

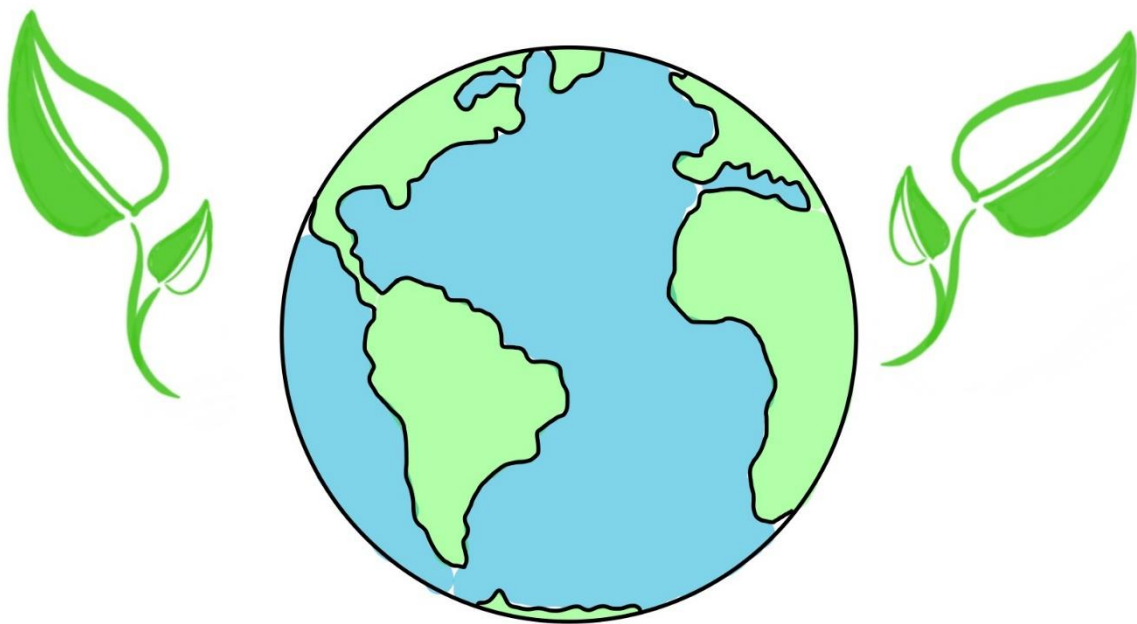


BIOLOGY

AID

Our Environment

Handwritten Notes



Environment

- All biological (plants, animals, micro-organisms etc.) and physical (Soil, water, air, sunlight etc.) surroundings around us create our environment.

Ecosystem

- All interacting organisms in an area together with non-living constituents of the environment form an ecosystem.

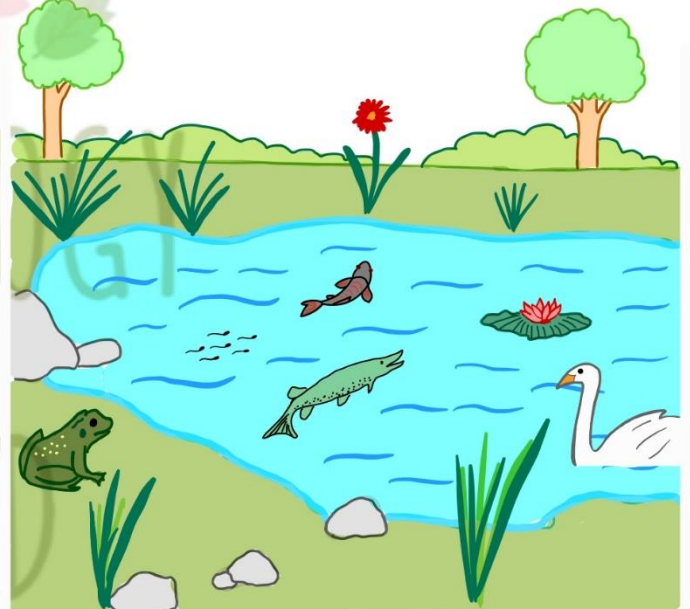
Types of Ecosystem

Natural Ecosystem

- It exists in nature without any human interference.
- Eg: Pond, River, Forest

Artificial Ecosystem

- Made by humans for their own interest.
- Eg: Aquarium, Garden

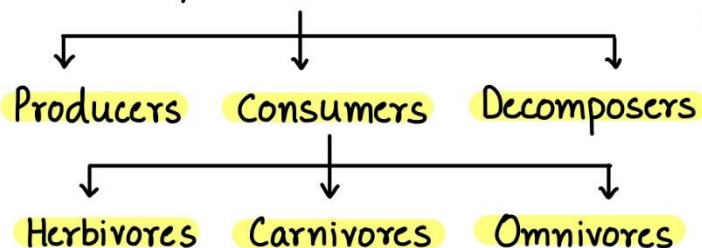


Components of Ecosystem

Biotic components

[Living components]

- All the living organism of a certain area like plants, animals humans, microbes etc.



