THE ABBEY SCHOOL
A BUSINESS & ENTERPRISE ACADEMY

Subject: Physics

Year 9
Scheme of Learning 2025-2026

Subject leader: Mr S Brock

Topics by term	Topic overview for Year 9					
	Term 1	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Topics taught	**Physics** – P1a; energy transfers	**Physics** – P1b; energy resources	**Physics** – P2a; circuits	**Physics** – P2a; circuits P2b; domestic electricity	**Physics** – P2b; domestic electricity P3; particle models of matter	**Physics** – P3; particle models of matter Revision for end of year assessment
	Vital Prerequisites	**Vital Prerequisites**	**Vital Prerequisites**	**Vital Prerequisites**	**Vital Prerequisites**	**Vital Prerequisites**
	P1A - Students to have a previous understanding of "what energy is" from KS3. With this they can form ideas around useful and	P1B - Students should have a knowledge of what a fuel is from KS3 science. Alongside this knowledge students	P2A – Students will have developed a knowledge of energy stores and its transfer, linking specifically to	P2A – As outlined in Term 3 overview P2B – Students should have a prior	P2B – As outlined in Term 4 overview P3 – Students should have a basic	P3 – As outlined in Term 5 overview

	wasted (dissipated) energy which is further developed in the module. Students should be able to demonstrate a previous knowledge of Gravity and the effect that forces have on an object. Students should be familiar with the fundamentals of using Physics based formula and with basic formula symbols. Students should have an understanding of particle theory from year 7 and year 8 which is fundamental in understanding a variety of different aspects of this module.	should be able to group those fuels into renewable and non-renewable resources. This knowledge is based on a successful understanding of the content covered in term 1 on energy stores and energy transfers. A basic understanding of what fuels are used for and how any wasted energy may be reduced would have been covered in KS3.	electricity within this module. Students will need to have an understanding of the necessary maths skills used within this module such as use and manipulation of formula and graph skills. Students will need to develop their practical skills in setting up electrical circuits which would have been learnt in KS2 and KS3 Science. There will also be a securing of prior knowledge around key terms and definitions which students would have accessed in KS3. The students should also have a basic knowledge of the structure of an atom from KS3, more importantly around the Electron and its charge.	knowledge of electricity and its definition. This includes an understanding of the behaviour of electrons within an electrical circuit from module P2A. Students will need to recall from KS3 and module P2A content around resistance. Students should understand the effect that resistance has on a circuit and how this may be investigated. Students should be able to recall prior knowledge on useful and wasted energy to enable them to work out efficiency of systems. Students should also be able to recall knowledge around key terms and definitions with an ability to link in any relevant formula from KS3 and module P2A.	understanding of the 3 states of matter from KS3 Science. This should include how the 3 different states of matter behave and the specialist terminology used to describe them from KS3 and Ks2. Students should have a familiarity with using formula, symbols and units used within the Physics modules. Students should have an understanding of how to construct a graph within Science, adding lines of best fit, titles and relevant scales. All of which would have been covered within KS3 in both year 7 and 8. Students should have a familiarity with using some equipment to complete required practical's relating to the density of objects. These skills again would have been developed from year 7 and year 8.	
	Why are we teaching this now?	**Why are we teaching this now?**	**Why are we teaching this now?**	**Why are we teaching this now?**	**Why are we teaching this now?**	**Why are we teaching this now?**
	P1A / P1B – Energy and energy transfer are one of		P2A /P2B – Electrical circuits is taught		P3 – The particle model of matter is	

	the fundamentals within Physics. Understanding the transfer of energy from one store to another links from most if not all of the other modules within the GCSE course. Having a comprehensive knowledge of energy and its transfer is a necessity to understand the GCSE Physics course.		within this order as it is necessary to have the knowledge of P1A/B Energy to underpin the learning of the P2 module. It is necessary within this module to use and manipulate formula, skills which have been learnt and tested within in P1.		taught within this order as students will have sufficient knowledge in order to access the module. This module has a cross over to the GCSE Chemistry course where there is also an exploration of the particle model. This module is the starting point of the fundamentals of atomic structure in its entirety, bringing in the individual ideas from other modules such as electricity. This relies on the knowledge of KS3 and KS2 and further develops this knowledge to provide a foundation for other modules in the course such as P4	

