

SUBJECT: GEOGRAPHY**CLASS: SS 3****SCHEME OF WORK****WEEK TOPIC**

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|------|---|
| 1 | Revision/Tourism |
| 2 | Satellite Remote Sensing |
| 3 | GIS Application |
| 4 | Bush Fallowing in West Africa |
| 5 | Mining in Africa (Copper, Gold and Petroleum) |
| 6 | Population Distribution in West Africa |
| 7 | Revision |
| 8-10 | Mock Examination |

Reference Book: Essential Geography for Senior Secondary Schools, O.A. Iwenna.

WEEK ONE**TOURISM**

Tourism is the process which involves the visiting of people to places of interest for pleasure, relaxation, entertainment or education.

FACTORS FAVOURABLE FOR TOURISM

1. Presence of wild life
2. Presence of highlands
3. Good accommodation or hotels
4. Easy means of communication
5. Good transportation network or accessibility
6. Availability of fund
7. Adequate security
8. Political stability.

IMPORTANCE OF TOURISM

1. Generates foreign exchange
2. Provides educational knowledge
3. Promotes employment opportunities
4. Provision of social amenities
5. Conservation of wild life
6. Promotes local craft industries
7. Diffusion of ideas.

GENERAL EVALUATION QUESTIONS

1. What is tourism?
2. What is a resort centre?
3. Mention five resort centers in Nigeria
4. Mention ten tourist areas in Africa.
5. What are the factors that promote tourism?

WEEKEND ASSIGNMENT

1. The highest highlands in Nigeria are in which region? (a) North Central (b) South South (b) South West (c) Western region (d) Eastern region

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2. Mt Everest is in which continent? (a) Europe (b) Australia (c) Asia (d) Africa
3. Alps mountain is in which continent? (a) Europe (b) North America (c) South America (d) Asia
4. Andes mountain is in which continent? (a) South America (b) North America (c) Asia (d) Europe
5. The Rockies mountain is in which continent? (a) South America (b) North America (c) Asia (d) Europe

THEORY

On a sketch map of Africa, show the following highlands (i) Kilimanjaro (ii) Atlas (iii) Drakensberge (iv) Guinea highland

WEEK TWO

SATELLITE REMOTE SENSING

Remote Sensing is defined as the act of obtaining information about an object without being in direct contact with the object.

A satellite is an artificial body placed in orbit round the earth or on another planet to collect information or for communication.

Satellite remote sensing is a satellite that study the earth's surface and atmosphere.

APPLICATION OF SATELLITE REMOTE SENSING

Satellite remote sensing can be applied in various field of life such as forestry, agriculture, environment, telecommunication, transportation etc.

Energy is the capacity to do work. Energy can take many forms such as light, heat or sound, and it can be transmitted between objects through three processes which are:

Conduction: The objects are in direct physical contact. Energy is transferred from the high energy object to the low energy object until both objects are at the same energy level.

Convection: This occurs in liquid and gases. It is based on currents that distribute energy throughout the volume of liquid or gas.

Radiation: This does not require physical contact or the existence of a liquid or gas.

Environmental remote sensing systems focus on electromagnetic energy, which is a dynamic form of energy caused by the oscillation or acceleration of an electrical charge. All objects that have a temperature higher than absolute zero emit electromagnetic energy. The wavelength of the emitted energy is a function of temperature.

Almost all electromagnetic energy in the earth and its atmosphere is produced by the sun and is transmitted through the vacuum of space by radiation.

GENERAL EVALUATION

1. What is remote sensing?
2. What is a satellite?
3. Mention the various ways satellite remote sensing can be applied.
4. Explain energy.
5. Explain satellite remote sensing.

WEEKEND ASSIGNMENT

1. Which of these is not a relevance of remote sensing? (a) energy consumption (b) facilitates study of features (c) information gathering from inaccessible areas (d) multidisciplinary application
2. The class of remote sensing in which microwave length are used is referred to as (a) photogrammetry (b) radar (c) raster (d) satellite
3. The following are characteristics of remotely sensed images except (a) density (b) pattern (c) shape (d) tone
4. Tectonic process that help to reshape the earth's surface include the following except (a) basin (b) earthquake (c) folding (d) volcanicity
5. The point of contact of two different air masses in the process of rainfall formation is called (a) depression (b) dew point (c) front (d) leeward side

THEORY

1. Mention two ways satellite remote sensing can be applied.
2. State three processes through which energy can be transmitted.

WEEK THREE**GIS APPLICATION**

Geographic Information System can be applied in different field which include defence, agriculture, mining, transport, urban planning, census, surveying etc.

Some of the problems of GIS in Nigeria are:

1. Inadequate power
2. Inadequate personnel
3. Inadequate capital
4. Poor communication
5. Low level of technology
6. Lack of GIS institutions.