Abiotic components

[Non-living components]

- All climatic factors like rain, humidity, temperature inorganic substances like oxygen, nitrogen etc.

Producers

- Organism which can prepare their own food from simple inorganic substances like carbon dioxide and water by using sunlight energy in the presence of chlorophyll.
- Eg. Green plants and certain blue-green algae

Consumers

- Those organisms which consume food prepared by producers are called consumers.

Herbivores

- Those animals which eat only plants.
- Eg. Goat, Sheep, Deer, Camel etc.

Carnivores

- Those animals which eat only other animals as food.
- Eg. Lion, Tiger etc.

Omnivores

- Those animals which eat both plants and animals.
- Eg. Man, Dog, Crow etc.

Decomposers

- Micro-organism that break down the complex organic compounds present in dead organism into simpler substances.
- Eg. Certain bacteria and fungi

Food Chain

- The flow of nutrients and energy from one organism to another at different trophic levels forms a food chain.
- Food chain represents a single unidirectional transfer of energy.
- Food chain starts with producer.

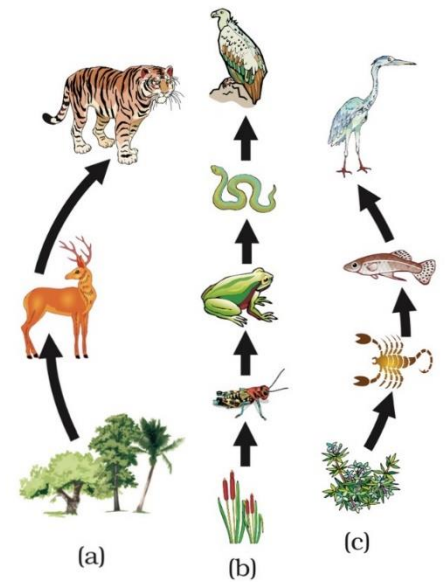
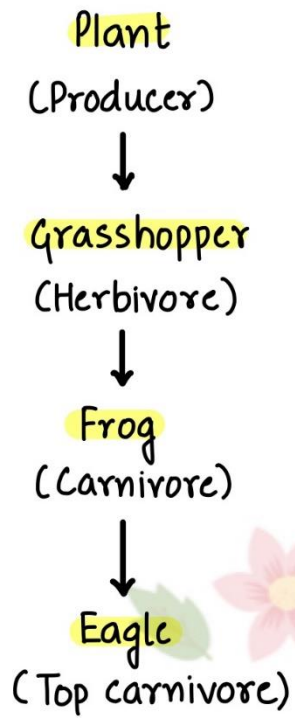


Figure 15.1
Food chain in nature
(a) in forest, (b) in
grassland and (c) in a
pond

Food Web

- Several Interconnected food chains forms a food web.
- Single food chain doesn't naturally occur in an ecosystem.

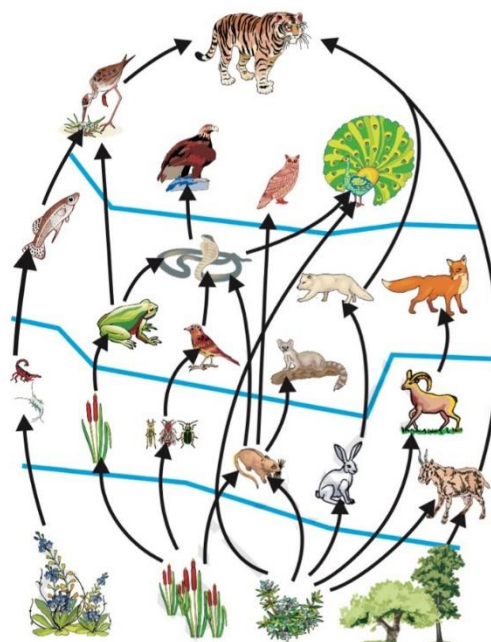
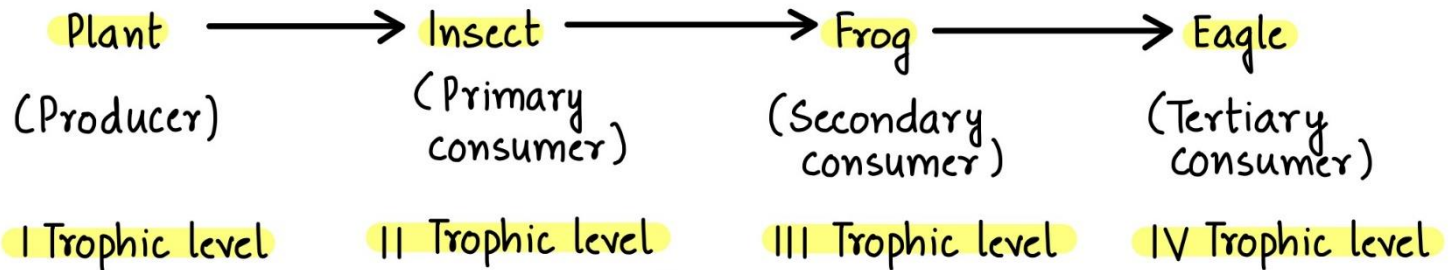


