

AFRICA + BIODIVERSITY



Biodiversity Audit

Grades: 3-5

Background: This social studies activity would work as an effective extension to the science activity.

Objective: Students will explain biodiversity and the criteria scientists use when assessing it, design a map of their school or community grounds that defines the natural areas being assessed, and develop and implement ideas for how to increase biodiversity in their area.

Source: World Wildlife Fund





Learning Activity:

Biodiversity Audit

Activity Type	Mapping and surveying
Focus Areas	Social studies, science
Time Required	60-90 minutes, could be split between days

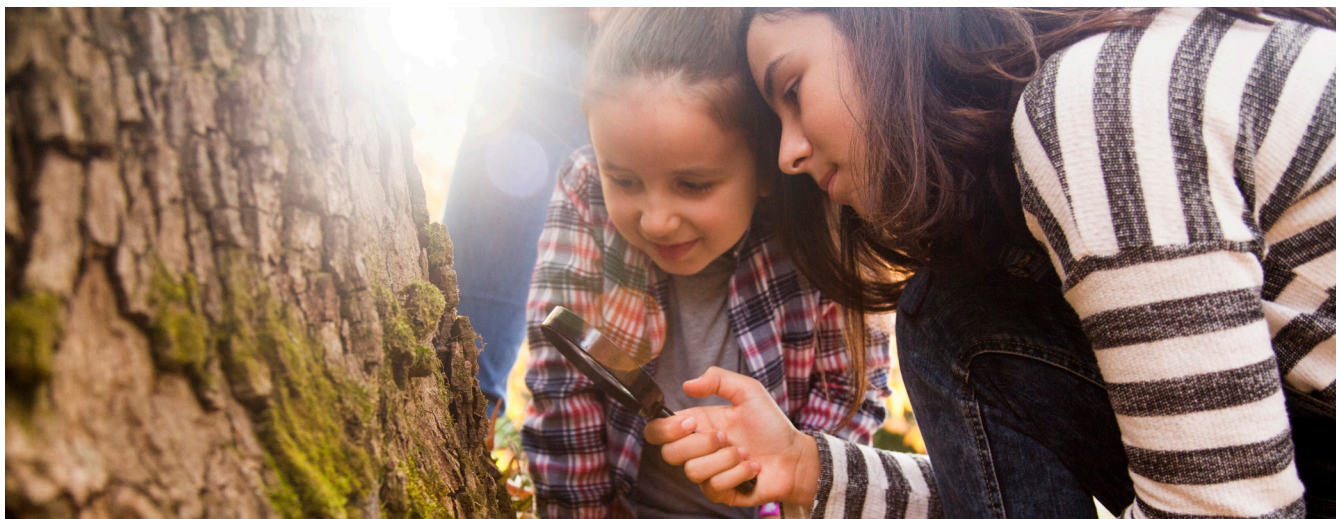
● Overview

WWF and other leading organizations assess biodiversity around the world in order to evaluate the status of our planet and determine necessary actions so both people and nature can thrive. Scientists look at a number of different factors when determining an area’s biodiversity health. In this activity, students will follow similar guidelines and survey the biodiversity of their school or community grounds. Based on results, they will strategize ways to increase and protect the area’s biodiversity by making it more habitable for species.

● Objective

At the completion of the activity, students should be able to:

- Explain biodiversity and the criteria scientists use when assessing it.
- Design a map of their school or community grounds that defines the natural areas being assessed.
- Develop and implement ideas for how to increase biodiversity in their area.





● Subject and Standards

C3 Framework for Social Studies State Standards

- D2. Geo.1.6-8: Construct maps to represent and explain the spatial patterns of cultural and environmental characteristics.
- D2. Geo.3.6-8: Use paper based and electronic mapping and graphing techniques to represent and analyze spatial patterns of different environmental and cultural characteristics.

Next Generation Science Standards

- MS-LS2-5 Ecosystems: Interactions, Energy, and Dynamics
 - Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
- MS-ESS3-3 Earth and Human Activity
 - Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

● Materials Needed

- Internet access
- Smartphones or tablets (optional)
- Graph paper
- Writing and coloring utensils
- Copies of the **Biodiversity Educator's Resource Guide** and/or *The Living Planet Report*
Available a <https://www.worldwildlife.org/teaching-resources/toolkits/biodiversity-toolkit>
- Copies of 'Biodiversity Audit' student data sheet included in this activity



● Vocabulary

- **Biodiversity:** all of the different kinds of life you will find in one area, including animals, plants, fungi, bacteria, habitats, ecosystems, and genetic material
- **Ecosystem:** the living (plants, animals, other organisms) and nonliving (air, water, soil) components of an area that interact with each other in an interconnected way
- **Habitat:** a natural environment in which plants and animals live, breed, and get their food, water, and shelter

