

Physics

Key Stage 2 Curriculum includes



	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Autumn 1			Particles <ul style="list-style-type: none"> States of matter Density Specific Latent Heat Specific heat Capacity Particle motion Pressure 	Electricity <ul style="list-style-type: none"> Standard circuit Symbols Electric Charge and Current Resistance and Potential difference Circuits and other components Series and Parallel circuits Power in circuits Direct and alternating current Mains electricity Danger of Mains electricity Power and efficiency Energy transfer in appliances The National Grid 	Waves <ul style="list-style-type: none"> Transverse and longitudinal waves Properties of waves Wave speed Electromagnetic waves Refraction Ray Diagrams Uses and appliances of EM waves Radio Signals Hazards of EM waves 	Mechanics <ul style="list-style-type: none"> SUVAT equations Projectiles Momentum conservation Potential and kinetic energy in motion Power and work Electric circuits <ul style="list-style-type: none"> Current and charge Power and resistance Resistivity Potential dividers Sensors and components EMF and internal resistance 	Further Mechanics <ul style="list-style-type: none"> Impulse Collisions in 2 dimensions Circular motion and centripetal force Gravitational Fields <ul style="list-style-type: none"> Newton's gravitational law Field strength and potential Objects in orbit Electric and Magnetic Fields <ul style="list-style-type: none"> Force fields Radial fields and potential Capacitors and exponential decay/growth Magnetic forces on charges and wires Electromagnetic induction – Faraday's law AC electricity
Autumn 2							
Spring 1			Energy	Forces	Space	Materials	Nuclear and Particle

Spring 2			<ul style="list-style-type: none"> • Energy Stores and systems • Calculating Energy Change • Specific and internal energy • Energy Transfers • National and global energy resources 	<ul style="list-style-type: none"> • Scalar and Vector Quantities • Contact and non-contact forces • Gravity • Resultant Forces • Vector Diagrams • Work done and energy transfer • Forces and Elasticity • Distance and Displacement • Speed • Velocity 	<ul style="list-style-type: none"> • Our solar system • The formation of our solar system • Life Cycle of a star • Creating new Elements • Orbital Motion • Red Shift • The big bang Theory 	<ul style="list-style-type: none"> • Density • Fluids, viscosity and Stoke's law • Hookes Law • Young Modulus 	<p>Physics</p> <ul style="list-style-type: none"> • Models of the atom • Particle accelerators • Creation and annihilation • The standard model, baryons and leptons <p>Nuclear Radiation</p> <ul style="list-style-type: none"> • Binding energy • Gamma absorption and half thickness • Exponential decay
Summer 1			<p>Atomic Structure</p> <ul style="list-style-type: none"> • The structure of the atom • Isotopes • The plum pudding model • Rutherford, Giger and Marsden • Further Developments • Nuclear Decay • Alpha, Beta and Gamma Decay 	<ul style="list-style-type: none"> • Newton's First Law • Distance Time Graphs • Acceleration • Velocity time graphs • Newton's second law • Terminal velocity • Newton's third law • Momentum • Conservation of momentum • Stopping distances • Reaction times • Factors effecting breaking distances 		<p>Wave and Particle Nature of light</p> <ul style="list-style-type: none"> • Wave equation • Interference and superposition • Standing waves • Radiation intensity and energy transfer • Refraction, lenses and Snell's law • Diffraction and Huygen's construction • Photoelectric effect and quantum behaviour • Energy levels in atoms • Spectra and photons • De Broglie wavelength for 	<p>Oscillation</p> <ul style="list-style-type: none"> • Simple harmonic motion • Pendula and springs • Resonance and damping <p>Space</p> <ul style="list-style-type: none"> • Radiation intensity and luminosity • Parallax • The HR diagram • Life cycle of stars • Doppler effect, red shift and Hubble's law
Summer 2			<ul style="list-style-type: none"> • Radioactive contamination • Half life • Nuclear equations 	<p>Magnetism</p> <ul style="list-style-type: none"> • Magnetic poles and fields • Plotting fields • Electromagnetism and solenoids • Electromagnetic devices • Flemings left hand 			

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