

I. Sustainability at Home

1.1. Environmental Engineers at Work!

Aim: To realize that food waste is not garbage for a sustainable environment and to protect the soil by composting.

Duration: 40 minutes

Preliminary Preparation:

- Students are asked to bring compostable fruits such as apples, bananas, pears, tangerines, etc. to school as a snack.
- Tea pulp and coffee grounds are collected from the school canteen or tea house. Leaves and grass are collected from the garden. A few pieces of newspaper are brought.
- Prepare a 5-liter plastic bottle by cutting the mouth part. Put the ingredients listed above into it.
- Twigs and sticks are collected for composting.



Instruction:

This is Not Garbage, No No No!

Students are encouraged to eat the fruits brought by the students for snack. They are told not to throw away the peel, core or stem of the fruit and to keep it in their hands. If there is enough space in the classroom, students stay in the classroom, if not, they are taken to the corridor or the school garden. Students are asked to stand in a circle with the leftover fruit in their hands. The teacher is in the center of the circle. The previously prepared 5-liter plastic bottle is held up in the air. "There are tea pulps, coffee grounds, leaves, grass, newspaper papers in this bottle. So, are these garbage?" is asked. After receiving responses from 3-4 students, "Children, contrary to popular belief, these are not garbage. Are you surprised? Now we will play a game. I will ask a question and you will walk towards me, that is, towards the center of the circle, saying "these are not garbage! no-no-no-no" with a rhythm in unison. When everyone is close to the center, you will go back to the circle and a new question will come and you will walk towards me with the same rhythm and say "these are not garbage! no-no-no-no". It is said. The following questions are asked in order and the activity is carried out.

- Are tea pulp and coffee grounds garbage? Students are expected to come to the center and say "these are not garbage! no-no-no-no" to the rhythm they make up. After all students meet in the center, they return to the circle.
- Are pieces of newspaper, leaves, grass garbage? Students are expected to come to the center and say "these are not garbage! No-no-no-no" to the rhythm they make up. After all students meet in the center, they return to the circle.
- The students are asked to remove the fruit scraps from their hands. The teacher asks again, "Are these garbage?" and the students come to the center of the circle, saying "These are not garbage! No-no-no-no" in unison. The fruit scraps in the students' hands are placed in a 5-liter bottle. "These are not garbage! Nooooo!" and returns to the center of the circle and the game is completed.



What is Compost?

"Well, children, now we know that these are not garbage. What can we do with them?" question is asked. Answers are received from 3-4 students. The word "**COMPOST**" is written on the board in capital letters. The importance of compost and the stages of composting are explained in the teacher's own words using the text below.

"Composting is the process of turning waste, such as food scraps and garden waste, into soil. This process provides many benefits for the environment:

- **Garbage Reduction:** Most of the garbage in our homes consists of food scraps and plant waste. We can utilize these wastes by composting them instead of throwing them away. Thus, our garbage bins will be less full and less garbage will pollute our environment.
- **Strengthening the Soil:** Compost is a type of natural fertilizer that nourishes and strengthens the soil. When we add compost to the soil, plants grow healthier.
- **Water Saving:** Composted soil retains water better. This means we need to water our gardens less. By saving water, we reduce our water bills and help the environment.
- **No Chemicals Needed:** Compost is a natural fertilizer that we can use instead of artificial fertilizers. Thus, we do not need to use chemicals in our garden and this is healthier for plants.
- **Learning about Nature:** Composting is a great way to learn how nature works. We can see how decaying plants and food waste turn into soil. This process shows us how waste can be recycled and how nature regenerates itself.

Let's Compost

Compost is made together with the students using the composting steps below. After preparing the compost together at school, all students are asked to prepare the same compost individually at home. The 5-liter plastic bottle prepared in the play activity is used for this activity.

- Coarse materials such as twigs or sticks are placed in the bottom of the bottle to ensure air flow.
- Ingredients are layered. For this, brown and green ingredients are added in layers. As a general rule, the brown ingredients should outnumber the green ingredients (in a ratio of about 3:1).
- After adding each layer, the pile is slightly moistened. The aim is for the compost pile to have the consistency of a wet sponge.
- The compost needs to be aerated regularly. For this, it is aerated once a week with the help of a stick. This ensures that the materials decompose faster.
- It is regularly checked for humidity, odors and temperature. If odors are present, it indicates excess moisture or not enough ventilation.
- Maturation your compost can take several months to mature. When it is ready, there will be a dark, earthy and fragrant material under the top layer.

Students who prepare their compost are asked to mix it with the soil in their home gardens or pots and plant and grow a seed of their choice.

Controlled experiment: Students are asked to follow the growth of a plant grown with compost and a plant grown without compost. Students write their observations day by day and share their diaries with the class. A digital presentation is prepared by taking photos of the plants they grow using compost. The presentation is shared with other classes and the school.

Additional Information

Non-Compostable Products

- **Meat and Fish Products:** Meat, fish, poultry and their processed products (especially cooked ones) are not suitable for composting. This is because they can cause bad odors and attract harmful bacteria, rodents and other unwanted animals.
- **Fats and Fatty Foods:** Cooking oils, margarine, mayonnaise and other fatty foods are not suitable for compost. Fats prevent the compost from breathing and slow down the decomposition process.
- **Dairy Products:** Cheese, yogurt, cream and other dairy products are not recommended for compost. These products can also cause bad odors and attract unwanted pests.
- **Diseased or Pesticide Treated Plants:** Diseased plant waste or pesticide/drug treated plants should not be added to the compost pile. Such materials can spread diseases and chemicals through the compost.
- **Cat and Dog Feces:** This type of waste can contain parasites, bacteria and viruses, so it is not safe for composting.
- **Inedible Plants:** Poisonous plants or inedible plant parts (e.g. poison ivy) are not suitable for compost.
- **Treated Wood and Coal Ash:** Painted, varnished or treated wood and materials such as coal ash may contain heavy metals or other harmful chemicals and are not suitable for composting.
- **Synthetic and Non-Biological Materials:** Non-biodegradable materials such as plastic, metal, glass should not be used in composting.

Products Suitable for Composting:

- **Carbon (Brown Materials):** Materials such as leaves, twigs, napkins, cardboard, newsprint. These materials are sources of "brown" carbon for your compost.
- **Nitrogen (Green Materials):** Organic waste such as kitchen waste, tea bags, coffee grounds, grass cuttings. These materials provide nitrogen to the compost.
- **Water:** The compost heap needs to remain moist, but not too wet.
- **Oxygen:** Regularly adding air to the compost pile allows the materials to decompose.