Cornelsen Experimenta Molecular Construction Kits 1 and 2

Selection of Important Compounds

With Molecular Construction Kit 1, the following compounds can be built:

Alkanes (C■H■■■■):

1. Methane – CH■
2. Butane – C■H■■

Alkenes (Olefins, C■H■■):

3. Ethene (Ethylene) – C■H■

Alkynes (C■H■■■■):

4. Ethyne (Acetylene) – C■H■

Alkanols (Alcohols, C■H■■■■OH):

5. Methanol (Methyl Alcohol) – CH■OH
6. Ethanol (Ethyl Alcohol) – C■H■OH
7. Propanetriol (Glycerin) – CH■OH–CHOH–CH■OH

Alkanals (Aldehydes, R–CHO):

8. Methanal (Formaldehyde) – HCHO
9. Ethanal (Acetaldehyde) – CH■CHO

Amino Acids and Proteins:

10. α-Aminopropanoic Acid (Alanine) – CH■CHNH■COOH
11. Formation of a dipeptide from two identical amino acids (glycine)

Polymers:

12. From ethylene, polyethylene is formed.

Halogenoalkanes:

13. Monochloromethane (Methyl Chloride) – CH■Cl

Amino Acids and Proteins (continued):

14. Aminoethanoic Acid (Glycine) – NH■CH■COOH

Carbohydrates:

15. D-Glucose (Grape Sugar) – C■H■■O■
16. Fructose (Fruit Sugar) – C■H■■O■
17. Sucrose (Cane Sugar, Beet Sugar) – C■■H■■O■■
18. Starch – (C■H■■O■)■
19. Cellulose – (C■H■■O■)■

Carboxylic Acids:

20. Methanoic Acid (Formic Acid) – HCOOH
21. Ethanoic Acid (Acetic Acid) – CH■COOH
22. Propanoic Acid (Propionic Acid) – C■H■COOH
23. Butanoic Acid (Butyric Acid) – C■H■COOH

General formula for monocarboxylic acids:

R–COOH

(The remainder group R is represented with a universal building block from Molecular Construction Kit 2.)

Selection of Important Compounds – Aromatic and Cyclic

For all the following compounds, both Kits 1 and 2 are required.

Aromatic Compounds:

- Benzene – C■H■
- Nitrobenzene – C■H■NO■
- Naphthalene – C■■H■

Acids:

- Nitric Acid – HNO■

Dyes:

- Methyl Orange

Medicinal Compounds:

- 6-Amino-Penicillanic Acid

Materials List:

No.	Component	Quantity
1	Connecting pieces, grey	60
2	Hydrogen (H), monovalent, white	25
3	Oxygen (O), divalent, red	15
4	Chlorine (Cl), monovalent, green	5
5	Nitrogen (N), trivalent, blue	5
6	Carbon (C), tetravalent, black	14
7	Additional connecting pieces	80
8	Universal building blocks, grey	4
9	Benzene rings, black	9
10	Sulfur (S), divalent, yellow	8
11	Oxygen (O), divalent, red	4
12	Nitrogen (N), trivalent, blue	4
13	Carbon (C), tetravalent, black	6
14	Phosphorus (P), pentavalent, violet	4
15	Sulfur (S), hexavalent, yellow	4

Instructions for Use:

- The connecting pieces are pushed firmly into the atom spheres.
- To form double or triple bonds, bend the connectors strongly.
- After use, all parts should be placed back according to the storage diagram to easily check completeness.

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