

chapter02

Section Outline

Section 2-1

2-1 The Nature of Matter

- A. Atoms
- B. Elements and Isotopes
 - 1. Isotopes
 - 2. Radioactive Isotopes
- C. Chemical Compounds
- D. Chemical Bonds
 - 1. Ionic Bonds
 - 2. Covalent Bonds
 - 3. Van der Waals Forces

An Element in the Periodic Table

Section 2-1

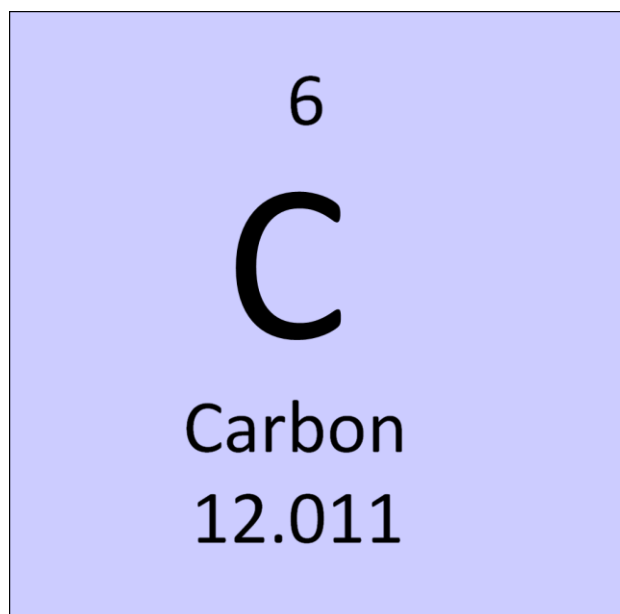


Figure 2-2 Isotopes of Carbon

Section 2-1

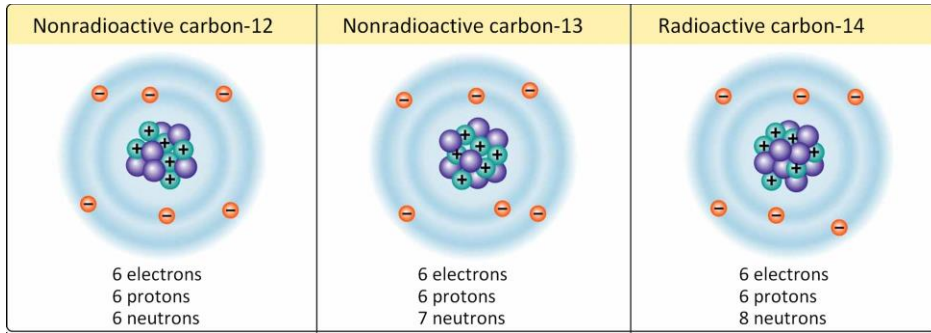


Figure 2-3 Ionic Bonding

Section 2-1

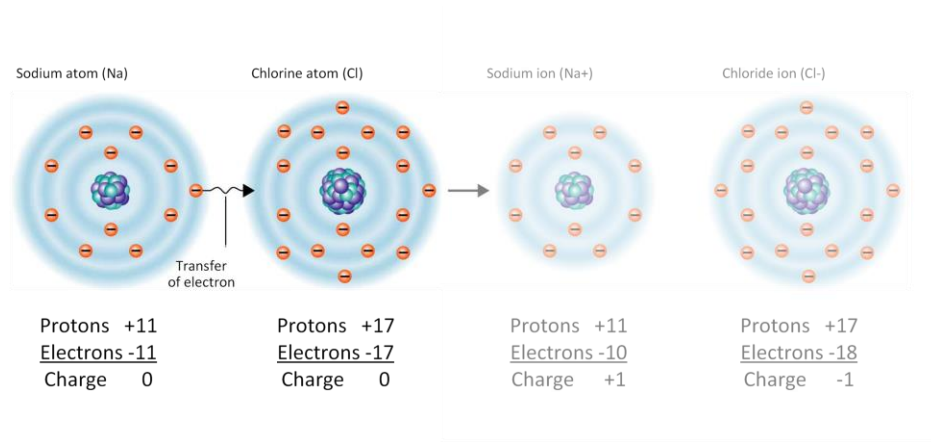


Figure 2-3 Ionic Bonding

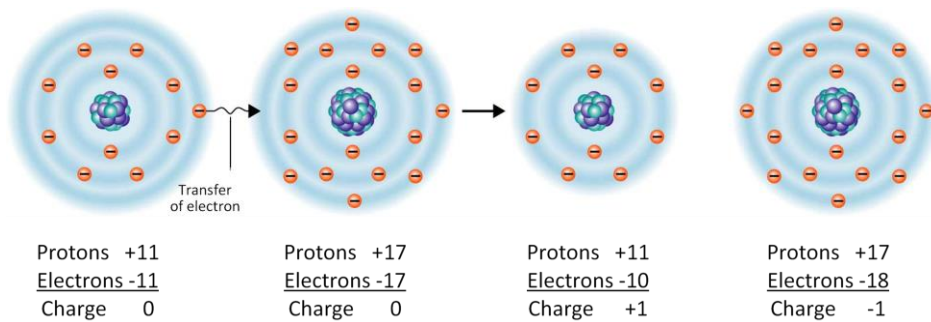
Section 2-1

Sodium atom (Na)

Chlorine atom (Cl)

Sodium ion (Na⁺)

Chloride ion (Cl⁻)



Section Outline

Section 2-2

- 2-2 Properties of Water
 - A. The Water Molecule
 - 1. Polarity
 - 2. Hydrogen Bonds
 - B. Solutions and Suspensions
 - 1. Solutions
 - 2. Suspensions
 - C. Acids, Bases, and pH
 - 1. The pH Scale
 - 2. Acids
 - 3. Bases
 - 4. Buffers

