Curriculum Rationale and Overview

Subject: Physics **Year group: 9**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
National Curriculum context	Heating and thermal equilibrium: temperature difference between two objects leading to energy transfer from the hotter to the cooler one, through contact (conduction) or radiation; such transfers tending to reduce the temperature difference: use of insulators	Work done and energy changes on deformation using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces	Chemistry and biology taught in this term	The similarities and differences between light waves and waves in matter light waves travelling through a vacuum; speed of light the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface	Chemistry and biology taught in this term.	The differences in arrangements, in motion and in closeness of particles explaining changes of state, shape and density, the anomaly of ice-water transition
Scheme of Learning Title:	Energy and electricity	Forces		Waves		Particle Model of Matter
Content *What will students know?*	How thermal conductivity is linked to our perception of being hot or cold. How energy is created in power stations How charges in a wire can be used to create electricity	How Newton's Laws apply to real life situations such as car seatbelts and crumple zones. Newton's third law of motion.		How we see colour and what happens to waves when they meet a boundary. Why mirrors are often used in telescopes		How the particle arrangement of substances affect the density of an object The steps needed to measure the density of different materials The formula to calculate density

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What will students understand?	How energy is transferred from one energy store to another and how we can harness this to our advantage How we can use electricity and magnets to produce a current	That when an object is in motion forces can be balanced but circular motion is an unbalanced force		Why waves behave differently in different materials. How waves can be used in telescopes		The connection between the particle model and the density of an object.
What will students be able to do?	Make a simple electromagnet and explain why electromagnets are useful. Identify circuits based on their components and explain why it remains challenging to be completely green.	Use distance time graphs to describe the motion of an object in terms of forces. Predict if an object will change direction or speed based on the forces being applied		Produce ray diagrams and predict the colour of an object based on the light that is shining of it		Calculate the density of different substances, using both a Eureka can and mathematical measurements
How will they be formally assessed?	End of topic assessment: Explain how an insulator can be charged through friction and transfer of electrons. Explain ways to increase the efficiency of an energy transfer.	End of topic assessment: Recall and use Newton's first law to explain the interaction of forces and motion.		End of topic assessment: Describe the difference between longitudinal and transverse waves.		End of topic assessment: Measure the volume of a regular and irregular shape and calculate their density.
Blended Learning Opportunities (yr 7 & 8)	N/A	**N/A**		**N/A**		**N/A**

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Literacy/Numeracy/ Personal Development						
Links to Prior learning						