SCIENCE (PHYSICS)

Exam Board: AQA

Aims
Physics is taught in progressively greater depth over the course of Key Stage 3 and Key Stage 4. GCSE outcomes may reflect or build upon subject content which is typically taught at Key Stage 3. There is no expectation that teaching of such content should be repeated during the GCSE course where it has already been covered at an earlier stage.
GCSE study in physics provides the foundations for understanding the material world. Scientific understanding is changing our lives and is vital to the world's future prosperity, and all students should be taught essential aspects of the knowledge, methods, processes and uses of science. They should be helped to appreciate how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are both inter-linked, and are of universal application. These key ideas include:

- the use of models, as in the particle model of matter or the wave models of light and of sound
- the concept of cause and effect in explaining such links as those between force and acceleration, or between changes in atomic nuclei and radioactive emissions
- the phenomena of 'action at a distance' and the related concept of the field as the key to analysing electrical, magnetic and gravitational effects
- that differences, for example between pressures or temperatures or electrical potentials, are the drivers of change
- that proportionality, for example between weight and mass of an object or between force and extension in a spring, is an important aspect of many models in science
- that physical laws and models are expressed in mathematical form.

These key ideas are relevant in different ways and with different emphases in biology, chemistry and physics: examples of their relevance are given below for physics. GCSE specifications in Physics should enable students to:

- develop scientific knowledge and conceptual understanding of physics
- develop understanding of the nature, processes and methods of physics
- develop and learn to apply observational, practical, modelling, enquiry and problem-solving skills, both in the laboratory, in the field and in other learning environments
- develop their ability to evaluate claims based on physics through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

Physics should be studied in ways that help students to develop curiosity about the natural world, insight into how science works, and appreciation of its relevance to their everyday lives. The scope and nature of such study should be broad, coherent, practical and satisfying, and thereby encourage students to be inspired, motivated and challenged by the subject and its achievements.

Assessment
Two exams to be taken at the end of the course Assessment will be focused on AQA's three criteria:
AO1) Demonstrate knowledge and understanding of: scientific ideas, scientific techniques and procedures
AO2) Apply knowledge and understanding of: scientific ideas, scientific techniques and procedures
AO3) Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures.

Papers

Physics Paper 1 (50% of grade)
Paper 1 covers a variety of topics such as energy, electricity, particle model of matter and atomic structure. The questioning styles used on this paper is a mixture of multiple choice, structured, closed short answer, and open response and lasts 1 hour and 45 minutes.

Physics Paper 2 (50% of grade).Physics paper 2 covers a variety of topics such as forces, waves, magnetism and electromagnetism and space. The questioning styles used on this paper is a mixture of multiple choice, structured, closed short answer, and open response and lasts 1 hour and 45 minutes.
As well as assessments students will be carrying out required practicals to help further enhance their knowledge and skills.

Working Scientifically

This skillset flows throughout the course asking students to develop their understanding and knowledge of scientific thinking. These skills are broken down into the following categories:

1. Development of scientific thinking
2. Experimental skills and strategies
3. Analysis and evaluation
4. Scientific vocabulary, quantities, units, symbols and nomenclature

Lower School Teaching Staff
Danielle Taggart
Ben Van Uchelen

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Programme of Study

Autumn Term 1 ● P1: Energy ● P2: Electricity	**Autumn Term** 2 ● P3: Particle model of Matter ● P4: Atomic Structure
Spring Term 3 ● P5: Forces ● P6 Waves	**Spring Term** 4 ● P6: Waves ● P7: Magnetism and Electromagnetism ● P8: Space
Summer Term 5 ● Exam Technique and revision	**Summer Term** 6 n/a