

#423917

What do you mean by ozone hole? What are its consequences?

Solution

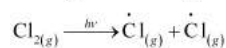
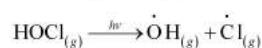
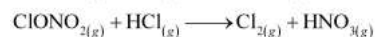
In polar regions, stratospheric clouds provide the surface for chlorine nitrate and hypochlorous acid. They react to form chlorine molecules. Photolysis of chlorine molecules as $HOCl$ gives chlorine free radicals.

The chlorine free radicals lead to the decomposition of ozone

This initiates a chain reaction. The chlorine free radical is continuously regenerated which depletes the ozone layer. It is called ozone hole.

Consequences of ozone depletion:

The ozone layer protects the earth from the harmful UV radiations of the sun. Due to its depletion, more radiation enters the earth's atmosphere. UV radiations cause aging of skin, cataract, skin cancer and sunburns. Hence, they are harmful. They cause the death of phytoplanktons which leads to a decrease of fish productivity. Excess exposure may even cause mutation in plants, increase UV radiation, decrease moisture content of soil and damage both plants and fibers.



#464938

Why are some substances biodegradable and some non-biodegradable?

Solution

Substances are classified as biodegradable and non-biodegradable because some substances can be decomposed by microorganisms and some cannot.

Substances that are broken into simple soluble forms are called biodegradable substances and the substances that are not decomposed by microorganisms into harmless substances are called non-biodegradable substances. Non-biodegradable substances cannot be degraded by microorganisms as they lack the enzymes necessary for their degradation.

#464939

Give any two ways in which biodegradable substances would affect the environment.

Solution

Biodegradable substances affect the environment in the following ways:

- The biodegradable substances such as tree leaves, plant parts and kitchen wastes can be used as humus after composting. This will enhance the soil fertility.
- The biodegradable substances mainly contain carbon. These substances after decomposition release that carbon back into the atmosphere.

#464940

Give any two ways in which non-biodegradable substances would affect the environment.

Solution

Non-biodegradable substances affect the environment by the following ways:

- They contaminate soil and water resources as they cannot be decomposed by micro-organisms.
- These substances, when accidentally eaten by stray animals, can harm them and can even cause their death.

#464942

What are trophic levels? Give an example of a food chain and state the different trophic levels in it.

Solution

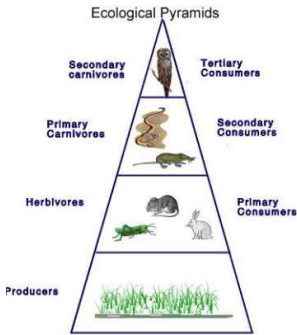
The trophic level of an organism is the place it has in a food chain. A food chain is mostly made up of three trophic levels. However, some trophic levels have four trophic level. An example is shown in the diagram.

→ Primary producers which are plants that are autotrophs and belong to the first trophic level.

→ Primary consumers are animals that belong to second trophic level and feed on plants. They are called herbivores.

→ Secondary consumers feed on herbivores and belong to the third trophic level. They are called primary carnivores.

→ Tertiary consumers feed on primary carnivores and belong to the fourth trophic level. They are called secondary carnivores.



#464943

What is the role of decomposers in the ecosystem?

Solution

Various roles played by decomposers in the ecosystem are:

→ They decompose biodegradable substances into useful substances.

→ They release nutrients into soil by decomposing dead and decaying matter, thus making the soil fertile.

→ They maintain the nutrient pool by returning back the nutrients in the pool.

#464946

How can you help in reducing the problem of waste disposal? Give any two methods.

Solution

We can help in reducing the problem of waste disposal by the following method.

→ By separating biodegradable substances from non-biodegradable substances.

→ By reducing, reusing and recycling non-biodegradable substances.

OR

→ The biodegradable substances should be used to manufacture the soil-manure by depositing it in under the soil.

→ The biodegradable substances can be used as landfills.

#464947

Which of the following groups contain only biodegradable items?

