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Science–Infused Biology Online Learning

Let's Study!

Biological Molecules

Prepared by:

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Lesson Objectives

At the end of the lesson, students are be able to:

01

Give a definition and description of Biological Molecule

02

Definition of Molecules

03

Identify the Types of Molecules

01

BIOLOGICAL MOLECULES

BIOLOGICAL MOLECULES

- A Biomolecules or Biological Molecules is a loosely used terms for molecules present in organisms that are essential to one or more typically biological processes, such as cell division, morphogenesis, or development.

02

MOLECULES

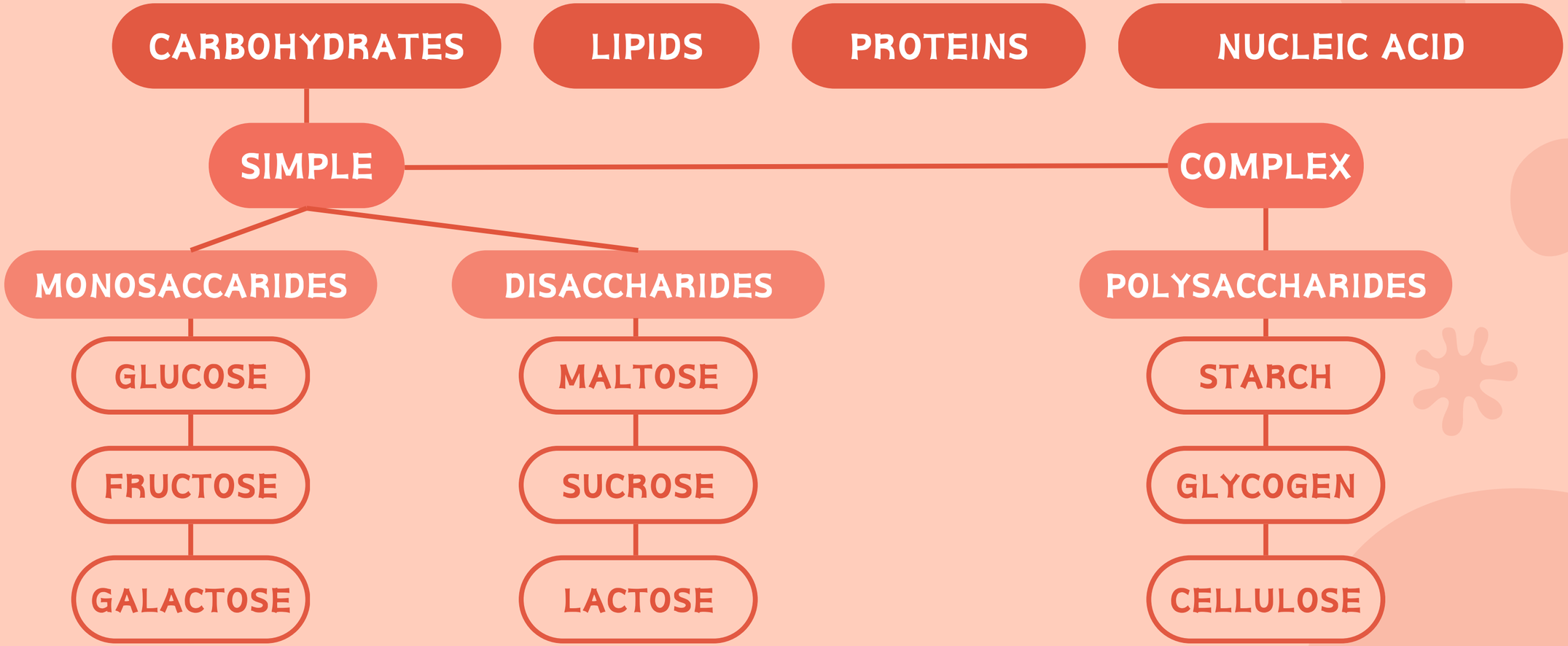
MOLECULES

- Two or more atoms (same or different) that are held together by attractive forces or chemical bonds from molecules.

