FIRST TERM

PRIMARY FIVE

THEME 1: YOU AND THE ENVIRONMENT

WKS TOPIC

1 Unit I Changes caused by humans activities (pollution)

2. Unit II Air Pollution

3. Unit III Land Pollution

4. Unit IV Noise Pollution

5. Unit V Changes around us (Erosion)

6. Unit VI Changes around us (Erosion)

7. Unit VII Environmental quality

8. Unit VIII Environmental Quality

9. Unit IX Wastes and Waste Disposal

10. Unit X Waste and Waste Disposal

11. Unit XI Waste and Waste Disposal

12. Revision

13. Examination

WEEK 1&2

POLLUTION

Learning Objectives

At the end of topic should be able to:

i) Define pollution and list some agents of pollution.

ii) List common causes of pollution

iii) Discuss the role of human activities in the degradation of the environment

iv) Identify the causes of pollution on land, water, and air

v) Suggest ways of reducing pollution of the environment

INSTRUCTIONAL MATERIALS:

A chart showing different types of pollution.

REFERENCE MATERIALS

Scheme of work

All relevant materials

9-Years Basic Education Curriculum

Online information

BUILDING BACKGROUND/CONNECTION TO PRIOR KNOWLEDGE:

Pupils are familiar with the topic in their previous classes.

CONTENT

Meaning of Pollution

Our environment is our surroundings. It consists of the living (biotic) and non-living (a biotic) elements of our surroundings. The three major components of the environment are physical, biological and socio-economic.

The environment contains every essential element which man needs to survive. At the same time, the environment contains potential hazards which pose threats to the existence of man and other living organisms. These hazardous elements are either natural or man-made.

Pollution means making the environment unsafe for plants and animals. When the air, water and land get contaminated" they become serious health hazards and security threats to man and other living organisms.

Pollutants

Pollutants are substances that are capable of contaminating the environment. Pollutants can be in their solid, liquid and gaseous forms

2) Types and Causes of Pollution

Pollution may affect the soil, rivers, seas or the atmosphere. This means that there are many forms or types of pollution with different causes.

Types of Pollution

There are three major types of pollution, namely:
(i) Land pollution
(ii) Water pollution and
(iii) Atmospheric or air pollution

AIR POLLUTION

DUST

When we sweep the floor in our homes or compounds without first sprinkling water on the floor, dust rises into the air. Tractors also raise dust when they are used to cultivate farmland in dry weather. Lorries and cars raise dust as they move on roads, especially untarred roads.

Carbon dioxide

Carbon dioxide is passed into the air whenever anything burns in air. Vehicles that use petrol or diesel add a lot of carbon dioxide to the air. The flaring of natural gas also causes the pollution of air with carbon dioxide.

Carbon monoxide

Carbon monoxide is produced when fuel burns in an insufficient amount of atmospheric oxygen. There are reports of people who have died as a result of carbon monoxide poisoning when they operated their electric generators in homes with closed doors and windows.

Harmful effects of air pollution

1. Smoke makes us cough and causes tears to flow from our eyes. In Nigeria, packets of cigarettes carry this notice: 'The Federal Ministry of Health warns that smokers are liable to die young'.
2. Carbon dioxide forms 0.3% of the atmosphere. An increase in atmospheric carbon dioxide beyond this level causes the earth to become warmer than it should be. This has bad effects on the weather, e.g. high temperatures, rising of the sea level and strong storms.
3. Carbon monoxide is poisonous to human beings. Inhaling much carbon monoxide causes death.
4. Inhaling particles of wood, clay, chalk and other materials leads to disorders in the human breathing system.

Control of air pollution

Air pollution can be controlled in these four major ways:

1. Provision of good ventilation in homes by having an adequate number of windows.
2. Sprinkling of water on the floor or land before sweeping it.
3. Keeping engines in good repair and well-serviced form.
4. Avoiding operating electric generators in closed rooms.

WEEK 3&4

Topic: TYPES OF POLLUTION
SUBTOPIC: CAUSES, EFFECT AND PREVENTION OF POLLUTION

WATER POLLUTION

Causes of water pollution

(i) Untreated sewage released into water bodies.
(ij) Dumping of human faeces, dead animals, etc. into water bodies.
(iii) Oil spillage i.e. leakages, from oil tanks and pipes, into streams, rivers etc.
(iv) Industrial effluents (liquid waste from industries) released into water bodies.