- A Glass, flowers and leather
- B Wood and grass
- C Fruit-peels, cake and lime-juice
- D Both B and C

Solution

Wastes that are capable of being broken down or decomposed rapidly by the actions of microorganisms are called as biodegradable wastes. Fruit-peels, cake, lime juice, wood and grass can be easily decomposed by the microbes.

#464950

Which of the following constitute a food-chain?

- A Grass, Wheat and Mango
- B Grass, Goat and Human

- C** Goat, Cow and Elephant
- D** Grass, Fish and Goat

Solution

Food chain is a series of organisms where each is dependent on the next as a source of food. Grass forms the primary producers of the food chain, goat eats grass (herbivore) and humans eats goat (carnivore).

So, the correct answer is option B.

#464951

Which of the following are environment-friendly practices?

- A** Carrying cloth-bags to put purchases in while shopping.
- B** Switching off unnecessary lights and fans.
- C** Walking to school instead of getting you mother to drop you on her scooter.
- D** All of the above.

Solution

Being eco-friendly or environmentally friendly means having a lifestyle that is better for the environment. It involves taking small steps towards the proper maintenance Earth's environment for the present and future generations.

Some of the actions that can be taken to ensure that include;

1. Avoiding the use of plastic bags encouraging the use of biodegradable bags (cloth, paper etc.)
2. Reuse of the plastic bottles and tin cans.
3. Taking up the public transportation or walking instead of using a private vehicle.
4. Segregation of biodegradable and non-biodegradable wastes.
5. Switching off fans and lights when not in use.

#464954

What will happen if we kill all the organisms in one trophic level?

Solution

If we kill all the organisms of one trophic level it will create an imbalance in the ecosystem as every trophic level is interdependent on each other.

For example, in a food chain grass is eaten by a buffalo and buffalo is eaten by a lion. If all the lions in the population were to be removed, the number of buffalo will increase and this will ultimately lead to over-grazing. Over-grazing can lead to the barren land which will ultimately lead to soil erosion.

#464955

Will the impact of removing all the organisms in a trophic level be different for different trophic levels? Can the organisms of any trophic level be removed without causing any damage to the ecosystem?

Solution

The impact of removing the organisms of a trophic level is different for different trophic levels. For example, if we remove plants from a food chain, no organism will get food as plants are the primary producers in the food chain. If herbivores are removed from a food chain then carnivores will starve and die and producers are also affected and may die due to competition for space and nutrients. It is not possible to remove a trophic level without causing damage to the ecosystem as they are interlinked.

#464963

What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

Solution

Biological magnification is the process where the substances like pesticides and heavy metals move up the food chain, they travel their way up in the food chain and at each increasing food chain level, accumulation of toxic substances increases.

For example, in a pond water, pesticide DDT was sprayed and the producers were found to have 0.03 ppm concentration of DDT. Since planktons are eaten by small fishes and clams, their body accumulates more DDT than what is found in the planktons. Seagull that feeds on clams accumulates more DDT as one seagull eats many clams. Hawk, the top carnivore, has the highest concentration of DDT.

#464966

What is the problem caused by the non-biodegradable wastes that we generate?

Solution

The problems caused by non-biodegradable wastes are as follows:

- Non-biodegradable waste do not decompose. They accumulate in the environment and causes biomagnification.
- Due to accumulation, they cause soil and water pollution.
- They make environment unclean.
- If such wastes are burnt, it creates air pollution.

#464969

If all the waste we generate is biodegradable, will this have no impact on the environment?

Solution

The production of a large amount of biodegradable waste will create a threat to the environment. The degradation of such huge amount of biodegradable material requires a large number of decomposers which are not available.

Incomplete degradation will result in the breeding ground for flies causing the spread of diseases. Emission of foul smell can also make life miserable.

#464970

Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

Solution

The ozone layer is a blanket of gases that envelops the Earth. Ozone layer functions as a protective shield for the living beings on the planet. The main function of the ozone layer is to filter out the harmful ultra-violet rays of the Sun.

