Peoples' Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
University of Abou Bakr Belkaid Tlemcen
FACULTY OF NATURAL AND LIFE SCIENCES AND EARTH AND UNIVERSE DEPARTMENT OF BIOLOGY

CHAPTER 1: Introduction to Academic and Scientific English (10&17/02/2025)

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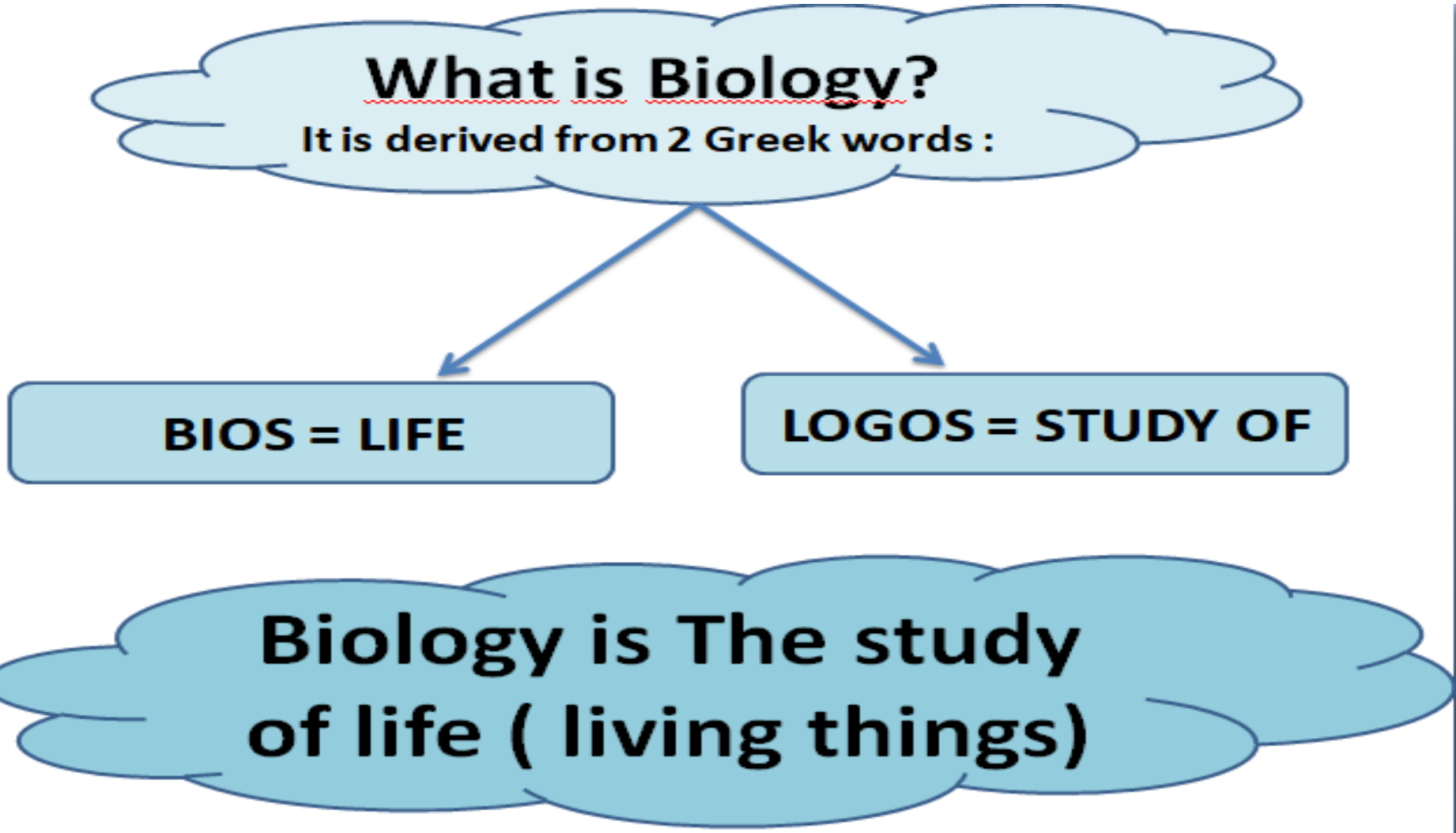
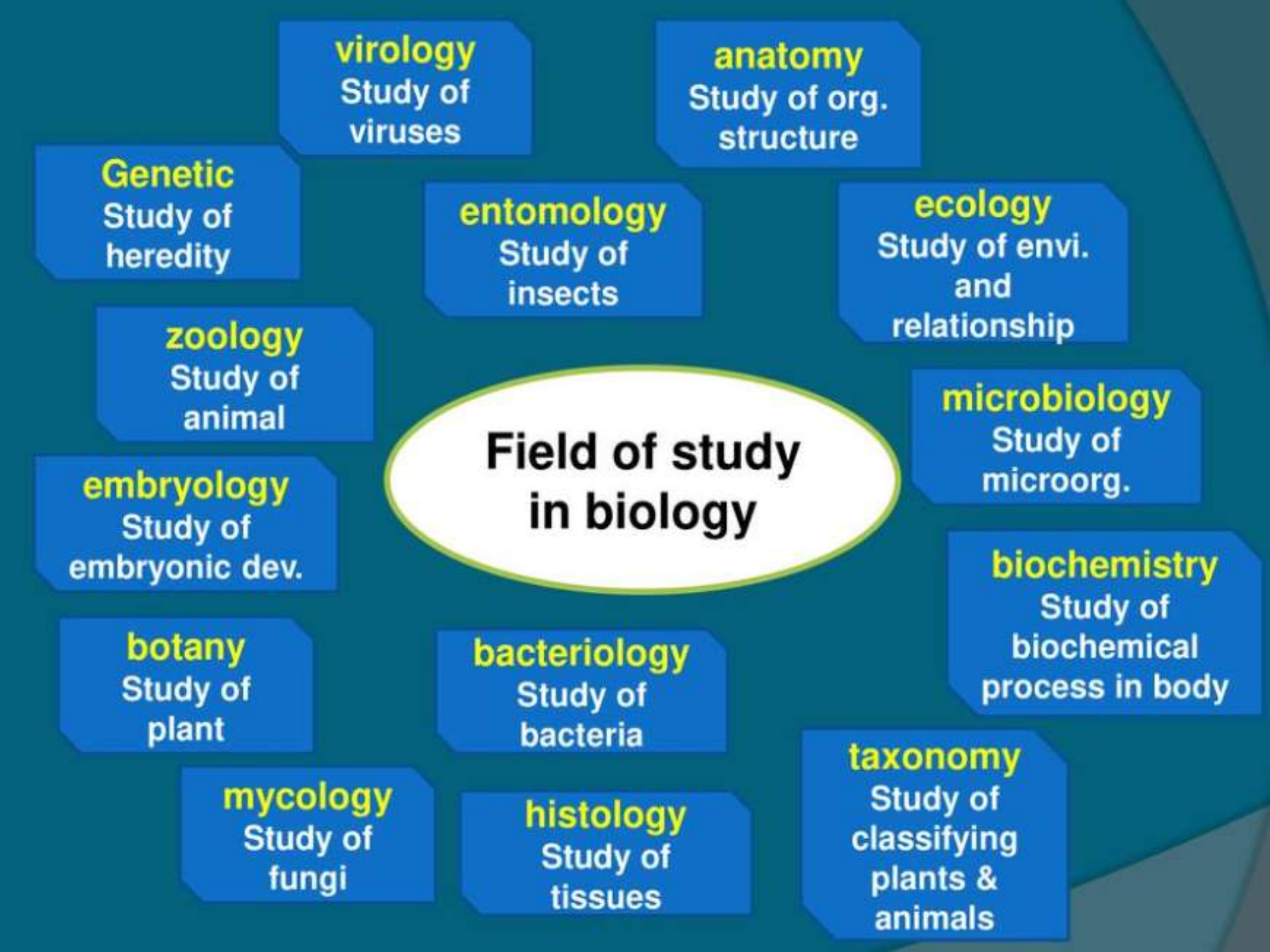
Chapter Objectives

By the end of this chapter, students will be able to:

- **Recall** and **use** basic scientific vocabulary related to biology.
- **Identify** the structure and components of scientific texts (e.g., abstracts, lab reports).
- **Read** and **understand** simplified scientific articles in English.
- **Write** short sentences and paragraphs using scientific vocabulary.

Scientific Vocabulary in Biology




virology
Study of viruses
anatomy
Study of org. structure
Genetic
Study of heredity
entomology
Study of insects
ecology
Study of envi. and relationship
zoology
Study of animal
Field of study in biology
microbiology
Study of microorg.
embryology
Study of embryonic dev.
biochemistry
Study of biochemical process in body
botany
Study of plant
bacteriology
Study of bacteria
taxonomy
Study of classifying plants & animals
mycology
Study of fungi
histology
Study of tissues

Organism:

Definition: A living thing that can function independently (e.g., plants, animals, bacteria).

Example: "The organism adapted to its environment over time."

