

First term Agricultural science E-Lesson Note

SUBJECT: AGRICULTURAL SCIENCE

CLASS: JSS1

SCHEME OF WORK

WEEK TOPIC

- | | |
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| 1 | Meaning and Importance of Agriculture. |
| 2 | Importance of Agricultural contd. |
| 3 | Historical Development (Evolution) of Agriculture. |
| 4 | Areas/Branches of Agriculture I. |
| 5 | Areas/Branches of Agriculture II. |
| 6 | Forms of Agriculture I. |
| 7 | Forms of Agriculture II. |
| 8 | Crop Plant Forms. |
| 9 | Classification of Crops Based on Lifecycle. |
| 10 | Classification of Crops Based on Uses. |
| 11 | Revision. |
| 12 | Examination. |

REFERENCE BOOKS

- Prescribed Agricultural Science for Junior Secondary Schools , Book 1, by S.A Omoruyi et al.
- Junior Secondary Agriculture for Nigerian Schools, Book 1, by Anthony Youdeowei et al.

WEEK ONE

TOPIC: MEANING AND IMPORTANCE OF AGRICULTURE

CONTENT

- Definition of Agriculture.
- Importance of Agriculture.

DEFINITION OF AGRICULTURE

Agriculture is defined in many ways. Any of the following definition is accepted when defining the term.

- Agriculture is the deliberate effort made by man to till the soil, grow crops and rear animals for food and other purposes.
- Agriculture can also be defined as the art or practice of growing crops and raising of animal for man's use.
- Agriculture can also be defined as the science, art and business of growing crops and rearing animal for man's use.

The word agriculture is derived from Latin word "ager" and "cultura". "Ager" means field/land and "cultura" means to cultivate or to till the soil and prepare it for the planting of crop.

Agriculture can be traced to the earliest human societies. They relied on hunting and the collection of fruits and roots for food and subsequently began planting near their dwellings (caves) which laid

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the foundation of crop production. The domestication of animals later followed and this was what laid foundation for the development of modern animal husbandry

The system of agriculture practiced by the early man is called hunting and gathering.

EVALUATION

1. What is agriculture?
2. Name the system of agriculture practiced by early man.

IMPORTANCE OF AGRICULTURE

1. Provision of food. It is only through agriculture that man can get food. It provides food in form of maize, yam, milk, egg etc. for human consumption.
2. Provision of materials for clothing: Agriculture provides fibre and cotton for textile. It provides hides and shelter, clothing, shoes, belts, caps and bags.
3. Provision of materials for shelter: Agriculture provides material essential for building such as plants, doors, windows, roofs, partitions, floor etc

EVALUATION

1. What is Agriculture?
2. State seven four importance of Agriculture.

GENERAL EVALUATION

1. What is Agriculture?
2. List three basic necessities of man.
3. In what five ways is Agriculture important to man?
4. Mention four importance of Agriculture.



READING ASSIGNMENT

Junior Secondary Agriculture For Nigerian Schools by Anthony Youdeowei, S.O Adesiyun, J.N Ogbazi, Terry Olowu. Chapter 3, pages 1-2.

WEEKEND ASSIGNMENT

1. The basic necessities of life includes the following except?
(a) clothing (b) shelter (c) education (d) food
2. Which of the following stages of agriculture did early man practice? (a) subsistence (b) Commercial (c) Hunting and gathering (d) Monoculture.
3. "ager" means ____ and "cultura" means ____ (a) field, cultivate (b) cultivate, field (c) tilling, sowing (d) planting, tilling
4. "ager" and "cultura" are ____ words (a) yoruba (b) latin (c) greek (d) chinese
5. The following are export crops except (a) cocoa (b) groundnut (c) coffee (d) apple

THEORY

1. What do you understand by the term 'Agriculture'?
2. State four importance of Agriculture.

WEEK TWO

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TOPIC: IMPORTANCE OF AGRICULTURE (CONTD)

IMPORTANCE OF AGRICULTURE (CONTD)

1. Provision of employment: Agriculture and other agric based industries provide employment opportunities for a great number of the population.
- 2 Source of foreign exchange: Through the export of agric produce like cocoa, kola, groundnut coffee, cotton etc., the country can earn foreign exchange.
3. Generation of income: Agriculture generates income for farmers through sales of crops and products as well as animal and its products.
4. Development of town: Development occur where Commercial Agriculture is practiced as social/ basic amenities like electricity, good road and pipe - borne water will be provided
5. Provision of raw materials for industries: Agriculture supplies several industries with raw materials for their continuous existence e.g. beverage. Industries depending on cocoa, Textile industries, sugar industries, plywood and furniture industries, oil mill industries, Tobacco industries livestock food mill etc.
6. Provision of facilities for recreation and tourism: It leads to the establishment of game reserve. It provides horse for racing and Polo-game
7. Provision of market for industrial goods: Agriculture provides market for industrial products such as farm machinery, chemicals, fertilizers etc.

