

Key Vocabulary

ear	The ear is an organ that allows humans and animals to hear.
distance	Distance is a measure of the length between two points.
volume	Volume is a measure of how loud a sound is.
vibration	A vibration is a very quick, continuous movement.
pitch	Pitch is a measure of how high or low a sound is.

Sound Over Distance

The closer a sound source is, the louder it will be. It is easier to hear someone talking when they are near you than when they are at a **distance**. This is because the sound loses energy over a **distance**.



Sound and Vibrations

All sounds are created by **vibrations**. You might not be able to see **vibrations** but when an object **vibrates**, the air around the object also **vibrates**. These **vibrations** travel through the air particles into our **ears**. When they reach the **eardrum** and inner **ear**, sounds can be heard. These **vibrations** are called **sound waves** and can travel through any medium, including solids, liquids and gases.

Volume

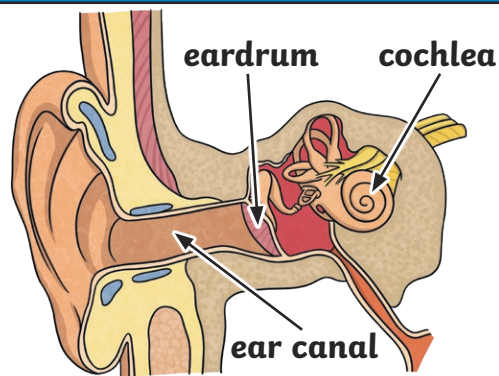
The **volume** of a sound is how loud or quiet it is. Loud sounds are made by bigger **vibrations**. **Amplitude** is a measure of how big a **vibration** is. Louder sounds have a larger **amplitude**. Quiet sounds have smaller **vibrations** and a smaller **amplitude**.



A louder sound has a larger **amplitude**.

A quieter sound has a smaller **amplitude**.

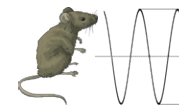
The Ear



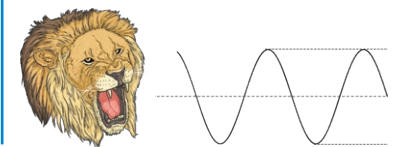
Pitch

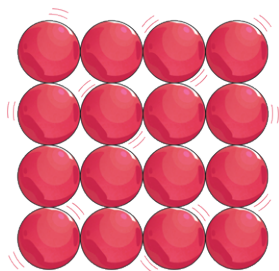
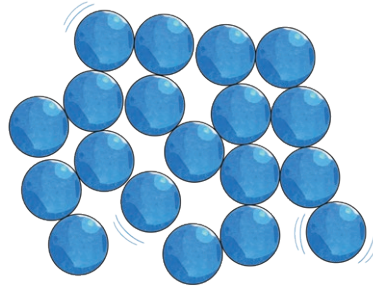
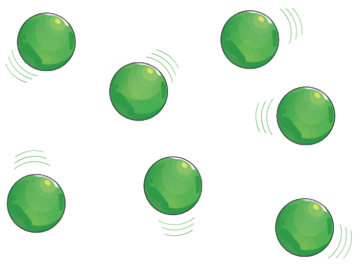
Pitch is a measure of how high or low a sound is.

A squeak from a mouse is a high-**pitched** sound and this means it **vibrates** quickly.



The sound of a lion's roar has a lower **pitch** and **vibrates** slowly.



Key Vocabulary		Sounds in Solids	Sounds in Liquids	Sounds in Gases
absorb	' Absorb ' means to take in or keep inside.	 <p>The vibrations that create sound move from particle to particle. The particles in a solid are closely held together. This means that it is easier for sound to travel through a solid object than through other states of matter.</p>	 <p>In a liquid, the particles are quite close together and can move freely over each other. This means that the vibrations from a sound can't travel as easily as in a solid. Sound can still travel through liquids but not as well as in a solid.</p>	 <p>Gas particles are spread far apart. It is more difficult for vibrations to travel through a gas than through a liquid or a solid. Sound can still travel through gases. Most of what we hear travels through the air.</p>
amplitude	Amplitude is a measure of the greatest distance that a vibration moves across and the height of the sound wave it produces.			
sound wave	A sound wave is the movement of energy created by the vibration of a sound source.			
soundproof	Soundproof objects and materials do not allow sound to pass into or through them.			
eardrum	The eardrum is the piece of thin, stretched skin inside the ear that is moved by vibrations .			



Absorbing Sound

When we don't want a sound to be heard, we can try to **absorb** the **sound waves** or **vibrations**. If the **vibrations** are **absorbed**, the sound is muffled. Different materials can be used to **absorb** sound and these materials can be used in **ear** defenders or **ear** plugs. It is even possible to **soundproof** a whole room, such as a music studio.

Ear defenders can be used to reduce unwanted noise from reaching our **ears**. Some people find it difficult to hear loud noises, constant background noise or strange sounds so **ear** defenders help them.