scope of human knowledge by great leaps and bounds. But these accidents and twists of fate are not quite as random as they seem. Each discovery occurred in the presence of a well-trained intellect. As Louis Pasteur once said, “In the fields of observation, chance favors only the prepared mind.”

Reread the subheading of this section. Based on this, what question about smallpox should you be able to answer? If you can’t answer this question for yourself, reread lines 9–25.

infectious (in-fĕk’shəs) adj. capable of being transmitted by infection
contaminate (kon-täm’a-nət) v. to make impure or unclean through contact

Why is penicillin important? Reread this section if you don’t know the answer.
Comprehension

1. **Recall**  How does the C-Leg described in “Robo-Legs” work?

2. **Summarize**  According to “Robo-Legs,” what is different about the way young amputees feel about their prosthetic limbs?

3. **Clarify**  James Phipps is mentioned in “Eureka: Scientific Twists of Fate.” Why was his family willing to risk his exposure to the smallpox virus?

Critical Analysis

4. **Examine the Message**  Reread the first paragraph of “Robo-Legs” as well as lines 23–28 and 35–39. Based on the information stated and the descriptive words and phrases used, what do you think is the message the author wants to share about science and technology?

5. **Interpret Quotation**  “Eureka: Scientific Twists of Fate” contains this quote from Louis Pasteur: “In the fields of observation, chance favors only the prepared mind.” What does he mean? Use examples from the article to support your answer.

6. **Evaluate Monitoring Techniques**  Look back at the chart you created as you read. Which strategy best helped you understand the articles? Explain.

7. **Analyze and Compare Organization of Ideas**  In a few sentences, describe the part-by-part organization of each article—that is, how each part is related to the next. Then identify one way in which the two authors use part-by-part organization similarly or differently.

8. **Compare Texts**  Use a Venn diagram like the one shown to record similarities and differences between the articles. Consider the subject matter, purpose, tone, and organization of ideas in each article. Why do you think these two articles were presented together in a single lesson?

Extension and Challenge

9. **Readers’ Circle**  Both “Robo-Legs” and “Eureka: Scientific Twists of Fate” describe medical advancements that have helped people lead better lives. What problems would you like science to solve? Discuss your answer with a small group.

10. **Science Connection**  Robotics has become an exciting and popular field of scientific study. Other than prosthetics, what is another way robotics is being used today? Research to find an answer. Then present your findings to the class.

**Research Links**

For more on robotics, visit the Research Center at ClassZone.com.
Vocabulary in Context

VOCABULARY PRACTICE

Answer each question to show your understanding of the vocabulary words.

1. Which is an appendage, a boy’s back or his leg?
2. Which can contaminate your dinner, bacteria or salt?
3. Which are infectious, colds or injuries?
4. If your eyesight gets keener, does it get better or worse?
5. Which provides mobility, an armchair or a car?
6. If an attitude is pervasive, do many people share it or just a few?
7. Would you need rehabilitation to recover from a broken leg, or from a cold?
8. If you make a serendipitous discovery, are you lucky or unlucky?

VOCABULARY IN WRITING

How has medical technology helped you or someone you know? Write a paragraph describing the way medical advancements improve people’s quality of life. You might start like this.

**EXAMPLE SENTENCE**

My grandmother’s wheelchair provides her with mobility.

VOCABULARY STRATEGY: THE LATIN ROOT pend

The vocabulary word appendage contains the Latin root pend, which means “hang.” Many English words contain this root. To figure out the meaning of words with this root, use context clues and your knowledge of the root’s meaning.

**PRACTICE** Choose the word from the web that best completes each sentence. Then explain how the root pend relates to the meaning of the word.

1. If an employee is ____, he will not keep his job very long.
2. Dogs are pack animals, so they hate being left alone; however, cats are fairly ____ creatures.
3. She wore a diamond ____ around her neck.
4. The detective has several cases ____, but none of them are resolved.
5. The elephant’s trunk swung ____ from side to side.
An American Plague: The True and Terrifying Story of the Yellow Fever Epidemic of 1793

History Book by Jim Murphy

Meet Jim Murphy

Jim Murphy didn’t read much as a child. It wasn’t until a high school teacher told his class that they weren’t allowed to read a particular novel that Murphy became inspired to read. At first, he did it just to be rebellious. Murphy says that as he continued to read, he developed a love of history, because it enabled him to “visit many different times and places in the past.”

Today, Murphy is the award-winning author of over 25 books about American history. He finds his work rewarding, and he especially enjoys the research stage of each project. He seeks out eyewitness accounts of events and loves to uncover the vivid details that add drama and emotion to his work. “One of my goals in writing about events from the past is to show that children weren’t just observers of our history,” Murphy says. “They were actual participants and sometimes did amazing and heroic things.”

