

# Teaching as if the Earth Matters

## UNIT PLAN FOR WATER

This unit plan gives a brief overview of how the theme of 'Water' was covered over a period of five weeks with students of Grade VII. The emphasis was on contextualizing the NCERT curriculum to students' lives and the local environment by using familiar and relevant activities and examples. Links to concepts learnt in other topics were also reviewed and highlighted.



### CONCEPTS COVERED

Reviewing basic properties of water:

- Water is an excellent solvent.
- Water exists in three states — solid, liquid, and gas — all of which are commonly seen around us.

Water as a solvent:

- Water's ability to dissolve substances is essential for life.
- This property is also responsible for hard water.
- Many harmful substances dissolve in water and are responsible for water contamination.

Capillary action:

- Water can creep upwards through tiny spaces between solid particles

The water cycle:

- Water is constantly moving around and changing its physical state on earth.

Water distribution and availability:

- Freshwater vs. seawater.
- Freshwater distribution globally, nationally, and locally.



### TEACHING - LEARNING ACTIVITIES

- Discussion using familiar examples.
- Classroom demonstration of evaporation and condensation.

Discussion using familiar examples:

- Blood, sap in plants, oxygen in water for aquatic life.

Activity — doing chromatography using paper or chalk to observe capillary action.

- Discussing familiar examples where capillary action can be observed.

Explanation of the stages in the water cycle using illustrations.

- Discussion using maps and charts of global and national water distribution.
- Demonstration to show relative amounts of water available as freshwater, groundwater etc.



### NOTES

- Linked to concepts in 'Mixtures and Solutions' studied in 6<sup>th</sup> grade.
- Linked to concepts in 'States of Matter' studied in 6<sup>th</sup> grade.

- Linked to concepts in 'Transport in plants' studied earlier.
- Linked to concepts in 'Circulation' that is to be studied later in the year.

- Linked to concepts in 'Transport in plants' and 'Soil' studied earlier.

- Linked to concept of transpiration from leaves studied earlier.



## CONCEPTS COVERED

### Local water source — Groundwater

- Where the water in borewells comes from — what an aquifer is.
- Recharge of the aquifer.
- Groundwater contamination.

### Water quality:

- Water hardness.
- Water pollution.

### Water purification:

- Ways to purify water for domestic use.

### Water conservation:

- Importance of conserving water.
- Ways to conserve water.

### Understanding our water consumption:

- Personal water usage.
- Water usage in the school and community.



## TEACHING - LEARNING ACTIVITIES

- Demonstration using a groundwater model.
- Discussion about local groundwater sources.

- Demonstration to show the difference between hard and soft water using soap.
- Discussion about water pollution including local examples.

- Discussing ways water can be purified — filtration, boiling, and distillation.
- Constructing a simple solar water distiller.

- Discussion about drip irrigation, rainwater harvesting, check dams and percolation tanks.

- Estimating and recording daily personal water consumption.
- Surveying water usage in the school.
- Researching water distribution and usage in the village.



## NOTES

- Discussion can be extended to the 'ownership' and sharing of groundwater.

- Linked to concepts in 'Separating Mixtures' studied in 6<sup>th</sup> grade.

- As an extension, students interviewed their elders to find out about current and past water usage and conservation in their villages.
- Students initiated a project to create a kitchen garden in the school to reuse 'grey water'.

- Students learnt to measure, estimate, collect and record data in this activity.
- Students interviewed school staff about water procurement, storage and usage in the school.
- Students created 'Water maps' of their village to identify water sources, water storage and water distribution facilities.