

Continuity Curriculum

An online shadow curriculum for students temporarily out of lessons to ensure continuity of learning

Year 10 – Chemistry (Combined Science)

Week Beginning	Lesson Title	Lesson Objective (on video)	Online Lesson Link	Any additional instructions?
8 th September	Lesson 1: C1 - Elements and Compounds Atomic Structure	<ul style="list-style-type: none"> Identify elements and compounds from diagrams Write and interpret chemical formulae Identify reactants and products in equations Apply conservation of mass to equations 	https://curriculum.unitedlearning.org.uk/Pupil?r=113867 https://curriculum.unitedlearning.org.uk/Pupil?r=113872	
	Lesson 2: Development of the Atomic Model	<ul style="list-style-type: none"> Describe atoms using the nuclear model State the charges and mass of the three subatomic particles Use the periodic table to calculate the number of protons, neutrons and 	https://curriculum.unitedlearning.org.uk/Pupil?r=113900 https://curriculum.unitedlearning.org.uk/Pupil?r=113907	

		electrons for any given element		
15 th September	Lesson 1: Reteach Isotopes	<ul style="list-style-type: none"> • State the definition of an isotope • Compare isotopes from given information • Calculate RAM of isotopes given their abundance and give answers to specified number of significant figures or decimal places 	https://curriculum.unitedlearning.org.uk/Pupil?r=113914	
	Lesson 2: Electron Configuration	<ul style="list-style-type: none"> • Describe what keeps electrons in their orbits • Draw and write the electron configuration for any of the first 20 elements • Describe the link between outer shell electron number, number of shells and location in the periodic table 	https://curriculum.unitedlearning.org.uk/Pupil?r=113928	
	Lesson 1: Periodic Table Development	<ul style="list-style-type: none"> • Describe the layout of the modern periodic table • Compare the early versions of the 	https://curriculum.unitedlearning.org.uk/Pupil?r=113935	

22 nd September		<p>periodic table with the modern one</p> <ul style="list-style-type: none"> Explain how the periodic table was developed as ideas changed 		
	Lesson 2: Why elements react?	<ul style="list-style-type: none"> Explain the difference between metals and non-metals in terms of reactions and electrons Explain why group 0 do not react in terms of electrons Describe trends in physical properties of group 0 	https://curriculum.unitedlearning.org.uk/Pupil?r=113942	
29 th September	Lesson 1: Group 1 Elements	<ul style="list-style-type: none"> Describe physical and chemical properties of the group 1 elements Write equations to represent their reaction with water Describe and explain trends in reactivity of group 1 	https://curriculum.unitedlearning.org.uk/Pupil?r=113949	
	Lesson 2: Group 7 Elements & Displacement	<ul style="list-style-type: none"> Describe/explain trends in physical properties of group 7 elements eg boiling point and colour 	https://curriculum.unitedlearning.org.uk/Pupil?r=113956 https://curriculum.unitedlearning.org.uk/Pupil?r=113963	

		<ul style="list-style-type: none"> Describe/explain trends in reactivity going down group 7 Describe the results of a series of reactions of group 7 elements and their compounds Explain the results using knowledge of reactivity Write word and symbol equations to represent the reactions 	https://curriculum.unitedlearning.org.uk/Pupil?r=112395	
6 th October	Lesson 1: C1 assessment	<ul style="list-style-type: none"> Recall definitions of key terms and use them correctly Application of knowledge to exam questions Correct key misconceptions on this topic 	https://curriculum.unitedlearning.org.uk/Pupil?r=113970	
	Lesson 2: C2- Ionic Bonding	<ul style="list-style-type: none"> Represent ionic bonding using diagrams Describe the formation of an ionic bond Write formula for ionic compounds 	https://curriculum.unitedlearning.org.uk/Pupil?r=113977	

