Pioneer Valley CORAL &
Natural Science INSTITUTE

Introducing Citizen Science

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Objective

Students should become familiar with the idea of citizen science, explore online projects, and brainstorm ways for the public to involve themselves in research.

Background

Citizen science usually refers to the collection of data by members of the public. These data are then passed on to researchers who use it to answer scientific questions. The idea behind citizen science is that anyone can be involved in scientific research, whether or not you are an expert in the field. This type of volunteer work has contributed to fields ranging from computer science to medicine to conservation. Researchers benefit by having more available data than they would otherwise be able to collect, and volunteers benefit from the education and by contributing to solving real-world problems.

NOAA, the National Oceanic and Atmospheric Administration, has over 65 citizen science projects, including volunteer water quality testing, beach surveys, and debris tracking. Details of all these projects can be found on the NOAA website (under sources).

Citizen science projects have been found to directly contribute to restoration practices. For example, a citizen science program called Rescue a Reef teaches participants to outplant corals. From 2015-2017, participants outplants over 1300 staghorn corals. This program has significantly contributed to restoration efforts, as well as the participants' knowledge of coral reef ecology.

Citizen science can even be done from home or school, on a computer. There are websites which have hundreds of photo-based projects which volunteers can assist in.
Check out https://www.zooniverse.org/projects to explore the vast array of projects. There are projects focused on animals, ecosystems and climate, as well as arts, history, and language. You can browse through and find a project that best matches your interests.

Procedure

Students can work in groups or individually.

Materials
- Computer
- Internet access

Use the Zooniverse website (https://www.zooniverse.org/projects) and select a project you find most interesting. Read the background information and spend some time assisting on the project! Share the project goals and your input with the class.

Post-lab Questions

1. What citizen project ideas can you think of in your neighborhood?

   Hint for Teacher! *Computer-based: photo/data analysis; Volunteer surveys of animal/plants; there are even phone apps where you can identify animal species!*

2. What might some problems with citizen science be, and can you think of potential solutions?

   Hint for Teacher! *There is the issue that many different people are involved, leaving room for more human error and inconsistencies with how different people perform the set task. This can't be totally eliminated, but by having clear instructions, it these discrepancies can be drastically reduced.*

Lesson Adopted From

- https://oceanservice.noaa.gov/news/citizen-science/welcome.html
- https://www.sciencedirect.com/science/article/pii/S1617138117301504
- https://www.zooniverse.org/about