

# Composting and Food Waste Education

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# Why Composting and Food Waste Education?

- Each year in the U.S. 119 billion pounds of food is wasted
- In 2021, globally 931 million tons of food were wasted
- Food waste releases greenhouse gasses, which contributes significantly to climate change
- Compost acts as a carbon sink, diverting food waste from landfills and incinerators, while simultaneously creating fertile soil
- It is important to educate students about composting early on so they are aware of their collective impact and know how to reduce their waste

# Our Community Partners:



# Deliverable

## Interactive and Engaging Presentation Slides

Design engaging slides that follow the Massachusetts Fifth Grade Curriculum Framework, with a focus on **food waste**, **bacteria**, and **an interactive component**.

## Multimedia Component

Use a new media form to better engage the students, rather than a normal class lecture. This can be achieved through a **video** or **animation**.

## Lesson Plan

Create an addition that makes this project easy to replicate for future teachers or students. This will take the form of a classic lesson plan with a **script** and **directions for carrying out the activities**.

## In-class Activity

Make an in-class activity for student to fill out during the presentation to keep them engaged. This interactive activity will take the form of both a **worksheet** and a **coloring page**.

## Take-home Flyer for Parents

White a short informational flyer for the students to bring home to their families to **spark further conversation**. This will also provide further information if parents are interested in getting involved.

# Final Project Walkthrough

- [Slides](#)
- Interactive Video
- Take-Home Flyers
- Kids Worksheet
- Learning plan



Animation!



\*Created with Adobe Express Studio

## What can you do to get involved?

The biggest change you can make is to reduce personal food waste in the home. By limiting food scraps while cooking and diverting food from the trash we can collectively reduce greenhouse gas emissions.

Composting can also be a welcome addition to a home if you are trying to go above and beyond to reduce your carbon footprint.

There are multiple organizations for further involvement in composting such as **Black Earth Composting** and **Local City of Worcester Municipal Composting Programs** to get involved with if you are interested in implementing this in your home!

### Further information:

<https://www.worcesterma.gov/trash-recycling/composting>  
<https://blackearthcompost.com/>



# Food Waste & Composting

Explore how simple changes in your daily routine can contribute to a more sustainable and eco-friendly lifestyle.



# English Translation

## Why is reducing **food waste** important?

Reducing food waste diminishes greenhouse gas emissions associated with food decomposition in landfills.

## What can **composting** do?

Composting diverts organic waste such as kitchen scraps and yard trimmings from landfills which reduces the production of harmful greenhouse gases.

## What **can** be composted?

Fruit and vegetable scraps, coffee grounds, eggshells, tea bags, lawn clippings, leaves, and small branches can all be diverted from the landfill to be composted.

## What **cannot** be composted?

Meat and dairy products, greasy or oily food items, and non-biodegradable materials like plastic, metal, and glass cannot be composted.

