Sound

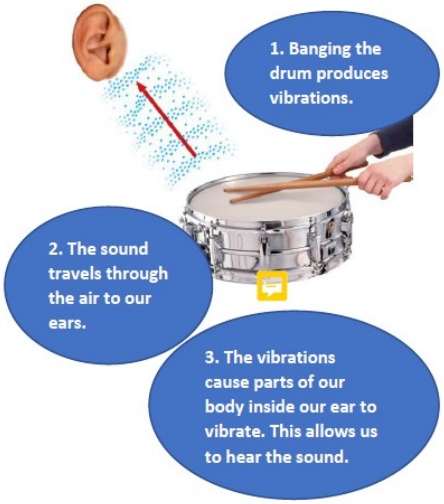
Year 4

Insulating sound

We can wear ear defenders to protect our ears from very loud sounds.

Vocabulary	
vibration	Movement quickly backwards and forwards.
sound wave	Vibrations travelling from a sound source.
sound source	Something producing sound when part of it is vibrating.
volume	How loud or quiet a sound is.
amplitude	The size of the vibration.
pitch	How high or low a sound is.
soundproof	A material which blocks sound.
eardrum	Part of an ear, like a drum skin, which vibrates with the sound waves.

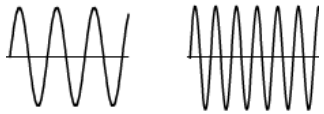
How do we hear sound?



As well as travelling through air (gas), sound can travel through solids and liquids:

Pitch

The longer bars on the xylophone make a **lower** sound.	The shorter bars on the xylophone make **higher** sounds.



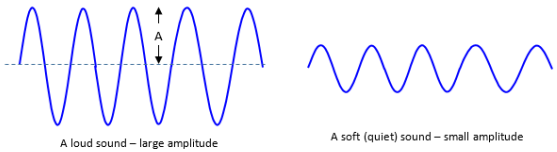
Lower Pitch — Higher Pitch

Volume

The volume (loudness) of a sound depends on the size of the vibrations.

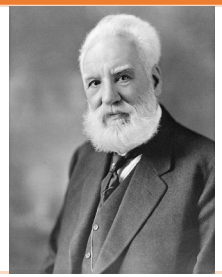
If we blow an instrument harder, we make a louder sound.

The closer we are to the sound source the louder it will be.



Significant Scientists

Alexander Graham Bell



Alexander Graham Bell is most famous for his invention of the telephone.

He first became interested in the science of sound because both his mother and wife were deaf.

National Curriculum	Key Enquiry Question	Key Substantive Concepts	Building On From
Science—Sound	How is sound made?	Patterns and change Insulation Volume Pitch Senses—hearing	Yr1 Identify, name, draw and label the ear and associate it with the sense of hearing.

Enquiry Question	Key Knowledge	Possible activities	Working Scientifically Focus	Key Vocabulary
Why do I hear a sound?	A sound produces vibrations which travel through a medium from the source to the ear. The vibrations cause parts of our ears to vibrate, allowing us to hear.	Listen to an audio clip to identify different sounds Describe that sound game Sound walk	Ask relevant questions and use different types of scientific enquiries to answer them. Use scientific evidence to answer questions or to support their findings.	Sound, listen, hear, ears, noise, loud, quiet, silent, vibrations
How are sounds made?	The volume of the sound depends on the strength of the vibrations. Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds.	Explore making sounds with a range of objects, such as musical instruments and other household objects. Observe sound vibrations, using a cymbal, ruler, elastic band and tuning fork.	To make observations based on the following questions: Is it high or low? Is it loud or quiet? Is it continuous or repeating? Is there a pattern? Can you make the sound louder/quieter? Can you make the sound higher/lower?	Sound, transmit, medium, air, water, solid, vibrations, source, sound waves, particles, travel .
How is sound affected by the distance from the sound source?	The loudness of a sound depends on the strength of the vibrations which decrease as they travel through a medium. Therefore sounds decrease in volume as you move away from the source.	An experiment to measure how far away from a sound you need to travel to no longer be able to hear it.	To take and record careful measurements. To present data in a graph.	sound, volume, loudness, amplitude, pitch, soundwave, frequency
How can I adjust the sound on an instrument I have made?	The volume of the sound depends on the strength of the vibrations. Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds.	Design a musical instrument. Evaluate their instrument and of its contribution to the band. Explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles,.	To predict which instruments will be louder.; to measure the volume of the sound produced. To explain results and match them to predictions.	Sound, volume, loudness, amplitude, pitch, soundwave, frequency
What other materials can sound travel through and how does this differ to air?	Different mediums, including air, water and solids can carry sound, but sound does not travel through a vacuum.	Observe sound traveling through air, water and some solids. Make and test their own string telephones.	To set up simple comparative and fair tests	Sound, transmit, medium, air, water, solid, vibrations, source, sound waves, particles, travel
How can we block sounds?	A sound insulator is a material which blocks sound effectively.	Plan and conduct an investigation into which material best reduces the sounds we hear. Design their own ear defenders.	Gather, record, classify and present data in a variety of ways to help answer questions.	Fair-test, evidence, results, conclusion, evaluate

Possible Texts	Possible Maths / English Links	Possible Enrichment
The Sound of Silence—Katrina Goldasito & Julia Kuo Zin! Zin! Zin! A Violin! - Llyod Moss	Descriptive language Data handling	Music concert