NBS EduWORLD

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SCHOOLS AS NATURE-BASED SOLUTIONS LIVING LABS

How to Develop My School's Action Plan

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What does it mean for a school to be a Nature-Based Solutions (NBS) Living Lab

A school as an NBS Living Lab is both inward and outward-looking and open in order to create a healthy habitat that invites and supports NBS and sustainability. It has adopted the concept of **open schooling** and it's an agent of community well-being by creating new partnerships with other local actors and addressing local issues relevant to them.

In a school as an NBS Living Lab, **students explore issues, relevant not only to themselves but also to others, and community partners can offer insights but also benefit from students' interest, research, and creativity.** The students are more rooted in their habitat and gain a sense of place and connectedness. For example, students, parents, and staff, with the support of a local NGO and the local authorities, can grow their food in a community garden or the school garden, and use that food in the school canteen or provide it to those in need.

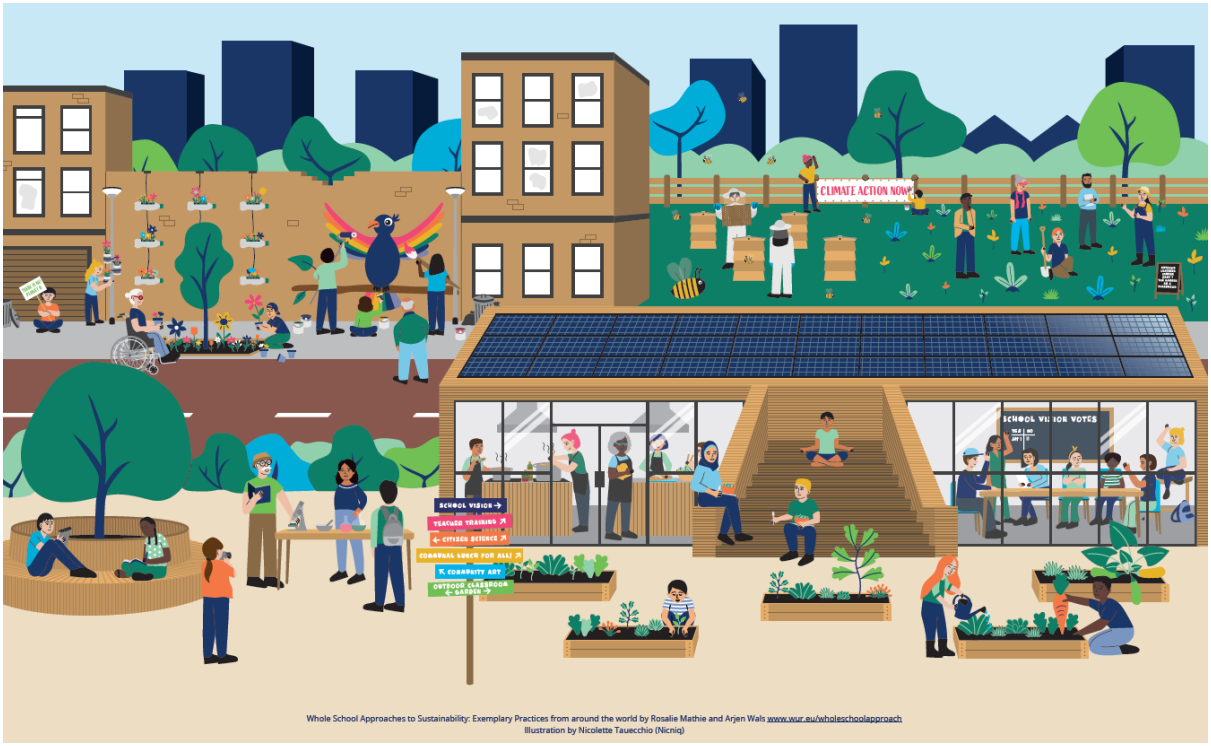
The teaching and learning are interdisciplinary and transformative. The learning methods and approaches are collaborative, experiential, inquiry and problem-based, science-oriented, and relevant to local contexts. Much of the learning does not take place inside the classroom, but also in other spaces inside and outside the school building, as well as in the local community, in the marketplace, at the library, the museums, and through playing, reading, and sports activities. Visiting also a restored wetland or participate in its restoration. The boundaries between formal, informal, and non-formal learning are indistinct.