Cells form tissue

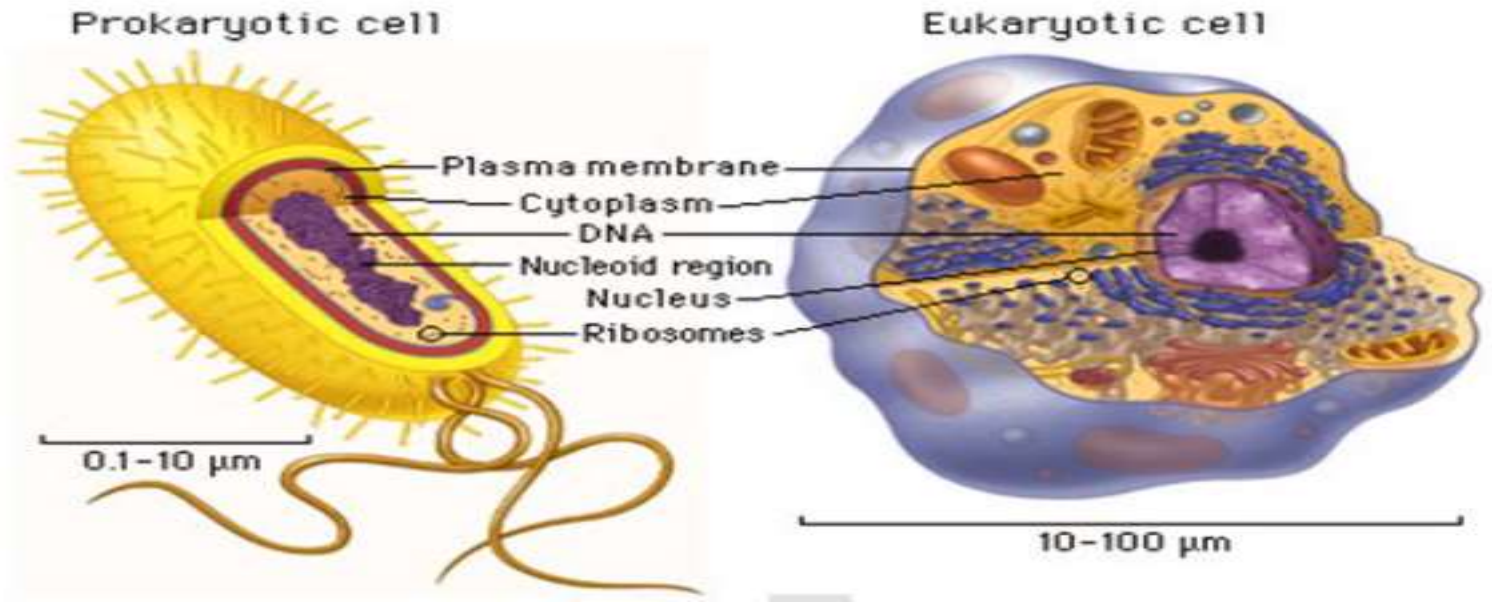
Tissues form organs

Organs form organ systems

Systems

Organisms

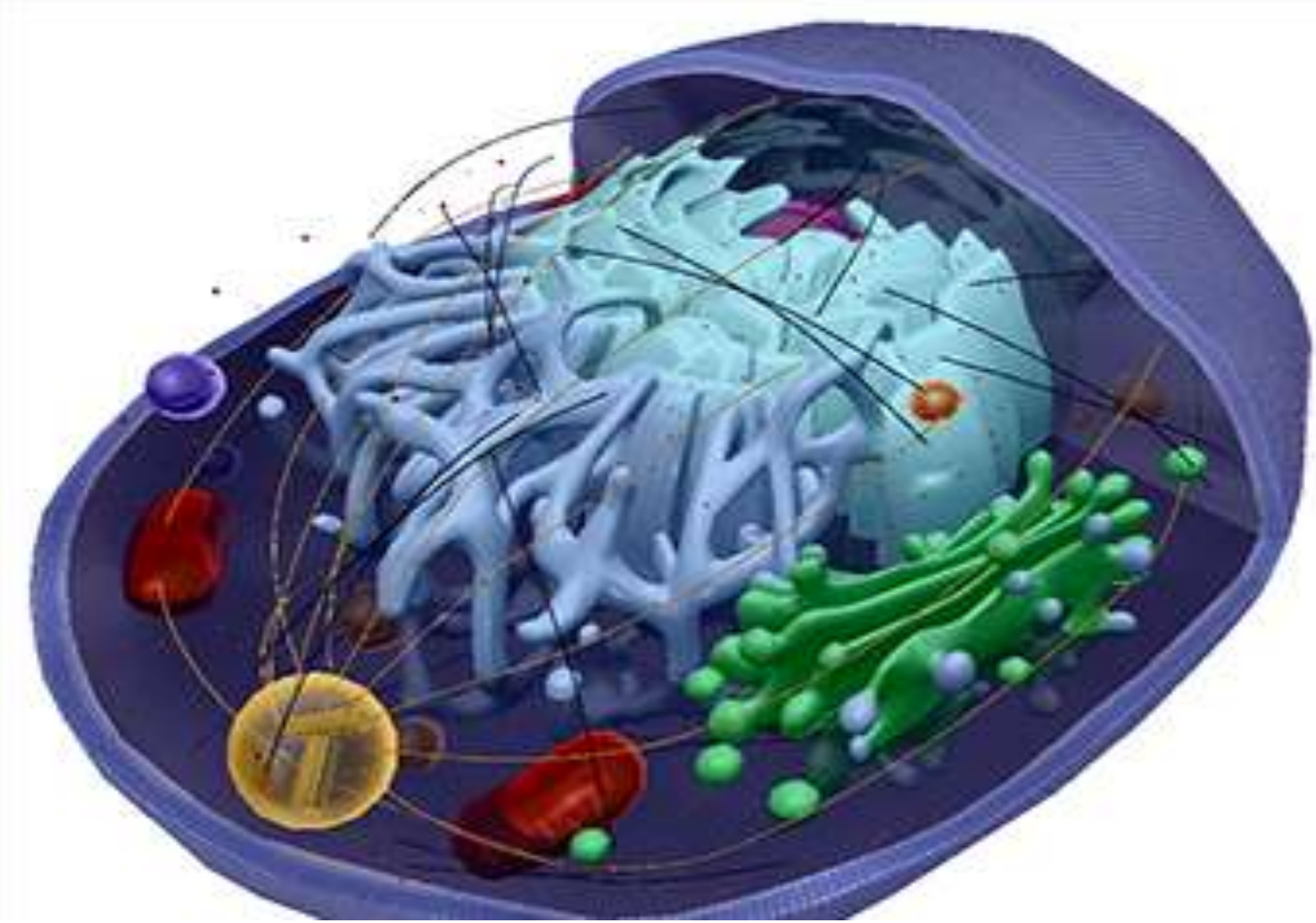
ALL LIVING ORGANISMS ARE MADE UP OF CELLS



The basic structural and functional unit of all living organisms.

Example: "The human body is composed of trillions of cells."

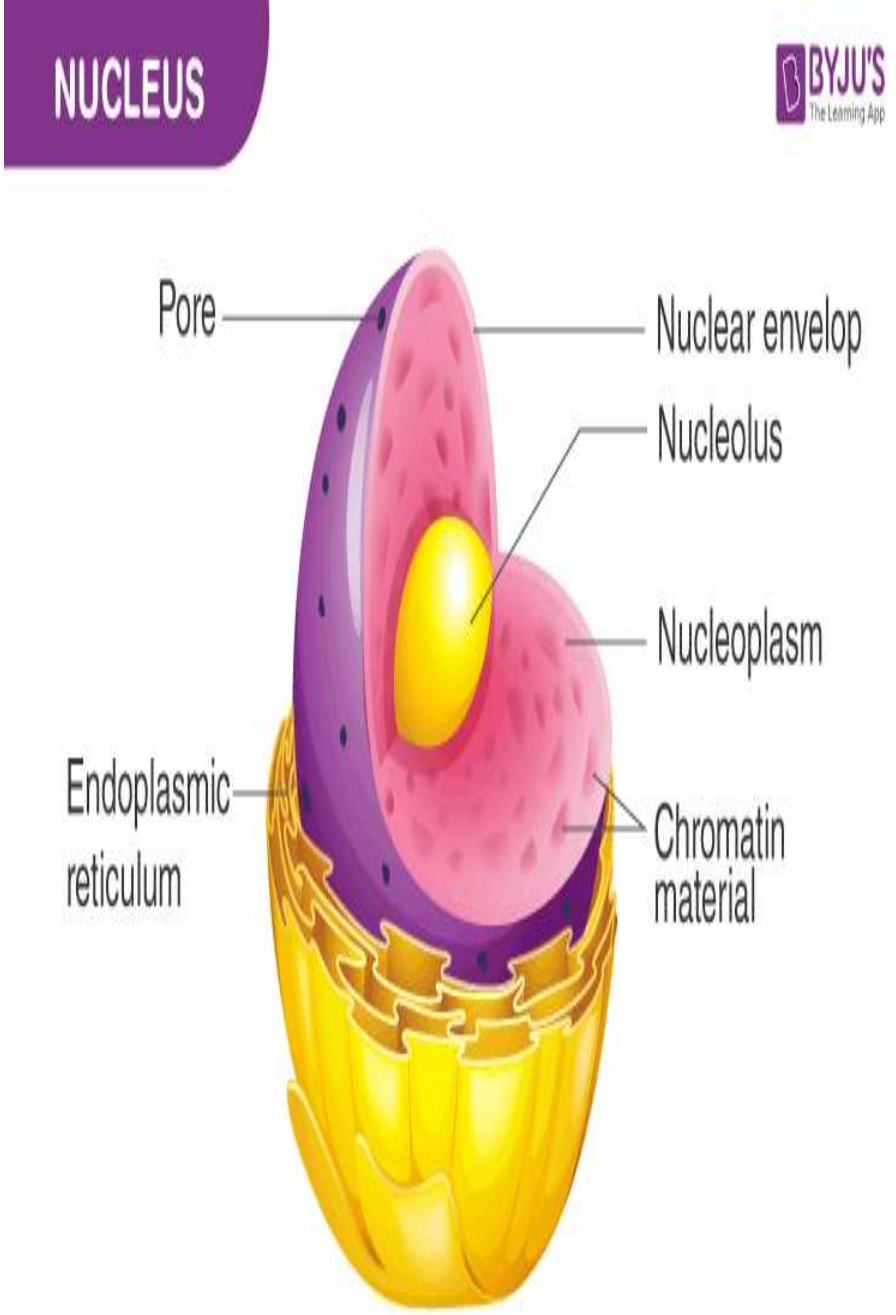
Cellular Biology Terms



Nucleus

Definition: The control center of the cell, containing DNA.

Example: "The nucleus regulates gene expression."

