**BIOMOLECULES**

Biomolecules are made of four main elements that are found in all living organisms (that’s why they are called **bio**molecules). These elements are Carbon, Hydrogen, Oxygen and Nitrogen (**CHON**) that react in different ways to make:

**CARBOHYDRATES**: Are substances made mainly of carbon and hydrogen and are found in sugars. Most carbohydrates are soluble in water. They act as energy providers and to give structure for living things. The smallest unit of carbohydrates is **glucose.** Glucose is the source of energy for most living things. Some other kinds of carbohydrates are sucrose or table sugar, maltose, fructose, cellulose and starch.

**LIPIDS**: Lipids are made of carbon and hydrogen too, but, they have a chemical composition a little different than carbohydrates, because some of them can have an atom of oxygen. Lipids are not soluble in water that is why they are very important in the making of cell membranes. They are used for animals as isolator, especially in cold weathers. Lipids act as long-term energy stores, and they can store more energy than carbohydrates. Some lipids provide structure and control functions.

**NUCLEIC** **ACIDS**: Nucleic acids are made of hydrogen, carbon, nitrogen, and oxygen. They were named “nucleic” because they were found first in the nucleus of cells. They are very important, because they play an especial roll in the transmission of genetic information and in the making of amino acids that are essential to make other substances, such as proteins, enzymes, hormones and vitamins. The most important nucleic acids are **Deoxyribonucleic acid (DNA) and Ribonucleic acid (RNA).**

**PROTEINS**: Proteins are made by chains of amino acids which are coded by nucleic acids. Proteins are very important, because they build up tissues and other structures like nails and hair, proteins also have other functions such as movement, regulation, transport, nutrition and defense.

**EXERCISE**

1. Which are the four elements that can be found in all living things?
2. What groups of molecules make up most living things? And why are they called biomolecules?
3. Compare the structure and functions of each of the four groups of substances.
4. Wood and paper are made mostly of cellulose. Using what you know about wood, describe the properties of cellulose.
5. Relate these biomolecules to the properties of living things.
6. Suggest one or two simple experiments to determine whether a solid white substance is a lipid or a carbohydrate. What evidence would you need to support your hypothesis?