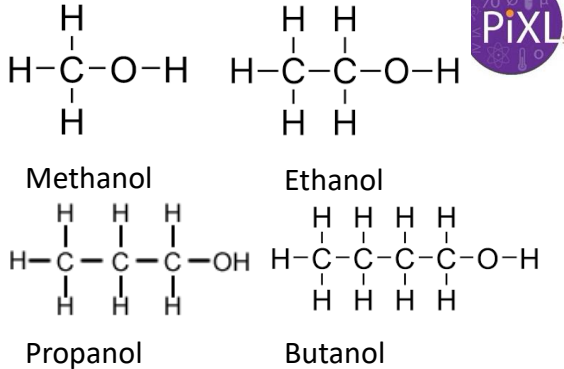


Alkenes	<i>Hydrocarbons with a double carbon-carbon bond.</i>
Unsaturated	<i>Alkenes are unsaturated because they contain two fewer hydrogen atoms than their alkane counterparts.</i>
General formula for alkenes	C_nH_{2n}

Structure and formula of alkenes

Functional group	<i>Alkenes are hydrocarbons in the functional group C=C.</i>	The functional group of an organic compound determined their reactions.
Alkene reactions	<i>Alkenes react with oxygen in the same way as other hydrocarbons, just with a smoky flame due to incomplete combustion.</i>	Alkenes also react with hydrogen, water and the halogens. The C=C bond allows for the addition of other atoms.

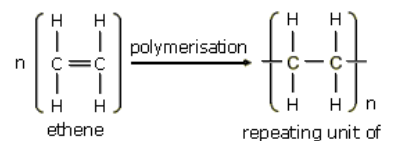


Reactions of alkenes and alcohols

Functional group	<i>-COOH</i> <i>For example: CH₃COOH</i>	Methanoic acid, ethanoic acid, propanoic acid and butanoic acid are the first four of the homologous series.
Carboxylic acid reactions	<i>Carboxylic acids react with carbonates, water and alcohols.</i>	Carboxylic acids and carbonates: These acids are neutralised by carbonates Carboxylic acids and water: These acids dissolve in water. Carboxylic acids and alcohols: The acids react with alcohols to form esters.
Strength (HT only)	<i>Carboxylic acids are weak acids</i>	Carboxylic acids only partially ionise in water. An aqueous solution of a weak acid with have a high pH (but still below 7).

Carboxylic acids

Addition polymerisation

Polymers	<i>Alkenes are used to make polymers by addition polymerisation.</i>	Many small molecules join together to form polymers (very large molecules).
Displaying polymers	<i>In addition polymers, the repeating unit has the same atoms as the monomer.</i>	It can be displayed like this: 

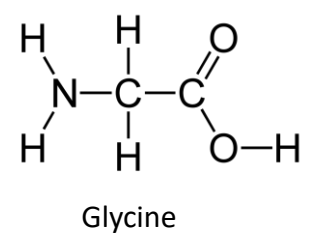
AQA GCSE Organic chemistry 2 (CHEMISTRY ONLY)

Synthetic and naturally occurring polymers

Condensation polymerisation (HT only)

Amino acids

Amino acids have two functional groups in a molecule. They react by condensation polymerisation to produce peptides.



DNA and naturally occurring polymers

Functional group	<i>-OH</i> <i>For example: CH₃CH₂OH</i>	Methanol, ethanol, propanol and butanol are the first four of the homologous series.
Alcohol reactions	<i>Alcohols react with sodium, air and water.</i>	Alcohols and sodium: bubbling, hydrogen gas given off and salt formed. Alcohols and air: alcohols burn in air releasing carbon dioxide and water. Alcohols and water: alcohols dissolve in water to form a neutral solution.
Fermentation	<i>Ethanol is produced from fermentation.</i>	When sugar solutions are fermented using yeast, aqueous solutions of ethanol are produced. The conditions needed for this process include a moderate temperature (25 – 50°C), water (from sugar solution) and an absence of oxygen.

DNA	<i>Deoxyribonucleic acid is a large molecule essential for life. DNA gives the genetic instructions to ensure development and functioning of living organisms and viruses.</i>
DNA structure	<i>Most DNA molecules are two polymer chains made from four different monomers, called nucleotides. They are in the double helix formation.</i>
Natural polymers	<i>Other naturally occurring polymers include proteins, starch and cellulose and are all important for life.</i>

Condensation polymerisation	<i>Condensation polymerisation involves monomers with two functional groups</i>	When these types of monomers react they join together and usually lose small molecules, such as water. This is why they are called condensation reactions.
-----------------------------	---	--