Year 10: Physics	**Curriculum Intent:** Year 10 Physics tackles more complex ideas and concepts in the subject. It builds on the key knowledge from years 7,8 and 9 to link together all the areas of the subject. The key areas of Forces, Electricity, Energy and the impact of these ideas on the wider world are developed through more challenging topics such as Series and parallel circuits, Newton's laws, energy and energy transfers and the National Grid. Knowledge of the important mathematical relationships is consolidated further, and application of these equations is developed throughout. Procedural knowledge and practical skills are developed further, building on experience working practically with forces, electricity and energy. The curriculum in year 10 aims to bring everything together so that students have a complete understanding of the Physics aspect of the Combined Science course.			
	Topic 1 Force (11 lessons)	**Topic 2** Electricity (14 lessons)	**Topic 3** Energy – 8 lessons	**Topic 4** 7 lessons
Key ideas	What happens in an electric circuit? What affects a circuit's properties? How are circuits used in our homes? How are electricity and magnetism linked?	How do forces arise and what are their effects? What properties do materials have when stretched?	How can we calculate energy changes, measure efficiency and reduce energy loss?	How is our energy generated and how it is transmitted to our homes?
Sequence of Learning - **Key Questions**	P3.2 and P3.3 1. Circuits and potential difference 2. Series and parallel circuits 3. Resistance 4. Circuit resistance 5. I-V graphs 6. LDRS and thermistors 7. Sensing circuits 8. Electrical power 9. Fields around a wire 10. Forces on a current carrying wire 11. Electric motors	P2.2 and 2.3 1. Forces and Newton's 3rd law 2. Representing forces in diagrams 3. Newtons' 1st law 4. Newton's 2nd law 5. Everyday situations 6. Momentum (HT) 7. Hooke's law 8. Energy in springs and materials 9. Weight and gravitational energy	P5.1 1. Energy changes when objects fall 2. Energy changes when work is done 3. Energy changes in stretched spring 4. Paying for electricity 5. Energy changes with an electric current 6. Heating 7. Walls and insulation 8. efficiency	P6.1 1. Measuring motion 2. Reaction time and thinking distance 3. Braking distance 4. Forces in collisions 5. Energy sources 6. Energy resources 7. The national grid 8. Mains electricity
Vocabulary	• Ammeter • Voltmeter	• Newton • Force	• Kinetic energy • Work done	• Acceleration • Forces

	• Current • Potential difference • Resistance • Ohm, Amps. Volts. Watts • LDR • Thermistor	• Drag, tension, upthrust, reaction, weight • Accelerate • Equilibrium • Resultant • Elastic • Plastic	• Gravitational potential energy • Heating • Current • Efficiency	• Reaction time • Nuclear • Solar • Wind • Tidal • Fossil fuels • Renewables • Non- renewables • Live, neutral, earth • Double insulated
Practical Skills	Building circuits, measuring current and potential difference	Hooke's law experiment	Measuring KE and GPE changes Measuring energy changes by electric current	Measuring reaction time Wiring a plug
Assessment (Related to mastery grids)	Recall of key equations & units: 1. Charge (Q=It) 2. Energy (E=QV) 3. Potential difference (V=IR) 4. Power (P=IV) Assessment of key principles and application of equations focussing on using skills to solve problems	Recall of key equations & units: 1. Forces (F=ma) 2. Hooke's law (F=kx) 3. Momentum (p=mv) 4. acceleration Assessment of key principles and application of equations focussing on using skills to solve problems	Recall of key equations & units: 1. KE 2. GPE 3. Work done 4. Efficiency 5. Energy and power Assessment of key principles and application of equations focussing on using skills to solve problems	Assessment of key principles and application of equations focussing on using skills to solve problems