



Volcano e-Lab Post-Lab Lesson Plan (45-50 minutes)

I. Introduction

The material contained within this lesson plan is meant to be used as a final assessment of knowledge gained during the Volcano pre-lab and e-lab.

II. Objective:

Students will use new knowledge of the types of volcanoes to complete their student worksheet used in the pre-lab lesson.

III. Key Vocabulary:

- **Asthenosphere**: plastic like layer of the upper mantle on which the lithospheric plates move.
- **Crater**: The circular depression containing a volcanic vent.
- **Calderas**: large volcanic depressions formed by the collapse of the summit of a volcano into underlying magma chambers emptied by removal of magma by large explosive eruptions or the effusion of large volumes of lava flows.
- **Cinder cone**: A steep-sided volcano formed by the explosive eruption of cinders that pile up around a vent. Cinders are lava fragments a few centimeters in diameter.
- **Hot spot**: An area in the middle of a lithospheric plate where magma rises from the mantle and erupts at the Earth's surface. Hot spot volcanoes are not associated with plate boundaries.
- **Lava**: The term used for magma once it has erupted onto the Earth's surface.
- **Lithosphere**: The Earth's hard, outermost shell. It comprises the crust and the upper part of the mantle and is divided into a mosaic of 16 major slabs, or plates. These plates float on top of the asthenosphere, a more plastic layer in the Earth's mantle.
- **Magma**: Molten rock containing liquids, crystals, and dissolved gases that forms within the upper part of the Earth's mantle and crust. When erupted onto the Earth's surface, it is called lava.
- **Mantle**: A zone in the Earth's interior between the crust and the core that is 2,900 kilometers (1,740 miles) thick. (The lithosphere is composed of the topmost 65-70 kilometers (39-42 miles) of the mantle and the crust.)
- **Shield volcano**: A volcano that resembles an inverted warrior's shield. It has long gentle slopes produced by multiple eruptions of fluid lava flows.
- **Stratovolcano**: A steep-sided volcano built by inter-layered lava flows and tephra deposits. (Also called composite volcano.)
- **Subduction zone**: The place where two lithospheric plates come together, one moving down under the other. Most volcanoes on land occur parallel to and inland from the boundary between the two plates.
- **Tephra**: Solid material of all sizes explosively ejected from a volcano into the atmosphere.

- **Vent**: The opening at the Earth's surface through which volcanic materials (lava, tephra, and gases) erupt. Vents can be at a volcano's summit or on its slopes; they can be circular (craters) or linear (fissures).
- **Viscosity**: Measure of the fluidity of a substance. Taffy and molasses are viscous; water has low viscosity.
- **Volcano**: A vent (opening) in the Earth's surface through which magma and its gases erupt; it is also the landform that is constructed by the eruptive material.

IV. **Materials:**

- Copies of Volcanoes Pre-lab Lesson Student Worksheet (chart and map) for each student
- Computers with internet access
- Volcano Venn diagram Worksheet for each student

V. **Lesson Sequence:**

1. Review with students the information learned in the e-lab. Have students refer to their Volcano Worksheet, and ask them to discuss what new knowledge they gained over the course of the pre-lab and e-lab lessons.
2. Have students use the internet to identify the type of volcano for each one plotted in the ring of fire. Have them fill this in on their student chart that they used in the pre-lab lesson.
3. To conclude the lesson, have students complete the Volcano Venn Diagram worksheet about Stratovolcanoes, Cinder Cones, and Shield Volcanoes.