**AGRICULTURAL SCIENCE JSS 1**

**FIRST TERM**

## SCHEME OF WORK

**WEEK TOPIC**

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 SIGNIFICANCE OF AGRICULTURE

DEFINITION OF AGRICULTURE

Agriculture can be defined in various ways. Any of the following definitions is acceptable when elucidating the term:

- Agriculture represents the deliberate human effort to cultivate the soil, cultivate crops, and raise animals for sustenance and other purposes.

- Agriculture can also be described as the art or practice of cultivating crops and raising animals for the benefit of humanity.

- Furthermore, agriculture is the science, art, and business of cultivating crops and rearing animals for the betterment of mankind.

The word "agriculture" finds its roots in the Latin words "ager," which means field or land, and "cultura," signifying the act of cultivating or tilling the soil in preparation for crop cultivation.

Agriculture can be traced back to early human societies. These societies initially depended on hunting and the gathering of fruits and roots for sustenance. Over time, they transitioned to cultivating crops near their dwellings, a development that laid the foundation for crop production. The domestication of animals followed suit, setting the stage for the evolution of modern animal husbandry.

The agricultural system practiced by early humans is commonly referred to as hunting and gathering.

EVALUATION

1. What is the definition of agriculture?

2. What agricultural system was practiced by early humans?

MPORTANCE OF AGRICULTURE

1. Provision of Food: Agriculture is the sole means through which humanity can procure sustenance. It provides essential food items such as maize, yam, milk, and eggs for human consumption.

2. Provision of Raw Materials for Clothing: Agriculture supplies fibers and cotton for textile production. It also furnishes hides and other materials used in the production of clothing, shoes, belts, caps, and bags.

3. Provision of Building Materials: Agriculture offers the indispensable materials needed for construction, including plants for doors, windows, roofs, partitions, floors, and more.

EVALUATION

1. What is the definition of agriculture?

2. Enumerate four significant contributions of agriculture.

GENERAL EVALUATION

1. What is the definition of agriculture?

2. Name three fundamental human necessities.

3. In what five ways is agriculture vital to human existence?

4. List four key advantages of agriculture.

WEEKEND ASSIGNMENT

1. The basic necessities of life include all of the following except:

(a) clothing (b) shelter (c) education (d) food

2. Early humans primarily practiced which stage of agriculture?

(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" originate from which language?

(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. Define the term 'Agriculture' in your own words.

2. Enumerate four key significances of Agriculture.

**WEEK TWO**

**TOPIC: IMPORTANCE OF AGRICULTURE (CONTD)**

IMPORTANCE OF AGRICULTURE (CONTINUED)

1. Provision of Employment: Agriculture and related agro-based industries offer substantial employment opportunities for a significant portion of the population.

2. Source of Foreign Exchange: The export of agricultural products such as cocoa, kola, groundnuts, coffee, and cotton allows a country to earn foreign exchange.

3. Generation of Income: Agriculture serves as a primary source of income for farmers, derived from the sale of crops, livestock, and their respective products.

4. Urban Development: Commercial agriculture fosters urban development by necessitating the provision of essential amenities such as electricity, well-maintained roads, and piped water supply.

5. Raw Materials for Industries: Agriculture supplies vital raw materials to numerous industries, including the beverage, textile, sugar, plywood and furniture, oil milling, tobacco, and livestock food production sectors.

6. Recreation and Tourism Facilities: Agriculture contributes to the establishment of recreational and tourism facilities, including game reserves and venues for activities such as horse racing and polo.

7. Market for Industrial Goods: Agriculture also creates a market for various industrial products, including farm machinery, chemicals, and fertilizers.

