

HONC if You Like Molecules

Bonding Tendencies

Name _____

Date _____ Period _____

Purpose

To practice constructing structural formulas from molecular formulas.

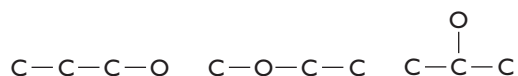
Procedure

Use the HONC 1234 rule and the general instructions below to create correct structural formulas from molecular formulas.

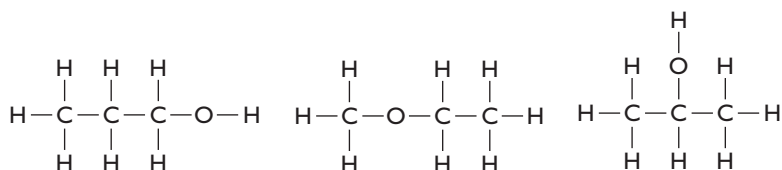
Example: C_3H_8O

Start by connecting the carbon atoms. $C-C-C$

Next insert the nitrogen or oxygen atoms, either on the ends or somewhere in the middle of the carbon chain.



Add the hydrogen atoms last.

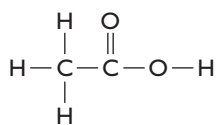


Check that each atom follows the HONC 1234 rule.

Questions

- Use the HONC 1234 rule to construct a structural formula for C_3H_8 .
- Use the HONC 1234 rule to create two unique structural formulas for C_2H_6O .
- Use the HONC 1234 rule to create two unique structural formulas for C_3H_9N .

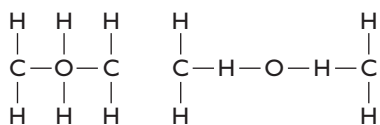
4. There are at least two molecules with the molecular formula $C_2H_4O_2$. One is shown. Draw the other one. *Hint*: Each molecule has a double bond between a carbon atom and one of the oxygen atoms, $C=O$.



Molecule 1

5. One of the molecules in Question 4 is sweet smelling, and the other is putrid. Predict which is which. Explain your reasoning.

6. **Making Sense** These two molecular structures are incorrect according to the HONC 1234 rule. What specifically is wrong with each? Correct them by drawing new structures.



Molecule 1

Molecule 2

7. **If You Finish Early** Try to draw a third structural formula for the molecular formula in Question 3.