Elements & Macromolecules in Organisms **Name:** _____

Most common elements in living things are carbon, hydrogen, nitrogen, and oxygen. These four elements constitute about 95% of your body weight. All compounds can be classified in two broad categories --- organic and inorganic compounds. Organic compounds are made primarily of carbon. Carbon has four outer electrons and can form four bonds. Carbon can form single bonds with another atom and also bond to other carbon molecules forming double, triple, or quadruple bonds. Organic compounds also contain hydrogen. Since hydrogen has only one electron, it can form only single bonds.

Each small organic molecule can be a unit of a large organic molecule called a macromolecule. There are four classes of macromolecules (polysaccharides or carbohydrates, triglycerides or lipids, polypeptides or proteins, and nucleic acids such as DNA & RNA). Carbohydrates and lipids are made of only carbon, hydrogen, and oxygen (CHO). Proteins are made of carbon, hydrogen, oxygen, and nitrogen (CHON). Nucleic acids such as DNA and RNA contain carbon, hydrogen, oxygen, nitrogen, and phosphorus (CHON P).

The body also needs trace amounts of other elements such as calcium, potassium, and sulfur for proper functioning of muscles, nerves, etc. Color each of the elements on the next page according to the color listed next to the element's symbol. Then Color code the squirrel with the correct proportion of each element's color. Now color code the carrot with the same colors as you used on the squirrel.

C 18.5% black

O 65% red

P 1.0% pink

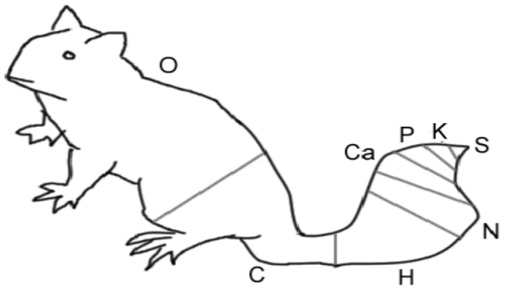
K 0.4% brown

H 9.5% yellow

N 3.3% blue

S 0.3% green

Ca 1.5% purple



Questions:

1. Name the 4 main elements that make up 95% of an organism.

2. Name the 4 types of bonds carbon can form.

3. What are macromolecules?

4. Name the 4 classes of macromolecules.

5. Give 2 examples of nucleic acids.

6. What elements make up carbohydrates & lipids (symbols)?

7. Name 3 elements your body needs trace amounts of for proper functioning.

The four main classes of organic compounds (carbohydrates, lipids, proteins, and nucleic acids) that are essential to the proper functioning of all living things are known as polymers or macromolecules. All of these compounds are built primarily of carbon, hydrogen, and oxygen but in different ratios. This gives each compound different properties.