

St. Veronica's Primary School – Science Knowledge Organiser

Topic: Sound

Year: 4

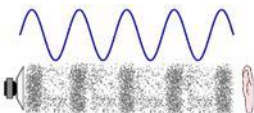
Strand: Physics

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?

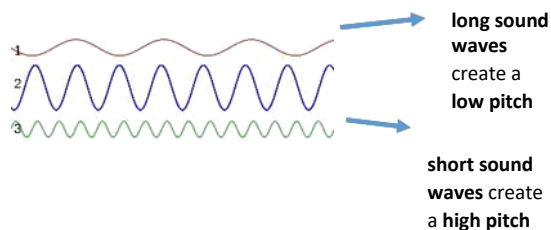
What is a sound?	A thing that can be heard. The object that makes the sound is called the source .
How is a sound made?	When objects vibrate , a sound is made. The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called sound waves . If an object is making 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.

Diagrams

Pitch:

High pitch sounds are created by short **sound waves**.

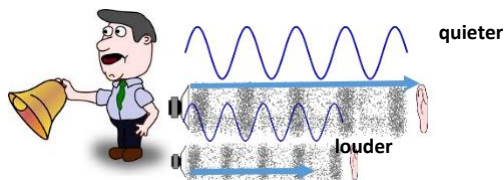
Low pitched sounds are created by long **sound waves**.



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.



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

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?

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