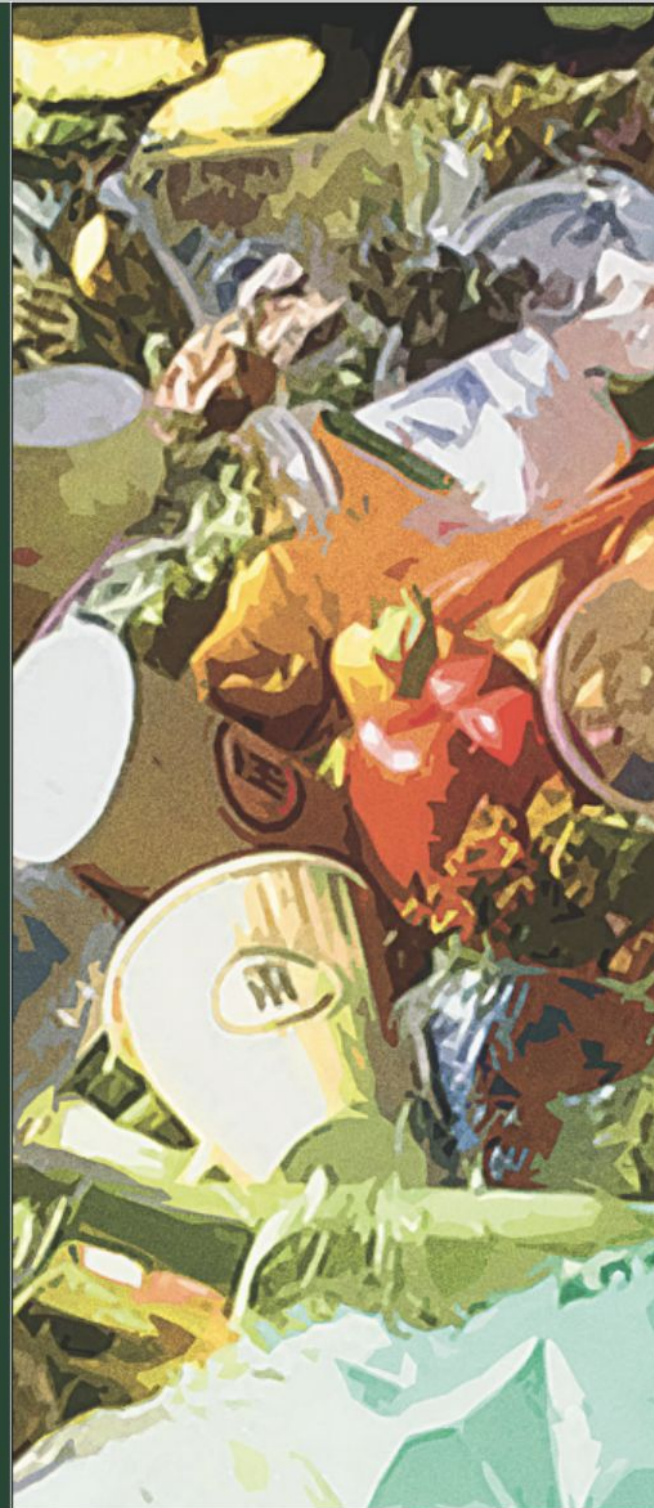


## ¿Qué puede hacer para participar?

El mayor cambio que se puede hacer es reducir el desperdicio personal de alimentos en el hogar. Limitando los restos de comida al cocinar y desviando alimentos de la basura podemos reducir colectivamente las emisiones de gases de efecto invernadero.

El compostaje también puede ser una buena adición a un hogar si está tratando de ir más allá para reducir su huella de carbono.

Existen múltiples organizaciones para una mayor implicación en el compostaje, como Black Earth Composting y los programas municipales de compostaje de la ciudad de Worcester, en los que puede participar si está interesado en ponerlo en práctica en su hogar.



## Residuos de Alimentos y Compostaje

Explore cómo sencillos cambios en su rutina diaria pueden contribuir a un estilo de vida más sostenible y respetuoso con el medio ambiente.



## Spanish Translation

### ¿Por qué es importante reducir el **desperdicio de alimentos**?

Reducir el desperdicio de alimentos disminuye las emisiones de gases de efecto invernadero asociadas a la descomposición de los alimentos en los vertederos.

### ¿Qué puede hacer el **compostaje**?

El compostaje desvía de los vertederos residuos orgánicos como restos de cocina y recortes de jardín, lo que reduce la producción de gases nocivos de efecto invernadero.

### ¿Qué **se puede** compostar?

Los restos de fruta y verdura, los posos de café, las cáscaras de huevo, las bolsas de té, los recortes de césped, las hojas y las ramas pequeñas pueden desviarse del vertedero para ser compostados.

### ¿Qué **no se puede** compostar?

La carne y los productos lácteos, los alimentos grasientos o aceitosos y los materiales no biodegradables como el plástico, el metal y el vidrio no pueden compostarse.



