

EXERCISES:

1. How can you say soil is a precious resource? Give reasons.

ANS: Soil is a prestigious natural resource because it is a living space for organisms. It has the essential role in water balance, supplementing nutrients and decomposing substances.

2. Which type of soil is suitable for growing cotton?

ANS: Black soil is suitable for growing cotton because moisture retaining capacity is more in black soils.

3. Give reasons for low percolation rate in clay soil when compared to sandy soil.

ANS: Percolation is the process of fluids passing through porous material. Clay soils have fine particles through which water cannot easily percolate whereas sandy soils have granules like big particles through which water can be easily percolate.

4. Why is top soil more useful for us?

ANS: Topsoil is more useful for us because it contains all the nutrients essential for plant growth.

5. What types of soils are there in your village? Make a list of crops grown on these soils.

ANS:

Type of soil	Suitable crop
Clay soil	Paddy
Sandy soil	Not suitable for may crops
Loamy soil	Vegetables, wheat, oil seeds
Black soil	Cotton

6. If a farmer wants to improve water holding capacity of his sandy soil field what would you suggest him?

ANS: Sandy soils have granule like big particles that cannot hold water and drain out easily. So if a farmer wants to improve water holding capacity of sandy soil field, a good proportion of fine particles or clay soil has to be added to his sandy soil field to improve the water holding capacity. Organic matter like plant and

animal elements has to be added to improve the nutrient content of the soil.

7. Do you think rotting vegetation and animal remains are important for the soil? In what way?

ANS: Yes, rotting vegetation and animal remains are important for the soil because they act as natural manures which improve the quality and nutritional content of the soil.

8. Roots of grasses hold soil particles. This conserves the

ANS: Soil.

9. Which of the following statement is correct? Correct the wrong one.

- Soil form from sand.
- Crop rotation protects soil fertility.
- Clay soil can't hold water for a long time.
- Upper layers of soil are made of rocks.

ANS: a) Soil form from sand- wrong statement. Soil is formed slowly from rocks as tiny pieces near the Earth's surface.

b) Crop rotation protects soil fertility – is a correct statement.

c) Clay soil can't hold water for a long time – is a wrong statement because clay soil contains fine particles which can hold water for a long time.

d) Upper layers of soil are made of rocks – is a correct statement because upper layers of soil are made up of rocks, decayed plant and animal elements called humus.

10. Collect soil from your school ground. Try to make a ring with that soil. Write down your observations. What type of soil is it?

ANS: I collected soil from our school ground and added water to make a ring. How compact the ring forms depend on the water holding capacity of the particular soil. So, when I tried to make a ring out of the soil I collected from school ground is perfect because it is the clay soil and it holds the water for a long time.

11. Take a boiling tube. Put two spoons of soil in it. Heat it on a spirit lamp and cover it.

(a) Do this experiment and write your findings.

(b) Do you find any moisture in the soil?

(c) How can you say that?

ANS: When two spoons of soil is placed in a boiling tube and heated on a spirit lamp with a cover on it, the soil became dry because it lost its moisture content due to heating by evaporation. Due to the covering of the tube while heating small water droplets are found on the bottom side of the cover.

12. Nazmal's grand mother said "Human beings always depends on soil" is she correct? How do you support her statement?

ANS: Yes, human beings always depend on soil. Soil is the living space for organisms. Soil provides us food, balances water resources, maintains biodiversity and is the home for plants, animals and more. We directly or indirectly always depend on soil.

13. "If you sow a seed in the soil it will give birth to a tiny plant which grows bigger and bigger. "It is the wonder of soil" Swetha said. How you express your appreciation of soil like Swetha?

ANS: Soil gives the water and essential nutrients for the plants to grow. Soil always supports the life by giving the minerals and water required for the growth and development.

14. Write a dialogue between seed and soil and perform a small play using your own script.

ANS:

Soil: Hello there! I am soil. Who are you my little one?

Seed: I am a seed. I am struggling here to survive in search of resources. Can you help me out?

Soil: Of course! I am like a mother to all the living things. I never say No to anyone.

Seed: Can I get my support now?

Soil: Yes, everything you need for your survival are here in me. I give you nutrients, water and expose you to sun light. You can utilize all of them and grow happily.

Seed: Thank you soil. You are priceless.

15. If you have a chance to talk with a soil scientist, what questions would you like to ask him about soil?

ANS: I would like to ask the following questions

- a) How can you suggest the crop varieties to farmers according to soil types?
- b) How the nature of soil affects the productivity of crops?
- c) Can we change the nature of soil according to our needs?

16. Do you find any relationship between the chapters "Soil" and "Nutrition in plants". What are they?

ANS: Yes, I found relationship between the chapters "Soil" and "Nutrition in plants" because soil provides the nutrients required for the plants to grow and survive.

- i) Plants get water from the soil through their roots while the process of photosynthesis takes place in the leaves.
- ii) Plants absorb these nutrient elements from the soil through their roots.
- iii) Plants that do not contain chlorophyll simply absorb organic material usually from decaying matter in the soil.
- iv) One major factor of crop selection is the kind of soil available in that area and its properties.
- v) Continuous cultivation of same agriculture crops reduce the soil fertility.