

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.

