CHAPTER HIGHLIGHTS

Carbohydrates and Lipids

Vocabulary
carbohydrate
monosaccharide
disaccharide
condensation reaction
hydrolysis
polysaccharide
lipid
fatty acid
saponification

- Carbohydrates are nutrients that are produced by plants and are made up of carbon, oxygen, and hydrogen.
- Monosaccharides are the simplest carbohydrates. Carbohydrates made of two monosaccharides are called *disaccharides,* and carbohydrates made of more than two monosaccharides are called *polysaccharides.*
- Carbohydrates undergo condensation reactions and hydrolysis reactions.
- Lipids are a varied group of biochemical molecules that have a high percentage of C and H atoms.

Amino Acids and Proteins

Vocabulary
amino acid
protein
enzyme
denaturation

- Amino acid molecules are the basic building blocks of proteins.
- Proteins are biopolymers, each of which has a unique sequence of the acid monomer molecules.
- The specific function of a protein is related to the shape of the protein.
- Side-chain interactions between amino acids result in secondary, tertiary, and quaternary protein structures.

Metabolism

Vocabulary
metabolism
autotroph
adenosine triphosphate (ATP)
heterotroph
adenosine diphosphate (ADP)
catabolism
anabolism

- ATP is a high-energy storage compound that the body uses to store and provide energy for life.
- The metabolic pathways involve both the conversion of ATP to ADP and the conversion of ADP to ATP.
- Metabolic pathways are classified as two types: catabolism and anabolism.
- Catabolism includes reactions in which large molecules are changed into simpler molecules. These reactions release energy.
- Anabolic processes are energy-consuming pathways by which cells produce the molecules needed for growth and repair.

Nucleic Acids

Vocabulary
nucleic acid
DNA replication
cloning

- Deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) are nucleic acids, the compounds by which living organisms can reproduce themselves.
- Nucleic acids are polymers of monomer units called *nucleotides*.
- The two strands of the double helix of DNA are complementary to each other, not identical. These strands are held together by hydrogen bonding of the base pairs.
- RNA is used as a template to produce proteins in the cell.