

Earth's Hidden Shells

Read a scientific model of Earth's interior and trace its layers.

6.10.B “model and describe the layers of Earth, including the inner core, outer core, mantle, and crust; and”

NAME _____

DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline every Earth-layer name. In the sentence that lists the layers from outside to inside, write 1, 2, 3, and 4 above the layer names to show their order.

A Model of Earth's Inside

- ① Earth is too large and hot for people to travel to its center. Scientists use evidence from earthquake waves, rocks, and other measurements to build models of its inside. A cutaway model shows Earth as nested layers, like shells around a center. The thin outer layer is the crust. It is solid rock and makes up continents and ocean floors. Beneath it lies the mantle, a much thicker layer of hot rock. The layers differ in material, temperature, pressure, and physical state.
- ② In the mantle, rock remains mostly solid because strong pressure squeezes it. Over very long periods, however, some mantle rock can flow slowly. This slow movement helps move heat from deeper Earth toward the surface and can help drive changes in the crust. Below the mantle is the outer core. It is made mostly of iron and nickel and is liquid. Its moving liquid metal helps create Earth's magnetic field. A model should place this liquid layer completely around the inner core.
- ③ At Earth's center is the inner core, which is made mostly of iron and nickel. It is extremely hot, yet it is solid. The enormous pressure at the center packs its material tightly enough to keep it solid. The outer core is also hot, but its lower pressure allows it to stay liquid. In a simple cross-section model, label the layers from outside to inside: crust, mantle, outer core, inner core. Use rings or nested shapes to show that each deeper layer surrounds the next.

2 ANSWER WITH EVIDENCE Use the passage

1 List Earth's four main layers in order from the outside to the center.

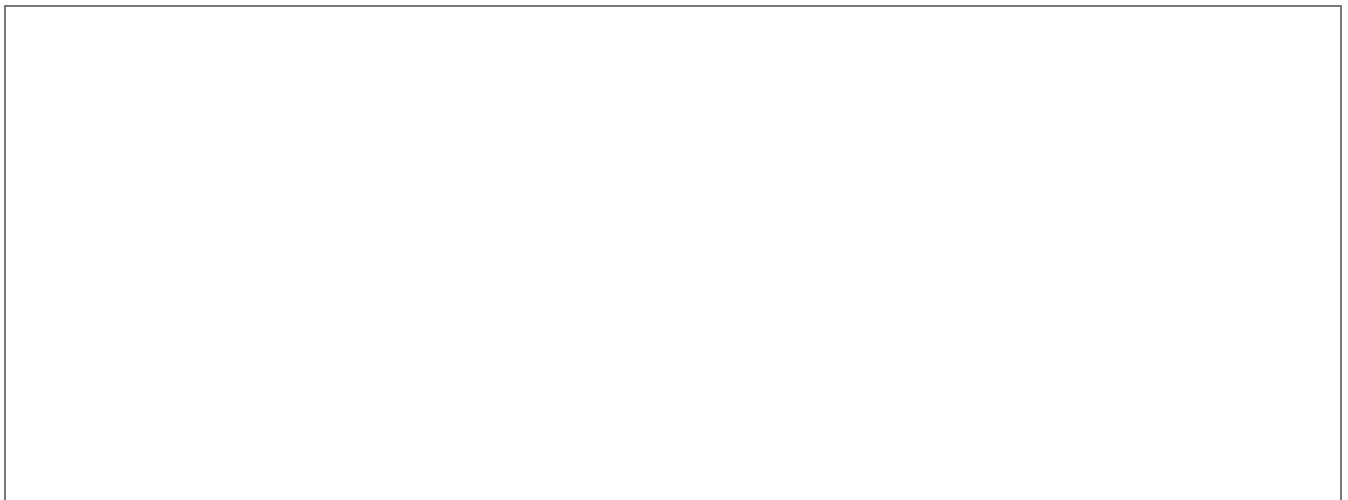
2 Which layers are solid or mostly solid, and which layer is liquid?

3 Why can mantle rock remain mostly solid but still flow slowly over long periods?

4 How do nested rings in a cross-section model show the relationship among Earth's layers?

3 YOUR TURN Your own words

Draw a cutaway model of Earth with four nested layers. Label each layer, add arrow notes for its physical state or material, and write two sentences explaining how your model shows the layers' order and one important difference between the cores.



PART 1 • READ AND MARK

Underline every Earth-layer name. In the sentence that lists the layers from outside to inside, write 1, 2, 3, and 4 above the layer names to show their order. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	List Earth's four main layers in order from the outside to the center.	crust, mantle, outer core, inner core
2	Which layers are solid or mostly solid, and which layer is liquid?	The crust, mantle, and inner core are solid or mostly solid. The outer core is liquid.
3	Why can mantle rock remain mostly solid but still flow slowly over long periods?	Strong pressure keeps mantle rock mostly solid, but over very long periods some of the rock can flow slowly.
4	How do nested rings in a cross-section model show the relationship among Earth's layers?	They show that the crust is outermost and that each deeper layer surrounds the next layer inward.

PART 3 • YOUR TURN (SAMPLE ANSWER)

The cutaway drawing has four nested, labeled rings: a thin solid crust, a thick mantle of mostly solid rock that can flow slowly, a liquid outer core of iron and nickel, and a solid inner core of iron and nickel. The labels show that the crust is outermost and that pressure helps keep the inner core solid while the outer core stays liquid.

Accept equivalent descriptions that place the layers in the correct outside-to-inside order and accurately identify the outer core as liquid and the inner core as solid. In the drawing, accept different ring sizes as long as the layers are nested and labels are clear.