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- Explain
- Identify
- Describe

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hot spot

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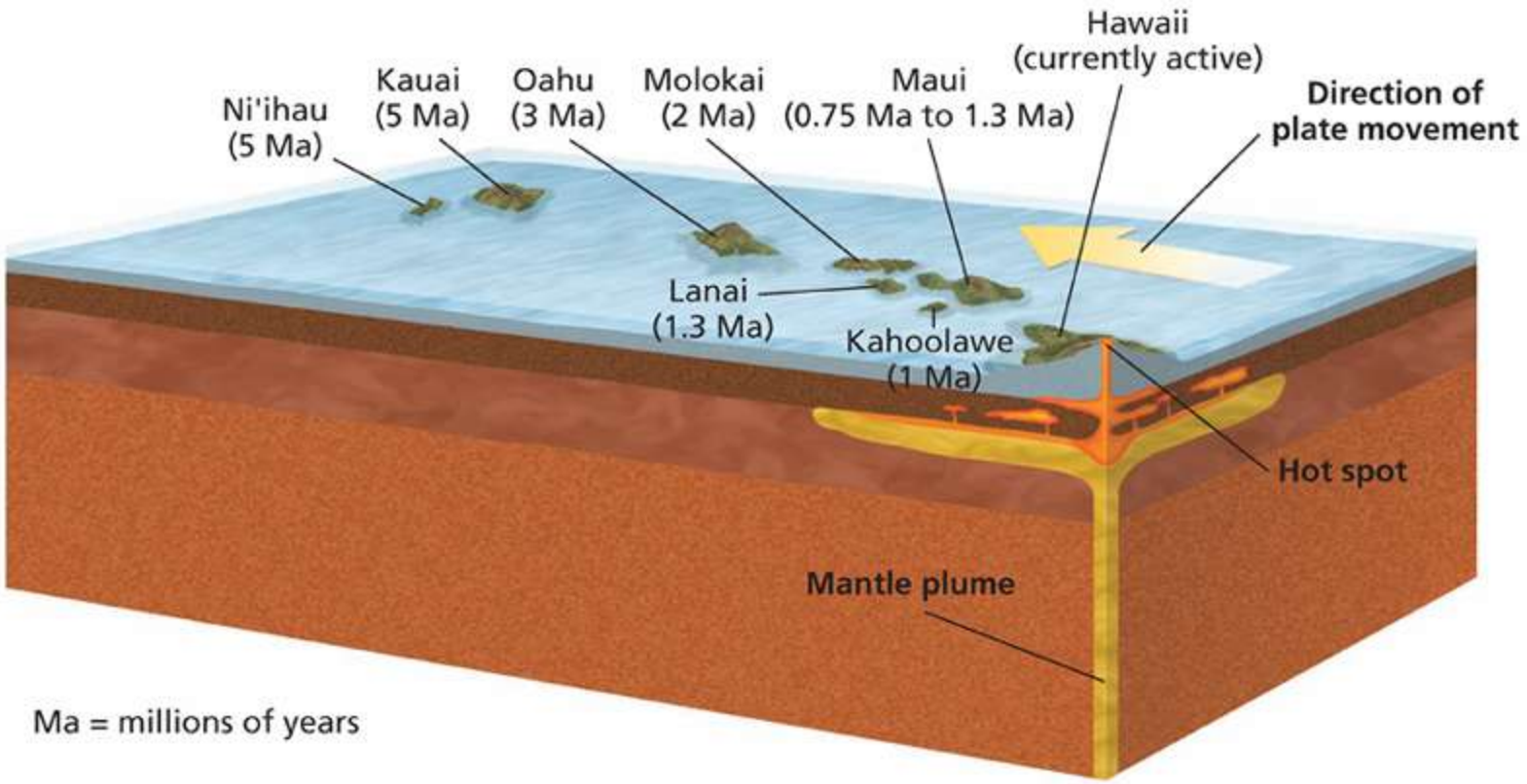

