

## Chapter 15 Organic Compounds and the Atomic Properties of Carbon

The information tested on the AP Exam in this chapter is limited to an understanding of how organic molecules are named and structured. Sections 15.3, 15.5, and 15.6 in this chapter go into great detail about organic reactions and biological applications of organic chemistry which are not a focus of the AP curriculum and won't appear on the exam. Learning how to draw structures and explain properties based on the structure is important.

Basic alkanes have the base formula  $C_nH_{2n+2}$ . Cycloalkanes lose two H atoms, so the formula is  $C_nH_{2n}$ , the same as for alkenes, which have one pair of doubly bonded carbon atoms (C=C) for each two atoms of hydrogen lost. Alkynes lose two more hydrogen atoms for a triple bond between a pair of C atoms, so the formula is  $C_nH_{2n-2}$ . The basic prefixes used in organic nomenclature: such as *meth-*, *eth-*, *prop-* are important to understanding naming as well as understanding isomers which have the same formula but a different structure. (e.g: *n*-propanol and *iso*-propanol.) The AP Exam often names molecules and expects the AP student to determine the formula, structure, and properties of the molecule.

AP students do need to know the basic functional groups and their properties including some of the more common alcohols and acids. They need to be able to draw simple alcohols such as methanol and ethanol and simple carboxylic acids such as methanoic (formic) acid and ethanoic (acetic acid).