

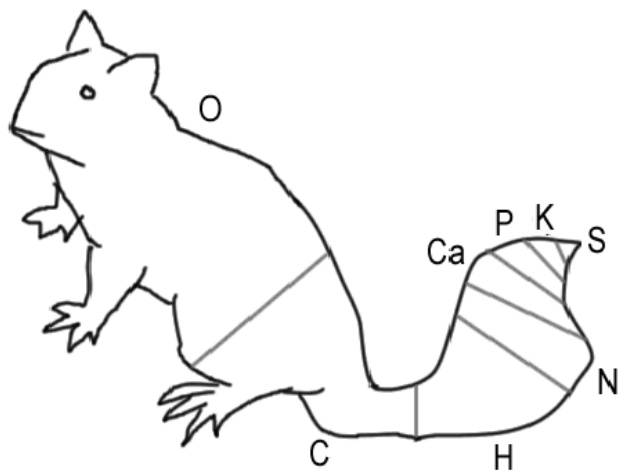
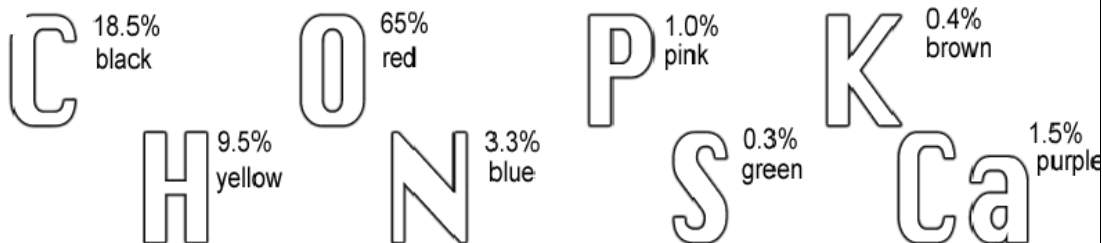
## Elements and Compounds in Organisms

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**.

There are **four common compounds: carbohydrates, lipids, 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 – Carbon**
- H – Hydrogen**
- O – Oxygen**
- N – Nitrogen**
- P – Phosphorus**
- S – Sulfur**
- K – Potassium**
- Ca - Calcium**

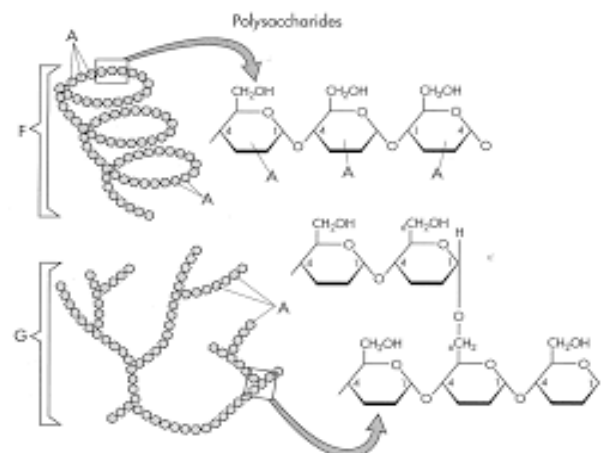
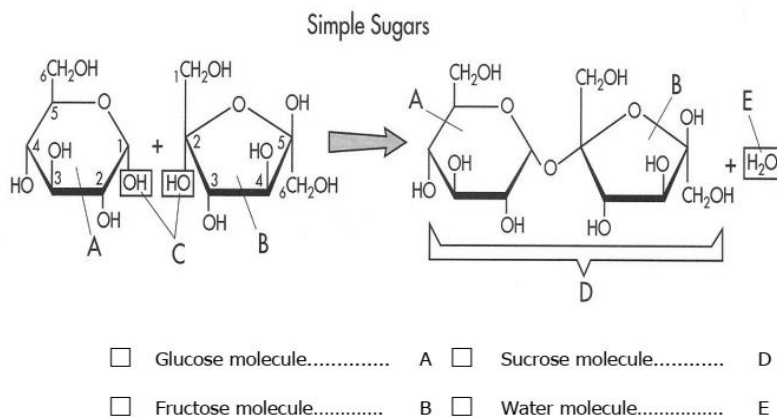
# Elements and Compounds in Organisms

Name: \_\_\_\_\_

## Questions

1. Name the 4 main elements that make up 95% of an organism.
2. Name the 4 types of compounds in living organisms.
3. Give 2 examples of **nucleic acids**.
4. What elements make up **carbohydrates** and **lipids**?
5. Name 3 elements your body needs trace amounts of for proper functioning.
6. What is the difference between **organic** and **inorganic**?

**Carbohydrates** are used by the body for **energy** and **structural support** in cell walls of plants and exoskeletons of insects and crustaceans. Color code the following images with the colors of your choice.

