# Simple Organic Compounds

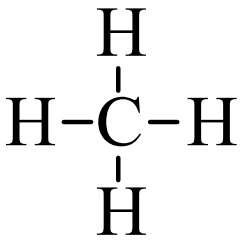
L Naming of organic compounds follows specialized rules, which in general are beyond the scope of this course.

- The simplest organic compounds are **hydrocarbons**, containing only carbon and hydrogen.

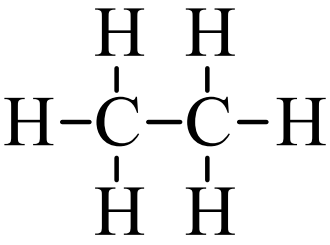
- The most basic class of hydrocarbons is the **alkanes**, in which every carbon atom is surrounded by four other atoms.
  - T All alkanes have a formula $C_nH_{2n+2}$, where *n* is the number of carbon atoms.

# Names of Simple Alkanes

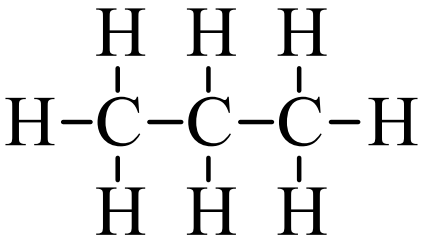
| *n* | Formula | Name |
|---|---|---|
| 1 | $CH_4$ | methane |
| 2 | $C_2H_6$ | ethane |
| 3 | $C_3H_8$ | propane |
| 4 | $C_4H_{10}$ | butane |
| 5 | $C_5H_{12}$ | pentane |
| 6 | $C_6H_{14}$ | hexane |



methane



ethane

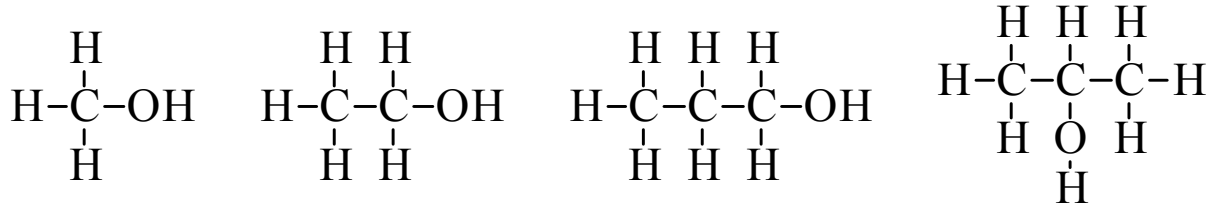


propane

# Functional Groups

L Other organic compounds can be formed by replacing one or more hydrogen atoms with other atoms or groups of atoms, called **functional groups**.

T For example, if an -OH group replaces a hydrogen atom the compound is an **alcohol**.



methanol ethanol 1-propanol 2-propanol

T The two propanols are **structural isomers** of each other and have slightly different properties.

T The number in the name indicates the substitent's position on the carbon chain.