EVALUATION

1. Define agriculture.

2. Enumerate seven (7) significant aspects of agriculture.

GENERAL EVALUATION

1. Define agriculture.

2. List three fundamental human necessities.

3. In what five ways is agriculture important to humans?

4. Provide three examples of food.

5. Name three industries that rely on agricultural products.

WEEKEND ASSIGNMENT

1. Which of the following is not a career choice in agriculture?

(a) Teaching (b) Lumbering (c) Researching (d) Tailoring

2. Fiber is the primary raw material for which industry?

(a) Drugs (b) Food (c) Beverages (d) Textile

3. Which industry among the following relies on agricultural products?

(a) Mining (b) Transport (c) Beverage (d) Automobile

4. The type of agriculture in which a farmer produces enough to feed themselves and sells the surplus is known as \_\_\_\_.

(a) Subsistence Agriculture (b) Mixed Farming (c) Crop Rotation (d) Commercial Agriculture

5. Which tool did early humans use for hunting?

(a) Harvester (b) Bomb (c) Gun (d) Sticks

THEORY

1. Explain your understanding of the term 'Agriculture.'

2. List eight important aspects 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

Early humans primarily subsisted by gathering wild fruits, nuts, roots, and leaves for sustenance while also utilizing fishing and trapping methods to secure food. Their shelter consisted of caves, hollows, and trees, while their clothing was primarily fashioned from leaves and animal skins. As time progressed, early humans honed their skills and crafted tools for hunting expeditions. They initially used pointed sticks, sharp bones, or stones, but the evolution of hunting tools saw the invention of arrows, slings, and eventually firearms. The abundant forest lands provided ample resources for their sustenance, rendering food production unnecessary in these early stages. However, as populations grew, the practice of food gathering proved insufficient.

DEVELOPMENT OF AGRICULTURE IN NIGERIA

The agricultural practices of Egyptian farmers, combined with traditional farming methods from West Africa, laid the foundation for modern Nigerian agriculture. Over the last three centuries, traders introduced crops from various parts of the world to West Africa. For instance, bananas and plantains originated from Asia, while groundnuts and cocoa were introduced from the Americas.

EVALUATION

1. What methods did early humans employ to procure food before the population expanded?

2. How did cocoa and groundnuts find their way to Nigeria?

GENERAL EVALUATION

1. Enumerate the sources of food, shelter, and clothing for early humans.

2. What is the origin of plantains and bananas?

3. Name the agricultural system practiced by early humans.

4. Specify the origin of cocoa.

5. Specify the origin of groundnuts.

WEEKEND ASSIGNMENT

1. Early humans gathered the following for food, except \_\_\_\_\_\_\_.

(a) fruits (b) trees (c) nuts (d) leaves

2. Which tool did early humans primarily use for hunting expeditions?

(a) Harvester (b) Bomb (c) Gun (d) Sticks

3. Bananas and plantains 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 concept of modern-day agricultural practices stemmed from \_\_\_\_\_\_\_.

(a) the proliferation of animals (b) germinating seeds dropped by humans (c) proximity to rivers and streams (d) the influence of sunlight

THEORY

1. List five types of food that early humans consumed.

2. State two of the following:

a) Tools used by early humans for hunting expeditions,

b) Sources of their shelter, and

c) Sources of their clothing.

**WEEK FOUR**

**TOPIC: BRANCHES OF AGRICULTURE II**

CONTENT

- Soil Science

- Crop Science

- Horticulture

- Agricultural Economics

- Agricultural Engineering

- Agricultural Extension

BRANCHES OF AGRICULTURE

The term "Branches of Agriculture" refers to the various fields of study within the agricultural domain. It goes beyond that to elucidate different areas in which individuals interested in practicing agriculture can specialize. As we have learned in previous lessons, agriculture encompasses the production of various forms of food, including both plant and animal products. This demonstrates the extensive range of opportunities available for agriculturists, farmers, researchers, traders, and students. The following are some of the prominent branches of agriculture, each with the potential for numerous sub-branches.

1) SOIL SCIENCE

Soil science is the scientific discipline that deals with the study of soil, encompassing its formation, as well as its physical and chemical properties. Soil serves as the foundation for plant roots, providing stability and acting as the primary source of nourishment for plants. Plants draw all their water and nutrients from the soil, making it a critical source of sustenance for plants, animals, and humans alike.

