

Year 10 Chemistry Mock Exam – Summer 2025 Checklist

Unit	Criteria	Rev Guide Page	✓
Prior Knowledge (from Years 7-9)	Describe the arrangement, movement and energy of the particles in the three states of matter	2	
	Name the conversions between the states and describe them	2	
	Define the terms solute, solvent, solution and saturated	4	
	Define elements, compounds and mixtures	8	
	Describe how to use filtration and crystallization to separate solids from liquids or solutions	9	
	Describe how to use chromatography to separate soluble solids from a mixture in a solution (eg. inks from dyes)	10	
	Interpret chromatograms including calculation Rf values	10	
	Describe how to use simple and fractional distillation to separate solutions and mixtures of liquids	11	
Unit 1: Atomic Structure and Bonding	Describe how results of experiments involving dilutions and diffusion of gases can be explained	3	
	Define the terms atom and molecule	6	
	Describe the structure of an atom in terms of the positions, relative masses and relative charges of the sub-atomic particles	6	
	Define the terms atomic mass, mass number, isotopes and relative atomic mass	6	
	Calculate the relative atomic mass of an element (Ar) from isotope abundancies	7	
	Deduce the electron configurations of the first 20 elements from their positions in the Periodic Table	14	
	Describe how the electronic configuration of an elements is related to its position in the Periodic Table	14	
	Describe how the Periodic table is arranged	13	
	Classify metals and non-metals from their properties	15	
	Classify metals and non-metals from their position in the Periodic Table	15	
	Describe why elements in the same group have similar chemical properties	13	
	Describe why the noble gases do not readily react	15	
	Describe how ions form	16	
	Use dot and cross diagrams to show how ionic compounds are formed	16	
	Describe ionic bonding	16	
	Recall the charges on ions	16	
	Deduce ionic formulae	17	
	State the properties of ionic compounds	17	
	Link the properties of ionic compounds to their structure	17	
	Describe how covalent bonds are formed	18	
	Draw dot and cross diagrams of covalent substances	18-19	

Unit 1: Atomic Structure and Bonding cont.	Define the term molecule	6	
	State the properties of simple molecular substances	20	
	Explain the properties in terms of the structure	20	
	Describe and explain the change in melting and boiling points of simple molecular structures and relative molecular mass	20	
	State the properties of giant covalent structures	20	
	Link the properties to the structure	20	
	Describe the different structures and explain the properties of carbon	20	
Unit 2a: Groups 1 and 7	Describe the physical similarities between lithium, sodium & potassium	35	
	Describe the reactions of lithium, sodium & potassium with oxygen and with water	35	
	Predict the properties of other alkali metals	35	
	Describe the reactions of the alkali metals with water	35	
	Write word and chemical equations for the reactions of the alkali metals	35	
	Give details about chlorine, bromine & iodine including colour, state at room temperature and colour of vapour	36	
	Make predictions about other halogens	36	
	Describe how the halogens react with metals	36	
	Write word and chemical equations for the reactions of the halogens	36	
	Describe how displacement reactions can illustrate the trend in reactivity of the Halogens	37	
	Write word and chemical equations for the reactions studied in this topic	N/A	
Unit 2b: Acids, Bases and Salts	Define acids and bases in terms of proton transfer, ions released and neutralization	46	
	Give the formulae of hydrochloric, sulfuric and nitric acids	47	
	Describe how to use litmus, phenolphthalein and methyl orange to identify acids and alkalis	46	
	Describe how to use Universal Indicator and the pH scale to assess the strength of acids and alkalis	46	
	State whether given salts are soluble or insoluble	49	
	Describe and write equations for the reactions between acids and metals, bases (oxides and hydroxides) and carbonates	47	
	Describe how to make a pure, dry sample of a soluble salt from an insoluble reactant	50	
	Core practical: prepare a sample of pure, dry hydrated copper(II) sulfate crystals starting from copper(II) oxide	50	
Unit 3: Moles + Calculations	Defining and calculating RAM and RFM	24	
	Using the moles, mass and RFM triangle	25	
	Calculating empirical and molecular formula from data	27	
	Describing the empirical formula experiment	28	

Unit 3: Moles + Calculations cont.	Calculating the water of crystallization from experimental data	29	
	Describing an experiment to calculate the water of crystallization	29	
	Calculating reacting masses	26	
	Percentage Yield	26	
	Write word and chemical equations for the reactions studied in this topic	N/A	
Unit 4a: Gases of the Atmosphere	Give the percentages of gases in the atmosphere	38	
	Describe how to measure the percentage of O ₂ in the atmosphere	38	
	Describe the combustion of magnesium, hydrogen and sulfur in oxygen	39	
	To describe how to test for hydrogen, oxygen, carbon dioxide, chlorine and ammonia	53	
	Describe the thermal decomposition of carbonates	39	
	Describe the effects of carbon dioxide on the environment	40	
	Describe the process of rusting	43	
	Describe how rusting can be prevented	43	
	Write word and chemical equations for the reactions studied in this topic	N/A	
Unit 4b: Metals and Reactivity	Describe the reactions of metals with acid, water and steam	41	
	Deduce a reactivity series from evidence	42	
	Define displacement reactions and use displacement reactions to deduce the reactivity of metals	42	
	Describe the reduction of metal oxides	44	
	Define reduction and oxidation	44	
	Describe redox reactions	44	
	Write word and chemical equations for the reactions studied in this topic	N/A	
Unit 5: Rates of Reaction	Describe collision theory	59	
	Describe how to increase the rate of a chemical reaction	60	
	Describe experiments to investigate the effects of changes in surface area of a solid, concentration of a solution, temperature and the use of a catalyst on the rate of a reaction	61-64	
	Draw rates graphs, use rates graphs to calculate the rate of a reaction using a tangent to a curve and sketch expected results from changed conditions	63	
	Explain the effects of changes in surface area of a solid, concentration of a solution, temperature and the use of a catalyst on the rate of a reaction	60	
	Define a catalyst and explain how it works	64	
	Compare the effectiveness of catalysts on the rate of a chemical reaction	64	

Please note: the content in the revision guide labelled “Paper 2” will **not** be included in the mock exam this summer!