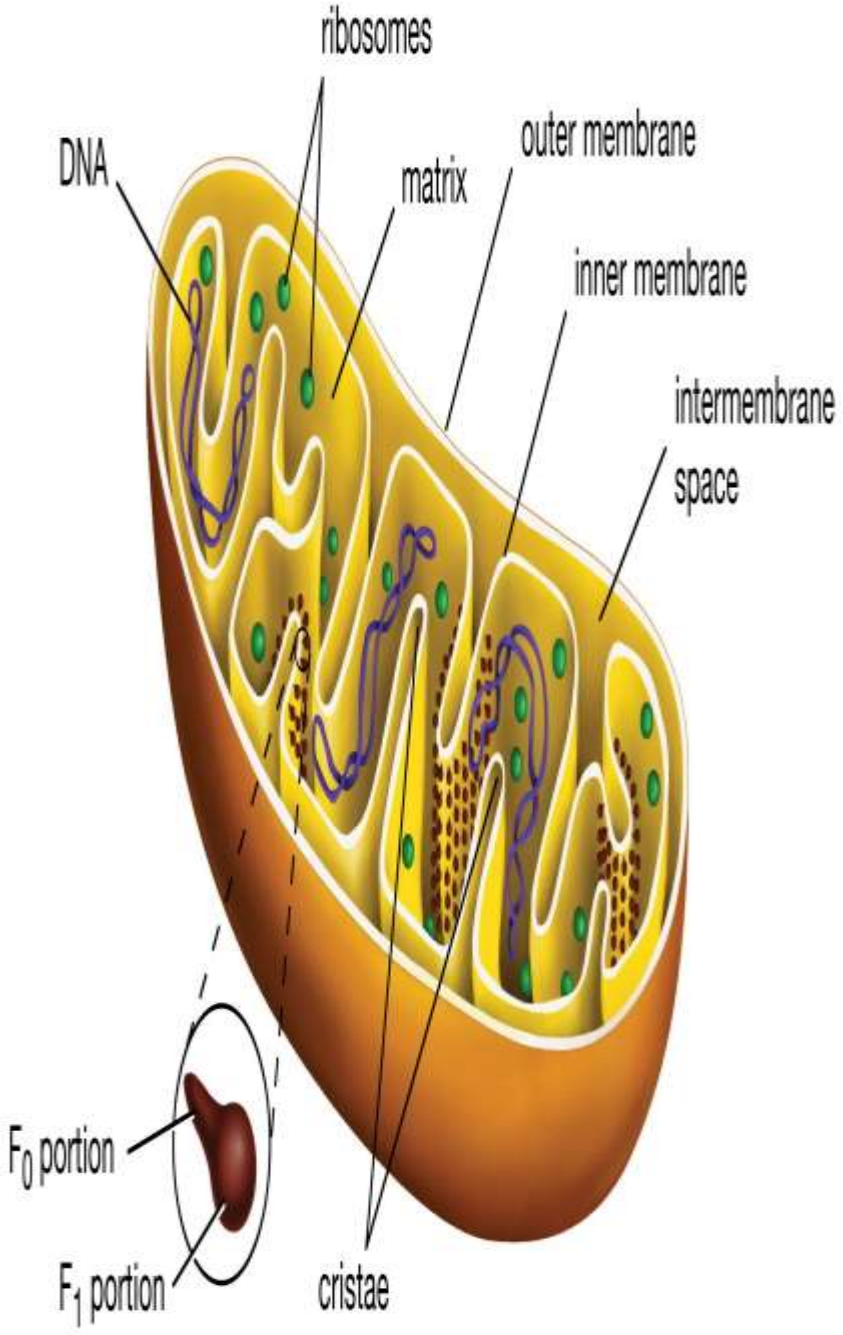


Mitochondria

Definition: The powerhouse of the cell, responsible for producing energy (ATP).

Example:

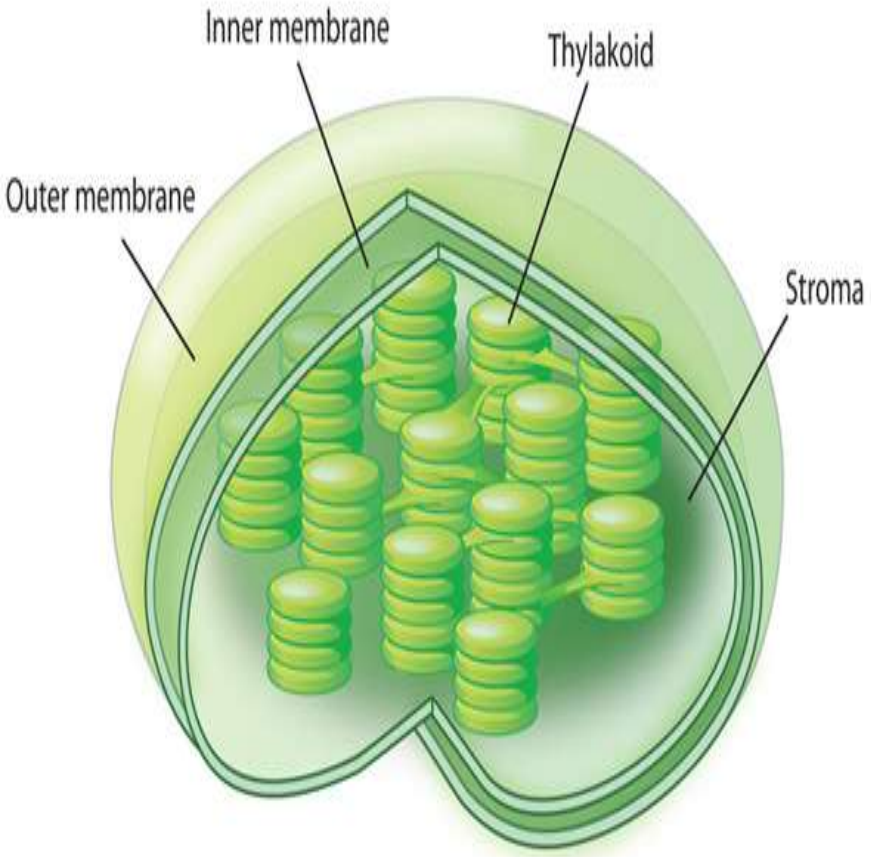
"Mitochondria are essential for cellular respiration."



Chloroplast:

Definition: An organelle found in plant cells where photosynthesis occurs.

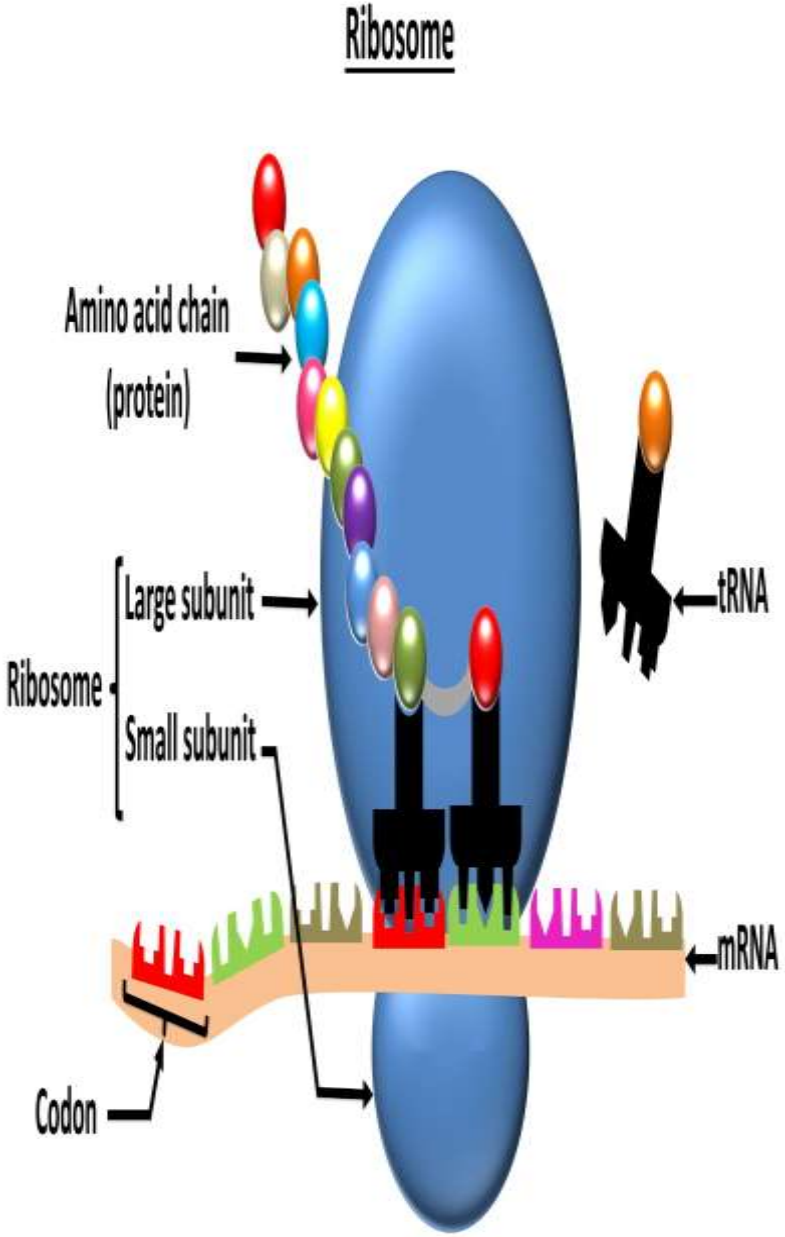
Example:
"Chloroplasts contain chlorophyll, which captures sunlight."



Ribosome

Definition: A cellular structure that synthesizes proteins.

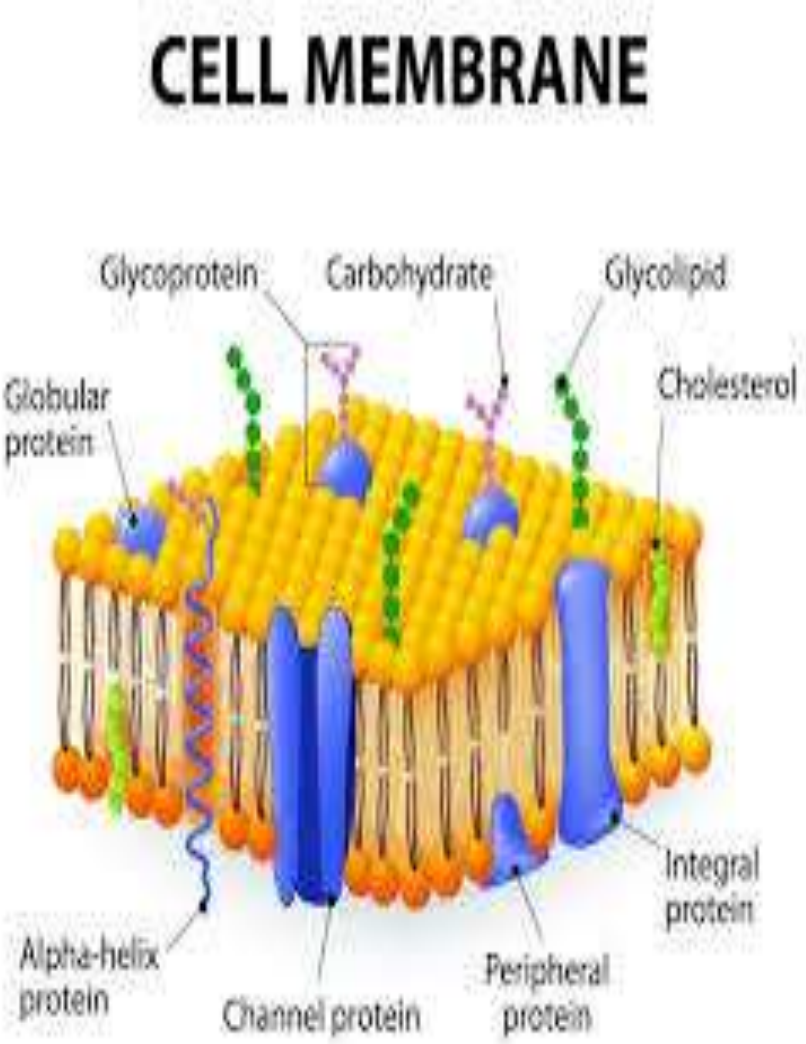
Example: "Ribosomes translate mRNA into proteins."



