Volocano Products Lab

- Qualitative Lab: Draw & use adjectives like:
- Black, porous, rough, ropey, smooth, shinny, olive…
- Don’t forget the conclusions.

You need to do all tags with RED words. Green ones are extra.

DO NOT OPEN ANY JARS! DO NOT SHAKE JARS! Thank You!

PELE

- Pele is the goddess of fire of Hawaiian tradition. She is constantly fighting her brother, the god of the sea. Pele lives in the Kilauea crater. Hawaiians offer things to appease Pele:

- Ojelo berries (favorite food of the nene goose)
- Ti wrapped gifts
- Hula dances
- Whiskey

Pahoehoe lava

Fluid basalt lava forms smoothish, ropey, flowy lava called pahoehoe. Note the rippled texture. If you could feel it it would be smooth and easy to walk on.

A’a lava

A large amount of lava erupts quickly and cools to form rough, jagged, rocky clumps. Named a’a from the sound one would make as they walked across it in bare feet, the word in Hawaiian is sharp.

A’a lava

http://www.decadevolcano.net/photos/keywords/a_a_lava.htm

A’a flows may be very slow…they may creep along and roll over itself at a slow enough rate that researchers may get close to make marks and take images. Pahoehoe tends to be faster flowing.

Cinder or Lapili

Mildly explosive eruptions due to escaping gas produce Hawaiian ash stones called lapili or cinder. They appear gravel-like Mixed in may be Pele's tears, hair, and reticulite (airy holey light rock like pumice). Whole mountains may be flanked in this cinder.

Black Sand

From en.wikipedia.org

As hot (2000 degree) lava flows into the ocean, it is cooled so quickly the new glassy rock shatters into sand size particles that accumulate on a beach. The “sand” is really volcanic rock.

Pele's Hair

An accumulation of very fine filaments of volcanic glass similar to fiberglass. Lava is stretched out into tiny thin strands that accumulate and look like hair..often found near reticulite and a'a lava.

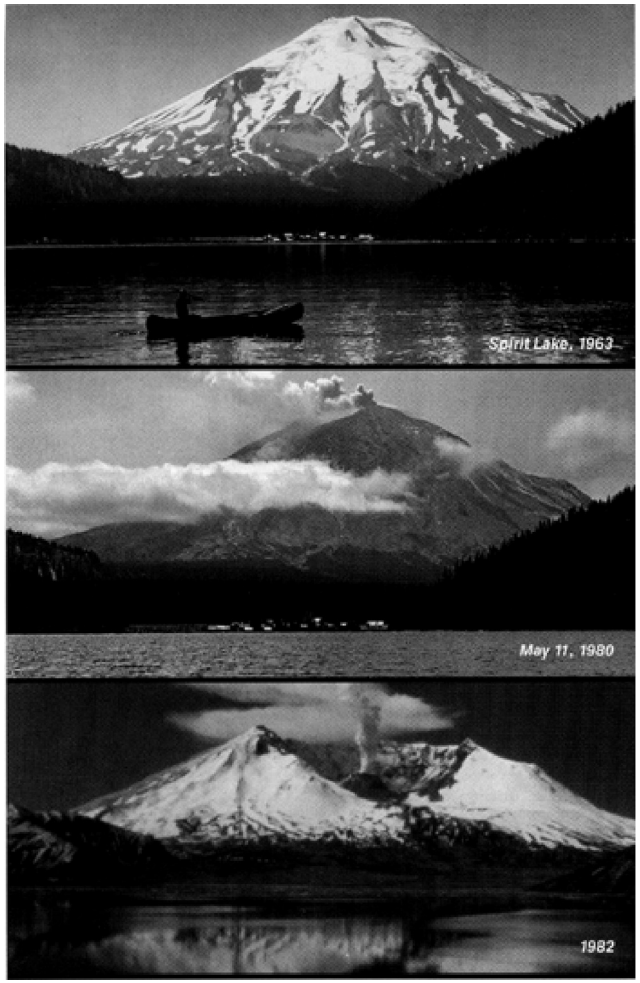
Pele's Tears

Large fountains of lava as they fall through the air may have droplets of lava that form a raindrop shape as they fall and solidify. These look like tears due to gavity's work on the drop as it falls in air.. Note the glassy smooth texture and sizes.

