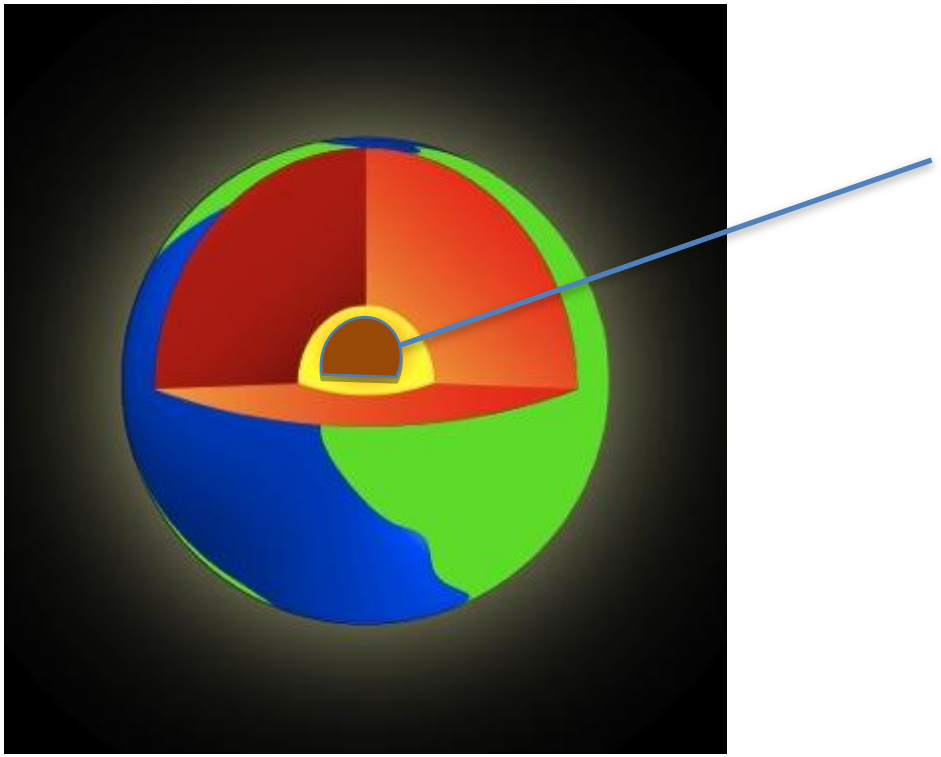
Layers of Earth

Picture Vocabulary

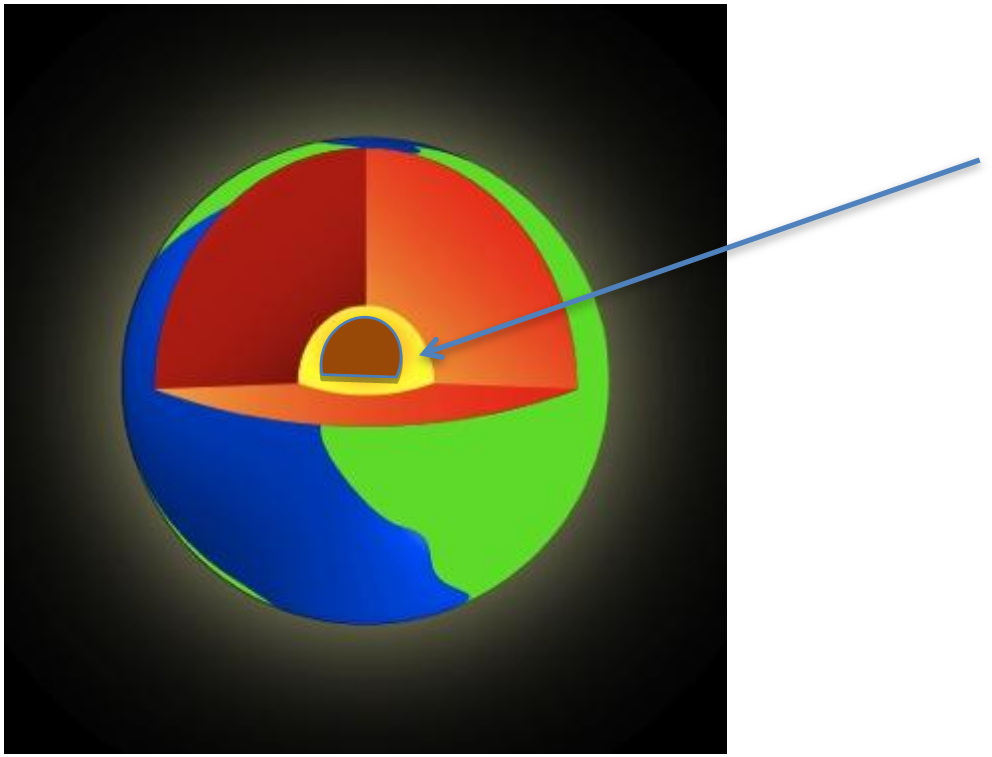
Earth and Space

Inner Core



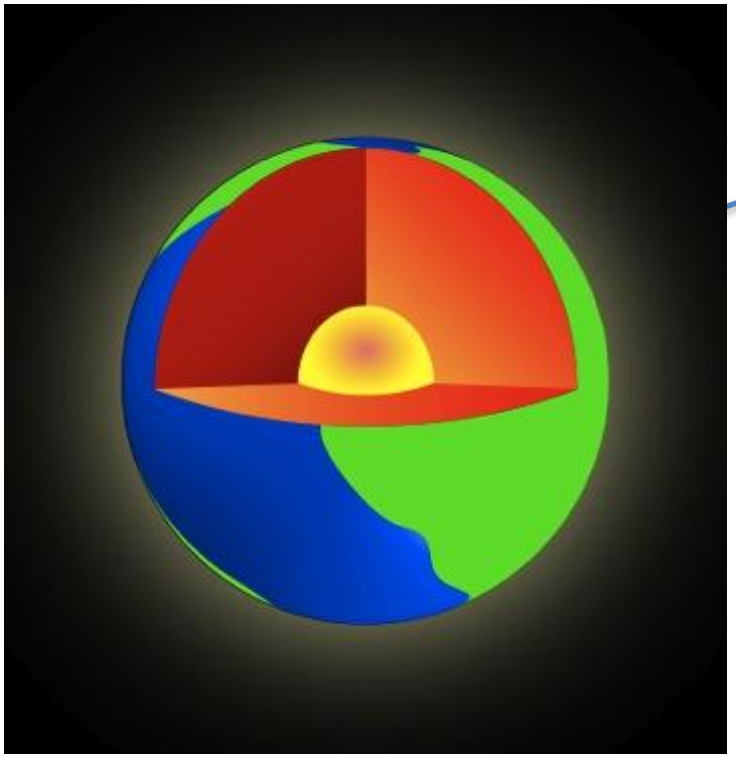