EVALUATION

1. What is agriculture?
2. State seven (7) importance of Agriculture.



GENERAL EVALUATION

1. What is Agriculture?
2. List three basic necessities of man.
3. In what five ways is Agriculture important to man?
4. List three examples of food.
5. List three industries that make use of agricultural products.

READING ASSIGNMENT

Junior Secondary Agriculture For Nigerian Schools by Anthony Youdeowei, S.O. Adesiyun, J.N. Ogbazi, Terry Olowu; Chapter 3, pages 1-2.

WEEKEND ASSIGNMENT

1. The following are career choices in agriculture except ____ (a) teaching (b) lumbering (c) researching (d) tailoring
2. Fibre is the raw material for ____ industries (a) drugs (b) food (c) beverages (d) textile
3. Which of the following industries makes use of agricultural products? (a) Mining (b) Transport (c) Beverage (d) Automobile
4. The kind of Agriculture in which farmers produce enough to feed himself and excess is sold is called ____ A. Subsistence Agriculture B. Mixed Farming C. Crop rotation D. Commercial Agriculture.
5. Which one of these tools did the early man use for his hunting expedition? (a) Harvester (b) Bomb (c) Gun (d) Sticks

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THEORY

1. What do you understand by the term 'Agriculture'?
2. State eight importance of Agriculture.

WEEK THREE

TOPIC: HISTORICAL DEVELOPMENT OF AGRICULTURE

CONTENT

- Development of Techniques through the Ages.
- Development of Agriculture in Nigeria.

DEVELOPMENT OF TECHNIQUES THROUGH THE AGES

The early man gathered wild fruits, nuts, roots and leaves for food as well as trapping fishes and wild animals. Caves, hollows and trees served as his shelter while his clothings were mainly leaves and skins. With time, he developed skills and instruments for his hunting expedition. He used pointed sticks, sharp bones or stones but later arrows, slings and guns were invented. The forest land where he collected food was enough for him to feed. There was no shortage of food, so he did not think of ways of producing food. However, as people increased, food gathering was no longer enough for them.

DEVELOPMENT OF AGRICULTURE IN NIGERIA

The Agricultural methods of Egyptian farmers combined with the older traditional farming practices of West Africa have produced the basis of Nigerian Agriculture today. In the last 300 years, crops from other parts of the world have been brought to West Africa by traders. Bananas and plantains were originally from Asia while groundnuts and cocoa came from America.

EVALUATION

1. What did the early man do to get food before the population of people increased?
2. How did cocoa and groundnut get to Nigeria?

GENERAL EVALUATION

1. Mention the sources of food, shelter and clothing for the early man.
2. What is the origin of plantain and banana?
3. Name the system of Agriculture being practiced by the early man.
4. What is the origin of cocoa?
5. What is the origin of groundnut?

READING ASSIGNMENT

Junior Secondary Agriculture for Nigerian Schools by A. Yondeowei Bk. 3, Chapter 19, pages 104-108

Prescribed Agricultural Science For Junior Secondary Schools. Chapter 1, pgs 1-2.

WEEKEND ASSIGNMENT

1. The early man gathered the following for food except
(a) fruits (b) trees (c) nuts (d) leaves

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2. Which one of these tools did the early man use for his hunting expedition?
(a) Harvester (b) Bomb (c) Gun (d) Sticks
3. Banana and plantain originated from
(a) U.S.A. (b) Ghana (c) Asia (d) India
4. Groundnut and cocoa were brought to Nigeria from by
(a) U.S.A.; tourists (b) U.S.A.; traders (c) Asia; tourists (d) Asia; traders
5. The idea of modern day Agricultural practice came from
(a) the idea of too many animals around (b) the idea of germinating seeds that were dropped by man (c) the idea of rivers and streams (d) the idea of sunshine

THEORY

1. List out any five kinds of food the early man fed on.
2. State any two: a) tools used by the early man for hunting expedition,
b) sources of his shelter, and
c) sources of his clothing.

WEEK FOUR

TOPIC: BRANCHES OF AGRICULTURE II

CONTENT

- Soil science
- Crop science
- Horticulture
- Agricultural Economics
- Agricultural Engineering
- Agricultural Extension



BRANCHES OF AGRICULTURE

This refers to the various field of study in agriculture. It goes beyond that to explain different areas in which a person interested in practicing agriculture might decide to specialize in. As we have learnt in the previous lessons that agriculture encompasses the production of food of all kinds be it plant produce or produce from animals this tells us that there are vast areas in which an agriculturist, farmer, researcher, trader or even student can dive into. The following are the some of the prominent branches in agriculture. Under each branch there could be a whole lot of sub branches.