Effects of Water Pollution

Harmful effects of water pollution
Polluted water is not good for domestic purposes. It is also not good for some industrial purposes. The reasons are as follows:
1. Soaps, detergents and various industrial or chemical waste are harmful to human health and to fish used as food by human beings.
2. Polluted water is unfit for drinking. 10
3. Water polluted by crude oil (petroleum) is unfit for swimming or other recreational activities.
4. Petroleum and industrial chemical waste, which kills fish or small water plants and animals that fish eat, negatively affects the fishing industry. In this way, water pollution has made many fishermen jobless.

5. Petroleum and other industrial chemical waste in water may enter farmlands near polluted rivers and make the soil unproductive.

Control of water pollution

The harmful effects of water pollution can be reduced by communities and industries through these measures:

1. Too much fertilizers should not be applied to farms.

2. Laundries should not empty water containing soap and detergent directly into streams and rivers.

3. Waste water containing oil and soap or detergent from homes should be directed into soakaway pits.

4. Leaking petroleum pipelines, tanks and ships should be repaired promptly.

LAND POLLUTION

Pollutants of the land include solid refuse, chemical waste from industries, faeces, and disused bodies of old vehicles and equipment.

Harmful effects of land pollution

The pollution of land is harmful to man in many ways, some of which are as follows:

1. Abandoned refuse occupies land space and it is not pleasant to look at. It also creates a home for animals that carry disease- causing organisms, such as cockroaches and flies.

2. Houseflies visit faeces left in bushes and may later transfer germs (sticking to their bodies) to uncovered human food.

3. Bodies of old vehicles, refrigerators and engines may injure children playing in an area where these are abandoned.

4. Refuse dumped at roadsides may cause vehicle accidents.

Control of land pollution

1. People should use proper latrines or water closets in homes, offices, markets and other public places.

2. In each home, refuse should be put in dustbins, and carried to proper collection centres, from where they should be sent to proper disposal places.

3. Materials should be recycled, i.e. waste material should be used again and again, e.g. paper and bottles.

ASSESSMENT AND EVALUATION

i) Define pollution and list some agents of pollution.

ii) List common causes of pollution
iii) Discuss the role of human activities in the degradation of the environment
iv) Identify the causes of pollution on land, water, and air
v) Suggest ways of reducing pollution of the environment

WRAP-UP (CONCLUSION)

Teacher goes over the topic once again to enhance better understanding.

ASSIGNMENT

1. What is pollution?
2. Name six different types of pollutants.
3. Write short notes on different types of pollution.
4. What are the causes of pollution?
5. State the economic importance of pollution.
6. How can you control pollution?

WEEK 5
TOPIC: CHANGE AROUND US

INSTRUCTIONAL MATERIALS:

A chart showing different types of erosion

REFERENCE MATERIALS

Scheme of work

All relevant materials
9-Years Basic Education Curriculum
Online information

BUILDING BACKGROUND/CONNECTION TO PRIOR KNOWLEDGE:

Pupils are familiar with the topic in their previous classes.

\CONTENT

EROSION

The wearing away of the surface soil by water or wind is called erosion. Wind and water, which cause erosion, are called agents of erosion.

Effects of erosion

Erosion has several effects on human beings. The following are some of them:

1. Crops grow in the soil. Yam, maize, potato, guinea corn, cassava, millet, soya beans and other crops absorb chemical substances from the soil. These chemical substances help the crops to remain healthy, grow and produce a high yield. Human beings need a high yield of crops so as to be adequately fed.

Erosion washes away the top soil, and with it the chemical substances that crops require for a good yield. Erosion, therefore, makes the soil poor and reduces the yields of crops.

2. Erosion may make the land unusable. In certain parts of Nigeria, erosion is a serious problem. Large areas of land have been destroyed by erosion. The surface of the land in such a place is no more even, but is full of deep gulleys. Such a piece of land cannot be used for agriculture or for anything else.

3. Erosion can cause landslides. In the worst cases of erosion, gulleys, which are many metres deep, develop. Near a very deep gulley, a large area of land may suddenly collapse and fall into the gulley. This is called a landslide. When a landslide occurs, nearby houses may also fall into the gulley, leading to loss of lives and property.

