

Start-up for September 20, 2016

1. What is the relationship between compounds or molecules, elements, and atoms?
2. List the subatomic particles of an atom, their charge and location.
3. Compare at least two differences between ionic and covalent bonds.

Organic Chemistry

Chapter 2 Sections

1 and 3

**Carbon Compounds and
Macromolecules**

Objectives: Students will

- A) Identify the function and building blocks of each macromolecule
- B) Analyze a day of personal diet explain whether or not it is healthy.
- C) Create a meal plan that incorporates all of the macromolecules.

C) List the 4 classes of macromolecules

1. Carbohydrates



2. Lipids



3. Protein



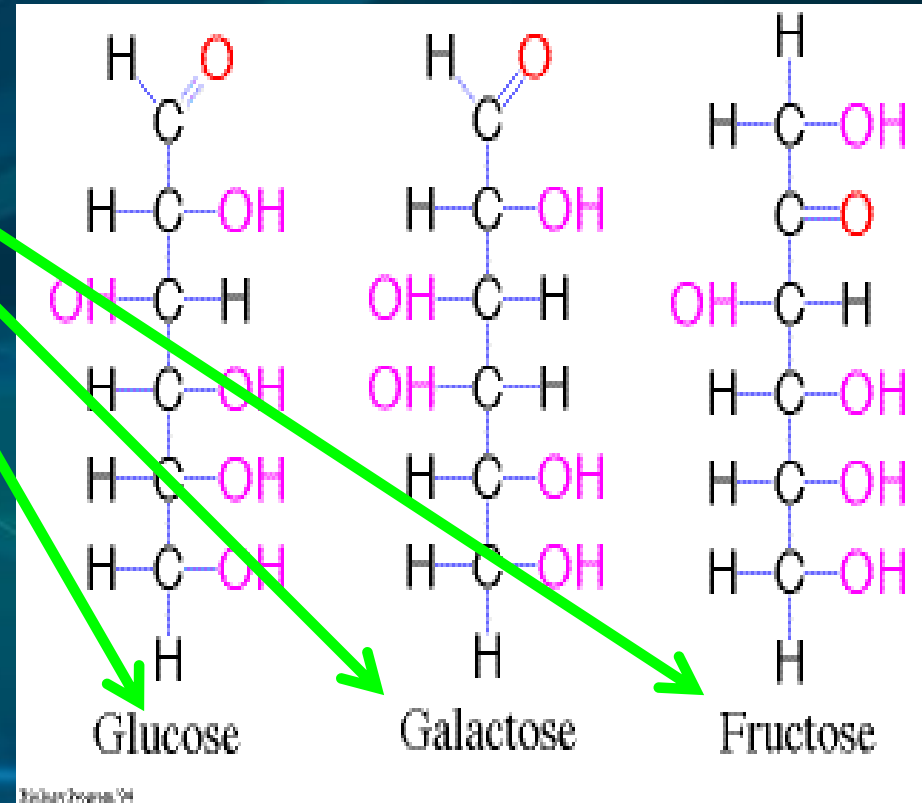
4. Nucleic Acids



D) Identify the function and building blocks of each macromolecule

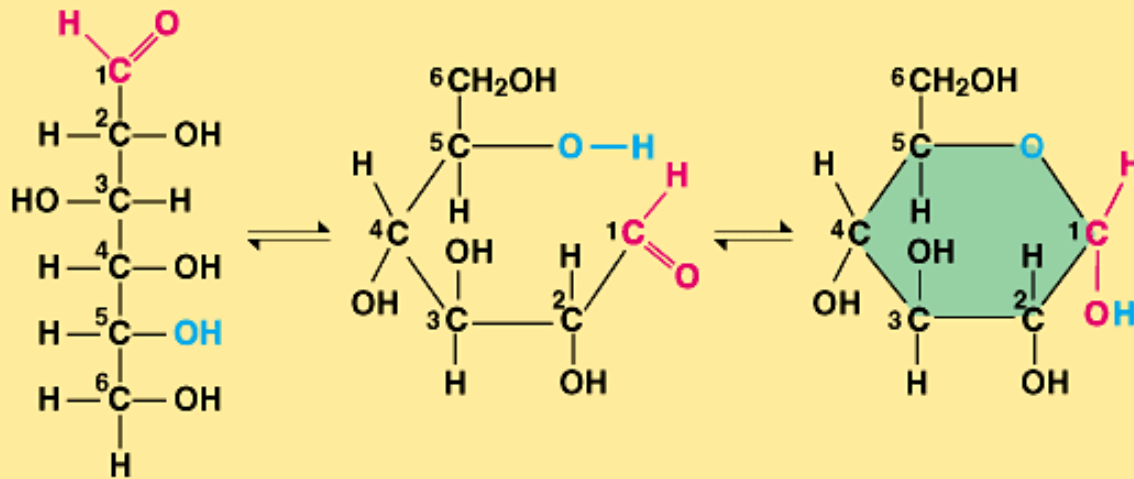
1. Carbohydrates

