

NCERT QUESTIONS WITH SOLUTIONS

1. What is one major reason Mars cannot currently support life like Earth?

- (i) It has too many volcanoes.
- (ii) It is too close to the Sun.
- (iii) It lacks a thick atmosphere and liquid water.
- (iv) Its magnetic field is too strong.

Ans. (iii) It lacks a thick atmosphere and liquid water.

2. Which of these is an example of geodiversity?

- (i) Variety of bird chirping in a forest.
- (ii) Different landforms like mountains, valleys, and deserts.
- (iii) Changing weather during monsoons.
- (iv) Number of different types of fish in a pond.

Ans. (ii) Different landforms like mountains, valleys, and deserts.

3. If the Earth were smaller with the same density, what might happen to its atmosphere?

- (i) It would become thicker and hotter.
- (ii) It would escape into space due to weaker gravity.
- (iii) It would become frozen.
- (iv) It would cause stronger winds.

Ans. (ii) It would escape into space due to weaker gravity.

4. In sexual reproduction, why are offspring different from their parents?

- (i) They grow in different climates.
- (ii) They eat different food.
- (iii) They acquire new instructions after birth.
- (iv) They get mixed instructions (genes) from both parents.

Ans. (iv) They get mixed instructions (genes) from both parents.

5. You notice tiny green plants growing in cracks on your school wall after the monsoon. Where do you think the seeds came from? What conditions helped these plants grow there?

Ans. The seeds were likely carried by the wind, birds, or insects and settled in the cracks of the school wall.

The conditions that supported their growth included:

- Moisture from the monsoon rains
- Suitable temperature
- Presence of soil or dust in the cracks
- Adequate sunlight

Together, these factors enabled the tiny plants to germinate and grow in the wall's crevices.

6. A city has recently cut down a large patch of forest to build new roads and buildings. Discuss the possible effects this could have on the local climate and biodiversity? How might this affect water availability or quality in the area?

Ans. Effects on Local Climate: Deforestation reduces the number of trees that absorb carbon dioxide, leading to higher local temperatures due to decreased shade and a disrupted greenhouse gas balance. It can also alter rainfall patterns since trees release water vapor that contributes to cloud formation.

Effects on Biodiversity: The loss of forest habitat threatens countless plant and animal species, reducing overall biodiversity. Animals such as deer and tigers may lose essential food sources or shelter, disturbing entire ecosystems. Deforestation also disrupts the water cycle—trees help retain soil moisture and support rainfall—resulting in lower water availability. In addition, soil erosion from cleared land can carry sediment into rivers and lakes, degrading water quality.

7. A friend says, “The Earth has always had climate changes in the past, so today’s global warming is nothing new.” How would you respond using what you’ve learnt in this and other chapters of your science book?

Ans. In the past, Earth’s climate changed naturally, like during the ice ages. But today’s global warming is different because it’s mostly caused by people. When we burn coal, oil, and gas, we release gases like carbon dioxide and methane. These gases trap heat and make the planet warm up faster. This causes ice to melt, sea levels to rise, and weather to become more extreme. At the same time, we face other big problems—like loss of animals and plants, and pollution. All these issues show that human activities are harming Earth’s balance. Unlike past natural changes, today’s warming means we must act quickly—by using clean energy and protecting nature—to keep our planet safe.

8. Imagine Earth’s magnetic field suddenly disappeared. What kinds of problems could arise for life on Earth? Explain

Ans. Without Earth’s magnetic field, dangerous particles from space, like cosmic rays and solar wind, would hit our atmosphere directly. This could damage the ozone layer, letting more harmful UV rays reach the ground. These rays can harm living cells, cause skin cancer, and hurt plants and animals. Over time, Earth’s atmosphere could wear away, reducing oxygen and changing the climate, making the planet harder to live on. Satellites and communication systems could also be damaged by these space particles, affecting our technology.

9. You are tasked with designing a new settlement for humans on Mars. Name three things you would need to recreate from Earth to support human life there. Which of these do you think is the hardest to replicate, and why?

Ans. Three Things Needed:

- **Liquid Water:** Essential for drinking, growing crops, and supporting life processes.
- **Breathable Atmosphere:** An oxygen-rich atmosphere for respiration, protected from Mars' thin, carbon dioxide-heavy atmosphere.
- **Temperature Control:** A system to maintain Earth-like temperatures, as Mars' average temperature is around -60°C .

The hardest thing to recreate on Mars is a breathable atmosphere. Mars' air is about 100 times thinner than Earth's and is mostly made of carbon dioxide. To make it safe for humans, we would need advanced systems to create and keep enough oxygen at the right pressure. It's also very difficult to protect people from radiation and stop oxygen from leaking in such harsh conditions. This is much harder than getting water (which can be brought or found on Mars) or controlling temperature (which can be managed with insulated shelters).

10. In a village, the temperature has been increasing and rainfall has become unpredictable over the past few years. What could be causing this change?

Suggest two ways the village could adapt to these new conditions

Ans.

Causes: These changes are probably caused by climate change. Burning fuels like coal, oil, and gas releases gases that trap heat, making the planet warmer and changing weather patterns. Cutting down trees and changing how land is used can also reduce moisture and affect rainfall.

Adaptation Strategies:

- **Save Water:** Collect rainwater and use water-saving irrigation systems to store and use water wisely when rainfall is uncertain.
- **Sustainable Farming:** Grow crops that can survive with less water and use eco-friendly farming methods to handle hotter and drier conditions.

11. If there were no atmosphere on the Earth, would it affect life, temperature, and water on the planet? Explain.

Ans. Without an atmosphere:

- **Life:** Most living things need oxygen to survive. Without the ozone layer, harmful UV rays would damage cells, hurting humans, animals, and plants.
- **Temperature:** Earth would get very cold because heat would escape into space. Days could become very hot from direct sunlight, and nights would be freezing.
- **Water:** Liquid water would either evaporate or freeze because of extreme temperatures and low air pressure. Rain, clouds, and the water cycle would stop, making water unavailable for life.

NCERT Basics : Class 8

12. Discuss five examples of vegetative propagation.

Ans. Vegetative propagation: Vegetative propagation is a way plants make new plants without seeds, using parts like stems, roots, or leaves.

Examples:

- **Money Plant:** A stem cutting with a node can grow roots in water or soil and become a new plant.
- **Potato:** The buds (“eyes”) on a potato can be planted to grow a new potato plant.

- **Ginger:** A piece of ginger with a bud can grow into a new plant when planted in soil.
- **Sugarcane:** Stem cuttings with nodes grow into new sugarcane plants since sugarcane rarely makes seeds.
- **Bamboo:** Parts of bamboo stems or roots can be planted to grow new bamboo plants.