

# Key Stage 4 Subject Timeline New Year 9 to 11

Subject: Physics

Exam Board: AQA

	KS4 Physics - Year 9					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	<b>Particle Model of Matter</b> <i>Density</i> <i>Changes of state</i> <i>Internal Energy</i> <i>Specific Heat Capacity</i>	<b>Particle Model of Matter</b> <i>Latent heat</i> <i>Particle motion in gases</i>  <i>Pressure of gases</i>	<b>Energy</b> <i>Potential and Kinetic Energy</i> <i>Work Done and Energy Transfer</i> <i>Understanding power</i> <i>Specific heat Capacity</i>	<b>Energy</b> <i>Dissipation of energy</i> <i>Energy efficiency</i> <i>Using energy resources</i> <i>Global energy supplies</i>	<b>Electricity</b> <i>Static Electricity [Triple]</i> <i>Electric fields [Triple]</i> <i>Electric current</i> <i>Series and parallel circuits</i> <i>Investigating circuits</i> <i>Circuit components</i>	<b>Electricity</b> <i>Control circuits</i> <i>Electricity in the home</i> <i>Transmitting Electricity</i> <i>Power and Energy Transfers</i> <i>Calculating power</i>
Key skills and Concepts	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 Required Practical – Investigating Specific Heat Capacity Maths skills- Calculating using significant figures	Maths skill – Handling data  Required Practical-Investigating ways of reducing unwanted energy transfer	Maths skill – Using formulae and understanding graphs	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?
Threshold Concepts	Links the changes of state to energy and explains particle movement.		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
Endpoints	To describe and explain why the high specific heat of water is useful To define the specific latent heat of vaporisation and fusion	To explain the relationship between pressure, temperature, and volume	To understand the connection between energy transfer and power To consider the link between energy changes and temperature change	To know how the transfer of energy can be measured, controlled, and visualised To appreciate the environmental impact of different energy resources.		To describe and explain how electricity can be used safely in the home
Assessments	Chapter 3 Midpoint Assessment	Chapter 3 End of Chapter Assessment	Chapter 1 Midpoint Assessment	Chapter 1 End of Chapter Assessment	Chapter 2 Midpoint Assessment	Chapter 2 End of Chapter Assessment <b>Year 9 PPE Exams</b>

# Key Stage 4 Subject Timeline New Year 9 to 11

Subject: Physics

Exam Board: AQA

KS4 Physics - Year 10						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	<b>Atomic Structure</b> <i>Radioactive Decay,</i> <i>Radioactive Half-Life</i> <i>Hazards and Uses of Radiation</i> <i>Nuclear Fission and Fusion</i> <b>***Refer to Part B sections 5 &amp; 6 of CLEAPSS L093- Managing ionising radiation in schools before conducting the practical</b>	<b>Waves</b> <i>Describing waves</i> <i>Measuring waves</i> <i>Reflection and Refraction</i>	<b>Waves</b> Seismic Waves Electromagnetic Spectrum Sound Waves and Ultrasound Types of Electromagnetic Wave Seismic Waves Lenses	Revision	<b>Forces</b> Forces and Motion <i>Speed and Acceleration</i> <i>Calculations of motion,</i> <i>Resultant Forces,</i>	<b>Forces</b> <i>Newton's laws</i> <i>Moments</i> <i>, Levers and gears</i> <i>Pressure in a fluid</i> <i>Forces and energy in springs</i>
Key skills and Concepts	Key Concept – Developing ideas for the structure of the atom Maths skill – Using ratios and proportional reasoning	Required Practical – Measuring the wavelength, frequency and speed of waves Required Practical – Investigate the reflection of light by different types of surfaces. Maths skill – Rearranging equations	Key Concept – Transferring energy and information by waves 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		Required Practical – Investigating the acceleration of an object Key Concept – 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
Threshold Concepts	The ideas of energy and atomic structure are used to explain unstable atoms and radioactive decay. To look at positive and negatives relating to radioactivity and its uses and dangers	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.		Another important topic area. Forces links movement and energy together	Pressure builds on ideas about particles taught in Year 9
Endpoints	<i>To describe the idea of radioactive half-life and determine this using numerical and graphical data</i> <i>Using equations to represent nuclear reactions.</i> <i>To describe the current atomic model</i> <i>To understand that unstable atoms can change releasing radioactive matter and energy.</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> <i>To describe how we use waves to detect structures we cannot see</i> <i>To explain how lenses work</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>
Assessments	Chapter 4 End of Chapter Assessment	Chapter 6 Midpoint Assessment	Chapter 6 End of Chapter Assessment	<b>Year 10 PPE Exams</b>	Chapter 5 Midpoint Assessment	Chapter 5 End of chapter Assessment

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KS4 Physics - Year 11						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	<b>Electromagnetism</b> <i>Magnetism and magnetic forces</i> <i>Magnetic fields</i> <i>Magnetic effect of a solenoid</i> <i>Electromagnets in action</i> <i>Calculating the force on a conductor</i> <i>Electric Motors</i> <i>Loudspeakers, generators effect</i> <i>Transformers</i>	<b>Space</b> <i>Solar system</i> <i>Life cycle of a star</i> <i>Red-shift</i>	Revision			
Key skills and Concepts	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	Links Electricity and forces and then shows how these can be applied	Standalone topic just taught to the Separate/ Triple scientists as an add-on to the course. Teaching it last gives more flexibility.				
Endpoints	<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>	To describe how studying stars can help us explain events in the universe To explain how measurements in space are conducted and how they can be extrapolated. To understand the role of gravity in space				
Assessments	Chapter 7 End of Chapter Assessment <b>Year 11 PPE Exams</b>	Chapter 8 End of Chapter Assessment <b>Year 11 PPE Exams</b>		<b>External GCSE Exams</b>	<b>External GCSE Exams</b>	