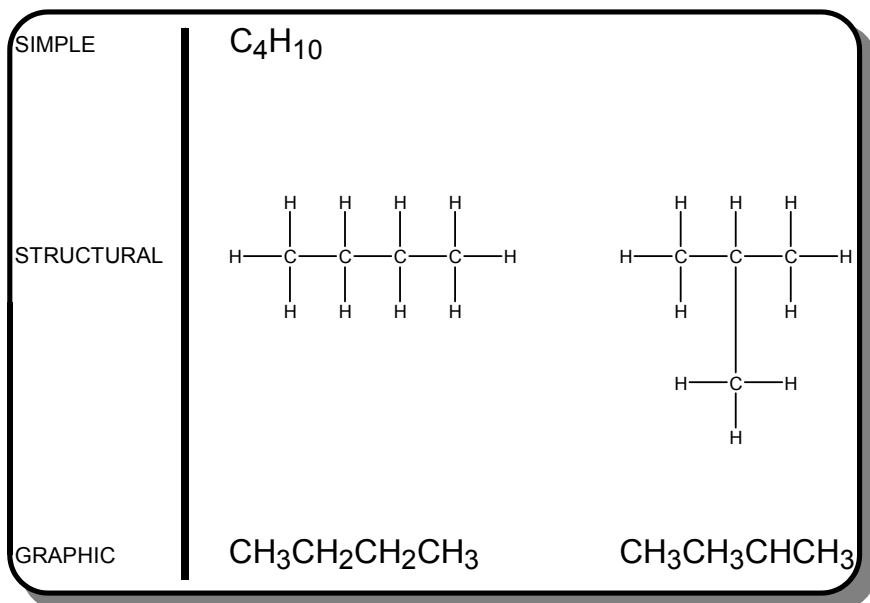


## Condensed Structural Formulas

Structural formulas are cumbersome to write, but simple formulas don't convey enough information. Graphic formulas or condensed structural formulas are a good compromise. In a condensed structural formula, each carbon in a chain is written in order along with the number of hydrogens attached to it. Remember that every carbon always has four bonds. End carbons always have three bonding sites for elements other than carbon, while carbons in the middle of a chain, since they are attached to a carbon on each side, have only two bonding sites for elements other than carbon. In the formula  $\text{CH}_3\text{CH}_2\text{CHCH}_3$ , it is obvious there is a branch because there are three end carbons, and the middle carbon has only one hydrogen, so it must be attached to the three other carbons.



Simple, Structural, and Graphic Formulas

Based on the reading above and on your knowledge of chemistry, draw the structural and graphic formulas for each of the simple formulas below. Make sure to draw all the isomers.

- $\text{C}_2\text{H}_4$
- $\text{C}_3\text{H}_8\text{O}$
- $\text{C}_3\text{H}_4$

Based on the reading above and on your knowledge of chemistry, draw the structural formulas for each of the graphic formulas below.

- $\text{CH}_3\text{COOH}$
- $\text{CH}_3\text{CH}_2\text{CCH}_3\text{CH}_2\text{CH}_3$
- $\text{CH}_2\text{CHCH}_2\text{CH}_3$