Exam Board AQA							
Topic Big question	**Lesson questions**	**Lesson objective**	**Outcomes**	**Key Terms** **Literacy** **Numeracy** **Practical activities**	**Assessment and homework tasks**	**Resources**	**Personal Development curriculum links (SMSC, British Values, PSHE)**
Term 1							
P1a – energy transfers							
How can energy transfer be calculated when transferring between one store and another?	How can an object or group of objects be considered a system?	To be able to recall the nine different energy stores and give examples of how energy can be transferred between different stores.	- To recall that an object or group of objects can be considered a system. - To describe and give examples of energy transfers that take place in a closed system. - To explain the principle of the law of conservation of energy.	Chemical Elastic potential Electrical Gravitational potential Kinetic Light Nuclear Sound Thermal	Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to listen to, and respect others' opinions.
	How can the efficiency of energy change within a system be calculated?	To be able to describe an energy transfer in terms of useful and wasted energy, and calculate the efficiency of energy transfer.	- To explain the difference between useful and wasteful energy, and give examples of both. - To explain the term 'energy efficiency' in relation to energy transfer. - To calculate efficiency of energy transfer using the energy efficiency equation.	Efficiency Calculating the efficiency of energy transfer.			
	How does a materials thermal conductivity affect the movement of energy?	To be able to describe and explain the difference between conduction and convection.	- To recall how particles move in solids, liquids and gases. - To describe the differences between conduction and convection. - To explain that the higher a materials thermal conductivity, the faster energy can be transferred through it by conduction.	Conduction Convection Thermal conductivity			

	How can unwanted thermal energy transfers be reduced?	To be able to outline how heat energy can be lost from a building, and how to minimise heat energy transfer.	- To recall what energy transfers are. - To describe how a buildings rate of cooling is affected by the thermal conductivity and thickness of walls. - To explain how to reduce unwanted energy transfers.	Conduction Energy dissipation Radiation Thermal conductivity			
	How can the specific heat capacity of materials be determined?	To be able to define what the specific heat capacity of a material is and calculate it using the equation.	- To describe how energy relates to changes in temperature. - To explain why land heats up and cools down quicker than water. - To be able to rearrange the specific heat capacity equation and substitute relevant values.	Energy store Energy transferred Calculating specific heat capacity using $\Delta E = mc\Delta\theta$			
	How can the specific heat capacity of materials be determined? **REQUIRED PRACTICAL**	To be able to calculate the specific heat capacity of a variety of 1Kg blocks of metal and/or water.	- To be able to follow a set method to gain required information. - To input this data into the equation and rearrange to calculate the specific heat capacity of different materials. - To be able to draw valid conclusions and evaluate the method used.	Energy store Energy transferred Calculating specific heat capacity using $\Delta E = mc\Delta\theta$			
	How can we calculate the energy of an object in motion?	To be able to explain what kinetic energy is, and be able to calculate it in different scenarios.	- To identify that all moving objects have kinetic energy. - To describe how to use the relevant formula to calculate the kinetic energy of an object. - To rearrange the relevant equation.	Kinetic Motion Calculating kinetic energy using $KE = 1/2mv^2$			
	How can we calculate the energy of a stationary object?	To be able to explain what elastic potential and gravitational potential energy is, and be able to calculate them in different scenarios.	- To describe different energy stores including elastic potential energy and gravitational potential energy. - To calculate elastic potential energy and gravitational potential energy equation using the appropriate equations.	Elastic potential energy Gravitational potential energy Calculating elastic potential energy using $Ee = ½ ke^2$. Calculating gravitational potential energy using $Ep = mgh$.			

	What is the definition of power?	To be able to define power and calculate it using the relevant equation.	- To define power. - To calculate power using the correct formula. - To explain that the higher the power, the less time it takes to supply a given amount of energy.	Energy transfer Power Calculating power using power = energy transferred/time or Power = work done / time			
Term 2							
P1b – energy resources							
How can renewable energy sources be used to replace non-renewable energy sources?	How is energy generated using different resources?	To be able to label energy resources as renewable or non-renewable, and describe their uses.	- To identify different renewable and non-renewable energy sources. - To describe the uses of the different energy resources.	Non-renewable Renewable	End of topic test on P1a and P1b. Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	SMSC – possible discussion of the moral responsibility of moving away from non-renewable energy sources.
	How can renewable energy sources be used to generate electricity?	To be able to describe how these renewable energy sources generate electricity.	- To describe how wind, solar, geothermal, hydroelectric, wave and tidal sources generate electricity. - To evaluate these resources. - To describe the environmental issues arising from these sources.	Geothermal Hydroelectric Renewable Solar Tidal Wave Wind			
	How are non-renewable sources and biofuels generated?	To be able to compare how bio-fuels, fossil fuels and nuclear fuels are used for generating electricity.	- To compare how these sources generate electricity. - To evaluate these resources. - To describe the environmental issues that come from using these sources.	Bio-fuels Fossil fuels Non-renewables Nuclear fuels			
	How is energy use changing die to climate change?	To be able to explain how electrons fill up in the shells of an atom.	- To state what global warming and climate change are. - To describe how the use of energy resources has changed over time. - To explain limitations to dealing with climate change.	Climate change Global warming			SMSC – possible discussion around energy use and climate change.

