



Year 10 Physics

Subject and Year Group	Autumn Year 10	Autumn 2 Year 10	Spring 1 Year 10	Spring 2 Year 10	Summer 1 Year 10	Summer 2 Year 10
Topic/Unit to be studied	Atomic Structure & Radioactivity	Electricity I (circuits)	Energy		Electricity II (using electricity)	Magnetism & Electromagnetism
Core Knowledge (Substantive knowledge)	<ul style="list-style-type: none"> The nuclear model (structure and development) Radioactive decay and half life Types of radiation Contamination and irradiation Background radiation (<i>separate only</i>) Medical uses for radiation (<i>separate only</i>) Nuclear fission and fusion (<i>separate only</i>) 	<ul style="list-style-type: none"> Circuit symbols and diagrams Measuring, defining, and calculating electrical quantities (current & PD) Resistance <u>RP3</u>: Resistance of a wire and resistors in parallel V-I graphs <u>RP4</u>: V-I graphs for a fixed resistor, filament bulb, and diode LDRs and thermistors 	<ul style="list-style-type: none"> Energy stores and transfers Conservation of energy Specific heat capacity <u>RP1</u>: Measuring specific heat capacity Power Energy efficiency Energy Resources Insulation (<i>separate only</i>) <u>RP2</u>: Comparing insulation (<i>separate only</i>) 	<ul style="list-style-type: none"> AC and DC Electrical Safety Electrical energy and power The National Grid Static electricity (<i>separate only</i>) Electric fields (<i>separate only</i>) 	<ul style="list-style-type: none"> Permanent and induced magnetism Magnetic materials Magnetic Fields The Motor Effect and DC motors (HT only) The generator effect and generators (<i>separate only</i>) Transformers (<i>separate only</i>) 	
Core Skills (Disciplinary knowledge)	<ul style="list-style-type: none"> Use models to develop understanding and an appreciation of how scientific thinking and theories develop over time. Understand that scientific methods and theories develop as earlier explanations are 	<ul style="list-style-type: none"> Use models to help explain or predict phenomena. Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety. Identify anomalies and apply mathematical concepts to calculate means. Present data using appropriate methods, including tables and graphs including 	<ul style="list-style-type: none"> Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety. Present data using appropriate methods, including tables and graphs including bar charts and pie charts. Understand, use, and convert prefixed and SI units. Complete calculations making use of standard form. 	<ul style="list-style-type: none"> Understand, use, and convert prefixed and SI units. Complete calculations making use of standard form. Apply mathematical concepts to substitute in/ rearrange equations to calculate relevant physical quantities. 	<ul style="list-style-type: none"> Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety. Identify anomalies and apply mathematical concepts to calculate means. Present data using appropriate methods, 	

Resilience

Responsibility

Reflectiveness



	<p>modified to take account of new evidence and ideas, together with the importance of publishing results and peer review</p> <ul style="list-style-type: none"> - Present data using appropriate methods, including tables and graphs including (exponential) curved lines of best fit. - Apply ideas about ratio changes and half life. - Interpret data to draw accurate conclusions. - Evaluate the relative risk or hazard of a scenario, taking into account different data streams. 	<p>straight and curved lines of best fit.</p> <ul style="list-style-type: none"> - Recognise mathematical relationships, including directly proportional, inversely proportional, and linear. - Understand, use and convert prefixed and SI units. - Complete calculations making use of standard form. - Apply mathematical concepts to substitute in/ rearrange equations to calculate relevant physical quantities. - Make predictions using scientific knowledge and understanding. - Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables. - Interpret data to draw accurate conclusions. 	<ul style="list-style-type: none"> - Apply mathematical concepts to substitute in/ rearrange equations to calculate relevant physical quantities. - Make predictions using scientific knowledge and understanding. - Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables. - Interpret data to draw accurate conclusions. 	<ul style="list-style-type: none"> - Interpret data to draw accurate conclusions. 	<p>including tables and graphs including straight lines of best fit.</p> <ul style="list-style-type: none"> - Recognise mathematical relationships, including directly proportional and linear. - Understand, use, and convert prefixed and SI units. - Complete calculations making use of standard form. - Apply mathematical concepts to substitute in/ rearrange equations to calculate relevant physical quantities. - Interpret data to draw accurate conclusions. - make use physical representations of abstract concepts to solve problems (Fleming's left hand law)
Assessment	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units				