

Key Stage 4 Subject Timeline Year 9 to 11 (Year 10 and 11 2022-23)

Subject: Physics

Exam Board: AQA

KS4 Physics - Year 9						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	Energy <i>Potential and Kinetic Energy</i> <i>Energy Resources</i>	Energy <i>Energy Transfers</i> Electricity <i>Electric circuits</i>	Electricity <i>Electricity in the home</i> <i>Power and Energy Transfers</i>	Particle Model of Matter <i>Density</i> <i>Changes of state</i> <i>Specific Heat Capacity</i>	Particle Model of Matter <i>Latent heat</i> <i>Particle motion in gases</i> <i>Pressure of gases</i>	Revision- <i>Energy</i> <i>Electricity</i> <i>Particles.</i>
Key skills and Concepts	Required Practical – Investigating Specific Heat Capacity Required Practical – Investigating ways of reducing unwanted energy transfers Key Concept Energy Transfer Maths skill – Handling data <i>Maths skill – Using formulae and understanding graphs</i>		Required Practical – To use circuit diagrams to set up and check appropriate circuits Required Practical – Investigation resistance of a wire Key Concept – What’s the difference between p.d. and current?	Required Practical – To investigate the densities of regular and irregular solid objects and liquids Key Concept –Particle model and changes of state Maths skill – drawing and interpreting graphs		Key Concept Energy Transfer What’s the difference between p.d. and current? Particle model and changes of state
Threshold Concepts	Energy is a fundamental concept. Energy makes things happen so this topic underpins all the others and provides context for the whole syllabus		This topic builds on the one previous and links electrical energy to power and work. Links to sustainability in both the Biology and Chemistry syllabus	Recaps and builds on the first topic in the Chemistry syllabus. Links the changes of state to energy and explains particle movement.		
Endpoints	<i>To understand the connection between energy transfer and power</i> <i>To consider the link between energy changes and temperature change</i> <i>To know how the transfer of energy can be measured, controlled and visualised</i>	<i>To explain static electricity</i> <i>To describe the characteristics of electrical components</i>	<i>To describe and explain how electricity can be used safely in the home</i>	<i>To describe and explain why the high specific heat of water is useful</i> <i>To define the specific latent heat of vaporisation and fusion</i>	<i>To explain the relationship between pressure, temperature and volume</i>	
Assessments	Chapter 1 Midpoint Assessment	Chapter 1 End of Chapter Assessment.	Chapter 2 End of Chapter Assessment	Chapter 3 Midpoint Assessment	Chapter 3 End of Chapter Assessment	Year 9 PPE Exams

Key Stage 4 Subject Timeline Year 9 to 11 (Year 10 and 11 2022-23)

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KS4 Physics - Year 10							
Autumn 1		Autumn 2		Spring 1	Spring 2	Summer 1	Summer 2
Topics	Atomic Structure Radioactive Decay Atomic Structure Radioactive Half-Life Hazards and Uses of Radiation Nuclear Fission and Fusion Forces and Motion Speed and Acceleration	Forces <i>Calculations of motion</i> <i>Resultant Forces</i> <i>Newton's laws</i>	Forces <i>Moments</i> <i>Levers and gears</i> <i>Pressure in a fluid</i> <i>Forces and energy in springs</i>	Revision	Waves <i>Describing waves</i> <i>Measuring waves</i> <i>Reflection and Refraction</i> <i>Seismic Waves</i> <i>Electromagnetic Spectrum</i>		
	Key Concept – Developing ideas for the structure of the atom. Maths skill – Using ratios and proportional reasoning Maths skill – Using ratios and proportional reasoning Key Concept – Forces and Acceleration	Required Practical – Investigating the acceleration of an object Key Concept – Forces and Acceleration Maths skill – Making estimates of calculations	Required Practical – Investigate the relationship between force and the extension of a spring Maths skill – Making estimates of calculations		Key Concept – Transferring energy and information by waves Required Practical – Measuring the wavelength, frequency and speed of waves Required Practical – Investigate the reflection of light by different types of surface Maths skill – Rearranging equations		
	Continues the learning from Year 9 to look at positive and negatives relating to radioactivity and its uses and dangers	Another important topic area. Forces links movement and energy together Pressure builds on ideas about particles taught in Year 10			Waves looks at the 'movement of energy' and the effects of waves and their movement through different media. The electromagnetic spectrum links back to the radiation topic.		
	<i>Using equations to represent nuclear reactions</i> <i>To understand different ways in which motion can be described</i> <i>How forces can be used to make driving safer</i>	<i>To describe and explain how the motion of a falling object changes as it falls</i>	<i>To describe how the use of simple machines can be used to make tasks 'easier'</i> <i>To describe how fluid pressure occurs</i>		<i>To compare the characteristics of electromagnetic waves to light</i> <i>To measure wave properties</i> <i>To describe the properties and uses of the electromagnetic spectrum</i>		
	Chapter 4 End of Chapter Assessment	Chapter 5 Midpoint Assessment	Chapter 5 End of Chapter Assessment	Year 10 PPE Exams	Chapter 6 Midpoint Assessment (1)	Chapter 6 Midpoint Assessment (2)	

KS4 Physics - Year 11						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	Waves <i>Sound Waves and Ultrasound</i> <i>Types of Electromagnetic Wave</i> <i>Seismic Waves</i> <i>Lenses</i>	Electromagnetism <i>Magnetism and magnetic forces</i> <i>Electric Motors</i> <i>Loudspeakers and transformers</i>	Space <i>Solar system</i> <i>Life cycle of a star</i> <i>Red-shift</i>	Revision		
Key skills and Concepts	Maths skill – Rearranging equations Required Practical – Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface	Key Concept – The link between electricity and magnetism Maths skill – Rearranging equations	Key Concept – Gravity: the force that binds the universe Maths skill – Using scale and standard form			
Threshold Concepts	Waves looks at the 'movement of energy' and the effects of waves and their movement through different media. The electromagnetic spectrum links back to the radiation topic.	Links Electricity and forces and then shows how these can be applied	Standalone topic just taught to the Separate scientists as an add-on to the course. Teaching it last gives more flexibility in changing			
Endpoints	<i>To describe the properties and uses of the electromagnetic spectrum</i> <i>To describe how we use waves to detect structures we cannot see</i> <i>To explain how lenses work</i>	<i>To describe how a motor works</i> <i>To explain the link between magnetism and electricity</i> <i>To describe and explain how electricity is transmitted</i>	<i>To describe how studying stars can help us explain events in the universe</i> <i>To explain how measurements in space are conducted and how they can be extrapolated</i> <i>To understand the role of gravity in space</i>			
Assessments	Chapter 6 End of Chapter Assessment	Chapter 7 End of Chapter Assessment Year 11 PPE Exams	Chapter 8 End of Chapter Assessment Year 11 PPE Exams	External GCSE Exams	External GCSE Exams	