The sphere of solid nickel and iron at the center of Earth; surrounded by the liquid outer core.

Outer Core



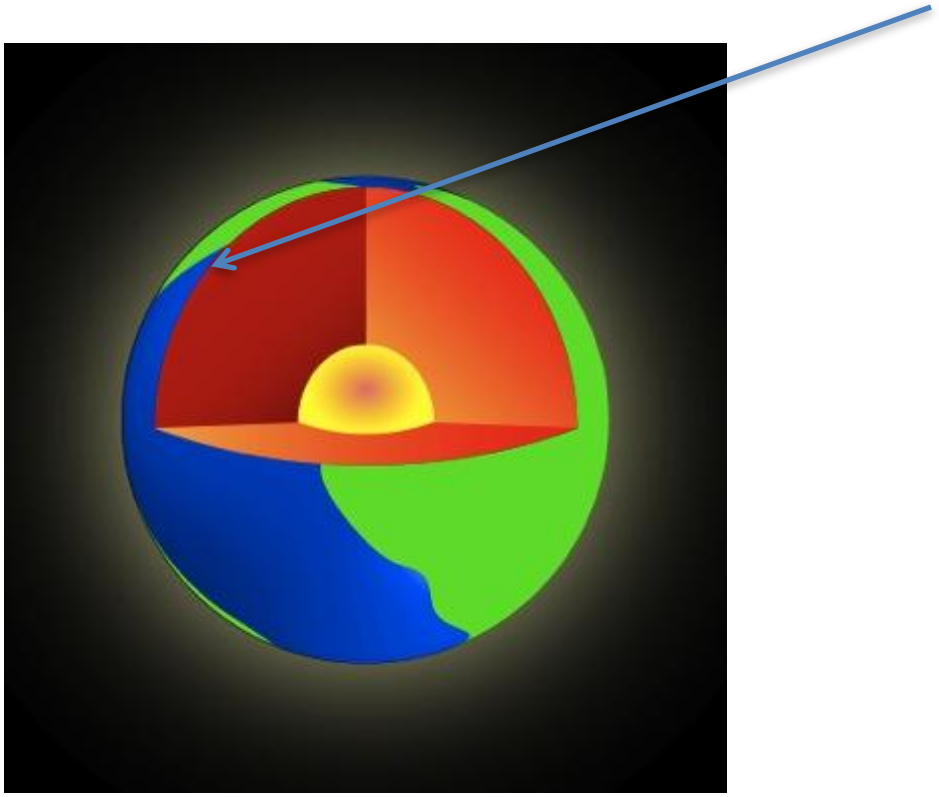
The outer layer of Earth's core; surrounds the inner core and is made of liquid nickel and iron.

