بسم ألله الرحمن الرحيم

{يَا أَيُّهَا النَّاسُ قَدْ جَاءتْكُم مَّوْعِظَةٌ مِّن رَّبِّكُمْ وَشِفَاء لِّمَا فِي الصُّدُورِ وَهُدًى وَرَحْمَةٌ لِّلْمُؤْمِنِينَ}.

صدق ألله العظيم

(سورة يونس - الآية 57)

Organization of organism

By

Dr. Inas Saad

University of Technology - Biomedical Engineering Department –

Biomechanics Branch

Organization of organism: An organism is made up of four levels of organization: **cells, tissues, organs, and organ systems.** These levels reduce complex anatomical structures into groups; this organization makes the components easier to understand.

organization is important for life:

- An organism is the highest level of organization a complete living system capable of conducting all of life's biological processes.
- In multicellular organisms, including: humans, all cells, tissues, organs, and organ systems of the body work together to maintain the life and health of the organism.

Levels of Organization

i. The organism level is **the highest level of organization.**

ii. An organism is a living being that has a cellular structure and that can independently perform all physiologic functions necessary for life.

iii. The major levels of organization in the body, from the simplest to the most complex are: **atoms, molecules, organelles, cells, tissues, organs, organ systems, and the human organism,** the smallest unit of a living thing is **a cell.** A group of cells are called **tissues**, a group of tissues are called **organs**, and a group of organs are then called **organ systems**.

iv. **For example,** many individual organisms can be organized into the following levels:

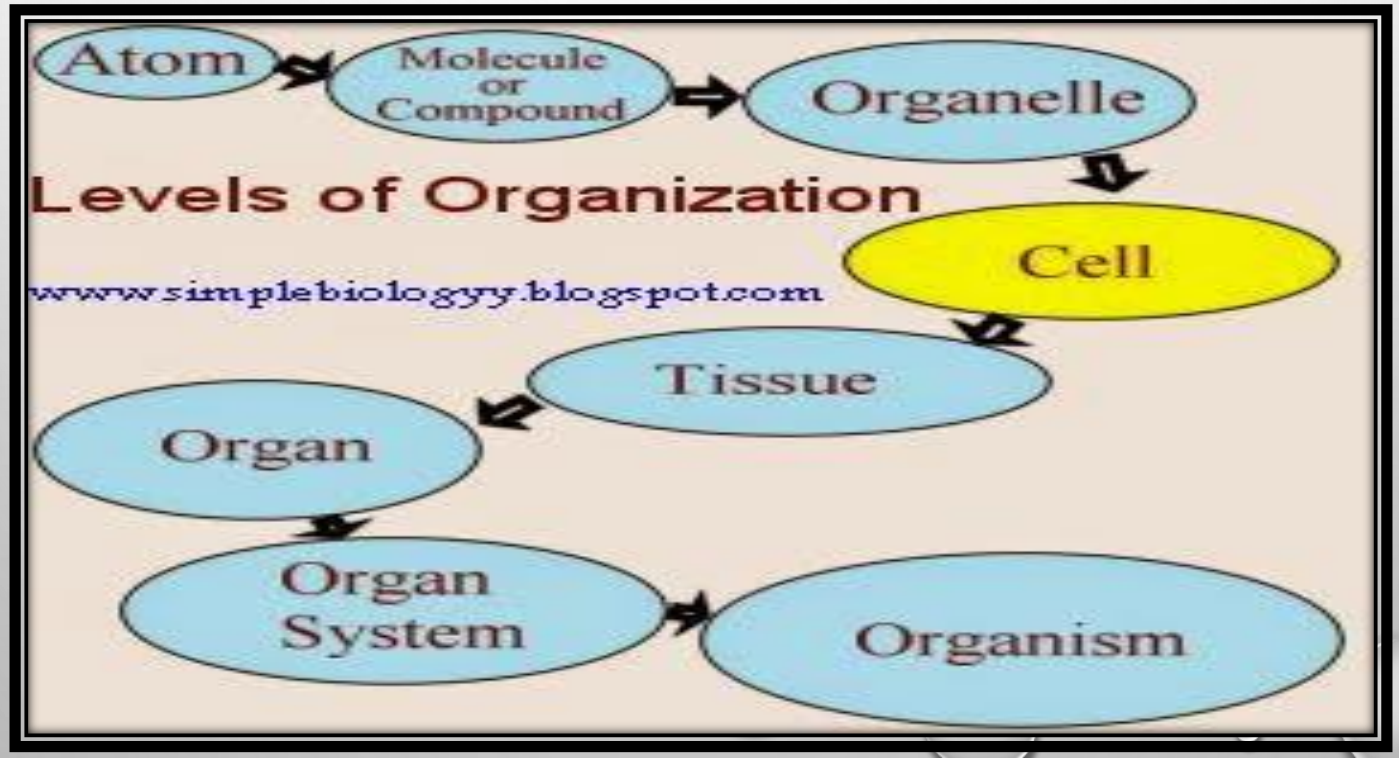
1. **Cell :** The smallest structural and functional unit of an organism
2. **Tissue:** Group of cells with similar structures working together to perform a shared function
3. **Organ:** Structure made up of a group of tissues (Structure composed of one or more types of tissues.), working together to perform specific functions.

