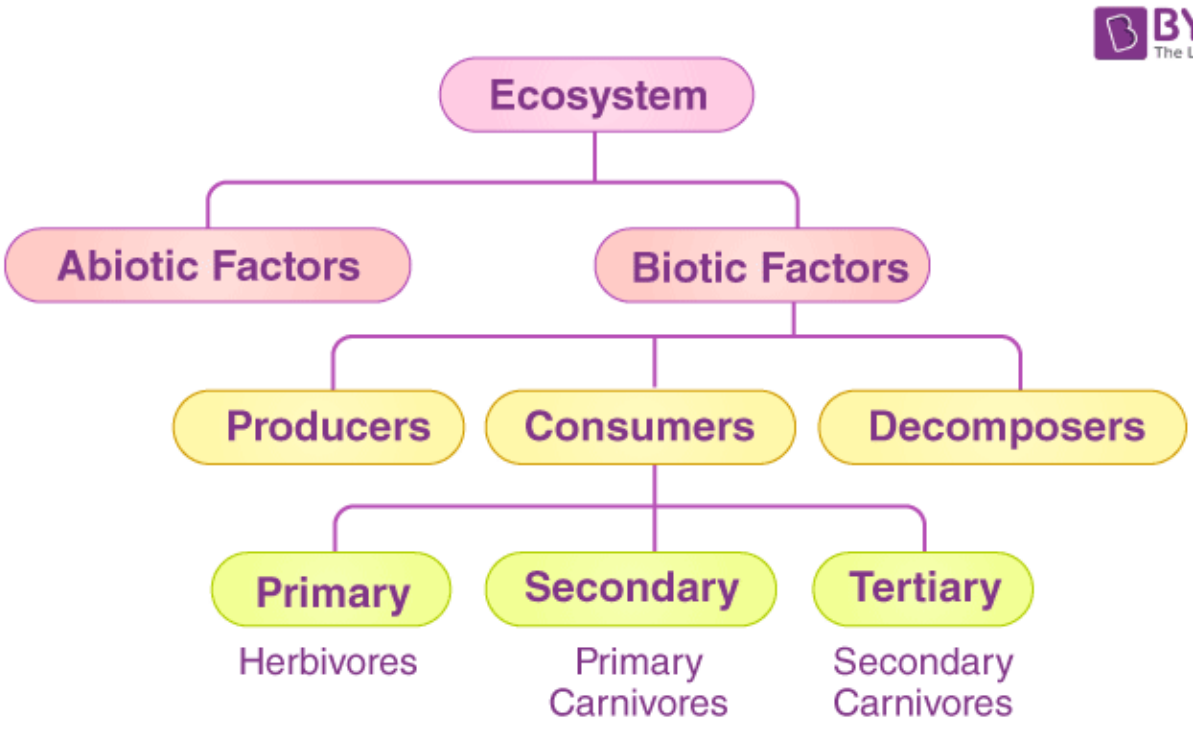
Introduction

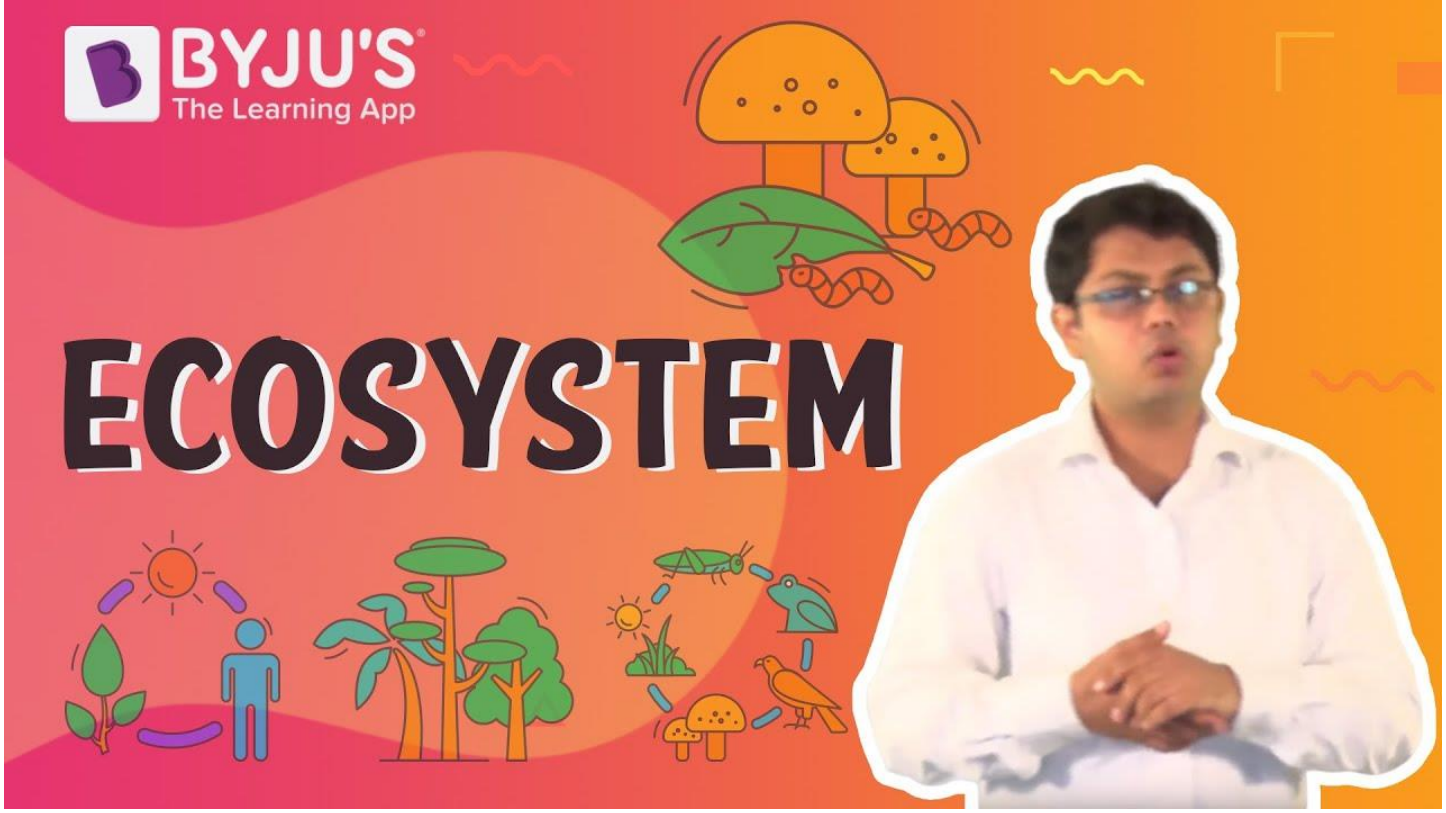
Environment refers to the surrounding of an organism where it thrives. It constitutes both living and non-living things, i.e. physical, chemical and biotic factors. Here, in this chapter, we will learn about various components of the environment, their interactions and how our activities affect the environment.

