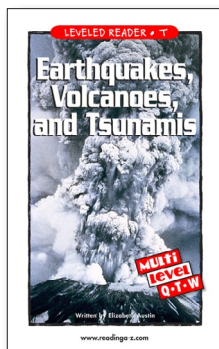


Lesson Plan

Earthquakes, Volcanoes, and Tsunamis



About the Book

Text Type: Nonfiction/Informational Page Count: 22 Word Count: 1,449

Book Summary

Earthquakes, Volcanoes, and Tsunamis teaches readers about some of the most intense and unpredictable forces of nature. It describes the causes of each one and explains the ways in which these three furious forces are connected. Diagrams, photographs, and a map support the text.

Book and lesson also available at Levels Q and W.

About the Lesson

Targeted Reading Strategy

- Ask and answer questions

Objectives

- Ask and answer questions to understand the text
- Correctly distinguish fact or opinion
- Recognize and use commas in a series
- Identify compound words

Materials

Green text indicates resources available on the website

- Book—*Earthquakes, Volcanoes, and Tsunamis* (copy for each student)
- Chalkboard or dry erase board
- [KWL / ask and answer questions, commas in a series, compound words worksheets](#)
- [Discussion cards](#)



Indicates an opportunity for students to mark in the book. (All activities may be demonstrated by projecting the book on interactive whiteboard or completed with paper and pencil if books are reused.)

Vocabulary

- Content words:

Story critical: *earthquakes* (n.), *faults* (n.), *magma* (n.), *plates* (n.), *tsunamis* (n.), *volcanoes* (n.)

Enrichment: *continents* (n.), *erupts* (v.), *landslides* (n.), *mudslide* (n.), *Richter scale* (n.), *violent* (adj.)

Before Reading

Build Background

- Ask students to tell what they already know about earthquakes, volcanoes, and tsunamis. Ask if they have ever heard of the Richter scale and, if so, to explain what it is.
- Create a KWL chart on the board and give students the [KWL / ask-and-answer-questions worksheet](#). Work together to fill in the first section (K) with things students know about earthquakes, volcanoes, and tsunamis. As a group, brainstorm some things students would like to know about the topic and have students fill in the second section (W) of their worksheet. Write several shared ideas on the class chart as examples.

Preview the Book

Introduce the Book

- Give students their copy of the book. Guide them to the front and back covers and read the title. Have students discuss what they see on the covers. Encourage them to offer ideas as to what type of book it is and what it might be about.
- Show students the title page. Discuss the information on the page (title of book, author's name).

Introduce the Reading Strategy: **Ask and answer questions**

- Model asking questions while looking at the table of contents.
Think-aloud: When I'd like to know more than I do about a topic, I can use the section titles in the table of contents to think of questions I'd like to have answered. For example, the second section is titled "Deep Within the Earth." This makes me wonder what is below Earth's surface. (Write this question in the W section of the KWL chart and invite students to add it to their worksheet.)
- Have students share any questions they have based on the table of contents or the covers of the book. Add these to the second section (W).
- Have students preview the rest of the book. Point out the map and diagrams. Draw students' attention to the photographs on pages 14 and 19. Encourage students to use all of these visual elements as ways to think of questions to add to their KWL / ask-and-answer-questions worksheet.
- Show students the glossary. Review or explain that a glossary is an alphabetized list of content words with definitions. Some glossaries, like this one, also give page numbers that tell where in the book readers can find information about the topic. Tell students that they can use the glossary to find answers to some of their questions. For example, they can look at the glossary to find out where in the book they can find out more about landslides. Ask students to tell which page mentions *landslides* (page 13). Ask a volunteer to read the definition for *landslides*.
- As students read, encourage them to use other reading strategies in addition to the targeted strategy presented in this section.

Introduce the Comprehension Skill: **Fact or opinion**

- Review or explain that a *fact* is something that has actually happened and can be proven to be true. An *opinion* is a belief, based on a personal feeling, which cannot be proven. Tell students that it is important for readers to be able to distinguish fact from opinion in order to make a sound judgment about the information they read and hear. Talk about the many different scientific facts that the book might contain and the feelings that the photos and descriptions may elicit.
- Have students turn to page 15, look at the photograph, and read the caption.
- *Think-aloud: When I read the caption under the photograph, I found out that scientists gather information about volcanic eruptions. I know that the information they discover will be based on various tests and will therefore be able to be proven as truth by these tests. As I look at the photograph, I wonder about the people who live near the volcano. I wonder if these people were there when the volcano erupted. I wonder if these people have lived through this type of experience before. I wonder if they were scared or excited. I know that whatever each person felt, each one has his or her own opinion about the volcanic eruption. As a reader, it is important for me to know the difference between the facts of a situation and the opinions of the same situation.*

Introduce the Vocabulary

- As students preview the book, point out any content words that you think may be difficult for them.
- Remind students of the strategies they can use to work out words they don't know. For example, they can use what they know about letter and sound correspondence to figure out the word. They can look for base words, prefixes, and suffixes. They can use context clues within sentences to work out meanings of unfamiliar words.

