

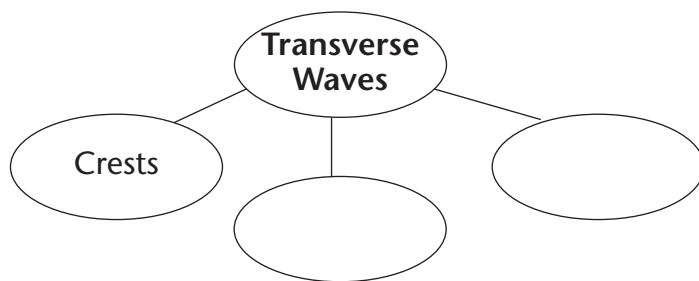
## Chapter 17 Mechanical Waves and Sound

**Section 17.1 Mechanical Waves****(pages 500–503)**

*This section explains what mechanical waves are, how they form, and how they travel. It discusses three main types of mechanical waves—transverse, longitudinal, and surface waves—and gives examples 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. A mechanical wave is created when an energy source causes a \_\_\_\_\_ to travel through a medium.

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

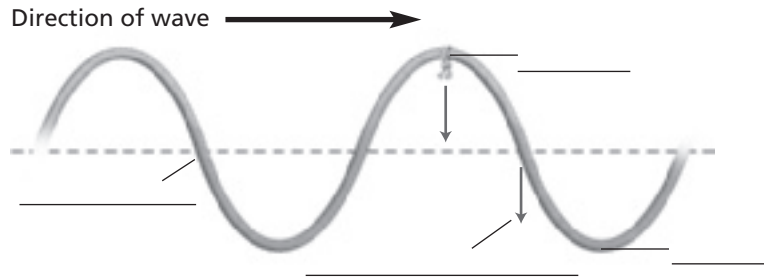
6. Circle the letter of the characteristic used to classify a mechanical wave.
  - a. the height of its crest
  - b. the way it travels through a medium
  - c. the type of medium through which it travels

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7. What is a transverse wave? \_\_\_\_\_

8. Look at the figure below. Use the words in the box to label the missing aspects of the wave in the rope.

Crest	Rest position
Trough	Direction of vibration



9. 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) \_\_\_\_\_.

10. 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) \_\_\_\_\_. Circle the correct answer.

compression      frequency      rarefaction

11. Is the following sentence true or false? A rarefaction is a region in a longitudinal wave where particles of a medium spread out.

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

<b>Description</b>	<b>Type of Wave</b>
_____ 12. P wave	a. transverse wave
_____ 13. Direction of travel is perpendicular to vibration direction	b. longitudinal wave
_____ 14. Rarefactions with particles that are spread out	c. surface wave
_____ 15. A wave that travels along a boundary separating two mediums	
_____ 16. An ocean wave	