Volcano Guided Notes 2 Key

**Three Types of** Volcanoes

1. Shield
2. Cone
3. Composite

* Shield Volcano: A broad volcano with gently sloping sides, quiet eruptions, silica-poor lava. (ex. Hawaiian Islands)
* Shield Volcanoes are enormous features built up only from layers of lava. They

produce lots of lava but they tend not to erupt violently.

* Cinder Cone Volcano: steep sided volcano, explosive eruptions that throw lava and rock in the air, silica-rich lava (ex. Paricutin in Mexico)
* The volcano is built up of layers of ASH. When it erupts it is normally with great explosive force.
* Composite Volcano: a small volcano, both quiet and violent eruptions
* (ex. Mt. St. Helens)
* Also called “stratocones”
* The volcano is built up of alternate layers of LAVA and ASH. They can explode with great violence.

**Volcanic (lava)** Domes

* A volcanic dome is created when a body of viscous lava slowly pushes its way upward.
* An example is the Dome formed in crater left by 1980 eruption (explosion) of *Mount St. Helens.*

**Volcanoes**

* Tephra: pieces of rock and solidified lava that fall from the air. (all types of pyroclastic material)
* Lahar: aa destructive mudflow on the slopes of a volcano. mixture of water , pyroclastic material, sand , and gravel capable of moving up to 100 km/hr (mudflow—((Lahar)))

**Pyroclastic Material**Ash, Lapilli, Lava Bombs

There are many kinds of pyroclastic material ejected during a volcanic eruption.

**Ash**

Ash is the most common pyroclastic rock material ejected during an eruption. Volcanic ash is so fine that it can be blown into the atmosphere and picked up by the jet stream where it can circle the Earth for several years.

**Lapilli**

Lapilli are pea-size to walnut-sized pieces of volcanic rock. All types of lava produces lapilli. Shield volcanoes, cinder cones, and composite volcanoes all produce lapilli

**Lava bombs**

Lava bombs are volcanic rocks larger than 64 mm in size. Lava bombs leave a volcano vent as glowing semi-molten rock fragments. While airborne lava bombs become streamlined forming aerodynamic shapes.

**Violent volcanic eruptions**

Lava blocks are often produced during violent volcanic eruptions when pieces of a volcano are blown away. The rock fragments are greater than 64 mm in size with no upward limit to their size.

**Lava blocks**

Lava blocks are large pieces of rock blown out of a volcano which have angular shapes and are solid. Some lava blocks are pieces of the volcano vent or sides of the volcano when it blows apart. The pieces can be as big as a small car. Lava blocks are the largest pieces of pyroclastic material ejected during a violent eruption.

**Pumice**

Pumice is light-colored igneous rock blown into the air in a semi-liquid state. The rock cools so fast it does not have time to crystallize. Gas bubbles inside the molten lava expands producing a rock that resembles a sponge.

**Floating rocks**

Pumice is often buoyant enough to float and has been known to float for thousands of miles after a major eruption. It is often found on the shores of volcanic islands thousands of miles from the eruption.

**Volcanoes**

* Igneous Rock – formed when magma hardens below the ground. Eventually, the process of erosion wears down rock at the surface, exposing features such as
  + Batholiths
  + Dikes
  + Sills

**Igneous Rock Features**

* Batholiths – largest igneous rocks formed when magma cools underground.
* Dike – magma that is squeezed into a *generally* VERTICAL crack that cuts across rock layers and hardens
* Sill – magma that is squeezed into a HORIZONTAL crack between rock layers and hardens
* Volcanic Neck- the solid igneous core of a volcano left behind when a volcano stops erupting
* Caldera – large opening formed when a volcano collapses

**Hot Spots**

* Areas of volcanic activity in middle of a plate
* Exact cause is unclear, possibly due to hot area of magma under the lithosphere
* There are two equally valid hypotheses that might explain hot spots:
  + The plate could be moving over a stationary hot plume in the mantle, or the hot area causing the volcanic activity may be moving under a static, unmoving surface. At this point in our explorations, we are unable to confirm one or the other hypothesis--each is worthy of consideration.