GCSE Chemistry – Paper 2

AQA Specification 8462

Personal Learning Checklist (PLC)

6. The Rate and Extent of Chemical Change

	Learning Objectives:	Confidence		
Rates of reaction	Draw reaction profiles diagrams for exothermic and endothermic reactions.			
	Describe how the rate of reaction can be determined experimentally.			
	Identifying variable from a scientific method including the independent, dependent and control variables.			
	Explain what happens to particles in a reaction using the collision theory.			
	Predict what happens to the rate of reaction if the temperature, concentration, pressure or surface area are changed and explain why this happens using ideas about particles and collision theory.			
	Describe what catalysts and enzymes are.			
	Calculate the mean rate of reaction.			
	Recall the symbol used to represent a reversible reaction.			
	Describe how the direction of a reversible reaction can be changed by changing the conditions, e.g. the thermal decomposition of ammonium chloride.			
	Explain how equilibrium is reached with a reversible reaction in a closed system.			
	Use Le Chatelier's Principle to predict the effect of changing conditions (concentration, temperature or pressure) on a system at equilibrium			
	Predict the effect of using a catalyst on the position of equilibrium. Recall the use of transition metals as catalysts.			

7. Organic Chemistry

	Learning Objectives:	Confidence		
Crude oil and alkanes	Define the terms mixture and hydrocarbon.			
	Describe how crude oil is separated.			
	Explain why crude oil is separated and how the technique works.			
	Describe what an alkane is.			
	Identify an alkane from its name, molecular formula or displayed formula.			
	Describe what an alkene is.			
	Describe how to test for an alkene using bromine water.			
	Balance symbol equations for cracking of long chain alkanes			
Functional groups	Recognise the following substances based on the presence of their functional groups – alkenes, alcohols, carboxylic acids, esters and polymers			
	Recall the reactions of alkenes with bromine water, hydrogen, chlorine and water			

8. Chemical Analysis

	Learning Objectives:	Confidence		
Chemical Anaylsis	Describe and explain how paper chromatography can be used to separate mixtures.			
	Explain how to identify pure and impure substances by chromatography.			
	Interpret chromatograms and calculate R_f values from chromatograms.			
	Required Practical – Investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Calculate R_f values.			
	Describe how to test for the following gases (and the results of the tests): hydrogen, oxygen, carbon dioxide and chlorine.			
	Describe how to test for positive and negative ions (and the results of the tests) – metal ions, metal hydroxides, metal carbonate, halide ions, and sulfate ions			
	Use of mathematical skills to use data to calculate mass			

9. Chemistry of the Atmosphere

	Learning Objectives:	Confidence		
	Recall the proportions of the gases that currently make up the Earth's atmosphere.			
	Describe the main changes to the Earth's atmosphere over the past 4.6 billion years and some of the likely causes of these changes.			
	Explain how the percentage of oxygen increased and how the percentage of carbon dioxide decreased.			
	Define the term 'greenhouse gas' and recall that naturally occurring greenhouse gases are carbon dioxide, methane and water vapour			

	Name human activities that produce greenhouse gases			
	Explain the effect that greenhouse gases have on global warming.			
	Name pollutants produced through combustion of fossil fuels			
	Explain when complete and incomplete combustion occurs			
	Describe the environmental and health impacts of pollutants			

10. Using Resources

	Learning Objectives:	**Confidence**		
Using Resources	State what is meant by the term 'potable water'			
	Distinguish between potable water and pure water			
	Describe how potable water is produced			
	Required practical – Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation			
	Describe what a composite material is and give examples of composites.			
	Describe what a polymer is and how they can be represented using displayed formula.			
	Name naturally occurring polymers including cellulose and DNA			
	Describe what an alloy is			
	Explain what the Haber process is and how it is an example of a reversible reaction. Explain how factors can affect the quantities produced by the Haber process and how changing conditions affects the position of equilibrium.			
	Describe what a life cycle assessment (LCA) is and state the four stages that are considered.			
	Discuss how an LCA can be used to evaluate a product.			