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Abstract

We wanted to improve the way that we taught about human impact on the environment to our non-science students in a laboratory class. In the past, we asked each student to calculate his or her own ecological footprint, but we found that many students had a hard time with this abstract concept. To increase their engagement and understanding, we combined the data-heavy footprint calculations with a tangible community-based civic engagement project. We asked students to volunteer at an organization in their community that would have a positive impact on their environment. During the experience, they had to collect data and present what they learned in a slide-based presentation. Students chose to work on varied projects ranging from community park clean-ups to salvaging and restoring bicycles for urban youth. These projects got students interested, engaged, and excited about learning ecological concepts. It also enhanced student's communication skills by asking them to present their experiences to their classmates. This poster will describe how to implement this project as well as discuss what students learned from their experiences.

Overview: Lab Project

- Students calculate ecological footprint of self and different countries with online tool from Global Footprint Network (<http://www.footprintnetwork.org>)
- Students choose and complete volunteer opportunity in community to improve environment
- Students create presentation with data from volunteer activity and ecological footprint

Presentation Guidelines

- 5 minute presentation with slides
- Include data collected from volunteer project
- Discuss your ecological footprint in context of your project
- Describe conclusions about how your volunteer project had a positive impact on environment
- Provide concrete actions your classmates can take to use this type of activity to reduce environmental impact.

