

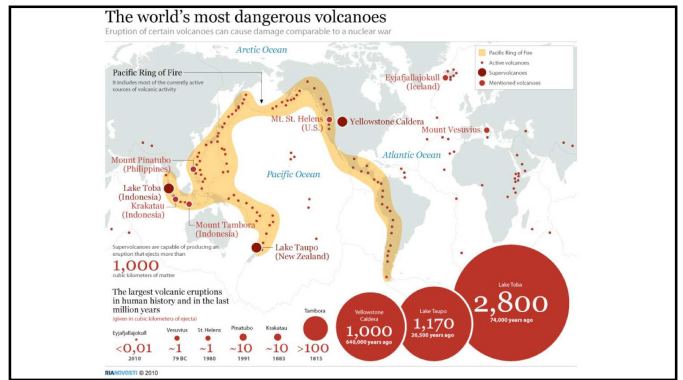
Volcano Facts

- Start a new page in your notebook and title it. You will glue today's worksheet there when done.



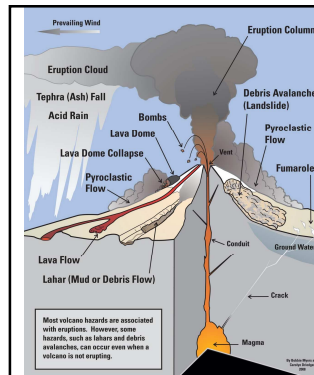
- **Volcano:** a weak spot in the Earth's crust that erupts with lava, tephra (*ash, cinders, bombs*), gases, and steam.
- Volcanoes occur along convergent and divergent plate boundaries, and also at hot spots.
- **Hot spot:** an area of the crust above a mantle plume (*very hot upwelling of magma*)

- Volcanic eruptions can cause small earthquakes, and earthquakes can trigger volcanic eruptions!
- **Ring of Fire:** a ring of convergent plate boundaries surrounding the Pacific Ocean where dangerous earthquakes and stratovolcanoes are common.
- **Super volcano** eruptions can occur at hot spots or diverging boundaries, but are very rare. We haven't had one in all of recorded human history!



If volcanoes are so dangerous, why do people live nearby?

- Major eruptions can be hundreds or thousands of years apart.
- Volcanic soil is very fertile

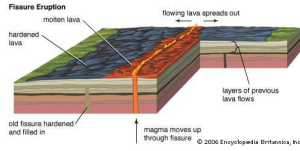
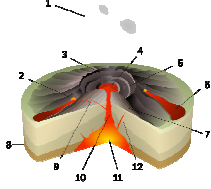


Volcanic Hazards

- Lava flow
- Pyroclastic flow (hot ash)
- Lahar flow (mud flow)
- Landslide
- Ash fall
- Poisonous gases

Effusive or Quiet Eruptions (Hawaiian)

- Very little ash or tephra, but lots of flowing lava. Builds lava plateaus or shield volcanoes.



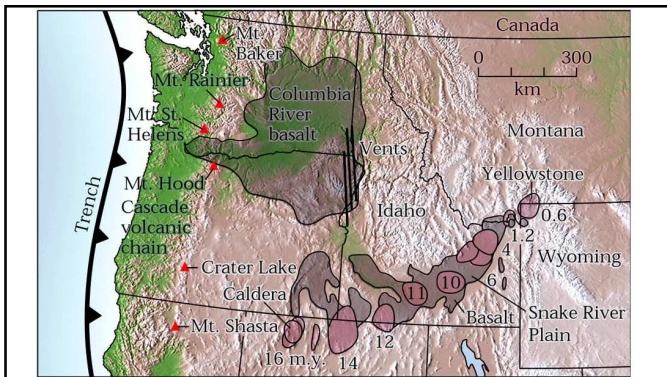
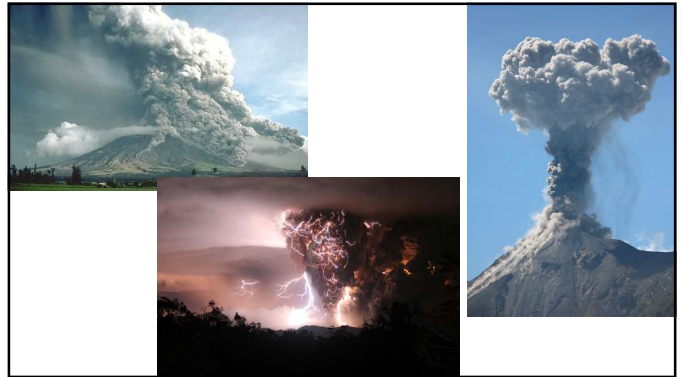
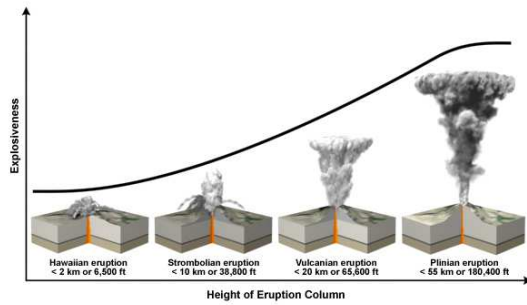
Explosive Eruptions (Strombolian, Vulcanian, Plinian)

