Sir William Ramsay School

EMPOWERING EVERYONE TO ACHIEVE

Curriculum Map for Combined Science Chemistry Year 10

YEAR 10	Autumn 1	Autumn 2
Topics	**Bonding & Gas Tests**	**Energy Changes**
Substantive Knowledge – The Knowledge and Content Taught By The Teacher	• Basic Bonding - Ionic and Covalent • How to Test for Numerous Gases	• Exothermic versus Endothermic • Applications of Energy Changes • Bond Energy Calculations (Higher tier only)
Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence	• History of how the atom has changed. • History of the ideas of bonding and the theories of it.	• History of reactions.
Skills	• Using Dot-Cross Diagrams • Interpreting Compound Property Graphs • Evaluating Material Uses • Performing and Analysing a Gas Test	• Required Practical Investigating Changes in Temperature in Reactions.
Links To Prior Learning	• Atoms covered in Year 9. • Compounds introduced in Years 7 and 8 in the Materials topics.	• Atoms covered in Year 9. • Compounds introduced in Years 7 and 8 in the Materials topics. • Bonding in Year 10 Term 1.
Literacy/ Numeracy	• Interpreting compound property graphs. • Balancing equations.	• Graphs. • Bond energy calculations. • Practical write up of investigating changes in temperature in reactions.
Cross Curricular	• Technology - Use of Materials and Properties. • PSCHE - Keeping Safe with Fire and the Value of Sharing Resources.	• Technology - Ice Packs and Heat Packs. • PSCHE - Dangers of Reactions.
Assessment	• Bonding and Gas Tests Assessment	• Energy Changes Assessment

YEAR 10	Spring 1	Spring 2
Topics	**Metals & Analysis**	**Quantitative Chemistry**
Substantive Knowledge – The Knowledge and Content Taught By The Teacher	• Metallic Bonding • Properties of metals • Analysing substances • Pure versus Potable Water • Chromatography	• Mass • Mole • Concentration • Relative Formula Mass
Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence	• History and ethics of clean water. • Properties and use of metals and how these have changed over time e.g., development of giant and nano technology.	• History of the mole.
Skills	• Interpreting Compound Property Graphs • Evaluating Material Uses • Treating Potable Water • Chromatography	• Calculations of Mass, Mole, Concentration and Relative Formula Mass
Links To Prior Learning	• Separating Mixtures in Years 8 and 9 • Building on Bonding From Year 10 Term 1 • Chromatography in Biology	• Balancing Equations in Years 8 and 9 • Mass and Atomic Number in Years 7 and 8
Literacy/ Numeracy	• Doing Radiofrequency Value Calculations • Interpreting Compound Property Graphs • Development and Use of Tier 3 Key Words	• Calculations of Mass, Mole, Concentration and Relative Formula Mass • Conservation of Mass • Deciphering and Interpreting Questions and Then Doing Calculations
Cross Curricular	• Geography - Clean Water and Water Aid Work • Technology - Evaluating and Explain New Materials • PSCHE - Clean Water for All, Health and Hygiene	
Assessment	• Metals and Analysis End of Topic Assessment	• Quantitative Chemistry End of Topic Assessment

YEAR 10	Summer 1	Summer 2
Topics	**Metals & Salts**	**Electrolysis & Atmosphere**
Substantive Knowledge – The Knowledge and Content Taught By The Teacher	• Reactivity Series • Salt - How to Make in a Variety of Ways	• Electrolysis • Use of Electrolysis • Alternative Ways to Extract Reactive Metals
Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence	• Development of the reactivity series.	• History and adaptation of technology of electrolysis to help the ever-changing world.
Skills	• Spotting Patterns in Chemical Reactions • Balancing Equations • Writing Correct Chemical Formulae • Practical - How to Make a Salt	• Electrolysis Required Practical • Predicting the Products of Electrolysis • Half Equations
Links To Prior Learning	• Atoms in Year 9 • Bonding in Year 10 Term 1 • Reactivity and Salts in Year 8	• Bonding in Year 10 Term 1 • Electricity in Physics Year 10 • Electricity in Physics Year 7
Literacy/ Numeracy	• Balancing Equations • Conservation of Mass • Extending Skills in Investigation Write-Up	• Half Equations and Balancing Them • Extending Skills in Investigation Write-Up
Cross Curricular	• PSCHE - Dangers of Fire	• PSCHE - Dangers of Electricity • Geography - Impacts of Human Activity on Wider Worlds • Physics - Electricity
Assessment	• Metals and Salts End of Topic Assessment	• Electrolysis and Atmosphere End of Topic Assessment