

Chapter 17 Mechanical Waves and Sound

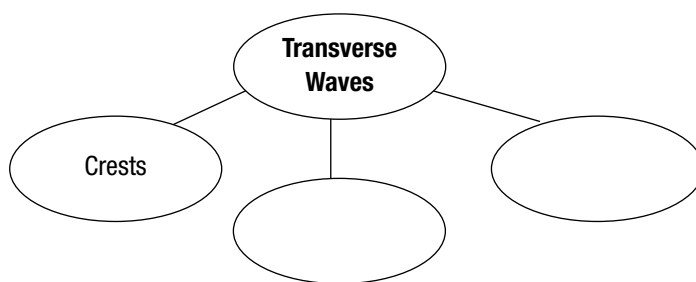
## Section 17.1 Mechanical Waves

(pages 500–503)

*This section explains what mechanical waves are, how they form, and how they travel. Three main types of mechanical waves—transverse, longitudinal, and surface waves—are discussed and examples are given for each type.*

### Reading Strategy (page 500)

**Previewing** As you read this section, use Figure 2 on page 501 to complete the web diagram. Then use Figures 3 and 4 to make similar diagrams for longitudinal waves and surface waves on a separate sheet of paper. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.



### What Are Mechanical Waves? (page 500)

1. A disturbance in matter that carries energy from one place to another is called a(n) \_\_\_\_\_.
2. Is the following sentence true or false? Mechanical waves can travel through empty space. \_\_\_\_\_
3. The material through which a wave travels is called a(n) \_\_\_\_\_.
4. Is the following sentence true or false? Solids, liquids, and gases all can act as mediums for waves. \_\_\_\_\_
5. What creates a mechanical wave? \_\_\_\_\_

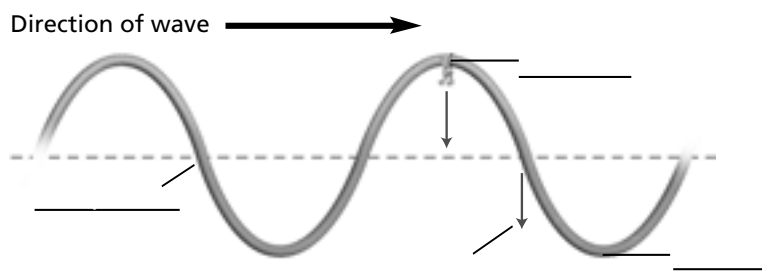
### Types of Mechanical Waves (pages 501–503)

6. Is the following sentence true or false? The three main types of mechanical waves are water waves, longitudinal waves, and surface waves. \_\_\_\_\_
7. Circle the letter of the characteristic used to classify a mechanical wave.
  - a. the height of its crest
  - b. the depth of its trough
  - c. the way it travels through a medium
  - d. the type of medium through which it travels

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8. The highest point of a wave above the rest position is the \_\_\_\_\_ and the lowest point below the rest position is the \_\_\_\_\_.
9. What is a transverse wave? \_\_\_\_\_

10. Look at the figure below. Label the missing aspects of the wave in the rope.



11. A wave in which the vibration of the medium is parallel to, or in the same direction as, the direction in which the wave travels is called a(n) \_\_\_\_\_.
12. When a longitudinal wave carries energy through a spring, the area where the coils of a spring are closer together than they would be in the rest position is called a(n) \_\_\_\_\_.
13. Is the following sentence true or false? A rarefaction is a region in a longitudinal wave where particles of a medium spread out.  
\_\_\_\_\_
14. Why is an ocean wave classified as a surface wave? \_\_\_\_\_
15. Why do ocean waves transport objects on the surface of the water as they approach shore? \_\_\_\_\_

Match the type of wave to each description below. The type of wave may be used more than once.

Description	Type of Wave
_____ 16. P wave	a. transverse wave
_____ 17. Direction of travel is perpendicular to vibration direction	b. longitudinal wave
_____ 18. Rarefactions with particles that are spread out	c. surface wave
_____ 19. A wave that travels along a boundary separating two mediums	
_____ 20. An ocean wave	