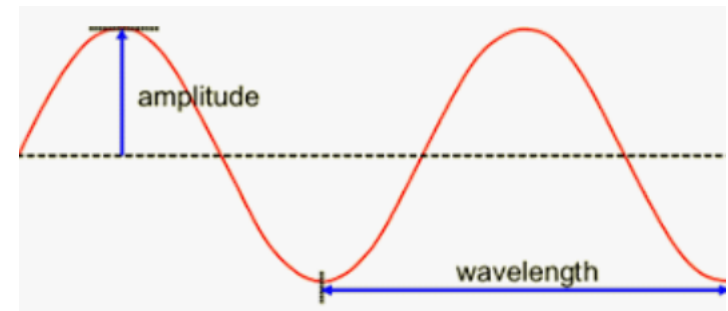
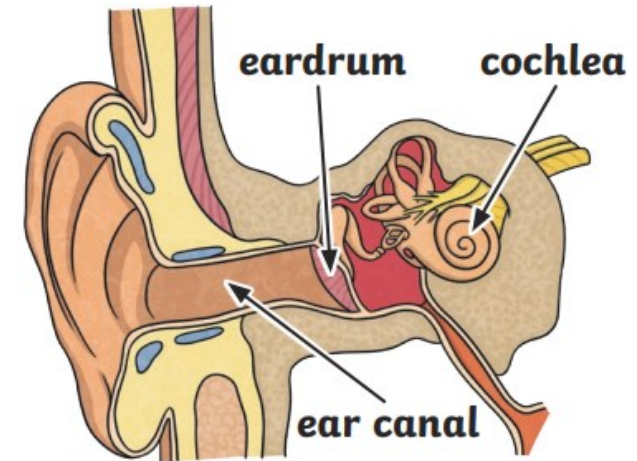


## Year 4—Science—Sound

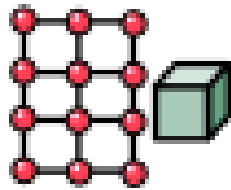
All sounds are created by vibrations. You might not be able to see vibrations but when an object vibrates, the air around the object also vibrates. These vibrations travel through the air particles into our ears. When they reach the eardrum and inner ear, sounds can be heard. These vibrations are called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

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.

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



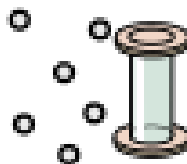
The vibrations that create sound move from particle to particle. The particles in a solid are closely held together. This means that it is easier for sound to travel through a solid object than through other states of matter.



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.



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.



## 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.



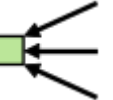
### **pitch**

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



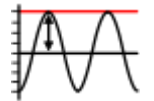
### **absorb**

'Absorb' means to take in or keep inside.



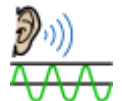
### **amplitude**

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.

