

**Reading Guide for
Ch. 11: The Earth's Interior- What's Going On Down There? (p.354)**

This Reading Guide is structured differently than other reading guides you have had. Determine if the statements below are true or false based on the information given in Chapter 11. For the statements that are false, write an explanation of what makes the statement false and re-write the statement so that it is true.

There are a few other questions in the Reading Guide that are not true-false. Please write those answers in the traditional way you have in previous reading guides.

When you arrive in class, I will initial your paper and assign you to a group. You and your group members will construct a group response. The group with the highest grade, will receive an additional 10 points on their Reading Guides!

_____ 1. If we trace earthquakes waves through the Earth, they decrease in speed.

_____ 2. P and S wave speeds do not depend on the magnitude of the earthquake that generated them.

_____ 3. P waves increase in speed when the material through which they are passing is more rigid

_____ 4. S waves do not have enough energy or speed to pass through liquids or gases.

_____ 5. When seismic p-waves refract, they bounce off a surface and tend to go in the opposite direction.

_____ 6. The Earth's crust comes in two thicknesses—just like the pizza place! The continents are on the thin crust and the oceanic crust is thicker.

_____ 7. Continental crust has the lower density compared to the oceanic crust because it is composed of lower density rocks.

_____ 8. The oceanic crust is primarily diorite, granite, sandstone, and mud.

_____ 9. The Earth's mantle constitutes about 80% of the Earth's volume.

_____ 10. Toward the center of the Earth, the density of the materials decreases.

_____ 11. The predominate rock in the upper mantle is called peridotite. It is a combination of quartz and feldspar.

_____ 12. There is a zone in the upper mantle where p-waves decrease in speed because the material is soft and deformable. It is called the low-velocity zone or asthenosphere.

_____ 13. Although there is no direct connection between the core and the Earth's surface, some of the activity along the core/mantle boundary may create hot-spot volcanoes such as Hawaii and Yellowstone.

_____ 14. We know that the outer core is a liquid because S-waves are transmitted through the outer core zone.

_____ 15. The diameter of the S-wave shadow zone is one way we know the diameter of the outer core.

_____ 16. The composition of the outer core is liquid.

How do we know the composition of the outer core since we have never drilled a well to that depth?

_____ 17. The p-wave shadow zone is due to the reflection of the waves entering the core.

_____ 18. The solid inner core is known due to the velocity of p-waves transmitted through that zone.

Taking the Earth's Temperature (p.367)

I recommend reading this section because it answers questions that many students have, but I will not ask you details from the information on the methods of determining the temperature.

Please read the two short sub-sections on Heat at the Earth's Surface and Is the Earth Cooling?

The Earth's Gravity (p.370)

I recommend reading this section! Many students confuse gravity and magnetism (the next major section). Although there are some similarities, they are very different and their effects are very different!

I will not ask you the equations or details on gravity anomalies from this section, but please read this section.

_____ 19. Ice is denser than water, so that is the reason icebergs are found below the water surface.

_____ 20. Continents are less dense than oceanic crust so they "float" higher on the asthenosphere.

Magnetism (p.375)

_____ 21. Magnetism and gravity are the same type of forces—we can think of them as being the same.

_____ 22. The center of the Earth contains a large bar (permanent) magnet. We can tell this because the magnetic field around the Earth is the same as around a smaller bar-type magnet.

_____ 23. The magnetic field created by an electrical field appears identical to a magnetic field created by a permanent magnet.

_____ 24. Reversals of the Earth's magnetism are evidence that the magnetism of the Earth must be created by a moving conductor inside the Earth, not a bar magnet.

_____ 25. When rocks are above the Curie Point they are magnetic.

_____ 26. The magnetic reversal record indicates a regular reversal pattern every 1.5 million years.

Figure 11-24 illustrates an important idea-- the magnetic record of the ocean floor vs. the continental record.

You will not need to know the information in the "Other Magnetic Fields in Our Solar System" section for the exam.