

# Objectives: You should be able to...

- Identify the most common elements found in living organisms (and what types of molecules they are found in)
- Compare and contrast different types of bonds/forces – ionic, covalent, hydrogen, Van der Waals, hydrophobic/hydrophilic interactions
- Define – polar, non-polar, hydrophobic, hydrophilic

# Objectives: You should be able to...

- Explain why water is a polar molecule
- Draw hydrogen bonds between water molecules
- Analyze the solubility of substances in water
- Describe the unique properties of water and how they benefit living organisms
- Define: electronegativity, cohesion, adhesion, solute, solvent, solution, pH

# Objectives: You should be able to...

- Describe characteristics of carbon that make it possible to build a variety of biological molecules.
- Identify the 7 major functional groups and whether they are polar/non-polar and other unique properties.

# Chapter 5 Objectives:

- Explain how **polymers** are synthesized (dehydration/condensation reaction) and broken down (hydrolysis/digestion reaction)
- Describe the structure and function of the 4 major classes of **macromolecules**
- Explain how the structure and sequence of **monomers** affects the function of the **polymer**.
- Give at least 2 examples of each macromolecule and how their structure affects their function.

## Chapter 5.2

# Objectives:

- Describe the general structure of a monosaccharide
- Describe how monosaccharides are bonded together to form polysaccharides.
- Compare and contrast the structure and function of **starch vs. glycogen**
- Compare and contrast the structure and function of **starch vs. cellulose**

# Objectives:

- Describe the general structure and function of fats, phospholipids, and steroids.
- Compare and contrast a saturated vs. unsaturated fatty acid.
- Describe why a phospholipid is both hydrophilic and hydrophobic.
- Describe the physiological role of steroids (cholesterol and sex hormones)

# Objectives:

- Describe the components of amino acid structure.
- Distinguish between primary, secondary, tertiary, and quaternary protein structure.
- Explain the connection between the sequence of amino acids in a protein and the overall protein structure/function.
- Identify the amino end and carboxyl end of a polypeptide sequence.
- Vocabulary: amino acid, polypeptide, enzyme, disulfide bridge, N-terminus, C-terminus, alpha-helix, beta-pleated sheet, denature/denaturation

# Objectives:

- Describe the structure of a nucleotide.
- Compare and contrast the structure and function of DNA and RNA.
- Identify the 5' end and 3' end of a nucleic acid and the direction complementary nucleotides are added.
- Give the base-pairing rules in DNA and RNA.
- Vocabulary: nucleotide, nitrogen base, complementary