



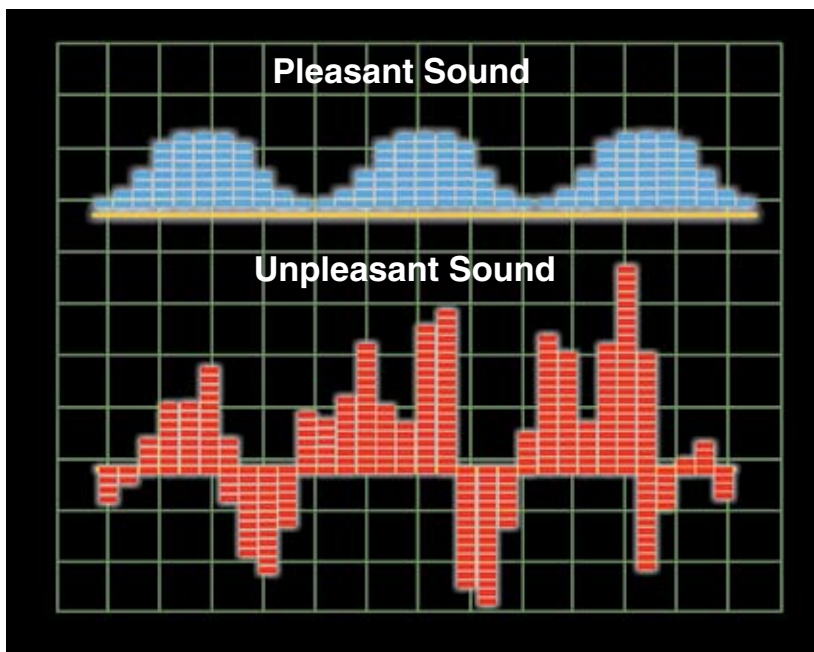
# Importance of Sound

Every day we're met with thousands of sounds. We are not aware of most of them. Stop for just a minute, close your eyes, and listen. How many sounds do you hear? Can you tell them apart? Listen carefully.

We go through our days bombarded with sounds. Some are pleasant to us and others are not. The pleasure has a lot to do with how sounds are made and the rhythm of their vibrations. To vibrate is to move back and forth.

Sound vibrations serve many purposes. Some sounds are simply for pleasure. For example, we enjoy listening to a radio, a concert, or a movie soundtrack. Other sounds serve as cautions and warnings. Thunder, wind, and crashing waves give messages about harsh weather. Engine vibrations tell about the working condition of a car or truck. A loud sound warns that danger may be near.

Like light, sound travels in waves. Different waves make different sounds. We can tell sounds apart by the vibrations they make.



## Noise

Noise is all around us: car horns, barking dogs, crying babies, banging items, and more. Many noises are loud—and the louder they get, the more annoying they become.

Any unpleasant sound is a noise. Is thunder a noise? Some people hate the sound of thunder. Others enjoy the mighty crashing sounds. Each person decides what he or she thinks is noise. That's why loud music, sirens, and traffic horns can be considered noise to many people. For others, they're music to their ears.

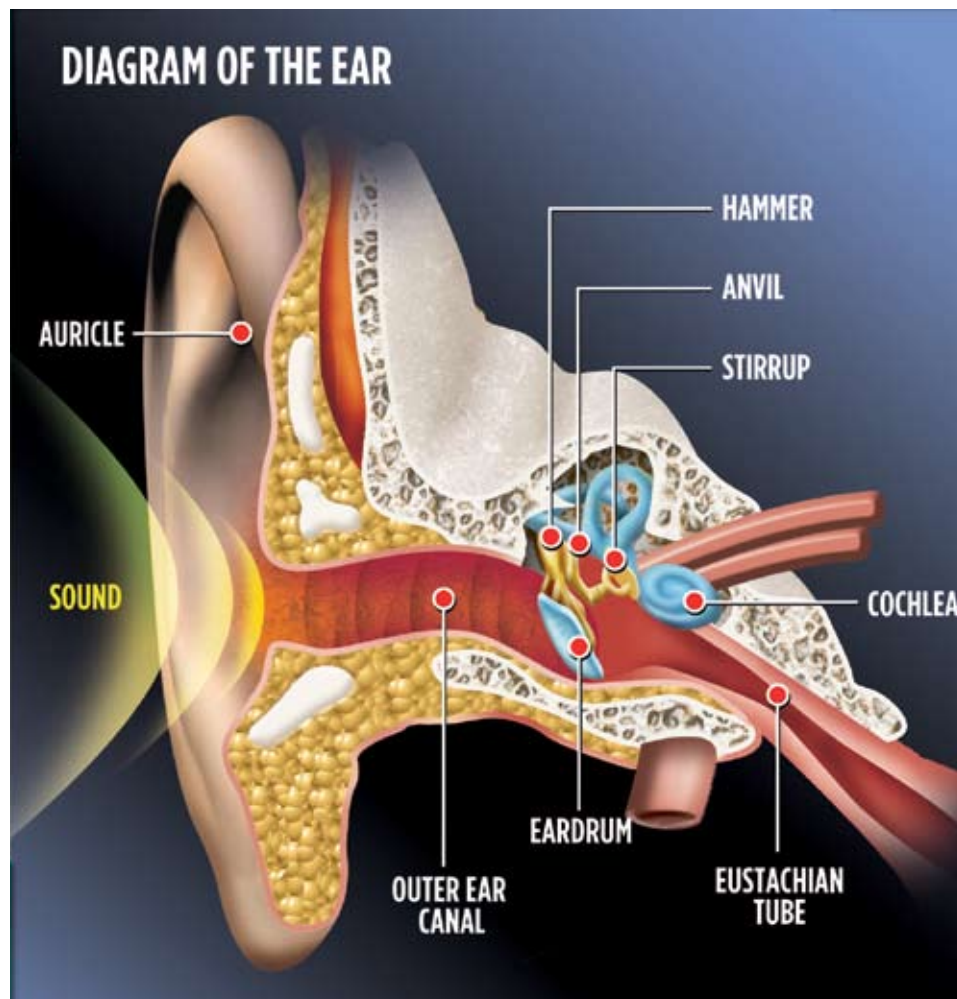


Loud sounds can damage one's ear drums and affect a person's hearing. People who work in places with loud sounds should wear headsets to protect their ears.

# What Is Sound?

Our ears allow us to receive sound vibrations and translate them into meaningful messages. The ears control hearing. Nerves in the ear carry impulses to the brain. These impulses (IM-puhl-suhs) result in the messages we hear.

Sound comes from vibrations. Just like with light, atoms within substances move. Their movement creates **sound waves**. As the waves move through matter, they cause vibrations. The vibrations are picked up by the ear and sent as impulses to the brain. The brain translates them as the sounds we hear.



## Sound Waves

Not all sound waves are alike. The differences let us hear various sounds. Scientists have discovered that sounds and sound waves differ in the following ways:

- Wavelength is the distance between the troughs on either side of a single wave.
- Amplitude is measured in the height of the sound wave. It relates to loudness or softness of a sound. When a wave is high, the sound is loud and the amplitude is large. When a wave is low, the amplitude is small and the sound is soft.
- Frequency of sound relates to speed. The number of cycles per second that waves pass a given location is the frequency. The brain understands frequency as **pitch**. Fast vibrations cause high pitch. Slower vibrations make lower-pitched sounds. A tweeting bird makes a high-pitched sound. A roaring lion makes a low-pitched sound.



## Did You Know?

Some animals can hear sounds at a higher frequency than humans can. If you have a pet such as a dog, you have probably seen it listening to something you cannot hear.

