

Proteins (enzymes)

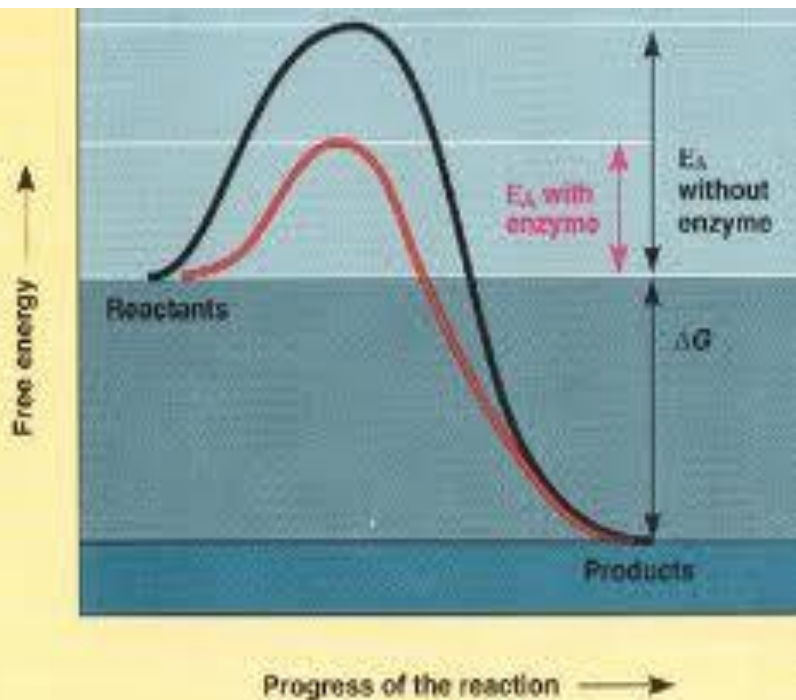
Proteins are made up of amino acids!!!

3 Major functions:

- 1 – to provide structure (muscle)
- 2 – Help control reactions
- 3 – can speed up reactions (catalysts)

ENZYMES = special proteins

Enzymes *lower or decrease* the activation energy required to start a reaction.



*Enzymes bind and bring the substrates together (speed up by hooking up faster)

*3 things that affect the rate at which an enzyme works: **1.** pH **2.** Temperature

3. Amount of substrate available for the enzyme to bind.

*The enzyme itself is not used up in the reaction

*A co enzyme helps the enzyme

*The wrong temp or pH can denature (break) the enzyme

Carbohydrates

Made up of **Carbon, Hydrogen, and Oxygen**. C H O 1,2,1

Carbohydrates are our main source of **Energy**

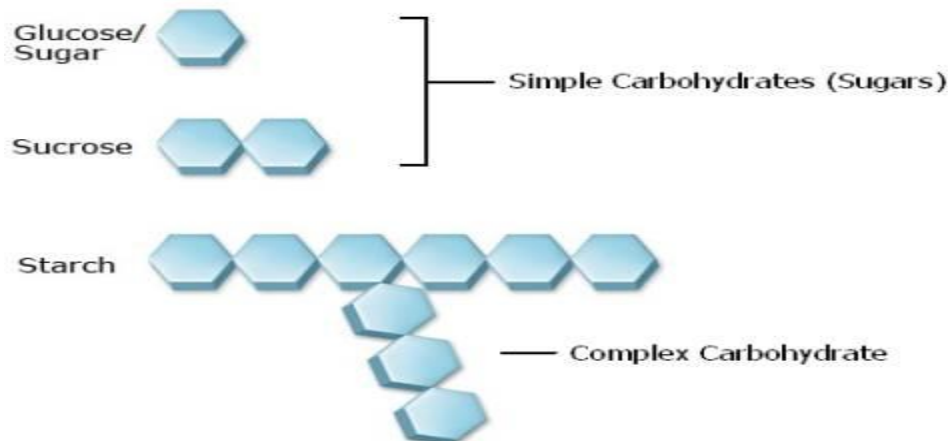
Carbs. are made out of monosaccharides bonded together.

2 Types of Carbohydrates: **1. Sugars (small)** **2. Starches (big)**

1. Sugars = smaller molecules (a monosaccharide or disaccharide). Give a quick boost of energy. Ex: sugar, fruit, syrup, etc. End in “ose” ribose, glucose, sucrose

2. Starches = bigger or longer chained, polysaccharides. The body takes longer to break them down so they provide a more consistent stream of energy for us.

Ex: Pastas, Potatoes, Oats



In **plants**, the **cell wall** is made up of the **sugar cellulose**.

Nucleic Acids

Nucleic acids store genetic information.

