

## Year 11

### **C10 - Using resources**

Earth's Resources  
Potable & Waste Water  
Life Cycle Assessments  
Using materials & Haber  
process

### **C9 - The Atmosphere**

Composition Of The  
Atmosphere  
Greenhouse Gases and  
Atmospheric pollutants

### **C8 - Chemical Analysis**

Pure Substances  
Chromotrography  
Chemical Tests for gases, ions  
and Instrumental Analysis

### **C7 - Organic Chemistry**

Hydrocarbons  
Crude Oil  
Reactions of Alkenes & Alcohols  
Polymers, amino acids and  
DNA

### **C6 - Rate/Extend of Chemical Change**

Rates of Reactions, Factors  
that Affect Rate  
Reversible Reactions



Knowledge	Attributes / Character	Skills	Experiences
<p>C6 - The Rate and Extent of Chemical Change (taught in Y10 for Combined Science)</p> <p>C7 - Organic Chemistry</p> <p>C8 - Chemical Analysis (taught in Y10 for Combined Science)</p> <p>C9 Chemistry of the Atmosphere (taught in Y10 for Combined Science)</p> <p>C10 - Using Resources</p>	<p><b>Confidence</b> In Years 10 and 11, students' confidence is further developed as they delve into more complex topics such as atomic structure and bonding. Mastering quantitative chemistry and chemical changes equips them with advanced problem-solving skills. Understanding energy changes and the rate and extent of chemical change boosts their self-assurance in handling intricate scientific concepts and calculations.</p> <p><b>Organisation</b> Students enhance their organisational skills through meticulous experimentation and data analysis in topics like chemical analysis and the chemistry of the atmosphere. Planning and executing precise experiments, recording observations, and applying quantitative methods are integral to their success. Managing extensive coursework and balancing various chemical processes further sharpens <b>their ability to stay organised.</b></p> <p><b>Resilience</b> The curriculum fosters resilience by challenging students with complex concepts and experiments in organic chemistry and energy changes. They learn to persist through trial and error, refining their approaches to achieve accurate results. Investigating the rate and extent of chemical change requires them to adapt and improve their methods, reinforcing the value of perseverance.</p> <p><b>Empathy</b> Empathy is cultivated through collaborative projects and discussions on the environmental impact of chemical processes and sustainable resource use. Group activities and projects help students appreciate diverse perspectives and the importance of teamwork. Understanding the broader implications of chemical research fosters a sense of responsibility and empathy towards their peers, society, and the environment.</p>	<p><b>Problem-Solving Skills:</b> <b>Quantitative Chemistry:</b> Applying mathematical calculations and interpreting data from experiments involving chemical reactions and stoichiometry. <b>Energy Changes:</b> Analysing energy profiles and understanding the principles of energy transfer in chemical reactions. <b>Rate of Chemical Change:</b> Using experimental data to calculate reaction rates and understand factors affecting reaction kinetics. <b>Communication Skills:</b> <b>Written Communication:</b> Writing detailed scientific reports on topics such as chemical changes, organic chemistry, and the chemistry of the atmosphere. <b>Oral Communication:</b> Presenting findings from experiments and discussing chemical concepts effectively in class discussions and presentations. <b>Experimental Skills:</b> <b>Chemical Analysis:</b> Using appropriate apparatus to conduct qualitative and quantitative analysis, interpreting results, and drawing conclusions. <b>Organic Chemistry:</b> Conducting experiments to understand properties and reactions of organic compounds, developing practical skills in synthesis and analysis. <b>Analytical Skills:</b> <b>Atomic Structure and Periodic Table:</b> Analysing trends in the periodic table and interpreting atomic structure models to predict chemical behaviour. <b>Bonding and Structure:</b> Understanding molecular structures and bonding theories through practical investigations and theoretical models. <b>Environmental Awareness:</b> <b>Chemistry of the Atmosphere and Using Resources:</b> Exploring environmental impacts of chemical processes, promoting sustainable practices, and understanding global resource management.</p>	<ul style="list-style-type: none"> <li>• Alton Towers visit</li> <li>• Cadbury World visit</li> </ul>