Special thanks to Jacqueline Dominguez for the translation edits and proofreading!



## O que você pode fazer para se envolver?

A maior mudança que você pode fazer é reduzir o desperdício pessoal de alimentos em casa. Ao limitar os restos de comida durante o cozimento e ao desviar os alimentos do lixo, podemos reduzir coletivamente as emissões de gases de efeito estufa.

A compostagem também pode ser uma adição bem-vinda a uma casa se você estiver tentando ir além para reduzir sua pegada de carbono.

Existem várias organizações para um maior envolvimento na compostagem, como a Black Earth Composting e os Programas Municipais de Compostagem da Cidade de Worcester, para se envolver se você estiver interessado em implementar isso em sua casa!



## Desperdício Alimentar e Compostagem

Explore como mudanças simples na sua rotina diária podem contribuir para um estilo de vida mais sustentável e ecológico.

## Portuguese Translation

### Por que é importante reduzir o **desperdício de alimentos**?

A redução do desperdício alimentar diminui as emissões de gases com efeito de estufa associadas à decomposição dos alimentos em aterros sanitários.

### O que a **compostagem** pode fazer?

A compostagem desvia resíduos orgânicos, como restos de cozinha e aparas de jardim, dos aterros, o que reduz a produção de gases nocivos com efeito de estufa.

### O que **pode** ser compostado?

Restos de frutas e vegetais, borra de café, cascas de ovo, saquinhos de chá, aparas de grama, folhas e pequenos galhos podem ser desviados do aterro para serem compostados.

### O que **não pode** ser compostado?

Carne e laticínios, alimentos gordurosos ou oleosos e materiais não biodegradáveis como plástico, metal e vidro não podem ser compostados.

