Our Environment

Our Environment

Environment: Our surrounding is called environment. Note:

1. Living and non-living present in environment.
2. They are dependent each other.

Living Thing: Organisms that can ability to grow, reproduce, take in and use energy, excrete waste, respond to the environment, and possess an organized structure

These are three types:

(i) Producers (Autotrophs): Organisms which produce their own food, e.g. Plants.

(ii) Consumers: Organism which depend on other organisms for food, e.g. Lion, Elephant and Human etc.

These are three types:

(a) Herbivores: Eat only plants e.g. Deer, Elephant and Cow etc.

(b) Carnivores: Eat only other animals e.g. Lion, Snake etc.

(c) Omnivores: Eat both plants and animals e.g. Humans, Crow etc.

Note:





Plants (Producers) -> **Grasshopper** (Primary Consumer) (1st order) -> **Frog** (Secondary) (2nd order) -> **Snake** (Tertiary) (3rd order) -> **Haw** (Top Consumer)

(iii) Decomposers: Organisms who fee on dead plants and animals e.g. Bacteria, Fungi and worm etc.

Note

(a) Clean up environment by decomposing dead organisms

(b) They break complex compound in dead organism into nutrition. These nutritions mix with soil making soil more fertile.

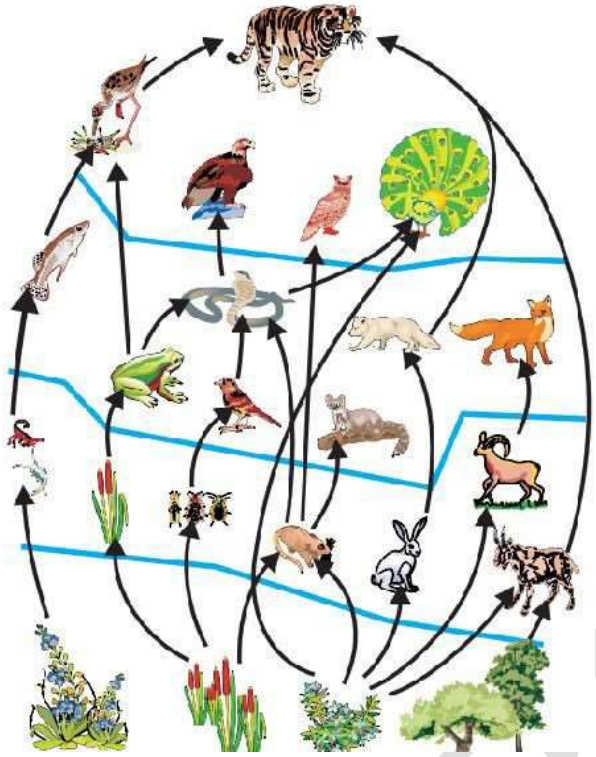
Food Chain: Food chain is a series of organisms in which every next organism depends on the one before it.

E.g.: (i) Plants → Grasshopper → Frog → Snake → Hawk

(ii) Plants → Deer → Lion

(iii) Algae → Insect → fish → Bird

Food Web: In our environment, there can be many food chains which are interlinked at various levels. Thus, many food chains form a network which is called food web.



Food Web

Trophic Levels: Different levels in the food chain are called trophic level.

E.g.:

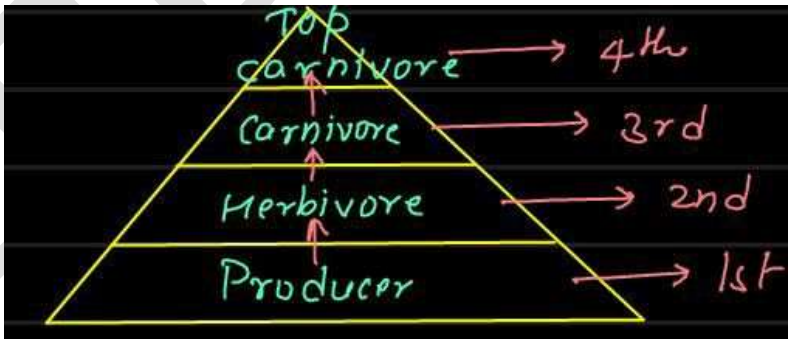
(i)