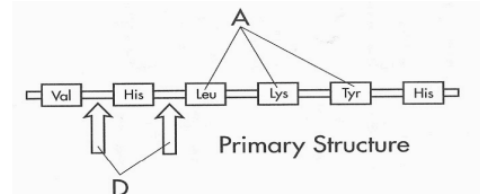


Elements and Compounds in Organisms

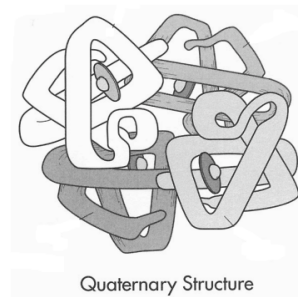
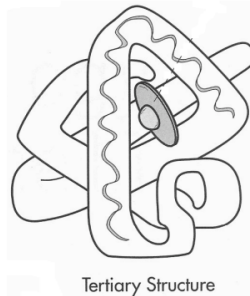
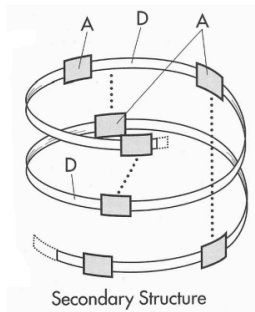
Name: \_\_\_\_\_

**Proteins** are made of subunits called **amino acids** and are used to build cells and do much of the work inside organisms. They also act as **enzymes** helping to control metabolic reactions in organisms. Color code the following images with the colors of your choice.

In the picture to the right, lightly shade in the amino acids (A) and the peptide bonds (D). Use different colors for each amino acid.

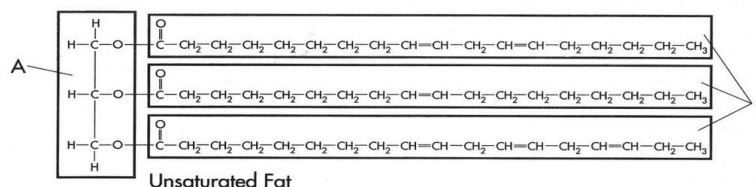
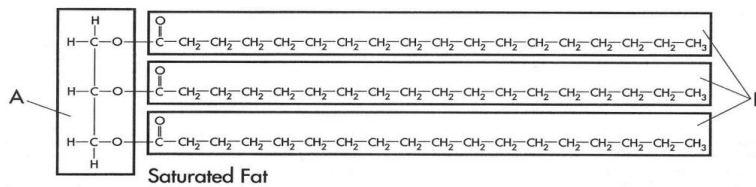


Proteins take many shapes depending on their function. These shapes be can accomplished by **folding** and **twisting the polypeptide chain**. Color the twisted protein below, using different colors for amino acids (A) and peptide bonds (D). Color the folded protein. And shade in the four chains (using different colors) of the quaternary structure in which multiple **polypeptides** are organized together.



**Lipids** are large molecules. **Phospholipids** make up cell membranes. Lipids also serve as waxy coverings (**cuticle**) on plants, **pigments** (chlorophyll), and **steroids**. Lipids have **more carbon and hydrogen atoms** than oxygen atoms. Color the following image with colors of your choice.

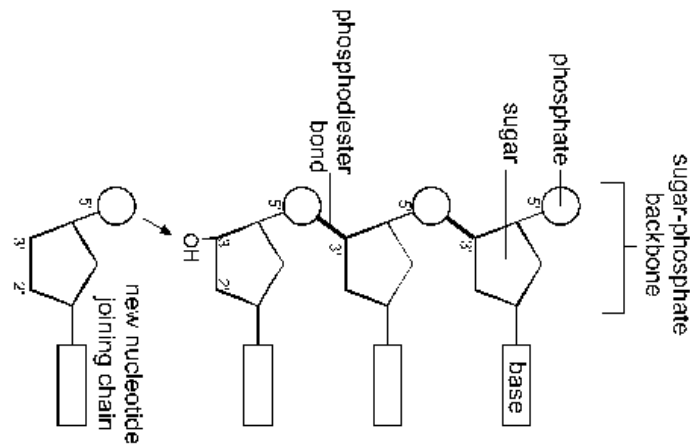
- Glycerol molecule..... A
- Saturated Fatty Acid Chain..... B
- Unsaturated Fatty Acid Chain..... C



## Elements and Compounds in Organisms

Name: \_\_\_\_\_

**Nucleic acids** carry the genetic information in a cell and are made up of **nucleotides**. Nucleotides are composed of a phosphate, sugar (deoxyribose or ribose), and a nitrogen base (A, U, T, G, or C). **DNA or deoxyribonucleic acid** contains all the instructions for making every protein needed by a living thing and contain the nucleotide **G, C, A, and U**. **RNA or ribonucleic acid** copies and transfers this genetic information so that proteins can be made and contain the nucleotides **G, C, A, and U**. Color the code following nucleotides with the colors of your choice.



### Questions:

1. Name 2 ways your body uses carbohydrates.
2. What subunits make up proteins?
3. Proteins also act as \_\_\_\_\_ in cells to control reactions.
4. \_\_\_\_\_ make up cell membranes.
5. Name a waxy lipid covering plants.
6. Plant pigments like \_\_\_\_\_ are also \_\_\_\_\_.
7. Lipids have more \_\_\_\_\_ and \_\_\_\_\_ than they do oxygen atoms.
8. Nucleic acids carry \_\_\_\_\_ information in a molecule called \_\_\_\_\_ or \_\_\_\_\_ acid.
9. DNA has the instructions for making a cell's \_\_\_\_\_.
10. The nucleic acid \_\_\_\_\_ copies DNA so \_\_\_\_\_ can be made.