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Objectives

- Explain

- Describe
- Identify
- Describe
- List

Volcanic Eruptions

mafic

felsic

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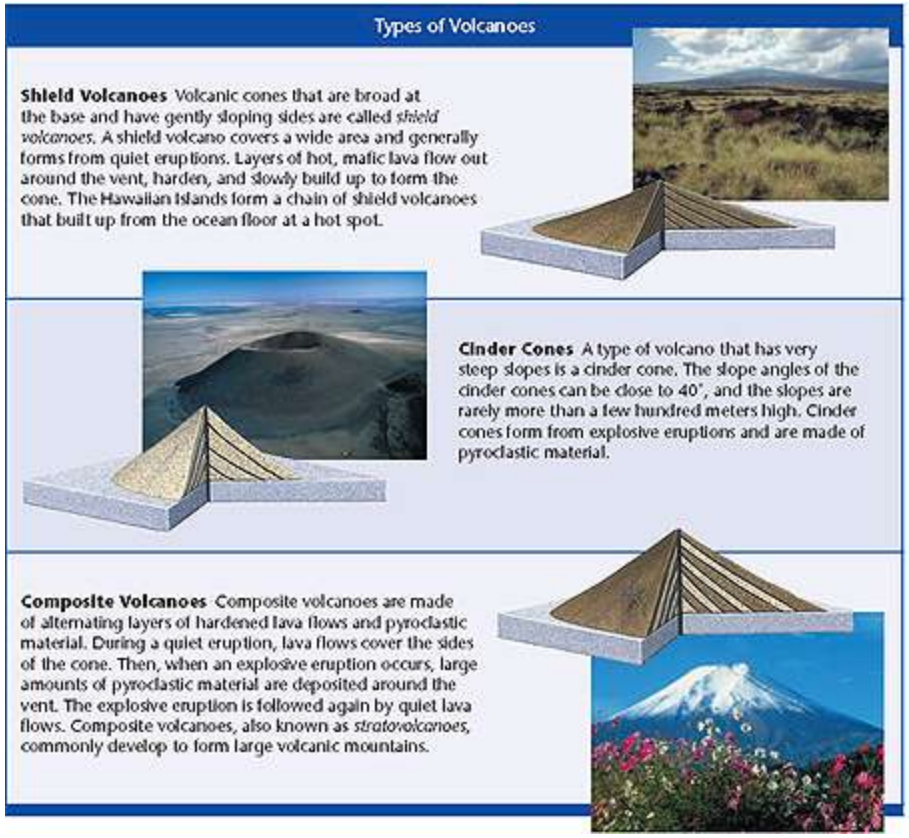

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caldera

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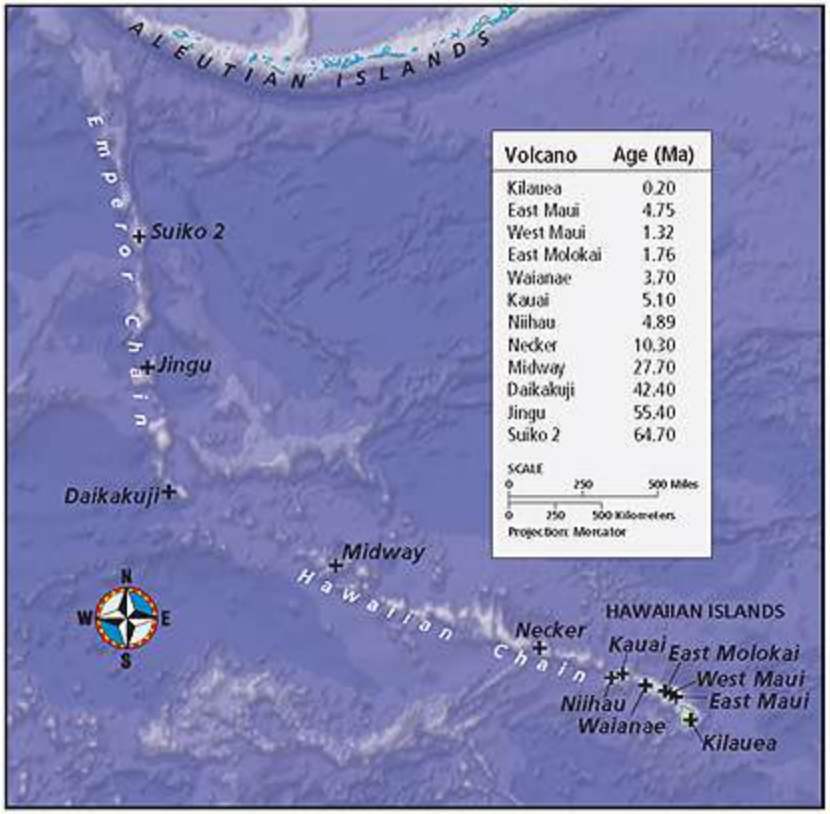