Lava Bomb

Large eruptions may produce bombs the size of a few cm to large basketball sized! Explsive eruptions might make blocks, but if it is semi molten, it may take shape aerodynamically in flight forming the lemon-drop shaped bomb. Some are ribbon shaped or like cow dung. Note the size of this one.

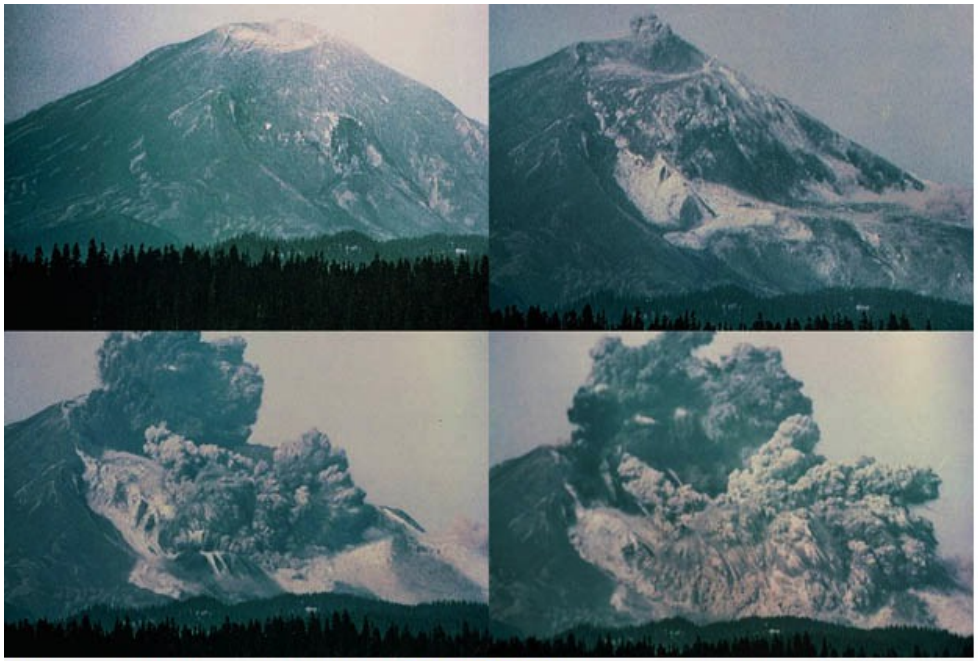
Mt. St. Helens



ux1.eiu.edu

- Mt. St. Helens erupted explosively destroying the entire top of the mountain and burying the surrounding area in mud, debris, and ash hundreds of feet thick on May 18, 1980.

