# SS3 Chemistry Lesson Note: Organic Chemistry

**Lesson Objectives**

1. Define organic chemistry.
2. Identify characteristics of organic compounds.
3. Classify organic compounds into major groups.
4. Explain homologous series and functional groups.

**1. Meaning of Organic Chemistry**

Organic Chemistry is the branch of chemistry that deals with the study of carbon compounds, mainly those containing carbon and hydrogen, and sometimes oxygen, nitrogen, sulfur, etc.

Originally, organic compounds were thought to be only those produced by living organisms, but today they include synthetic compounds too.

**2. Characteristics of Organic Compounds**

- Mostly covalent in nature.
- Have low melting and boiling points.
- Are insoluble in water but soluble in organic solvents like ethanol.
- React slowly compared to inorganic compounds.
- Exhibit isomerism (same molecular formula, different structure).

**3. Classification of Organic Compounds**

a. Aliphatic Compounds

- Open-chain compounds.
- Examples: alkanes, alkenes, alkynes.

b. Aromatic Compounds

- Contain a benzene ring.
- Examples: benzene, toluene.

c. Heterocyclic Compounds

- Ring structures containing atoms like nitrogen, oxygen, or sulfur in the ring.

**4. Homologous Series**

A homologous series is a group of organic compounds with:

- The same functional group.
- A general formula.
- A gradual increase in molecular mass by a CH2 group.
- Similar chemical properties but different physical properties.

Example: The alkane series: CH4 (methane), C2H6 (ethane), C3H8 (propane), etc.

**5. Functional Groups**

These are atoms or groups of atoms responsible for the chemical behavior of a compound.

| Functional Group | Example | Compound Name |
|---|---|---|
| -OH (Hydroxyl) | CH3OH | Methanol |
| -COOH (Carboxyl) | CH3COOH | Ethanoic acid |
| -NH2 (Amino) | CH3NH2 | Methylamine |
| -CHO (Aldehyde) | HCHO | Methanal |

**Conclusion**

Organic chemistry is essential to understanding substances that make up life and industrial materials. Mastery of classification, functional groups, and properties provides a strong foundation for further study.