

Curriculum Intent Physics: Students to learn, and understand, how the world around them works in terms of the physical sciences behind every day activities and scenarios, preparing them for either further study in A Level, or simply to better understand the mechanisms of the world via quantifiable measurements. This will enable students to develop the skill of using evidence and data to be able to question and critically evaluate different scenarios they may encounter in their lifetimes.

End Points for end of Year 11 Physics: Key knowledge – Skills – Character

Key Knowledge: Energy, Electricity, Forces, Waves, And Magnets

Skills: Investigative Skills (Required Practicals) Method Writing, Variable Identification, Evaluation of A Method. Maths Skills Algebra, Converting Units, Significant Figures, Standard Form, Graph Plotting and Analysing Graphs.

Character: Developing Independence And Resilience

Term	Module (number of lessons)	Essential Knowledge, Key words and skills learnt in this module (How this module contributes to the intent)	Links to Prior Learning	Links to future learning
Y10 Term 1	P4 Electric circuits (10/9 lessons)	- Circuit symbols - Current, potential difference and resistance and how these quantities behave - Dangers of electricity - Series vs Parallel circuits and their properties - The safe use of circuit components. Key words: Parallel, Series, Branch, Resistance, Current, Potential Difference, Component	Year 8 Circuits KS2 Circuits Mathematics: algebra – rearranging of equations	P5 Electricity in Home P15 Electromagnets KS5 AS level Electricity
Y10 Term 1	P5 Electricity in Home (6 lessons)	- The national grid - Energy resources (renewable vs non-renewable) and their pros and cons - Re-wiring of a plug - How countries produce and distribute energy	P4 Electric circuits Year 10 Year 9 P2 Energy Resources (power stations) Year 9 P1 Energy Stores and transfers Year 8 Energy	Being able to re-wire a plug at home Apprenticeships in Becoming an Electrician.

		Key words: National Grid, Transformer, Renewable, Non-Renewable		
Y10 Term 2	P6 Molecules and Matter (9 lessons)	- Properties of solids, liquids, gases - How energy changes cause changes in state - How to compare the density of different using abstract apparatus - Specific heat capacity and how this is affected by the properties of the object in question - How pressure can be changed by changing the temperature Key words: Specific Heat Capacity, Solid, Liquid, Gas, Evaporation, Condensation, Melting, Freezing, Sublimation, Resublimation. Density, Specific Latent Heat, Pressure, Temperature	Year 9 Atoms and the Periodic Table Year 8 Periodic Table Year 8 Separation Technique Year 7 Particle Model Year 8 Energy Year 9 Energy transfers and stores	KS4 Year 10 Chemistry (particle model)
Y10 Term 2	P7 Radioactivity (10/6 lessons)	- Properties of different types of radioactivity - The hazards of radioactivity - Half-life of radioactive objects - Problem solving; how to determine which radioactive source is emitting which type of radioactivity Key words: Alpha, Beta, Gamma, Half-Life, Ionisation, Penetration Power	Year 9 Atoms and the Periodic Table	A Level and University courses involving the health sciences; half life calculations for doses of medications for example. KS5 A level Nuclear Physics
Y10 Term 2	P8 Forces and Balance (10 lessons)	- Balanced vs unbalanced forces - Types of forces - How forces interact with each other - Scale Diagrams Key words: Newtons, Balanced, Unbalanced, Resultant Forces	Year 7 Forces Year 7 Space Year 9 P1 Calculating Work Done	Year 11 P10 KS5 A level Forces