Mt. St. Helens

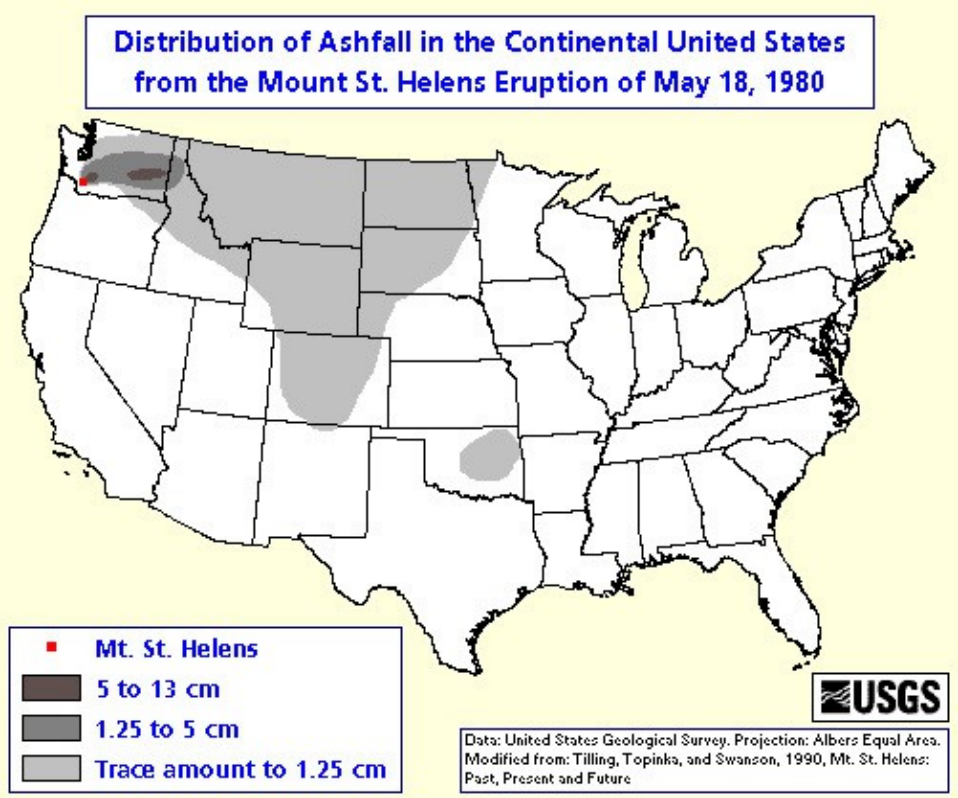


Photographer Gary Rosenquist captured a series of photos of the massive landslide that has aided scientists in reconstructing the event

Gary Rosenquist is the only photographer who caught the images of the mountain exploding. Many people were killed. The landscape was changed permanently.

http://petapixel.com/2013/02/26/photographing-the-eruption-of-mount-st-helens-from-10-miles-away/

