Eruption of Mt St Helens
Lava-
Extrusive Rock-
Volcanism

Volcano
Effects of volcanism

1. 
2. ____________ - underground heat generated by igneous activity harnessed for human needs.
3. Effect on climate
4. Volcanic catastrophes
Volcanic eruptions can affect the climate

- 1.
- 2.
- 3.
Crater lake Oregon
Causes of fatalities:
Factors that effect the violence of an eruption & influence the volcano shape

1. The amount-
2. The ease or difficulty

3. Viscosity-
   - Silica content-
   - Temperature of lava- silicic solidify @ _____Mafic _______
     - ______ dissolved in the magma
   - The more ____________ the lava is and the greater the volume of gas trying to escape the more violent the eruption is.
     - Mafic
     - Silicic (felsic)-
Extrusive rocks and gases

1. Gases -

2. ________ - are sent high into the atmosphere by expanding gases which eventually gravity pulls them back to Earth as pyroclast fall.

3. ________ - mixture of gas and pyroclastics debris that is so dense that it hugs the ground as it flows rapidly into low area.
Japan’s Mount Unzen, 1991
Results of Mount Unzen eruption
Extrusive Rocks are named & identified on

- **Composition**-
  - Mafic- 50% silica
  - Felsic-65% + silica

- **Extrusive Textures**-
  - Rate of cooling-
  - Viscosity of magma
Extrusive textures - basis for names of rock

- ________ - volcanic glass that is usually silicic and one of the few not composed of minerals
Porphyritic rock-
Phenocrysts-
Indicate 2 stages of solidification

porphyritic texture
Textures due to trapped gas

- When lava solidifies white gas is bubbling through it holes are left in rock
- ________ - cavities in extrusive rock resulting from gas bubbles that were in lava, the texture is called ______________.
Fragments formed by volcanic explosions are classified by their size

- Dust-
- Ash-
- Cinder or lapilli-
- Blocks and bombs
Two volcanic bombs from a mafic cinder cone in Mexico.
rhyolite breccia

rock fragments

rhyolite tuff

(mostly ash-sized pyroclasts)
Formation of a volcano

- Material that is ejected from and deposited around a central vent produces the conical shape typical of volcanoes
- __________ - opening through which an eruption takes place.
- __________ - basin like depression over a vent at the summit of the cone
- __________ - lava pours from a vent on the side of a volcano
Caldera-
15 Exploring Volcanic Mountains

Shield Volcano

Cinder Cone Volcano

Composite Volcano

Mauna Loa

Sunset Crater

Mt. Hood
-broad, gently sloping

- Lava forming it has low viscosity
- _____________ are a series of shield volcanoes built up from the ocean floor by intermittent eruptions over millions of years.
- non-violent
- Layers of basalt

Shield Volcano
Hawaiian names of two distinctive surfaces of basalt flows
pyroclastic material accumulates around a vent
_________________________ - (stratovolcano)
made of alternating layers
Circum-Pacific Belt- (ring of fire)

NOTE: Juan de Fuca is the only significant fault line on the Ring of Fire NOT to have experienced a major earthquake in the last 50 years.
- steep sided, dome shaped masses of volcanic rock
nonviscous lava that flows easily does not build a cone around a vent

- Such lava is mafic, low in silica
- were produced by vast outpourings of lava from fissures. Columbia Plateau of Washington, Idaho, & Oregon

Lava Plateaus
formed as basalt contracts this way when it cools

Two imaginable modes of contraction for a hot lava flow:

1. Whole-sheet contraction (unlikely)
2. Localized contraction

Actual columns of basalt are more elongate.
Under the Sea
Basaltic rock formed from lava erupting along mid-ocean ridges makes up almost all of the crust underlying the Oceans.
Geothermal energy

- [www.alternative-energy-news.info/technology/heating/](http://www.alternative-energy-news.info/technology/heating/)
How does Igneous Rock change to... 

- Sedimentary
- Metamorphic