Y10 Term 3	P9 Motion (5 lessons)	- How to calculate the speed of an object - Plotting and interpreting Distance – Time graphs (gradients) - Plotting and interpreting Velocity – Time graphs (gradients and higher only area under line) - Higher only Tangents to curves Key words: Speed, Velocity, Distance, Time, Acceleration, X-axis, Y-axis	Year 10 Forces and Balance Year 8 Speed and Motion Year 7 Forces Mathematics: interpreting data from graphs and calculating distances from v-t graphs	
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Y11 Term 1	P10 Forces and Motion (10/8 lessons)	- Calculating acceleration using Force and Mass - Variables for practical work - Terminal velocity and weight - Braking forces on vehicles - Momentum - Safety features of Cars - Forces and elasticity Key words: Newton, Moment, Pivot, Fulcrum, Momentum, Velocity, Mass, acceleration, Elastic, Plastic, Force	Year 10 P8 Year 10 P9 Year 7 Forces	Driving tests - stopping distances
Y11 Term 1 (Separate Sciences only)	P11 Forces and Pressure (5 lessons)	- Calculating Pressure as a measure of Force over area - Calculating pressure in Liquids - Atmospheric pressure - Changes in air density at different altitudes - Upthrust and Flotation Key words: Force, Area, Newton, Column, Fluid, Density, Gravitational	Year 10 P8 Year 7 Forces	

		Field Strength, Height, Pressure, Upthrust, Floatation,		
Y11 Term 1	P12 Wave properties (8 lessons)	- Types of waves - Features of each type of waves - Wave behaviours (reflection and refraction) - Practical investigation of wave behaviours - Calculating Wave speed - Soundwaves (separate sciences only) - Uses of ultrasounds (separate science only) - Seismic waves (separate sciences only) Key words: Reflection, Refraction, Mirror, Prism, Transverse, Longitudinal, Compression, Rarefaction, Amplitude, Wavelength, Frequency, Displacement, Energy, Transfer	Year 7 Sound Year 7 Light	Year 11 P13 topic Year 11 P14 Topic KS5 A level Waves and Wave Forms
Y11 Term 2	P13 Electromagnetic Waves (8 lessons)	- The Electromagnetic Spectrum - Uses of long wavelength radiations - How waves are used for communications - Uses of short wavelength radiations - Use of X-Rays in Medicine Key words: Ray-Diagram, Vacuum, Electromagnetic, Radiation, Wave, Transverse, Wavelength, Frequency, Radio Waves, Micro Waves, Infra-Red, Visible light, Ultra-Violet, X-Ray, Gamma-Ray	Year 11 P12 Year 9 P2 Energy Transfer By Heating Year 7 Light	Year 11 P14 KS5 A level Waves and Wave Forms

Y11 Term 2 (Separate Sciences only)	P14 light (6 lessons)	- Reflection - Refraction - Light addition and filters - Lenses and their uses Key words: Transverse, Ray-Diagram, Primary Colour, Secondary Colour, Convex, Concave, Converging, Diverging, Focal Length,	Year 11 P13 Year 11 P12 Year 9 P2 Energy Transfer By Heating Year 7 Light	KS5 A level Waves and Wave Forms
Y11 Term 2	P15 Electromagnetism (9/4 lessons)	- Permanent and Induced Magnets - Electromagnets - Motor Effect, Left Hand Rule - Generator effect (Separate Science) - AC Generators (Separate Science) - Transformers and associated calculations (Separate Science) Key words: North, South, Field Lines, Circuit, Fleming, Tesla, Magnetic, Flux Density, Force, Length, Current, Core, Solenoid, Coil, Primary, Secondary, Iron, Nickle, Cobalt	Year 10 P4 Electric Circuits Year 9 P3 Energy resources (Separate lessons only) Year 8 Electricity and Magnets	KS5 A level Electricity
Y11 Term 2 (Separate Sciences only)	P16 Space (6 lessons)	How the Solar system Formed The Lifecycle of a star Astral Bodies The Expanding Universe and the Evidence supporting the Big Bang Theory Key words: Planet, Star, Sun, Solar System, Galaxy, Universe, Cosmic Microwave Background Radiation, Doppler Effect, Red-Shift, Main Phase, Nebula, Red - Giant, Super Red Giant, White Dwarf, Black Dwarf, Super Nova, Black Hole	Year 10 P9 Year 10 P8 Year 8 Speed and Motion Year 7 Forces Year 7 Space	KS5 A level Astrophysics

Y11 Term 2	P17 Revision scheme	Revision and Retrieval of Core principles to achieve well in exams, exam technique also covered explicitly in this topic.	All Prior topics	
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