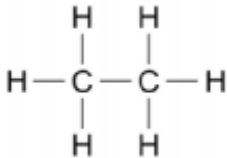
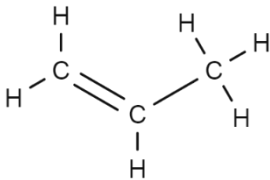


C6 ORGANIC CHEMISTRY FACT SHEET

Crude oil, hydrocarbons and alkanes	
1. Is crude oil an element, compound or mixture?	Mixture
2. What is crude oil?	A mixture of hydrocarbons
3. What is crude oil the remains of?	Ancient biomass, mainly plankton
4. Name the elements in a hydrocarbon	Carbon and hydrogen
5. Which of the following are hydrocarbons? C₂H₆, C₃₀H₆₀, C₂H₅OH, C₃H₇Cl, C₂₃H₄₈	C₂H₆, C₃₀H₆₀, C₂₃H₄₈
6. What are most of the hydrocarbons in crude oil?	alkanes
7. What type of compound are alkanes?	hydrocarbons
8. Name the elements in alkanes	Hydrogen and carbon
9. Name the first 4 alkanes.	Methane, ethane, propane, butane
10. What is the formula for methane?	CH₄
11. What is the formula for ethane?	C₂H₆
12. What is the formula for propane?	C₃H₈
13. What is the formula for butane?	C₄H₁₀
14. Draw the structure of ethane.	
15. What is the general formula for an alkane?	C_nH_{2n+2}
16. Are alkanes saturated or unsaturated?	Saturated
Properties of hydrocarbons and combustion	
17. What happens to flammability (how easily it will burn) as alkanes get longer?	Decrease
18. What happens to the boiling point as alkanes get longer?	Increase
19. What happens to the viscosity (how thick it is) as alkanes get longer?	Increase
20. What is the scientific word for burning?	Combustion
21. Name the gas a fuel reacts with during combustion	Oxygen

22. Is combustion exothermic or endothermic?	Exothermic
23. What happens to the carbon and oxygen in a fuel when it burns?	They are oxidised
24. Name the 2 products of complete combustion of a hydrocarbon	<ul style="list-style-type: none"> • Carbon dioxide • Water
25. Alkane + oxygen →	Carbon dioxide + water
26. Balance this equation for complete combustion: $C_3H_8 + __ O_2 \rightarrow __ CO_2 + __ H_2O$	$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$
27. Balance this equation for complete combustion: $C_7H_{16} + __ O_2 \rightarrow __ CO_2 + __ H_2O$	$C_7H_{16} + 11O_2 \rightarrow 7CO_2 + 8H_2O$
28. Balance this equation for complete combustion: $C_6H_{14} + __ O_2 \rightarrow __ CO_2 + __ H_2O$	$2C_6H_{14} + 19O_2 \rightarrow 12CO_2 + 14H_2O$
Fractional distillation	
29. How do we separate crude oil?	Fractional distillation
30. Name some fuels we get from crude oil	Petrol, diesel oil, kerosene, heavy fuel oil, LPG
31. Name some useful materials made from the petrochemical industry	Plastics, solvents, lubricants, polymers, detergents
32. In fractional distillation what happens before the crude oil is put into the column?	It is heated and vaporised
33. After the crude oil enters the column what happens to it?	The vapours rise and cool
34. What happens to the fractions when they cool?	They condense
35. Why do the alkanes in crude oil separate when they are heated?	They have different boiling points
36. What are the different compounds within crude oil known as when they have been separated?	Fractions

Please turn over for cracking and alkenes

Cracking	
37. Why is cracking done?	<ul style="list-style-type: none"> To break long chain hydrocarbons into shorter chains The shorter chains are more useful
38. State the conditions for catalytic cracking	<ul style="list-style-type: none"> High temperature Catalyst
39. State the conditions for steam cracking	<ul style="list-style-type: none"> High temperature Steam
40. State the products of cracking	<ul style="list-style-type: none"> Shorter alkane Alkene
41. Balance this equation for cracking: $C_{20}H_{42} \rightarrow C_{12}H_{26} + \underline{\hspace{2cm}}$	C_8H_{16}
42. Balance this equation for cracking: $C_{20}H_{42} \rightarrow C_8H_{18} + \underline{\hspace{2cm}}$	$C_{12}H_{24}$
43. Balance this equation for cracking: $C_{18}H_{38} \rightarrow \underline{\hspace{2cm}} + C_5H_{10}$	$C_{13}H_{28}$
Alkenes	
44. What is the difference between an alkene and an alkane?	Alkenes have carbon-carbon double bonds
45. Is this an alkene or an alkane? 	alkene
46. What is the test for alkenes and what is its result?	<ul style="list-style-type: none"> React with bromine water. It turns it from orange to colourless
47. Are alkenes saturated or unsaturated?	Unsaturated
48. What is the general formula for an alkene?	C_nH_{2n}
49. What can alkenes be used to produce?	Polymers
50. Which are more reactive, alkanes or alkenes?	Alkenes

