Topic Summary: LKS2 Sound

National Curriculum Objectives

- 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 sound gets fainter as the distance from the sound source increases.

Working Scientifically Skills

- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including data loggers.
- Using straightforward scientific evidence to answer questions or to support their findings.
- Setting up simple practical enquiries, comparative and fair tests

Substantive knowledge

- A sound produces vibrations which travel through a medium from the source to our ears.
- Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter).
- The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.
- The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source.
- A sound insulator is a material which blocks sound effectively.
- Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.

Vocabulary

Sound, source, vibrate, vibration, travel, pitch (high/low), volume, faint, loud, insulation.

Phonics / polysyllabic words

Vibrate /ae/
Vibration – suffix rule
Insulation – suffix rule
Faint /ae/

Reading support

- Word mats
- Scaffolded recording / choice of recording
- Pre teaching of vocab

Extension deeper thinking

Key People

Brownell: Discovered that the ear has a mechanism for sound amplification.
Da Vinci: Discovered that sound travels in waves, allowing Galileo to later on discover more properties of sound waves.

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- scientific language, drawings, labelled diagrams, keys, bar charts, and tables

TAPS Assessment

Investigating pitch.

Prior learning

- Explore how things work. (Nursery-Sound)
- Describe what they see, hear and feel whilst outside (Reception – Sound)
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1-Animals, including humans).

Future learning

- Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel superposition. (KS3)
- Frequencies of sound waves, measure in Hertz (Hz); echoes, reflections and absorption of sound.
- Sounds needs a medium to travel, the speed of sound in air, in water, in solids.
- Sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone

Disciplinary knowledge

- Classify sound sources.
- Explore making sounds with a range of objects, such as musical instruments and other household objects.
- Explore how string telephones or ear gongs work.
- 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.
- Measure sounds over different distances.
- Measure sounds through different insulation materials.

British Values

- **Democracy** Take the views and opinions of others into account. Take turns and instructions from others.
- **The rule of law** Understand the importance of safety rules when working scientifically make choices when planning an investigation as others may have different points of view as to where to start.
- **Tolerance** Scientific discoveries have come from other cultures and religious beliefs often compete with scientific understanding.
- **Mutual respect** Work as a team, discuss findings and Offer support and advice to others.

Possible misconceptions

- Pitch and volume are frequently confused, as both can be described as high or low.
- 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 load and low sounds are quiet.

Christian Values

Courage

Asking our own questions and investigating new ideas.

Respect

Supporting other's ideas, even if they differ to our own.

Trust

Celebrating everyone's unique ideas and working together collaboratively.

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diaphragm and the ear drum; sound waves are longitudinal. ❖ Auditory range of humans and animals ❖ Pressure waves transferring energy; use for cleaning and physiotherapy by ultra-sound. ❖ Waves transferring information for conversion to electrical signals by microphone.		