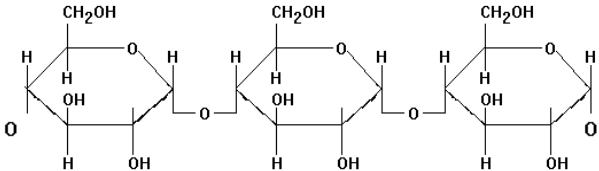
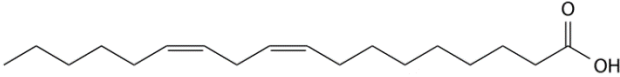
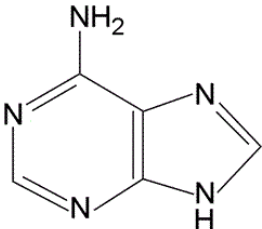


Biomolecules

Type of Macromolecule	Chemical Structure	Functions	Location in Cell	Traits
Carbohydrate	<p>Monomer: usually a five or six-carbon ring. Carbohydrate Example:</p> 	<ul style="list-style-type: none"> Provides most of the energy in the cell via cellular respiration. Allows for short and long term storage of energy. 	<p>Most often observed in the Mitochondria where glycolysis takes place; however, can be found anywhere in the cell.</p>	<p>Simple sugars, such as glucose, fructose, or lactose, can be broken down via a hydrolysis reaction to fuel cellular respiration. More complex carbohydrates cannot directly enter cellular respiration and must be broken down into monomers first, or they may be converted into energy storage. Complex starches, such as cellulose or fiber, act as long-term storage and also help provide support to the cellular structure.</p>
Lipid	<p>Example: Linoleic Acid</p> 	<ul style="list-style-type: none"> Insulate, protect, and provide energy storage for the cell. Steroids are lipid chemical messengers that move within (intracellular) and between cells (intercellular). 	<p>Lipids form the majority of the cellular membrane and nuclear envelope. Since steroids are mobile, they may be observed within cell organelles, within the bodies of cells, and moving between cells.</p>	<p>The double layer of lipids forming the cellular membrane helps insulate the cell and prevent dehydration. Lipids are broken down for energy in the absence of carbohydrates. Steroids are a type of hormone and deliver specific messages to other cells.</p>

Type of Macromolecule	Chemical Structure	Functions	Location in Cell	Traits
Protein (Amino Acid)	<p style="text-align: center;">Carboxyl Group</p> $ \begin{array}{c} \text{COO}^- \\ \\ \text{Amino Group } ^+\text{H}_3\text{N} - \text{C} - \text{H} \text{ Hydrogen} \\ \\ \text{R} \\ \text{Side Chain Group} \end{array} $	<ul style="list-style-type: none"> • Carry out cellular functions • Act as enzymes or reaction catalysts • Function as chemical messengers • Provide structure and support for the cell. 	Proteins are embedded in the cellular membrane, and are present in all cellular organelles.	The functional units of the cell
Nucleic Acid	<p>DNA: Adenine, thymine, guanine, cytosine RNA: Adenine, uracil, guanine, cytosine Example: Adenine</p> 	<ul style="list-style-type: none"> • Contains the 'blueprint' for the cell • Replicates or duplicates genetic material • Responsible for creation of new amino acids • Execution of cellular functions 	Inside the nucleus, ribosomes.	DNA, RNA, mRNA, rRNA, tRNA, etc.