Lesson Plan *(continued)*

Earthquakes, Volcanoes, and Tsunamis


- Model how to apply word-attack strategies. Point out a word in bold, such as the word *earthquakes* on page 4. Model how to use prior knowledge of each of the separate words to figure out the meaning of the compound word. Ask students to tell the meaning of each separate word (*earth* means *ground*, *quake* means *to shake*) and then put the meanings together (ground shaking). Have students follow along as you read the fourth sentence on the page to confirm the meaning of *earthquake*.
- Remind students to always check whether a word makes sense by rereading the sentence in which it occurs.

Set the Purpose

- Have students read the book to find answers to their questions about earthquakes, volcanoes, and tsunamis.

During Reading

Student Reading

- **Guide the reading:** Have students read to the end of page 10. Have them look for facts about earthquakes, volcanoes, and tsunamis that will answer questions on their KWL / ask-and-answer-questions worksheet. If they finish before everyone else, have them go back and reread.
 - When they have finished reading, have students tell what each section is about and the interesting facts they read so far. Circle any questions on the KWL chart on the board that were answered and add any new questions students raised. Model answering a question on the KWL chart.
Think-aloud: *I wanted to know what is below Earth's surface. On page 6, I read that underneath the plates of rock is a hot liquid called magma. (Write what you learned (L) on the KWL chart on the board and have students fill in their own worksheet.)*
 - Have students share questions they found the answers to while reading. Record their responses in the (L) section of the KWL chart on the board.
 - Have students turn to page 8. Say: *On page 8, the author is explaining that some earthquakes are small and may be harmless or unnoticeable. This is a fact. Scientific tools and witness accounts can prove this right after the time of the earthquake. My opinion is that no earthquake is a small earthquake. Any time the earth moves seems like a big deal to me. What is your opinion of this information?* Ask for volunteers to share their opinion of this section of the book.
 - **Check for understanding:** Have students read pages 11 through 15. Have them write answers they found while reading in the L section of their KWL/ask-and-answer-questions worksheet and additional questions they raised in the W section. Invite them to share the information they learned and the questions they generated as they read this section of the book. Record shared responses on the class KWL chart.
 - Have students turn to page 13 and reread the sixth and seventh sentences (*Clouds of ash and dust rise into the air during volcanic eruptions. The ash falls to the ground like snow.*) Ask students why this information would be considered factual. Ask for volunteers to give their opinion of the information presented.
 - Have students read the remainder of the book. Remind them to look for and write answers to their KWL / ask-and-answer-questions worksheet questions. Encourage them to add new questions they might have to their worksheet as they read.
-  Have students make a question mark in their book beside any word they do not understand or cannot pronounce. Encourage them to use the strategies they have learned to read each word and figure out its meaning.

After Reading

- Ask students what words, if any, they marked in their book. Use this opportunity to model how they can read these words using decoding strategies and context clues.

Reflect on the Reading Strategy


- **Think-aloud:** *I wanted to know what was below Earth's surface. I found out there is a hot rock that melts into a liquid called magma. I also read that the magma is always there, moving the plates above it in three different ways.*
- Ask students to share questions they added to their KWL / ask-and-answer-questions worksheet while reading, and ask them what questions were answered (or not answered) in the text.
- Reinforce that asking questions before and during reading, and looking for the answers while reading, keeps readers interested in the topic. It also encourages them to keep reading to find answers to their questions and helps them understand and remember what they have read.
- Point out to students that all of their questions may not have been answered in this text. Brainstorm other sources they might use to locate additional information to answer their questions.