2) CROP SCIENCE

Crop science is the field that educates on the principles and practices of cultivating and managing crop plants intended for human and animal consumption or industrial purposes. Crops include staples like maize, rice, yam, cowpea, and tomatoes, among others. When this field expands to include plants not directly consumed by humans or animals, it is referred to as Plant Science. The combination of crop science and soil science forms the field known as Agronomy.

EVALUATION

1. What are the branches of Agriculture?

2. Define Soil Science.

3. Define Crop Science.

3) HORTICULTURE

Horticulture is the scientific study and practice of growing fruits, vegetables, ornamental plants/flowers, and plantation crops for profit or aesthetic pleasure. Ornamental plants are often used to enhance the aesthetics of various locations, such as the Palm tree, Christmas tree, Allamanda, and Rose flower.

EVALUATION

1. What is Horticulture?

2. What is Animal Science?

4) AGRICULTURAL ECONOMICS

Agricultural Economics delves into the business aspects and economic development of agriculture. This field primarily focuses on the financial and economic aspects of agriculture, particularly handling the marketing of agricultural products.

5) AGRICULTURAL ENGINEERING

Agricultural Engineering involves the repair and fabrication of various simple and heavy-duty mechanical implements used in agriculture. These implements can be broadly classified into simple tools and heavy machines. Simple tools, such as cutlasses, hoes, and spades, are primarily used by small-scale/local farmers, whereas heavy machines, powered by mechanical means, include ploughs, ridgers, cultivators, and more.

6) AGRICULTURAL EXTENSION

Agricultural Extension is a system or process that assists farmers in improving their farming methods and techniques through educational procedures. Methods of disseminating new ideas and techniques to farmers include mass media, individual methods, and group methods.

EVALUATION

1. What is Agricultural Engineering?

2. Provide two examples of simple agricultural tools.

GENERAL EVALUATION

1. List five areas of Agriculture.

2. What is Agricultural Extension?

3. What is Horticulture?

4. List five agricultural farm tools.

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) agricultural business (d) agricultural marketing.

2. The area of agriculture that concerns the repair and fabrication of different simple and heavy machines is called (a) agricultural engineering (b) agriculture repairer (c) agriculture mechanic (d) machine fabricator.

3. The study of soil composition is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(a) Soil science (b) Crop science (c) Animal science (d) Medicine.

4. The personnel concerned with teaching local farmers improved modern methods of agriculture are called \_\_\_\_\_\_\_.

(a) Extension Agent (b) Agriculture Teacher (c) Farmers Teacher (d) Extension Activist.

5. The following are methods of disseminating new ideas 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

7) ANIMAL SCIENCE

Animal Science is a comprehensive field that deals with animal husbandry. It encompasses the selection, breeding, feeding, and management of livestock with the aim of profitable production, including meat, eggs, wool, hides, skins, and other valuable products. When this field extends to the study of wild animals, it is known as Wildlife Science.

8) FISHERY

Fishery is a scientific discipline focused on the rearing of fish, which can be done in various environments, such as artificial ponds, cages, and enclosures, to provide food, oil, and other valuable resources, as well as for recreational purposes. When this field encompasses the rearing of additional aquatic life forms like shrimp, prawns, oysters, crabs, turtles, water plants, and other water-dwelling organisms or plants, it is often referred to as Aquaculture. Fish preservation, cleaning, and marketing are integral aspects of fishery, with preservation methods including freezing, smoking, sun drying, salting, and canning.

EVALUATION

1. Define fishery.

2. What is aquaculture?

9) FORESTRY

Forestry is a branch of agriculture that primarily focuses on the management of forests and their resources. Forest resources encompass timber, wild animals, minerals, and more. Forestry practices related to timber production are known as silviculture. Some examples of forest trees include iroko, obeche, opepe, mahogany, and acacia, among others.