1) SOIL SCIENCE

Soil science is the science which deals with the study of the soil, its formation, the physical and chemical properties of the soil. The soil is the home of the roots of plants. The roots spread in all directions and by holding on the soil, the plant is kept in position. Plants draw all their water and nourishment from the soil. The soil is therefore the source of food for plant, animal and man.

2) CROP SCIENCE

Crop science teaches the principle and practice of cultivating and managing crop plants grown for human and animal consumption or for industrial uses. Crops include maize, rice, yam, cowpea, tomato etc. When this study is widened to include other plants which are not eaten by human beings or

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animals, it is known as Plant Science. When crop science and soil science are combined to form one field of study, then we have Agronomy.

EVALUATION

1. What are the branches of Agriculture?
2. What is Soil Science?
3. What is Crop Science?

3) HORTICULTURE

This is the scientific study or practice of growing fruits, vegetables, ornamental plants/flowers and plantation crops for profit or pleasure. Ornamental plants are used in beautifying places. E.g. Palm tree, Christmas tree, Allamanda, Rose flower.

EVALUATION

1. What is Horticulture?
2. What is Animal Science?

4) AGRICULTURAL ECONOMICS

Agricultural Economics deals with the business aspects and development of agriculture. It is more concerned with the financial or economical aspect of Agriculture. It handles the marketing area of agricultural products.

5) AGRICULTURAL ENGINEERING

Agricultural Engineering is concerned with the repairs and fabrication of different simple and heavy duty mechanical implements. Agricultural implements can be broadly classified into simple tools and heavy machines. The simple tools such as cutlass, hoe, spade etc. are used mainly by small scale/local farmers.

The heavy machines worked by mechanical power include ploughs, ridgers, cultivator, etc.

6) AGRICULTURAL EXTENSION

This is the process or system which assists farmers through educational procedure in improving farm methods and techniques. Methods of disseminating new ideas and techniques to farmers include mass media, individual method and group method.

EVALUATION

1. What is Agricultural Engineering?
2. Mention two examples of simple tools.

GENERAL EVALUATION

1. List five areas of Agriculture.
3. What is Agricultural Engineering?
4. What is Agricultural Extension?
5. What is Horticulture?
6. List five Agricultural farm tools.

READING ASSIGNMENT

Junior Secondary Agriculture for Nigerian Schools by A. Yondewei Bk 1 Chapter 2, pages 8-12.

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WEEKEND ASSIGNMENT

1. The area of agriculture that deals with the business aspects and development is otherwise known as (a) agricultural economics (b) agriculture finance (c) agriculture business (d) agriculture marketing.
2. The area of agriculture that concerns the repairs and fabrication of different simple and heavy machine is called (a) agriculture Engineering (b) agriculture repairer (c) agriculture mechanic (d) machine fabricator
3. The study of composition of the soil is A. Soil science B. Crop science C. Animal science D. Medicine
4. The personnel concerned with the teaching of local farmers the improved modern methods of agriculture is called ____ (a) Extension Agent (b) Agriculture Teacher (c) Farmers Teacher (d) Extension Activist.
5. The following are methods of disseminating new ideal to local farmers except ____ (a) phoning (b) mass media (c) individual method (d) group method.

THEORY

1. State and define any five branches of Agriculture.
2. Differentiate between Crop Science and Animal science.

WEEK FIVE

TOPIC: BRANCHES OF AGRICULTURE II

CONTENT

- Animal science
- Fishery
- Forestry

7) ANIMAL SCIENCE

This is the science which deals with animal husbandry. It embraces the selection, breeding, feeding and management of livestock for profitable production of meat, eggs, wools, hide and skins and other products. When the field study is about wild animals, it is known as Wild Life Science.

8) FISHERY

This is the scientific study of rearing fish which can either be in artificial ponds, cages, and other enclosure to provide food, oil and other useful materials or even pleasure. When the field of study includes rearing of shrimp's prawns, oysters, crabs, turtles, water plants and other water dwelling animals or plant, it is usually called Aquaculture. It also involves their preservation, cleaning and marketing. Fishes can be preserved by freezing, smoking, sun drying, salting and canning.

EVALUATION

1. Define fishery.
2. What is aquaculture?

9) FORESTRY

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Forestry is the branch of agriculture that is concerned with the forest and its resource. Resources of forest include timber, wild animals, minerals etc. Forestry practiced for the production of timber is called, silviculture. Example of forest trees include iroko, obeche, opepe, mahogany, acasia etc.

10) APICULTURE (BEE KEEPING)

It is the care and management of honeybees to enable them produce plenty of honey and bees wax. The honey and bees wax produced are then collected for human use. A place where bees are reared is called a 'bee yard or an apiary'. The rearer of bees is called **apiarist**.

