

Knowledge

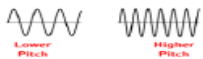
- How can we describe sounds?
- How are sounds made?
- How do we hear sounds?
- How can we investigate the intensity of sounds?
- Do all animals hear sound in the same way?
- How does the strength of vibrations affect the volume of a sound?
- What is pitch?

How sound travels

- 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).

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.
- You can change the pitch of a sound in different ways depending on the type of instrument you are playing.

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.

How we hear

- Inside your ear, the vibrations hit the eardrum and are then passed to the middle and then the inner ear.
- They are then changed into electrical signals and sent to your brain. Your brain tells you that you are hearing a sound.



Year 4 Science

Spring 1

Sound

Science strand: Physics



Did you know?

Sound travels at 770 miles per hour. This is slower than light (which travels at 186,000 miles per second). That is why you can see lightning before you hear it.



Vocabulary

Word	Definition
Energy	Sound energy is a type of energy that we can hear
Decibels	A unit used to measure the loudness of
Insulation	A material used to block sounds.
Faint	A sound with very little strength.
Frequency	The speed of the vibrations is known as their frequency . The higher the frequency, i.e. the faster the vibrations, the higher the pitch.
Pitch	Sounds can be high or low . This is known as the pitch of the sound.
Vibration	Vibrations are invisible waves that move quickly up and down.
Volume	Sounds can also be loud or quiet . This is known as the volume of the sound.
Sound waves	Vibrating forms of energy that look like waves

Knowledge and Understanding:

Children will:

- build on their understanding of hearing, which was covered in Year 1 (Using our senses) during work around the senses.
- develop their vocabulary for describing sounds and identify different sound sources.
- learn that sounds are made by something vibrating and that these vibrations travel through a medium to the ear so that we hear them. They will learn that sounds get fainter as the distance from the sound source increases.
- explore ways to change the pitch and volume of sounds.

Key skills and concepts:

In this unit, I will use these science enquiry skills

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.

Research

Using secondary sources of information to answer scientific questions.

Observation over time

Observing changes that occur over a period of time ranging from minutes to months.

Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.

Identifying, grouping and classifying

Making observations to name, sort and organise items.



Key Questions

What can we describe sounds?

How are sounds made?

How do we hear sounds?

How can we investigate the intensity of sounds?

Do all animals hear sound in the same way?

How does the strength of vibrations affect the volume of a sound?

What is pitch?

How can we plan a fair test about the effect of distance on the volume of a sound?

How can we conduct a fair test about the effect of distance on the volume of a sound?

How can we evaluate our fair test?

What is the best way to make a string telephone?