

Grades K+

Soft Foam

CROSS SECTION

EARTH

MODEL



Explore the Earth inside and out!

Introduction

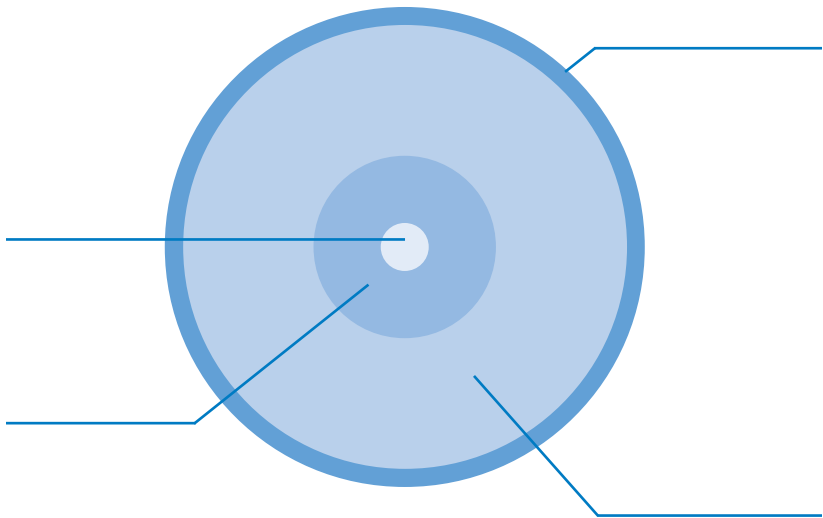
Discover what lies beneath Earth's surface. This demonstration model was designed to help you teach the abstract concept of the different layers of Earth in a concrete manner. Students will enjoy using this Earth model in the classroom. It is small enough to be passed around the class for students to explore the different layers of Earth.

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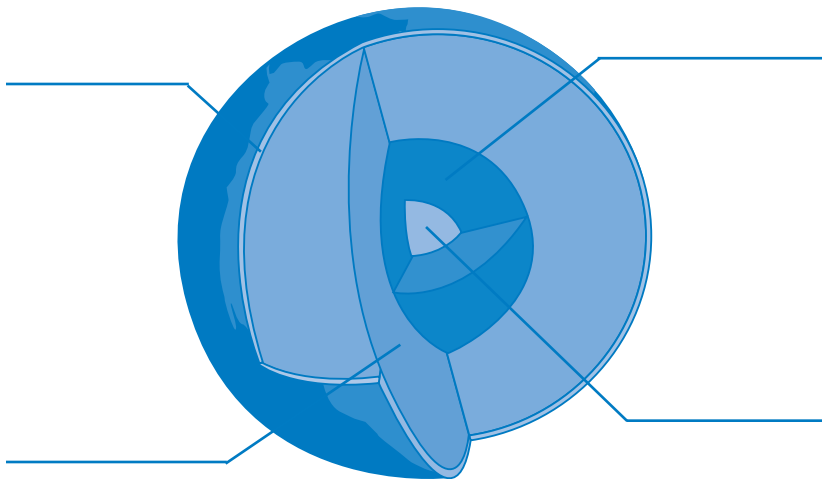
LABELING DIAGRAM C

This diagram can be photocopied for students to label as they learn the layers of Earth or as a review lesson.

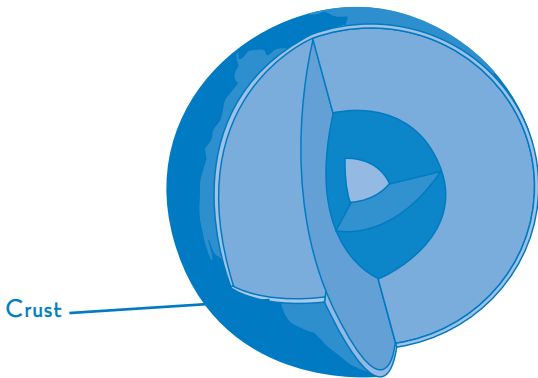


LABELING DIAGRAM B

This diagram can be photocopied for students to label as they learn the layers of Earth or as a review lesson.



