

Section 8.1

What Is Plate Tectonics?

Before you read:

Read the key idea of this section. Try to explain the key idea in your own words. If you have trouble understanding the key idea, write down any questions you have.

While you read:

Clarify your understanding of the key idea by answering the questions you wrote in your science notebook, or by revising your explanation of the key idea.

After you read:

Complete the table below by describing evidence that has been used to support the continental drift hypothesis and the theory of plate tectonics.

KEY IDEA

The lithosphere is broken into rigid plates that move in relationship to one another on the asthenosphere.

KEY VOCABULARY

- plate tectonics
- continental drift
- mid-ocean ridge

Hypothesis or Theory	Supporting Evidence
Continental drift hypothesis	
Theory of plate tectonics	

Section 8.2

Types of Plate Boundaries

Before you read:

Using your knowledge of basic vocabulary words such as *trench* and *collision* and your knowledge of word parts such as *con-*, *sub-*, *trans-*, and *form*, speculate with a partner about the meanings of the key vocabulary terms and how they might relate to plate boundaries.

While you read:

In your science notebook, write a definition of each key vocabulary term. Use a dictionary to provide a vocabulary strategy similar the one on page 177 for the terms *divergent*, *convergent*, *collision*, and *transform*.

After you read:

Complete the graphic organizers to explain the processes that take place at a subduction boundary and a divergent boundary.

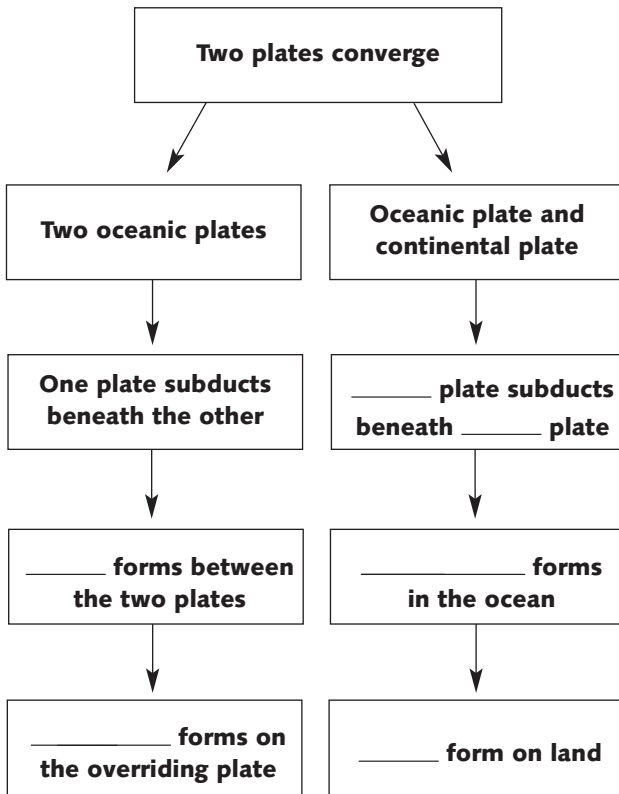
KEY IDEA

Boundaries between plates are described generally as divergent, convergent, or transform, depending on how the plates move relative to each other.

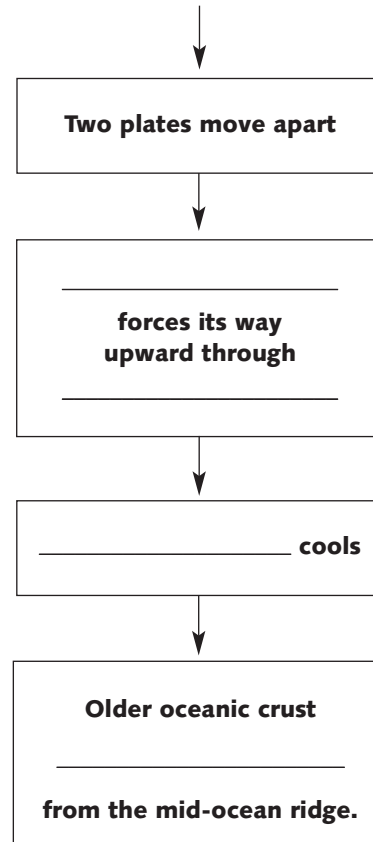
KEY VOCABULARY

- divergent boundary
- rift valley
- rift
- convergent boundary
- subduction boundary
- deep-sea trench
- collision boundary
- transform boundary

1 Subduction Boundary



2 Divergent Boundary



Section 8.3

Causes of Plate Movement

Before you read:

Recall from Chapter 4 what you know about Earth's inner layers. In particular, review the table on page 73 that gives characteristics of Earth's layers.

