

## Structure of the Earth

If we want to understand how devastating events like earthquakes and volcanic eruptions occur, we first need to understand the structure of the Earth.

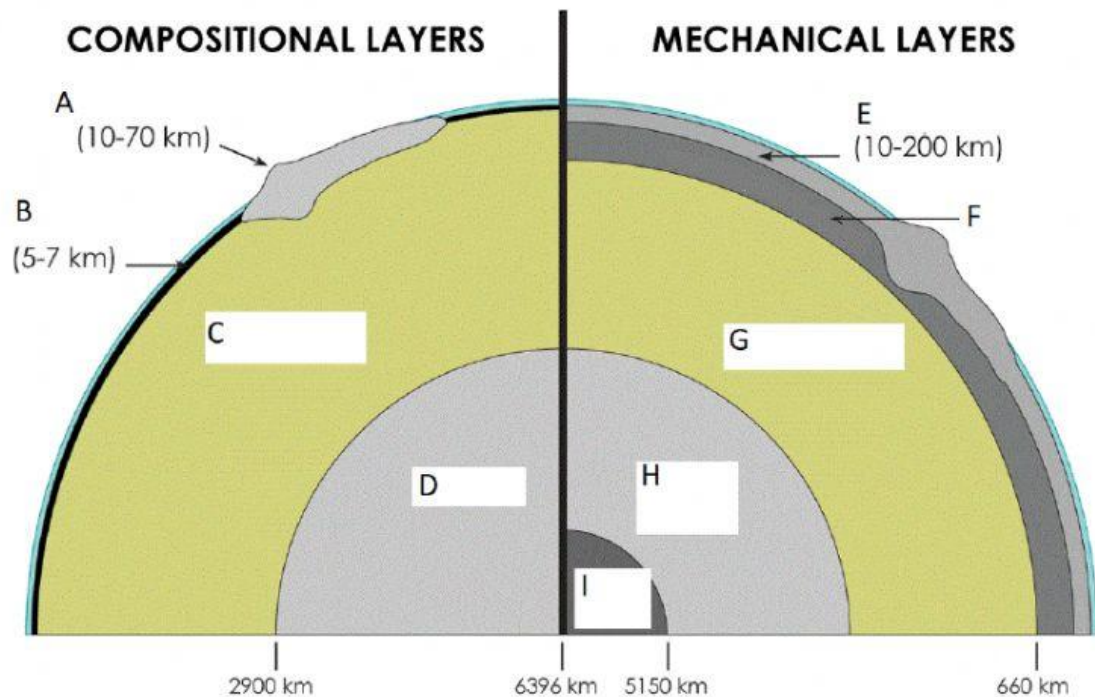
**Learning Intention – To understand the structure of the Earth.**

Go to the link - <https://www.e-education.psu.edu/marcellus/node/870>

The Earth can be divided up into several layers. There are compositional layers defined by what they are made up of, and mechanical layers defined by how they behave.

Use the information on the website to label each layer of the Earth.

lithosphere	outer core	core	continental crust	asthenosphere
mantle	mesosphere	oceanic crust	inner core	



Compositional Layers		Mechanical Layers	
A		E	
B		F	
C		G	
D		H	
		I	

Complete the information below on each layer.

### Information about the compositional layers

1. **Crust** – The \_\_\_\_\_ solid layer of a rocky planet or natural satellite. Chemically distinct from the underlying mantle.
2. **Mantle** – A layer of the Earth between the crust and the outer core. It is chemically distinct from the crust and the outer core. The mantle is not \_\_\_\_\_. It is, however, ductile, or plastic, which means that on very long time scales and under pressure it can flow. The mantle is mainly composed of \_\_\_\_\_ and silicates.
3. **Core** – The innermost layers of the Earth. The Earth has an outer core (liquid) and an inner core (solid). They are not chemically distinct from each other, but they are chemically distinct from the mantle. The core is mainly composed of \_\_\_\_\_ and \_\_\_\_\_.

### Information about the mechanical layers

1. **Lithosphere** – The outermost and most rigid mechanical layer of the Earth. The lithosphere includes the \_\_\_\_\_ and the \_\_\_\_\_ of the mantle. The average thickness is ~70km, but ranges widely: It can be very \_\_\_\_\_, only a few km thick under oceanic crust or mid-ocean ridges, or very thick, 150+ km under continental crust, particularly mountain belts.
2. **Asthenosphere** – The mesosphere is beneath the asthenosphere. It encompasses the \_\_\_\_\_, where material still flows but at a much \_\_\_\_\_ rate than the asthenosphere.
3. **Outer core** – A layer of \_\_\_\_\_ and \_\_\_\_\_ (and other elements) beneath the mesosphere. This is the only layer of the Earth that is a true \_\_\_\_\_, and the core-mantle boundary is the only boundary of Earth's layers that is both \_\_\_\_\_ and \_\_\_\_\_. Flow of the liquid outer core is responsible for Earth's magnetic field.

Take a look at how temperature in the earth change with depth. Convert the temperature shown in Kelvin (K) to degrees Celsius. You might need to research on how to do this.