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Multiple Choice

1. What type of volcanic rock commonly makes up much of the continental crust?

Multiple Choice, *continued*

1. What type of volcanic rock commonly makes up much of the continental crust?

B. felsic rock that is rich in silicates

Multiple Choice, *continued*

2. Which of the following formations results from magma that cools before it reaches Earth's surface?

Multiple Choice, *continued*

2. Which of the following formations results from magma that cools before it reaches Earth's surface?

F. batholiths

Multiple Choice, *continued*

3. How does volcanic activity contribute to plate margins where new crust is being formed?

Multiple Choice, *continued*

3. How does volcanic activity contribute to plate margins where new crust is being formed?

C. When plates pull apart at oceanic ridges, magma creates new ocean floor.

Multiple Choice, *continued*

- An important warning sign of volcanic activity

Multiple Choice, *continued*

- An important warning sign of volcanic activity

G.is a bulge in the surface of the volcano

Multiple Choice, *continued*

- Which aspect of mafic lava is important in the formation of smooth, ropy pahoehoe lava?

Multiple Choice, *continued*

- Which aspect of mafic lava is important in the formation of smooth, ropy pahoehoe lava?

B.a fairly low viscosity

Short Response

- What is the name for rounded blobs of lava formed by the rapid, underwater cooling of lava?

Short Response, *continued*

- What is the name for rounded blobs of lava formed by the rapid, underwater cooling of lava?

pillow lava

Short Response, *continued*

- Where is the Ring of Fire located?

Short Response, *continued*

- Where is the Ring of Fire located?

The Ring of Fire surrounds the Pacific Ocean.

Reading Skills

Read the passage below. Then, answer questions 8–10.

Volcanoes That Changed the Weather

In 1815, Mt. Tambora in Indonesia erupted violently. Following this eruption, one of the largest recorded weather-related disruptions of the last 10,000 years occurred throughout North America and Western Europe. The year 1816 became known as "the year without a summer." Snowfall and a killing frost occurred during the summer months of June, July, and August of that year. A similar, but less severe episode of cooling followed the 1991 eruption of Mt. Pinatubo. Eruptions such as these can send gases and volcanic dust high into the atmosphere. Once in the atmosphere the gas and dust travel great distances, block sunlight, and cause short-term cooling over large areas of the globe. Some scientists have even suggested a connection between volcanoes and the ice ages.

Reading Skills, *continued*

8. What can be inferred from the passage?

Reading Skills, *continued*

8. What can be inferred from the passage?

B. Volcanic eruptions can have effects far beyond their local lava flow.

Reading Skills, *continued*

- According to the passage, which of the following statements is false?

Reading Skills, *continued*

- According to the passage, which of the following statements is false?

G. The world experienced a period of unusually warm weather after Mt. Pinatubo erupted.

Reading Skills, *continued*

10. The eruptions described in the passage changed the weather briefly. Some scientists believe that periods of severe volcanic activity can produce long-term changes to the climate. Suggest one specific way in which the materials sent into the atmosphere by volcanoes might cause long-term changes to global climate and temperature.