Control of erosion

Erosion may be prevented or controlled in several ways. Some of the ways are:

1. planting of grasses e.g. Bahama grass or carpet grass:

Grasses are planted on playing fields, roadsides and lawns in residential areas to prevent or control erosion. The roots of the grasses bind soil particles together and prevent them from being easily washed away by flowing water or wind.

2. *Planting of trees e.g. bamboo or cashew:* Trees used in checking erosion are those that have spreading root systems, such as bamboo and cashew. The root systems of the trees bind soil particles together and protect them from being washed or carried away.

3. *Planting of cover crops:* Cover crops are plants of the beans family, which are planted on land that has been allowed to fallow in a particular year. Examples are Centrosema, Calapogonium and Styloxanthes gracilis. A cover crop has at least three advantages. Firstly, its leaves protect the soil from the force of raindrops. Secondly, its roots hold soil particles together so that they are not washed away by rain. Thirdly, root nodules in the root system of a cover crop fix nitrogen, thus making the soil more fertile than before.

4. *Making ridges at right angles to the slope of the land:* In a farm, ridges are made at right angles to the slope of the land. This prevents run-off water from flowing freely through the farm.

5. *Making crossbars across water channels:* In a farm, crossbars are made at intervals between two neighbouring ridges. This checks the free or fast flow of water through the farm.

6. *Avoidance of bush burning:* Bush burning exposes the surface of the soil to erosion. By avoiding bush burning, we prevent or control erosion.

ASSESSMENT AND EVALUATION

1. What is erosion?

2. Name two agents of erosion.

3. Explain the harmful effects of erosion on human beings.

4. Describe four ways of controlling erosion.

WRAP-UP (CONCLUSION)

Teacher goes over the topic once again to enhance better understanding.

Answer these questions

1. What is erosion?

2. Name two agents of erosion.

3. Explain the harmful effects of erosion on human beings.

4. Describe four ways of controlling erosion.

WEEK 6

Effects of erosion

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ASSESSMENT AND EVALUATION

1. What is erosion?

2. Name two agents of erosion.

3. Explain the harmful effects of erosion on human beings.

4. Describe four ways of controlling erosion.

WRAP-UP (CONCLUSION)

Teacher goes over the topic once again to enhance better understanding.

Answer these questions

1. What is erosion?

2. Name two agents of erosion.

3. Explain the harmful effects of erosion on human beings.

4. Describe four ways of controlling erosion.

WEEK 7&8

TOPIC: ENVIRONMENTAL QUALITY

LEARNING OBJECTIVES; At the end of the lesson, pupils should be able to:

1. Explain the term 'environmental quality'.

2. List the things you would expect to see in a healthy environment.

3. List the things you would expect to see in an unhealthy environment.

4. List the advantages of a healthy environment.

5. List the disadvantages of an unhealthy environment.

6. Know what can be done to make a school compound healthy and beautiful?

7. Know the materials can be used to make a school compound healthy and beautiful?

INSTRUCTIONAL MATERIALS:

A chart showing a beautiful and healthy school compound.

REFERENCE MATERIALS

Scheme of work

All relevant materials

9-Years Basic Education Curriculum

Online information

BUILDING BACKGROUND/CONNECTION TO PRIOR KNOWLEDGE:

Pupils are familiar with the topic in their previous classes.

\CONTENT

MEANING OF ENVIRONMENTAL QUALITY.

The environment is not the same everywhere, even in the same city. Where the environment is healthy, is not polluted or is only slightly polluted, we say the environmental quality is good. If the environment is highly polluted, we say the environmental quality is poor.

Advantages of a healthy environment

Qualities of a healthy Advantages environment

1. Beautiful flowers Attractive and pleasant to live or stay in.

2. Grass properly cut there is no home for snakes and mosquitoes.

3. Low noise level Area is peaceful, and one can have good rest or sleep.

4. Clean air Prevents diseases of the breathing system.

5. Clean water prevents water-borne diseases, such as cholera and dysentery Qualities of a healthy Advantages environment

6. Clean ground makes the compound or areas attractive.

7. No refuse heaps prevents breeding of cockroaches, rats, mosquitoes and houseflies that carry disease-causing germs.

8. No cockroaches prevent diseases carried by them. Disadvantages of degrading the environment

Degrading the environment means reducing its quality. The quality of an environment can be degraded by erosion of the soil and pollution of the air, water and soil.

