



Year 13 Physics



What have students at St. Crispin's been taught to understand and be able to do?

Core Knowledge

Module 5 - Newtonian world and astrophysics

The aim of this module is to show the impact Newtonian mechanics has on Physics. The microscopic motion of atoms can be modelled using Newton's laws and hence provide us with an understanding of macroscopic quantities such as pressure and temperature. Newton's law of gravitation can be used to predict the motion of planets and distant galaxies. In the final section we explore the intricacies of stars and the expansion of the Universe by analysing the electromagnetic radiation from space. As such, it lends itself to the consideration of how the development of the scientific model is improved based on the advances in the means of observation.

In this module, learners will learn about thermal physics, circular motion, oscillations, gravitational field, astrophysics and cosmology.

5.1 Thermal Physics

5.2 Circular motion

5.3 Oscillations

5.4 Gravitational fields

5.5 Astrophysics and cosmology.

Module 6 - Particles and medical Physics

This section introduces the basic properties of capacitors and how they are used in electrical circuits. The use of capacitors as a source of electrical energy is then developed. This section introduces the mathematics of exponential decay, which is also required for the decay of radioactive nuclei in nuclear and particle Physics.

Core Skills

Module 1 - Development of practical skills in Physics

Practical skills assessed in a written examination.

Practical skills assessed in the practical endorsement.

Physics is a practical subject. The development and acquisition of practical skills is fundamental. The Physics A-Level course provides learners with the opportunity to develop experimental methods and techniques for analysing empirical data. Skills in planning, implementing, analysing and evaluating, as outlined in **1.1**, will be assessed in the written papers.



Year 13 Physics continued



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This section provides knowledge and understanding of capacitors and exponential decay.

Experimental work provides an excellent way to understand the behaviour of capacitors in electrical circuits and the management of safety and risks when using power supplies. There are many opportunities for learners to use spreadsheets in the analysis and presentation of data. The varied uses of capacitors give the opportunity for the consideration of their use in many practical applications.

6.1 Capacitors

6.2 Electric fields

6.3 Electromagnetism

6.4 Nuclear and particle physics

6.5 Medical imaging.

How has learning been assessed?

Students will complete regular chapter tests. This develops writing ability and helps to identify gaps in knowledge.

Students will also complete a summative written mock exam twice a year.

What is coming up in the following year?

Many students will use their A-Level Physics to gain entry into University courses studying Physics, Maths and other related courses such as Engineering and computer science which require an understanding of Physics.