ALDER COPPICE PRIMARY SCHOOL KNOWLEDGE ORGANISER:

Subject: Science	Year: 4	Unit 6: Sound	Links to: Y3 Light

What I Should Already Know:

1. Another source of energy is light (Y3)

Skills and Enquiry:

1. How does sound travel?
2. Does sound travel through different materials?
3. What is volume and how is it changed?
4. What is pitch an how is it changed?
5. Can we stop sound travelling?

Fair test — A **fair test** is a **test** which controls all but one variable when attempting to answer a scientific question. Only changing one variable allows the person conducting the **test** to know that no other variable has affected the results of the **test**.

Unit Specific Vocabulary:

acoustics – the branch of physics linked to sound

amplitude – the size of a vibration

cochlea – the snail shaped part of the inner ear that helps sound reach the brain

ear – an organ for hearing

eardrum – also known as the tympanic membrane – this vibrates to allow sound to pass through the ear.

pinna – the outside of the ear that collects sound

pitch – how high or low a sound is

soundproof – to prevent sound from passing from one material to another

sound wave – vibrations travelling from a sound source

vacuum – a space where there is nothing

vibration – a movement forwards or backwards

volume – the loudness of a sound

wave – a sound wave is an invisible wave that can travel through different materials

What I should know by the end of this Unit:

1. That sounds are made when something vibrates
2. That vibrations from sound travel through different materials before they reach the ear.
3. Understand features of an object in relation to the pitch it creates.
4. Understand the relationship between volume and the strength of the vibrations that create a sound.
5. Understand the best materials to provide insulation against sound.

Key Facts:

How are sounds made and how do they travel?

When objects **vibrate**, a sound is made.

The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called **sound waves**.

If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations

Sound waves travel through a medium (such as air, water, glass, stone, and brick).

Volume

The volume of a sound is how loud or quiet it is.
Quieter sounds have a smaller amplitude and less energy (smaller vibrations) and louder sounds have a bigger amplitude and more energy.

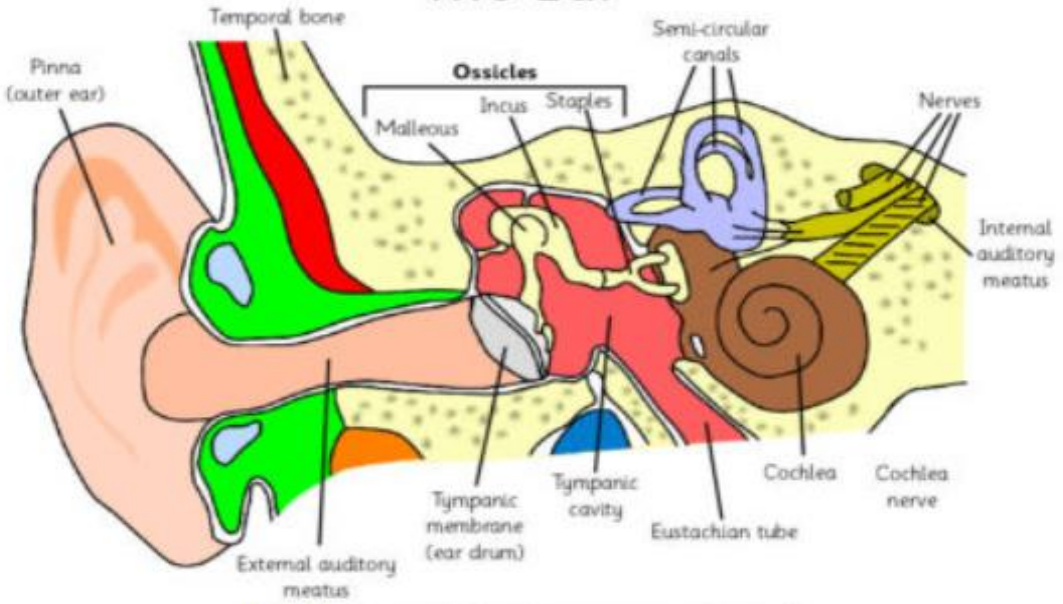
The closer we are to a sound source the louder it will be.

A train arriving at a station sounds loud

The further away from a sound the fainter it will be.

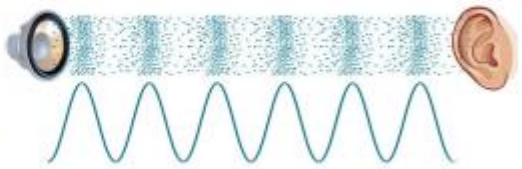
A train in the distance sounds quieter

The Ear



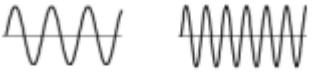
How do we hear?

The sound waves travel to the ear and make the ear-drums vibrate. Messages are sent to the brain which recognises the vibrations as sounds.



Pitch

The pitch of a sound is how high or low it is.
A squeak of mouse has a high pitch
A roar of a lion has a low pitch.



A high pitch sound is made because it has a high frequency. The sound source vibrates many times a second.

Wallace Clement Sabine, an American acoustical physicist, was born June 13, 1868