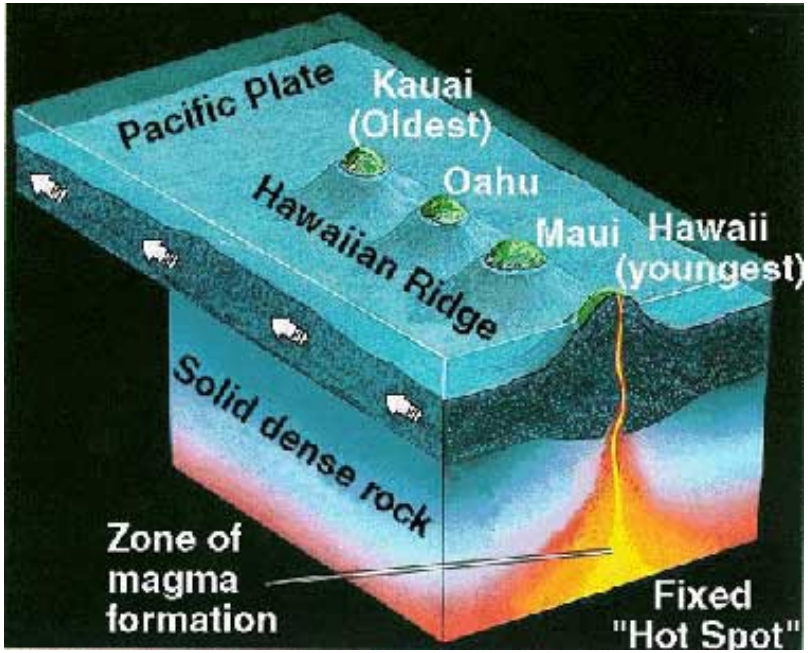
Mt. St. Helens



http://earth.rice.edu/mtpe/geo/geosphere/hot/volcanoes/volcanoes_d.html

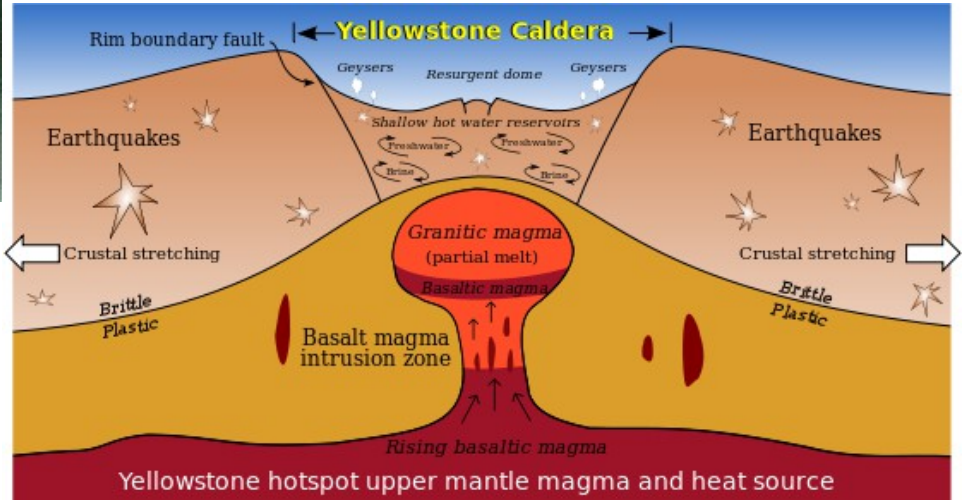
Note how far the ash went….actually it went into the atmosphere and actually circled the globe…but this image shows the distribution of ash sand sized and larger…