Mantle



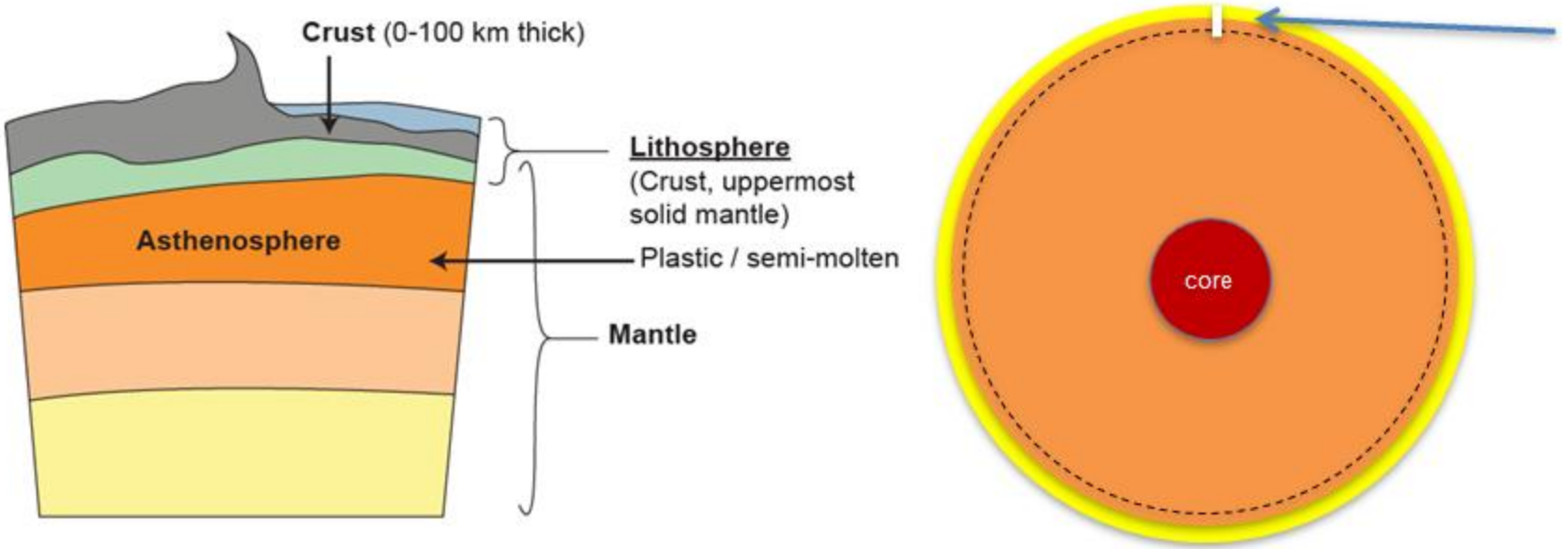
The solid layer of Earth between the crust and the core; made of dense silicates.

