THOMAS ALLEYNE'S HIGH SCHOOL

UTTOXETER LEARNING TRUST
INSPIRED TEACHING INSPIRING CHILDREN

Curriculum Overview for: Physics

Key Stage 5 Academic Year Group: 12

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Module 2-Foundation of Physics Module 3- Motion	Module 3- Forces Module 4- Charge, Current, Power and Resistance	Module 3 – Work Energy and Power Module 4- Electrical Circuits	Module 3- Materials Module 4- Waves	Module 3- Newton's Laws of Motion Module 4- Quantum Physics	Module 5- Thermal Physics Module 5- Circular Motion
Content	-Estimation -Uncertainties -Units -Vectors -Kinematics -Linear Motion -Projectile Motion	-Dynamics -Motion with non-uniform acceleration -Equilibrium -Denisty and Pressure -Charge -Current -EMF and PD -Resistance and Resistivity -Energy in circuits	-Work -Kinetic and Potential Energy -Power -Series and parallel circuits -Potential Dividers -Internal Resistance	-Springs -Mechanical Properties -Wave Motion -Electromagnetic Waves -Superposition and interference -Stationary Waves	-Newton's Laws -Collisions -Photons -Photoelectric Effect -Wave-Particle Duality	-Temperature -Solids, Liquids and Gas -Thermal Properties -Kinematics of circular motion -Centripetal Forces
Rationale/ Linking	Foundations work on vectors and units underpins many other topics throughout the course. Motion builds on GCSE work and provides a familiar environment to extend understanding into A-Level depth	Forces continues to build on prior work on motion, increasing in complexity Work on Electricity builds on prior GCSE work and underpins future work on quantum physics and capacitors	Having already studies a range of mechanical systems in Autumn,, these can now be analysed from an energy perspective. Electrical circuits (particularly work on internal resistance) is more complex than previous work on electricity and builds on the Autumn work.	Materials links to prior work on forces and looks at some applications of force. Waves builds on GCSE work on waves but goes into substantially more conceptual depth.	Newton's Laws and Collisions is more demanding than the previous work on forces and students benefit from their prior experience in handling vectors build up throughout the course so far. Quantum physics is a new topic which build on prior work on waves.	Thermal Physics supports future work on Astrophysics and Stars Circular Motion builds on prior understanding of force and motion and supports future topics on gravity, obrits and particles in magnetic fields
Assessment	Regular end of topic assessments Synoptic Assessment in January and June			**Learning Resources**		

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Curriculum Overview for: Physics

Key Stage 5 Academic Year Group: 13

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Module 5- Thermal Physics 2 Module 5- Oscillations and Gravitational Fields	Module 5- Astrophysics Module 6- Nuclear and Particle Physics	Module 6- Nuclear and Particle Module 6- Capacitors and Electric Fields	Module 6- Medical Physics Module 6- Electromagnetism	Revision	
Content	-Ideal Gases -Simple Harmonic Oscillation (SHM) -Energy in SHM -Damping and Resonance -Newton's Law of Gravity -Orbits -Gravitational Energy	-Stars -EM waves from stars Cosmology -The Atom -Fundamental Particles	-Radioactivity -Fission and Fusion -Capacitor charging and discharging -Energy in capacitors -Radial and Uniform electric fields -Electric Potential	-X-Rays -Diagnostic Methods -Ultrasound -Magnetic Fields -Motion of Charged particles in magnetic fields -Motors, Generators and Transformers		
Rationale/ Linking	Oscillations builds on prior understanding of circular motion and Gravitational Fields is needed for future study of orbits within astrophysics	Astrophysics demonstrates applications of lots or prior concepts including thermal physics, waves, gravity and circular motion Nuclear and Particle Physics underpins future work on medical imaging	Nuclear and Particle Physics und erpins future work on medical imaging Capacitors and electric fields are mutually complimentary, and both build on prior work on electricity in Y12. Electric fields also draw parallels with prior work on gravitational fields	Medical Physics uses aspects of Waves and Quantum physics from Y12 in addition to nuclear and particle physics from the previous topic. Electromagnetism builds on prior work on electricity in Y12 in addition to previous work on fields.		
Assessment	End of Topic Assessments Mock Exam in December (synoptic)			**Learning Resources**		