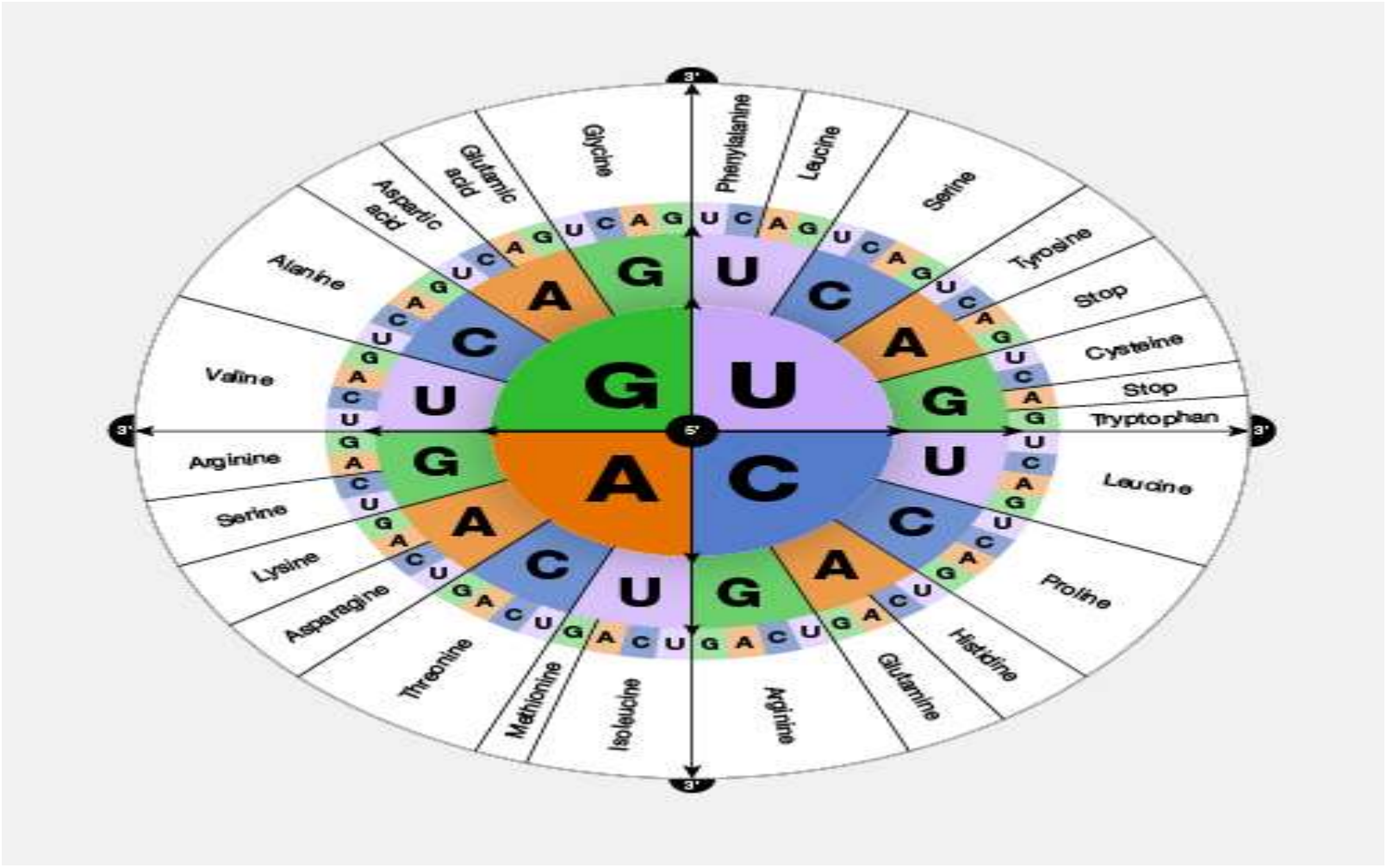
Membrane:

Definition: A thin layer that surrounds cells or organelles, controlling what enters and exits.

Example: "The cell membrane is selectively permeable."



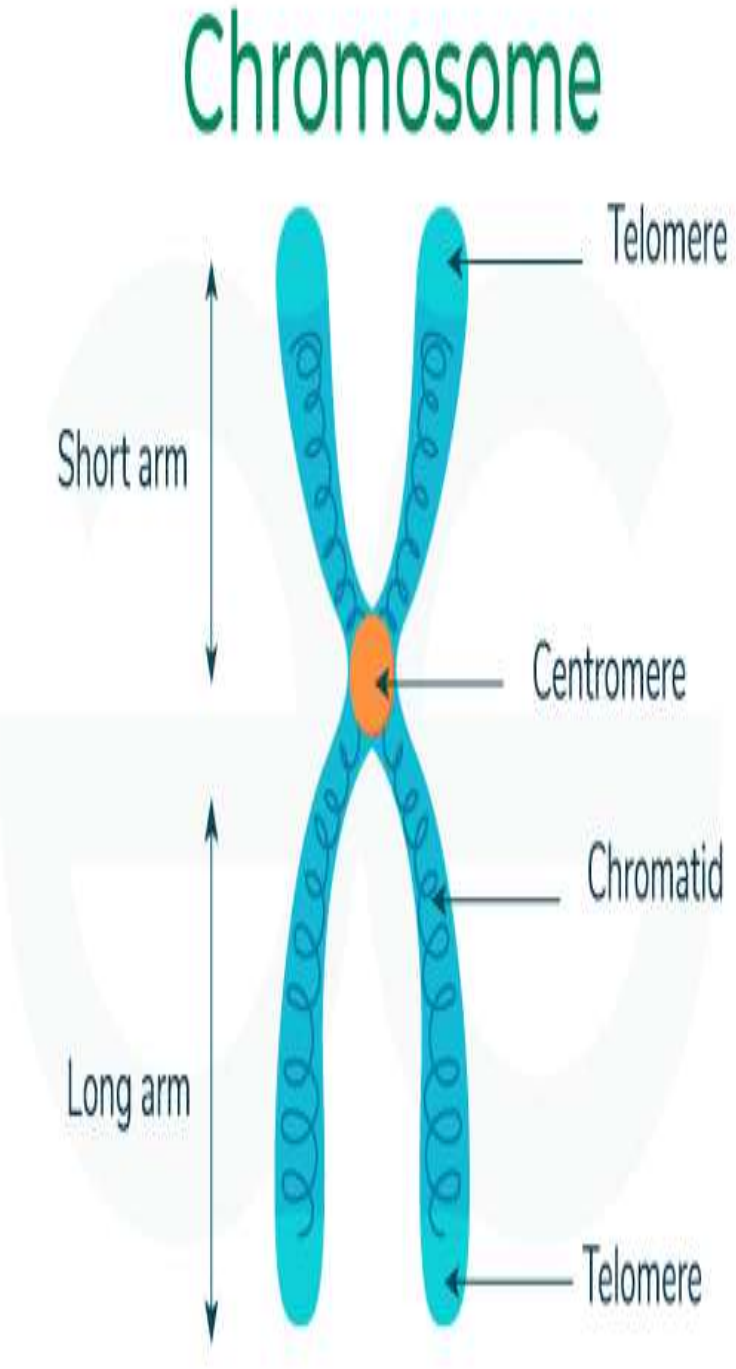
Genetics and Evolution Terms



Chromosome

Definition: A thread-like structure made of DNA and proteins, carrying genetic information.

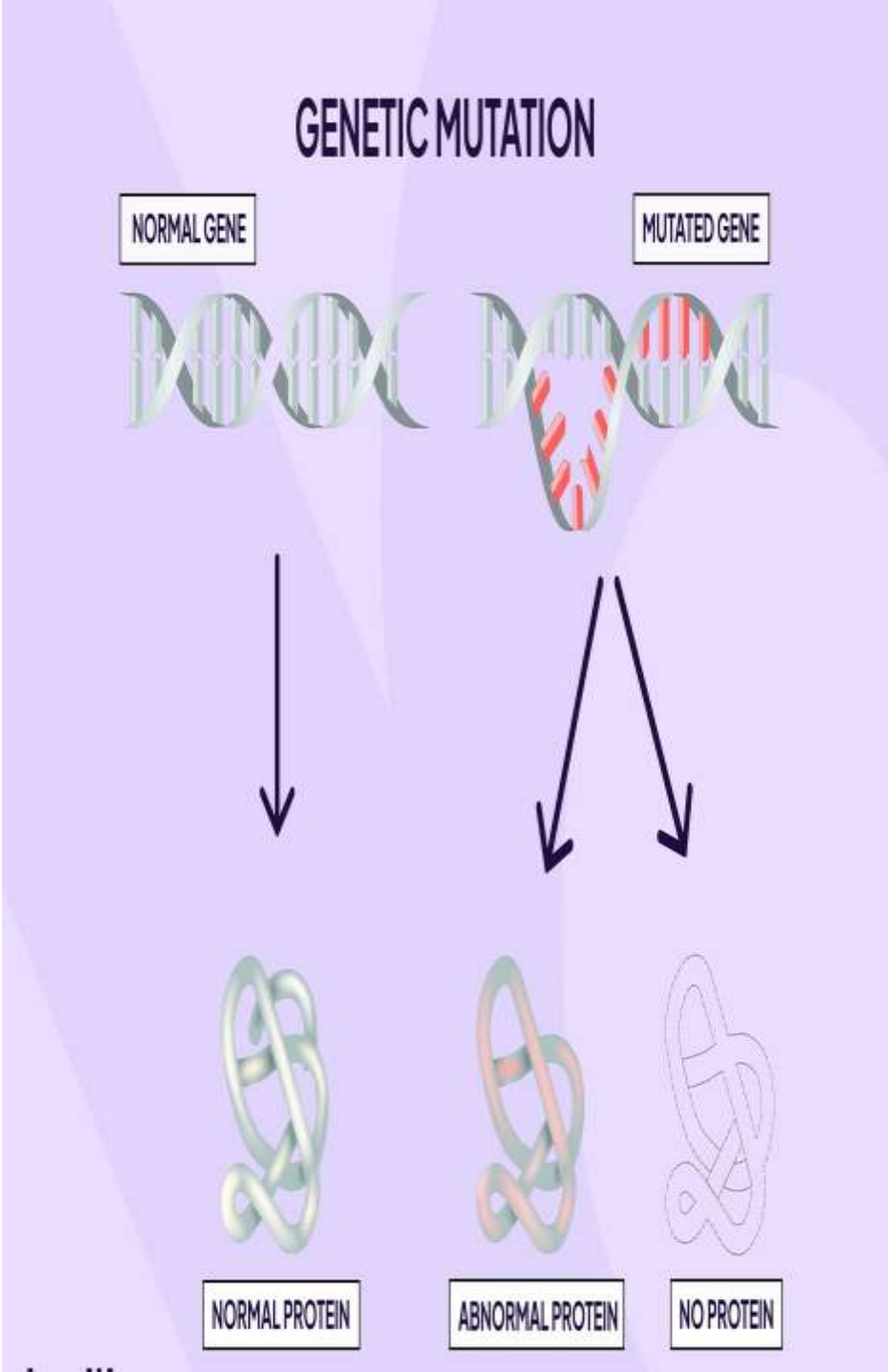
Example: "Humans have 23 pairs of chromosomes."