- Building blocks = monosaccharides.
- Consist of carbon, hydrogen and oxygen.
- Function = provide energy

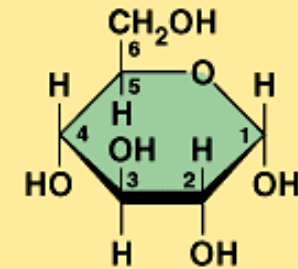


D) Identify the function and building blocks of each macromolecule

Glucose: Chain and Ring



(a) Linear and ring forms



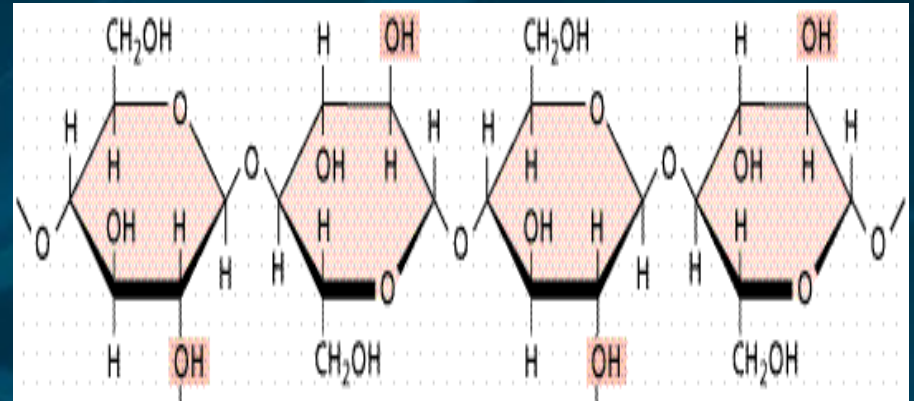
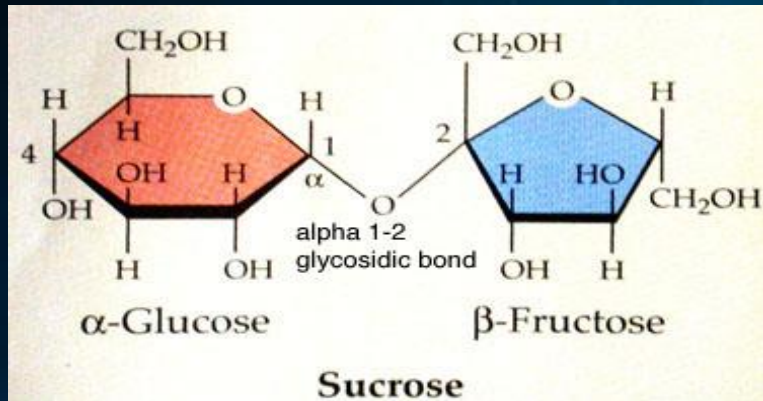
(b) Abbreviated ring structure

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- Glucose (and other monosaccharide) chains bend form rings.

D) Identify the function and building blocks of each macromolecule

Disaccharide and Polysaccharide



- Monosaccharide + Monosaccharide = disaccharide like sucrose = table sugar.
- Many monosaccharides = polysaccharides. (cellulose on right)

CFU

- What is a carbohydrate? Why is it so important to have?
- What is the difference between monosaccharides and polysaccharides?

