# Section 10.3 Plate Tectonics and Igneous Activity

*This section discusses the relationship between plate boundaries and igneous activity.*

## Reading Strategy

**Outlining** After you read, complete the outline of the most important ideas in the section. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

I. Plate Tectonics and Igneous Activity
   A. Convergent Plate Boundaries
      1. _____
      2. _____
   B. _____
   C. _____

## Convergent Plate Boundaries

**1.** What provides the mechanism by which mantle rocks melt and magma is produced? _____

**2.** Circle the letter of the change that allows rock melting to begin at convergent plate boundaries.

a. decreasing pressure
b. decreasing temperature
c. water reducing the melting point
d. water raising the melting point

**3.** What landforms develop as a result of the volcanic activity that occurs where one oceanic plate descends beneath another oceanic plate? _____

_____

_____

**4.** Is the following sentence true or false? At ocean-continent plate boundaries, rising magma may change composition before reaching the surface. _____

**5.** Circle the letter of the answer that correctly completes the following sentence. At a convergent plate boundary, the fluids reduce the melting point of hot mantle rock enough for melting to begin when a sinking slab reaches a depth of about

a. 100 to 150 km. b. 500 to 550 km.
c. 700 to 750 km. d. 1000 to 1500 km.

## Divergent Plate Boundaries

**6.** Most magma is produced along _____ plate boundaries.

**7.** Is the following sentence true or false? When solid mantle rock rises during seafloor spreading, magma is produced as a result of decompression melting. _____

**8.** Why does the newly formed magma at divergent plate boundaries rise to the surface? _____

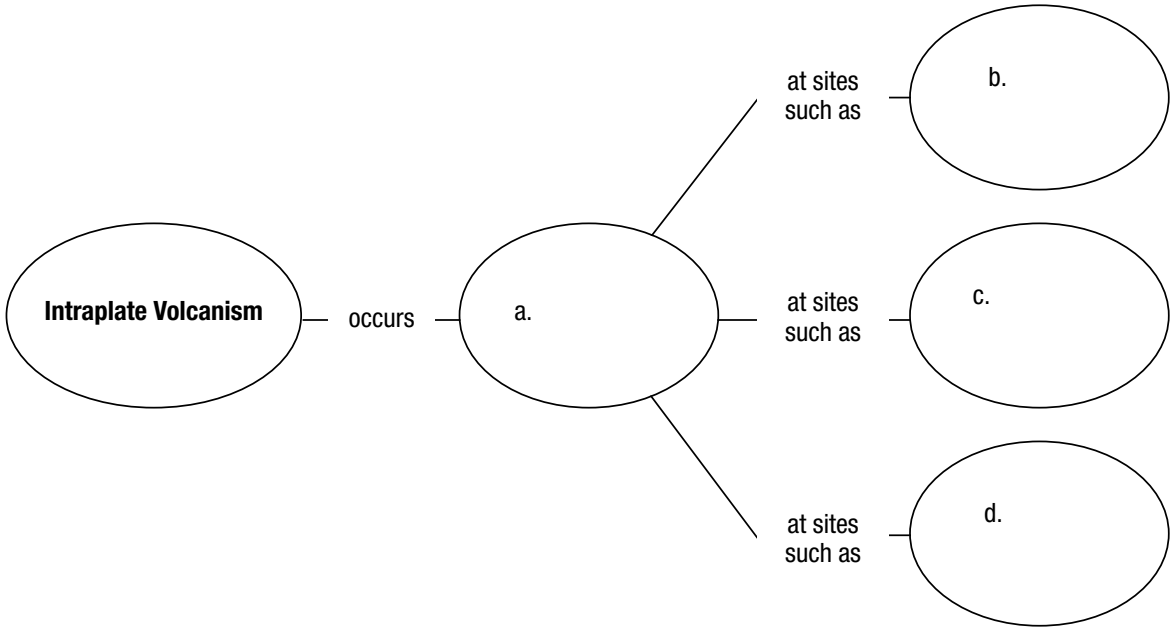
_____

_____

_____

## Intraplate Igneous Activity

**9.** Complete the concept map showing where intraplate volcanism occurs.




**10.** Circle the letter of the time most intraplate volcanism occurs.

a. when oceanic crust sinks into the mantle and melts

b. when a mantle plume rises to the surface

c. when oceanic plates separate and magma rises to fill the rift

d. when continental crust sinks into the mantle and melts

**11.** The result of a magma plume rising and decompression melting occurring may be the formation of a small volcanic region called a(n) _____.

**12.** Circle the letter of the number of years most hot spots have lasted.

a. hundreds of years b. thousands of years

c. millions of years d. billions of years