Ecosystem

The ecosystem comprises all the biotic and abiotic factors interacting with one another in a given area. Biotic components include all living organisms such as plants, animals, microorganisms and humans, etc., and abiotic components include sunlight, temperature, air, wind, rainfall, soil and minerals, etc. E.g. pond ecosystem, grassland ecosystem, etc.



Watch the video below to learn about our environment and its components



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Mode of Nutrition in Animals and Plants

Autotrophic and Heterotrophic are the two modes of nutrition in living organisms. Plants and some bacteria are autotrophic as they make their own food. Animals, fungi and some bacteria are heterotrophic as they derive their food from other organisms.

Read more: Difference between Autotrophs and Heterotrophs

Saprophytes and Decomposers

Saprophytes feed on dead and decaying material, e.g. fungi and microorganisms. They absorb nutrients from dead and decaying plants and animal parts. Decomposers break down the organic matter or waste material and release nutrients into the soil. For example, bacteria, worms, slugs, and snails. They are considered extremely important in soil biology. They break down the complex organic matter into simpler substances that are taken up by the plants for various metabolic activities.

Read more: Saprophytes

Abiotic Components

Non-living chemical and physical components of the environment like the soil, air, water, temperature, etc.

Biotic Components

Living organisms of the environment like plants, animals, microbes and fungi.

Read more: Biotic and Abiotic

Trophic Levels

It refers to the various levels in a food web as per the flow of energy. The different trophic levels are –

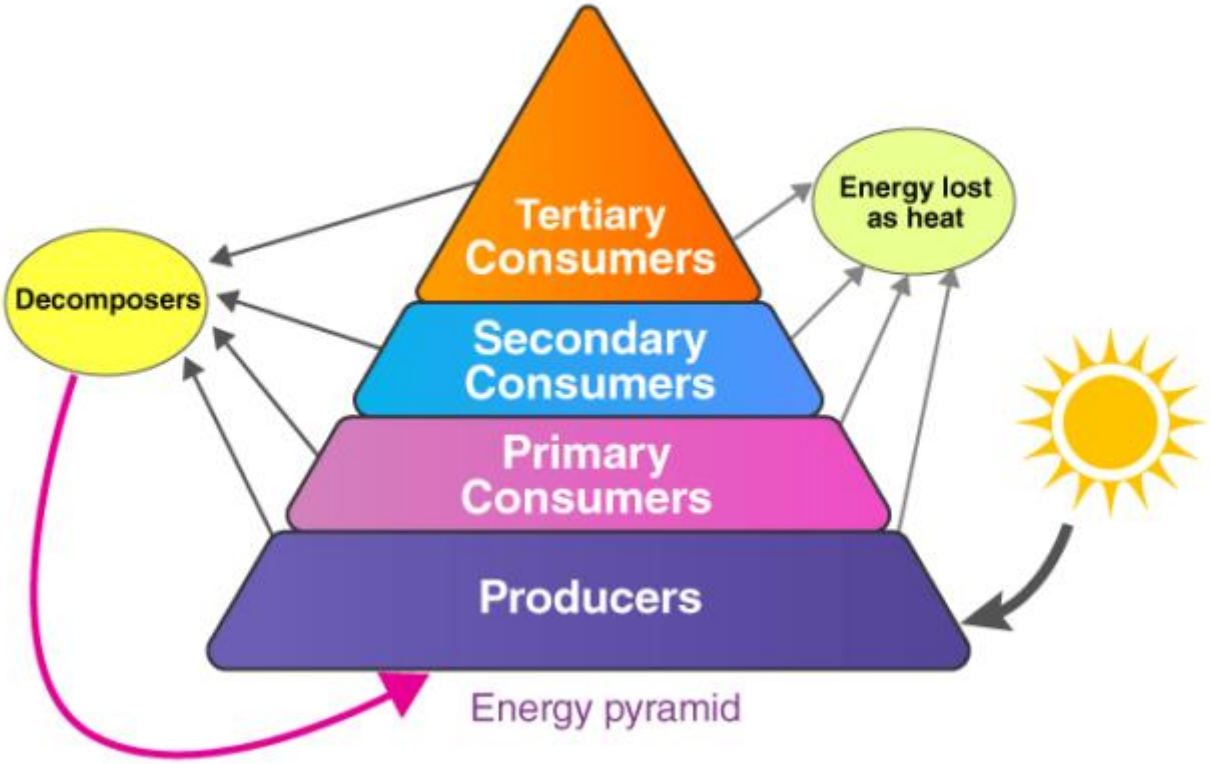
- Producers (T1)
- Primary consumers (herbivores-T2)
- Secondary consumers (primary carnivores -T2)
- Tertiary consumers(Sec carnivores -T3)
- Quaternary consumers (Ter. carnivores T4)
- Decomposers

Also see: What do you understand by trophic level?