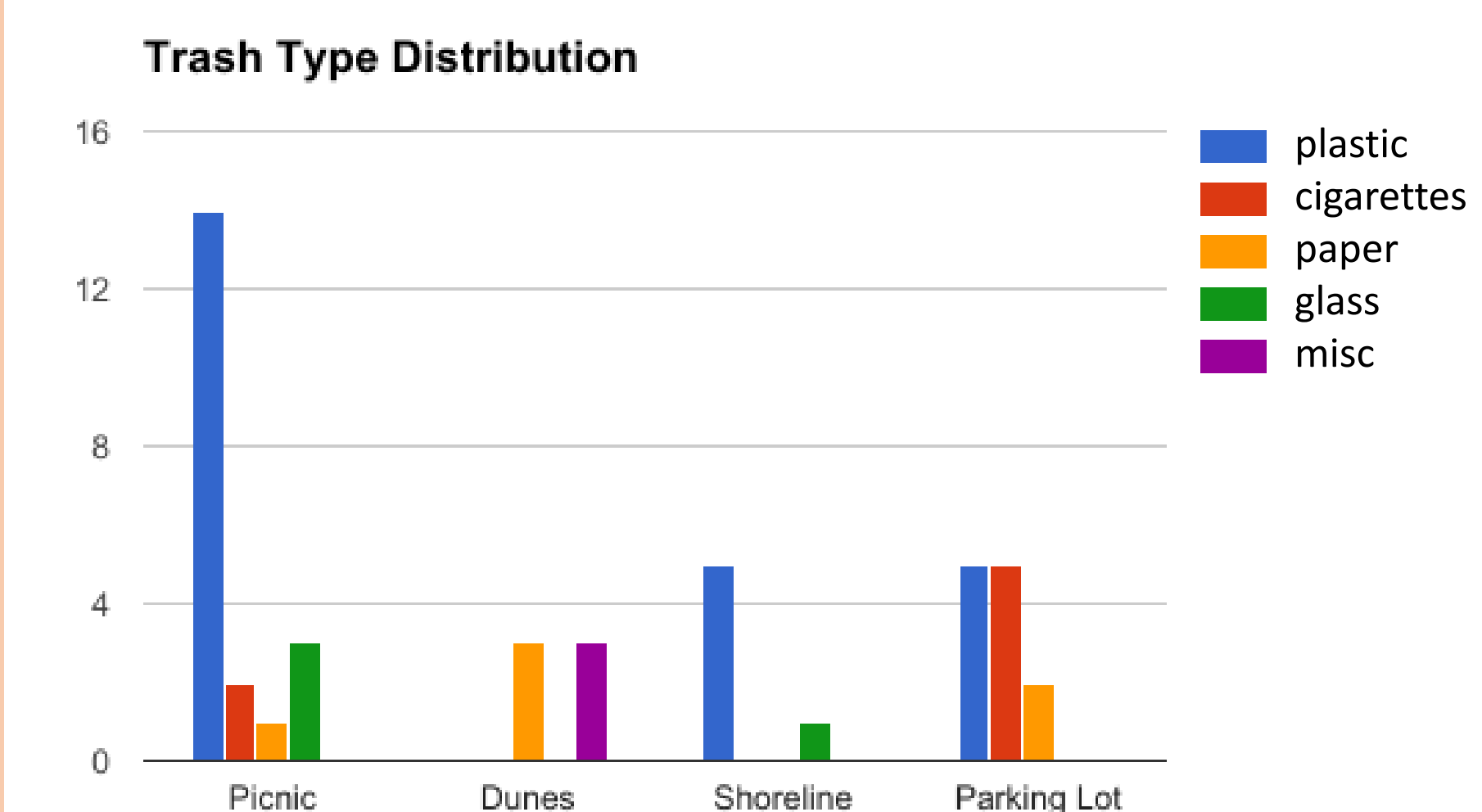
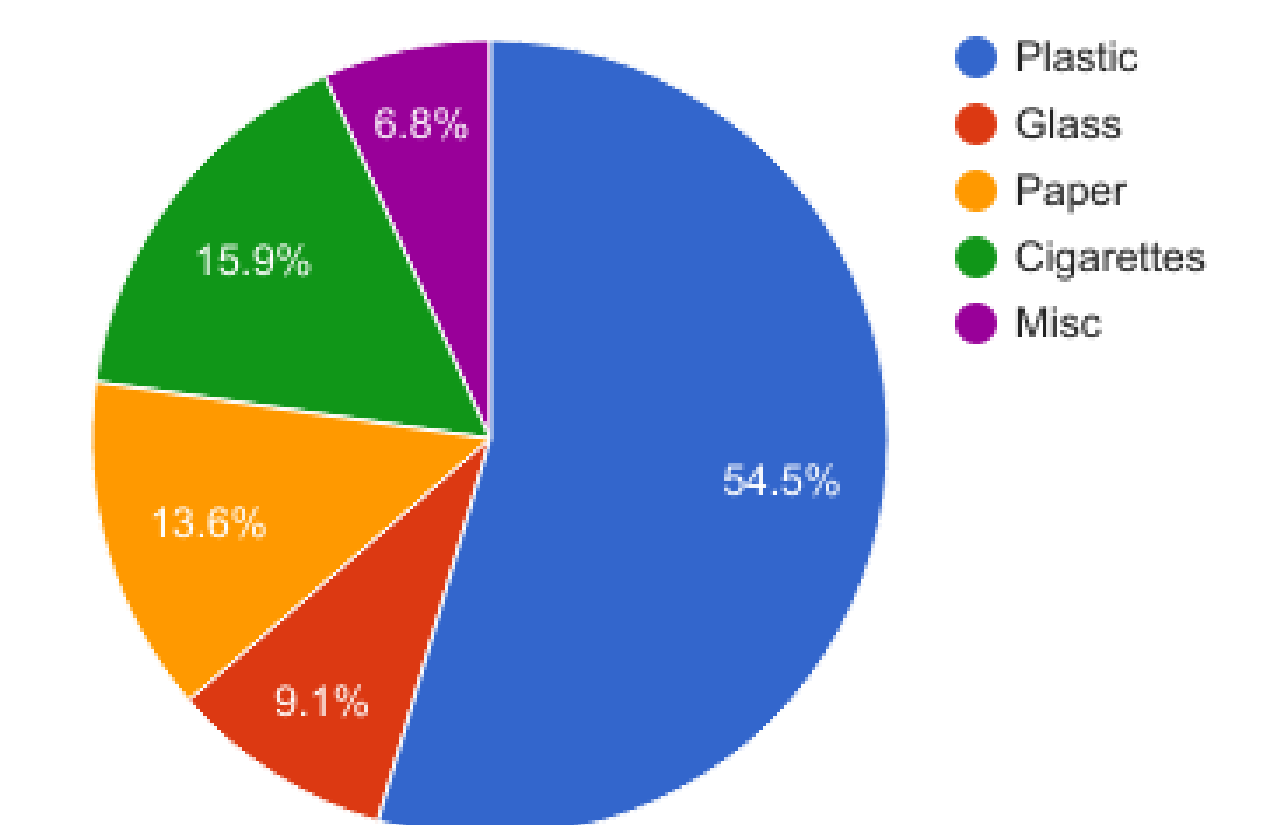
Footprint Questions

