

AUTUMN 1

Atoms and the Periodic Table

Atomic structure, history of periodic table and development of atomic structure, groups 1, 7, 0
– key characteristics and patterns of reactivity down groups

Prior Learning

Students have studied Particle model in Y7, as well as introducing concepts from the Periodic Table and groups 1, 7. Atomic structure is introduced in Y9.

AUTUMN 2

Structure and Bonding

Forming metal and non-metal ions, ionic bonding (structure and properties), simple covalent bonding and intermolecular forces, giant covalent substances, metallic bonding, alloys

Prior Learning

As well as atomic structure in Y9, this topic follows on directly from atoms and the Periodic Table at the start of Y10. Students have investigated properties of metals and non-metals in Y8

SPRING 1

Energy Changes

Exo/endo reactions, energy profile diagrams, calculating bond enthalpy, electrochemistry

Rate and Extent of Chemical Change

Factors affecting rate of reaction, reversible reactions, dynamic equilibrium, Le Chatelier's Principle

Prior Learning

Students have explored exothermic and endothermic reactions in Y8, and developed key concepts in Y9. In Y8 they look at many different types of chemical reactions and balancing equations using the 'box method' introduced in Y9.

SPRING 2

Organic Chemistry

Fractional distillation of crude oil, alkanes, alkenes, catalytic cracking, alcohols, carboxylic acids, esters, addition and condensation polymerisation

Prior Learning

Pupils have studied and understand the environmental and economic issues surrounding Fossil fuels in Y7. The use of catalysts was investigated in Y10.

SUMMER 1

Chemical Changes

Acids and bases, pH scale, making and naming salts

Revision of all content taught so far

End of year assessment

Prior Learning

Pupils have developed understanding of acids and bases in Y7 & Y9, and the pH scale. Ideas and practical applications of neutralisation is covered in Y9

SUMMER 2

Chemical Changes cont...

Extracting metals, electrolysis of molten compounds and of solutions, predicting products at electrodes

Prior Learning

Pupils have made links between the reactivity series and methods of extracting metals in Y8 & Y9. The basic principles of electrolysis have been introduced in Y9.

CAREERS LINKS

Pharmacology, chemical manufacturing, environmental chemist, medicine, veterinary science, materials science, forensic science, biomedical science, waste disposal, surface treatment development, drug design, vaccine development, specialised research, and development chemist.

CHARACTER LINKS

Motivation, resilience, and teamwork (performance virtues). Confidence and determination Listening, critical thinking and problem solving (intellectual virtues). Evaluation of ideas and process and seeking improvement through better knowledge and techniques (intellectual virtues). Consideration and construction of moral and ethical arguments in Science (moral virtues).

KEY ASSESSMENT DATES

Half termly assessments in Oct, Dec, Feb, April, May, and July.