

# Simplified IUPAC nomenclature rules for organic compounds

## *Find **base name***

1. Find the longest continuous chain of carbons (carbon-carbon bond chain). This is the **main chain**. Find the appropriate **alkane** name that describes the main chain: this is the **base name** of the compound.

## *Modify base name*

### HYDROCARBON BRANCHES

2. Locate any carbons not on the main chain; determine the length of this **side chain**. Name the side chain using the appropriate alkane name and the suffix “-yl”. (For instance, a one-carbon side chain is “methyl”), and append this word to the front of the base name.

3. Determine which end of the main chain the side chain is closer to. **Number** the main chain carbons sequentially from that end. The numerical descriptor of the side chain is the number of the carbon on the main chain from which it branches. Append this numerical descriptor to the front of the side chain name.

4. In the case of multiple branches of the **same length**, use the appropriate Greek prefix (di-, tri-, etc.) in front of the side chain name. Number each of the branches according to the carbon each branches off from, even if two branches connect to the same carbon (for instance, “3,3-dimethyl”). The numbering of the main carbon chain should be done to minimize the sum of the numerical descriptors for all side chains.

5. In the case of multiple branches of **differing length**, write the side chain names in alphabetical order in front of the base name (including their numerical descriptor). The numbering of the main carbon chain should be done to minimize the sum of the numerical descriptors for all side chains.

#### MULTIPLE BONDS

6. Locate any carbons on the main chain that are connected by **double or triple bonds**. Modify the base name suffix to “-ene” for double bonds and “-yne” for triple bonds.

7. Determine which end of the main chain the double or triple bond is closer to. **Number** the main chain carbons sequentially from that end. The numerical descriptor of the double or triple bond is the lower number of the two carbons in the double or triple bond on the main chain. Append this numerical descriptor to the front of the side chain name.

### SUBSTITUENTS

8. Locate any **substituents** (typically halogen atoms) on the main chain. Append the substituent name, replacing the atom suffix with “-o” (for instance, bromine becomes “bromo”) to the front of the base name.

9. Determine which end of the main chain the substituent is closer to. **Number** the main chain carbons sequentially from that end. The numerical descriptor of the substituent is the number of the carbon on the main chain to which it is connected. Append this numerical descriptor to the front of the side chain name.