**Chaper 1.2: Volcanic Eruptions**

Name:

Date:

**Lesson 1.2: True or False**

Write true if the statement is true or false if the statement is false.

\_\_\_\_\_ 1. Mount St. Helens is a dormant volcano.

\_\_\_\_\_ 2. The 1980 Mount St. Helens eruption was an effusive eruption.

\_\_\_\_\_ 3. Each volcanic eruption is unique.

\_\_\_\_\_ 4. Mafic magma has higher viscosity than felsic magma.

\_\_\_\_\_ 5. An explosive eruption occurs because of built-up pressure in the magma chamber.

\_\_\_\_\_ 6. Mafic magma may cause a pyroclastic flow.

\_\_\_\_\_ 7. Volcanic gases can form poisonous clouds in the atmosphere.

\_\_\_\_\_ 8. In an effusive eruption, magma erupts through vents.

\_\_\_\_\_ 9. Eruptions of mafic magma are generally less deadly than eruptions of felsic magma.

\_\_\_\_\_ 10. Pillow lava forms when felsic magma cools very quickly under water.

**Lesson 1.2: Critical Reading**

Read this passage based on the text and answer the questions that follow.

**Predicting Volcanic Eruptions**

Volcanologists attempt to forecast volcanic eruptions, but this has proven to be nearly as difficult as predicting

earthquakes. Many pieces of evidence can mean that a volcano is about to erupt, although the time and magnitude of the eruption are difficult to predict. Signs an eruption is likely may come from a history of previous volcanic activity, the occurrence of earthquakes, slope deformation, and gas emissions.

A volcano’s history—how long since its last eruption and the time span between its previous eruptions—is a good first step in predicting eruptions. Currently erupting volcanoes (active volcanoes) and those that have erupted recently (dormant volcanoes) are heavily monitored because they may erupt again.

Moving magma shakes the ground, so the number and size of earthquakes may increase before an eruption. A

volcano that is about to erupt may produce a sequence of earthquakes. Scientists use seismographs to record the length and strength of earthquakes to help them predict whether an eruption is imminent.

Magma and gas can push a volcano’s slope upward, causing deformation in the ground. The changes may be subtle and only detectable by tiltmeters. These are instruments that measure the angle of a slope. In other cases, the changes may be very obvious. For example, Mount St. Helens grew a huge bulge on its north side before its 1980 eruption. Ground swelling may also cause rock falls and landslides.

Gases may escape from a volcano before magma reaches the surface. Scientists measure gas emissions in vents on or around volcanoes or from a distance using satellites. The gases measured may include sulfur dioxide, carbon dioxide, hydrochloric acid, and water vapor. The amounts of gases and their ratios are calculated to help predict eruptions.

**Questions about the Passage**

1. Identify signs that a volcano may be likely to erupt.
2. Why do earthquakes often precede volcanic eruptions?
3. A volcano about to erupt may deform the ground. How can this be detected?
4. Why do scientists measure gases released on or around a volcano to help predict eruptions?

**Lesson 1.2: Multiple Choice**

Circle the letter of the correct choice.

1. The costliest and deadliest volcanic eruption in U.S. history was

1. Mount Shasta.
2. Mount Redoubt.
3. Mount Mazama.
4. Mount St. Helens.

2. The chemical composition of magma determines

1. its eruption style.
2. the type of volcanic cone it creates.
3. the composition of rocks it forms.
4. all of the above

3. Mafic magmas

1. are low in silica.
2. are light in color.
3. contain minerals such as quartz.
4. all of the above

4. Felsic magmas

1. are not viscous.
2. erupt effusively.
3. do not flow easily.
4. cool to form extrusive rocks.

5. A pyroclastic flow may

1. knock down everything in its path.
2. have a maximum temperature of 700 °C.
3. travel at a speed of 1800 mph.
4. consist of mafic magma.

6. Types of lava in explosive eruptions may include

1. a’a.
2. pahoehoe.
3. pillow lava.
4. none of the above

7. Signs that a volcano may soon erupt include

1. earthquakes.
2. gas emissions.
3. ground deformation.
4. all of the above

**Lesson 1.2: Matching**

Match each definition with the correct term.

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| --- | --- |
| **Definitions**\_\_\_\_\_ 1. potentially devastating eruption of rock, lava, ash, and gas from a volcano\_\_\_\_\_ 2. volcano that has not erupted recently and probably will not erupt again\_\_\_\_\_ 3. resistance of a liquid to flow\_\_\_\_\_ 4. hot ash, gas, and rock that race down a volcano’s slopes during an explosive  eruption\_\_\_\_\_ 5. relatively gentle, non-explosive volcanic eruption\_\_\_\_\_ 6. volcano that is not currently active but has erupted recently\_\_\_\_\_ 7. volcano that is erupting or shows signs that it will erupt soon | **Terms**a. active volcanob. dormant volcanoc. extinct volcanod. effusive eruptione. explosive eruptionf. pyroclastic flowg. viscosity |

**Lesson 1.2: Fill in the Blank**

Fill in the blank with the appropriate term.

* 1. Smooth, ropy lava tubes that form from mafic magma are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	2. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a volcanic mudflow that occurs when a pyroclastic flow melts snow.
	3. A region in the crust below a volcano where magma and gases collect is known as a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	4. The material that erupts from a volcano in an explosive eruption is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ magmas contain dark-colored minerals such as olivine.
	6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ magmas contain light-colored minerals such as quartz.
	7. Scientists who study volcanoes are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Lesson 1.2: Critical Writing**

Thoroughly respond to the prompt below. Use appropriate academic vocabulary and clear and complete sentences.

***Prompt***: Relate the type of magma (mafic or felsic) to the style of volcanic eruption (effusive or explosive).

 Explain the relationship.