# 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.

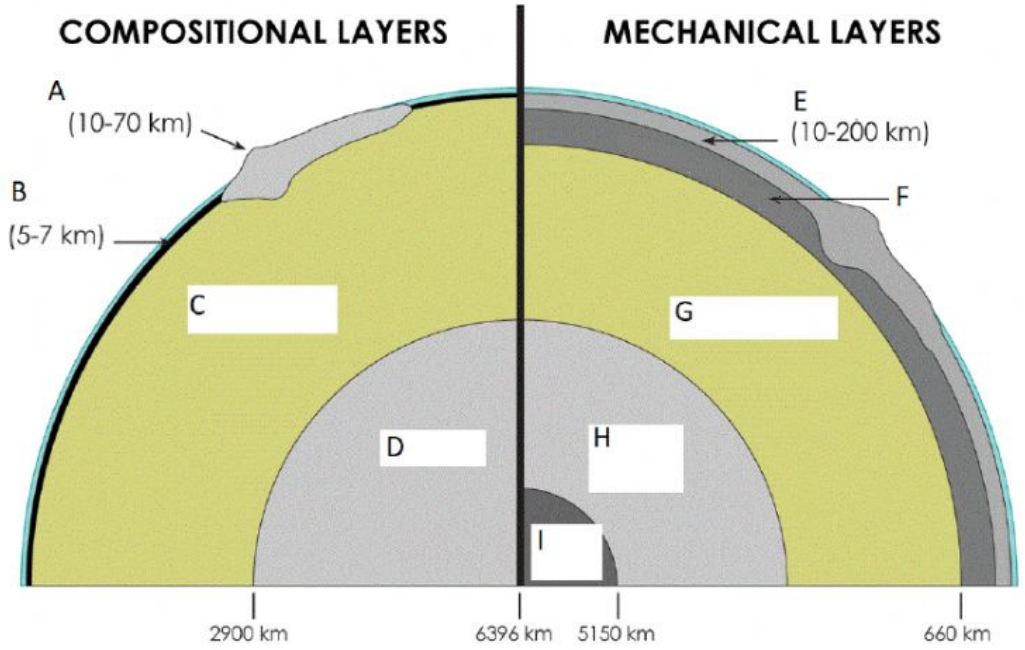
**Learning Intention – To understand the structure of the Earth.**

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.