Sound (ages 7-12)

Explorify planning support

Curriculum statements	Explorify activities	Suggested use / taking it further
HOW ARE SOUNDS MADE?		
Identify how sounds are made, associating some of them with something vibrating	Musical vibrations **OOO** Good vibrations **WGO**	Can the children explain how these musical instruments create sounds? When is the loudspeaker vibrating? Invite children to observe and feel (using their fingers) the vibrations associated with sounds in a range of situations. You could give them: musical instruments to play; rulers to twang or tuning forks (as shown in the Ogden Trust's Phizzi practical, Seeing sounds).
	Lyre Bird **WGO**	Can you see the throat of the Lyrebird vibrating as it mimics sounds from its environment? You could make a chicken in a cup which uses a cup as a sounding board.
	What's that sound **PS**	Children use their voices to recreate the sounds missing from the first part of the video. Can they see how the sounds are made by looking for a vibration? Ask children to place their fingertips on their throat and then notice what they can feel when they hum, talk or sing.
	Skip a beat **LWCYH**	The sound of a heart (and a foetal heart) beating is produced by the opening and closing of valves each time the heart 'pump' contracts. In this video from the Royal Society, the sound waves produced are powerful enough to levitate an object.
	Sounds like science **OOO**	Three instruments – maracas, recorder, xylophone – that create sound vibrations in different ways. Evelyn Glennie, playing xylophone, is deaf so feels the vibrations through her fingertips or feet. A PSTT project called Growing Music involved children in growing bamboo and making pan pipes.

	Tap it out **LWCYH**	The sound of tap dancing along with a piano accompaniment. You could look here for some further information about how the sound is created by a metal plate on the sole of the shoe.
VIBRATIONS		
Recognise that vibrations from sounds travel through a medium to the ear	Have you ever heard your neighbours in the next door house or flat? **HYE** Listen carefully **ZIZO**	What experiences of sound travelling do the children have? What did the sound have to travel through to get to their ears? Can they draw a labelled diagram? Try these activities to compare how vibrations travel through solids, liquids and gases. How does a stethoscope work? Using 'ear gongs' children can experience sounds travelling through solid objects.
	Rice and rhythm **WGO** Dancing salt **WGO**	As a drum is beaten, grains of rice jump on its skin and the surrounding air also vibrates. The same is shown with salt next to a speaker playing loud music. This video from the Science Museum shows sound waves in action.
	Pink and knobbly **ZIZO** How do they hear? **OOO** Who is...Tim Lamont? **WHO**	A cat's ear in close-up. Compare it with a human ear in Hidden depths. How will the differences in a human ear affect how many sounds we hear? This could lead to a discussion about pitch and the point at which humans and cats can detect sound. How do the different animals hear sounds? The video links in the **Watch** section will spark children's curiosity. Learn about a scientist who studies coral reef sounds and how they are essential for attracting more fish.
	Why do astronauts communicate non-verbally in space? **TBQ** Martian Waves **WGO**	Space is a vacuum, which means it contains almost no matter. In space, without enough particles to carry a sound wave, there's no sound. Find out how astronauts use nonverbal communication on the International Space Station Children will have been taught that sound travels through air. They may also have measured sound using data loggers. In this video, children learn how sound does travel on Mars, and how it's measured. A possible plenary.
	Spark it up **LWCYH**	The sound of fireworks comes from a combination of explosive gases, burning chemicals and air vibrating as it passes through the tubes that contain the firework mixture. The sound waves travel through the air to reach our ears. This activity pairs well

			with Exploding lights which shows fireworks (visually only) against a soundtrack.
SOUND TRAVELS			
Recognise that sounds get fainter as the distance from the sound source increases	Getting closer	**LWCYH**	The sound of a church bell getting louder as a person walks towards it. Can children predict what would happen to the sound if the person walked back to where they started?
	How far away should you go so you don't get woken up by snoring or giggling?	**TBQ**	This sets a context to investigate how sounds become quieter the further you are away from them.
	Keeping Track	**LWCYH**	Sound of a train coming into a station. Notice how the farther away you are from the sound, the quieter it is. Use as a plenary after a measurement of sound experiment, or to assess if children can correlate how distance affects volume.
	What if you could hear every sound at equal volume?	**WI**	Why it is necessary to protect our ears? Good background science provided. A prompt for the Problem Solver activity Protect your ears.
	Prepare for launch	**LWCYH**	The sound of the Space Shuttle launching from Cape Canaveral.
	That's a flap	**LWCYH**	Birdsong and calls, which could lead to a discussion of sound for communication, and a way to signal territory.
PITCH			
Find patterns between the pitch of a sound and features of the object that produced it	Stringy sounds	**MB**	Follow on activity from Sounds like science. Children could make their own instruments (e.g. rubber band guitar), learning how the thickness, tension and tightness of a material changes its pitch.
	In the waves	**LWCYH**	Thinking about dolphin communication helps children understand that sounds can only travel through liquids. The Ogden Trust resource How to make a hydrophone uses simple materials to show that sound does travel through water.
	Bottle orchestra	**WGO**	Adding liquid to bottles slows the speed of vibrations of the glass. Full bottle = lower pitch; empty bottle = higher pitch.
	Pitch perfect	**WGO**	Children will be intrigued by the sounds produced by the gigantic guitar featured in this film.

