

Key Stage 4

Subject: Physics

Intent

In Physics our students build upon the knowledge they have learnt in KS3 and begin to think deeper about concepts such as forces, energy, and waves. We investigate the motor effect and how this allows us to transfer electrical energy into kinetic energy. We look at the structure of atoms and radioactivity and their use as an energy source and delve into the working of the solar system and our surrounding galaxies.

Many of our students move on to A-levels in Physics and numbers have been increasing year on year. We have also had numerous students study physics and their related courses at university.

Programme of study and assessment

	Autumn Term	Spring Term	Summer Term
Year 10	<u>Energy</u> <u>Electricity</u> <u>Particle Model</u>	<u>Atomic Structure</u> <u>Forces</u>	<u>Waves</u> <u>Magnetism</u>
Assessment	<u>Written Test 1</u> <u>Energy</u> <ul style="list-style-type: none"> • Energy Equations • Specific Heat Capacity • Energy and Power <u>Multiple Choice Test 1</u> <u>Electricity and Particle Model</u> <ul style="list-style-type: none"> • Resistance • Electrical Sensors • Latent Heat • Pressure • Density 	<u>Multiple Choice Test 2</u> <u>Atomic Structure</u> <ul style="list-style-type: none"> • Development of the Atomic Model • Isotopes • Introduction to Radioactivity <u>Written Test 2</u> <u>Forces</u> <ul style="list-style-type: none"> • Resultant Forces • Newtons Laws • Momentum Work Done	<u>Multiple Choice Test 3</u> <u>Waves and Magnetism</u> <ul style="list-style-type: none"> • Electromagnetic Waves • Infrared Radiation • Reflection and Refraction of Light • Magnetic fields around wires • Electromagnets • The motor effect <u>End of Year Assessment</u> <u>ALL TOPICS TESTED</u>
Year 11	<u>Electricity</u> <ul style="list-style-type: none"> • Series and Parallel Circuits • Electrical Safety 	<u>Magnetism</u> <ul style="list-style-type: none"> • Electromagnetic Induction • Transformers 	

	<ul style="list-style-type: none"> • The National Grid <u>Atomic Structure</u> <ul style="list-style-type: none"> • Nuclear decay equations • Half-Life • Nuclear Energy 	<u>Space*</u> <ul style="list-style-type: none"> • The solar system • Life cycle of stars • Big bang theory • Red shift • Centripetal force 	
Assessment	<u>Full Mock Paper 1</u> <u>Topics include:</u> <ul style="list-style-type: none"> • Energy • Electricity • Particle Model • Atomic Structure 	<u>Full Mock Paper 2</u> <u>Topics include:</u> <ul style="list-style-type: none"> • Forces • Waves • Magnetism • Space* 	<u>Summer Exams</u>

*Triple Only