11) HELICULTURE (SNAIL REARING)

Snail farming is the rearing of snails in cages or fenced areas. The fenced areas are called snail pens. The cages or pens contain soils that can hold water. Food for snails are provided in the form of plants and decaying plant parts.

GENERAL EVALUATION

1. What is Forestry?
2. What is Fishery?
3. List five examples of fish.
4. List three example of forest trees.
5. Differentiate between Subsistence and Commercial Agriculture.

READING ASSIGNMENT

Junior Secondary Agriculture for Nigerian Schools by A. Yondeowei Bk 1. Chapter 2, pages 8-12

WEEKEND ASSIGNMENT

1. Which of the following is an oil crop? A. Cocoa, coffee, kola B. Coconut, pineapple, pear C. Onion, amarathus, cucumber D. Coconut, groundnut, cotton
2. All the following are careers in Agriculture except A. Horticulture B. Mining C. Crop Farming D. Fish Farming
3. Career opportunities in Agric means A. farm settlement B. Farm administration C. Opportunities of going to school D. Chances available for school leavers in the field of agriculture.
4. Which of the following groups are crops of the same family? A. Yam, cocoyam, cassava, potatoes, cabbage B. Rice, maize, millet, guinea corn, barley C. Orange, ginger, pineapple, pawpaw, cashew D. Amarathus, spinach, onion, barley.
5. Aquatic organisms are the major source of A. starch B. protein C. Fat D. Vitamin.

THEORY

1. Write short notes on any two of the following
 - i. Animal science.
 - ii. Fishery.
 - iii. Forestry.
2. State five importance of agriculture.

WEEK SIX AND SEVEN

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TOPIC: FORMS OF AGRICULTURE

CONTENT

- Subsistence
- Commercial

FORMS OF AGRICULTURE

This refers to the scale, type or level in which agriculture can be practiced. They are:

1. Subsistence agriculture
2. Commercial agriculture

Whichever scale of agriculture is been practiced, it usually is a crop farm, an animal or livestock farm or a mixture of both.

Crop farming involves the growing, caring and harvesting of crops such as maize, cassava, yams and beanse.t.c. for human and industrial uses while Livestock Farming is the rearing of animals examples are pig, sheep, goat, cow, chicken, rabbit etc. either or both of these farming can be done using the following systems

- i. Shifting Cultivation: This involves growing of crops in one area for two or three years and then move to another area to farm. The first area is left for up to five years or more to re-grow before it is cultivated again.
- ii. Crop Rotation: This is the growing of crops on the same piece of land following a particular arrangement of the crops. It is used only on a small piece of land.
- iii. Mono-cropping: This is the practice of growing only one crop on a piece of land. It enables farmers to use machines on their farms thereby increasing their productivity and efficiency.
- iv. Mixed-cropping: This is the practice of growing many different crops on the same farm at the same time. It is the most common system of farming practiced by many small farmers in West Africa.
- v. Mixed-farming: This is the growing of crops and keeping of animals like sheep and goats at the same time on the same farm.
- vi. Taungya Farming: This is the growing of food crops in parts of a forest where some useful trees have been removed.
- vii. Ley farming: this is the practice of growing food crops and pasture crops.
- viii. Nomadic farming: this is movement of livestock and their herdsman from place to place in search of food.
- ix. Ranching: this is another system of rearing animals in confinement on a large expanse of land that have natural vegetation or planted pasture for animals to feed on.

SUBSISTENCE FARMING

This is the farming system that provides food just enough for the farmer and his immediate family.

CHARACTERISTICS OF SUBSISTENCE FARMING

1. Farmers provide just enough food to feed themselves and their families.
2. They cultivate very small areas using simple farm tools.
3. It is practiced by peasant (poor) farmers.
4. It employs unskilled labour.
5. The returns or output are usually very low.
6. It involvesthe use of family labour.

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7. It involves little or low capital.
8. Limited use of Agrochemicals (e.g fertilizers, insecticides e.t.c.)
9. Mixed cropping system is usually practiced.
10. Unimproved varieties of crops or breeds of animals are used.

EVALUATION

1. What is subsistence Agriculture?
2. List five characteristics of subsistence Agriculture.

COMMERCIAL AGRICULTURE

Here farmers cultivate large farm areas with the major purpose of making profit. It involves planting one type of crop in large farms called plantations.

CHARACTERISTICS OF COMMERCIAL AGRICULTURE

1. Sole cropping system of farming is practiced. (i.e. farmers plant just a crop).
2. Large area of land is cultivated.
3. It requires a lot of money to establish i.e. it is capital intensive.
4. Skilled labour is required.
5. Yield or output is usually high.
6. Only rich farmers can be engaged in commercial agriculture.
7. Agro-chemicals like Fertilizers are used.
8. Huge capital is used to set it up.
9. Improved varieties of crops are used to set it up.



