

# Year 4 Sound (Physics)



## Prior and future learning

Prior Knowledge	What's next?
<ul style="list-style-type: none"> <li>Describe what they see, hear and feel whilst outside. (Reception – Sound)</li> <li>I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)</li> </ul>	<ul style="list-style-type: none"> <li>Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel – superposition. (KS3)</li> <li>Frequencies of sound waves, measured in Hertz (Hz); echoes, reflection and absorption of sound. (KS3)</li> <li>Sound needs a medium to travel, the speed of sound in air, in water, in solids. (KS3)</li> <li>Sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal. (KS3)</li> <li>Auditory range of humans and animals. (KS3)</li> <li>Pressure waves transferring energy; use for cleaning and physiotherapy by ultra-sound. (KS3)</li> <li>Waves transferring information for conversion to electrical signals by microphone. (KS3)</li> </ul>

## Track your learning

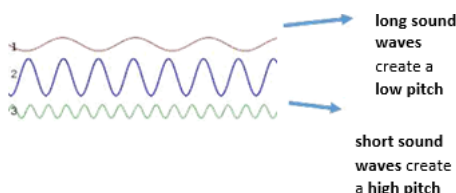
How I will show what I have learned	☹️	😐	😊
I can identify how sounds are made, associating some of them with something vibrating.			
I can recognise that vibrations from sounds travel through a medium to the ear.			
I can find patterns between the pitch of a sound and features of the object that produced it.			
I can find patterns between the volume of a sound and the strength of the vibrations that produced it.			
I recognise that sounds get fainter as the distance from the sound source increases.			

## Key knowledge I need to understand

- A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter).
- The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.
- The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source.
- A sound insulator is a material which blocks sound effectively. Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.

### Possible texts to read:

Horrid Henry Rocks – *Francesca Simon*



**Scientist:** Alexander Graham Bell  
(Invented the telephone)

### Link to maths curriculum:

Statistics:

- Presenting data gathered when exploring the max volume of musical instruments and use this to make new predictions for new values. (*Interpret and present discrete and continuous data using bar charts*).
- Interpreting data gathered using a datalogger of the volume of sound in a classroom over 24 hours (*Interpret and present continuous data using time graphs*).

**Working scientifically assessment:** Pitch, string phones

### Vocabulary

amplitude	a measure of the strength of a <b>sound wave</b>
decibel	a measure of how loud a sound is
electricity	a form of <b>energy</b> that can be carried by wires and is used for heating and lighting, and to provide power for devices
energy	the <b>power</b> from <b>sources</b> such as <b>electricity</b> that makes machines work or provides heat
frequency	a measure of how many times per second the <b>sound wave</b> cycles
medium	something that makes possible the transfer of <b>energy</b> from one location to another
pitch	how <b>high</b> or <b>low</b> a sound is
power	<b>Power</b> is energy, especially electricity, that is obtained in large quantities from a fuel <b>source</b> and used to operate lights, heating, and machinery
sound waves	invisible waves that travel through air, water, and solid objects as <b>vibrations</b>
source	where something comes from
transmit	to pass from one place or person to another
travel	how something moves around
vibrations	invisible waves that move quickly
volume	how <b>loud</b> or <b>quiet</b> a sound is