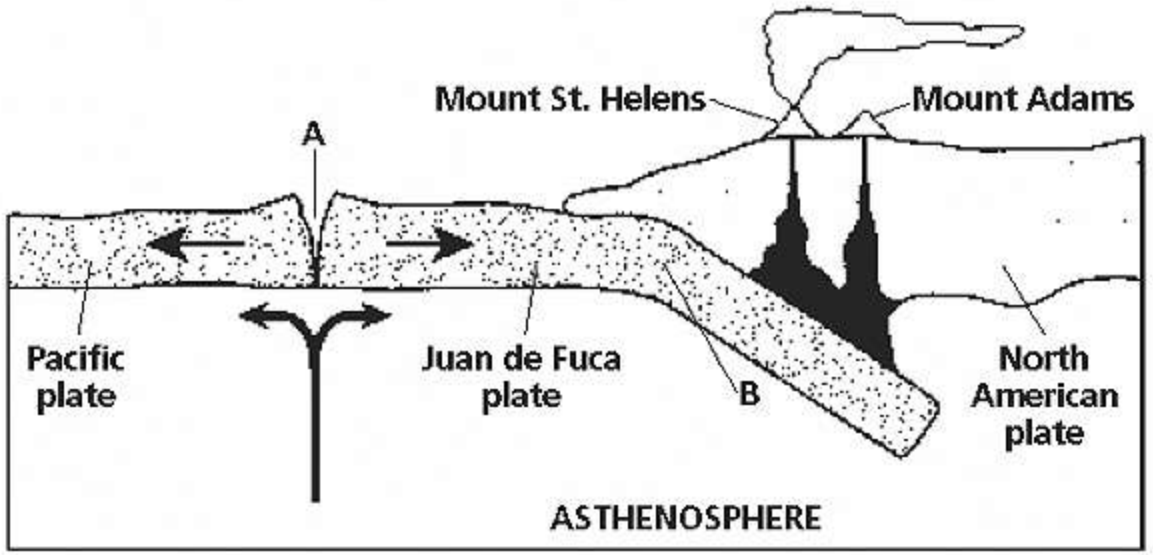
Reading Skills, *continued*

- The eruptions described in the passage changed the weather briefly. Some scientists believe that periods of severe volcanic activity can produce long-term changes to the climate. Suggest one specific way in which the materials sent into the atmosphere by volcanoes might cause long-term changes to global climate and temperature.

Interpreting Graphics

Use the figure below to answer question 11. The figure is a cross-section which shows volcanic activity in the Cascade region of the Pacific West Coast.

