

# Types of Magma

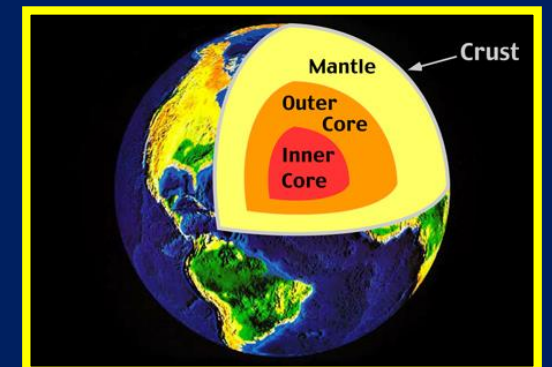
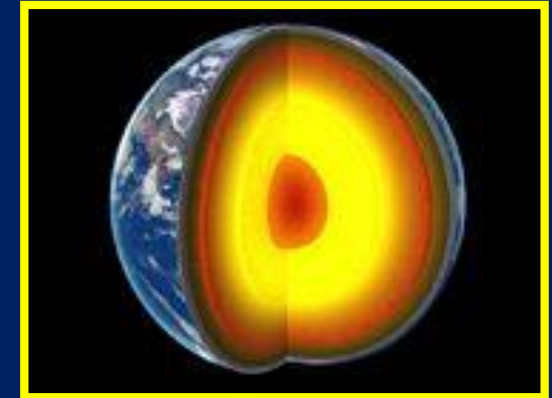


**Essential Standard 2.1: Explain how processes and forces affect the lithosphere**

**Objective 2.1.1: Explain how the rock cycle, plate tectonics, volcanoes, and earthquakes impact the lithosphere.**

# Magma

All volcanoes are fueled by magma deep beneath Earth's surface.



# Molten Rock

Magma is a mixture of molten or melted rock, suspended mineral grains, and dissolved gases.



Rocks become molten when subjected to temperatures between 572<sup>0</sup>F and 1,292<sup>0</sup>F.

When magma cools, it hardens and becomes rock.

# Lava

When magma is on the surface of Earth it is called lava.



# Viscosity

One property that differentiates magma is viscosity or the resistance to flow.



The higher the viscosity, the slower it flows

# Viscosity

The viscosity of magma is dependent upon the amount of silicon dioxide,  $\text{SiO}_2$ , present in the magma



The more  $\text{SiO}_2$  there is, the higher its viscosity.

# Basaltic Magma

There are three major types of magma based on its mineral content:

Basaltic Magma has a low silica content



Associated with volcanoes in Hawaii



Basalt



# Basaltic Magma

Volcanoes that contain basaltic magma are found in or near the ocean, contain low amounts of  $\text{SiO}_2$ , and have a low viscosity.



Not very explosive





# Andesitic Magma

Andesitic Magma has a medium amount of silica



Andesite



Associated with volcanoes found in the Cascade Mountains on the west coast of the United States.



# Andesitic Magma

Volcanoes that contain andesitic magma are found along continental margins associated with subduction zones, contain a moderate amounts of  $\text{SiO}_2$ , and have a medium viscosity rate.

Somewhat Explosive



# Rhyolitic Magma

Rhyolitic Magma has a lot of silica.



**Associated with the very explosive volcanoes found in South America.**



**Granite**



# Rhyolitic Magma

Volcanoes that contain rhyolitic magma are found inside continents, contain high amounts of  $\text{SiO}_2$ , and have a high viscosity.



Very Explosive

**The End**