

Biology: The Science of Life

✓ Definition of Biology

- Biology is the scientific study of life and living organisms, encompassing their structure, function, growth, evolution, distribution, and taxonomy. It is a natural science with a broad scope but is unified by key concepts such as cell theory, genetics, evolution, and homeostasis.

✓ Development of Biology as a Science

- Biology has evolved significantly since its early days:
 - ✚ Ancient Contributions: Early biological studies were conducted by Greek philosophers like Aristotle, who classified organisms and studied their anatomy.
 - ✚ Middle Ages to Renaissance: Advancements slowed during the Middle Ages but revived during the Renaissance with the work of scholars like Andreas Vesalius in anatomy.
 - ✚ 17th to 19th Century: The invention of the microscope by Antonie van Leeuwenhoek and the formulation of cell theory by Schleiden and Schwann were pivotal. Darwin's theory of evolution by natural selection in the 19th century also greatly advanced biology.
 - ✚ 20th Century to Present: The discovery of DNA's structure by Watson and Crick, the advent of molecular biology, and advancements in genetic engineering have transformed biology into a highly dynamic field.

✓ Method of Biology

- Biological research follows the scientific method:
 1. Observation: Gathering data about living organisms and their environments.
 2. Hypothesis Formation: Proposing explanations based on observations.
 3. Experimentation: Conducting experiments to test hypotheses.
 4. Data Analysis: Analyzing experimental data to draw conclusions.
 5. Peer Review and Publication: Sharing findings with the scientific community for validation.