



Year 4

Significant Scientists	
Christian Doppler (1803-1853) 	Known for his principle called 'The Doppler Effect.' This describes how noises sound different as you move towards or away from a noise.
Sophie Germain (1776-1831) 	A French scientist known for her theory to explain the vibrations of plates due to sound. She won a major prize from the French Academy of Sciences for her work.

How is sound made?	Sound is created through vibrations of an object.
How does sound travel?	Sounds can travel through the air or through an object/material.

Science

Key Vocabulary and Phrases

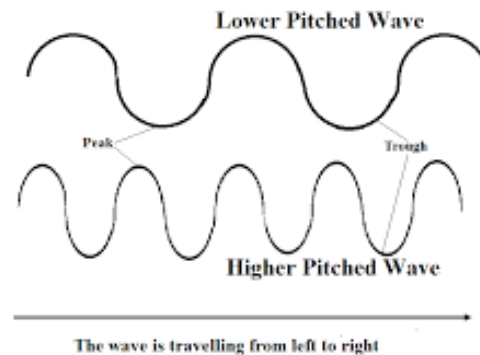
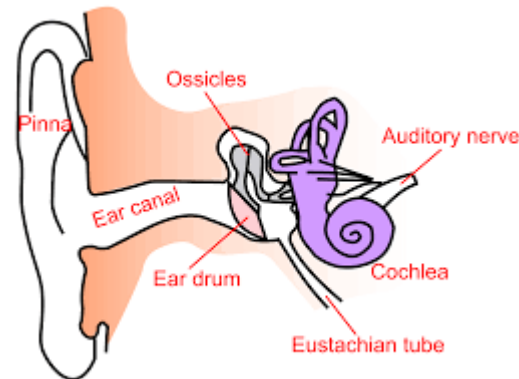
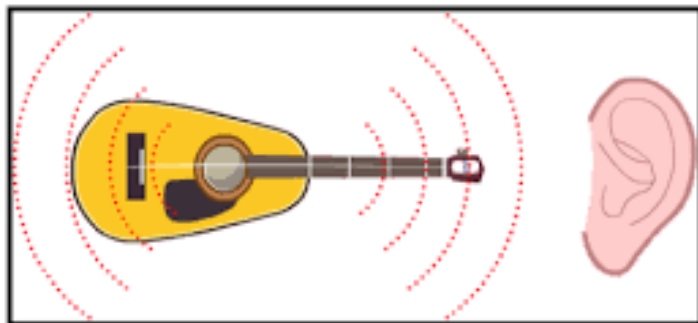
Sound	Something that we can hear or that can be heard, We hear things with our ears.
Sound Source	Something that is producing sound by vibrating.
Vibrations	Sound is made when something vibrates. Vibrating is moving forwards or backwards very quickly.
Pitch	How high or low a sound is.
Volume	How loud or quiet a sound is.
Insulators	Materials that effectively block sound.

How do we hear vibrations?

Vibrations in the air travel to our ears and make their way to the eardrum. These vibrations make our eardrums vibrate. Our brain recognises the vibrations and converts them to sounds we recognise.

Volume of Sound

If we are close to a sound source, the sound will appear to be louder to us. If we are far away from a sound source, the sound will appear quieter to us. The more energy the initial vibration has, the louder the sound will be. For example, if you tap an object on a desk, the sound will be quiet, but if you smash an object onto the desk, it will be much louder as greater force has been used.



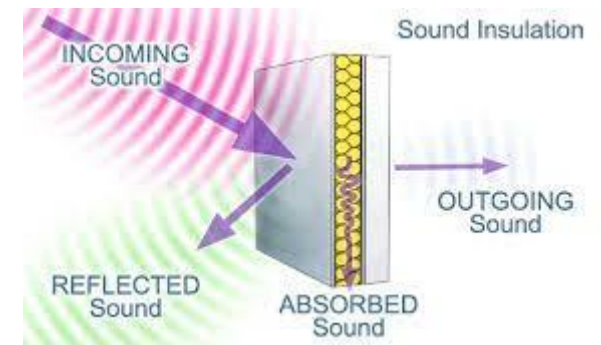
Pitch of Sound

The pitch of a sound is how high or low a sound is.

If the vibrating object is short or the column of air is short, the higher the pitch of the sound.

The longer the vibrating object or column of air is, the lower the pitch of the sound.

With string instruments, the tighter the string, the higher the pitch.



Year 4

Science - Working Scientifically

Sound

Questions	What? Why? Where? When? How?
Diagram/model	A labelled picture or a 3D representation.
Record Data	Scientific diagrams, keys, tables, bar charts, line graphs and drawings.
Sort and group	Organise sound insulators by their materials.
Compare and contrast	Look for similarities and differences between sounds.
Variable	Something you can change or adapt in your investigation/experiment.

Things You Could Investigate:

What materials make the best sound insulator?

How are sounds made?

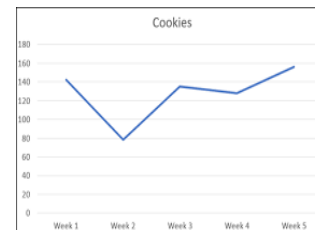
How can we accurately measure the loudness of a sound?

Materials to test sound absorption.



Equipment

Recording your findings



Line Graph

Instruments.



Carroll Diagram

	Shapes with curved lines	Shapes with straight lines
Pink shapes		
Blue shapes		