Earth Science

With

Mr. Thomas

Volcanoes

- Definition:
  - An opening in Earth's crust through which molten rock, gases and ash erupt or the landform that develops around these openings.

Volcanoes

- Magma Formation:
  1) Decrease in *pressure* can lower the *melting point*.

  2) Increase in *temperature* (hot spot).

  3) Increase in amt. of water in asthenosphere – can lower melting temperature of rock.

Volcanoes

- Where do Volcanoes Form?
  1) At Subduction Boundaries
  2) At Divergent Boundaries
  3) Over Hot Spots

Subduction Boundaries
(Collision/Convergent Boundaries)

Click for animation!

- Ocean-Ocean collisions result in volcanoes forming islands!!

Subduction Boundaries
(Collision/Convergent Boundaries)

Click for animation!

- Ocean-Continent collisions result in volcanoes forming mountains!!

Subduction Boundaries
(Collision/Convergent Boundaries)

Click for animation!

- Continent-Continent collisions result in volcanoes forming mountains also!!

Subduction Boundaries
(Collision/Convergent Boundaries)

- At subduction boundaries, one plate (one that is more dense) is forced under the other plate.
- This is where old land is destroyed by melting back into magma.
- This is how the earth recycles itself!
- This erases earth's history!

Divergent Boundaries

Click for animation!

- Divergent plate boundaries form mid-ocean ridges!!

Divergent Boundaries

- At Divergent boundaries, the plates are moving away from each other.
- As the plates move away, new land is being created by upwelling magma.
- This is the other piece of how the earth recycles itself!

Hot Spots

Click for animation!

- Hot Spots form island chains!!

Magma

- Silica is the principal ingredient in magma.
- Magma that cools under water is called

Pillow Lava

Volcanoes

- Types of Volcanoes: (See pg. 202-03 in text)
  1) Shield
  2) Cinder Cone
  3) Composite
  4) Calderas
  5) Lava Plateaus
  6) Extraterrestrial

Volcanoes

- Shield Volcanoes:
  - Forms from layers upon layers of hardened lava.
  - Ex) Mauna Loa on Hawaii.

Volcanoes

- Cinder Cone Volcanoes:
  - Forms from lava being thrown into the air from a vent.
  - Your "typical" volcano: Cone shaped
  - Tend to be smaller, in groups, and form on the sides of other volcanoes.

Volcanoes

- Composite Volcanoes:
  - Forms from layers from successive eruptions accumulate around a vent.
  - Ex) Mt. St. Helens

Volcanoes

- Calderas:
  - A large, crater-shaped basin at the top of a dormant volcano.
  - Often filled with water creating a lake.
  - The crater is formed when the top of a volcano collapses.

Volcanoes

- Lava Plateau:
  - Forms from plate tectonic activity where basaltic lava spreads out over a large area.

Volcanoes

- Extraterrestrial Volcanoes:
  - Volcanoes in our solar system on other planets/moons other than earth.
  - Found on:
    - Our moon
    - Mars – Shield volcanoes, Olympus Mons (largest volcano in our solar system)
    - Venus
    - IO (Jupiter's 3rd largest moon) – Most volcanically active in solar system.


That's it