

Lesson Outline**LESSON 1****What are waves?****A. What are waves?**

1. A(n) _____ is a disturbance that transfers energy from one place to another without transferring matter.
2. Waves transfer energy _____ from the source of the energy.
3. Waves transfer energy without transferring _____.
4. Waves transfer energy by pushing and _____ on neighboring particles.

B. Mechanical Waves

1. A wave that can travel only through _____ is a mechanical wave.
2. The material in which a mechanical wave travels is called a(n) _____.
3. A(n) _____ wave is a wave in which the disturbance is moving at right angles, or perpendicular, to the direction the wave travels.
4. The _____ points on a transverse wave are crests.
The _____ points on a transverse wave are troughs.
5. A longitudinal wave makes particles move _____ to the direction that the wave is traveling.
6. The regions of a longitudinal wave where the particles in the medium are closest together are _____. The regions of a longitudinal wave where the particles are farthest apart are _____.
7. A vibrating object, such as a drum, is the source of _____ that produces mechanical waves.
 - a. Each _____ makes a wave.
 - b. After an object stops vibrating, _____ continue to move.

C. Types of Mechanical Waves

1. All mechanical waves travel only through _____.
2. Sound waves are _____ waves that can travel through solids, liquids, and gases.

Lesson Outline continued

3. Water waves are a combination of _____ waves and longitudinal waves.

4. _____ waves are produced when parts of Earth's upper layers move along a fault.

D. Electromagnetic Waves

1. An electromagnetic wave can travel through a(n) _____ and through matter.

2. The type of electromagnetic waves given off by an object depends mainly on the _____ of the object.

3. The Sun's _____ carry radiant energy.