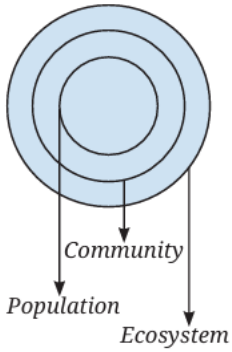
INDIAN SCHOOL AL WADI AL KABIR		
CLASS: VIII	**DEPARTMENT: SCIENCE 2025-26**	**DATE: 27-01-2026**
TEXTBOOK Q & A	**TOPIC: HOW NATURE WORKS IN HARMONY**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

1. Refer to the given diagram (Fig. 12 .19) and select the wrong statement.



(i) A community is larger than a population.

(ii) A community is smaller than an ecosystem.

(iii) An ecosystem is part of a community.

ANS. (iii) An ecosystem is part of a community.
According to the diagram, the population is a part of a community, and the community is a part of an ecosystem. So, the ecosystem is the largest unit, and the ecosystem is not a part of the community. Hence, option (iii) is wrong.

2. A population is part of a community. If all decomposers suddenly disappear from a forest ecosystem, what changes do you think would occur? Explain why decomposers are essential.

ANS. Dead plants and animals would accumulate, nutrients would not return to the soil, and plant growth would decline. This could lead to a reduction in herbivore and carnivore populations due to food scarcity.
Decomposers (e.g., fungi, bacteria) break down dead matter into simpler substances, recycling nutrients like nitrogen and carbon back into the soil for plants. Without them, the nutrient cycle would stop, disrupting the food web.

3. Selvam from Cuddalore district, Tamil Nadu, shared that his village was less affected by the 2004 Tsunami compared to nearby villages due to the presence of mangrove forests. This surprised Sarita, Shabnam, and Shijo. They wondered if mangroves were protecting the village. Can you help them understand this?

ANS. Yes, mangrove forests played an important role in protecting Selvam's village from the Cuddalore district during the 2004 tsunami. Mangroves have thick roots that slow down the strong winds and waves during storms and floods. When a tsunami happens, mangroves act as natural barriers that reduce the speed of waves, which lowers the damage.

4. Look at this food chain:

Grass → Grasshopper → Frog → Snake

If frogs disappear from this ecosystem, what will happen to the population of grasshoppers and snakes? Why?

ANS. Frogs are natural predators of grasshoppers. Without frogs to eat them, grasshoppers would reproduce more freely, and their numbers would rise. This could lead to overgrazing of grass, harming plant life.

Snakes depend on frogs for food. Without frogs, snakes will struggle to find enough frogs to eat, and their population would decline over time due to starvation or migration.

Every organism in a food chain is important and plays a major role. And if one is removed from it, it affects the complete food chain.

5. In a school garden, students noticed fewer butterflies the previous season. What could be the possible reasons? What steps can students take to have more butterflies on campus?

ANS. The possible reasons for fewer butterflies in this season could be:

(i) Less growth of flowering plants that provide nectar.

(ii) More use of chemical fertilisers can cause harm to butterflies and caterpillars.

(iii) Change in weather conditions and an increase in pollution can also affect the number of butterflies.

Steps which students can take to have more butterflies on campus are:

(i) They can grow more flowering plants that are rich in nectar.

(ii) Some host plants can also be grown for caterpillars.

(iii) Use fewer chemical fertilisers, avoid pesticides, create sheltered areas, and install butterfly feeders or water sources to attract and support butterflies.

6. Why is it not possible to have an ecosystem with only producers and no consumers or decomposers?

ANS. Producers alone cannot sustain the ecosystem. If there are no consumers to eat plants, they will grow uncontrollably and then eventually die due to a lack of space and other resources. Decomposers break down complex substances in dead plants and animals into simpler ones. This process returns important nutrients to the soil. Without them, dead matter and waste would accumulate. Soil would lose nutrients, and plants would stop growing over time. Hence, it is not possible to have an ecosystem with only producers and no consumers or decomposers.

7. Observe two different places near your home or school (e.g., a park and a roadside). List the living and non-living components you see. How are the two ecosystems different?

ANS. Park: Living (trees, birds, squirrels, butterflies, grass);

Non-living (soil, water, benches, sunlight).

Roadside: Living (weeds, insects);

Non-living (concrete, dust, light, car exhaust, garbage).

Differences: The park is a designed human-made ecosystem with diverse plants and animals, supported by soil and water. These can help reduce pollution, support biodiversity, and provide recreational spaces for people. While the roadside is a disturbed, human-altered area with fewer species and more pollution.

8. 'Human-made ecosystems like agricultural fields are necessary, but they must be made sustainable.' Comment on the statement

ANS. Human-made ecosystems like agricultural fields are necessary, as they provide food, raw materials, and livelihoods for millions of people. However, to protect the environment and ensure long-term productivity, they must be made sustainable. Agricultural fields often use unsustainable practices (e.g., synthetic fertilisers, monoculture) that degrade soil and harm biodiversity. Sustainable methods such as organic farming and crop rotation protect soil, water and biodiversity.

9. If the Indian hare population (Fig. 12.20) drops because of a disease, how would it affect the number of other organisms?

ANS. A decline in a key herbivore like the hare disrupts the food web, affecting both higher (predators) and lower (plants) trophic levels.

Predators: Predators such as foxes that feed on Indian hares would face a shortage of food, leading to a decline in their population or forcing them to move to other areas or hunt alternative prey.

Plants: Grass and plant populations might increase initially without hare grazing, but overgrowth could alter the habitat.

Deer: Other herbivores that eat similar plants may experience less competition for food, possibly increasing their population.

Changes in predator and prey numbers can disturb the food web, affecting organisms indirectly connected to the Indian hare.

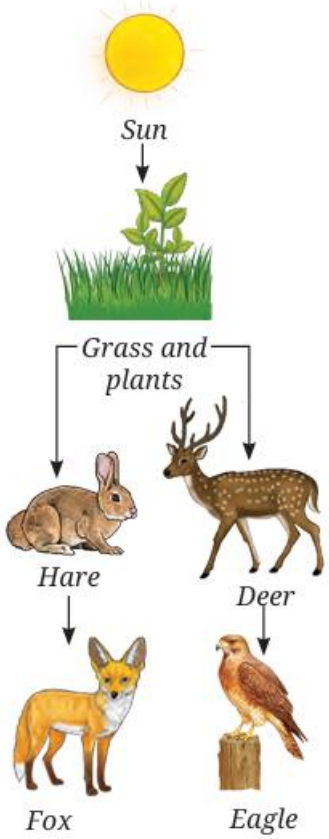


Fig. 12.20: Parts of a food web

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