Hot Spots



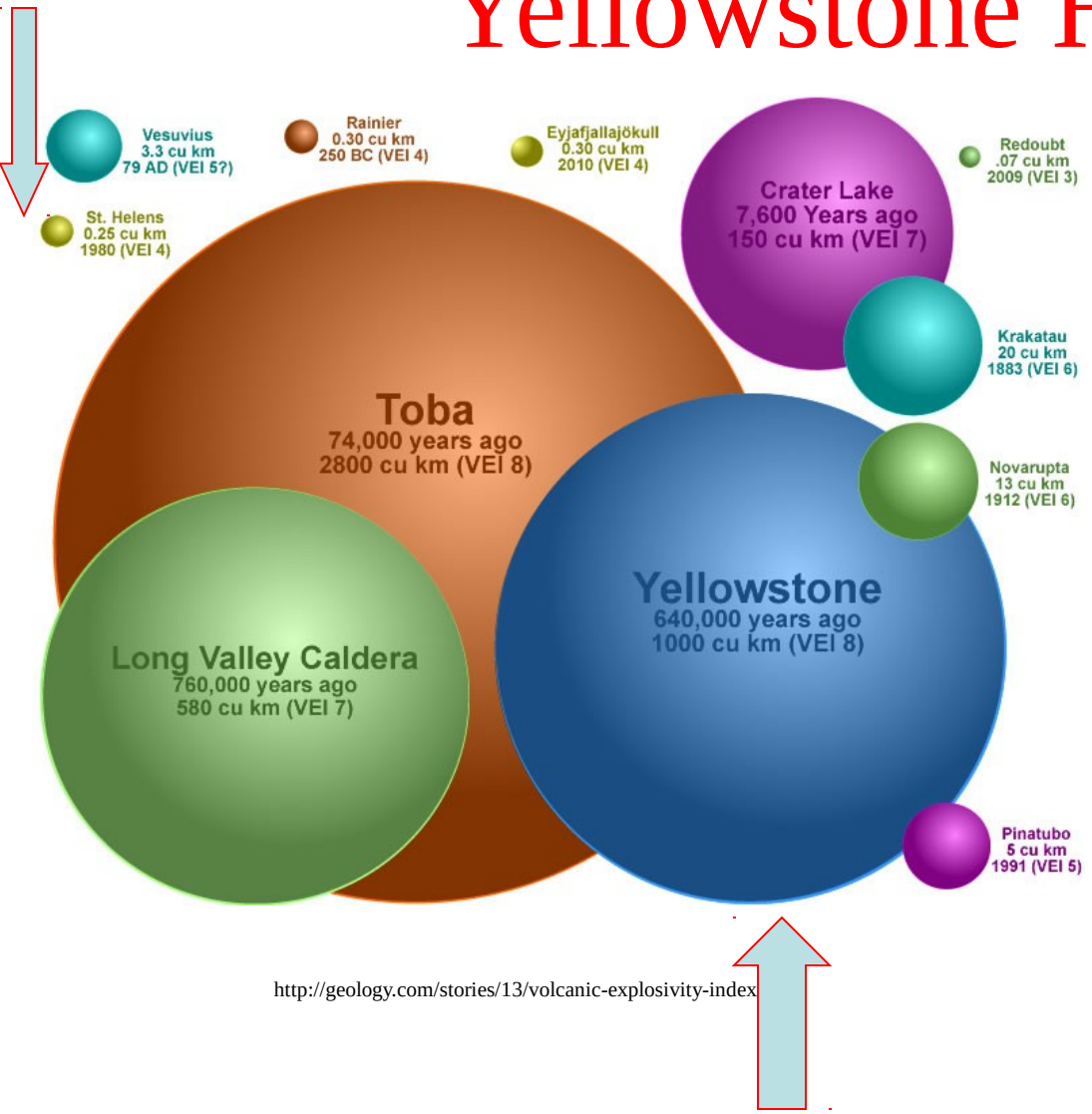
dformation.htm

A single plume of magma erupts through the moving plate above. Hawaii is ocean example and Yellowstone is one on a continent!



http://en.wikipedia.org/wiki/Yellowstone_hotspot

Yellowstone Hot Spot



http://geology.com/stories/13/volcanic-explosivity-index

- Compare the explosivity of Yellowstone from 640,000 years ago to the eruption of Mt. St. Helens! When Yellowstone goes, it will be devastating!

Other Volcanic Hazards

- **Lahars** are mudslides that are the result of either a flash melt of snow/glaciers as eruption happens or rains after an eruption washing the ash and debris down flank.

