

Name:

Date:

# ECO-DETECTIVES PROJECT:

How can we influence decision-makers in our community?

## INTRODUCTION

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.

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You and your team have been assigned an important mission: to perform an energy audit on your school. Each day, your school is losing money due to a lack of sustainable, waste-reducing measures that can be used to keep your school running smoothly and cost-efficiently. Your job is to investigate the criteria listed above and find out your schools' annual cost(s), research cost-efficient, sustainable alternatives, and prepare a persuasive infographic that you could present to your school's administration. This is no easy task, but just as the girls in *Dreaming in Green* said, "going green is a win-win situation for everybody!"

## OUTLINE

This project has three phases: investigation, research, and presentation. Over the next few weeks, you and your teammates will conduct an audit - or official inspection of accounts - of your assigned topic: water, energy, transportation, food, or waste.

- 1. INVESTIGATION:** Using the resources provided on your team handout, your team will arrange meetings with school administration and access building records to collect data. The more thorough you are with your investigation, the better prepared you will be for phases two and three!
- 2. RESEARCH:** With so many cost-cutting and energy alternatives available, you can help transform your school into a "green school" in no time! After gathering all of the data during your investigation in phase one, your group will see how the school's current system measures up against more sustainable alternatives out there!
- 3. PRESENTATION:** The Eco-Detectives project will conclude with the presentation of an inviting, easy-to-follow, and detailed infographic that outlines the results of your investigation to your peers, teacher(s), and administration.

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## PART 1: INVESTIGATION

- Begin the project by creating a common work document for you and your group to share findings, data, and ideas. Be sure to organize it in such a way that all members can follow and contribute equally.
- Contact your school's administration to arrange a meeting. Let them know that your class is conducting an audit on water use and investigating cost-saving, sustainable alternatives.
- Use the resources on your teams' individual handout - along with other reliable sources you find online - to collect data for your audit. Don't forget to keep a record of all the sources you use to cite at the end.
- Ask your teacher for additional resources and tools to conduct your audit. Do not be afraid to ask for help!

## PART 2: RESEARCH

- Gathering reliable and credible information online and throughout your school is extremely valuable. Work closely with your teammates to find trustworthy sources (sites ending in ".org" or ".gov" for example) - and check with your teacher before proceeding.
- There are many documents available online, especially from the EPA (Environmental Protection Agency), that provide step-by-step guidelines on performing environmental audits at schools. Those are a great place to start!
- Visit the "Dreaming In Green" organization's website for many more sources:  
<http://dreaminggreen.org/>

## PART 3: PRESENTATION

- Creating an efficient and easy-to-follow presentation is essential in influencing the "decision-makers" to make changes. For the final part of your project, your team will assemble a digital infographic that illustrates WHAT you have learned, WHY it is important, and HOW to make the switch to cost-saving and sustainable alternatives.
- There are a number of different free platforms where your team can create your final product. Here are some suggestions:
  - **Visme:** <https://www.visme.co/>
  - **How to use Visme:** <https://www.youtube.com/watch?v=tjMyr7G79rg>
  - **Canva:** <https://www.canva.com/>
  - **How to use Canva:** <https://www.youtube.com/watch?v=W1v3ILOnfGs>
- Be prepared to present your final product to your classmates, teacher(s), and administration. Rehearse your parts, review what you know, and be confident!

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## TEAM 1: WATER



- Indoor water efficiency
- Outdoor irrigation
- Rainwater catchment
- Water quality

Team Water's job is to gather information on how efficiently your school collects, uses, and cleans water. This pertains to all plumbing throughout the building, outdoor irrigation (landscaping), the use or non-use of rainwater catchment tanks, and the quality of water being used throughout the school building/campus. Some helpful links include:

1. [https://www.gsa.gov/cdnstatic/Water\\_Indoor\\_Water\\_White\\_Paper\\_Knetwork\\_2012\\_11\\_26.pdf](https://www.gsa.gov/cdnstatic/Water_Indoor_Water_White_Paper_Knetwork_2012_11_26.pdf)
2. <https://www.irrigation.org/IA/Resources/Tools-Calculators/IA/Resources/Tools-Calculators.aspx?hkey=209eee20-6543-45ee-8649-b8cc8d6c5d5a>
3. <https://www.rainharvest.com/rainflo-eco-school-basic-package.asp>
4. <https://www.fondriest.com/environmental-measurements/parameters/water-quality/>

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## TEAM 2: ENERGY



- Lighting
- Heating & cooling
- Electronics & appliances
- Types of power sources

Team Energy's job is to gather information on your school's power usage as well as the efficiency of its lighting, heating, and cooling systems. More specifically, what can you find out about the types of lighting used around the school how long they are left on? How does the building distribute heat and/or cooling, if at all? Which electronics are using the most energy? . Some helpful links include:

1. <https://prezi.com/tsehfaamz84t/measuring-and-reducing-classroom-energy-usage/>
2. [http://energyusecalculator.com/electricity\\_centralac.htm](http://energyusecalculator.com/electricity_centralac.htm)
3. <https://www.need.org/files/curriculum/guides/energysurveystudent.pdf>
4. <https://www.epa.gov/energy/power-profiler>

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## TEAM 3: TRANSPORTATION

- Biking & walking demographics
- School buses & public transport
- Carpooling
- Air Quality



Team Transportation's job is to gather information on your school's transportation systems, statistics on student transit arriving and departing school, and potential air quality damage due to exhaust from stalled vehicles. Your primary role is to survey how students commute to and from school and research possible cost-effective alternatives and/or incentives . Some helpful links include:

1. <http://www.walkbiketoschool.org/learn-more/why-walkbike/>
2. [www.saferoutespartnership.org/sites/default/files/pdf/school\\_bus\\_cuts\\_national\\_stats\\_FINAL.pdf](http://www.saferoutespartnership.org/sites/default/files/pdf/school_bus_cuts_national_stats_FINAL.pdf)
3. <https://cleanaircarolina.org/wp-content/uploads/2010/09/CAC-Best-Practices-Guide.pdf>

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## TEAM 4: WASTE

- Recycling
- Electronic waste
- Compost
- Personal waste



Team Waste's job is to gather information on your school's waste regulations, procedures, and percentages throughout the campus. Your primary role is to discern how waste (including food, paper, plastics, glass, etc.) is diverted and managed, calculate costs for waste management, and seek waste reduction incentives. Some helpful links include:

1. <https://www.calrecycle.ca.gov/reducewaste/schools/composition>
2. <https://greenactioncentre.ca/reduce-your-waste/waste-reduction-week-for-schools/>
3. <http://www.wm.com/locator.jsp> (waste management locator)
4. <https://www.lifelab.org/composting/>

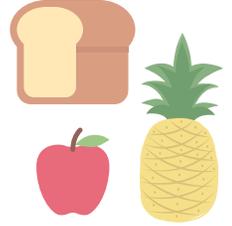
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## TEAM 5: FOOD

- Packaging
- Purchasing source
- Food waste
- Nutrition



Team Food's job is to gather information on your school's meal purchasing, preparation, and disposal policies throughout the campus. Your primary role is to work with cafeteria and financial services staff to determine where all food that is prepared and served by the school comes from, how much it costs, how it is stored, and how much goes to waste. Some helpful links include:

1. <https://www.epa.gov/sustainable-management-food/guide-conducting-student-food-waste-audits-resource-schools>
2. <https://neha.org/eh-topics/food-safety-0/food-safe-schools-program>
3. <https://www.nwf.org/Eco-Schools-USA/Become-an-Eco-School/Pathways/Sustainable-Food/Audit>