Bell Work

Set up Cornell notes.
Layers of the Earth

Study

Activity
Objective/Essential Questions

- Title: Layers of the Earth

- Objective: Describe the properties and the composition of the following layers of the Earth: crust, mantle, and core.

- Essential Questions: How do the layers of the earth interact with each other?
The Earth is divided into three layers:

1. Crust
2. Mantle
3. Core
Crust

- This is the **top** layer of the Earth.
- It is like a **thin, rocky skin**.
- If we think of the Earth as a baseball, the crust is like a postage stamp stuck on a baseball.
- The thickest part of the crust is under **mountain ranges**; here the crust is only about 35km (22mi) thick.
And what type of crust would you like with your Earth?

- There are two types of crust:
  - continental
  - oceanic
Continental Crust:

- **1. Makes up the continents**
- 2. Contains light colored rocks such as granite.
- 3. Floats high on the mantle
Oceanic Crust

- Makes up the ocean floor
- Contains the dense rocks such as basalt
- Thinner than the continental crust

The Lithosphere
Quick questions:

- What are the three main layers of the Earth?
- Where is the top layer of the Earth?
- Where is the Earth’s crust the thickest?
- What are the two types of crust?
Earth’s Mantle

- Hotter and denser than the crust because the deeper you go inside the earth, the temperature & pressure increases.

- Made of rock.
Mantle Zones

- **Lithosphere**
  - Thin, top part of the mantle; cooler & less rigid
  - **Floats** on the asthenosphere, and slides around very slowly.
  - The upper part of the lithosphere melts rocks, forming a substance called **magma**.
Magma

- Magma (melted rock) moves like hot oatmeal.
- Uneven heating causes material in the mantle to constantly and slowly rise & fall in convection currents.

**Convection Current**: process by which hot fluid rises to the surface, and then sinks again, like soup being heated in a saucepan.
Asthenosphere

- Hot, weak zone directly under the lithosphere
- Flows at a very slow rate
Quick Questions

- What layer of the Earth is below the crust?
- What is the mantle composed of?
- What are the two zones of the mantle?
- What is magma?
Earth’s Core

- Deep within the Earth is the core
- The core is made mostly of **nickel & iron metals**
- **Twice** as dense as the mantle.
- Main source of heat that triggers the convection currents
The core is made of two layers

- **Outer core**: molten & is responsible for the Earth’s magnetic field.
- **Inner core**: solid
Quick Questions

- What are the three main layers of the Earth?
- What are the two layers of the core?
- Which of these layers is responsible for Earth’s magnetic field?
Create a summary at the end of your notes.
Oceanic Plate
3-5 miles thick

Continental Plate
5-25 miles thick

Mantle
(flows with the consistency of asphalt)

Outer Core
(Iron and nickel in the liquid state)

Inner Core
(Iron and nickel in the solid state)

1800 miles thick

1400 miles thick

800 miles thick

Diagram not drawn to scale
Draw the layers of the Earth in your Journal (Use a full page)

- Label each layer.
- Describe characteristics/composition of each layer
- Color
  - oceanic crust blue
  - continental crust brown
  - upper mantle orange
  - lower mantle red
  - outer core yellow
  - Inner core white