

**What are the three layers of
the Earth?**

**What are the characteristics
of each layer?**



The Composition of Earth

⑩ The Earth is divided into three layers...

⑩ The crust, mantle, and the core based on what each one is made up of.

The lightest materials make up the outer layer, the densest materials make up the inner layers.



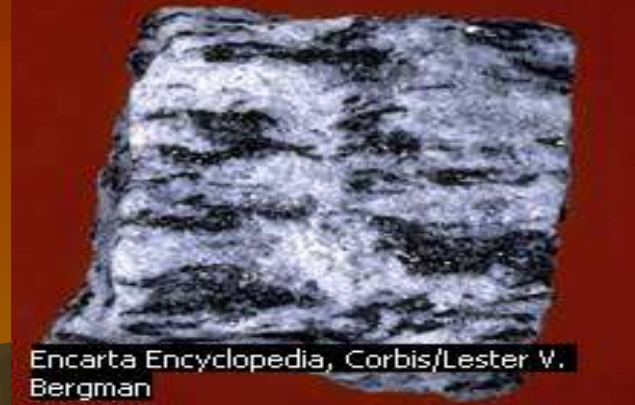
Continental

- ⑩ It has an average thickness of 40 kilometers. (25 miles)
- ⑩ Least Dense=2.2 g/cm³
- ⑩ Temperature= air temperature to 870°C
- ⑩ Composed of Granite



vs. Oceanic Crust

- ⑩ 5-10 kilometers thick (3-6 miles)
- ⑩ More dense than continental crust 2.9 g/cm³
- ⑩ Temperature= water temperature to 870°C
- ⑩ Composed of Basalt



The Crust

- ⑩ The outermost layer
- ⑩ Ranging from 5-100km thick
- ⑩ Thinnest layer of Earth
- ⑩ Least Dense
- ⑩ Two types of crust
 - ⑩ 1. Continental
 - ⑩ 2. Oceanic



Mantle

- ⑩ The layer of Earth beneath the crust is called the mantle.
- ⑩ It is between 1800-2900 kilometers thick.
- ⑩ More than 2/3 of Earth's mass is found in this layer.
- ⑩ The top and bottom of the mantle is made up of rock. In the center of the mantle, the rock flows like syrup, a very thick liquid. It is viscous.



Mantle

- ⑩ It is made up mostly of iron and magnesium, which is very dense. The mantle acts like silly putty or laffy taffy.
- ⑩ The density ranges from 3.4-4.4 g/cm³
- ⑩ Temperature=870-3700°C
- ⑩ Lots of Pressure!



Outer Core

- ⑩ The core extends from the bottom of the mantle to the center of the Earth.
- ⑩ Hot! Up to $6,000^{\circ}\text{C}$
- ⑩ It is 2,270 kilometers thick.
- ⑩ It is a liquid
- ⑩ Density=9.9-12.2
- ⑩ It is composed of liquid iron and nickel, which causes Earth's magnetic field.



Inner Core

- ⑩ 1216 kilometers thick
- ⑩ Solid (Due to Pressure)
- ⑩ Composed of iron and nickel
- ⑩ Temperature = 6,000-7200°C
- ⑩ Hotter than the Sun!!
- ⑩ Density = 12.8-13.1 g/cm³