Examples of organ Human organs include: the brain, stomach, kidney, and liver. Plant organs include roots, stems, and leaves.

4. Organ system: Group of organs with related functions, working together to perform body functions.

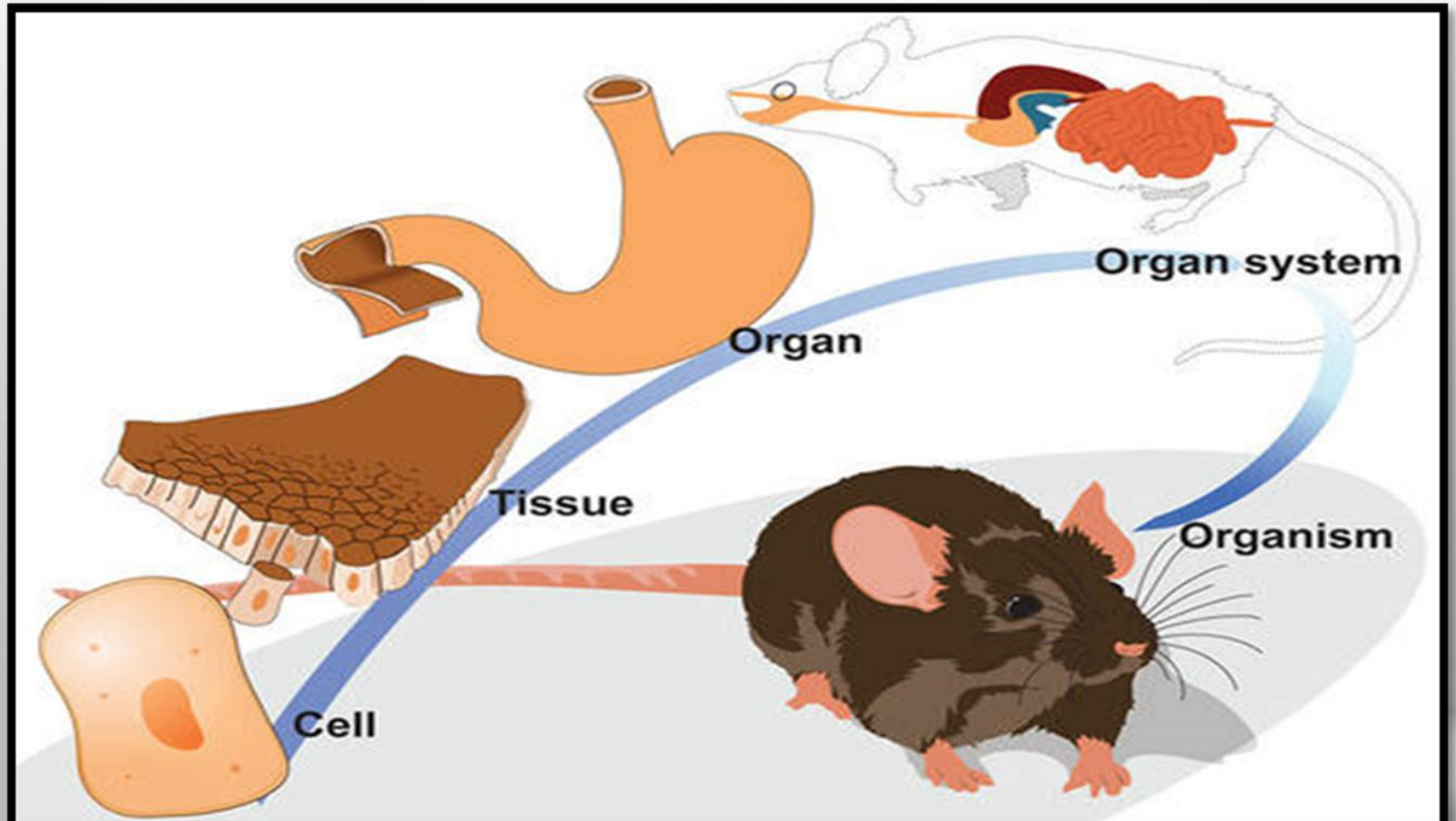
Examples of organ systems in a human include: the skeletal, nervous, and reproductive systems.

