Layer Boundaries **Figure 14** shows how seismic waves change speed as they pass through layers of Earth. Seismic waves speed up when they pass through the bottom of the crust and enter the upper mantle, shown on the far left of the graph. This boundary between the crust and upper mantle is called the Mohorovicic discontinuity (moh huh ROH vee chihch • dis kahn tuh NEW uh tee), or Moho.

The mantle is divided into layers based on changes in seismic wave speeds. For example, primary and secondary waves slow down again when they reach the asthenosphere. Then, they generally speed up as they move through a more solid region of the mantle below the asthenosphere.

The core is divided into two layers based on how seismic waves travel through it. Secondary waves do not travel through the liquid outer core, as you can see in the graph. Primary waves slow down when they reach the outer core, but they speed up again upon reaching the solid inner core.

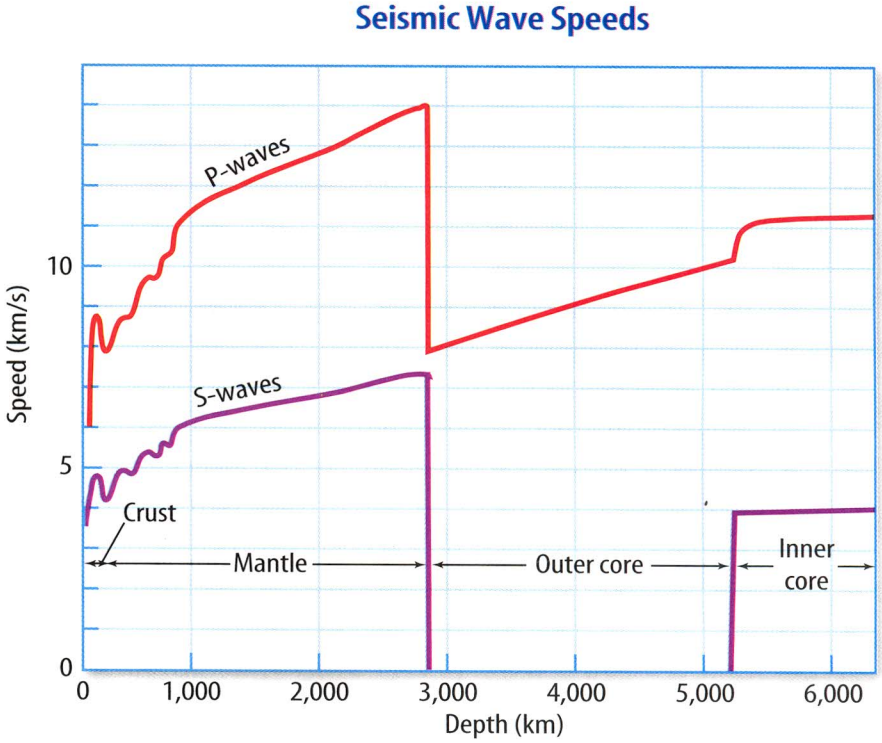

Figure 14
Changes in the speeds of seismic waves allowed scientists to detect boundaries between Earth's layers. S waves in the inner core form when P waves strike its surface.

Section 2 Assessment

1. How many seismograph stations are needed to determine the location of an epicenter? Explain.
2. Name the layers of Earth's interior.
3. What makes up most of Earth's inner core?
4. What are the three types of seismic waves? Which one does the most damage to property?
5. **Think Critically** Why do some seismograph stations receive both primary and secondary waves from an earthquake but other stations don't?

Skill Builder Activities

6. **Predicting** What will happen to the distance between two opposite walls of a room as primary waves move through the room? **For more help, refer to the Science Skill Handbook.**
7. **Solving One-Step Equations** Primary waves travel about 6 km/s through Earth's crust. The distance from Los Angeles, California, to Phoenix, Arizona, is about 600 km. How long would it take primary waves to travel between the two cities? **For more help, refer to the Math Skill Handbook.**