



About the Book

Text Type: Nonfiction/Informational Page Count: 22 Word Count: 1,933

Book Summary

Plate Tectonics explains how and why Earth has changed over millions of years. Written in understandable terms and filled with interesting facts about geological events, this book helps readers appreciate our remarkable planet.

About the Lesson

Targeted Reading Strategy

- Ask and answer questions

Objectives

- Use the reading strategy of asking and answering questions to understand text
- Identify main ideas and supporting details
- Identify and use prepositions and prepositional phrases
- Locate synonyms and antonyms in a thesaurus

Materials

Green text indicates resources available on the website

- Book—*Plate Tectonics* (copy for each student)
- Chalkboard or dry erase board
- [Details, prepositions, synonyms and antonyms worksheets](#)
- [Discussion cards](#)



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

Vocabulary

*Bold vocabulary words also appear in a pre-made lesson for this title on [VocabularyA-Z.com](#).

Content words:

Story critical: *crust* (n.), *magma* (n.), *mantle* (n.), *plate tectonics* (n.), *plates* (n.), *trenches* (n.)

Enrichment: *continental drift* (n.), *continental plates* (n.), *core* (n.), *fault* (n.), *global mid-ocean ridge* (n.), *lava* (n.), *oceanic plates* (n.), *Pangaea* (n.), *Ring of Fire* (n.), *volcano* (n.)

Before Reading

Build Background

- Ask students if they have heard someone say they could dig a hole through Earth to reach China. Have students tell what they know about the inside of Earth and why it is impossible to dig a hole through Earth.
- Create a KWL chart on the board. Review or explain that the *K* stands for knowledge we know, the *W* stands for questions we want to know, and the *L* stands for the knowledge we learned. Fill in the first column (*K*) with information students already know about Earth's land masses. Ask if they think the continents were always in the same locations as they are today. Have students tell what types of natural forces might cause the land masses to move.

- Ask students what they want to learn about Earth's land masses. Write their questions in the *W* column on the KWL chart.

Preview the Book

Introduce the Book

- Give students a copy of the book and have them preview the front and back covers. Have students discuss what they see on the covers and offer ideas as to what kind of book *Plate Tectonics* might be. Have them predict what they might learn about Earth.
- Show students the title page and read the title. Talk about the information on the page (title, author's name, illustrator's name).

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

- Tell students that asking questions about a topic before reading and looking for the answers as they read will help them understand and remember what they read.
- Direct students to the table of contents. Remind students that the table of contents provides an overview of what the book is about. Each section heading provides an idea of what they will read in the book. After reviewing the table of contents, model using it as a way to think of questions.
- **Think-aloud:** *The title of the first section is "The Earth's Structure." I know that the surface layer of Earth is called the crust and that one of the layers is called the mantle, but I'm not sure what the other layers are called. I'll have to read the book to find out. I'll write that question under W on the KWL chart.*
- Have students look at the other section titles. Write any questions they have based on the covers and table of contents in the *W* column of the KWL chart. Remind students that no question is ever inappropriate if they truly do not know the answer.
- Have students preview the rest of the book, looking at maps, diagrams, photos, and captions. Point out the "Do You Know?" boxes containing more information. Show students pages 19 and 20 titled "Explore More." Explain that this section provides additional resources to learn more about plate tectonics. Point out the glossary on pages 21 and 22. Add any additional questions students may have about the book to the KWL chart.
- As students read, encourage them to use other reading strategies in addition to the targeted strategy presented in this section.

Introduce the Vocabulary

- 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 a word. They can look for base words within words, prefixes, and suffixes. They can use the context to work out meanings of unfamiliar words.
- Model how to apply word-attack strategies. For example, have students find the bold word *crust* on page 6. Model how students can use context clues in the sentence to understand the meaning of the word. Explain that in informational books like this one, unfamiliar terms are usually explained within the sentence or paragraph in which they are found. Remind students to check the glossary or a dictionary to confirm the meaning.
- Remind students that they should check whether a word makes sense by rereading the sentence.
- Have students turn to the glossary on pages 21 and 22. Have them read the glossary words and their definitions aloud. Next, have students turn to the pages indicated and read each glossary word in the sentence in which it appears. Use context clues in the surrounding sentences to work out unfamiliar vocabulary words as necessary.

Set the Purpose

- Have students read the book to find answers to the questions on the KWL chart.

During Reading

Student Reading

- **Guide the reading:** Have students read to the end of page 7. Tell them to underline the information that answers any of the questions on the KWL chart. Tell students to go back and reread the sections if they finish before everyone else.
- Model answering a question on the KWL chart.
Think-aloud: *I found the answer to the first question on the KWL chart in the diagram on page 6. It labels the layers of Earth. The text describes each layer. I wonder in which layer volcanoes originate. I'll write that question under W.*
- Ask students what questions they want added to the KWL chart and write them on the board.
- Have students read the remainder of the book, looking for answers to the questions 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

- Reinforce that asking questions before and during reading, and looking for the answers while reading, keeps students interested in the topic. It also encourages them to keep reading to find the answers to their questions and helps them understand and remember what they have read.
- Review the KWL chart with students. Circle questions that were answered and write the information students provide under L.

