

Board – ICSE

Class- VIII

TOPIC – ECOSYSTEM

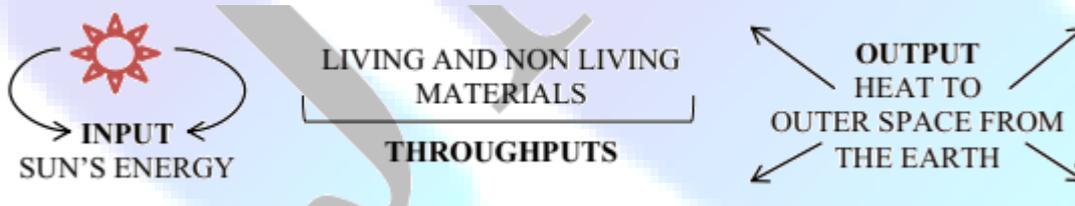
1. Define the following terms:

(a) Biosphere

The whole of the region of the earth's surface, the sea, and the air where living organisms are found is termed as Biosphere. It is the highest unit of biological or ecological organisation.

(b) Ecosystem is the basic, functional, self-sustaining unit of biosphere. It consists of all living and non-living components of a particular area that interact and exchange materials with each other.

2. Name the main source of energy for all ecosystems:



The energy for functioning of the ecosystem is derived from the sun continuously. The ecosystems are not watertight compartments as exchange of materials and energy often take place between the adjoining ecosystems. Hence, they remain inter-connected.

3. Name the two main types of ecosystems the ecosystems are divided into two types:

Artificial ecosystem: -These are manmade ecosystems. Example: agricultural field, garden, aquarium, zoological park, etc.

Natural ecosystem: - These are found in nature and hence they are called natural ecosystems. E.g. Forests, rivers, ponds, lakes.

4. Name the two main components of an ecosystem

The two main components of an Ecosystem are:

- o Non-living or abiotic component
- o Living or biotic component.

5. Name the abiotic components of the ecosystem. Why are they important?

Ans. Abiotic components are non-living components like air, water, soil, light, inorganic and organic compounds (substances). Abiotic factors are very important for the living organisms. They influence the living organisms to a large extent. Organisms have to adapt and survive in accordance to the abiotic factors they interact with.

6. State the role of the following abiotic factors in an ecosystem

1. Sunlight: sustains all life on earth. Green plants produce food and oxygen in the presence of sunlight.

2. Air: provides oxygen for respiration and carbon di oxide for photosynthesis. Serves as a medium for flight for birds and insects.

The blowing wind serves as an agent for pollination and seed dispersal.

3. Water: required by all plants and animals for metabolic activities.

4. Temperature: hot, mild or cold temperatures influence the physiological functions of organisms living in those areas.

5. Soil: Different types of soil influence the type of vegetation in an area. Soil contains water and minerals required for plant growth. Soil also contains microorganisms important for decomposing organic material. Soil is also home to many burrowing animals such as earthworms, rats, etc.

7. List out the biotic factors in an ecosystem

Ans. These include both plants and animal and micro-organisms. The living components of the ecosystem can further be classified into three categories on the basis of their food habits or mode of nutrition. These are: (i) Food producers, (ii) Consumers and (iii) Decomposers.

9. Name and explain the terms: 1) producers 2) consumers

(1) **Food Producers.** These are also called as autotrophs. These are the green plants which synthesize (manufacture or produce) their own food from raw materials, like carbon dioxide and water in their green parts (containing chlorophyll) in the presence of sunlight by the process of photosynthesis. They convert solar energy into chemical energy of food. All other living organisms of the ecosystem depend for their food requirements on green plants, directly or indirectly.



2) **Consumers.** Under this category come all those organisms which directly or indirectly depend for their food on green plants. All animals fall under this category.

