

Learning Outcomes

Content of this grid is from the [National Curriculum in England: science programmes of study](#) with adapted outcomes from the [STEM Schemes of Work for Students Working up to Level 1](#) and [STEM Schemes of Work for Students Working between Level 1 and 4](#). The 'Working Scientifically' outcomes of the National Curriculum are incorporated into the different topics covered.

Sound			
By the end of KS5 pupils should know:	Redway Pre-Formal Pathway Encounter → Foundation	Redway Semi-formal Pathway Core → Development	Redway Formal Pathway Enrichment → Enhancement
1. Identify how sounds are made, associating some of them with something vibrating.	a. Awareness of sounds made through involuntary movement. b. Awareness of sounds produced through co-active movement (e.g., hand over hand) c. Responds to the feel of vibrations created by a speaker or musical instruments. d. Purposefully moves to create a sound. e. Repeats an action that creates a sound. f. Begins to use specific actions to create sounds with noise making objects.	a. Identify different sounds they can hear in a variety of environments (e.g., in the classroom, in the playground, in the countryside). b. Recognise they can create sounds using different actions including: i. Banging ii. Striking with a beater iii. Strumming iv. Shaking v. Blowing c. Recognises that they can feel a speaker or musical instrument vibrate when sound is produced. d. Observe the movement as an instrument produces sound (e.g., sand on a drum, string moving etc.)	a. Can name a variety of ways that sound can be produced including: i. Banging ii. Striking iii. Strumming iv. Shaking v. Blowing vi. Speaking b. Understand that each of these methods causes the object to vibrate. c. Know that sound is created when things vibrate.

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2. Recognise that vibrations from sounds travel through a medium to the ear.	a. Shows awareness of sounds in their environment. b. Responds to a variety of different sounds. c. Responds to sounds that have travelled through a solid (e.g., sounds heard through the resonance boards) d. Responds with curiosity to sounds heard through a liquid (e.g., sounds underwater during hydrotherapy sessions).	a. Recognise that they can hear sounds that have travelled through a solid (e.g., speaker on a resonance board, cup and string telephone) b. Recognise that they can hear sounds that have travelled through water (e.g., listen to sounds underwater in the swimming pool). c. Observe sound vibrations in water (e.g., water in a singing bowl) d. Know that they use their ears to listen to sounds.	a. Know that sound can travel through solids (e.g., speaker on a resonance board, cup and string telephone). b. Know that sound can travel through a liquid (e.g., listen to sounds underwater in the swimming pool). c. Understand that sounds travel by causing vibrations in the air/liquid/solid. d. Know that our ears pick up this vibration and we hear it as sound. e. Know that if there is no air/liquid/solid for the sound to travel through then no sound will be heard (e.g., video of alarm clock in a vacuum)
3. Find patterns between the pitch of a sound and features of the object that produced it.	a. Shows awareness of sound/music that is low-pitched. b. Shows awareness of sound/music that is high-pitched. c. Shows a differentiated response to high- and low-pitched sounds/music.	a. Can distinguish between high- and low-pitched sounds. b. Recognises that larger instruments create lower-pitched sounds when compared to smaller instruments (e.g., gathering drum compared to handheld drum, different length Boomwackers, different sized chime bars etc.)	a. Investigate how different features of an object affects the pitch of a sound including: i. Surface area (e.g., comparing large and small drums). ii. Length (e.g., Boomwackers, chime bars). iii. Thickness (e.g., guitar strings) iv. Tension (e.g., guitar strings) v. Volume (e.g., cups, singing bowls)

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			b. Can interpret their findings and generalise for each of the features of the objects (e.g., the longer the instrument the lower the pitch of sound it creates etc.).
4. Find patterns between the volume of a sound and the strength of the vibrations that produced it.	a. Responds to loud sounds. b. Responds to quiet sounds. c. Makes a differentiated response to sounds depending on whether they are loud or quiet. d. Experience the change in the feel of the vibration of an instrument as it is played quietly or loudly (e.g., drum, monochord, guitar, resonance board etc.)	a. Recognise that the feel of the vibration of an instrument changes as it is played quietly or loudly (e.g., drum, monochord, guitar, resonance board etc.).	a. Investigate how changing the volume of a sound affects the vibration they can feel (e.g., resonance board, drum) or see (e.g., sand on a drum, water in a singing bowl, guitar string). b. Understand that louder sounds are associated with stronger vibrations of the object.
5. Recognise that sounds get fainter as the distance from the sound source increases.	a. Can move their head to locate the direction of a sound. b. Can track sounds. c. Respond to sounds getting louder as they are moved closer.	a. Make observations of how loud a sound is at different distances from a sound source. b. Recognise that sounds get fainter as the distance from the sound source increases.	a. Can make predictions of how loud a sound will be depending on how far away from the sound source they are. b. Plan and carry out a fair test to see if their prediction is correct. c. Know that sounds get fainter as the distance from the sound source increases.