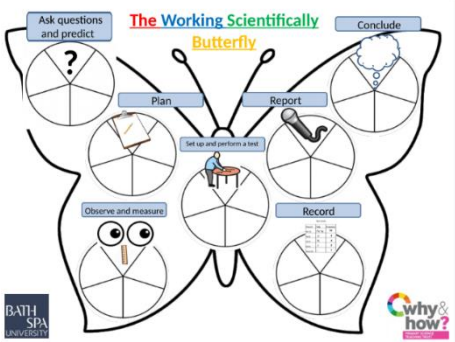




Medium Term Planning Science



Year: 4		Term: Spring 2	Topic: Sound
Disciplinary Skills: Working Scientifically Children will have opportunities to develop their ‘Working Scientifically’ skills within this unit, including: - Asking questions and making predictions - Planning an enquiry - Observing and measuring - Recording results - Setting up and performing tests - Reporting on results - Evaluating findings These skills are tracked using the ‘Working Scientifically Butterfly.’  Please see the ‘Assessment’ box below for details of which Working Scientifically skills will be assessed in this unit.	Subject specific substantive theme(s) Physics – how sounds are made Biology – how we hear them	Prior Learning: Year 1 Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Future learning: KS3 - 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.

Enquiry Types in this unit: • Comparative Tests • Identify and Classify • Observation over time • Pattern Seeking • Research	Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	
	How does the volume of a drum change as you move further away from it? How does the length of a guitar string/tuning fork affect the pitch of the sound? Are two ears better than one? 	Which material is best to use for muffling sound in ear defenders? 	When is our classroom the quietest? 	Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school? 	Do all animals have the same hearing range? 	
Composite Knowledge (end points): • 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.			Key vocabulary: Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation Common Misconceptions: Pitch and volume are frequently confused, as both can be described as high or low. Some children may think: • sound is only heard by the listener • sound only travels in one direction from the source • sound can’t travel through solids and liquids • high sounds are loud and low sounds are quiet.			
Components: • Sound travels from its source in all directions and we hear it when it travels to our ears. • Sound travel can be blocked. • Sound spreads out as it travels. • Changing the shape, size and material of an object will change the sound it produces. • Sound is produced when an object vibrates. • Sound moves through all materials by making them vibrate. • Changing the way an object vibrates changes its sound. • Bigger vibrations produce louder sounds and smaller vibrations produce quieter sounds. • Faster vibrations (higher frequencies) produce higher pitched sounds						
Assessment: End points will be assessed via: At the end of each unit, substantive knowledge is assessed with an online quiz. Disciplinary skills assessed in this unit: TAPS –INTERPRET AND REPORT Identify differences, similarities or changes related to simple scientific ideas and processes. TAPS – ASK QUESTIONS AND PLAN ENQUIRY Ask relevant questions and use different types of scientific enquiries to answer them			Links to other subjects: Music: - pitch and volume - exploring different instruments and the sounds they make			