The consumers can be further divided into three categories – first order, second order or third order.

a. Primary consumers (Herbivores): The first order consumers are call primary consumers. Goat, cow, deer, rabbit, buffalo, grasshopper and other insects which directly eat up leaves and other green parts of a plant are call primary consumers. These animals are also called herbivores.

b. Secondary consumers (Carnivores): Frogs, birds and other animals which feed on herbivores are called secondary consumers. They depend directly on primary consumers.

c. Tertiary consumers: These are the consumers of the third order. The bigger animals like wolf, tiger, lion, leopard, hawk, vulture etc. fall under this category. Bigger carnivores (predators) like lion, tiger, panther etc. also feed on herbivores to become second order consumers.

d. Omnivores. There are many animals which consume both plants and animals. These are called omnivores. Dog, cat, man, cockroach, crow and many others fall under this category.

e. Detritivores. These are animals which feed on decaying plants and animal materials. Earthworms, tubeworms, millipedes, woodlice fall under this category. Scavengers. These are animals which consume dead animals. Rats, gulls, carrion crows, vultures, jackals etc. are the common examples.

10. What are decomposers?

Decomposers are non-green microorganisms like bacteria and fungi. They feed on dead organisms (animals and plants), other organic waste material, excreta etc.

11. What is the role of decomposers in nature?

Decomposers perform three vital functions:

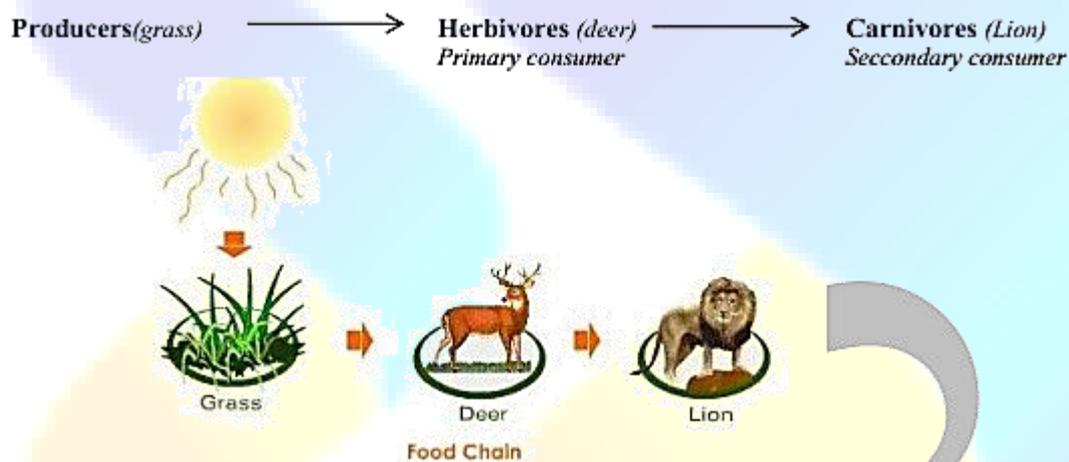
1. Cleaning of the earth by decomposing dead bodies and the excreta of animals and plants.
2. Breaking down of the complex organic matter contained in the dead bodies into simpler substances (elements) which again enter into the environment – air, water and soil to be utilized again and again. They are responsible for recycling of material.
3. Maintain the required amount of materials in the biosphere and also help to maintain fertility of soil.

12. Define a Food Chain

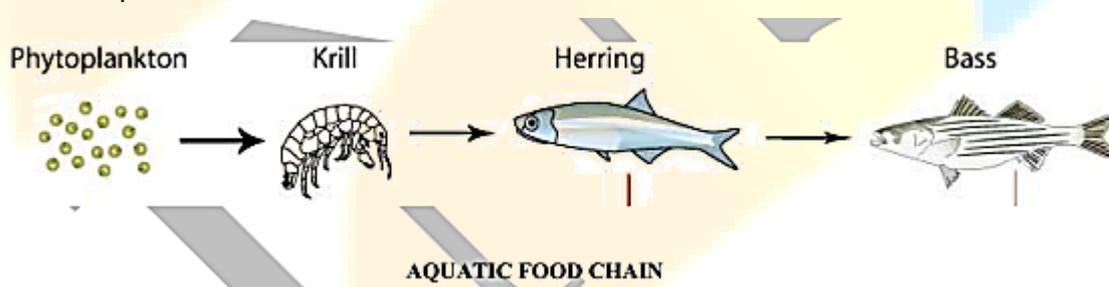
A food chain can be defined as the sequential process of eating and being eaten in an ecosystem. The transfer of energy from one trophic level to another constitutes a food chain.

