

Biomolecules - Notes

Biomolecules are the macromolecules in all living things. There are four groups of biomolecules: **carbohydrates**, **lipids**, **proteins** and **nucleic acids**.

Carbohydrates

Carbohydrates are a polymer that make up most plant matter and some animal matter. They are **made of carbon, hydrogen and oxygen (C, H, O)**. Their building block (**monomer**) is a single sugar called a **monosaccharide**. Saccharide is sugar.

- Two monosaccharides make a **disaccharide (di=two)**.
- More than two monosaccharides make a **polysaccharide (poly=many)**.

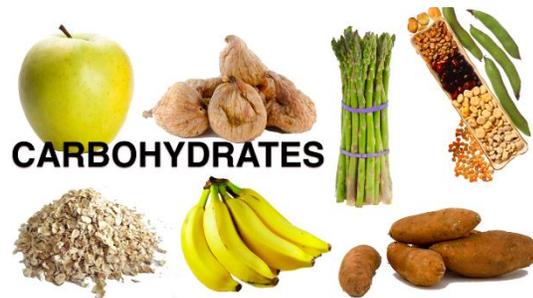
Function of carbohydrates – **Quick energy**, short term energy storage

Examples of carbohydrates:

Starch and cellulose – in plants

Glycogen – in animals

Foods: bread, vegetables, fruits, sugar



Lipids

Lipids are a polymer of fats and oils. Their building block is a **fatty acid chain**. They are **made of carbon, hydrogen and oxygen (C, H, O)**.

Function of lipids - **Long-term storage of energy** in the body, **Insulation (fat)**, **Protect organs**

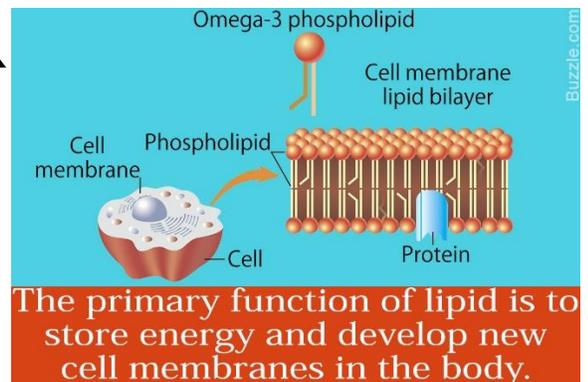
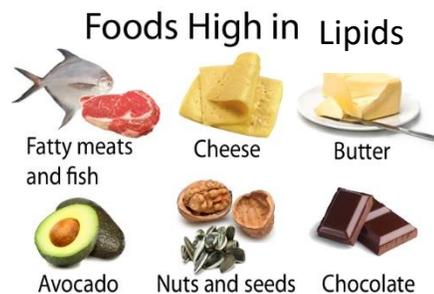
Lipids are a major structure in **cell membranes**

LIP. (Long-term energy, Insulation, Protection)

Examples of lipids:

Fats, oils, waxes

Foods: butter, lard, coconut oil



Proteins

Proteins are a polymer that determine how our bodies look and function. Their **monomer** is an **amino acid**. Proteins are made of amino acids connected by a **peptide bond**. When groups of amino acids are joined together, a **protein (polymer)** is formed. Proteins are sometimes called **polypeptides**.

They are formed of **carbon, hydrogen, oxygen and nitrogen (C, H, O, N)**

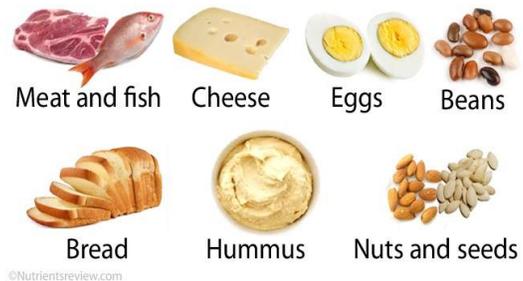
Function of proteins – build our cells
Transport molecules in the body
Speed up chemical reactions

Examples of proteins:

Enzymes, hormones, keratin, collagen

Foods: beans, eggs, meat

Foods High in Protein



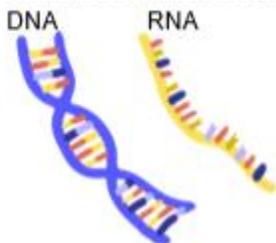
Nucleic Acids

Nucleic acids are a polymer that contains our genetic material. Their monomer is a nucleotide. Nucleic acids are made of chains of nucleotides. They are **made of carbon, hydrogen, oxygen, nitrogen and phosphorus (C, H, O, N, P)**.

Function of nucleic acids – genetic information

Look for a 3 part shape with N and P

Examples of nucleic acids:



Nucleic Acids

