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Decomposers

- They derive their nutrition by breaking down the complex organic molecules to simpler organic compounds and ultimately in to inorganic nutrients.
- Even after animals and plants have died they serve as food for the **decomposers**. Bacteria and fungi feed off dead, decaying, organic material and break it down into simple nutrients that are returned to the soil or water. These substances are then re-used by the producers.



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Decomposers

- Saprophytic organisms (Bacteria & Fungi) that obtain their energy by decomposing the dead parts of the living organisms.





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Contents

- Food Chain,
- food web
- Ecological Pyramids



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The function of an ecosystem can be studied under the three heads.

1. **Trophic Level Interaction** – gives idea about the energy flow through the ecosystem.

2. **Ecological Succession** - deals with the changes in features/members of an ecosystem over a period of time

3. **Biogeochemistry Trophic Level** - focused upon the cycling of essential materials in an ecosystem.

- Trophic Level Interaction –. Three concepts
 - **Food Chain**
 - **Food Web**
 - **Ecological Pyramids**



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Food chain

it is the sequence of eating and being eaten in ecosystem is known as food chain.





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- A food chain may be defined as, “ the transfer of energy and nutrients through a series of organisms with repeated process of eating and being eaten”.
- In an ecosystem, all the organisms are linked together with one another by food relationship.
- Each organism living or dead is potential food for some other organism.



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Examples

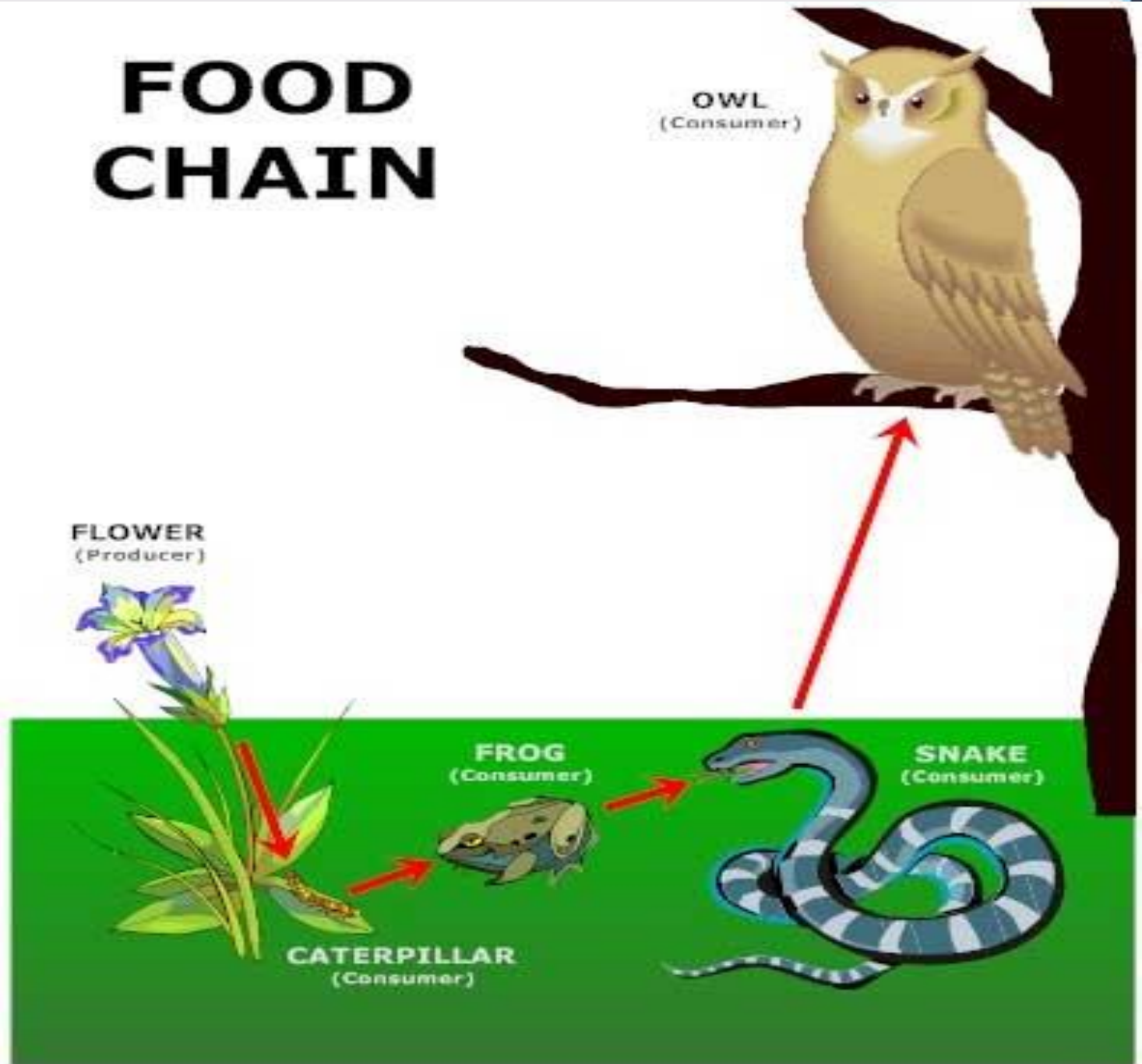
- Grass → grasshopper → Frog → Snake → Hawk (Grassland ecosystem)
- Phytoplanktons → water fleas → small fish → Tuna (Pond ecosystem)
- Lichens → reindeer → Man (Arctic tundra)