13 th October	Lesson 1: Properties of Ionic Compounds	<ul style="list-style-type: none"> Describe and explain some of the physical properties of ionic compounds Make and record observations, working safely Describe the limitations of diagrams to represent ionic structures 	https://curriculum.unitedlearning.org.uk/Pupil?r=113982 https://curriculum.unitedlearning.org.uk/Pupil?r=113989	
	Lesson 2: Types of Covalent Substance	<ul style="list-style-type: none"> Define a covalent bond Draw covalent bonds showing shared pairs of electrons Use different models for covalent molecules and give the limitations for each Explain why some covalent substances form giant structures and some form molecules Describe physical properties of simple and giant covalent substances Explain physical properties of simple 	https://curriculum.unitedlearning.org.uk/Pupil?r=113996 https://curriculum.unitedlearning.org.uk/Pupil?r=114003 https://curriculum.unitedlearning.org.uk/Pupil?r=114010	

		and giant covalent substances		
20 th October	Lesson 1: Polymers Reteach	<ul style="list-style-type: none"> • Draw, name and recognise polymers • Explain why polymers tend to be solids at room temperature 	https://curriculum.unitedlearning.org.uk/Pupil?r=114024	
	Lesson 2: The Structure and Bonding of Carbon	<ul style="list-style-type: none"> • Explain why some covalent substances form giant structures and some form molecules • Describe physical properties of simple and giant covalent substances • Explain physical properties of simple and giant covalent substances • Describe the properties of diamond, graphite, fullerenes and graphene • Explain the properties using knowledge of the bonding and structure • Relate properties of these carbon allotropes to their uses 	https://curriculum.unitedlearning.org.uk/Pupil?r=114017	

4 th November	Lesson 1: Metallic Bonding	<ul style="list-style-type: none"> Describe the structure and bonding in metals Describe and explain the properties of metals Describe the structure of an alloy Explain why alloys are harder than pure metals 	https://curriculum.unitedlearning.org.uk/Pupil?r=114038	
	Lesson 2: Solids, Liquids and Gases	<ul style="list-style-type: none"> Predict the state of substances at different temperatures Predict the type of bonding present given melting and boiling point data (HT) Explain the limitations of the particle model in relation to changes of state 	https://curriculum.unitedlearning.org.uk/Pupil?r=114045	
10 th November	Lesson 1: C2 Review and assessment	<ul style="list-style-type: none"> Recall definitions of key terms and use them correctly Correct key misconceptions on this topic Application of knowledge to exam questions 	https://curriculum.unitedlearning.org.uk/Pupil?r=114031 https://curriculum.unitedlearning.org.uk/Pupil?r=114052	

	Lesson 2: C3 - Atomic and Formula Mass	<ul style="list-style-type: none"> • Use the periodic table and formulae to determine the relative formula mass of compounds • Work out percentage of given elements in a compound • Work out the mass of a particular element in a given mass of a compound 	https://curriculum.unitedlearning.org.uk/Pupil?r=114064 https://curriculum.unitedlearning.org.uk/Pupil?r=112895	
17 th November	Lesson 1: <u>Higher Tier</u> Moles and Avogadro <u>Foundation</u> Further questions on Mr	HT <ul style="list-style-type: none"> • Use $\text{Mass} = \text{Mr} \times \text{moles}$ to find any one value given the other two • Use Avogadro's constant to calculate number of atoms/molecules in a given mass • Calculate the mass of a given number of atoms using Avogadro's constant 	https://curriculum.unitedlearning.org.uk/Pupil?r=112900	
	Lesson 2: Balancing Equations	<ul style="list-style-type: none"> • Write chemical formulae using knowledge of ion charges 	https://curriculum.unitedlearning.org.uk/Pupil?r=114075 https://curriculum.unitedlearning.org.uk/Pupil?r=112909	

		<ul style="list-style-type: none"> Balance equations using the same number of atoms rule Balance equations using moles (HT only) 		
24 th November	Lesson 1: Reacting Masses	FT <ul style="list-style-type: none"> Apply conservation of mass to equations Use a balanced equation to work out the quantity of reacting elements needed to produce a specified quantity of product Predict the mass of product from a specified starting mass HT Predict the mass of product from a specified starting mass Use a balanced equation to work out the quantity of reacting elements needed to produce a specified quantity of product Suggest why the mass obtained may be less than that calculated 	https://curriculum.unitedlearning.org.uk/Pupil?r=114076 https://curriculum.unitedlearning.org.uk/Pupil?r=112914	

