Name _____ Date _____ Per _____

Mini-Lesson

1) On which tectonic plate is the Hawaii hot spot?

A) North American Plate

B) African Plate

C) Antarctic Plate

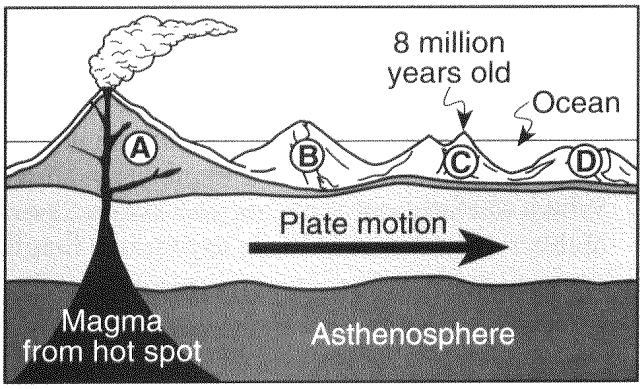
D) Pacific Plate

2) Approximately what are the coordinates of the Hawaii Hot Spot?

A) 50° N, 120° W C) 25° N, 158° W

B) 25° N, 158° E D) 25° S, 158° E

3) The cross section below shows the direction of movement of an oceanic plate over a mantle hot spot, resulting in the formation of a chain of volcanoes labeled A, B, C, and D. The geologic age of volcano C is shown.



What are the most likely geologic ages of volcanoes B and D?

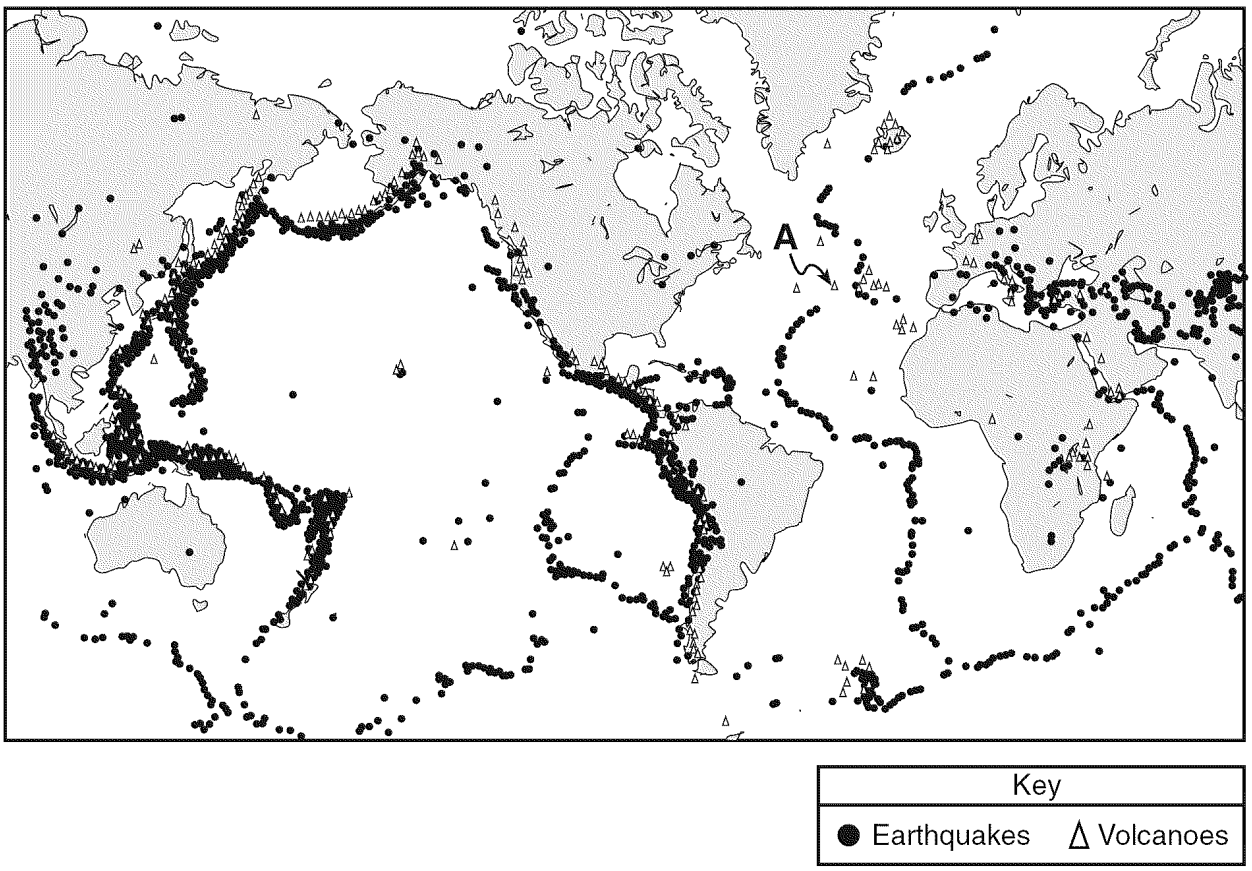
A) B is 5 million years old and D is 12 million years old.