Try a History Book

Sometimes a nonfiction book can be so enthralling, it’s almost as though you are reading a suspense novel, wondering what will happen next. History books tell about a series of important events or provide details about one major event, often in chronological order. Some history books start with the outcome, however, and then back up to show readers how it came about.
Saturday, August 3, 1793. The sun came up, as it had every day since
the end of May, bright, hot, and unrelenting. The swamps and marshes
south of Philadelphia had already lost a great deal of water to the intense
heat, while the Delaware and Schuylkill Rivers had receded to reveal
long stretches of their muddy, root-choked banks. Dead fish and gooey
vegetable matter were exposed and rotted, while swarms of insects
droned in the heavy, humid air.

In Philadelphia itself an increasing number of cats were dropping
dead every day, attracting, one Philadelphian complained, “an amazing
number of flies and other insects.” Mosquitoes were everywhere, though
their high-pitched whirring was particularly loud near rain barrels,
gutters, and open sewers.

These sewers, called “sinks,” were particularly ripe this year. Most streets
in the city were unpaved and had no system of covered sewers and pipes
to channel water away from buildings. Instead, deep holes were dug at
various street corners to collect runoff water and anything else that might
be washed along. Dead animals were routinely tossed into this soup,
where everything decayed and sent up noxious bubbles to foul the air.
Down along the docks lining the Delaware, cargo was being loaded onto ships that would sail to New York, Boston, and other distant ports. The hard work of hoisting heavy casks into the hold was accompanied by the stevedores’ usual grunts and muttered oaths.

The men laboring near Water Street had particular reason to curse. The sloop *Amelia* from Santo Domingo had anchored with a cargo of coffee, which had spoiled during the voyage. The bad coffee was dumped on Ball’s Wharf, where it putrefied in the sun and sent out a powerful odor that could be smelled over a quarter mile away. Benjamin Rush, one of Philadelphia’s most celebrated doctors and a signer of the Declaration of Independence, lived three long blocks from Ball’s Wharf, but he recalled that the coffee stank “to the great annoyance of the whole neighborhood.”

Despite the stench, the streets nearby were crowded with people that morning—ship owners and their captains talking seriously, shouting children darting between wagons or climbing on crates and barrels, well-dressed men and women out for a stroll, servants and slaves hurrying from one chore to the next. Philadelphia was then the largest city in North America, with nearly 51,000 inhabitants; those who didn’t absolutely have to be indoors working had escaped to the open air to seek relief from the sweltering heat.

Many of them stopped at one of the city’s 415 shops, whose doors and windows were wide open to let in light and any hint of a cooling breeze. The rest continued along, headed for the market on High Street.

Here three city blocks were crowded with vendors calling their wares while eager shoppers studied merchandise or haggled over weights and prices. Horse-drawn wagons clattered up and down the cobblestone street, bringing in more fresh vegetables, squawking chickens, and squealing pigs. People commented on the stench from Ball’s Wharf, but the market’s own ripe blend of odors—of roasting meats, strong cheeses, days-old sheep and cow guts, dried blood, and horse manure—tended to overwhelm all others.

One and a half blocks from the market was the handsomely refurbished mansion of Robert Morris, a wealthy manufacturer who had used his fortune to help finance the Revolutionary War. Morris was lending this house to George and Martha Washington and had moved himself into another, larger one he owned just up the block. Washington was then president of the United States, and Philadelphia was the temporary capital of the young nation and the center of its federal government. Washington spent the day at home in a small, stuffy office.
seeing visitors, writing letters, and worrying. It was the French problem that was most on his mind these days.

Not so many years before, the French monarch, Louis XVI, had sent money, ships, and soldiers to aid the struggling Continental Army’s fight against the British. The French aid had been a major reason why Washington was able to surround and force General Charles Cornwallis to surrender at Yorktown in 1781. This military victory eventually led to a British capitulation three years later and to freedom for the United States—and lasting fame for Washington.

Then, in 1789, France erupted in its own revolution. The common people and a few nobles and churchmen soon gained complete power in France and beheaded Louis XVI in January 1793. Many of France’s neighbors worried that similar revolutions might spread to their countries and wanted the new French republic crushed. Soon after the king was put to death, revolutionary France was at war with Great Britain, Holland, Spain, and Austria.

Naturally, the French republic had turned to the United States for help, only to have President Washington hesitate. Washington knew that he and his country owed the French an eternal debt. He simply wasn’t sure that the United States had the military strength to take on so many formidable foes.

Many citizens felt Washington’s Proclamation of Neutrality was a betrayal of the French people. His own secretary of state, Thomas Jefferson, certainly did, and he argued bitterly with Treasury Secretary Alexander Hamilton over the issue. Wasn’t the French fight for individual freedom, Jefferson asked, exactly like America’s struggle against British oppression? . . .