Crust



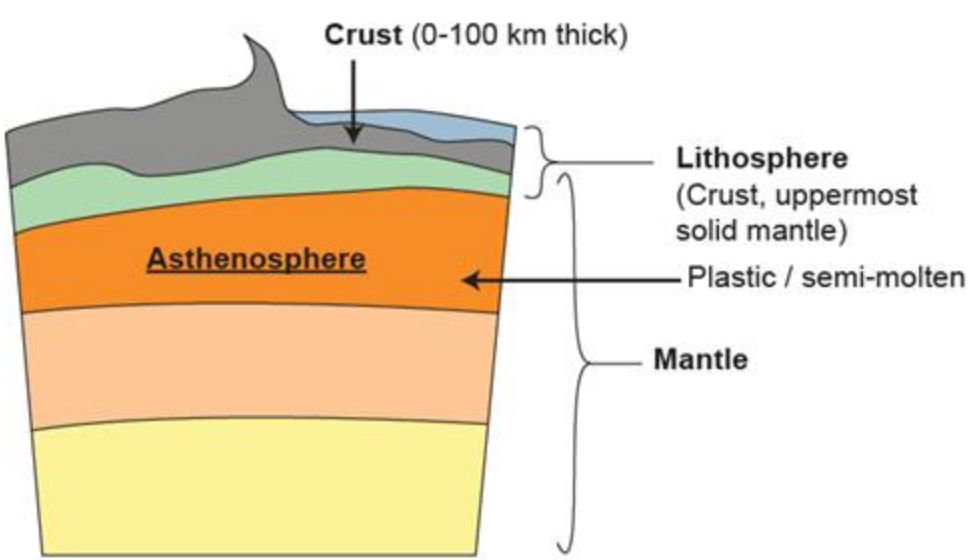
The thin, solid outermost layer of Earth; made of less dense silicates and is either continental (landmasses) or oceanic (ocean floors).

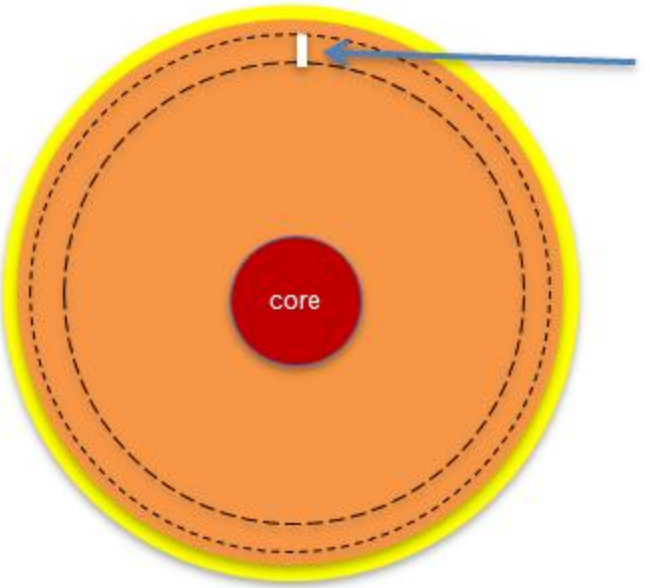
Lithosphere



The cool, rigid, outermost layer of Earth that consists of the crust and the uppermost part of the mantle; broken into pieces or segments called plates.

