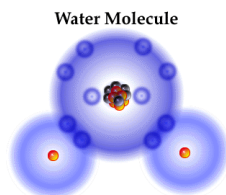
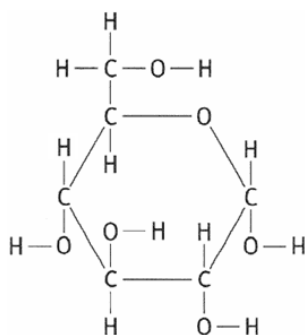


It's All about Shape

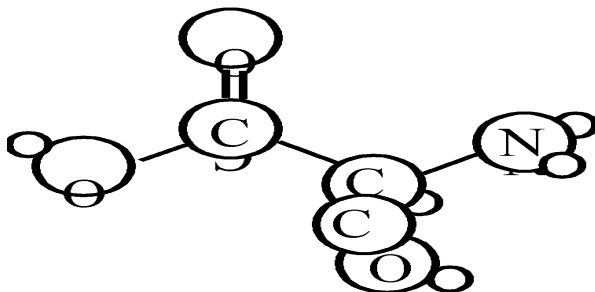
Water is a polar molecule. It has a split personality with a partially positive charge on its hydrogen's and partially negative on its oxygen. It's like a magnet, having opposite charges on either end. This allows it to have all the properties that support life here on earth.



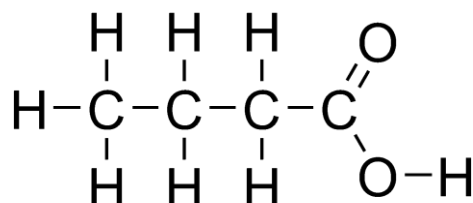
Glucose is a simple monosaccharide. It is not a disaccharide or a polysaccharide. Monosaccharides are the building blocks of all sugars. This means that it is easily digested by humans without the help of microbes. It is the primary source of energy for all organisms from bacteria to humans. It is transformed into useable energy during the process of cellular respiration.



Amino acids are the basic building blocks of proteins. Proteins are very large, complex molecules with large, complex jobs. This is why we could not have you actually build a protein molecule. You will have to be content with building a “building block”. Alanine is the primary structure in at least 1,150 proteins. D-Alanine occurs in bacterial cell walls and in some peptide antibiotics.



$\text{CH}_3\text{CH}_2\text{CH}_2\text{-COOH}$ (butyric acid) Low-molecular-weight esters of butyric acid, such as methyl butyrate, have mostly pleasant aromas or tastes. As a consequence, they find use as food and perfume additives. It is also used as an animal feed supplement, due to the ability to reduce pathogenic bacterial colonization. The substance has also been used as a noxious, nausea-inducing repellent by anti-whaling protesters to disrupt Japanese whaling crews. Butyric acid is a relatively small fat



Name: _____

It's All About Shape Answer Sheet

1. Based on the previous statement, why is it important for you to understand the shapes of the molecules that we are going to study? _____

2. Why does water have a “split personality” and is “polar”?

Draw your Water molecule:

Draw your Carbon Dioxide:

3. If saccharide means sugar, what do you think monosaccharide, disaccharide, and polysaccharide means when describing the structures of sugars?

Draw your Carbohydrate Molecule:

4. What are the building blocks of proteins?

Draw your Protein:

5. Fats are an example of molecules that are hydrophobic because they are, unlike water, nonpolar. The hydro part of the word means water. What do you think the word hydrophobic means? _____

Draw your Lipid:

6. Nucleic acids, fats, proteins, and carbohydrates are all considered to be organic compounds/molecules. These are compounds associated with living things. Water and carbon dioxide are considered inorganic. Look at the elements/ bonds found in the molecules you have created. What is the common characteristic found only in the organic molecules and never in the inorganic ones?
