



### Performance Expectations: Next Generation Science Standards:

#### MS-LS2-1.

Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

<http://www.nextgenscience.org/msls2-ecosystems-interactions-energy-dynamics>

### Key Understandings

- Students can articulate the difference in citizen science projects versus other research projects and why both are important.
- Students are able to identify different species within a taxonomic group.

### Common Student Misconceptions or Challenges

Students may have a rudimentary understanding of both the scientific process as well as how research is conducted. Not all research is done in lab coats with chemicals, and not all research is done by “professional scientists.”

## Lesson 3: Citizen Science

BioBlitz! Learn how to identify different species, the differences in research projects and how to enter data into ongoing projects.

**Grade Level:** Middle School 6-8

### Essential Question:

What is citizen science?

### Objectives:

At the end of this lesson, students will:

- *Understand* that research projects come in different forms including citizen science initiatives.
- *Collect and input* data for a specific citizen science project.

### Assessment opportunities:

At the end of this lesson, you will be able to assess students through:

- Journal entries
- Students will also fill out a data sheet from a given project such as WyoBio or ebird.

### Background Information

Citizen science projects are a great way to expose students to different types of research that have a quantifiable impact. By going to the Berry Center students will be introduced to WyoBio, but there are an infinite number of other projects available for students to be a part of. (Please check out the unit’s website for a list of other possible Citizen projects to be apart of).

When taking part in this type of research make sure to identify the parameters the guiding program has put in place and think about your location and time of year. Projects vary greatly in their longevity (i.e., some last only a year or two), and in their communication with participants. This lesson provides an opportunity to talk about what science is, and how citizen science projects fit into their definition.



# Lesson 3: Citizen Science

## Materials:

- Data sheet – see sample data sheets posted on the WyoBio unit page
- WyoBio website or other data collection site.

## Time Commitment:

2-3 45 minute class periods.

## Preparation:

- Divide students into cooperative groups of 2-4 students, depending on the size of your class and amount of available materials.

## Directions:

1. Conduct a think-pair-share on the differences in research projects. How does citizen science compare with individually driven projects?

Then make sure everyone has a strong working definition of citizen science and explain that they will be a part of both types of projects.

2. As a class, have them choose a taxonomic group to focus on as a citizen science project. For example, they might choose to survey the local birds in the area, and enter their data into an online database such as eBird. Or if there is a particular local issue they would like to investigate, they may choose the taxonomic group based on this issue.

3. Identify a taxonomic group to survey.

4. Identify a data entry vehicle that will accept the student data, such as eBird or the WyoBio website.

5. Establish a data collection sheet

that will coincide with the data entry vehicle.

6. Conduct several surveys. Make sure students know how to identify the species they are looking at, differences in “black birds” or types of trees for example, depending on the research being conducted. You may need to do a short lesson on field guide use (this is repeated in more depth in lesson 5). The students can survey at student’s homes, or at places they are visiting in the local area.

7. Enter the data into the data collection site.

8. From the survey information, determine whether the class may like to go farther with a citizen science project based on the data analysis.

Please note: This activity can be ongoing over a period of time. The rest of the lesson activities can be implemented and this activity can be revisited as the unit progresses.

## 9. Reflection piece:

Journal entries answering:

- If you were going to design a Citizen Science project what would you focus on?
- What was the most surprising thing you found out through doing this project?
- Why do you think you found the species you did?

