



Curriculum Overview

Curriculum Leader: Mr. Smith

Subject: Science - Chemistry Year: 8

Year 8 Curriculum:

Autumn Term:

Chemical reactions fundamentals

All pupils will build on prior and further develop their core substantive knowledge to recognise that chemical reactions involve the rearrangement of atoms, resulting in the formation of a new substances, all while being conserved. They will learn about a range of different chemical reactions including combustion, thermal decomposition, neutralization and some metals with acids in order to identify reactants and products and write simple word equations. They will also describe reactions in qualitative terms including endothermic and exothermic in respect of energy changes.

All pupils will develop core disciplinary knowledge in presenting observations and data using bar graphs as well as select, plan and carry out appropriate scientific enquiries to test predictions.

All pupils will develop core disciplinary knowledge in writing a plan and presenting observations and data using a bar chart.

Periodic table (Building blocks 3)

All pupils will build on their substantive core knowledge of pure substances and elements and compounds from Year 7 to develop their core substantive knowledge of the periodic table and materials focusing on the physical properties of metals and non metals and three specific groups on the periodic table.

They will introduce the concept of reactivity and describe patterns in properties of groups.

All pupils will develop core disciplinary knowledge in analysing and concluding from data tables.

Spring Term:

Developing Chemical reactions and materials.

All pupils will build on their substantive core knowledge of chemical reactions from Year 7 to develop their core substantive knowledge of oxidation and displacement reactions. They will use their knowledge that chemical reactions involve the rearrangement of atoms, resulting in the formation of a new substances, to write word equations for any reaction they come across. They will also develop on the knowledge from Year 7 of describing reactions in qualitative terms including endothermic and exothermic in respect of energy changes.

All pupils will build on their substantive core knowledge of materials from Year 7 and previous Year 8 units to develop their core substantive knowledge of ceramics, polymers and composites.

Summer Term:

Earth and atmosphere

All pupils will develop their substantive core knowledge of the Earth and atmosphere.

They will develop their substantive core knowledge of the composition and the structure of the Earth. They will learn the three layers of the Earth and the minerals of which it comprises.

They will develop their substantive core knowledge of the rock cycle by focusing on the processes of the rock cycle and the three types of rock. They will build on their knowledge of the Earth by developing their substantive core knowledge of the Earth as a limited resources and why we recycle.

They will develop their substantive core knowledge of the atmosphere by learning about the composition of the Earth's atmosphere and the carbon cycle and its role as a greenhouse gas.

They will build on their knowledge of the atmosphere by developing their substantive core knowledge of global warming and climate change.

All pupils will develop explicit core disciplinary knowledge in presenting observations and data using a line graph and analysing and concluding from graphs and data tables.

Links to National Curriculum

Our Year 8 Science Chemistry curriculum is carefully sequenced to build on the KS2 knowledge of **rock** the Year 7 KS3 curriculum of **Pure and Impure substances, atoms, elements and compounds** and the fundamentals of **chemical reactions** in order to further developing the concepts of **the periodic table, Materials** and the **Earth and atmosphere** during the Year 8 Chemistry curriculum.

Our Year 8 Science curriculum ensures that over the year and all three sciences all pupils will learn the fundamentals of each core disciplinary knowledge skills for full coverage of **working scientifically**.

In the Year 8 Chemistry curriculum all pupils will learn the **analysis and evaluation** skills of drawing line graphs and analysing and concluding from data tables and analysing and concluding from graphs.

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.

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 materials and the Earth and atmosphere will allow our pupils to understand world issues such as renewability and energy usage in extraction of material and the processes of global warming and climate change.

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.