

Lacon Childe School Science Department – Chemistry Scheme of Work – Year 8 – Unit 1: **Reactions II**

Opportunities for Breadth and Challenge:

Some pupils will partake in less structured practical tasks and receive less instruction than those who require further scaffolding
Equations to be constructed at differing levels- the production of balanced symbol equations is necessary for GCSE study

Links to Sequencing for Learning:

This unit links to previous work on Investigation Skills and Reactions I completed in Y7

This unit prepares pupils for work in all years and disciplines to ensure that they are able to work safely and effectively to produce results in practical tasks. The ability to create and manipulate equations is vital throughout the GCSE Combined Science, Chemistry and Biology courses

Section	What we are learning (Key knowledge)	Key words	Assessment
1	Word Equations explain why a compound has different properties to the elements in it write the chemical names for some simple compounds construct word equations	Reactant, Product, Reaction, Element, Compound	Self assessment of word equations task
2	Symbol Equations write and interpret chemical formulae produce symbol equations from given word equations	Reactant, Product, Reaction, Element, Compound	Explanation of naming compounds
3	Conservation of Mass explain the conservation of mass in chemical reactions	Mass, Matter, Creation, Conservation	Numeracy task
4	Balancing Equations create balanced symbol equations	Reactant, Product, Reaction, Element, Compound	Completion of balancing equations
5	State Symbols use state symbols in balanced formula equations	Solid, Liquid, Gas, Aqueous	Identify different states in chemical reactions and explain the use of the term 'aqueous'
6	Burning Fuels describe the characteristics of exothermic and endothermic changes classify changes as exothermic and endothermic predict products of combustion reactions	Exothermic, Endothermic, Energy, Conservation	Use data and/or observations to determine whether reactions are exothermic or endothermic
7	Burning Fuels Investigation describe a method to carry out an investigation to determine the relative energy released by different fuels analyse results to determine the effectiveness of different substances as fuels produce a risk assessment for a devised practical activity	Exothermic, Endothermic, Energy, Conservation, Hazard, Risk	MUM- Teacher assessment of investigation write up
8	Revision		Class assessment sheet
9	End of Unit Test		EUT
10	Test Feedback		Test feedback sheet

Acids, Alkalis and Indicators

Opportunities for Breadth and Challenge: Some pupils will partake in less structured practical tasks and receive less instruction than those who require further scaffolding Acids and alkalis is historically a unit in the GCSE course that pupils find difficult, so the introduction has been moved earlier in the school career to allow simple familiarity			
Links to Sequencing for Learning: This unit links to previous work on Scientific Investigations completed in KS2 (although knowledge and understanding will be very variable due to differing backgrounds), alongside the Y7 Investigation Skills and Reactions I module This unit prepares pupils for work in all years and disciplines to ensure that they are able to work safely and effectively to produce results in practical tasks. It is a precursor for Acid and Alkalis, studied for Combined Science and Chemistry GCSE			
Section	What we are learning (Key knowledge)	Key words	Assessment
1	Acids and Alkalis <ul style="list-style-type: none"> compare the properties of acids and alkalis describe difference between concentrated and dilute solutions of an acid 	Acid, Alkali, Hydrogen, Concentrated, Dilute, Corrosive	
2	Indicators <ul style="list-style-type: none"> use the pH scale to measure acidity and alkalinity describe how indicators categorise solutions as acidic, alkaline, or neutral 	Indicator, pH Scale	
	Concentration <ul style="list-style-type: none"> use various concentrations of acid to neutralise an alkali describe concentrated and dilute 	Concentrated, dilute (and that they are different to) strong, weak	
3	Neutralisation <ul style="list-style-type: none"> describe how the pH changes in a neutralisation reaction 	Neutral, Neutralisation, Base, Salt	Core practical - Acid + Ca(OH) ₂
4	Making Salts <ul style="list-style-type: none"> describe what a salt is predict the salts that will form when acids react with metals or bases 	Neutral, Neutralisation, Acid, Base, Salt	
5	Making copper sulphate <ul style="list-style-type: none"> know the main processes involved in making copper sulphate (mix, filter, wash, dry) 		Core practical – making CuSO ₄
6	Revision		Class assessment sheet
7	End of Unit Test		EUT
8	Test Feedback		Test feedback sheet

Metals and the Earth

Opportunities for Breadth and Challenge:

Some pupils will explain the development, uses and application of the Periodic Table at varying depths, and investigate different elements and their uses

Links to Sequencing for Learning:

This unit links to previous work on Atoms, Elements, Compounds and Mixtures, as well as any previous study of the periodic table. Additionally, it builds upon Materials and their Properties covered in KS2, and The Periodic Table module completed in Y7

This unit prepares pupils for work in all years and disciplines to ensure that they are able to work safely and effectively to produce results in practical tasks, and the Periodic Table module studied for Combined Science and Chemistry GCSEs

Section	What we are learning (Key knowledge)	Key words	Assessment
1	Reactivity and Displacement <ul style="list-style-type: none"> use the reactivity series to predict reactions predict pairs of substances that react in displacement reactions 	Reactivity, Displacement, Compound, Reactants, Product	Self assessment of prediction task
2	Metals and Acids <ul style="list-style-type: none"> compare the reactions of different metals with dilute acids 	Hydrochloric, Sulfuric, Nitric, Phosphoric	Successful completion of practical activity
3	Metals and Oxygen <ul style="list-style-type: none"> compare the reactions of different metals with oxygen 	Metal, Oxygen, Oxide, Oxidation	Rap/ song performance
4	Metals and Water <ul style="list-style-type: none"> compare the reactions of metals with water 	Metal, Water, Hydroxide, Hydride	Analysis of data
5	Metal Carbonates and Acid <ul style="list-style-type: none"> predict the products of a metal carbonate and acid reaction 	Carbonate, Carbon Dioxide, Water	Explanation and analysis of practical results
6	Gas Tests <ul style="list-style-type: none"> explain the tests for the following gases: hydrogen, carbon dioxide, oxygen, chlorine 	Combustion, Bleaching, Limewater	MUM- Revision resource
7	Extracting Metals <ul style="list-style-type: none"> use the reactivity series to decide which metals can be extracted from their ores by heating with carbon 	Reactivity, Displacement, Carbon Dioxide	Yield numeracy task
8	The Structure of the Earth <ul style="list-style-type: none"> compare the layers of the Earth 	Crust, Mantle, Inner Core, Outer Core, Convection	Earth structure diagram, labelled with varying degrees of detail
9	The Rock Cycle <ul style="list-style-type: none"> use the rock cycle to explain how the material in rocks is recycled 	Igneous, Metamorphic, Sedimentary, Metamorphosis	<i>Rock song</i>

10	<p>Earth's Changing Atmosphere</p> <ul style="list-style-type: none"> describe the composition of the atmosphere define climate change describe how climate change is affected by human activity 	Nitrogen, Inert, Oxygen	Comprehension/ diagram labelling task
11	<p>The Carbon Cycle</p> <ul style="list-style-type: none"> explain why the concentration of carbon dioxide in the atmosphere did not change for many years use the carbon cycle to identify reservoirs of carbon 	Carbonate, Carbon Dioxide, Dissolved, Carbon Capture, Reservoir	Recall summary plenary
12	<p>Climate Change</p> <ul style="list-style-type: none"> define climate change describe how climate change is affected by human activity explain how the effects of climate change can be limited 	Climate, Weather, Extreme, Defences	Analysis of climate change measures
13	Revision		Class assessment sheet
14	End of Unit Test		EUT
15	Test Feedback		Test feedback sheet