B) B is 2 million years old and D is 6 million years old.

C) B is 9 million years old and D is 9 million years old.

D) B is 10 million years old and D is 4 million years old.

4) Base your answer to the following question on the world map in your answer booklet and on your knowledge of Earth science. The map shows major earthquakes and volcanic activity occurring from 1996 through 2000. Letter A represents a volcano on a crustal plate boundary.



The source of the magma for the volcanic activity in Hawaii is

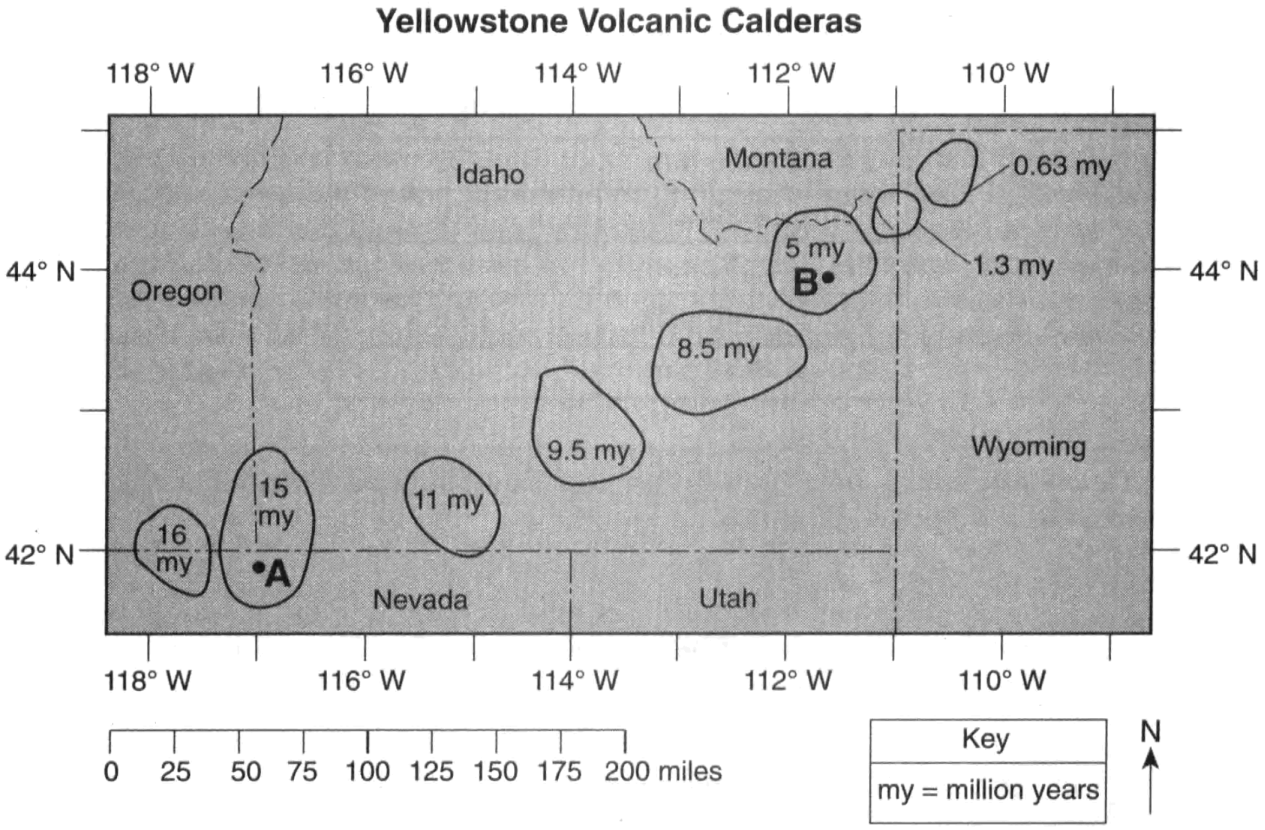
A) a magma plume originating in the mantle

B) heat from the atmosphere

C) radiation from nuclear facilities

D) sedimentary rocks found on North America

5) Base your answer to the following question on the map and passage below. The map shows the outlines and ages of several calderas created as a result of volcanic activity over the last 16 million years as the North American Plate moved over the Yellowstone Hot Spot. *A* and *B* represent locations within the calderas.