While Washington worried, the city’s taverns, beer gardens, and coffeehouses—all 176 of them—were teeming with activity that Saturday. There men, and a few women, lifted their glasses in toasts and singing and let the hours slip away in lively conversation. Business and politics and the latest gossip were the favorite topics. No doubt the heat, the foul stink from Ball’s Wharf, and the country’s refusal to join with France were discussed and argued over at length.

In all respects it seemed as if August 3 was a very normal day, with business and buying and pleasure as usual.

Oh, there were a few who felt a tingle of unease. For weeks an unusually large supply of wild pigeons had been for sale at the market. Popular folklore suggested that such an abundance of pigeons always brought with it unhealthy air and sickness.
Dr. Rush had no time for such silly notions, but he, too, sensed that something odd was happening. His concern focused on a series of illnesses that had struck his patients throughout the year—the mumps in January, jaw and mouth infections in February, scarlet fever in March, followed by influenza in July. “There was something in the heat and drought,” the good doctor speculated, “which was uncommon, in their influence upon the human body.”

The Reverend J. Henry C. Helmuth of the Lutheran congregation, too, thought something was wrong in the city, though it had nothing to do with sickness of the body. It was the souls of its citizens he worried about. “Philadelphia . . . seemed to strive to exceed all other places in the breaking of the Sabbath,” he noted. . . .

Rush and Helmuth would have been surprised to know that their worries were turning to reality on August 3. For on that Saturday a young French sailor rooming at Richard Denny’s boarding house, over on North Water Street, was desperately ill with a fever. Eighteenth-century record keeping wasn’t very precise, so no one bothered to write down his name. Besides, this sailor was poor and a foreigner, not the sort of person who would draw much attention from the community around him. All we know is that his fever worsened and was accompanied by violent seizures, and that a few days later he died.

Other residents at Denny’s would follow this sailor to the grave—a Mr. Moore fell into a stupor and passed away, Mrs. Richard Parkinson expired on August 7, next the lodging house owner and his wife, Mary, and then the first sailor’s roommate. Around the same time, two people in the house next to Denny’s died of the same severe fever.

Eight deaths in the space of a week in two houses on the same street . . . but the city did not take notice. Summer fevers were common visitors to all American cities in the eighteenth century, and therefore not headline news. Besides, Denny’s was located on a narrow out-of-the-way street—really more an alley than a street. “It is much confined,” a resident remarked, “ill-aired, and, in every respect, is a disagreeable street.” Things happened along this street all the time—sometimes very bad things—that went unnoticed by the authorities and the rest of the population.

So the deaths did not disrupt Philadelphia much at all. Ships came and went; men and women did chores, talked, and sought relief from the heat and insects; the markets and shops hummed with activity; children played; and the city, state, and federal governments went about their business.
No one noticed that the church bells were tolling more often than usual to announce one death, and then another. They rang for Dr. Hugh Hodge’s little daughter, for Peter Aston, for John Weyman, for Mary Shewell, and for a boy named McNair. No one knew that a killer was already moving through their streets with them, an invisible stalker that would go house to house until it had touched everyone, rich or poor, in some terrible way.

Keep Reading
You’ve just read about the start of the 1793 yellow fever outbreak. Thousands of people in Philadelphia will die before the cause of the numerous deaths is discovered, and the public’s fear is spreading even faster than the fever. Keep reading to learn about the heroic efforts of many citizens to care for the sick and search for a cure.
Technical and Business Writing

Fires, spiders, and volcanoes were just a few of the topics you learned about in this unit as you discovered how to mine nonfiction sources for information. As you master business and technical writing, you will learn how to communicate information in precise ways and in orderly formats.

WRITER’S ROAD MAP

Technical and Business Writing

WRITING PROMPT 1

Technical Writing  Write instructions explaining how to operate a tool or design a system. Your instructions should have a logical sequence. They should be easy to follow, even for someone who is not an expert.

Ideas to Consider
• setting up a video game console
• simplifying instructions for a complex mechanical device, such as installing a cable modem
• creating a family evacuation plan in case of fire
• designing a recycling program for your school

WRITING PROMPT 2

Business Writing  Think of a career that interests you. Write a letter of inquiry to a person involved in that career. Your letter should be purposeful, brief, and properly formatted.

Ideas to Consider
• requesting a part-time job or internship
• seeking advice about higher education or training programs

KEY TRAITS

1. IDEAS
• Meets the needs of the intended audience
• Includes all factors and variables that need to be considered

2. ORGANIZATION
• Is carefully planned so that information is easy to understand
• Presents information in a logical sequence

3. VOICE
• Maintains a formal tone

4. WORD CHOICE
• Presents information purposefully
• Is succinct, including only important ideas and details

5. SENTENCE FLUENCY
• Expresses ideas clearly and simply

6. CONVENTIONS
• When appropriate, uses proper formatting techniques (such as headings and different fonts) to aid comprehension
• Uses proper capitalization
• Uses correct grammar, spelling, and punctuation

WRITING TOOLS
For prewriting, revision, and editing tools, visit the Writing Center at ClassZone.com.
How to Upload Photographs

All you need to put your pictures on your computer is a connecting device called a USB cable. Your camera came with one, but if you can’t find it, you can buy one at any store that sells computers or other electronics.

