

What should I already know?

- Hearing is one of my five senses.
- Sounds can be combined using musical instruments.
- What the word **vibration** means.

What will I know by the end of the unit?

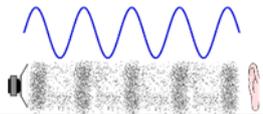
What is a sound?
A thing that can be heard.
The object that makes the sound is called the **source**.

- How is a sound made?
- When objects **vibrate**, a sound is made.
 - The **vibration** makes the air around the object **vibrate** and the air **vibrations** enter your ear. These are called **sound waves**.
 - If an object is making a sound, a part of it is **vibrating**, even if you cannot see the **vibrations**.



- How do sounds travel?
- **Sound waves** travel through a **medium** (such as air, water, glass, stone, and brick).
 - For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall.

- How do we hear sounds?
- When an object **vibrates**, the air around it **vibrates** too. This **vibrating** air can also be known as **sound waves**.
 - The **sound waves** travel to the ear and make the **eardrums vibrate**.
 - Messages are sent to the brain which recognises the **vibrations** as sounds.



- How do sounds change?
- Pitch:**
- The **pitch** of a sound is how **high** or **low** it is.
 - A squeak of mouse has a **high pitch**.
 - A roar of a lion has a **low pitch**.
- Volume:**
- The **volume** of a sound is how **loud** or **quiet** it is.
 - When a sound is created by a little amount of **energy**, a weak **sound wave** is created which doesn't **travel** far. This makes a **quiet** sound.
 - A small tap of a hammer is used with small amounts of **energy** and so creates a **quiet** noise.
 - A **vibration** with lots of **energy** makes a powerful **sound wave** and therefore a **loud** sound.
 - A powerful, smashing tap of a hammer is used with lots of **energy** and so creates a **loud noise**.

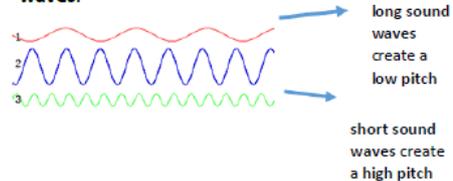
- How do we measure sound?
- **Amplitude** measures how strong a **sound wave** is.
 - **Decibels** measure how **loud** a sound is.
- Frequency** measures the number of times per second that the **sound wave** cycles.

Vocabulary

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

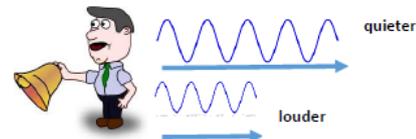
Pitch:

- **High pitch** sounds are created by short **sound waves**.
- **Low pitched** sounds are created by long **sound waves**.



Volume:

- The closer you are to the **source** of the sound, the **louder** the sound will be.
- The further away you are from the **source** of the sound, the **quieter** the sound will be.



Diagrams

- Investigate
 - Fill identical jars with different volumes of water. Which one creates the highest pitch?
 - Which material would make the best sound defender? How can you investigate this?
- Make musical instruments using different length strings. How do their pitches differ?

			Parklands Primary School - Science		
			Topic - Electricity		Year 4 – Strand - Physics
Question 1: How does sound travel?	Start of unit:	End of unit:	Question 7: The pitch of a sound describes...	Start of unit:	End of unit:
In a straight line			how fast or slow a sound is		
In a curvy line			how loud or quiet a sound is		
As a series of vibrations			how low or high a sound is		
By making a noise					
Question 2: Sound travels...	Start of unit:	End of unit:	Question 8: When a sound hits the ear...		
slower than the speed of light			nothing vibrates		
at the same speed as light			the whole ear vibrates		
faster than the speed of light			the eardrums vibrate		
			the brain vibrates		
Question 3: The volume of sound is measured in...	Start of unit:	End of unit:	Question 9: Sound can travel through...	Start of unit:	End of unit:
decibels			the air		
centimetres			water		
kilograms			the floor		
miles			all of the above		
Question 4: Sounds gets louder... (tick 2)	Start of unit:	End of unit:	Question 10: A pupil blows through two different length straws. Which statement is true?	Start of unit:	End of unit:
as we move further away from the source			The shorter straw will make a higher-pitched sound.		
as we move closer to the source			The shorter straw will make a louder sound.		
the less energy there is when creating the sound			The longer straw will make a higher-pitched sound.		
the more energy there is when creating the sound			The longer straw will make a louder sound.		
Question 5: On a stringed musical instrument, the pitch can be changed by...	Start of unit:	End of unit:			
hitting the string harder					
hitting the string softer					
tightening the string					
loosening the string					
Question 6: The origin of the sound is called the...	Start of unit:	End of unit:			
noise					
source					
vibration					
frequency					