

Create hypothesise formulate design imagine compose develop improve	<ul style="list-style-type: none"> <li>• Create parallelogram of forces diagrams from numerical data.</li> <li>• Hypothesise factors affecting braking.</li> </ul>
Evaluate recommend persuade debate justify assess conclude determine	<ul style="list-style-type: none"> <li>• Justify the current atomic model using alpha scattering experiment findings.</li> <li>• Justify precautions taken for handling radioactive substances.</li> <li>• Assess uses of nuclear radiation and evaluate risks of use.</li> <li>• Evaluate the best source of radiation to use for a given situation.</li> <li>• Justify stopping distance in terms of road conditions and reaction time.</li> <li>• Evaluate dangers caused by large decelerations of road vehicles.</li> </ul>
Analyse infer research investigate question appraise examine prioritise organise	<ul style="list-style-type: none"> <li>• Investigate density of materials by determining the mass and finding the volume of regular cuboids and irregular shaped objects.</li> <li>• Research the development of the atomic model with focus on contributions from Rutherford (nuclear model), Bohr (shells) and Chadwick (neutrons).</li> <li>• Examine the difference between nuclear fusion and nuclear fission.</li> <li>• Investigate force and elasticity to determine the elasticity constant.</li> <li>• Investigate effect of varying force on the acceleration of an object of constant mass.</li> <li>• Examine collision events and complete calculations for collision of two objects.</li> </ul>
Apply demonstrate manipulate calculate practise identify use	<ul style="list-style-type: none"> <li>• Calculate specific latent heat of fusion, specific latent heat of vaporisation and specific heat capacity and their differences.</li> <li>• Calculate changes in pressure or volume of a gas with a fixed mass and constant temperature.</li> <li>• Identify radioactive products from decay of radioactive substances producing or fusing alpha particles or beta particles.</li> <li>• Calculate resultant force from given information, apply vectors to resolve forces and draw a parallelogram of forces.</li> <li>• Demonstrate turning moments and force amplifier effect.</li> <li>• Apply ideas about pressure to justify pressure differences at depth and altitude.</li> <li>• Calculate momentum, velocity or mass from given data as well as force, speed, distance, velocity, acceleration and time.</li> </ul>
Understand explain interpret give examples estimate illustrate	<ul style="list-style-type: none"> <li>• Explain solid, liquid and gas states in terms of particle arrangement, energy and pressure and explain particle motion in gases.</li> <li>• Explain changes of state in terms of particle arrangements and energy transfers and explain density and their differences between states of matter.</li> <li>• Explain the relationship between temperature of a gas and its pressure at constant volume.</li> <li>• Illustrate the effect on temperature of doing work on an enclosed gas.</li> <li>• Explain how to calculate the number of protons, electrons and neutrons from periodic table data (atomic mass and atomic number)</li> <li>• Explain the process of radioactive decay and understand equations for radioactive decay.</li> <li>• Explain resultant force and stopping distance in terms of braking distance and thinking distance and understand conservation of momentum.</li> </ul>
Remember list recognise define recall label	<ul style="list-style-type: none"> <li>• Label state changes on particle diagrams and define Internal energy as total kinetic plus potential energy of particles in a system.</li> <li>• Define density in terms of mass and volume.</li> <li>• Define mass number, atomic number and isotopes and atomic models: particle, plum pudding, nuclear, orbital.</li> <li>• List the radioactive products from radioactive decay of an unstable nucleus (alpha <math>\alpha</math>, beta <math>\beta</math>, gamma <math>\gamma</math>).</li> <li>• Define and list vector and scalar quantities, define distance and displacement.</li> <li>• Define weight, gravity, and work done, speed, velocity and acceleration and recall Newton's laws of motion.</li> </ul>

