Food Chain & Food Web

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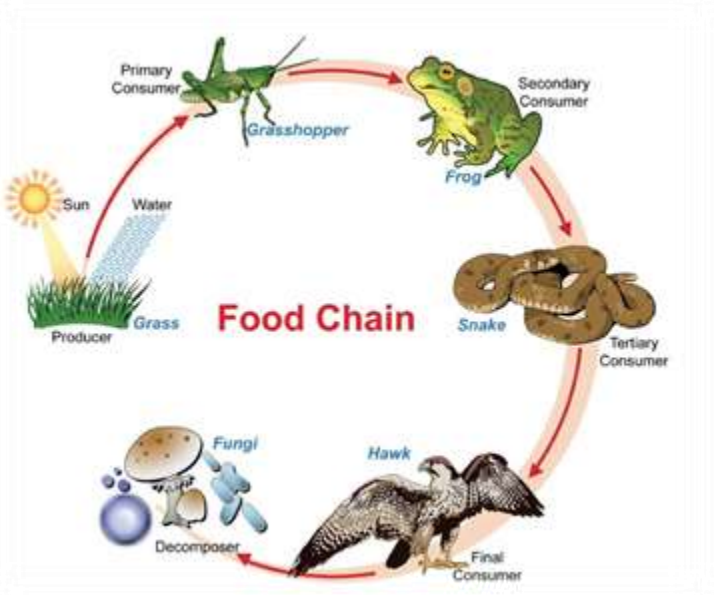
