Name _____ Date _____ Class _____

EARTHQUAKES

Probing Earth's Interior Skills: Study (interpreting visual aids)

Seismologists study earthquake waves as the waves pass through the earth. Information provided by both P waves and S waves has helped make a model of earth's interior.

Study the diagram below. Use it below to help you answer the questions about the interior of the earth.

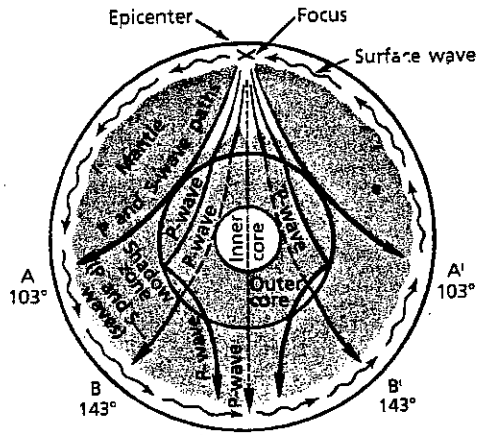

FIGURE 15-5

1. Which type of earthquake wave travels faster? _____

2. At what location in Earth's interior does the P wave show sudden changes in velocity? _____

3. Compare the patterns of the P wave and S wave in the crust and mantle. How would you describe their patterns? _____

4. Describe what happens to the P wave at the mantle-outer core boundary. _____

5. How might you explain this behavior? _____

6. Where is the P-wave velocity greatest? _____

7. The least? _____

8. Describe what happens to the velocity of the P wave in the mantle. _____

9. In the outer core. _____

10. In the inner core. _____

Earthquake Wave Travel Time Skills: Math (problem solving, calculati

The graph below shows travel time in minutes and distance traveled for both P and S-earthquake waves. P and S waves start at the same time but do not travel at the same velocity (speed). Carefully study the graph. Use the graph to help you answer the questions below.

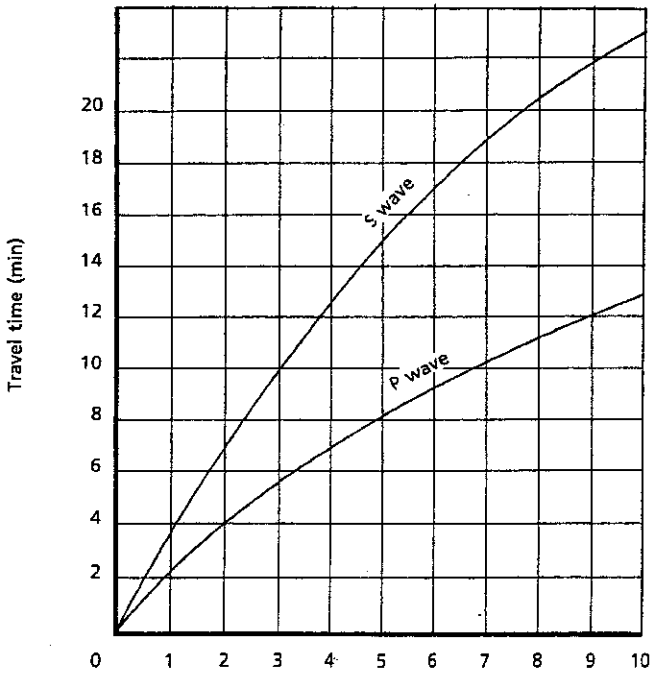

FIGURE 15-6

1. How long does it take for a P wave to travel from its focus to a point 2000 kilometers away? _____

2. How long does it take for a S wave to travel from its focus to a point 2000 kilometers away?

_____

3. How far does an S wave travel in 10 minutes? _____
4. How far does a P wave travel in 10 minutes? _____
5. What happens to the time difference between P and S-waves as the distance traveled gets longer? _____

_____

6. Suppose a P and an S wave both travel a distance of 4500 kilometers before they are picked up by a seismograph. Which wave will arrive first? _____
7. How much time lag will there be between these two waves? _____
8. Suppose both a P and an S wave start together and travel for 5 minutes. Which wave will travel farther? _____

_____

9. How much farther will it travel? _____
10. An S wave arrives at a seismograph station 1.5 minutes after the arrival of the P wave. How far away did the earthquake occur? _____