



Curriculum Overview 2023 - onwards

Curriculum Leader: Mr. Smith

Subject: Science - Chemistry Year: 9

Year 9 Curriculum:

Autumn Term:

Developing Atoms (Building Blocks 4)

All pupils will build on their substantive core knowledge of the states of matter from Year 7; Atoms, Elements and Compound fundamentals from Year 7 and Periodic Table from Year 8 to develop their core substantive knowledge of the atom and the way they are structured. This will be used to explain the states of matter, the thinking behind the periodic table, why separation techniques work and how chemical formula are worked out.

All pupils will develop core disciplinary knowledge in analysing and concluding from graphs and numeracy skills of calculating Rf values.

Spring Term:

Particles in Reactions (Chemical Reactions 3)

All pupils will build on their substantive core knowledge of chemical reactions units from Year 7 and 8 and the developing atoms topic in Year 8 to develop their core substantive knowledge of chemical reactions such as neutralisation and other acid reactions.

They will use their knowledge of particles and atoms to explain reactions and the concept of concentration.

They will build on their knowledge of acids and particles to learn about bases and the general reactions of acids with other chemicals.

All pupils will develop core disciplinary knowledge writing a plan.

Summer Term:

Energy in Reactions (Chemical Reactions 4)

All pupils will build on their substantive core knowledge of the reactions topics of Years 7, 8 and 9 to explore the energy changes in reactions further. They will develop their substantive core knowledge of chemical bonds to learn about catalysts and energy level diagrams.

All pupils will develop explicit core disciplinary knowledge in recording data and evaluating an investigation.

Links to National Curriculum

Our Year 9 Science Chemistry curriculum is carefully sequenced to build on the fundamentals of KS3 **Pure and Impure substances, atoms, elements, The periodic table compounds** and **chemical reactions** that were learnt in Year 7 & 8. These concepts and the concept of **energetics** are developed further and linked together throughout Year 9 to apply the core substantive knowledge to more deeply explain **atoms, reactions** and **energetics**.

Our Year 9 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 9 Chemistry curriculum all pupils will learn the **experimental and investigation** skills of writing a plan and recording data and the **analysis and evaluation** skills of analysing and concluding from graphs, numeracy skills of calculating and evaluation of an investigation method.

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 reactions and energetics will allow our pupils to understand how exothermic reactions are a major source of the energy in today's world and it is possible to store chemical energy by endothermic processes.

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.