

Sound

Science
Knowledge organiser

Strand: Chemistry

Class: Year 4

Previous Knowledge

Properties of materials—children will know whether materials are soft, hard, waterproof, pliable etc

Project Hook or ‘Wow’ memory

Composing a piece of music using a range of instruments to model changes in pitch.

Learning Steps

Key Knowledge (answers)

What is sound? How does the volume of a drum change as you move away from it? How does the length of a guitar string/ tuning fork affect the pitch? (Fair testing)

Sound is created when **something vibrates and sends waves of energy (vibration) into our ears**. The vibrations travel through the air or another medium (solid, liquid or gas) to the ear. The stronger the vibrations, the louder the sound. Sounds are fainter the further you get from the sound source.

Are 2 ears better than 1? What material is best to use for muffling sound in ear defenders? (Comparative testing)

2 ears are better than 1.
Of the materials available: Paper, bubble wrap, cotton wool and material the best ear defender will be made using cotton wool and material together.

When is our classroom quietest? (Changes over time)
Is there a link between how loud it is in school and the time of day? If there is, is it the same all around the school? (pattern spotting)

When there are no children in the classroom.
When we are working it is noisy getting ready to go out to play and at lunchtime.
The volume of the drum decreases as you move further away and the sound waves have further to travel.

How does the volume of a drum change as you move away from it? (Fair testing)

As **sound** waves travel **farther** from their source, the more spread out their energy becomes. ... The same amount of energy is spread over a greater area, so the intensity and loudness of the **sound** is less. This explains why even loud sounds fade as you move away from the source.

Since the 1800s how has science helped people who are deaf? (Ideas over time)

The first hearing aid was created in 17th century.
Telephone, external hearing aids - then to digital hearing aids.

The key skills we want pupils to use during this topic:

Ask relevant **questions** and use different types of scientific enquiries to answer them. Set up simple practical investigations, **compare** things and make **fair tests**. Make careful **observations** and take **accurate measurements** using the right units using a range of equipment.

Gather, record, sort and **present data** in a variety of ways to help in **answering questions**. Record findings using simple **scientific language**, drawings, labelled diagrams, keys, bar charts and tables.

Report findings by talking and writing about them, displaying or **presenting results** and **conclusions**. Use results to draw simple conclusions, make **predictions**, suggest **improvements** and ask more questions. **Identify differences, similarities or changes**. Use clear **scientific evidence** to answer questions or to support my findings.

Key vocabulary

pitch	How high or low a sound is
vibration	Back and forth motion
Sound waves	Sound travels as waves, which are vibrating particles
Volume	How loud or quiet a sound is
amplitude	The strength of a sound
transmit	To pass from one thing to another
soundproof	Resistant to the passing of sound –sound can't get through

Statutory Requirements

Children can:
Describe sounds around them.
Identify high and low sounds.
Identify loud and quiet sounds.
Observe how different sounds are made.
Describe how sounds change over distance.