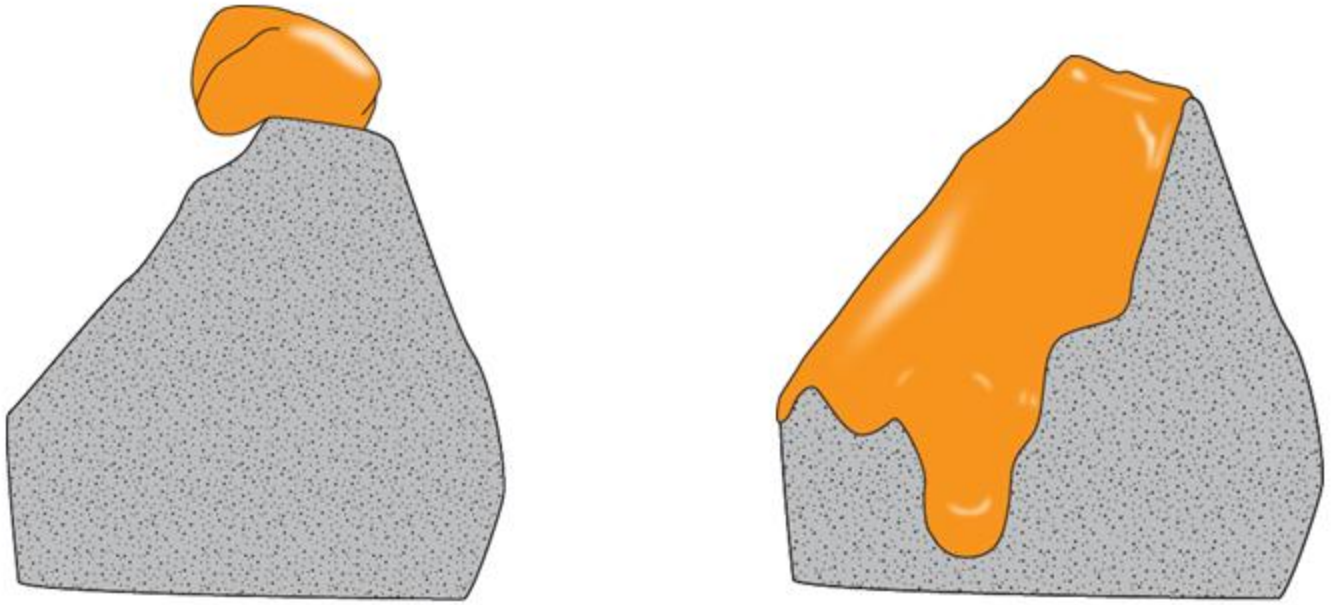
Asthenosphere





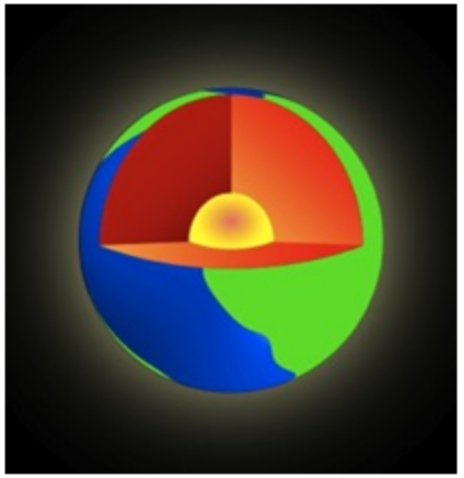
The solid layer with plasticity in the upper mantle that is located just below the lithosphere; lithospheric plates “float” and move on this layer.

Plasticity



A characteristic of the material in the asthenosphere; existing in a solid state yet having the ability to flow without being a liquid.

