

# TMS Science Launchpad - Year 2023/2024

## Year 4 - Physics : Sound

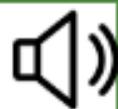
THREE  
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School

### Substantive knowledge:

Sound is created when something vibrates and sends waves of energy (vibration) into our ears.



The vibrations travel through the air or another medium (solid, liquid or gas) to the ear. Sound moves through all materials by making them vibrate.



The **stronger** the vibrations, the **louder** the sound.  
Sounds are fainter the further you get from the sound source.

Sound spreads out as it travels.

**Bigger** vibrations produce **louder** sounds and **smaller** vibrations produce **quieter** sound

**Pitch** is the quality of a sound (high or low) and depends on the speed of the vibrations.

Different materials produce different pitches; if an object vibrates quickly we hear a high-pitched sound, and if an object vibrates **slowly** we hear a **low** pitched sound

**Faster** vibrations (higher frequencies) produce **higher** pitched sounds



Changing the shape, size and material of an object will change the sound it produces.



Sound travel can be blocked  
(*sound muffling investigation*)



### Vocabulary:

amplitude, volume, quiet, loud, ear, pitch, high, low, particles, instruments, wave, vibration, insulation

### Disciplinary knowledge

Identify and classify	Comparative tests	Comparative tests	Pattern seeking	Comparative tests	Observation over time
How does sound travel? (ask scientific questions)	How does the volume of a drum change as you move further away from it? (to gather/record results)	How does the length of a guitar string/tuning fork affect the pitch of the sound? (observe closely)	Is there a link between the size/shape/material of object and the sound produced? (interpret results and draw conclusions)	Which material is best to use for muffling sound in ear defenders? (plan an enquiry)	When is our classroom the quietest? (to make a prediction)
Research					

Do all animals have the same hearing range?