**Step 1: Plug the Cable into Your Camera**

A USB cable has two ends. Find the smaller end. Then find the port that it fits into on your camera by holding your camera as if you are ready to shoot. The port is a small hole on the left side of the camera that the cable plugs into. Make sure your camera is turned off, and plug the small end of the USB cable into your camera.

**Step 2: Plug the Cable into Your Computer**

Next, find the port for the USB cable on the back of your computer. There are several ports, so be sure you select the right one. If you are not sure which one to choose, look at your computer manual to learn which icon identifies the port for the USB cable. Then plug in the cable.

**Step 3: Upload Your Photos**

Now turn on your camera. A box will pop up on your computer screen. What it says will depend on your software, but it may give you these choices:

- copy the photos to your computer
- organize and edit your photos
- view your photos as a slideshow
- print your photos

Select the option you want and follow the prompts.

*Possible next steps:* You can burn your photos onto a CD or upload them to photo-sharing sites on the Internet.
Ms. Teresa Canseco  
Canseco’s Photo and Camera  
10776 Paseo de los Robles  
S. Bakersfield, CA 93304  

July 12, 2009  

Ms. Teresa Canseco  
Canseco’s Photo and Camera  
10776 Paseo de los Robles  
S. Bakersfield, CA 93304  

July 12, 2009  

Dear Ms. Canseco:  

On Saturday, June 20, you took the photographs at the wedding of my sister, Ellen Preston. I have seen the photos, and they are spectacular.  

I have been using a camera since I was four and am thinking about choosing photography as my career. My ideal job would be to work for a magazine. Ellen and my mom both thought I should contact you about your career.  

I am wondering how you got started as a photographer and what advice you might have for me. I don’t even know if I need a four-year college degree, or whether it is better to work for a while with a professional photographer. What is your opinion?  

If you have some advice for me, would you be willing to call me at 661-693-7252 or e-mail me at danap@options.net? I can also call you if that’s better for you.  

Thank you for your help.  

Sincerely,  

Dana Preston
# Part 2: Apply the Writing Process

## PREWRITING

<table>
<thead>
<tr>
<th>What Should I Do?</th>
<th>What Does It Look Like?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Brainstorm your topic, audience, and purpose.</td>
<td>• figure out how to download audiobooks from the library onto MP3 player</td>
</tr>
<tr>
<td>List examples of technical or business writing that you could do to improve your life or to help someone else. <strong>Circle</strong> the one you choose.</td>
<td>• help Dad transfer photos from camera to computer</td>
</tr>
<tr>
<td><strong>See page 914:</strong> Choose a Form of Writing</td>
<td>• write to clothing store to ask for refund</td>
</tr>
<tr>
<td></td>
<td>• explain how to start a blog</td>
</tr>
<tr>
<td>2. Do the research.</td>
<td><strong>Research Questions</strong></td>
</tr>
<tr>
<td>What do you need to know to be clear, precise, and accurate? Ask research questions. Find answers in books and manuals or online.</td>
<td>• What does Dad’s instruction book tell him to do?</td>
</tr>
<tr>
<td></td>
<td>• Which pictures or information does the book leave out?</td>
</tr>
<tr>
<td>3. Map it out.</td>
<td><strong>Instructions:</strong></td>
</tr>
<tr>
<td>If you are writing a technical document, what are the steps in the process you are explaining? If you are writing a letter of complaint, what went wrong and what outcome are you seeking? Make a flow chart or a sequence chain.</td>
<td><strong>What if</strong> Dad has lost his USB cable?</td>
</tr>
<tr>
<td></td>
<td><strong>Business letter:</strong></td>
</tr>
<tr>
<td></td>
<td><strong>What if</strong> Ms. Canseco thinks she shouldn’t have to be the one to call?</td>
</tr>
<tr>
<td>4. Include all factors and variables.</td>
<td><strong>Instructions:</strong></td>
</tr>
<tr>
<td>For technical writing, think about what factors might vary for the person or people who will use your instructions. For business writing, think about what options you want to present to your reader.</td>
<td><strong>What if</strong> Dad has lost his USB cable?</td>
</tr>
</tbody>
</table>
## DRAFTING

### What Should I Do?

1. **Make sure you have a specific purpose.**
   - Ask yourself what your main idea or goal is.
   - *In instructions*, make that clear from the first line.
   - *In a business letter*, you can state it in the first sentence, or you can lead up to it in your second or third paragraph.

2. **Meet the needs of your intended audience.**
   - *In instructions*, use short sentences that the reader cannot misinterpret.
   - *In a business letter*, be formal and polite throughout. You might begin by establishing a connection with your reader.
   - *In both kinds of writing*, use standard American English (the kind you find in a textbook).

