

# INITIATING CLIMATE ACTION FROM CLASSROOMS

## Combat Climate Change by Preventing Food Waste

Classroom activities to show the interconnectedness, integration and mutual reinforcement of SDG 12 and 13 with SDG 4 for global prosperity, peace and a healthier planet.



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Climate change is the greatest environmental threat confronting the world. While there have been natural shifts in Earth's weather patterns,

the changing climate over the past few hundred years has been driven overwhelmingly by human activities. There is an urgent need to address climate change. Education is a critical agent in addressing the issue of climate change.

There are two main strategies to address climate change: mitigation and adaptation. Mitigation measures aim to stabilize and reduce the amount of GHGs in the atmosphere, therefore stopping many of the negative impacts of climate change. Adaptation – reducing the vulnerability of natural and human systems to the impacts of climate change and adapting to a changing climate through adjustments in social, ecological or economic systems – is also essential.

Since the causes of climate change are at linked to human actions, these actions need to be identified and changed. Quality education plays a key role in this.

Successful climate change adaptation and mitigation require appropriate knowledge, skills and behavior change that education can provide. Specifically, education can enable individuals and communities to make informed decisions and take action for climate resilient sustainable development.

A central function of education is to foster learning about climate change, but education also provides the necessary skills to facilitate critical thinking, open-mindedness and problem-solving across all subjects. This is essential to developing and sustaining adaptive capacity because these skills can enable learners to comprehend, analyze and use information to think creatively and change behavior in order to adapt to different futures.

And one of the most important aspects of education for tackling climate change is identifying the problems that are leading to the problem. These

issues, once identified, can help in bringing about efficient and successful climate action. One such problem which we find is Food wastage leading to climate change.

### **Combat climate change by preventing Food waste**

Is there one daily practice that everyone around the world does that could have an impact on multiple SDGs?

Yes, it is the daily act of eating.

The UN estimates that 1.3 billion tons a year of food that is one third of world production, ends up as rubbish before it even gets to the table. It could be enough calories to feed every undernourished person on the planet.

But wasted food isn't just a social or humanitarian concern—it's an environmental one. If food waste were a country, it would be the third-largest greenhouse gas emitter on the planet. Food waste also burdens waste management systems, making it a major contributor to the three planetary crises of climate change, i.e. global warming, nature and biodiversity loss, and pollution.

When we waste food, we also waste all the energy and water it takes to grow, harvest, transport, and package it. And if food goes to the landfill and rots, it produces methane—a greenhouse gas even more potent than carbon dioxide. About 6%-8% of all human-caused greenhouse gas emissions could be reduced if we stop food waste.

Preventing food from going to waste is one of the easiest and most powerful actions we can take to lower our climate change footprint by reducing greenhouse gas (GHG) emissions and conserving natural resources.

According to the UNEP Food Waste Index Report 2021, food waste from households, retail establishments and the food service industry totals 931 million tonnes each year. Nearly 570 million tonnes (61%) of this waste occurs at the household level.

As per this UNEP Food Waste Index Report 2021 data, the average person in India wastes 137 grams of food every single day. That's 0.96 kg per week or 50 kg per year. In India, 40% of the food is wasted which is equivalent to Rs 92,000 crores a year.

**Effects of food waste-** When we discard food, we need to consider three problem areas that are affected from wasting food: resources expenditures, environmental externalities and social costs. All three of these areas can have an adverse effect on the climate.

- **Landfills** - Discarded food takes up a large percentage of our landfills more than plastic, paper, wood and glass.
- **GHG emission** - These gases, including carbon dioxide (CO<sub>2</sub>) and methane, are major contributors to climate change
- **Wasting of Natural resources-** When we waste any amount of food that has been produced, that means we have also wasted precious water and caused more climate change stress on the planet than was necessary.
- **Wildlife** - Food production and food waste also negatively impact wildlife.
- **National health** - Our food waste problem also impacts our nation's health and well-being, because at the same time that we're wasting millions of tons of food each year, many in India are going hungry.

These classroom activities focus on the role of food waste management (SDG 12 - Responsible consumption) in meeting the SDG 13(Climate

Action) and the GHG emission reduction targets by active participation of students, teachers, parents and the whole school community. (SDG 4 Quality Education) for global prosperity, peace and a healthier planet.

During the activity students are engaged in a process of inquiry through dialogue, discussion, collaboration, and research and establish concrete realizations of the sustainability of the food they eat and how it impacts on climate change.