Mutation

Definition: A change in the DNA sequence that can affect an organism's traits.

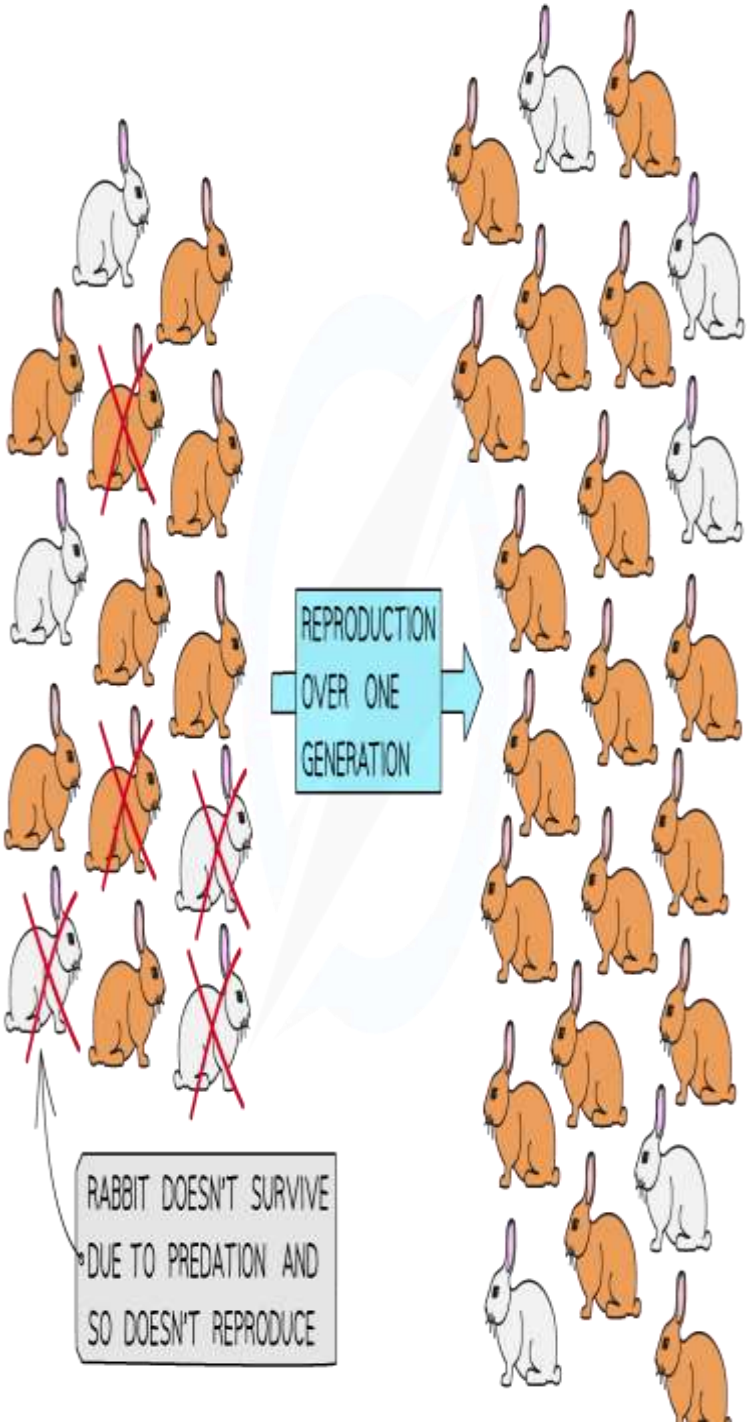
Example:
"Mutations can lead to genetic disorders or new adaptations."



Natural Selection

Definition: The process by which organisms better adapted to their environment survive and reproduce.

Example: "Natural selection drives evolution over time."



Evolution

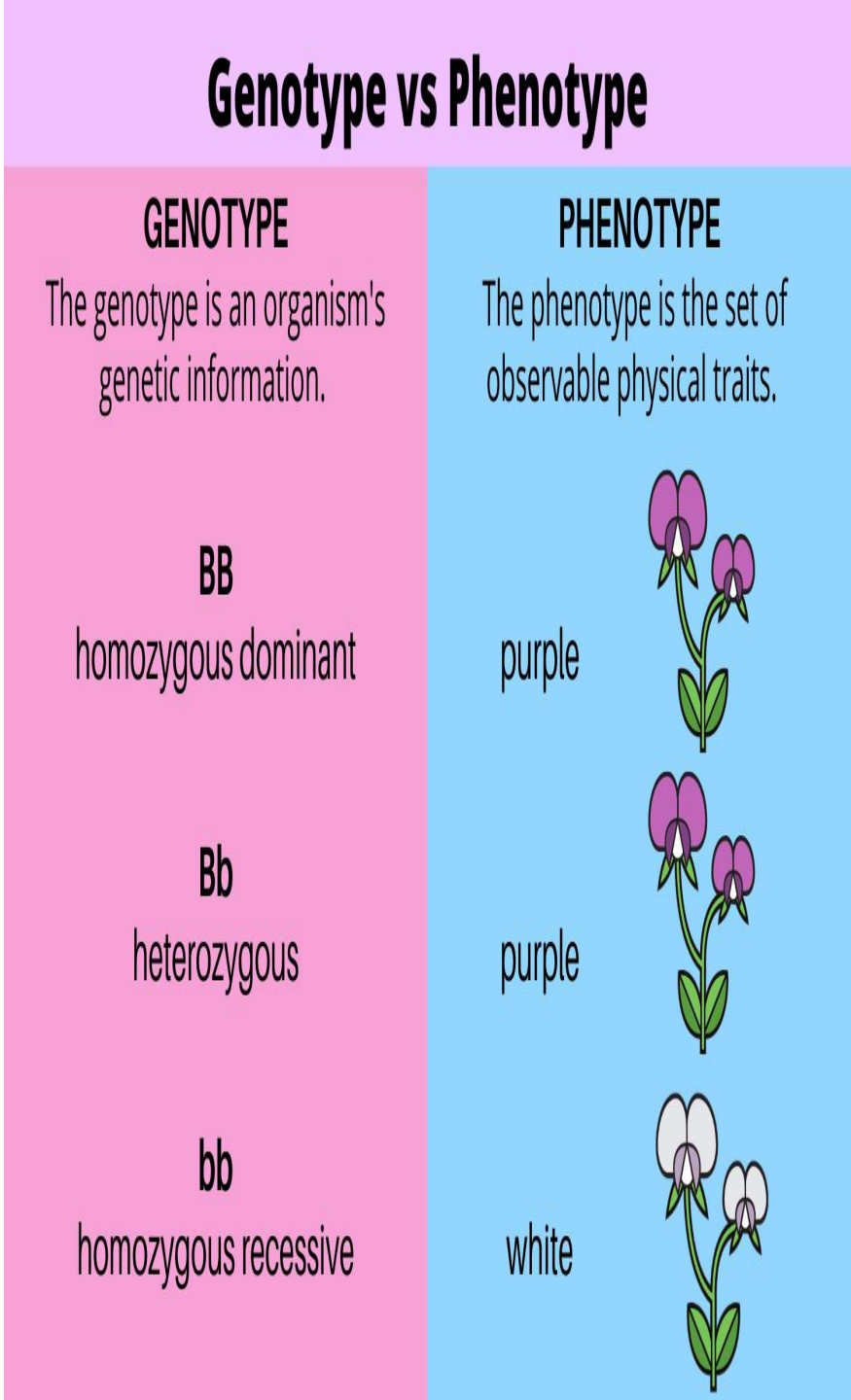
Definition: The gradual change in species over generations.

Example: "The evolution of birds from dinosaurs is a well-studied example."

Genotype

Definition: The genetic makeup of an organism.