Properties of an unhealthy Disadvantages environment

1. No flowers the compound or area is unattractive.

2. Tall grass not cut Mosquitoes and other harmful insects can breed in overgrown grass.

3. High noise level Makes people restless.

4. Polluted air Makes people uncomfortable or sick.

5. Polluted water May contain poisonous substances or disease causing germs.

Properties of an unhealthy Disadvantages environment

6. Polluted land Endangers health, may produce foul smell, and refuse may cause injuries or accidents.

7. Refuse heaps Provide homes for cockroaches, rats, mosquitoes and houseflies that carry disease causing germs. Refuse can pollute the air and cause accidents.

8. Cockroaches, mosquitoes Carry disease-causing and flies germs.

9. Erosion makes soil unproductive. Materials used for maintaining a healthy environment

Several materials are needed for maintaining a healthy environment, both at home and in the school

Material Use

1. Cutlass for cutting grass.

2. Lawn mower for cutting grass.

3. Rake for collecting cut grass and refuse.

4. Water for watering flowers.

5. Water hose/bucket for watering flowers.

6. Hoe for preparing the soil for planting flowers.

7. Flower seeds for planting to raise flowers.

8. Fertilizers for making the flowers healthy.

9. Insecticide for killing harmful insects.

10. Dustbin For refuse keeping.

11. Wheelbarrow For carrying refuse to dustbins or incinerators.

12. Incinerator For burning refuse

Assessment and Evaluation

1. Explain the term ‘environmental quality’.

2. List the things you would expect to see in a healthy environment.

3. List the things you would expect to see in an unhealthy environment.

4. List the advantages of a healthy environment.

5. List the disadvantages of an unhealthy environment.

6. Know what can be done to make a school compound healthy and beautiful?

7. Know the materials can be used to make a school compound healthy and beautiful?

Wrap-Up (Conclusion)

Teacher goes over the topic once again to enhance better understanding

Answer these questions

1. Explain the term 'environmental quality'.

2. List five things you would expect to see in a healthy environment.

3. List five things you would expect to see in an unhealthy environment.

4. List six advantages of a healthy environment.

5. List six disadvantages of an unhealthy environment.

6. What can be done to make a school compound healthy and beautiful?

7. What materials can be used to make a school compound healthy and beautiful?

Week 9 & 10

Topic: Waste and Waste disposal

Behavioral Objectives

At the end of the lesson, pupils should be able:

1. Identify the components and types of waste.

2. Mention the dangers of poor and improper waste disposal.

3. Explain the advantages of recycling waste.

4. Discuss different ways of disposing of waste

Instructional Materials

A chart showing waste product

Reference Materials

Scheme of work

All relevant materials

9-Years Basic Education Curriculum

Online information

BUILDING BACKGROUND/CONNECTION TO PRIOR KNOWLEDGE:

Pupils are familiar with the topic in their previous classes.

CONTENT

Meanining of Waste

Waste is refuse or garbage. It can be a pollutant or an agent of pollution in our environment. Waste should be disposed of neatly to ensure a healthy environment

Types of Waste

Waste can be a pollutant or an agent of pollution in our environment. Waste is considered in three categories namely: liquid, gaseous and solid.

Waste generation without proper management strategy can result into environmental degradation which endangers the survival of man and other living organisms. In order to avert this terrible occurrence, people should cultivate the habit of proper waste disposal and make the environment a safer place to live in. This can be done by ensuring that waste generated from our homes, offices, factories, schools, etc is disposed of, lest they become pollutants.

There are two types of waste, namely; refuse and sewage.

a) Refuse

This is the solid form of waste materials such as papers, pieces of wood, broken bottles, metal, waste foods, plastic containers, etc. Some refuse can be decomposed by moulds and bacteria while some cannot. Those that can be decomposed are called biodegradable refuse while those that cannot be decomposed are called non biodegradable refuse.

Examples of biodegradable waste are: food, meat, paper, etc.

