

C9 – crude oil and fuels	
1. What is crude oil?	It is a mixture of different compounds
2. What does a hydrocarbon contain?	It is a compound made up of only hydrogen and carbon atoms
3. What is the general formula of an alkane?	$C_nH_{(2n+2)}$
4. What is the display formula of ethane.	<pre> H H H — C — C — H H H </pre>
5. List properties of long chain hydrocarbons	<ul style="list-style-type: none"> • Higher boiling point • Lower volatility • Thick (high viscosity) • Lower flammability
6. List properties of short chain hydrocarbons	<ul style="list-style-type: none"> • lower boiling point • higher volatility • runny (low viscosity) • high flammability
7. how is crude oil separated?	Fractional distillation
8. What happens during fractional distillation	<ul style="list-style-type: none"> • Crude oil heated to evaporate the mixture • Vapour travels up the column cooling as it gets higher • Fractions are separated based on their boiling points • Once they reach this they condense and are removed
9. What is complete combustion?	This happens when hydrocarbons are burnt in plenty of air. The carbon and hydrogen completely oxidise
10. What is the reaction for complete combustion?	Hydrocarbon + oxygen → carbon dioxide + water
11. What is produced during incomplete combustion? Why?	Carbon monoxide. There is not enough oxygen to react fully with the fuel
12. What are the conditions needed for cracking to happen?	<ul style="list-style-type: none"> • Hot catalyst • Heated to high temperature /mixed with steam
13. What are the products of cracking?	Shorter chain alkanes and an alkene
14. What is the test for an unsaturated hydrocarbon?	Bromine water. This will turn from orange to colourless if it is unsaturated.