

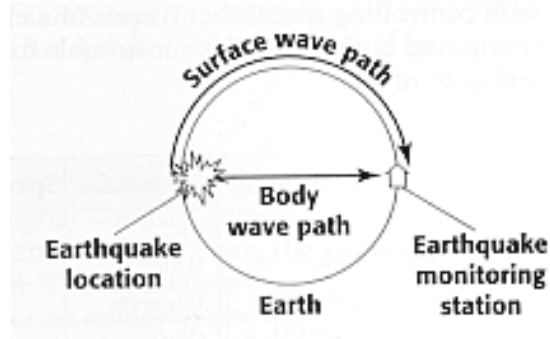
# INTEGRATING EARTH SCIENCE

## ● Earthquake Waves

Earthquakes release energy that travels through and around the Earth in seismic waves. The two main types of seismic waves are body waves and surface waves. Body waves can travel through Earth's inner layers. Surface waves move only along the surface.

### Body Waves

The two types of body waves are primary (P) waves and secondary (S) waves. P waves vibrate parallel to the direction they are traveling in a push-pull motion. P waves travel at a velocity of 4 to 6 km/s. S waves vibrate perpendicular to their direction of travel. S waves travel at a velocity of 3 to 4 km/s.

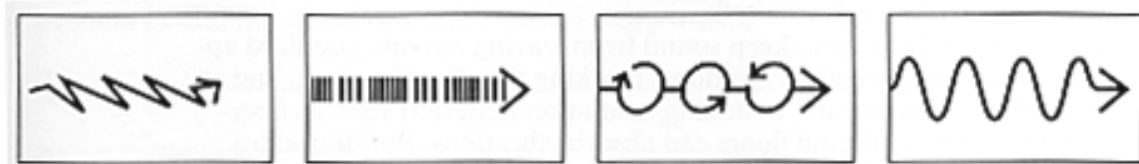


### Surface Waves

The two types of surface waves are the Love wave and the Rayleigh wave. The Love wave is slightly faster than the Rayleigh wave, but both move at about 4 km/s. Love waves move the surface of the ground from side to side. On the other hand, the Rayleigh wave rolls along the surface in a circular motion, like an ocean wave. Most of the shaking felt from an earthquake is caused by Rayleigh waves.

### Your Turn to Think

1. Refer to the text above to identify the type of seismic wave that each diagram below illustrates. Label each diagram with the correct wave type.



a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_ d. \_\_\_\_\_

2. Why do body waves from an earthquake reach a distant earthquake monitoring station sooner than surface waves do? (**Hint:** See diagram above.)
3. Would body waves or surface waves cause most earthquake damage? Why?