Algae → Insect → fish → Bird

Producers — Herbivore — Carnivore — Top Consumer

(1st Trophic Level) (2nd Trophic Level) (3rd Trophic Level) (4th Trophic Level)



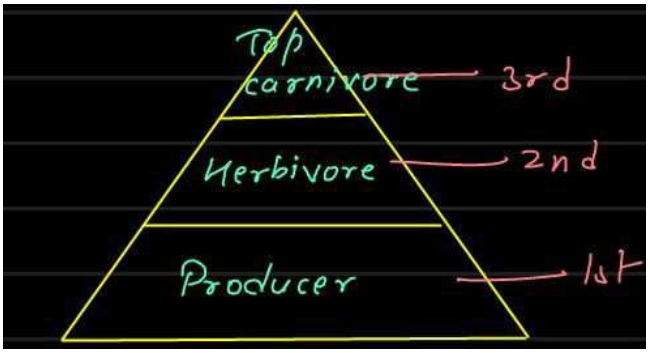
(ii)



Plants → Deer → Lion

Producers — Herbivore — Top Consumer

(1st Trophic Level) (2nd Trophic Level) (3rd Trophic Level)



Flow of Energy: Sun is ultimate source of energy. Only 1% of solar energy coming to earth is absorbed by plants. Plants convert this energy to chemical energy by the process of photosynthesis. Some of this energy is lost by plants to surrounding. Rest is stored in body of plants. Almost90% of this energy is utilized for its own need and rest 10% is left for the organism of the next trophic level. So, very little energy is left for the organism which is at the tertiary level. Flow of energy is unidirectional.

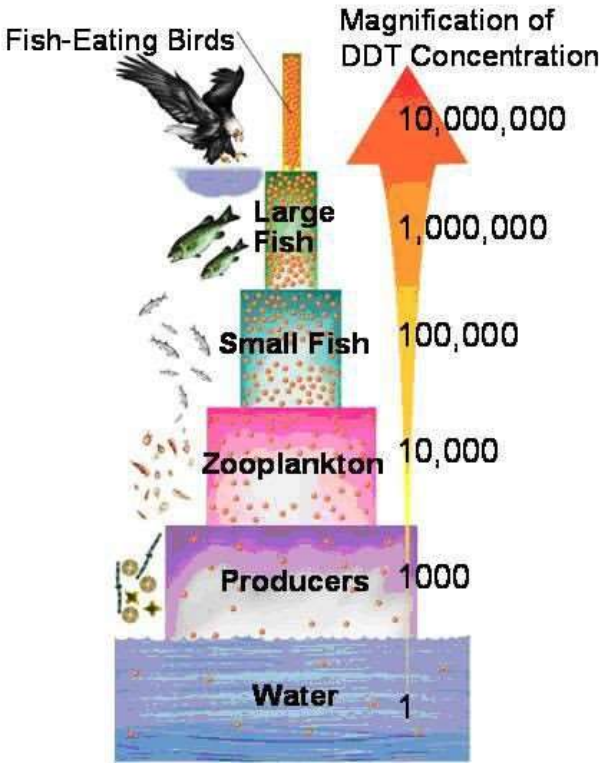
E.g.

Plants → **Grasshopper** → **Frog** → **Snake** → **Hawk**

10000 J → **1000J** → 100 J → 10 J

Only 10% of the energy is transfer to the next trophic level

Biological Magnification: As we move to higher trophic level certain harmful substances such as Mercury, DDT and Pesticides etc. are accumulated, this is called biological magnification.



Ecosystem: This is a system of interdependencies among various living beings and non-living things in a given habitat.

An ecosystem has two types of components.

1. Abiotic Component: All the non-living things make the abiotic component of an ecosystem. E.g. Air, water and soil are the abiotic components.

Note:

a. Air provides oxygen (For respiration) and carbon di oxide (for photosynthesis)and other gases for various needs of the living beings.
b. Water is essential for all living beings because all the metabolic activities happen in the presence of water.
c. Soil is the reservoir of various nutrients which are utilized by plants

2. Biotic Component: All living beings make the biotic component of an ecosystem. E.g.: Green plants, Animals and Bacteria and fungi etc.