	<p>Lesson 2:</p> <p>Higher Tier Reacting Masses Part 2</p> <p>Foundation: Practice of reacting masses</p>	<ul style="list-style-type: none"> • Apply conservation of mass to equations • Use a balanced equation to work out the quantity of reacting elements needed to produce a specified quantity of product • Predict the mass of product from a specified starting mass • HT Predict the mass of product from a specified starting mass • Use a balanced equation to work out the quantity of reacting elements needed to produce a specified quantity of product • Suggest why the mass obtained may be less than that calculated 	https://curriculum.unitedlearning.org.uk/Pupil?r=112914	
<p>1st</p> <p>December</p>	<p>Lesson 1:</p> <p>Solutions</p>	<ul style="list-style-type: none"> • Define the term 'concentration' • Calculate concentration from mass and volume • Calculate the mass of a substance in a given 	https://curriculum.unitedlearning.org.uk/Pupil?r=114059 https://curriculum.unitedlearning.org.uk/Pupil?r=112923	

		volume of a solution of a known concentration		
	Lesson 2: Higher Tier: Limiting Reactants Foundation: Revision of C2/C3 content	HT <ul style="list-style-type: none"> • Define a limiting reactant • Describe the effect of a limiting reactant on the amount of products it is possible to achieve • Calculate the limiting reactant from a balanced symbol equation 	https://curriculum.unitedlearning.org.uk/Pupil?r=112928 https://curriculum.unitedlearning.org.uk/Pupil?r=114081	
8 th December	Lesson 1: <u>TERM ASSESSMENT</u>		https://curriculum.unitedlearning.org.uk/Pupil?r=112937	
	Lesson 2: Review of term assessment		https://youtu.be/mjllPJ_co18?si=TesCTHnGPlu5x3de	

15 th December	Lesson 1: C4- Oxidation and Reduction	<ul style="list-style-type: none"> Describe oxidation and reduction in terms of oxygen (HT and electrons) Identify where oxidation and reduction have happened given an equation Explain how carbon can be used to extract metals from their ores using redox reactions 	https://curriculum.unitedlearning.org.uk/Pupil?r=114082 https://curriculum.unitedlearning.org.uk/Pupil?r=113206	
	Lesson 2: Metals and Acids Reaction	<ul style="list-style-type: none"> Identify variables to change, measure and control to test the reactivity of metals Use observations to order metals in terms of reactivity Write equations for the reactions of acids and metals, naming salts (HT only) identify which species has been oxidised and reduced 	https://curriculum.unitedlearning.org.uk/Pupil?r=114087	
	Lesson 1: Mid year examinations			

7 th January	Lesson 2: Mid year examinations			
12 th January	Lesson 1: Mid year examinations			
	Lesson 2: Mid year examinations			
19 th January	Lesson 1: Metals and Acids Reaction	<ul style="list-style-type: none"> • Identify variables to change, measure and control to test the reactivity of metals • Use observations to order metals in terms of reactivity • Write equations for the reactions of acids and metals, naming salts • (HT only) identify which species has been oxidised and reduced 	https://curriculum.unitedlearning.org.uk/Pupil?r=113227	

	Lesson 2: Displacement Reactions	<ul style="list-style-type: none"> • Use experimental results to place metals in order of reactivity • Write balanced symbol equations for displacement reactions • Explain how the reactivity of metal is linked to forming ions • Write ionic equations for displacement reactions (HT only) • Identify oxidised and reduced species (HT only) 	https://curriculum.unitedlearning.org.uk/Pupil?r=114094	
26 th January	Lesson 1: Metal Oxides and Acids	<ul style="list-style-type: none"> • Write chemical equations to represent the reactions of metal oxides and acids • Explain the method steps to produce a pure, dry sample of a soluble salt • Use ion charges to write formulae for salts 	https://curriculum.unitedlearning.org.uk/Pupil?r=114101	
	Lesson 2: Metal Carbonates and Acids	<ul style="list-style-type: none"> • Describe evidence for a chemical reaction • Describe the test for carbon dioxide and its positive result 	https://curriculum.unitedlearning.org.uk/Pupil?r=114108	