EVALUATION

1. What are the two major forms of Agriculture?
2. List five characteristics of subsistence farming.

GENERAL EVALUATION AND REVISION QUESTIONS

1. List and explain five farming systems?
2. List five differences between subsistence and commercial Agriculture.
3. Mention five tools used by subsistence farmers.
4. List five characteristics of commercial Agriculture.

READING ASSIGNMENT

Junior Secondary Agriculture For Nigerian Schools Bk1 By A. Youdeowei, S.O Adesiyan, JN Ogbazi, Terry Olowu. Pgs8-18.

WEEKEND ASSIGNMENT

1. The kind of Agriculture in which farmers produce enough to feed himself and excess is sold is called? A. Subsistence Agriculture B. Mixed Farming C. Crop rotation D. Commercial Agriculture.
2. Commercial farming is _____ intensive. A. capital B. Labour C. Raw materials D. farm
3. Subsistence Farming involves the cultivation of a _____ piece of land. A. small B. large C. Sizable D. workable
4. Which of the following is Not a characteristic of subsistence farming? A. It is practiced by peasant farmers B. Large land area is cultivated C. Family labour is used

First term Agricultural science E-Lesson Note

5. Only ____ farmers can be involved in commercial farming A. poor B. powerful C. rich D. strong
6. Fishes can be preserved by the following except ____ A. freezing B. smoking C. wind drying D. salting
7. The type of crop farming which involves growing of crops in one area for two or three years and then move to another area to farm is called A. Mixed farming B. Mixed cropping C. Shifting cultivation D. Taungya farming
8. Cultivation and management of crop is ____ A. Animal Science B. Soil Science C. Crop Science D. Surgery
9. The type of farming which involves the growing of crops and planting of trees at the same time is known as A. Mixed cropping B. Livestock farming C. Crop rotation D. Taungya farming
10. Young fishes used in breeding adult fishes are called ____ A. Fingerlings b. Prey C. Ray D. Shark

THEORY

1. What is Subsistence Agriculture?
2. Give three differences between commercial and subsistence farming.

WEEK EIGHT

TOPIC: CROP PLANT FORMS

CONTENT

- Flowering plant
- Parts of flowering plant
- The root system
- The shoot system.
- Functions of parts.



FLOWERING PLANT

Flowering plants or angiosperms are plants that produce flowers which have ovaries. Each ovary encloses young seeds called ovules. It is the ovary which later develops into a fruit while the ovules become mature seeds. Most of the plants we grow in our gardens or farms are called flowering plants. There are two divisions of flowering plants namely: monocotyledonous and dicotyledonous. The name cotyledon refers to the natural leaf borne by the seed of a plant. Cotyledon is otherwise known as seed leaf.

EVALUATION

1. What are flowering plants?
2. Give five examples of flowering plants.

PARTS OF FLOWERING PLANTS

A flowering plant whether monocot or dicot is made up of two major parts namely the root system and the shoot systems.

THE ROOT SYSTEM: The root system refers to the lower portion of the flowering plant which contains neither leaves nor reproductive organs. It develops underground and holds the whole plant firmly in the soil. The root system has many root hairs through which water, mineral salts and other

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nutrients enter the plant. In some crops, roots also store food. The root has at the apex a protective cap of tissue called the root cap. The root system contains one main or tap root side or lateral and root hairs. This type of root system is called a tap root system. For example in cowpea, pepper, orange, mango and guava. In other plants, all the roots are of almost the same length and thickness. These is no main root this is called fibrous root system example include maize, rice, guinea corn and palm oil.

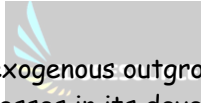
EVALUATION

1. List the parts that form the shoot system of a flowering plant.
2. Where is the root system found?

SHOOT SYSTEM

The shoot system of a flowering plant is differentiated into the stem, bud leaf, fruits, flower or inflorescence when the flower is fertilized, it develops into a fruit which contains the seed.

- (i) **STEM:**It is the entire stand that carries the plant in place and it originates from that part of the embryo with the seed known as epicotyl.
- (ii) **THE BUD:** This is an embryonic on young shoot that has the capacity to produce leaves and branches. If a bud develops into branch bearing foliage leaves, it is called a leaf bud. A flower bud is one which produces flower. A bud at the end of the shoot is called a terminal bud or apical bud. If in the axial of leaf, it is called axillary bud and from any other part of the shoot is adventitious bud.
- (iii) **THE LEAF:** the leaf arises as an exogenous outgrowth of the stem apex. It is from the side of the apex of a stem. As it progresses in its development, it grows outward from the leaf base, revealing the final shape and form characteristics of the species.
- (iv) **THE FLOWER:**The flower is a modified plant part specialized for reproduction and is responsible either directly or indirectly for bringing into existence new plants in order to perpetuate species.



