**Volcanoes Guided Notes**

Name:

1. **Factors Affecting Eruptions**

Volcanoes erupt with different severities. The primary factors that determine whether a volcano erupts quietly or violently are:

(1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(3)

1. **Magma Composition and Temperature**

* *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* refers to a substances resistance to flow.
* EX: syrup is more viscous than water and flows more slowly.
* As temperature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the liquid becomes \_\_\_\_\_\_ viscous
* The chemical composition of magma greatly affects the type of volcanic eruption.
* The viscosity of magma is related to its \_\_\_\_\_\_\_\_\_\_\_ (sand) content.
* High silica content= viscosity

**3. Dissolved Gases in Magma**

- During eruptions, \_\_\_\_\_\_\_\_\_\_\_\_\_ trapped in magma provide a to eject molten rock from the (opening to the surface).

- Highly viscous magma \_\_\_\_\_\_\_\_\_\_\_\_ the upward motion of expanding gases. The gases collect in pockets until they increase in size and explosively \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**4. Volcanic Material**

Many different materials are ejected from volcanoes during eruptions

(1) \_\_\_\_\_\_\_

(2) \_\_\_\_\_\_\_\_\_\_\_\_\_

(3)

**5. Lava Flows**

Basaltic lavas have \_\_\_\_\_\_\_ silica content, and are not very viscous. Two types of formations occur as a result of basaltic lava flows:

(1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – wrinkled/ropy lava flow

(2) \_\_\_\_\_\_\_ \_ – rough jagged block surface with spiny projections and sharp edges

**6. Gases**

Magma contains varied amounts of dissolved \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Gases are confined to molten rock by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; once the pressure is reduced, the gases begin to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**7. Pyroclastic material**

Particles that are produced during volcanic eruptions. This material appears as a fast moving cloud of ash. *\_\_\_\_\_\_\_\_\_\_\_\_\_* range from the size of small beads to walnuts. \_\_\_\_\_\_\_\_\_\_\_\_\_ are particles larger than 64mm in diameter and composed of hardened lava. \_\_\_\_\_\_\_\_\_\_\_\_ are glowing lava larger than 64mm in diameter.

**8. Anatomy of a Volcano**

Volcanic activity begins with a /crack that develops as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is forced towards the surface. Gas-rich magma is forced up through the fissure ending at a \_\_\_\_\_\_\_\_\_\_\_\_\_ . At the summit of a volcano is a steep-walled depression called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. When a volcano violently erupts, the crater and mouth of the volcano will be ejected and destroyed. A forms, which is a large volcanic .

**9. Types of Volcanoes**

**Shield volcanoes** are produced by the accumulation of \_\_\_\_\_\_\_\_\_\_\_\_ basaltic lava. They are broad, slightly domed structures that resembles a warrior’s \_\_\_\_\_\_\_\_\_\_\_\_\_ . Most have grown from the ocean floor to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. EX: Hawaiian Islands and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Cinder cones** are mostly composed of \_\_\_\_\_\_\_ \_-rich basaltic magma. They are usually the product of a single eruption that lasts a few weeks. Once the eruption ends, magma in the pipe connecting the vent to the magma chamber \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so the volcano can never erupt again. They are much \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in size. EX: Lava Butte, Newberry National Volcanic Monument in Oregon, USA.

**Composite/ Stratocone** volcanoes are the most dangerous volcanoes. They are large symmetrical structures composed of \_\_\_\_\_\_\_\_\_ and pyroclastic deposits. These are the most explosive volcanoes due to the high \_\_\_\_\_\_\_\_\_\_\_\_ content of magma. Most of these volcanoes are located in the Pacific Ocean Rim in an area called the “ \_\_\_\_\_\_\_\_\_\_”. EX: St. Helens

How are volcanoes created? Volcanoes are created by plate tectonics and found at these three locations…



**10. Negative Effects of Volcanoes**

\_\_\_\_\_\_\_ , landslides, \_\_\_\_\_\_\_\_\_\_\_\_ (mud flows) – all lead to death and destruction. Volcanic gases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ surface temperature by blocking out the \_\_\_\_\_\_ . Released sulfur gases can lead to the creation of \_\_\_\_\_\_\_ , which can \_\_\_\_\_\_\_\_\_\_\_\_\_\_ leaves and kill trees.

**11. Positive Effects of Volcanoes**

Volcanoes have created up to \_\_\_\_\_\_ of the Earth’s surface– we need land to live on! Volcanoes also create rich, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ soil for agriculture. The heat from volcanoes can also be harvested and used as a renewable energy source EX: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy in Japan