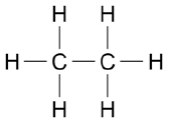
C7 Organic Chemistry

Can you…?	☺	😐	☹
7.1.1 Crude oil, hydrocarbons and alkanes			
State what crude oil was formed from.			
Describe what crude oil contains.			
State what a hydrocarbon is.			
Define the term saturated in relation to a hydrocarbon.			
State the general formula for an alkane and identify them from their name, formula or structure.			
State the names of the first four members of the homologous series of alkanes and represent their structure in the following forms.  C_2H_6			
Explain what a homologous series is.			
7.1.2 Fractional distillation and petrochemicals			
Explain the process of fractional distillation of crude oil in terms of evaporation and condensation.			
Describe what a fraction is and state the uses of fractions.			
State the name of fuels we depend on which are produced from crude oil.			
State useful materials which are produced by the petrochemical industry and describe their function.			
State why there is large variety of natural and synthetic carbon compounds.			
7.1.3 Properties of hydrocarbons			
Explain how the size of hydrocarbon molecules affect their boiling point, viscosity and flammability.			
Explain how the properties of a hydrocarbon affects its use as a fuel.			
Describe what happens during the combustion of a hydrocarbon.			
Write balanced equations for the complete combustion of hydrocarbons with a given formula.			
7.1.4 Cracking and alkenes			
Describe cracking in general terms as an example of thermal decomposition.			
Describe in general terms the conditions for catalytic cracking.			
Describe in general terms the conditions for steam cracking.			
Identify the products of cracking.			

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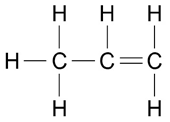
Balance chemical equations as examples of cracking given the formulae of the reactants and products.			
Explain how to test for an alkene.			
Explain why cracking is used and give examples to illustrate its usefulness.			
State what the alkenes produced from cracking are used for.			
Explain how modern life depends on the use of hydrocarbons.			
7.2.1 Structure and formulae of alkenes (Chemistry only)			
State the general formula for an alkene and identify them from their name, formula or structure.			
State the names of the first four members of the homologous series of alkenes and represent their structure in the following forms.  C_3H_6			
Define the term unsaturated in relation to a hydrocarbon.			
7.2.2 Reactions of alkenes (Chemistry only)			
Explain what a functional group is and why It is important.			
State the functional group of an alkene.			
Describe how alkenes react with oxygen and how this differs from how alkanes react.			
Describe in general terms the addition reactions of alkenes.			
Describe the reactions and conditions for the addition of hydrogen to alkenes.			
Describe the reactions and conditions for the addition of water to alkenes.			
Describe the reactions and conditions for the addition of halogens to alkenes.			
Draw the displayed structure and formulae of the first four alkenes and the products of their addition reactions with hydrogen, water, chlorine, bromine and iodine.			
7.2.3 Alcohols (Chemistry only)			
State the functional group of an alcohol.			
Identify an alcohol from their name, formula or structure.			
State the names of the first four members of the homologous series of alcohols and represent their structure in the following forms.			

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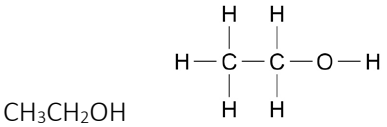
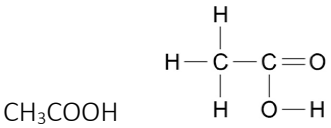
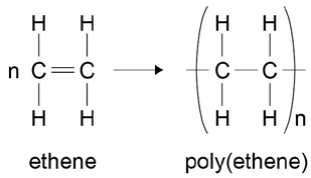
 CH_3CH_2OH			
Describe what happens when any of the first four alcohols react with sodium.			
Describe what happens when any of the first four alcohols burn in air.			
Describe what happens when any of the first four alcohols are added to water.			
Describe what happens when any of the first four alcohols react with an oxidising agent.			
State the main uses of alcohols.			
Describe how ethanol is produced using fermentation, including the conditions for the reaction.			
Write balanced chemical equations for the combustion reactions of alcohols.			
7.2.4 Carboxylic acids (Chemistry only)			
State the functional group of a carboxylic acid.			
Identify a carboxylic acid from their name, formula or structure.			
State the names of the first four members of the homologous series of carboxylic acids and represent their structure in the following forms.  CH_3COOH			
Describe what happens when any of the first four carboxylic acids react with carbonates.			
Describe what happens when any of the first four carboxylic acids dissolve in water.			
Describe what happens when any of the first four carboxylic acids react with alcohols.			
Explain why carboxylic acids are weak acids in terms of ionisation and pH.			
State the name of the ester made when ethanoic acids reacts with ethanol.			
7.3.1 Addition polymerisation (Chemistry only)			
Describe polymerisation reactions in general terms by reference to monomers.			
Describe addition polymerisation reactions of alkenes and recognise the molecules involved, for example.  ethene poly(ethene)			
State that no other molecule is formed in addition polymerisation reactions.			

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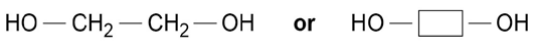
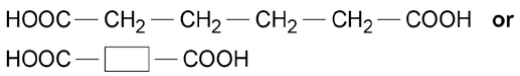
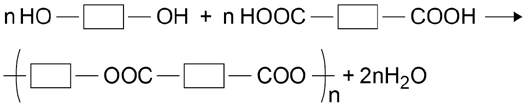
Recognise addition polymers and monomers from diagrams.			
Draw diagrams to represent the formation of a polymer from a given alkene monomer.			
Relate the repeating unit to the monomer.			
7.3.2 Condensation polymerisation (Chemistry only) (HT only)			
Describe condensation polymerisation reactions using the example below. ethane diol  and hexanedioic acid  polymerise to produce a polyester: 			
State what the simplest examples of condensation polymers are made from.			
State the monomers used to make a polyester.			
Explain the basic principles of condensation polymerisation by reference to the functional groups in the monomers and the repeating units in the polymers.			
7.3.3 Amino acids (Chemistry only) (HT only)			
State the main features of an amino acid.			
Describe the condensation polymerisation of amino acids using the example below. Glycine is H_2NCH_2COOH and polymerises to produce the polypeptide $(-HNCH_2COO-)n$ and n H_2O.			
State how amino acids can be used to make proteins.			
7.3.4 DNA (deoxyribonucleic acid) and other naturally occurring polymers (Chemistry only)			
Describe the function of DNA.			
Describe the basic structure of DNA by reference to the monomers, the polymer chains and the shape.			
State the names of naturally occurring polymers which are important for life.			
Name the types of monomers from which these naturally occurring polymers are made.			