Taking a Bite Out of Lunchroom Waste

Lesson 5: How can we be changemakers?

Anchoring Phenomena:

How can we **reduce** marine debris?

Investigative Questions:

How can we be changemakers?

Lesson Goal:

What students will do: Students will make a recommendation on how their school can reduce the amount of lunchroom trash. Students will present findings to their class, community partner(s), and to school decision makers.

What students figure out:

- How they can reduce their school lunchroom trash
- How to help create/improve presentations for school decision makers with constructive criticism
- Why preventing marine debris is important in their communities as they work with a community partner

NGSS Alignments

Investigative questions	Grade Level Performance Expectations	Disciplinary Core Ideas	Science and Engineering Practices	Cross-cutting concepts
How can students be change-makers?	**K-ESS3-3 Earth and Human Activity -** Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	ESS3.A Natural resources	1- Asking questions (for science) and defining problems (for engineering) 3 - Planning and carrying out investigations	1- Patterns 2 - Cause and effect 7 - Stability and change

	4-ESS3-1 Earth and Human Activity - Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. **5-ESS3-1 Earth and Human Activity -** Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. **MS-ESS3-3 Earth and Human Activity -** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. **MS-ESS3-4. Earth and Human Activity -** Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems **HS-ESS3-1 Earth** and Human Activity - Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity **HS-ESS3-4. Earth and Human Activities -** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems		8 - Obtaining, evaluating and communicating information.	

Materials: Summary charts (one per student)

Lesson Prep:

Review Constructive Critiquing with students video
Determine how many presentations will be made to decision makers. Determine other audiences for presentations/outreach material.

Lesson Steps:

Invitation

1. Revisit the BIG idea - How can we reduce marine debris?

Exploration: How can we be changemakers?

2. Provide students with an opportunity to evaluate feasibility presentations, providing a constructive critique using a compiled chart (example here) listing the items identified for reduction and the reasoning summary from each group. Include a column for questions and comments.
    a. Provide each student with a copy of the chart
    b. Allow time for all the summaries to be read and questions to be recorded on individual sheets

Concept Invention: Advocate for waste reduction

3. Have students share their proposals to reduce the waste produced by the school. This is a practice of their pitch before presenting to the school administration/board.
4. Ask students to listen carefully for the answers to the questions they have and to record new questions or comments

Application

5. After each presentation, allow time for questions, suggestions and constructive support. Remember the goal is helping make the presentation even better. Tips for facilitating constructive criticism with students.
    a. Consider using prompts to support constructive criticism for the comments
        i. I liked this part ... but wonder if you thought about this?
        ii. Can you please explain_____ more?
6. Students present their plans to the relevant decision makers at their school and provide a written copy of the feasibility report to decision makers

Reflection

7. Ask students to think back about what they have learned about marine debris issues through the various activities they completed and answer the following questions.
    a. What are some marine debris prevention solutions?
    b. What actions do you already personally take to help address marine debris?
    c. What new actions might you take?
    d. Optional: Using your creative skills (example: write a poem, draw a picture, etc.) develop something that will both inform and persuade people to act on what they have learned about marine debris.
8. Reflect with students on the whole process. Explain that the work of reducing our waste is not over and next year students will do the same activities and identify their own items.
    a. What do you want to tell next year's class about our lunchroom waste reduction project?
    b. Write a letter to the class that lets them know what they should expect and what they could do that would improve our water-quality effort.
    c. Include each of the following sections in your letter. Write more if you wish.
        i. Here's what you should expect in this class....
        ii. The most valuable thing we did was....
        iii. Our marine debris prevention work mattered because....
        iv. Here are some ideas for doing things differently or better in your class....

Additional Opportunities

1. Consider inviting administration into the classroom 1-2 months after presentations to provide decisions and reasoning.
2. If changes are implemented during this school year consider doing another lunch waste audit
    a. Students repeat the trash audit in classroom lunches
    b. Keep audit data and make comparisons from year to year

💧 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.

(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.