

ANSWERS

Chapter 4: Soil

What I Know

- A. Layers (from top to bottom): humus, water, clay, sand and gravel
- B. Clayey soil: It is used to make toys and pots.
Sandy Soil: It is very good for growing palm trees.
Loamy soil: It is very good for the growth of plants.

Checkpoint 1

- | | |
|----------|----------|
| 1. False | 2. True |
| 3. False | 4. False |
| 5. True | |

What I Have Learnt

I. Objective Type Questions.

- A. 1. d. Terrace farming 2. d. 22 April
3. d. Parent material 4. c. growing trees
5. b. roots
- B. 1. organic 2. different
3. winds 4. erosion
5. embankments
- C. Deforestation, rainfall, winds, heat of the Sun, overgrazing, ploughing of hills and reduction of plant cover

Soil Conservation

- Increase in vegetation
- Crop rotation
- Cover crops
- Development of pastures
- Construction of embankments
- Making terraces
- Constructing dams
- Windbreaks

- D.
- | | |
|------------------|--------------------|
| 1. Humus | 2. Subsoil |
| 3. Cover crops | 4. Terrace farming |
| 5. Deforestation | |

II. Short Answer Questions.

1.
 - a. Soil erosion takes away the topsoil and makes the soil infertile.
 - b. Rainwater flowing down the hill's slopes is muddy because of the soil which is being washed away.
 - c. To prevent soil erosion, areas should be reserved for pastures. Animals should be taken to pastures for grazing and not allowed to wander.
 - d. This is because the roots of trees and plants hold the soil firmly to the ground.
2. Soil conservation is the process to protect soil from erosion.
3. Agents of soil erosion are deforestation, reduction of plant cover, rainfall, wind, heat of the Sun, overgrazing, ploughing of hills.
4. Afforestation is the process of planting trees in large numbers on open land.

III. Long Answer Questions.

1. Topsoil is the uppermost layer of soil and is a mixture of different soil particles. It also contains microorganisms, water and air. It is rich in humus and relatively poor in minerals. It is very dark in colour and is most suitable for growth of the plants.
2. Various causes of soil erosion are:
 - a. The main cause is the removal of vegetation or plants and trees from the surface of the soil. It is called deforestation. It exposes the soil to wind and water which carry away the soil.
 - b. The impact of rainfall on the soil surface can remove the topsoil. Sometimes, minerals present in the soil dissolve in water and seep through the layers of soil, thereby making the soil infertile.
 - c. Strong winds blow away particles of soil with it. It usually takes place where there is less vegetation.
 - d. The heat of the Sun evaporates the moisture of exposed soil and dries it up. Dry soil breaks up easily and turns into small particles and is easily blown away by wind, resulting in soil erosion.

- f. Overgrazing by cattle removes the plant cover from the soil. As a result, soil erosion increases.
 - g. Ploughing of hills for cultivation also loosens the soil and increases the risk of erosion by wind.
3. Soil conservation can be done in many ways:
- a. Increase in vegetation: The roots of plants hold the soil firmly together and prevent soil erosion. So, green cover or vegetation should be increased on the soil by planting more trees.
 - b. Crop rotation: Crop rotation is a method of farming where a number of different plants are grown one after the other on a field so that the soil stays healthy and fertile. Crop rotation always keeps the soil covered with vegetation.
 - c. Cover crops: Between harvesting one crop and planting the next crop, the fields should not be left barren. This may blow away the topsoil and lead to depletion of important soil nutrients, making it infertile. Farmers can protect the soil by growing cover crops until the next crop is planted.
 - d. Development of pastures: The grass and herbs do not get time to recover and grow due to overgrazing. This leads to soil erosion. To prevent such erosion, areas should be reserved for pastures.
 - e. Construction of embankments: Building embankments along river banks prevents soil erosion. The river water is unable to flood the nearby fields. Soil is, thus, conserved from erosion through water.
 - f. Making terraces: Cutting steps or terraces on the slopes of hills and building bunds on the outer edges control the flow of water and help in reducing soil erosion.
 - g. Constructing dams: Much of the soil is eroded by river floods. Therefore, dams can be constructed across rivers to prevent soil erosion.
 - h. Windbreaks: Windbreaks are barriers formed by trees and other plants. Farmers plant these barriers around their fields. This prevents the soil from being blown away.

4. Forests provide a green cover which is very important for sustaining life on the Earth. Trees provide oxygen, wood, medicines, etc. They are a natural habitat for many living species that include birds, animals and insects. The co-existence of these species is very important for balance in nature. If forests are cut down, many species will die and the balance in nature will be disrupted.

Enrichment Activities

I. HOTS

- A. Yes, step farming and terrace farming are the same.
- B. If there will be no soil, there will be no vegetation and no life. So, soil conservation is important for life to exist on the Earth.