2020/21 Academic Year 1st Quarter Biology Lesson Note One for Grade 7

UNIT-ONE
BIOLOGY AND TECHNOLOGY

1. Introduction

Science is a systematic enterprise that builds and organizes knowledge in the form of explanations and predictions about nature and the universe. Science can be classified as; social and natural science.

Do biology and technology interrelate? Yes,

Biology requires the knowledge of technological innovations and technology needs the understanding of living systems for its further improvement and progress of techniques to better serve the society.

1.1. What is biology?

Biology is branches of science by which living things are studied.

The word *biology come from two Greek words 'bios' meaning life and 'logos' meaning study.*

Biologists are people who study biology or about living things.

Branches of biology

The three major branches of biology; **Zoology** (the study of animals), **Botany** (the study of plants) and **Microbiology** (the study of microorganisms or microbes).

Sub disciplines of biology

Taxonomy:-study about identification, classification and naming of living things.

Ecology:- the study of interactions of living things with their environment

Cytology:- the study of cells that make living things

Physiology:- the study of functions of the living system

Anatomy:- the study of internal structure of organisms

Morphology:- the study of the external structure of living things

Genetis:- deals with the heredity and identity of living body**Evolution:-** deals with the origin and gradual change of organisms through time

Entomology: - study about insects

Histology: This branch deals with the structure and composition of tissues**.**

Relationship of biology with other natural sciences

Biology is related to other science disciplines in the following ways;

Biology and Physics- Biophysics

Biology and Chemistry- biochemistry.

Biology and Mathematics- Biomathematics

Biology and Geography:- Biogeography

Biology and technology-Biotechnology

Activity-1

Answer the following questions

1. Write the difference between biology and biologist.

2. What are the three main branches of biology?

Homework

Exercise-1.1

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1.1. Industries that utilize biological knowledge

Industries are those areas of human activity involving the making, process and production of things and commercial activities that provide service. Example: - Agricultural industry, Medical industry or pharmaceutical industry, food industry, transport industry and Tourism industry.

A. Agriculture

Agriculture is the occupation, business, or science of cultivating the land, producing crops, breeding and raising livestock, forestry, etc.

Biological knowledge is important in agriculture to;

i. Study plant nutrient

Plants use different inorganic nutrients and water for their growth. The primary nutrients include nitrogen, potassium and phosphorus.

The factors that affect growth of plant include temperature, inorganic nutrient, water, light and air.

ii. Study soil composition

Soil composition determines the type of plant that grows in a given area and its productivity.

iii. study about how to prepare and use the right quantities and qualities of agrochemicals

Agrochemical is a chemical used in farming to increase productivity. The three common agrochemicals are;

a. **Fertilizers**: - an organic or synthetic substance added to increase soil fertility.
b. **Pesticides: -** a chemical substance used to kill pests, especially insects.
c. **Herbicides (weed killer)**:- a chemical prepared to kill weeds, or to inhibit their growth.

iv. Practice crop rotation

Crop rotation is a system of farming in which a piece of land is planted with different crops in succession, in order to improve soil fertility and control crop pests and diseases.

v. Practice Preservation of soil

Soil can be preserved by practicing vegetation covering, avoiding overgrazing and exercising environmental friendly practice

Activity-2 (Home work)

Answer the following questions.

1. Describe the three agrochemicals?
2. Write the role of crop rotation.
3. What are the factors that affect the growth of plant?

B. Medicine

Medicine is the **treatment of illness** or injury using **drugs** rather than **surgery**.
Biology is important in medicine to;

i. Study use and effect of drugs on human body

Drug is a medicine or chemical that changes the way living things functions when taken into the body.

ii. Practice correcting drug abuse

Drug abuse is the **bad use**, or **misuse of drugs** outside their intended medical use.

Drug abuse is characterized by;

Taking more than recommended dose of prescribed or medicinal drugs.
Taking drugs without prescription.
Using **illegal drugs** such as **marijuana**, **cocaine**, **heroin**, **etc**.

Prescribed drug:- is a medicine(drug) that is recommended by a health professional.

C. Food

Food is material that provides living things with the nutrients they need for energy and growth.
Biological knowledge is important in food industry to;

i. Produce quality food
ii. Keep food safe and longer
iii. Know the end products of digestion, absorption and utilization by our body
iv. Recognize and avoid deficiency diseases

Deficiency diseases:- is a disease that is caused due to **lack or shortage of nutrients** in the diet.

Example:-

Anemia is caused by lack of **Iron**
Goiter is caused by lack of **Iodine**
Night blindness is caused by lack of **Vitamin-A(retinol)**
Beriberi is caused by lack of **Vitamin-B1(thiamine)**
Pellagra is caused by lack of **Vitamin-B3(Niacin)**
Scurvy is caused by lack of **Vitamin-C(Ascorbic acid)**
Rickets is caused by lack of **Vitamin-D(calciferol)**
Kwashiorkor is caused by lack of **protein**
Marasmus is caused by lack of **carbohydrate**

v. Know about balanced diet

Balanced diet is a food that consists of **right type and precise amount of nutrients** appropriate for healthy body.

vi. Agrochemical residues on/in food

Agrochemical remains as residues on plants and can cause **health problem** when consumed.

vii. Practice of selective breeding

Selective breeding is a technique of **breeding plants or animals** with desirable trait or economically important individuals in order to preserve the offspring with best possible
traits (high yield, disease resistant, drought resistant, etc.) than their parents.