

## Inferred Properties of Earth's Interior Lab

### Background

The Earth contains the following layers (spheres) or boundaries:

Crust – continental crust and oceanic crust

Mohorovicic Discontinuity (Moho) – the boundary between the crust and the mantle

Mantle – forms three quarters of the volume of the Earth and two thirds of its weight. It can be divided into four spheres:

- lithosphere (cool and rigid)
- asthenosphere (hot, partially melted) 150 km thick on average
- mesosphere (transition region or middle mantle, but sometimes used for the rest of the mantle = deep mantle)
- lower mantle

D" layer ("dee double prime") – this may be the most dynamic and active zone, although it is very thin and the thickness is extremely variable

Core - can be divided into

- a liquid outer core and
- a solid inner core

The chart on the next page is from page 10 of the ESRT's; use it to answer the following questions.

1. How deep below the surface is the outer core? \_\_\_\_\_
2. How thick is the mantle? \_\_\_\_\_
3. List the four (4) main layers of the Earth from thinnest to thickest (include the asthenosphere as part of the mantle.)
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
4. What is the temperature of the Earth at a depth of 5,000 km? \_\_\_\_\_
5. At what depth is the temperature believed to be 3000° C? \_\_\_\_\_
6. What information from the diagram supports the belief that the outer core is liquid?  
\_\_\_\_\_
7. Describe the relationship between pressure and depth within the Earth.  
\_\_\_\_\_
8. What is the approximate density of the Continental crust? \_\_\_\_\_
9. What is the approximate density of Oceanic crust? \_\_\_\_\_
10. Describe the changes in density as depth within the Earth increases. \_\_\_\_\_  
\_\_\_\_\_

\*\*\*When doing the lab report write-up, be sure to follow the guidelines.\*\*\*

