

Now that the revised curriculum has been taught, please consider the Implementation and Impact of the curriculum you taught. What changes might need to be made to the Curriculum Intent (See Curriculum Map and Overviews) in light of this year's experiences?

Year 11 Overview 2024-25 – Chemistry

Date	Wk	Week	Units Studied & Learning Outcomes	Key Concepts & Assessment
8 weeks (12 Lessons) (38Days)				
2-Sep	A	1	Overview of Unit/No. lessons	Foundational concepts: Chemical reactions <ul style="list-style-type: none"> Understand how to calculate the masses of reactants & products from balanced symbol equations Understand how to use moles to balance equations Understand how to calculate bond energies Recall properties of acids & alkalis Understand what an indicator is Understand the difference between a strong and weak acid Understand the difference between concentrated and dilute Understand what neutralisation is Understand how to test for positive ions Understand how to test for negative ions Understand advantages of instrumental methods Tier 2/3 Vocabulary <ul style="list-style-type: none"> Glossaries, quick quizzes, within exam questions, PowerPoints.
9-Sep	B	2	<ul style="list-style-type: none"> Reactions of Metals (9 lessons) 	
16-Sep*	A	3	Lesson Sequence of Content:	
23-Sep	B	4	1 & 2. QC – Reacting masses (2 lessons)	
30-Sep	A	5	3. Quantitative Chemistry - Moles to balance equations & limiting reactants (1 lesson)	
7-Oct	B	ST2	4. Bond energies (1 lesson)	
14-Oct	A	ST2	5. Metals & oxygen (1 lesson)	
21-Oct	B	ST2	6. Indicators (1 lesson)	
			7. Strong & weak acids (1 lesson)	
			8 & 9. Required practical – temperature change at neutralisation (2 lessons)	
			11, 12 & 13. Revision (3 lessons)	
			14. testing positive ions (1 lesson)	
			15. testing negative ions (1 lesson)	
			16 & 17. required practical – ion testing (2 lessons)	
			18. Analysis (1 lesson)	

Prior	Current	Next
Year 7 – Acids & Alkalis	Understand reactions of metals	Year 12 – Acids & alkalis and titrations
Year 8 & 9 – Reactions of metals	Understand neutralisation	Year 12 – Moles & quantities
Year 10 – Quantitative chemistry & energy changes	Understand how to produce a soluble salt	Year 12 – mass spectrometer & ion testing
Year 10 - equilibrium & ions	Understand how to calculate bond energies	
	Understand how to test for ions	

- GW:** Recall ions present in acids and alkalis and recall some steps in making a soluble salt and calculate moles. Recall tests for ions, recall some properties of alcohols, esters & carboxylic acids
- BI:** Recall general equations for making a soluble salt, describe some steps in the procedure and calculate reacting masses. BI: describe tests for ions, recall some properties of alcohols, esters & carboxylic acids and identify the functional group
- EW:** Write chemical equations for reactions of metals & acids and explain the step by step procedure to make a soluble salt. Calculate bond energies. describe tests and positive results for ions

Recall of knowledge, application of knowledge, interpret information, analyse results, carry out practical procedures, write practical methods, write word & chemical equations

Assessment:

- Quick quiz
- Exam style questions
- Q&A

KW: Acid, alkali, indicator, ion, neutralisation, aqueous, excess, filtration, evaporation, crystallisation, salt, carbonate, oxide, base, soluble, insoluble, moles, exothermic, endothermic, activation energy ion, flame spectroscopy, mass spectrometer,

Links to root work (etymology) –

- Latin acidus "sour, sharp, tart"
- Soluble - from stem of Latin solvere "to loosen, dissolve"

Careers – lab technician, Analytical Chemist, Chemical Engineer, Chemistry Teacher, Forensic Scientist

History:

- The word "salary" was derived from the word "salt." Salt was highly valued and its production was legally restricted in ancient times, so it was historically used as a method of trade and currency. The word "salad" also originated from "salt," and began with the early Romans salting their leafy greens and vegetables.
- The earliest systematic exposition of the different kinds of salts, its uses, and the methods of its extraction was published in China around 2700 BCE. Hippocrates encouraged his fellow healers to use salt water to heal various ailments by immersing their patients in sea water.
- In 1822 John Herschel noticed emission spectra lines while passing light from different colors of flame through a prism, and four years later, photographer William Fox Talbot noted, "A glance at the prismatic spectrum of a flame may show it to contain substances which it would otherwise require a laborious chemical analysis to detect."