3. **Use formatting for clarity.**
   - *In instructions*, use headings or numbers to divide your instructions into parts or steps. Use bullets to list a series of options. Change the font to suggest an alternative or to emphasize an idea.
   - *In a business letter*, use the standard format. See page R42 for details.

4. **Consider adding a graphic.**
   - Make instructions clearer by showing as well as telling. Provide a simple sketch with clear labels.
   - **TIP** Before revising, consult the key traits on page 908 and the criteria and peer-reader questions on page 914.

### What Does It Look Like?

#### Instructions:

- **How to Upload Photographs**

- **Business letter:**
  - I am wondering how you got started as a photographer and what advice you might have for me.

- **Instructions:**
  - A USB cable has two ends. Find the smaller end.

- **Business letter:**
  - On Saturday, June 20, you took the photographs for the wedding of my sister, Ellen Preston. I have seen the photos, and they are spectacular.

- **Instructions:**
  - Possible next steps: You can burn your photos onto a CD or upload them to photo-sharing sites on the Internet.

- **Business letter:**
  - Dear Ms. Canseco:
### REVISING AND EDITING

#### What Should I Do?

1. **Be succinct.**
   - [Bracket] any sentences that are wordier or more complicated than they need to be.
   - Delete unnecessary words and replace imprecise words.

2. **Strengthen supporting details.**
   - [Circle] any sentences or ideas that are out of order.
   - Move information as necessary.

3. **Test your document.**
   - Ask a peer reader to list any questions she or he has about what to do. The peer reader who reviewed the instructions asked, “Which is the left side of the camera?”
   - Revise your document to make it clearer and more specific.
   
   See page 914: Ask a Peer Reader

4. **Proofread and check the formatting.**
   - Check page R42 to learn how to format a business letter.
   - For business and technical writing, check capitalization and punctuation as well as spacing and indents.

#### What Does It Look Like?

- It can be confusing sometimes, but if you are not sure which one to choose, look at the book that came with your computer. You’ll see that every icon has a picture showing what it is somewhere in the book, and that includes the USB cable.

  If you are not sure which one to choose, look at your computer manual to learn which icon identifies the port for the USB cable.

- A box will pop up on your computer screen. Be sure your camera is turned on or this won’t happen. Now turn on your camera. A box will pop up on your computer screen.

- Find the port that it fits into on your camera by holding your camera as if you are ready to shoot. The port is a small hole on the left side of the camera.

#### Example:

Ms. Teresa Canseco
Cansecos Photo and Camera
10776 paseo de los Robles
S. Bakersfield, CA 93304
Dear Ms. Canseco,
Consider the Criteria
Use this checklist to make sure your writing is on track.

Ideas
✓ meets the needs of the intended audience
✓ includes all factors and variables that need to be considered

Organization
✓ is carefully planned
✓ presents information in a logical sequence

Voice
✓ maintains a formal tone

Word Choice
✓ is purposeful and succinct

Sentence Fluency
✓ expresses ideas clearly and simply

Conventions
✓ uses formatting techniques when appropriate
✓ capitalizes words properly
✓ uses correct grammar, spelling, and punctuation

Ask a Peer Reader
• What does my audience still need to know?
• Which formatting choices should I change to be correct or clearer?
• Where is my language less clear or direct than it should be?

Choose a Form of Writing
Forms of business and technical writing vary with your purpose and audience.

• Use memoranda (often called memos) in business settings for brief communications about meetings, procedures, and company news. Aim memos at an “insider” audience.

• Use brochures to persuade or inform through graphic elements and brief, high-interest text. Aim brochures at a general audience.

• Create Web sites when you need to make information easily accessible. Aim Web sites at a wide and varied audience.

Check Your Grammar
Capitalize people’s names, initials, and titles.

Ms. Louise Vaughn                   Dr. R. C. Lee, Jr.

Capitalize the first word in the greeting and in the closing of a letter.

Dear Representative Meehan:          Yours truly,

See page R51: Quick Reference: Capitalization

Writing Online

PUBLISHING OPTIONS
For publishing options, visit the Writing Center at ClassZone.com.

ASSESSMENT PREPARATION
For writing and grammar assessment practice, go to the Assessment Center at ClassZone.com.
Creating a Web Site

You know how to do many everyday tasks. Develop a Web site that others can refer to for simple, clear instructions.

Planning the Web Site

1. **Decide on a skill set.** Are you an expert on cell phones? Do you know the rules of a sport or game, or are you good at a craft, such as origami? Choose a skill for which you can give at least three sets of instructions, such as how to change a cell phone’s ring tone, how to store numbers on it, and how to send photos from one phone to another.

2. **List your ideas for pages.** You should have a home page plus a minimum of three pages with different instructions. For each page, make notes about what text and images will appear.

