A NOTE TO THE TEACHER

These reproducible lesson plans may be used before, during, or after your reading of *Quake!* They were provided to help you extend your language arts lessons into social studies and science, as well as to enhance your students’ understanding of this event.

BACKGROUND FOR THE TEACHER

Earthquakes are caused by movements of the earth’s crustal “tectonic” plates; these movements provide the major force for shaping our planet. Scientists estimate that small tremors happen every day—more than a million of them each year! Although larger quakes occur less frequently, an earthquake of magnitude 6 happens two or three times a week somewhere in the world. A magnitude 7 quake happens more than once a month. Since most of these quakes originate deep under the sea and far from population centers, they are hardly noticed by most people.

But earthquakes have always been part of human experience. In ancient times, people explained these frightening events with myths. Origin myths often involved gods who were punishing mankind for misdeeds. Sometimes these imaginative “explanations” of the origin of earthquakes took the form of legends about animals that lived underground.

A scientific explanation of earthquakes—the science of seismology—began to develop in the 1700s. During the following century, one scientist recognized that earthquakes were actually waves passing through solids. Another scientist built the first electromagnetic...
Quake! Disaster in San Francisco, 1906

seismograph, a device for measuring an earthquake’s magnitude. Since that time, science has made great advances in understanding the cause of earthquakes and measuring their force.

Today, we understand that movements in the tectonic plates of the earth’s crust are the underlying cause of most earthquakes as well as volcanoes.

LEGENDS FROM THE WORLD’S CULTURES:

- Read aloud the earthquake scene in Quake! Disaster in San Francisco, 1906 (pages 23–25).
  Ask students how the earth’s movement is described. “The street heaved and rolled, like the ocean during a storm. It was as though a giant sleeping below the cobblestones had suddenly decided to get up.” Ask if any of the students have been in an earthquake or heard stories from friends or relatives about the experience. What did it feel like? Were they scared?
  Tell students that before the science of seismology, people created myths and legends about why earthquakes happen. In fact, people have always created origin stories in response to unknown forces that threaten death and destruction. Ask students to speculate about why all cultures create such stories to explain natural phenomena.

- Share some of the following earthquake myths and legends with the class:
  - In Greek mythology, the god Atlas held the world on his shoulders. Earthquakes were said to be the result of Atlas shrinking.
  - In ancient Rome, one writer suggested that earthquakes were the way the earth protested destructive mining practices.
  - In ancient Japan said that earthquakes occurred because of the flopping of a giant catfish that lived in the mud inside the earth.
  - One legend from India described seven serpents that took turns holding up the earth; when one serpent passed the burden to another, people on earth felt a jolt.
  - In Siberia, people imagined a god driving a sled that held the earth; whenever the dogs pulling the sled scratched their fleas, the earth shook.
  - In the African country of Mozambique, the earth was considered a living being; earthquakes were the chills and fever whenever this earth being was ill.
  - A New Zealand myth portrayed Mother Earth as a pregnant woman; when her fetus stretched and kicked, earthquakes happened.

- Assign students to work alone or in pairs to go to the library or do an Internet search to find other myths and legends. Let them share their research with the rest of the class. Ask students to consider the following questions as they discuss the myths: Why did different cultures choose different animals to explain the movement caused by an earthquake? Do some of these origin myths offer a more cheerful outlook than others?

- Have students write about and illustrate an origin story. Encourage them to use terms and artistic details that reflect the culture that produced their story. Some students may wish to illustrate their myth or legend as a cartoon strip or write it in the form of a poem or song. Or, after researching stories from various cultures, some students may prefer to create and illustrate their own origin myth.

- After the assignments are completed, display the student writing and art under a sign that reads “When the Earth Shakes … Legends from the World’s Cultures.”

SCIENCE FROM TODAY’S WORLD:

- Read aloud the “Author’s Note” at the end of the novel. Have students try the activities described in the note—make an “earthquake” with their hands, and trace the San Andreas fault line on a map of California. Using the background information in this guide, present the scientific explanation of earthquakes.