EDI:

<ul style="list-style-type: none"> Interleaving Practical skills Data analysis Graph skills Interpretation & evaluation skills 	<ul style="list-style-type: none"> Scientists from different nationalities Alice Ball first black, American woman to obtain a Chemistry Master degree at the University of Hawaii
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Half-Term 7 weeks (10-11 lessons) (35 Days)

4-Nov	A	9	<u>Overview of Unit/No. lessons</u> <ul style="list-style-type: none"> Electrolysis (7 lessons) <u>Lesson Sequence of Content:</u> <ol style="list-style-type: none"> feedback (2 lessons) Making a soluble salt - equations (1 lesson) Required practical – making a soluble salt (1 lesson) 6 & 7. Electrolysis – molten substances (2 lessons) 8. Extraction of aluminium (1 lesson) 9 & 10. Electrolysis of solutions (2 lessons) 15. Reactions of alkenes (1 lesson) 16 & 17. Alcohols, esters & carboxylic acids (2 lessons) 11. Polymerisation (1 lesson) 12. Thermosetting & thermosoftening plastics (1 lessons) 13. DNA (1 lesson)
11-Nov	B	10	
18-Nov	A	11	
25-Nov	B	12	
2-Dec	A	13	
9-Dec	B	14	
16-Dec	A	15	

Foundational concepts:
Chemical reactions

- Understand how metals react with acids
- Understand how to make a soluble salt
- Understand methods of analysis
- Understand how to carry out electrolysis on molten compounds
- Understand how to carry out electrolysis on solutions
- Be able to identify the products of electrolysis and **write half equations**
- Understand why alkenes react
- Recall structure and properties of alcohols, esters and carboxylic acids
- Understand the process of polymerisation
- Recall structure and properties of polymers
- Recall the structure of amino acids and DNA

Tier 2/3 Vocabulary

- Glossaries, quick quizzes, within exam questions, PowerPoints.

Prior	Current	Next
Year 10 – ion formation & ionic bonding	Understand the process of electrolysis	Year 12 – Acids & alkalis and titrations
Year 8 & 9 – Reactions of metals	Understand how to produce a soluble salt	Year 12 – Alkanes, alkenes, alcohols
Year 9 - Alkenes	Recall reactions of alkenes	
	Recall properties of alcohols, esters & carboxylic acids	

KW: electrolysis, molten, solution, ionic, compound, reactants, products, activation energy, exothermic, endothermic#, soluble, solute, solvent, filtration, evaporation, crystallisation, **addition polymerisation, condensation polymerisation, amino acids, poly peptides, nucleotide, alkenes, hydrogenation, hydration, alcohol, ester, carboxylic acid,**

Links to root words (etymology):

- Electrolysis - Greek lysis "a loosening," from lyein "to loosen, set free"

- GW:** Recall some steps in making a soluble salt and recall what electrolysis is. **Identify types of polymerisation**
- BI:** Recall general equations for making a soluble salt and describe some steps in the procedure, and identify products of electrolysis. **Describe differences between additional and condensation polymerisation**
- EW:** explain the step by step procedure to make a soluble salt and represent electrolysis using half equations. **Describe the structure od DNA**

Recall of knowledge, application of knowledge, interpret information, analyse results, carry out practical procedures, write practical methods, write half equations

Assessment:

- Quick quiz
- Exam style questions
- Q&A
- Interleaving
- Practical skills
- Data analysis
- Interpretation & evaluation skills

Careers: researcher, environmental biotechnology, fuel cell engineer, instrumentation & controls engineer, chemical engineer

History:

- Electrolysis was first discovered in the year 1800. After the invention of the voltaic pile by Alessandro Volta the same year, chemists used a battery and placed the poles in a container of water

EDI:

- Scientists from different nationalities
- Alice Ball first black, American woman to obtain a Chemistry Master degree at the University of Hawaii
- Rosalind Franklin contributed to the discovery of the structure of DNA
- San Thang- Polymers
- Wallace Carothers invented condensation polymerisation used to produce nylon**
- DNA was discovered in 1869 by Swiss researcher Friedrich Miescher, who was originally trying to study**

