



Jump Start Naming Hydrocarbons:

During class, draw reference sample structures for each hydrocarbon in the table below.

<p>propane</p> $\begin{array}{c} \text{H} \ \text{H} \ \text{H} \\ \ \ \ \ \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \\ \ \ \ \ \\ \text{H} \ \text{H} \ \text{H} \end{array}$ <p>number of C = 3</p>	<p>propene</p> $\begin{array}{c} \text{H} \ \ \ \ \ \text{H} \\ \ \ \ \ \ \ \\ \text{H}-\text{C}=\text{C}-\text{C}-\text{H} \\ \ \ \ \ \ \ \\ \text{H} \ \ \ \ \ \text{H} \end{array}$ <p>number of C = 3</p>	<p>propyne</p> $\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}\equiv\text{C}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$ <p>number of C = 3</p>
<p>pentane</p> $\begin{array}{c} \text{H} \ \text{H} \ \text{H} \ \text{H} \ \text{H} \\ \ \ \ \ \ \ \ \ \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \ \ \ \ \ \ \ \ \\ \text{H} \ \text{H} \ \text{H} \ \text{H} \ \text{H} \end{array}$ <p>number of C = 5</p>	<p>pentene</p> $\begin{array}{c} \text{H} \ \ \ \ \ \text{H} \ \text{H} \ \text{H} \\ \ \ \ \ \ \ \ \ \ \ \\ \text{H}-\text{C}=\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \ \ \ \ \ \ \ \ \ \ \\ \text{H} \ \ \ \ \ \text{H} \ \text{H} \ \text{H} \end{array}$ <p>number of C = 5</p>	<p>pentyne</p> $\begin{array}{c} \text{H} \ \text{H} \ \text{H} \\ \ \ \ \ \\ \text{H}-\text{C}\equiv\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \ \ \ \ \\ \text{H} \ \text{H} \ \text{H} \end{array}$ <p>number of C = 5</p>

1. Study the structural formulas in the sample table above. Study the number of carbon atoms in each structure and compare that information to Table P. Write the 'rule' for determining the first part of the name of a hydrocarbon.

The first part of a hydrocarbon name tells the number of carbon atoms.

2. Compare the sample structural formulas in the table above to Table Q. Write the three rules for determining the last part of the name of a hydrocarbon.

Hydrocarbons with only single bonds end in 'ane'.

Hydrocarbons with a double bond end in 'ene'.

Hydrocarbons with a triple bond end in 'yne'.

Jump Start Drawing Hydrocarbon Structures:

Using your reference tables, draw the following sample structures for future reference.

ethane $\begin{array}{c} \text{H H H} \\ \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H} \end{array}$	ethene $\begin{array}{c} \text{H H} \\ \\ \text{H}-\text{C}=\text{C}-\text{C}-\text{H} \\ \\ \text{H H} \end{array}$	ethyne $\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}\equiv\text{C}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$
hexane $\begin{array}{c} \text{H H H H H H} \\ \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H H H H} \end{array}$	heptene $\begin{array}{c} \text{H H H H H H} \\ \\ \text{H}-\text{C}=\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H H H H} \end{array}$	octyne $\begin{array}{c} \text{H H H H H H} \\ \\ \text{H}-\text{C}\equiv\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H H H H} \end{array}$
methane $\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$	butene $\begin{array}{c} \text{H H H} \\ \\ \text{H}-\text{C}=\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H} \end{array}$	hexyne $\begin{array}{c} \text{H H H H} \\ \\ \text{H}-\text{C}\equiv\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H H} \end{array}$
heptane $\begin{array}{c} \text{H H H H H H H} \\ \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H H H H H} \end{array}$	octene $\begin{array}{c} \text{H H H H H H H} \\ \\ \text{H}-\text{C}=\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H H H H H H} \end{array}$	butyne $\begin{array}{c} \text{H H} \\ \\ \text{H}-\text{C}\equiv\text{C}-\text{C}-\text{C}-\text{H} \\ \\ \text{H H} \end{array}$

Steps for drawing hydrocarbon structures:

1. Use Table P to determine how many carbon atoms for each chain. Draw the carbon chain connecting each carbon by single bonds.
2. For structures with names ending in 'ene' or 'yne,' convert any one of the single bond dashes to the appropriate multiple bond. (Convert any bond you choose.)
3. Add hydrogens connected by single bond dashes until each carbon has four bonds. Proof your work! Be sure no carbon has no more nor no less than four bonds.