









Water and Forests

OBJECTIVE: To communicate the concept that India's forests and natural wealth are at the core of the country's ecological health and that by saving the tiger, we are saving our forests, our water supplies and India's ecological foundation.

AIM: To help children understand that forests receive, sponge and slowly release rainwater, thus moderating the impact of droughts and floods.

INTRODUCTION: Get two children from your class to volunteer, one with long hair and the other with very short hair. Measure and pour an equal amount of water on their heads and collect the run off. (Dry their hair immediately.) Measure the amount of runoff. Do you notice a difference in quantity? Discuss why.

METHODOLOGY:

-  Ask children to guess why more water came off the shorter-haired child's head. Explain rainfall variations in the country – Cherrapunji and Western Rajasthan. Most regions, even those with high rainfall, are facing a water crisis today due to deforestation.
-  Explain the water cycle, the role of evaporation, transpiration, runoff.
-  Using a map of the country, mark the various forested areas.
-  Now mark various rain-fed rivers on it, making the connection to these forests.
-  Role played by the Western Ghats in monsoon rainfall.
-  Compare statistics of forest cover and rainfall in drought and flood prone regions.
-  Discuss water shortage and the dependency on wells and underground sources. Explain the concept of the water table and its renewal.
-  What is the cost of water? Study the time spent to collect 'enough'. Emphasise the connection between water scarcity and the reduction of forest cover.

AIDS: Sponge or mop, map of forests and rivers, pictures of rivers.

BLACKBOARD: Map of rivers and forest areas, diagram of water cycle.






EVALUATION: Names of various rivers and their protected forest source. Trace your city's water supply to its forest source. Questions on how floods and drought are prevented by forests.

Lesson 3

Water and Forests

Jungle nadi ki ma hai... The forest is the mother of the river. They are also oxygen banks and factories for fertile soil. Protecting forests amounts to protecting ourselves.

Water: Why is water available in forested areas, even when sources outside the forest dry up? There is an intricate connection between natural vegetation and the hydrological cycle.

-  The upper canopy of branches breaks the rainfall and the lower boughs catch the waters holding on to every possible drop.
-  From here, water trickles down to smaller, shade-loving trees.
-  After this, creepers, bushes and grasses absorb it.
-  The water then reaches the forest floor where fallen leaves sponge the rain before allowing it to seep into the top soil, which the leaves protect.
-  The collected water forms tiny streams and rivulets and replenishes the water table in aquifers before tumbling into the lakes and rivers that supply us with precious fresh water.

Vegetation thus **sponges** rain, permitting it to percolate into aquifers, which feed wells, lakes and rivers. Roots also help by binding the soil, which is washed or blown away when deforestation takes place. By cutting trees, we not only deprive birds and animals of their homes, we also cause the soil to become loose.

Water shortage is one unwelcome result of **deforestation** that ultimately leads to falling crop yields and chronic famines. Without forests, our rivers, lakes and soils will wither. These hold the key to India's food and water security and to our own survival. Protecting rivers, forests and wild animals means more to humans than mere biodiversity protection. The biodiversity of our coastlines feeds between 50 to 80 million Indians. Forest foods and fuels support another 250 million people directly. Inland water systems such as lakes, rivers and wetlands provide nutrition and sustenance to around 400 million people. **Nature feeds our people.**

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- 🐾 India has lost more than half its standing forests between 1900 and 2000. About 99 per cent of its original frontier forest (large, intact natural forest) has already been lost.
- 🐾 Scientists say that ideally, 33 per cent of India's land should be covered by forests. Today, India has a dense forest cover of only about 12 per cent.
- 🐾 The pace of deforestation is quicker today than ever before in our history. This has serious consequences for our economy and the quality of life of our people.
- 🐾 Floods, cyclones and landslides, exaggerated by the impact of deforestation, account for national losses that run into thousands of crores each year. Droughts, falling water tables and disease compound these problems.
- 🐾 The National Environmental Engineering Research Institute (NEERI) has reported that the over-exploitation of ground water resources is widespread throughout the country and warned that the water table levels are sinking at an alarming rate.
- 🐾 Nine Indian states now face major water deficits.

Rain-fed perennial rivers are connected to the forest cover in the country

In the process of saving the tiger's home, we would be protecting our catchment forests assuring the water security of the Indian subcontinent. The tiger's forests are among the nation's most reliable water sources. When forests wither, water sources dry up.

Here are some examples of rivers and the forest cover that feeds them.

The **Indravati Tiger Reserve** is washed and drained by the **Indravati** river, which rises from the highlands of Jorhmal and drains in the Eastern Ghats of Orissa before flowing westwards to Madhya Pradesh.

The **Kanha Tiger Reserve** is the southern source of the **Narmada**, the seventh largest river in India passing through Madhya Pradesh, Maharashtra and Gujarat.

The 770 km. **Cauvery** river originates in the Brahmagiri hills of the **Western Ghats** near Coorg. The states of Tamil Nadu, Karnataka and Kerala share the waters of this river.

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The **Melghat Tiger Reserve** feeds the **Tapi** river. The reserve and its surrounding forests cover only four per cent of arid Vidharba in Maharashtra, yet these forests supply over 30 per cent of the fresh water requirement of the area.

The main arm of the **Krishna** river that flows through Maharashtra, Karnataka and Andhra Pradesh rises from a small spring in the forests of the **Western Ghats**.

Mumbai's water security depends on the catchment forests of four lakes in the **Sanjay Gandhi National Park, Borivli** (Tulsi and Vihar) and **Tansa Wildlife Sanctuary** (Tansa and Modak Sagar).

The main source of water supply to Nagpur city is from the **Pench** river whose catchment forests are part of the **Pench Tiger Reserve**.

The 10 sq.km. area of the **Shimla Water Catchment Sanctuary** is vital to the water requirement of 1.5 lakh citizens of Shimla town.

The **Periyar** river originates from Sivagiri peak in the **Western Ghats**. It is the lifeline of the people in Kerala.

The **Damodar** river originates in Bihar's **Palamau** district and provides water to Bihar and West Bengal.

Activities based on Lesson Plan on Water and Forests

- ◆ Make a Forest-River book (showing the source of rivers).
- ◆ Add forested areas and the major rain-fed rivers to your earlier map of zones.
- ◆ Audit school use of water and wastage, if any. Give innovative ideas of how water can be saved.
- ◆ Ways of recycling and reusing water, water harvesting.