

RESOURCE LIBRARY  
ACTIVITY : 2 HRS

## Neighborhood BioBlitz

Students use observation, identification, and mapping skills to conduct a local BioBlitz.

### GRADES

6 - 12+

### SUBJECTS

*Biology, Geography, Physical Geography*

### CONTENTS

1 Video, 2 Links, 1 PDF

## OVERVIEW

Students use observation, identification, and mapping skills to conduct a local BioBlitz.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/neighborhood-bioblitz/>

## Program

**bio**blitz

## DIRECTIONS

1. Introduce the concepts of biodiversity and a BioBlitz with a short video.

Have students do a “virtual-video-bioblitz” as they watch a clip from the Santa Monica Mountains BioBlitz, just outside of Los Angeles, California. Before viewing, explain that a BioBlitz is an event where teams of citizen scientists help to identify as many species as possible in a natural area. When students watch the video, they will look for different species.

Have them raise, and then immediately lower, their hands every time they see a different species of mammal, insect, fish, or bird in the video; and for more advanced students, include plants. Talk about what they saw in the video (about ten different animals, if you include humans, and more than ten plants). Ask: *Why would taking an inventory of all of the species in a natural area be useful?* Explain that scientists and others who are responsible for protecting natural environments need to understand the biodiversity there.

## **2. Determine areas with potential for biodiversity.**

Together with students, discuss areas nearby where they might look for biodiversity in their local environment. Ask: *Where have you seen a variety of plants? Where have you seen a variety of animals? What habitats and what conditions enable animals and plants to survive?* (Plants typically need soil, water, and sunlight; wildlife needs food, water, shelter, and space.)

## **3. Use the MapMaker Interactive to have students explore the study area.**

Have small groups of students use the MapMaker Interactive to find and create a map of the selected area where the class will conduct the BioBlitz. Explore the different base maps using the drop-down menu at the top right of the map. The satellite layer and the street map layer will enable students to zoom in closely. Use the print feature to print a map and have students label it. Ask: *What physical features can you identify? In what areas do you expect to find a variety of species? What human areas might affect the biodiversity you will inventory as part of the BioBlitz?*

## **4. Structure the field experience before you go outside.**

Discuss with students how they can work efficiently with the time they'll have to conduct their BioBlitz. Put students in groups of two or three. Mark maps with where students will likely be. Have each student bring a notebook and pencil. Each group should have a length of rope or hula hoop to mark their study area. Also, give each group a hand lens, a clipboard with copies of the Species Identification Cards worksheet and, if possible, a digital camera. Explain that they will have time first for silent observation and then for team observation, during which they can communicate with one another.

## **5. Conduct the BioBlitz.**

Give students the following guidance:

- First, for about five minutes, have students sit silently and observe their surroundings. In their notebooks, ask students to draw or describe in words any living things they see, hear, or smell. If they notice any animals, have them record notes on their data sheets or take a photograph if possible.
- Before or after their silent observation, have students choose an area to study and place their hula hoop or rope to mark it. You will need to decide in advance how much they can move rocks or soil to look for species. A good general rule is that they can lift up a rock but will need to replace it where they found it. Ask students to avoid taking any species from the study site, and to be sure to leave the site as they found it.

As they conduct the BioBlitz, have students mark their findings on a map of the study area and also put as much information as possible about species found on the Species Identification Cards worksheet.

## **6. Identify species.**

When students are finished with the inventory, move back into the classroom space. Have students consult expert resources, such as field guides, to identify organisms observed in the neighborhood BioBlitz and add more information to their species identification cards—creating an inventory representing the diversity of the area studied.

## **7. Compile the results on a map and share data.**

Have students use large butcher paper and markers to create a map showing the distribution of various species within the study area. Have them cut out and attach the species identification cards to the map to visually display the concept of biodiversity for other students.

## 8. Discuss the findings.

Discuss biodiversity within and among the areas students inventoried. Ask:

- *How many species were found?*
- *What species were found where?*
- *In what types of habitats were species found?*
- *What species were found near one another?*
- *What abiotic factors may have had an effect on species found?*
- *How could the group's research methods have impacted the species found?*
- *What would you do differently if you were to conduct another neighborhood BioBlitz?*

Discuss any challenges encountered, such as sampling very small organisms or flying or crawling organisms, or physical factors such as rain and wind—and discuss possible effects on data. Students may determine that doing the inventory in the early morning, or during a warmer season, might bring different results.

