

Chapter – 12: Forests – Our Lifeline

- Boojho went to park with an elder – Prof Ahmed – scientist – working in university
- Children started playing – prof sat on a bench – he was tired – attended golden jubilee celebrations
- After sometime – children gathered around him – curious about celebration
- Prof explained – after the cultural programme – senior people – discussed unemployment problems
- Proposed plan – clearing some part of forest outside town – setup a factory – create jobs
- BUT – lots of people – rejected this plan – children were surprised
- Prof explained – forests – work as green lungs and water purifiers in nature
- Children were confused – Prof Ahmed – planned a visit to forests

Visit to a Forest

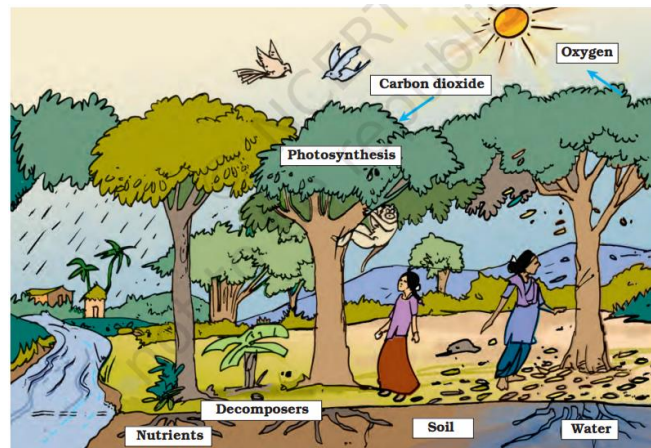
- Sunday morning – children packed few items – knife, land lens, stick, notebook – walked through forest path – near village
- On the way – they met Tibu – young local boy – taking cattle for grazing with his aunt
- Tibu – very active – running here and there
- Tibu – saw children – went with them
- They entered forest – Tibu signaled them – stay silent – noise disturbs animals
- Tibu – took them to a height – broad view of forest can be seen
- Children were surprised – no land – only treetops – green cover – not uniform
- Environment – peaceful and cool – children were happy
- Coming down – they were excited – sudden sound of birds – some noise from top branches
- Tibu explained – normal thing for forest – because of their presence – some monkeys – climbed higher – disturbed the birds
- This way – alert other animals
- Tibu – told them – other animals – boar, bison, jackals, porcupine, elephant – live in deeper forests
- Prof Ahmed – warned them – not to go in deep forest
- Boojho and Paheli – studied forests as habitat – now very clear – forests provides a home for many plants and animals
- Land – children walking – uneven – lots of trees
- Tibu – helped them to identify – sal, teak, semal, amla, bamboo, kachnar
- Prof Ahmed – pointed out – many other trees, herbs, shrubs, grasses
- Forest floor, trees – covered with creepers and climbers
- Sun barely visible – lots of darkness
- Activity – make a list of items – obtained from forest produce
- Many wooden items on list – plywood, fuel wood, boxes, paper, furniture
- Gum, oils, spices, fodder – medicinal plants – forest produce
- Sheila confused – who planted trees
- Prof Ahmed explained – in nature – trees produce lots of seeds
- Forest floor – favourable conditions – seeds germinate – develop into saplings – some grow up to trees
- Branchy part of tree – above the stem – crown
- Prof Ahmed – asked students – look up – observe branches – form roof – called as canopy

- Activity –
 - Visit a forest or park – observe trees and plants – identify them
 - List their characteristics – height, shape of leaves, crown, flowers, fruits, etc
- Prof Ahmed explained – trees have crowns – different shapes and sizes
- Created different horizontal layers – known as understoreys
- Giant, tall trees – top layer
- Shrubs and tall grasses – in between
- Herbs – lowest layer

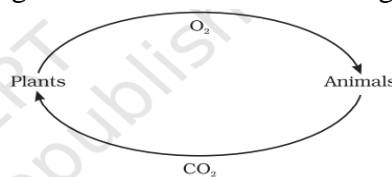


- Boojho asked – are there similar kinds of trees – every forest?
- Prof Ahmed replied – different climatic conditions – variations in trees and plants
- Also – types of animals – vary – forest to forest
- Few children – busy watching butterflies – roaming here and there
- Children – looked closely – at the bushes – seeds and thorns – stuck to their hair and clothes
- Also viewed – lots of insects, spiders, squirrels, ants, various other small animals – on the bark of trees, plant leaves, decaying leaves
- Kids – made sketches – these creatures
- Forest floor – looked dark – covered with dead and decaying leaves, fruits, seeds, small branches, herbs, etc
- Decaying matter – moist (containing water) and warm
- Children – picked up – various seeds and leaves
- Dead leaf layer – felt like a spongy carpet
- Prof Ahmed suggested – perform activity – check for warmth
- Activity –
 - Make a small pit – throw vegetable waste and leaves in it
 - Cover them with soil – add some water
 - After 3 days – remove the upper layer of soil – pit feels warm from inside
- Paheli confused – so many trees present – if some are cut down – no difference
- Prof Ahmed explained – there are autotrophs, heterotrophs, saprotrophs
- Green plants – prepare their own food – all animals – herbivores or carnivores – depend on plants for food
- Animals – eat plants – eaten by other animals
- Example –
 - Grass – eaten by insects – eaten by frogs – eaten by snakes – food chain
 - Grass → insects → frog → snake → eagle
- Nature – many food chains exist – all chains linked together

- One chain is disturbed – disturbs all other chains
- All parts of forest – depend on each other – one component removed – all other will be affected

