

Finding Solutions



INTRODUCTION

Large scale production and transportation, safe and hygiene issues and changing lifestyles has made packaging a necessary component of the food industry. The Containers and packaging alone contribute over 23 percent of the material reaching landfills in the United States of America. Additionally, the food packaging waste is the most common litter that effects variety of fauna like cattle, fishes, birds, and other aquatic wildlife that ingest these.

Rethinking packaging can conserve energy and reduce greenhouse gas emissions apart from protecting our wild life. Design thinking is a critical skill to look for solutions that have been created and re-imagine our futures. The lesson plan gives an opportunity to children to look at the very common problem of food packaging waste and start the change process for a better world.

Objectives:

Students will be able to

- research and understand local traditional and technological interventions to deal with food packaging waste.
- communicate local traditional and technological interventions to deal with food packaging waste.

YRE steps: Investigate, Research Solution, Report, Disseminate

Curriculum Linkage: Global citizenship



Time required/ Duration:

- **Classroom session 1:** 45 minutes for the background introduction and round table group discussions.
- **Home assignment 1:** 12 hours over a month for students to undertake internet based search about solutions to food packaging and more.
- **Classroom session 2:** 45 minutes for discussion regarding research by students prior to putting a report as an article/video photo story.
- **Home Assignment 2:** One week for individual students to present their report.

Resources Required:

- Internet
- Computer/ Laptop
- Writing materials
- Resource 5 (Food packaging and more)



Activity

Classroom session 1

- Introduce students to food packaging and discuss various packaging material being used and what could be the plausible reason for the same.
- Discuss some existing practices and technologies related to waste associated with food items.
- Encourage them to identify problems with the current material/design of packaging and suggest solutions for the same.
- Facilitate a round table discussion of students, get them to go through each of the case studies mentioned in Resource 5 (food packaging and more).

Home Assignment 1

- Guide students to undertake an internet based study to understand the different traditions, current practices, technology and interventions which could help take care of packaging waste associated with food items.
- Agree with student groups on the time to undertake this research.

Classroom session 2

- Ask the student groups to present the outcome of their research.
- Engage students in a discussion to help summarise their research prior to guiding them to write an article/video photo story about the same.
 - For article: Refer Lesson Plan 1 from chapter “Learning to be an Environmental Journalist”
 - For photo: Refer Lesson Plan 4 from chapter “Learning to be an Environmental Journalist”
 - For video: Refer Lesson Plan 5 from chapter “Learning to be an Environmental Journalist”

Home Assignment 2

- Ask each student to work in groups for the reports.
- Encourage student articles to publish on different platforms - local newspapers, school website, or could be briefed by students during the school assembly.
 - For article: Refer Lesson Plan 1 from chapter “Learning to be an Environmental Journalist”

Evaluation:

Student articles could be evaluated based on innovations/ technologies they have been able to research and put across in the same. Please note that some could be just conceptual ideas.

Resource 5

Food Packaging and More....

1. Story of the Mumbai dabbawala's:

“The 5,000 or so *dabbawalas* (Tiffin/Lunch Boxes Carriers) in the city have an astounding service record. Every working day they transport more than 130,000 *daabas* or lunch boxes throughout Mumbai, the world's fourth-most-populous city. That entails conducting upwards of 260,000 transactions in six hours each day, six days a week, 52 weeks a year (minus holidays)”

“On any given day, a *dabba* changes hands several times. In the morning a worker picks it up from the customer's home and takes it (along with other *dabbas*) to the nearest train station, where it is sorted and put onto a wooden crate according to its destination. It is then taken by train to the station closest to its destination. There it is sorted again and assigned to another worker, who delivers it to the right office before lunchtime. In the afternoon the process runs in reverse, and the *dabba* is returned to the customer's home”.

Excerpts from a study by Stefan Thomke, professor from the Harvard Business school, Source: <https://hbr.org/2012/11/mumbais-models-of-service-excellence>.

Professor Thomke's study was to analyse the amazing delivery system of the Mumbai *dabbawala's* which has been almost flawlessly executed for over a century now (since 1890). Beyond the excellent delivery system in place is the fact that these *dabbawala's* have been using reusable tiffin boxes for the delivery of lunch. Just imagine the volume of waste which will be generated each day, if instead of the reusable lunch boxes, food was transported around in disposable packaging material?!

2. Innovations and Technologies to deal with Packaging Food Waste

Plate bank:

Functions, parties and get-to-gathers at home have increasingly become a large source of waste, especially disposable plastic cutlery. Some individuals and organisations have now come up with innovative techniques as well as technologies to deal with this problem. The eco-friendly plate bank, initiated and maintained by Adanya Chetana, a charity is one of the largest of its types in the city of Bangalore, India. The plate bank has close to 10,000 sets of steel plates, spoons, glasses, cups, etc and can be borrowed by individuals, organizations and educational institutions for events at zero cost. The article by a leading newspaper, Hindu <http://www.thehindu.com/news/cities/bangalore/plate-banks-try-to-reduce-disposables-by-lending-utensils/article22454225.ece> covered other such initiatives in the city of Bangalore. The idea behind the plate bank in most of these cases is to bring down the volume of waste generated during such events and celebrations.

3. Edible solutions to packaging waste?

Edible spoons and forks manufactured from products including millets (jowar), rice, wheat and different types of spices for the flavouring <http://www.bakeys.com/india-innovates-episode-4-edible-cutlery/> ; edible sachets (for beverages, instant mix for noodles) made from sea weed (Source: <http://www.evoware.id/>); bacteria to produce cellulose which is in turn used to manufacture edible food wrapper (<https://www.natureasia.com/en/nindia/article/10.1038/nindia.2012.11>) are some of the solutions different innovators are finding to problems associated with packaging of food items. These are smaller steps in the direction of reducing packaging waste... what needs to be seen is how soon we are able to contain the problem in the times to come.

4. Traditional waste-free solutions:

Traditionally leaves of different plants, especially Sal (*Shorea robusta*) and banana (*Musa* species) have been in use in India and many other cultures in Asia to make plates and bowls for serving food, especially during functions and festivals. It is such a fantastic way to eat food on these leaves as both the leftover food on the leaf and the leaf itself are not just biodegradable but also consumed by cattle, completely doing away with the problem of disposal of waste.

5. Technology interventions:

MIWA (<http://www.miwa.eu/about-us>), based in the Czech Republic has initiated various technological interventions to take care of the generation of packaging waste in the first place, by encouraging “pre-cycling”, they have approached the packaging problem in a different perspective.

Study the article “These 11 innovations will tackle the causes of ocean plastic pollution, not just the symptoms”.

References

Article Waste not ... Empowering responsible production and consumption in the emerging circular economy. Available on <http://web.unep.org/ourplanet/december-2017/articles/waste-not-%E2%80%A6>

SINGLE-USE PLASTICS - A Roadmap for Sustainability Available on https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf?sequence=1&isAllowed=y

http://ec.europa.eu/eurostat/statistics-explained/index.php/Packaging_waste_statistics

<https://bizfluent.com/info-8215836-environmental-impacts-product-packaging.html>

<https://www.nytimes.com/roomfordebate/2012/07/30/responsible-shoppers-but-bad-citizens/the-power-of-environmentally-conscious-shopping>

(<https://www.weforum.org/agenda/2018/01/these-11-innovations-will-tackle-the-causes-of-ocean-plastic-pollution-not-just-the-symptoms>)