LAYERS OF THE EARTH



CRUST

Temperature: approximately 0°F / 18°C to 1,600°F / 870°C

Depth/Thickness: approximately 3- 5 mi. / 8 km under the oceans, 25 mi. / 40 km under the continents

Composition: Calcium (Ca) and Sodium (Na) aluminum-silicate compounds

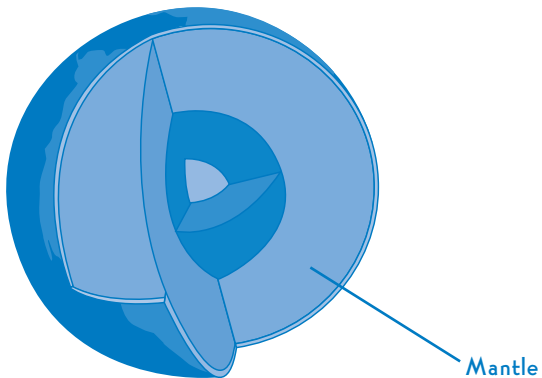
Facts:

The Crust is relatively cold compared to the other layers of Earth. Therefore, it can crack and fracture, causing earthquakes.

The crust of Earth is made up of many pieces, called plates. The plates float on the mantle, which is located below the crust.

The temperature on the surface of the crust varies depending on the air temperature.

LAYERS OF THE EARTH



MANTLE

Temperature: approximately 1,600°F / 870°C at the top and 4,000°F / 2,200°C near the bottom

Depth/Thickness: approximately 1,800 mi. / 2,900 km

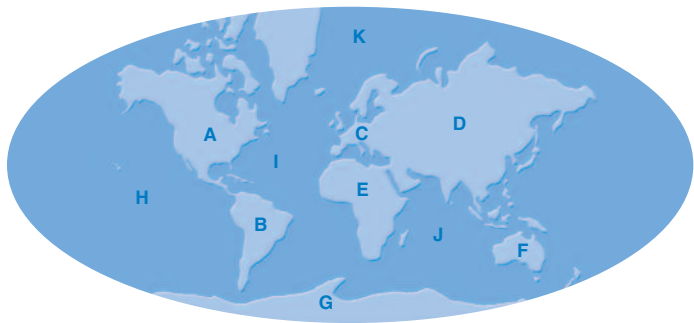
Composition: Iron (Fe), Magnesium (Mg), Aluminum (Al), Silicon (Si), and Oxygen (O) silicate compounds.

Facts:

The mantle is the largest layer of Earth and is composed of very hot, dense rock. This layer of rock moves like thick, hot asphalt due to the extreme temperature differences between the top and the bottom of the layer. This movement in the mantle causes the plates in the crust to move.

LABELING DIAGRAM A

The following diagram can be photocopied for students to label as they learn the continents and oceans. This can be used as a teaching tool, review or center activity sheet.



A = _____

G = _____

B = _____

H = _____

C = _____

I = _____

D = _____

J = _____

E = _____

K = _____

F = _____

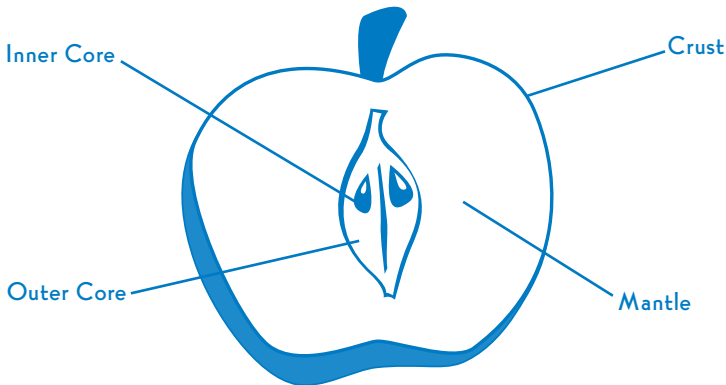
APPLE EARTH

Materials:

Apples cut in half from the stem down (1 for every two students)