- Compare and contrast your ecological footprint at school and at home. Discuss reasons for similarities and differences.
- List the factors that contribute the most to your ecological footprint. Describe two concrete actions you could take to reduce your footprint.
- Based on the information in the table below, discuss the following (students can be asked to find this data or it can be provided):
 - Which regions of the world have the lowest footprints? What factors contribute?
 - What is the relationship between land type and biocapacity? Discuss how and why these numbers might change in the next 10-20 years.
 - Discuss the relationship between footprint and standard of living.
 - Which countries have an ecological overshoot? Do you think this is ethical? Explain.

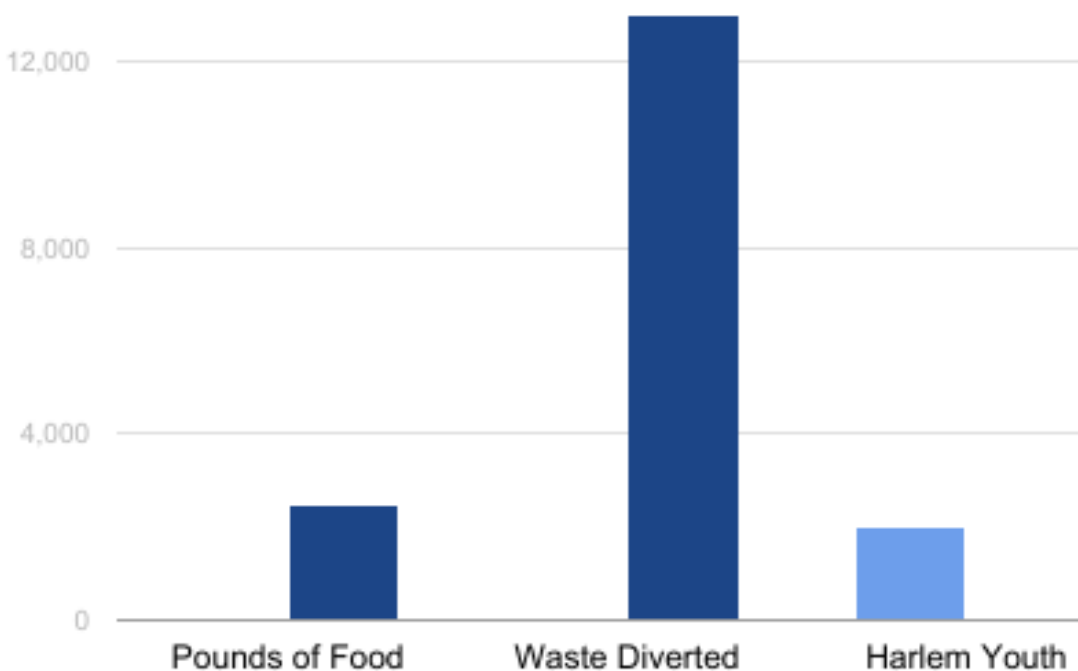
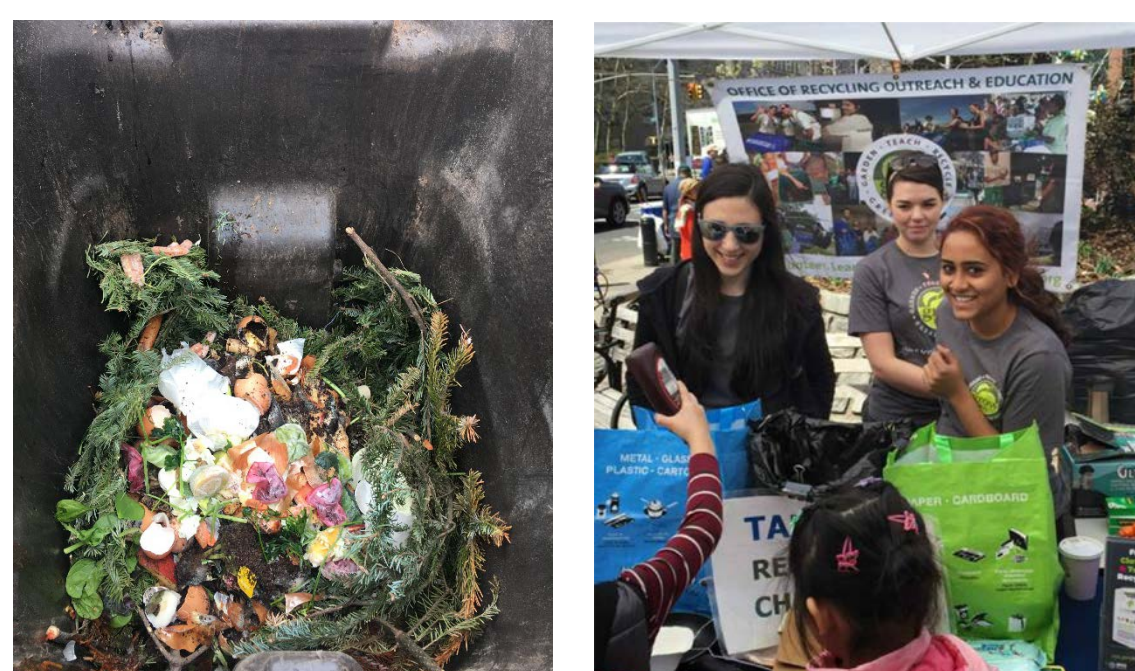
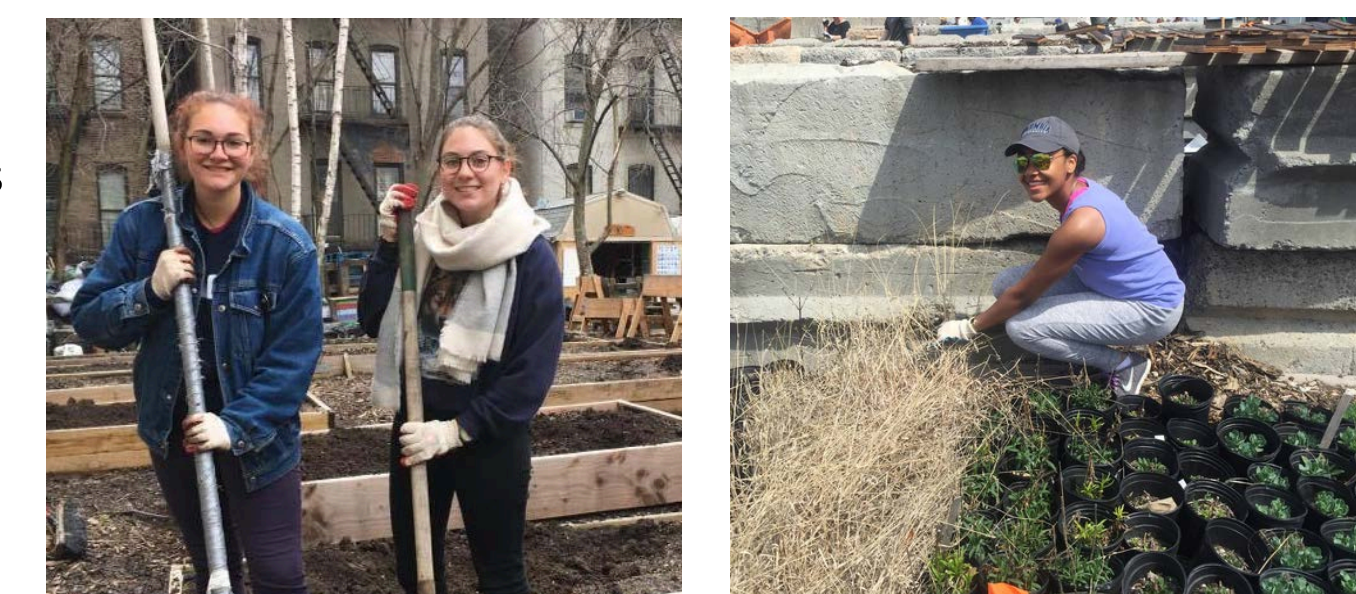
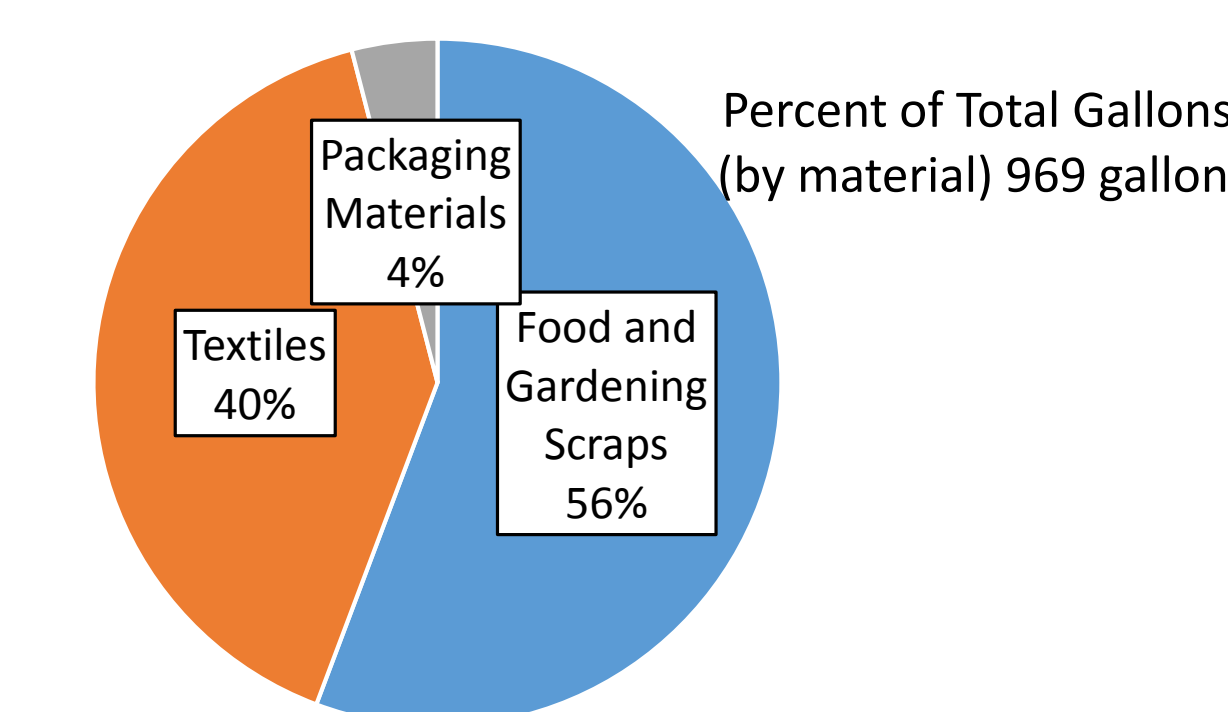
	Biocapacity (hectares/person)	Footprint (hectares/person)
United States	3.78	8.59
Canada	16.18	8.76
Mexico	1.21	2.56
Brazil	8.85	3.02
France	2.91	5.06
Austria	3.00	6.11
China	0.93	3.59
India	0.44	1.06
Congo	10.78	1.26
Madagascar	2.52	0.82
Ethiopia	0.57	1.01

Example Projects: Coastal Cleanups

Type of Debris	Number Collected	Number Collected by NY Ocean Conserv. Volunteers in 2014
Food Wrappers	21	11,541
Beverage Bottles (Plastic)	11	7,617
Beverage Bottles (Glass)	10	5,739
Plastic Bags	14	5,725
Glass Shards	12	N/A
Bottle Caps	6	6,375



Example Projects: Composting and Gardening



Conclusions

- Easily adaptable lab project for different classes, levels of students, and institution types
- Students effectively collected and presented data from "real-world" field experience
- Community volunteer aspect increased student engagement and interest in learning ecological concepts
- Discussing world footprints helped place environmental issues in a global perspective