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Carbon

There are roughly 92 naturally occurring elements on earth, but only four make up about 96% of all living organisms: oxygen, carbon, hydrogen and nitrogen. These elements combine to form life-sustaining biomolecules, which can be divided into four major groups of macromolecules: carbohydrates, lipids, proteins, and nucleic acids. Carbohydrates, proteins, and lipids are used by cells as the building blocks for cells and for energy, while nucleic acids are the basis of genetic material (DNA and RNA). There is one shared characteristic among all these macromolecules in that they all contain carbon. In fact, the definition of organic chemistry is "*the chemistry of carbon compounds.*" Why carbon? Because carbon has the perfect electron distribution (4 valence electrons) to form covalent bonds with as many as four different atoms at one time. This makes carbon very versatile, a characteristic that will be explored in more detail below.

Hydrocarbons
Isomers



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