pH Scale

Section 2-2

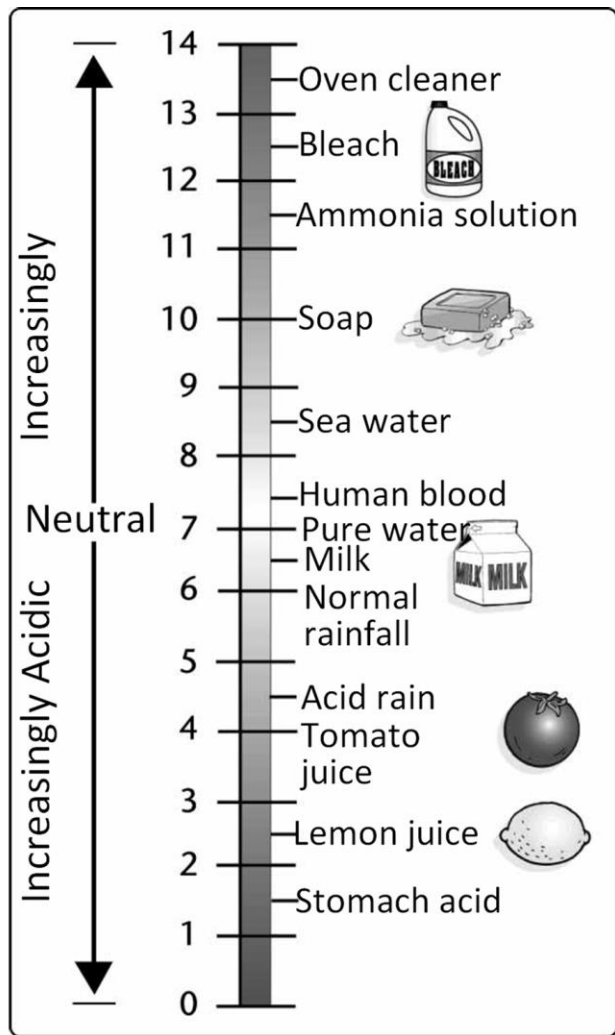


Figure 2-9 NaCl Solution

Section 2-2

Cl⁻

Water

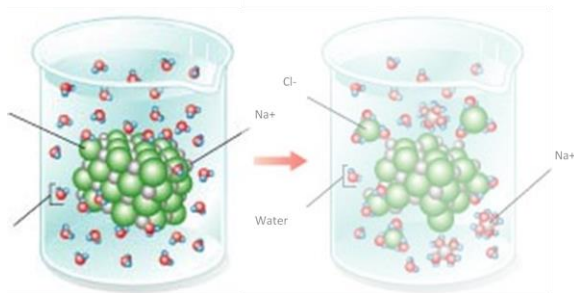
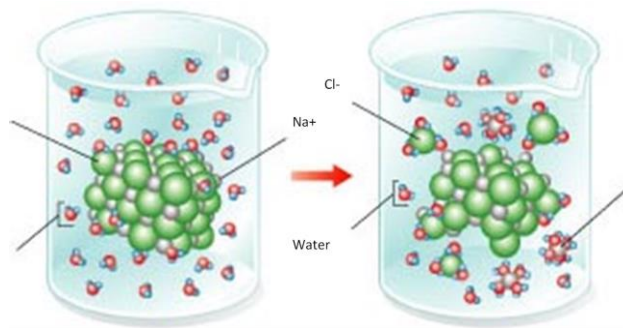


Figure 2-9 NaCl Solution

Section 2-2

Cl-

Water



Na+

Section Outline

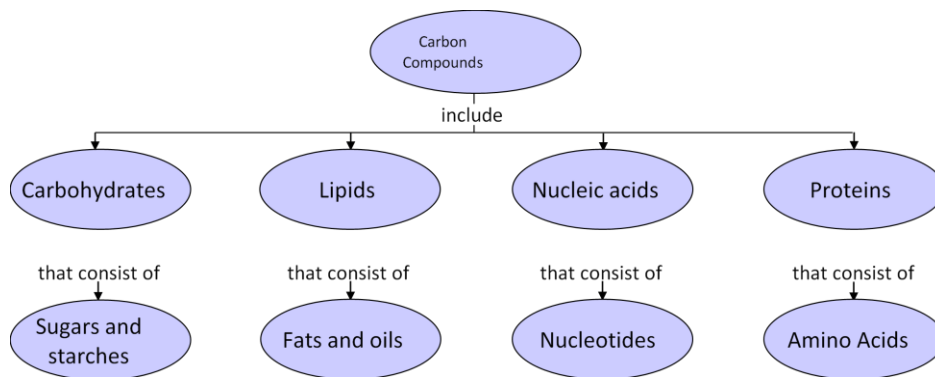
Section 2-3

2-3 Carbon Compounds

- A. The Chemistry of Carbon
- B. Macromolecules
- C. Carbohydrates
- D. Lipids
- E. Nucleic Acids
- F. Proteins