Data representation

GIS data represents real objects (such as roads, land use, elevation, trees, waterways, etc.).

Real objects can be divided into two abstractions: discrete objects (e.g., a house) and continuous fields (such as rainfall amount, or elevations).

Traditionally, there are two broad methods used to store data in a GIS for both kinds of abstractions mapping references: **raster images** and **vector**.

GENERAL EVALUATION QUESTIONS

1. What is GIS?
2. Mention two features that can be represented with GIS.
3. State three cultural features.
4. Mention five physical features in your environment
5. Define geography.

WEEKEND ASSIGNMENT

1. The instrument used in measuring the intensity of earthquake is called (a) barograph (b) binocular (c) seismograph (d) thermometer
2. Fold mountains are formed mainly by (a) compressional forces (b) earthquake (c) erosional activities (d) eruption of molten magma
3. "They are crystalline, non-stratified, hard and impervious". The rock type described above is (a) calcareous (b) carbonaceous (c) igneous (d) sedimentary

4. The shortest distance between any two points on the earth is along the (a) great circle (b) grid line (c) prime meridian (d) poles
5. River capture is also known as river (a) confluence (b) divide (c) misfit (d) piracy

THEORY

1. List four areas of application of GIS.
2. Explain two major problems affecting the application of GIS.

WEEK FOUR

BUSH FALLOWING IN WEST AFRICA

Bush fallowing is a system of farming or the cultivation of one piece of land for some years before the farmer leaves the piece of land to cultivate another in order to allow the former to regain lost nutrients.

Favourable Conditions Necessary for Bush Fallowing

- (i) Abundance of large area of farmlands.
- (ii) Low population in the area.
- (iii) Low level of education of the farmers.
- (iv) Use of crude tools and implements.
- (v) Low level of technology.

Characteristics of Bush Fallowing

- (i) Farming is purely subsistence i.e. for family consumption.
- (ii) It involves the use of crude implements like cutlass and hoe.
- (iii) It is very common in rural areas where land is in abundance.
- (iv) Food crops such as yam, cassava and maize are grown.
- (v) Family labour is employed.
- (vi) It is practiced where population is low.
- (vii) Farmlands are left to fallow for 3-5 years.

Types of crops grown

Food crops are mainly grown such as:

- (a) Root and tuber crops e.g yam, cassava and cocoyam.
- (b) Cereal (grain) crops e.g. rice, millet, maize etc.
- (c) Berry e.g. tomato

Advantages of Bush Fallowing

- (i) It brings about natural restoration of lost nutrients to the soil.
- (ii) It helps to control plant diseases and pests.
- (iii) It uses cheap family labour.
- (iv) It checks soil erosion, leaching and weed growth.
- (v) It is very easy to practice as low technology is required.
- (vi) A farmer gets different crops from the same land.
- (vii) It involves low capital investment i.e. it is cheap to operate.
- (viii) It provides Pasture for livestock animals.

Disadvantages of Bush Fallowing

1. It leads to wastage of land.
2. It leads to land fragmentation due to increase in population.
3. It allows cultivation of only one seasonal crop like maize, rice, millet etc.
4. It does not give room for mechanization of farms.
5. It leads to soil erosion when soil is exhausted.

- It destroys valuable forest resources like timber.

EVALUATION QUESTIONS

- Give two reasons why bush fallowing is unpopular today.
- Why is bush fallowing not practiced in areas of large population?

CURRENT TRENDS

Currently, Bush Fallowing is almost obsolete (dead) in West Africa for the following reasons:

- Due to shortage of land as a result of increasing population
- The population is increasing hence, there is much pressure on land
- The land tenure system is a major set-back to bush fallowing
- The practice of mechanized agriculture now discourages bush fallowing
- There is high demand for land for industrial, commercial and residential uses
- Urbanization which is the growth of towns and cities is making bushy area to be scarce.

GENERAL EVALUATION QUESTIONS

- What is bush fallowing?
- Mention two factors that favours bush fallowing.
- Mention four characteristics or features of bush fallowing.
- Describe the pattern of land preparation in bush fallowing.
- State three disadvantages of bush fallowing.

READING ASSIGNMENT

Essential Geography pages 332-333

WEEKEND ASSIGNMENT

- One of these is not used in bush fallowing
(a) Hoe (b) Cutlass (c) Tractor
- Bush fallowing is mainly for
(a) Export (b) Import (c) Subsistence
- One of these had made the system of bush fallowing difficult
(a) abundance of land (b) growing population (c) poor farm tools
- One of these crops is not popularly planted in bush fallowing system
(a) Cotton (b) Sugar cane (c) Cassava
- The system of bush fallowing is still popular in some _____ areas.
(a) Developed (b) rural (c) Urban

THEORY

- Outline any five characteristics of bush fallowing.
- Give five reasons why bush fallowing system is becoming unpopular.

