Triple Science, Higher Tier

C7 Organic Chemistry Revision Checklist

Topic	Content	✓
Crude Oil, Hydrocarbon, Cracking and Alkanes	• Crude Oil and Hydrocarbons – Define hydrocarbons as compounds made of hydrogen and carbon, describe their structure, properties, and importance as fuels, explain complete and incomplete combustion.	
	• Fractional Distillation and Petrochemicals – Describe the composition of crude oil and how it is separated into fractions based on boiling points, explain the uses of different fractions in industry.	
	• Define alkanes as saturated hydrocarbons. Describe their general formula, structural formula, and properties. Explain why they are relatively unreactive except in combustion.	
	• Properties of Hydrocarbons – Describe trends in boiling point, viscosity, and flammability as molecular size increases, explain why smaller hydrocarbons are more useful as fuels, write balanced equations for the complete combustion of hydrocarbons.	
Structure and Formulae of Alkenes	• Cracking and Alkenes – Define alkenes as unsaturated hydrocarbons. Describe their general formula and reactions. Explain how hydrocarbons can be broken down through cracking to produce smaller, more useful molecules, describe the conditions for catalytic and steam cracking, recall that cracking produces alkanes and alkenes, describe how bromine water is used to test for alkenes.	
	• Reactions of Alkenes – Explain how alkenes undergo addition reactions with hydrogen, halogens, and water to form useful products, compare these to combustion reactions, draw fully displayed structural formulae of alkenes and their addition reactions with hydrogen, water, chlorine, bromine, and iodine.	

Triple Science, Higher Tier

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Topic	Content	✓
Alcohols and Carboxylic Acids	• Alcohols – Describe the structure, properties, and uses of alcohols, explain how ethanol is produced by fermentation and hydration of ethene, discuss their reactions with oxygen, sodium, and carboxylic acids, describe the conditions required for fermentation of sugar using yeast.	
	• Carboxylic Acids – Describe the structure and properties of carboxylic acids, explain their weak acidic nature and reactions with carbonates, metals, and alcohols, explain why carboxylic acids are weak acids in terms of ionisation and pH.	
	• Esters - Explain how esters are formed from carboxylic acids and alcohols. Describe their uses in perfumes and food flavourings.	
Synthetic and Naturally Occurring Polymers	• Polymers and Polymerisation – Define polymers as large molecules made from repeating units called monomers, explain the difference between addition and condensation polymerisation, discuss common addition polymers such as poly(ethene) and poly(propene) and their uses.	
	• Addition Polymerisation – Describe how addition polymerisation occurs when unsaturated monomers join to form long chains, explain the properties and applications of common addition polymers, identify addition polymers and monomers from given structures.	
	• Condensation Polymerisation – Explain how condensation polymerisation produces polymers and small molecules such as water, compare condensation polymerisation to addition polymerisation, describe how condensation polymers are formed from monomers with two functional groups.	
	• Amino Acids and Proteins – Describe the structure of amino acids and their functional groups, explain how amino acids react by condensation polymerisation to form polypeptides and proteins, describe how different amino acids form different proteins.	
	• DNA and Naturally Occurring Polymers – Describe DNA as a large molecule essential for life made of two polymer chains in a double helix structure, describe DNA as made from four different nucleotide monomers, explain that other naturally occurring polymers include proteins, starch, and cellulose.	

Triple Science, Foundation Tier

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Triple Science, Foundation Tier

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	• DNA and Naturally Occurring Polymers – Describe DNA as a large molecule essential for life made of two polymer chains in a double helix structure, describe DNA as made from four different nucleotide monomers, explain that other naturally occurring polymers include proteins, starch, and cellulose.	

Double Science

C7 Organic Chemistry Revision Checklist

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