# CH2.3 Carbon & Organic Molecules

**KEY CONCEPT: Carbon atoms have unique bonding properties.**

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| **Objectives** | **Vocabulary** |
| * **Describe the bonding properties of carbon atoms**
* **Compare carbohydrates, proteins, lipids, and nucleic acids**
 | * **Monomer**
* **Polymer**
* **Carbohydrate**
* **Monosaccharide**
* **Lipid**
* **Phospholipid**
* **Starch**
* **Cellulose**
* **Protein**
* **Amino acid**
 | * **Peptide bond**
* **Nucleic acid**
* **Nucleotide**
* **Glycogen**
* **Chitin**
* **Primary structure**
* **Secondary structure**
* **Tertiary structure**
* **Quaternary structure**
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1. **How many electrons does a carbon atom have?**
2. **How many of those electrons are valence electrons?**
3. **How many more electrons does carbon need to be stable?**
4. **How many covalent bonds do you think carbon will make to accomplish this?**
* Carbon forms covalent bonds with up to four other atoms, including other carbon atoms. Carbon-based molecules have three general types of structures.
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Many carbon-based molecules are made of many small subunits called monomers bonded together to form polymers.



* + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the individual subunits.
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are made of many monomers.
1. **What is the relationship between a polymer and a monomer**
2. **How are carbohydrates and lipids similar? How are they different**
3. **Explain how the bonding properties of carbon atoms result in the large variety of carbon-based molecules in living things**
4. **Why might fatty acids, amino acids, and nucleic acids increase the hydrogen ion (H+) concentration of a solution? Explain your answer.**

**Four main types of carbon-based molecules are found in living things.**

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| Organic Polymer | Monomer | Examples & What they’re used for |
| Carbohydrate |  |  |
| Lipid |  |  C:\Documents and Settings\amit.gaur\Desktop\2 nov\0046_bhspe-010203.gif Image result for phospholipid |
| Protein | C:\Documents and Settings\khyati.shah\My Documents\Chapter 2\untitled.JPG | Shown are the four levels of protein structure. The primary structure is the amino acid sequence. Secondary structure is a regular folding pattern due to hydrogen bonding. Two types of secondary structure are shown: a beta pleated sheet, which is flat with regular ripples, and an alpha helix, which coils like a spring. Tertiary structure is the three-dimensional folding pattern of the protein due to interactions between amino acid side chains. Quaternary structure is the interaction of two or more polypeptide chains. |
| Nucleic Acid | Image result for nucleotide | bhspe-030802-007 |