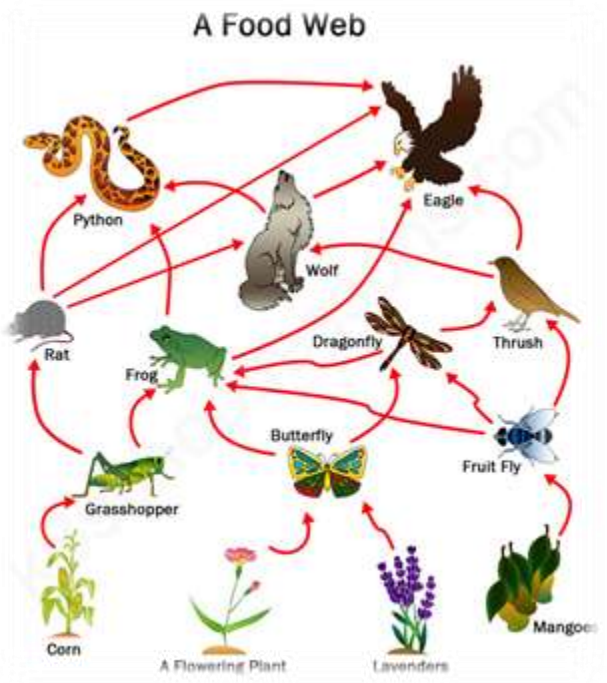
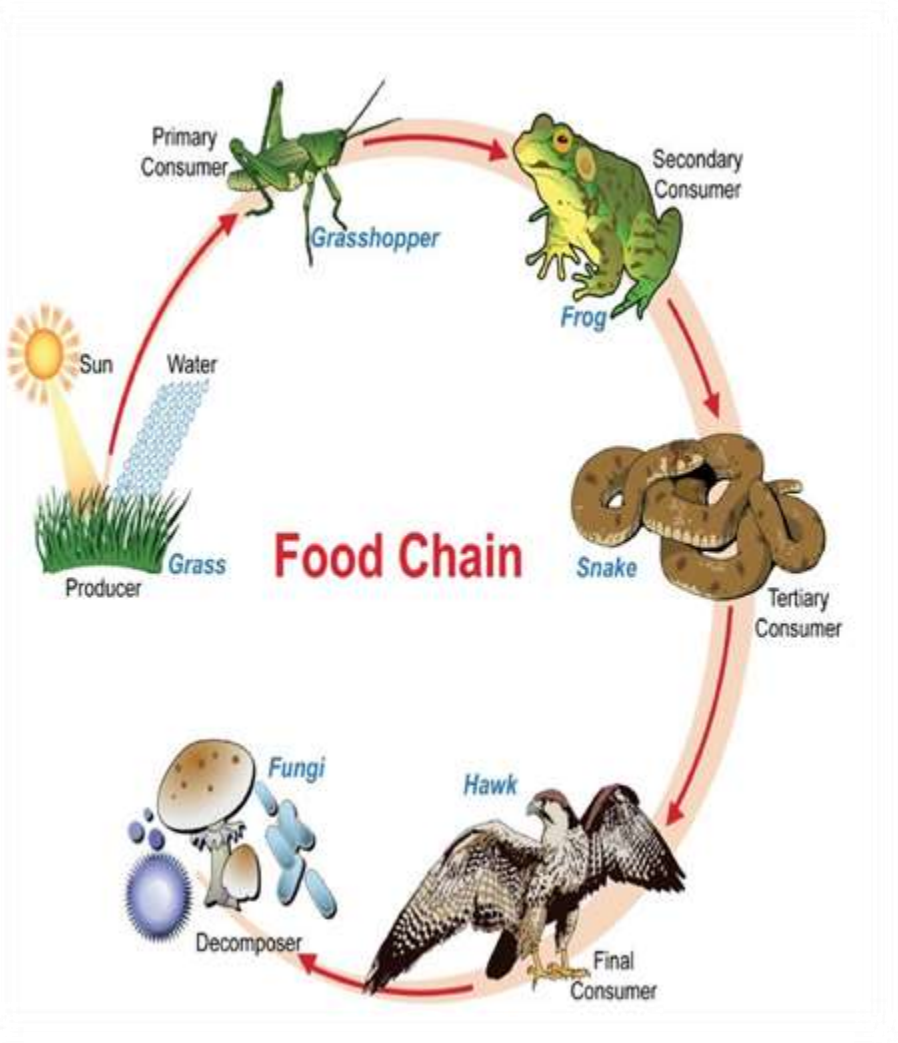




