Physics Separate Science			
Year 10			
Modules taught on rotation in year 10 due to availability of resources. Note: KS3 links refer to the year 9 course that this year group previously studied			
Term 1 content and skills	**Term 2 Content and skills**	**Term 3 Content and Skills**	**Extended Curriculum (trips/visits/afterschool activities)**
Module 1: Energy 1 (Links to KS3 T10 and T23) • Changes in energy stores and conservation of energy • Energy and work • Gravitational potential energy • Kinetic energy • Elastic potential energy • Power and Efficiency **Module 1: Energy 2** (Links to KS3 T10 and T23) • Energy transfer **Required Practical** Investigation of the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a material. • Specific heat capacity **Required practical-** Specific heat capacity • National and global energy resources. **Module 2 Electric Circuits** (Links to KS3 T27 and T30) • Electrical charges and fields • Current and charge • P.D and resistance **Required Practical** How does resistance of a wire depend on its length? • Ohms law **Required Practical**			• IOP Careers • Isaac Physics • Medtech challenge – links to engineering, design + tech, business skills. Provide industry mentor. • Stem Club • Launchpad- working with Form the Futures and local industry • Engineering Club • STEM leaders

Use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements including a filament lamp, a diode and a resistor at constant temperature. • LDRs and thermal resistors • Series and parallel circuits • National grid and plugs • Electric power • Generators **Module 3: Particle Model of Matter** (Links to KS3 T3 and T26) • Density of materials **Required practical** Use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids. • Changes of state and specific latent heat • Particle model and pressure • Gas laws- Boyles law • Gas laws gas pressure and volume **Module 4 Atomic Structure and radioactivity** (Links to KS3 T3 and T12) • Atoms and isotopes (Links the Chemistry GCSE) • History of the atom (same content as chemistry) • Nuclear decay and nuclear equations • Half life • Uses and risks of radiation • Radioactive contamination • Nuclear fission and Nuclear fusion	
Assessment: A key skills set task per topic (based on practical work, numeracy, data analysis or literacy), end of topic test (which can be open book or closed book). Additionally low stakes testing (eg Microsoft forms quizzes, exam questions etc) are used within lessons.	

Assessment: End of term closed book written test	**Assessment:** End of term closed book written test	**Assessment:** End of term paper 1 exam	

Physics Separate Science			
Year 11			
All topics taught on rotation due to availability of resources			
Term 1 content and skills	**Term 2 Content and skills**	**Term 3 Content and Skills**	**Extended Curriculum (trips/visits/afterschool activities)**
Module 5 Forces Part 1 (links to T19 to maths curriculum) • Scalar and vector quantities • Acceleration • Distance and time graphs • Velocity and time graphs • Contact and non contact forces • Resolving forces- Newtons 1st law • Newtons 2nd Law **Required Practical** Investigate the effect of varying the force on the acceleration of an object of constant mass and the effect of varying the mass of an object on the acceleration produced by a constant force • Stopping distances • Weight and Gravity • Resultant forces • Terminal velocity **Module 5 Forces part 2** (links to T19 to maths curriculum) • Momentum	**Module 6 Waves part 1** (Links to T13) • Properties of a wave • Wave calculations **Required Practical** Make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid and take appropriate measurements. • Reflection and refraction (H only) • Sound waves and ultrasonics • Sesimic waves • **Module 6 Waves part 2** (Links to T13 and GCSE Biology Module 5) • EM spectrum • Communications (H) • IR Radiation **Required Practical**	**Module 7 Magnetism and Electromagnetism** (Links to T30) • Magnetic fields • Motors and the motor effect • Electromagnetism - Fleming's left-hand rule • *Generators* • *Transformers* • *Uses of the generator effect Microphones* **Module 8 Space Physics** (Links to T7 and Chemistry GCSE Module 8) • Our solar system • Planets satellites and orbits • The expanding universe • The beginning and future of the universe • The life cycle of a star • red-shift • Natural and artificial satellites	• IOP Careers • Isaac Physics • Stem Club • Engineering CLub

• Conservation of momentum • Newtons 3rd Law • Elasticity **Required practical** Investigate the relationship between force and extension for a spring. • Pressure on surfaces • Pressure on fluids- Upthrust • Pressure on Fluids- Atmospheric pressure • Moments, levers and gears Moments • Levers and gears	Investigate the reflection of light by different types of surface and the refraction of light by different substances. • Emission and absorption of infrared radiation **Required Practical** Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface • Light and colour **Required practical-** Reflection and refraction • Lenses		
Assessment: A key skills set task per topic (based on practical work, numeracy, data analysis or literacy), end of topic test (which can be open book or closed book). Additionally low stakes testing (eg Microsoft forms quizzes, exam questions etc) are used within lessons.			
Assessment: Low stakes Microsoft Forms quizzes throughout all topics. Open book end of topic tests and Interim exam on paper 1 content	**Assessment:** Low stakes Microsoft Forms quizzes throughout all topics. Open book end of topic tests and Mock exam on Paper 2 content	**Assessment:** Low stakes Microsoft Forms quizzes throughout all topics. Open book end of topic tests and GCSE exams	