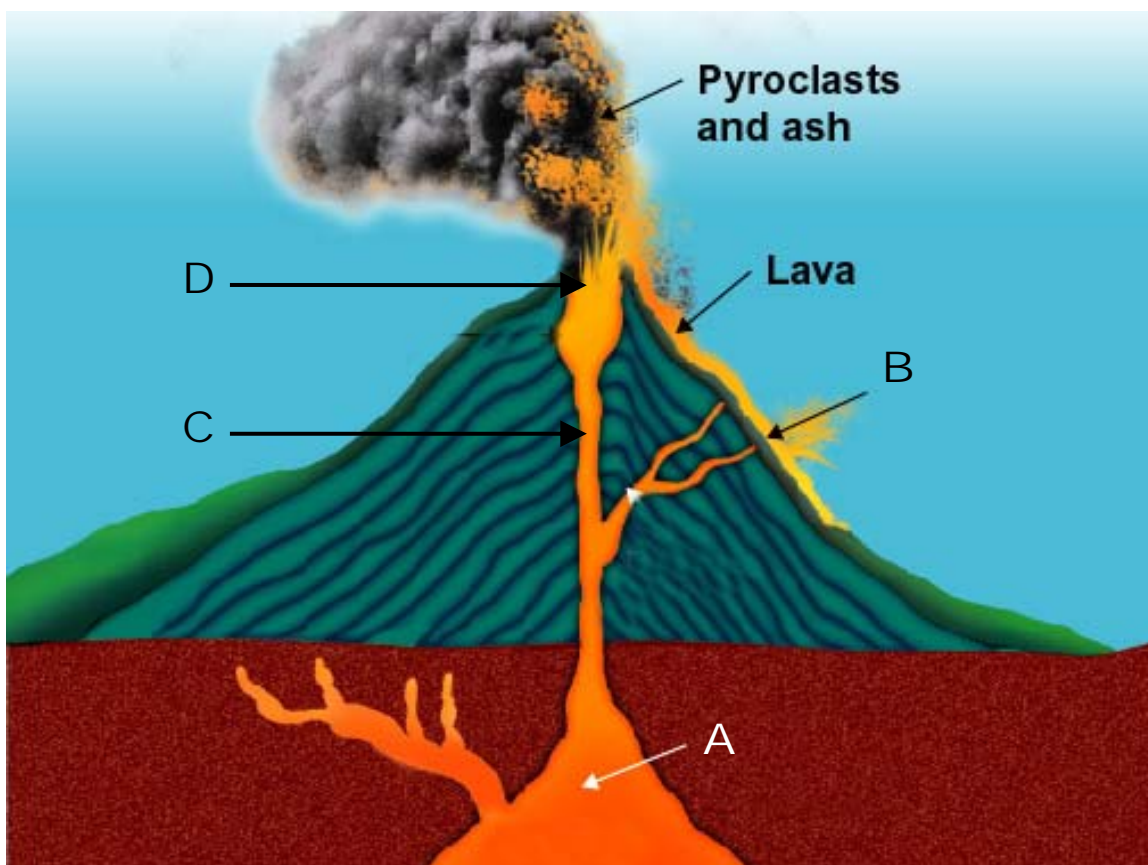
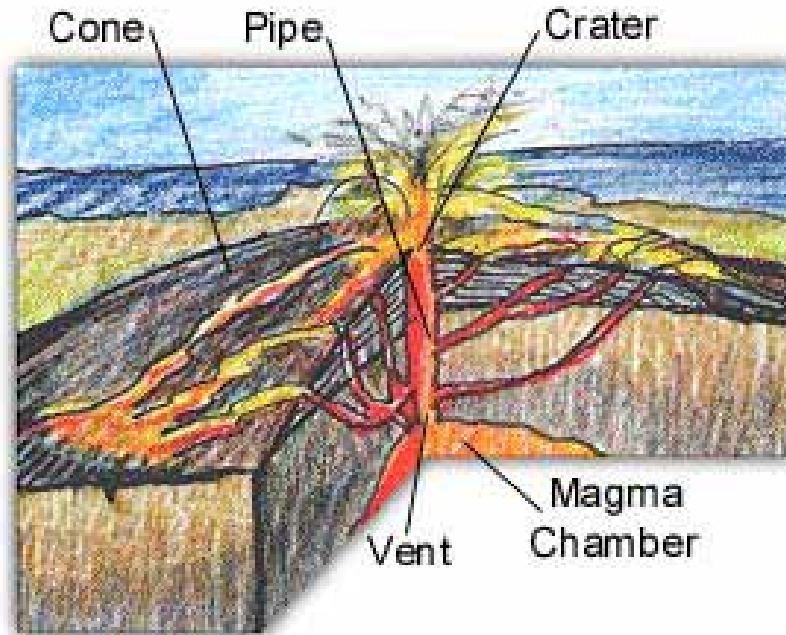


VOLCANOES

Mountains that form when magma reaches the surface.

- Formation of a Volcano
 - Mantle rock melts, forming magma
 - Magma forces its way upward through the crust
 - Under pressure
 - Contains carbon dioxide, sulfur dioxide, and water vapor
 - As magma approaches surface, pressure decreases, causing gases to expand rapidly
 - Magma erupts at the surface as a volcano
- Structure of a Volcano
 - **Magma Chamber**: pocket where magma collects before a volcanic eruption.
 - **Pipe**: narrow vertical channel through which magma rises to the surface
 - **Vent**: opening in the surface where magma escapes
 - **Crater**: bowl-shaped pit at the top of the central vent of a volcano
 - **Caldera**: huge depression at the top of a volcano; created when the central vent and magma chamber collapse after an eruption.



- Eruption Types
 - **Dependent on magma viscosity** (thickness)
 - Factors that determine magma viscosity
 - Temperature
 - Water content
 - Silica content
 - Hot temp, high water content, low silica content → **low viscosity**
 - Results in **quiet eruptions**
 - Low temp, low water content, high silica content → **high viscosity**
 - Results in **explosive eruptions**
- Location and Types of Volcanoes
 - Most volcanoes occur along **plate boundaries**
 - Often along **subduction zones** where converging oceanic plate subducts beneath continental plate.
 - Some volcanoes occur in the middle of plates where the crust is thin.
 - These are called **hot spots**
 - e.g) Hawaii was formed due to a magma chamber in the middle of the Pacific Plate
 - Volcano Types
 - **Shield Volcanoes**: wide, flat, with low viscosity lava and quiet eruptions
 - **Cinder Cone**: steep-sided with ash and cinder eruptions
 - **Composite Volcano**: erupt explosively with both lava and ash.
- Other Igneous Features
 - **Batholith**: the largest type of igneous rock mass. Often form the core of a mountain range.
 - **Sill**: structure formed when magma hardens in crack parallel to existing rock layers.
 - **Dike**: formed when magma hardens in a crack that cuts across rock layers
 - **Volcanic neck**: forms when magma hardens in a volcano's pipe.