THE SEED: a seed is a ripened ovule;it is the result of the changes which takes place in the ovule after fertilization.

- (v) **THE FRUIT:** A fruit is a fully developed and ripened ovary or the result of the changes which go on in a flower due to fertilization.

EVALUATION

1. What is a flowering plant?
2. Give three examples of flowering plant.

FUNCTIONS OF PARTS OF FLOWERING PLANTS

FUNCTIONS OF THE ROOT

1. The root fixes the plant in the soil.
2. The root absorbs water and mineral salts from the soil for the use of the plant.
3. Sometimes, roots also function as storage organs as in the case of the cassava.

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4. In an uncultivated land, the root system enriches the surface layer of the soil with the nutrients necessary for the plant growth.
5. The roots of some plants are used in preparation of drugs.
6. The roots of some plants such as carrot are used as food.
7. Roots also prevent soil erosion.
8. Roots are used in vegetative propagation, for example in sweet potato.

EVALUATION

1. Outline five functions of root.
2. State two types of roots

FUNCTIONS OF STEM

1. The stem conducts material to and from the leaves.
2. It supports the leaves and distribute them in space so that they receive adequate light.
3. The stem also stores food as in the case of sugar cane.
4. It is used as cutting for propagation as in cassava, bitter leaf etc.
5. Woody stem supplies timber, for building etc.
6. Some stems, such as bamboo stem and the thick are used as poles.
7. The barks of some stem are used for medicinal purposes.
8. It supports the flowers. It exposes them for pollination.

EVALUATION

1. Mention three functions of the stem.
2. State two economic importance of stem



FUNCTIONS OF LEAF

1. The leaf is the main seat of photosynthesis.
2. The leaf carries out transpiration an activity which ensures absorption from the soil and this helps to control transportation in plants.
3. It serves as food in form of vegetables which can give vitamins and mineral to the body.
4. Dead leaves serves as manure to the soil.
5. Leaves are also used as drug.

EVALUATION

1. State the functions of leaves.
2. State the functions of stems.

FUNCTIONS OF FLOWER

1. It produces of seeds for the perpetuation of the species.
2. It is used for decorative purposes.
3. It is also used for natural dyestuffs.

FUNCTION OF BUD

It produces the leaves, branches and flowers.

FUNCTIONS OF SEED

1. The seed serves for reproduction.

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2. The seed serves for food.

FUNCTIONS OF FRUIT

1. It is an agent for seed disposal and survival.
2. It serves as food to man.

GENERAL EVALUATION AND REVISION QUESTIONS

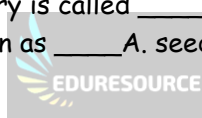
1. State the functions of flowers.
2. State the functions of seed.
3. List three parts of flowering plants.
4. List three parts of a leaf.
5. What is Horticulture?

READING ASSIGNMENT

Junior Secondary Agriculture for Nigerian Schools by A. Yondeowei Bk. 1. Chapter 3, pages 20-25.

WEEKEND ASSIGNMENT

1. The distance between two nodes on a plant is called _____. A. bud B. internodes C. radicle D. apex.
2. The shoot system in a plant consists of the following except A. stem B. leaf C. root D. flower
3. The other name for a "main root" is _____. A. tap root B. lateral C. adventitious D. fibrous.
4. A fully developed and ripened ovary is called _____. A. fruit B. seed C. flower D. bud.
5. A ripened ovule is otherwise known as _____. A. seed. B. fruit C. flower D. bud.



THEORY

1. Name the parts that form the root system of a named plant.
2. Name the part that forms the shoot system of a named plant.

WEEK NINE

TOPIC: CLASSIFICATION OF CROPS BASED ON LIFE CYCLE AND MORPHOLOGY

CONTENT

- Meaning of Life Cycle
- Annual Crops
- Examples of Annual Crops

CLASSIFICATION OF CROPS BASED ON ITS LIFE CYCLE

LIFE CYCLE OF A CROP

Lifecycle of a crop is the number of years it will take the crop to germinate, mature, flower, produce seeds and die. Crops can be classified into three classes on the basis of their life cycle, the classes are:

- (A) annual
- (B) biennial
- (C) perennial

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Annual Crops: Annual crops are the crops that grow and complete their lifecycle within one year. They germinate, mature, flower, produce seeds and die within one year. Examples of annual crops are cotton, maize, cowpea and millet.