Basic pillars of education, such as design, content, and assessment for each topic are reflected throughout the curriculum considering the developed competences. The development of the knowledge, skills, and attitudes of learners of all ages to live and act sustainably are supported by the **GreenComp**: the European sustainability competence framework designed to support education and training programmes for lifelong learning. For example, by participating in the design and implementation of a pocket park, students develop competences such as promoting nature, supporting fairness, thinking critically, and acting for change. Bringing real-life projects to the classroom support also the development of 21st century skills.

A school as an NBS Living Lab acts as a learning building for promoting sustainability. For example, it controls energy and water usage, waste management, the kind of food and nutrition offered, or the labeling of food options in the canteen menu so that students are aware of the environmental impact of their choices. It operates an organic school garden that, apart from acting as an open educational environment for all students, produces a significant amount of vegetation consumed in the school canteen. Or it reconstructs the schoolyard in a green space, and therefore a "cool island" during heatwaves, with the participation of students and external stakeholders in the co-design of the schoolyard, in the selection of the plants according to their characteristics and in the process of the planting. Thus, apart from acting as an educational environment for all students, it reduces runoff, helps filter pollutants, and enhances biodiversity by providing food and shelter for butterflies, songbirds, and other wildlife. By interrogating, rethinking, and redesigning institutional practices, the hidden curriculum of unsustainability that is often present can be exposed and addressed.

In a school as an NBS Living Lab all educators, whatever their discipline or sector of education, are considered as sustainability educators who need to support their learners in preparing for the green transition. For this reason, they have the expertise and continuous training opportunities to feel sufficiently equipped. Professional development is relevant also to all staff groups working at schools, e.g., those who clean the building, run the school canteen, maintain the buildings and the school grounds, etc.

Becoming an NBS Living Lab cannot be seen as an isolated 'project', as it demands a root and branch rethink, not just in pedagogies or the curriculum, but in every aspect of the school structure: its vision, culture, and the use of space, place, and time. Similarly to the Open Schooling concept, a school must act as an open, curious, creative, welcoming, and democratic environment that is supposed to support the development of innovative educational activities (Sotiriou et al, 2021). To this end, the vision of the NBS Living Labs is to create seamless and continuous learning pathways at all education levels, nurturing in parallel the understanding and implementation of NBS. By incorporating NBS principles and practices into the curriculum, students will develop the key competences towards pro-environmental behavior and action for addressing complex sustainability challenges. Therefore, schools have the potential to transform into incubators of social innovation where NBS acts as an enabler of the **Whole School Approach**.



The Action Plan of a School as NBS Living Lab

To **transform a school into an NBS Living Lab** an Action Plan must be developed by describing the strategies and activities the school community needs to design and follow to integrate NBS in its settings regarding each pillar of the Whole School Approach. Thus, a reflection and working process is needed on:

- The learning methods and pedagogies to be followed.
- The links to the curriculum for greening it and reaching a competence-based curriculum.
- The possible interventions inside and outside the school building and how these could be linked to the educational process.
- Which and how different societal actors will be involved and engaged.
- The strategy to be followed for the professional development of the staff.

Whole School Approach

The Action Plan of my School as NBS Living Lab

Presentation of my school

Name:	
Level of Education ***Short Description***	
Area	☐ Urban ☐ Rural ☐ Coastal
Number of students ***Number of classes*** ***Number of staff (teaching and administrative)***	
Age of students	
Environmental/Sustainability Education background	
STEM Education background	

Summary

Describe the main idea of your NBS intervention and how you came up with it (needs/problems/challenges). Briefly present the envisaged activities, the timeline, the resources and tools you will use, and the expected results.

→

Objectives

Describe the **learning objectives** of your action plan and which of the twelve NBS societal challenge areas the Nature-Based Solution you will propose will address (**environmental and social objectives**).

Learning Objectives	
NBS Societal Challenge Areas ***Environmental and Social Objectives***	☐ Air quality ☐ Biodiversity enhancement ☐ Climate resilience ☐ Green space management ☐ Health and well-being ☐ Knowledge building for sustainable urban transformation ☐ Land regeneration ☐ Natural and climate hazards ☐ New economic opportunities and green jobs ☐ Participatory planning and governance ☐ Social justice and social cohesion ☐ Water management

Learning Methods and Curriculum

What learning method(s) will you apply to integrate NBS in your teaching?

→

How do the learning methods serve your learning objectives?

→

What experiential, hands-on learning opportunities that connect students to nature will you offer?

→

Will the NBS activities support diverse learning styles? If yes, explain how.

→

How will you integrate NBS into your school's curriculum? Give details regarding the disciplines involved, the content (developed or existing educational material to support teaching), and the schedule/hours.