Pyramid of Trophic Levels

- Is a graphical representation.
- Can be the pyramid of numbers, the pyramid of biomass or the pyramid of energy.
- Start with producers.

a) **Pyramid of numbers**: gives the number of organisms present at each trophic level. It can be upright or inverted.
b) **Pyramid of biomass:** gives the biomass of each trophic level and could be upright or inverted.
c) **Pyramid of energy:** is always upright as it shows the flow of energy from one trophic level to the next trophic level.



To know more about different types of ecological pyramids, visit here.

Law of Conservation of Energy

- Energy can neither be created nor destroyed; rather, it transforms from one form to another.
- In biological systems, it gets passed from one organism to another across trophic levels.

To know more about the Law of conservation of energy, visit here.

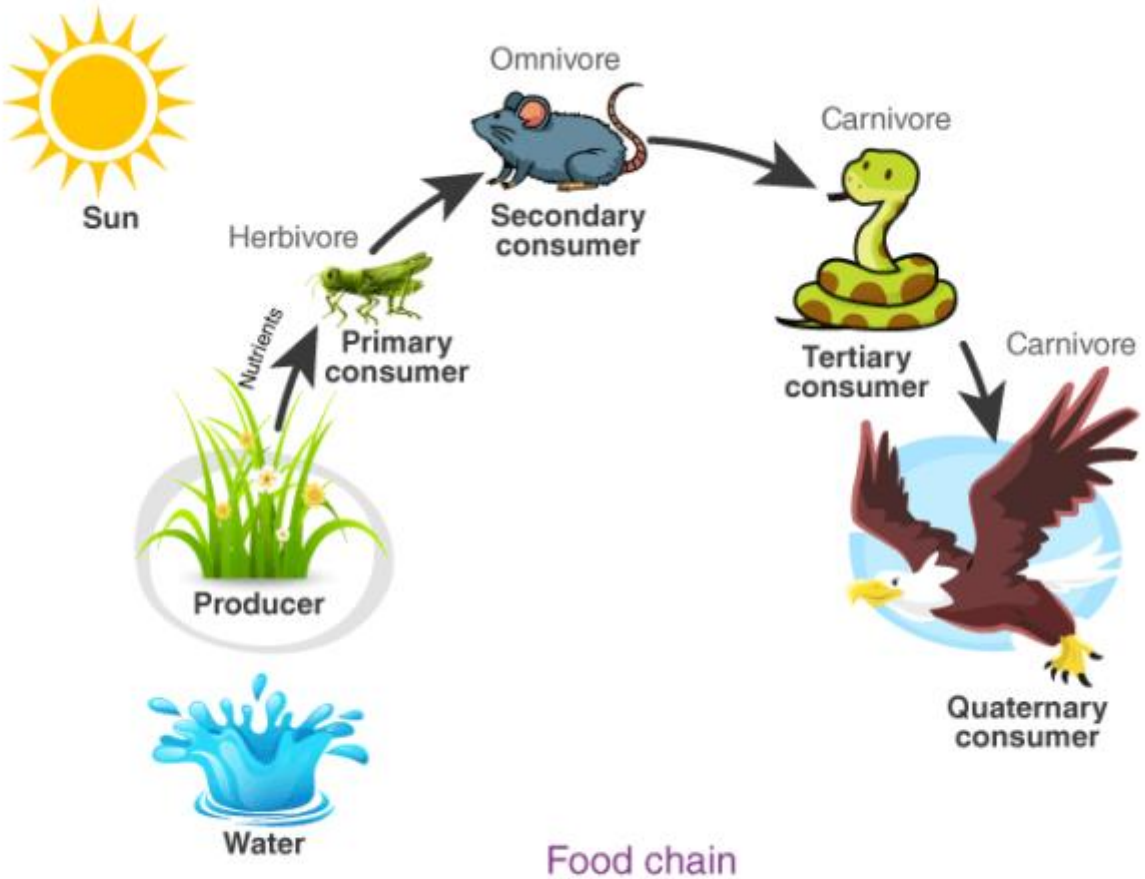
Energy Flow

- Transfer of energy from one trophic level to another depicting its direction and amount.
- Represented by the pyramid of energy.
- In any food chain, only 10% of the energy is transferred from one trophic level to another.

To know more about Energy Flow in Ecosystem, visit here.

Food Chain

A series of organisms, each dependent on the next as a source of food.

