



At St Peter's we believe that a broad and balanced curriculum with a strong academic core is a right for all pupils. We seek to encourage pupils to explore subjects of interest around their in-school learning and to enhance their curriculum experience through enrichment.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question
How do forces and motion interact?	How do forces and motion interact?	How do circuits work?	How do circuits work?	How do magnets behave?	What is energy?
Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
<p>P2.2 Newton's laws.</p> <ul style="list-style-type: none"> Describe and give examples of contact or non-contact forces. Vector and scalar quantities. Describe the interaction between forces between pairs of objects. Describe how to find and represent the centre of mass of an object. <p>P2.3 Forces in action</p> <ul style="list-style-type: none"> Describe the relationship between mass, weight, and gravity. Describe a gravitational field. Recall acceleration in free fall, g. <p>P2.2 Newton's laws.</p> <ul style="list-style-type: none"> Calculate resultant force of forces acting in a straight line (HT) Describe scalar and vector quantities using free body diagrams (HT) Represent and interpret vector quantities using scale diagrams (HT). Describe energy transfers when work is done, including the effect of work done against frictional forces. Calculate work done, force or distance given appropriate information. Convert units where needed. Power as the rate at which energy is transferred. <p>P2.3 Forces in action</p> <ul style="list-style-type: none"> More than one force is required to stretch, bend or 	<p>P2.1 Motion</p> <ul style="list-style-type: none"> To measure distance and time and use these to calculate speed. Vector and scalar quantities. Calculating velocity and uniform and non-uniform acceleration. Drawing and interpreting graphs of motion. Measure acceleration through a required practical (PAG 3). Interpret areas of velocity time graphs (HT). <p>P2.2 Newton's laws.</p> <ul style="list-style-type: none"> Describe the effect of resultant forces on objects. Newton's first law. Objects moving in a circle with constant speed have changing velocity (HT). Newton's second Law and calculations. Third law and terminal velocity. Momentum and inertia (HT only) 	<p>P3.1 Static Electricity</p> <ul style="list-style-type: none"> Describe charge as a property of matter and describe the production of charge through friction. Interaction of opposite and like charges. Electric fields and forces Gold leaf electroscope. Van der Graff generator. Uses of electrostatics. Define current, units and how it is measured and calculated. How current behaves in a series circuit. The relationship between current charge and time. <p>P3.2 Simple Circuits (HT).</p> <ul style="list-style-type: none"> Circuit symbols and diagrams Comparing series and parallel circuits. Positive and negative terminals and conventional current. 	<p>P3.2 Simple Circuits</p> <ul style="list-style-type: none"> Define voltage and resistance, state their units and how they are measured. Investigating voltage and current in series and parallel circuits involving calculations. Investigating resistances through different components (PAG P6). Ohm's law and graphs linking to non-linear or linear relationships. Relate graphs of components to their functions (LDRs, fixed resistors, thermistors and lamps) Resistance in series (quantitative) and parallel (qualitative). Relationship of power, voltage and current. 	<p>P3.3 Magnets and Magnetic fields</p> <ul style="list-style-type: none"> Attraction and repulsion for like and unlike poles. Permanent and induced magnets. Magnetic fields. Magnetic core of Earth and compasses. Magnetic field around a conducting wire. Recall how the strength of the field depends on distance from the wire. Investigation on strength of magnetic field in a solenoid. How a magnet and current carrying wire exert forces on one another (HT). Use of Fleming's left hand rule (HT). Apply the equation $F = BIL$ (HT). Electric motors (HT). 	<p>P5.1 Work Done</p> <ul style="list-style-type: none"> Name the 8 energy stores and transfers. Calculate the energy stored in a moving object, spring and object at height. Use values for GPE to calculate the theoretical velocity of an object. Explain why the maximum theoretical velocity is never actually reached. Explain the law of conservation of energy. Apply conservation of energy to systems involving GPE and KE Describe the energy transfers in a bouncing object <p>P5.2 Power and Efficiency</p> <ul style="list-style-type: none"> Describe how energy is dissipated and calculate efficiency. Calculate power using energy transferred or work done Work is done by current flow, forces and heating. Using electrical appliances and kWh Describe how energy is transferred from batteries or the a.c from the mains Calculate efficiency from data Describe ways of making systems more efficient (HT). Explain a method for reducing unwanted energy transfers (lubrication and insulation) how energy may be wasted in the transfer to and within motors and heating devices Describe how rate of cooling is effected by the thickness and thermal conductivity (PAG 5).