Concept Map

Section 2-3



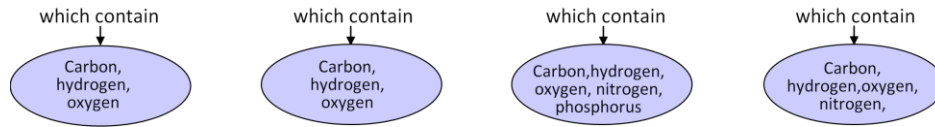


Figure 2-11 Carbon Compounds

Section 2-3

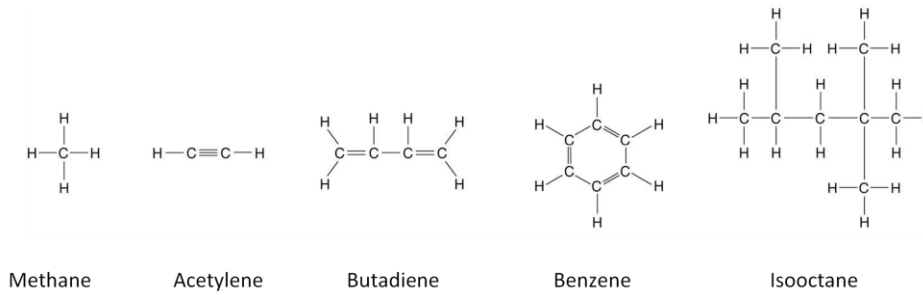


Figure 2-13 A Starch

Section 2-3

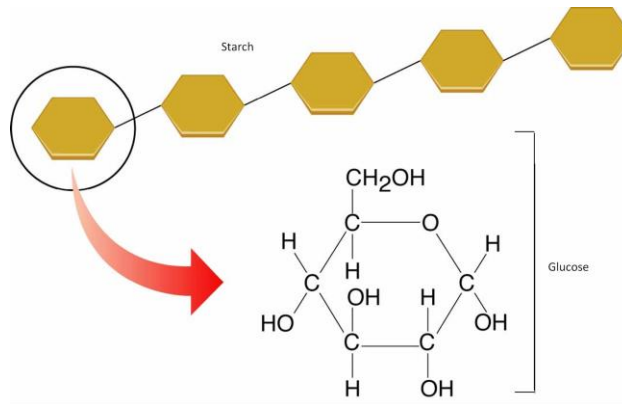


Figure 2-16 Amino Acids

Section 2-3

Amino group

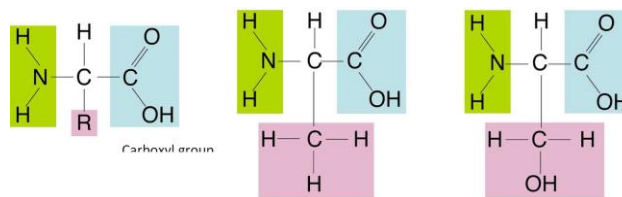


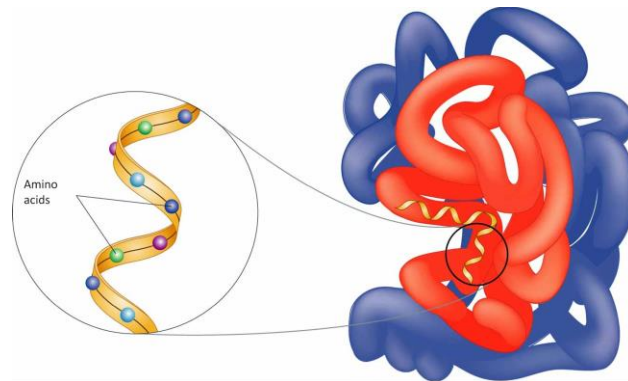
Figure 2-16 Amino Acids

Section 2-3

