

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?

Name	Dream Job	Why?
Kayla	Veterinarian	1. Likes taking care of animals 2. Gets good grades in science 3. Enjoys learning about animals





Bijal P. Trivedi
born 1970

A Love of Science
Bijal Trivedi (bĭj'əl trē-vā'dē) became fascinated with dinosaurs at the age of nine. Soon after, she transferred her interest to the space shuttle and astronomy. From an early age, it was clear that Trivedi's dream job would involve science.

Exciting Places and Discoveries Trivedi studied science in college and earned master's degrees in both biology and science journalism. Because Trivedi didn't want to work in a lab, she became a science writer. She has written for magazines such as *National Geographic*, *Popular Science*, and *Wired*. She says, "Being a science writer is a bit like being Indiana Jones—you get to travel with lots of smart scientists to exciting places and then write stories about their discoveries." Trivedi has won several awards for her journalism.



MORE ABOUT THE AUTHOR
For more on Bijal P. Trivedi, visit the Literature Center at ClassZone.com.

Background

The Amazing Spider-Man In 1962, writer Stan Lee and artist Steve Ditko created the character of Peter Parker, a teenager who gains spider-like powers through the bite of a radioactive spider and becomes Spider-Man. Spider-Man first appeared in an issue of *Amazing Fantasy* by Marvel Comics and then gained a comic book series all his own. *The Amazing Spider-Man* comics have been popular ever since. In the movies about the superhero, CGI, or computer-generated imagery, made it appear that Peter Parker could swing from one tall building to another, stick to walls, and do other incredible feats that only a Spider-Man could do.

ELEMENTS OF NONFICTION: TEXT FEATURES

Nonfiction articles often contain **text features**, design elements that help organize the material and 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.

Recognizing text features can help you find information. As you read "The Spider Man Behind *Spider-Man*," notice how the text features clue you in to the topics and key ideas.

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.

What Steven Kutcher Does	His Training and Background	His <i>Spider-Man</i> Experience

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.

THE SPIDER MAN BEHIND SPIDER-MAN

Bijal P. Trivedi

A SUMMARIZE

What are some of Kutcher's unique skills? Record them in your chart.

B TEXT FEATURES

On the basis of this subheading and what you've read so far, what information do you expect to find in this section?

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. **A**

10 Passion for Bugs **B**

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.

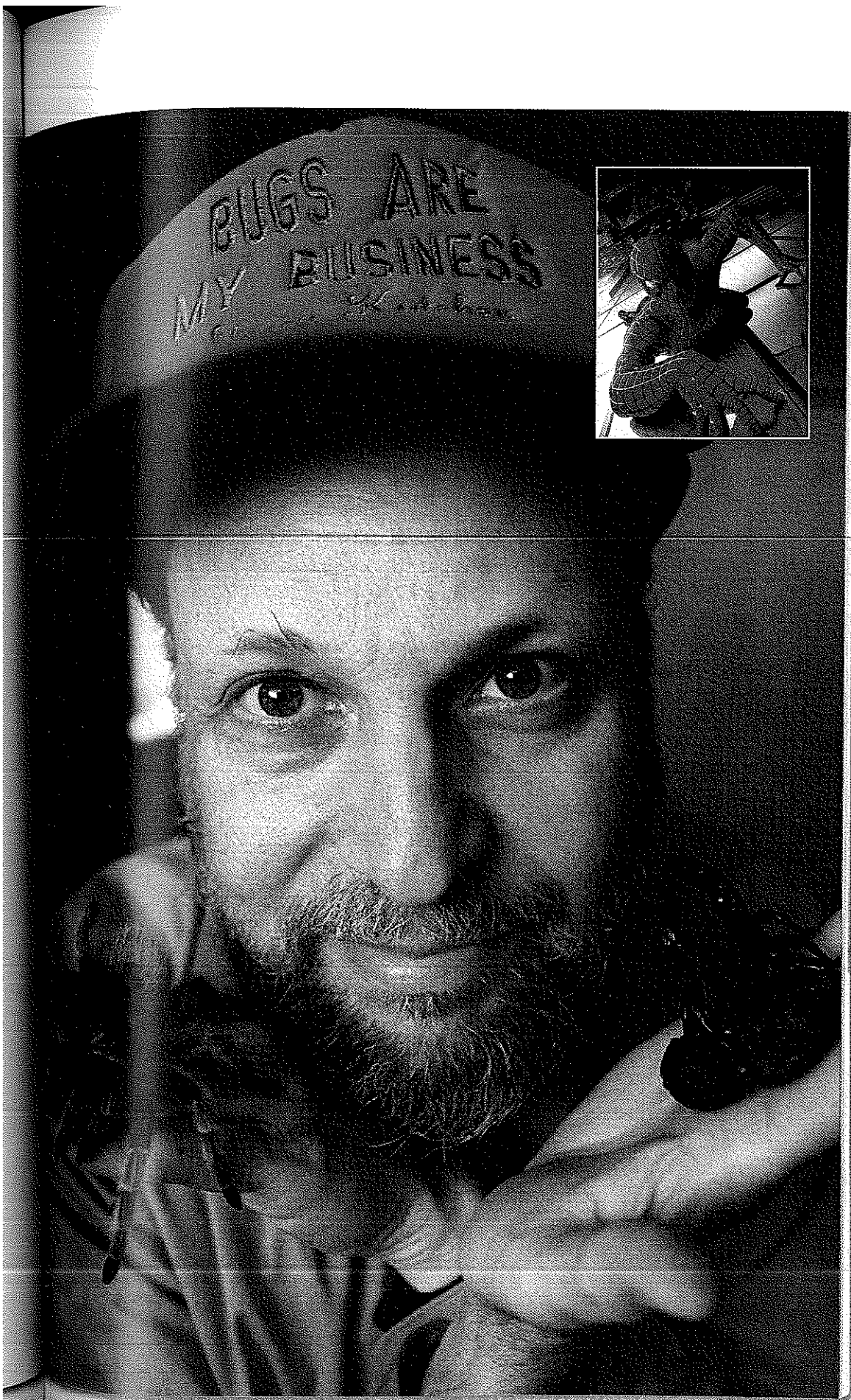
Kutcher followed his passion for bugs and studied entomology in college, receiving his B.S. from the University of California, Davis, and later an M.A. in biology—with an emphasis on entomology,² insect behavior, and ecology³ from the California State University in Long Beach.
20 He had planned to pursue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

1. **Catskills** (kăt'skīlz'): the Catskill Mountain region in New York state. It is a popular vacation area.