		<ul style="list-style-type: none"> Write equations to represent the reactions of metal carbonates and acids 		
--	--	--	--	--

<p>2nd</p> <p>February</p>	Lesson 1: Making Salts	<ul style="list-style-type: none"> Write a method to prepare a salt using a metal carbonate or metal oxide Write equations for the reactions Suggest corrections to a given method to make a salt 	https://curriculum.unitedlearning.org.uk/Pupil?r=114115	
	Lesson 2: Acid and Alkali Reactions	<ul style="list-style-type: none"> Describe the limitations of using universal indicator to measure pH Write equations to represent the reactions of acids and alkalis Process secondary data on an acid and alkali reaction 	https://curriculum.unitedlearning.org.uk/Pupil?r=114122	

	Lesson 1: Higher Tier Strong and Weak Acids	<ul style="list-style-type: none"> Explain the difference between strong and weak acids 	https://curriculum.unitedlearning.org.uk/Pupil?r=114157	
--	--	--	---	--

9 th February	Foundation tier: Further acids and alkalis practice	<ul style="list-style-type: none"> Explain the difference between acid concentration and acid strength Make order of magnitude calculations to describe changes in pH 	https://curriculum.unitedlearning.org.uk/Pupil?r=113242	
	Lesson 2: Binary Compound Electrolysis	<ul style="list-style-type: none"> Define the terms 'electrolysis' and 'electrolytes' Describe the movement of ions during electrolysis Explain what happens at the electrodes (HT) Write half equations to represent the products 	https://curriculum.unitedlearning.org.uk/Pupil?r=114129	

23 rd February	Lesson 1: Using Electrolysis to Extract Metals	<ul style="list-style-type: none"> Describe the extraction of Aluminium from its ore Explain why aluminium oxide is dissolved in cryolite prior for the extraction process 	https://curriculum.unitedlearning.org.uk/Pupil?r=114136	
------------------------------	---	--	---	--

		<ul style="list-style-type: none"> Explain why the anode in the aluminium oxide electrolysis cell is replaced frequently (HT) Write the half equations for the reaction 		
	Lesson 2: Electrolysis of Solutions	<ul style="list-style-type: none"> Predict, with reasons, the products of the electrolysis of named solutions Carry out the electrolysis of an ionic solution & identify the products. Explain the products of the electrolysis practical (HT) Write appropriate half equations 	https://curriculum.unitedlearning.org.uk/Pupil?r=114143 https://curriculum.unitedlearning.org.uk/Pupil?r=113283	
2 nd March	Lesson 1: Required Practical: Electrolysis	<ul style="list-style-type: none"> Develop a hypothesis to test Electrolyse given solutions and identify the products Use results to explain whether or not a hypothesis is supported (HT) Write half equations for the 	https://curriculum.unitedlearning.org.uk/Pupil?r=114150 https://curriculum.unitedlearning.org.uk/Pupil?r=114178	

		reactions at the electrodes		
	Lesson 2: Required Practical 2: Analysis and conclusions	<ul style="list-style-type: none"> Electrolyse given solutions and identify the products Use results to explain whether or not a hypothesis is supported (HT) Write half equations for the reactions at the electrodes 	https://curriculum.unitedlearning.org.uk/Pupil?r=114164 https://curriculum.unitedlearning.org.uk/Pupil?r=113298	
9 th March	Lesson 1: C5 Energy Level Diagrams	<ul style="list-style-type: none"> Draw and interpret energy level diagrams to represent endothermic and exothermic reactions Label and define activation energy Explain why reactions are endothermic or exothermic overall 	https://curriculum.unitedlearning.org.uk/Pupil?r=114185 https://curriculum.unitedlearning.org.uk/Pupil?r=114211	
	Lesson 2: C5 - Exothermic and Endothermic	<ul style="list-style-type: none"> Define endothermic and exothermic reactions and give examples of each type Describe some everyday uses of 	https://curriculum.unitedlearning.org.uk/Pupil?r=114185 https://curriculum.unitedlearning.org.uk/Pupil?r=114211	