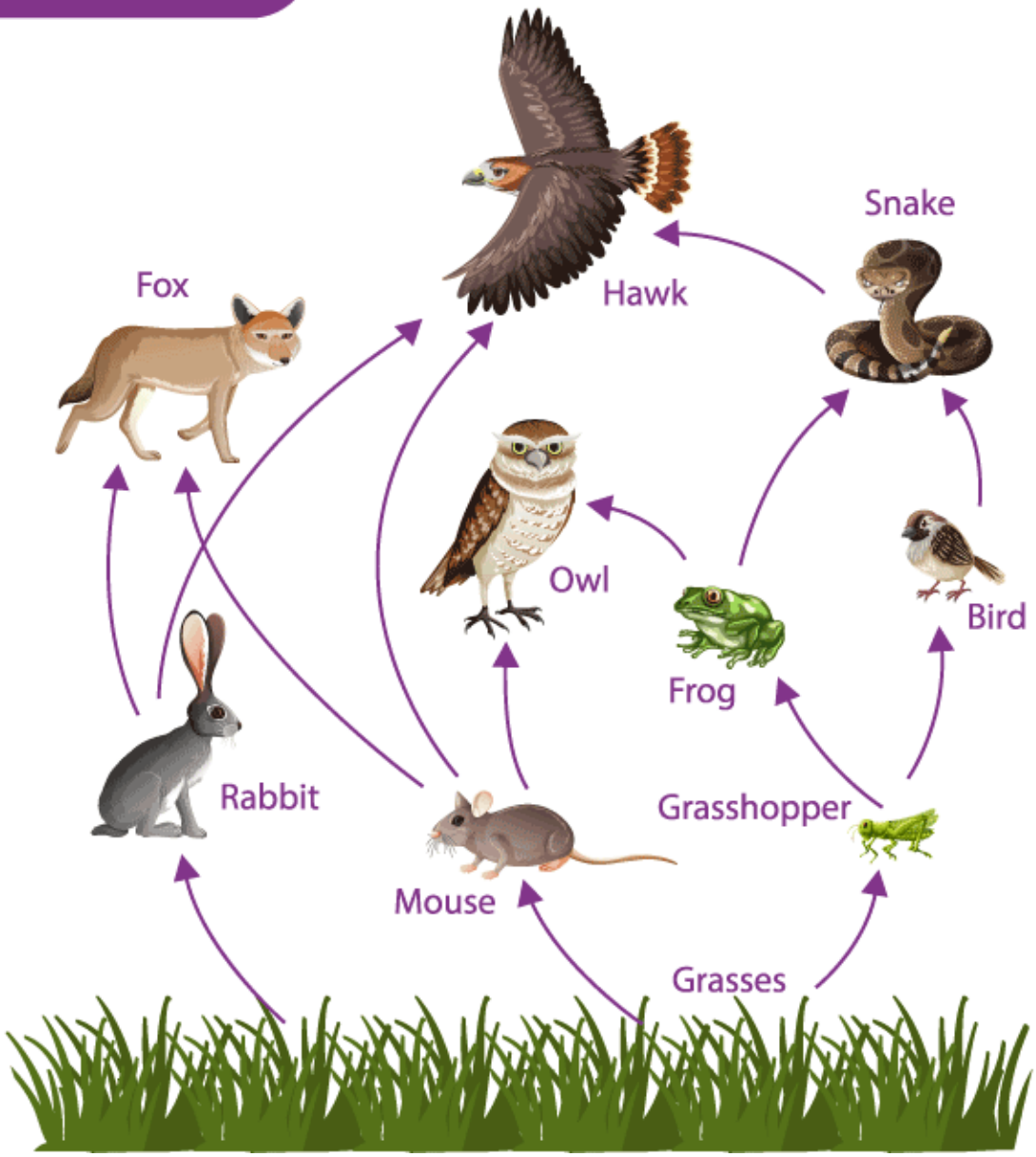


Food chain

To know more about Food Chain, visit here.

Food Web

- Is formed by interconnections of different food chains.
- Is a graphical representation of 'Who eats Whom' in an ecosystem.



To know more about Food Web, visit here.

Characteristics of Ecosystem

- Includes the summary of trophic levels.
- Their energy flow and pyramids.

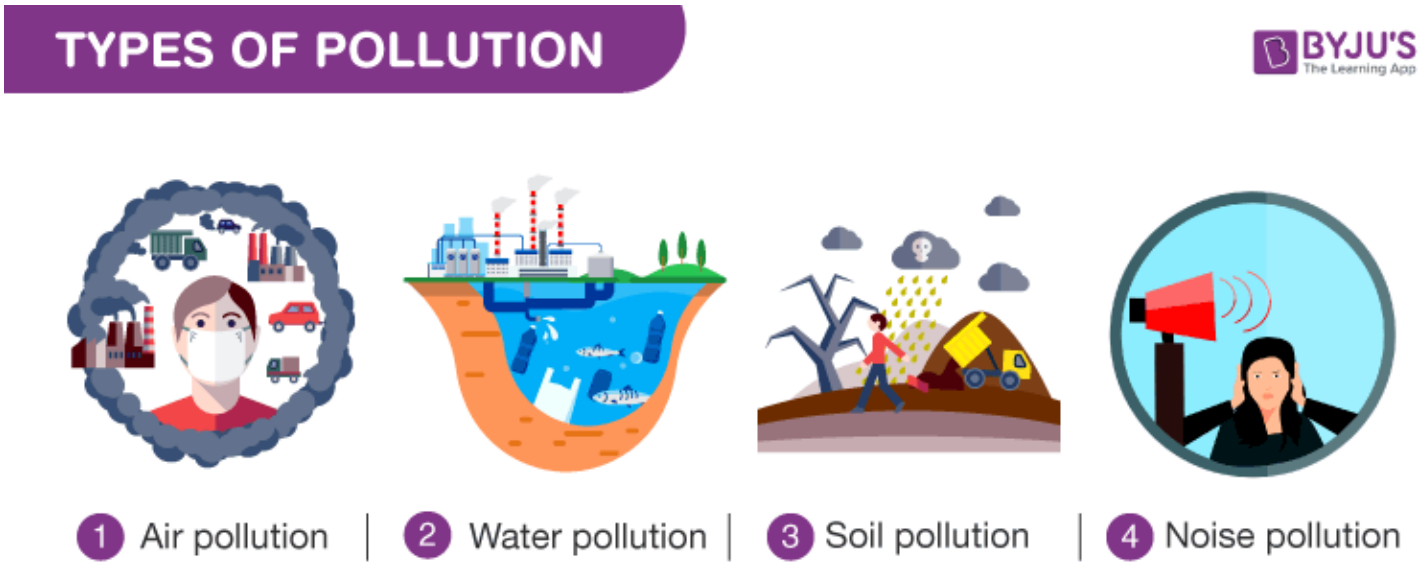
Environment

- Includes all living and nonliving things.
- Unlike ecosystems, there need not be any necessary interaction between them.

Also see: Our Environment

Pollution

Pollution is the introduction of harmful materials (pollutants) into the environment. Pollution can be due to natural causes, such as volcanic eruptions, forest fires, etc. or due to human activities, such as carbon emission, industrial runoff, etc.



Know more: Types of Pollution

Air Pollution

Introduction of pollutants, organic molecules, or other hazardous substances into the earth's atmosphere.
Sources:
a) Natural – forest fire, dust storms, and volcanic activity
b) Man-made – power plants, homes, industries, oil refineries, and transportation

To know more about Air Pollution, visit here.

Ozone Layer Depletion

The ozone layer protects the Earth from the sun's ultraviolet (UV) radiation. CFCs released into the atmosphere react chemically with ozone molecules and deplete the layer.

