



Y-CITYSCI: A Youth-Led Citizen Science Network for Community Environmental Assessment

Introduction to Nature of Science and Citizen Science: Lesson 5

Grade Level: Middle school

Duration: 1 hour

Introduction to Citizen Science Continued

Next Generation Science Standards

Disciplinary Core Idea PS4.C: Information technologies and instrumentation

Science and Engineering Practice 3: Planning and Carrying Out Investigations

Objectives

- 1) Students will recognize what citizen science is.
- 2) Students will use a citizen science app to collect data.

Materials

- Tablets (with citizen science apps already downloaded) (1 per pair)
- Citizen Science App List handout (1 per pair)

Activities

Bellringer: Introduce the “About Me” blog post that students will have to write and will be posted on the website. Students will write about a half page of text that describes something about them. This could be about their interests, a favorite experience, their career aspirations, etc. Have the students write a first draft of this post. The final version of these blogs will be posted on the program website as an introduction to who the participants of the program are. *Please inform students to only use first names or pseudonyms, and to not include any personal information identifying where they live or names of personal accounts, etc.* (10 minutes)

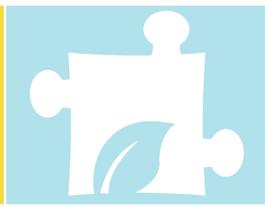
Lecture: Share the Citizen Science App List handout with students and give a brief explanation of each. Have the students break into pairs and pass out one tablet to each pair. Have them choose one app from the approved list to browse through and try out. (15 minutes)





Activity: Students will go outside to practice using their app of choice in teams. Go over rules, and give the students a time you all will return to class. (25 minutes)

Discussion: Return to the classroom and discuss what students took pictures of or data students collected and input into the apps. What did they like and dislike about their app? What would they do differently or the same if they made their own app? (10 minutes)



Environmental Citizen Science Apps

Backyard Bird Blitz Spring 2020 - Through the iNaturalist app, this is specifically for MetroEast local data collection. Take some time out of your day to observe the birds outside your window? Other iNaturalist users will help you ID the species, although you are encouraged to try and figure out the bird identifications on your own, too! <https://www.inaturalist.org/projects/backyard-birding-blitz>

Bumble Bee Watch - With this app, bee sightings can be documented as well as the bee species you see. This is a collaborative effort to track and conserve North America's bumble bees. This community science project allows for individuals to start a virtual bumble bee collection; identify the bumble bees in your photos and have your identifications verified by experts; and help researchers determine the status and conservation needs of bumble bees. <https://www.bumblebeewatch.org/>

eBird - This is an app that helps record the types of birds that are observed in specific locations. The Cornell Lab of Ornithology's goal is to gather this information in the form of checklists of birds, archive it, and freely share it to power new data-driven approaches to science, conservation and education. <https://ebird.org/home>

FrogwatchUSA - This app is offered by a citizen science program of the Association of Zoos and Aquariums (AZA) that invites you to learn about the wetlands in your communities and help conserve amphibians by reporting data on the calls of local frogs and toads. AZA's FrogWatch USA's goal is to provide large scale, long-term data on frogs and toads in the United States. Use FrogWatch - FieldScope to examine species distribution, timing of calls, and other data geographically and over time and see what you can discover! www.frogwatch.org

Global Garlic Mustard Field Survey - This app helps track the invasive species Garlic Mustard (*Alliaria petiolata*) that is threatening the world's natural resources. Through large-scale sampling, scientists can identify areas that differ in the intensity of invasion and try to understand why these differences exist. Through the use of a simple, standardized protocol, volunteers can help to generate valuable scientific data. Participating in this research does not require specialized training. <http://www.garlicmustard.org>

iNaturalist - This app helps record and identify the plants and animals in specific locations. <https://www.inaturalist.org/>

Spider Spotter - This app tracks the colors and types of spiders as well as spider webs. Help collect crucial information about how animals can adapt to climate change: we can use spider color as a natural thermometer and thus better determine how quickly our environment heats up. <https://www.spiderspotter.com/en/>

The Monarch Larva Monitoring Project - This app is a citizen science project involving volunteers from across the United States and Canada in monarch research to collect long-term data on larval monarch populations and milkweed habitat. The project focuses on monarch distribution and abundance during the breeding season in North America. <https://monarchjointventure.org/mlmp>

