Subject: Physics Y13

NPCAT Curriculum Overview 2021-2022

Teacher 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
End point	**To develop scientific knowledge and conceptual understanding of the following topics:**					
Teaching focus	**Module 5: Newtonian world and astrophysics**		**Module 6: Particles and medical physics**			
	5.4 Gravitational fields	**5.5 Astrophysics and cosmology**	**6.4 Nuclear and particle physics**	**6.5 Medical imaging**	**Revision**	**Exam window**
Rationale	This section provides knowledge and understanding of Newton's law of gravitation, planetary motion and gravitational potential and energy as well as an understanding of stars, Wien's displacement law, Stefan's law, Hubble's law and the Big Bang.		This section provides knowledge and understanding of the atom, nucleus, fundamental particles, radioactivity, fission and fusion as well as an understanding of X-rays, CAT scans, PET scans and ultrasound scans.			
Maths skills	M2.3	M1.4, M4.6	M0.4, M0.5, M1.3, M1.4, M2.5, M3.9, M3.12	M0.3, M0.5, M3.11		
Practical skills			Absorption of nuclear radiation			
Key Vocab	Equipotential, escape velocity	Luminosity, Hertzsprung-Russell, WIen	Antiparticles, binding energy, quarks, hadron, lepton,	Attenuation, PET, piezoelectric, acoustic impedance, impedance matching		
Summative assessment		AP1		AP2		

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Teacher 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
End point	**To develop scientific knowledge and conceptual understanding of the following topics:**					
Teaching Focus	**Module 6: Particles and medical physics**			**Module 2: Foundations of physics**		
	6.1 Capacitors	6.2 Electric fields	6.3 Electromagnetism		Revision	**Exam window**
Rationale	This section provides knowledge and understanding of capacitors and exponential decay.	This section provides knowledge and understanding of Coulomb's law, uniform electric fields, electric potential and energy.	This section provides knowledge and understanding of magnetic fields, motion of charged particles in magnetic fields, Lenz's law and Faraday's law.			
Maths Skills	M0.5, M2.5, M3.8, M3.9, M3.10, M3.11, M3.12		M0.3, M3.9	M0.1, M0.4, M0.6, M1.5, M4.2, M4.4, M4.5		
Practical skills	Charging and discharging capacitors					
Key Vocabulary	Capacitance, time constant	Coulomb's law, equipotential, permittivity	Flux, flux density, Weber, flux linkage, Faraday's law, Lenz's law			
Summative Assessment		AP1-		AP2 -		Mock All AS