Biennial Crops: Biennial crops are crops that take two years to complete their life cycle. In the first year, they produce leaves and branches, in the second year, they produce and store food, flower have fruits and then die. Example of biennial crops are; cassava, onion, carrot and cocoyam.

Perennial Crops: Perennial crops are crops that take more than two years to complete their life cycle. Example of perennial crops are; mango, cocoa, pawpaw, oil palm, rubber etc.

EVALUATION

1. What is meant by life cycle of a crop?
2. list the various classes of crops based on their life cycle.

CLASSIFICATION OF CROPS BASED ON MORPHOLOGY

There are two broad classes of crops based on what they look like (morphology). They are

1. Monocotyledons and
2. Dicotyledons

MONOCOTYLEDONS

Monocotyledons are plants that have seeds which possess just one cotyledon each or one seed leaf, example of monocotyledons are palms, cereal e.g. rice, millet, guinea corn, maize , oil palm etc,

CHARACTERISTICS OF MONOCOT

1. They have fibrous roots i.e. the roots are almost of the same size.
2. They have long slender hollow stem which bear few or no branches.
3. The stems are soft, that is they lack cambium tissue, a layer which is responsible for the thickening of stem in dicotyledons.
4. The leaves are long and narrow.
5. The leaves have parallel veins, that is main veins which are parallel to one another.
6. They have one seedleaf.

EVALUATION

1. What are monocotyledons plants?
2. State five examples of monocots.
3. Draw a monocot plant and label.

DICOTYLEDON PLANTS

Dicotyledons are plants that have seeds with two cotyledons each or two seed leaves. When the seeds split open, they give two parts. These are cotyledons. Examples of dicotyledons are cowpea, soybean, cotton, groundnut, orange, mango, tomato, waterleaf etc.

CHARACTERISTICS OF DICOT PLANT

1. They have tap root.
2. They have a main stem bearing several branches.
3. They have cambium tissue in their stem.
4. Their leaves are short and broad.

First term Agricultural science E-Lesson Note

5. Leaves have net venation.
6. They have two seedleaves
7. They have leaves with petioles or stalks.
8. Their flowers have either five or multiple of five parts.

EVALUATION

1. What is dicot?
2. List five example of a dicotyledon plant.
3. Mention three characteristics of dicotyledon plants.

DIFFERENCES BETWEEN MONOCOT AND DICOT PLANTS

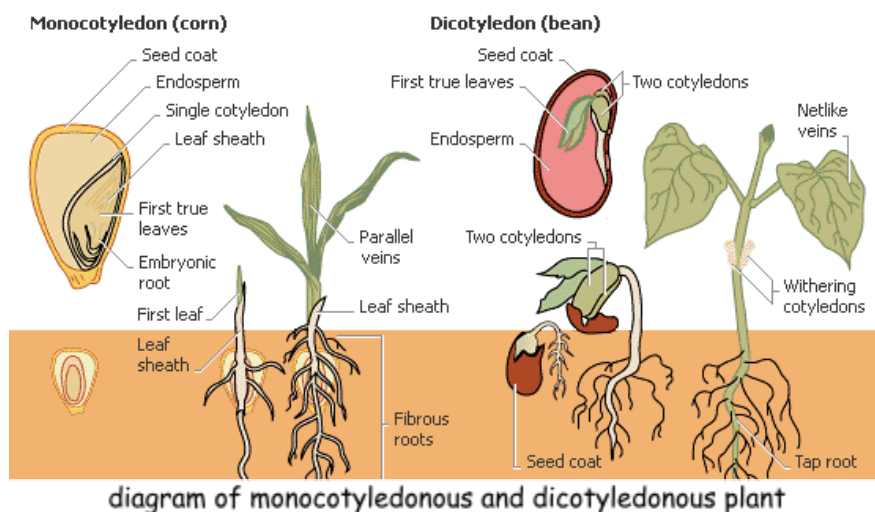
MONOCOTYLEDONOUS PLANTS

1. They have one seed leaf
2. Their leaves have parallel veins
3. They have fibrous root system
4. The leaves have smooth margin
5. They have hollow stems with no Cambium tissue.
6. They have long slender leaves.

DICOTYLEDONOUS PLANTS

- they have two seed leaves
they leaves have net venation
they have tap root system
their leaves are with rough or serrated margins
they have cambium tissue in their stem.

theirleaves are short and broad.



GENERAL EVALUATION AND REVISION QUESTIONS

1. What are monocot plants?
2. What are dicot plants?
3. Give five examples of monocot plants.
4. Give five examples of dicot plants.
5. In tabular form, distinguish between monocot and dicot plants.

READING ASSIGNMENT

Junior Secondary Agriculture for Nigerian Schools by A. Yondeowei Bk. 1. Chapter 3, pages 23.

