

Warming Up To Biodiversity

Inspiring Teaching Approaches

In education, there is growing attention for how to contribute to restoring biodiversity as professionals and citizens. Most discussions focus on what we can do and how to do it. But why should we, as (future) professionals and citizens, commit ourselves so strongly to this cause? Why is it important not only to start new initiatives to restore nature, but also to stop old practices that continue to harm it? Such change processes can be challenging. You may need to let go of habits and traditions, which can feel uncomfortable or uncertain. It helps to deeply understand—and experience firsthand—what the ultimate goal is: a healthy planet for ourselves and for future generations.



How can we, as educational institutions, help students¹ feel the importance of biodiversity? How can we stimulate a sense of wonder for nature and ecosystems, help develop nature awareness? How can we engage not only the head and hands, but also the heart? All these questions relate to the intrinsic motivation to work toward restoring biodiversity. On 1 October 2024, a group of teachers from different schools and educational levels joined forces to share didactic methods for “warming up to biodiversity.”

They did so during a study day organized by Aeres University of Applied Sciences on agroecology and biodiversity in (green) education, held at the Warmonderhof in Dronten. In this article, we summarize a selection of the ideas shared that day, to inspire a wide group of educators. We hope this article will serve as a source of inspiration for discussions within teaching teams about how to “warm up for biodiversity,” so we can educate as many people as possible—young and old—to take action in restoring biodiversity.

Teaching Approaches in Three Categories

1. Wonder for Nature

Activities that focus on stimulating a sense of wonder and amazement for the natural world.

2. In Nature's Shoes

Activities that help students “step into nature's shoes”, feeling its needs and values, and imagining ideal environments from nature's perspective.

3. Standing Strong Together: The Ecosystem

Activities that create insight into how everything in an ecosystem is connected, highlighting both the system's vulnerability and the importance of each individual element.

¹For readability, we use the term “students,” but this also includes younger pupils.





Category 1

Wonder for Nature

Many of the teaching approaches shared by educators focus on encouraging a sense of wonder for nature and discovering its magic. This kind of experience inspires awe and appreciation for the natural environment. But how can we truly learn to see?

Below are some activities that can, if desired, be guided by an expert (such as a biologist or ecologist), followed by examples that can easily be carried out independently.

Activities with Optional Expert Guidance

Eye for Nature – Participate in biodiversity monitoring alongside a researcher, guide, or forest ranger. Through the expert's stories about nature, students learn to observe more closely, notice unique details, and appreciate the beauty of various plants, insects, and animals. They gain insight into the conditions species need to survive. The expert's enthusiasm can be contagious!

Belowground Discoveries – Hands in the soil: take soil samples from different locations (e.g. a forest, a farm, and a city park) and examine them together with an expert. What living material do you find? What explains the differences between the samples?

Competition Element – Add a playful challenge: who can find the most different species of spiders, mosses, or butterflies?

Bioblitz – Some organizations regularly host a "Bioblitz" (a biodiversity citizen science event where participants act as data collectors). Students and staff take part in mapping all species found in a given area and time, helping to track biodiversity over the years.

Smart Apps – Use digital tools such as ObsIdentify, iNaturalist, BirdNET, or PlantNet to identify species and learn more about them. Observations recorded in these apps can often automatically be shared with open databases.

Weeds & Pests – Go out in groups to find "weeds" and "pests." Collect or draw them. Why do we label these species as unwanted? What happens if we drop the "un" from unwanted? What is their role in the ecosystem? Who helps whom? How can we see them as part of a positive web of relationships?

Activities to Be Done Independently

Nature Through a Lens – Ask students to take at least ten photos of the same spot, plant, or tree over time (for example, ten days or one to two months). In the end, they create a collage of their most striking photos, with short reflections on what they noticed and how it changed. You can continue the conversation to find words that describe feelings of wonder and awe, from the heart, without theoretical sensemaking.

Growth in Images – Upload photos into the app GrowApp.today to visualize developments as a time-lapse video—showing tree growth, change, and the passage of time in a lively way.



Category 2

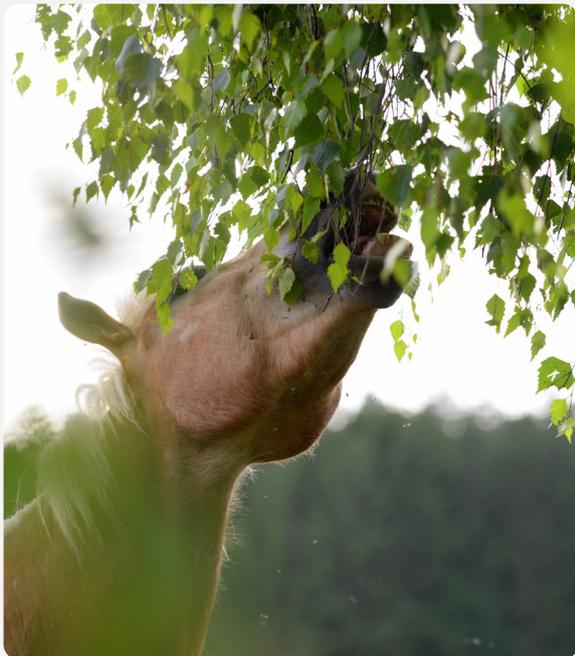
In Nature's Shoes and Imagining an Ideal Environment

When students can empathize with what certain animals or plants need—by truly “stepping into their shoes”—they can begin to imagine what an ideal biodiverse world would look like. These dream scenarios can be powerful motivators to take real steps toward enhancing biodiversity. When dreaming, let imagination run free!



