

What are Earth's layers made of?

Vocabulary

crust the outermost solid layer of Earth

mantle layer of Earth just below the crust

core innermost layer of Earth

lithosphere Earth's crust and the solid part of the mantle

Earth's Variety

Earth has many different types of landforms, such as plateaus and waterfalls. A plateau is raised flatland. A large plateau in parts of Utah, New Mexico, Arizona, and Colorado was flat a long time ago. Over thousands of years, water washed away some of the rock. One result of this was the creation of the Grand Canyon. Other landforms include mountains, plains, and valleys. Plains are flatlands with few trees. Valleys are the low lying land areas between mountains.

Some of Earth's forms are hidden by water. For example, below the Atlantic Ocean is a ridge, or long row of towering mountains. Some are volcanoes. Also under the ocean are trenches, or long narrow cuts in the ocean floor.

Earth's Layers

Earth's solid surface is made of rock and soil. Underneath are solid and nonsolid layers. Above the surface is the atmosphere, made of a thin layer of gases. This makes Earth the only planet known to support life.

The outermost solid layer of Earth, the **crust**, includes soil and rock. The thickness of the crust varies. The part of the crust covered by dry land is 30 kilometers thick. The part covered by ocean water is 5 kilometers thick. Still, compared to whole Earth, the crust is a thin shell.

The thick layer of Earth below the crust, which is called the **mantle**, is the largest

part of Earth. The outer part of the mantle is solid. The inner part of the mantle is so hot that its rock is partly melted.

The **core**, the innermost layer of Earth, is denser than the mantle. It is compact, or dense, because the weight of the rock above it pushes down. The core's temperature is said to be about 5,000°C—as hot as the surface of the Sun. The outer part is so hot that it is liquid. The inner part is solid because it is under such pressure from the layers above that it cannot melt.


Scientists have not actually seen the mantle or the core, because it is too far beneath the surface. They think the inner core is made of iron and the outer core perhaps iron mixed with small amounts of other materials. Both the mantle and the crust are made mostly of oxygen combined with other materials.

Earth's Plates

Earth's crust and the solid part of the mantle are called the **lithosphere**. Much of the lithosphere is under water, broken into pieces, called tectonic plates. Earth has about 12 large plates and many smaller ones. Many plates are made up of some continental crust and some oceanic crust. Most of the United States is on the North American plate. Hawaii and part of California are on the Pacific Plate, which is mostly covered by water. Like a cracked shell of an egg, the plates float atop the soft layer of the inner mantle.

1. What are trenches and ridges?

2. Why is Earth's inner core solid even though its temperature is hotter than that which would melt iron?

3.  **Draw Conclusions** Why do scientists only have theories about the composition of the mantle and core, but know the exact composition of the crust?

4. Describe the layers of Earth.

5. On which plate is most of the United States? On which plate is Hawaii?
