

Y4 – Sound

Inspiration

Citizens for the future – recycling

Partnership with parents

Community – making musical instruments with their parents

Key Questions

- What is a vibration?
- How is a sound made?
- How can we hear sounds?
- What is pitch?
- How does the pitch of a sound change?
- How and why do sounds get louder and quieter?
- How is the volume of a sound and the strength of a vibration linked?

Working Scientifically

- 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 logger
- gathering and recording data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, and tables
- reporting on findings from enquiries, including oral and written explanations, 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.

Also covered in:

Not previously taught in any other unit.

By the end of this unit, the children should be able to:

- Know that sounds are made when something vibrates
- Understand how sound travels and is heard
- Say how the pitch of a sound changes dependent on the features of the object that produced it e.g. such as saucepan lids of different sizes or elastic bands of different thicknesses
- Know that the bigger the amplitude of a sound wave, the louder the sound is to our ears e.g. a string plucked with force has greater amplitude which makes the sound louder
- Understand why sounds in the distance are quieter
- Ask and answer relevant questions using scientific enquiries
- Complete comparative and fair tests
- Use data loggers to take accurate measurements
- Gather, record and report findings in a variety of ways using simple scientific vocabulary including identifying and discussing patterns
- Draw simple conclusions and make predictions

Knowledge

- A sound is caused by an object vibrating. Sometimes this vibration can be seen and other times it is too fast to be seen!
- When a sound is made the air is made to vibrate. These vibrations travel through the air and reach your ears which detect the vibrations and send the signals to your brain which decodes them.
- When we hear a sound energy has travelled from the source of the sound to our ears.
- When a sound travels through the air it's like a domino effect. The bits of the air (molecules) next to the source are made to vibrate and these then bump into the air molecules next to them which are also made to vibrate and so on until the vibrations reach the ear drum.
- Musical instruments produce a sound by causing a vibration. This can be a result of something being struck (a drum etc.), a string being plucked or bowed (a guitar or violin etc.) or an air column being made to vibrate (blowing across a milk bottle top or flute or recorder etc.)
- Sound can also travel in other things such as string, water and metal.
- Pitch is defined by high and low notes. The pitch of a sound is related to its frequency. Frequency means the number of vibrations per second. The faster that something vibrates, the higher the pitch of the sound.
- Volume is defined by how loud or quiet a sound is. This depends on the amount of air being made to vibrate.
- The loudness of a sound is measured in decibels
- A noise becomes quieter the further away you are from it.



Topic Specific Vocabulary

Vibration, air, travel, ear, signal, decode, energy, sound, source, molecules, struck, plucked, pitch, frequency, volume, louder, quieter, decibels

NC Subject content

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it

- recognise that sounds get fainter as the distance from the sound source increases.

Subject Specific/Academic Vocabulary

This vocabulary should be explicitly taught in context. Other tier 2 words should also be explored as they are encountered.

Year 3	Year 4	Year 5	Year 6
Benefit, impact, issues, occur, process, sequence, source, variables	Appropriate, consequences, identified, procedure, range, relevant, significant, specific, theory, transfer	Factors, affect, analyse, contribute, demonstrate, outcome, react, volume,	Component, exclude, function, imply, initial, justify, sufficient.

We are scientists

Creating their own musical instruments using recycled materials (invite parents in to help). Write about instruments scientifically.