Sir William Ramsay School

EMPOWERING EVERYONE TO ACHIEVE

Curriculum Map for Triple Science Physics Year 11

YEAR 11	Autumn 1 & 2
Topics	**Forces**
Substantive Knowledge – The Knowledge and Content Taught By The Teacher	• Students will learn how terminal velocity is affected by weight and the particles surrounding an object. • Students will learn about impact forces and safety technology in cars. • Students will learn about the pressure in solids, liquids and gases and the impact this can have on humans completing sports at different altitudes and flying.
Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence	• Boyle's Law and its Development • Newton's 3 Laws of Motion and Development in Relation to Topics • Hooke's Law and Development
Skills	• Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts. • Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions.
Links To Prior Learning	• Forces in Years 7, 8 & 10
Literacy/ Numeracy	• Numerical Calculations and Graph Work Throughout • Use an Appropriate Number of Significant Figures in Calculation • Analysing Motion Graphs • Interpreting Force Diagrams • Rearranging Equations
Cross Curricular	• PSCHE - Water Safety • Geography - Using Forces to Determine Pressure Changes, Weather etc
Assessment	• Forces Assessment

YEAR 11	Spring 1 & 2 Summer 1
Topics	**Magnetism & Electromagnetism** **Whole Syllabus Review & Revision**
Substantive Knowledge – The Knowledge and Content Taught By The Teacher	• Students will learn how magnets are made and how they are affected by the Earth's magnetic field. • Students will make electromagnets and look at their uses in industry. • Students will learn about the motor and generator effects and again their uses in a wide range of situations. • Students will learn about transformers in the National Grid, and how these work to help improve the electricity efficiency in the UK.
Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence	• History of left and right-hand rule. • History of magnetic fields and earth's magnetic field and use of compasses.
Skills	• Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena. • Explain every day and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments.
Links To Prior Learning	• Magnetism and Electromagnets in Year 8 • Electricity in Year 10 Spring Term
Literacy/ Numeracy	• Calculations and Rearranging Equations
Cross Curricular	• Technology - Magnetism • Geography - Compass Work • PSCHE - Saving the Planet and using Maglev Trains Over Coal Fired
Assessment	• Magnetism and Electromagnetism Assessment