Chapter 11: Nature's Treasures

Exercises — Let Us Enhance Our Learning

Q1 Fig. 11.9 shows items related to natural resources. Match them with their jumbled up names. Make another table and write the names of these resources. Classify these resources as renewable or non-renewable.
Jumbled names: ocrk | refost | ndiw | atwre

SOLUTION

Decode each jumbled name by rearranging letters:
ocrk → rock
refost → forest
ndiw → wind
atwre → water

Classify each resource (from Section 11.7):
Wind (air): renewable — air is replenished by natural processes
Water: renewable — replenished through the water cycle
Forest: renewable — forests can regenerate over time through natural processes
Rock: non-renewable — takes thousands to millions of years to form; not replenished within a reasonable period

Answer: ocrk = rock (non-renewable); refost = forest (renewable); ndiw = wind/air (renewable); atwre = water (renewable)

Q2 State whether the following statements are True [T] or False [F]. If False, correct them.
(i) Nature has all the resources to meet human needs.
(ii) Machines are a resource found in nature.
(iii) Natural gas is a non-renewable resource.
(iv) Air is a renewable resource.

SOLUTION

(i) True [T] — The chapter states nature's treasures fulfil our needs and are essential resources to sustain all life on Earth.

(ii) False [F] — Machines are created by human beings, so they are human-made resources, not natural resources.
Correction: Machines are human-made resources, not resources found in nature.

(iii) True [T] — Natural gas is a fossil fuel that takes millions of years to form and is found in limited quantities; it is a non-renewable resource.

(iv) True [T] — Air is replenished through natural processes and is classified as a renewable resource.

Answer: (i) T; (ii) F — machines are human-made resources; (iii) T; (iv) T

Q3 Fill in the blanks using the most appropriate option—
(i) A fuel that is commonly used in two wheelers like scooters or bikes is ..... (a) Kerosene (b) Petrol (c) Diesel (d) LPG
(ii) An example of a renewable resource is ..... (a) Coal (b) Water (c) Natural gas (d) Petrol

SOLUTION

(i) Petrol — The chapter states petrol and diesel are the two most widely used fuels for vehicles. Two-wheelers like scooters and bikes run on petrol.

(ii) Water — The chapter classifies air, water and forest as renewable natural resources (Section 11.7). Coal, natural gas and petrol are fossil fuels and are non-renewable.

Answer: (i) (b) Petrol; (ii) (b) Water

Q4 Classify the following as renewable or non-renewable resources — coal, natural gas, forests and minerals.

SOLUTION

From Section 11.7 of the chapter:

Renewable resources: Forests — forests can be regenerated over time through natural processes.

Non-renewable resources:
Coal — a fossil fuel formed over millions of years from remains of organisms; found in limited quantities.
Natural gas — a fossil fuel; takes millions of years to form; found in limited quantities.
Minerals — take thousands to millions of years to form; listed in the chapter as non-renewable (Section 11.7).

Answer: Renewable: Forests. Non-renewable: Coal, natural gas, minerals.

Q5 Why do we say that petroleum is a non-renewable resource?

SOLUTION

Petroleum is formed from the remains of microorganisms and plants that were buried deep inside the Earth and converted to petroleum over millions of years.
It is found in limited quantities.
Once used, it is exhausted and cannot be replenished within a reasonable period of time.
Because it is not renewed or restored by natural processes within a reasonable time, it is called a non-renewable resource.

Answer: Petroleum takes millions of years to form, exists in limited quantities, and cannot be replenished once used — so it is non-renewable.

Q6 It is difficult to regrow forests. Justify this statement.

SOLUTION

Forests take many years to grow.
It takes many years to grow a new forest or restore lost forests (as stated in the chapter, Section 11.4).
When a forest is cut down, not only the trees but the entire habitat — the soil, animals, birds and insects that depend on the forest — is disturbed.
The diversity of life forms that ensures food and shelter for living beings is lost.
Seeds must germinate, saplings must grow, and trees must mature over decades before a forest is restored.
Therefore, it is difficult to regrow forests quickly once they are destroyed.

Answer: It takes many years for trees to mature and for an entire forest ecosystem — soil, plants, animals — to be restored, making it difficult to regrow forests once lost.

Q7 Make a list of five daily activities in which you use natural resources. Suggest ways by which you can reduce their use.

