



Curriculum Plan Physics Year 9 Triple Curriculum
2016

Autumn Term	Spring Term	Summer Term
<p><u>Energy</u> 4.2.1.1 The changes involved in the way energy is stored when a system changes. 4.2.1.2 The amount of energy stored by an object can be calculated. 4.2.1.3 The way energy is stored in a system can change. This change can be calculated.</p> <p><u>Power</u> 4.1.1.4 Work done and energy transferred 4.2.1.5 The power rating of an appliance states how much energy is being transferred or the rate at which work is done.</p> <p><u>Conservation and dissipation of energy</u> 4.2.2.1 The total amount of energy in a system remains constant though the way the energy is stored in the system can change. 4.2.2.2 Calculating efficiency. How to increase efficiency.</p>	<p>Required practical activity 3: Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits.</p> <p>4.4.1.4 Ohm's law and the conditions needed for it to apply. 4.4.2 Resistors in circuits 4.4.3.1 Alternating and direct current. 4.4.3.2 The name, colour and function of each wire in a three core electrical cable. Electric shocks 4.4.3.3 Earthing, fuses and circuit breakers as safety measures with electrical circuits. 4.4.4.1 Electrical power and how it is calculated. 4.4.4.2 Charges and properties 4.4.5.1 Static electricity 4.4.5.2 Electric fields</p>	<p><u>Atomic structure and radioactivity</u></p> <p>4.7.1.1 The size and structure of an atom. 4.7.1.2 How to represent atoms. 4.7.1.3 Scientific models of the atom and how these models have changed. 4.7.2.1 The radioactive decay of an unstable element and radiation. Alpha, bet and gamma. 4.7.2.2 Nuclear decay equations for alpha and beta decay. 4.7.2.3 The randomness of radioactive decay. 4.7.2.3 Determination of half-life using calculations and graphical methods. 4.7.2.4 How to handle radioactive sources safely to avoid contamination.</p>
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<p><u>National and global energy resources</u></p> <p>4.2.3 Renewable and non-renewable energy resources</p> <p><u>Electricity</u></p> <p>4.4.1.1 How to draw circuit symbols.</p> <p>4.4.1.2 Making an electric current flow.</p> <p>4.4.1.3 How the resistance of a component affects the current flowing through it.</p> <p>Required practical activity 4: use circuit diagrams to construct appropriate circuits to investigate the I-V characteristics of a variety of circuit elements, including a filament lamp, a diode and a resistor at constant temperature.</p>	<p><u>Matter</u></p> <p>4.6.1.1 How to determine the density of a material.</p> <p>4.6.1.1 The particle model of matter.</p> <p>4.6.1.2 Changing the state of materials.</p> <p>4.6.2.1 Internal energy of materials.</p> <p>4.6.2.2 Specific heat capacity.</p> <p>Required practical activity 1: investigation to determine the specific heat capacity of one or more materials.</p> <p>4.6.2.3 Specific latent heat.</p> <p>4.6.3.1 Using the particle model of matter explain motion of particles in a gas.</p> <p>4.6.3.2 How changing the pressure of a gas affects the volume of the gas.</p> <p>Required practical activity 2 (physics only): investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a material.</p>	<p>4.7.2.4 The process and uses of irradiation.</p> <p>4.7.2.4 Safety precautions taken when dealing with radioactive sources.</p> <p>4.7.3.1 Background radiation and sources of it.</p> <p>4.7.3.2 The activity of a radioactive source affects its half-life.</p> <p>4.7.3.2 The hazards of radioactive sources.</p> <p>4.7.3.3 Uses of nuclear radiation.</p> <p>4.7.4.1 Nuclear fission and power stations.</p> <p>4.7.4.2 Chain reactions.</p> <p>4.7.4.2 Nuclear fusion.</p>
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