D) Identify the function and building blocks of each macromolecule

2. Lipids

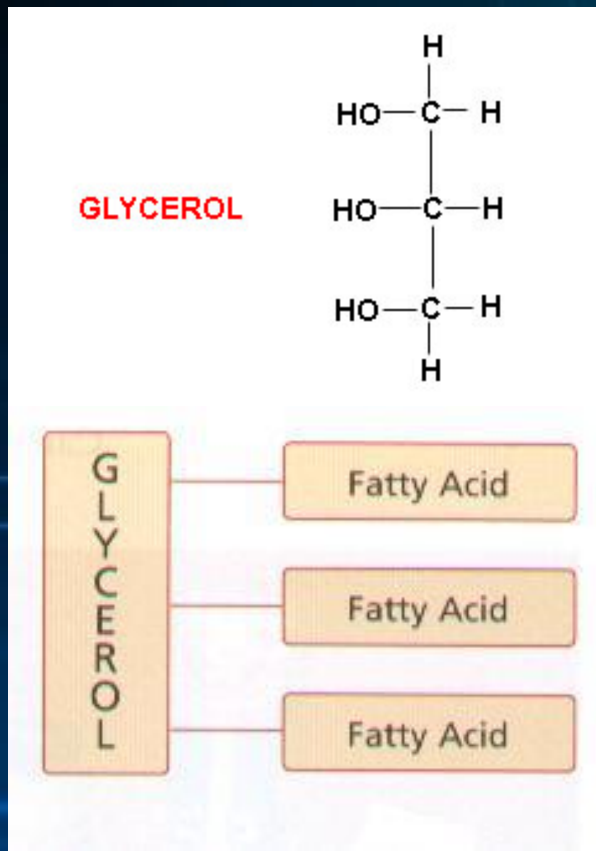
- Building blocks = Glycerol and Fatty Acids

- Functions:

Store energy

Waterproof coverings (skin)

Part of biological membranes

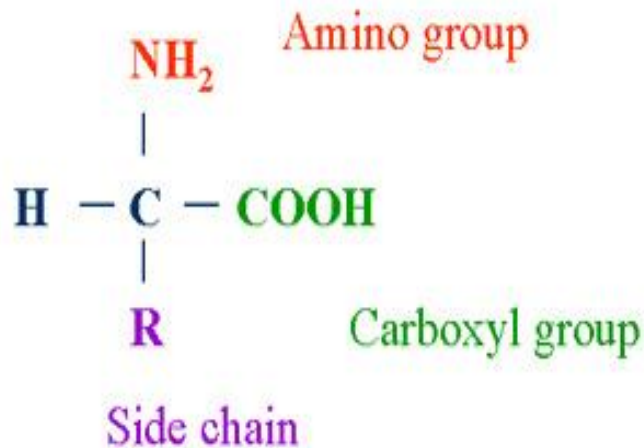


CFU

- What is a lipid? Why is it so important to have?

D) Identify the function and building blocks of each macromolecule

3. Protein

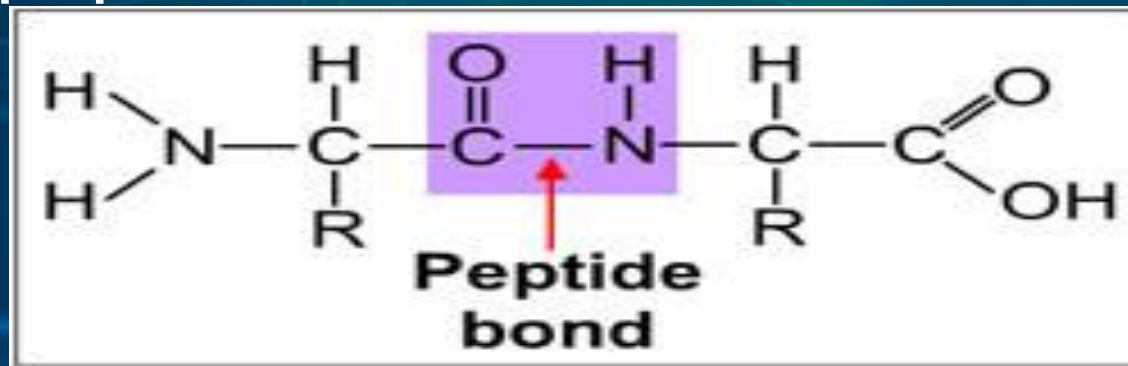


- Building blocks = Amino Acids.
- The side chain can vary – called 'R' Group.
- 20 different 'R' groups = 20 different amino acid.
- Order affects protein activity
- Function: Control chemical reactions in body, fight disease, build muscle

