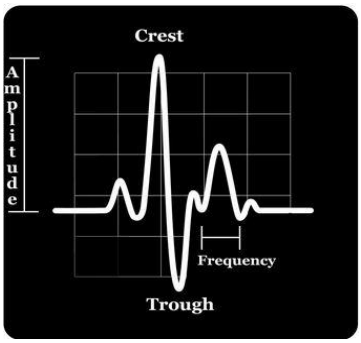
Seismic Waves

Waves

Energy is transmitted in waves. The high point of a wave is called the **crest** and the low point is called the **trough**. The distance between waves from crest to crest, or trough to trough, is called the **wavelength**. The height from the centerline to the crest is called the **amplitude**.

Study Tip

Waves are simply types of periodic motion. Perhaps you have seen the same terminology used in functions for math class or physics class.

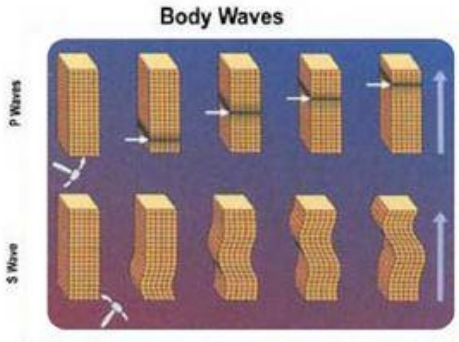


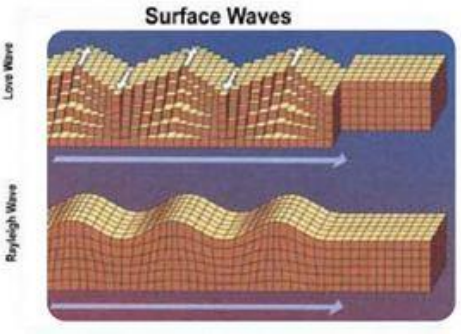
Body Waves

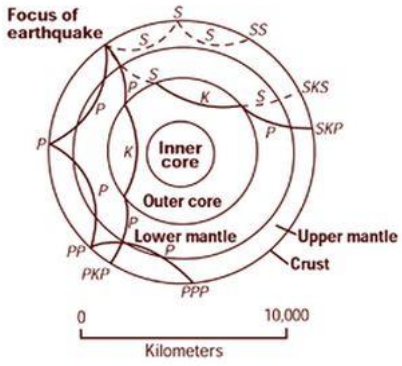
The study of seismic waves is called **seismology**. There are two main types of seismic (earthquake) waves that tell us about the Earth's interior. **Body waves** move through the solid body of the Earth, and there are two types of these waves.

P-waves (primary waves) are the fastest and move in a compression/expansion motion, producing a change in volume in Earth materials as they're squeezed and let go. They slow down as they approach the outer core.

S-waves (secondary waves) arrive behind P-waves and travel at about half the speed. They move in an up/down perpendicular motion and only travel through solids. Body waves cause jolts during earthquakes.







Surface Waves

Surface waves travel on the Earth's surface and are the slowest seismic waves. The rolling motion of these waves causes the most damage during earthquakes.

Concept Check

- What are the main parts of a wave?
- What is seismology?
- Describe body waves and surface waves.
- Differentiate between P-waves vs. S-waves.