



Intent

To develop students' understanding of matter and substances, to develop practical skills, to develop skills in data analysis and problem solving, to develop investigative and critical thinking skills, to develop chemical literacy to allow students to make sense of the world around them and scientific issues.

Year 10 Chemistry

Term 1 September to December

C0 C1a C1b Key Concepts and C2 States of Matter
C1c Quantitative Chemistry

Term 2 January to Easter

C3a Acids
C3b Electrolysis
Review of C0 C1a C1b Key Concepts and C2 States of Matter
Triple C5c Cells and Equilibria

Term 3 – Easter-Summer

C4a Metals and their Extraction
Triple C5a Transition metals, alloys and corrosion
Triple C5b Quantitative Chemistry

Knowledge
(facts, information, concepts and key terminology)

Learns hazards symbols for chemical and precautions
Learn chemical formulas of substances
Describe the structure of the atom and the development of the periodic table
Describe changes of state
Describe separation techniques for different mixtures and how water from different sources is made potable

Describe how ionic, covalent and metallic bonding arises

Describe the differences between acidic, neutral and alkaline solutions in terms of pH, identify and control their hazards as well as use various indicators to identify them
Recall chemical reaction patterns that produce salts
Describe practical methods to make salts in 3 different ways
Describe the practical laboratory procedure of electrolysis reactions
Describe uses of electrolysis to make useful products and purify copper
TRIPLE- Describe chemical pathways to produce a substance on a large scale. Describe uses of fuel cells

Revision based lessons to recap Knowledge including Yr 10 material and specific gaps identified by EOU Assessments
List properties of metals
List ways of extracting metals
Corrosion and extraction of metals in terms of oxidation and reduction
Describe a use of ammonia
The terms "reversible reaction" and "dynamic equilibrium"
TRIPLE: Electroplating, Sacrificial Protection

Understanding
(ability to connect and synthesise knowledge within a context)

Relate the properties of substances to the type of structure and bonding present

Justify reasons for selecting a particular practical procedure to separate different mixtures.

Justify reasons for selecting a particular practical procedure to produce a salt as well as the separate different mixtures.
Use data from observations of chemical tests to identify the products of electrolysis reactions

RevLink properties of metals to their uses
Interpret data about metal reactions from the reactivity series
Apply patterns on chemical reactions of metals to new situations
HT-Predict how changing temp, pressure and conc. can affect the position of equilibrium

Skills
(successful application of knowledge and understanding to a specific task)

Interpret the periodic table and the conventions that are used for equations, charge and chemical formulae

Calculate relative formula mass and concentration and empirical formula (HT- Calculate reacting masses and moles)

Represent any chemical reactions studied using word, balanced and ionic equations. (HT) Half equations (HT)

Be able to interpret information about properties and uses of metals
Calculate relative formula mass and concentration and empirical formula (HT- Calculate reacting masses and moles) **TRIPLE- Calculate concentrations from titration data, atom economy and molar gas volumes**

Formal Assessments
(those done by all/vast majority of the cohort)

End of topic tests
Mock assessing content taught in Year 10
Verbal feedback

Partial Paper 1 Mock exam January

Partial Paper 1 Mock exam May

By the end of the year students on course for at least a grade 5 will...

Be able to recall the structure of the atom and have knowledge of the subatomic particles they contain
Understand hazard symbols of substances and be able to take suitable precautions e.g using acids to make salts.
Use chemical equations can be used to represent chemical reactions e.g combustion
Be able to interpret information on the periodic table about elements and apply patterns about the properties of the elements
Describe and select suitable techniques to separate pure substances from mixtures.
Appreciate that the properties of substances arise from their structure and bonding.