- Explosive eruptions throw tephra (ash, cinders, bombs) into the atmosphere, and erupt very little lava.



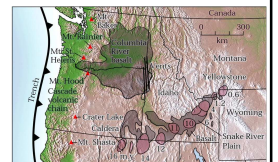
- Small explosive eruptions form cinder cones, large explosive eruptions form composite volcanoes (which also can erupt quietly with lava flow)

Relative Explosiveness and Resulting Height of Eruption



Idaho Volcanoes

- Most of Idaho's volcanic activity is in the Eastern Snake River Plain, which was created by ancient explosions from the Yellowstone Hot Spot.
- Southern Idaho is known for lava fields, low shield volcanoes, and geothermal activity (hot pools!)



- **Black Butte Crater** (shield volcano): north of Twin Falls, view a frozen lava lake and visit the Shoshone Ice Caves (lava tube caves)

- **Lava tube:** tunnels where lava used to flow, formed by surface lava crusting overtop the still flowing molten lava



- **Craters of the Moon** (lava field, cinder cones): near Arco, formed by multiple lava flows from a fissure, the lava field also includes a large number of cinder cones.



- **Hells Half Acre** (shield volcano): lava field with hiking trails and lava caves just outside of Idaho Falls.

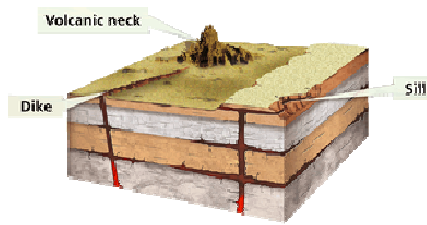


- **Wapi Lava Field** (shield volcano): between Twin Falls and Pocatello, this lava field has an explosion crater called King's Bowl



Not just volcanoes

- Lava and magma can leave behind landforms other than volcanoes, such as volcanic sills, dikes, and necks.



VEI	Description	Eruption Cloud Volume	Eruption Cloud Height	Eruption Class	Average Frequency	Famous Examples
0	Effusive		100 m	Hawaiian	Constant	Kilauea, Piton de la Fournaise, Erebus
1	Gentle	0.0001 km ³ *	1 km	Hawaiian / Strombolian	Daily	Nyiragongo (2002), Raoul Island (2006)
2	Explosive	0.001 km ³ •	5 km	Strombolian / Vulcanian	Weekly	Unzen (1792), Cumbre Vieja (1949), Galeras (1995), Sinabung (2010)
3	Severe	0.01 km ³ ••	15 km	Vulcanian	3 months	Nevado del Ruiz (1985), Soufriere Hills (1995), Nabro (2011)
4	Cataclysmic	0.1 km ³ •••	25 km	Vulcanian / Plinian	Yearly	Mayon (1814), Pelee (1902), Eyjafjallajökull (2010)
5	Paroxysmal	1 km ³ ••••	25 km	Plinian	10 years	Vesuvius (79), Fuji (1707), St. Helen's (1980), Puyehue (2011)
6	Colossal	10 km ³ •••••	25 km	Plinian / Ultra-Plinian	100 years	Krakatoa (1883), Pinatubo (1991), Laki (1783)
7	Super-colossal	100 km ³ ••••••	25 km	Ultra-Plinian	1,000 years	Mazama (5600 BC), Thera (1620 BC), Tambora (1815)
8	Mega-colossal		25 km	Ultra-Plinian	10,000 years	Yellowstone (640,000 BC), Toba (74,000 BC), Taupo (24,500 BC)

