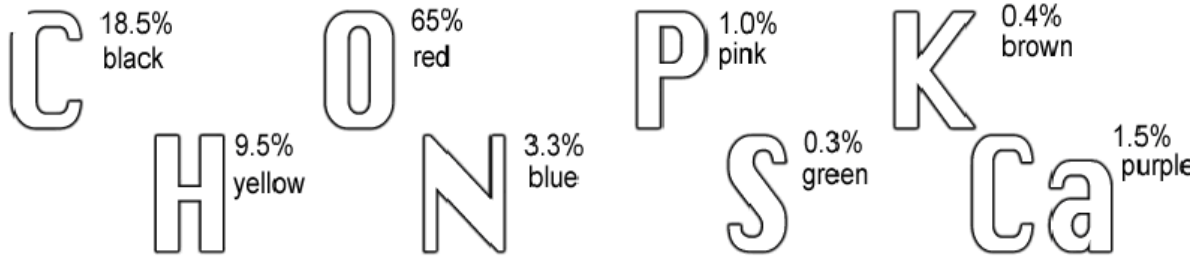


Elements & Macromolecules in Organisms

Elements of life: *Color* each of the elements on the next page according to the color listed next to the element's symbol.

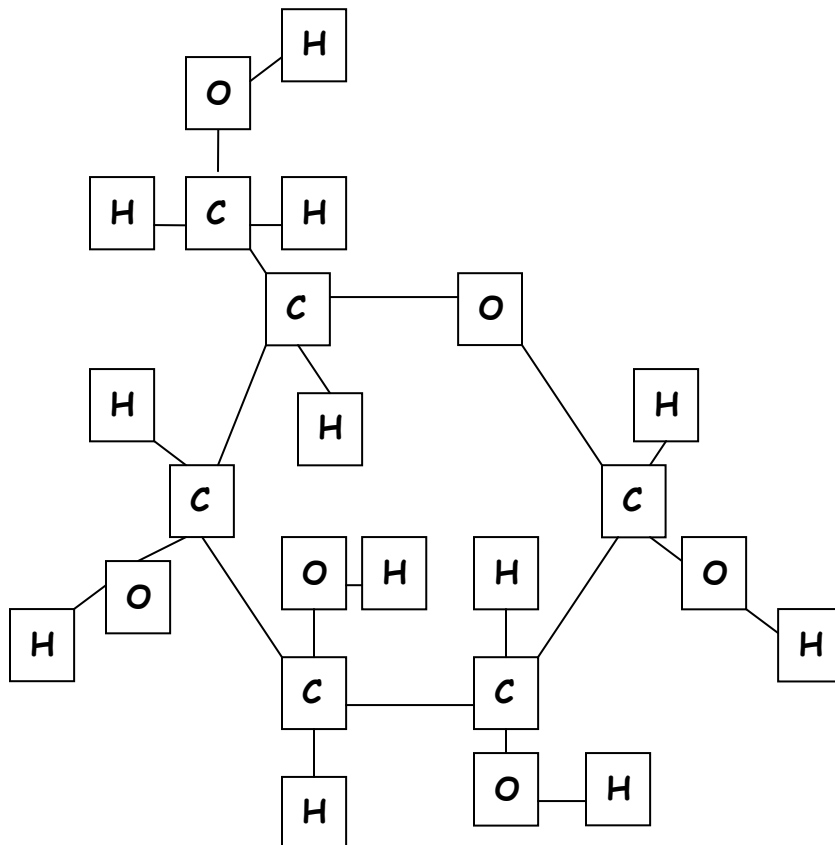


Carbohydrates: Use the diagram of glucose to tell how many carbons, hydrogens, and oxygens are in a single molecule.

C _____ # H _____ # O _____

Color code the glucose molecule (carbon-black, hydrogen-yellow, and oxygen-red).

Glucose Molecule

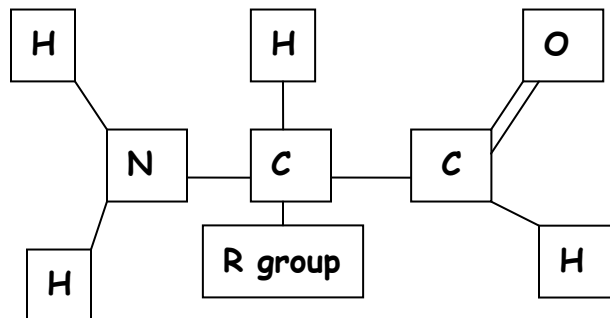


Questions:

1. Macromolecules are also known as _____.
2. If all the macromolecules are made mainly of the elements **C H O**, how are they different?
3. Name 1 way your body uses carbohydrates.
4. What are the monomers called that make up carbohydrates?
5. What is the ratio of *C*, *H*, and *O* in monosaccharides?

Proteins: *Color code* the amino acid (carbon-black, hydrogen-yellow, nitrogen-blue, and oxygen-red).