D) Identify the function and building blocks of each macromolecule

Peptide Bonds and Polymers

- Peptide Bond = Links amino acids.
- Protein chains = hundreds to thousands of amino acids.
- Called polypeptide chains because of the many peptide bonds that link them.



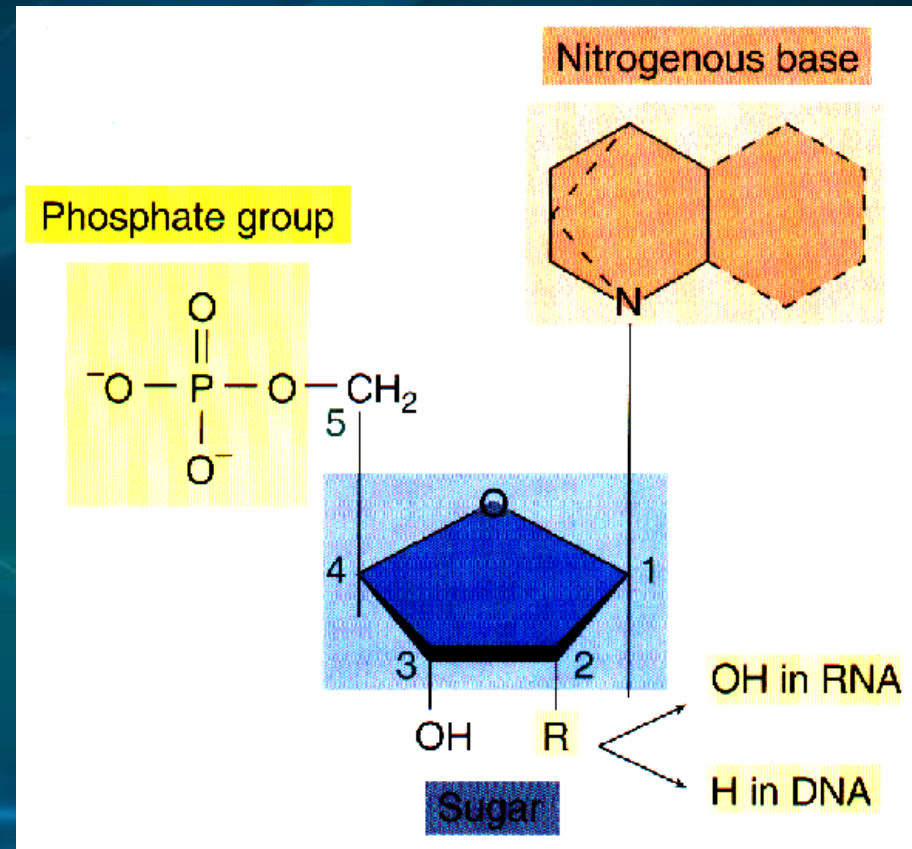
CFU

- What is a protein? Why is it so important to have?
- What is the difference between a protein and a peptide bond?