SOLUTION

Model answer (based on chapter examples):

1. Drinking water (natural resource: water) — reduce by turning off taps when not in use; fix leakages.
2. Cooking food (natural resource: LPG/natural gas or coal) — reduce by using a solar cooker; cook efficiently without wasting fuel.
3. Travelling to school (natural resource: petrol/diesel) — reduce by walking or cycling to nearby places; use public transport.
4. Bathing and washing clothes (natural resource: water) — reduce by using only the required amount of water; recycle rinse water for plants.
5. Using electricity (natural resource: coal used in power plants) — reduce by switching off lights and fans when not needed; use solar panels.

Answer: Five activities: drinking water, cooking, travelling, washing, using electricity — each can be reduced by conserving the resource used (turning off taps, using solar energy, walking/cycling, etc.).

Q8 List four activities that are possible due to the presence of air.

SOLUTION

From the chapter (Section 11.1 and related content):

1. Breathing — all living beings need oxygen present in air to survive.
2. Flying kites and turning firki (pinwheel) — moving air (wind) makes these possible.
3. Generating electricity using windmills — wind rotates the wings of a windmill to generate electricity.
4. Drying clothes and drying food (such as chillies and mangoes) — air helps in evaporation and drying.

Answer: Four activities: breathing; rotating a firki/kite flying; generating electricity via windmills; drying clothes and food.

Q9 How can you contribute towards enhancing the green cover of your locality? Make a list of actions to be taken.

SOLUTION

Model answer based on chapter content (Sections 11.4, 11.7):

1. Plant trees and saplings in your neighbourhood, school, or community — as done during Van Mahotsav (a tree-planting festival celebrated in July).
2. Organise a tree plantation drive in school or community with the help of teachers and parents.
3. Avoid cutting trees unnecessarily; report illegal cutting of trees.
4. Water the plants regularly so they survive and grow.
5. Collect and plant seeds from local trees and plants.
6. Raise awareness among friends and neighbours about the importance of forests and green cover.

Answer: Actions: plant trees during Van Mahotsav; organise plantation drives; avoid unnecessary tree cutting; water saplings regularly; raise awareness.

Q10 In the given illustration, we see that food is being cooked. Answer the following questions—
(i) What type of energy is being used for cooking?
(ii) Name one benefit and one drawback of using this type of energy for cooking.

SOLUTION

The illustration shows a solar cooker (a parabolic dish with a reflective panel) being used to cook food.

(i) Solar energy (energy from the Sun) is being used for cooking.

(ii) Benefit: Solar energy is a renewable resource — it is replenished naturally and does not run out; it does not produce smoke or pollute the air.
Drawback: Solar cooking depends on sunlight — it cannot be used on cloudy days or at night; cooking takes longer in a solar cooker compared to a gas stove.

Answer: (i) Solar energy (the illustration shows a solar cooker); (ii) Benefit — renewable and pollution-free; Drawback — cannot be used on cloudy days or at night.

Q11 Cutting down trees on a large scale impacts the quality of the soil. Why do you think it is so?

SOLUTION

From Section 11.4 of the chapter:

1. Roots of plants hold on to the soil and prevent it from being washed away. When trees are cut, roots are removed, so soil gets washed away by rain (soil erosion).
2. Fallen leaves from trees decay and enrich the soil with nutrients. Without trees, this natural nutrient recycling stops, making the soil less fertile.
3. The soil becomes dry and exposed to wind and rain, leading to further loss of topsoil.
4. Without tree cover, the soil loses its moisture and organisms (like earthworms) that keep it healthy.

Answer: Tree roots hold soil and prevent erosion; fallen leaves enrich soil with nutrients. Cutting trees causes soil erosion and loss of soil fertility.

Q12 Explain two ways in which human activities pollute the air. Propose one action which can help in reducing air pollution.

SOLUTION

Two ways human activities pollute air (from Sections 11.6 and 11.8):

1. Burning fossil fuels in vehicles — when petrol, diesel and other fossil fuels are burnt in vehicles, smoke and carbon dioxide are released, polluting the air.
2. Burning fossil fuels in industries and for domestic cooking (earlier: coal, wood, dung cakes) also releases smoke and gases that pollute the air.

One action to reduce air pollution:
Use electric vehicles or walk/cycle to nearby places instead of using petrol or diesel vehicles — this reduces the burning of fossil fuels and lowers smoke emissions.