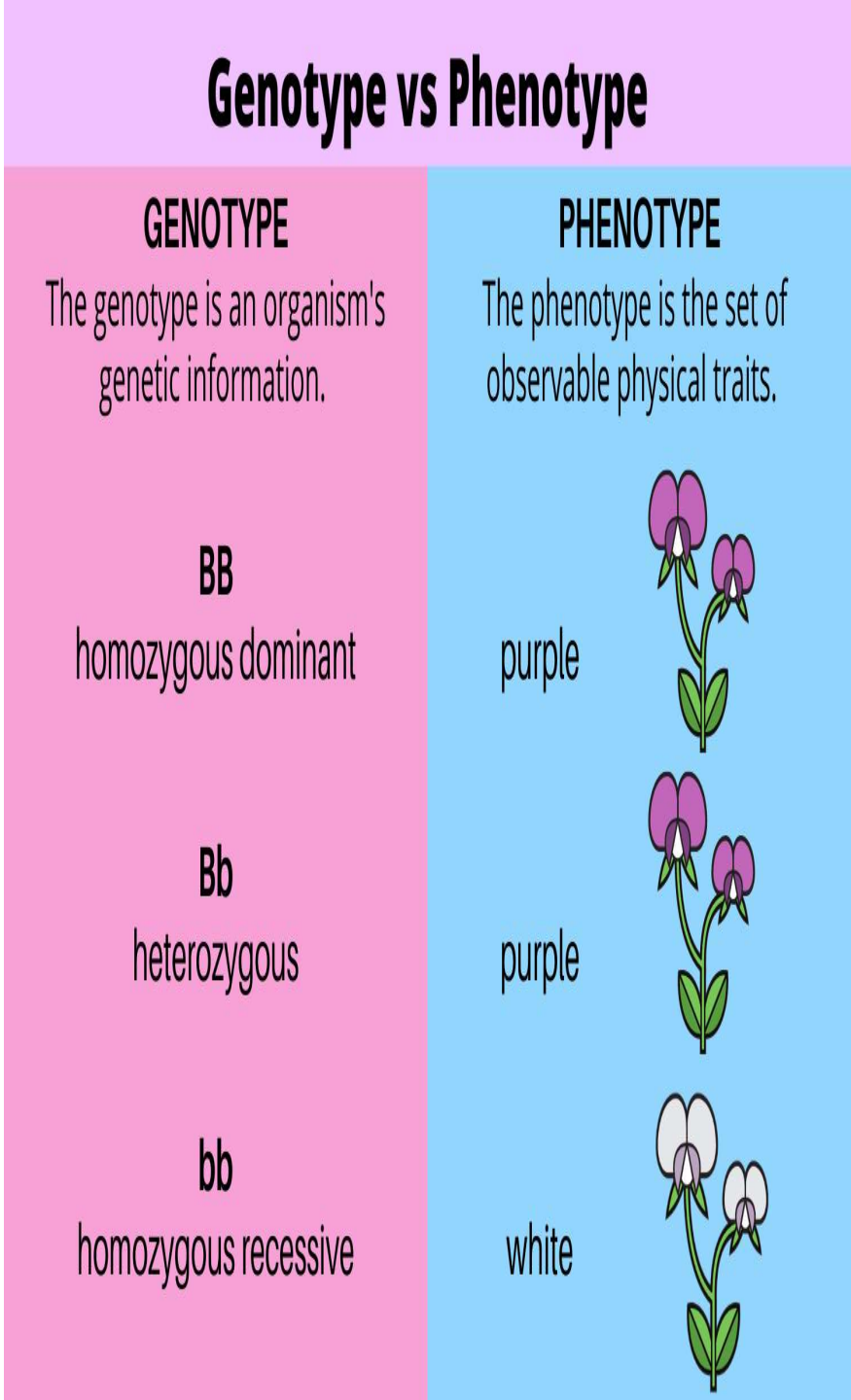
Example: "The genotype determines the potential traits of an organism."



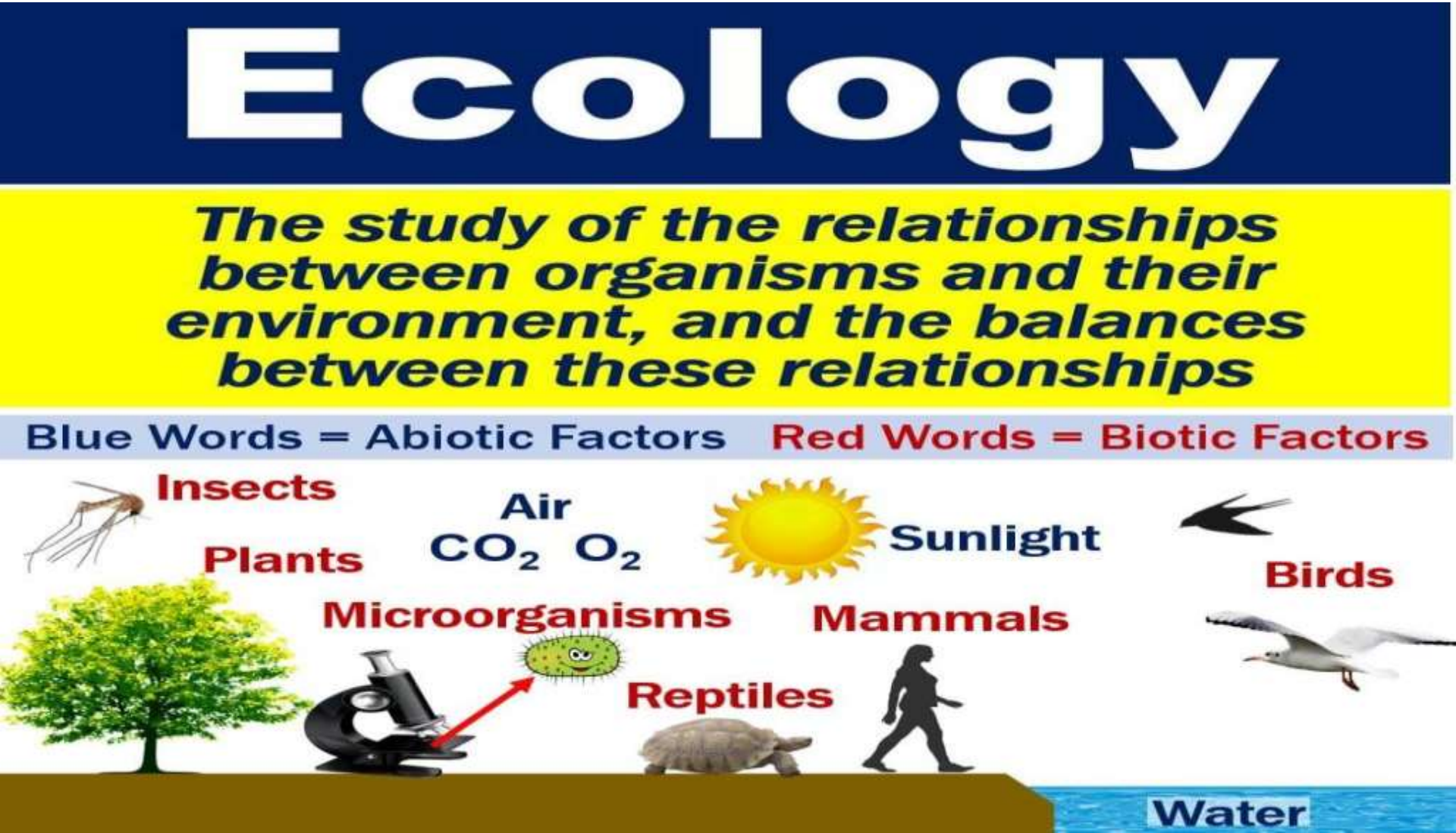
Phenotype

Definition: The physical expression of an organism's genes.

Example: "The phenotype includes traits like eye color and height."



Ecology and Environmental Biology Terms



Ecosystem

Definition: A community of living organisms and their physical environment.

Example: "Forests, deserts, and oceans are examples of ecosystems."

Biodiversity

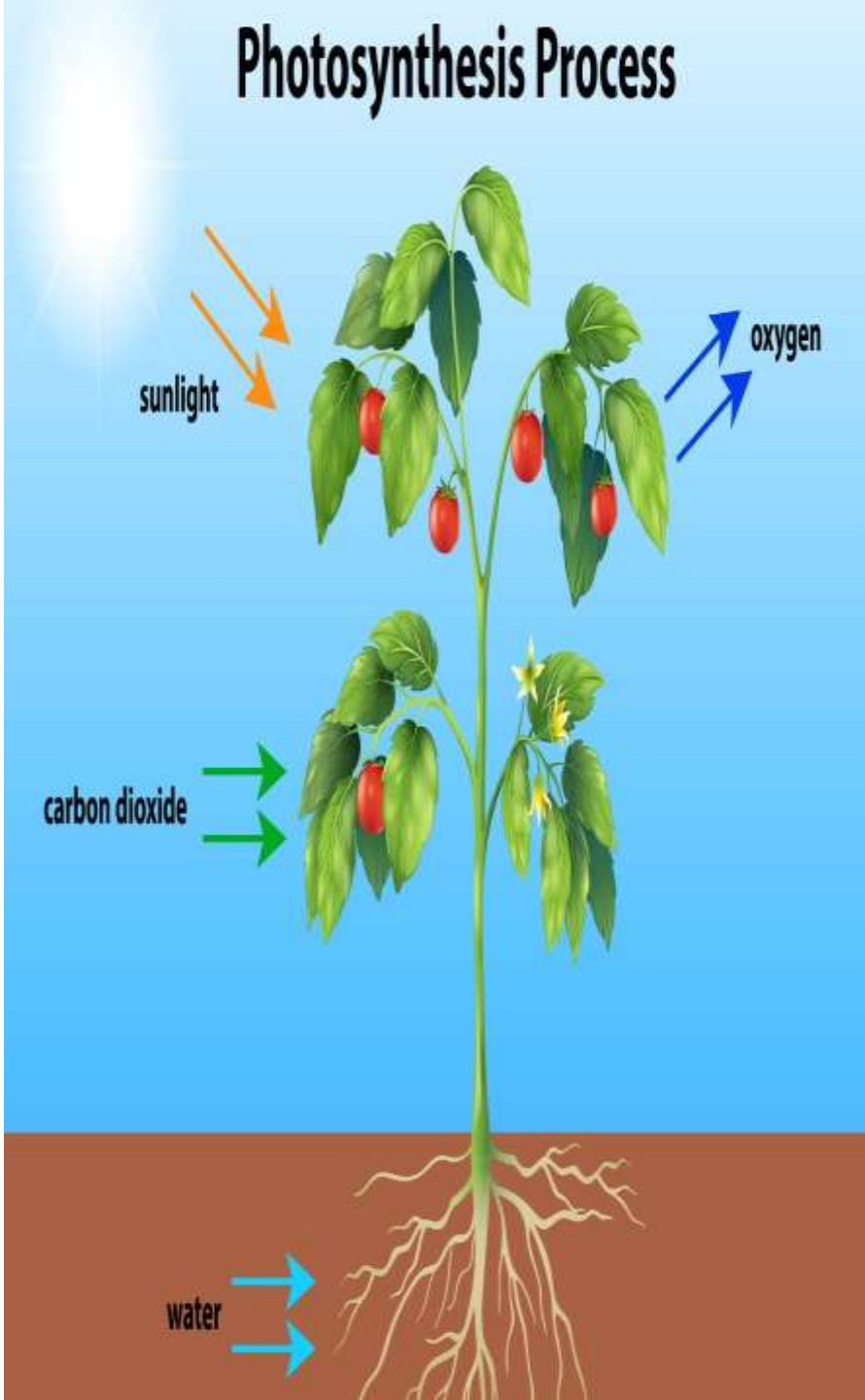
Definition: The variety of life in a particular habitat or ecosystem.