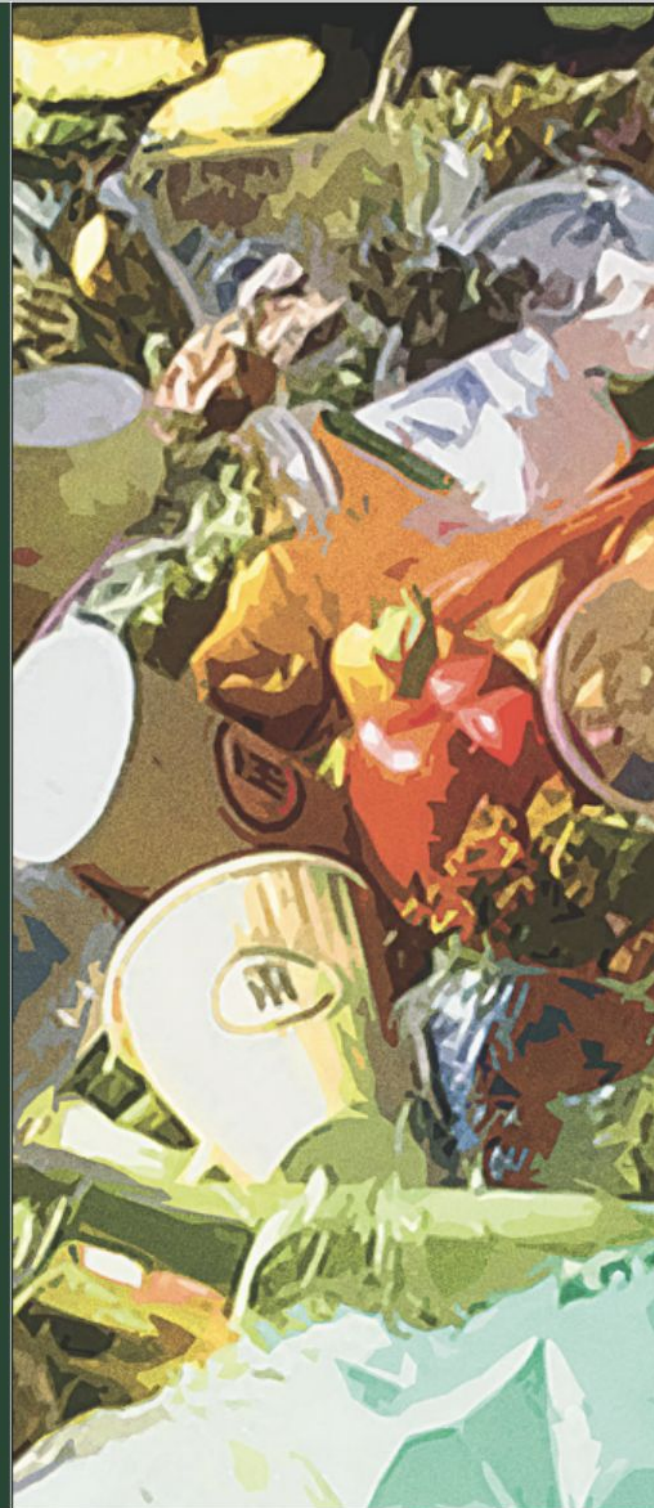


## Bạn có thể làm gì để tham gia?

Thay đổi lớn nhất bạn có thể thực hiện là giảm lãng phí thực phẩm cá nhân trong nhà. Bằng cách hạn chế thức ăn thừa trong khi nấu và chuyển thức ăn khỏi thùng rác, chúng ta có thể cùng nhau giảm lượng khí thải nhà kính.

Việc ủ phân cũng có thể là một sự bổ sung đáng hoan nghênh cho một ngôi nhà nếu bạn đang cố gắng vượt lên trên để giảm lượng khí thải carbon của mình.

Có nhiều tổ chức để tham gia sâu hơn vào quá trình ủ phân như Black Earth Composting và các Chương trình làm phân bón tại thành phố Worcester của thành phố địa phương để tham gia nếu bạn quan tâm đến việc thực hiện điều này tại nhà của mình!



## Chất thải thực phẩm và phân trộn

Khám phá những thay đổi đơn giản trong thói quen hàng ngày của bạn có thể góp phần tạo nên lối sống bền vững và thân thiện với môi trường hơn như thế nào.



## Vietnamese Translation

### Tại sao việc giảm lãng phí thực phẩm lại quan trọng?

Giảm chất thải thực phẩm làm giảm lượng khí thải nhà kính liên quan đến quá trình phân hủy thực phẩm tại các bãi chôn lấp.

### Việc ủ phân có thể làm gì?

Việc ủ phân giúp chuyển các chất thải hữu cơ như rác thải nhà bếp và rác sân vườn khỏi bãi chôn lấp, làm giảm việc sản sinh ra các khí nhà kính có hại.

### Những gì có thể được ủ phân?

Các mảnh vụn trái cây và rau quả, bã cà phê, vỏ trứng, túi trà, cỏ cắt, lá và cành nhỏ đều có thể được chuyển khỏi bãi rác để làm phân trộn.

