

# LET'S DO DRIP IRRIGATION!

## Purpose of the Activity:

To care about using resources efficiently and to develop awareness of saving. To set up a drip irrigation plant watering system.

## Unit / Theme:

Humans and the Environment



**CURIOUS  
BOX** 



# LET'S DO DRIP IRRIGATION!

## Let's Arouse Curiosity



The following questions are asked to the students:

- What do you pay attention to when using resources such as water and electricity?
- Why is even a single drop of water important?
- What does saving (conserving) mean?

“Imagine a glass of water. When we drink the water in this glass, we can quench our thirst. But what if this water is not unlimited? Water resources in nature are not infinite, and that is why it is very important to use water carefully. So, how can we save water while watering plants? A plant needs water, but we don't have to waste it by giving too much every time.

This is where the drip irrigation system comes into play! Thanks to the drip irrigation system, our plants receive only the amount of water they need, and unnecessary water waste is prevented. With this method, we can contribute both to nature and to our future.

Now, how about making our own drip irrigation system?”

Videoyu durdurarak izle!



## Let's Start Discovering!

The activity video is watched by pausing at certain points.

Before starting the activity, the contents of the kit are checked.

All lid-opening and package-opening steps are carried out simultaneously with the students.



### Content Of The Set

- |  |   |
|--|---|
| <input type="checkbox"/> Wooden field template | <input type="checkbox"/> Wooden water tank stand          |
| <input type="checkbox"/> Field card            | <input type="checkbox"/> IV tubing                        |
| <input type="checkbox"/> Plastic container     | <input type="checkbox"/> Thumbtack                        |
| <input type="checkbox"/> Soil                  | <input type="checkbox"/> Syringe                          |
| <input type="checkbox"/> Seed                  | <input type="checkbox"/> Water (not included in the kit.) |
| <input type="checkbox"/> Crystal plastic cup   | <input type="checkbox"/> “Be Resourceful” activity sheet  |

## How Do We Do It?



1. All parts are removed from the wooden template.
2. The rectangular pieces are attached to the sections numbered 1, 2, 3, and 4 on the rectangular base piece with the hollow center, and then it is turned upside down.
3. The fences numbered 5 and 6 are attached.
4. The field card is inserted into the narrow slot.
5. The plastic container is placed into the rectangular space, and half of the soil is poured into it.
6. The seeds are evenly sprinkled over the soil. The remaining soil is then poured completely over the seeds.
7. The water tank stand template pieces are removed and assembled, and the crystal plastic cup is placed inside it.
8. Small holes are made in the IV tubing using a thumbtack. The tubing is threaded through the holes in fence number 6, laid over the soil, and a syringe is attached to one end.
9. The crystal plastic cup is filled with water, and the other end of the syringe tubing is placed into the cup.
10. And the Drip Irrigation System is ready!
11. With drip irrigation, approximately 100% of the water reaches the plant..

## What Should Future Science People Discover?

**The following questions are asked to the students:**

- What methods can we apply at home to save water?
- What should we pay attention to while shopping in order to save money?
- Why is it important to turn off electronic devices when we are not using them?
- Is it possible to reuse the materials we consume? Which materials are suitable for recycling?

Using resources appropriately and only as much as we need is called thriftiness. Saving means using resources in a careful and economical way. People who consume resources consciously are called conscious consumers.

**A conscious consumer:**

- Considers their real needs while shopping.
- Aims to get the highest benefit from the product they purchase.
- Shops in a planned and purposeful way.
- Prefers healthy, safe, and environmentally friendly products.
- Buys quality goods or services at the most reasonable price.
- Defends their rights when purchasing goods and services.

In order to sustain our lives, we need to meet various needs. To meet these needs, we make use of resources such as water, electricity, and food.

### **Efficient Use of Electricity**

Electricity is an important resource in our lives. Producing electricity is difficult and costly. Therefore, we should use electricity efficiently.

#### **To save electricity:**

- Prefer energy-saving light bulbs.
- Turn off unnecessary lights.
- Switch off and unplug devices that are not in use.
- Choose electrical appliances with A+, A++, or A+++ energy efficiency ratings.

### **Efficient Use of Water**

Water is an indispensable resource for the continuation of human life. We should not use this resource as if it will never run out and must recognize that it is limited.

#### **To save water:**

- Do not leave the tap running while brushing teeth, shaving, or washing hands.
- Repair leaking faucets.
- Wash dishes in the dishwasher.
- Do not run washing machines or dishwashers without a full load.
- Keep showers short and use water-saving shower heads.
- Collect rainwater and use it for garden irrigation.

### **Efficient Use of Food**

All living beings need nutrients to meet their energy needs and to grow and develop.

While millions of people in the world suffer from malnutrition, a large amount of produced food goes to waste before it even reaches the table. Therefore, we must prevent food waste.