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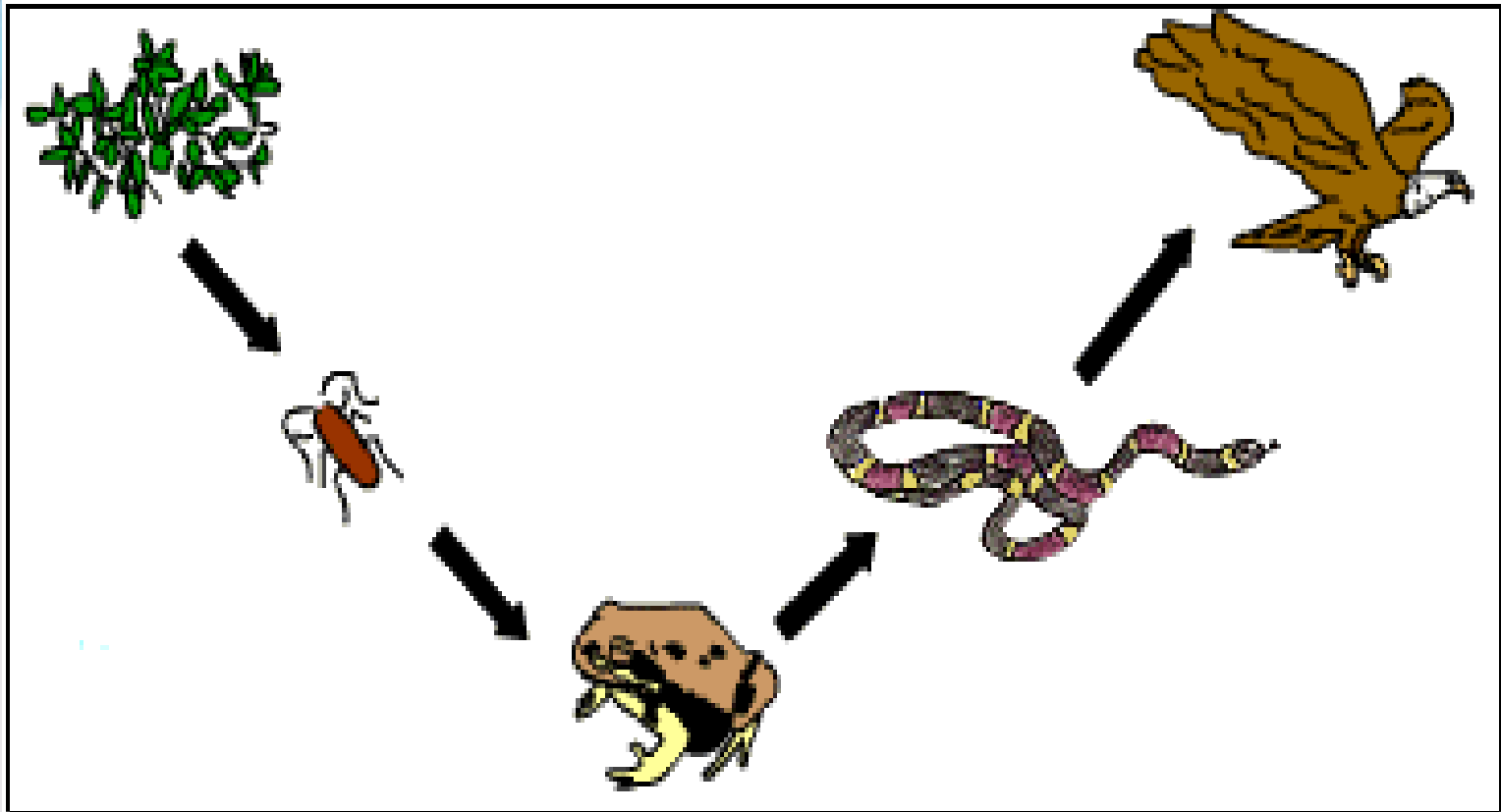
FOOD CHAIN





