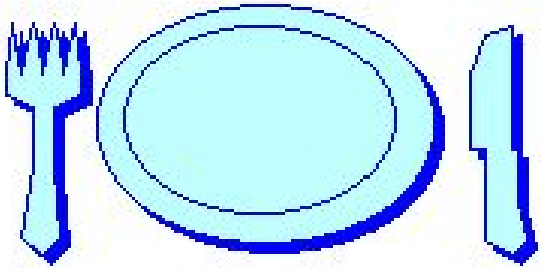
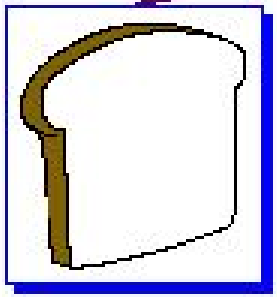
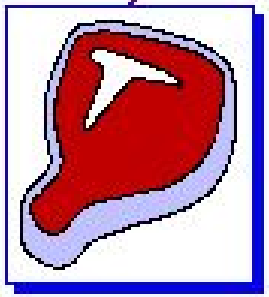


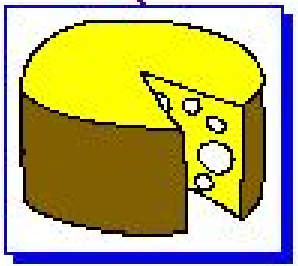
The 4 Charts:



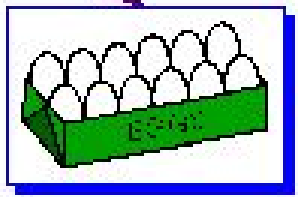
Carbohydrates



Proteins

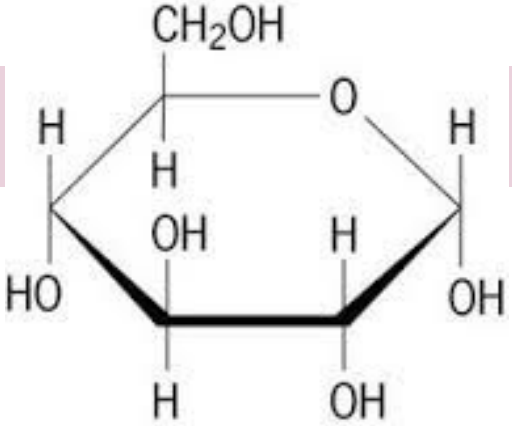


Lipids



Nucleic Acids

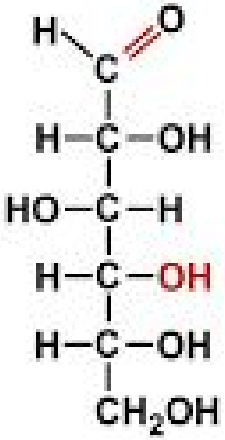
Carbohydrates



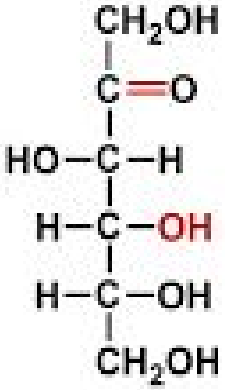
Carbohydrates are compounds made of carbon, hydrogen, and oxygen atoms, typically in a 1:2:1 ratio.

Living things use carbohydrates as their main source of energy.

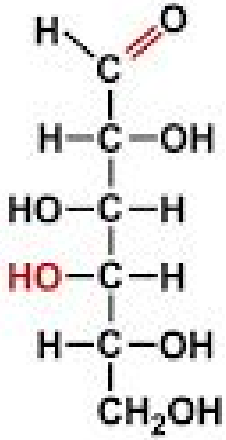
Starches and sugars are examples of carbohydrates.
The breakdown of sugars supplies immediate energy for all cell activities.



