

Physics: Curriculum Overview

<u>Year 13</u>

Term	Topic studied	What will I learn?	How will I be assessed?
Year 13 Autumn	Teacher 1		
	Electric Fields	Electric Fields Electrical Potential Comparing Electric and Gravitational Fields	End of topic test
	Capacitors	Capacitors Energy Stored by a capacitor Dielectrics Charging and Discharging	Practical assessment - Investigating Capacitors
		Time Constant and Time to Halve.	End of topic test
	Thermal Physics	Thermal Energy Transfer The three gas laws The Ideal Gas Equation Kinetic Theory and the pressure of an ideal gas Kinetic Energy of Gas Molecules Development of theories	Practical assessment - Investigating Charles Law Practical assessment - Investigating Boyle's Law Practical assessment - Investigating Pressure Law End of topic test
	Teacher 2		
	Magnetic Fields	Magnetic Flux Density Investigating a Current Carrying Wire Forces on Charged Particles Electromagnetic Induction Investigating Flux Linkage Faraday's and Lenz's Law Alternating Current	Practical assessment F=BIL Practical assessment Investigating Flux Linkage
		Transformers	End of topic test
	Nuclear Physics	Rutherford Scattering Measuring Nuclear Radius Nuclear Radius and Density Properties of Nuclear Radiation Background Radiation and Intensity Exponential Law of Decay Half life and its Applications	Practical assessment Investigating the inverse Square Law
		Nuclear Decay Mass Defect and Binding Energy Nuclear Fission and Fusion Nuclear Fission Reactors	End of topic test

Year 13			Year 13 Mock Exam based on paper 1 and
Spring	Trachard		paper 2 structure
	Teacher 1		
	Review of the		
	Mock Exams		
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	Paper 3 Content	Data	
	and Skills	Graphs	
		Error Analysis	
		Uncertainty Calculations	
		,	
		1. Investigation into the variation of the frequency	
		of stationary waves on a string with length, tension	
		and mass per unit length of the	
		string.	
		2. Investigation of interference effects to include the	
		Young's slit experiment and interference by a	
		diffraction grating	
		3. Determination of g by a free-fall method.	
		4. Determination of the Young modulus by a simple	
		method. 5. Determination of resistivity of a wire using a	
		micrometer, ammeter and voltmeter	
		<i>6. Investigation of the emf and internal resistance of</i>	
		electric cells and batteries by measuring the	
		variation of the terminal pd of the cell with current	
		in it	
		7. Investigation into simple harmonic motion using a	
		mass-spring	
		system and a simple pendulum.	
		8. Investigation of Boyle's (constant temperature)	
		law and Charles's	
		(constant pressure) law for a gas.	
		<i>9. Investigation of the charge and discharge of</i>	
		capacitors. Analysis	
		techniques should include log-linear plotting leading	
		to a determination of the time constant RC.	
		10. Investigate how the force on a wire varies with	
		flux density, current and length of a wire using a top pan balance.	
		11. Investigate, using a search coil and oscilloscope,	
		the effect on magnetic flux linkage of varying the	
		angle between a search coil and magnetic field	
		direction.	
		12. Investigation of the inverse-square law for	
		gamma radiation.	Paper 3A Mock Exam
	Teacher 2		
	Ontion D		
	Option D	Discovering Electrons	
	Turning points in	Specific Charge of an Electron Millikan's Oil-Drop Experiment	
	Physics	Light – Newton v's Huygens	
		Electromagnetic waves	
		The Photoelectric Effect	
		Wave-Particle Duality	
		Electron Microscopes	
		Michelson-Morley Experiment	
		Special Relativity	
		, ,	Paper 3BD Mock Exam

Year 13 Summer	Revision	Revision of key principles from year 12 study. Revision of key principles from year 13 study.	Practical assessment - Completion of lab book assessment and any missed practicals
			Test assessment - past paper practices
			Final exam