

Practice Challenge - Subjective

Subject: Chemistry

Topic : Our Environment Batch
Session

Class: X

Time: 00:20 hrs

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

A pond or a lake has its own natural system of cleaning the waste materials to maintain its ecosystem. Due to this, ponds and lakes normally do not need to be cleaned.

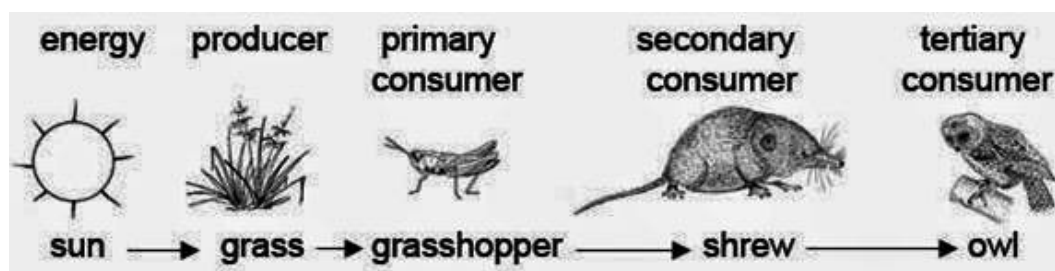
An aquarium is a man-made ecosystem which means biological community living in it rely on humans for their food and other physical need. Along with their dependency on food and other physical needs, an aquarium also do not clean itself but rely on humans.

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

The various links or steps in an ecosystem at which the transfer of energy takes place are called trophic levels.

The producers form the first trophic level as they produce food during the process of photosynthesis.

The primary consumers form the second trophic level, the secondary consumers form the third, and the tertiary consumers form the fourth trophic level.



In the figure above, the grass is the producer which is eaten by the grasshopper known as the primary consumer. Then the grasshopper is eaten by the shrew, the secondary consumer and lastly shrew is eaten up by owl, the tertiary consumer.

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

Organisms which decompose the dead remains of plants and animals are called decomposers. Bacteria and fungi play the role of decomposers. Decomposers decompose dead remains of plants and animals. By doing so, they serve two purposes.

One, they reduce the burden on the environment by clearing dead remains.

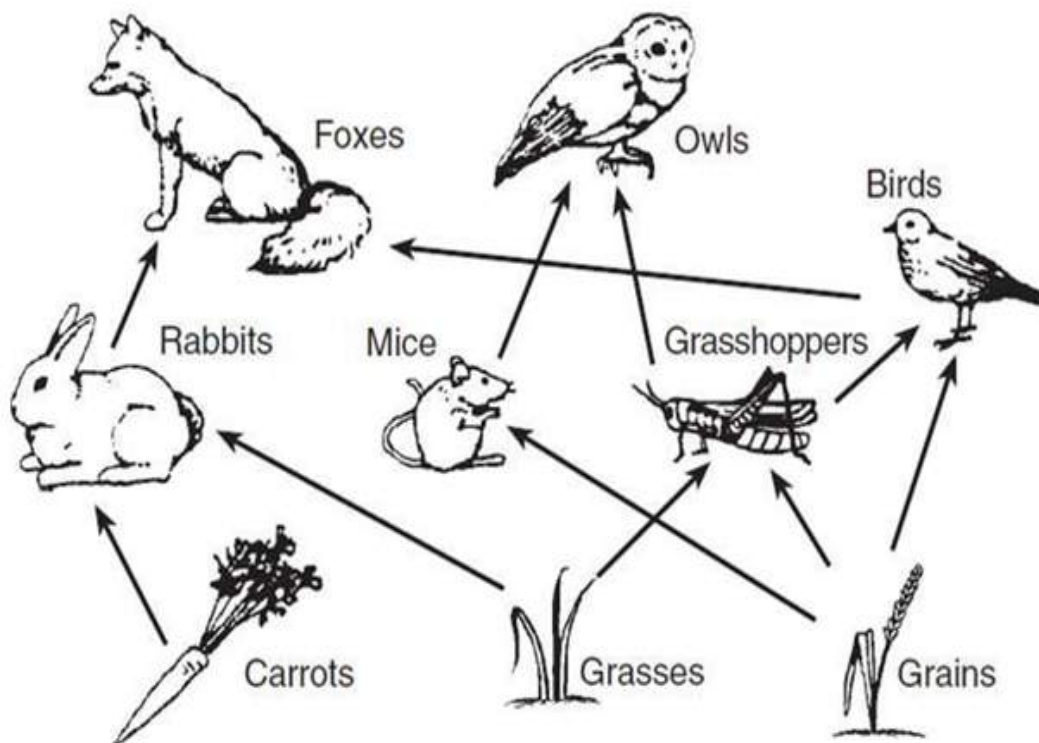
Two, they channelize the raw materials back to the environment.

Hence, if there were no decomposers in the environment it would lead to accumulation of dead plants and animals in the environment. Additionally, the environment would be finally sapped of all its resources which are needed to maintain and sustain life.

4. Explain the concept of food web with a diagram.

The length and complexity of food chains vary greatly because 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.



(Not drawn to scale)

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

Substances are classified as biodegradable and non-biodegradable because a few of them can be decomposed by microorganisms and some cannot.

Substances that are broken down by microorganisms like bacteria or fungi into simple organic substances are called biodegradable and the substances that cannot be decomposed by microorganisms are known as non-biodegradable.

6. What is ozone and how does it affect any ecosystem?

Ozone (O_3) is a molecule made up of three atoms of oxygen. Ozone (O_3) forms a layer in the upper atmosphere. It is essential for the survival of life on this planet. It shields the surface of Earth from harmful ultra-violet radiation (UV) coming from the Sun as these radiations can cause skin cancer and cataract in humans. It also harms the crops.

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

We can help in reducing the problem of waste disposal by these methods:

→ By separating biodegradable substances from non-biodegradable substances and ultimately composting biodegradable substances to get humus (a fertile substance).

→ By reducing, reusing and recycling non-biodegradable substances.

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

The damage to the ozone layer is a cause for concern because:

→ It causes skin darkening, skin cancer, ageing, and corneal cataracts in human beings.

→ It can result in the death of many phytoplanktons that leads to increased global warming.

To limit the damage to the ozone layer, the release of CFCs into the atmosphere must be reduced. CFCs used as refrigerants and in fire extinguishers should be replaced with environmentally- safe alternatives. Also, the release of CFCs through industrial activities should be controlled.