



	Lessons Sequence					
TOPIC (S) Waves	1. Longitudinal and Transverse Waves 2. Speed of Sound 3. Volume and Pitch 4. The Ear		5. Auditory Ranges 6. Light 7. Reflection 8. Specular and Diffuse Reflection		9. Transmission (Refraction) 10. Uses of Refraction 11. The Eye 12. Coloured Light	
Knowledge & Skills development	- Describe the different types of wave (longitudinal and transverse) and their features (Peak, Trough, Compression, Rarefaction) - Describe how sound is produced and travels. - Explain why the speed of sound is different in different materials. - Contrast the speed of sound and the speed of light. - Describe the link between loudness and amplitude. - Describe the link between frequency and pitch. - Describe how the ear works. - Describe how your hearing can be damaged. - Explain some risks of loud music - State the range of human hearing and describe how it differs from the ranges of hearing in animals. - Explain, with reasons, why animals use echolocation. - Describe what happens when light interacts with materials (transparent, translucent, opaque)			- State the speed of light. - State the law of reflection - Explain how images are formed in a plane mirror. - Explain the difference between specular reflection and diffuse scattering - Describe and explain what happens when light is refracted. - Describe what happens when light travels through a lens. - Describe how the eye works - Explain what happens when light passes through a prism. - Describe how primary colours add to make secondary colours. - Explain how filters and coloured materials subtract light. - Predict the colour of object in red light and the colour of light through different filters.		
Assessment / Feedback Opportunities	Targeted questioning throughout topic	Teacher assessment of practical skills during investigation - verbal	AWOL assessment – formative teacher assessment in students books	Mid topic assessment – formative assessment	Homework topic quiz – formative assessment	End of topic assessment – teacher summative assessment
Cultural Capital	<ul style="list-style-type: none"> Opportunity to dissect eyeballs depending on availability at the time 					
SMSC / Promoting British Values <small>(Democracy, Liberty, Rule of Law, Tolerance & Respect)</small>	<ul style="list-style-type: none"> Discussing the ethical/social issues that may surround ultrasound scans Listening to others during presentations Working in groups during practicals or research tasks 					
Reading opportunities	<ul style="list-style-type: none"> Recommended Read: Horrible Sciences – Frightening light Recommended Read: Light (Oaka Books) Various reading and comprehension activities embedded within scheme of work 					
Key Vocabulary	Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly Longitudinal, Transverse, Peak, Trough, Vibration, Speed, Medium (Material), Volume, Pitch, Frequency, Amplitude, Auditory, Range, Transparent, Translucent, Opaque, Transmit (Transmission), Reflect, Plane, Scatter, Refract, Lens, Concave, Convex, Primary, Secondary, Filter					

Digital Literacy	SharePoint resources including topic quiz Possible use of excel to plot graphs and analyse data, powerpoint, word, etc to present information, internet for research
Cross-Curricular Links	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators
Careers	Communications engineers (fibre optics), sonographer, light & sound technicians, engineers, teachers, opticians, marine biologists, fisherman, doctor, optician