Example:
"Biodiversity is crucial for ecosystem stability."

Photosynthesis

Definition: The process by which plants convert sunlight into energy (glucose).

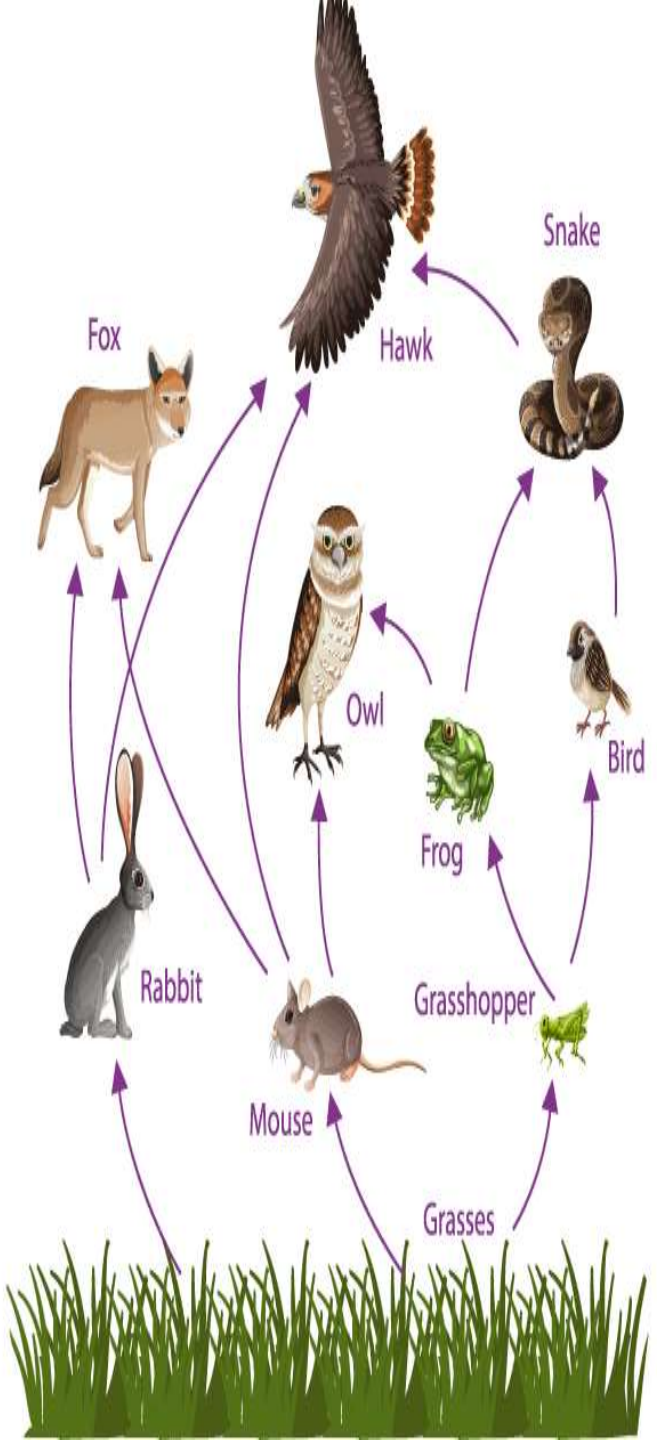
Example: "Photosynthesis produces oxygen as a byproduct."



Food Chain

Definition: A sequence of organisms through which energy and nutrients are transferred.

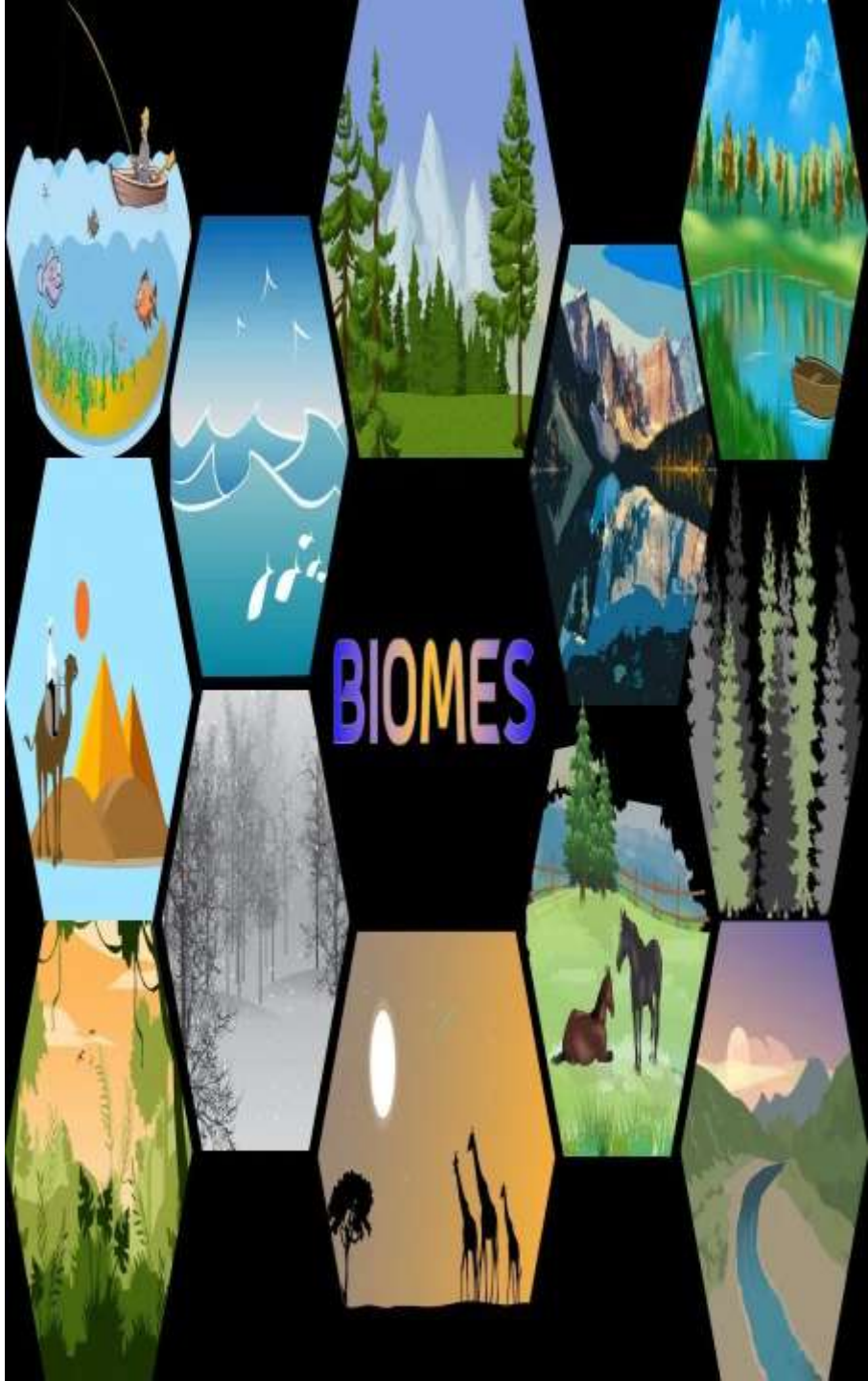
Example: "In a food chain, grass is eaten by a rabbit, which is eaten by a fox."



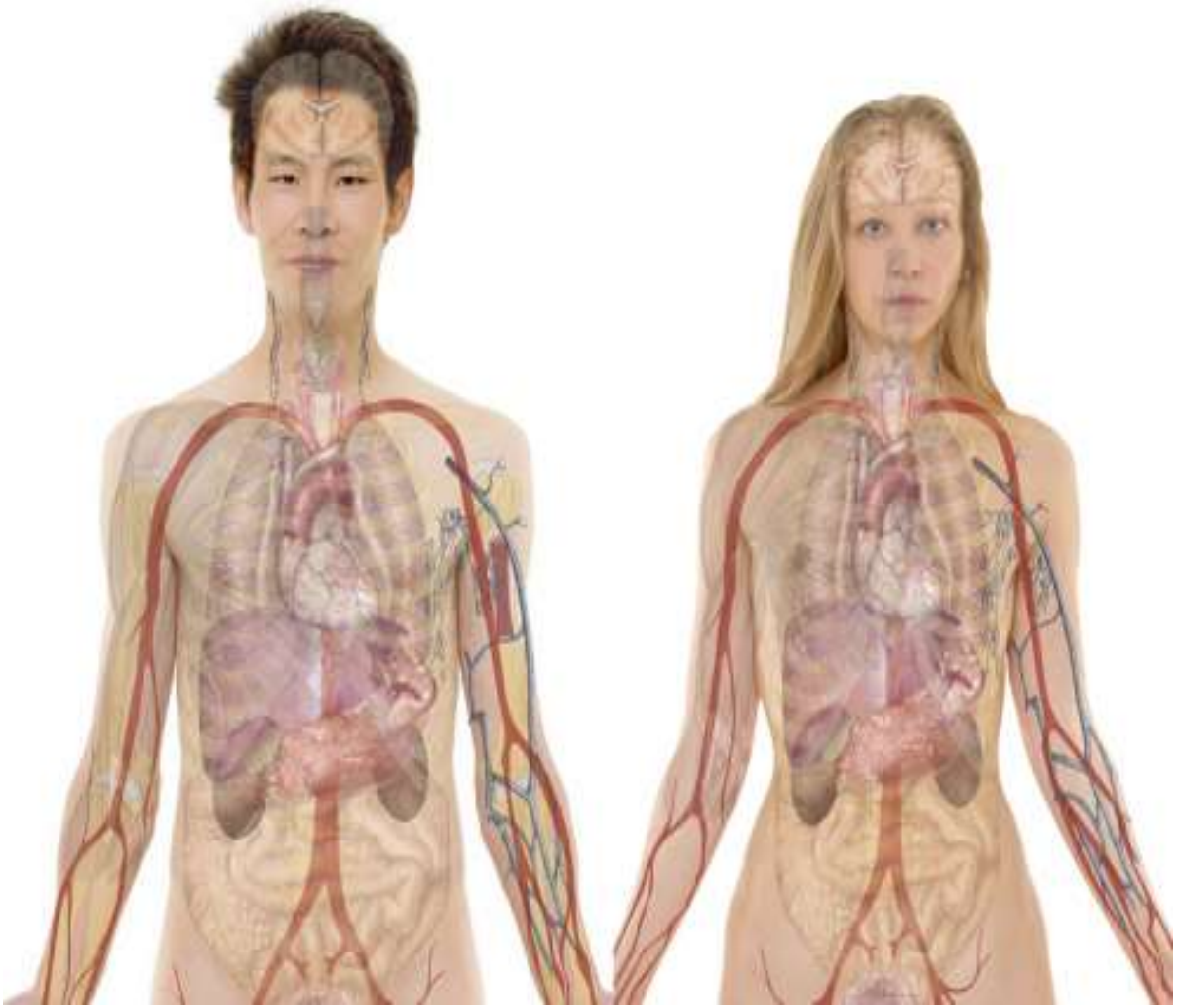
Biome

Definition: A large ecological area with distinct climate, flora, and fauna (e.g., rainforest, tundra).