2. **entomology** (ĕn'tə-mōl'ə-jē): the study of insects.

3. **ecology** (ĭ-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?

potential (pə-těn'shəl)
n. the ability to grow or develop

engaging (ĕn-gāj'ing) adj.
charming; likeable

perseverance
(pūr'sə-vīr'əns) n. steady persistence in sticking to a course of action

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."

So You Want to Be an Entomologist?

Do you get grossed out when you see a spider or earwig⁵ 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,⁶ 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.

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

6. **pollinators** (pōl'e-nāt'ars): animals that carry pollen from one plant to another, causing the plants to produce fruit.

40 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. **C**

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. **D**

50 "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

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 **E**

Educational Paths

Students interested in a career working with insects should prepare for college by taking a variety of

AVERAGE EARNINGS

Maximum Salary:

\$71,270

Average Salary:

\$47,740

Entry Level Salary:

\$29,260

science classes. Many students get a general undergraduate degree in biology or zoology⁷ 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. **F**

7. zoology (zoo-ol'ə-jē), the study of animals.

C SUMMARIZE

Reread lines 22–42. What are two of the most important pieces of information you get from these paragraphs? Add them to your chart.

rendition (rĕn-dĭsh'ən) *n.*
a pictorial representation;
an interpretation

D TEXT FEATURES

Reread the **subheading** and first sentence of this section. What "perfect match" does the subheading refer to?

E TEXT FEATURES

What does this **bulleted list** help you better understand?

F TEXT FEATURES

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
60 drag line and essentially swing out of the way—all activities that Spider-Man can do.

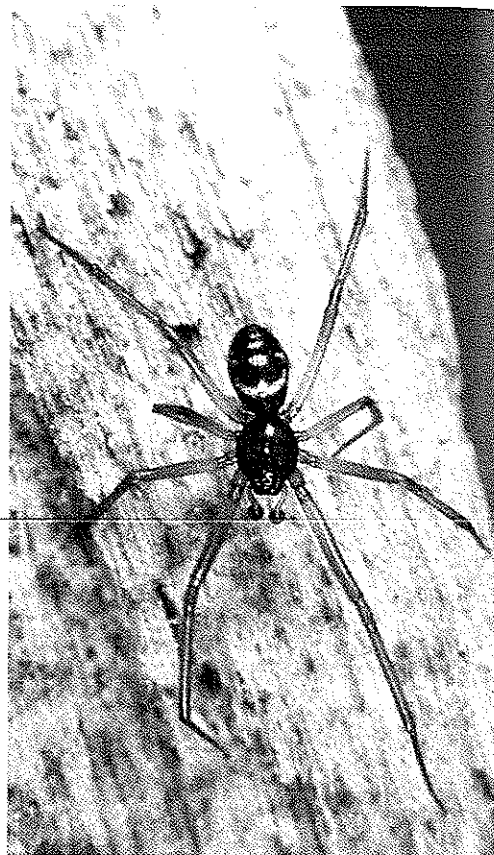
The spider that Raimi selected was *Steatoda grossa*, a brown spider with a smooth, swollen body and thin twiggy legs. The problem was that the color was wrong, “we needed a spider that had metallic blue
70 and a radioactive⁸ red-orange color to it,” says Miller.

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-toxic⁹ paint, design a little harness to hold the spider
80 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
90 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.” **G**



The *Steatoda grossa* spider

G SUMMARIZE

What crucial jobs did Kutcher perform in the making of *Spider-Man*? Add these to the appropriate section of your chart.

8. **radioactive** (rā' dē-ō-āk'tīv): 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.

Information	Text Feature That Helps You Find It
Broad focus of the article	
Kutcher's interest in bugs	
Typical tasks performed by entomologists	
General information about entomologists	

- 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 is complete. Share your findings with your classmate, and then revise your own summary as needed.
- 6. Make Generalizations** A generalization is a broad statement about a group of people or a topic. Based on the information given in the article and the sidebar, what's one generalization you can make about the kind of people who become entomologists?
- 7. Draw Conclusions** Reread lines 11–15 and 35–42. Why do you think Kutcher wants other people to have a better understanding of insects?

Extension and Challenge

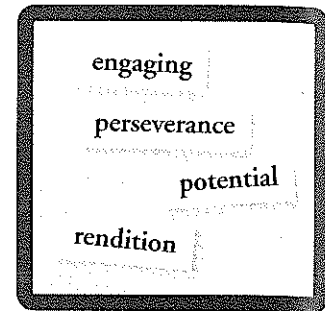
- 8. Big Question Activity** What was your answer to the big question on page 884? Using books or the Internet, find out what skills or education you might need for this **career**. Present this information in a format similar to the sidebar on pages 888–889.
- 9. Creative Project: Music** Alone or in 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?



VOCABULARY PRACTICE

For more practice, go to the **Vocabulary Center** at ClassZone.com.

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**.