3. **Create a site plan.** Make a flow chart with arrows showing how your pages might link up.

4. **Sketch the pages and write the text.** Draw rough sketches of how you want each page to look. Include images, buttons, and links. Then write the text that will appear on each page. Use short, bulleted lists; numbered steps; and helpful headings.

Producing the Web Site

1. **Choose an authoring program.** This type of program helps you combine media elements into a Web document. Your school’s computer specialist can help you with this step, as well as with scanning your sketches or other visuals.

2. **Make your site clear and attractive.** Label all elements in type that is 12 points or larger. Use the same font style and size for all your headings.

3. **Revise and upload.** Ask a classmate to try out your site and give you feedback. When you have fixed any problems, make your site available on your school’s internal server or on the Web.
Assessment Practice

**Assess**
The practice test items on the next few pages match skills listed on the Unit Goals page (page 841) and addressed throughout this unit. Taking this practice test will help you assess your knowledge of these skills and determine your readiness for the Unit Test.

**Review**
After you take the practice test, your teacher can help you identify any skills you need to review.

- Text Features
- Graphic Aids
- Summarize
- Main Ideas and Supporting Details
- Suffixes
- Base Words
- Introductory Commas
- Capitalization of Titles

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**DIRECTIONS** Read this selection and answer the questions that follow.

**from Odd Couples**

Amy Sarver

Living in the wild can be hard. Finding food and staying safe aren’t easy. Each day, animals struggle to survive in their habitats. Not all animals get by on their own. Some animals form a close partnership with other kinds of animals. These pairings are called symbiotic relationships.

In a symbiotic relationship, the animals depend on each other. One animal helps the other meet its needs. Sounds good, right? Not always. Some animals are not very kind to their partners. In some cases, one animal meets its needs but hurts its partner. Sounds crazy, but it does happen. Take ticks, for example. These insects guzzle blood to live. To get blood, they attach themselves to other kinds of animals. Ticks do not help their hosts. Instead, they can pass germs that cause disease. In other relationships, animals don’t treat their partners so poorly. Both animals benefit, or get help, from living with the other animal. Check out how animals pair up to survive.

**Keeping Clean**

Small animals called cleaner shrimps have found a way of helping fish at coral reefs. As their name suggests, the shrimps clean the fish. Here’s how it works. The shrimps hang out at what scientists call a cleaning station. A fish stops by. Then a shrimp climbs onto the fish. The shrimp even steps into the fish’s mouth. The shrimp uses its tiny claws to pick stuff off the fish’s body. That can include dead skin, tiny pieces of food, and wee creatures that can hurt the fish. The fish gets a nice cleaning. The shrimp enjoys a tasty meal of fish trash.

Small birds called plovers are also in the cleaning business. They have big customers—crocodiles. Crocs have long snouts filled with sharp teeth. Cleaning them is tricky. That’s where the plover comes in. When a croc opens its mouth, the plover hops right in. The croc does not snap its snout shut. Instead, it lets the plover eat small, harmful animals attached to the crocodile’s teeth. The plover gets an easy meal. The croc gets clean teeth.

**Sweet Success**

Some animals need each other because they like the same food. Take the honeyguide bird and the ratel. They live on grasslands in Africa. Both animals love honey. Yet each has a problem getting some. The bird can find a beehive, but can’t open it. The ratel can open a hive, but doesn’t know how to find one.

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**ASSESSMENT ONLINE**
For more assessment practice and test-taking tips, go to the Assessment Center at ClassZone.com.

916 UNIT 8: FACTS AND INFORMATION
So the two animals team up. The bird flies over the grasslands, looking for hives. When it spots one, it swoops down and makes noise. The sound tells the ratel to come eat. The ratel uses its sharp claws to tear apart the hive. It gobbles up most of the honey-covered mess. Then the honeyguide bird enjoys finishing off the leftovers.

Clowning Around

Land and sky animals aren’t the only ones that work together. So do some sea animals. One of the oddest couples is made up of the sea anemone and the clownfish. You might think sea anemones look like plants, but they are really hungry animals. They attach themselves to a rock or a coral reef. There they wait for a fish to swim by. Then they sting it with their tentacles. The stunned fish is then pulled into the sea anemone’s hidden mouth. Still, one daring fish makes its home among sea anemones. It’s the clownfish. This orange-and-white fish isn’t kidding around. Its body is shielded by a thick layer of mucus. The slime protects the clownfish from the sea anemone’s dangerous, stinging tentacles. The clownfish is also a good neighbor. It helps the sea anemone by luring in fish. When a hungry fish spots a colorful clownfish, it darts toward it. The clownfish safely swims under the anemone’s tentacles. If the hungry fish follows, it gets stung. Then it becomes the anemone’s next meal. The brave clownfish not only reels in fish food, it chases away fish that might eat an anemone. So the clownfish and anemone help keep each other fed and safe.

