

ECO-DETECTIVES

A lesson in environmental economics for Grades 9-12

In 2015, four middle-school students learned that of all the coastal cities in the world, their hometown of Miami will suffer the greatest economic loss from climate change. Soon after, the Florida girls worked together to do an energy audit on their school. Through their hard work and collaboration, they were able to convince their school to make simple changes (like painting the roof white!) across the campus and save over \$53,000 in energy costs.



"I felt like a could change things. I could just strap on my cape and go!"

The girls of *Dreaming in Green* are an example for students across the country of the power they can have to influence changes in their school. This "Eco-Detectives" project is designed for high-school students to team up and investigate your school's environmental footprint, research alternatives, and propose cost-cutting solutions to school administration using persuasive infographics. Through the creation of these digital displays, students will learn how to present valuable information to a powerful audience and influence decision-making in their communities. Though the project's outcome is hypothetical in nature, we encourage you to collaborate with your administration to help your school to save money (and the planet!).

Link to film: <https://www.youngvoicesfortheplanet.com/youth-climate-videos/dreaming-in-green/>

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Lesson Plan Instructions



ESSENTIAL QUESTION:

How can we influence decision-makers in our community?

OBJECTIVES:

Students will collect data on the environmental footprint of their school.
Students will research and organize sustainable alternatives that are cost-efficient.
Students will assemble and present a persuasive argument to an audience.

DIRECTIONS (suggested in-class time of 2-3 weeks)

1. Introduction: Before starting the lesson, challenge students to brainstorm as many as they can think of where the school creates some kind of waste (i.e. leaving lights on in an empty room, leaky faucets, no recycling, uneaten meals in cafeteria, etc.) Give them a few minutes to think/write, then create a running list on the board as students provide answers. Transition into a discussion on how these things all add up over time and create both environmental and economic waste.

2. Extend: Ask the students, "How is our community affected by climate change?" Since this answer will differ depending on where you live, look for ways to connect student responses to the climate change discourse at large.

3. Show YVFP film, "Dreaming in Green": Introduce the girls of Dreaming in Green as four middle school students who were empowered to create changes at their school, which in turn, saved over \$50,000. With the support of their teacher and administration, they were able to present simple, sustainable ways to reduce their school's carbon footprint AND cut down on costs. Pause throughout the film to prompt discussion as needed. (link on cover page) Have students revisit their initial brainstorm and make connections and extensions to their ideas after viewing the film.

4. Introduce project: In a visible space, provide the definition of the term, AUDIT, or "an official inspection of accounts." Share with students that over the next few weeks, students will team up in groups to perform an energy audit on their school in one of five different topics: *Water, Energy, Transportation, Waste, and Food*. With their teams, students will complete the project in three phases: investigation, research and presentation. Distribute the outline included below to go over with students as a class.

5. Investigation: The scope of this project can be expanded or contracted to your own discretion. If you are able to arrange it with your administration, begin by having students meet with their groups and arranging a schedule & time to meet

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Lesson Plan Instructions (Continued)

with the appropriate administrative members. Conducting the "investigation" can occur during class hours or after school, per your decision. We recommend you refer to these documents when arranging an environmental audit with your school team: <https://www.nwf.org/-/media/Documents/PDFs/Eco-Schools/Handbook-October2017/Step-2-Conduct-an-Enviro-Audit.ashx>

6. Research: Each slip that is distributed to the teams contains credible and useful resources that students can use while conducting their research. We encourage you to monitor student research closely and provide suggestions on how best to organize their findings.

7. Presentation: student groups will culminate their projects through the creation of infographics. Students are encouraged to explore different avenues of creating persuasive and informational presentations, and there are many free, online programs to create infographics. Using the data they've assembled from the audit and the research they gathered online, teams will create infographics, in addition to a 3-5 minute presentation that they would present to you, their classmates, and/or administration (depending on the scope of your project). Be sure to emphasize with students that the essential question examines *how* we influence decision-makers of the community, such as school administration. They have focused so much energy on assembling strong data, so it is important that their findings are reflected well in the presentation. Links and video tutorials are provided on the outline for students to access the free programs - we recommend they use Canva or Visme.

MATERIALS:

- Handouts
- Internet connection, A/V and projector
- Whiteboard
- Student laptops/tablets
- Access to school energy reports/statistics

SUGGESTED MODIFICATIONS:

- For ELD students: provide written transcript of film, accessibility to research materials in native language
- Differentiated Instruction: group students with mixed ability and learning styles, allow for time extensions if needed, ability to create presentations on mixed media (not just infographic but written or orally as well).