Examples of non-biodegradable waste are plastic, synthetic resins, rubber; polythene etc.

b) Sewage:

This is made up of forms of liquid waste. It is a mixture of liquid organic and inorganic materials. These wastes include faeces, urine, mineral salts, waste water, and other liquid forms of domestic and industrial waste. It contains many organisms which are dangerous to our health and safety. These

organisms are called parasites or germs. They include bacteria, worms, viruses and protozoa.
Sewage can be turned to fertilizers if treated and well managed. A place where sewage is treated is called 'sewage farm or sewage treatment plant'. Sewage is passed through a large pipe to the sewage treatment plant.

2) Waste Disposal

Waste disposal is a method of environmental sanitation i.e. the removal of waste (sewage and refuse) from our environment for the purpose of keeping it (the environment) clean and healthy.

Sewage Disposal: The following methods can be applied. The use of:
(i) Pit latrine
(ii) Water closet

These two systems should be linked to:
(i) a cesspool or
(ij) a septic tank

Cesspool: This is a covered underground container for the temporary collection of sewage.

Septic tank: This is an underground tank in which sewage is collected and decomposed by bacteria before being drained.

Pail or Bucket system: This method has been discouraged and is no longer popular because it is considered unsafe for human health.

Refuse Disposal:
The following methods can be used:
(i) Incineration, (ii) composting, (iii) land filling.
Dustbin: This is first used to collect the refuse before the proper disposal.

Activity

Mention the methods by which your refuse and sewage are being disposed of in your house.

WEEK 11

Recycling

Recycling simply means treating waste materials and substances with the purpose of using them again. Recycling is a very good method of waste management. It is a process of converting waste to useful products.

Methods of Recycling

(i) Soil: Used soil can be recycled by adding manure or fertilizers to give it nutrients.
(ii) Waste water: Waste water can be re-used by treating it for irrigation, washing e.g. washing of tools
(iii) Bottles: We can wash used bottles and use them as containers e.g. to store water inside the refrigerator. Used bottles can also be recycled for re-use. Broken bottles can be used for the production of glass.
(iv) Broken furniture: Our broken tables, chairs, cupboards can be reshaped by carpenters. -
(v) Plastic containers: Used plastic containers can be washed and re-used as storage facilities.
(vi) Old newspapers: They can be used as raw materials for factories that produce toilet tissue.
(vii) Used metal and iron: These can be melted again and reshaped into new objects.

Advantages of Recycling Waste

Recycling has many advantages. The following are some of the advantages of recycling waste.
(i) Recycling saves our environment from pollutants.

(ii) It affords access to raw materials.

(iii) It makes conservation of materials possible.
(iv) It promotes personal hygiene.
(v) It is a strategy for the control of flood and erosion.
(vi) Manure is obtained from used materials which enriches the soil and promotes crop yield .
(vii) Recycling provides job opportunities, for instance, some people go from house to house to buy empty bottles, condemned household appliances, etc. and re-sell them to factories that need them for raw materials.

Dangers of Poor Disposal of Waste

The purpose of waste disposal is to keep the environment clean and healthy. It is a method of waste management. If however waste is generated without proper disposal, the existence of living things is endangered.

The following are dangers of poor disposal of waste.
(i) Poor disposal of waste leads to environmental pollution.
(il) It encourages disease-causing parasites and germs such as viruses, germs, bacteria, etc. in the environment.
(iii) Emission of gaseous waste into the atmosphere can cause serious illness and disability.
(iv) Inhalation of poisonous gases can cause serious respiratory problems.
(v) The lives of aquatic plants and animals are endangered by dumping of refuse and sewage into our rivers, streams, etc.
(vi) Poor disposal of toxic waste can destroy plants, animals and human beings.
(vii) Improper waste disposal makes land, water and air unsafe for use.
(viii) Poor disposal of waste can lead to flood and erosion, e.g. dumping of refuse into rivers can block water flow, which can cause flood.

Assessment and Evaluation

1. **Identify the components and types of waste.**
2. **Mention the dangers of poor and improper waste disposal.**
3. **Explain the advantages of recycling waste.**
4. **Discuss different ways of disposing of waste**

Wrap-up (Conclusion)
Teacher goes over the topic once again to enhance better understanding

Evaluation Questions

1. Give the difference between waste and waste disposal.
2. How does waste affect our environment?
3. List different types of waste.
4. How can you dispose waste?
5. What are the benefits of recycling?
6. List methods of recycling.
7. State the advantages and disadvantages of recycling and waste disposal.