

Science Knowledge Organiser - Sound

Question - How do we hear sound?

Year 4 - Term 2

Prior knowledge	Key knowledge	Subsequent knowledge
<p>Explore how things work. (Nursery Sound) Describe what they see, hear and feel whilst outside. (Reception Sound) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)</p>	<ol style="list-style-type: none">1. Identify how sounds are made, associating some of them with something vibrating.2. Recognise that vibrations from sounds travel through a medium to the ear.3. Find patterns between the pitch of a sound and features of the object that produced it.4. Find patterns between the volume of a sound and the strength of the vibrations that produced it.5. Recognise that sounds get fainter as the distance from the sound source increases.	<p>Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel superposition. (KS3) Frequencies of sound waves, measured in Hertz (Hz); echoes, reflection and absorption of sound. (KS3) Sound needs a medium to travel, the speed of sound in air, in water, in solids. (KS3) Sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal. (KS3) Auditory range of humans and animals. (KS3) Pressure waves transferring energy; use for cleaning and physiotherapy by ultra-sound. (KS3) Waves transferring information for conversion to electrical signals by microphone. (KS3)</p>

Working Scientifically Skills - Year 3 & 4

At least one LI per block should focus on a WS skill.

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Word	Meaning
Vibration	A movement backwards and forwards.
Sound	Vibrations that travel through the air or another medium and can be heard when they reach an ear.
Source	Where a sound originated.
Soundwave	Vibrations travelling from a sound source.
Volume	The loudness of a sound.
Amplitude	The size of a vibration. A larger amplitude = a louder sound.
Pitch	How high or low a sound is.
Soundproof	A material that prevents the passage of sound.
Ear	An organ used for hearing.
Eardrum	A part of the ear. Soundwaves make the eardrum vibrate.
Particles	Solids, liquids and gases are made of particles. They are so small we are unable to see them.

Science Knowledge Organiser - Sound

How do we hear sound?

Key Knowledge


Sound is a type of energy. Sounds are created by **vibrations**. The louder the sound, the bigger the **vibration**.




Key Knowledge

Sound can travel through solids, liquids and gases. Sound travels as a **wave**, **vibrating** the **particles** in the medium it is travelling in. Sound cannot travel through a vacuum.


When you hit the drum, the drum skin **vibrates**. This makes the air **particles** closest to the drum start to **vibrate** as well.



The **vibrations** then pass to the next air **particle**, then the next, then the next. This carries on until the air **particles** closest to your ear **vibrate**, passing the **vibrations** into your **ear**.



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.

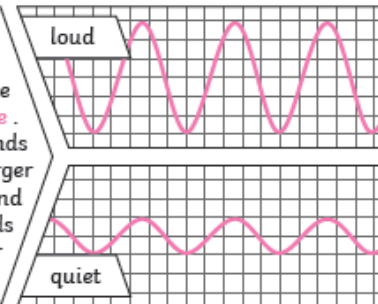


Year 4 - Term 2

Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-**pitched** sound. A rumble of thunder is an example of a low-**pitched** sound.



The size of the **vibration** is called the **amplitude**. Louder sounds have a larger **amplitude**, and quieter sounds have a smaller **amplitude**.



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

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