

Lesson 1.3: Exploring Earth's Plates

Have you ever wondered what Earth is like under the ocean water? Under the soil, trees, and buildings you see around you? In today's lesson, you will find out more about Earth's outer layer and what this rocky layer is like.

Unit Question

- Why are fossils of species that once lived together found in different locations on Earth now?

Chapter 1 Question

- What is the land like where *Mesosaurus* fossils are found?

Key Concepts

- Earth's outer layer is made of hard, solid rock.

Vocabulary

- cross section
- earthquake
- outer layer
- pattern
- plate
- plate boundary

Digital Tools

- *Plate Motion* Simulation

Name: _____

Date: _____

Warm-Up

Exploring the *Plate Motion Simulation*

Talk with your partner as you explore the *Plate Motion Simulation*. Share what you both notice.

- What did you notice about what you can change in the Sim?
- What questions do you have about the Sim?

Exploring Earth's Outer Layer

Exploring the Cross Section of Earth's Outer Layer

In the video, you learned more about Earth's outer layer. Throughout this unit, we will be using the *Plate Motion* Sim to learn about Earth's outer layer. What does the cross section in the Sim show us about Earth's outer layer that is not visible in the Map View or in the video?

Work with your partner to do the following:

1. Open the *Plate Motion* Sim.
2. Select Region 2. Use the Add Rock tool to add continents to the map.
3. Press SET BOUNDARY to select a boundary type. You can return to Build to see what happens when you select a different boundary type after you make your observations.
4. Press RUN and observe how the Cross-Section View changes as the Sim runs. You may want to press the Reset button in the top right corner to replay the Sim.
5. As you explore the Sim, answer the discussion questions below with your partner.

Discussion Questions

- What can you see in both the Map View and the Cross-Section View?
- What can you see in the Cross-Section View that you can't see in the Map View?
- After looking at the Sim and the video, how would you describe Earth's outer layer?

Name: _____

Date: _____

Analyzing Maps

Transparency Activity, Part 1: Plate Boundary Map

To prepare your transparency for gathering evidence about plate boundaries:

1. Place your blank transparency on top of the Plate Boundary Map and align the edges. Using the red marker, write “top” at the top of the transparency.
2. With the transparency on top of the map, use the red marker to trace the boxes around Areas A, B, C, and D. Label each Area.
3. Use the red marker to trace any plate boundary lines that are inside the boxes for Areas A, B, C, and D.

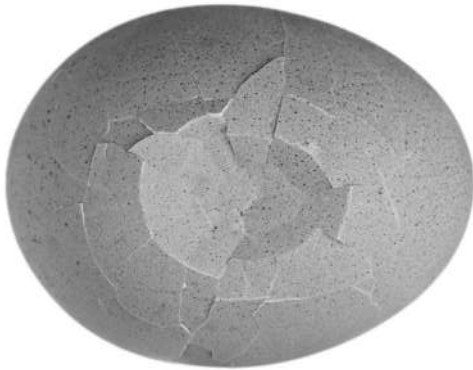
Transparency Activity, Part 2: Earthquake Map

To gather evidence about earthquakes in Areas A, B, C, and D:

1. Place your transparency (with the Plate Boundary Map data you added) on top of the Earthquake Map. Make sure the top of the transparency aligns with the top of the Earthquake Map.
2. Observe what appears inside the boxes you drew for Areas A, B, C, and D. Tell your partner what you notice.
3. Use the black marker to draw a dot on your transparency for each earthquake in Areas A, B, C, and D.

Homework: Modeling Earth's Outer Layer

Earth scientists often use models to explain different things in the natural world that are either too large or take too much time to observe. One model of Earth's outer layer is the shell of a cracked hard-boiled egg, such as the one shown in the photo below.



shell of a cracked hard-boiled egg

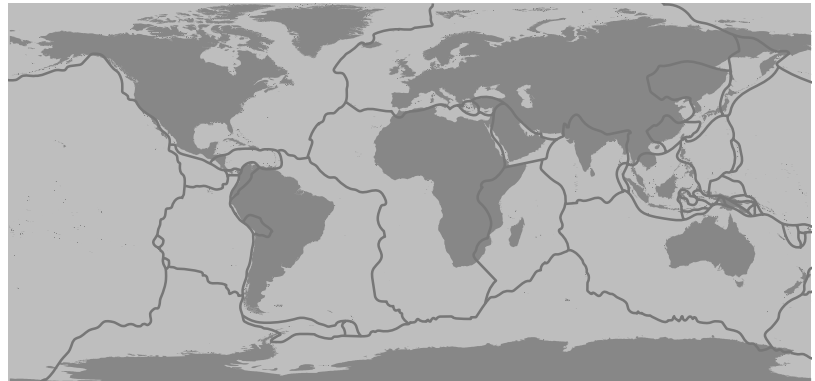


plate boundaries on Earth

How is Earth's outer layer similar to a cracked hard-boiled egg?

How is Earth's outer layer different from a cracked hard-boiled egg?

Challenge: Make another comparison.

Earth's outer layer is like _____ because . . .
