Item # _____ 4.3 Guided Reading (pgs 159-166) Name: _____

1) Convection carries _____ energy from one _____ to _____ location within a fluid.

Example: Sketch the diagram of water being heated (be sure to include arrows and label the temperatures)

2) Explain what the molecules of water are doing when heat energy is added:

3) Sketch/Draw how the particles (or molecules) move during convection (label hot/cold and include arrows):

4) Why does the water (or any fluid) become less dense—what is happening to the molecules? Explain.

5) Where does some heat energy go when it rises to the top?

6) Convection currents is the cycle (or flowing pattern) in which _____, _____-dense quantities of a substance _____ and are _____ by _____ quantities that _____ b/c they are _____ dense.

7) Where does the mantle get its heat from?

8) Earth's core temp- _____ Asthenosphere (upper mantle) temp _____ Mantle near core temp ____

9) Explain how convection occurs in the mantle (use words AND a sketch):

10) Describe a plume (in your own words) and sketch a drawing:

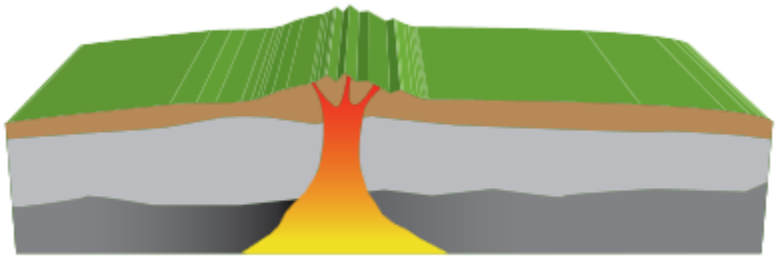
11) How often does convection currents occur in the mantle? Why does it take this long? Explain.

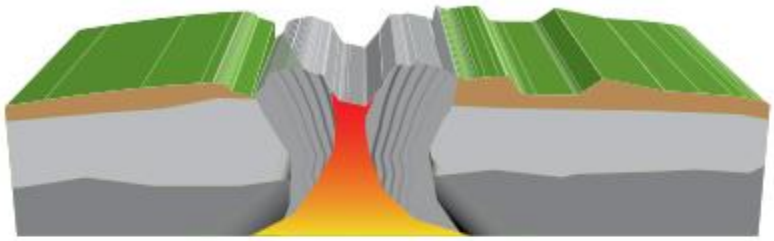
12) When mantle material reaches Earth's surface when two plates move away from each other, two things could occur (picture has been labeled for you; give a brief explanation of what is happening in each picture):

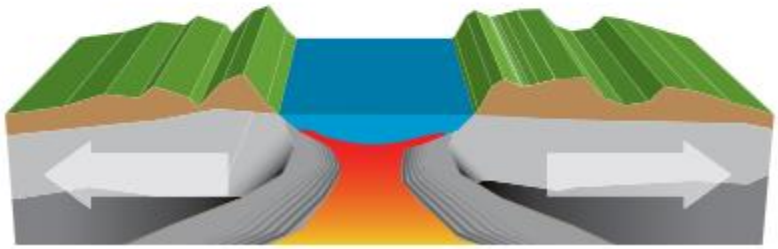
a) Mid-Ocean Ridge

Description/Explanation of how it works:

b) Ocean-floor spreading (also known as Sea-floor spreading)







Description/Explanation of how it works:

Reflect Questions (1-4) pg. 166 (can answer questions below, on the side or on the back!)