10) APICULTURE (BEE KEEPING)

Apiculture, also known as beekeeping, involves the care and management of honeybees to facilitate the production of ample honey and beeswax. The honey and beeswax produced are then collected for human use. A designated area where bees are reared is referred to as a 'bee yard' or an 'apiary.' The person responsible for beekeeping is known as an apiarist.

11) HELICULTURE (SNAIL REARING)

Heliculture is the practice of snail farming, where snails are reared in cages or fenced areas. These enclosed spaces are termed snail pens and typically contain soil that can retain moisture. Food for snails is 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 examples of forest trees.

5. Differentiate between Subsistence and Commercial Agriculture.

WEEKEND ASSIGNMENT

1. Which of the following is an oil crop? A. Cocoa, coffee, kola B. Coconut, pineapple, pear C. Onion, amaranthus, cucumber D. Coconut, groundnut, cotton

2. All of the following are careers in Agriculture except A. Horticulture B. Mining C. Crop Farming D. Fish Farming

3. Career opportunities in Agriculture mean A. farm settlement B. Farm administration C. Opportunities for education D. Chances available for school leavers in the field of agriculture.

4. Which of the following groups consists of crops from the same family? A. Yam, cocoyam, cassava, potatoes, cabbage B. Rice, maize, millet, guinea corn, barley C. Orange, ginger, pineapple, pawpaw, cashew D. Amaranthus, spinach, onion, barley.

5. Aquatic organisms are a 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**

**TOPIC: FORMS OF AGRICULTUREI**

CONTENT

FORMS OF AGRICULTURE

Agriculture encompasses various scales and types of practices. These can be categorized into two primary forms:

1. Subsistence Agriculture

2. Commercial Agriculture

Regardless of the scale, agricultural practices typically revolve around crop farming, livestock farming, or a combination of both.

Crop farming involves the cultivation, care, and harvesting of crops such as maize, cassava, yams, and beans, among others. These crops serve both human and industrial needs.

Livestock farming, on the other hand, focuses on the rearing of animals, including pigs, sheep, goats, cows, chickens, and rabbits.

Various systems can be employed for these farming practices:

Shifting Cultivation: This approach involves growing crops in one area for two or three years and then relocating to another area for cultivation. The initial area is left untouched for five years or more to regenerate.

Crop Rotation: This method entails growing crops on the same piece of land following a specific sequence. It is typically used on a small scale.

Mono-cropping: This practice involves cultivating only one crop on a piece of land. It enables farmers to utilize machinery, thereby increasing productivity and efficiency.

Mixed-cropping: This common system involves the simultaneous cultivation of various crops on the same farm.

Mixed-farming: In this approach, crops and animals, such as sheep and goats, are raised simultaneously on the same farm.

Taungya Farming: This practice involves cultivating food crops in parts of a forest where certain useful trees have been removed.

Ley farming: Ley farming combines the cultivation of food crops with pasture crops.

Nomadic farming :This method involves the movement of livestock and herders from one location to another in search of suitable grazing areas.

Ranching: Ranching is the confinement-based rearing of animals on a large expanse of land, either with natural vegetation or planted pasture for animal feed.

SUBSISTENCE FARMING

Subsistence farming is a system where farmers produce just enough food to sustain themselves and their immediate families.

Characteristics of Subsistence Farming:

1. Farmers grow only enough food to meet the needs of their families.

2. They cultivate small areas using basic farming tools.

3. Subsistence farming is typically practiced by poor farmers.

4. Unskilled labour is employed.

5. Output or yields are generally low.

6. Family labour is commonly used.

7. Capital investment is minimal.

8. Agrochemicals, such as fertilizers and insecticides, are used sparingly.

9. Mixed cropping systems are prevalent.

10. Unimproved crop varieties and animal breeds are used.

EVALUATION

1. What is subsistence Agriculture?

2. List five characteristics of subsistence Agriculture.

COMMERCIAL AGRICULTURE

Commercial agriculture involves the cultivation of large areas of land with the primary objective of generating profit. This typically entails the cultivation of a single crop in extensive plantations.