Figure 15.3
Food web, consisting of
many food chains

Trophic levels

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



- There are generally a greater number of individuals at the lower trophic levels of an ecosystem, the greatest number is of producers.
- The energy transfer is never 100%. Thus, each successive trophic level receives lesser energy than previous resulting in a pyramid shape.

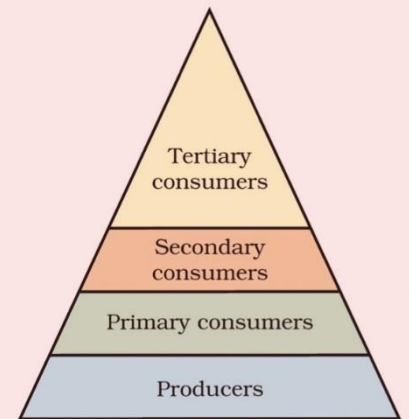
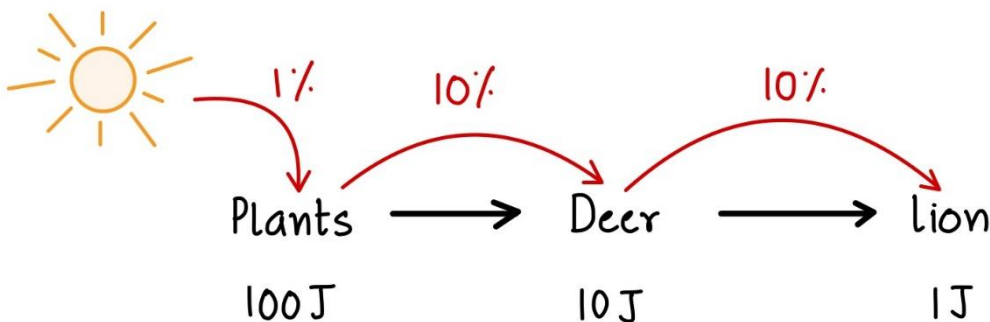


Figure 15.2
Trophic levels

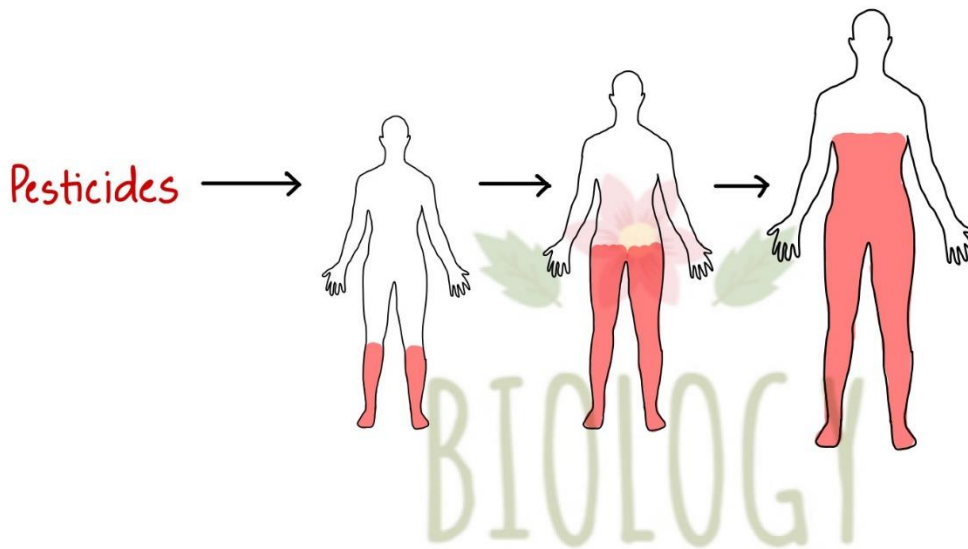
Ten Per Cent Law

- Only 10 per cent of the energy entering a particular trophic level of organisms is available for transfer to the next higher trophic level.



