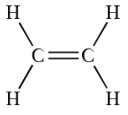
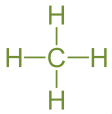
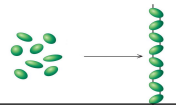
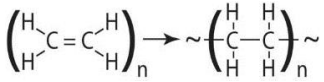
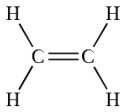
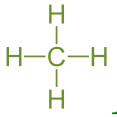
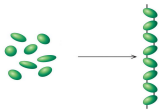
F	1	2	3	4	5	6
1	 crude oil	alkanes	molecules made from joining alkenes together	homologous series	fuels 	cracking
2	solvents	fractions (from fractionating column)	fermentation	monomer molecules of proteins	C_nH_{2n+2}	alkenes
3	how easily a substance ignites and burns	kerosene	oxidation reaction	polyalkenes	Addition reactions	bromine water
4	catalytic cracking	polymerisation	incomplete combustion → CO	Physical properties	 C_nH_{2n}	ethanol
5	Bubble cap	unsaturated molecules	methane	carboxylic acid, -COOH	ethanol 	Organic prefixes
6	 hydro carbons	polymers 	B.P.	 viscosity	Plastic bags	fractional distillation

F	1	2	3	4	5	6
1	 crude oil	alkanes	molecules made from	homologous series	fuels 	steam cracking
2		fractions (from fractionating column)	fermentation		C_nH_{2n+2}	alkenes
3	how easily a substance ignites and burns		oxidation reaction	polypeptides	 esters	bromine water
4	catalytic cracking	condensation polymerisation ($+H_2O$)	incomplete combustion → CO	addition polymerisation 	 C_nH_{2n}	
5	 double helix	unsaturated molecules		carboxylic acid, -COOH	ethanol 	ethyl ethanoate
6	 hydrocarbons	polymers 	 starch	 viscosity		fractional distillation

H	1	2	3	4	5	6
1	crude oil	alkanes	polypeptides and proteins	homologous series	fuels	steam
2	solvents	fractions	fermentation	amino acids	C_nH_{2n+2}	alkenes
3	flammability	kerosene	oxidation reaction	polypeptide	ester	$Br_{2(aq)}$
4	catalytic cracking	condensation polymerisation	incomplete combustion	addition polymeris	C_nH_{2n}	orange →
5	double helix	unsaturated	DNA	carboxylic acid	CH_3CH_2OH	e.g. C_2H_4,
6	hydrocarbons	polymers	Starch	viscosity	cellulose	fractional distillation

H	1	2	3	4	5	6
1	crude oil	alkanes	polypeptides and proteins	homologous series	fuels	?
2	?	fractions	fermentation	amino acids	C_nH_{2n+2}	alkenes
3	flammability	?	oxidation reaction	polypeptides	ester	$Br_{2(aq)}$
4	catalytic cracking	condensation polymerisation	incomplete combustion	addition polymerisation	?	orange → colourless
5	double helix	unsaturated	?	carboxylic acid	CH_3CH_2OH	e.g. C_2H_4, propane, C_6H_6
6	hydrocarbons	polymers	Starch	?	cellulose	fractional distillation

5.2.1 Chemical bonds revision checklist

Can you…	☹	😐	☺
a) Describe the processes by which crude oil was formed and describe the makeup of the mixture itself			
b) Define the term alkane and be able to represent the first four alkanes in a variety of ways			
c) Explain how fractional distillation works in terms of evaporation and condensation			
d) Give examples of modern materials derived from petrochemicals			
e) Recall how boiling point, viscosity and flammability change with increasing molecular size			
f) Write balanced equations for the complete combustion of hydrocarbons with a given formula			
g) Recall the colour change when bromine water reacts with an alkene			
h) Balance chemical equations as examples of cracking, given the formulae of the reactants and products			
i) Give examples of the usefulness of cracking and explain how modern life depends on the uses of hydrocarbons			
j) Describe alkenes, name the first four members of the series and represent them as molecular or displayed formulae			
k) Describe the reactions and conditions for the addition of hydrogen, water and halogens to alkenes			
l) Draw fully displayed structural formulae of the first four members of the alkenes and the products of their addition reactions with hydrogen, water, chlorine, bromine and iodine			
m) Describe what happens when any of the first four alcohols react with sodium, burn in air, are added to water, react with an oxidising agent			
n) recall the main uses of these alcohols			
o) Students should know the conditions used for fermentation of sugar using yeast			
p) Students should be able to recognise alcohols from their names or from given formulae			