SBSP PROGRESSION OF COMPONENT KNOWLEDGE THROUGH SCIENCE UNITS

PHYSICS – SOUND

Year 4 NC links:

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases

Year 4 Component Knowledge:

- Understand that sound is created by vibrations
- Explain how sound is created and how it travels from an object to the ear
- Explain how sound is created, travels and is interpreted by the brain
- Understand that sounds can travel through air, liquids and solids
- Explain how sound waves travel through air, liquids and solids
- Compare how sound waves travel through air, liquids and solids
- Understand that some materials absorb sound and some materials reflect sound
- Understand that materials that absorb sound are sound insulators
- Explain why some materials absorb sound
- Understand that the volume of sound is measured in decibels
- Understand that the volume of a sound is dependent on how much energy or power the sound source is given
- Understand that as the volume of sound increases so too does the amplitude, or height, of the sound waves
- Understand that pitch is how low or high a sound is
- Understand that pitch is caused by the speed of the sound source's vibrations
- Understand how a sound wave is different for a high pitch and a low pitch
- Understand that sound fades as it travels
- Understand why sound fades as it travels
- Explain the relationship between distance and volume

Working Scientifically Component Knowledge:

- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusion
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Setting up simple practical enquiries and comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units
- Using a range of equipment, including thermometers and data loggers
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables

Key Vocabulary:

- eardrum, signals, vibration, medium, wave
- source, vacuum, particles, echo, energy
- materials, absorb, defenders, insulate, reflect
- volume, decibel meter, decibels, amplitude, power
- pitch, low pitch, high pitch, instruments, orchestra
- sound source, particles, fade, energy, travel

KS3 NC links:

Waves on water as undulations which travel through water with transverse motion; these waves can be reflected, and add or cancel – superposition. Frequencies of sound waves, measured in Hertz (Hz); echoes, reflection and absorption of sound.
Sound needs a medium to travel, the speed of sound in air, in water, in solids. Sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal. Auditory range of humans and animals. Pressure waves transferring energy; use for cleaning and physiotherapy by ultra-sound. Waves transferring information for conversion to electrical signals by microphone.