## **OBJECTIVES**

students will be able to

- draw connections between the Climate Action Goals, food waste and their lives
- understand what food waste is and where it comes from
- calculate daily averages of water wasted and CO<sub>2</sub> emitted based on food waste separation and measurement values
- display data in table, pie chart and graph form
- discover ways to reduce food waste on a personal, school-wide, and community-wide level through behavioral changes and tools such as donation and composting.

**GRADE LEVEL-** IX Grade.

Grade IX students are our next voting public and therefore, are to be equipped with the wisdom and expertise to become positive change makers for a better tomorrow.

## **SUBJECTS INTEGRATION-**

- Science and Technology-Investigate the natural and human factors that influence the climate `

- Mathematics- Data Handling - Calculate statistical data and draw graphs and pie charts of Food Audit data.
- Language and Literature-Practice the communication skills needed to speak out about local and global issues
- Arts - Visual and Performing- Create posters showing the impacts of climate change, Street play
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## **LEARNING PATH**

1. Know climate change
2. Think about climate change
3. Act for climate change

**TIME** - 5-6 weeks

**SCHEDULE** - Our first week focused on engaging students on understanding the interdependence of climate change and food waste. Our second week focused on carbon footprint intensities at global and local levels due to food waste. Our next week emphasized on understanding the issues caused by GHG emissions and landfills and how sustainable yet simple strategies can be employed to reduce food waste and thereby combat climate change.

### **Week 1 – Engage/ Know**

- Video of Madhu - What he stole is rice. The reason, hunger': Shock over Kerala Adivasi man's death
- Video of food Wastage in Indian Marriage
- Students draw the concept map of Social, economic and environmental issues involved in both the videos.

- Group discussion on effects of food wastage on climate change.

### **Week 2 and 3 – Explore / Think - Global to Local -**

Teacher shows the graphical presentation on global food waste (global).

Students do Food waste audits at home and School Canteen (local).

#### Food waste audit at home - Students

- understand avoidable and unavoidable food.
- segregate the avoidable and unavoidable food of one day and weigh it.
- find the carbon footprint of waste food with an online food waste carbon footprint calculator.
- Analyze the data and represent it in a pie chart / graph.

#### b) Food waste audit at School Canteen. - Students

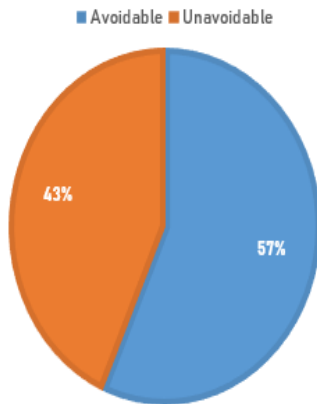
- weigh the food waste from students' plates each day for a week.
- Find out the carbon footprints.
- Handover to school management for further action.

Students learn about the ways in which food impacts the environment by recording data from a student food waste audit at home and in the canteen. The audit engages basic science and math skills to convert food waste weights to CO<sub>2</sub> footprint.

# Result of Home Audit

Class	No of students	Total family members	Weight of Avoidable waste	Weight of Unavoidable waste	Emissions of CO <sub>2</sub> -e (kg)
9 <sup>th</sup>	41	161	9.836 kg	7.554 kg	33.04

## WASTE MANGEMENT



How much is 33.04 CO<sub>2</sub>-e equal to?

- Over 14.36 liters of gasoline was wasted in a day by 161 people.
- Over 2.95 days of electricity was wasted.

161 person = 17.390 kg waste/day  
 That means 1 person = 108 gm waste/day  
 1 person = 39.4kg/year=40 kg/year = 76 kg CO<sub>2</sub>-e

## Canteen Food Waste Audit & Result

Date	Manu	Waste in kg	Average
7/11/22	Matki,Dalkhichadi, Chapati	7	
9/11/22	Aloo methi,Dal,ice	10	
11/11/22	Chole puri	9.9	50.3 kg/week
12/11/22	Noodles	5	
14/11/22	Mattar paneer,Chapati,rice	9.8	
16/11/22	Brinjal, Chapati, rice	8.6	

8.3 kg waste generated by nearly 250 students per day = 15.77 kg CO<sub>2</sub>-e

Food Waste Greenhouse Gas Calculator -

<https://watchmywaste.com.au/food-waste-greenhouse-gas-calculator/>

Week 3 - Explain-



- Students present their graphical representation of home food waste audit and discuss measures to reduce food waste.
- Teacher clears up any misconceptions or misunderstandings.

### **Week 4 and 5 – Elaborate / Act**

Students apply their learning to new situations and real-world circumstances to reduce food wastage.