Characteristics of Commercial Agriculture:

1. Sole cropping systems are prevalent (i.e., farmers cultivate a single crop).

2. Large land areas are cultivated.

3. Significant capital investment is required for establishment; it is capital-intensive.

4. Skilled labour is essential.

5. High yields or outputs are achieved.

6. Commercial agriculture is primarily accessible to wealthy farmers.

7. Agrochemicals, including fertilizers, are utilized.

8. Considerable capital is needed for initial setup.

9. Improved crop varieties are employed.

EVALUATION

1. What are the two major forms of Agriculture?

2. List five characteristics of subsistence farming.

GENERAL EVALUATION AND REVISION QUESTIONS

1. Enumerate and elucidate five farming systems.

2. Outline five distinctions between subsistence and commercial Agriculture.

3. Identify five tools used by subsistence farmers.

4. Enumerate five characteristics of commercial Agriculture.

WEEKEND ASSIGNMENT

1. The kind of Agriculture in which farmers produce enough to feed themselves and sell the surplus 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.

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 that involves growing crops in one area for two or three years and then moving to another area to farm is called A. Mixed farming B. Mixed cropping C. Shifting cultivation D. Taungya farming.

8. Cultivation and management of crops fall under which category? A. Animal Science B. Soil Science C. Crop Science D. Surgery.

9. The type of farming that 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. Highlight three differences between commercial and subsistence farming.

**WEEK EIGHT**

**TOPIC: CROP PLANT FORMS**

CONTENT

FLOWERING PLANT

Flowering plants, also known as angiosperms, are a diverse group of plants characterized by their ability to produce flowers that contain ovaries. These ovaries enclose young seeds known as ovules, with the ovary eventually developing into a fruit and the ovules maturing into seeds. The majority of plants grown in gardens and farms fall under the category of flowering plants. There are two main divisions of flowering plants: monocotyledonous and dicotyledonous. The term "cotyledon" refers to the seed leaf, a natural leaf borne by the plant's seed.

EVALUATION

1. What are flowering plants?

2. Provide five examples of flowering plants.

PARTS OF FLOWERING PLANTS

A flowering plant, whether monocot or dicot, consists of two major components: the root system and the shoot system.

THE ROOT SYSTEM: The root system constitutes the lower portion of the flowering plant, devoid of leaves or reproductive organs. It develops underground and serves to anchor the plant securely in the soil. The root system is equipped with numerous root hairs through which water, mineral salts, and other nutrients are absorbed by the plant. In some plants, roots also function as storage organs. At the apex, the root possesses a protective tissue cap known as the root cap. Root systems can be categorized as tap root systems, as seen in cowpea, pepper, orange, mango, and guava, or fibrous root systems, where all roots are of similar length and thickness, as found in maize, rice, guinea corn, and palm oil.

EVALUATION

1. Enumerate the components of the shoot system in a flowering plant.

2. Where is the root system typically located?

SHOOT SYSTEM

The shoot system of a flowering plant encompasses the stem, buds, leaves, fruits, and flowers or inflorescence. Once a flower is fertilized, it transforms into a fruit, which contains seeds.

(i) STEM: The stem serves as the plant's support structure, keeping it upright. It originates from the part of the embryo within the seed called the epicotyl.

ii) THE BUD: Buds are embryonic or young shoots with the potential to produce leaves and branches. Depending on their development, buds can be classified as leaf buds, which develop into branches with foliage leaves, or flower buds, responsible for producing flowers. Terminal buds are located at the end of the shoot, while axillary buds are positioned in the leaf axils. Adventitious buds form from other parts of the shoot.

(iii) THE LEAF: Leaves emerge as external outgrowths from the stem apex. They develop from the side of the stem's apex and gradually grow outward to attain their species-specific shape and form.