WEEK FIVE

MINING IN AFRICA (GOLD, PETROLEUM AND COPPER)

Mining is defined as the extraction and processing of mineral resources into finished products.

MINING OF GOLD

South Africa is the largest producer of gold in Africa, followed by Ghana, Zimbabwe and Zaire.

Major mining areas include:

- Witwatersrand near Johannesburg (South Africa)
- Werkdorp and Welcom in South Africa

- iii. Dunkua and Tarkwa in Ghana
- iv. Gatoama and Gwanda in Zimbabwe.

Methods of Mining Gold

Gold is mined by the underground or shaft method. Here, vertical shafts are driven through a hole to reach the ore bearing rocks. Explosives are then used to fill the holes to shatter the rocks by blasting. The broken rocks are taken to the surface then to the concentrator that filters out the Gold which is later sent to the smelters for further refining and processing.

Transportation and Marketing

In South Africa, Gold is mainly transported by rail and road to processing factory or to Port Elizabeth or East London for export. Major market for Gold include the USA, Canada, Britain, Japan, Australia etc.

PETROLEUM

Petroleum or crude oil is an important fuel mineral produced in Nigeria, Libya Algeria, Egypt and Gabon.

Mining Areas

- i. Port-Harcourt and Warri in Nigeria.
- ii. Mersa and Bregha in Libya.
- iii. Rahala Field near Ourgla in Algeria etc.

Method of Mining Petroleum

Petroleum is mined by drilling method (but refined and separated in different components by Fractional distillation method).

In the drilling method, the underground rocks are sampled and tested for traces of oil. When the oil is discovered, a well is sunk to reach it with the aid of a drilling rig or derrick. The oil is then pumped out mechanically or naturally if the pressure within the oil zone is very high.

In the soil, three (3) layers within the oil zone exist (i) Natural gas is found on top (ii) Petroleum or crude oil in the middle and (iii) water at the bottom.

Transportation and Marketing

Crude oil is transported mainly by Pipe lines either to the refineries for refining or to the ports for export. Major markets include Britain, Japan, Germany, South Africa, U.S.A etc.

EVALUATION QUESTIONS

- 1. The largest producer of Gold in Africa is
- 2. What is the method of mining (a) Gold (b) Crude oil

COPPER

Copper is also a metallic mineral produced by Zambia, Zaire, South Africa and Zimbabwe.

Major Mining Areas.

- (i) Ndola, Nchanga and Chibuluma in Zambia
- (ii) Shaba province in Zaire especially around Lumumbashi and Kolwezi districts
- (iii) Messing in South Africa
- (iv) Uwkundu and Nankia in Zimbabwe.

Methods of Mining Copper

Depending on the depth of the mineral in the soil, two methods are used to mine copper.

(a) Open cast method (b) Underground or shaft method

Open Cast Method

In this method, explosives are used to remove the over burden rocks and a machine called dragline is used to pile the copper washed into a heap. A monitor is used to direct a strong jet of water towards the heap.

The water washes the soil through a series of sluice boxes. In the process, the copper ore settles at the bottom of the sluice boxes while the water carries the dirt away. Finally, the copper concentrate is sent to the factory for smelting.

Transportation and Marketing:

Copper is transported by rail to the port of Beira in Mozambique through Zimbabwe because Zambia is a land locked country.

Roads are sometimes used to transport copper to the port of Dar-es-salaam in Tanzania for export. Major market for copper includes European countries, Japan and the USA.

ECONOMIC IMPORTANCE OF MINERALS

1. The mining of minerals provide jobs for many people.
2. They generate revenue to the government through the payment of company taxes, import and export duties.
3. They also serve as foreign exchange to the government.
4. They provide essential goods or products such as necklace, medals, kerosene, fuel etc to the people.
5. Some mineral materials are essential for manufacturing industries, hence leads to growth of several industries.
6. Minerals in an area can raise the standard of living of people in such areas e.g. the availability of crude oil in Port-Harcourt.
7. Provision of social and basic amenities which in turns lead to the overall development of the area.
8. Through the availability of mineral resources in an area, new skills are acquired by the people.
9. They lead to growth of towns such as Johannesburg, capetown, Port-Harcourt, Warri, Takwa etc.
10. They also lead to increase in socio economic activities.

PROBLEMS OF MINING

1. Inadequate capital to exploit the minerals.
2. Poor transport network.
3. Poor technological know-how. This makes Africa to remain poor inspite of the vast mineral resources in the land.
4. Out-dated topographical and geological maps.
5. Difficult terrain increases operational cost.
6. Fluctuations in world prices of minerals.
7. There is problem of constant conflicts with the local people and the prospecting companies.
8. High level of environmental pollution.
9. Poor management due to government insensitivity and negligence.
10. High rate of sabotage by unpatriotic people in the mining areas.
11. Political instability in Africa.