		exothermic and endothermic reactions <ul style="list-style-type: none"> Evaluate applications of exothermic and endothermic reactions 		
16 th March	Lesson 1: Higher Tier: Bond Energies Foundation: Drawing energy level diagram	HT <ul style="list-style-type: none"> Calculate bond energy values and use them to predict whether a reaction will be exothermic or endothermic Relate bond energies to the correct part of energy level diagrams Explain why bond energy calculations have a margin of error 	https://curriculum.unitedlearning.org.uk/Pupil?r=113494	
	Lesson 2: Required Practical: Energy Changes	<ul style="list-style-type: none"> Draw conclusions from data collected or provided Explain the changes in temperature during the experiment Evaluate the equipment and method used, making and explaining 	https://curriculum.unitedlearning.org.uk/Pupil?r=114190 https://curriculum.unitedlearning.org.uk/Pupil?r=114197	

		suggestions for improvement		
23 rd March	Lesson 1: <u>Half term assessment</u>		https://curriculum.unitedlearning.org.uk/Pupil?r=114204 https://curriculum.unitedlearning.org.uk/Pupil?r=114218 https://curriculum.unitedlearning.org.uk/Pupil?r=113495	
	Lesson 2: Revision C1: Atomic structure ,		https://curriculum.unitedlearning.org.uk/Pupil?r=114218	

14 th April	Lesson 1: Revision C1: Periodic table		https://youtu.be/GyH1-h8vYug?si=l2zrsZhOFHmge2sN	
	Lesson 2: Revision C1: Separation techniques		https://curriculum.unitedlearning.org.uk/Pupil?r=113879	

			https://curriculum.unitedlearning.org.uk/Pupil?r=113886 https://curriculum.unitedlearning.org.uk/Pupil?r=113893	
20 th April	Lesson 1: C2 revision: Structure and Bonding ionic		https://youtu.be/GyH1-h8vYug?si=VqZfkvSSrvx5lkJp	
	Lesson 2: C2 revision: Structure and Bonding Covalent & carbon		https://youtu.be/XTbtuyghTeU?si=B3-n-Y7ODE5Y8DRE	
20 th April	Lesson 1: C3 revision Molar mass		https://curriculum.unitedlearning.org.uk/Pupil?r=112895	
	Lesson 2: C3 revision Reacting masses		https://youtu.be/eAibVvhmsKo?si=8FRh_mHxZEAEN7NL	

27 th April	Lesson 1: C3 revision Electrolysis of aluminium oxide		https://youtu.be/hoGoebmztUQ?si=uPmfzDkCKolunOP	
	Lesson 2: C3 revision Electrolysis of solution eg sodium chloride solution and copper sulfate solution		https://youtu.be/KTmXEliU_Go?si=V6HgMdjlxwhmhFTW https://youtu.be/rokbEj2PDEg?si=AIDNN_UNDh9Z1dj9 https://youtu.be/L_BjGKdM2Bk?si=bEuPNtRVaUOOQSYP	
5 th May	Lesson 1: C4 revision: Acid reactions/neutralisation		https://youtu.be/KTmXEliU_Go?si=Yerho7o2EX7dTOLt	
	Lesson 2: C6 - Measuring Rates	<ul style="list-style-type: none"> Collect and record data to measure the rate of reaction Plot a graph of the data obtained. Describe and explain patterns in the data collected Calculate the rate of the reaction 	https://curriculum.unitedlearning.org.uk/Pupil?r=114232 https://curriculum.unitedlearning.org.uk/Pupil?r=114235 https://curriculum.unitedlearning.org.uk/Pupil?r=113600	

