

## Essential Chemistry for Biology

### John Dalton's Atomic Theory:

(Published in a series of papers between 1803-1810 based on facts and experimental evidence.)

- (1) **ELEMENTS** are composed of minute, indivisible\* particles called **ATOMS**.
- (2) Atoms of the same element are alike\* in size and mass.
- (3) Atoms of different elements have different masses and sizes.
- (4) **CHEMICAL COMPOUNDS** are formed by the union of two or more atoms of different elements.
- (5) Atoms combine to form compounds in simple numerical ratios (i.e. 1:1, 2:1, 2:3, etc.)
- (6) Atoms of two elements may combine in different ratios to form more than one compound.

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\*Today we know that atoms are composed of **SUBATOMIC PARTICLES:**

3 major kinds:           **NEUTRON**  
                                  **PROTON**  
                                  **ELECTRON**

**All atoms of an element have the same number of protons, but not always the same number of neutrons.**

Isotopes:

### Important Chemistry Terms/Concepts:

Matter

Mass Number

Atomic Number

Electron Shells

Valence Electron Shells

Potential Energy

Kinetic Energy

Types and characteristics of Bonds:

Covalent Bond

Ionic Bond

Hydrogen Bond

Order of Bond Strength

Electronegativity

Molecular Shape

Tetrahedron