→

How will Inquiry-Based Science Education (IBSE) be addressed in your (NBS) curriculum?

→

Will the (NBS) curriculum promote interdisciplinary connections? If yes, how will different subjects be linked around sustainability and NBS?

→

Will you connect the formal curriculum with informal and non-formal learning opportunities and how?
***Reflection Aspect**: Consider how informal and non-formal learning activities (like fieldwork, outdoor lab experiences, visits to a museum, or activities, for example at home, complement the formal curriculum. How will students be engaged beyond the classroom?*

→

How will the (NBS) curriculum promote the GreenComp Framework?
(GreenComp Framework: Embodying sustainability values, such as supporting fairness and promoting nature, acting for sustainability - individual, collective, political - envisioning sustainable futures, being adaptable, exploratory, systems and critical thinking, problem framing)

→

Will the (NBS) curriculum promote soft and digital skills and how?

→

Can the (NBS) curriculum create a continuous learning pathway between different classes, disciplines, and activities of the school (e.g. after-school programs)? If yes, explain how.

→

How will you incorporate the curriculum in the monitoring or/and assessment of students' development of sustainability competences?

→

Building management & operations

How will you use the school's infrastructure and daily operations as a field of learning for NBS and sustainability?

→

Will you integrate specific Nature-Based Solutions (NBS) into the school's infrastructure and daily operations and which? (e.g., green roofs/walls, rainwater harvesting, schoolyard interventions, school garden, outdoor classrooms).

→

School & Community Connections

Will you establish partnerships with societal actors, such as parents, local authorities, environmental organizations, businesses, NGOs, or universities to support the planned activities? If yes, with whom and how will you seek and engage them?

→

How will you pursue and facilitate knowledge-sharing and collaboration with other local or national schools working on NBS projects and activities?

→

Could your planned activities address local environmental challenges and impact the local community and how?

→

What will your school do to share the results of its activities and knowledge gained?

→

Continued Professional Development

Describe how you will enhance peer-to-peer learning and collaboration between colleagues for the NBS activities. How will you secure inclusive consultation processes (e.g. creation of learning sub-teams, systematic school development meetings, and actions)?

→

Are you planning to participate in training/professional development activities related to NBS and sustainability, and if yes what are they or how will you seek for them?

→

How will you address challenges related to time and resources for training (e.g. application for Erasmus+ Key Action 1-KA1)?

→

Do you plan to collaborate with external experts to support capacity building for NBS and if yes with whom or how will you seek for them?

→

Do you plan to collaborate with international school(s) to develop your NBS activities and if yes with whom or how will you seek them (e.g. through eTwinning or small-scale Erasmus+ Key Action 2-KA2)?

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Resources

"Nature-based solutions (NBS) are solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes, and seascapes, through locally adapted, resource-efficient, and systemic interventions. Nature-based solutions must therefore benefit biodiversity and support the delivery of a range of ecosystem services."
Source: https://research-and-innovation.ec.europa.eu/research-area/environment/nature-based-solutions_en

List of **recent EU publications on nature-based solutions**

Repositories: **NetworkNature**, **Oppla,** and **Urban Nature Atlas**

EU's strategy for protecting the climate: **European Green Deal**

EU's **Biodiversity Strategy 2030**

Nature-Based Solutions – EU definition and challenges addressed

What are Nature-Based Solutions?

What types of Nature-Based Solutions are there?

How are Nature-Based Solutions co-created?

What is NBS Education

Scenarios of Plausible Futures for NBS in Education

Roadmap for Living Labs in Education

Schools as Living Labs: A Roadmap for Schools

Inspirational Examples of Schools as Living Labs

NBS EduWORLD booklet: The School as NBS Living Lab

Schools as Innovation Hubs for the Green Transition: Transforming Schools into NBS Living Labs through the Whole School Approach
NBS Learning Scenarios
NBS non-formal learning activities for ages 3-16+
The **European sustainability competence framework (GreenComp)** - available in 24 languages.
List of available resources, including guidance, reports, tools, and services developed around education about NBS: **https://nbseduworld.eu/resources**
Schools as Living Labs Resources: **https://www.schoolsaslivinglabs.eu/resources/**
Schools as Living Labs Community Platform: **https://www.schoolofthefuture.eu/en/sall**
NBS EduWORLD KA1 Webinar: **How to write a successful Erasmus+ KA1 funding application**
Erasmus+ Opportunities: **https://erasmus-plus.ec.europa.eu/resources-and-tools/how-to-apply/where-to-apply**
eTwinning: **https://school-education.ec.europa.eu/en/etwinning**

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