For more information on Ozone Layer Depletion, watch the video below

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Know more: Ozone Layer Depletion

Garbage Management

- Involves all the activities and actions required to manage waste from its inception to its final disposal.
- Ensures environmental best practices are followed along with proper monitoring and regulation.

Steps involved:

1. Segregation of waste
2. Collection
3. Transport
4. Treatment
5. Processing & Recycling
6. Disposal

For more information on Waste Disposal, watch the video below

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Read more: Solid Waste Management

Biodegradable Waste

- Waste is derived from plants or animals.
- Decomposed into the soil by a natural agent such as weather, water, air, heat, micro-organisms, etc.

Watch the video below to know more about Biodegradable and Non-biodegradable waste

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Biodegradation

Decomposition of garbage or waste material by living organisms or biological processes.

To know more about Different Types of Pollution, visit here.

Frequently Asked Questions on CBSE Class 10 Science Notes Chapter 15 Our Environment

Q1

What are the different types of landforms present in our environment?

Mountains, hills, plateaus and plains are the four major types of landforms which are majorly present in our environment.

Q2

What is lithosphere'?

The lithosphere is the rocky outer part of the Earth. It is made up of the brittle crust and the top part of the upper mantle.

Q3

Where is the biosphere present?

The biosphere makes up the portion of the Earth where life exists.

In-text Questions Page: 260

Q1. What are the trophic levels? Give an example of a food chain and state the different trophic levels in it.

Solution:

In the food chain, the transfer of food or energy takes place at various levels, and these levels are known as trophic levels.

Example:

Grass → Goat → Man

In the food chain,

- Grass represents the first trophic level.
- The goat represents the second trophic level.
- Man represents the third trophic level.

Q2. What is the role of decomposers in the ecosystem?

Solution:

The following are the roles of decomposers in the ecosystem:

- They act as a cleansing agent of the environment by decomposing dead plants and animals.
- They help in recycling nutrients.
- They provide space for new beings in the biosphere by decomposing the dead.
- They help in putting back the various elements into water, soil and air for the reuse of producers like crop plants.

In-text Questions Page: 262

Q1. Why are some substances biodegradable and some non-biodegradable?

Solution:

The reason why some substances are biodegradable and some are non-biodegradable is because the microorganisms, like bacteria, and decomposers, like saprophytes, have a specific role to play. They can break down only natural products like paper, wood, etc., but they cannot break down human-made products like plastics. Based on this, some substances are biodegradable and some are non-biodegradable.

Q2. Give any two ways in which biodegradable substances would affect the environment.

Solution:

The following are the ways in which biodegradable substances would affect the environment:

- They keep the environment clean as they are easily decomposed.
- They can easily go through the geochemical cycle with the help of decomposers.

Q3. Give any two ways in which non-biodegradable substances would affect the environment.

Solution:

The following are the ways in which non-biodegradable substances would affect the environment:

- They cause air, soil and water pollution.
- They may cause bio-magnification in the food chain resulting in the end of humans.

In-text Questions Page: 264

Q1. What is ozone, and how does it affect the ecosystem?

Solution:

Ozone is a molecule formed by the three atoms of oxygen and is known as an isotope of oxygen. The main function of the ozone layer is to provide protection to the earth's surface from the harmful UV rays of the sun. These rays are harmful to living organisms and may result in skin cancer.

Q2. How can you help in reducing the problem of waste disposal? Give any two methods.

Solution:

The following are the ways to reduce the problem of waste disposal:

- 3 Rs: By following the 3 Rs, one can reduce the problem of waste disposal. The 3 Rs are reduce, recycle and reuse. Reducing the usage of private vehicles and opting for public transport can reduce air pollution. Recycling and reusing plastics is also a way to reduce waste disposal.
- Preparation of compost: All biodegradable wastes, like kitchen waste, can be dumped in the compost.

Exercise Questions Page: 264

Q1. Which of the following groups contain only biodegradable items?
a. Grass, flowers and leather
b. Grass, wood and plastic

c. Fruit peels, cake and lime juice
d. Cake, wood and grass

Solution:

a) Grass, flowers and leather
c) Fruit peels, cake and lime juice
d) Cake, wood and grass

Above are the groups that contain only biodegradable items. Since plastic is not a biodegradable substance, that group cannot be considered biodegradable.

Q2. Which of the following constitutes a food chain?
a. Grass, wheat and mango
b. Grass, goat and human
c. Goat, cow and elephant
d. Grass, fish and goat

Solution:

b. Grass, goat and human

Here, the grass is the producer, the goat is the primary consumer, and the human is the secondary consumer.

Q3. Which of the following are environment-friendly practices?
a. Carrying cloth bags to put purchases in while shopping
b. Switching off unnecessary lights and fans
c. Walking to school instead of getting your mother to drop you on her scooter
d. All of the above

Solution: d) All of the above

Q4. What will happen if we kill all the organisms at one trophic level?

Solution:

If we kill all the organisms in one trophic level, the food supply to the next level will stop, resulting in an imbalance of the ecosystem. As a result, animals in the higher levels will die, making the growth of animals in the lower trophic level increase in an enormous way. All of this will affect the overall balance in the ecosystem.

Q5. Will the impact of removing all the organisms in the trophic level be different for different trophic levels? Can the organisms of any trophic level be removed without causing any damage to the ecosystem?

Solution:

Yes, the impact of removing all the organisms in a trophic level will be different for different trophic levels. For example, if all the producers are removed, there is a chance of death or migration of the primary consumers, which will upset the trophic levels. This is the same for all levels. Therefore, the removal of organisms at any level would upset the whole ecosystem as the food chain is disturbed. The survival of the higher-level animals is completely dependent on the animals at the lower levels.

Q6. What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

Solution:

Biological magnification can be defined as the progressive increase in the concentration of non-biodegradable wastes in the food chain. As there is an increase in the magnification at the successive trophic levels of the ecosystems, all the other levels do get affected, and the concentration may vary when compared to the first level.

Q7. What are the problems caused by the non-biodegradable wastes that we generate?