Glucose



Fructose



Galactose

Single sugar molecules are called **monosaccharides**.
Ex. glucose, galactose, and fructose

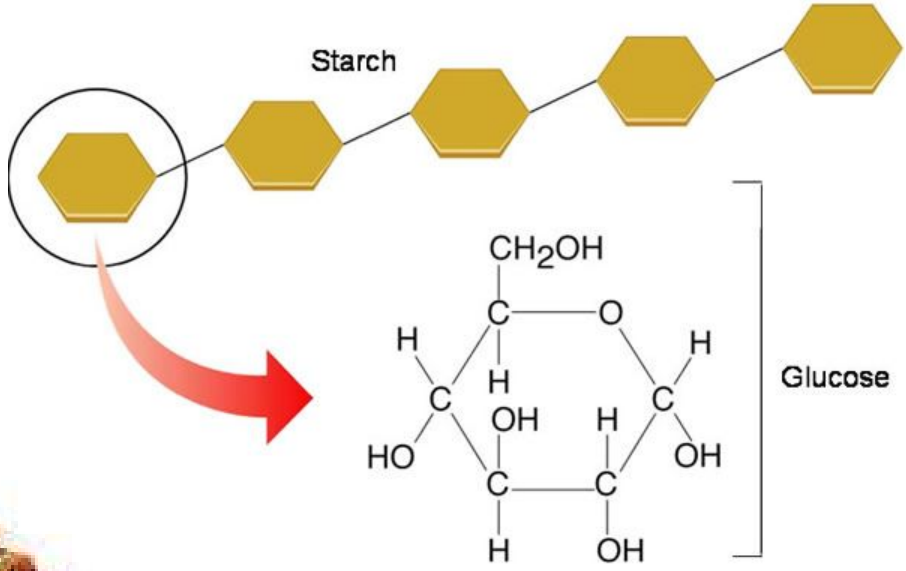
Molasses (Glucose)

Cherries (Fructose)

Yogurt (Galactose)

Large molecules formed from monosaccharides are called **polysaccharides**.

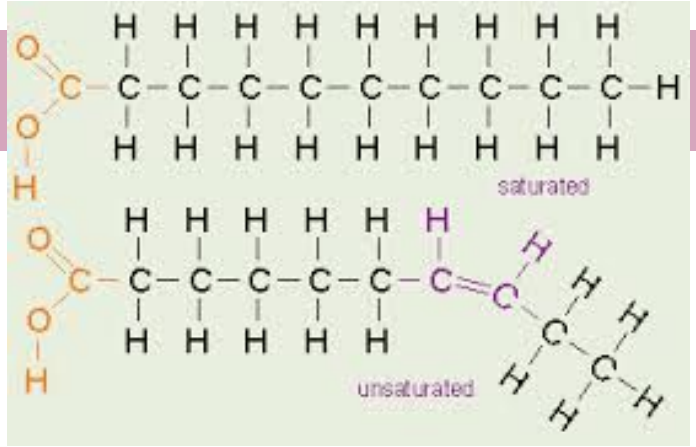
Ex. glycogen, starch, and cellulose



Cellulose

Lipids

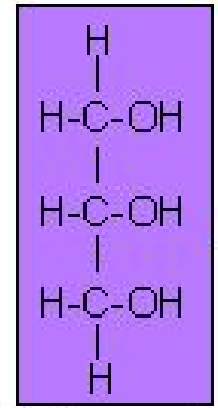
Lipids are made mostly of carbon and hydrogen atoms.



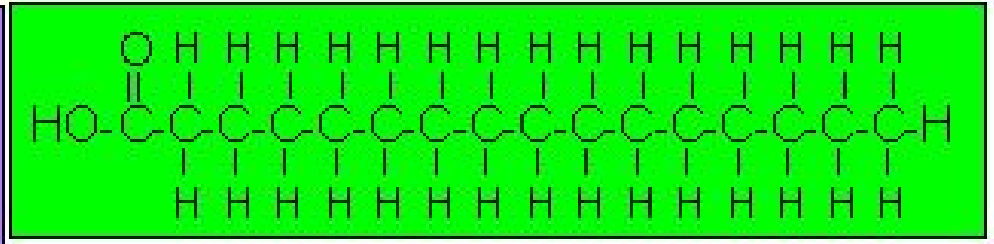
Common categories are **fats**, oils, and waxes.

Lipids can be used to store energy.
Lipids can also be important parts of biological membranes.