● Activity Procedure

Part 1: Introduction and Preparation

- Provide students with background information on biodiversity and why it's important. This information can be found in the [Biodiversity Educator's Resource Guide](#). Students should understand that a region's biodiversity consists of all life found within that area—habitats and ecosystems along with plants, animals, fungus, and bacteria.
- Introduce students to [The Living Planet Report](#). Released every two years, this extensive report is a comprehensive evaluation of our entire planet's biodiversity, the stressors affecting it, and what is at risk if we don't make changes. The information in the Biodiversity Educator's Resource Guide reflects recent findings from [The Living Planet Report](#). Take some time to review the current threats to biodiversity as outlined in the guide. Threats caused by human activity have caused the decline of biodiversity to reach a level never seen before, so it is critical that we take action immediately to prevent the extinction of more species.
- It's important to periodically evaluate an area's biodiversity because our health ultimately depends on it. We rely on nature for food, water, air, materials, and regulating the climate and other processes of our planet. If an area has rich biodiversity, it indicates that the environment is in good condition. The more species and ecosystems existing in an area, the more contributors are working together, making the system stronger and helping nature to thrive. If biodiversity is low, the stability of the system weakens and all that depend on it will be affected. Review with students the various criteria scientists examine when performing these assessments to effectively evaluate a region's biodiversity:
 - Composition (the number of different types of species/habitats found in the area)
 - Abundance (how many individuals of each species there are)
 - Distribution (how spread out the individuals/habitats are)
 - Extinction risk (how many species from the area are threatened or endangered)



Part 2: Activity

- In this activity, students will practice assessing biodiversity by performing an audit of the area around their school or home. To assist with this, if technology allows, have students download the [SEEK app](#) from iNaturalist on phones or tablets. This app uses image recognition to identify the plants and animals of uploaded photos.
- Begin by having students create a map of the area they plan to assess on graph paper. Student maps should include an extended perimeter around their school or home, with at least two to three spots identified that they will focus on in order to increase the validity of their results. Distribute copies of the 'Biodiversity Audit: Student Data Sheet' included in this activity.
- Students should use the SEEK app (if available) to identify as many species as they can from each location. If they do not have access to the app, students should attempt to identify any unfamiliar species by doing internet research of species in their area. Using their data sheet, students should record the various biodiversity criteria in each of the locations they have selected.

Part 3: Discussion and Assessment

- Have students reflect on their results and complete the two questions found at the bottom of their audit sheet. Based on their findings, how would they evaluate the biodiversity in this area? What characteristics does the area have that support species living there?
- Reiterate the importance of biodiversity and recap the current pressures affecting it with students. Ask students if they feel any of these threats are affecting the biodiversity in their local area or state. Encourage students to brainstorm ways to increase and protect the biodiversity in their area by attracting more wildlife. This could include planting trees, planting a pollinator garden, or building birdhouses and bug hotels.
- Conclude the activity by sharing what WWF is doing and what we can all do to increase and restore the declining biodiversity around the world. In collaboration with other organizations, WWF is working to educate governments, companies, and communities about what's at risk and motivate them to make better choices that don't impact the environment. Students can be a part of this global effort by taking action to avoid wasting food and water, save energy, and speak out about the importance of biodiversity to friends and family. Additional suggestions of ways kids can help can be found in the [Biodiversity Educator's Resource Guide](#).



Extended Learning Options

- If using the SEEK app, encourage students to continue being aware of the species around them and to upload their observations into the app. The information gathered through this app will help create a useful database of current biodiversity statistics from people around the world. Students can take pride in being involved in a larger effort that will help monitor our planet's health.
- Connect this activity with others from the [Biodiversity Toolkit](#), such as “The future of species” math activity and the “This just in” language arts activity.
- Use a tablet or smartphone (if available) to download the [WWF Together app](#). Encourage students to explore the Planet Earth segment and explore how to protect life on our planet.
- Start a class fundraiser to protect biodiversity using WWF's online fundraising tool, Panda Nation. Learn more at pandanation.org.

Additional Background Info

You can use the information found at the links below to enhance your discussion with the class, or you may want to share some links directly with students if you determine they are grade-level appropriate.

- **Report:** [Living Planet Report 2020: Youth Edition](#)—a condensed, young-reader friendly summary of the *Living Planet Report 2020*
- **Video:** [Our Planet](#)—NETFLIX documentary made in collaboration with WWF that brings you up close and personal with some of nature's most threatened species and habitats
- **Web story:** [What is biodiversity?](#)—explains why biodiversity is important and what is at risk if we don't change our behaviors

For more fun classroom activities with a focus on wild species and conservation, visit wildclassroom.org.





Biodiversity Audit: Student Data Sheet

Location (Name or describe the area)	Composition (list the species found)	Abundance (number of individuals of each species you observed)	Distribution (how spread out the species are)
1: _____			
2: _____			
3: _____			

If you were to give this area a biodiversity grade, what would it be? Why?

What could be done to increase the area's biodiversity?