5. Organism: Individual living thing that may be made up of one or more organ systems.

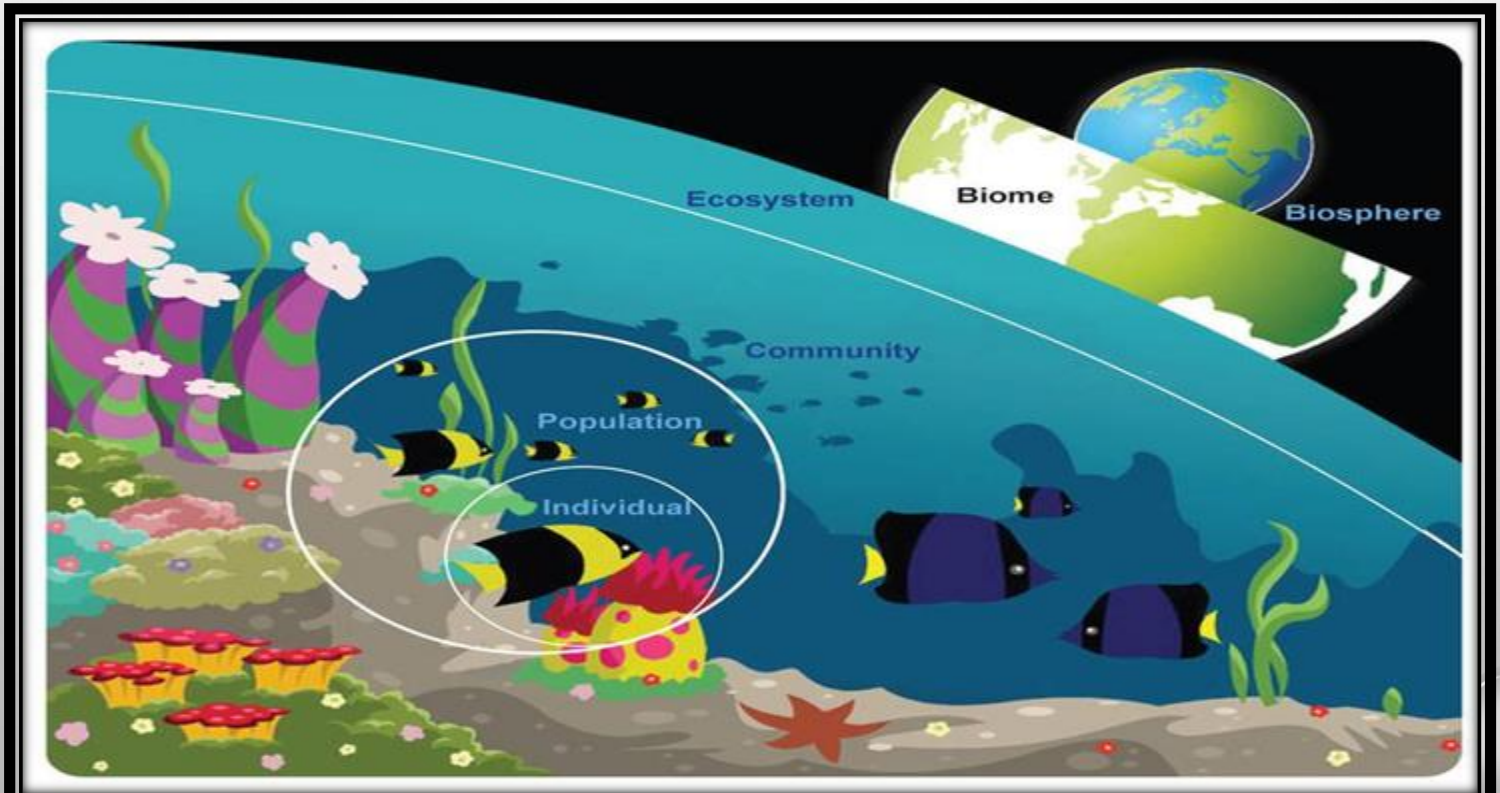


- An individual mouse is made up of several organ systems.
- The system shown here is the digestive system, which breaks down food into a form that cells can use. One of the organs of the digestive system is the stomach. The stomach, in turn, consists of different types of tissues. Each type of tissue is made up of cells of the same type.

Examples of these levels of organization are shown in Figure below:



- A group of similar ecosystems with the same general type of physical environment is called a biome.
- The biosphere is the part of Earth where all life exists, including: all the land, water, and air where living things can be found.
- The biosphere consists of many different biomes.
- This picture shows the levels of organization in nature, from the individual organism to the biosphere.

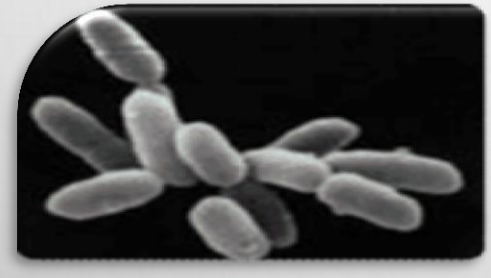


- Organisms of the same species that live in the same area make up a population. For example, all of the goldfish living in the same area make up a goldfish population.
- All of the populations that live in the same area make up a community.
- The community that includes the goldfish population also includes the populations of other fish, coral, and other organisms.

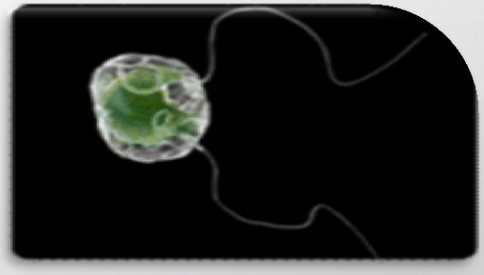
i. An ecosystem consists of all the living things (biotic factors) in a given area, together with the nonliving environment (abiotic factors).
ii. The nonliving environment includes: water, sunlight, soil, and other physical factors.

Diversity of Life

- Life on Earth is very diverse.
- The diversity of living things is called biodiversity.
- A measure of Earth's biodiversity is the number of different species of organisms that live on Earth.
- At least 10 million different species live on Earth today.
- They are commonly grouped into six different kingdoms.
- Examples of organisms within each kingdom are shown in Figure below.