	Playing high and low **OOO** String family **LWCYH**	These activities complement each other: compare the stringed instruments by observing their features and listening to the sounds that they make.
VOLUME		
Find patterns between the volume of a sound and the strength of the vibrations that produced it	The sound of silence **WGO**	The wingbeats of a pigeon and peregrine falcon disturb the air and make a sound, whereas a barn owl flies silently. The more movement, the greater the sound. The amount of turbulence in the air is shown by the disturbance to a tray of feathers, over which all three birds fly.
	What if you could hear every sound at equal volume? **WI**	This will provoke an interesting discussion.
	Make sound louder **PS**	In this creative construction task, children make a device to amplify their voices. Children could measure the volume of their voice with and without the amplifier using a sound app (for example Arduino Science Journal) or data logger. Alternatively, they could measure the maximum distance that the sound is audible.
	Excellent equipment **LWCYH**	Sound of a rope and chain pulley being wound, and a can opener in action. Could a can be opened more quietly, or a cup of tea stirred noisily/quietly? What makes the difference?
	On target **LWCYH**	The sound of arrows being fired from a bow, flying through the air then hitting the target. The more the bowstring is pulled back, the more energy is in the arrow when released, and the louder its sound will be.
	When we were young **LWCYH**	The sound of a baby, some lambs, and puppies. Why does the volume of the sound change?
	Like a flash **LWCYH**	Sound of thunder, lightning, rain. Watch this Royal Society video which explores how pitch and volume in music affect mood.
THE HUMAN EAR		
Explored the basic structure and function of ears thought	Hidden depths **ZIZO**	A close look at a human ear is the perfect lead into investigating string telephones.

about their importance as sensory organs.	Speak up	ZIZO	A close look at a hearing aid. People with hearing difficulties can find it particularly difficult to hear conversations in noisy places. Children could use data loggers to measure how noisy different locations around school are.
	Protect your ears	PS	Children design ear defenders and investigate which materials are best at insulating sound.
LISTEN WHAT CAN YOU HEAR?			
LISTEN, WHAT CAN YOU HEAR? is a new set of Explorify activities. While some (above) are more suited to elements of the curriculum for sound, these activities could be used as a lesson starter. Focus on the sound and try to identify it just by listening.	Tide and seek	LWCYH	The sound of waves and seagulls at the seaside.
	Tour de force	LWCYH	The sound of bicycle gears, pedals, and a bell.
	Thin ice	LWCYH	The sound of ice skates on ice.
	Feeling hot, hot, hot	LWCYH	The sound of an egg and bacon frying, and wood burning.
	Apple of your eye	LWCYH	The sound of a tree, stones and coins falling. Can the sound be related to the mass of the objects and the distance of their fall?
	Terrific transformations	LWCYH	The sound of water boiling.
	Totally potty	LWCYH	Too easy to guess! The sound of a toilet flushing. Might lead children to explore sounds made by water. Other examples of liquid-water sounds on Explorify include Bottle orchestra, Terrific transformations and Tide and seek.
	Tumbling timber	LWCYH	Sound of a chainsaw and a tree falling.
	Sharing is caring	LWCYH	Another easy one to guess, perhaps. We hear gentle birdsong and, above it, the sound of a swarm of bees.
	Scan this over	LWCYH	The unfamiliar sound of a hospital MRI scanner will get children guessing but need to be explained.
	Rock my world	LWCYH	Sound of a controlled explosion in a quarry, and of coal mining and transportation.
	Bottle it up	LWCYH	Sound of glass bottles being recycled, and glass milk bottles being filled.
	Sew what	LWCYH	Sound of a sewing machine.

	Material world	LWCYH	Sound of heavy crockery being laid on a wooden table, a window smashing, metal sheets crashing together, and using sandpaper
	Night-time antics	LWCYH	A variety of woodland sounds: birds, the wind, and the movement of trees.
	All crushed up	LWCYH	A trickier one to guess. The sound of a car being scrapped.
	Scrub-a-dub-dub	LWCYH	The sound of someone having a wash in a bathroom.
	Let's get physical	LWCYH	Tricky one to guess. Sound of an athlete on an exercise bike
	Wild things	LWCYH	Sound of an African savannah.
	African beat	LWCYH	Sound of a rainforest in Cameroon: crickets, tree frogs 'singing' and big raindrops falling on leaves.

ABBREVIATIONS AND DESCRIPTIONS OF THE DIFFERENT EXPLORIFY ACTIVITY TYPES		
ZIZO	Zoom In, Zoom Out	Visually engaging close-up photos
OOO	Odd One Out	Find similarities and differences
WGO	What's Going On?	Short, distraction-free videos
HYE	Have You Ever?	Activities linked to everyday experiences
WI	What If?	Explore ideas in new contexts
TBQ	The Big Question	Plan an investigation
PS	Problem Solvers	Think critically and creatively
MS	Mission Survive	Fun, imaginative hands-on challenges
MB	Mystery Bag	Use senses to work out contents in a bag
LWCYH	Listen What Can You Hear?	Recordings of familiar sounds
SWA	Start With Art	Using artworks to prompt science discussion
WJH	What Just Happened?	Observing changes over time
WHO	Who Is?	Learn about a diverse range of scientists

Other recommended resources to support planning:

PLAN primary science assessment resources (planassessment.com)

Assessment (TAPS) - Curriculum Materials | Primary Science Teaching Trust (pstt.org.uk)

The Great Science Share - see videos on Scientific Enquiry under the tab “Great Science Skills”.

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Updated September 2024