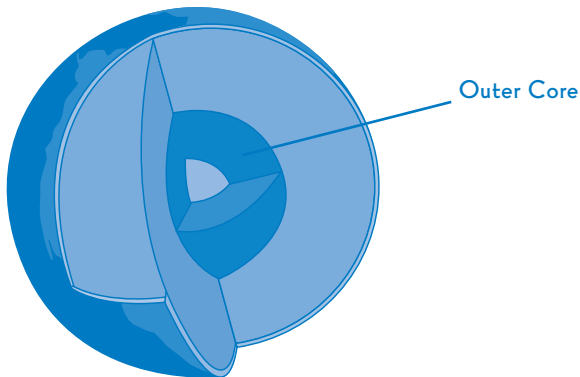
Paper

Crayons



To reinforce the concept of the different layers of Earth, give each student a half of an apple. Have them look at the apple and describe how it is similar to the layers of Earth. Have them draw and label the apple as if it were the inside of Earth. Explain that the skin represents the crust, the heart represents the mantle, the seed coat represents the outer core and the seed represents the inner core.

LAYERS OF THE EARTH



OUTER CORE

Temperature: approximately 4,000°F / 2,200°C to 9,000°F / 5,000°C

Depth/Thickness: approximately 1,400 mi. / 2,400 km

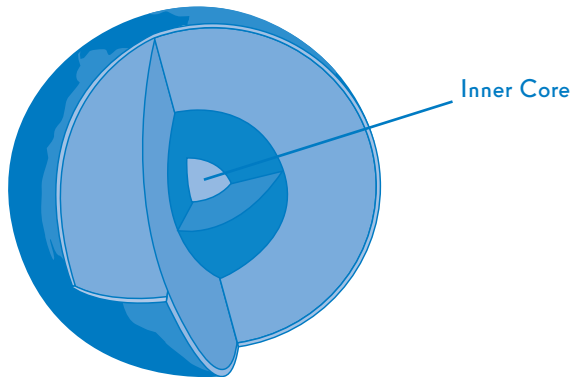
Composition: melted Iron (Fe) and Nickel (Ni)

Facts:

The core of Earth is like a ball of very hot metals. The outer core is in liquid form because the metals are so hot.

As Earth rotates, the liquid outer core spins to create Earth's magnetic field.

LAYERS OF THE EARTH



INNER CORE

Temperature: approximately 9,000°F / 5,000°C

Depth/Thickness: approximately 800 mi. / 1,300 km

Composition: Iron (Fe), which remains solid due to extreme pressure

Facts:

The inner core has temperatures and pressures so great that the metals are squeezed together and are not able to move like liquid.

The inner core does move and vibrate in place as a solid.

The pressure of the inner core is 45,000,000 pounds per square inch, which is 3,000,000 times the air pressure at sea level.

ACTIVITIES

EXPLORE YOUR WORLD

Children will be curious about the Earth model. Let them hold the model and observe the details.

Allow students to share what they already know about Earth. You may want to ask the following questions to stimulate the students thought processes.

How many layers of Earth are there?

Explain that Earth is not made entirely of dirt.

There are four main layers. There are five layers if you separate the mantle into the outer and inner mantle. The four layers are the crust, the mantle, and the outer and inner cores.

What are the earth layers made of?

Each layer is made of different minerals. Refer to the facts listed on pages 2-5.

How do scientists and geologists know about the center of Earth?

Scientists and geologists have been able to do some drilling on Earth. They are also able to measure sound (seismic) waves that are caused by earthquakes and nuclear explosions. By measuring these seismic sound waves, scientists are able to determine the density of materials that make up Earth.

Have scientists and geologists been able to reach the center of Earth?

Scientists and geologists have not been able to reach the center of Earth. They have only been able to drill down 7.5mi. /12 km, because the high temperatures and pressure at this depth deform any drills or metals that are used.

Look for these related items from Learning Resources®:

LER 2378 U.S. Geoboard Geography

LER 2434 Classroom Solar System Set

LER 2435 Classroom Eclipse Kit

LER 2436 Earth Demonstration Model



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