Lesson 5: How can we best present our plan and recommendations to the people who need to know?

Previous Lesson….Where we've been: Students analyzed data from the investigations they planned to learn more about the food waste system in their schools. They created plans to decrease food waste in their system based on the results of the investigation and voted as a class on the best plan.

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This Lesson...What we are doing now: This lesson explores generated criteria and provides guidance in creating a presentation for the plans that were developed in the previous lesson. Participants will then practice and refine their presentations before presenting them to the school's administration.

Lesson Question	Phenomena	Lesson Performance Expectation(s)	What We Figure Out (CCCs & DCIs), New Questions and Next Steps
L5: How can we present our plan to reduce food waste and emissions at our school to the people who need to know? (2 periods) **S** *Building toward ↓ NGSS PEs:* HS-ESS-3-2 HS-ESS3-4 HS-ETS1-3	Resources on persuasive presentation	**Communicating information** to stakeholders, being sure that our arguments are evidence-based and draw on our understanding of systems, cause and effect, scale and energy flows.	Last class we voted on the best plan(s) to present to our school's administration to help reduce our school's food waste, which we know can contribute to global climate change. We decided on some criteria as a class to determine what should be included in the presentation as well as how we will measure success. We put together our presentation, practiced it and refined it. **We presented to our school's administration and will hopefully, begin the work to implement our plan!**

📋 Getting Ready: Materials Preparation

Preparation of Materials (15 min.)

- Computers to work on presentation

☁ Getting Ready: Teacher Preparation

Background Knowledge for Teacher Only

ESS3 from the FRAMEWORK:

"Thus science and engineering will be essential both to understanding the possible impacts of global climate change and to informing decisions about how to slow its rate and consequences…"

Rate of and region of change matters for understanding climate change. Cities are changing faster because of characteristics of cities - localized amplification because of the nature of cities like black top, resulting in heat islands in cities. However, this is not the entire explanation for climate change. Overall regionally and globally human activities are increasing CO2 and greenhouse gases, which result in global warming.

ESS3.C from the FRAMEWORK:
By the end of grade 8: Human activities have significantly altered the biosphere sometimes damaging or destroying natural habitats and causing the extinction of many other species. However, changes to Earth's environment can have different impacts (negative and positive) on different living things. Typically, as human populations and per capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.

ESS3.D from the FRAMEWORK:
By the end of grade 8: Activities such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and on applying that knowledge wisely and decisions and activities.

Learning Plan: How can we present our plan to reduce food waste and emissions at our school to the people who need to know? (2 class periods)

Teacher Supports & Notes

1.   **(5 mins) Begin class with a discussion to reorient students to the storyline.**

   Suggested Prompts:
   ➜   What did we do last class?
   ➜   What did we figure out last class?
   ➜   What should we do today?

   Listen for student responses that mimic the next row of the storyline:
   ➜   *Last class we voted on a plan (or plans) to present to administration*
   ➜   *Today we should work on developing those plans*

2.   **(15 min) Next, guide students into an Initial Ideas discussion to address the following prompts:**

   Suggested Prompts:
   ➜   Who should we present to?
   ➜   What questions will they have?
   ➜   What will they be worried about the most?
   ➜   What kinds of information need to be included in our presentation?
   ➜   How will we know if we have been successful?
   ➜   What guidelines should we follow for our presentation?[A]

   Listen for student responses that will result in a professional, thorough presentation, such as:
   ➜   *We should present to administration (principal), school-based personnel responsible for the cafeteria, waste management (such as facilities managers)*
   ➜   *We need to include all the details and criteria we developed for our plan*
   ➜   *We should make sure our presentation has no spelling or grammar errors, appropriate images, interesting visuals, the right amount of text, a logical sequence, etc.*

⚙ Supporting Students in Communicating Information

A: If students are struggling to come up with criteria for how to prepare a good presentation, use the Resources for Presentation handout. If you have time, you could have students look over these resources and generate a rubric or list of criteria beforehand. The practice of communicating information is the emphasis here so some of the resources in that document are directly from NGSS.

3. (30 min) Give students time to develop their presentation[B]. Refer them to the [Resources for Presentation](#) document with linked sources to help them if needed.

4. (20 min) Have students practice the presentation (either with each other, friends, other teachers and school staff) and elicit feedback from the test run audience. Then give time for students to refine and edit their presentation.

5. Arrange a time for the students to present to administration and hopefully, begin the work of improving the system!

Additional Guidance

B: You will need to decide how you want to divide the work for this, depending on your class size, timeline and how many presentations your class has. It would be good to assign roles and have some students working on data, some on preparing for public speaking, and whatever jobs you envision. The class could even be a part of the discussion for how to divide the work equitably. This lesson plan is intentionally vague, as you will have to make many decisions about the logistics of this in your own classroom.

5

⚐ Alignment With Standards

Building Toward Target NGSS PE

- **HS-ESS3-2:** Evaluate competing design solutions for developing, managing and utilizing energy and mineral resources based on cost-benefit ratios
- **HS-ESS3-4:** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
- **HS-ETS-3:** Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts

Building Toward Common Core Standard(s)

- **RST.11-12.7:** Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
- **SL.9-10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- **SL.9-10.5:** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.