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			<p>the composition of lymphoid cells (white blood cells). Instead, he isolated a new molecule he called nuclein (DNA with associated proteins) from a cell nucleus.</p> <p>Misconceptions:</p> <ul style="list-style-type: none"> Metals lose electrons so form negative ions Likes attract 						
Christmas Holiday			6 weeks (9 lessons) (30 Days)						
6-Jan	B	16	<p><u>Overview of Unit/No. lessons</u></p> <ul style="list-style-type: none"> Combined – ST2 preparation (11 lessons) Separates: using resources (3 lessons) <p><u>Lesson Sequence of Content:</u></p> <p><u>Lesson Sequence of Content:</u></p> <p>1, 2 & 3. Revision (3 lessons)</p> <p>4 & 5. feedback (2 lessons)</p> <p>6 & 7. required practical – electrolysis (2 lessons)</p> <p>9. Haber process (1 lesson)</p> <p>10. & 11. Corrosion, ceramics, composites & alloys (1 lesson)</p> <p>12. Chemical & hydrogen cells (1 lesson)</p> <p>Exam preparation</p>	<p>Foundational concepts: Earths resources</p> <ul style="list-style-type: none"> Understand what causes corrosion and how it can be prevented Understand the properties of alloys, ceramics and composites Understand the Haber process Identify advantages and disadvantages of fuel cells & chemical cells <p>Tier 2/3 Vocabulary</p> <ul style="list-style-type: none"> Glossaries, quick quizzes, within exam questions, PowerPoints. <p>KW: corrosion, oxide, sacrificial protection, alloy, galvanise, yield, catalyst, pressure, temperature</p> <p>Links to root words (etymology):</p> <ul style="list-style-type: none"> Corrode - Latin corrodere "to gnaw to bits, wear away" <p>Careers: researcher, environmental biotechnology, fuel cell engineer, instrumentation & controls engineer, chemical engineer</p> <p>History:</p> <ul style="list-style-type: none"> In 1836, Sorel in France took out the first of numerous patents for a process of coating steel by dipping it in molten zinc after first cleaning it. He provided the process with its name 'galvanizing' In 1806, Sir Humphrey Davy advanced the idea of a favourable effect on the corrosion of copper in sea water in contact with zinc, tin or iron. <p>EDI:</p> <ul style="list-style-type: none"> Scientists from different nationalities Alice Ball first black, American woman to obtain a Chemistry Master degree at the University of Hawaii Tina Nenoff, a distinguished materials scientist. Tina's proudest career moment was enabling Sandia's crystalline silicotitanate (CST) molecular sieves for the removal of radiological cesium from seawater at the Fukushima Dai-ichi Nuclear Power Plant <p>Misconceptions:</p> <ul style="list-style-type: none"> Aluminium is unreactive Alloys are compounds Only water is needed for rust 					
13-Jan	A	17							
20-Jan	B	ST3							
27-Jan	A	ST3							
3-Feb	B	ST3							
10-Feb	A	21							
<table border="1"> <thead> <tr> <th>Prior</th> <th>Current</th> <th>Next</th> </tr> </thead> <tbody> <tr> <td>Year 8 – corrosion, composites & ceramics</td> <td>Recall properties of ceramics, composites & polymers</td> <td>Year 12 – N/A</td> </tr> </tbody> </table> <p> <ul style="list-style-type: none"> GW: recall properties of ceramics, composites and polymers BI: describe properties of ceramics, composites and polymers EW: recall properties of ceramics, composites and polymers and be able to evaluate their uses </p> <p>Recall of knowledge, application of knowledge, interpret information, analyse results, carry out practical procedures, write practical methods, write word & chemical equations</p> <p>Assessment:</p> <ul style="list-style-type: none"> Quick quiz Exam style questions Q&A Interleaving 			Prior	Current	Next	Year 8 – corrosion, composites & ceramics	Recall properties of ceramics, composites & polymers	Year 12 – N/A	
Prior	Current	Next							
Year 8 – corrosion, composites & ceramics	Recall properties of ceramics, composites & polymers	Year 12 – N/A							
Half-Term			6 weeks (?? lessons) (29 Days)						
25-Feb	B	22	<p>INSET 24th Feb</p> <p>Exam preparation</p> <p> <ul style="list-style-type: none"> Equality Diversity and Inclusion (EDI) links? Women's history month Ramadhan begins 1/3 21/3 World Down Syndrome day </p>						
3-Mar	A	23							
10-Mar	B	24							

17-Mar	A	25		<i>31/3 Transgender day of visibility</i>
24-Mar	B	26		
31-Mar	A	27		
Easter Holiday			5 weeks (?? lessons) (23 Days)	
22-Apr	B	28	Easter Monday 21st Early May bank hol 6/5 Exam preparation	<ul style="list-style-type: none"> Equality Diversity and Inclusion (EDI) links? <i>Good Friday 18/4</i> <i>Easter Sunday 20/4</i> <i>Autism and stress awareness month.</i> <i>25/4 World Malaria Day</i> <i>26/4 Lesbian visibility day</i> <i>UK national walking month.</i> <i>1/5-7/5 Deaf awareness week</i> <i>23/05 Vesak</i>
28-Apr	A	29		
5-May	B	30		
12-May	A	ST2		
19-May	B	ST2		
Half-Term				
2-Jun	A	33	SJBF INSET 4/7 Exam preparation	<ul style="list-style-type: none"> Equality Diversity and Inclusion (EDI) links? <i>LGBTQ+ pride month.</i> <i>Gypsy, Roma and Traveller history month.</i> <i>12/6 world day against child labour</i> <i>18/6 autistic pride day</i> <i>20/6 World refugee day</i>
9-Jun	B	34		
16-Jun	A	35		
23-Jun	B	36		
30-Jun	A	37		
7-Jul	B	38		
14-Jul	A	39		
(Total: 189 Days)				

Prompt Questions

Now that the revised curriculum has been taught, please consider the Implementation and Impact of the curriculum you taught. What changes might need to be made to the Curriculum Intent (See Curriculum Map and Overviews) in light of this year's experiences?

Please revisit the prompts from last year:

- What are the Key concepts for this unit?
- How will it link to wider disciplinary knowledge/cultural capital: history, culture, authentic artefacts, music, art, literature?
- How does it build on prior knowledge and link to other units, concepts, years, GCSE?
- What is it intended students will have learned?
- For each Unit? By the end of the Year?
 - GW: ; BI: ; EW
- Is it worth summarising in a knowledge organiser?
- **Assessment: how do you know they have learned the foundational concepts, curriculum and wider disciplinary knowledge? Does assessment look like GCSE light? Should it?**
- Skills used/learned
- Tier 2/3 vocabulary ((Etymology e.g. of Greek/Latin)