

Notes from Bill Nye the Science Guy!

The earth's crust is a thin crust that surrounds the earth. Just underneath the crust is molten rock (called magma), then there is the mantle, the outer core, and the inner core of the earth.

1. Fill in the blanks below.

The inner core is solid iron.

* The outer core is liquid iron and other metals

The mantle is _____ like hot tar.

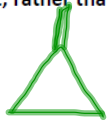
The crust is crusty!

2. What are the two ways that volcanoes erupt?

3. _____ is the only part of the earth that is cooler than magma.

* 4. Why does a geyser squirt, rather than spray like a hose?

its shape

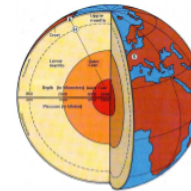


* 5. The Earth's Crust is made of tectonic plates. The last time they were all one piece, they formed something called _____.

6. What happens when tectonic plates spread apart? What happens when they come together? Can you guess what would happen when they rub against each other?

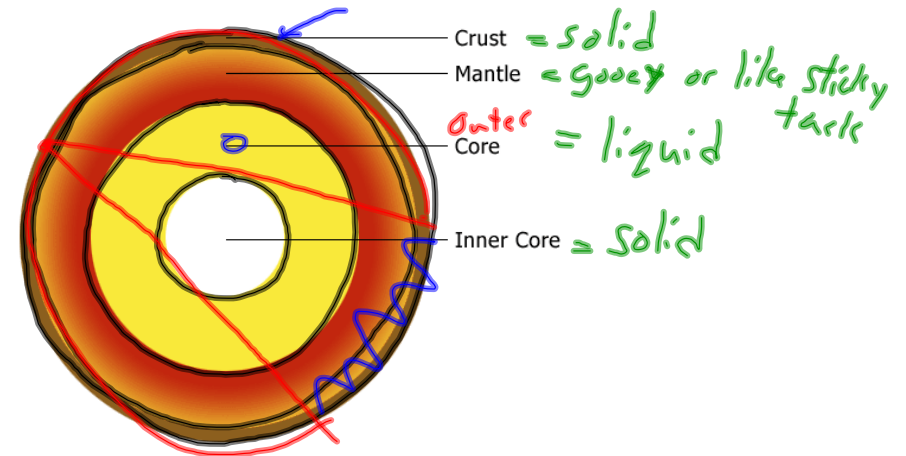
7. A seismograph monitors the movement of tectonic plates, and can detect _____.

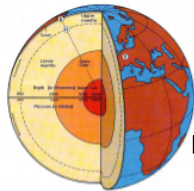
8. How do scientists know that the Earth's Core is solid?



Layers of the earth

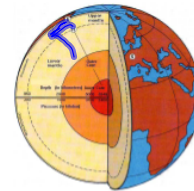
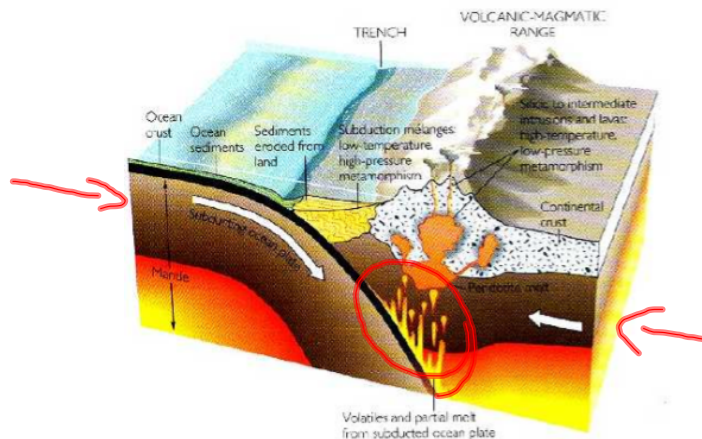
Earth layers video





Layers of the earth

Why is the mantle not liquid
if it's hotter than magma?



Layers of the earth

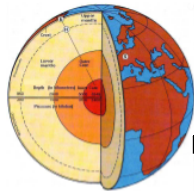
Why is the mantle not liquid?

Weight of a car - about 2 tons

Pressure of a car on top of you: 8 psi

Pressure of Mount Everest: 3 million psi

Pressure in the mantle: 6 million psi



Layers of the earth

Why is the outer core liquid?

Temperature of a campfire = about 600°C

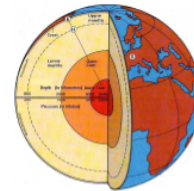
Temperature of lava at surface = about 1000°C

Temperature of the mantle = about 1000°C

Pressure of the mantle = 2 Mount Everests

Temperature of the outer core = at least 4000°C

Pressure of the outer core = 6 Mount Everests



Layers of the earth

Why is the inner core solid?

Melting point of iron = about 1500°C

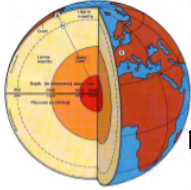
Boiling point of iron = about 3000°C

Temperature of the outer core = at least 4000°C

Pressure of the outer core = 6 Mount Everests

Temperature of the inner core = 6000°C

Pressure of the inner core = 16 Mount Everests



Layers of the earth

Why is the mantle **not** liquid?

Why is the outer core liquid?

Why is the inner core solid?

It depends on
Pressure and Temperature

High pressure can turn
a liquid into a solid