

CURRICULUM OVERVIEW **KS3 SCIENCE**

Purpose of the Curriculum

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics.

Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils will be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They will be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, analyse causes, encourage creativity and problem solve.

KEY LEARNING OBJECTIVES

Develop scientific knowledge and conceptual understanding through the specific disciplines of biology (organisms, ecosystems, genes.), chemistry (matter, reactions, earth). and physics (forces, electromagnets, energy waves)

Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.

Pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Practical skills, application of logical method and critical analysis of data are key skills which are assessed heavily in Science at GCSE and Further Education.

Improvements to graphs, tables, data collection, practical performance, ability to debate an issue from both sides of an argument etc. are key.

In Science there are 10 topics per year with a summative test at the end of each half term/block. These are to assess whether students have met the learning objectives. Other forms for this purpose include; formative assessments throughout topics. Discussion. direct teacher questioning. quiz style questions., presentations, show me, technology based learning - Quizlet, Kahoot, Educake.

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KEY CONCEPTS

The principal focus of the key stage 3 Science curriculum is to develop a deeper understanding of a range of scientific ideas in the subject disciplines of biology, chemistry and physics. Pupils should begin to see the connections between these subject areas and become aware of some of the big ideas underpinning scientific knowledge and understanding. Key concepts are tracked from KS2 into KS4, following these key spiral threads.

E.g links between structure and function in living organisms, the particulate model as the key to understanding the properties and interactions of matter in all its forms, and the resources and means of transfer of energy as key determinants of all of these interactions.

Pupils should understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review. Pupils will go through a process of experimentation or investigation to prove/disprove a hypothesis or theory.

SEQUENCE OF LEARNING

The Science curriculum describes a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. An equal diet of Biology, Chemistry and Chemistry is encouraged as an ongoing block system as follows:

AUTUMN: Forces, Matter, Organisms

SPRING: Electromagnets, Reaction, Genes

SUMMER: Ecosystems, Waves, Energy, Earth

The topics are organised in this order as a lot of the lessons in forces for example are linked to maths and their maths curriculum. We work closely with the maths department to ensure that students have transferable skills.

Matter is the “building block” to all the other Science specific lessons. Without students having knowledge about solids, liquids and gases, changing state, atoms etc they will find progression throughout the other topics at KS3 more challenging.