http://www.geoffmackley.com/archive/ruapehulahar02.html

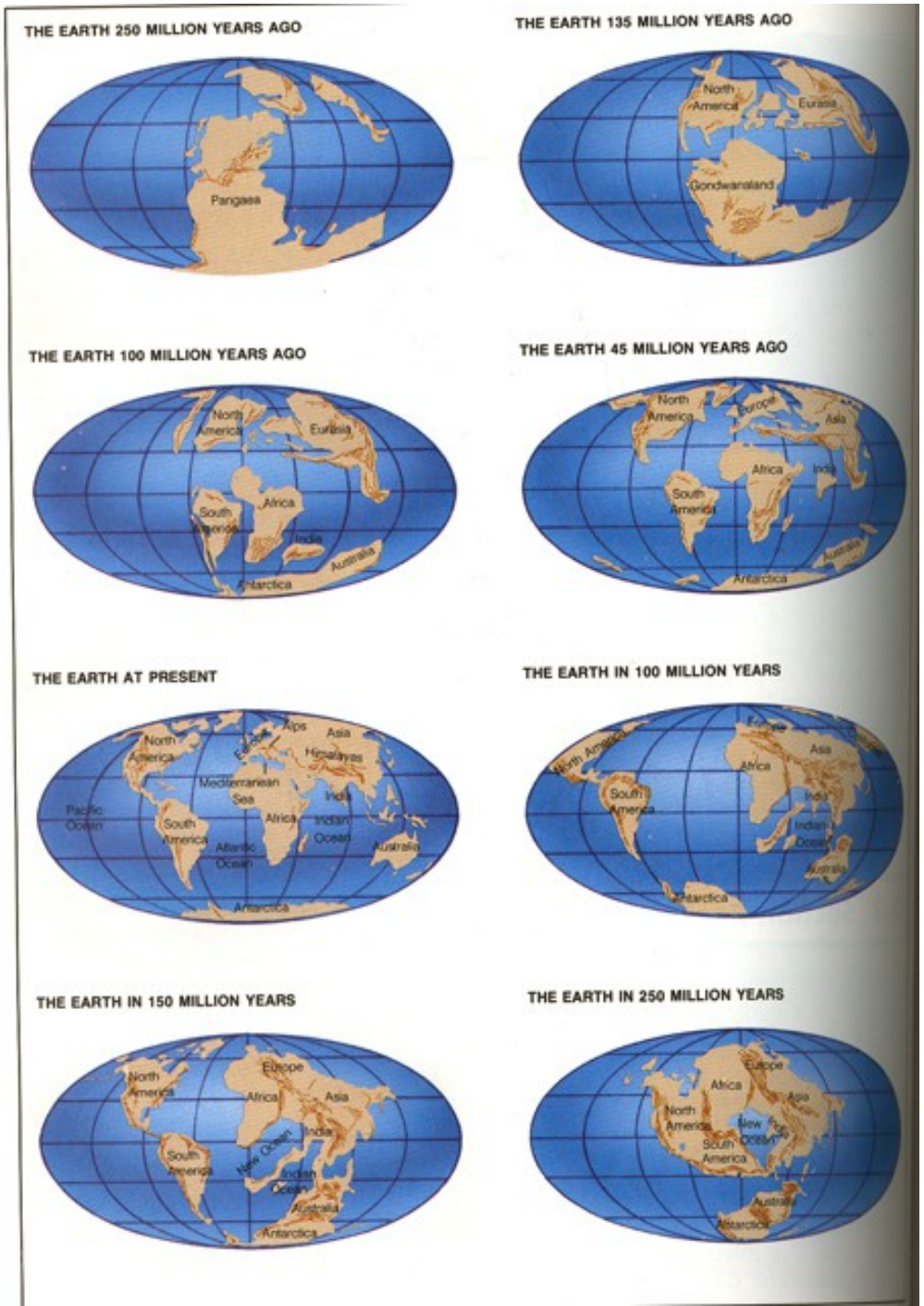
Other Volcanic Hazards

- **Pyroclastic flows** are the flow of super hot rock, pebbles, mountainside, ash and debris down flank after the eruption. They are hot and destroy things they hit.

http://1.bp.blogspot.com/-_k2FmOual_g/UEHVx-uICVI/AAAAAAAAC1I/V7dWJotI1tw/s1600/pyroclastic-flow.jpg

Pangaea

- The idea of pangaea came from Alfred Wegener…continents together 300 million years ago…

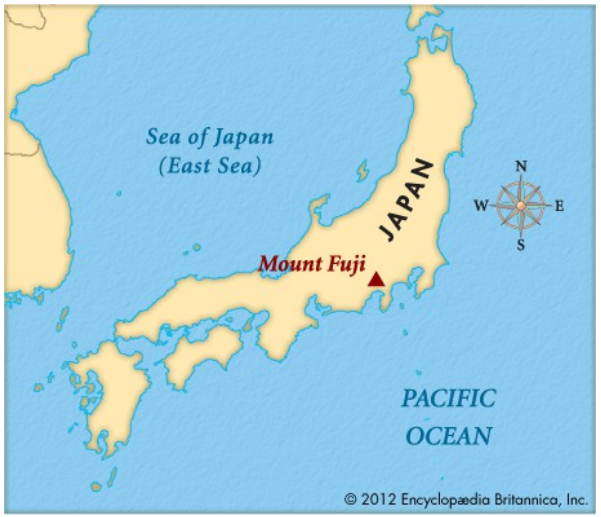


Pangaea

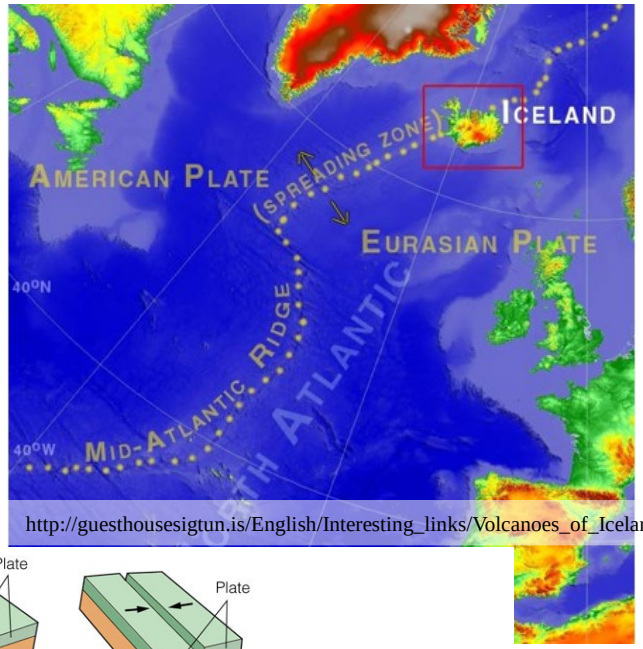
- …and may be our ultimate end 250 million years into the future.

