

## Chapter 17 Mechanical Waves and Sound

## Section 17.2 Properties of Mechanical Waves

(pages 504–507)

*This section introduces measurable properties used to describe mechanical waves, including frequency, period, wavelength, speed, and amplitude.*

### Reading Strategy (page 504)

**Build Vocabulary** As you read, write a definition in your own words for each term in the table below. 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.

Properties of Waves	
Vocabulary Term	Definition
Period	
Frequency	
Wavelength	
Amplitude	

### Frequency and Period (page 504)

1. Is the following sentence true or false? A periodic motion repeats at regular time intervals. \_\_\_\_\_
2. The time required for one cycle, a complete motion that returns to its starting point, is called the \_\_\_\_\_.
3. The number of complete cycles in a given period of time is the \_\_\_\_\_ of a periodic motion.
4. Circle the letter of each sentence that is true about frequency.
  - a. Frequency is measured in cycles per second, or hertz.
  - b. A wave's frequency equals the frequency of the vibrating source producing it.
  - c. Five cycles per minute is a frequency of five hertz.
  - d. Any periodic motion has a frequency.

### Wavelength (page 505)

5. The distance between a point on one wave and the same point on the next cycle of the wave is called \_\_\_\_\_.
6. How is wavelength determined for a longitudinal wave?

**Chapter 17 Mechanical Waves and Sound**

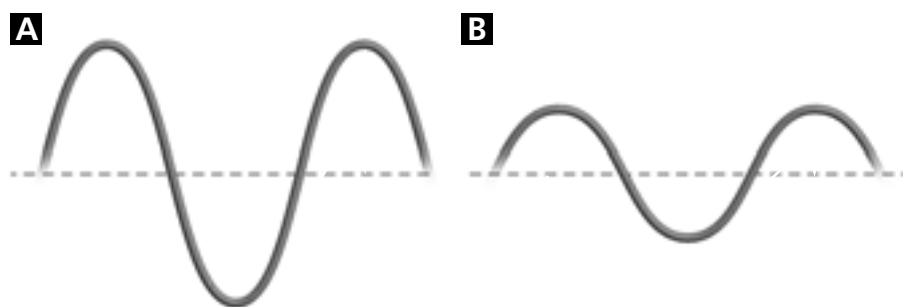
**Wave Speed (pages 505–506)**

7. Write a formula you can use to determine the speed of a wave.  
\_\_\_\_\_
8. Is the following sentence true or false? The speed of a wave equals its wavelength divided by its period. \_\_\_\_\_
9. What variables can cause the speed of a wave to change? \_\_\_\_\_  
\_\_\_\_\_
10. Circle the letter of the sentence that tells how wavelength is related to frequency for a wave traveling at a constant speed.
  - a. Wavelength is equal to frequency.
  - b. Wavelength is directly proportional to frequency.
  - c. Wavelength is inversely proportional to frequency.
  - d. A wave with a higher frequency will have a longer wavelength.

**Amplitude (page 507)**

11. What is the amplitude of a wave? \_\_\_\_\_  
\_\_\_\_\_
12. It takes more energy to produce a wave with higher crests and deeper troughs, so the more energy a wave has, the \_\_\_\_\_ its amplitude.

Questions 13 through 17 refer to the figure below.



13. The type of waves shown are \_\_\_\_\_.
14. Label the rest position for waves A and B.
15. Add arrows to the figure to indicate the amplitude of each wave. Which wave has the greater amplitude? \_\_\_\_\_
16. Which wave shown has more energy? \_\_\_\_\_
17. Add an arrow to indicate one wavelength on wave B.