

Part 1:

Use your Internet browser to access the following website:

<http://pubs.usgs.gov/gip/interior>

Answer the following questions on a separate piece of paper.

1. Describe the calculation of the average density of the Earth made by Isaac Newton (compare the interior of the Earth to the surface of the Earth).
2. Today we use two different methods to study the density of the interior of the Earth. Describe these two methods.
3. What are the three main shells that make up our Earth?
4. List the two shells that are about equal in thickness.
5. Draw a pie chart that accurately describes the percent of Earth's volume that each of the three main shells takes up. Label the three shells with the appropriate percentage for each shell.
6. Which of the three main shells do we know the most about? Why do we know so much more about this shell?
7. Where is the crust of our Earth thinnest, under the oceans or under the continents?
8. How thick is the oceanic crust under Hawaii (in km)? How thick in miles (convert km to miles by multiplying km by 0.6)?
9. What is the range of thickness for the continental crust under California (in km)? How thick is the range in miles?
10. According to the process of plate tectonics, about how many plates have been moving over the surface of the Earth for much of geologic time?
11. What is the name of the boundary between the crust and the mantle?
12. We have never seen the boundary mentioned above, so how do we know that it exists?
13. How deep into the mantle must we go to find rock that is near the melting point?
14. Describe the difference in density between the mantle and the core.
15. Who first discovered the core of the Earth? When was it discovered?

16. The core can be further subdivided into two areas. What do we call these subdivisions?

17. How do we classify each of the subdivisions of the core (liquid/gas/solid), and what is the core primarily composed of (element)?

Part 2:

Use your Internet browser to access the following website:

<http://www.enchantedlearning.com/subjects/astronomy/planets/earth/Inside.shtml>

18. What do we think the temperature of the core of the Earth is?

19. Compare the temperature of the Earth's core with our Sun. Which is hotter?

20. Look at the diagram labeled "The Outer Layers of the Earth." What two parts of the Earth make up the lithosphere?

21. What part of the Earth is also called the asthenosphere?

22. Scientists believe that the tectonic plates of the Earth slowly move over the surface of our planet. The plates are part of the lithosphere. What property does the asthenosphere have that would allow the plates resting on it to move?

23. What kind of currents carry the heat from the inner mantle to the outer mantle?

24. Give an example of these types of currents existing somewhere in your home (hint: think about your kitchen area!).

25. The Earth's surface is mostly composed of what three things?

26. Of those three things listed above, which one is found in large amounts in our ocean floors?

27. Of those three things listed above, which one is found in large amounts in our continental rocks?

28. What are the five main elements found in the Earth's crust?

Part 3:

Use your Internet browser to access the following website:

<http://hyperphysics.phy-astr.gsu.edu/Hbase/magnetic/MagEarth.html>

29. How far is the Earth's magnetic field tilted from our spin axis?

30. What do magnetic fields usually surround?

31. What do scientists believe is the origin of Earth's magnetic field?
32. What items located on the surface of the Earth seem to prove that our planet's magnetic field has reversed?
33. How many times has our magnetic field reversed in the past 71 million years?
34. If that is true, then what is the average amount of time that passes between magnetic reversals?
35. What else about the Earth (excluding the core) contributes to the generation of currents that are the source of our magnetic field?
36. While Venus is about the size of the Earth, scientists have not found a magnetic field. What seems to be a major reason why Venus does not have a magnetic field?