

## Curriculum Summary

**Subject:** Physics

Year 7	Year 8	Year 9	Year 10	Year 11
<p style="text-align: center;"><b><u>Energy</u></b></p> <p>Comparing energy in foods, describing energy transfers, temperature, changes of state and energy resources.</p>	<p style="text-align: center;"><b><u>Electricity</u></b></p> <p>Describing how objects become charged with static electricity, explaining current and potential difference, recognising simple circuits and explaining resistance. Describing how magnets interact and how to make an electromagnet.</p>	<p style="text-align: center;"><b><u>Energy Resources</u></b></p> <p>Understanding and explaining energy demands, renewable and non-renewable energy resources, energy, and the environment, and how power stations work.</p>	<p style="text-align: center;"><b><u>Electric Circuits I</u></b></p> <p>Describing static electricity, current and charge, potential difference, and resistance. Defining the characteristics of different components. Comparing series and parallel circuits.</p>	<p style="text-align: center;"><b><u>Wave Properties</u></b></p> <p>Describing the two types of waves. Recognising the parts of a wave and use the wave equation. Identifying the properties of waves. Describing uses of sound waves, including ultrasound.</p>
<p style="text-align: center;"><b><u>Light and Space</u></b></p> <p>Describing the interaction of light with materials, explaining reflection, refraction, colour and how the eye works. Describing the structure of the universe, naming the planets in our solar system and explaining the movements of the Earth and the moon.</p>	<p style="text-align: center;"><b><u>Forces and Motion</u></b></p> <p>Explaining what forces do, using Hooke's law. Describing effects of fields. Calculating speed and interpreting graphs for journeys.</p>	<p style="text-align: center;"><b><u>Energy Transfer by Heating</u></b></p> <p>Describing conduction, convection, and radiation. Explaining what is meant by specific heat capacity. Identifying how homes can be heated and insulated.</p>	<p style="text-align: center;"><b><u>Electricity in the Home</u></b></p> <p>Defining ac and dc, electrical safety and explaining how to wire a plug. Explaining electrical power, appliances, and efficiency.</p>	<p style="text-align: center;"><b><u>Electromagnetic Waves</u></b></p> <p>Recalling the parts of the EM spectrum, gamma, X rays, UV, visible light, infra-red, microwaves and radio waves. Describing the uses and dangers of each wave.</p>
<p style="text-align: center;"><b>Biology is taught as part of timetabled Science lessons in Year 7 and 8.</b></p> <p style="text-align: center;"><b>Students study four units in each Science subject: Biology, Physics and Chemistry.</b></p>		<p style="text-align: center;"><b><u>Forces in Balance</u></b></p> <p>Identifying the difference between a vector and a scalar, recalling and using Newton's laws. Defining and calculating the moment of a force, describing what gears do and identifying the centre of mass.</p>	<p style="text-align: center;"><b><u>Molecules and Matter</u></b></p> <p>Defining and calculating density. Describing the states of matter, kinetic theory, changes of state, internal energy, specific latent heat, and the gas laws.</p>	<p style="text-align: center;"><b><u>Light (Triple)</u></b></p> <p>Describing and explaining the properties of light, including reflection and refraction. Explaining why we see different colours. Explaining how lenses work and their uses.</p>
		<p style="text-align: center;"><b><u>Motion</u></b></p> <p>Defining speed and velocity, using distance- time and velocity-time graphs. Applying the equation for acceleration.</p>	<p style="text-align: center;"><b><u>Radioactivity</u></b></p> <p>Describing the types of radiation, how the nucleus was discovered, types of radioactive decay, half-life and uses in medicine. (Fission and fusion – triple)</p>	<p style="text-align: center;"><b><u>Electromagnetism</u></b></p> <p>Describing magnetic fields. Explaining how to make an electromagnet and their uses. Describing and explaining how a simple motor and generator works. Explaining how a transformer works and describe their uses.</p>
		<p style="text-align: center;"><b><u>Conservation and Dissipation of Energy</u></b></p> <p>Describing how energy is stored, transferred and conserved. Describing and calculating efficiency, energy and power.</p>	<p style="text-align: center;"><b><u>Force and Motion</u></b></p> <p>Calculating resultant forces and acceleration. Describing the difference between mass and weight. Defining terminal velocity. Recalling what stopping distances depend on. Calculating momentum. Explaining the physics behind car safety.</p>	
<p style="text-align: center;"><b><u>Force and Pressure (Triple)</u></b></p> <p>Knowing what is meant by pressure and calculating it. Describing pressure in liquids and in the atmosphere. Explaining floating and sinking.</p>	<p style="text-align: center;"><b><u>Space (Triple)</u></b></p> <p>Understanding how the solar system was formed. Describing the life cycle of a star. Explaining orbits. Explaining evidence for the Big Bang theory, including red-shift and cosmic microwave background radiation.</p>			