Amino group

Figure 2-17 A Protein

Section 2-3



1 - Nucleic Acid

Nucleic Acid

Section Outline

Section 2-4

2-4 Chemical Reactions and Enzymes

A. Chemical Reactions

B. Energy in Reactions

1. Energy Changes

2. Activation Energy

C. Enzymes

D. Enzyme Action

1. The Enzyme-Substrate Complex

2. Regulation of Enzyme Activity

Effect of Enzymes

Section 2-4

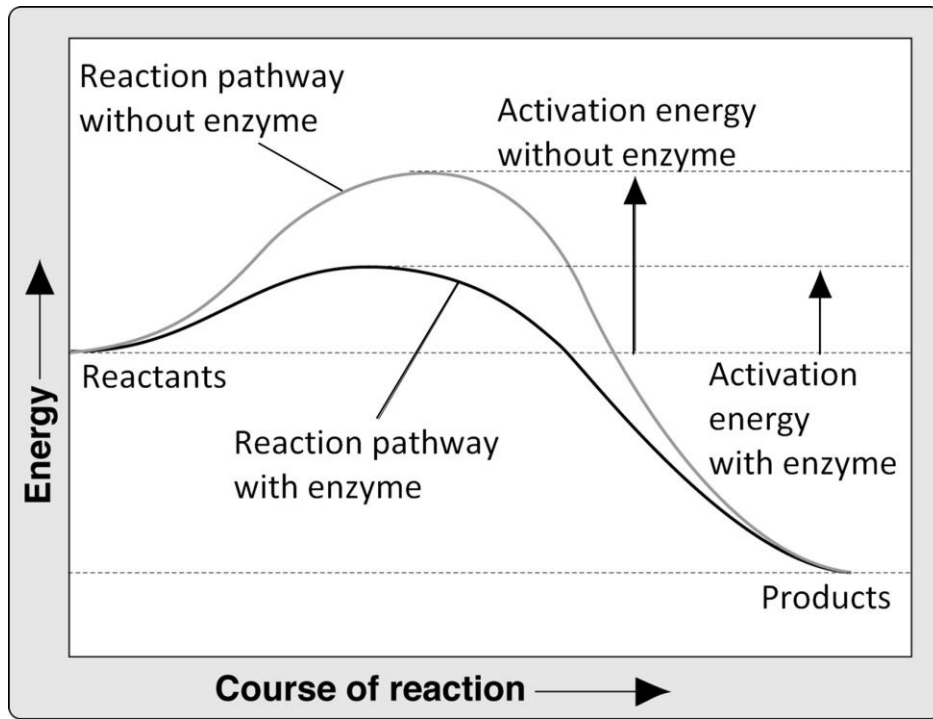


