

Chapter 15

Our Environment

Everything around us, living (like plants and animals) and non-living (like air and water), makes up our environment.

Ecosystems: Ecosystems are communities of living and non-living things interacting with each other.



Food Chains and Webs: In an ecosystem, living things depend on each other for food, creating food chains and interconnected food webs.

Human Impact: Things we do, like using certain chemicals and creating a lot of garbage, can harm the environment.

Ecosystem: An ecosystem is a group of living and non-living things in a certain area, like a forest or pond.

Types of Ecosystems:

- Natural ecosystems (like forests and oceans) exist on their own.
- Artificial ecosystems (like gardens and crop fields) are created by humans.

Components of Ecosystem:

- **Living (Biotic) Components:**
Plants, animals, bacteria, and fungi.
- **Non-living (Abiotic) Components:**
Air, water, land, light, and temperature.

On the Basis of Nutrition:

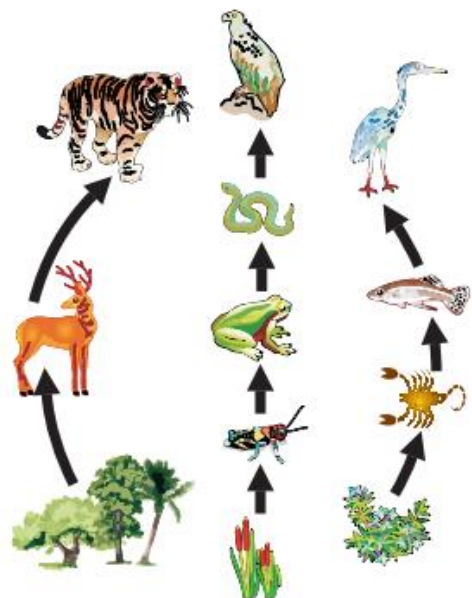
- **Producers:** Plants and algae make their own food through photosynthesis.
- **Consumers:** Animals that eat other living things.

Kinds of Consumers:

- **Herbivores** eat plants (e.g., goats, deer).
- **Carnivores** eat other animals (e.g., tigers, crocodiles).
- **Omnivores** eat both plants and animals (e.g., humans).
- **Parasites** live on other organisms (e.g., lice).

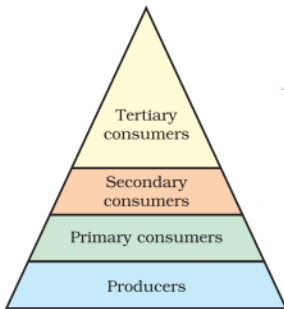
Decomposers: Bacteria and fungi that break down dead plants and animals.

Food Chain: A series of who eats whom in nature (e.g., Grass → Deer → Lion).



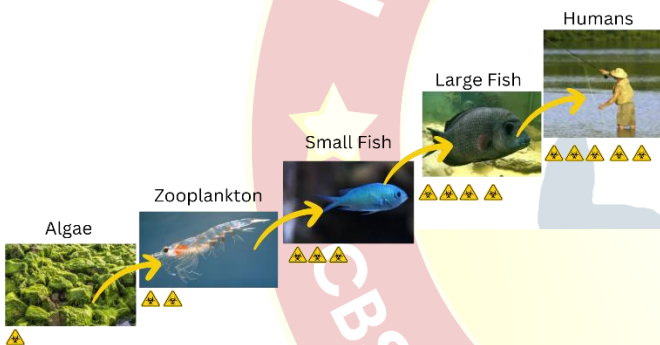
Food Chain

Trophic Levels: Different levels in a food chain with decreasing energy.

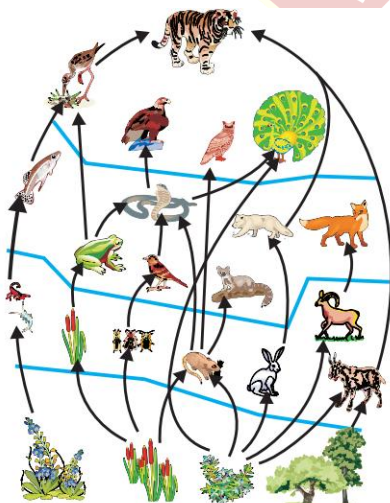


Energy Flow: Energy moves in one direction in a food chain. **Only 10%** of energy goes to the next level; the rest is used by the current level.

Biological Magnification: Harmful chemicals increase as we go up the food chain, especially affecting top-level consumers like humans.



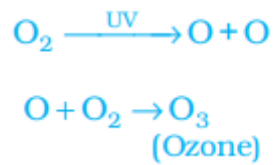
Food Web: Many food chains connected together in nature.



Environmental Issues: Changes in the environment affect us, and what we do can change the environment, causing problems like pollution and deforestation.

Ozone Layer: Ozone is a protective layer in the atmosphere that absorbs harmful UV radiation from the sun.

Ozone in the upper atmosphere results from UV radiation breaking down oxygen molecules (O₂), creating free oxygen atoms (O) that subsequently combine with molecular oxygen to form ozone.



Ozone Depletion: Human-made chemicals, like CFCs, are causing the ozone layer to get thinner.

Types of Waste:

- Biodegradable (can be broken down by nature) like food scraps.
- Non-biodegradable (doesn't break down easily) like plastic.

Disposal Methods:

- Biogas plants turn waste into energy.
- Sewage treatment plants clean water before releasing it.
- Composting turns organic waste into natural fertilizer.
- Recycling makes new things from old materials.
- Reusing items instead of throwing them away.