Cross-Section of the Juan de Fuca Ridge



Interpreting Graphics, *continued*

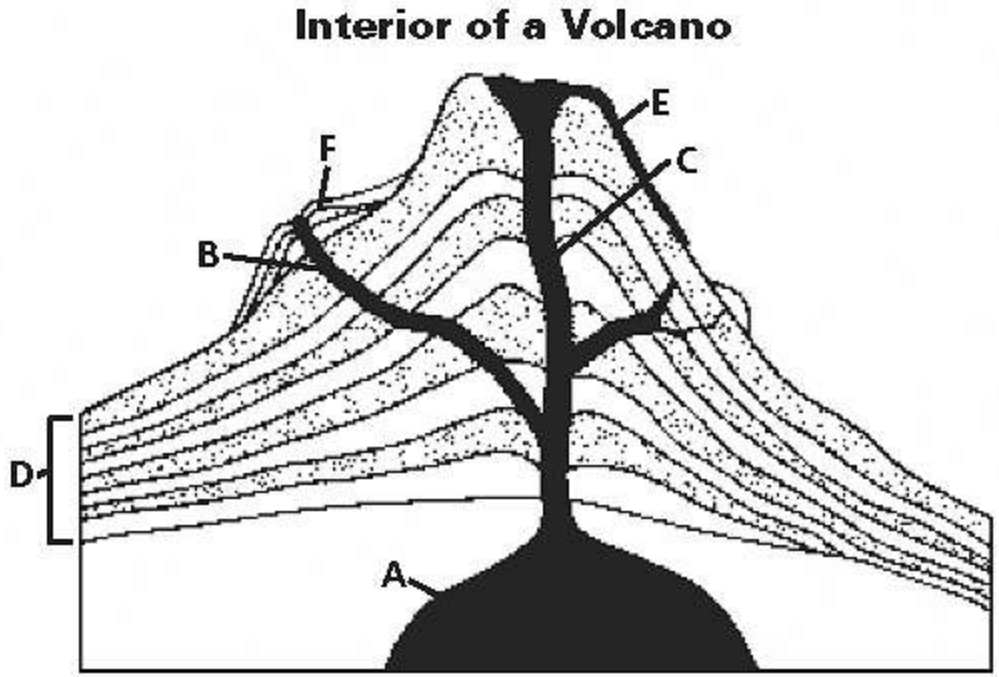
11. Explain how the tectonic activity near point B causes the volcanic activity at Mount St. Helens and Mount Adams in the Cascade Region.

Interpreting Graphics, *continued*

11. Explain how the tectonic activity near point B causes the volcanic activity at Mount St. Helens and Mount Adams in the Cascade Region.

Interpreting Graphics

Use the diagram figure below to answer questions 12 and 13. The diagram shows the interior of a volcano.



