HOLLAND PARK SCHOOL | 2025-2026

Continuity Curriculum

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

Year 10 – Chemistry (Triple Separate Science)

Week Beginning	Lesson Title	Lesson Objective (on video)	Online Lesson Link	Any additional instructions?
8th September	**Lesson 1:** C1 - Elements and Compounds **Atomic Structure**	• 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	• 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		
15th September	**Lesson 1:** Reteach Isotopes	• 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	• 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	• Describe the layout of the modern periodic table • Compare the early versions of the	https://curriculum.unitedlearning.org.uk/Pupil?r=113935	

22nd September		periodic table with the modern one • Explain how the periodic table was developed as ideas changed		
	Lesson 2: Why elements react?	• 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	
29th September	**Lesson 1:** Group 1 Elements	• 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	• 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	

		• 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	
6th October	**Lesson 1:** **Transition elements**	• Describe typical properties of the transition elements • Compare transition elements and their compounds with those of with group 1 • Give uses of transition metals linked to their properties	https://continuityoak.org.uk/Lessons?r=9580	
	Lesson 2: **C1 assessment**	• Recall definitions of key terms and use them correctly • Application of knowledge to exam questions	https://curriculum.unitedlearning.org.uk/Pupil?r=113970	

		• Correct key misconceptions on this topic		
13th October	**Lesson 1:** **C2-** Ionic Bonding	• 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	
	Lesson 2: Properties of Ionic Compounds	• 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	
20th October	**Lesson 1:** Types of Covalent Substance	• Define a covalent bond • Draw covalent bonds showing shared pairs of electrons • Use different models for covalent molecules and give the limitations for each	https://curriculum.unitedlearning.org.uk/Pupil?r=113996 https://curriculum.unitedlearning.org.uk/Pupil?r=114003 https://curriculum.unitedlearning.org.uk/Pupil?r=114010	

		• 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		
	Lesson 2: Polymers Reteach	• Draw, name and recognise polymers • Explain why polymers tend to be solids at room temperature	https://curriculum.unitedlearning.org.uk/Pupil?r=114024	
4 th November	**Lesson 1:** The Structure and Bonding of Carbon	• 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	https://curriculum.unitedlearning.org.uk/Pupil?r=114017	

		• 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		

4 th November	**Lesson 2:** Metallic Bonding	• 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	
10 th November	**Lesson 1:** Solids, Liquids and Gases	• Predict the state of substances at different temperatures • Predict the type of bonding present given melting and boiling point data	https://curriculum.unitedlearning.org.uk/Pupil?r=114045	

		• (HT) Explain the limitations of the particle model in relation to changes of state		
	Lesson 2: **Nanoparticles**	• Compare dimensions of particles of different sizes, converting units where necessary • Explain why nanoparticles have different properties than bulk materials, using calculations to support • Evaluate the use of nanoparticles given appropriate information	https://continuityoak.org.uk/Lessons?r=9581	
17 th November	**Lesson 1:** C2 Review and assessment	• 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	• Use the periodic table and formulae to determine the relative formula mass of compounds	https://curriculum.unitedlearning.org.uk/Pupil?r=114064	

		• 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=112895	
24 th November	**Lesson 1:** **<u>Higher Tier</u>** Moles and Avogadro	HT • Use Mass = Mr x 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	• Write chemical formulae using knowledge of ion charges • Balance equations using the same number of atoms rule • **Balance equations using moles (HT only)**	https://curriculum.unitedlearning.org.uk/Pupil?r=114075 https://curriculum.unitedlearning.org.uk/Pupil?r=112909	
	Lesson 1:	FT	https://curriculum.unitedlearning.org.uk/Pupil?r=114076	

1 st December	Reacting Masses	• 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	
	Lesson 2: **Higher Tier** Reacting Masses Part 2	• Apply conservation of mass to equations • Use a balanced equation to work out the quantity of reacting elements needed to	https://curriculum.unitedlearning.org.uk/Pupil?r=112914	

		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**		
8 th December	**Lesson 1:** **Atom economy**	• Balance equations using same number of atoms and moles • Calculate atom economy for given reactions • Choose and justify a reaction pathway	https://continuityoak.org.uk/Lessons?r=9585	
	Lesson 2: Solutions	• Define the term 'concentration'	https://curriculum.unitedlearning.org.uk/Pupil?r=114059	

		• Calculate concentration from mass and volume Calculate the mass of a substance in a given volume of a solution of a known concentration	https://curriculum.unitedlearning.org.uk/Pupil?r=112923	
15 th December	**Lesson 1:** **Introduction to Titration**	• Safely carry out a titration to achieve repeatable results • Calculate mean and uncertainty in burette readings, using **concordant** results. • Calculate the concentration of an unknown alkali using titration readings •	Consolidation of calculations: https://continuityoak.org.uk/Lessons?r=11352 Titrations: https://youtu.be/Fs2jQADGfNc?si=f9QOCrICFjcan7K7 https://continuityoak.org.uk/Lessons?r=9588	
	Lesson 2: **Higher Tier**: Limiting Reactants	HT • 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	

