

# Year 4 – Sound

ALP Trust Science 2020

## Language for Learning

Through the activities in this topic, pupils should **understand and use key scientific words precisely** - spelling these words correctly. This includes - words with precise scientific meanings (e.g. weight and mass), words with different meanings in scientific and everyday contexts (e.g. drag) and words relating to scientific enquiry (e.g. variable).

## Key Scientific Words

Key Word	Definition (Meaning)
Sound	A vibration in a substance - we can hear some of these vibrations with our ears
Vibrate	To move backwards and forwards
Frequency	The number of times an object vibrates in a second
Loudness	How loud a sound is (the volume of a sound)
Loud	A sound with a high loudness
Quiet	A sound with a low loudness
Pitch	How high or low a note sounds
High	A sound with a high frequency
Low	A sound with a low frequency
Data Logger	A meter which can be used to measure the loudness of a sound
decibel (dB)	The unit of measurement for loudness
Medium	A substance that sound (or something else) travels through
Vacuum	An empty space with no particles
Echo	A repeat of a sound
Echolocation	A method of sensing objects using sound (For example, used by bats, whales and dolphins)
Hearing Range	The range of pitch (frequency) that an animal can hear
Tuning fork	An instrument that vibrates at a specific frequency

## Key Concepts

Sounds are made when things **vibrate**.

The vibrations are **passed on by substances**.

Sound needs a substance (**a medium**) to travel through. A **vacuum** is an empty place without a substance. Sound cannot travel through a vacuum.



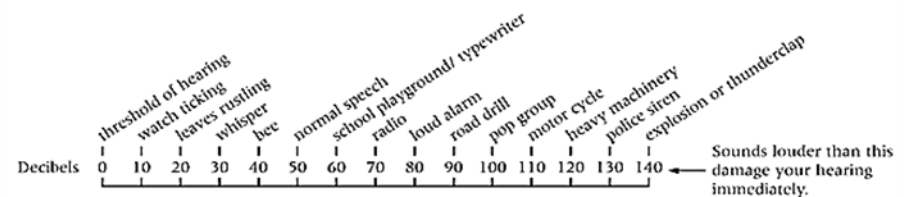
Sound travels in all directions and **spreads out**.

We detect sounds when they enter the **ear**

The **pitch** of a sound is how **high** (like a bird's tweet) or **low** (like a dog's woof) the sound is.

The **loudness** of a sound is how loud or quiet a sound is.

We can **measure** how loud a sound is by using a **data logger** or sound intensity meter. This is a piece of equipment which measures the loudness of a sound in **decibels (dB)**



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## Key Concepts

### Changing Pitch

The **pitch of a sound can be changed** by changing the features of the object that produces the sound

For example, the **shorter** a string on a musical instrument the **higher** the pitch



### Changing Loudness

The **loudness of a sound can be changed** by changing the **strength** of the vibrations that produce the sound

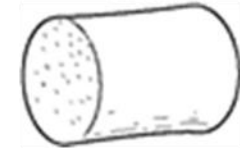
For example, if you strike a drum **harder** - the strength of the vibrations will be **greater** and the sound will be **louder**



### Absorbing Sound

Soft materials can **absorb** ("take in") sound.

Soft materials are used in **soundproofing** and for making **ear protectors**.



As sound energy travels away from a **sound source** it becomes more **spread out** and is **absorbed**.

As a result, **sounds get fainter as the distance from the sound source increases**