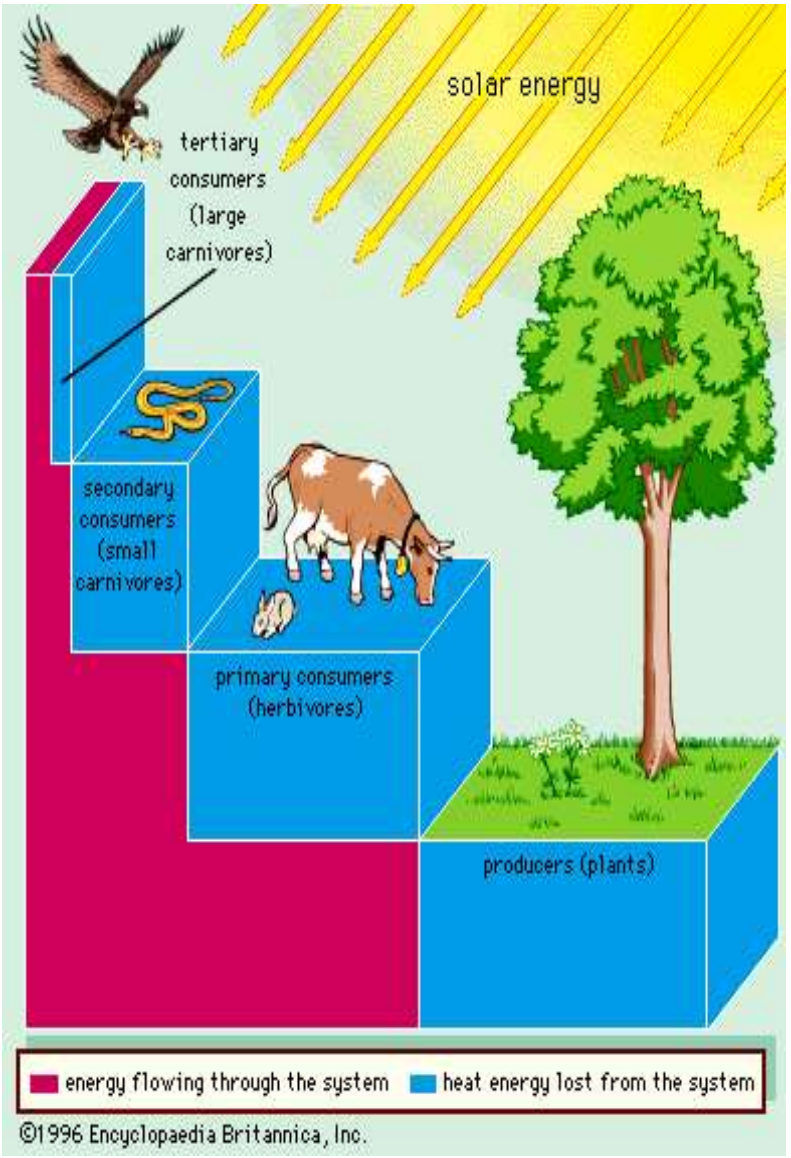
Introduction

- A food chain explains which organism eats another organism in the environment.
- The food chain is a linear sequence of organisms where nutrients and energy is transferred from one organism to the other.
- This occurs when one organism consumes another organism.
- It begins with producer organism, follows the chain and ends with decomposer organism.
- After understanding the food chain, realize how one organism is dependent upon another species for survival.
- All food chains may not process if there is absence of bacteria on the earth.



What is a food chain?

- A series of organisms each dependent on the next as a source of food.
- The series of processes by which food is grown or produced, sold, and eventually consumed.
- A food chain refers to the order of events in an ecosystem, where one living organism eats another organism, and later that organism is consumed by another larger organism.
- The flow of nutrients and energy from one organism to another at different trophic levels forms a food chain.
- The food chain also explains the feeding pattern or relationship between living organisms.
- Trophic level refers to the sequential stages in a food chain, starting with producers at the bottom, followed by primary, secondary and tertiary consumers.
- Every level in a food chain is known as a trophic level.



Parts of food chain

- **The Sun:**

➢ The sun is the initial source of energy, which provides energy for everything on the planet.

- **Producers:**

➢ The producers in a food chain include all green plants.
➢ This is the first stage in a food chain.
➢ The producers make up the first level of a food chain.
➢ The producers utilize the energy from the sun to make food.
➢ Producers are also known as autotrophs as they make their own food. Producers are any plant or other organisms that produce their own nutrients through photosynthesis.
➢ For example, green plants, fruits, phytoplanktons, small plants, and algae are some examples of producers in a food chain.

Continued….

- **Consumers:**

- Consumers are all organisms that are dependent on plants or other organisms for food.
- This is the largest part of a food web, as it contains almost all living organisms.
- It includes herbivores which are animals that eat plants, carnivores which are animals that eat other animals, parasites are those organisms that live on other organisms by harming them and lastly the scavengers, which are animals that eat dead animals carcasses.
- Here, herbivores are known as primary consumers and carnivores are secondary consumers. The second trophic level includes organisms that eat producers. Therefore, primary consumers or herbivores are organisms in the second trophic level.

- **Decomposers:**

- Decomposers are organisms that get energy from dead or waste organic material.
- This is the last stage in a food chain.
- Decomposers are an integral part of a food chain, as they convert organic waste materials into inorganic materials like nutrient-rich soil or land.
- Decomposers complete a life cycle, as they provide nutrients to soil or oceans, that can be utilized by autotrophs or producers. Thus, starting a whole new food chain.