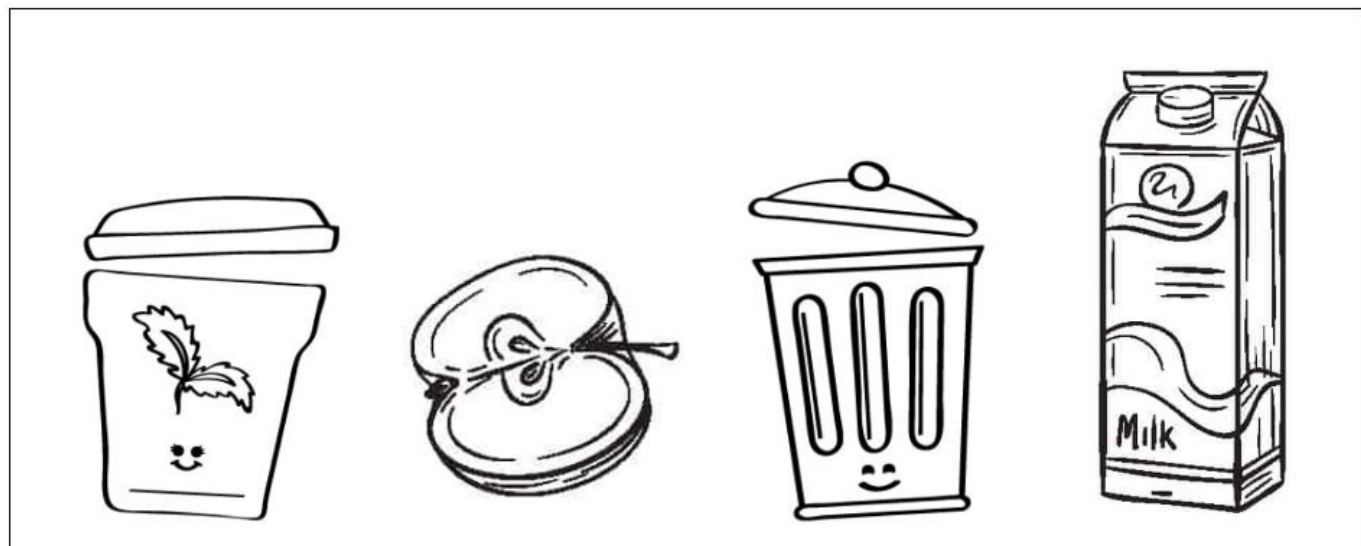
### Những gì không thể được ủ phân?

Không thể phân hủy thịt và các sản phẩm từ sữa, các mặt hàng thực phẩm nhiều dầu mỡ và các vật liệu không phân hủy sinh học như nhựa, kim loại và thủy tinh.



Special thanks to Khoa Kennedy for the translation edits and proofreading!

# Interactive Worksheet Activity:



## Food Waste and Composting:

Name: \_\_\_\_\_

### What is Food waste?

Food waste is the leftover food scraps after a meal. This is everything left on your plate that gets scraped into the trash. You can make a huge difference in reducing food waste by practicing thoughtful waste practices. By only taking what you need you can make less trash and contribute to a cleaner planet!

### What is Composting?

Composting is the breakdown of organic materials into soil! This involves little organisms like bacteria and fungi. These critters decompose food and organic material down into a rich soil. This soil can then be used to grow happier and healthier plants! With compost we can turn garbage into food for plants!

### MARK WHAT CAN BE COMPOSTED!

- |   |   |
|---|---|
| <input type="checkbox"/> Tomatoes       | <input type="checkbox"/> Paper bags     |
| <input type="checkbox"/> Eggshells      | <input type="checkbox"/> Orange peels   |
| <input type="checkbox"/> Plastic straws | <input type="checkbox"/> Candy wrappers |
| <input type="checkbox"/> Legos          | <input type="checkbox"/> Paper towels   |
| <input type="checkbox"/> Apples         | <input type="checkbox"/> Produce labels |
| <input type="checkbox"/> Cheese         | <input type="checkbox"/> Yogurt         |
| <input type="checkbox"/> Bones          | <input type="checkbox"/> Banana peels   |
| <input type="checkbox"/> Napkins        | <input type="checkbox"/> Stinky socks   |
| <input type="checkbox"/> Milk           | <input type="checkbox"/> Yogurt cups    |

# Learning Plan:

## Composting Lesson Plan - 5th Grade

### Learning goals:

- Introduce students to the topic of compost & composting
- Explain the life cycle of food and where composting fits in
- Explain the byproducts of compost, how this is created, and its importance
- Practice waste sorting through an interactive online game & supplemental worksheet

### Educational Framework:

The Massachusetts Fifth Grade Curriculum Framework under Life Sciences, point *LS2*. *Ecosystems: Interactions, Energy, and Dynamics*, details that students will “[d]evelop a model to describe the movement of matter among producers, consumers, decomposers, and the air, water, and soil in the environment to (a) show that plants produce sugars and plant materials, (b) show that animals can eat plants and/or other animals for food, and (c) show that some organisms, including fungi and bacteria, break down dead organisms and recycle some materials back to the air and soil”.

