



Physics

Curriculum Intent

Key Stage 4

We aim to build on the skills developed at Key Stage 3 as the complexity of practical skills, mathematical techniques and concepts become more complex.

In the Spring term of Year 9, we begin with the less mathematical topics of Energy stores and Space. Energy is a topic that is fundamental to many other areas and Space tends to fascinate many students so builds their enthusiasm.

At the start of year 10, we begin with Forces. This is a topic that is built upon further into the course and also introduces the mathematical nature of Physics. The Electricity topic comes next and covers some of the simpler abstract concepts. Current Electricity becomes more complex and abstract with a significant practical element, followed by Energy 2, with the maths ramped up. This trend of raising complexity continues, with Radioactivity and Electromagnetism near the end of the course.

Key Stage 5

We begin with Foundations of Physics as we have found students make better progress when actually taught this as a topic rather than developing the skills throughout the course. At the same time, they study electricity as it follows on seamlessly from GCSE and is one of the less mathematically challenging topics. Forces and Motion, and Quantum are taught near the end of Year 12 as they are more challenging topics.

This increasing in complexity continues through Year 13 with Capacitors, Radioactivity and Electromagnetism taught at the end of the course.

Curriculum Implementation

Key Stage 3

Year 9

Key Stage 4: GCSE (AQA)

- Energy Stores
- Space

Year 10

- Forces
- Current Electricity
- Energy 2
- Mains Electricity
- Motion
- Atoms

Year 11

- Force, Motion and Momentum
- Waves
- Electromagnetic Spectrum
- Space 2
- Particles
- Electromagnetism

Key Stage 5: A Level (OCR A)

Year 12

- Foundations of Physics
- Waves
- Electricity
- Forces and Motion
- Quantum Physics
- Materials
- Energy
- Astrophysics and Cosmology
- Medical Physics

Year 13

- Particles
- Circular Motion and Oscillations
- Thermal Physics
- Fields
- Electromagnetism
- Capacitors
- Radioactivity
- Cosmology

Impact

Key Stage 4

By the end of year 11, students have:

- Studied all the topics included in the specification
- Gained confidence and competence in manipulating equations, converting to SI units, including units in their answer
- Gained an understanding of the concepts, often abstract, covered in Physics
- Be competent in using a range of apparatus, including data loggers to investigate relationships and gather data
- Gained knowledge of how Physics is useful in the outside world, including an awareness of careers where a knowledge of Physics is useful.
- Gain skills for answering exam style questions, to include carefully reading the question, extracting the important parts, carrying out a calculation and considering the answer is reasonable, or giving an explanation in sufficient detail for the marks available,
- Have sufficient knowledge to make an informed decision about continuing the subject to A Level

We will monitor progress of all students, in particular to ensure PP and SEND students meet expectations and have additional support as necessary. All lessons will include a selection of several from the following:

- Experiment
- Group work
- Discussion
- Screen presentation shared electronically
- Work in the booklets, with the booklets shared electronically
- Demonstration

This is to make understanding the concepts accessible to all students, whatever their preferred learning style.

Key Stage 5

- Studied all the topics included in the specification
- Gained confidence and competence in manipulating the more complex equations in A Level
- Gained a deep understanding of the concepts, often abstract, covered in Physics
- Be competent in using a wide range of apparatus, including data loggers to investigate relationships and gather data. Also using IT to process and present the data
- Gain skills for answering exam style questions, to include carefully reading the question, extracting the important parts, carrying out a calculation and considering the answer is reasonable, or giving an explanation in sufficient detail for the marks available,
- Gain the skills to work and study independently and as part of a team

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