# Our Environment

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**Class: X** **Biology**

**1 Why some substances are degraded and others not?**

The materials which are degraded by soil microorganisms are called biodegradable materials.

Eg., Paper, dung, leather.

The materials which cannot be degraded by soil microorganisms are called non-biodegradable materials.

Eg., DDT, glass, plastic, detergent.

**2. What is a food chain?**

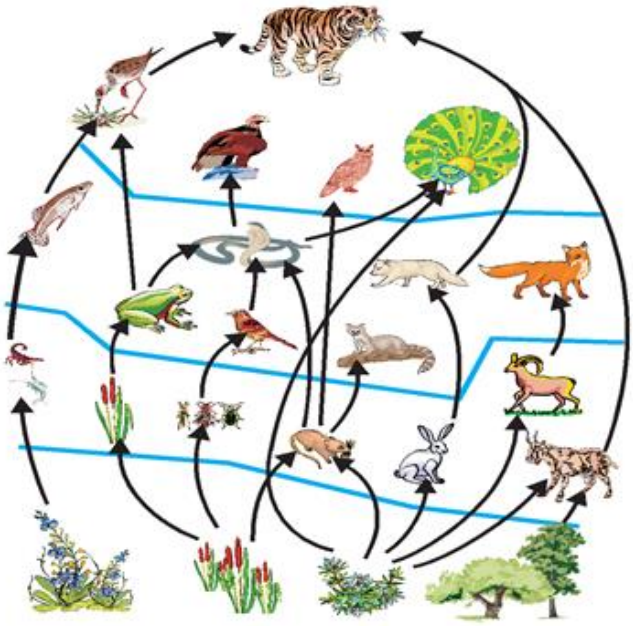
A series of organisms feeding on one another, taking part at various biotic levels form a food chain. No food chain is operating in isolation. So, it is less real in nature.

It can also be defined as follows.

The sequential flow of energy from one organism to the other is called food chain.

**3. What is a Food web?**

A network of interconnected food chains in an ecosystem is called food web. Food webs really operate in nature.



**4. What limits the number of trophic levels in a food chain?**

The amount of energy reaches each trophic level limits the number of trophic levels in a food chain. Only 10% of energy reaches each trophic level in a food chain.

5. **What will happen if decomposers were not there in the environment?**

If decomposers were not there in the environment, the breakdown of the complex organic substances into simple substances will not take place and natural replenishment of the soil will not take place.

So, the presence of decomposers is essential for the replenishment of soil and the maintenance of biogeochemical cycle.

6. **What will happen if all the carnivores were removed from the earth?**

If all the carnivores were removed from the earth, the population of herbivores will increase.

Large population of herbivores will overgraze. As a result, all plants will disappear from the earth surface and ultimately the earth may become a desert. The biosphere will get disturbed which will lead to the end of life on the earth.

7. **What will happen to grasslands if all the grazers were removed from there?**

If all the grazers were removed from grassland, grass will grow uncontrollably.

It may help the growth of some organisms harmful to the animals and the animals which feed on the grazers will die of starvation.

The biogeochemical cycle will stop and the whole biosphere will get disturbed.

8. **The number of malarial patients in a village increased tremendously, when a large number of frogs were exported from the village. What could be the cause for it? Explain with the help of a food chain?**

Phytoplankton → Zooplankton → Larva of Mosquito → Frog

In the absence of frog, survival of mosquito larvae will increase, giving rise to large number of mosquitoes which cause increase incidence of malaria.

9. **State one reason to justify the position of man at the apex of most food chains?**

The position of man at the apex of most food chains is due to his intelligence and can take any advantageous position by manipulation.

10. **Which food chains are advantageous in terms of energy?**

The two step chains in which man is close to the producer is advantageous. For example,

Producer → Man

11. **Construct a food chain composing the following Snake, Hawk, Rats, Plants.**

Paddy → Rats → Snake → Hawks

12. **Name the process that is a direct outcome of excessive burning of fossil fuels?**

Global warming is a direct outcome of excessive burning of fossil fuels.