Solution:

The following are the problems caused by non-biodegradable wastes:

- These substances cannot be decomposed by microorganisms.
- As the quantity increases, dumping becomes a problem.
- Non-biodegradable wastes, like heavy metals, may enter the food chain at the upper trophic levels.
- They may escape to the groundwater, which causes soil infertility and disturbance in the pH of the soil.

Q8. If all the waste we generate is biodegradable, will this have no impact on the environment?

Solution:

Biodegradable wastes are decomposed by the microorganisms into simpler substances which can be used by the producers as raw materials. But the following are the effects of too many biodegradable wastes:

- As the decomposition of biodegradable wastes is slow, they produce an awful smell, and when inhaled by humans, it can be harmful.
- The dumping areas can be a place where harmful organisms may start to breed, which can be harmful to humans as well as plants and animals.
- An increase in the number of aquatic organisms may result in the depletion of oxygen.

Q9. Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

Solution:

The ozone layer is a protective cover for the earth. It prevents harmful UV rays from entering the earth as these rays are harmful and can result in skin cancer. But, air pollutants like chlorofluorocarbons (CFCs) are the main reason for the depletion of the ozone layer. Too much of UV rays are harmful to plants as they affect photosynthesis and destroy planktons and decomposers. These are the reasons why the damage to the ozone layer is a cause of concern.

As a step to limit this, many developing and developed countries have signed and are obeying the directions of UNEP (United Nations Environment Programme) to freeze or limit the production and usage of CFCs.

Multiple Choice Questions

1. Which one of the following is an artificial ecosystem?

(a) Pond

(b) Crop field

(c) Lake

(d) Forest

Soln:

The answer is (b) Crop field

Explanation:

Crop field is a man-made ecosystem.

2. In a food chain, the third trophic level is always occupied by

(a) carnivores

(b) herbivores

(c) decomposers

(d) producers

Soln:

The answer is (a) carnivores

Explanation:

First trophic level are producers, second trophic level are herbivores, the third trophic level is occupied by carnivores.

3. An ecosystem includes

(a) all living organisms

(b) non-living objects

(c) both living organisms and non-living objects

(d) sometimes living organisms and sometimes non-living objects

Soln:

The answer is (c) both living organisms and non-living objects

Explanation:

An ecosystem is a complex of living and nonliving organisms and their interactions.

4. In the given food chain, suppose the amount of energy at the fourth trophic level is 5 kJ, what will be the energy available at the producer level?

Grass → Grasshopper → Frog → Snake → Hawk

(a) 5 k J

(b) 50 k J

(c) 500 k J

(d) 5000 k J

Soln:

The answer is (d) 5000 k J

Explanation:

Available energy level at a particular trophic level is 10 times the energy level at next tropic level. Hence, energy at a third level trophic level is 50kj. Second level trophic has 500 KJ energy and 1st level trophic level (Producer) has energy of 5000 KJ.

5. Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as

(a) eutrophication

(b) pollution

(c) biomagnification

(d) accumulation

Soln:

The answer is (c) biomagnification

Explanation:

- Eutrophication is richness of nutrient beyond optimum level. Eutrophication occurs due to runoff from land.
- Introduction of an undesired substance into the environment. Pollution leads to harmful effects on living organisms.

6. Depletion of ozone is mainly due to

(a) chlorofluorocarbon compounds

(b) carbon monoxide

(c) methane

(d) pesticides

Soln:

The answer is (a) chlorofluorocarbon compounds

7. Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called

(a) decomposers

(b) producers

(c) herbivores

(d) carnivores

Soln:

The answer is (b) producers

Explanation:

Producers use solar energy to synthesize food from water and carbon-di-oxide. Plants and few micro-organisms are the producers.

Organisms that decompose organic material are called decomposers.

Herbivores are the organisms that feed on plant and its products.

Carnivore are the ones which feed on other organisms.

8. In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of

(a) heat energy

(b) light energy

(c) chemical energy

(d) mechanical energy

Soln:

The answer is (c) chemical energy

Explanation:

Energy is available for transfer from one trophic level to the next in the form of food. Food is a chemical form of energy.

9. Organisms of a higher trophic level which feed on several types of organisms belonging to a lower trophic level constitute the

(a) food web

(b) ecological pyramid

(c) ecosystem

(d) food chain

Soln:

The answer is (a) food web

Explanation:

A series of organisms through which food energy flows in an ecosystem is called a food chain. An ecosystem consists of all the living beings of an area and non-living components of their environment. The graphic summary of the trophic structure and energy transfer in an ecosystem is called ecological pyramids. Organisms of a higher trophic level which feed on several types of organisms belonging to a lower trophic level constitute the food web.

10. Flow of energy in an ecosystem is always

(a) unidirectional

(b) bidirectional

(c) multidirectional

(d) no specific direction

Soln:

The answer is (a) unidirectional

Explanation:

The flow of energy is from prey to predator and it cannot be in the reverse direction. Hence the flow of energy is uni-directional.

11. Excessive exposure of humans to U V-rays results in

(i) damage to the immune system

(ii) damage to lungs

(iii) skin cancer

(iv) peptic ulcers

(a) (i) and (ii)

(b) (ii) and (iv)

(c) (i) and (iii)

(d) (iii) and (iv)

Soln:

The answer is (c) (i) and (iii)

Explanation:

UV rays affect upper surface of our body. UV rays lead to skin cancer and effect on skin will affect our immune system as skin is considered as the primary level of the immune barrier.

12. In the following groups of materials, which group (s) contains only non-biodegradable items?

(i) Wood, paper, leather

(ii) Polythene, detergent, PVC

(iii) Plastic, detergent, grass

(iv) Plastic, bakelite, DDT

(a) (iii)

(b) (iv)

(c) (i) and (iii)

(d) (ii) and (iv)

Soln:

The answer is (d) (ii) and (iv)

Explanation:

Group i) has wood and leather which are biodegradable. Group iii) has grass which is biodegradable hence the answer is d) (ii) and (iv)

13. Which of the following limits the number of trophic levels in a food chain?

(a) Decrease in energy at higher trophic levels

(b) Sufficient food supply

(c) Polluted air

(d) Water

Soln:

The answer is (a) Decrease in energy at higher trophic levels

Explanation:

Available energy level at a particular trophic level is 10 times the energy level at next tropic level. When we reach the fourth trophic level; a minute portion of energy from producer is available.