## Tip

Consider doing schoolyard or neighborhood bioblitzes at different times of the year. Students can compare species found and look for patterns.

## Tip

If students are already familiar with the place where they will do their species inventory, have them draw a picture of it before they go outside, showing species they expect to find. At the end of their field study time, give them 10 minutes to look at the picture they drew and then redraw it. Have students share and discuss their before and after bioblitz illustrations.

## Tip

In addition to using field guides to identify species, contact a local park for species lists and other resources for your area.

## Modification

Use a smartphone or camera and [iNaturalist](#) to collect and upload BioBlitz data. Both the app and the website will use artificial intelligence technology to help with species identification. You can also create a project to compile data or observations for your class or school.

## Tip

You can teach students to “[Leave No Trace](#)” when they explore or experience a natural environment. One of the seven LNT principles states “Leave rocks, plants and other natural objects as you find them.” Have students make sure they leave no evidence of their BioBlitz by returning to their original place any objects moved or changed by their study.

## Informal Assessment

Have students write a summary of their BioBlitz experience, responding to some or all of the questions in step 8. Evaluate their summaries based on their understanding of their findings, new insights into their local surroundings, and ideas for future species inventories.

## OBJECTIVES

## Subjects & Disciplines

**Biology**

**Geography**

- [Physical Geography](#)

## Learning Objectives

Students will:

- conduct a species inventory in their own neighborhood
- describe the biodiversity in the area
- map the distribution of organisms
- publish or present their findings

## Teaching Approach

- Learning-for-use

# Teaching Methods

- Discussions
- Hands-on learning
- Research

## Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Analyzing
  - Applying
  - Understanding
- Geographic Skills
  - Acquiring Geographic Information
  - Analyzing Geographic Information
  - Answering Geographic Questions
  - Organizing Geographic Information

## National Standards, Principles, and Practices

### NATIONAL GEOGRAPHY STANDARDS

- Standard 1:

How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

- Standard 8:

The characteristics and spatial distribution of ecosystems and biomes on Earth's surface

### NATIONAL SCIENCE EDUCATION STANDARDS

- (5-8) Standard A-1:

Abilities necessary to do scientific inquiry

- **(9-12) Standard A-1:**

Abilities necessary to do scientific inquiry

## **Preparation**

### **What You'll Need**

#### **MATERIALS YOU PROVIDE**

- Butcher paper
- Clipboards
- Digital camera
- Field guides
- Hand lens
- Hula hoop
- Markers
- Notebooks
- Pencils
- Pens
- Rope (6-8')
- Scissors

#### **REQUIRED TECHNOLOGY**

- Internet Access: Required
- Tech Setup: 1 computer per classroom, Projector
- Plug-Ins: Flash

#### **PHYSICAL SPACE**

- Classroom
- Outdoor natural environment

#### **GROUPING**

- Small-group instruction

## **BACKGROUND & VOCABULARY**

# Background Information

In the wild, organisms depend on their habitats to provide food, water, shelter, and other requirements for survival. Scientists studying wildlife use geographic data to record the location of critical resources, search for species, record places species are found, and analyze relationships to identify underlying patterns. Information about where species live, and their habitat use, is critical to preserving and protecting Earth's biodiversity.

## Prior Knowledge

### ☐

## Recommended Prior Activities

- [Field Investigations](#)
- [Plot Study Observations](#)
- [Species Identification](#)
- [WildCam Observations](#)

## Vocabulary

Term	Part of Speech	Definition
abiotic	<i>adjective</i>	lacking or absent of life.
bioblitz	<i>noun</i>	a field study in which groups of scientists and citizens study and inventory all the different kinds of living organisms within a given area.
biodiversity	<i>noun</i>	all the different kinds of living organisms within a given area.
plot study	<i>noun</i>	a list of all living organisms in a specific area.
species inventory	<i>noun</i>	a list of all the species of organisms living in a specific area.

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### For Further Exploration

### Audio & Video



- [National Geographic Education: Exploring Life in the Santa Monica Mountains](#)

## Websites

- [Cornell Lab of Ornithology](#)
- [Discover Life in America: All Taxa Biodiversity Inventory Database](#)
- [Encyclopedia of Life](#)
- [Project Noah](#)



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