

Physics

Intent:

Physics is the natural science that studies matter, its motion and behaviour through space and time, and that studies the related entities of energy and force. Physics is one of the most fundamental scientific disciplines, and its main goal is to understand how the universe behaves. Physics generates fundamental knowledge needed for the future technological advances that will continue to drive the economic engines of the world.

The intent of our Physics courses are to provide the kinds of knowledge and understanding that might be useful to anyone in interpreting and reaching an informed view on matters concerning science and technology that they might encounter in everyday life.

Through the exploration of Physics, pupils will have the opportunity to develop critical thinking skills that will enable them to be scientifically literate citizens who can engage with information about science and make informed choices for themselves and others. Furthermore, through different types of enquiries to answer scientific questions about the world around them.

The Physics course is based upon the AQA Key Stage 3 National Curriculum and aims to spiral ideas and concepts upwards into the GCSE program of study.

At Key stage 3, pupils will study: Forces and Universe, Heating and Energy, Sound and Light, Magnets and Electricity and Forces in Action. (approx. 18 lessons in length)

At Key stage 4, pupils will study: Energy, Particles, Radioactivity, Wave Properties, The Electromagnetic Spectrum, Forces and Motion, Forces: Stretching and Pressure, Magnets and Space.

At Key stage 5, pupils will study: Foundations of Physics, Forces and Motion, Electrons, Photons and Waves, Newtonian World and Astro-Physics and Particles and Medical Physics. The course has a strong emphasis on the Practical Endorsement where pupils will develop skills, and are assessed on their ability to record, process and evaluate data systematically and independently.

Implementation:

We deliver the Physics curriculum using a scaffolding and hierarchical approach, whereby pupils of all ranges of ability have an entry point to learning and can access the curriculum. Stretch and challenge is integrated in teaching and planning. The Physics faculty has tailored the GCSE specification to suit a large range of abilities and resources are selected to suit the ability of the classes in line with their aspirational targets.

The schemes of work for years 7-11 have been designed to include explicit learning linked to ensuring pupils are equipped with the knowledge, skills, and techniques to succeed in GCSE Physics to infinity and beyond.

Assessment at Key stage 3: As each year group studies two Physics topics per year in every topic the intention is that pupils are given feedback via dot-marking tasks in addition to a range of SMART marking techniques and one summative assessment based on the Know/Develop, Explain/Secure and Apply/Extend model based on the AQA and Activate programs.

Assessment at Key stage 4: Pupils study Physics for four lessons a fortnight in ability groups with a specialist teacher.

Formative assessment tasks aim to capture 6-8 lessons worth of learning to identify misconceptions, check progress against essential skills e.g. numeracy, literacy, exam technique and required practicals. Pupils will receive dot-marking feedback during this time so that they have a clear idea of where they are, and what to do to improve. Summative assessments take the form of Kerboodle end of topic tests and pupils' progress is monitored via centralised tracker marking sheets.

Assessment at Key stage 5: Students studying the OCR A specification and have regular opportunities to receive feedback, however we actively encourage them to become more independent learners. The mark schemes attached to HL tasks aim to identify misconceptions, mistakes, and skills to practice. This flipped learning approach encourages students to take control of their learning via the study / answer / mark / evaluate feedback loop.

Progress is also monitored after each assessment and monitored to inform teaching and planning and intervention is put in place by individual teaching as needed.

Impact:

Upon leaving St Bede's pupils will have sat either a double science GCSE or a triple science Physics qualification after their experience at KS3. By studying physics we hope that students will be fully equipped with the knowledge necessary to make informed decisions about our world. We also believe our rigorous and engaging curriculum inspires students to take physics for further study.

Most of our students take the triple science Physics due to our large quantity of high attainers, however, sometimes the impact of Physics is difficult to measure, as their perception changes once their mathematical skills have caught up, and they can be engaged and challenged to engage in the Physics that features in their everyday lives.

We feel that pupils enjoyment of Physics is reflected in excellent GCSE results (96% achieving 9-4 and 36% achieving 7-9), and A level results (Average grades C+).

We look to enrich students experience of Physics via Extra-curricular activities including visits, competitions and lectures.