03

TYPES OF MOLECULES

TYPES OF MOLECULES



1. CARBOHYDRATES

A. SIMPLE

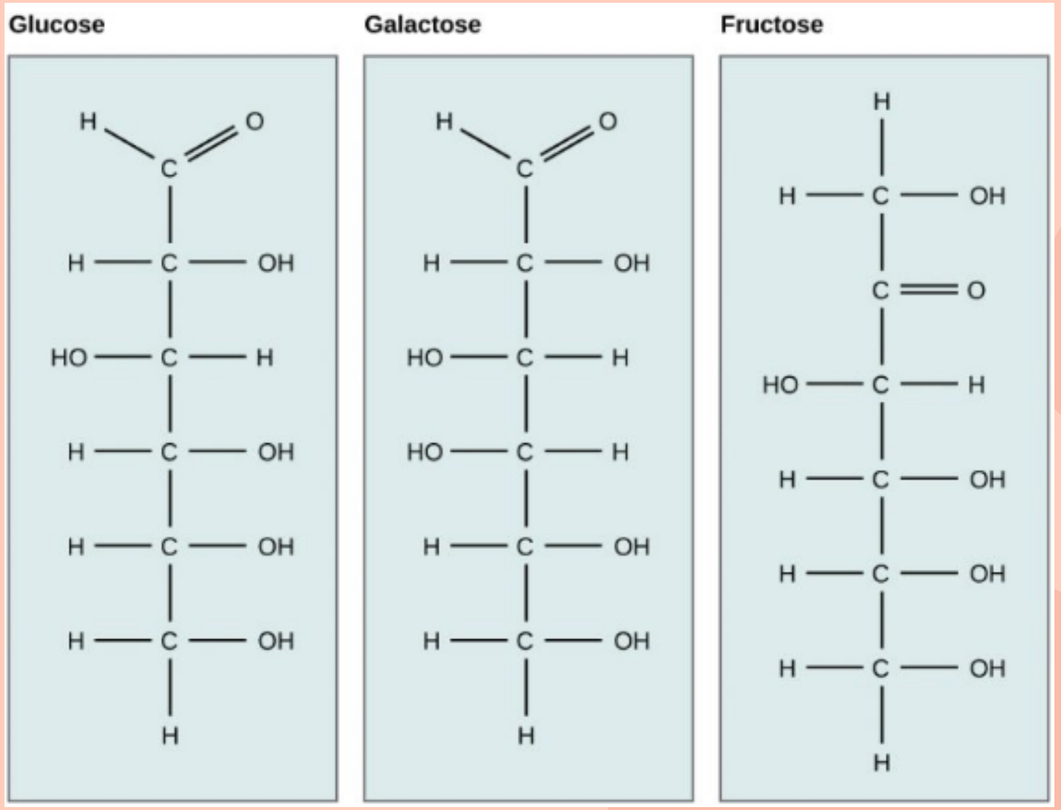
1. Monosaccharides

–Simple sugar

a. Glucose: Used in dextrose, blood sugar. The form utilized by the human body.

b. Galactose: Found in milk and milk products.

c. Fructose: Found in fruits and honey.



A. SIMPLE

2. Disaccharides

–Sugar formed when two monosaccharides are joined by glycosidic linkage.

a. Maltose: Glucose + Glucose
   - Found in cooked sweet potato, pears, and honey.

b. Sucrose: Glucose + Fructose
   - Found in regular table sugar.

c. Lactose: Glucose + Fructose
   - Found in milk and milk products.

B. COMPLEX

1. Polysaccharides

–Most abundant carbohydrates found in food. It contains many sugars.

a. Starch: Storage form of glucose.
   - Storage form of carbohydrates in plants.
   - Plants make starch in order to store glucose.
   - Starch is in seeds to give the seedling energy to sprout.

b. Glycogen:
   - Main source of energy that your body stores primarily in your liver and muscle.

c. Cellulose: a type of fiber.
   - Makes up the cell wall of plants.

II. LIPIDS

LIPIDS

- Are diverse group of organic compounds that are insoluble in water but soluble in organic solvents.
- They include fats, oils, phospholipids, and steroids.
- Lipids serve various biological functions, such as energy storage, structural components of cell membranes, and signaling molecules within the body.
- They are made from carbon, hydrogen, and oxygen.

EXAMPLES:

- Fats (meat, milk, butter, margarine, eggs, and cheese)
- Oils (olive oil, corn oil, sunflower oil, and soybean oil)

III. PROTEINS

PROTEINS

Are large, complex molecules that play many important roles in the body. They are critical to most of the work done by cells and are required for the structure, function and regulation of the body's tissues and organs.

