

1. Why is the atmosphere essential for life?

Ans. The atmosphere is essential for life because it maintains an appropriate climate for the sustenance of life by carrying out the following activities:

- (i) Atmosphere keeps the average temperature of the Earth fairly constant during daytime.
- (ii) It prevents a sudden increase in temperature during daytime.
- (iii) It also slows down the escape of heat from the surface of the Earth into outer space during night-time.

2. Why is water essential for life?

Ans. Water is essential for life because of the following reasons:

- (i) Most biological reactions occur when substances are dissolved in water. Thus, all cellular processes need water as a medium to take place.
 - (ii) Transportation of biological substances needs water as a medium.
3. How are living organisms dependent on the soil? Are organisms that live in water totally independent on soil as a resource?

Ans. Almost all living organisms are dependent on soil. Some depend directly, while some depend indirectly.

Plants need soil for getting support as well as nutrients to prepare their food. On the other hand, organisms depend on plants for food and other substances that are essential for life. Herbivores depend directly upon plants, and carnivores depend upon animals, which in turn depend upon plants for food. This makes them depend on soil indirectly.

Organisms that live in water are not totally independent of soil as a resource. These organisms depend on aquatic plants for food and other substances. These aquatic plants in turn require minerals for their sustenance. These minerals are carried to waterbodies from soil by rivers, rainwater etc. Without the supply of minerals from the soil to the waterbodies, it is impossible to imagine aquatic life.

4. You have seen weather reports on television and in newspapers. How do you think we are able to predict the weather?

Ans. The meteorological department of the government collects data on the elements of weather such as maximum and minimum temperatures, maximum and minimum humidity, rainfall, wind speed etc. They are able to study these elements using various instruments. The maximum and minimum temperature of a day is measured by a thermometer known as the 'maximum' 'minimum thermometer'. Rainfall is measured by an instrument known as

the rain gauge. Wind speed is measured by anemometers. There are various instruments used to measure humidity.

5. We know that many human activities lead to increasing levels of pollution of the air, waterbodies and soil. Do you think that isolating these activities to specific and limited areas would help in reducing pollution?

Ans. Yes. Isolating human activities to specific areas would help in reducing levels of pollution. For example, setting up of industries in isolated regions will control pollution to some extent. The pollution caused by these industries will not contaminate water resources, agriculture land, fertile land, etc.

6. Write a note on how forests influence the quality of our air, soil and water resources.

Ans. Forests influence the quality of our air, soil, and water resources in various ways. Some of them are as follows:

- (i) Forests balance the percentages of carbon dioxide and oxygen in the atmosphere. The increasing amount of carbon dioxide caused by human activities is balanced by a larger intake of carbon dioxide by plants during the process of photosynthesis. Simultaneously, a large amount of oxygen is released.
- (ii) Forests prevent soil erosion. Roots of plants bind the soil tightly in a way that the surface of the soil cannot be eroded away by wind, water, etc.
- (iii) Forests help in the replenishment of water resources. During the process of transpiration, a huge amount of water vapour goes into the air and condenses to form clouds. These clouds cause rainfall that recharges waterbodies.