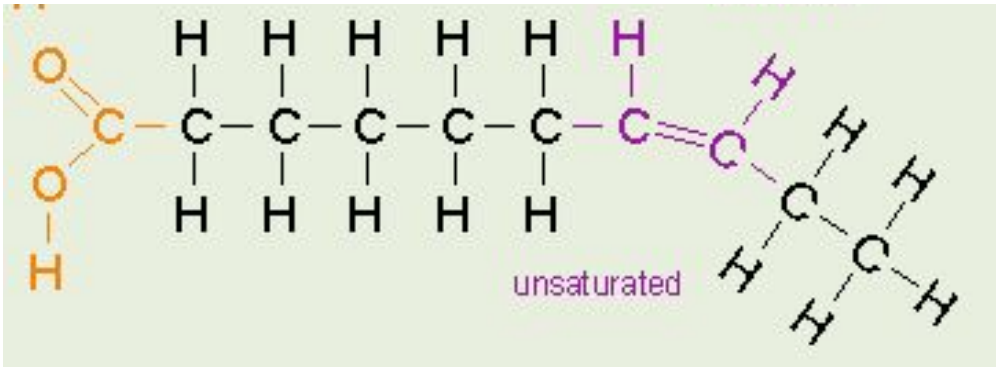
Lipid molecules are made up of fatty acids and glycerol.



(Glycerol)


(Fatty acid)

- Single bonded= saturated fat

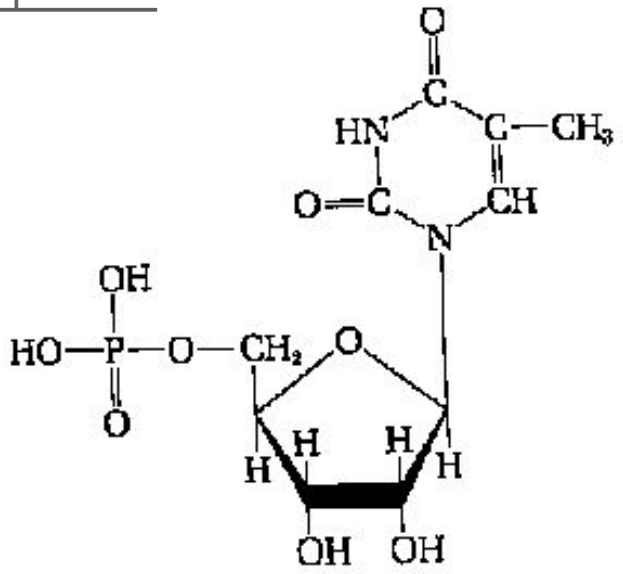


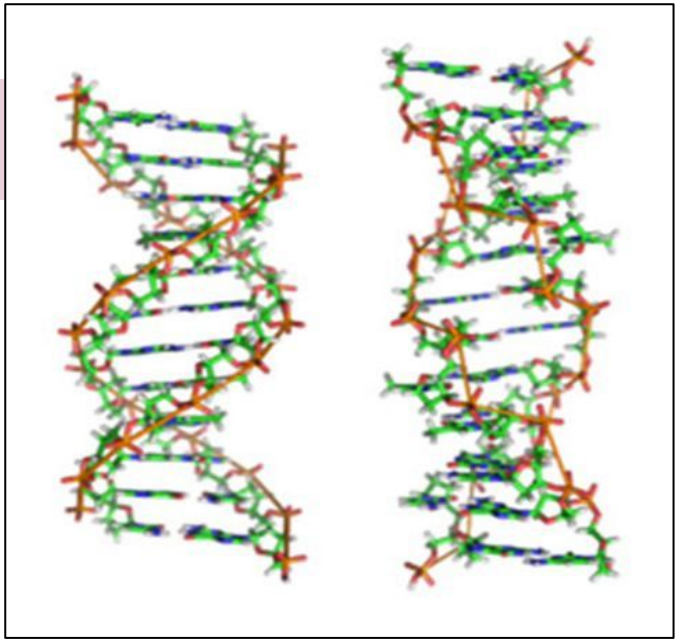
- double bond= unsaturated fat (with hydrogens!)

