Physics

Examination Board: OCR Physics A

Entry Requirements:
Students should have a GCSE Grade B in Physics or a B in both Core and Additional Science **and** GCSE Grade 6 in Mathematics. It is not a requirement of the course for students to study A-level Maths, although many students find both subjects very complimentary.
If you have concerns about entry requirements please speak to Mr Brown

Why study Physics?
Physics is an exciting and fast moving area of science which enables students to challenge their understanding of the world around them. An A-Level in Physics will open doors to many science and non-science careers. Employers are always looking for numerate employees, and university science and engineering courses rate a Physics qualification very highly.

Course Content:
Year 1
Development of practical skills in physics - Physics is a practical subject. The Physics course provides you with the opportunity to develop experimental methods and techniques for analysing empirical data.

Foundations of physics - Understanding of physical quantities, S.I. units, scalars and vectors helps physicists to effectively communicate their ideas within the scientific community.

Forces and motion - In this module, you will learn how to model the motion of objects using mathematics, understand the effect forces have on objects, learn about the important connection between force and energy, appreciate how forces cause deformation and understand the importance of Newton's laws of motion

Electrons, waves and photons - In this module, you will learn about electrons, electric current, electrical circuits, wave properties, electromagnetic waves and, of course, quantum physics.

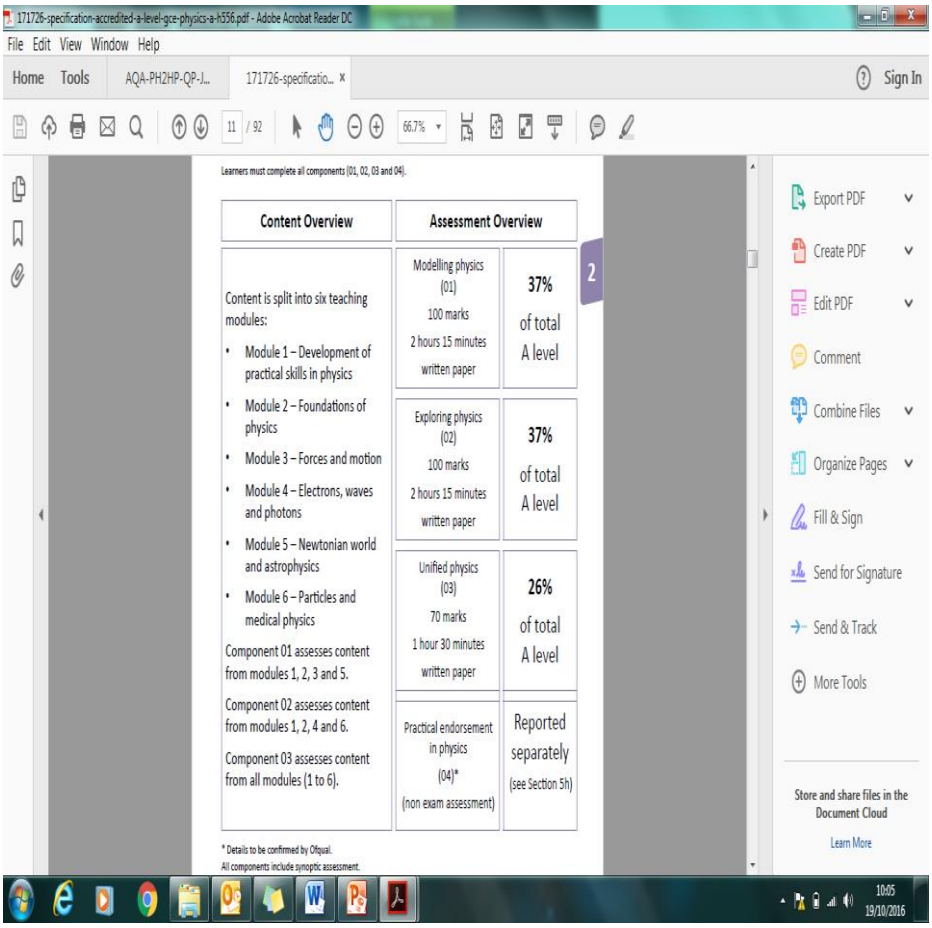
Year 2

Newtonian world and astrophysics - With Newtonian mechanics we can model the microscopic motion of atoms to help us understand macroscopic quantities such as pressure and temperature. In Astrophysics we predict the motion of planets and distant galaxies and explore the intricacies of stars and the expansion of the Universe.

Particles and medical physics You will learn the basic properties of capacitors and gain a knowledge and understanding of Coulomb's law, electric fields, magnetic fields, Lenz's law and Faraday's law. In Nuclear Physics you study the atom, nucleus, fundamental particles, radioactivity, fission and fusion. Medical imaging explains X-rays, CAT scans, PET scans and ultrasound scans.

Physics (continued)

Assessment:
As a linear course, students will complete three written exams at the end of year 2. Question styles include multiple choice, short answer (structured questions, problem solving, calculations, practical) and extended response questions. Practical work will be assessed through an endorsement, but practical work will not count towards final grade. Please see summary table below:



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Learners must complete all components (01, 02, 03 and 04).

Content Overview	Assessment Overview	
Content is split into six teaching modules: • Module 1 – Development of practical skills in physics • Module 2 – Foundations of physics • Module 3 – Forces and motion • Module 4 – Electrons, waves and photons • Module 5 – Newtonian world and astrophysics • Module 6 – Particles and medical physics Component 01 assesses content from modules 1, 2, 3 and 5. Component 02 assesses content from modules 1, 2, 4 and 6. Component 03 assesses content from all modules (1 to 6).	Modelling physics (01) 100 marks 2 hours 15 minutes written paper	37% of total A level
	Exploring physics (02) 100 marks 2 hours 15 minutes written paper	37% of total A level
	Unified physics (03) 70 marks 1 hour 30 minutes written paper	26% of total A level
	Practical endorsement in physics (04)* (non exam assessment)	Reported separately (see Section 5h)

* Details to be confirmed by Ofqual.
All components include synoptic assessment.

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Further Course Information:
See Mr Brown or email jbrown@stm.beds.sch.uk

Future Uses:

Physics is a highly valued A-Level due to the academic rigour associated with the subject and the need to develop a logical approach to solving a wide range of problems associated with the physical world. Physics can lead on to study of a vast range of further courses and careers such as Astrophysics, Mechanics, Engineering, Electronics and Optics. It supports applications to do other Natural Sciences (e.g. Chemistry and Biology) as well as Medicine, other Medical degrees, and mathematics.