The Yellowstone Hot Spot

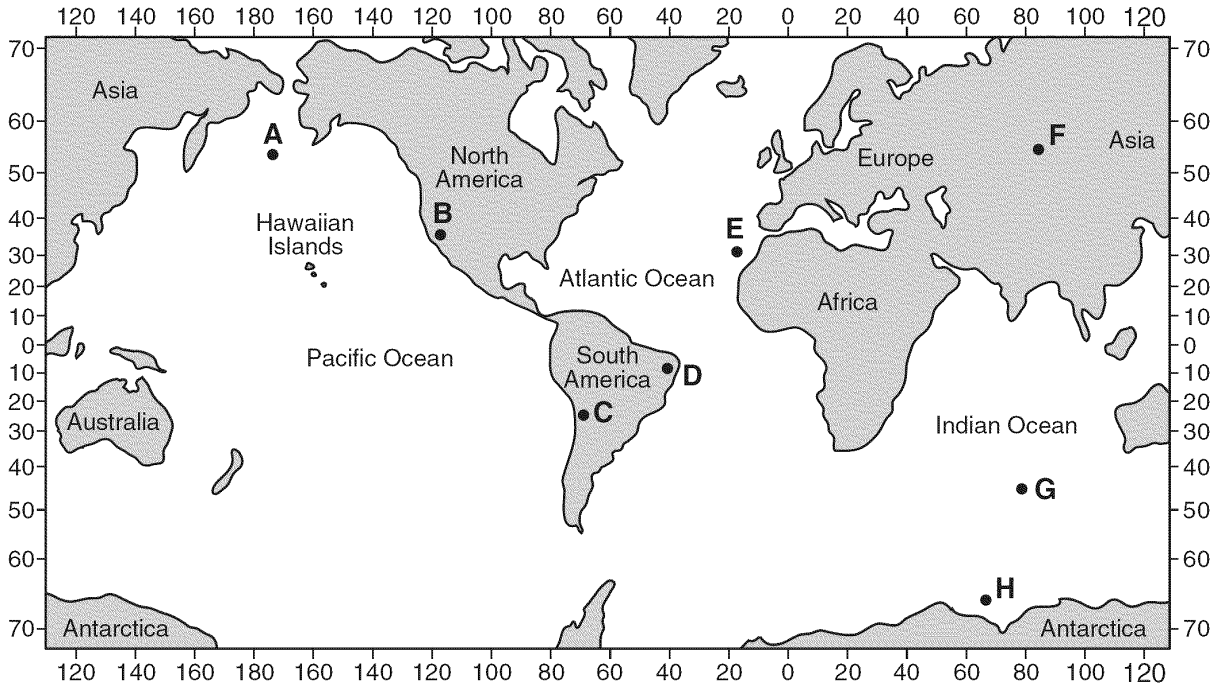
The Yellowstone Hot Spot has interacted with the North American Plate, causing widespread outpourings of basalt that buried about 200,000 square miles under layers of lava flows that are a half mile or more thick. Some of the basaltic magma produced by the hot spot accumulates near the base of the plate, where it melts the crust above. The melted crust, in turn, rises closer to the surface to form large reservoirs of potentially explosive rhyolite magma. Catastrophic eruptions have partly emptied some of these reservoirs, causing their roofs to collapse. The resulting craters, some of which are more than 30 miles across, are known as volcanic calderas.

The Yellowstone Hot Spot

Based on the age pattern of the calderas shown on the map, in which compass direction has the North American Plate moved during the last 16 million years?

A) southwest B) northeast C) southeast D) northwest

6) Base your answer to the following question on the world map shown below. Letters *A* through *H* represent locations on Earth's surface.



Explain why a volcanic eruption is more likely to occur at location *E* than at location *F*.