

NBS EduWORLD - Project Education Learning Unit

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Learning Unit (LU) Planning Template - High Level

Name of Learning Unit (LU) Topic		NBS In and Out Lab		
NBS Context (e.g. urban rural, coastal)	NBS keywords <u>complete checklist at the end of the document</u>	Other Keywords (topics other than NBS) <u>add in Other below</u>	Linked or complementary concepts to NBS (to assist curriculum integration)	Prior learner knowledge of NBS (high, moderate, low/none)
any				low
Target academic subject / discipline / professional area or group	Target learners/ groups [age range of learners] if applicable	Min/ Max # of learners (if applicable)	Sector (e.g, professional, higher education, community)	Prerequisites required of learners if applicable (education)
Students of teacher education - primary or secondary school	Teachers or student teachers of young people 4 to 18 years	not applicable	Teacher education	none
Overall Purpose	Understand how to implement a project-based educational process in primary or secondary classrooms-- NBS In And Out Lab -- c the process, to generate a critical citizenry, engaged with nature, capable of facing upcoming social and ecological challenges.			
LU Summary (2-3 sentences)	NBS In And Out Lab is an educational hands-on activity that aims to promote NBS through education outside the classroom, and Focus Approach, that is based on socio-constructivist approach: students' own activity, their prior knowledge, peer-collaboration and chemistry, physics and other subjects) lessons or projects. This learning unit is developed for learners who are studying education			
Learning Outcome 1	Recognise the components of an NBS In And Out Lab (I&O Lab) and Education Outside the Classroom (EOC) to enable students			
Learning Outcome 2	Understand the steps to preparing and implementing an NBS I&O Lab and promoting NBS through EOC.			
Learning Outcome 3	Reflect on the learning young people gain through the NBS I&O Lab, including scientific citizenship, scientific literacy concerning gl sustainability.			

Learning Outcome 4	
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LU designer resources for writing learning outcomes (click Learning Outcomes - Us

Activities and Elements of Learning

Aim that each learning unit include at least 4 activities for an inte

Time (duration of activity)	Aims - linked to NBS concepts or topics)	Link to Learning Outcome	Learning Activity [PPT Slide # - if applicable]	Teacher action/ activity (Learner action/activity)
00:00 (5 minutes)	Introductin to NBS and EOC	1	PPT 1-4	Teacher presents an overview of NBS and its relevance to education outside the classroom. Play 1 minute video. ASK: what examples of EOC can you think of?
00:05 (15 minutes)	Overview of the NBS In & Out Lab steps and overview on	1, 2	PPT 5-8	Teacher presents an overview of NBS I&O Lab steps. Explain the Think, Pair and Share activity to review learning on the value of EOC.
00:20 (25 minutes)	Outline in detail the 5 Steps to the design and implementation of an NBS I&O Lab	2, 3	PPT 9-17	Teacher outlines each of the 5 steps and asks the reflective questions to the group to complete as an individual reflection to write down or discuss as a full class group
00:45 (5 minutes)	Final reflection for teachers/students of teacher education	3	PPT 18	Teacher ASKS: What is your key takeaway item? What new information on EOC and the NBS I&O Lab will you share with others?

NBS- Application of Curriculum, Trends and

Curriculum integration (how it may connect to curriculum)	
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<p><u>Teaching & Learning Trends employed</u></p> <p>Highlight all that apply</p> <p>(Source)</p>	<p>Project-based learning: e.g., students work in groups on a research project on greenhouses and the greenhouse effect, alternatives to waste management or investigate what are the views of their peers on climate change.</p>	<p>Peer learning: e.g., students work in groups, evaluate the work of their peers, or develop assessment questions to assess peers.</p>	<p>Problem-based Learning: e.g., students are introduced to a problem and challenged to find a solution together based on the information provided to them.</p>	<p>Student- centred learning: the learning scenarios are not based on classical instruction by the teacher, but they are expected to actively engage students in the lessons.</p>
<p>21st Century Skills</p> <p>Highlight all that apply</p> <p>(Source)*</p>	<p>Creativity: e.g., students think of various solutions for promoting a better lifestyle in their communities or encourage greener solutions to their schools' issues.</p>	<p>Information/ Media literacy: students explore examples of NBS, research similar solutions in other communities.</p>	<p>Collaboration: e.g., students work in groups and engage in task division to produce outputs.</p>	<p>Critical thinking: e.g., students learn that a debate on deforestation or climate change does not consist of two opposing camps only but involves many stakeholders with different perspectives.</p>