<p>           Create            hypothesise            formulate            design            imagine            compose            develop            improve         </p>	<ul style="list-style-type: none"> <li>• Design circuits to investigate I-V characteristics of different components.</li> <li>• Create ray diagrams to illustrate the difference between convex and concave lenses.</li> <li>• Create diagrams to illustrate data on radiation and the temperature of Earth's surface.</li> </ul>
<p>           Evaluate            recommend            persuade            debate            justify            assess            conclude            determine         </p>	<ul style="list-style-type: none"> <li>• Justify the use of Earth wiring in UK circuits and evaluate the national grid system and the role of step-up and step-down transformers.</li> <li>• Evaluate from experiment the specific heat capacity of a metal.</li> <li>• Suggest and debate ways of reducing unwanted energy transfers.</li> <li>• Evaluate the practical applications and uses of each type of wave and draw conclusions from data on the risks and consequence of radiation/wave exposure</li> <li>• Determine the suitability of apparatus for measuring the speed of a wave (ripple tank practical).</li> <li>• Assess diagrams and information on how radiation affects temperature of the earth's surface and atmosphere.</li> <li>• Determine the outcome of using different filters and coloured lights on different coloured surfaces.</li> </ul>
<p>           Analyse            infer            research            investigate            question            appraise            examine            prioritise            organise         </p>	<ul style="list-style-type: none"> <li>• Analyse data and graphs to draw conclusions: Identify patters and linear proportional relationships between variables.</li> <li>• Investigate the relationship between resistance and length of a wire and the effectiveness of thermal insulators.</li> <li>• Investigate frequency, wavelength and speed of waves using a ripple tank.</li> <li>• Investigate the specific heat capacity of a material.</li> <li>• Investigate reflection and refraction of light.</li> <li>• Research the human ear and frequency limits in human hearing.</li> <li>• Examine the infrared radiation absorption and radiation by different surfaces.</li> </ul>
<p>           Apply            demonstrate            manipulate            calculate            practise            identify            use         </p>	<ul style="list-style-type: none"> <li>• Calculate energy values from given information and energy efficiency in closed system transfers.</li> <li>• Manipulate circuit equipment to correctly set up a working circuit and take I and V readings and demonstrate Ohms Law using circuits and I-V readings.</li> <li>• Calculate I, V and R values in DC Circuits.</li> <li>• Calculate wave speed, frequency, wavelength or period of a wave from given information.</li> <li>• Calculate magnification of a lens using image height and object height.</li> <li>• Apply correct equation to calculate an unknown value for charge, voltage, energy, and power.</li> <li>• Apply the principles of the generator effect in a given context.</li> </ul>
<p>           Understand            explain            interpret            give examples            estimate            illustrate         </p>	<ul style="list-style-type: none"> <li>• Interpret energy transfer diagrams.</li> <li>• Explain series and parallel circuits and interpret I-V graphs for non-ohmic component.</li> <li>• Explain how plugs are wired in appliances in the UK, how fuses work and why mains operate on AC rather than DC.</li> <li>• Understand electric field patterns, explain concept of electric field.</li> <li>• Understand electromagnetic waves and the continuous spectrum known as the Electromagnetic Spectrum.</li> <li>• Illustrate using ray diagrams the action of waves against a barrier, mirror or through a transparent or translucent object.</li> <li>• Explain colour and the effect of using colour filters with respect to absorption, reflection and transmission of light waves.</li> </ul>
<p>           Remember            list            recognise            define            recall            label         </p>	<ul style="list-style-type: none"> <li>• Recall standard physics equations set out in the AQA Physics specification and symbols and units for common variables in physics.</li> <li>• List our energy resources, classify as renewable and non-renewable and recall energy stores and transfers (pathways).</li> <li>• List types of waves and define Transverse and Longitudinal waves.</li> <li>• Draw standard circuit diagram symbols. Interpret and draw complete circuits using these symbols.</li> <li>• Recognise electrical components from I-V graphs (bulb, ohmic resistor, thermistor, diode, LED, LDR).</li> </ul>

<p>Create hypothesise formulate design imagine compose develop improve</p>	<ul style="list-style-type: none"> <li>• Improve and develop key ideas about 'action at a distance', laws of physics and mathematical models for expressing law.</li> <li>• Imagine the mechanism for loudspeakers which convert variations in electrical current into soundwaves using electromagnets.</li> <li>• Create a contemporary scientific idea of Space developing own ideas on the expansion of the universe and 'dark matter'.</li> </ul>
<p>Evaluate recommend persuade debate justify assess conclude determine</p>	<ul style="list-style-type: none"> <li>• Evaluate the mechanism and use of transformers in the national grid.</li> <li>• Evaluate the behaviour of a magnetic compass and assess the evidence that the core of the Earth must be magnetic.</li> <li>• Assess how a solenoid arrangement can increase the magnetic effect of the current.</li> <li>• Determine the factors which affect the size and the direction of induced current in a coil using the generator effect.</li> </ul>
<p>Analyse infer research investigate question appraise examine prioritise organise</p>	<ul style="list-style-type: none"> <li>• Analyse diagrams of electromagnetic devices in order to explain how these devices work.</li> <li>• Organise and sequence the lifecycle of a star.</li> <li>• Examine the effect of changing the number of coils in a transformer.</li> <li>• Examine how a moving coil microphone works.</li> </ul>
<p>Apply demonstrate manipulate calculate practise identify use</p>	<ul style="list-style-type: none"> <li>• Apply Flemings Left Hand Rule linking magnetic field strength, current and length of a wire and force.</li> <li>• Apply the electromagnetic effect to modern appliances such as loudspeakers, transformers, motors and generators.</li> <li>• Apply the equation linking potential difference and number of coils to the current and power transfer in a transformer.</li> <li>• Calculate the unknown value using the equation linking magnetic force with magnetic flux density, length and current.</li> <li>• Calculate the number of turns of coil or potential difference in a transformer.</li> </ul>
<p>Understand explain interpret give examples estimate illustrate</p>	<ul style="list-style-type: none"> <li>• Explain how a compass can be used to plot magnetic field lines for a bar magnet.</li> <li>• Illustrate a solenoid and the electromagnetic effect.</li> <li>• Explain how the force on a conductor in a magnetic field causes rotation of the coil in an electric motor.</li> <li>• Interpret/draw graphs for potential difference induced in a generator coil.</li> </ul> <p>Explain how elements are created by fusion in stars and explain the role of gravity in orbits and star formation.</p> <ul style="list-style-type: none"> <li>• Understand and illustrate that wavelength of light increases with more distant galaxies leading to 'red shift' observations.</li> </ul>
<p>Remember list recognise define recall label</p>	<ul style="list-style-type: none"> <li>• Label diagrams of the national grid and motors.</li> <li>• Recall the 'right hand rule' linking current and magnetic field direction.</li> <li>• Recall poles of a magnet and interactions of like and unlike poles and define induced current and permanent and induced magnets.</li> <li>• Recall the basic components for a solenoid and for transformers.</li> <li>• Recall the components that make up space.</li> </ul>