

Chapter – 15 Our Environment

Class 10 Science NCERT Textbook – Page No. 260

Q1. What are trophic levels? Give an example of a food chain and state the different trophic levels in it.

Answer:

In food chain, the flow of food or energy takes place at various different levels and these levels are called as trophic levels.

Example: Grass → Goat → Man

In a food chain, grass represents the first trophic level, goat represents the second trophic level and the man represents the third level.

Q2. What is the role of decomposers in the ecosystems?

Answer:

The role of a decomposer: -

- They help in recycling the nutrients.
- They are cleansing agent and help in decomposing the dead plants and animals.
- They help in dissolving various elements into water, soil and air for the reuse of producers.
- They offer space for new being by decomposing the dead.

Class 10 Science NCERT Textbook – Page No. 262

Q1. Why are some substances biodegradable and some non-biodegradable?

Answer:

The following are reason why some substances are biodegradable and some are non-biodegradable: -

1. The microorganisms (bacteria) and decomposer (saprophytes) have vital role.
2. They breakdown natural products like paper, wood etc. but cannot breakdown man-made products like plastics. Thus, some substances are biodegradable and other non-biodegradable.

Q2. Give any two ways in which biodegradable substance would affect the environment.

Answer:

The ways in which biodegradable substance affect the environment: -

- They make environment clean as are easily decomposed.
- They undergo the geo-chemical cycle with the help of decomposers.

Q3. Give any two ways in which non-biodegradable substance would affect the environment.

Answer:

The ways in which non-biodegradable substance affect the environment:

- They cause air, soil and water pollution.
- They cause bio-magnification in food chain.

Class 10 Science NCERT Textbook – Page No. 264

Q1. What is ozone and how does it affect the ecosystem?

Answer:

Ozone is a molecule of three atoms of oxygen called an isotope of oxygen. The main function of ozone layer is to provide protection to the earth's surface from the harmful UV rays of the sun but are harmful to living organisms as it causes skin cancer.

Q2. How can you help in reducing the problem of waste disposal? Give any two methods.

Answer:

The ways to reduce the problem of waste disposal:

1. We use 3 R's, to reduce the problem of waste disposal. The 3 R's are reduced, recycle and reuse. Reducing the usage of vehicles and prefer public transport. Recycling and reusing of plastic reduce the waste disposal.
2. Preparation of compost by biodegradable waste like kitchen waste to form compost.

Class 10 Science NCERT Textbook – Page No. 264 and 265

Q1. 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

Answer: Option a), c) and d)

Since plastic is not a biodegradable substance, that group cannot be considered as a biodegradable.

Q2. 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

Answer: Option b)

The grass is the producer and goat is the primary consumer and human is the secondary consumer.

Q3. 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

Answer: Option d)

Q4. What will happen if we kill all the organisms in one trophic level?

Answer:

The food chain supply is disturbed and cause imbalance of the ecosystem. So, animals in the higher levels will die and the growth of animals in lower trophic level increase.

Q5. 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:

Yes, impact of removing all the organisms in a trophic level will be different for different trophic levels.

Example: - if producer is removed then there will be death or migration of the primary consumers which disturb trophic levels.

So, the removal of the organisms at any level disturbs the whole ecosystem and food chain. The survival of the higher-level animals is dependent on the animals at the lower levels.

Q6. What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

Answer:

Biological magnification is the progressive increase in the concentration of non-biodegradable wastes in the food chain.

Increase in the magnification at the primary level of the ecosystem, all the other levels get affected and the concentration may vary.

Q7. What are the problems caused by the non-biodegradable wastes that we generate?

Answer:

The problems caused by the non-biodegradable wastes are:

1. These substances are not decomposed by the microorganisms.
2. As the quantity increases, dumping is difficult.
3. Non-biodegradable wastes like heavy metals enter the food-chain.
4. They mix with ground water and causes soil infertility and disturbance in pH

Q8. If all the waste we generate is bio-degradable, will this have no impact on the environment?

Answer:

Biodegradable wastes are decomposable by the microorganisms into simpler substances which can be used by the producers as raw material.

Effects of too much of biodegradable wastes:

1. The decomposition of biodegradable wastes is slow, they produce awful smell and when inhaled by humans, it is harmful for health.
2. In Dumping areas, harmful organisms breed which is harmful to humans, plants and animals.
3. Increase in the number of aquatic organisms cause depletion of oxygen.

Q9. Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

Answer:

Ozone layer is basically a protection cover for the earth. It prevents us from harmful UV rays entering the earth as these rays can result in skin cancer.

Depletion of ozone layer is due to chlorofluorocarbons (CFC's) generated by air pollution.

UV rays are harmful for plants as they affect photosynthesis, planktons and decomposers.

Major steps taken by developing and developed countries have signed and are obeying the directions of UNEP to freeze or limit the production of usage of CFC's.