A Different Way of Life

All animals want to do one thing—survive in the wild. Some do that by living alone. Others live in flocks, herds, hives, packs, or schools. Some animals, both large and small, know the best way to stay alive is to live with or near other kinds of animals. At first glance, these teammates don’t seem to make sense. If you look more closely, you’ll soon learn that these animals help one another find food, shelter, and safety. They make the most of their various differences. These unlikely partners pair up to get the most out of life.
**Comprehension**

**DIRECTIONS**  *Answer these questions about the article “Odd Couples.”*

1. Which statement best summarizes the information in lines 15–28?
   - A. Some animals set up cleaning stations where they get food from other animals that stop by.
   - B. There isn’t much food in the ocean, so shrimp need to eat fish trash.
   - C. Birds such as plovers have learned from shrimp how to get food out of another animal’s mouth.
   - D. Sometimes, one animal gets food by cleaning another animal, so both animals benefit.

2. Reread lines 30–38. The term “sweet success” in the subheading (line 29) refers to what happens when the
   - A. honeyguide bird finds a beehive
   - B. honeyguide bird makes loud noises to attract the ratel
   - C. honeyguide bird and the ratel work together to get honey
   - D. ratel tears up the beehive and eats most of the honey

3. Which fact in the article does the photograph of the clownfish help you understand?
   - A. Sea anemones look like plants.
   - B. The clownfish is shielded by a layer of mucus.
   - C. A hungry fish gets stung when it darts toward a clownfish.
   - D. The clownfish chases away fish that might eat the anemones.
4. Reread the definitions in the chart. Which animal mentioned in the article has a parasitic relationship with another animal?
   A shrimp
   B tick
   C ratel
   D clownfish

5. According to the article, an unlikely couple can form a relationship that helps both partners. Which two species described in the selection best illustrate that idea?
   A tick and antelope
   B tapeworm and pig
   C trumpetfish and soft coral
   D plover and crocodile

6. Which detail helps you understand the main idea of the article?
   A The honeyguide bird and the ratel both live on grasslands in Africa.
   B Many animals survive in the wild by living together in flocks or herds.
   C Crocodiles have long snouts with sharp teeth that are difficult to clean.
   D The cleaner shrimp enjoys a meal while removing harmful creatures from a fish.

7. Which statement best summarizes lines 61–68?
   A Many animals live together in groups of their own species, such as flocks, herds, or schools.
   B The strongest animals survive in the wild by living alone.
   C Wild animal behavior is difficult to predict and often makes little sense.
   D Animals use different survival strategies, including teaming up with unlikely partners.

8. The relationship between the clownfish and the sea anemone supports the idea that
   A a few animals form partnerships to have fun together
   B in some symbiotic relationships, both animals benefit from forming a partnership
   C animals that form partnerships survive better than animals that get by on their own
   D in some symbiotic relationships, one animal meets its needs but hurts its partner

9. Reread the caption with the antelope photograph. Under which subheading in the article would you add a paragraph about the antelope and the oxpecker bird?
   A Keeping Clean
   B Sweet Success
   C Clowning Around
   D A Different Way of Life

**Written Response**

**SHORT RESPONSE** Write two or three sentences to answer this question.

10. Choose an animal pair from either photograph. Where would you place that pair in the chart: under mutualism, commensalism, or parasitism? Explain your answer.

**EXTENDED RESPONSE** Write a paragraph to answer this question.

11. Summarize the key points presented in the chart. Give one example of each type of symbiotic interaction to support your answer.
Vocabulary

**DIRECTIONS** Use context clues and your knowledge of suffixes to answer the following questions.

1. What is the meaning of the word *symbiotic* as it is used in line 4?
   - A. staying alert to danger
   - B. competing for food
   - C. acting in an aggressive way
   - D. having a close association

2. What is the meaning of the word *stunned* as it is used in line 46?
   - A. confused
   - B. paralyzed
   - C. astonished
   - D. bored

3. What is the meaning of the word *various* as it is used in line 67?
   - A. many
   - B. changing
   - C. extreme
   - D. consistent

4. What is the meaning of the word *edible* as it is used in the caption with the clownfish photograph?
   - A. injured
   - B. hungry
   - C. safe to eat
   - D. pleasant tasting

**DIRECTIONS** Use context clues and your knowledge of base words to answer the following questions.

5. What is the meaning of the word *creatures* in line 20?
   - A. domestic animals
   - B. living organisms
   - C. imaginary beings
   - D. artistic life forms

6. What is the meaning of the word *differences* as it is used in line 68?
   - A. disagreements or arguments
   - B. comparisons
   - C. the ways of being unlike
   - D. unsure reactions

7. What is the meaning of the word *reproduce* as it is used to describe the bee-pollen interaction in the chart?
   - A. do something again
   - B. imitate an action
   - C. begin a process
   - D. generate offspring

8. What is the meaning of the word *predators* as it is used to describe the aphid-ant interaction in the chart?
   - A. organisms that live by hunting or catching others
   - B. animals that lived before humans existed
   - C. those that make their presence known in advance
   - D. groups that help each other survive
Writing & Grammar

DIRECTIONS  Read this passage and answer the questions that follow.

