Year 4 Science Knowledge Organiser – Sound

Working scientifically, we will:

- Record findings using complex scientific language, drawings, labelled diagrams, keys, bar charts or tables.
- Report on findings from investigations including oral and written explanations, displays or presentations of results and conclusions.

Key Vocabulary	
Sound	Sound is made up of vibrations, or sound waves that we can hear.
Sound wave	Vibrations travelling from a sound source.
Source	An object that is creating a sound.
Vibration	A quick movement back and forth.
Pitch	A measure of how high or low a sound is.
Volume	The loudness of a sound.
Insulation	Materials that absorb sound, restricting vibrations from passing through.
Decibel	The loudness of sound is measured in units called decibels.
Amplitude	The size of a vibration. The larger the vibration the louder the sound.
Particles	Solids, liquids and gases are made of particles. They are so small that we are unable to see them.
Transmit	To pass from one place or person to another.

Sound is a type of energy. The object that makes the sound is called the source. Sounds are created by vibrations. The bigger the vibration the louder the sound.

How is sound made?

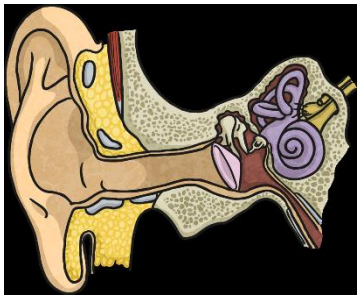
- When objects vibrate, a sound is made.
- The vibration makes the air around the object vibrate and the air vibrations travel to your ear. These are called sound waves.
- If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations.

How do sounds travel?

- Sound waves travel through a medium (such as air, water, glass, stone, and bricks).
- For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall.

How do we hear sounds?

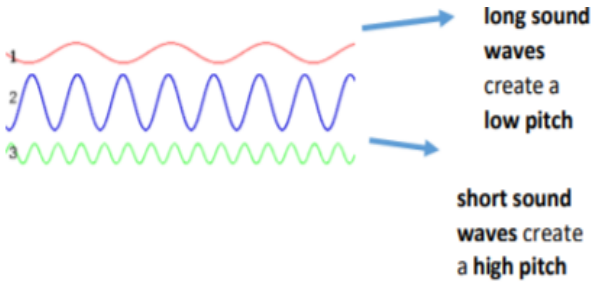
- When an object vibrates, the air around it vibrates too. This vibrating air can also be known as sound waves.
- The sound waves travel to the ear and make the eardrums vibrate.
- Electrical signals are sent to the brain which recognises the vibrations as sound.



How do sounds change?

1. Pitch

Pitch is a measure of how high or low a sound is. High pitch sounds are created by a short sound wave. Low pitch sounds are created by long sound waves.

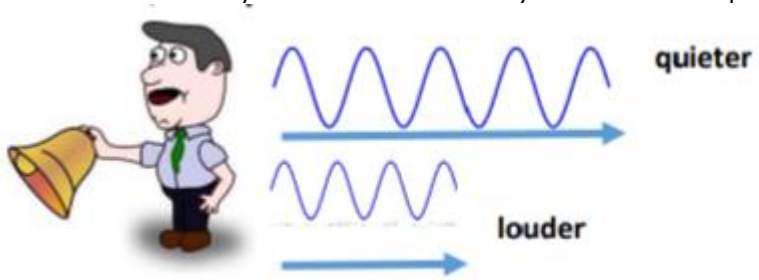


- A squeak of a mouse has a high pitch.
- A roar of a lion has a low pitch.

2. Volume

The volume of a sound is how loud of quiet it is.

- When a sound is created by a small amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound.
- A vibration with lots of energy produces a powerful sound wave and therefore a loud sound.
- The closer you are to the source of the sound, the louder the sound will be.
- The further away from the source you are, the quieter the sound will be.



How do we measure sound?

- Amplitude measures how strong a sound wave is. Louder sounds have a larger amplitude and quieter sounds have a smaller amplitude.
- Decibels measure how loud a sound is.
- Frequency measures the number of times per second that the sound wave cycles.

How is sound made and how does it travel through different materials?	How can vibrations change the pitch and volume of sound?
How do different materials affect the sound an instrument makes?	Why do different materials and vibrations affect the sound an instrument makes?