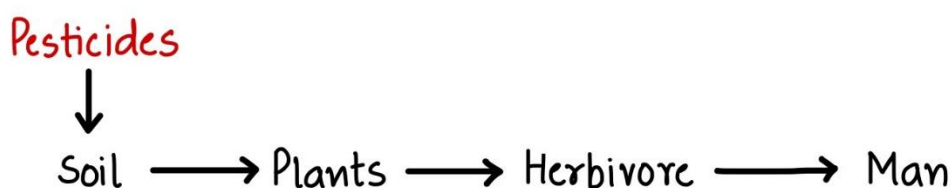
Bioaccumulation

- Bioaccumulation refers to the accumulation of a toxic chemical in the tissue of a particular organism.
- It occurs in a single organism over lifetime.



Biomagnification

- Biomagnification refers to the increase in concentration of harmful chemical substances in the body of living organism at each trophic levels of a food chain.
- It expands over different trophic levels.
- Organism at the higher trophic levels have higher concentration of such chemicals.
- Eg: In the below case, man will have the highest amount of pesticides



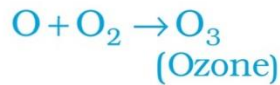
How Do Our Activities Affect The Environment

Ozone Layer Depletion

- Ozone molecule is made up of 3 atoms of oxygen combined together (O_3)
- Ozone layer protects the life on earth from harmful ultraviolet radiations coming from sun.
- Ultraviolet rays can cause skin cancer.

How Ozone is formed:

- Ozone is formed high up in the atmosphere by the action of ultraviolet radiation on oxygen gas.



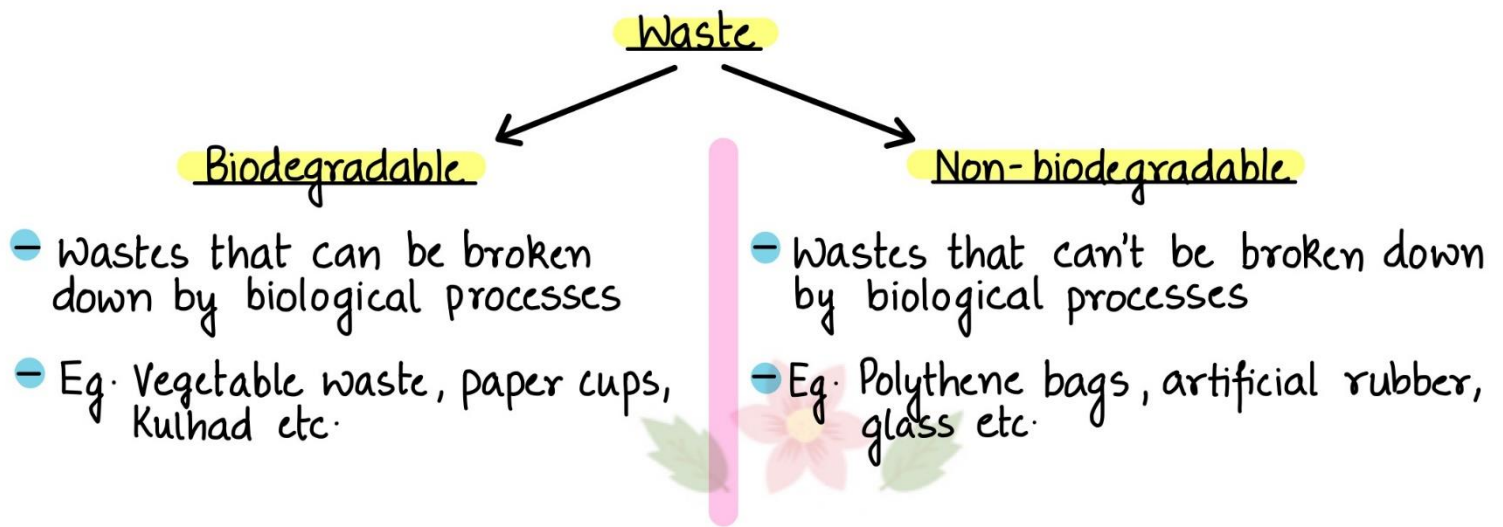
Reason of Ozone Depletion:

- Chlorofluorocarbon (CFC) is one of the major chemicals that deplete the ozone layer. CFC is found in coolant, fire extinguisher etc.

Effort to protect:

- In 1987, United Nations Environment Programme (UNEP) forged an agreement among its member countries to freeze CFC production.

Managing The Garbage We Produce



Management :

Disposal Methods

- These are landfills, incineration, composting, sewage treatment, recycling etc.

Efforts on individual level

- Reduce, Reuse and Recycle.
- Proper waste disposal methods should be followed.
- Use of clay made cups or paper cups over plastic cups.
- Cloth, jute or paper cups should be used.

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