*Gras-Velázquez, À., Mulvik, I. B., Campodonio, A., Nada, C. & Pocze, B. (2020) *Nature-Based Solutions in education - Validation report, European Commission, August 2020* [accessed

<p>GreenComp - European Sustainability Competency Framework <u>Highlight all that apply</u></p> <p>(Source) 1- Embodying Sustainability Values and 2 - Embracing Complexity in Sustainability (see pp.13-14)</p>	<p>1.1 Valuing Sustainability: To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values</p>	<p>1.2 Support Fairness: To support equity and justice for current and future generations and learn from previous generations for sustainability</p>	<p>1.3 Promoting Nature: To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems</p>	<p>2.1 Systems Thinking: To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems.</p>
<p>GreenComp - European Sustainability Competency Framework <u>Highlight all that apply</u></p> <p>(Source) 3- Envisioning sustainable futures and 4 - Acting for Sustainability (see pp.13-14)</p>	<p>3.1 Futures Literacy: To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future.</p>	<p>3.2 Adaptability: To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk. generations and learn from previous generations for sustainability</p>	<p>3.3 Exploratory Thinking: To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods.</p>	<p>4.1 Political Agency: To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability.</p>

Author and organisation to credit when using the LU	Big Van Ciencia - Dr. Helena González Burón & and Dr. Oriol Marimon Garrido.
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NBS Keywords

Checklist (tick here below)

x	<i>Forest Preservation</i>
x	<i>Forest Restoration</i>
x	<i>Forest enhanced management for woodfuel harvest</i>
x	<i>Forest Production</i>
x	<i>Grassland Preservation</i>
x	<i>Grassland Restoration</i>
x	<i>Grassland grazing management</i>
x	<i>Coastal Preservation</i>
x	<i>Coastal Restoration</i>
x	<i>Coastal maintenance of slope vegetation</i>
x	<i>Maintenance of coastal, floodplain and riverine vegetation</i>
x	<i>Agroforestry</i>
x	<i>Reduce tillage and carbon restoration practices</i>
x	<i>Agricultural intensification</i>
x	<i>Urban forests and green spaces</i>
x	<i>Urban green roofs</i>
x	Climate-change adaptation and mitigation
x	Sustainable cities/ sustainable communities
x	Re-naturing cities/ re-naturing communities
x	Urban regeneration
x	Coastal resilience
x	Multi-functional watershed management
x	Enhancing the insurance value of ecosystems
x	Sustainability of the use of matter and energy
x	Sustainable development
x	Innovating with nature
x	Biodiversity

	Nature-based enterprises	
	Nature-based entrepreneurship	
	NBS and new business and investment models	
	Citizen participation, stakeholder/community consultation	
x	Disaster risk reduction	
x	Risk management and resilience	
	NBS policy development and implementation	
	NBS research	
	Green infrastructure	
	Green finance / sustainable finance	
	Ecosystem services and ecosystem-based approaches	
	Rural municipal/local authority/government planning	
	Coastal municipal/local authority/government planning	
	Urban municipal/local authority/government planning	
	Improving well-being and quality of life	
	NBS and new business and investment models	
	NBS and CCAM (Connected, Cooperative and Automated Mobility)	
	Other 1: (Please specify)	EOC - Education Outside the Classroom
	Other 2: (Please specify)	
	Other 3: (Please specify)	

Keywords Source 1: United Nations Environment Programme (2020). *The Economics of Nature-based Solutions: Current Status and Future Priorities*. United Nations Environment Programme Nairobi., p.5. (keywords above in italics)

Keywords Source 2: Faivre N, Fritz M, Freitas T, de Boissezon B, Vandewoestijne S. (2017)'Nature-Based Solutions in the EU: Innovating with nature to address social, economic and environmental challenges.' *Environ Res.* 2017 Nov;159:509-518. doi: 10.1016/j.envres.2017.08.032. Epub 2017 Sep 8. PMID: 28886502.

