Science – Sound

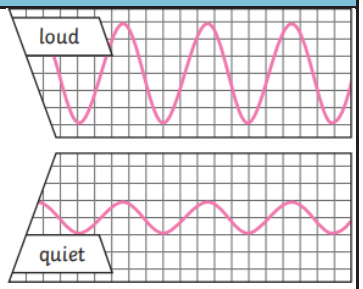
What is sound?

Sound is a type of energy. Sounds are created by **vibrations**. The louder the sound, the bigger the **vibration.**

Sound can travel through solids, liquids and gases. Sound travels as a **wave, vibrating** the **particles** in the state of matter it is travelling in.

Amplitude and Pitch

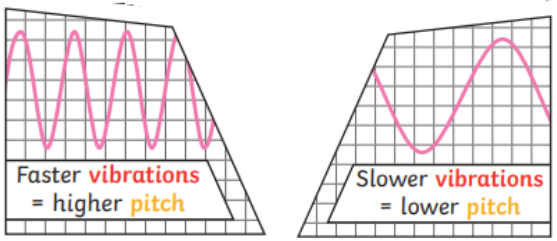
The size of the vibration is called the amplitude. Louder sounds have a larger amplitude, and quieter sounds have a smaller amplitude.



Pitch is a measure of how high or low a sound is. A whistle is being blow created a high-**pitched** sound. A rumble of thunder is an example of a low-**pitched** sound.

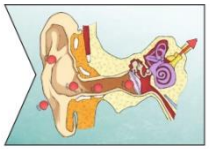
You can change the **pitch** of a sound in different ways depending the type of instrument you are playing.

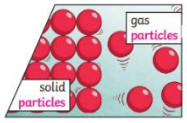
For example, if you are playing a xylophone, striking the smaller bars with the beater causes faster vibrations and so a higher **pitched** note. Striking the larger bars causes slower **vibrations** and produced a lower note.



Key information

Inside your ear, the vibrations hit the eardrum and are then passed to the middle and then the inner ear. They are then changed into electrical signals and sent to your brain. Your brain tells you that you are hearing a sound.





Sound energy can travel from particle to particle far easier in a solid because the vibrating particles are closer together than in other states of matter.

If you throw a stone in a pond, it will produce ripples. As the ripples spread out across the pond, they become smaller. When sound vibrations spread out over a distance, the sound becomes quieter, just like ripples in a pond.

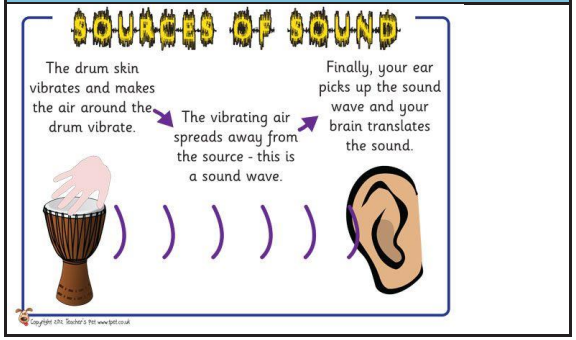
Key Vocabulary

Vibration	A quick movement back and forth.
Sound wave	Vibrations travelling from a sound source.
Volume	The loudness of a sound.
Amplitude	The size of a vibration. A larger amplitude = a louder sound.
Pitch	How low or high a sound is.
Ear	An organ used for hearing.
Particles	Solids, liquids and gases are made of particles. They are so small we are unable to see them.
Distance	A measurement of a length between two points.
Soundproof	To prevent sound from passing through.
Vacuum	A space where there is nothing. There are no particles in a vacuum.
Ear drum	A part of the ear which is a thin, tough layer of tissue that is stretched out like a drum skin. It separates the outer ear from the middle and inner ear. Sound waves make the eardrum vibrate.

Sound – Skills – Working Scientifically

National Curriculum
Identifying differences, similarities or changes related to simple scientific ideas and processes.
Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
Setting up simple practical enquiries, comparative and fair tests.

Diagram

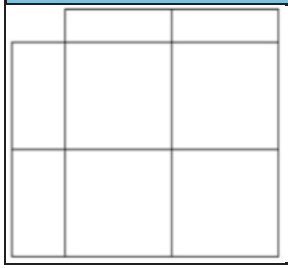


Table

Table 1

Week	Total grass height (inches)		
	Trial A	Trial B	Trial C
0	0.50	0.50	0.50
1	1.26	1.01	0.94
2	2.21	1.48	1.13
3	3.52	2.03	1.20

Carroll Diagram



Key Vocabulary	
classify	To arrange a group of people/organisms or things into classes or categories.
compare	Note similarities and differences between different things e.g. compare different types of materials
diagram	A drawn and annotated representation of how an experiment has been set up.
measuring (temperature)	Use a thermometer to record the exact temperature of a material.
observation	Spotting patterns and changes over time.
data	Information that has been collected.
fair test	A test that controls all but one variable when attempting to answer a scientific question.