14. Which of the statement is incorrect?

(a) All green plants and blue-green algae are producers

(b) Green plants get their food from organic compounds

(c) Producers prepare their own food from inorganic compounds

(d) Plants convert solar energy into chemical energy

Soln:

The answer is (b) Green plants get their food from organic compounds

Explanation:

Green plants produce their food by harnessing solar energy. Solar energy is used to prepare carbohydrate with the help of CO_2 and water which are inorganic substances.

15. Which group of organisms are not constituents of a food chain?

(i) Grass, lion, rabbit, wolf

(ii) Plankton, man, fish, grasshopper

(iii) Wolf, grass, snake, tiger

(iv) Frog, snake, eagle, grass, grasshopper

(a) (i) and (iii)

(b) (iii) and (iv)

(c) (ii) and (iii)

(d) (i) and (iv)

Soln:

The answer is (c) (ii) and (iii)

Explanation:

In option ii) plankton does not eat grass. In option iii) none of them eat grass hence option c) is the right answer.

16. The percentage of solar radiation absorbed by all the green plants for the process of photosynthesis is about

(a) 1 %

(b) 5 %

(c) 8 %

(d) 10 %

Soln:

The answer is (a) 1 %

Explanation:

Green plants utilize 1% of the radiation absorbed by leaf and use it for photosynthesis.

17. In the given Figure 15.1 the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available?

(a) T4

(b) T2

(c) T1

(d) T3

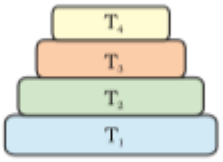

Fig. 15.1

Soln:

Answer is (c) T1

Maximum energy is available for producers. Only 10% of the energy is consumed by an organism at the next level. Hence $T_1 > T_2 > T_3 > T_4$

18. What will happen if deer is missing in the food chain given below? Grass → Deer → Tiger

(a) The population of tiger increases

(b) The population of grass decreases

(c) Tiger will start eating grass

(d) The population of tiger decreases and the population of grass increases

Soln:

The answer is (d) The population of tiger decreases and the population of grass increases.

Explanation:

Lack of predators will increase the population of grass. Population of tiger will reduce due to lack of food.

19. The decomposers in an ecosystem

(a) convert inorganic material, to simpler forms

(b) convert organic material to inorganic forms

(c) convert inorganic materials into organic compounds

(d) do not breakdown organic compounds

Soln:

The answer is (b) convert organic material to inorganic forms

20. If a grasshopper is eaten by a frog, then the energy transfer will be from

(a) producer to decomposer

(b) producer to primary consumer

(c) primary consumer to secondary consumer

(d) secondary consumer to primary consumer

Soln:

Answer is (c) primary consumer to secondary consumer

Explanation:

Grasshopper is a primary consumer because it feeds on grass. If grasshopper is getting eaten by a frog. Frog will be the secondary consumer.

21. Disposable plastic plates should not be used because

(a) they are made of materials with lightweight

(b) they are made of toxic materials

(c) they are made of biodegradable materials

(d) they are made of non-biodegradable materials

Soln:

The answer is (d) they are made of non-biodegradable materials

Explanation:

Plastics are non-biodegradable hence they start accumulating in nature harming living organisms.

Short Answer Questions

22. Why is improper disposal of waste a curse to the environment?

Soln:

Wastes pollute our environment, air, soil and water, and cause harmful effects on all living organisms.

23. Write the common food chain of a pond ecosystem.

Soln:

Phyto planktons

↓

Small aquatic animals larvae, shrimps, Insects

↓

Fish

↓

Bird

24. What are the advantages of cloth bags over plastic bags during shopping?

Soln:

Advantages of cloth bags over plastic bags during shopping are as follows

They can carry more weight than plastic bags

They are bio-degradable

They can be reused.

They do not cause environmental pollution.

25. Why are crop fields known as artificial ecosystems?

Soln:

Crops field are known as artificial ecosystems because they are manmade where certain biotic and abiotic components are manipulated.

26. Differentiate between biodegradable and non-biodegradable substances. Cite examples.

Soln:

Substances which can be broken into pieces by the biological process are known as biodegradable substance.

Substances which cannot be broken into pieces by the biological process are known as non-biodegradable substance.

27. Suggest one word for each of the following statements/ definitions

(a) The physical and biological world where we live in

(b) Each level of the food chain where the transfer of energy takes place

(c) The physical factors like temperature, rainfall, wind and soil of an ecosystem

(d) Organisms which depend on the producers either directly or indirectly for food

Soln:

1. Environment
2. Trophic level
3. Abiotic factors
4. Consumers or heterotrophs

28. Explain the role of decomposers in the environment?

Soln:

Decomposers breakdown dead and decaying living matter and helps in the nutrient recycling. This will clean the environment by removing dead material.

29. Select the mismatched pair in the following and correct it.

(a) Biomagnification — Accumulation of chemicals at the successive trophic levels of a food chain

(b) Ecosystem — Biotic components of environment

(c) Aquarium — A man-made ecosystem

(d) Parasites — Organisms which obtain food from other living organisms

Soln:

(a) Biomagnification — Accumulation of chemicals at the successive trophic levels of a food chain

(b) Ecosystem — Biotic components of environment

(c) Aquarium — A man-made ecosystem

(d) Parasites — Organisms which obtain food from other living organisms

Soln:

The answer is (b) Ecosystem — Biotic components of environment

Both biotic and abiotic components of the environment constitute an ecosystem.

30. We do not clean ponds or lakes, but an aquarium needs to be cleaned. Why?

Soln:

An aquarium is an artificial ecosystem which is incomplete ecosystem when compared to pond or lake which is a natural and complete ecosystem.

