**HONC 1234 Rule and Structural Isomers**

There are many patterns in the way the atoms in organic compounds (compounds that have a carbon backbone or chain) are connected. We use a HONC 1234 rule to construct structural formulas of these compounds from their molecular formulas.

**HONC 1234 rule**

Hydrogen H 1 – hydrogen atoms form 1 bond

Oxygen O 2 – oxygen atoms form 2 bonds

Nitrogen N 3 – nitrogen atoms form 3 bonds

Carbon C 4 – carbon atoms form 4 bonds

**Steps to draw Lewis structures for organic compounds using the HONC 1234 rule.**

1. Connect the carbon atoms
2. Insert the nitrogen or oxygen atoms, either on the ends or somewhere in the middle of the carbon chain.
3. Add the hydrogen atoms to follow the HONC 1234 rule.
4. Check that the structure follows the HONC 1234 rule!

Sometimes there is more than one possibility for a structural formula from a molecular formula. These two variations of the organic structure are called structural isomers.

See if you can draw in some possibilities below for the following organic compunds.

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| --- | --- | --- | --- |
|  | **Molecular Formula** | **Structural Formula #1** | **Structural Formula #2** |
| 1 | C3H8 |  |  |
| 2 | C2H6O |  |  |
| 3 | C3H9N |  |  |
| 4 | C5H12 |  |  |