

Physical
Earth and Space
Life

LESSON 56

Identifying tectonic plates and their movements

Lesson Preparation

Program Materials

- Lesson Chart 56
- Children’s Booklet E *Exploring the Earth’s Structure* (pp. 10–11)
- Lesson Review 56

Teacher Collected Materials

- Blue, red, green, brown, orange, yellow, and purple colored pencils (1 set per child)
- Blue, red, green, brown, orange, yellow, and purple markers

- **Note:** Lesson Chart 56 will also be used in Lesson 58.

The Lesson

- Post Lesson Chart 56.

“In our last science lesson, we learned ways tectonic plates move.”

“What is one way tectonic plates move?” *collide, separate, or slide*

“Let’s use our hands to show tectonic plates (colliding, separating, or sliding).”

- Demonstrate the movement with your hands.

“Use your hands to show plates (colliding, separating, or sliding).”

- Repeat for the other two movements.

“What three things may occur when tectonic plates collide or separate?”
mountains form, earthquakes occur, volcanoes erupt

“What happens when tectonic plates slide?” *earthquakes occur*

“Today you will learn the names of the largest tectonic plates and some of the smaller plates.”

“You will also learn how these plates move.”

“Let’s look at a diagram of tectonic plates.”

“Take out your geology booklet and blue, red, green, brown, orange, yellow, and purple colored pencils.”

“If you do not have one of these colors, you will need to share with a partner.”

“Open your booklet to pages 10 and 11.”

- Show children Lesson Chart 56.

“My chart looks like the map in your booklet.”

“This map shows the large tectonic plates and some of the smaller ones.”

“The heavy dotted lines on the map that look like a zipper show the approximate boundaries, or edges, of these tectonic plates.”

“Point to the words ‘North American Plate.’”

- Point to the words “North American Plate” on the lesson chart.

“Why do you think it is called this?” *The continent of North America is on this plate.*

“I will use my finger to trace the boundary of the North American Plate.”

- Demonstrate on the lesson chart.

“Use your finger to trace the zipper-like boundary of the North American Plate.”

“Now I will use a blue marker to trace along the inside edge of the boundary of the North American Plate.”

“Watch what I do.”

- Use a blue marker to trace the inside edge of the boundary of the North American Plate on the lesson chart. Underline the words “North American Plate.”

“Use your blue colored pencil to underline the words ‘North American Plate.’”

“Then use your blue colored pencil to trace along the inside edge of the boundary of the North American Plate.”

- Allow time for the children to do this.
- Repeat using the colors listed for the following plates:

South American Plate—red

African Plate—green

Indo-Australian Plate—brown

Eurasian Plate—orange
 Pacific Plate—yellow
 Antarctic Plate—purple

“These are the seven major tectonic plates.”

“Look at the key next to the compass rose.”

“What do the arrows pointing toward one another show?” *Plates move toward one another and collide.*

- Repeat with the other symbols in the key.

“Point to where the North American and Eurasian plates meet.”

- Demonstrate on the lesson chart.

“You should be pointing to the arrows where the blue and orange lines are next to one another.”

“The arrows along the boundary show the direction the plates are moving.”

“Do you think the plates are separating or colliding?” *separating*

“Why?” *The arrows are pointing apart.*

“If the arrows are pointing away from one another, the plates are separating.”

“Point to the African Plate.”

“What is the name of a plate that is separating from the African Plate?”
South American, North America, Antarctic, or Indo-Australian

- Repeat until all four are named.

“Point to the small Nazca (nāz'kə) Plate to the left of South America.”

“Which large plate is colliding with the smaller Nazca Plate?” *South American Plate*

“How do you know?” *The arrows are pointing toward one another.*

“The colliding of these plates created the Andes (än'dēz) Mountains on the west coast of South America.”

“There are many volcanoes in the Andes Mountains.”

“It took millions of years for these mountains to form, and they are still changing.”

“Point to the Eurasian Plate with the index finger of one hand.”

“Point to the Indo-Australian Plate with the index finger of your other hand.”

“Move your fingers to the arrows that show that the Eurasian and the Indo-Australian Plates are colliding.”

“The colliding of these plates created the Himalayan (hĭm'ə-lā'ən) Mountains, which contain the tallest mountains on Earth.”

“Mount Everest, the tallest mountain on Earth, is growing taller by about ½ centimeter a year because of the colliding plates.”

- **Teacher Note:** The volcanic mountain Mauna Kea (mou'nə kā'ə) in Hawaii is actually taller than Everest, but only a small part of the mountain is visible above the water and, consequently, it is not commonly referred to as taller than Everest.

“Point to the West Coast of North America.”

“What two plates meet here?” *North American and Pacific*

“What do you notice about the arrows?” *They point in opposite directions.*

“These plates are sliding past one another in opposite directions.”

“California is located on this plate boundary.”

“What happens in California when these plates slide?” *Earthquakes occur.*

- **Teacher Note:** Earthquakes and volcanoes also occur when the Juan de Fuca and the North American Plates collide, and when the Cocos and the Caribbean Plates collide.

“Almost all earthquakes and volcanoes occur along plate boundaries.”

“Who would like to share something you learned in today’s science lesson?”

- Allow time for the children to share.

“In our next science lesson, we will learn more about earthquakes.”

- **Reminder:** Save Lesson Chart 56 for use in Lesson 58.

Lesson Review

- **Note:** Lesson reviews may be completed on the same day the lesson is taught or on the following day.
- Distribute Lesson Review 56.

- Read the directions and questions to the children.
- Discuss the “Use What You Have Learned” question with the children.
- Allow children to use their geology booklets to answer the questions.
- Circulate and assist children as they work. If children have difficulty reading, pair children and allow them to work with a partner to complete the lesson review.
- When all children finish, review the answers with the children.
- Collect the children’s papers. Record on the Lesson Review Recording Form the completion of the lesson reviews. Return the papers to the children to take home or store in a science folder.

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Name _____ *Answer Key* _____

Date _____

Lesson Review 56
Science 3 Lesson 56

How the Earth’s Tectonic Plates Move

Use the map on pp. 10-11 in your geology booklet to answer the questions.

- What are two tectonic plates that separate in the middle of the Atlantic Ocean? (Use map on pp. 4-5 to find the Atlantic Ocean.)

South American Plate and African Plate

North American Plate and African Plate,
or North American Plate and Eurasian Plate

- Circle the plate that slides along the North American Plate.
 Nazca Plate Philippine Plate Pacific Plate

Look Back

- What are the three ways tectonic plates move? (pp. 8-9)
 _____ *collide* _____ *separate* _____ *slide* _____
- Put an X on the answer that is **not** one of the five oceans. (pp. 4-5)
 Indian Ocean Atlantic Ocean ~~Northern Ocean~~ Arctic Ocean
- Put an X on the answer that is **not** one of the layers of Earth. (p. 7)
~~soil~~ mantle outer core inner core

Use What You Have Learned

- There are more earthquakes along the west coast of the United States than in any other part of the United States. Why do you think this happens?

Accept reasonable answers.

Possible answer: The North American Plate and the Pacific Plate meet along the west coast. They slide causing earthquakes.

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