This lesson addresses point C in the above framework.

### Materials:

- Mr. Leonard Compost Video
- “What is Composting and how do I do it?” powerpoint
- Kids Composting Worksheet
- Parent Take-Home Composting Pamphlet

### Lesson Order:

1st: Use the Mr. Leonard Compost video as a starting point to introduce your 5th grade class to the concept of composting. This video is an interactive tool that requires presenters pause the video and ask questions. The script and pause times are included below.

2nd: Present the “What is Composting and how do I do it?” powerpoint presentation. On slide 10 there is an interactive game where students will aid the presenter/teacher in dragging various items into either the trash, compost, or recycling bins.

3rd: Hand out the Kids Composting Worksheet. Have students complete the checklist of what is compostable.

4th: Distribute the Parent Take-Home Composting Pamphlet to students so they can deliver them to their family.

### Script:

Leonard: Hi kids! My name is Mr. Leonard Compost! I’m visiting today to talk with you about food waste! Do any of you know what that means?

### PAUSE - 0:10

Presenter: I do! Raise your hand if you have heard of “food waste”.

Students: interactive element (raise hands) (2 student volunteers give their definitions)

### PLAY

Leonard: So . . . what is food waste? Food waste is food scraps that have not been eaten! This food often ends up in the trash, releasing carbon dioxide into the air which is bad for the environment!

### PAUSE - 0:25

Presenter: Oh no! What can we do to help?

### PLAY

Leonard: Good question! First, you can reduce food waste by only taking what you know you will eat at meal times. If you are still hungry, then you can get seconds!

### PAUSE - 0:37

Presenter: Nice! But what should I do if I have waste?

### PLAY

Leonard: An alternative to throwing food in the trash is composting, let’s learn some more! Composting is the breakdown of organic material into healthy soil. Do any of you know what organic materials are? Do you have any examples?

### PAUSE - 0:56

(let the kids answer first, if no one knows, tell them the answer; ex: food, plants, trees, leaves, etc.)

### PLAY

Leonard: Nice kids! And the cool thing is most organic material can be composted! Decomposers like worms and bacteria help break down food waste! Once this waste is broken down, it can be used as natural fertilizer to help plants grow! You can make your own compost at home by putting food scraps in a covered container and stirring it every few weeks! Be patient! This will take time!

Now you may be wondering, how does our city compost? In Worcester, there is a fall leaf pickup program and these leaves get composted. Right now, there is no city-wide food waste compost, but hopefully that will change!

### PAUSE - 1:46

Presenters: While there is no city wide composting program, we can reduce food waste by taking less on our plates! Are there any questions about Mr. Leonard’s presentation?

Student Q&A

### PLAY

Leonard: Great questions! It was wonderful talking with you about food waste and composting! Thank you for your attention! Bye kids!

# Takeaways

## *What we learned*

- How to boil down complex scientific concepts into a digestible format
- How to create an engaging lesson plan
- How to collaborate with community partners and implement their input

## *Future steps*

- Distribute our educational resources more widely throughout Worcester Public Schools.

# A Special Thanks to...

- Professor Mitchell for the continued help and support throughout the semester!
- Ms. Barrows for willing to incorporate our lesson plan into her classroom!
- Gean Grobe at Black Earth Composting!
- Miranda Hotham, Worcester Zero Waste Coordinator
- everyone at the Donelan Office of Community Based Learning, Teaching, and Engaged Scholarship.
- and everyone who helped with our translations, specifically Khoa Kennedy for the Vietnamese translation and Jacqueline Dominguez for the spanish translation!