

Quadrant II – Transcript and Related Materials

Programme	: Bachelor of Arts/Science/Commerce (First Year)
Subject	: Geography
Course Code	: GEG103
Course Title	: Fundamentals of Ecology
Unit	: I
Module Name	: Food Chain – Meaning, Importance and Types
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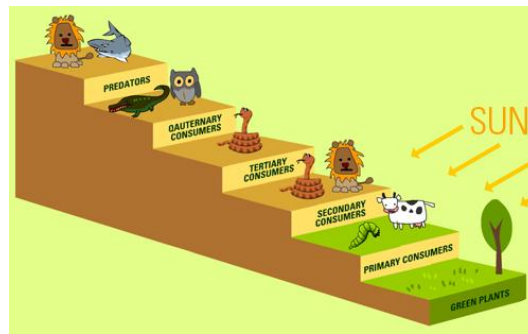
Notes

Ecosystem's, a functional unit of environment, survival and sustainability largely depends on the flow of matter and energy through its components namely biotic and abiotic. As we are aware that the sufficient amount of energy and nutrients are essential for the existence of life and so their just availability is of utmost importance.

The energy and matter get transmitted mainly through biogeochemical cycles; essentially through food chains and food webs. Food chains and webs form part of biogeochemical cycles and are playing significant role in maintenance of ecosystem. The sequence of transfer of matter and energy in the form of food take place from organism to organism i.e. from the lower trophic levels to higher trophic levels organisms.

Food Chain

The process of eating and being eaten up is known as food chain. This involves transfer of energy and nutrients from one organism of lower trophic level to another organism of higher trophic level.



Food chain consist of 4 major parts

- ❖ The Sun – is the primary source of energy for the functioning of the ecosystem
- ❖ Producers – are the Autotrophs who converts sun’s energy into useful food energy through the process of photosynthesis
- ❖ Consumers – Includes different kinds of animals like herbivore, carnivore and omnivore which occupy different trophic levels and absorb energy from their lower level feeders.
- ❖ Decomposers – are the micro-organisms transforming dead organic matter into inorganic elements and making them available in the elemental or compound form either to be released to their original pool or to be used for the functioning of the ecosystem.

Types of Food Chain

Food chains can be classified into several categories for their simplified understanding.

1. Based on the nature of material consumed, food chains are identified as

1. Grazing Food Chain
2. Detritus Food Chain

Grazing Food Chain – This chain starts with green plants, passes through herbivores and then to carnivores. Eg. Tree → Cow → Tiger

or Grass → Grasshopper → Frog → Snake → Eagle

Type of grazing food chains

- Predator Food Chain – It is a food chain wherein involve a plant-eating animal is eaten by a flesh-eating animal. Eg. Grass → Deer → Lion.
- Parasitic Food Chain – This involve a smaller organism consuming part of a larger host and may itself be parasitized by even smaller organisms. Eg. Tree → Bird → Lice
- Detritus Food Chain – It begins with dead organic material. This includes species of organisms and plants like algae, bacteria, fungi, protozoa, mites, insects, worms, and others

2. Based on area/location

Food chains can also be identified as

- Terrestrial Food Chains – are land based systems and involve complex web of organisms living over land. Eg. Grass → Rabbit → Fox
- Aquatic Food Chain – These are water based systems. Eg. Aquatic Insect → Small Fish → Large Fish

Significance of Food Chain

- The food chain explains the feeding pattern or relationship between living organisms.
- They help us to appreciate the energy flow mechanism and matter circulation in ecosystem and understand the movement of toxic substances in the ecosystem.
- The study of food chain helps us to understand the problems of bio-magnifications.

- Food chain determines the trophic level of organisms.
- It balances the ecosystem