

CHAPTER HIGHLIGHTS

Organic Compounds

Vocabulary

organic compound
catenation
hydrocarbon
isomer
structural formula
structural isomer
geometric isomer

- The ability of carbon to bond to other elements and to allow different arrangements of atoms contributes to the diversity of carbon compounds.
- Isomers are compounds that have the same molecular formula but different structures. In structural isomers, the atoms are bonded together in different orders. In geometric isomers, the order of atom bonding is the same, but the atoms are oriented differently in space.

Hydrocarbons

Vocabulary

saturated hydrocarbon	unsaturated hydrocarbon
alkane	alkene
cycloalkane	alkyne
alkyl group	aromatic hydrocarbon
natural gas	benzene
petroleum	

- Alkanes are saturated hydrocarbons; they contain only single bonds. Physical trends in alkanes correspond to trends in alkane size and amount of branching.
- Organic compounds are named according to a systematic method.
- Unsaturated hydrocarbons have one or more multiple carbon-carbon bonds: these include alkenes, alkynes, and aromatic hydrocarbons.

Functional Groups

Vocabulary

functional group
alcohol
alkyl halide
ether
aldehyde
ketone
amine
carboxylic acid
ester

- Functional groups are responsible for the properties of the organic compound that contains the functional group.
- Alcohols contain the hydroxyl functional group.
- Alkyl halides contain one or more halogen atoms.
- Two alkyl groups are joined to an oxygen atom in ethers.
- Both aldehydes and ketones contain the carbonyl group.
- Amines are derivatives of ammonia.
- Carboxylic acids contain carboxyl groups.
- In esters, the hydrogen atom of a carboxylic acid group has been replaced with an alkyl group.

Organic Reactions

Vocabulary

substitution reaction
addition reaction
condensation reaction
elimination reaction
polymer
monomer
copolymer

- In substitution reactions, an atom or group of atoms is replaced. In addition reactions, an atom or group of atoms is added to a double or triple bond.
- In a condensation reaction, two molecules combine. In an elimination reaction, a small molecule forms from a large molecule.
- Polymers are large molecules made of many repeating units called *monomers*. A copolymer consists of two or more different monomers.