Journey Below Ground

Read evidence about Earth's layers and what each contains.

E.3.7B.1 "Obtain and evaluate scientific information (e.g., using technology) to describe the four major layers of Earth and the varying compositions of each layer."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Number the four layer names from 1 to 4, starting at Earth's surface. Underline what each layer is made of, and circle one clue scientists use to learn about a deep layer.

What Is Under Our Feet?

1. Imagine digging beneath a schoolyard. You would start in the crust, Earth's thin outer layer. The crust is solid rock. Some of that rock forms land, and some lies under the ocean. Below it is the mantle, a much thicker layer made mostly of hot, solid rock. Mantle rock can move very slowly over a long time, even though it is not liquid.

2. Deep below the mantle is the outer core. It is made mostly of liquid iron and nickel, which are metals. Farther in is the inner core, Earth's center. It is made mostly of iron and nickel, too, but it is solid. The two core layers contain similar materials, yet they are not in the same state. One flows as a liquid, and the other stays solid.

3. No one has dug a hole all the way to the core. To learn about it, scientists use machines to record waves made by earthquakes. The waves travel through Earth's layers. Some kinds of waves cannot pass through liquids. When those waves stop at the outer core, scientists have evidence that it is liquid. They compare records from many earthquakes instead of relying on one guess.

2 ANSWER WITH EVIDENCE

Use the passage

1. What are the crust and mantle made of? How is the mantle's rock different?

2. How are the materials in the outer and inner cores alike? How are the layers different?

3. How do scientists get information about a layer they cannot reach by digging?

4. A student says, "The mantle must be liquid because it moves." What information in the passage shows why that idea is incorrect?

3 YOUR TURN

Your own words

A museum sign says, "Everything below Earth's crust is liquid metal." Write three sentences that correct the sign using information about the mantle and both core layers. Include one reason scientists can trust what they know about a deep layer.

ANSWER KEY

Journey Below Ground

GRADE 3 · E.3.7B.1

PART 1 · READ AND MARK

Number the four layer names from 1 to 4, starting at Earth's surface. Underline what each layer is made of, and circle one clue scientists use to learn about a deep layer. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What are the crust and mantle made of? How is the mantle's rock different?	**Both are made of solid rock. Mantle rock is hot and can move very slowly.**
2	How are the materials in the outer and inner cores alike? How are the layers different?	**Both are made mostly of iron and nickel. The outer core is liquid, and the inner core is solid.**
3	How do scientists get information about a layer they cannot reach by digging?	**They use machines to record earthquake waves and compare records from many earthquakes.**
4	A student says, "The mantle must be liquid because it moves." What information in the passage shows why that idea is incorrect?	**The mantle is made mostly of solid rock that can move very slowly over a long time.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The mantle is mostly hot, solid rock that moves very slowly, not liquid metal. The outer core is mostly liquid iron and nickel, while the inner core is mostly solid iron and nickel. Scientists have evidence that the outer core is liquid because some earthquake waves cannot pass through liquids.

Accept descriptions of the mantle as mostly solid rock, the outer core as liquid metal, and the inner core as solid metal. For evidence, accept recorded earthquake waves that cannot pass through liquid.