13. **If all the wastes we generate are bio-degradable what impact may this have on the environment?**

There will be cleaner environment without any pollution. More nutrients will be released into the nutrient pool which will help to maintain ecological balance.

**14. Why do the food chains consist of only three or four steps?**

Loss of energy occurs at each trophic level of a food chain. Only 10 percent of energy reaches the next trophic level. So, the amount of energy reaches the top consumer is very less. Therefore, most of the food chains consist of only three or four levels.

**15. Which of the following will have the maximum concentration of harmful chemicals in its body?**

**Peacock, Frog, Grass, Snake, Grasshopper.**

**Grass → Grasshopper → Frog → Peacock**

Peacock will have maximum concentration.

**16. Why energy of herbivores never comes back to the autotrophs?**

Energy of herbivores never comes back to autotrophs as the flow of energy is always **unidirectional**. So once it has passed a trophic level it is no longer available to the previous level.

**17. What are decomposers and what is the importance of them in the ecosystem?**

The microorganisms which break down the complex organic substances into simple inorganic substances are called decomposers. e.g. bacteria, fungi. They decompose the complex substances into simpler ones so that plants can use them again.

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

**Non-biodegradable substances affect the environment in the following ways:**

(i) Since the non-biodegradable substances cannot be broken down, they get accumulated and thus contaminate the soil and the water resources.

(ii) When these substances are accidentally eaten by some stray animals, can harm them and can even lead to death of the animals.

(iii) These substances occupy more space in the landfills and require special disposal techniques.

(iv) The accumulated non-biodegradable substances can also enter the food chain.

**19. If all the waste we generated is biodegradable, will this have no impact on the environment?**

- Generation of only biodegradable waste will have a positive impact on the environment.
- They will not cause pollution.
- The population of decomposers will increase to breakdown the extra biodegradable waste.

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

Biomagnification is the gradual increase in the concentration of harmful chemicals at each level of the food chain.

The levels of biomagnification will be different at different trophic levels.

In the following aquatic food chain, the DDT concentration in the water is 0.003 ppm.

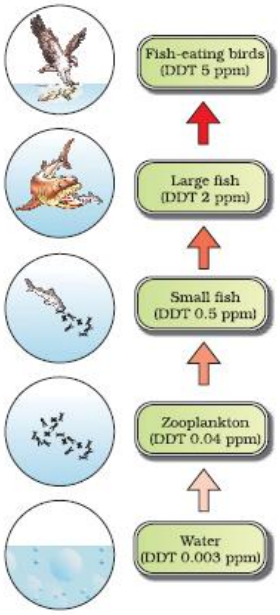
The DDT concentration in the zooplankton is 0.04 ppm.

The DDT concentration in the top consumer, the fish-eating bird is 5 ppm.

The concentration of DDT becomes higher in higher trophic levels.

This happens because DDT is a **non-biodegradable** and a **fat-soluble** chemical which accumulates in the **fatty tissues** of the animals, and is not excreted out.

As human beings occupy the top level in any food chain, the maximum concentration of these chemicals gets accumulated in our bodies.




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

Ozone depletion occurs widely in the stratosphere. However, it is more prominent over the Antarctic region and is known as the ozone hole.

**Consequences of ozone depletion:**

The UV rays cause

- Skin darkening
- Skin cancer
- Photo Ageing
- Corneal cataracts in human beings
- Weakening of immune system
- It can result in the death of many phytoplanktons that leads to increased global warming.

**Prevention:**

To limit the damage to the ozone layer, the release of CFCs into the atmosphere must be reduced.

CFC used in A/Cs, refrigerators and in fire extinguishers should be replaced by environment friendly HFC.

The release of CFCs through industrial activities should also be controlled.

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