Activities to Be Done Independently

Through the Eyes of another Being – Each participant selects (for example, using cards) an animal, insect, or plant. From that perspective, they explore where they would like to live, with whom they would like to share their environment and with whom not, what they would eat, and how they would seek shelter. Together, participants then design an environment where all species can feel at home.



Language of the Soil – For farms or gardens, soil is essential. Ask students to describe the soil as if it were a friend or partner. How different is the language from describing the soil in facts?

From Tree Rings to Story – Determine the age of a tree and imagine what it has lived through. What might have been good or difficult times? What would the tree wish for its future?

Bird-Friendly Farm – Observe which meadow birds are present on a farm. Imagine unlimited resources—what would the perfect landscape for these birds look like? What would students want to change in the current situation? Discuss whether there's enough food for chicks and adults, safe nesting areas, and the role of shallow ponds or herb-rich grassland, etc.

Horse Paradise – Design the ideal stable yard for horses, emphasizing their health and wellbeing. Consider layouts with plants, trees, and grasses that support equine health. Which solutions may be found in nature through native edible species and natural remedies?

Biodiverse Schoolyard – How would your schoolyard look if it were a haven for as many plants and animals as possible? Would it also be pleasant for people? In which way?

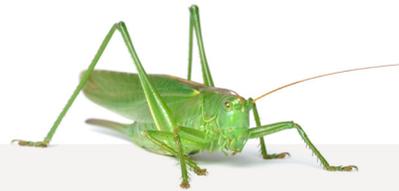




Category 3

Standing Strong Together: The Ecosystem

When we talk about resilient nature, we are not referring to individual species alone but to the entire ecosystem. If certain components are removed—or almost disappear—the system becomes unstable, and problems arise everywhere. Once you've experienced how an ecosystem depends on the interactions between species, it becomes clear how important it is to care for all its parts.



Activities with Optional Expert Guidance

Web of Life – Each student receives a card with a native plant or animal. One person holds a ball of string, keeps one end, and throws it to someone whose species is connected to theirs. As the thread passes from hand to hand, a web forms. This web reveals a map of interactions, showing how species depend on one another. When it's complete, discuss the functions of all plants and animals in the web. What happens if certain species disappear?

Ecosystem in Motion – Students choose species and stand in two facing rows. They explore the relationships between the two species and the ecosystem services they provide. Then they shift positions to meet new partners and repeat the exercise.

Activities About Systems in General

Vulnerable Network – Students stand in a circle, tossing soft balls to each other in rhythm. As more students (representing species) leave the circle, throwing distances grow and the rhythm breaks down—showing how systems weaken when species are lost.

Resilience – Eight students stand in a circle keeping a balloon in the air. Four others outside the circle wave cardboard to disturb it. What happens when inner members leave? How does outside disturbance affect the system? How can the system regain stability?



Now you can feel what you are doing it for!



Some final words

For successful application of these teaching methods, tailor them as much as possible to your students—matching the age, level, interests and prior knowledge of your students. Look for links to existing subjects or projects and to local developments.



Theme Days

It can be inspiring to connect lessons or projects with (inter)national theme days:

- 21 March International Day of Forests
- 22 March World Water Day
- 22 April Earth Day
- 18 May World Plant Day
- 20 May World Bee Day
- 22 May International Day for Biological Diversity
- 5 June World Environment Day
- 8 June World Oceans Day
- 28 July World Nature Conservation Day

Good to Know

By applying these teaching methods, you and your students will address key competencies from the European GreenComp Framework for Sustainability—particularly:

- Category 1: Embodying sustainability values
- Category 3: Envisioning sustainable futures

Questions

Visit www.samenvoorbiodiversiteit.nl or contact Mieke de Wit Working Group Knowledge & Innovation (Education Subgroup) via mieke.dewit@wur.nl



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Authors

Iris van de Kamp, Editor-in-Chief (Zone College)
Wietske van Dijk (Aeres University of Applied Sciences), Alette Los (Aeres University of Applied Sciences – LENS), Ine Sturkenboom (Terra), Tjalling Huisman (Van Hall Larenstein University of Applied Sciences), Mieke de Wit (Wageningen University & Research – ENABLS)

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