


<p>Year 11: Separate Physics</p>	<p>Curriculum Intent: Year 11 Separate physics looks to build on the foundation established in the Combined Science course. The more complex topics covered include. The knowledge gained provides students with a deeper insight into the subject, allowing them to tackle more complex problems and questions which link different areas. It also builds a solid knowledge base for progression to A level Physics. Practical skills include building and testing a model boat. Testing levels and other force multipliers, making a loudspeaker, testing the focussing power of lenses, investigating the range of human hearing, investigating the effects of mixing colours.</p>				
	<p>Topic 1 Pressure</p>	<p>Topic 2 Forces in Action</p>	<p>Topic 3 Uses of Magnetism</p>	<p>Topic 4 Waves in Matter</p>	<p>Topic 5 Beyond Earth</p>
<p>Key ideas</p>	<p>Pressure and volume Atmospheric pressure Liquid pressure Floating and sinking</p>	<p>Turning forces Simple machines Hydraulics</p>	<p>Electromagnetic induction Generators Transformers</p>	<p>Sound properties and their uses Sound in solids and the ear EM waves and matter Lenses Light and colour</p>	<p>The big bang Our solar system Satellites and orbits Radiation and temperature Inside our planet</p>
<p>Sequence of Learning -Key Questions</p>	<ol style="list-style-type: none"> How are pressure and volume of a gas related quantitatively? What causes atmospheric pressure and how does it vary with altitude? How does pressure vary with depth in a liquid? How can we predict whether an 	<ol style="list-style-type: none"> How can the principle of moments help us calculate forces? How do levers and gears transmit forces? How can we determine the forces in a hydraulic system? 	<ol style="list-style-type: none"> What is electromagnetic induction and in what direction does it act? How do alternators and dynamos work? How do the number of coils on transformers affect their output voltages? How do microphones and loudspeakers work? 	<ol style="list-style-type: none"> What happens to sound waves at boundaries? How does the ear work? How can we image the body with EM waves? How do EM waves interact with matter? How do lenses make the eye work? How can we explain the colours we see? 	<ol style="list-style-type: none"> What is red shift and how does it support the big bang theory? How is the universe changing? What types of orbits are satellites in? Why do hotter things emit more radiation than cooler ones? How do we know the

	object will float or sink?				structure of the Earth?
Vocabulary	<p>Inversely proportional Atmospheric pressure Liquid pressure upthrust</p>	<p>pivot moment principle of moments effort load mechanical advantage Hydraulic machine</p>	<p>Electromagnetic induction Induced potential difference Alternating potential difference Alternator Slip rings Transformer step-up Step-down Microphone Diaphragm Compressions Rarefactions Carbon microphone Loudspeaker frequency</p>	<p>Refraction Normal Echo Echo-sounding Sonar Ossicles Amplify Oval window Natural frequency Resonance Electromagnetic spectrum Visible light Vacuum Sources Microwave Infrared Absorbers Thermal imaging camera Thermogram CCD Computerised tomography Ray diagrams Convex Concave Focal length Short sight Long sight Real image Virtual image Prism Dispersion Spectral colours</p>	<p>Red-shift Big Bang Theory Cosmic microwave background radiation Planets Moons Minor planets Asteroid belt Main sequence star Lifecycle Natural satellites Artificial satellites Geostationary orbit Polar orbit Crust Mantle Outer core Inner core Seismic waves Seismometers P-waves S-waves</p>

				Perceived colour Specular reflection Diffuse reflection	
Practical Skills	Crushing cans Floating a boat investigation	Using levers and balances to confirm calculated moments	Making a loudspeaker Generating pds	Investigating reflection, refraction and lenses Looking at medical images and making diagnoses	Investigating orbital speeds
Assessment (Related to mastery grids)	AO1 – core knowledge check AO1 - Tassomai AO2 – applying knowledge – exam style questions	AO1 – core knowledge check AO1 - Tassomai AO2 – applying knowledge – exam style questions	AO1 – core knowledge check AO1 - Tassomai AO2 – applying knowledge – exam style questions	AO1 – core knowledge check AO1 - Tassomai AO2 – applying knowledge – exam style questions	AO1 – core knowledge check AO1 - Tassomai AO2 – applying knowledge – exam style questions