

BIOLOGY

Lesson 1: Science of Living Things

Topic 1: **Biology as a Science**

Science is the study of natural things around us. It is a systematic study of living and non-living things in our environment.

The goal of science is to gain knowledge and understanding about the world around us, including the physical, biological, and social aspects of our environment.

It seeks to explain natural phenomena and make predictions based on empirical evidence and logical reasoning.

Biology is a science that studies living things in nature. Biology was formed from the Greek words "Bio" meaning life, and "logos" meaning, study of.

Biology can be defined as the scientific study of living organisms and their interactions with each other and their environment.

It explores the characteristics, structures, functions, and behaviors of living things, ranging from microscopic cells to complex ecosystems.

Biology helps us understand how organisms are organized and function.

Branches of Biology

The two main branches of Biology are;

- **Zoology:** Study of animals, including their behavior, anatomy, physiology, and classification.
- **Botany:** Study of plants, including their structure, growth, reproduction, and classification.

Other branches include;

- **Cell Biology:** This is the study of cells, their structure, functions, and processes.
- **Molecular Biology:** This the study of biological molecules, such as DNA, RNA, and proteins, and their interactions.
- **Genetics:** This is the study of heredity, genes, and genetic variation.
- **Ecology:** This is the study of the interactions between organisms and their environment, including ecosystems and the distribution of species.
- **Morphology:** This is the study of external structure or organs of living organisms.
- **Anatomy:** This is the study of internal structure or organs of living organisms.

- **Physiology:** This is the study of the functions and mechanisms of living organisms and their parts.
- **Microbiology:** This is the study of microorganisms, including bacteria, viruses, fungi, and protozoa.
- **Biochemistry:** This is the study of chemical processes and substances in living organisms.

Usefulness of Biology

Biology has found great applications in many areas of human life, some of which include:

- **Medicine:** Production of drugs and vaccines for preventing and curing many diseases e.g. penicillin, organ transplant e.g. kidney (renal) transplant, in-vitro fertilization in infertile couples.
- **Agriculture:** Production of hybrid (crops and animals with desired qualities), use of biological pesticides to control agricultural pests
- **Bioremediation** i.e. use of naturally occurring bacteria to clean up oil spills and toxic chemicals.
- **Biotechnology:** Use of genetic engineering to fight genetic diseases.
- **Food production:** Production of single cell protein (SCP) to reduce protein deficiency problem, food storage and preservation