Note:

a. Green plants play the role of producers. Because they prepare own food by process of photosynthesis.
b. Animals and other living beings play the role of consumers. Because they dependent for food (directly or indirectly) from plants.
c. Bacteria and fungi play the role of decomposers. As they decompose dead remains of plants and animals so that raw materials of organisms can be channelized back to the environment.

Our Effect on Environment:

Waste: Due to our waste environment get polluted.There are some examples of waste:

House hold garbage: Kitchen waste, Paper, Polythene, wood, Glass, Metal cans and detergents.

Sewage: Waste products generated by human body. **Commercial waste**: from shops, hospitals waste **Industrial waste:** chemical which are used in industry.

E-Waste/ Electronic waste: Useless mobile phones, computer systems and old electronic instruments.

Wastes are two types:

(i) Biodegradable: Wastes which can be decomposed by living organisms like decomposers. They mainly include plants and animals. E.g. Paper, Cotton, Veg waste, Sewage etc.


(ii)Non- Biodegradable: Waste which cannot be decomposed by living organisms are non-biodegradable. E.g. Glass, Metals, Plastics, Dyes, detergents etc.



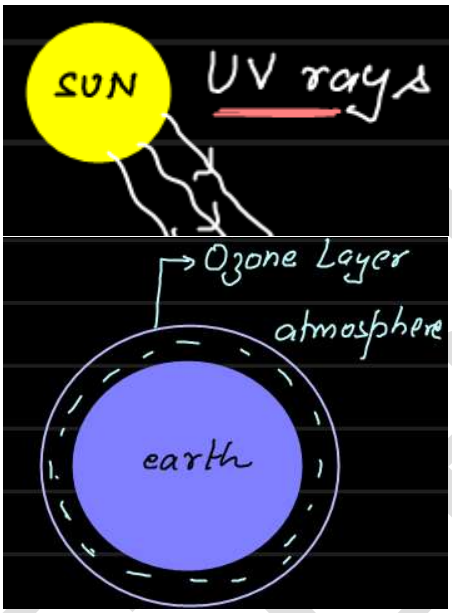
Note:

(i) We should use more of biodegradable material for saving our environment. Such as cotton bags instead of Polythene.
(ii) Paper is biodegradable but should still be avoided for saving the plants.

Disposal of Waste:

Recycle: Paper, Polythene, metal and cans.
Biogas Plants: Sewage and food waste used in make of biogas.
Dump in pits: Sewage and food waste becomes fertilizers after decomposition.
Burnt: Hospital wastes Should be burnt..

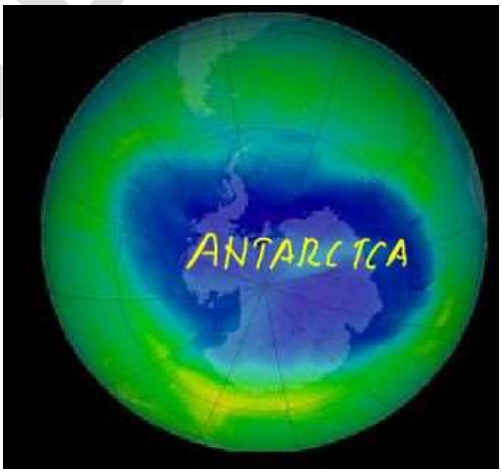
Ozone Layer Depletion: Ozone layer is found high up in atmosphere. When ultraviolet radiations act on oxygen, the oxygen gets converted into ozone.



$$O_2 \xrightarrow{UV} O + O$$
$$O_2 + O \rightarrow O_3 \text{ (Ozone)}$$

Ozone layer works like a protective shield for living beings. The ozone layers wards off harmful ultraviolet radiations from the sun, which cause cancer, cataract and destroy plant.

Depletion: Ozone layer is becoming thin worldwide. It is thinnest at Antarctica and then Artic. This lets more UV rays to reach the surface of earth. It is call Ozone hole.



Reason:

Chlorofluorocarbons (CFCs): CFCs is used in refrigerators, air conditions, fire extinguishers and Shaving creams, which cause depletion of ozone layer.

Prevention: In 1987, the UNEP (United Nations Environment Programme) succeeded in forging an agreement among different countries not to produce CFCs. Since then, there is decrease in growth of depletion.