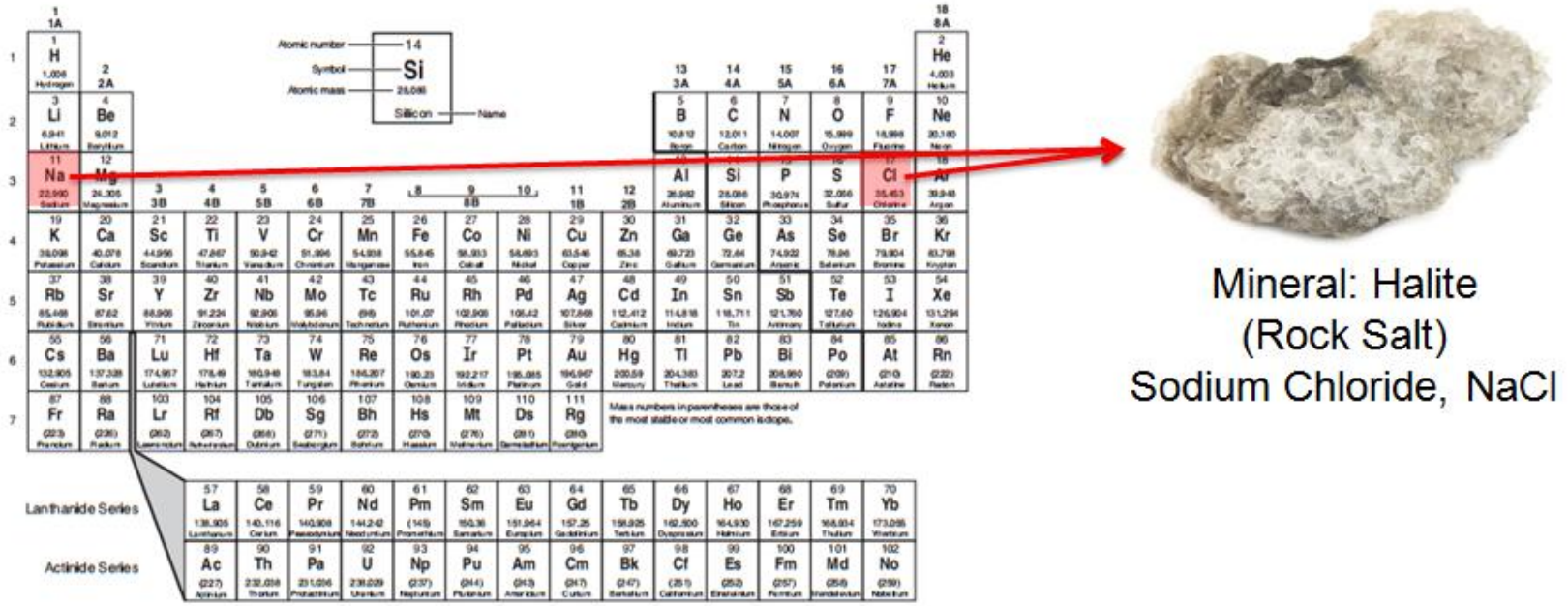
Earth's Layers



EARTH'S LAYERS					
Layer Name	Thickness (km)	Approx. Temp (Degrees C)	Pressure	Physical State of Matter	Composition
Crust	Iron & nickel	0	LOW	Solid, brittle (part of Lithosphere)	Silica-Rich (Basalt or Granite) Rock
Upper Mantle	~ 200	500		Solid, brittle (part of Lithosphere)	Iron & magnesium-rich Rock
	~ 480	~1,600		Plastic / semi-molten (Asthenosphere)	Iron & magnesium-rich Rock
Lower Mantle	2,200	~2,500		Solid	Iron & magnesium-rich Rock
Outer Core	2,300	5,000		Liquid	Iron & nickel
Inner Core	2,440 (diameter)	7,000	HIGH	Solid	

The divisions of the composition of Earth determined by either chemical composition or by the physical state of matter.

Chemical Composition



The elements that make up a substance.

Physical Properties

Characteristics that can be observed or measured; for example, color, melting point, and conductivity.

Temperature

Temperature is a variable that affects the state of matter of Earth's layers. Layers of rock at greater depths from Earth's surface have more thermal energy.

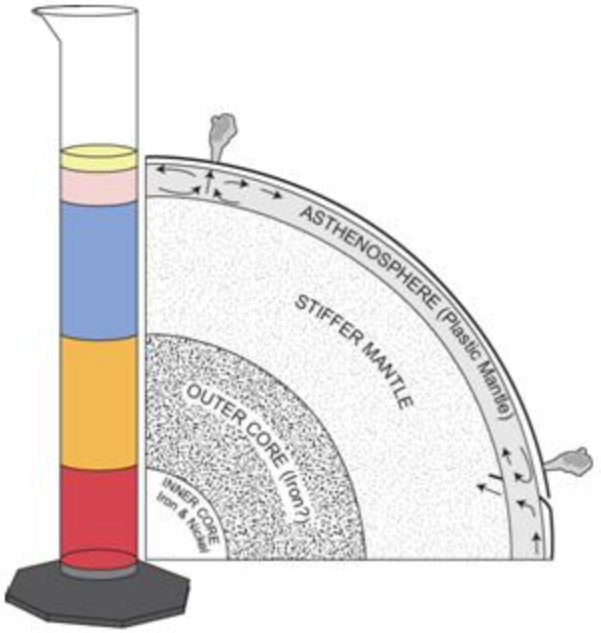
States of Matter

Distinct forms of matter known in everyday experience: solid, liquid, and gas; also referred to as phases of matter.

Pressure

Pressure is a variable that affects the state of matter of Earth's layers. Thick layers of rock apply great force to those layers buried below them, affecting the melting points of the buried rock.

Density



Column of liquids with different densities models the layers of Earth's rocks that vary in density.

Density is the amount of matter in a given space or volume; it is a relationship between mass and volume. Less dense matter will form layers above denser matter.