7 th January	**Lesson 1:** **<u>TERM ASSESSMENT</u>**		https://curriculum.unitedlearning.org.uk/Pupil?r=112937	
	Lesson 2: Review of term assessment		https://youtu.be/mjlIPJ_c018?si=TesCTHnGPIu5x3de	
12 th January	**Lesson 1:** **Moles and Gases**	• Calculate the volume of a gas at room temperature and pressure from its mass and formula mass • Calculate volumes of gaseous reactants and products from a given volume of a gaseous reactant or product.	https://youtu.be/lbAj4X6bwqE?si=wiXH4_BgE5uc7hLh	
	Lesson 2: **C4- Oxidation and Reduction**	• Describe oxidation and reduction in terms of oxygen (HT and electrons)	https://curriculum.unitedlearning.org.uk/Pupil?r=114082 https://curriculum.unitedlearning.org.uk/Pupil?r=113206	

		• 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		
19 th January	**Lesson 1:** Metals and Acids Reaction	• 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 2: Reactivity of Metals	• Use experimental results to place metals in order of reactivity • Write balanced symbol equations for displacement reactions	https://continuityoak.org.uk/Lessons?r=7504 https://continuityoak.org.uk/Lessons?r=7511	

		• 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)**		
26 th January	**Lesson 1:** Metal Oxides and Acids	• 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	• Describe evidence for a chemical reaction • Describe the test for carbon dioxide and its positive result • Write equations to represent the reactions of metal carbonates and acids	https://curriculum.unitedlearning.org.uk/Pupil?r=114108	

2 nd February	**Lesson 1:** Mid year examinations		https://curriculum.unitedlearning.org.uk/Pupil?r=113227	
	Lesson 2: Making Salts	• 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	
9 th February	**Lesson 1:** Acid and Alkali Reactions	• 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 2: **Higher Tier** Strong and Weak Acids	• Explain the difference between strong and weak acids • Explain the difference between acid concentration and acid strength • Make order of magnitude	https://curriculum.unitedlearning.org.uk/Pupil?r=114157 https://curriculum.unitedlearning.org.uk/Pupil?r=113242	

		calculations to describe changes in pH		
23 rd February	**Lesson 1:** Titration required practical	• Safely carry out a titration to achieve repeatable results • Calculate mean and uncertainty in burette readings, using **concordant** results. • Calculate the concentration of an unknown alkali using titration readings. •	https://continuityoak.org.uk/Lessons?r=9588	
	Lesson 2: **Titration calculations**	• Suggest improvements to a titration method description • Write a method to explain how to find the concentration of an unknown acid or alkali • Use titration results to calculate an unknown concentration in mol/dm^3	https://continuityoak.org.uk/Lessons?r=9589	

2 nd March	**Lesson 1:** Binary Compound Electrolysis	• 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	
	Lesson 2: Using Electrolysis to Extract Metals	• Describe the extraction of Aluminium from its ore • Explain why aluminium oxide is dissolved in cryolite prior for the extraction process • Explain why the anode in the aluminium oxide electrolysis cell is replaced frequently • (**HT) Write the half equations for the reaction**	https://curriculum.unitedlearning.org.uk/Pupil?r=114136	

9th March	**Lesson 1:** Electrolysis of Solutions	• 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	
	Lesson 2: Required Practical: Electrolysis	• 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 reactions at the electrodes**	https://curriculum.unitedlearning.org.uk/Pupil?r=114150 https://curriculum.unitedlearning.org.uk/Pupil?r=114178 https://curriculum.unitedlearning.org.uk/Pupil?r=114164 https://curriculum.unitedlearning.org.uk/Pupil?r=113298	

16 th March	**Lesson 1:** **C5 -** Exothermic and Endothermic	• Define endothermic and exothermic reactions and give examples of each type • Describe some everyday uses of exothermic and endothermic reactions • Evaluate applications of exothermic and endothermic reactions	https://curriculum.unitedlearning.org.uk/Pupil?r=114185 https://curriculum.unitedlearning.org.uk/Pupil?r=114211	
	Lesson 2: Required Practical: Energy Changes	• Draw conclusions from data collected or provided • Explain the changes in temperature during the experiment • Evaluate the equipment and method used, making and explaining suggestions for improvement •	https://curriculum.unitedlearning.org.uk/Pupil?r=114190 https://curriculum.unitedlearning.org.uk/Pupil?r=114197	
23 rd	**Lesson 1:** Required Practical: Energy Changes 2	• Draw conclusions from data collected or provided	https://curriculum.unitedlearning.org.uk/Pupil?r=114190 https://curriculum.unitedlearning.org.uk/Pupil?r=114197	

