

10th Grade Expedition Syllabus and Fieldwork Guide

WASTE: Talking Trash

Instructor Contact	Content Area
Cindy Tanzer ctanzer@thegreeneschool.org	Geometry: Students will connect their work in the waste expedition to volume and surface area rates in landfills and at our school. Students will also research and design solutions to increase recycling rates.
Nicholas Pasterino npasterino@thegreeneschool.org	Chemistry: Students will explore the various chemical components that make up compostable, recyclable, and landfill waste and the types of chemical reactions these compounds undergo.
Jeffrey Johnson johnson@thegreeneschool.org	US History: Students will be examining the nature of government to the environment. How laws are passed that relate to environmental concern. The balance between waste and the laws that manage that waste. The link to environmental legislation in place today and the lack of regulation in the past.
Safia Diaz sdiaz@thegreeneschool.org	English Language Arts: Students will examine how their relationship with materials contributes to waste through readings of informational texts. In addition, students will conduct research on solutions to local and global waste issues.

Description:

During the *Talking Trash* Expedition at The Greene School students explore one of the most important environmental problem we face as a society, waste. While it is in many ways a concrete idea, the intention of what separates waste from something of value can be rather abstract. From a young age children within environmentally conscious communities are taught not to litter and to recycle, but what are the real issues behind the waste we produce as a society? Case-studies in this expedition explore various types of waste including organic, municipal and toxic. Fieldwork for the expedition includes visiting a local wastewater treatment facility, the Rhode Island Resource Recovery Corporation, and an industrial compost farm. Additionally, honors students attend a state-wide compost conference where they learn about the logistics behind organizing a waste-focused organizational event.

Cross-Curricular Case Studies:

- **Nuclear Waste:** While student are learning about the nuclear chemistry and the challenges of nuclear waste, they will be simultaneously learning about ---in geometry.
- **Government and Waste Management: Politics of Plastic** (ELA and History): Students will evaluate recent legislation enacted at the local, state, and national level to reduce the use of disposable plastics in consumer products: Areas of Focus will include: Plastic bag Bans, Disposable water bottles, and the Use of Plastic Microbeads in consumer cosmetics products.
- **Consumerism - Local and Global Waste Issues:** (ELA and Science): Students will consider the impacts of living in a consumption focused society on resource consumption, waste production and disposal, and behavior.

This resource was created by The Greene School and shared through Teaching Our Cities, a project of Common Ground. To learn more, visit <http://www.teachcity.org/schools/greene-school>. If you choose to adopt or adapt this resource, please acknowledge The Greene School and Teaching Our Cities as sources. Teaching Our Cities is funded in part by the U.S. Environmental Protection Agency under assistance agreement number 00A00115 to Common Ground High School. However, it may not necessarily reflect the views of the Agency and no official endorsement should be inferred.

Field Work: All dates tentative until confirmed. Finalized dates for all fieldwork will be included on permission slips sent home with students in advance of all fieldwork.

February 8	Narragansett Bay Wastewater Treatment Commission Treatment Facility
Cost: \$15 maximum	
Learning Targets: - I can analyze the role of chemical reactions in treating wastewater. Guiding Questions: - How is wastewater treated before it is returned to the environment? Overview: Students will tour NBC to see their water treatment facility and their brand new state-of-the-art chemistry lab. They will learning about the natural and engineered systems that work together to ensure that the water discharged by the City of Providence does not cause major harm to Narragansett Bay.	

Friday, March 24, 2017	URI Nuclear Science Center
Cost: \$20 maximum	
Learning Targets: • I can describe the steps of the nuclear fuel cycle. • I can differentiate nuclear fusion and fission processes. Guiding Questions: • Do the benefits of nuclear energy outweigh the negative effects of nuclear waste? Overview: Students will tour the URI Nuclear Science Center and interact with expert speakers to develop their understanding of nuclear energy, the nuclear fuel cycle, and nuclear waste.	

Wed, April 26th	Rhode Island Resource Recovery Corporation-Johnston Landfill and Recycling Facility
Cost: \$25 maximum	
Learning Targets: • I can analyze the chemical process through which changes in matter and energy changes occur in organic matter at the RIRRC. • I can collect evidence in a purposeful and thoughtful way to later organize and analyze for the final product. • I can identify the role of Rhode Island state government and public funds in waste management at the RIRRC.	
Guiding Questions: • What are the key messages TGS can convey through the Waste Solutions Summit?	
Overview: Students will travel to the Rhode Island Resource Recovery Corporation (RIRRC) located at the Johnston Landfill and Recycling Facility to identify the role of Rhode Island state government and public funds in waste management. Students will also collect evidence of important messages the RIRRC would like TGS students to communicate to the public and the chemical process through of changes in matter and energy that occur in organic matter at the RIRRC.	

Final Product Description: Due Date: May 8-12

The final product will be a Waste Solutions summit hosted by the Greene School at Groundwork Rhode Island in Providence. The waste solutions summit will focus on developing solutions to Rhode Island's growing waste disposal problems. Students will develop informational texts, presentations, and tools to be distributed and shared with elementary school students at the waste solutions summit.