Explorify guide to embed long-term understanding of Sound

There is a guide to how to use this outline below the table.

Learning focus – to fit with any curriculum or scheme of work	Engage and elicit - what do children already know?	Possible activities from Explorify (you can use your existing plans which cover the learning focus)	Deepening learning
Use senses to explore a range of natural and manmade sounds.	LWCYH? Part of the family: dogs, cats, horses LWCYH? Old MacDonald: cows, sheep, pigs LWCYH? Beep beep toot: traffic noises	LWCYH? Going places Outdoors and sensory play exploring sounds. LWCYH? Ready to play Exploring, getting creative and investigating musical instruments. WGO Foxing around Creative and sensory play activities on animal senses.	LWCYH? Dawn to dusk: chickens, ducks, owls LWCYH? Home help: hair dryer, vacuum cleaner, toaster LWCYH? Rub a dub: cleaning teeth, shower, washing machine LWCYH? Holiday time: sea, seagulls, walking on pebbles
Ears are the body parts used to detect sounds.	WGO Relaxing rabbits ZIZO Brown hair Use both to focus on how rabbits use their ears.	OOO Big ears: Elephant, donkey, hare	ZIZO Wavy hair: a donkey ZIZO Furry ear: a fox
Explore ways to make sounds and associate some of them with something vibrating.	OOO Musical vibrations: ukelele, clarinet, triangle and tambourine WGO Good vibrations Observe the speaker vibrating as it produces sounds.	WGO Rice and rhythm Watch the grains of rice as the drum is beaten.	OOO Sounds like Science: a recorder, maracas and a xylophone LWCYH? Musical beats: steel pans, djembe drum, maracas WGO Lyre Bird? Watch the bird's throat vibrating as it produces noises.

Recognise that vibrations from sounds travel through a material (solids, liquids and gases) to the ear. Research how animals communicate and explain how their sound vibrations are carried by waves through air, water and other media.	ZIZO Hidden depths: a human ear Problem solver What's that sound OOO How do they hear? Find out about the hearing of barn owls, beluga whales and African elephants.	Have you ever heard your neighbours in the flat next house or flat? WGO Dancing salt: Discuss how invisible sound waves travel through the air and cause salt crystals to 'dance'. LWCYH? In the waves: dolphin sounds	BQ Why do astronauts communicate non-verbally in space? Explore why sounds cannot travel through space. ZIZO Listen carefully: a stethoscope Who is...Tim Lamont? Learn about a scientist who studies coral reef sounds and how they are essential for attracting fish. ZIZO Pink and knobbly: a cat's ear
Find patterns between the volume of a sound and the strength of the vibrations that produced it.	WGO The sound of silence Ask children which birds create the least noise as they fly.	What if you could hear every sound at equal volume?	Problem Solver Make sound louder
Find patterns between the pitch of a sound and features of the object that produced it.	WGO Bottle orchestra How does the volume of water in a bottle change the pitch?	WGO Pitch perfect Explore a giant guitar. Mystery bag Stringy sounds	OOO Playing high and low: violin, cello, double bass LWCYH? String family: sounds of a violin, cello and double bass Start with art Musical sounds
Recognise that sounds get fainter as the distance from the sound source increases.	LWCYH? Getting closer: The sound of bells ringing as a person approaches a church.	Big question How far away should you go so you don't get woken up by snoring/ giggling?	LWCYH? Keeping Track: A train arriving at a station.

Explore the basic structure and function of ears thinking about their importance as sensory organs.	ZIZO Hidden depths: human ear	Problem Solver Protect your ears	ZIZO Speak up :a hearing aid

How to use this outline

The **learning focus** column gives one possible outline (and order) of how you could teach this topic using Explorify resources to support you, but you can easily use your current scheme of work and select the relevant Explorify activities to enhance your current planning. This guide covers all four UK primary science curriculums and the whole primary age range, so check the objectives against your nation's curriculum.

The **Elicit and engage** column lists the Explorify activities you could use to find out what your children already know about the learning focus. It will enable you to assess what vocabulary and knowledge they have retained from previous science units. You can use these at the beginning of a lesson, in a spare 15 minutes before the lesson, or sometimes they might be appropriate at the end of a lesson.

The **Possible activities** column guides you to Explorify activities that will support your main teaching. You can look at the **Background science**, if you need to double check your own understanding. Meanwhile, the **Take it further** section of the Explorify activity provides ideas you can incorporate into your lesson.

The final column guides you to Explorify activities that will support your children in **Deepening their learning** and building those long-term memories that will help them remember and build connections between scientific ideas and concepts. **Retrieval practice** is 'bringing the information to mind from memory' (Weinstein et al 2019 p85[1]). Cognitive psychology research suggests that every time we draw on a memory, we increase its strength and longevity. Children should have to put some effort into retrieving that memory, this helps strengthen it, but at the same time it needs to be low stakes as too much anxiety interferes with memory function. We think Explorify Odd One Out activities are ideal for this, when enhanced with some additional questions after the initial activity, because it gets the children talking, making connections, comparing/contrasting and justifying their choices. You could use the **Deepening Learning** Explorify activities at: the beginning of the lesson after you have taught a new concept; later in the week in a spare 15 minutes; further into the unit or even after the unit. We would encourage you to experiment and see what works for your class. As teachers, we have all experienced teaching children something and then, when you mention it a few weeks later, the children look at you blankly and don't remember. It is hardly surprising that children do not remember if they do not regularly revisit the ideas. As teachers, we have all experienced CPD sessions where we have quickly forgotten a lot of the content.

[1] Weinstein, Y., Sumeracki, M. and Caviglioli, O. (2019) Understanding how we learn: A visual guide. Abingdon and New York: Routledge