

# All About Biology

Biology is the scientific study of life and living organisms. It explores how living things grow, reproduce, interact, evolve, and survive.

Branches of Biology:

- Botany: Study of plants
- Zoology: Study of animals
- Microbiology: Study of microorganisms
- Genetics: Study of heredity and DNA
- Anatomy & Physiology: Study of body structure and function
- Ecology: Study of organisms and environment
- Cell Biology: Study of cells and structure
- Evolutionary Biology: How species change over time

Levels of Biological Organization:

1. Atoms & Molecules
2. Cells
3. Tissues
4. Organs
5. Organ Systems
6. Organism
7. Population
8. Community
9. Ecosystem
10. Biosphere

Core Concepts:

- Cell Theory: All living things are made of cells.
- DNA: Genetic information carrier.
- Evolution: Species change via natural selection.
- Homeostasis: Stable internal conditions.
- Metabolism: Life-sustaining chemical processes.
- Reproduction: Passing traits to offspring.
- Adaptation: Traits improving survival.

#### Importance of Biology:

- Health: Medicine, diseases, body understanding.
- Environment: Biodiversity, climate change.
- Agriculture: Crop and livestock improvements.
- Biotechnology: Vaccines, gene editing.

#### Interesting Facts:

- Human body has over 37 trillion cells.
- DNA in your cells could stretch to the sun and back 600+ times.
- Octopuses have 3 hearts.
- Mushrooms are closer to animals than plants.

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