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Food Chains





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Types of food chains

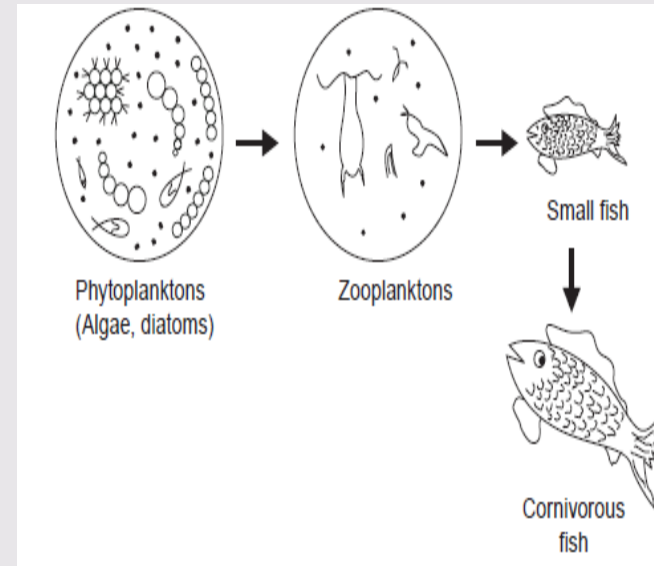
- 1. Grazing Food chain
- 2. Detritous Food chain



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Grazing Food chain

- It starts with green plants and culminates in carnivores.



Grass → Rabbit → Fox

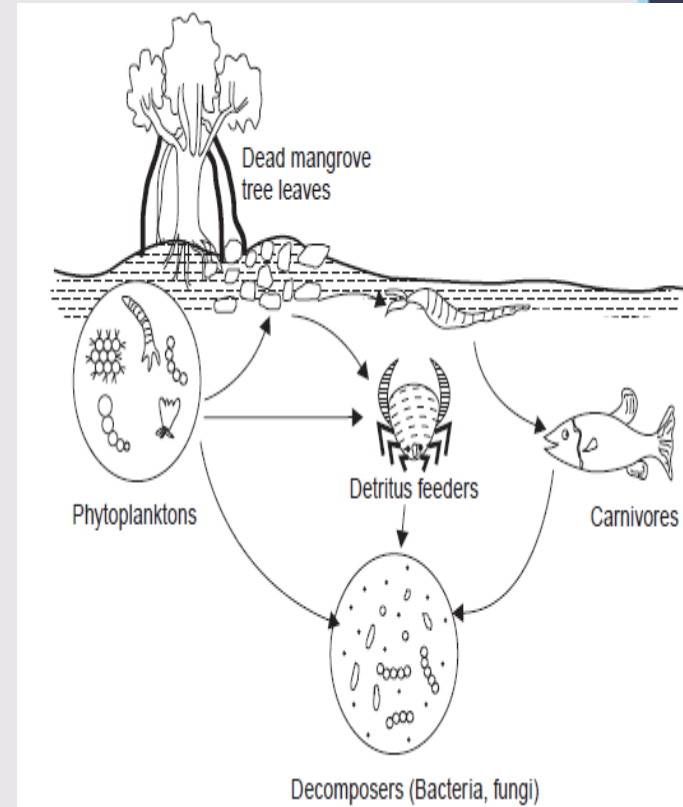


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Detritous Food chain

- It starts with dead organic matter which the detritivores and decomposers consume. Partially decomposed dead organic matter and even the decomposes are consumed by detritivores and their predators





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Decomposers Vs. Detritivores?

- They actually are different, even though this difference is slight.
- Detritivores are organisms that feed on decomposing organic matter [ex: poop (fecal matter), leaf litter, detritus (marine snow)].
- Decomposers are organisms that consume **ONLY** dead organisms.



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Decomposers Vs. Detritivores?

- Detritivore feeds on large parts of decaying plant, animal matter, and on waste material.
-
- A decomposer consumes and breaks down dead organisms or waste matter into simple substances.



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- They both get nutrition from dead organic matter.
 - The difference is that detritivores actually eat the organic matter (like earthworms eating their way through the soil) e.g. beetles, termites, ants, crabs, earthworms etc
- And
- decomposers secrete enzymes to digest the organic matter and then absorb the resulting molecules (like bacteria or fungi do).



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- **Decomposers**: absorb nutrients on a molecular scale. They derive their nutrition by breaking down the complex organic molecules to simpler organic compounds and **ultimately into inorganic nutrients**. **Various bacteria and fungi** are decomposers.
- **Detritivores**: ingesting dead organic matter
: might feed on the droppings of scavengers/hunters or on the parts of carcasses/skeleton left behind
- **Scavengers**: generally being larger organisms which consume larger amounts of organic matter