

## Comparing a Lava Lamp to the Asthenosphere

**Can you explain how a lava lamp works? Can you explain what causes lithospheric plate movement?**

**Directions:** Watch the video below on how a lava lamp works and view the animation on convection currents. Complete the framed paragraphs. <http://youtu.be/DL3Ez9bxMTo> / <https://yenka.com/media/item.action?quick=12p>

### Lava Lamp Explanation

A lava lamp is made of blobs of \_\_\_\_\_ and colored \_\_\_\_\_. There is a light bulb at the base of the lamp that radiates \_\_\_\_\_ when turned on. If the lamp is off, all the wax drops to the bottom of the lamp, thus the wax must be \_\_\_\_\_ dense than the water.

When the lamp is turned on, the wax gets heated which makes the molecules in the wax \_\_\_\_\_. When the wax blobs \_\_\_\_\_ they become \_\_\_\_\_ dense than the surrounding water, so they rise to the surface of the lamp.

At the top of the lamp there is no heat source so the wax cools off. When the wax cools, the molecules in the wax \_\_\_\_\_. When the molecules in the wax blob \_\_\_\_\_, the volume of the wax blob becomes smaller, so the density of the wax slowly starts to become \_\_\_\_\_ dense than the surrounding water. When the wax blob becomes \_\_\_\_\_ dense than the water, it will \_\_\_\_\_.

Because heat always moves from \_\_\_\_\_ areas to \_\_\_\_\_ areas, movement within the lamp occurs. The cyclical movement of the wax and water is called a \_\_\_\_\_. Both the water and the wax move up and down as long as \_\_\_\_\_ is provided. If you turn the lamp off, the convection currents will eventually \_\_\_\_\_.

### Asthenosphere Explanation

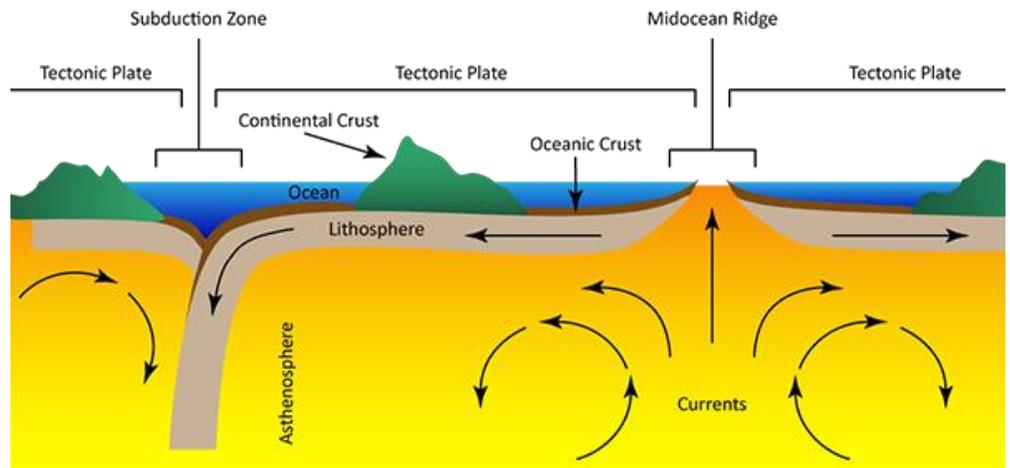
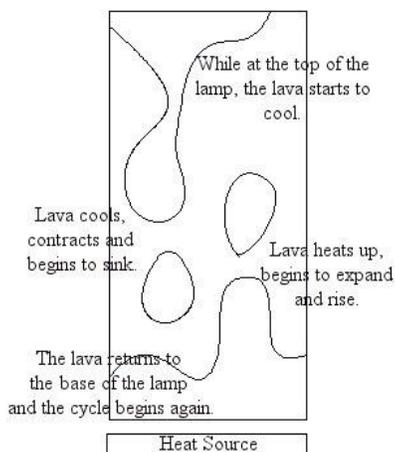
The lava lamp and asthenosphere operate the same way. They both have \_\_\_\_\_ which move fluid up and down.

The inner core is very hot (about \_\_\_\_\_°F) and provides the heat that drives the \_\_\_\_\_. The heat from the core gets \_\_\_\_\_ through the earth layers to asthenosphere. The plasticky rock at the bottom of the asthenosphere is \_\_\_\_\_ than the rock at the top of the asthenosphere, thus heat will transfer to the cooler rock at the top of the asthenosphere. When the plasticky rock at the bottom of the asthenosphere heats up, it \_\_\_\_\_, becomes \_\_\_\_\_ dense and rises. Once the rock reaches the top of the asthenosphere, it starts to \_\_\_\_\_ since it is further from the inner core heat source. When the rock cools, it \_\_\_\_\_, becomes more \_\_\_\_\_ and starts to \_\_\_\_\_ back down. This cycle will continue as long as the inner core stays much \_\_\_\_\_ than the surrounding rock layers. Ultimately, this movement in the asthenosphere causes the \_\_\_\_\_ plates above it to move about \_\_\_\_\_ per year. Because the lithospheric plates move, we have an earth that changes (it is dynamic). The movement of lithospheric plates causes certain geologic events to occur such as:

\_\_\_\_\_

\_\_\_\_\_

**How a Lava Lamp Works**



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