

(Year 11 Chemistry) Long-Term Plan

Long-term planning (LTPs) - Planning how the key concepts, knowledge, skills identified in the Progression map will be delivered termly per year group

Ensuring that end points & NC/spec are covered

Identifying what assessments are planned and when

Ensuring whole school intent priorities to be planned for

(Year 11 Chemistry)						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title:	C10 Organic reactions	C11 Polymers / C12 Chemical analysis	C13 Earth's atmosphere / C14 Earth's resources	C15 Using resources	Revision	GCSE Exam period
Unit length:	5 lessons	5 lessons / 6 lessons	5 lessons / 5 lessons	6 lessons	10 lessons	
Key concepts:	Reactions of alkenes; Structures of alcohols, carboxylic acids and esters; Reactions and uses of alcohols.	Addition polymerisation; Condensation polymerisation; Natural polymers; DNA. ----- Pure substances and mixtures; Analysing chromatograms; Testing for gases Tests for positive ions and negative ions; Instrumental analysis	History of the atmosphere; Our evolving atmosphere; Greenhouse gases; Global climate change; Atmospheric pollution. ----- Finite and renewable resources; Water safe to drink; Treating waste water; Extracting metal from ores; Life cycle assessments; Reduce, reuse and recycle.	Rusting; Useful alloys; The properties of polymers; Glass, ceramics and composites; Making ammonia (The Haber process); The economics of the Haber process; Making fertiliser in a lab; Making fertiliser in industry.		
Knowledge/ Skills:	Identify functional groups for alkenes, alcohols, carboxylic acids, and esters. Identify, name, and draw the structural formula of the first four alkenes, alcohols, and carboxylic acids.	Identify an addition polymer from polymer and monomer diagrams – drawing the monomer from the polymer and the polymer from the monomer. (HT) Describe the basic principles of condensation polymerisation.	Describe the volcanic activity theory of the origin of the atmosphere and interpret evidence concerning other theories and evaluate them. Describe the history of the atmosphere. Understand the origins of the atmosphere and how it has	Understand how both water and air are required for iron to corrode. Explain how the two methods for preventing rusting – barrier methods and sacrificial methods – disrupt the oxidation of iron and prevent corrosion.		

	<p>Identify, name, and draw the ester ethyl ethanoate. Describe the reactions and conditions of alkenes (with halogens, water, and hydrogen), alcohols (combustion, oxidation, and reaction with sodium), and carboxylic acids (to make esters). Explain why carboxylic acids are called weak acids.</p>	<p>Identify natural polymers, including polysaccharides, proteins, and DNA. Identify the types of monomers that form these polymers. Describe the basic structure of DNA. (HT) Understand in greater detail how amino acids react together to form proteins.</p> <p>-----</p> <p>Techniques for analyzing substances. Understand the difference between a pure substance, a mixture, and a formulation, and what is meant by purity. Analyse a chromatogram, both qualitatively and quantitatively using <i>R_f</i> values. Describe the different experimental tests for gases, including both the procedure and positive result. Describe experimental tests for positive and negative ions, and be able to write balanced symbol equations for them. Apply knowledge of all the tests to be able to plan an investigation to identify positive and negative ions. Interpret instrumental results</p>	<p>evolved over time. Including how the general composition of the atmosphere has changed and how the atmosphere is currently being affect by human activity. Describe the human activities that are thought to cause global warming, and explain some of the effects this has on the climate of the Earth. Explain the effect of other pollutants on the Earth, including carbon monoxide, sulfur dioxide, nitrogen oxides, and particulates.</p> <p>-----</p> <p>Difference between finite and renewable resources. Understand the need to reuse and recycle. Describe and evaluate ways of reducing the use of finite resources, and carry out life cycle assessments on products. Describe the different ways that water is treated, both to create potable water and to remove waste products so it is safe to release into the environment. Describe metal-ore extraction and electrolysis. Understand alternative biological methods used to extract copper.</p>	<p>For each material (alloys, polymers, ceramics, glass, and composites) identify key properties and link these to their common uses. Explain why the industrial conditions for the Haber process are described as a compromise. Recognise the importance of the Haber process in the production of ammonia and explain how ammonia is an important feedstock in the production of fertilisers, both in the laboratory and industrially alongside potassium and phosphorus fertilisers.</p>		
End points covered:						
NC/Spec coverage:	Organic reactions	Polymers	Earth's atmosphere	Using resources	Revision	

	4.7.2.1 / 4.7.2.2 / 4.7.2.3 / 4.7.2.4 /	4.7.3.1 / 4.7.3.2(HT) / 4.7.3.3 (HT) Chemical analysis 4.8.1.1 / 4.8.1.2 / 4.8.1.3 / 4.8.2.1 / 4.8.2.2 / 4.8.2.3 / 4.8.2.4 / 4.8.3.1 / 4.8.3.2 / 4.8.3.3 / 4.8.3.4 / 4.8.3.5 / 4.8.3.6 / 4.8.3.7 /	4.9.1.1 / 4.9.1.2 / 4.9.1.3 / 4.9.1.4 / 4.9.2.1 / 4.9.2.2 / 4.9.2.3 / 4.9.2.4 / 4.9.3.1 / 4.9.3.2 Earth's resources 4.10.1.1 / 4.10.1.2 / 4.10.1.3 / 4.10.1.4(HT) / 4.10.2.1 / 4.10.2.2	4.10.3.1 / 4.10.3.2 / 4.10.3.3 / 4.10.4.1 / 4.10.4.2	4.1 / 4.2 / 4.3 / 4.4 / 4.5 / 4.6 / 4.7 / 4.8 / 4.9 / 4.10	
Cross-curricular links:						
Assessments:	EoU tests APs Trial exams GCSE exams	EoU tests APs Trial exams GCSE exams	EoU tests APs Trial exams GCSE exams	EoU tests APs Trial exams GCSE exams		
Other school intent priorities						
New experiences – broadening horizons						
Developing character – <i>Kind, Hard Working, Successful</i>						
Context specific need – diversity, inclusion; reading, literacy; mental health						
Curriculum Careers -						

Gatsby 4						
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