

1. Why are some substances biodegradable and some non-biodegradable?

Answer

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

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

Answer

Biodegradable substances affect the environment by:

- 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.

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

Answer

Non-biodegradable substances affect the environment by:

- 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.

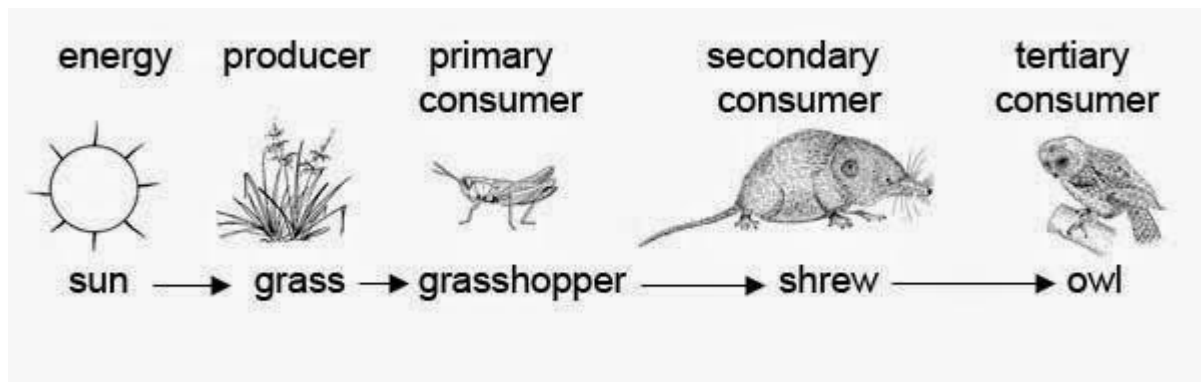
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1. What are trophic levels? Give an example of a food chain and state the different trophic levels in it.

Answer

The various links or steps in a food chain at which the transfer of food and energy takes place are called trophic levels.

The producers form the first trophic level as they manufacture food. The primary consumers form the second trophic level, the secondary consumers form the third, and the tertiary consumers form the fourth trophic level.



In the above fig. Grass is the producer which is eaten by the grasshopper known as primary consumer. Then the grasshopper is eaten by shrew, secondary consumer and lastly shrew eaten up by owl, tertiary consumer.

2. What is the role of decomposers in the ecosystem?

Answer

Various role played by decomposers in the ecosystem are:

- They clean the environment.
- 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.

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1. What is ozone and how does it affect any ecosystem?

Answer

Ozone (O₃) is a molecule, made up of three atoms of oxygen.

Ozone (O₃) forms a layer in the upper atmosphere. It is very essential for the life on this planet. It shields the surface of the earth from ultra-violet radiation (UV) coming from sun as these radiations are very harmful causing skin cancer and cataract in humans. It also does harm to the crops.

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

Answer

We can help in reducing the problem of waste disposal by these methods:

- By separating biodegradable substances from non-biodegradable substances.
- By reducing, reusing and recycling non-biodegradable substances.

Exercise

1. Which of the following groups contain only biodegradable items?
(a) Grass, flowers and leather
(b) Grass, wood and plastic
(c) Fruit-peels, cake and lime-juice
(d) Cake, wood and grass
► (c) Fruit-peels, cake and lime-juice
(d) Cake, wood and grass
2. 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
► (b) Grass, goat and human
3. 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 your mother to drop you on her scooter
(d) All of the above
► (d) All of the above

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

Answer

If we kill all the organisms of one trophic level it will create an imbalance in the ecosystem. As an Example, In a food chain Grass → Deer → Lion, If we remove all lions then population of deer will increase which will cause over-grazing. This will lead to deforestation. It may even lead to soil erosion causing further conversion of fertile land into barren desert.

5. 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?

Answer

Impact of removing all organisms of a trophic level is different for different trophic levels. For example, if we remove producers from a food chain, no organism will get food, if we remove herbivores from a food chain then carnivores will die and producers will also die due to competition for space and nutrients. No, we can't remove any trophic level without

causing damage to the ecosystem as one is dependent on other for their survival. If we remove any one this will create imbalance in the ecosystem.

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

Answer

Biological magnification is defined as the phenomena of accumulation or increase in the concentration of some toxic substances at each trophic level.

The levels of biomagnification will be different at different trophic levels. For example, in a pond of water, DDT was sprayed and the producers were found to have 0.04 ppm concentration of DDT. Since many types of planktons are eaten by some fishes and clams, their body accumulates 0.23 ppm of DDT. Sea gull that feeds on clams accumulates more DDT as one sea gull eats many clams. Hawk, the top carnivore, has the highest concentration of DDT.

7. What are the problems caused by the non-biodegradable wastes that we generate?

Answer

The problems caused by non-biodegradable wastes are:

- They cause biomagnification.
- They increase pollution.
- They make environment unclean.
- They kill useful microorganisms.

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

Answer

If all the waste generated would be biodegradable this will also create problem. As the numbers of decomposers will be quite low so wastes cannot be broken down into harmless simpler substance at right time. It will become breeding ground for flies causing spread of diseases. It will also emit foul smell which makes the life of people miserable.

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

Answer

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

- It causes skin darkening, skin cancer, ageing, and corneal cataracts in human beings.
- It can result in the death of many phytoplanktons that leads to increased global warming.

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.