#### **Activities –**

##### 1. Prepare Food Waste Warrior Badges.

All individuals want to be recognized when they learn something, and badges can accomplish that. Badges celebrate learning and can motivate students to do well in school and beyond.

To appreciate students involved in all the activities, we awarded food waste warrior badges to our students.

##### 2. Guest lecture on zero kitchen waste from a local community expert-

Zero-waste cooking means eliminating waste whenever possible in the kitchen. To enhance the knowledge about zero kitchen waste we organized a guest lecture in which the local expert explained the basic rules i.e.

Reduce: Cook with fewer unnecessary ingredients and make smaller portions.

Reuse: Use food scraps, and store food in reusable containers.

Recycle: Compost whatever you can't use.

##### 3. Food habit chat-

Any good habit is developed only when it is practice continuously. On the same note we conducted an activity of food habit chart.

## FOOD HABIT CHART

Name - \_\_\_\_\_  
 Class - \_\_\_\_\_ Division - \_\_\_\_\_

WEEK 1	MON	TUE	WED	THU	FRI	SAT
Eat local & seasonal fruits or vegetables						
No food left out in the plate						
No Aluminium wrapping in the Tiffin box						

WEEK 2	MON	TUE	WED	THU	FRI	SAT
Eat local fruits and vegetables						
No food left out in the plate						
No Aluminium wrapping in Tiffin box						
No use of plastic wrapped food						

WEEK 3	MON	TUE	WED	THU	FRI	SAT
Eat local fruits and vegetables						
No food left out in the plate						
No Aluminium wrapping in Tiffin box						
No use of plastic wrapped food						
Close the lid of food container properly after using it.						

WEEK 4	MON	TUE	WED	THU	FRI	SAT
Eat local fruits and vegetables						
No food left out in the plate						
No Aluminium wrapping in Tiffin box						
No use of plastic wrapped food						
Close the lid of food container properly after using it.						
Create a meal from leftover food						
Share with others what you know about reducing the food wastage						

Initially students were briefed about the habits given in Food habit chart. A 'Food habit chart' was given to all the students and were encouraged to develop the food habits given in the chart. They were asked to monitor their own journey of developing food habits with the help of the chart. The students placed a tick next to the task completed in the monthly chart.

With this activity we want children to develop sustainable food habits that can reduce the stress on natural resources and the environment as a whole.

4. Rally in local societies - Raising awareness regarding food wastage issues is essential to educate people and spread the word to help protect nature. As a part of social responsibility we conducted rally in nearby vicinities of our school.

5. Street play on Food wastage. - With this activity student feel empowered with responsibility to raise awareness about food waste

management in a public space. With this we attempt to open the eyes of other citizens to the issues of change their ways before much delay.

6. Be creative with leftover food - Food waste fell sharply during lockdown period as people stuck at home began to use leftovers, plan meals and freeze food rather than throw it away. Once the lockdown ended, however, food waste rose again.

Even leftover food can be made creative. We conducted this activity and students came up with wonderful cuisine that did not even look like it was prepared from leftover food.

7. Blogs by Students On the School Website –

We also encouraged our students to pick up the electronic media to highlight their experiences working as a food warrior on the school website.

8. Global Act (Collaboration with Brazil school)-

To expand the horizons of our students, we hosted online collaborative activities with peer schools from Brazil. This broadened the understandings and perspectives of our students by connecting students with classroom from Brazil

9. Seniors Spread awareness among juniors on Climate Change-

Now our students were ready with knowledge and hands-on experience. So they present their experience with students from lower grades and spread awareness about climate change.

**Analysis –**

NEP 2020 talks about 21<sup>st</sup> century skills like Critical Thinking, Collaboration, Communication and Creative (4C). With all these activities we have been highly successful in sharpening 4 fundamental skills.

We had drafted the whole program on 4 Fundamentals of C for the 'Whole School Approach' i.e. Children, Curriculum, Campus, Community that goes to define the Culture of SBPPS.

We wished to know what impact the undertaking had on our young minds. Evidence, reflections from our students tells us that the activity had a profound influence on our children which made them what can be called as 'Food Sensitive'.

Even we had overwhelming response from our parent community who highly appreciated the school's efforts and initiatives in making students realize the importance of one of the greatest blessings of the earth i.e. Food.

### **My Reflection**

Food waste takes place at the local level, so it is important to translate the global agenda of climate change into actionable School level analysis.

When my students learned about food waste as a part of the curriculum, they didn't see a problem that is too big to fix but they saw solutions. And that gives me hope.