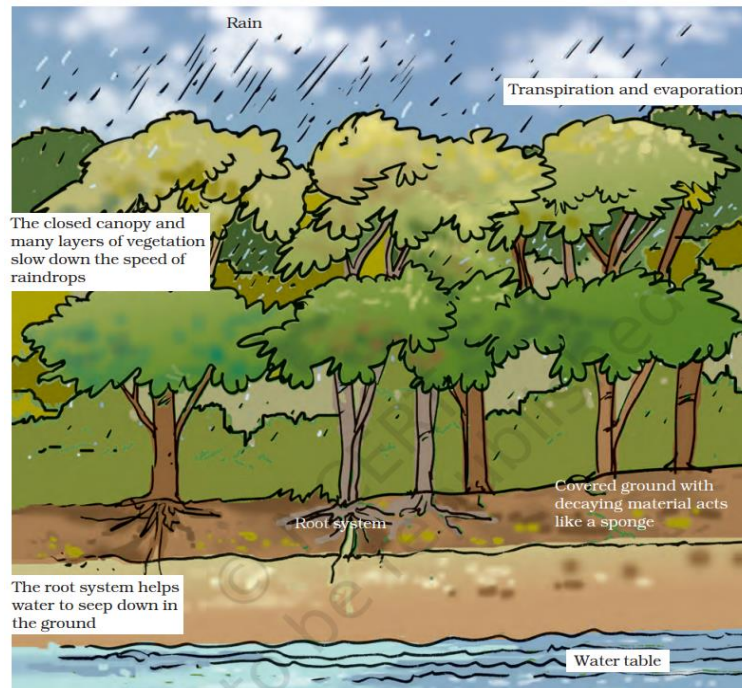


- Prof Ahmed – asked students – pick up leaves – observe under hand lens
- Children – found mushrooms, tiny insects, millipedes, ants, beetles, etc – all over the leaves
- Prof Ahmed explained – many animals – seen with eyes – BUT – many others – too small – live inside soil
- Paheli confused – what do they eat?
- Prof replied – they feed on dead plants and animal tissue – convert into dark substance – humus
- Micro-organisms – convert dead plants to humus – decomposers – imp. role
- Paheli – removed some dead leaves – discovered layer of humus
- Presence of humus – ensure – nutrients of dead plants and animals – released into soil
- From there – plants absorb the nutrients again
- Sheila asked – what happens if animal dies in forest
- Tibu replied – dead animals – food for vultures, crows, jackals, insects, etc
- This way – nutrients cycle through forests – nothing is wasted
- Paheli reminded – why are plants called green lungs?
- Prof Ahmed explained – plants take carbon dioxide – release oxygen – photosynthesis
- This oxygen – taken by animals – respiration – release carbon dioxide
- This way – balance of both the gases – forests are called lungs



- Children – observe clouds forming
- Boojho recalled – water cycle – trees absorb water – release water vapour through evaporation
- Tibu told them – forest – home for animals and plants – BUT – may people also leave there – different tribes
- Tibu explained – people depend on forests – forest provides – food, shelter, water, medicines, etc
- These people – traditional knowledge – many medicinal plants
- Boojho – drinking water from stream – saw a deer crossing stream – disappeared in the dense bushes
- Dense bushes and tall grass – provides food and shelter – protects them from carnivores
- Tibu – noticed some droppings of animals – explained difference – different droppings
- Prof Ahmed informed – forest officers – recognize presence of animals – their droppings and footprints

- Boojho – called everyone – showed them – large, decaying heap of animal dropping
- Lots of beetles – feeding on the heap – many plants – growing out of it
- Prof Ahmed explained – small plants – herbs and shrubs
- Animals – disperse seeds – helps the forest to grow
- Decaying animal dung – provides nutrients for plants
- Boojho noted –
 - Forests – home to variety of plants and animals – herbivores – food for carnivores
 - Variety of animals – helps the forest to grow
 - Decomposers – maintain – supply of nutrients
 - Forest – dynamic living entity – full of life



- It was now afternoon – children wanted to go back
- Tibu suggested – another route
- Returning back – it started raining – BUT – raindrops – didn't reach the forest floor directly
- Uppermost layer – forest canopy – break the flow of raindrops
- Raindrops – reach the ground – through branches and stems
- Children found – ground was dry – even after half hour of raining
- Also noticed – layer of dead leaves – appeared wet – BUT – water did not stagnate (gets collected)
- Boojho thought – this much rain in his town – drains and roads – flooded
- Prof Ahmed explained – forest – act as natural absorber of rainwater
- Maintains water table – throughout the year
- Forest – helps in controlling floods – ALSO – helps to maintain water flow in streams
- Trees – not available – rain water falls directly on ground – flood the area
- Heavy rain – damage the soil
- Roots of trees – bind the soil – keeps it in place – absence of trees – soil is washed away
- Children – spent 1 hour at Tibu's village – pleasant weather
- Villagers told them – surrounding forests – bring good rain
- Air remains cool, noise pollution is very less – all because of forests
- Children learnt – history of village

- Children surprised – villages and agricultural fields – created after clearing forests – 60 years ago
- Tibu's grandfather told them – village as much smaller in his youth
- Surrounded by forests at that time – construction of roads, buildings, demand of wood – pressure on forests – started vanishing
- Grandfather – not happy – forest is not regenerating – overgrazing of animals
- Prof Ahmed explained – we can preserve forests and environment
- At the end – Prof Ahmed asked children – sum up the importance of forests
- Children wrote –
 - Forests – provide oxygen – protect soil – provide habitat (home) to many animals and plants
 - Forests – bring good rainfall – source of medicinal plants, timber, many other products
- Forests – disappear – amount of carbon dioxide – increase – temperature of earth – increase
- Absence of trees and plants – no food or shelter for animals
- Absence of trees – soil does not hold water – causes floods
- Deforestation (cutting of trees) – affects our life and environment