Archaebacteria


Bacteria


Protist


Fungus


Plant

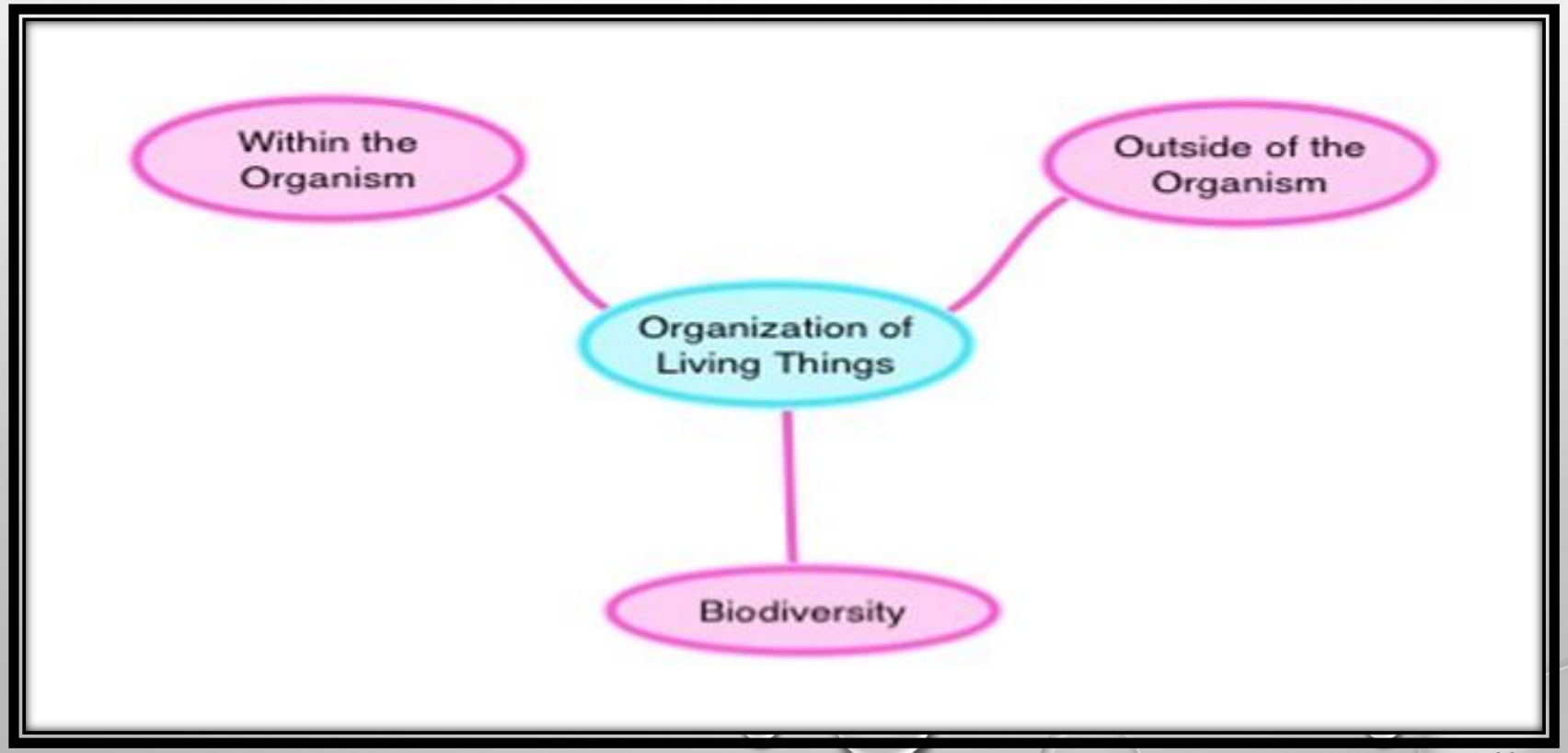

Animal

A. Many individual organisms can be organized into the following levels: cells, tissues, organs, and organs systems.

B. An ecosystem consists of all the populations in a given area, together with the nonliving environment.

C. The biosphere is the part of Earth where all life exists.

D. The diversity of living things is called biodiversity.




THANK
YOU