Basic Structure of Amino acid

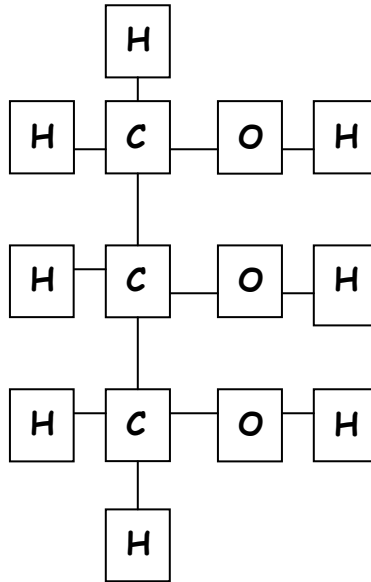


Questions:

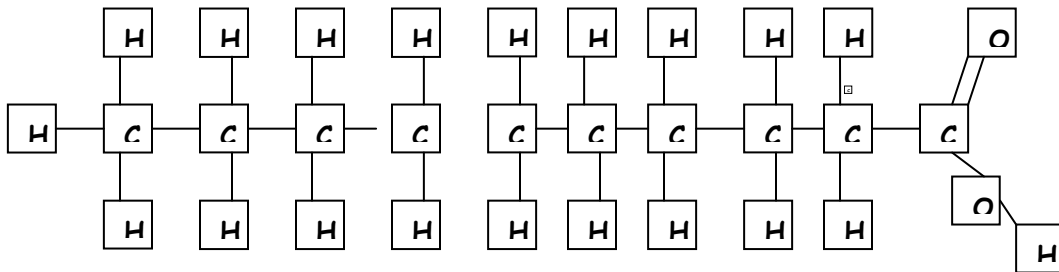
6. What monomers that make up proteins?
7. Proteins also act as _____ in cells to control reactions.
8. Chains of amino acids make _____ which can join together to make a _____.

Lipids: *Color* the glycerol molecule using the same colors for carbon, hydrogen, and oxygen as you did before. The fatty acid chains may be **saturated** (only single bonds between carbons) or **unsaturated** (contain at least one double bond). *Color* the fatty acid chains the same colors for carbon, hydrogen, and oxygen as you did before.

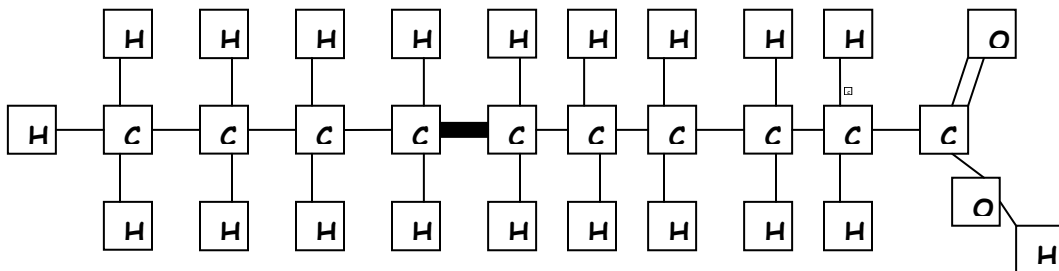
Glycerol



Saturated fatty Acid



Unsaturated Fatty Acid - Double Bond

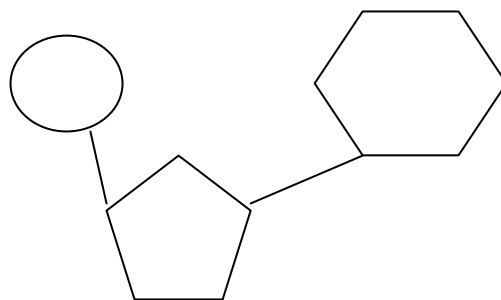


Questions:

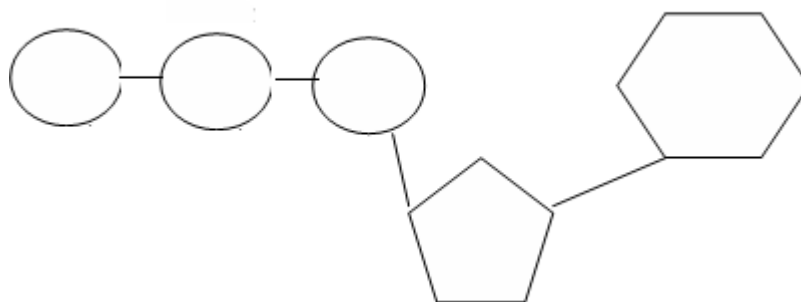
9. Lipids are nonpolar. What does this mean?
10. Lipids have more _____ and _____ atoms than they do oxygen atoms.
11. If there are all SINGLE bonds between _____ in the fatty acid chain, then it is said to be _____.
12. If there is a DOUBLE bond between _____ in the fatty acid chain, then it is said to be _____.
13. _____ layers of _____ make up the cell membrane.
14. Name the monomer that makes up lipids.

Nucleic acids: COLOR AND LABEL the parts of a nucleotide --- **sugar (5-sided)**-green, **phosphate group (round)**-yellow, and **nitrogen base (6-sided)**-blue. ATP used for cellular energy is a high energy nucleotide with three phosphate groups. **Color** code the ATP and **LABEL THE PHOSPHATES**.

Nucleotide



ATP



Questions:

15. Nucleic acids carry _____ information in a molecule called _____ or _____ acid.
16. _____ are the monomers that make up a nucleic acid.
17. The 3 parts of a nucleotide are a 5 carbon _____, a phosphate, and a nitrogen _____.
18. _____ is a high energy molecule made with _____ phosphates.

Final Questions:

19. Give the symbols for the elements that make up each of the following:

_____ carbohydrates	_____ lipids
_____ DNA	_____ proteins

20. How are monomers related to polymers?
21. Name the 4 types of macromolecules & list the functions for each.
22. Name the monomers and polymers that make up each of the macromolecules.