PROTEINS

PROTEIN IN PLANTS

- Beans
- Lentils
- Peas
- Grams
- Soya Beans

PROTEIN IN ANIMALS

- Eggs
- Paneer
- Meat
- Milk
- Fish

IV. NUCLEIC ACIDs

NUCLEIC ACIDS

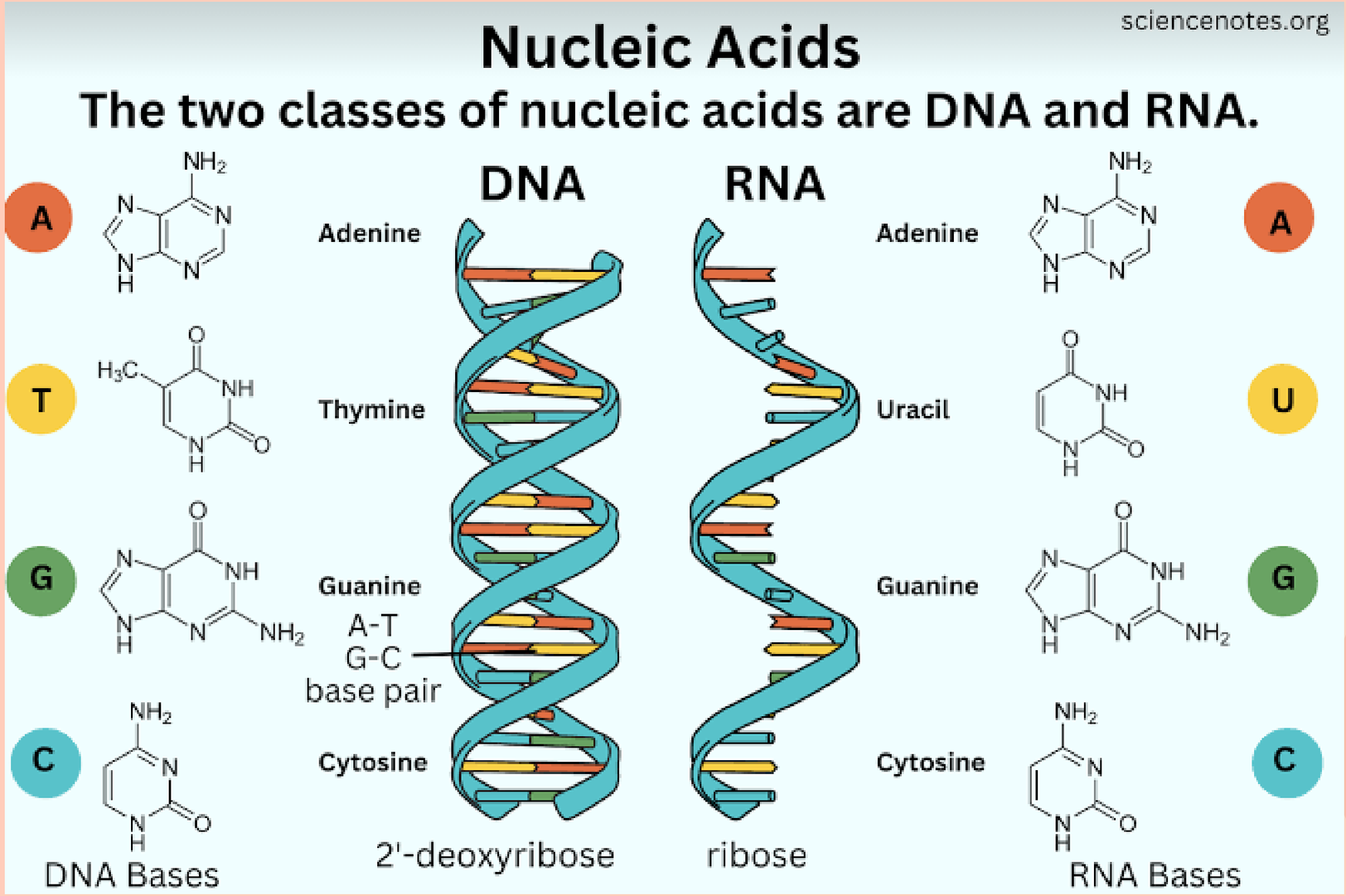
- Nucleic acids are key macromolecules in the continuity of life. They carry the genetic blueprint of a cell and carry instructions for the functioning of the cell.

- Discovered by Friedrich Miescher in 1868.

NUCLEIC ACIDS

1. Deoxyribonucleic Acid (DNA)
    - Carries the genetic code of organisms.
    - Blueprint of life
2. Ribonucleic Acid (RNA)
    - Carries the information from the DNA to the cellular factories for the synthesis of proteins.

NUCLEIC ACIDS



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That's All!