- More than 1 double bond= polyunsaturated fat

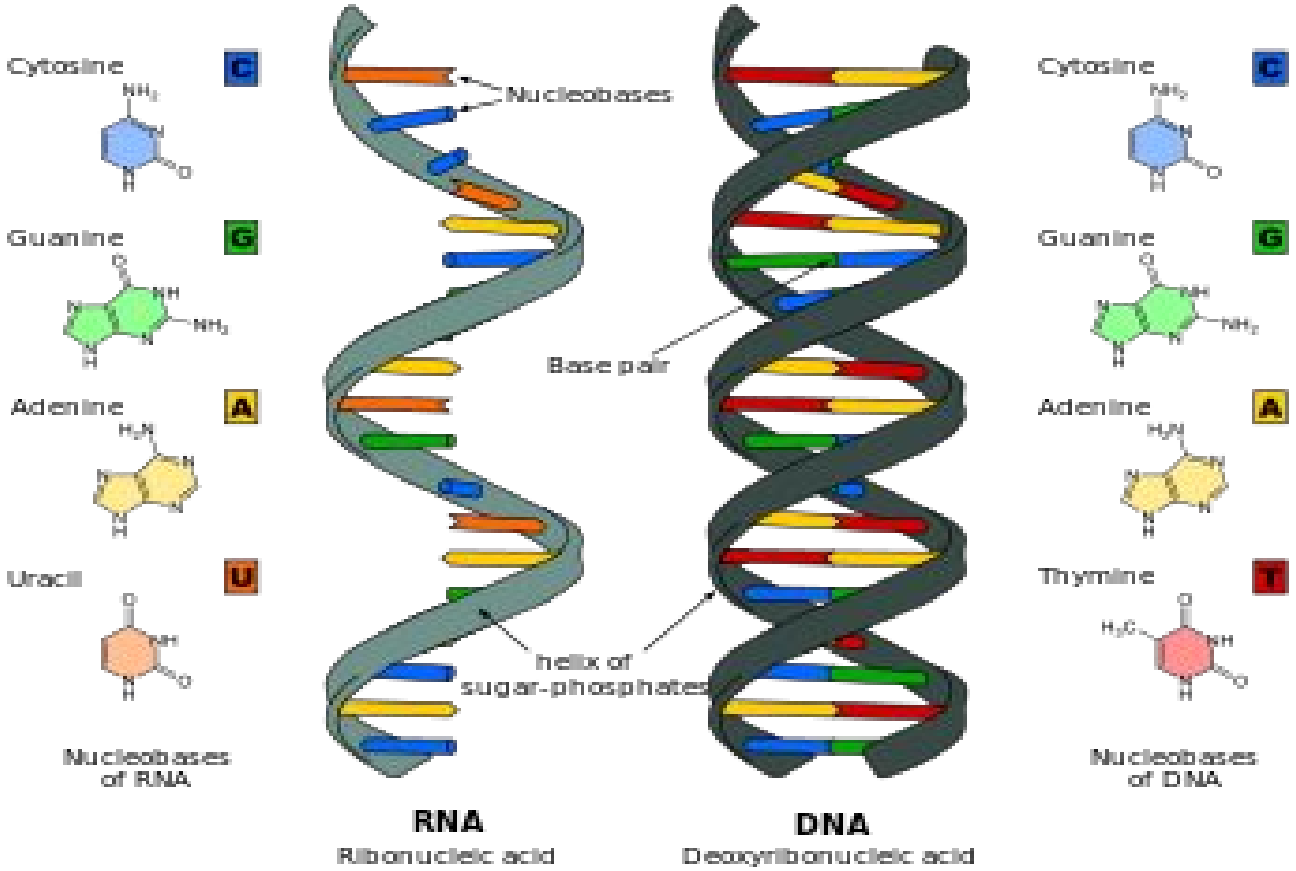
Nucleic Acids

Nucleic acids are macromolecules containing hydrogen, oxygen, nitrogen, carbon, and phosphorus.





Nucleic acids are polymers made from monomers called **nucleotides**, consisting of a 5-carbon sugar, a phosphate group, and a nitrogenous base.



