

UNIT -7

MICROORGANISMS IN THE ENVIRONMENT

TOPIC: 7.1

- Microorganisms are organisms that are so small that they can only be seen through a microscope.
- Microorganisms are classified into four major groups mainly bacteria, fungi, protozoa and some algae.

> Major groups of microorganisms:

1. Bacteria

- Bacteria are the single-celled microbes which are heterotrophic in nature.
- Bacteria help in food preparation and fermentation.
- Bacteria differ in shapes- spherical, curved etc.
- Examples- *Salmonella*, *Pseudomonas*

2. Fungi

- Fungi are non-green multicellular plant-like organisms.
- Fungi are heterotrophic in nature and therefore can't prepare their own food.
- Examples- Yeast and Mushrooms

3. Protozoa

- Protozoa is a microscopic eukaryotic organism which can be unicellular or multicellular.
- Protozoans are animal-like organisms and are motile.
- Examples- *Amoeba*, *Paramecium*

4. Algae

- Algae are simple plant-like organisms.
- Algae have chlorophyll and can produce their own food.
- Examples- *Nostoc*, *Spirogyra*

TOPIC :7.2 FOOD CHAINS AND WEBS

***Herbivore** : A herbivore is an animal which only eats plants.

eg: rabbit , cow, goat , squirrel etc.

***Carnivore**:An animal that only eats other animals.

eg: lion ,wolf ,tiger, dog , hawks, eagles, falcons etc.

***Omnivore** :An animal that eats both plants and other animals.

eg:Human Beings , peacock , pig , bear etc.

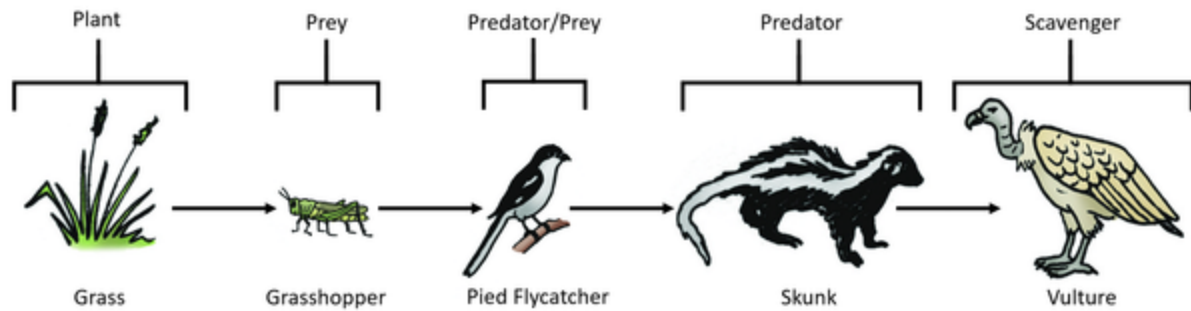
- **Scavengers**: An animal that eats the flesh of dead animals.
- eg: vulture ,hyena , jackal , crows, crabs etc.

***Detritivore**:An animal which feeds on dead organic material, especially plant waste.

Eg: earthworms , maggots, and woodlice. etc.

***Predator**: An animal that hunts other animals.

***Prey** : An animal that is killed by another animal for food.



****Food chain :** The producer -consumer relationship makes a food chain.

Example:

Green plants → deer → tiger

(producer) → (primary consumer) → (secondary consumer)

Here are the five trophic levels:

- **Level 1:** Plants (producers)
- **Level 2:** Animals that eat plants or herbivores (primary consumers)

- **Level 3:** Animals that eat herbivores (secondary consumers, carnivores)
- **Level 4:** Animals that eat carnivores (tertiary consumers, carnivores)

Draw a food chain.

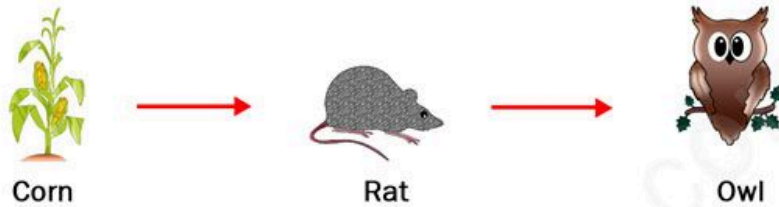
- An arrow in a food chain represents;
'→' is eaten by

The arrows in the food chain below depict **the direction in which energy and nutrients flow**, i.e. the arrow always points from the eaten to the eater.

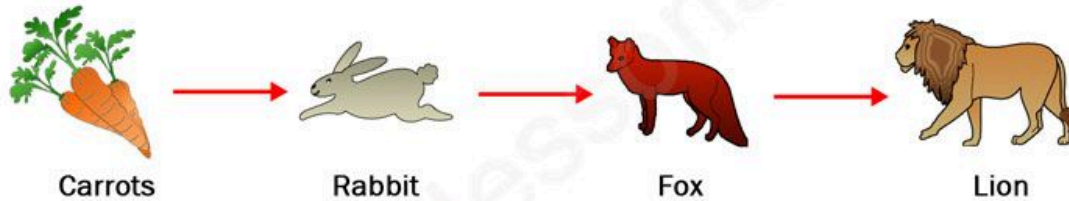
*Different types of food chains



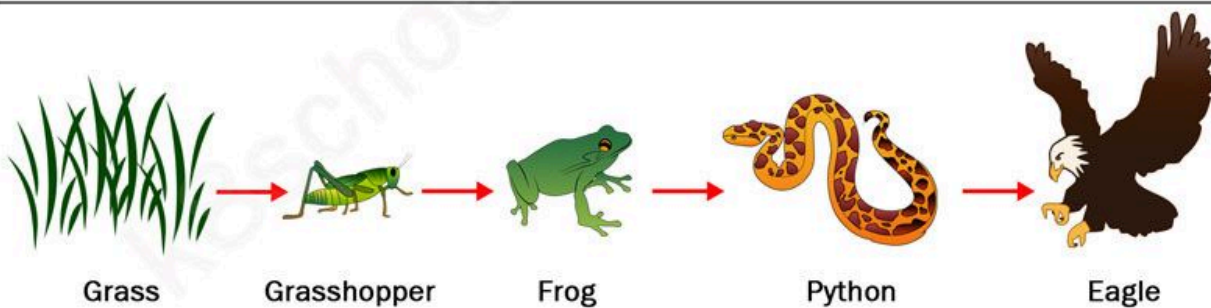
Food Chains



A three linked food chain



A four linked food chain



A five linked food chain

FOOD WEBS

- A food web **consists of all the food chains in a single ecosystem**. Each living thing in an ecosystem is part of multiple food chains. Each food chain is one possible path that energy and nutrients may take as they move through the ecosystem.
- The four major elements of a food web are a source of energy (typically the Sun), producers, consumers, and decomposers. Producers use the energy source to produce their own food.

The diagram illustrates a food web with the following organisms and their interactions:

- Producers:** Corn, A Flowering Plant, Lavenders, Mangoes.
- Primary Consumers:** Grasshopper (eats Corn), Rat (eats Corn), Frog (eats Grasshopper), Butterfly (eats A Flowering Plant), Dragonfly (eats Lavenders), Fruit Fly (eats Mangoes).
- Secondary Consumers:** Python (eats Rat, Frog), Wolf (eats Rat, Frog, Dragonfly), Eagle (eats Python, Wolf, Fruit Fly).
- Tertiary Consumers:** Eagle (eats Thrush), Thrush (eats Dragonfly, Fruit Fly).