Term 3							
P2a - Circuits							
What is electricity?	Why is a power supply essential in a circuit?	To be able to draw simple circuits and define the terms charge and current.	- To identify circuit symbols and be able to draw a simple circuit. - To recall that an electric current is a flow of electrical charge and is measured in amperes (A). - To state that charge is measured in coulombs (C) and be able to calculate it using the relevant equation. - To explain the concept that current is the rate of flow of charge.	Charge Coloumb Currrent Parallel Potential difference Voltmeter Calculating charge using Q = It	Termly assessment focused on current, potential difference and resistance. Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to listen to, and respect others' opinions.
	When might resistance be useful in a circuit?	To be able to describe the relationship between potential difference, current and resistance.	- To define resistance. - To define Ohm's law. - To set up a circuit to investigate the relationship between potential difference, current and resistance using a variable resistor. - To calculate resistance by rearranging the relevant formula.	Current Potential difference Resistance Variable resistor Calculating resistance by using and rearranging V= IR Setting up a circuit and taking potential difference and current reading to calculate resistance, **practical activity**.			
	How does the resistance of a wire vary with its length? **REQUIRED PRACTICAL**	To be able to investigate how the length of a wire affects the resistance of the circuit.	- To set up a circuit to investigate the relationship between potential difference, current and resistance using a length of wire. - To use these readings to calculate resistance. - To plot an *I-V* graph of results. - To describe and explain the trend in results (directly proportional).	Current Potential difference Resistance Calculating resistance by using and rearranging V= IR Drawing *I-V* graph			

				Setting up a circuit and taking potential difference and current reading to calculate resistance, **practical activity**. .			
	How does resistance affect different components? **REQUIRED PRACTICAL**	To be able to describe how resistance affects different components, and plot graphs of results.	- To set up circuits to investigate the relationship between potential difference, current and resistance in the following components: a bulb, resistor, diode. - To plot *I-V* graphs for each component.	Bulb Current Diode Potential difference Resistance Resistor Calculating resistance by using and rearranging V= IR Drawing *I-V* graph Setting up a circuit and taking potential difference and current reading to calculate resistance, **practical activity**.			
Term 4							
P2a – Circuits							
What is electricity?	What is a series circuit?	To be able to describe and explain what happens to current and potential difference in a series circuit.	- To draw series circuits. - To investigate what happens to current and potential difference in a series circuit. - To describe what happens to the brightness of bulbs in series. - To use relevant equations to calculate resistance, and total resistance in a series circuit.	Bulb Current Potential difference Resistance Resistor Series To use the following equations: $V_{total} = V_1 + V_2 + \cdots$ etc	Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to

				$I_{total} = I_1 = I_2 = \cdots$ etc $R_{total} = R_1 + R_2$ Setting up a series circuit and taking potential difference and current readings when adding resistors in series, **practical activity**.			listen to, and respect others' opinions.
	How is a parallel circuit different from a series circuit?	To be able to describe and explain what happens to current and potential difference in a parallel circuit.	- To draw parallel circuits. - To investigate what happens to current and potential difference in a parallel circuit. - To describe what happens to the brightness of bulbs in series. - To use relevant equations to calculate resistance, and total resistance in a parallel circuit. - To describe and explain differences between series and parallel circuits.	Bulb Current Parallel Potential difference Resistance Resistor Series To use the following equations: $V_{total} = V_1 = V_2 \ldots$ etc $I_{total} = I_1 + I_2 = \cdots$ etc			
	What happens to resistance in a series and parallel circuit? **REQUIRED PRACTICAL**	To be able to investigate what happens when you add resistors in series and in parallel circuits.	- To set up circuits to investigate how adding resistors in series and in parallel effects total resistance. - To draw a graph of number of resistors against resistance (one for series and one for parallel). - Write conclusions and evaluate the method used.	Current Parallel Potential difference Resistance Resistor Series To use V=IR to calculate resistance in a series and a parallel circuit. Setting up circuits and taking potential difference and current readings when adding resistors to calculate resistance, **practical activity**.			