<ul style="list-style-type: none"> compress an object. Compare elastic and plastic deformation. Recall and use a formula to calculate extension, force or spring constant. Use graphs to explain the limit of proportionality and linear/non-linear relationships of force and extension. Relate stretching and compression to work done and calculate this 					
Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge
<ul style="list-style-type: none"> Identify variables to change, measure, and control in a given hypothesis. Construct a table for results, including units. Explain the steps in the method to test a given hypothesis. Collect and display data accordingly. Plot and use graphs of force and extension. 	<ul style="list-style-type: none"> Identify variables to change, measure, and control in a given hypothesis. Construct a table for results, including units. Explain the steps in the method to test a given hypothesis. Collect and display data accordingly. Calculate areas under a line of best fit. 	<ul style="list-style-type: none"> Build simple circuits. Use and manipulation of mathematical formulae. 	<ul style="list-style-type: none"> Build simple circuits. Use and manipulation of mathematical formulae. Construct table of results and graphs. 	<ul style="list-style-type: none"> Use and manipulation of mathematical formulae. 	<ul style="list-style-type: none"> Explain the steps in a given method to test a hypothesis Describe hazards, risks and safety precautions associated with a given method. Describe and explain patterns in results. Collect and display data appropriately Collect and display results appropriately Draw conclusions consistent with results
Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)
Y10 Combined Physics KAT 1	Y10 Combined Physics Assessment 1	Y10 Combined Physics KAT 2	Y10 Combined Physics Assessment 2	Y10 Combined Physics KAT 3	Y10 Combined Physics Assessment 3



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What is a wave?	How is a substance radioactive?	How does physics relate to the real world?	Exam Revision	Exam Revision	
Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
<p>P4.1 Wave Properties</p> <ul style="list-style-type: none"> Define amplitude, frequency, velocity and wavelength. Their relationship and units. Compare transverse and longitudinal waves. How variables change when waves are transmitted from one medium to another. Refraction of light (PAG 8). Examples of transverse and longitudinal waves. Refraction in a ripple tank (PAG 8). The transfer of energy moves but mediums stay stationary. <p>P4.2 The electromagnetic spectrum</p> <ul style="list-style-type: none"> EM waves are transverse with the same velocity. Relationship of frequency and wavelength of the EM spectrum. Define all main groups of the EM spectrum. Eyes can only detect the visible part of the EM spectrum. Practical uses of EM waves. How some EM waves can have hazardous effects. Production of radio waves (HT). Effects of transmission, reflection and absorption of waves (HT). 	<p>P4.3 Radioactivity</p> <ul style="list-style-type: none"> Constituents of nuclei. Isotopes. Unstable nuclei emit three types of radiation and how they change the mass or charge of a nucleus. Symbols of radiation and decay equations. Penetration and ionisation properties of radiation. Electron arrangement and excitation/de-excitation. Half life. Half-life graph analysis and net decline during radioactive emissions (HT). Contamination and irradiation. 	<p>P6.1 Physics on the move</p> <ul style="list-style-type: none"> Everyday speeds for walking, cycling and running. Magnitude for everyday accelerations. Conversion of units. Human reaction times. Factors affecting braking, stopping and thinking distances. How stopping distances vary with speed.s Dangers linked with large decelerations/accelerations. <p>P6.2 Powering Earth</p> <ul style="list-style-type: none"> Renewable and non-renewable energy resources. The national grid and transformers. Efficiency of the national grid. Domestic supply in UK as 50Hz and 230 Volts. Direct and alternating voltages. Wires in a plug and dangers that are associated. 	Exam Revision	Exam Revision	
Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge
<ul style="list-style-type: none"> How to use a ripple tank and take measurements and calculations. How to cause light to refract/reflect 	<ul style="list-style-type: none"> Graph analysis. 	<ul style="list-style-type: none"> How to wire a plug 			

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Y11 Combined Physics KAT 1	Y11 Combined Physics Assessment 1	Y11 Combined Physics Mock Exam 1	Y11 Combined Physics Mock Exam 2		