GENERAL EVALUATION QUESTIONS

1. Mention two areas in Africa where copper is mined.
2. Give four economic importance of minerals to the people of Africa.
3. State the areas of mining crude oil in Nigeria.
4. Which country is the largest producer of gold in Africa?
5. Explain the method of mining copper.

WEEKEND ASSIGNMENT

1. The largest producer of Gold in Africa is.....
(a) Nigeria (b) South Africa (c) Ghana
2. Crude oil is mined by a method calledmethod
(a) Drilling (b) Shaft (c) Adit
3. Crude oil is mined in Mersa and Bregha in _____
(a) Gabon (b) Algeria (c) Libya
4. Copper is not mined in
(a) Ndola in Zambia (b) Uwkundu in Zimbabwe (c) Onitsha in Nigeria
5. One of the problems facing mining in Africa is
(a) Political stability (b) Constant conflicts with the local people in mining areas
(c) Government intervention

THEORY

Discuss any one of Gold, Copper or Petroleum under the following headings: (a) Areas of mining (ii) Method of mining (iii) Transportation and Marketing

WEEK SIX**WEST AFRICA (POPULATION)**

Population is defined as the number of people living in an area at a particular time. The population of West Africa is not evenly distributed. Some areas are densely populated, some are moderately populated and others are sparsely populated.

AREAS OF DENSE POPULATION: These include Lagos, Kano, Accra, Abidjan, Freetown, Monrovia, Dakar, etc

AREAS OF MODERATE POPULATION: These include Benin, Ashanti Region, Mano River area, Ouagadougou, Niamey, Bamako, etc

AREAS OF SPARSE POPULATION: These include upper Gambia, Middle belt of Nigeria, Northern Niger, Mali and Mauritania.

REASONS / FACTORS RESPONSIBLE FOR THE POPULATION DISTRIBUTION OF WEST AFRICA

- 1) Historical factors: Some densely populated areas like Kano have been centers of Trans-Sahara trade. This contributed to it's high population
- 2) Agriculture
- 3) Mining
- 4) Industrialization i.e. the presence of industries.

REASON FOR HIGH POPULATION DENSITIES

- | | |
|--|--------------------------------|
| 1) Favourable climate | 2) Fertile soil |
| 3) Natural attachment / Historical factors | 4) Administrative Headquarters |
| 5) Employment Opportunities | 6) Presence of minerals |

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- 7) Presence of industries amenities
8) Presence of basic social amenities
9) Commercial activities
10) Migration

ADVANTAGES OF HIGH POPULATION DENSITY

- 1) Large labour
2) Large market
3) Government attraction
4) Togetherness
5) Quick dissemination of information
6) Defence

DISADVANTAGES OF HIGH POPULATION DENSITY

- 1) Pressure on natural resources
2) Pressure on basic amenities
3) Insufficient food
4) Unemployment / Under-employment
5) Traffic congesting
6) Environmental pollution
7) Inadequate health services
8) Inadequate housing

REASONS FOR LOW POPULATION DENSITY

- 1) Rugged relief
2) Poor drainage
3) Unfavourable climate
4) Poor soils
5) Historical factors
6) Presence of some insects
7) Inaccessibility
8) Low economic activities

ADVANTAGES OF LOW POPULATION DENSITY

- 1) Abundant resources
2) Low crime
3) Adequate planning
4) Regular flow of traffic
5) Low pressure on social amenities
6) High standard of living

DISADVANTAGES OF LOW POPULATION DENSITY

- 1) Wastage of output
2) Deterioration of infrastructure
3) Inadequate labour force
4) Low output

GENERAL EVALUATION QUESTIONS

1. Describe optimum population.
2. What is birth rate?
3. Explain three of the population concepts.
4. Describe the population pattern of Nigeria.
5. How can the problem of increasing population be solved?

WEEKEND ASSIGNMENT

- 1) Which of these areas is densely populated in West Africa (a) Niamey (b) Monrovia (c) Mali (d) Kano
- 2) High population density is of great economic importance for the following reasons except (a) Large labour force (b) Increase in standard of living (c) Defence (d) Togetherness
- 3) The following factors are responsible for the growth of the population in Lagos state except (a) Job opportunities (b) Good roads (c) Presence of unskilled labour (d) Historical factors
- 4) These towns are all moderately populated except (a) Niamey (b) Ouagadougou (c) Bamako (d) Abidjan
- 5) One of the greatest disadvantages of low population density is (a) Wastage of output (b) Increase in crime rate (c) Inadequate housing (d) Traffic congestion

THEORY

- 1) Define population.
- 2) List four factors responsible for high population density in Accra.