

Opening Activity:

What is the difference between dehydration synthesis and hydrolysis reaction?

Up to how many bonds can carbon form with other atoms?

Latin Root:

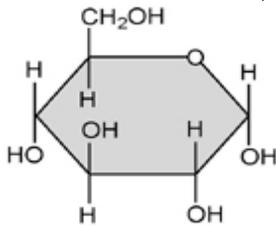
Review of Old Information: N/A

New Information:**Carbohydrates**

Include:

- 1.
- 2.
- 3.

The monosaccharide is a _____, the disaccharide/polysaccharides are _____ and macromolecules.

1. Monosaccharides, basic formula CH_2O (C, H, O, _____ ratio)**Disaccharides – $C_{12}H_{22}O_{11}$**

Notice that _____ molecule of water is missing from the formula. (dehydration synthesis)

The _____ bond that holding the two monomers together is called a glycoside linkage (just know it is a covalent bond).

sucrose = _____ + _____.

maltose = glucose + glucose

lactose = glucose + galactose.

Polysaccharides $C_6H_{10}O_5$

Polysaccharides (poly = many, saccharide = sugar) are made of _____ molecules joined together by _____ reactions.

Storage polysaccharides

_____ (plants) Stored in seeds.

_____ (animals) Stored in the liver and muscle.

Structural polysaccharides

_____ (plants) Most abundant compound on earth!

_____ (animals) Exoskeletons of insects.

Lipids

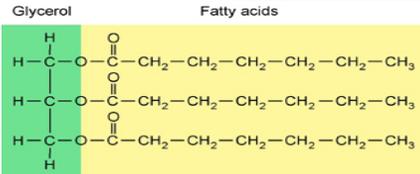
MANY more _____ and hydrogens.

Monomer = _____

They do not mix with water
(hydrophobic).

Some important groups are fats, phospholipids, and steroids.

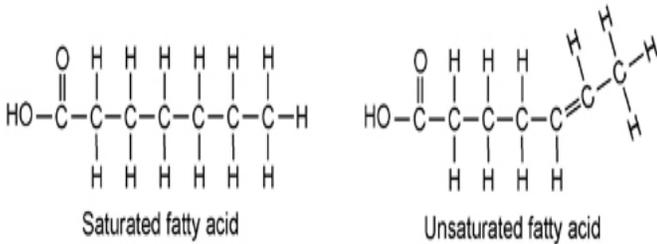
Fats: Are made of _____ which are formed from glycerol & _____ fatty acids.



_____ do not contain any double bonds between the carbons, while unsaturated fatty acids contain one or more double bonds.

These _____ bonds cut down on the number of _____ atoms that can be attached to the _____ in the molecule.

This causes the molecule to _____ or kink at each of the double bond sites.



Saturated

1. _____ at room temperature
2. found mostly in _____
3. _____ between carbons

Unsaturated

1. _____ at room temperature
2. found mostly in _____
3. _____ found between carbons

Function of Fats

Acts as _____ in higher vertebrates

serves as an _____ storage source

_____ absorber for internal organs

Phospholipids

Structurally related to fats but contain _____ fatty acids and _____ molecule of _____.

They exhibit a _____ and _____ quality.

The phosphate group is _____ while the fatty acid area is _____.

Draw: Phospholipid...

Steroids

Lipids characterized by a carbon skeleton of 4 fused _____.

Cholesterol is an important steroid found in all animal tissue. Plants do not contain cholesterol.

Cholesterol also adds _____ to the plasma membrane in animal cells.

Proteins

Macromolecules that make up _____ of the dry _____ of most _____

C,H,O,N

Monomer = _____

Bond type = _____

Types/Functions of Proteins

1. Structural functions – _____

2. Food source

3. _____ – moves other substances, examples – hemoglobin and cell membrane proteins

4. _____ coordinate bodily activities; example – insulin

5. _____; examples – actin and myosin

6. _____ – defense

7. _____ aid in chemical reactions; examples: amylase and lipase

Draw: Amino Acid...

Activity:

BIOMOLECULES WEBQUEST

Follow the links to answer the questions.

PART 1- The Biomolecules

1. Use a *reliable* internet source to find the definition of an **ORGANIC MOLECULE**: (include your source in parenthesis)

2. Are the following molecules organic? Briefly explain what they are and why they would/n't be considered organic.

CH₄

H₂O

NH₄

C₆H₁₂O₆

CO₂

3. List three more organic molecules that are important to your life, including their function. (source in parenthesis)

4. What do I mean by the word BIOMOLECULE?

CARBOHYDRATES- explore the following sites: http://www.chem4kids.com/files/bio_carbos.html

<http://www.wisc-online.com/objects/ViewObject.aspx?ID=AP13104>

5. What is another name for carbohydrates?

6. What are the functions of sugars?

7. What are 2 suffixes that the scientific sugar names end with?

8. How do the prefixes of the –saccharide words relate to the structure of the sugar?

9. What are three interesting facts you learned?

LIPIDS- explore these sites: <http://www.wisc-online.com/objects/ViewObject.aspx?ID=AP13204>
http://www.chem4kids.com/files/bio_lipids.html

10. What is another name for lipids?
11. What are the functions of lipids?
12. How do saturated fats differ from unsaturated fats?

PROTEINS- explore these sites: http://www.wisc-online.com/objects/index_tj.asp?objID=AP13304
http://www.chem4kids.com/files/bio_proteins.html

13. What are the functions of proteins?
 14. What are 5 proteins in your body?
 15. What are three interesting facts you learned?
-