Reflect on the Comprehension Skill

- **Discussion:** Ask students to reread the last sentence on page 16 (*They are the largest waves in the world.*). Ask: *How do you think the author knows that this is true?* (Scientists have studied and researched tsunamis.) Have students share their opinion of this information. Tell students that surfers are people who live for the next big wave. Ask: *If tsunamis were not deadly, what do you think a surfer's opinion would be of a tsunami?*
- **Independent practice:** Give students copies of the photographs from pages 8 and 20 of the book. Have them write one fact and one opinion about each photograph.
- **Enduring understanding:** *In this book, you read about three unpredictable forces of nature—an earthquake, a volcano, and a tsunami. You learned how they are caused and what happens as a result of them. Now that you know this information, how does it affect you where you live? Do you think these events affect people who do not live directly where the events happen?*

Build Skills

Grammar and Mechanics: Commas in a series

- Review or explain that whenever a list of three or more items is made, a comma must be placed between the items. Without the commas, the sentence would be difficult to read and understand. Listed items can be nouns, verbs, adjectives, or entire phrases or clauses. Remind students that this is only one of the many uses for a comma.
- Write the following sentence on the board: *In an explosive volcanic eruption liquid rock poisonous gases ash and landslides can bury cities.* Ask students to explain why this sentence doesn't make sense (there is no such thing as liquid rock poisonous gases ash, the sentence doesn't make sense). Direct students to page 21. Ask them to identify the location of the commas in the sentence. Ask a volunteer to come to the board and add commas in the correct places, separating the words in a list. Point out that the sentence makes much more sense with the correct punctuation.
- Have students turn to page 8 and ask them to follow along as a volunteer reads the last sentence aloud: *But sometimes the shaking is so strong that buildings crumble, bridges collapse, and large cracks open in the ground over large areas.* Point out the phrases in a list (*buildings crumble, bridges collapse, and large cracks open in the ground over a large area*). Talk about the location of the commas within the list. Point out that the last phrase (*large cracks open in the ground over a large area*) is joined to the list by the word *and* following the comma.
-  **Check for understanding:** Have students turn to page 5. Ask them to find the series of words that is separated by commas (*soil, rock, and water*). Ask them to circle the commas and notice that the last item is added to the list after the word *and*.
- **Independent practice:** Introduce, explain, and have students complete the [commas-in-a-series worksheet](#). Discuss answers aloud after students finish.

Word Work: Compound words

- Review or explain that two words can be combined to form a new word, called a *compound word*.
- Write the words *landslide*, *world-famous*, and *North America* on the board. Tell students that these are examples of different types of compound words, each of which has two parts that make up one word meaning. Some compound words are separated by hyphens, some are joined, and some are separate.
- Ask students to identify the two words that make up each compound word. Write them on the board next to the corresponding compound word (*land* and *slide*, *world* and *famous*, *North* and *America*).
- Discuss how knowing the meanings of the words *land* and *slide* can help students understand the meaning of *landslide*. Remind students that this is a good strategy they can use to understand the meanings of unfamiliar compound words.
- Have students turn to page 14 and find two compound words (*dirt-filled* and *mudslide*). Write the words on the board with the two parts that make up each compound word (*dirt* and *filled*, *mud* and *slide*). Discuss the meanings of the word parts and the compound words.



Check for understanding: Have students turn to page 10 and find three compound words (Richter Scale, earthquake, landslides). Have them circle the words and write the term *compound word* in the margin to help them remember the terminology.

- **Independent practice:** Introduce, explain, and have students complete the **compound words worksheet**. Discuss their answers aloud after students finish.

Build Fluency
Independent Reading

- Invite students to read their book independently. Additionally, invite partners to take turns reading parts of the book to each other.

Home Connection

- Give students their book to take home to read with parents, caregivers, siblings, or friends. Have students share their KWL / ask-and-answer-questions worksheet with someone at home, explaining how it works and what they learned.

Extend the Reading
Informational Writing Connection

Provide print and Internet resources for groups of students to research a powerful earthquake, volcano, or tsunami. Have each group choose an event and write a newspaper article that includes answers to the four *W* questions: What, When, Where, and Why. Encourage students to include interesting information they find about humans and other survivors. Have each group prepare an oral and visual report to present along with their article.

Visit **Writing A–Z** for a lesson and leveled materials on expository writing.

Science Connection

Learn more about how earthquakes, volcanoes, and tsunamis change the geographical appearance of Earth. Take a trip to the local library to find books on geography and the natural consequences of major natural events such as these.

Skill Review

Discussion cards covering comprehension skills and strategies not explicitly taught with the book are provided as an extension activity. The following is a list of some ways these cards can be used with students:

- Use as discussion starters for literature circles.
- Have students choose one or more cards and write a response, either as an essay or as a journal entry.
- Distribute before reading the book and have students use one of the questions as a purpose for reading.
- Conduct a class discussion as a review before the book quiz.

Assessment**Monitor students to determine if they can:**

- consistently ask relevant questions about a topic prior to and during reading and worksheet; locate answers to the questions in the text
- correctly distinguish fact and opinion
- correctly recognize and use commas in a series on worksheet
- accurately identify compound words and their word parts on worksheet

Comprehension Checks

- **Book Quiz**
- **Retelling Rubric**