6 Chemistry in Biology

4 The Building Blocks of Life

TEKS 4(B), 6(A), 9(A), 9(D)

REVIEW VOCABULARY

organic compound

NEW VOCABULARY

macromolecule

polymer

carbohydrate

lipid

protein

amino acid

nucleic acid

nucleotide

MAIN IDEA

Write the Main Idea for this lesson.

Recall the definition of the Review Vocabulary term.

organic compound

Use your book to define each term.

macromolecule

polymer

carbohydrate

lipid

protein

amino acid

nucleic acid

nucleotide

4 The Building Blocks of Life (continued)

Student Edition, pp. 166–171

Reading Essentials pp. 65–68

Contrast an organic compound to an inorganic compound.

Model a carbon atom, and label its parts. Then use a label to point out and briefly explain why carbon can form a variety of organic compounds.

Compare the composition and functions of the four major groups of biological macromolecules by completing the table below.

Group	Composition	Functions
	amino acids made of carbon, hydrogen, oxygen, nitrogen, and sometimes sulfur	
Nucleic acids		
		store energy; provide structural support
		store energy; provide steroids; waterproof coatings

4 The Building Blocks of Life (continued)

Evaluate the number of molecules of each element in the carbohydrate described by the formula below.

$$(CH_2O)_6$$

Carbon: _____ Hydrogen: _____ Oxygen: _____

Ratio of carbon, hydrogen, and oxygen: _____

Type of carbohydrate: _____

Model the two general shapes of proteins named below.

Pleat	**Helix**

Describe nucleic acids by filling in the following chart.

Units that Make Up Nucleotides		

Function of DNA:	Function of RNA:

GET IT? **Use an analogy** to describe macromolecules.

4 The Building Blocks of Life (continued)

REVIEW IT!

1. **MAIN**IDEA **Explain** If an unknown substance found on a meteorite is determined to contain no trace of carbon, can scientists conclude that there is life at the meteorite's origin?

2. **Compare** the structure and function of each type of biological macromolecule.

3. **Determine** the components of carbohydrates and proteins.

4. **Discuss** the importance of amino acid order to a protein's function.

5. **Summarize** Given the large number of proteins in the body, explain why the shape of an enzyme is important to its function.

6. **Draw** two structures (one straight chain and one ring) of a carbohydrate with the chemical formula $(CH_2O)_6$.