

INTENT-

- To develop knowledge and understanding of key scientific principles in the AQA Physics specification
- To gain proficiency of skills needed to complete assessment points and access various required practicals
- To gain confidence and enjoyment of the subject and inspire further study post-18

The bigger picture:

Year 13 curriculum is a continuance of the AQA AS Physics curriculum. Many concepts are revisited albeit in more detail to allow students an even deeper understanding of the topic. Students will develop key mathematical skills and problem solving skills in order to explain familiar and unfamiliar scenarios.

**Bilton School Planning for Progress over Time
Programme of Study 2024/25**

IMPLEMENTATION		Term 1 Fields and their Consequences, Further Mechanics and Thermal Physics								Term 2 Nuclear Physics + Astrophysics								Term 3 Astrophysics								Term 4								Term 5								Term 6						
	KS5	02/09/2024	09/09/2024	16/09/2024	23/09/2024	30/09/2024	07/10/2024	14/10/2024	21/10/2024	HOLIDAY: 1 WEEK	04/11/2024	11/11/2024	18/11/2024	25/11/2024	02/12/2024	09/12/2024	16/12/2024	HOLIDAY: 2 WEEKS	03/01/2025	06/01/2025	13/01/2025	20/01/2025	27/01/2025	03/02/2025	10/02/2025	HOLIDAY: 1 WEEK	24/02/2025	03/03/2025	10/03/2025	17/03/2025	24/03/2025	31/03/2025	07/04/2025	HOLIDAY: 2 WEEKS	28/04/2025	05/05/2025	12/05/2025	19/05/2025	HOLIDAY: 1 WEEK	02/06/2025	09/06/2025	16/06/2025	23/06/2025	30/06/2025	07/07/2025	14/07/2025		
	Year 13	L1 + L2 EFields + L1 + L2 Magnetic fields	L3 + L4 Magnetic fields + L5 Flux density RP + L6 Magnetic fields	Electric fields RP + Revise fields + Fields ET	L1 + L2 Circular Motion + L3 + L4 SHM	L4 SHM RC + L5 SHM + L6 + L7 SHM	L8 SHM + MT + L9 Thermal energy + Feedback	L10 + L11 Thermal energy + L12 + L13 Thermal energy	L14 Boyles law RC + L15 Gases + L16 F. Mechanics + Thermal Revision + ET		L1 + L2 Nuclear physics + L3 Inverse square RC + L4 Nuclear Physics	PPE 1 Revision + Capacitance RP	PPE1 /	PPE1 /	L5 Nuclear Physics+ MT + L6 + L7 Nuclear Physics + Feedback	L8 + L9 Nuclear Physics + Nuclear Physics Revision + ET	L1 +L2 Astrophysics + L3 + L4 Astrophysics		L5 + L6 Astrophysics + L7 + L8 Astrophysics	L9 + L10 Astrophysics + Astrophysics revision, Astrophysics ET	Paper 1 Revision	Paper 2 Revision	Paper 2 Revision	Paper 3 Revision	Paper 3 Revision			PPE2 /	PPE2 /	Required Practical revision / Catch-up	Required Practical revision / Catch-up	PPQ Paper 1	PPQ Paper 1	PPQ Paper 2		PPQ Paper 2	PPQ Paper 3	PPQ Paper 3										
	Progress and assessment	End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.																						
	Required Practical (RP)	<ul style="list-style-type: none"> Flux Density Flux Linkage Simple Harmonic Motion 								<ul style="list-style-type: none"> Inverse square law Boyles Law Capacitance 																																						
	Homework <small>(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)</small>	Up Learn to be used during study sessions.								Up Learn to be used during study sessions.								Up Learn to be used during study sessions.								Up Learn to be used during study sessions.																						

