



## Taking a Bite Out of Lunchroom Waste

Lesson 1: What is trash? Where does it go?

1C: Where does our trash go?

### Anchoring Phenomena:

How can we **reduce** marine debris?

### Investigative Questions:

Where does our trash go?

### Lesson Goals:

**What students will do:** Students will investigate where the things go when we throw them away.

#### What students figure out:

- Where trash goes when we throw it away.
- Climate change connection: the impact of food waste on greenhouse gasses.

#### NGSS alignments

Investigative questions	Grade Level Performance Expectations	Disciplinary Core Ideas	Science and Engineering Practices	Cross-cutting concepts
Where does our trash go?	<p><b>K-ESS3-3 Earth and Human Activity</b> - Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</p> <p><b>5-ESS3-1. Earth and Human Activity</b> - Obtain and combine information about ways individual communities use science ideas to protect</p>	ESS3.C Human impacts on Earth systems	<p>1- Asking questions (for science) and defining problems (for engineering)</p> <p>3- Planning and carrying out investigations</p> <p>4 - Analyzing and interpreting data</p> <p>8 - Obtaining, evaluating and communicating information.</p>	<p>1- Patterns</p> <p>2 - Cause and effect</p> <p>7 - Stability and change</p>

	<p>the Earth's resources and environment.</p> <p><b>MS-ESS3-3. Earth and Human Activity</b> - Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment</p> <p><b>MS-ESS3-4 Earth and Human Activity</b> - Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.</p> <p><b>HS-ESS3-4 Earth and Human Activity</b> - Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</p>			
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## Materials:

[Student Journals](#)

Trash sample

[Decision Tree Booklet](#)

[Decision Tree Powerpoint](#)

## Lesson Prep:

1. Collect the trash sample you plan to use.
2. Determine how students will use the Decision Tree Booklet or Powerpoint
3. Review the 5Rs
4. Review lunchroom waste's connection to climate change

## Lesson Steps:

1. Give students an item from the trash sample and have them use the [Decision Tree Booklet](#) or [Decision Tree Powerpoint](#) to discover what can happen to their item when it is thrown away. You can choose items that have roughly the same number of decision steps. Allow for random or student choice.

2. Have students record in their journal new things they discover as they go through the Decision Tree.

## Concept Invention

3. In their journals and/or aloud, have students share new things they learned about trash and what happens to it.
  - a. Is all trash treated the same way? Why or why not?
  - b. Does all trash end up at the same place? Why or why not?
4. Invite a student to walk through the decisions they made to reach the conclusions they did about the fate of their trash
5. Ask the full group: Where does most of our trash end up?
  - a. Landfills. While some items are refused, reused or recycled, most of our waste ends up in landfills. In landfills the items are buried in special holes and left to biodegrade (if they are able to).
6. *MS/HS Extension* - Watch [Where does your trash actually go?](#) (~11 minutes), then review: the [U.S. Environmental Protection Agency's overview](#) of what makes up trash in the United States
7. Discuss with students the terms they encountered in the Decision Tree (see below list). These terms describe ways to **reduce** the amount of trash going into landfills. Remember our big idea, "how can we **reduce** marine debris?" One way is to reduce the amount we throw away.
8. After discussing all of the 5R terms, ask students to brainstorm ways to implement each term. Some examples are provided.
  - a. **Refuse** - Choosing not to accept an item that will be thrown away.
    - i. Bring your own bags to a store/carry items without a bag
    - ii. Bring your own straw or go without a straw
    - iii. Bring your own silverware
    - iv. Bring your own refillable water bottle
    - v. "Opt out" culture
  - b. **Reuse** - Using an item over again or for a different purpose instead of throwing it away
    - i. Plastic containers can become storage for screws, buttons, beads
    - ii. Glass jars or metal cans can become plant containers and are fun to decorate
    - iii. Old dog food bags can become trash bags
    - iv. Cardboard egg cartons can become seed starters or storage for small toys, marbles, legos
    - v. Old shirts can become great rags or stuffing for toys
    - vi. Empty boxes can be covered with paper and used to organize drawers, closets, even books
    - vii. [Upcycling furniture](#) is super trendy! Share images of reused furniture with students.
  - c. **Recycle** - Treating or processing waste materials to make suitable for reuse
    - i. Metal, glass and paper are among the most recyclable items.
    - ii. In Michigan, you can find a recycling center in your community by using [this directory map](#).

- iii. Check what can be recycled in your community.
  - iv. Certain items are more recyclable than others. Some items, like plastic, can only be recycled once (or not at all) before they have to be sent to the landfill. That's why it's important to refuse/reuse FIRST.
  - d. **Repair** - To fix or mend something for reuse
    - i. Textiles including socks, pants and other clothing items are mendable
    - ii. Small appliances can be fixed via local repair shops.
    - iii. Furniture can be repainted or reupholstered.
  - e. **Rot**- Composting: an aerobic process of layering or mixing various decaying organic substances like fallen leaves, leftover vegetables, fruit peelings, some paper for a period of time until it has biodegraded and can be used for fertilizing soil.
    - i. Climate change connection: Composting food waste rather than sending it to the landfill helps protect the climate by reducing methane emissions from landfills.
9. *Extension: Brainstorm then investigate: What does recycling look like in our community? What can/can't be recycled?*
- a. Play the [Recycling Game](#)
  - b. Learn more about [how to properly and safely recycle](#) from this article from the EPA.
10. *MS/HS Extension: Brainstorm then investigate with students: Is recycling really the final solution?*
- a. Explore - How many times can an item be recycled?
  - b. Explore - What is the cost of recycling?

#### [Great Lakes Literacy Principles Connections:](#)

- (1) The Great Lakes, bodies of fresh water with many features, are connected to each other and to the world ocean.
- (5) The Great Lakes support a broad diversity of life and ecosystems.
- (6) The Great Lakes and humans in their watersheds are inextricably interconnected;
- (8) The Great Lakes are socially, economically, and environmentally significant to the region, the nation and the planet.