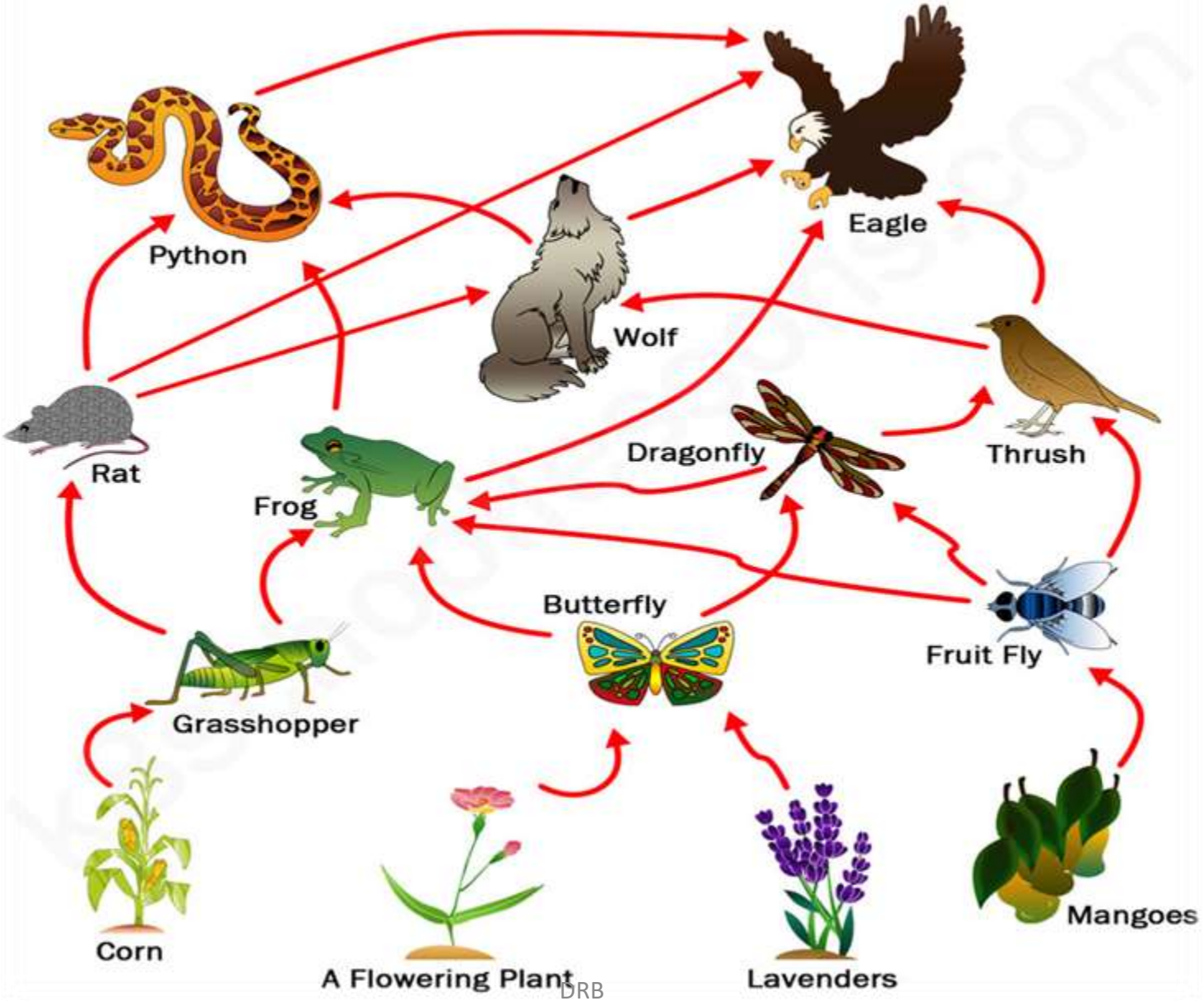
Food Web:

- A **food web** (or **food cycle**) is the natural interconnection of food chains and a graphical representation (usually an image) of what-eats-what in an ecological community
- Another name for food web is **consumer-resource system.**

- Several interconnected food chains form a food web.

- A food web is similar to a food chain but the food web is comparatively larger than a food chain.
- Occasionally, a single organism is consumed by many predators or it consumes several other organisms.
- Due to this, many trophic levels get interconnected, and the food chain fails to showcase the flow of energy in the right way.
- But, the food web is able to show the proper representation of energy flow, as it displays the interactions between different organisms.
- When there are more cross interactions between different food chains, the food web gets more complex.
- This complexity in a food web leads to a more sustainable ecosystem.

