

Module 03: Biomolecules — Keys to Success

Key Learning Objectives

1. Macromolecule Concepts

- Define monomer, polymer, and macromolecule
- Explain dehydration synthesis and hydrolysis reactions
- Understand how building blocks combine to form larger molecules

2. Carbohydrates

- Identify monosaccharides, disaccharides, and polysaccharides
- Describe the structure and function of glucose, sucrose, starch, glycogen, and cellulose
- Explain the roles of carbohydrates in energy storage and structural support

3. Lipids

- Describe the structure of fatty acids, triglycerides, phospholipids, and steroids
- Differentiate between saturated and unsaturated fats
- Explain the biological functions of lipids (energy storage, membrane structure, signaling)

4. Proteins

- Identify amino acids as the building blocks of proteins
- Describe the four levels of protein structure (primary, secondary, tertiary, quaternary)
- Explain how protein structure relates to function
- Understand protein denaturation

5. Nucleic Acids

- Identify nucleotides as the building blocks of DNA and RNA
- Describe the structure of DNA and RNA

- Explain the roles of nucleic acids in storing and transmitting genetic information
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Study Tips

1. **Draw the structures** of each macromolecule type
2. **Create comparison tables** for the four macromolecule classes
3. **Practice identifying monomers** from polymer examples
4. **Use mnemonics** to remember amino acid categories
5. **Relate structure to function** for each biomolecule type