Teach the Comprehension Skill: **Main idea and details**

- **Discussion:** Have students tell what they learned about plate tectonics. Have them look at the second paragraph on page 9. Ask if they underlined the fifth sentence, which answers the question *In which layer do volcanoes originate?* Read the sentence aloud.
- **Introduce and model:** Review or explain that many books are mainly about one thing, or topic. Show students the book and ask them what the topic of this book is (plate tectonics). Remind students that it is easy to tell what a book like this one is about because the topic is the title. In other books, it may be necessary to look at the table of contents or to read the book to identify the topic.
- Explain that main ideas are the most important points the writer wants the reader to know. Remind students that the headings of sections or sections often give clues to the main ideas. Direct students to the table of contents on page 3. Explain that each section contains details about plate tectonics. Have students find the section titled "The Earth's Fragile Crust." Explain that this section tells about the fragility of the top layer of Earth because of the mantle beneath.
- **Check for understanding:** Write *Earth has a fragile crust* on the board and explain that this is the main idea of the section. Each paragraph gives details about what causes the crust to be fragile. Ask students to tell the details that support the main idea. Write these on the board. (May include: the mantle is quite hot, so it is not a solid; the mantle is between the solid crust and the spinning liquid outer core; stress and pressure can cause large slabs of the crust to move, the pressure can become so great that magma pushes through the crust to form a volcano.) Remind students that finding details will help them understand and remember what they read.
- **Independent practice:** Give students the **details worksheet**. Tell them to find the details that answer each question. Explain that organizing the information will help them remember what they read as they write each answer in a summary form. Discuss their responses.

Build Skills

Grammar and Mechanics: Prepositions

- Explain that writers choose their words very carefully when writing a story or an informational book such as *Plate Tectonics*. Tell students that this author used many prepositional phrases to make his writing more interesting. Review or explain that a *preposition* is a word that shows the relationship of a noun or a pronoun to another word in the sentence. Prepositions may include (write these words on the board): *in, into, at, down, to, by, behind, beside, of, with, for, through, in front of, under, and until*. Tell students that there are many more prepositions and that these will be listed on the worksheet.
- Explain that a prepositional phrase can be made up of many words but usually contains a preposition followed by an adjective, followed by a pronoun or noun (called the object of the preposition). This phrase will modify an adjective or an adverb, locate something in time and space, modify (further explain) a noun, or tell when, where, or under what conditions something happened.
- Write the following sentence on the board: *Earth's crust can break when under pressure*. Ask students to identify the subject and verb in the sentence (*crust, can break*). Review that the word *when* is an adverb telling what time something happens. Underline the words *under great pressure* and circle the word *under*. Explain that the preposition is *under* and the prepositional phrase is *under great pressure*. Further explain that this phrase modifies the adverb *when*.
- Write the following sentence on the board: *He heats the metal until it turns red*. Ask students to identify the subject and verb in the sentence (*he, heats*). Ask a student to tell which word is a preposition (*until*), circle it, and underline the prepositional phrase (*until it turns red*). Ask students what the phrase *until it turns red* modifies (the noun *metal*).
- **Check for understanding:** Give students the [prepositions worksheet](#). Do the first sentence together (*in 1910* tells when something happened). Discuss their responses.
- **Independent practice:** Tell students to complete the rest of the worksheet. Discuss their responses and have volunteers read their sentences on the back of the worksheet.

Word Work: Synonyms and antonyms

- Write the word *thick* on the board. Ask students to suggest a word that means almost the same thing (*wide, chunky*). Review or explain that a word that means the same or almost the same as another word is called a *synonym*. Ask students to suggest a word that means the opposite of *thick* (*thin, slim*). Review or explain that a word that means the opposite of another word is called an *antonym*.
- **Check for understanding:** Have students turn to the first paragraph on page 8 to find the words that tell what the temperature of the mantle is like (*very hot*). Ask students to suggest a synonym (*sizzling, scorching*). Ask students to suggest an antonym (*cold, freezing*).
- Show students a thesaurus. Look up the entry word *thick* and show how a thesaurus is used. Give students a thesaurus. Ask them to find the word *hot* and have them confirm the synonyms suggested. If the thesaurus lists antonyms, have them find antonyms for the word *hot*.
- **Independent practice:** Have students use a thesaurus to complete the [synonyms and antonyms worksheet](#). Discuss their responses.

Build Fluency

Independent Reading

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

Home Connection

- Give students their books to take home to read with parents, caregivers, siblings, or friends.

Extend the Reading

Writing and Art Connection

Tell students to turn to pages 19 and 20. Have groups of students use Internet and library resources to further research topics from the book. Have groups write a report on their chosen topic. Have them create and illustrate posters. Have students prepare an oral report and present their findings to the class.

Science Connection

Provide hard-boiled eggs for a hands-on experiment regarding Earth's layers. Before giving students the eggs, reread the last paragraph on page 7 with students. Discuss each layer as it is removed. Be certain to point out that unlike the egg yolk, Earth's core has two layers. Pass the salt!

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.
- Cut apart and use the cards as game cards with a board game.
- Conduct a class discussion as a review before the book quiz.

Assessment

Monitor students to determine if they can:

- ask and find the answers to questions in text as they read
- identify main ideas and supporting details in text
- identify prepositions and prepositional phrases in text and on a worksheet
- use a thesaurus to find synonyms and antonyms for content words

Comprehension Checks

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