

## What is Sound? <u>Sound is a wave of vibration that spreads</u> <u>from its source.</u>

**<u>Vibration</u>**: the back and forth motion of an object

Have you ever put your hand on a loud stereo speaker and felt vibrations? Put your hands to your throat. Do you feel vibrations as you speak?

- When sound waves travel through air, the air molecules vibrate in a kind of pattern.
- When sound waves travel through a liquid, such as water, the molecules of the liquid vibrate in a kind of pattern.
- ✤ Different sounds produce <u>different patterns</u>.

In these patterns, some waves are closer together while others are further apart.

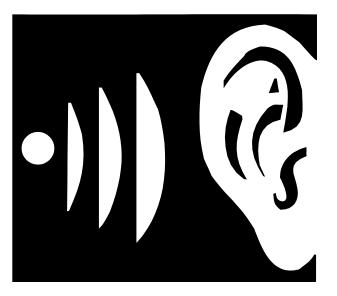
Let's use a slinky to illustrate this point.

The areas where particles are very close together are called \_\_\_\_\_. The number of crests that pass by a point each second is the wave's \_\_\_\_\_.

Frequency measures how fast particles are vibrating.

What makes one sound loud and another sound soft? A sound is louder if it is vibrating more AND <u>it also has</u> <u>more energy.</u>

A sound's loudness can be measured in \_\_\_\_\_.



How does sound behave?

Sounds can travel through \_\_\_\_\_

Sound cannot travel through a vacuum? Why

When sound waves reach a new material, they can behave in one of three ways:

1. They can bounce back or reflect off of the material.

- 2. They can be absorbed.
- 3. They can pass through the material.

When sounds bounce off of a surface or material, it is called an \_\_\_\_\_.

Sound waves travel at different speeds depending upon the material through which they are traveling.

••••	Sound travels	than through
	<u>air</u> .	
•••	Sound travels	

Temperature also affects the speed of sound.

Examine the chart on page 456.

What must happen for you to hear sound?



Energy must cause an object to vibrate.

- The sound waves from the vibration must move through the air. This is energy being transferred through the air.
- Some of this energy, in the form of sound waves, must reach your ear.
  - Your eardrum absorbs some of the energy.
- When the energy hits your eardrum, your eardrum will vibrate in response and send a signal to your brain.