Key Stage 2 Science | **Title of Topic : Sound** | **Term: Spring 1**

National Curriculum Science

Pupils should be taught to:

- 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

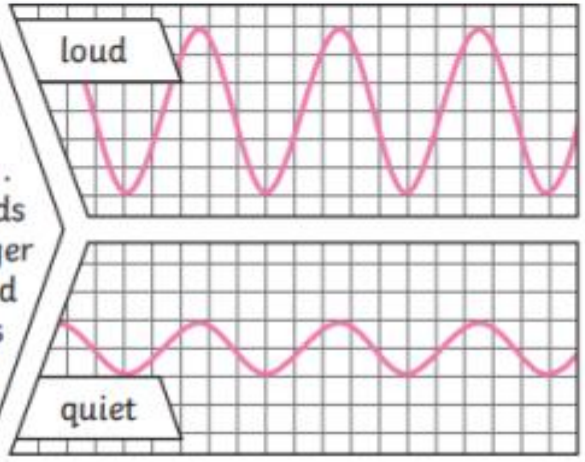
Pupils might work scientifically by: finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume.

Key Learning

Sound is a type of energy. Sounds are made when objects **vibrate.** The vibration makes the air around the object vibrate and the air vibrations enter your ear. You hear them as sounds.

You cannot always see the vibrations, but if something is making a sound, some part of it is always vibrating.

The size of the vibration is called the amplitude. Louder sounds have a larger amplitude, and quieter sounds have a smaller amplitude.



Vocabulary

Vibration	A movement backwards and forwards
Sound wave	Vibrations travelling from a sound source
Source	The beginning; where something comes from
Volume	The loudness of a sound
Amplitude	The size of a vibration. A larger amplitude = a louder sound
Pitch	How high or low a sound is
Ear	An organ used for hearing
Soundproof	To prevent sound from passing
Absorb sound	To take in sound energy. Absorbent materials have the effect of muffling sound
Eardrum	A part of the ear which is a thick, tough layer of tissue that is stretched out like a drum skin. Sound waves make the eardrum vibrate

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	Key Learning:
1	**How are sounds made?** Sounds are made when objects vibrate. The vibration makes the air around the object vibrate and the air vibrations enter your ear. You hear them as sounds. You cannot always see the vibrations, but if something is making a sound, some part of it is always vibrating.
2	**Why do sounds get fainter the further you are away from the sound?** As distance from the sound source increases, the area covered by the sound waves increases. 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 away as you move farther from the source.
3	**What is pitch and volume?** The pitch of a sound is how high or low the sound is. A high sound has a high pitch and a low sound has a low pitch. A tight drum skin gives a higher pitched sound than a loose drum skin. The volume of a sound is how loud or quiet the sound is. Sounds are vibrations that travel through the air. A nail hit hard with a hammer will make a strong vibration, which means it will make a loud sound. A nail hit gently with a hammer will make a weak vibration, which means it will make a quiet sound
4	**Does sound travel slower than light?** The speed of light in air is very close to 300 000 000 m/s. which is nearly a million times faster than the speed of sound, which is 340 m/s. 300 000 000 m/s is often written as 3 x (10^8) m/s.
5	**Soundproofing: Which material is most effective?** A scientific experiment to find out which material is best for muffling sounds.