

Chapter 2 The Chemical Context of Life

Elements and Compounds (Table 2.1)

Matter - anything that takes up space and has mass

Element - a substance that can't be broken down to other substances

Compound - a substance consisting of two or more elements

Subatomic Particles (Fig 2.5)

Protons

Neutrons

Electrons

Valence Electrons (Fig 2.10) - electrons in the outermost energy shell

Covalent Bonds (Fig 2.12) – the sharing of a pair of electrons by two atoms

In a nonpolar covalent bond, the electrons are shared equally

In a polar covalent bond, the electrons are not equally shared (Fig 2.13)

Weak Bonds

Ionic bonds (Fig 2.14 & 2.15)

Cations (+)

Anions (-)

Hydrogen bonds (Fig 2.16)

Van der Waals interactions

Molecular Shape (Fig 2.19)

Chemical Reactions – the making and breaking of chemical bonds

Reactants – starting materials in a reaction

Products – ending materials in a reaction

Chemical Equilibrium - The point in a chemical reaction at which the relative concentrations of the reactants and products stop changing