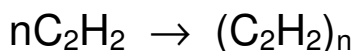


# Organic Chemistry

1. ALL organic compounds contain the element **carbon**.
2. **Carbon** ALWAYS makes **four bonds** in molecules.
3. **Saturated** hydrocarbons have all *single* bonds within them (alkanes).
4. **Unsaturated** hydrocarbons have *double* or *triple* bonds in them (alkenes & alkynes).
5. **Hydrocarbons** contain ONLY the elements hydrogen and carbon.
6. The **homologous series** of hydrocarbons' formulas are on **Reference Table Q**.
7. The **functional groups** on organic molecules are listed on **Reference Table R**.
8. **Structural isomers** of organic compounds have *different* structural formulas but the *same* molecular formula.
9. Number the parent carbon chain in an organic molecule from the end closest to the alkyl group(s).
10. **Combustion reactions** occur when a hydrocarbon reacts with oxygen to make CO<sub>2</sub> and H<sub>2</sub>O.
11. **Organic substitution reactions** occur when an alkane and a halogen (Group 17) reacts so that one or more hydrogen atoms on the alkane are replaced with oxygen.
12. **Organic addition reactions** occur when an alkene or alkyne combine with a halogen to make one product (halide).
13. **Esterification** occurs when an organic acid and an alcohol react to make water and an **ester**.
14. **Saponification** occurs when an ester reacts with a base to make alcohol and a **soap**.
15. **Fermentation** reactions occur when yeast catalyze a sugar (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>) to make carbon dioxide and ethanol.
16. **Polymers** are long chains of repeating units called **monomers**.
17. Polymers form by **polymerization** reactions.
18. **Addition polymerization** occurs when unsaturated monomers join in a long polymer chain.



19. **Condensation polymerization** occurs when monomers join to form a polymer *by removing water*. Water is a product!
20. **Natural polymers** include starch, cellulose, and proteins.
21. **Synthetic polymers** include plastics such as nylon, rayon, and polyester.

USE THE REFERENCE TABLES!!!