



The Canons CE Primary School



Year 4 – Sound

Prior Learning	In Year 4	Future Learning
In Year 1 children will be taught to: - identify and name the basic parts of the human body - know which parts of the human body are associated with each sense. (<i>Animals, including humans</i>)	In Year 4 children will be taught to: - identify how sounds are made - describe how sounds travel to their ears e.g. vibrations through the air - recognise patterns between the volume of a sound and the strength of the vibrations that produced it - recognise patterns between the pitch of a sound and the features of an object that produced the sound - describe what happens when you move away from the source of a sound - recognise that sounds get fainter as the distance from the sound source increases. Key Vocabulary sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation	
Famous Scientists	Common Misconceptions	Possible Evidence to be Secure
- Alexander Graham Bell – invented the telephone - Aristotle – sound waves - Robert Boyle (1627- 1691) - Ernst Mach (1838-1916) – described how shock waves are formed - Heinrich Hertz (1857-94) – The unit of frequency used for all kinds of waves and vibrations is named after him. One Hertz is equal to one vibration per second.	Pitch and volume are frequently confused, as both can be described as high or low. Some children may think: - sound is only heard by the listener - sound only travels in one direction from the source - sound can't travel through solids and liquids - high sounds are loud and low sounds are quiet.	Children can: - name sound sources and state that sounds are produced by the vibration of the object - state that sounds travel through different mediums such as air, water, metal - give examples to demonstrate how the pitch of a sound are linked to the features of the object that produced it - give examples of how to change the volume of a sound e.g. increase the size of vibrations by hitting or blowing harder - give examples to demonstrate that sounds get fainter as the distance from the sound source increases.



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Working Scientifically

National Curriculum Statutory Requirements

1. Ask relevant questions and use different types of scientific enquiries to answer them.
2. Set up simple practical enquiries, comparative and fair tests.
3. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
4. Gather, record, classify and present data in a variety of ways to help in answering questions.
5. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
6. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
7. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
8. Identify differences, similarities or changes related to simple scientific ideas and processes.
9. Use straightforward scientific evidence to answer questions or to support their findings.

Highlighted = main focus during this topic

Teaching Ideas – Different Types of Scientific Enquiry

Comparative and Fair Testing	Identifying and Classifying	Observation Over Time	Pattern Seeking	Research
Which material is best to use for muffling sound in ear defenders? Are two ears better than one? How does the volume of a drum change as you move further away from it? How does the length of a guitar string/tuning fork affect the pitch of the sound?	How would you group these instruments based on how they produce sound? How would you group these instruments based on how they change pitch or volume?	When is our classroom the quietest?	Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school?	Do all animals have the same hearing range?

Teaching Ideas – How Pupils Could Work Scientifically

Teaching Ideas – Possible Evidence to be Secure

(Bracketed Number = National Curriculum Statutory Requirement Link)

- Classify sound sources. (4)
- Explore making sounds with a range of objects, such as musical instruments and other household objects. (2)
- Explore how string telephones or ear gongs work. (2)
- Explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks. (2)
- Measure sounds over different distances. (3)
- Measure sounds through different insulation materials. (3)

- Children can:
- explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear (6)
 - demonstrate how to increase or decrease pitch and volume using musical instruments or other objects (6)
 - use data to identify patterns in pitch and volume (8)
 - explain how loudness can be reduced by moving further from the sound source or by using a sound insulating medium. (6)