

Aldbury Primary & Nursery Knowledge Organisers

Science Unit: Sound and vibrations

Class 3

Year A Summer Term

What should they already know?

From their 'light and sound' topic in class 1, children should be able to:

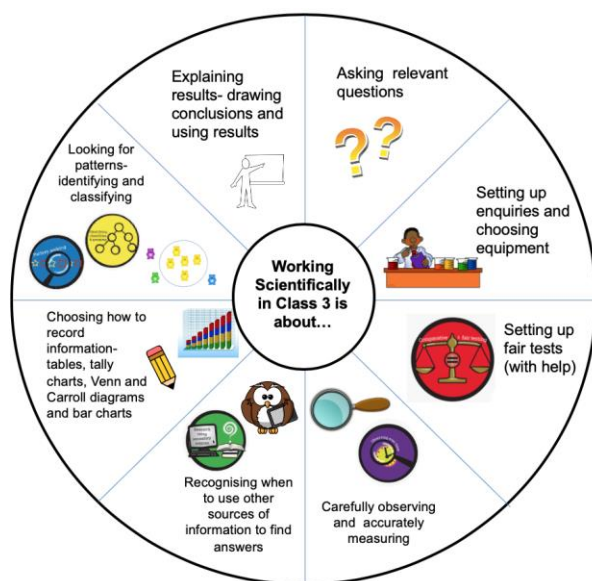
- relate their sense of hearing to their ears

Key vocabulary from EYFS:

senses, hear

Key vocabulary

sound	Sound is a type of energy. Sounds are created by vibrations. The louder the sound, the bigger the vibration.
pitch	How high or low a sound is (e.g. a whistle being blown = high pitch/thunder = low pitch)
volume	The loudness of a sound.
vibrations	A movement backwards and forwards.
medium	A substance through which a vibration travels.
insulation	The act of covering something to stop heat, sound or electricity escaping or entering.
travel	Make a journey.



Working Scientifically tasks that link to this unit:

Year 4 – Sound – Changing Pitch

How do I ask questions about how to change pitch on musical instruments?

This lesson is designed to be run after children have made their own instruments.

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HFL ARE statements explained






What sound sources can I name? (examples)	Natural <ul style="list-style-type: none"> • animals • wind • flowing streams • avalanches • volcanoes 	Man-made <ul style="list-style-type: none"> • airplanes • trains • explosions • Hoover • instruments
How are sounds made?	Sounds are generated when something moves or vibrates.	
How do we hear?	<p>We hear through our ears. Vibrations from sounds travel through a medium (a solid, a liquid or a gas) to the ear.</p> <p><u>Not required but children might be interested:</u></p> <p>The vibrations hit the ear drum and are then passed to the middle of your ear. They are changed to electrical signals that are sent to your brain and your brain tells you that you are hearing a sound.</p>	
How does sound travel?	Vibrations need something to travel through (a medium) as they need to keep the vibrations going to keep the sound going. They travel through solids, liquid and gases.	
Do the features of an object affect the pitch of the sound it creates?	<p>The tighter the tension, the higher the pitch (e.g. a tight drum skin will give a higher pitched sound than a loose drum skin). Children could make their own instruments to test this.</p> <ul style="list-style-type: none"> • Faster vibrations = higher pitch • Slower vibrations = lower pitch 	
Does the strength of vibrations affect the volume of a sound?	<p>Sounds are vibrations that travel through the air. A weak vibration doesn't travel very far, but a strong vibration would travel further.</p> <p>A sound gets fainter as the distance from the sound source increases. When sound vibrations spread out over a distance, the sound becomes quieter. You could use the analogy of throwing a stone in a pond. This will produce ripples that get smaller as they spread out across the pond, in the same way vibrations spread out.</p>	
How can we change the volume of sounds?		
How do musical instruments produce sound? (examples)	<p>Children should be able to identify what is vibrating in a range of musical instruments.</p> <ul style="list-style-type: none"> • Percussion instruments (drum, triangle, xylophone) = drum skin/bars • String instruments (guitar, cello, violin) = strings (plucked or with a bow) • Wind instruments (flute, oboe, clarinet) = blowing into it makes the air inside vibrate 	

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Types of enquiry you could cover in this topic about sound	
	<ul style="list-style-type: none"> Which material is best to use for muffling sound in ear defenders? Are 2 ears better than one? How does the length of a guitar string/tuning fork affect the pitch of the sound? How does the volume of a drum change as you move further away from it?
	<ul style="list-style-type: none"> When is our classroom the quietest?
	<ul style="list-style-type: none"> Is there a link between how loud it is in school and the time of day? Is there a pattern, is it the same in every area of the school?
	<ul style="list-style-type: none"> Since the 1800s, how has science helped people who are deaf? Cup and string – children can make own enquiry questions
	<ul style="list-style-type: none"> How can these instruments be grouped?

Book/writing links
BOOKS <ul style="list-style-type: none"> Horrid Henry – rocks story
RECOUNT <ul style="list-style-type: none"> Write part of a story which involves following a strange sound or a scary sound.
NON-CHRONOLOGICAL <ul style="list-style-type: none"> Report on how different animals use sound e.g. communication (whales) and warnings (meercats) for hunting (woodpeckers)
INSTRUCTIONS <ul style="list-style-type: none"> How to use instruments and change the pitch and volume. Children should talk about vibrations. Make cup phones and then write instructions for how to make them work best.
EXPLANATIONS <ul style="list-style-type: none"> How are sounds made?
PERSUASION <ul style="list-style-type: none"> Make cup phones and then write an advert which persuades people to buy them by explaining how simple they are and how good they are for passing secret messages.

Famous people that relate to this unit:	Writing ideas
Choose a famous musician and ask them to create a soundproof studio for them (GD statement)	Write a letter/email/text to explain their findings and what they should use to insulate their studio.