

Class: jss 1

Subject: Basic science

Topic: water pollution

Objectives: By the end of the lesson, students should be able to;

1. Define water pollution.
2. List causes of water pollution.
3. State effects of water pollution.
4. Describe how water pollution can be controlled.
5. Identify water pollutants and their effects.

Introduction: The environment we live is made up of living and non-living things. The non-living component is made up of water, air, land (soil). These three non-living components are important for life on earth. Human beings engage in daily activities that require the use of water, air and land these activities includes cooking, washing, farming, transportation, manufacturing, building and many others.

The discharge of waste substances into the environment in quantities that are harmful to human beings is called **pollution**. The waste substances which cause the pollution are called pollutants.

MEANING OF WATER POLLUTION

Water pollution is the discharge of harmful waste substances into a body of water. Water becomes polluted when it loses its natural qualities and becomes unsafe for living thing.

CAUSES OF WATER POLLUTION

The waste substances generated from activities in the home are called **domestic waste**. Those from industries and farms are called **domestic wastes**.

A. Domestic waste

- i. Dung from animals such as chicken, dogs, goats, cow left on land may decay and the poisonous materials in them are washed by rain into the stream or river around the home.
- ii. Soaps and detergents used in washing plates, cars, clothes and other materials maybe allowed to flow back into the source of water supply.
- iii. Refuse dumped beside river or stream around the surrounding may decay and produce toxic materials, which may be washed by rain into the river or source of water supply around the home.
- iv. Human faeces may sometimes contain eggs of intestinal worms or other micro-organisms. If human faeces is not properly disposed of, rain water may wash the disease-causing organism into nearby streams or source of water supply.

B. Industrial waste

- i. Chemical compounds such as lead, sulphate, zinc sulphide, sulphuric acid may be produced as industrial waste from chemicals, battery or paint industries. Another source of chemical waste come from the use of fertilizers and weed killers by farmers; which are washed off by rain from the farm.
- ii. Acids such as hydro-cyanic acid, which is present in the water squeezed out from cassava in the garri processing industry.
- iii. Oils such as crude oil, vegetable oil, engine oil, petrol may spill from industries that produce and use them.
- iv. Alcohol, which may be washed out from bottles in the breweries.

EFFECTS OF WATER POLLUTION

1. **Death of organisms:** polluted water contains poisonous substances which may kill water organism such as fish and other aquatic animals.
2. **Preventing sporting activities:** Polluted water may restrict sporting activities such as swimming and fishing.
3. **Health hazard:** Quite a number of water-borne diseases come from water polluted by human faeces. Example elephantiasis, skin rashes, typhoid, diarrhea etc.
4. **Adverse effect on the economy:** this may result to some fishing communities losing their means of livelihood which in turn affect the economy of that locality. It may also result to government spending too much on the health sector thereby retarding or limiting the development of others.

CONTROL OF WATER POLLUTION

Water pollution can be through the following ways;

1. Control of the discharge of both domestic and industrial waste.
2. Waste substances must be properly disposed of so that they do not enter nearby streams and rivers.
3. Care should also be taken to use only minimum amount of the products that generate key pollutants.
4. Government should also set up agencies to monitor and regulate how industries dispose of their waste.

Pollutant	Source	Effect	Control
Petroleum products such as petrol, kerosene, engine oil.	<ul style="list-style-type: none">• From vehicles, homes• spillage from oil industries• petrol stations• tanker during loading.	<ul style="list-style-type: none">• Poisonous• Covers surface of water• Reduces amount of oxygen dissolved in water.	<ul style="list-style-type: none">• repair leakage that occur during loading and off-loading of tankers.• Oil companies should ensure

			regular check of their pipeline against vandals and leakages.
Fertilizers	Farms and industries	Increase the free flow of water plants which may block the free flow of water, eg. water lettuce	Use only the recommended amount of fertilizers.
Human faeces and urine	Homes Offices Market schools	<ul style="list-style-type: none"> poisonous substances water-borne diseases. Eg.typhoid 	<ul style="list-style-type: none"> boil and filter water before drinking make soak-away pits. Dispose properly.
Detergents	Homes and industries	poisonous	Use only minimum amount needed.
Refuse and sewage	Homes	<ul style="list-style-type: none"> Foul odour Dirty environment Introduces harmful microorganism. 	Burn or bury refuse properly.
Alcohol	Home and manufacturing industries	Poisonous to organisms	Reduce amount of water waste to a minimum.
Vegetable oil	Homes and industries	<ul style="list-style-type: none"> Floats on top of water. Aquatic organisms die due to lack of oxygen. Prevents the dissolving of atmospheric organism in water. 	
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Home work

1. State causes of water pollution in your community.

2. Suggest any two ways it can be controlled.
3. Name four other water pollutants apart from the ones listed above.