Edexcel GCSE Chemistry

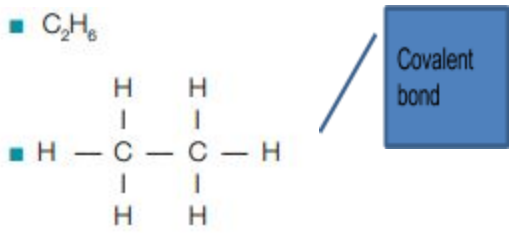
Topic 9: Separate chemistry 2

Hydrocarbons

Notes

9.10C Recall the formulae of molecules of the alkanes, methane, ethane, propane and butane, and draw the structures of these molecules, showing all covalent bonds

- Alkane molecules can be represented in the following forms:



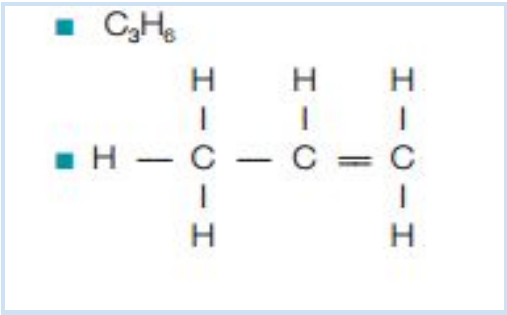
- The first 4 alkanes are methane, ethane, propane and butane (MEPB: Monkeys Eat Peanut Butter)

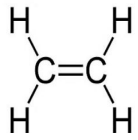
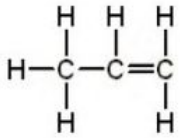
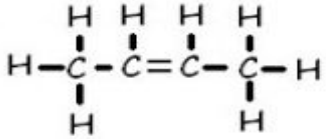
9.11C Explain why the alkanes are saturated hydrocarbons

- They contain no C=C double bonds and are compounds made of hydrogen and carbon only

9.12C Recall the formulae of molecules of the alkenes, ethene, propene, butene, and draw the structures of these molecules, showing all covalent bonds (but-1-ene and but-2-ene only)

- The first 2 alkenes are ethene and propene.
- Unsaturated carbons can be represented in the following forms:



ethene	C_2H_4	
propene	C_3H_6	
butene	C_4H_8	

9.13C Explain why the alkenes are unsaturated hydrocarbons, describing that their molecules contain the functional group C=C

- Contain one or more C=C double bonds and are compounds made of hydrogen and carbon only

9.14C Recall the addition reaction of ethene with bromine, showing the structures of reactants and products, and extend this to other alkenes

- Ethene + bromine -> 1,2-dibromoethane
- this reaction works the same for any alkene or any halogen

9.15C Explain how bromine water is used to distinguish between alkanes and alkenes

- Alkenes react with bromine water, turning it from orange to colourless – alkanes DO NOT react with bromine water

9.16C Describe how the complete combustion of alkanes and alkenes involves the oxidation of the hydrocarbons to produce carbon dioxide and water

- The combustion of hydrocarbons releases energy. During combustion, the carbon and hydrogen in the fuels are oxidised to produce carbon dioxide and water

  alkane/alkene + oxygen ⟶ carbon dioxide + water