

Organic Chemistry

1

How do we systematically name organic chemical compounds?

- investigate the nomenclature of organic chemicals, up to C8, using IUPAC conventions, including simple methyl and ethyl branched chains, including:...
- explore and distinguish the different types of structural isomers, including saturated and unsaturated hydrocarbons, including:...

2

How can hydrocarbons be classified based on their structure and reactivity?

- construct models, identify the functional group, and write structural and molecular formulae for homologous series of organic chemical compounds, up to C8 :...
- conduct an investigation to compare the properties of organic chemical compounds within a homologous series, and explain these differences in terms of bonding
- analyse the shape of molecules formed between carbon atoms when a single, double or triple bond is formed between them
- explain the properties within and between the homologous series of alkanes with reference to the intermolecular and intramolecular bonding present
- describe the procedures required to safely handle and dispose of organic substances
- examine the environmental, economic and sociocultural implications of obtaining and using hydrocarbons from the Earth

3

What are the products of reactions of hydrocarbons and how do they react?

- investigate, write equations and construct models to represent the reactions of unsaturated hydrocarbons when added to a range of chemicals, including but not limited to:...
- investigate, write equations and construct models to represent the reactions of saturated hydrocarbons when substituted with halogens

4

How can alcohols be produced and what are their properties?

- investigate the structural formulae, properties and functional group including:...
- explain the properties within and between the homologous series of alcohols with reference to the intermolecular and intramolecular bonding present
- conduct a practical investigation to measure and reliably compare the enthalpy of combustion for a range of alcohols
- write equations, state conditions and predict products to represent the reactions of alcohols, including but not limited to:...
- investigate the production of alcohols, including:...
- investigate the products of the oxidation of primary and secondary alcohols
- compare and contrast fuels from organic sources to biofuels, including ethanol

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What are the properties of organic acids and bases?

- investigate the structural formulae, properties and functional group including:...
- explain the properties within and between the homologous series of carboxylic acids amines and amides with reference to the intermolecular and intramolecular bonding present
- investigate the production, in a school laboratory, of simple esters
- investigate the differences between an organic acid and organic base
- investigate the structure and action of soaps and detergents

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What are the properties and uses of polymers?

- model and compare the structure, properties and uses of addition polymers of ethylene and related monomers, for example:...
- model and compare the structure, properties and uses of condensation polymers, for example:...