A Food Web

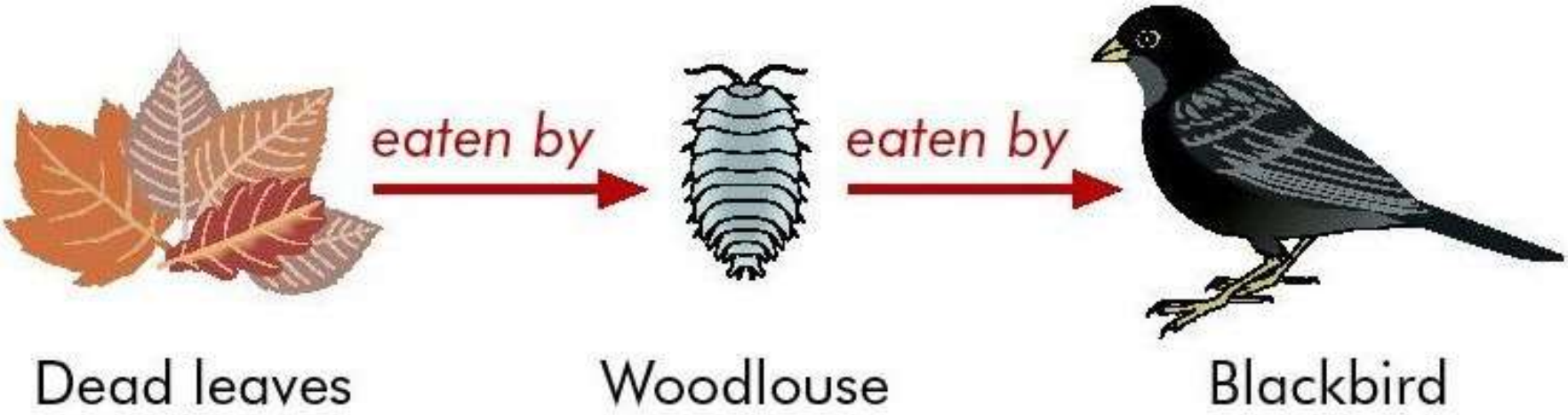

Python
Eagle
Wolf
Rat
Frog
Dragonfly
Thrush
Butterfly
Fruit Fly
Grasshopper
Corn
A Flowering Plant
Lavenders
Mangoes

Types of Food Chain

- There are two types of food chains, namely detritus food chain and grazing food chain.

- **Detritus food chain:**
- The detritus food chain includes different species of organisms and plants like algae, bacteria, fungi, protozoa, mites, insects, worms
- The detritus food chain begins with dead organic material.
- The food energy passes into decomposers and detritivores, which are further eaten by smaller organisms like carnivores.
- Primary consumers like fungi, bacteria, protozoans, and so on are detritivores which feed on detritus.
- Carnivores, like maggots, become a meal for bigger carnivores like frogs, snakes

Detritus Food Chain



- **Grazing food chain:**
- The grazing food chain is a type of food chain that starts with green plants, passes through herbivores and then to carnivores.
- In a grazing food chain, energy in the lowest trophic level is acquired from photosynthesis.
- In this type of food chain, the first energy transfer is from plants to herbivores.
- This type of food chain depends on the flow of energy from autotrophs to herbivores.
- As autotrophs are the base for all ecosystems on earth, the majority of ecosystems in the environment follow this kind of food chain


Grazing Food Chain
Owl
(consumer)
Flower
(producer)
Caterpillar
(consumer)
Frog
(consumer)
Snake
(consumer)

	Grazing food chain		Detritus food chain
1.	In this food chain, energy is derived from the Sun.	1.	In this food chain, energy comes from organic matter (or detritus) generated in trophic levels of the grazing food chain.
2.	It begins with producers, present at the first trophic level. The plant biomass is then eaten by herbivores, which in turn are consumed by a variety of carnivores.	2.	It begins with detritus such as dead bodies of animals or fallen leaves, which are then eaten by decomposers or detritivores. These detritivores are in turn consumed by their predators.
3.	This food chain is usually large.	3.	It is usually smaller as compared to the grazing food chain.