Example: "The Amazon rainforest is a tropical biome."



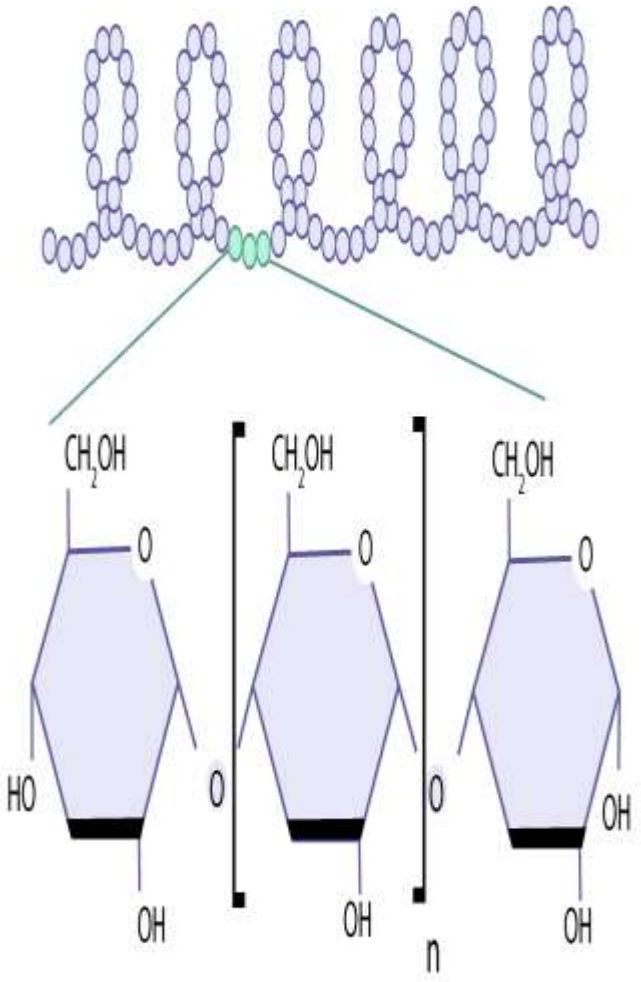
Human Biology Terms



Enzyme

Definition: A protein that speeds up chemical reactions in the body.

Example: "Amylase is an enzyme that breaks down carbohydrates."



Hormone

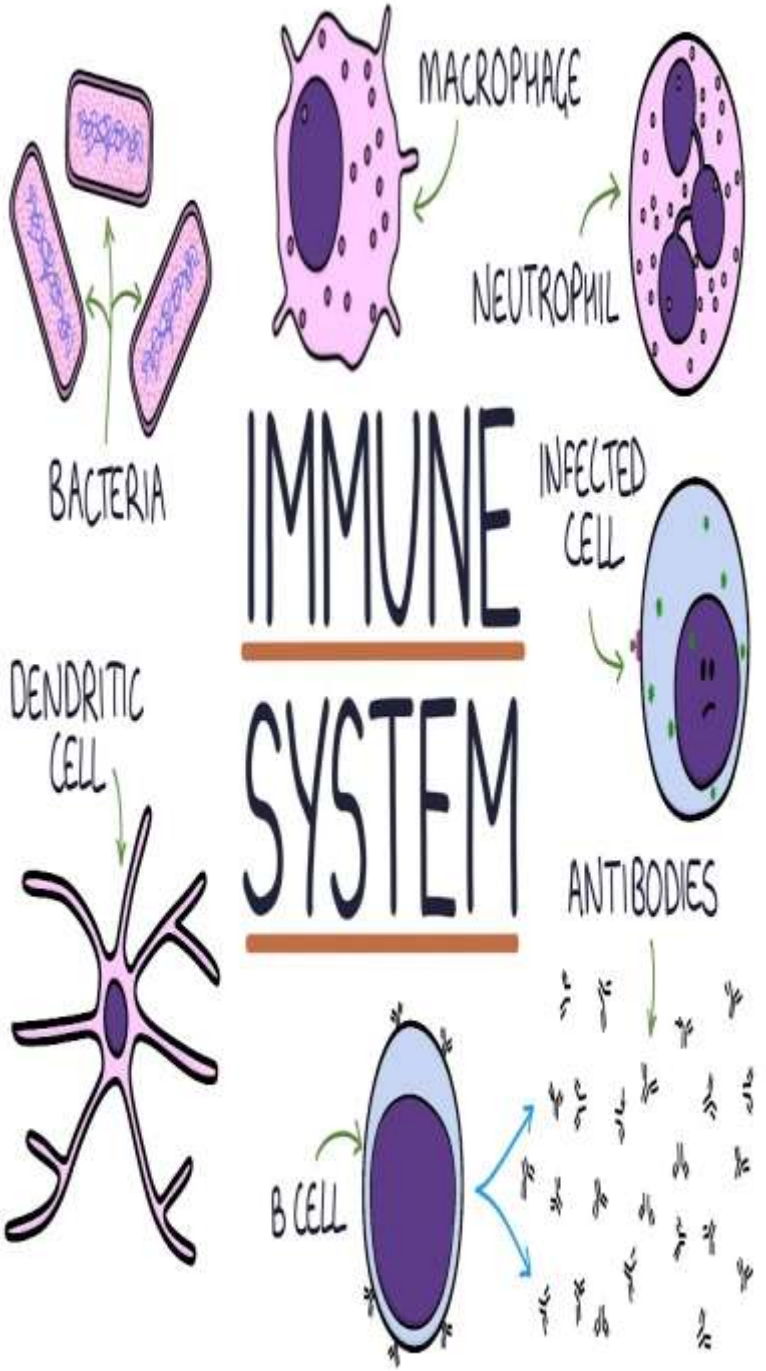
Definition: A chemical messenger that regulates bodily functions.

Example: "Insulin is a hormone that regulates blood sugar levels."

Immune System

Definition: The body's defense system against infections and diseases.

Example: "White blood cells are part of the immune system."



Homeostasis

Definition: The maintenance of a stable internal environment in an organism.

Example: "Sweating helps maintain homeostasis by cooling the body."

Prefixes and Suffixes in Biology

Common Prefixes:

- **Bio-**: Life (e.g., biology, biodiversity).
- **Photo-**: Light (e.g., photosynthesis, photon).
- **Micro-**: Small (e.g., microscope, microorganism).
- **Macro-**: Large (e.g., macromolecule, macroevolution).
- **Cyto-**: Cell (e.g., cytoplasm, cytology).

Prefixes and Suffixes in Biology

Common Suffixes :

- **-ology**: Study of (e.g., biology, ecology).
- **-phyll**: Leaf (e.g., chlorophyll).
- **-scope**: Instrument for viewing (e.g., microscope, telescope).
- **-ase**: Enzyme (e.g., amylase, lipase).
- **-osis**: Condition or process (e.g., osmosis, mitosis).

Activity 01

Match the following terms to their definitions:

1. Photosynthesis
2. Enzyme
3. Ecosystem
4. DNA
5. Mitochondria

a. The molecule that carries genetic information.

b. The process by which plants convert sunlight into energy.

c. A protein that speeds up chemical reactions.

d. A community of living organisms and their environment.

e. The powerhouse of the cell.

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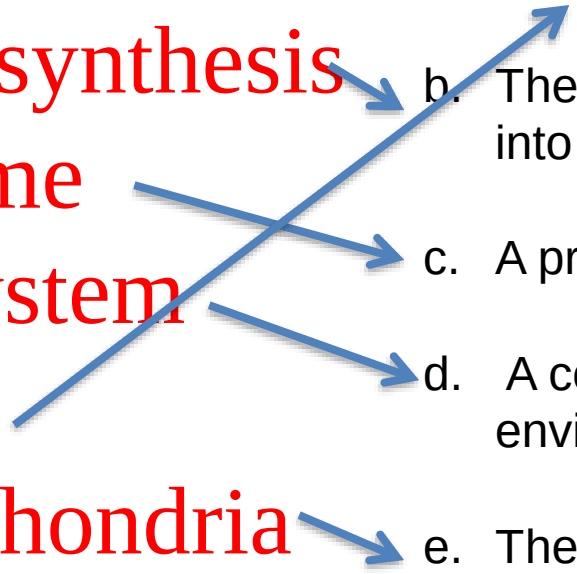

Activity 02

Fill in the blanks with the correct scientific term::

1) The _____ is the basic unit of life.

2) _____ is the process by which plants make food.

3) The _____ is the control center of the cell.

4) _____ are proteins that speed up chemical reactions.

5) The _____ is responsible for producing energy in the cell.

Activity 02

Fill in the blanks with the correct scientific term::

1) The **Cell** is the basic unit of life.

2) **Photosynthesis,** is the process by which plants make food.

3) The **nucleus**, is the control center of the cell.

4) **Enzymes** are proteins that speed up chemical reactions.

5) The **mitochondria** is responsible for producing energy in the cell.

Activity 03

Use the prefixes and suffixes below to create new scientific terms:

Prefixes: bio-, micro-, photo-

Suffixes: -ology, -phyll, -scope

Activity 03

Use the prefixes and suffixes below to create new scientific terms:

Biology, microbiology, photosynthesis, chlorophyll, microscope.

References

- "English for Academic Purposes: A Guide and Resource Book for Teachers" by R. R. Jordan
- "Academic Writing for Graduate Students" by John M. Swales and Christine B. Feak
- "Scientific English: A Guide for Scientists and Other Professionals" by Robert A. Day and Nancy Sakaduski
- "English for Science and Technology: A Handbook for Non-Native Speakers" by Tamzen K. Armer