Nucleic acids store and transmit hereditary or genetic information

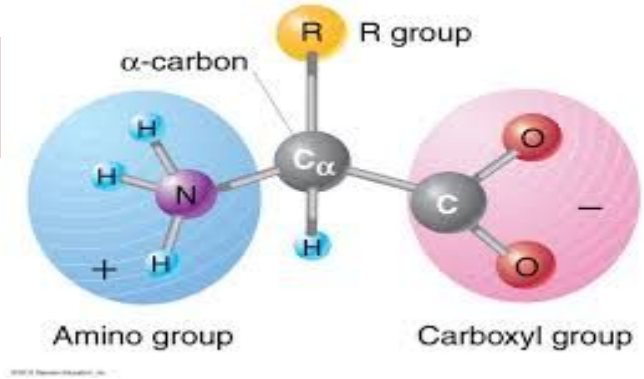
Ribonucleic acid (RNA): contains the sugar ribose

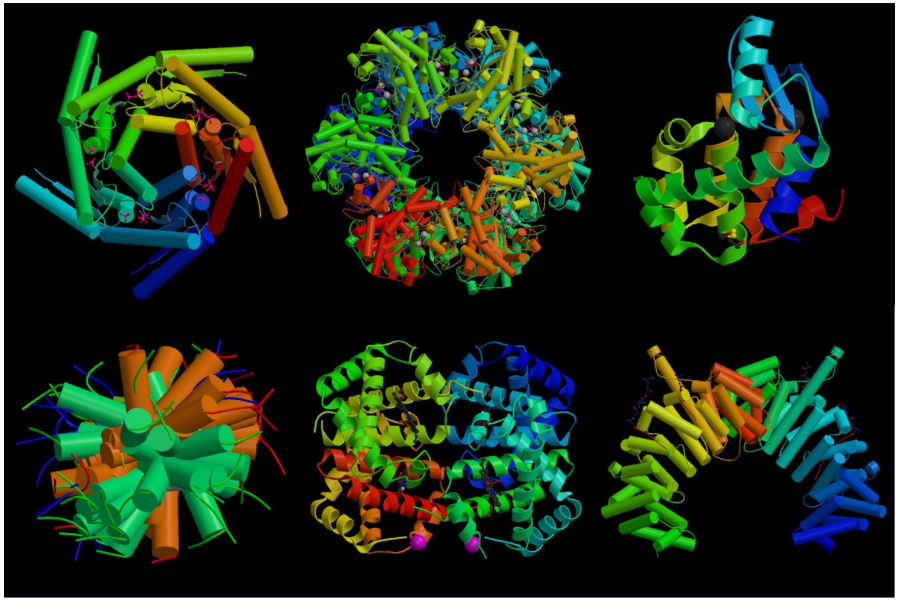
Deoxyribonucleic acid (DNA): contains the sugar deoxyribose

Proteins

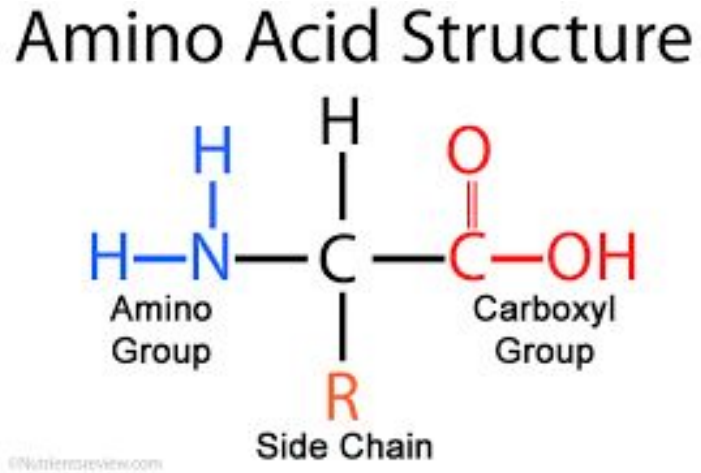
Proteins are macromolecules that contain nitrogen as well as carbon, hydrogen, and oxygen.

Proteins are polymers of molecules called **amino acids**.





Amino acids are compounds with an amino group ($-NH_2$) on one end and a carboxyl group on the other end (-COOH)



More than 20 different amino acids are found in nature.