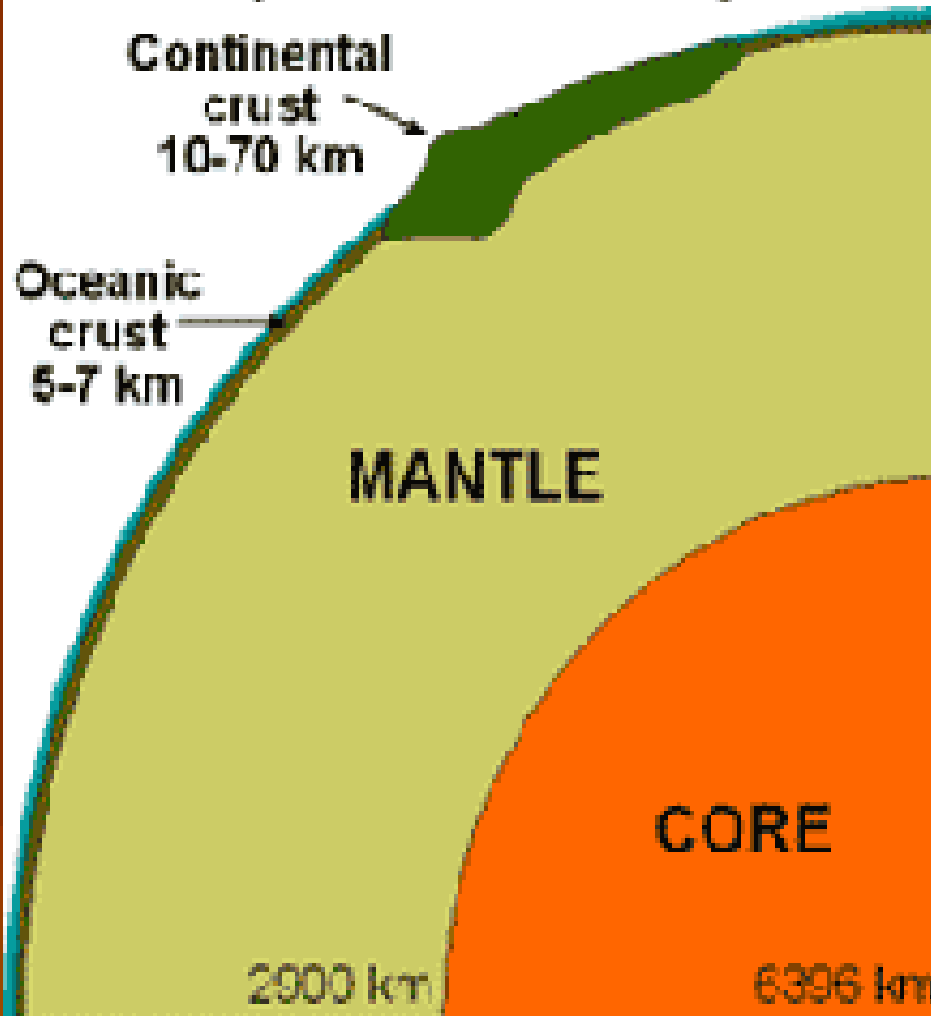


Review-Ticket Out the Door

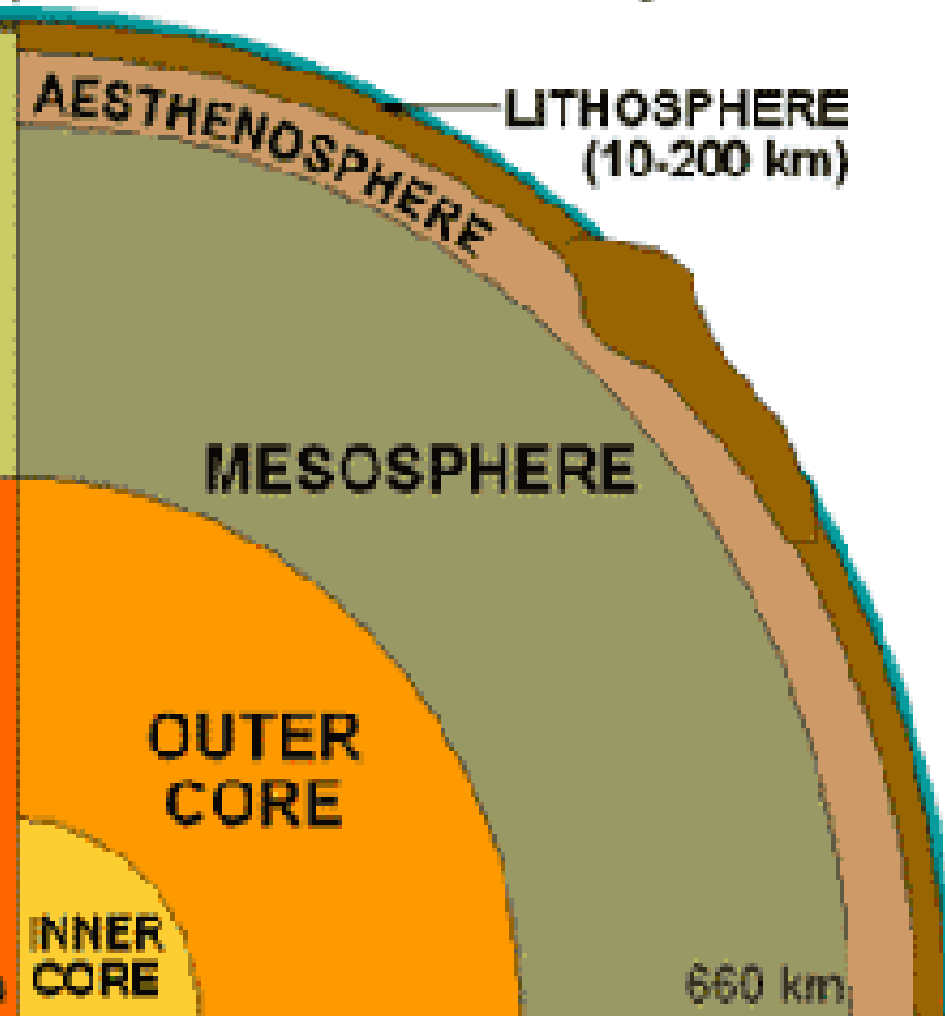
101. What is the difference between continental and oceanic crust?
102. Which layer is the hottest?
103. Arrange Earth's layers from thickest to thinnest.
104. A drilling rig can dig down 6 kilometers. What layer of Earth would you more than likely be in?



Compositional Layers



Mechanical Layers



mantle

outer core

inner core

crust