- Encourage students to contribute current events to the class study of earthquakes. Tell them to be alert for newspaper clippings or TV reports about current earthquake activity. Suggest that they try a Google search to find websites about the science of earthquakes. (Some helpful websites are listed in “Resources” at the end of this teacher’s guide.) Many of these sites display photographs and interactive diagrams.

- Look for videos about earthquakes in your school or public library. (An exceptionally informative and entertaining presentation is Bill Nye The Science Guy—Earthquakes, 25 minutes long, available from Disney Educational Productions, 1200 Thorndale Ave., Elk Grove Village, IL 60007; 800-295-5010.)

- Display this question on the board or with an overhead projector: “Why does the earth shake?” Have students work in pairs to write paragraphs that answer the question in their own words. Encourage them to make colorful graphs,
diagrams, or drawings to illustrate their ideas. Display the students’ writing and art (as well as news clippings they’ve brought in to share) on a wall under a sign that reads “When the Earth Shakes … Science from Today’s World.”

**DISASTER NEWSPAPER:**

- Read aloud the newspaper scene (on pages 82–83) from *Quake! Disaster in San Francisco, 1906.*
  
  Tell students that this scene is based on a real event: The three city newspapers did combine staffs and issue a joint newspaper containing these headlines!
  
  Ask students why it was important to write and distribute a newspaper in the midst of a disaster—when people were in urgent need of food, shelter, and medical care. (If the students need prompting, read aloud the rumor scene on pages 59–60.)
  
  Why do people circulate rumors and exaggerate bad news during a disaster? (On page 63, Frank Alexander offered one explanation: “Misery loves company, don’t it? Here we are—wonderin’ if anything’s gonna be left of our city after this fire has burned itself out. And people are busy inventin’ stories about other cities in worse shape than us!”)

- Tell students that the class is going to produce disaster newspapers. Assign each student to a group of four or five. Distribute some current newspapers to each group. Tell students to examine these newspapers to make a list of typical sections, such as “editorials,” “features,” “weather,” etc. Put these on the board.
  
  Have each group think of a name and design a masthead for their publication.
  
  Ask students how they could find details about San Francisco during the disaster. Where could they learn about the weather? About orders from the army?
  
  Encourage the groups to come up with creative ways to incorporate art, such as photocopies of actual photos or cartoons, to make their newspapers look authentic and interesting.
  
  Tell the students that they can conduct pretend “on-the-street interviews.” They might base these on eyewitness accounts, or they might make up both questions and answers.
  
  They should attempt to capture varied viewpoints in their interviews. As an example, read aloud the bread line scene (pages 99–101) in *Quake! Disaster in San Francisco, 1906.* How would a Chinese man feel about the distribution of relief supplies in Golden Gate Park, as opposed to an Italian man?
  
  Allow time for research, writing, and artwork.

- After the newspapers are finished, designate class time for a “reading room.” Have students circulate and read the groups’ newspapers. (If several classes are working on this activity, let the students read newspapers produced in the other classes, also.)

- (Optional) Encourage students to notice successful and creative work produced by other groups. List some categories on the board, such as “Best Investigative Reporting,” “Most Persuasive Editorial,” “Most Attractive Masthead.” Have the students nominate candidates for “Pulitzer Prizes” from the disaster newspapers.

**RELATED WEBSITES**

Earthquakes


The Virtual Museum of the City of San Francisco

[www.sfmuseum.org](http://www.sfmuseum.org)
ABOUT THE AUTHOR

Gail Langer Karwoski received her B.A. from the University of Massachusetts at Amherst and her M.A. from the University of Minnesota, later earning her elementary and gifted teaching certificates at the University of Georgia. She has taught elementary, middle, and high school students. Karwoski also co-authored *The Tree That Owns Itself*, a collection of stories from Georgia history. That book won the Storytelling World Award and the 1996 Georgia Authors of the Year for Juvenile Literature. She is also the author of *Surviving Jamestown* and *Quake!*. Karwoski lives in Watkinsville, Georgia.

www.gailkarwoski.com

ABOUT THE ILLUSTRATOR

Robert Papp has produced hundreds of award-winning illustrations for books from many different publishers, from romance novels to young adult books. He lives in Pennsylvania, with his wife, Lisa, who is also an artist.