<p>Key Vocabulary/literacy opportunities</p>	<p><u>Fields and their Consequences -</u> Back Emf Capacitance, C Coulomb's Law Cyclotron Dielectric Electrical Conductor Electrical Insulator Electric Field Electric Field Strength, E (at a point in the field) Electric Potential, V (at a point in the field) Electromagnetic Induction Equipotential Escape Velocity Faraday's Law Field Line / Line of Force Force Field Geostationary Satellite Gravitational Field Gravitational Field Strength Gravitational Potential, V (at a point in the field) Gravitational Potential Energy Kepler's Third Law Lenz's Law Magnetic Field Magnetic Flux, ϕ Magnetic Flux Density, B Magnetic Flux Linkage, $N \phi$ Motor Effect Permittivity of free space, ϵ_0 Polarised Potential Gradient Radial Field Relative Permittivity Step-down Transformer Step-up Transformer Synchronous Orbit Time Constant Uniform Field</p> <p><u>Further Mechanics –</u> Angular Speed Centripetal Acceleration Centripetal Force Critical Damping Damping Forced Vibrations Free Vibrations Overdamping Radian Resonance Simple Harmonic Motion Underdamping</p> <p><u>Thermal Physics –</u> Absolute Zero Avogadro Constant Boltzmann Constant Boyle's Law Brownian Motion Charles' Law Ideal Gas</p>	<p><u>Nuclear Physics –</u> Activity Alpha Decay Atomic Mass Unit Background Radiation Beta Decay Binding Energy Chain Reaction Closest Approach Contamination Control Rods Coolant Critical Mass Electron Capture Fission Fusion Gamma Decay Half-Life Inverse Square-Law Mass Defect Moderator Radioactive Dating Radioactive Waste Random Nature of radioactive Decay Rutherford scattering</p> <p><u>Astrophysics –</u> Absolute Magnitude (M) Achromatic Doublet Apparent Magnitude (m) Arcsecond Astronomical Unit (AU): Big Bang Theory Binary Star System Black Body Radiator Black Hole Cassegrain Reflecting Telescope Charge-Coupled Device (CCD) Chromatic Aberration Collecting Power Concave/Diverging Lens Convex/Converging Lens Cosmological Microwave Background Radiation (CMBR) Doppler Effect Eclipsing Binaries Event Horizon Exoplanet Eyepiece Lens Focal Length (f) Hipparcos Scale Hubble's Law Hydrogen Balmer Spectrum Intensity Lens Power Light Year (ly) Long-Lived Gamma Ray Burst Luminosity Magnifying Power/Angular Magnification (M) Main Sequence Star Neutron Star Normal Adjustment Objective Lens</p>								
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	Kelvin Scale Molar Gas Constant Molar Mass Molecular Mass Pressure Law Specific Heat Capacity Specific Latent Heat State Changes	Parallax Parsec (pc) Primary Mirror Principal Axis Principal Focus (F) Protostar Quantum Efficiency Quasar Radial Velocity Method Rayleigh Criterion Real Image Red Giant Red Shift (z) Red Supergiant Reflecting Telescope Refracting Telescope Resolving Power Schwarzschild Radius (R S) Short-Lived Gamma Ray Burst Spectroscopic Binaries Spherical Aberration Stefan's Law Supernova Transit Method Type I Supernova Type Ia Supernova Type II Supernova Virtual Image White Dwarf Wien's Displacement Law						
Connected knowledge	KS3 – Magnetism and Electromagnetism, Electricity, Forces and Motion, Energy. KS4 – Magnetism and Electromagnetism, Electricity, Forces and Motion, Energy, Particle Model. KS5 – Electricity, Mechanics and materials	KS3 – Particles, Atoms and Elements. KS4 – Atomic Structure (P1). KS5 – Particles and Radiation, Waves.						
Spiritual, Moral, Social and cultural.		Understand the importance of the different parts of the EM Spectrum in everyday life along with the ethical and moral issues of the Ionising nature of some of the parts.	Understand how the collaboration of scientists has led to advancements in our understanding of space.					
British Values	Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.	Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.	Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.	Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.				

Cultural Capital	Science - Careers display on W side corridor. Understand how different theories link to the advancement of technologies in everyday life.	Science - Careers display on W side corridor.	Science - Careers display on W side corridor.	Science - Careers display on W side corridor.	Science - Careers display on W side corridor.	
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