Learning Journey – 8C Waves

What have I done previously in my learning journey?	
Previously….	**You have learnt previously about light. This has involved:** • recognising that light appears to travel in straight lines • using the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explaining that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • using the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
In this topic…	You will learn about sound waves and light waves in terms of their properties. You will learn about how we hear and how different animals are able to hear different ranges of sound. You will learn about the practical applications of different waves and how some waves are able to travel through a vacuum without the need for a medium.

We will develop our learning by studying the following each lesson:	RAG	Skills in Science checklist
8C.01 Modelling Waves • Compare transverse and longitudinal waves • Use the wave model to explain wave behaviour • Describe what happens when waves superpose		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
8C.02 Sound Waves • Describe how sound is produced and travels • State the speed of sound and what it can and cannot travel through • Explain observations where sound is transmitted		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
8C.03 Loudness and Amplitude • Describe the link between amplitude and loudness • Explain observations where sound is reflected or absorbed by different media • Describe the amplitude of a wave from a diagram or oscilloscope picture		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
8C.04 Frequency and Pitch • Describe the link between frequency and pitch • Describe the frequency of a wave from a diagram • Use frequency = 1/time period to calculate the frequency of different waves		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
8C.05 Light • Describe what happens when a light ray meets a different medium • State the speed of light • Compare sound and light waves		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
8C.06 Reflection • Describe how light is reflected from a mirror • Describe how images are formed in a plane mirror • Use ray diagrams to show how light reflects and forms images		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
8C.07 Refraction • Describe what happens when light enters a medium • Use a ray diagram model to describe how light passes through lenses and transparent materials • Construct a ray diagram to show how light refracts		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
8C.08 The Eye and Vision • Name parts of the eye • Use ray diagrams to describe how light passes through the lens in your eye • Describe how lenses may be used to correct vision		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication

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8C.09 The Electromagnetic Spectrum • Describe the electromagnetic spectrum • Explain the effect of radiation on living cells • Explain, in terms of frequency, the difference in damage done by electromagnetic waves	☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication

Key Vocabulary

Transverse	**Longitudinal**	**Superpose**	**Oscillation**	**Sound**	**Vibrations**	**Vacuum**	**Medium**	**Sound**
Amplitude	**Frequency**	**Wavelength**	**Peak**	**Crest**	**Trough**	**Absorbption**	**Echo**	**Frequency**
Pitch	**Waves**	**Hertz**	**Oscilloscope**	**Amplitude**	**Light**	**Ray**	**Reflection**	**Incident ray**
Plane mirror	**Specular reflection**	**Diffuse reflection**	**Refraction**	**Ray diagram**	**Lens**	**Virtual image**	**Eye**	**Retina**
Iris	**Cornea**	**Pupil**	**Optic nerve**	**Brain**	**Short sighted**	**Long sighted**	**Electromagnetic spectrum**	**Radio waves**
Microwaves	**Infrared**	**Visible light**	**Ultraviolet**	**X rays**	**Gamma rays**			

Future Learning	At GCSE you will learn that wave behaviour is common in both natural and man-made systems. Waves carry energy from one place to another and can also carry information.
In careers	Designing comfortable and safe structures such as bridges, houses and music performance halls requires an understanding of mechanical waves. Modern technologies such as imaging and communication systems show how we can make the most of electromagnetic waves.