

Blue Pathway								
Purple Pathway								
Orange Pathway								
	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Step 11	Step 12
AO1 Remember	Describe the usefulness of cracking	Describe the difference between an alkane and alkene	Identify hydrocarbons in series of alkanes	Describe reactions and conditions to create alkenes	Explain structure and formulae of alkanes	Describe conditions for types of cracking	Explain boiling points of fractions in crude oil	Use accurate and appropriate scientific language and units
	Recognise alcohols from their names/ formula and give their uses		Recall the fractions in crude oil	Draw displayed structural formulae for 1st 4 alkenes	Explain how fractional distillation works	Explain alkene reactions	Explain alkenes as unsaturated molecules	Explain why carboxylic acids are weak acids
		Use some key words and phrases.	Recognise carboxylic acids from their names or formulae	Describe reactions of 1 <sup>st</sup> 4 alcohols	Recall how properties of hydrocarbons is related to size	Describe reactions of carboxylic acids	Explain role of functional groups in condensation polymers	Explain how amino acids build proteins and how sugars form part of DNA structure
AO2 Application	Use word equations	Use word & symbol equations	Explain how crude oil is separated	Use state symbols in equations (s), (l), (g) & (aq)	Use theories to make detailed explanations of events.	Balance chemical equations	Explain how properties of hydrocarbons is related to size	Write balanced equations for complete combustion
			Balance equations of combustion	Describe fermentation				
	Sometimes use data to support evidence.	Identify properties that influence fuel choice	Interpret data and use it to support evidence.	Explain basic principles of condensation polymerisation	Relate polymers to monomer structures	Explain how an ester is made	Give examples to illustrate the usefulness of cracking	Explain structure of repeating units in condensation polymer
AO3 Analyse and Evaluate	Evaluate basic information to develop simple arguments and explanations.	Write reasoned explanations of a conclusion based on the experimental data	Evaluate information to develop arguments and explanations.	Evaluate data with reference to potential sources of error.	Explain the consequences of incomplete combustion	Draw detailed, evidence-based conclusions.	Explain how modern life depends on hydrocarbons	Critically analyse data to draw logical, well-evidenced conclusions
	Recognise anomalous results		Identify some causes of error	Evaluate the reliability of methods				
AO3 Experimental Procedures	Identify variables in an investigation	Explain the importance of sampling technique and control variables	Correctly use an appropriate number of decimal places	Accurately make and record observations and measurements	Make more complex and quantitative predictions using scientific knowledge and understanding	Safely carry out practical investigations by creating a full risk assessment	Justify the choice of experimental methods and apparatus	Use all the correct scientific language throughout.
		Accurately make and record observations and measurements					Explain accuracy, precision, resolution and reliability	