Keywords Source 3: European Commission (2015). *Towards an EU Research and Innovation policy agenda for Nature-Based Solutions & Re-Naturing Cities: Final Report of the Horizon 2020 Expert Group on 'Nature-Based Solutions and Re-Naturing Cities' Full Version*. Luxembourg: Publications Office.

Unit NBS In and Out LAB

Marimon Garrido

Level Overview

Prior instructor knowledge/ skills/ competences of NBS or equivalent	Key EU NBS resources used (for instructor preparation) include link	Type of LU - lecture, workshop, field trip/site visit
Moderate	https://www.europeanschoolnetacademy.eu/courses/course-v1:Scientix+NBS+2023/about	Workshop
EQF (European Qualifications Framework) level (or Irish NFQ) indicative only	Time for LU (aim is 50 minutes per learning unit)	Course delivery format (e.g. in-person, hybrid, online)
EQF 6 - Irish NFQ 7/8 Ordinary/Honours Deg	50 minutes	In-person / On-site
<p>entered on the student, with NBS education as the central axis, including the SDGs and 21st-century skills in</p>		
<p>is directly linked to the established curriculum. This adopts a student-centered pedagogical model, the Student and learning together. This can be incorporated into STEAM or other multidisciplinary science (biology, , teachers and those interested in educating young people about NBS.</p>		
<p>to understand NBS.</p>		
<p>lobal environmental issues surrounding NBS, consumers that make informed decisions related to</p>		

using Taxonomies tab or pyramid [here](#).)

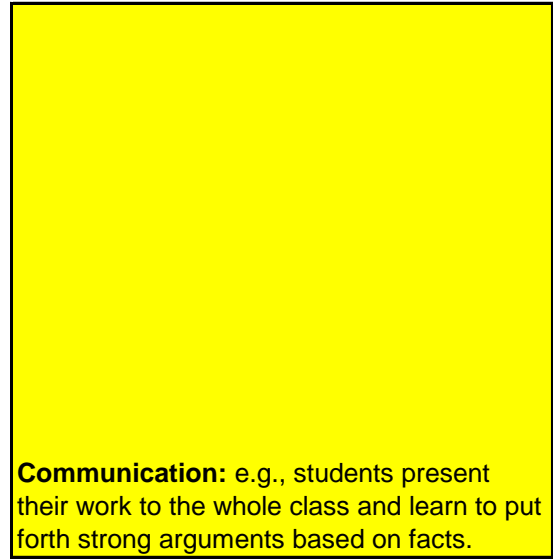
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eractive learning experience

Confirmation of learner's learning (assessment of learning)	Link to online NBS resources (and/or academic resources with DOI as relevant)	Offline resources and materials (e.g. post-its,)
Learner responds to question	European SchoolNet Academy - NBS Course - https://www.europeanschoolnetacademy.eu/courses/course-v1:Scientix+NBS+2023/about	
Learners participate in the Think-Pair-Share activity: Think (3 min) on their own reflecting on the advantages/disadvantages of EOC;	https://otter-project.eu/learning-platform/otter-lab-design	
Learners participate in responding to the reflective questions asked after each of the NBS I&O Lab steps	https://otter-project.eu/learning-platform/otter-lab-design	
Learners discuss the final reflection as a full group.		

d Skills

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Communication: e.g., students present their work to the whole class and learn to put forth strong arguments based on facts.

<p>2.2 Critical Thinking: To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions.</p>	<p>2.3 Problem Solving: To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems</p>
<p>4.2 Collective Action: To act for change in collaboration with others.</p>	<p>4.3 Individual Initiative: To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet</p>

as long as they credit the author/organisation, but they can't change them in any

Teacher Resources (If 'Notes' are used in the related PowerPoint presentation please indicate here)	Learner Resources (e.g. academic articles or links) for advanced reading or review (citation in individual cells)
https://www.europeanschoolnetacademy.eu/courses/course-v1:Scientix+NBS+2023/about	https://www.europeanschoolnetacademy.eu/courses/course-v1:Scientix+NBS+2023/about
	https://otter-project.eu/learning-platform/otter-lab-design