11 th May	Lesson 1: Required Practical: Concentration and Rates of Reaction: Gas syringe	<ul style="list-style-type: none"> Collect and record data to investigate the effect of concentration on rates of reaction Display this data appropriately <u>Describe</u> and <u>explain</u> the effect of concentration on the rate of reaction 	https://curriculum.unitedlearning.org.uk/Pupil?r=114238 https://curriculum.unitedlearning.org.uk/Pupil?r=114241 https://youtu.be/zi9ofiz9SmY?si=cYsTgyEavroyrijU	
	Lesson 2: Required Practical: Concentration and Rates of Reaction: sodium thiosulfate	<ul style="list-style-type: none"> Collect data to investigate the effect of concentration on rates of reaction Display this data appropriately <u>Describe</u> and <u>explain</u> the effect of concentration on the rate of reaction 	https://curriculum.unitedlearning.org.uk/Pupil?r=114244	
18 th May	Lesson 1: C5 Revision Energy in reactions: exothermic/endothermic Making salts		https://youtu.be/BzoC9mmF2tw?si=DZjEEuXhk4AiTqix	

	Lesson 2: C5 Revision energy calculations		https://youtu.be/lygXbRmYJn8?si=xIL-atHxoUgfgmGa https://youtu.be/1AfXbVobwyE?si=iAv643_oeHagXn_g https://youtu.be/CA9nmsLIVBc?si=kofob-ayEdRNi8-z	

1 st June	Lesson 1: C4/5 Revision <u>Displacement reactions</u> <u>Electrolysis of molten salts</u>		https://youtu.be/2i5Lm7BMtpo?si=DMTeSKLrQVUBmi5F https://youtu.be/3HMoibkpxcU?si=zBEXPUmFa5f1rYoJ https://youtu.be/2uQueWTE2c8?si=Rg6VFWelhf3N1WOF	
	Lesson 2: C6: Effect of temperature	<ul style="list-style-type: none"> Describe and explain the effect of temperature on rates of reaction, using particle theory. Process and analyse secondary data on the effect of temperature on the rate of reaction 	https://curriculum.unitedlearning.org.uk/Pupil?r=114253	

		<ul style="list-style-type: none"> Present secondary data appropriately, explaining the choice of graph 		
8 th June	Lesson 1: EoY Assessments			
	Lesson 2: EoY Assessments			
15 th June	Lesson 1: EoY Assessments			
	Lesson 2: EoY Assessments			
23 rd June	Lesson 1: <u>C6</u> Effect of Surface Area	<ul style="list-style-type: none"> Identify variables to change, measure and control to test a hypothesis Write a valid method to test the given hypothesis Describe and explain the effect of changing 	https://curriculum.unitedlearning.org.uk/Pupil?r=114247	

		<p>endothermic reactions are linked</p> <ul style="list-style-type: none"> Explain what is meant by 'dynamic equilibrium' 		
6 th July	Lesson 1: Review Chem paper <u>Blue pen task on paper</u>			
	Lesson 2: Review Chem paper <u>Blue pen task on paper</u>			
13 th July	Lesson 1: Reversible Reactions	HT <ul style="list-style-type: none"> State and apply Le Chatelier's principle to any reversible reaction Describe the effect on equilibrium of changes to temperature and concentration Choose and explain the conditions needed to achieve a high yield FT	https://curriculum.unitedlearning.org.uk/Pupil?r=114262 https://curriculum.unitedlearning.org.uk/Pupil?r=113630	

		<ul style="list-style-type: none"> Describe what is meant by a reversible reaction and how to represent it Explain how reversible exothermic and endothermic reactions are linked Explain what is meant by 'dynamic equilibrium' 		
	<p>Lesson 2:</p> <p>HIGHER TIER Pressure and Yield</p> <p>Foundation tier: Examples of reversible reaction eg Haber process</p>	<ul style="list-style-type: none"> Describe and explain the effect of changes in pressure on the equilibrium of gaseous reactions Describe and explain the conditions for optimum yield for a given reaction 	https://curriculum.unitedlearning.org.uk/Pupil?r=113635 https://curriculum.unitedlearning.org.uk/Pupil?r=113636	