(iv) THE FLOWER: Flowers are specialized plant parts designed for reproduction, playing a direct or indirect role in the creation of new plants and the perpetuation of the species.

(v) THE SEED: Seeds represent matured ovules, the result of changes that occur in the ovule post-fertilization.

(vi) THE FRUIT: Fruits are fully developed and ripened ovaries or the consequence of transformations that occur within a flower following fertilization.

EVALUATION

1. Define a flowering plant.

2. Provide three examples of flowering plants.

FUNCTIONS OF PARTS OF FLOWERING PLANTS

FUNCTIONS OF THE ROOT:

1. Anchoring: Roots secure the plant firmly in the soil.

2. Absorption: Roots absorb water and mineral salts from the soil for plant use.

3. Storage: In some plants, roots function as storage organs for nutrients, as seen in cassava.

4. Soil Enrichment: In uncultivated land, root systems enrich the topsoil with essential nutrients for plant growth.

5. Medicinal Use: Roots of certain plants are used in medicinal preparations.

6. Food Source: Roots like carrots are edible and serve as a food source.

7. Erosion Control: Roots help prevent soil erosion.

8. Vegetative Propagation: Roots are used for vegetative propagation methods, such as in sweet potato cultivation.

EVALUATION

1. Outline five functions of roots.

2. Name two types of root systems.

FUNCTIONS OF STEM:

1. Conduction: Stems facilitate the transport of materials to and from the leaves.

2. Support: Stems provide structural support for leaves and ensure they are adequately exposed to light.

3. Storage: Some stems store food, as seen in sugar cane.

4. Propagation: Stems are used for vegetative propagation in plants like cassava and bitter leaf.

5. Economic Uses: Woody stems supply timber for construction, and stems like bamboo and thick stems are used as poles.

6. Medicinal Applications: Bark from certain stems is used in traditional medicine.

7. Support for Flowers: Stems support and expose flowers for pollination.

EVALUATION

1. List three functions of stems.

2. Mention two economic uses of stems.

FUNCTIONS OF LEAF:

1. Photosynthesis: Leaves are the primary sites for photosynthesis.

2. Transpiration: Leaves play a role in transpiration, facilitating water absorption from the soil and maintaining plant hydration.

3. Nutrient Source: Leaves serve as a source of vegetables rich in vitamins and minerals.

4. Soil Enrichment: Dead leaves act as natural fertilizer when they decompose in the soil.

5. Medicinal Use: Some leaves are used in traditional medicine.

EVALUATION

1. State the functions of leaves.

2. State the functions of stems.

FUNCTIONS OF FLOWER:

1. Seed Production: Flowers are responsible for producing seeds, ensuring the continuation of the species.

2. Decorative Purposes: Flowers are used for ornamental and decorative purposes.

3. Natural Dye Source: Some flowers serve as sources of natural dyes.

FUNCTION OF BUD:

Buds give rise to leaves, branches, and flowers.

FUNCTIONS OF SEED:

1. Reproduction: Seeds are vital for plant reproduction.

2. Food Source: Seeds can serve as a source of food.

FUNCTIONS OF FRUIT:

1. Seed Dispersal: Fruits aid in the dispersal and survival of seeds.

2. Nutritional Value: Fruits are a source of nutrition for humans.

GENERAL EVALUATION AND REVISION QUESTIONS

1. Enumerate the functions of flowers.

2. List the functions of seeds.

3. Name three parts of flowering plants.

4. Identify three parts of a leaf.

5. Define Horticulture.

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 specific plant.

2. Name the part that forms the shoot system of a specific plant.

**WEEK NINE**

TOPIC: CLASSIFICATION OF CROPS BASED ON LIFE CYCLE AND MORPHOLOGY

CONTENT

- The Significance of a Crop's Life Cycle

- Annual Crops: A Brief Overview

- Examples of Annual Crops

CLASSIFICATION BASED ON LIFE CYCLE

The life cycle of a crop encompasses the duration required for a crop to germinate, mature, flower, produce seeds, and eventually reach the end of its life. Crops can be categorized into three primary classes based on their life cycle:

(A) Annual Crops: These are crops that complete their entire life cycle within a single year. They germinate, mature, flower, produce seeds, and perish within this brief timeframe. Notable examples of annual crops include cotton, maize, cowpea, and millet.

