

November 15 - Carbon compounds

*Organic compounds contain carbon atoms that are covalently bonded to carbon and other elements (CHON)!

The nature of carbon : having 4 electrons in its outer shell makes an open invitation for covalent bonding!

Chains of carbon bonding:

1) Straight chain

2) branched chain

3) ring

Bonding in carbon compounds

See pg. 53 for structures

a) benzene (double bonds)

b) acetylene (triple bonds)

c) ethanol (single bond)

FUNCTIONAL GROUPS

functional group : a cluster of atoms that influence the properties of molecules which they compose.

- * is usually a structural building block

- * determines characteristics of compound

alcohol >>> hydroxyl group

- makes alcohol polar(see p. 53)
- properties similar to water

LARGE CARBON MOLECULES

(general terminology)

Monomer - simple carbon molecules
- can bond with each other

Polymer - repeated linked units of monomers

Macromolecule - VERY VERY LARGE polymer

Chemical rxns that link monomers

- 1) Condensation - when monomers join,
H₂O is released
- 3) Hydrolysis - when large carbon molecules
break apart, H₂O is added
(water can break the bonds that hold
large molecules together)

ENERGY CURRENCY

ATP ... Adenosine triphosphate

adenosine with 3 phosphate groups attached

PO₄ group is attached with covalent bonds
when bond is broken (hydrolysis)
energy is released



Reverse of hydrolysis

Condensation:

When PO₄ is attached to ADP,

H₂O is released and energy is absorbed