http://mail.colonial.net/~hkaiter/ContinentalDrift.html

Images for questions

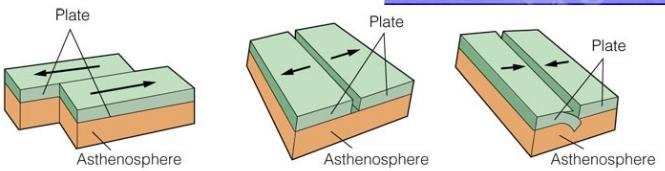


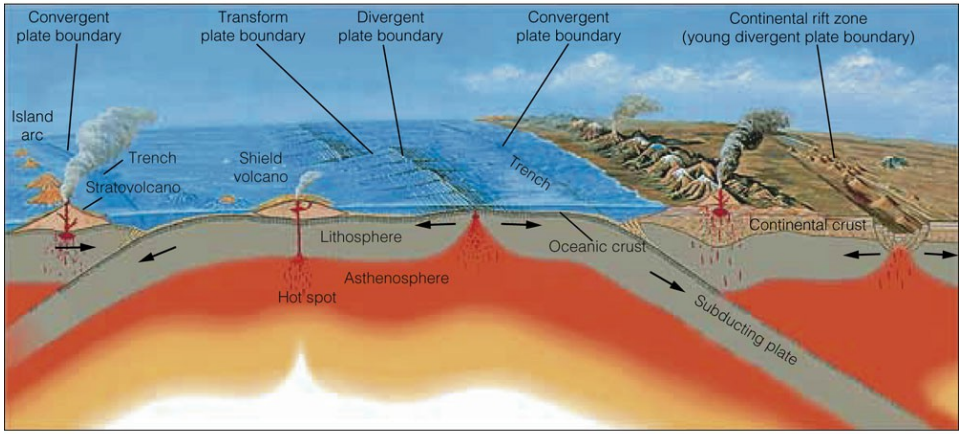
http://kids.britannica.com/elementary/art-88852



http://guesthousesigtun.is/English/Interesting_links/Volcanoes_of_Iceland/

http://kids.britannica.com/comptons/art-54799/Mount-Etna





http://www.suu.edu/faculty/colberg/hazards/platetectonics/platetectonics.html

ERHS MARINE SCIENCE Name_____P__

VOLCANO PRODUCTS REVIEW

Directions: As you stop at each station, draw and describe each of the subjects shown. In some cases, a sample is there to be drawn, read about, and described. Not where the sample forms and how. In some cases a video clip is the sample. Describe what you watch. In some cases a book or image is found. Describe what you read.

BACKGROUND: Volcanoes are the result of tectonic activity along the boundaries. As convergent boundaries of oceanic crust subduct, hot rising magma burns through the crust above forming volcanoes. The type of volcano is dependent on the types and composition of the crust. A hot spot is different in that there is no subduction zone, but a steady plume of magma burns a hole in the plate above it. Hawaii offers a great study of volcanology as lava has been erupting continuously since the 1980s nonexplosively.

Write in a description of each of the things you observed today. Think of color, texture, formation, image.

St. Helens Eruption:	St. Helens Ash…Correlation of size & distance:	Yellowstone is what type of "boundary" & how explosive in the past?
Hawaiian Pahoehoe lava:	Hawaiian A'a lava:	Hawaiian black sand:
Hawaiian Pele's hair:	Hawaiian Pele's tears:	Hawaiian lava bomb:
St. Helens before & after:	Pangaea Video Clips:	Lahar…what is it?
Pyroclastic flow…what is it?	A'a flow…how fast?	

1. Write down a comparison of what happens at each of these boundaries: hot spot, ocean-ocean, and ocean-continental.

2. What type of eruptions do you expect at each: Mt. Fuji, Japan; Iceland; Mt. Etna, Italy?