Name _____ Class _____ Date _____

Summary

THE BIG IDEA **Sound is a form of energy that spreads out through space.**

26.1 The Origin of Sound

☑ All sounds originate in the vibrations of material objects.

- Sound is produced when a vibration stimulates the vibration of something larger or more massive. This vibrating material then sends a disturbance through a surrounding medium, usually air, in the form of longitudinal waves. Under ordinary conditions, the frequency of the sound waves produced equals the frequency of the vibrating source.
- We describe our subjective impression about the frequency of sound by the word **pitch.** A high-pitched sound has a high vibration frequency, while the low-pitched sound has a low vibration frequency.
- A young person can normally hear pitches with frequencies from 20 to 20,000 hertz. As we grow older, our hearing range shrinks, especially at the high-frequency end.
- Sound waves with frequencies below 20 hertz are called **infrasonic,** and those with frequencies above 20,000 hertz are called **ultrasonic.** We cannot hear infrasonic or ultrasonic sound waves.

26.2 Sound in Air

☑ As a source of sound vibrates, a series of compressions and rarefactions travels outward from the source.

- A sound pulse goes out in all directions from the source.
- When sound moves away from its source, each particle of air moves back and forth along the direction of motion of the expanding wave. A pulse of compressed air is called a **compression.** A pulse of low-pressure air is called a **rarefaction.**
- For all wave motion, it is not the medium that travels, but a *pulse* that travels.
- As a source of sound vibrates, a series of compressions and rarefactions is produced.

Name _____ Class _____ Date _____

Chapter 26 Sound

Exercises

26.1 The Origin of Sound (page 515)

Match each sound source with the part that vibrates.

Sound Source	Vibrating Part
____ 1. violin	a. strings
____ 2. your voice	b. reed
____ 3. saxophone	c. column of air at the mouthpiece
____ 4. flute	d. vocal chords

5. Sound waves are a type of _____ wave.
6. What normally determines the frequency of sound waves?

_____

_____

7. Define pitch.

_____

8. As people grow older, they often have more trouble hearing sounds at the _____ end of the range of frequencies.
9. Sound waves with frequencies below the normal range are _____ waves.
10. Sound waves with frequencies above the normal range are _____ waves.

26.2 Sound in Air (pages 515–517)

11. Is the following sentence true or false? Sound vibrates the air much like particles move back and forth along a stretched spring. _____
12. A pulse of compressed air is called a _____, and a pulse of low-pressure air is called a _____.
13. For all wave motion, it is not the _____ that travels, but a _____ that travels.