

Drip Irrigation

Activity

Background

Water, as almost all of us know is a very important resource. Water is required in various sectors including agriculture, domestic and industrial. Of the total fresh water available on earth, the agricultural sector alone consumes 70% fresh water globally. Unfortunately not all the fresh water used for irrigation is utilised optimally. Water is lost as a result of evaporation and transpiration.

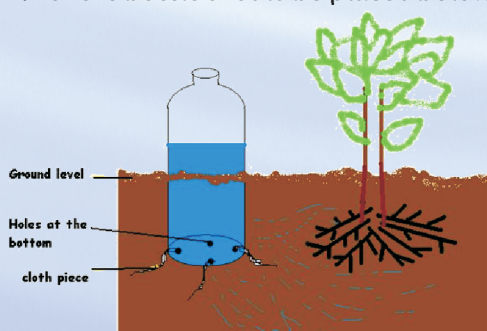
With increasing population and demand for more food, water consumption in the agricultural sector is only bound to increase. But at the same time, depleting resources of fresh water call for urgent measures to reduce water consumptions. Certain innovative steps have been undertaken in the agricultural sector too. One among these techniques includes the practice of drip irrigation. This activity will enable students to understand how water could be conserved by practicing drip irrigation.

Methodology

- For this activity, students would require two plants of the same species.
- Plants could either be planted in pots or in the ground.
- One of the plants (Plant A) should be watered with the help of a mug and the other (Plant B) should be watered using drip irrigation (details of making a drip irrigation system are described below). Fill the bottle with the same quantity of water used for watering Plant A.
- Students should keep a note of the quantity of water used for watering Plant A and Plant B. The adjoining table could be used for collecting data.
- How long does the water in the bottle last? Students would realise that they are required to refill the bottle used in the drip irrigation system (for Plant A), once in a few days. However they would be required to water Plant B daily.

Making a drip irrigation system

- Take a 2 litre plastic bottle and with the help of a needle make 1-2 holes at its bottom.
- If the water requirement is more, bigger holes could be made.
- If the holes are very small, there is a possibility of blockage due to soil particles. Small pieces of cloth could be inserted into the holes to prevent blockage.
- Through these holes, water slowly comes out of the bottle.
- The soil around the plant should be dug.
- $\frac{3}{4}$ of the bottle should be placed below the soil. The cap of the



bottle should be above the ground and should be kept straight and fixed.

- Remove the cap and fill the bottle with water. Pierce one or two holes in the cap to allow air to enter the bottle.
- Water should be filled in the bottle once it becomes empty and the cap should be replaced.
- This technique helps conserve water as it directly reaches the roots of plants and avoids wastage of water in the form of vapour.

Objective

To prepare an equipment for supplying water to plants without any wastage

To use the equipment for raising plants in schools and at home

To understand that drip irrigation helps in conservation of water.

Place

Outdoor

Group size

Individual/ group

Duration

Experiment could be conducted for 7 days.

Students might require 10 min for observation each day and about 45 min for making the drip irrigation system

Suitable time

Observations should be noted when students water the plants

Materials

2 plants of the same species, mug/ water sprinkler, bucket, water, one 2 litre plastic bottle, labels, notebook, pen/ pencil

Curricular linkages

Subject

Science and Social Science

Concept

Soil and water conservation, Agricultural practices

Sl. No.	Date and Time	Quantity of water used for watering the plants (ml)	
		Plant A	Plant B