Physics Overview

Year 10						
	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Topic	· Waves	· Light and the Electromagnetic Spectrum	· Astronomy	· Conservation of Energy	· Radioactivity	· Motion · Motion and Forces
Key concept	**Energy**	**Energy**	**Energy**	**Matter and Materials**	**Forces and Fields**	**Forces and Fields**
Learning Objectives	· State that waves transfer energy and information. · Describe the characteristics of waves. · Explain methods for calculating the speed of waves. · Describe how the ear works. · State the uses of ultrasound and infrasound.	· Explain reflection, refraction and total internal reflection. · Describe how lenses work · Describe forms of radiation we cannot see identifying their uses and dangers.	· Describe how the ideas about our solar system have changed over time. · Discuss ways of observing the Universe. · Show the life cycle of stars. · Use evidence to discuss the theories on the origin of the Universe.	· Describe ways in which energy can be transferred and stored. · State ways of reducing energy transfers. · Discuss renewable and non-renewable resources.	· Describe atomic structure. · State the effect different types of radiation have on atoms. · Describe the uses and dangers of radiation. · Discuss the advantages and disadvantages of nuclear power. · Compare and contrast fusion and fission.	· Identify scalar and vector quantities. · Calculate speeds and accelerations. · Describe Newton's Laws of Motion · Describe factors that affect stopping distances.
Scaffolding SEND	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes
Key Vocabulary	transverse, longitudinal, period, frequency, amplitude, wavelength	refraction, reflection, interface, diffuse reflection, specular reflection	geocentric, heliocentric, gravitational field strength, nebula,	chemical, thermal, strain, kinetic, gravitational potential, dissipated,	alpha particles, beta particles, gamma rays, isotopes, nucleons,	Vectors, scalars, displacement, acceleration, deceleration, inertial mass

			protostar, supernova	conduction, convection, radiation	ionisation, Geiger-Muller tube	
Formative Assessment	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback
Summative Assessment	End of unit test	End of unit test	End of unit test	End of unit test	End of unit test	End of unit test
Careers	neuroscientist, optician, urologist, telecoms technician	neuroscientist, optician, urologist, telecoms technician	aeronautical engineer, weather forecaster	robotist, aeronautical engineer	Forensic scientist, lab technician, geoscientist	robotist, aeronautical engineer, sports scientist
Links	To build on light and sound waves. To prepare for the light spectrum.	To build on light transfers energy. To prepare for absorption and reflection.	To prepare for the solar system and beyond.	To build on conduction, convection, and radiation. To prepare for energy stores and transfers.	To build on atomic structure. To prepare for nuclear fuel being a non-renewable energy resource.	To build on balanced and unbalanced forces. To prepare for resultant forces, energy stores and transfers.