

# Homologous Series

- What is a hydrocarbon?
- What is a “homologous series”?
- What is a “general formula”?
- What are the general formulae for the homologous series of alkanes, alkenes and cycloalkanes?
- What are the differences between alkanes, alkenes and cycloalkanes?
- What is meant by “saturated” and “unsaturated”?
- How can we name alkanes, alkenes and cycloalkanes (including the positions of any side chains and double bonds)?
- What is an “addition reaction”?
- What happens when alkenes react with hydrogen or halogens?
- What are the differences between a “chemical” formula, a “full structural” formula and a “shortened structural” formula?
- What is an isomer?
- What is “combustion”?
- What is produced when hydrocarbons are combusted?
- What are the uses of alkanes, alkenes and cycloalkanes?
- What are the properties of alkanes, alkenes and cycloalkanes?
- Why do different sizes of hydrocarbons have different melting and boiling points?



# Everyday consumer products

- What is a “functional group”?
- What is an alcohol?
- What is a carboxylic acid?
- What are the functional groups in alcohols and carboxylic acids?
- What are the general formulae for the homologous series of alcohols and carboxylic acids?
- How can we name alcohols and carboxylic acids (including the position of the –OH group in an alcohol)?
- What are the physical properties of alcohols and carboxylic acids (solubility in water, melting points and boiling points)?
- Why do alcohols and carboxylic acids have higher melting and boiling points than alkanes and alkenes?
- What are the uses of alcohols and carboxylic acids?
- What are the chemical properties of alcohols and carboxylic acids including....
  - pH?
  - Solubility in water?
  - Reactions with metals, oxides, hydroxides and carbonates?
  - Reaction with each other?
- How can we recognise an ester from a name or a formula?
- How can we make an ester?
- What are esters used for?



# Energy from Fuels

- What is meant by “exothermic” and “endothermic”?
- Are combustion reactions exothermic or endothermic?
- How can we calculate the energy released by a fuel?
- How can we calculate quantities from balanced chemical equations?