

## **CHAPTER 4**

### **CARBON AND THE MOLECULAR DIVERSITY OF LIFE**

#### **Learning objectives**

##### **The Importance of Carbon**

1. Explain how carbon's electron configuration explains its ability to form large, complex and diverse organic molecules.
2. Describe how carbon skeletons may vary, and explain how this variation contributes to the diversity and complexity of organic molecules.
3. Describe the basic structure of a hydrocarbon and explain why these molecules are hydrophobic.
4. Distinguish among the three types of isomers: structural, geometric, and enantiomer.

##### **Chemical Groups**

5. Name the major chemical groups found in organic molecules. Describe the basic structure of each chemical group and outline the chemical properties of the organic molecules in which they occur.

##### **ATP**

6. Explain how ATP functions as the primary energy transfer molecule in living cells.