Long Answer Questions

31. Indicate the flow of energy in an ecosystem. Why is it unidirectional? Justify.

Soln:

Flow of energy in an ecosystem is as follows.

The green plants in a terrestrial ecosystem capture about 1% of the energy of sunlight that falls on their leaves and convert it into food energy.

When green plants are eaten by primary consumers, a great deal of energy is lost as heat to the environment, some amount goes into digestion and in doing work and the rest goes towards growth and reproduction. An average of 10% of the food eaten is turned into its own body and made available for the next level of consumers.

Therefore, 10% can be taken as the average value for the amount of organic matter that is present at each step and reaches the next level of consumers.

Since so little energy is available for the next level of consumers, food chains generally consist of only three or four steps. The loss of energy at each step is so great that very little usable energy remains after four trophic levels.

There are generally a greater number of individuals at the lower trophic levels of an ecosystem, the greatest number is of the producers.

The length and complexity of food chains vary greatly. Each organism is generally eaten by two or more other kinds of organisms which in turn are eaten by several other organisms. So instead of a straight line food chain, the relationship can be shown as a series of branching lines called a food web.

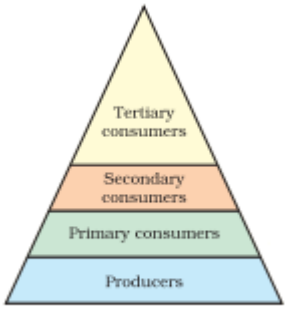

Figure 15.2
Trophic levels

The flow of energy is unidirectional because the energy that is captured by the autotrophs does not revert to the solar input and the energy which passes to the herbivores does not come back to autotrophs. As it moves progressively through the various trophic levels it is no longer available to the previous level. Secondly, the energy available at each trophic level gets diminished progressively due to the loss of energy at each level.

32. What are decomposers? What will be the consequence of their absence in an ecosystem?

Soln:

Microorganisms, comprising bacteria and fungi, break-down the dead remains and waste products of organisms. These microorganisms are the decomposers as they break-down the complex organic substances into simple inorganic substances that go into the soil and are used up once more by the plants.

If decomposers are absent in the ecosystem recycling of material in the biosphere will not take place which would lead to the accumulation of dead plants and animals in the environment. Additionally, the environment would be finally devoid of all its resources which are needed to maintain and sustain life.

33. Suggest any four activities in daily life which are eco-friendly

Soln:

Activities in daily life which are eco-friendly are as follows

- Using of bicycles and electrical bikes instead of vehicles run by fossil fuels.

- Avoid using plastic bags, instead we can use bags made of clothes and papers.
- Plant trees in our surroundings.
- Stop usage of old items and recycle them.

34. Give two differences between food chain and food web.

Soln:

Food Chain	Food web
The **food chain** is the straight and **single pathway** for the flow of energy in an ecosystem, through different species of organisms.	**Food web** is defined as the convoluted or complicated pathway of an ecosystem consist of numerous food chains of the different trophic level, through which the energy flow.
Food chain is a hypothetical situation	Food web is a real-life situation.
Members of higher trophic level feed on a single type of organism of lower trophic level	Members of higher trophic level can feed upon organisms of the lower trophic levels of another food chain.

35. Name the wastes which are generated in your house daily. What measures would you take for their disposal?

Soln:

Wastes generated in our house daily are as follows

(a) Kitchen wastes

(b) Paper wastes like newspapers, bags, envelopes

(c) Plastic bags

(d) Vegetable/fruit peels/rind Measures for disposal

Measures to take to dispose of house waste are

(a) Segregation of biodegradable and non-biodegradable wastes.

(b) Safe disposal of plastic bags.

(c) Vegetable/fruit peels can be placed near trees/plants, which on decomposition will enrich the soil with nutrients.

(d) Give paper wastes for recycling.

(e) Prepare a compost pit for kitchen wastes.

36. Suggest suitable mechanism (s) for waste management in fertiliser industries.

Soln:

To manage waste in the fertiliser industry following steps must be taken:

• For control of gaseous pollutants combustion equipments are used which can be oxidised. The pollutants are exposed to a high temperature in the process. Air pollutants, such as certain gases and vapour and inflammable compounds are controlled through the use' of adsorption equipments. Adsorption is a surface phenomenon, and it needs the presence of a large solid surface area. This process removes toxic and odoriferous compounds are efficiently.

Three options available for controlling the effluents are:

• Control can take place at the point of generation within the factory.

• Wastewater can be pre-treated for discharge to municipal treatment systems.

• Wastewater can be treated completely at the factory and either reused or discharged directly for receiving water.

37. What are the by-products of fertiliser industries? How do they affect the environment?

Soln:

The most common byproduct of fertilizer industries are oxides of nitrogen and sulphur. They pass into the atmosphere and spread to all nearby places. The gases have a corrosive effect on several items besides being harmful to living beings. They also give rise to acid rain. Acid rain is highly destructive to forests, crops and aquatic biota.

Oxides of Nitrogen and Sulphur are the most common by-product of fertilizer industries. These oxides pass into the atmosphere and spread to all nearby places. Sulphur and nitrogen oxides have a corrosive effect on several items besides being harmful to living beings. Sulphur oxides lead to acid rain which causes harms to forests, crops and aquatic biota.

38. Explain some harmful effects of agricultural practices on the environment.

Soln:

Following are the harmful effects of agricultural practices on the environment

Soil degradation Extensive cropping causes loss of soil fertility. Also, over time it can lead to soil erosion and finally to desertification.

Pollution

Use of synthetic fertilisers and pesticides leads to soil, water and air pollution. •

Water shortage

Excess use of groundwater for agriculture lowers the water level. This results in acute water shortage at many places.

Bio-magnification

The chemical pesticides, being non-biodegradable accumulate in organisms in increasing amounts at each trophic level.

Deforestation

Indiscriminate cutting of trees for agriculture has resulted in loss of habitat for wildlife. Thus, it also causes damage to the natural ecosystem.