D) Identify the function and building blocks of each macromolecule

- Building Blocks = Nucleotides.
- Contains sugar, phosphate group and nitrogen base.
- Function = Transmit hereditary information
- Example = DNA and RNA

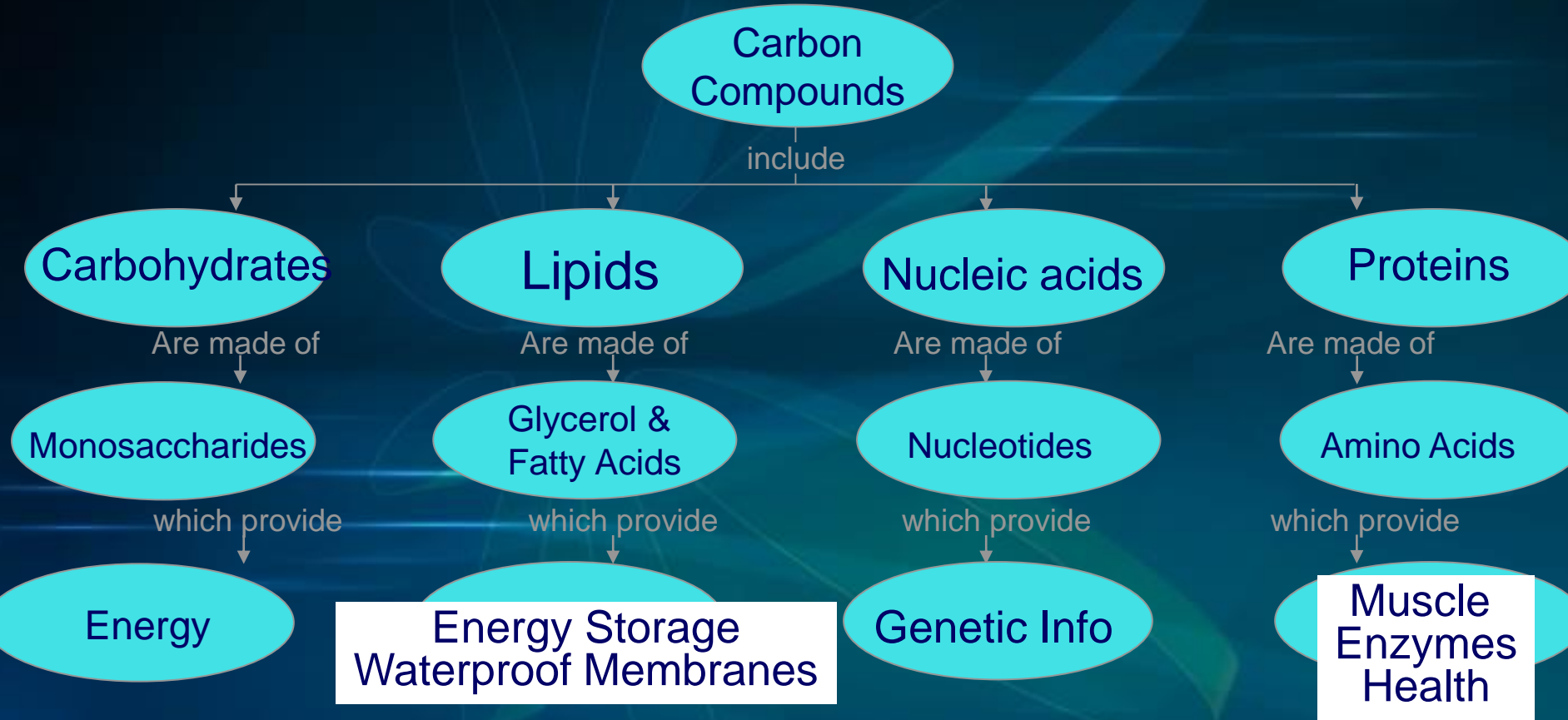
4. Nucleic Acids



CFU

- What is a Nucleic Acid? What is it made up of and Why is it so important to have?

D) Identify the function and building blocks of each macromolecule



Given the clue, identify the macromolecule.

- 1. Stores energy
 - 2. Builds muscle
 - 3. Amino Acids
 - 4. Hereditary Info
 - 5. Monosaccharides
 - 6. Fights disease
 - 7. Provides energy
 - 8. DNA or RNA
 - 9. Controls reaction rates
- 1. Lipids
 - 2. Protein
 - 3. Protein
 - 4. Nucleic Acids
 - 5. Carbohydrates
 - 6. Protein
 - 7. Carbohydrates
 - 8. Nucleic Acids
 - 9. Protein

Complete the chart predicting at least 3 foods that are comprised mainly of the macromolecule listed.