

## What is sound energy?

**What is sound?** Sound is produced when objects vibrate. A vibration is a quick back-and-forth movement. The vibrations are called waves. When waves travel through a material, the molecules vibrate in a wave pattern. They get closer together and then move farther apart. The molecules bump into other particles. These particles move in a similar way, causing the wave to travel.

Areas where particles are close together are called crests. A wave's frequency is the number of crests that pass a certain point within a second. Frequency also measures how fast particles are vibrating. The greater the frequency is, the higher the pitch of sound.

Some sounds are louder than others. The source of the louder sounds vibrates more. Their sound waves have more energy. The energy squeezes the particles at the crests together. Loudness is measured in decibels (dB). If the loudness of sound increases by ten dB, the sound has ten times more energy. If you often hear sounds that are louder than 90 dB, you may slowly lose your hearing. Sounds louder than 100 dB can damage your hearing very quickly.

