Curriculum Overview

Curriculum Leader: Mr. Smith Subject: Science - Chemistry Year: 7

Year 7 Curriculum:

Autumn Term:

Introduction to the scientific method

All pupils will develop their core disciplinary knowledge of how science works in the real world, in relation to the scientific method and investigations. Pupils will be able to identify and safely use different apparatus, for both measuring, heating and mixing, and will be able to define and identify variables in different scientific contexts. Pupils will start to develop their understanding of the stages of planning a scientific investigation, focusing on variables and fair testing, and will put all of their learning into practice by carrying out an investigation into heating.

Autumn Term:

Particles, substances and separation techniques: Fundamentals

All pupils will develop their core substantive knowledge focusing on properties of the different states of matter (solid, liquid and gas) in terms of the particle model. They will be able to identify and describe specific properties of each state of matter in terms of particles in motion but with differences in the arrangement and movement of these same particles. All pupils will be able to identify changes in state and describe in terms of particles gaining and losing energy, as well as represent these changes using particle diagrams. All pupils will develop their core substantive knowledge focusing on the concept of a pure substance. They will be able to confidently identify pure substances and describe the relationship between a mixture and a pure substance. Developing their core substantive knowledge pupils will explore simple techniques for separating mixtures including filtration, evaporation, distillation and chromatography.

All pupils will develop core disciplinary knowledge in presenting observations and data using tables.

Links to National Curriculum

Our Year 7 Science Chemistry curriculum is carefully sequenced to build on the KS2 knowledge of **properties and changes of materials** by describing the chemical world through the KS3 concept of **particulate nature of matter.** This fundamental concept is continually used and built upon throughout the year to allow all pupils to learn about **Pure and Impure substances** that leads to the fundamentals of **atoms, elements and compounds** which in turn allows all pupils to learn the fundamentals of **chemical reactions**.

Our Year 7 Science curriculum ensures that over the year in all three sciences all pupils will learn the fundamentals of each core disciplinary knowledge skills for full coverage of **working scientifically**.

In the Year 7 Chemistry curriculum all pupils will learn the **experimental and investigation** skills of carrying out a practical, writing a plan and recording data and the **analysis and evaluation** skills of drawing line graphs and bar charts.

Knowledge and understanding of this curriculum will be assessed by:

Embedded within the curriculum, a range of high-quality assessment techniques will be deployed at the point of learning to ensure that all pupils are acquiring the core substantive knowledge, identifying gaps, and addressing misconceptions.

Sequentially throughout the year pupils will be assessed on their retention of the core substantive knowledge, further identifying gaps and misconceptions which will be addressed through a targeted intervention. (Termly Substantive Assessment)

Pupils disciplinary core knowledge will be assessed systematically throughout the year, using a variety of bespoke practical scenarios to allow them to demonstrate fundamental core skills required within science and clear guidance of the next steps to progression in each area.

Powerful Knowledge/Cultural Capital Opportunities

The powerful knowledge of the particulate nature of matter will allow our pupils to understand the properties of everyday materials and explain important world issues such as the melting of ice caps leading to rising sea levels.

To ensure pupils are curious, inquisitive and questioning about the world around them we equip pupils with the skills to make informed decisions about our ever-changing world and their ability to plan investigations, collect evidence and analyse evidence is vital to take their seat at the table of science-based society.