While you read:

As you read about the mantle convection hypothesis, refer to the diagram on page 180. When you read about the ridge push and slab pull hypotheses, refer to the diagram on pages 176–177. Use both the text and these diagrams to build a clear understanding of these hypotheses in your mind.

After you read:

Complete the table by listing three hypothetical causes for plate movements. Also, identify the type of boundary with which each type of boundary is associated. Then put a plus sign (+) next to the factor that is believed to have the most influence on plate movement. Put a minus sign (–) next to the factor that fails to account for the force needed to move lithospheric plates.

Cause of plate movement	Type of boundary
1.	
2.	
3.	

KEY IDEA

Three hypotheses describe how mantle convection, ridge push, and slab pull may cause plate movements.

KEY VOCABULARY

- mantle convection
- ridge push
- slab pull

Section 8.4

Plate Movement and Continental Growth

Before you read:

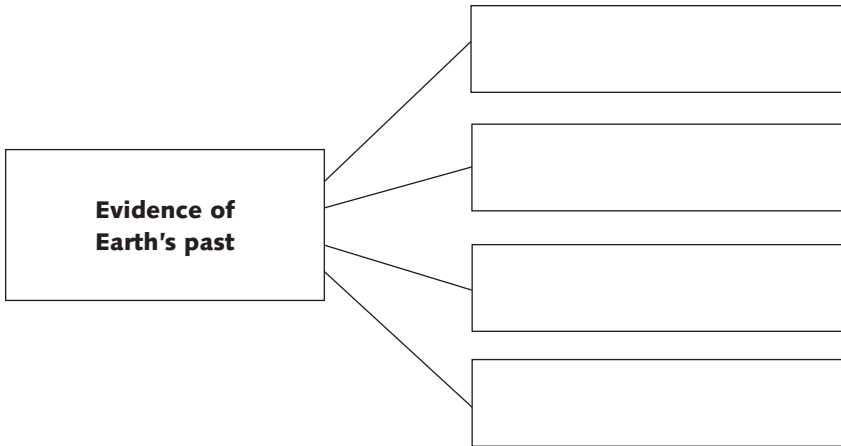
Given what you already know about plate movements, hypothesize about how plate movements might have led to the growth of the continents. Write your hypotheses in your science notebook.

While you read:

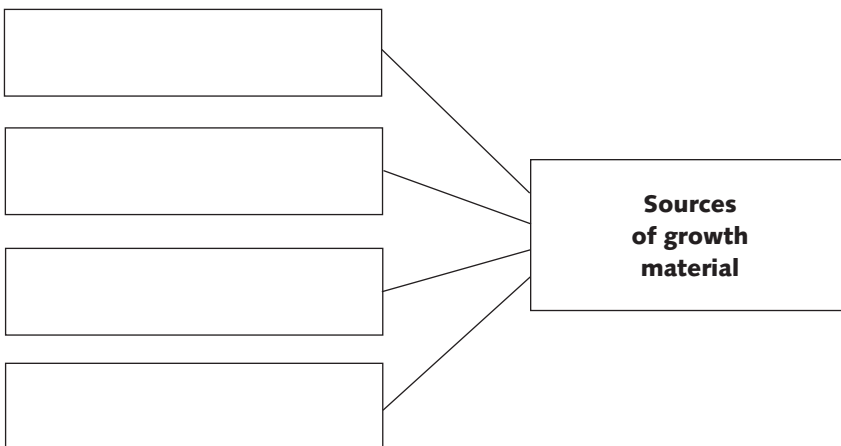
Mentally rephrase each subhead in this section as a question. For example, the first subhead could become “How do scientists reconstruct the past?” Then use the text to answer the question. Write your questions and answers in your science notebook.

After you read:

- 1 Complete the graphic organizer by giving examples of evidence that geologists use to reconstruct Earth’s past.



- 2 Complete the graphic organizer by giving sources of growth material for the continents.



KEY IDEA

Plate movements have caused Earth's continents to change their positions on the globe over time. New material has been added to the continents as a result of plate tectonics.

KEY VOCABULARY

- Pangaea
- craton
- terrane