WEEKEND ASSIGNMENT

First term Agricultural science E-Lesson Note

1. Dicotyledonous plants have ____ (a) One cotyledons (b) two cotyledons (c) three cotyledons (d) four cotyledons
2. The following are example of dicot plants except (a) cowpea (b) groundnut (c) soybeans (d) Maize.
3. Which of these crops is not an annual crop? (a) cotton (b) cowpea (c) cocoa (d) orange
4. The leave of tomato plant possesses what type of venation (a) parallel (b) Net (c) vertical (d) cross.
5. Crops that complete their life cycle in more than two years are called _____ (a) Perennials (b) Biennials (c) Annuals (d) Decennial

THEORY

1. a. Define dicotyledonous plant.
b. State five examples.
2. Outline five characteristics of dicot plants.
3. Mention three examples of annual crop.

WEEK TEN

TOPIC: CLASSIFICATION OF CROPS BASED ON THEIR USES.

1. **CEREALS:** They belong to grass family. They are grown for their seed. Exampls are maize, sorghum, millet, rice and wheat.
2. **LEGUMES(PULSES):** They are eaten as good source of plant protein. Examples are; soya bean, cowpea and groundnut.
3. **SUGAR CROPS:** they are grown for sugar, eg sugarcane.
4. **BEVERAGES AND STIMULANTS:** They are used for making non-alcoholic drinks. E.g cocoa, tea, coffee, kolanut and tobacco.
5. **ROOT AND TUBERS:** They store food in underground parts and eaten by man. E.g cassava, sweet potato, yams and cocoyams.
6. **FRUITS:** They are eaten fresh or canned. E.g. orange, mango, banana and pineapple.
7. **OIL CROPS:** The oils and fats in them are used for cooking, e.g. groundnut, soyabean, sunflower, coconut, cottonseed, sheabutter etc.
8. **VEGETABLES:** Their leaves or fruits are eaten fresh or boiled. E.gokro, water leaf, amaranthus, bitter leaf, cabbage, onion etc.
9. **SPICES:** They are added to food to make it taste or smell better. E.g ginger, pepper, garlic, lemon grass, locust bean etc.
10. **FIBRE CROPS:** They are grown for their seeds, stem and leaves. The fibre are used for making cloths, sacks, carpets and ropes. E.g cotton, jute, kenaf and sisal.
11. **LATEX AND GUM CROPS:** They produce liquids from which gum or rubber are made. Eg rubber.
12. **ORNAMENTAL CROPS:** They are grown for decoration of our enviroments. Examples are; roses, pride of Barbados, marigold etc.
13. **DRUGS:** Products extracted from these crops are used to make medicines.g kola, opium, lemon grass, neem plant etc.
14. **FORAGE CROPS:** They are grown for feeding animals.e.g elephant grass, gambagrasse.t.c.

GENERAL EVALUATION AND REVISION QUESTION

1. What are annual crops?

First term Agricultural science E-Lesson Note

2. What are biennial and perennial crops?
3. List five examples of forage crops.
4. List three examples of fibre crops
5. What are ornamental crops?

READING ASSIGNMENT

Prescribed Agricultural Science for Junior Secondary Schools, Book 1, Unit five, Page 39.

WEEKEND ASSIGNMENT

1. Which of these crops is an oil crop? A.cowpea B. groundnut C.maize D.rice
2. ____ is a beverage crop A. cassava B. banana C.coffee D. yam
3. ____ is a fibre crop A. rubber B.cotton C. cabbage D. rice
4. ____ is a legume crop. A.groundnut B.orange C. colanut D.yam
5. ____ is a latex crop A.yam B.rubber C.kenaf D. cocoa

THEORY

1. List seven crops and their uses.
2. Mention two vegetable crops.

GENERAL EVALUATION

1. What do you understand by the lifecycle of a plant?
2. Define Annual crops.
3. Mention three Annual crops.
4. What are Biennial crops?
5. List three examples of Biennial crops.



READING ASSIGNMENT

Junior Secondary Agriculture for Nigerian schools by A. Youdeowei, S.O. Adesiyan, J.N. Obazi, T. Olowu (BK 1).Chapter 5, pages 42 - 43

WEEKEND ASSIGNMENT

1. Crops that complete their lifecycle within two years are known as _____.
(a) Biennial (b) Annual (c) Perennial.
2. Crops that complete their lifecycle within one year are called _____.
(a) Annuals (b) Perennial (c) Biennial
3. Crops that complete their life cycle in more than two years are called _____.
(a) Perennials (b) Biennials (c) Annuals
4. Which of these crops is an annual crop?
(a) Cassava (b) Rubber (c) Maize
5. Which of these crop is not an annual crop? (a) cotton (b) cowpea (c) cocoa

THEORY

1. What are annual crops?
2. Mention three examples of annual crop.