**EMERALD INTERNATIONAL SCHOOL, MPAPE ABUJA**

**LESSON PLAN AND NOTE FOR WEEK 7 ENDING FRIDAY 24TH FEBRUARY 2023**

**TERM: SECOND TERM**

**WEEK:** **WEEK 7**

**DATE** :  **20TH - 24TH FEBRUARY, 2023**

**SUBJECT: BIOLOGY**

**CLASS : SS 1**

**TOPIC: POPULATION STUDIES BY SAMPLING**

**SUB - TOPIC: 1**. **terms used in population studies.**

1. **Factors affecting population.**
2. **Ecological factors affecting terrestrial and aquatic habitat.**

**PERIOD : 7th**

**TIME : 12: 30 - 1:00**

**DURATION : 40 minutes**

**AVERAGE AGE : 14 years**

**SEX: mixed**

**LEARNING OBJECTIVES:** by the end of the lesson,the students should be able to;

1. Explain some terms used in population studies.
2. State the factors affecting population.
3. State ecological factors affecting terrestrial and aquatic habitat.

**RATIONALE:** To enable the students understand the factors affecting population or To acquaint the students with the factors that affect population)

**PREVIOUS KNOWLEDGE:** The students have been taught concept of ecology.

**INSTRUCTIONAL MATERIALS:** map of Nigeria and the world.

**Reference Material:** Essential Biology foe Senior Secondary School by M.C. Michael.

**LESSON DEVELOPMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **STEPS** | **TEACHER’S ACTIVITIES** | **(STUDENTS’ ACTIVITIES** | **LEARNING POINT** |
| **INTRODUCTION** | The teacher introduces the lesson by reviewing the previous lesson. | The students pay attention. | To arouse the students interest. |
| **PRESENTATION**  **STEP 1** | The teacher explains the terms used in the study of population. | The students pay attention. | To keep them focus. |
| **STEP 2** | The teacher asks the students to state the factors that affect population. | The students state the factors that affect population. | To encourage critical thinking. |
| **STEP 3** | The teacher explains the factors that affects terrestrial and aquatic habitat. | The students pay attention. | To keep them focus For better understanding of the lesson. |
| **BOARD SUMMARY** | **POPULATION STUDIES**  Population studies can be carried out especially in a terrestrial habitat by sampling method by the use of an instrument called **quadrat.** A quadrat is made up of a square or rectangular wire, plastic, wooden or metal frame with predetermined area.  **POPULATION** - This is defined as the total number of organisms of the same species living together in a given area of at a particular time.  In population studies the following are equally studied;   1. **Population characteristics -** these includes; 2. **Population size -** This refers to the total number of the species of the same kind in a given area of habitat. 3. **Population density -** It is defined as the number of individual organisms per unit area or volume of the habitat.   Population density = total population or population size/ area of habitat.   1. **Population frequency -** This is the number of times an organism occurs within a given area of a habitat. 2. **Percentage cover -** This is the area or space covered or occupied by a given species in its habitat and it is expressed in percentage. 3. **Population growth rate -** it is the net result of the influence of natality( birth rate) and mortality ( death rate) of organisms in a given habitat. 4. **Dominance -** This is those species that exert a greater effect on the other members of the community. Dominance could be expressed in terms of 5. Their number 6. Occupation of largest portion of space. 7. Possession of the largest biomass 8. The largest contribution of the energy flow in the habitat.   **FACTORS AFFECTING POPULATION.**   1. **Natality( birth rate) -**It is the birth of giving birth to an organism. This generally leads to increase in population. 2. **Mortality ( death rate) -** This is the rate at which organisms dies in a habitat. It leads to decrease in population. 3. **Availability of food -** The availability of food tends to increase the population of a habitat through rapid rate of reproduction and other organisms coming to feed. 4. **Emigration -** It is the movement of organisms out of a habitat due to either scarcity of food or unfavourable condition.or for breeding purposes. It leads to decrease in population. 5. **Immigration ( dispersal) -** This is the movement of organismfrom different habitat into a new one. This tend to increase the population of the new habitat. 6. **Natural disasters -** Fire, flood, earthquake may lead to decrease in population as many organisms may die or move out of that habitat to a new one. 7. **Seasonal climatic change -** unfavourable climatic change may result in the decrease of a population since most organism may die or migrate out of that habitat while reverse is the case when climatic conditions are favourable. 8. **Breeding period -** most organisms move out of an environment during the the breeding breeding period or season thereby reducing the population of the habitat.   **ECOLOGICAL FACTORS THAT AFFECT TERRESTRIAL HABITAT**   1. **TEMPERATURE -** It determines the vegetation of an area. It affect the distribution of plant and animals. Unfavourable temperature leads to seed dormancy, wilting of field crops, ripening and maturity of crops. 2. **Rain fall -** rainfall determines seasons in places example in Nigeria where we have rainy and dry seasons. It is necessary for crop germination and photosynthesis. 3. **Wind -** wind determines seasons in Nigeria example North - East wind bring harmattan or dry season. It causes the dispersal of seed and fruits and can aid the spread of diseases. 4. **Light -** light is the ultimate source of energy for all organisms and it is necessary for photosynthesis. 5. **Pressure - atmospheric** pressure decreases as one goes up from the sea level. Plants and animals have special adaptation to a particular level of pressure to enable them survive. 6. **Hydrogen ion concentration** 7. **Relative humidity** 8. **Edaphic or soil factors -** these include ; 9. Soil type 10. Soil texture 11. Soil structure 12. Moisture content   **ECOLOGICAL FACTORS THAT AFFECT AQUATIC HABITAT**   1. **Temperature -** High temperature affect evaporation , transpiration and reduces the performance of aquatic animals. 2. **Rain fall -** It provides a dwelling place or habitat for some organisms examples fish, crab, shrimp etc. It is the main source of water in rivers, ponds, lake , oceans etc. If there is no rain fall, some water bodies dry up which may leads to loss of aquatic life. 3. **Light -** it is a source of energy for all organism. It leads to evaporation and transpiration. 4. **Pressure -** In aquatic environment, pressure increases as one moves down the water. Too high or too low pressure affect the lives and activities of some aquatic animals. 5. **Salinity -** this is defined as the degree of saltiness or concentration of salt solution in water. Salinity is low in fresh water, high in sea water and moderate in brackish water. 6. **Hydrogen ion concentration.** 7. **Currents** 8. **Dissolved gases** 9. **Density** 10. **Tidal movement and waves.** | The students ask questions for further clarification. | To create room for slow learners. |
| **Evaluation** | The teacher evaluates the students with the following questions;   1. Explain the following terms 2. Population 3. Population density 4. Population frequency 5. Dominance. 6. State at least 5 factors that affect population 7. State at least 5 ecological factors affecting terrestrial habitat. 8. State at least 5 ecological factors affecting aquatic habitat. | The students attempt the questions. | To ascertain their level of understanding. |
| **Conclusion** | The teacher concludes by coping the note on the board. She checks and marks the note. | The students copy the note on the board. | For future use. |
| **Assignment** | 1. Draw the quadrat and explain how it works | The students did and submit their assignment for marking and correction. | To encourage the students to study at home. |

****

**2o/3/2023**

**Principal Head Instructor**