#### **To use food efficiently:**

- Prepare a shopping list before shopping.
- Buy only as much food as we can consume.
- Store food under proper conditions.
- Find alternative ways to use products that are about to go stale.
- Take only as much food on our plates as we can eat.

### Reuse

As living beings consume resources, a great deal of waste is produced. In order to protect the environment, it is very important to reduce waste. We often throw away the items and materials we use once we are finished with them. However, it is possible to use them again and again. For example, instead of throwing away leftover craft paper from an activity, we can reuse it in activities such as cutting and pasting.

### Recycling

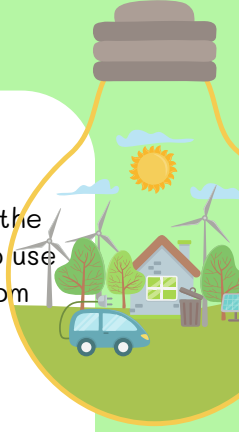
Recycling is the process of converting waste materials that can be re-evaluated into reusable materials through various procedures.

Glass, paper, plastic, metal, batteries, organic, and electronic waste can be reused through recycling. As conscious consumers, we should realize that not every waste item is trash and explain the importance of recycling to those around us.

### Benefits of Recycling:

- Natural resources are conserved.
- It saves energy.
- It prevents environmental pollution.
- Living creatures in nature are not harmed.

Food waste can also be recycled. Vegetable, fruit, meal, and bread waste can be processed and used as fertilizer in agriculture or as feed in animal farming.



## Scientific Explanation For The Curious

The following questions are asked to the students:

- What is a drip irrigation system and how does it meet the water needs of plants?
- How do water-efficient irrigation methods affect the health of soil and plants?

### Water-Efficient Irrigation Methods:

Water-efficient irrigation methods are techniques designed to use water in an efficient and effective way. These methods aim to prevent water waste while meeting the water needs of plants in the best possible way. Some of the benefits of these methods include:

#### Water Conservation:

Methods such as drip irrigation can reduce water use by up to 50% compared to traditional irrigation techniques. This helps conserve water resources.

#### Soil Health:

Efficient irrigation keeps the soil's moisture level more balanced. This helps preserve organic matter and nutrients in the soil, providing plants with the essential nutrients they need for growth.

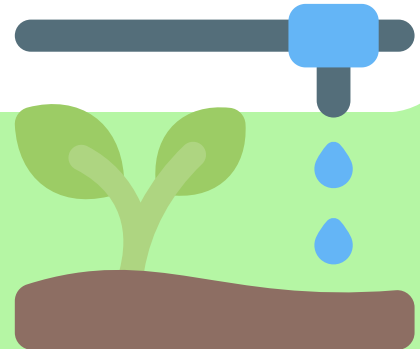
#### Plant Health:

Since water reaches the roots directly, plants become healthier and more resilient. Stress caused by insufficient or excessive watering is reduced.

Stay curious and stay scientific!

One of the water-efficient irrigation methods, the drip irrigation system, is a technique in which water is delivered directly to the root zone of plants in the form of droplets. In this system, since water is supplied drop by drop and at regular intervals, water loss is minimized.

Drip irrigation effectively meets the water needs of plants while reducing the risk of overwatering or underwatering. Because water reaches the roots directly, evaporation and runoff are prevented, resulting in less water use and no waste. This method not only protects plant health but also ensures more efficient use of resources.



## What Else Can We Do?

Students are asked:

“Today, we learned about the concept of conservation, how we should use resources efficiently, the importance of recycling, and one of the methods used to save water—the drip irrigation system. How did this activity make you feel?”



## Warm Up Before The Activity

Dear Teacher,

While learning about the efficient use of resources, your students explored water conservation using a drip irrigation system model. You can implement the “Resource Consumption Observation Project” activity.

1.Planning: Students create a plan to determine which resources they will observe (water, electricity, paper).

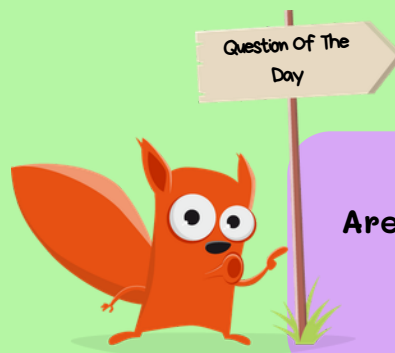
- Water use: Faucet, shower, toilet, etc.
- Electricity use: Lighting, electronic devices, etc.
- Paper use: Notebooks, books, scrap paper, etc.

2.Daily Observation: Students record the use of the selected resources at home and at school each day. In their journals, they note how much of each resource is consumed during different activities. For example:

- “The faucet was running for 2 minutes while brushing my teeth.”
- “I used 5 pages of paper today.”

3.Weekly Sharing: Students share their observation results in class each week.

4.Discussion: Students discuss which resources they used less, which methods were effective, and what else can be done to save more.



**Are there any resources that never run out when used?**



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