(1) In 1921 Margaret Bourke-White received her first camera. (2) She would go on to become a renowned photojournalist in the next decade. (3) During the Great Depression Bourke-White photographed the South. (4) Her haunting images later appeared in the book *You have seen their Faces*. (5) Bourke-White also photographed Russia during World War II, documenting it in her book *shooting the Russian war*. (6) In the late 1940s Bourke-White spent two years in India. (7) Her photographs from this trip appeared in the book *halfway to Freedom: A Report on the new India*.

1. Choose the correct way to punctuate sentence 1 with a comma.
   A In 1921, Margaret Bourke-White received her first camera.
   B In 1921 Margaret, Bourke-White received her first camera.
   C In 1921 Margaret Bourke-White received, her first camera.
   D In 1921 Margaret Bourke-White received her first, camera.

2. Choose the correct way to punctuate sentence 3 with a comma.
   A During the Great Depression Bourke-White, photographed the South.
   B During the Great Depression Bourke-White photographed, the South.
   C During the Great Depression, Bourke-White photographed the South.
   D During the Great, Depression Bourke-White photographed the South.

3. Choose the correct way to capitalize the title in sentence 4.
   A *You have seen Their Faces*
   B *You Have seen their faces*
   C *You Have Seen their Faces*
   D *You Have Seen Their Faces*

4. Choose the correct way to capitalize the title in sentence 5.
   A *Shooting the Russian war*
   B *Shooting the Russian War*
   C *shooting the Russian War*
   D *Shooting The Russian War*

5. Choose the correct way to punctuate sentence 6 with a comma.
   A In the late 1940s, Bourke-White spent two years in India.
   B In the late 1940s Bourke-White, spent two years in India.
   C In the late 1940s Bourke-White spent two, years in India.
   D In the late 1940s Bourke-White spent two years, in India.

6. Choose the correct way to capitalize the title in sentence 7.
   A *Halfway to Freedom: A Report on the new India*
   B *Halfway To Freedom: A Report On The New India*
   C *Halfway to Freedom: A Report On the New India*
   D *Halfway to Freedom: A Report on the New India*
Ideas for Independent Reading

Which questions from Unit 8 made an impression on you? Continue exploring them with these books.

**What is your dream job?**

**Dare to Dream! 25 Extraordinary Lives**  
*by Sandra McLeod Humphrey*

Some of the world’s most famous athletes, scientists, artists, and politicians had to overcome serious obstacles to achieve success. This book tells the real-life stories of people who beat the odds.

**Come Back to Afghanistan: A California Teenager’s Story**  
*by Said Hyder Akbar and Susan Burton*

After the fall of the Taliban government, Said and his father returned to Afghanistan. Said tells what it was like to be a teenager working to rebuild a country.

**Stonecutter**  
*by Leander Watts*

It’s 1835, and 14-year-old Albion is learning to be a stonecutter. His big break comes when he’s hired to do the stonework at a new estate. When he gets there, he finds a creepy, half-finished mansion. Something isn’t right.

**Why do people seek danger?**

**Mortal Engines**  
*by Philip Reeve*

What could an assassin, a third-class historian, and a rich man’s daughter ever have in common? They are all teenagers who are willing to risk their safety to solve the mystery that threatens to destroy the world.

**Eragon**  
*by Christopher Paolini*

Eragon lives a quiet life on a farm until he finds a dragon’s egg. After it hatches, Eragon’s peaceful childhood comes to a violent end. He realizes it’s his fate to become a dragon rider and join in the war against the evil King Galbatorix.

**The Gadget**  
*by Paul Zindel*

Thirteen-year-old Stephen escapes war-torn London to live with his father, who is a scientist on a secret military base in New Mexico. Stephen is determined to learn all he can about the “gadget” his father is working on, but at what price?

**What does music say about us?**

**The Black Canary**  
*by Jane Louise Curry*

James’s parents think he will become a musician like them, but that is the one thing he knows he doesn’t want. His opinion changes when he finds a portal to another time. He’s stuck in the 1600s, and he can’t go home until he develops his musical gifts.

**Mountain Solo**  
*by Jeanette Ingold*

Tess is a violin prodigy, but after a disastrous concert she vows to give up music. She goes to live with her dad and his new wife in Montana. Can the mystery surrounding a young musician from the pioneer days help her figure out her own truth?

**This Land Was Made for You and Me: The Life and Songs of Woody Guthrie**  
*by Elizabeth Partridge*

Woody Guthrie was a songwriter who traveled the country, singing about people struggling to get by. His own life was difficult, too, but he inspired people from many generations.