(B) Biennial Crops: Biennial crops demand two years to fulfill their life cycle. During the first year, they focus on producing leaves and branches, while in the second year, they allocate their energy to food storage, flowering, fruiting, and eventual demise. Some common biennial crops comprise cassava, onion, carrot, and cocoyam.

(C) Perennial Crops: Perennial crops, in contrast, require more than two years to complete their life cycle. They possess an extended lifespan and continuously produce yields for several years. Examples of perennial crops encompass mango, cocoa, pawpaw, oil palm, and rubber.

EVALUATION

1. Could you explain the concept of a crop's life cycle?

2. Please enumerate the various classes of crops based on their life cycle.

CLASSIFICATION OF CROPS BASED ON MORPHOLOGY

Crops can also be categorized into two broad classes based on their physical characteristics or morphology:

(1) Monocotyledons: Monocotyledons are characterized by seeds containing a solitary cotyledon or seed leaf. Palms and various cereal crops like rice, millet, guinea corn, and maize belong to this category. Key features of monocots include:

- Fibrous root systems with roots of similar sizes.

- Elongated, hollow stems with limited branching.

- Soft stems lacking cambium tissue, responsible for stem thickening.

- Long and narrow leaves with parallel veins.

- Possession of only one seed leaf.

EVALUATION

1. What are monocotyledon plants?

2. Name five examples of monocots.

3. Illustrate a monocot plant and label its parts.

(2) Dicotyledon Plants: Dicotyledons are characterized by seeds with two cotyledons or seed leaves. Crops such as cowpea, soybean, cotton, groundnut, orange, mango, tomato, and waterleaf fall into this category. Key characteristics of dicot plants include:

- Taproot systems.

- A central stem that branches out extensively.

- Presence of cambium tissue in the stem for stem thickening.

- Leaves that are short and broad.

- Leaves with a net-like venation pattern.

- Two seed leaves (cotyledons).

- Leaves typically having petioles or stalks.

- Flowers with parts in multiples of five or five parts.

EVALUATION

1. Define dicotyledonous plants.

2. List five examples of dicotyledon plants.

3. Enumerate three characteristics typical of dicotyledon plants.

DIFFERENCES BETWEEN MONOCOT AND DICOT PLANTS

Below, you'll find distinctions between monocotyledonous and dicotyledonous plants:

MONOCOTYLEDONOUS PLANTS

- Possess one seed leaf.

- Leaves feature parallel veins.

- Root systems are fibrous.

- Leaves tend to have smooth margins.

- Stems are hollow and lack cambium tissue.

- Leaves are typically long and slender.

DICOTYLEDONOUS PLANTS

- Feature two seed leaves.

- Leaves display a net venation pattern.

- Possess taproot systems.

- Leaves often have serrated or rough margins.

- Stems contain cambium tissue.

- Leaves can be short and broad.

GENERAL EVALUATION AND REVISION QUESTIONS

1. Describe monocot plants.

2. Define dicot plants.

3. Name five examples of monocot plants.

4. List five examples of dicot plants.

5. Provide a tabular comparison differentiating between monocot and dicot plants.

WEEKEND ASSIGNMENT

1. Determine the number of cotyledons in dicotyledonous plants: (a) One cotyledon (b) Two cotyledons (c) Three cotyledons (d) Four cotyledons.

2. Identify the crop that does not belong to the dicot group: (a) Cowpea (b) Groundnut (c) Soybeans (d) Maize.

3. Which of these crops is not classified as an annual crop? (a) Cotton (b) Cowpea (c) Cocoa (d) Orange.

4. Identify the type of venation found in tomato plant leaves: (a) Parallel (b) Net (c) Vertical (d) Cross.

5. What is the term used for crops that complete their life cycle in more than two years? (a) Perennials (b) Biennials (c) Annuals (d) Decennial.

