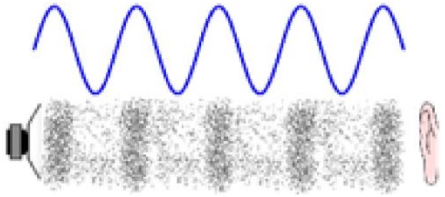
Year 4 Science Knowledge Organiser

Sound (1)

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.
- Messages are sent to the brain which recognises the vibrations as sounds.



How does sound travel?

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

What is a sound?

- A thing that can be heard. The object that makes the sound is called the source.
- 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.

How do sounds change?

- 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.
- Volume:
  - The volume of a sound is how loud or quiet it is.
  - When a sound is created by a little amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound.
  - A small tap of a hammer is used with small amounts of energy and so creates a quiet noise.
- A vibration with lots of energy makes a powerful sound wave and therefore a loud sound.
- A powerful, smashing tap of a hammer is used with lots of energy and so creates a loud noise.

Year 4 Science Knowledge Organiser

Sound (2)

Investigation ideas

- Fill identical jars with different volumes of water. Which one creates the highest pitch?
- Which material would make the best sound defender? How can you investigate this?
- Make musical instruments using different length strings. How do their pitches differ?

Measuring sound

- Amplitude measures how strong a sound wave is.
- Decibels measure how loud a sound is.
- Frequency measures the number of times per second that the sound wave cycles.
- Diagrams

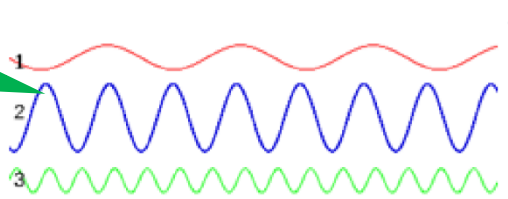
Key vocabulary

sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation, electricity, energy, frequency, medium, power, sound waves, source, transmit, amplitude, decibel

Diagrams

Pitch:

- High pitch sounds are created by short sound waves.
- Low pitched sounds are created by long sound waves.



long sound waves create a **low pitch**

short sound waves create a **high pitch**

Volume:

- The closer you are to the source of the sound, the louder the sound will be.
- The further away you are from the source of the sound, the quieter the sound will be.