Figure 2-19 Chemical Reactions

Section 2-4

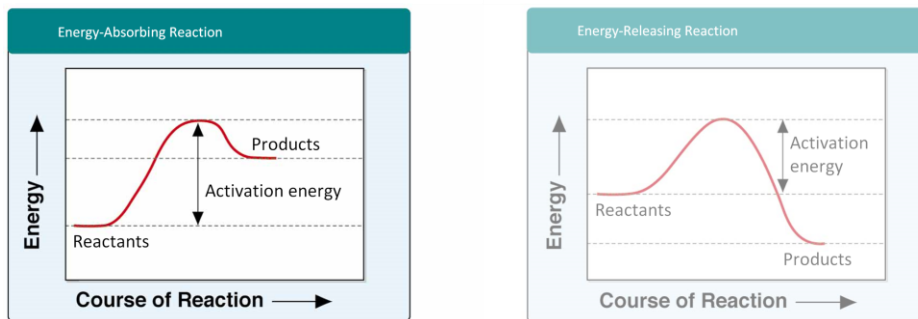


Figure 2-19 Chemical Reactions

Section 2-4

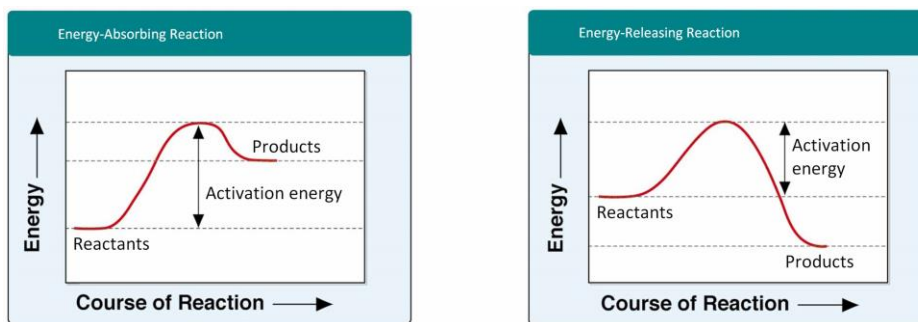
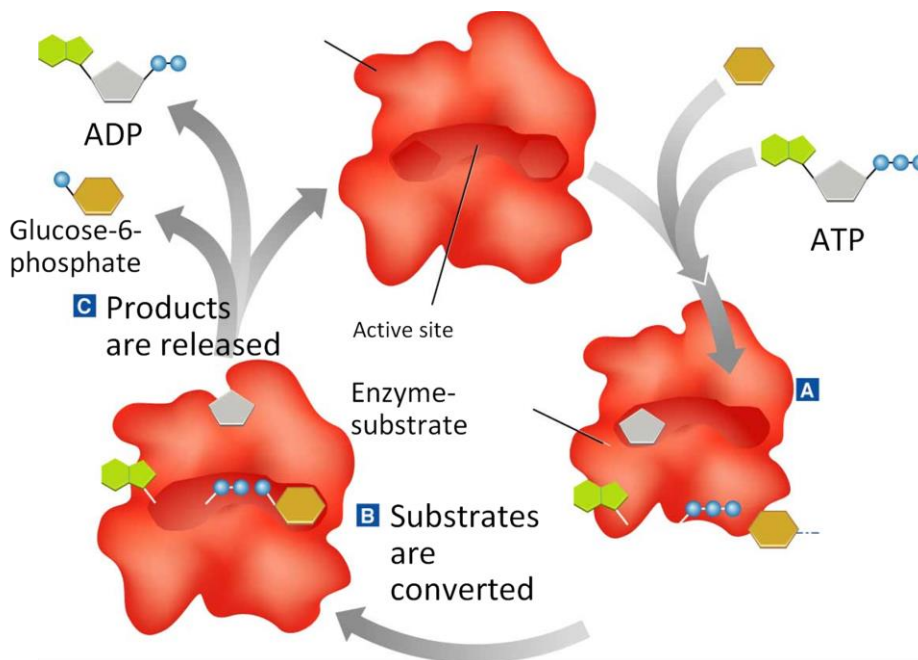


Figure 2-21 Enzyme Action

Section 2-4



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For links on enzymes, go to www.SciLinks.org and enter the Web Code as follows: cbn-1024.