(blueprint, genes, chromosomes, DNA, RNA, genetic code, are ALL ways of saying genetic information)

Nucleic Acids are found in ALL living things.

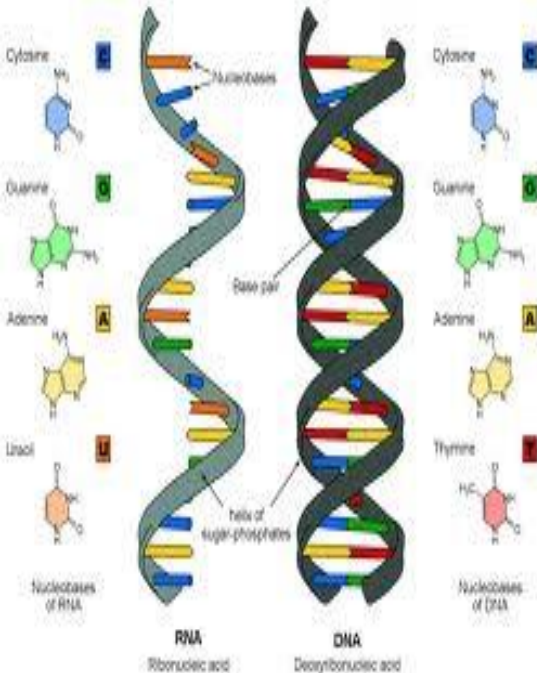
Nucleic acids are made up of **NUCLEOTIDES**.

A nucleotide has 3 parts:

1 - A sugar (carbohydrate) either Deoxyribose or Ribose

2 - A phosphate group

3 - A nitrogen base (Adenine, Thymine, Cytosine, or Guanine)



FYI: RNA has one different nitrogen base: instead of **Thymine**, RNA has **URACIL**.

RNA does NOT have THYMINE

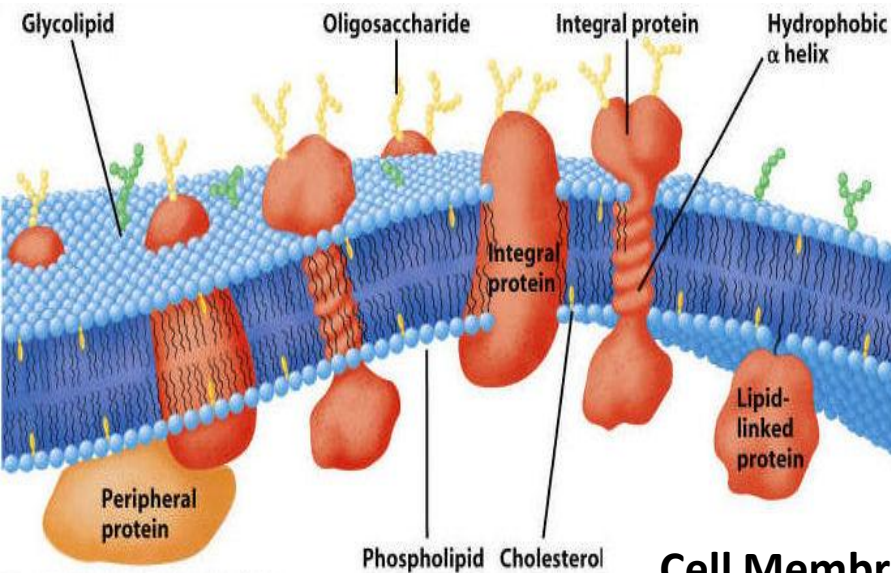
Lipids (Fats)

We need fat as part of our diet. (not too much though!)

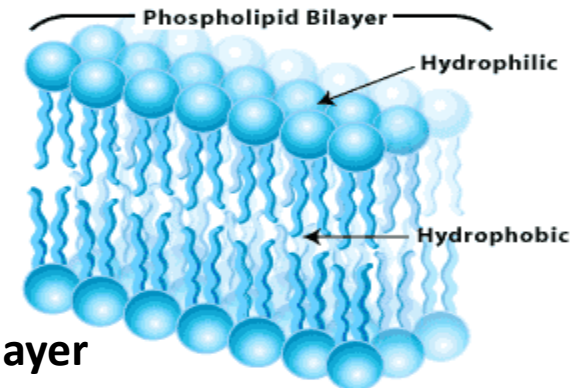
Lipids are made up of fatty acids.

Lipids are needed for 3 main purposes:

1. **Protection** (cover bones and organs)
2. **Insulation** (cover electrical wires, and keep us warm)
3. A **stored form of energy** (food we do not burn is saved as fat)



Our cell membrane/ phospholipid bilayer is made up mostly of lipids.



Cell Membrane = Phospholipid Bilayer