Interpreting Graphics, *continued*

12. What is the term for the underground pool of molten rock, marked by the letter A, that feeds the Volcano?

Interpreting Graphics, *continued*

12. What is the term for the underground pool of molten rock, marked by the letter A, that feeds the Volcano?

D. magma chamber

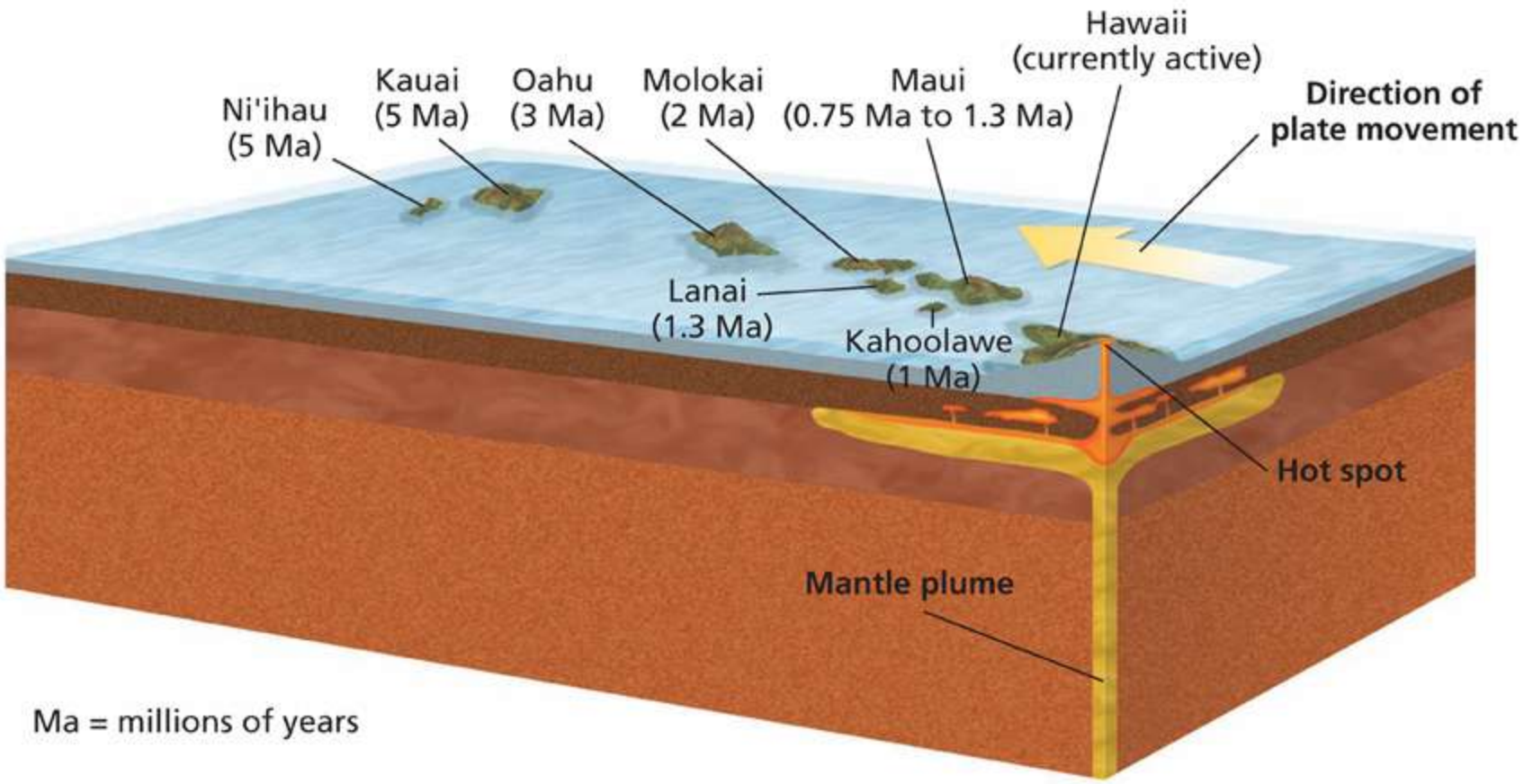
Interpreting Graphics, *continued*

13. Letter D shows alternating layers in the volcanic cone. What are these layers made of, and what does this lead you to believe about the type of volcano that is represented in the diagram above?

Interpreting Graphics, *continued*

- Letter D shows alternating layers in the volcanic cone. What are these layers made of, and what does this lead you to believe about the type of volcano that is represented in the diagram above?

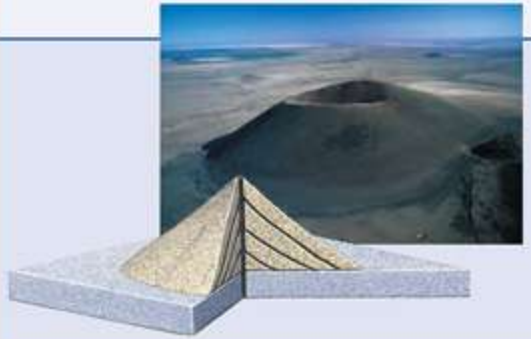
Hot Spots and Mantle Plumes



Types of Volcanoes

Types of Volcanoes

Shield Volcanoes Volcanic cones that are broad at the base and have gently sloping sides are called *shield volcanoes*. A shield volcano covers a wide area and generally forms from quiet eruptions. Layers of hot, mafic lava flow out around the vent, harden, and slowly build up to form the cone. The Hawaiian Islands form a chain of shield volcanoes that built up from the ocean floor at a hot spot.



Cinder Cones A type of volcano that has very steep slopes is a cinder cone. The slope angles of the cinder cones can be close to 40°, and the slopes are rarely more than a few hundred meters high. Cinder cones form from explosive eruptions and are made of pyroclastic material.

Composite Volcanoes Composite volcanoes are made of alternating layers of hardened lava flows and pyroclastic material. During a quiet eruption, lava flows cover the sides of the cone. Then, when an explosive eruption occurs, large amounts of pyroclastic material are deposited around the vent. The explosive eruption is followed again by quiet lava flows. Composite volcanoes, also known as *stratovolcanoes*, commonly develop to form large volcanic mountains.

Chapter 13

The Hawaiian-Emperor Seamount Chain