13. Draw a simple generalized food chain

A simple generalized food chain may be represented as:



14. Draw an aquatic food chain



15. State the significance of a food chain.

Ans. Food chains signify the following:

- (i) The food relationship among the different organisms in an ecosystem.
- (ii) The food chains are the living components of the biosphere.
- (iii) These are the vehicles of transfer of energy from one level to another.
- (iv) Through the food chains, transfer of materials and nutrients also takes places.

The movement of some toxic substances (like DDT) in the ecosystem, sprayed to kill the pests and insects, through the various trophic levels, also takes place.

16. Define a food web.

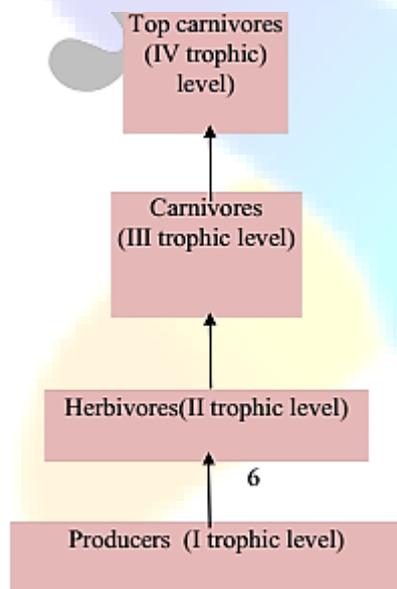
Ans. In nature, different kinds of food chains overlap each other or are interconnected with each other. This network of food chains operating in a particular area is called a food web. A food web does not usually include the decomposers, but these organisms are very important in the flow of energy through food web. For example, grass is eaten by grasshoppers as well as by rabbits, deer or cattle and each of these herbivores may be eaten by many carnivores, such as frog, snake, eagle or tigers depending upon their food habits.

17. State the advantage of a food web?

Ans. The food web provides an alternate source of food. This ensures a better chance of survival for an organism; in case its food source depletes.

18. What do you understand by the term “Trophic level” in a food chain?

Ans. Each link in a food chain is known as a trophic level. For example, in each food chain, plants always form the first trophic level. The plant eating animals called herbivores like insects, rodents, rabbits, deer, cattle etc., form the second trophic level. The animals like frog, small fish, small birds which feed on the second trophic level organisms form the third trophic level. These are eaten by still larger carnivores like lion or tiger, which constitute the fourth trophic level and so on.



19. Define the terms:

(a) flora – the plants occurring naturally in a particular area.

(b) fauna- the animals living in a particular area.

20. Name the flora and fauna found in the following forests

a. Tropical rain forest (western coast of India and N.E. Himalayas) Flora- evergreen trees, bamboos, ferns Fauna- jungle cats, leopards, monkeys, centipedes, millipedes

b. Temperate deciduous forests Flora –oak, birch, Fauna- deer, wolves, foxes

c. Coniferous forests Flora-fir and pine trees Fauna-squirrel, mountain goats, birds like robin, swallow

21. State the dangers that face our ecosystem today.

- a. The natural resources are dwindling greatly due to rapid industrialization.
- b. Man's disregard for nature and his careless attitude has resulted in global warming and climate change.
- c. Exploitation of natural resources all over the world has resulted in severe ecological degradation and loss of flora and fauna.
- d. There has been a rise in natural calamities, famine and floods.
- e. There is an increase in many types of diseases which is taking a toll on human lives.

22. The need of the hour is to restore and conserve our ecosystem. Explain.

- a. To have a better and healthy environment steps have to be taken to preserve our ecosystem.
- b. Measures have to be taken to preserve our wild life, forests and water bodies.
- c. As individuals we have all to be committed to reuse, reduce, and recycle waste.