Answer: Two ways: (1) burning fossil fuels in vehicles produces smoke and CO_2; (2) burning coal/wood in industries and homes releases smoke. Action: switch to electric vehicles or use public transport/cycling.

Q13 A family uses solar panels to generate electricity, a gas stove to cook food and a windmill for pumping water from a well. What would happen if there were no sunlight for a week?

SOLUTION

Solar panels: Without sunlight, solar panels cannot generate electricity. The family would have no electricity for lighting, fans, charging devices, etc.

Gas stove: The gas stove uses LPG (natural gas), which does not depend on sunlight. Cooking would continue normally.

Windmill: A windmill uses wind energy, not sunlight, to pump water. As long as there is wind, the windmill would continue to pump water from the well.

Overall: The family would lose electricity supply (from solar panels) for the week. However, cooking using the gas stove and water pumping via the windmill would not be affected.

Answer: Solar panels would stop generating electricity (no sunlight). The gas stove (LPG) and windmill (wind energy) would be unaffected and continue to work.

Q14 Fill up the blanks using the following terms — (fossil fuels, forest, air, petroleum, coal, water and non-renewable resource)

Natural Resources → Renewable Resources → [blank], [blank], [blank]
Natural Resources → [blank] → Natural gas → [blank] → [blank]

SOLUTION

From Section 11.7 of the chapter:

Renewable Resources examples: air, water, forest
— Air, water and forest are replenished through natural processes within a reasonable time.

The other branch leads to: Non-renewable resource (heading) → examples include: fossil fuels → Natural gas, petroleum, coal
— Fossil fuels (natural gas, petroleum/petrol, coal) take millions of years to form and are not replenished within a reasonable period, so they are non-renewable resources.

Filled diagram:

Natural Resources → Renewable Resources: air	water	forest
Natural Resources → Non-renewable resource → Fossil fuels → Natural gas	Petroleum	Coal

Answer: Renewable: air, water, forest. Non-renewable resource → Fossil fuels → Natural gas, petroleum, coal.

Q15 There is an increasing demand of trees to meet the requirements of industries and for housing. Therefore, trees are being felled. Is it justified? Discuss and prepare a brief report.

SOLUTION

Brief report (grounded in chapter):

Cutting trees for industry and housing is NOT justified because:

1. Forests are home to many wild animals, birds and insects — large-scale felling destroys their habitat.
2. Tree roots hold soil and prevent erosion; leaves enrich soil with nutrients. Cutting trees degrades soil quality.
3. Forests take many years to regrow — once destroyed, they cannot be restored quickly.
4. Forests are renewable resources only if used responsibly. Over-exploitation makes them effectively non-renewable.
5. Burning wood from felled trees adds to air pollution.

Alternatives: Use recycled wood and paper; build with alternative materials (laterite, bricks); adopt sustainable forestry where only selective trees are cut and new ones are planted.

Conclusion: The demand for trees must be balanced with conservation so that forests have time to regenerate and continue to support biodiversity and human needs.

Answer: Not justified — felling trees destroys habitats, causes soil erosion, and takes decades to regrow. Alternatives (recycled materials, sustainable forestry) must be adopted.

Q16 Propose a plan to use less water in your school. What steps would you take to make this plan happen and how would it help the environment?

SOLUTION

Plan to use less water in school (model answer, grounded in chapter principles):

Steps:

1. Check all taps and pipes for leaks and get them repaired immediately.
2. Put up notices near taps reminding students to turn off taps when not in use.
3. Use buckets instead of running hose pipes for cleaning school grounds and vehicles.
4. Collect rainwater on the school terrace (rainwater harvesting) and use it for watering plants in the school garden.
5. Form a water-monitoring committee of students to check wastage daily.
6. Educate students about the importance of water conservation through assemblies and posters.

How it helps the environment:

Water is a precious resource that is available in limited accessible quantities. Conserving water reduces the pressure on freshwater sources (rivers, lakes, wells) so that water remains available for all living beings.

It also prevents the need to over-extract groundwater, keeping water tables stable.

Answer: Steps: fix leaks; turn off taps; use rainwater harvesting; reduce hose-pipe cleaning; form a water committee. Benefit: conserves limited freshwater resources and keeps water available for all living beings.