

SCIENCE

Teacher in charge – Mrs S. Pearson

Aim

The Science curriculum we are following in Year 9 is Exploring Science. This course provides a broad and balanced delivery of science content in a way that is meaningful to pupil's lives. Interwoven into the course are aspects of 'Working Scientifically', where pupils learn how science works in the commercial world and how literacy and numeracy conventions are a vital part of successful scientific communication and collaboration. In Year 9 pupils continue to develop the skills, concepts and knowledge they will need to allow them to be well equipped for their GCSEs in Years 10 and 11.

Course Content

GENETICS & EVOLUTION

Pupils explore the differences between environmental and genetic variation. They will gain an understanding of the structure of DNA, how it functions and historical aspects of its discovery. Pupils will consider the evidence for evolution by Natural Selection and discuss factors contributing to species extinction.

PLANT GROWTH

Pupils will gain a deeper understanding of important chemical reactions in plants and how plant products are used. Pupils will investigate how plants are adapted to different conditions and how farmers make use of these features in their crop breeding and plant nutrition. Pupils will gain a deeper insight into different farming systems and be able to debate pros' and cons' of each.

MAKING MATERIALS

Pupils will gain an impression of what it is to be a materials scientist. Through practical investigation and research they will explore the properties of materials such as ceramics, polymers, and composites, and become skilled at matching material property to end use. Pupils will also explore the environmental implications of using certain materials and understand the importance of regulation and responsible practice.

REACTIVITY

Pupils will build on work undertaken in Year 8 and delve further into the nature of explosions and why some chemicals behave this way. They will conduct investigations to explore patterns in the Periodic Table. Pupils will also explore energy changes in chemical reactions and apply their chemical understanding to the extraction of metals.

FORCES & MOTION

Pupils take their knowledge and understanding of this aspect of Physics further by investigating how forces cause objects to behave and what happens when forces are balanced and unbalanced. Energy transfers are linked to the changes in motion and Maths skills are employed to analyse data and test relationships.

FORCE FIELDS & ELECTROMAGNETS

Pupils consider the different type of force fields and the impact they have. The phenomena of electricity are explored in terms of static, current electricity, resistance, and electromagnetism. Pupils will learn to relate the science ideas they have explored to real life contexts such as Space exploration.

Range of Activities

Each topic of work covers the standard of National Curriculum subject matter and at the same time develops one or more process skills. This could involve pupils in investigatory work or may require group discussion or presentation. Pupils may be asked to apply what they have learnt, evaluate or interpret their own or secondary sources of data or make predictions or hypotheses about more familiar situations.

Homework

There is one science homework task each week. This will seek to consolidate understanding of key ideas or applying their knowledge in new areas. Homework will be set via an online app called Educake.

Assessment Procedures

As well as regular informal assessment during lessons, there will be a test at the end of each unit to assess pupils' knowledge and understanding.

Pupils will also complete two internal end of Key Stage examinations in February which will test **all** their Key Stage 3 Science knowledge. The first assesses pupils' aptitude in aspects of working scientifically. The second test is a rigorous assessment of subject knowledge across the key stage.

Pupils will then commence their GCSE studies, focusing on introduction units in Biology, Chemistry, and Physics.