THEORY

1. (a) Define dicotyledonous plants. (b) State five examples.

2. Outline five characteristics of dicot plants.

3. Name three examples of annual crops.

**WEEK TEN**

TOPIC: CLASSIFICATION OF CROPS BASED ON THEIR USES

1. CEREALS: Cereals belong to the grass family and are primarily cultivated for their seeds. Examples of cereals include maize, sorghum, millet, rice, and wheat.

2. LEGUMES (PULSES): Legumes, commonly known as pulses, are valued for their rich plant protein content. Examples of legumes are soybeans, cowpeas, and groundnuts.

3. SUGAR CROPS: Sugar crops are cultivated primarily for the extraction of sugar. Sugarcane is a prime example of a sugar crop.

4. BEVERAGES AND STIMULANTS: These crops are used in the production of non-alcoholic beverages. Examples include cocoa, tea, coffee, kola nut, and tobacco.

5. ROOTS AND TUBERS: Root and tuber crops store nutrients in their underground parts and serve as a significant source of sustenance for humans. Examples include cassava, sweet potatoes, yams, and cocoyams.

6. FRUITS: Fruits are consumed fresh or can be processed into various products. Examples of fruits include oranges, mangoes, bananas, and pineapples.

7. OIL CROPS: These crops are grown for the extraction of oils and fats used in cooking. Examples include groundnuts, soybeans, sunflowers, coconut, cottonseed, and shea butter.

8. VEGETABLES: Vegetables are typically consumed for their leaves or fruits, either fresh or after cooking. Notable examples are okra, water leaf, amaranthus, bitter leaf, cabbage, and onions.

9. SPICES: Spices are added to food to enhance flavor and aroma. Some examples include ginger, pepper, garlic, lemongrass, and locust bean.

10. FIBER CROPS: Fiber crops are cultivated for their seeds, stems, and leaves, which are used in the production of textiles, sacks, carpets, and ropes. Examples include cotton, jute, kenaf, and sisal.

11. LATEX AND GUM CROPS: These crops yield liquids used in the production of gum or rubber. Rubber is a well-known example.

12. ORNAMENTAL CROPS: Ornamental crops are grown for decorative purposes in various environments. Examples include roses, pride of Barbados, and marigolds.

13. DRUGS: Certain crops yield products used in the manufacturing of medicines. Examples are kola nuts, opium, lemongrass, and neem plants.

14. FORAGE CROPS: Forage crops are cultivated to feed animals. Examples include elephant grass and gamba grass.

GENERAL EVALUATION AND REVISION QUESTIONS

1. What are annual crops?

2. What are biennial and perennial crops?

3. List five examples of forage crops.

4. List three examples of fiber crops.

5. What are ornamental crops?

WEEKEND ASSIGNMENT

1. Which of these crops is classified as an oil crop?

A. Cowpea

B. Groundnut

C. Maize

D. Rice

2. Which crop is categorized as a beverage crop?

A. Cassava

B. Banana

C. Coffee

D. Yam

3. What is considered a fiber crop?

A. Rubber

B. Cotton

C. Cabbage

D. Rice

4. Which crop is classified as a legume crop?

A. Groundnut

B. Orange

C. Colanut

D. Yam

5. Which crop is known as a latex crop?

A. Yam

B. Rubber

C. Kenaf

D. Cocoa

THEORY

1. List seven crops and their primary uses.

2. Name two vegetable crops.

GENERAL EVALUATION

1. What is the lifecycle of a plant?

2. Define annual crops.

3. Provide three examples of annual crops.

4. What are biennial crops?

5. List three examples of biennial crops.

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 crops is not an annual crop?

(a) Cotton

(b) Cowpea

(c) Cocoa

THEORY

1. What are annual crops?

2. Mention three examples of annual crops.