	How are LDRs and thermistors used in everyday life?	To be able to describe and explain how LDRs and thermistors work, and their application in everyday life.	- To state the main properties of a diode, thermistors and light-dependent thermistors. - To describe the behaviour of a thermistor and LDR in terms of changes to their resistance. - To describe applications of diodes, thermistors and LDRs and explain their uses.	Diode Light-dependent resistor (LDR) Light-emitting diode (LED) Sensors Thermistor			
P2b – Domestic electricity							
How does electricity reach our homes?	Why are there three wires in every appliance?	To be able to identify the three wires in a plug by their colours and explain why the earth wire is an essential safety measure.	- To recall that domestic supply in the UK is 230 V and 50 Hz. - To identify live, neutral and earth wires by their colour-coded insulation. - To explain the dangers of providing any connection between the live wire and earth or our bodies.	Earth Fuse Live Neutral	Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to listen to and respect others' opinions.
	What does power rating inform you in terms of energy?	To be able to understand that energy transfers are involved in electrical appliances, and explain the link between power and energy transfer, and potential difference and energy transfer.	- To understand that everyday electrical appliances bring about energy transfers. - To calculate the energy transferred using the relevant equation based on the information provided. - To calculate power using the relevant equation based on the information provided.	Charge Energy Potential difference Power Time To calculate energy transferred using one of the following equations: $E = Pt$ or $E = QV$. To calculate power using the equation: $P = VI$			Why is it important to buy energy-efficient appliances?

Term 5							
P2b – Domestic electricity							
How does electricity reach our homes?	Why are transformers important in getting electricity safely to our homes?	To be able to describe what the National Grid is, and describe how step-up and step-down transformers work.	- To recall that the National Grid is a system of cables and transformers linking power stations to consumers. - To describe how step-up and step-down transformers change the potential difference in the National Grid. - To explain why electrical power is transmitted at high voltages in the National Grid.	National grid Transformer	Termly assessment focused on topic 2a and 2b. Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to listen to and respect others' opinions.
P3 – Particle model of matter							
How do we understand matter through the arrangement of particles?	How does the density of matter depend on the state of particles?	To be able to explain how density changes depending on the state of matter of the material and be able to calculate density.	- To define density. - To describe how the density of regular and irregular shapes can be found by experiment. - To recall the equation for density and apply it. - To calculate the density, mass or volume of an object given any two other values.	Density Mass Volume To calculate density using the equation: $density = mass$ x $volume$ [$\rho = mV$] Calculating density of regular and irregular objects, **practical activity**.	Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to listen to and respect others' opinions.
	How does the density of matter depend on the state of particles?	To be able to calulcaate the density of regular and irregular objects by measuring mass and volume.	- To follow a method to find mass and volume of various objects. - To calculate the density, mass or volume of an object given any two other values.	Density Mass Volume To calculate density using the equation:			

	REQUIRED PRACTICAL			$density = mass$ x $volume$ [$\rho = mV$] Calculating density of regular and irregular objects, **practical activity**.			
Term 6							
P3 – Particle models of matter							
How do we understand matter through the arrangement of particles?	What are the properties of the different states of matter?	To be able to describe the arrangement of particles in a solid, liquid and gas.	- To know that there are 3 states of matter . - To describe each state of matter by arranging particles in a limited space. - To explain the limitations of the particle theory model	Gas Liquid Solid	End of year assessment focused on all topics covered throughout the year. Homework tasks linked to the lesson question. Plenary questions at the end of every lesson.	Knowledge organiser CGP textbook Lesson PowerPoint presentations	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to listen to, and respect others' opinions.
	How does the internal energy of a material influence its state of matter?	To be able to define internal energy and explain each stage of a heating curve.	- To describe temperature being a measure of the average kinetic energy of the particles in a substance. - To describe and explain how increasing the temperature of a substance affects the internal energy of a substance. - To define internal energy. - To explain how the strength of the bonds between the particles will affect how much energy is needed to change the state of the substance. - To explain what is happening at each stage of a heating curve.	Changes of state Condense Evaporate Freeze Melt Sublimate			
	How much energy is required to melt 1 kg of water?	To be able to define specific latent heat, and calculate it using the relevant equation.	- To define specific latent heat. - To draw heating and cooling graphs for a substance including a change of state. - To interpret a heating or cooling graph to explain what is happening at each stage of the graph. - To calculate the energy for a change of state, mass or specific latent heat of a substance given the other values.	Changes of state Specific latent heat To calculate specific latent heat using the equation: $E = m\ L$			

	What is the effect of temperature on pressure?	To be able to explain the motion of molecules within a gas, and how this changes as the gas is heated.	- To describe the motion of molecules within a gas. - to explain how the temperature of a gas affect the movement of the particles within it. - To describe and explain how the motion of molecules in a gas change as the gas is heated. - To calculate the kinetic energy of gas particles.	Gas Motion Pressure Temperature To calculate kinetic energy using the equation: $KE = 1/2mv^2$			