March		• Explain the changes in temperature during the experiment • Evaluate the equipment and method used, making and explaining suggestions for improvement •		
	Lesson 2: **C5** Energy Level Diagrams	• 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	
13th April	**Lesson 1:** **Higher Tier**: Bond Energies	HT • 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	https://curriculum.unitedlearning.org.uk/Pupil?r=113494 https://continuityoak.org.uk/Lessons?r=7666	

		• Explain why bond energy calculations have a margin of error		
	Lesson 2	• Revision C1	https://continuityoak.org.uk/Lessons?r=7245 https://continuityoak.org.uk/Lessons?r=7268	
20th April	Lesson 1 : Cells and batteries	• Describe how cells and batteries can be made and how the voltage can vary	https://continuityoak.org.uk/Lessons?r=9590	
	Lesson 2: **Fuel cells**	• Describe how a fuel cell works • Write the half equations for the electrode reactions in a fuel cell • Evaluate the use of hydrogen fuel cells in comparison with rechargeable cells and batteries	https://continuityoak.org.uk/Lessons?r=9590	
23 rd March	**Lesson 1:** C1 Revision		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=I2zrsZhOFHm9e2sN	
	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=V9ZfkvSSrvx5lkJp	
	Lesson 2: C2 revision: Structure and Bonding Covalent & carbon		https://youtu.be/XTbtuy9hTeU?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/eAibVvhmsK0?si=8FRh_mHxZEAEN7NL	
27 th April	**Lesson 1:** C3 revision Electrolysis of aluminium oxide		https://youtu.be/hoGoebmztUQ?si=_uPmfzDkCKolunOP	
	Lesson 2: C3 revision		https://youtu.be/KTmXEIiU_Go?si=V6H9MdjlxwhmhFTW	

	Electrolysis of solution eg sodium chloride solution and copper sulfate solution		https://youtu.be/rokbEj2PDEg?si=AlDNN_UNDh9Z1dj9 https://youtu.be/L_BjGKdM2Bk?si=bEuPNtRVaUOOQSYP	
5th May	**Lesson 1:** C4 revision: Acid reactions/neutralisation		https://youtu.be/KTmXEIiU_Go?si=Yerh0702EX7dTOLt	
	Lesson 2: **C6** - Measuring Rates	• 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	
11th May	**Lesson 1:** Required Practical: Concentration and Rates of Reaction: Gas syringe	• Collect and record data to investigate the effect of concentration on rates of reaction • Display this data appropriately • Describe and explain the effect of	https://curriculum.unitedlearning.org.uk/Pupil?r=114238 https://curriculum.unitedlearning.org.uk/Pupil?r=114241 https://youtu.be/7i90fiz9SmY?si=cYsT9yEavroyrijU	

		concentration on the rate of reaction		
	Lesson 2: Required Practical: Concentration and Rates of Reaction: sodium thiosulfate	• Collect data to investigate the effect of concentration on rates of reaction • Display this data appropriately • Describe and explain 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/IygXbRmYJn8?si=xlL-atHxoUgf9mGa https://youtu.be/1AfXbVobwyE?si=iAv643_oeHa9Xn_9 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**	• 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 • Present secondary data appropriately, explaining the choice of graph	https://curriculum.unitedlearning.org.uk/Pupil?r=114253	
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:** **C6** Effect of Surface Area	• 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 surface area on the rate of reaction	https://curriculum.unitedlearning.org.uk/Pupil?r=114247	
	Lesson 2: Pressure in Gaseous Reactions	• Describe and explain the effect of pressure on gaseous reaction	https://curriculum.unitedlearning.org.uk/Pupil?r=114250	
	Lesson 1: The Effect of Catalysts	• Describe what a catalyst is and how it affects the rate of a reaction	https://curriculum.unitedlearning.org.uk/Pupil?r=114256	

29 th June		• Explain why more than one catalyst is often needed • Draw a reaction profile for a reaction with and without a catalyst		
	Lesson 2: **HIGHER TIER** Le Chateliers Principle **Foundation tier:** Catalysts and energy level diagrams	FT • Draw a reaction profile for a reaction with and without a catalyst HT • 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'	https://curriculum.unitedlearning.org.uk/Pupil?r=114259 https://curriculum.unitedlearning.org.uk/Pupil?r=114262	
6 th July	**Lesson 1:** Review Chem paper **Blue pen task on paper**			
	Lesson 2: Review Chem paper **Blue pen task on paper**			

13 th July	**Lesson 1:** Reversible Reactions	HT • 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 • 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'	https://curriculum.unitedlearning.org.uk/Pupil?r=114262 https://curriculum.unitedlearning.org.uk/Pupil?r=113630	
	Lesson 2: **HIGHER TIER** Pressure and Yield	• Describe and explain the effect of changes in pressure on the equilibrium of gaseous reactions	https://curriculum.unitedlearning.org.uk/Pupil?r=113635 https://curriculum.unitedlearning.org.uk/Pupil?r=113636	

		• Describe and explain the conditions for optimum yield for a given reaction		