The damage to the ozone layer is a cause for concern because:

- It will not be able to filter out the ultra-violet rays efficiently, and this will cause various skin problems such as skin darkening and skin cancer.
 - Ozone layer maintains a steady temperature on the planet. Damage to the layer might result in the death of many phytoplanktons that leads to increased global warming.
- Chlorofluorocarbons (CFCs) are compounds that damage the ozone layer. To limit the damage to the ozone layer, the release of CFCs into the atmosphere must be reduced. CFCs used as refrigerants and in fire extinguishers should be replaced with environmentally-safe alternatives. Also, the release of CFCs through industrial activities should be controlled.

#464975

What changes can you make in your habits to become more environment-friendly?

Solution

We can inculcate the following habits to be more environmental friendly-

- using the principle of 3r's i.e., Reduce, reuse and recycle
- putting off unnecessary lights and fans
- using unleaded petrol in vehicles
- using local transport like buses or train.

#490403

Define an ecosystem.

Solution

An ecosystem can be defined as a biological system which consists of all the living organisms (plants and animals) in an area as well as the nonliving things with which the organisms interact.

In an ecosystem, all the components are interdependent on each other.

#526274

List the various abiotic environmental factors.

Solution

Ecosystem is an interaction between biotic and abiotic factors of a geographical area. The abiotic factors include a physical environment in which organisms can survive such as light, temperature, humidity and other climatic condition as well as physical factors like soil.

#526397

Fill in the blanks.

- (a) Plants are called as because they fix carbon dioxide.
- (b) In an ecosystem dominated by trees, the pyramid (of numbers) is type.
- (c) In aquatic ecosystems, the limiting factor for the productivity is
- (d) Common detritivores in our ecosystem are
- (e) The major reservoir of carbon on earth is

Solution

- (a) Plants are called as Autotrophs because they fix carbon dioxide and produces their own food.
- (b) In an ecosystem dominated by trees, the pyramid (of numbers) is of Inverted type because it makes more biomass that leads to the large population of birds and insects as compared to the trees.
- (c) In aquatic ecosystems, the limiting factor for productivity is light as plants and algae cannot grow in the absence of light.
- (d) Common detritivores in our ecosystem are earthworms as they get nutrients from decaying organic matter.
- (e) A major reservoir of carbon on earth is oceans.

#526401

Which one of the following has the largest population in a food chain?

- (a) Producers
- (b) Primary consumers
- (c) Secondary consumers
- (d) Decomposers

Solution

Decomposers are the organisms that feed on debris left behind by scavengers and release the nutrients in form of simpler substances back to atmosphere. Mostly bacteria and fungi serve the role and represent the largest population of food chain. Thus, the correct answer is option D.

#526402

The second trophic level in a lake is

- (a) Phytoplankton
- (b) Zooplankton
- (c) Benthos
- (d) Fishes

Solution

In lake ecosystem, phytoplanktons are the primary producers while zooplanktons represents primary consumers. Benthos and fishes occupy higher trophic levels. Since zooplanktons feed on primary producers, they occupy the second trophic level. The correct answer is B.

#526404

Secondary consumers are

- (a) Herbivores
- (b) Producers
- (c) Carnivores
- (d) None of the above

Solution

In a food web or chain, there will be producers like the plants. As the name indicates they produce their own food material by using sunlight and provides food for other organisms also. Then they are eaten by the primary consumers called the herbivores these are plant-eating animals like the cow, goat etc., they are in return eaten by the carnivores the flesh eating animals called the secondary consumers like the lion, tiger etc.

Hence, the correct answer is option C.

#526412

Describe the components of an ecosystem.

Solution

The ecosystem is an assemblage of biotic and abiotic factors of a geographical area and also takes account of the interaction between them. Biotic factors of an ecosystem include all plant and animal species present in there. These biotic factors of a self-sufficient ecosystem contain types of organisms—producers, consumers, and decomposers. The abiotic factors include a physical environment in which they can survive. It includes light, temperature, humidity and other climatic condition as well as physical factors like soil.