Elements & Macromolecules in Organisms

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 <u>macromolecules</u>**:

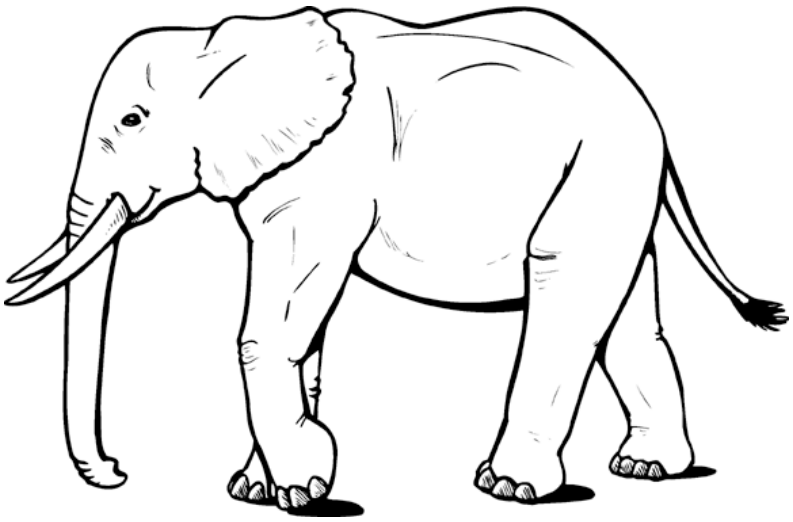
- Carbohydrates
- Lipids
- Proteins
- Nucleic acids (such as DNA & RNA)

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 below** according to the color listed next to the element's symbol. Then ***Color-code*** the **Elephant** with the correct proportion of each element's color. Now ***color code*** the carrot with the same colors as you used on the squirrel.

Element Name: _____

O	C	H	N	Ca	P	K	S
65% Red	18.5% Black	9.5% Yellow	3.3% Blue	1.5% Purple	1.0 % Pink	0.4% Brown	0.3% Green



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.