NBS EduWORLD - Project Education Learning Unit Template - DRAFT

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Learning Unit (LU) Planning Template - High Level Overview

Name of Learning Unit (LU) Topic		Challenges in financing and implementing NBS					
NBS Context (e.g. urban rural, coastal)	NBS keywords **complete checklist at the end of the document**	Other Keywords (topics other than NBS) **add in Other below**	Linked or complementary concepts to NBS (to assist curriculum integration)	Prior learner knowledge of NBS (high, moderate, low/none)	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
any			Green Finance	low	Low		Lecture
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)	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)
Finance students	Finance students	unlimited	higher education	Introductory Finance	EQF 6 - Irish NFQ 7/8 Ordinary/Hc	50 minutes	Online
Overall Purpose	To inform students about financing NBS initiatives and challenges in supporting its realisations						
LU Summary (2-3 sentences)	The unit starts with a succinct overview of NBS initiatives and their importance in meeting the 2050 carbon-neutrality goal as oultined in the European Green Deal and European Green Law. Financing NBS ramifications are multifaceted in a sustainable economy.						
Learning Outcome 1	Examine NBS projects and their finance model to understand their importance in achieving EU and global carbon-neutrality and other sustainability targets.						
Learning Outcome 2	Analyse EU Emissions Trading System (ETS) and critically evaluate Phase IV (2021 - 2030)						
Learning Outcome 3	Critically evaluate private green financing and other support schemes, such as budgetary transfers, insurance, taxes, PPP,						
Learning Outcome 4	Consider the challenges in applying NBS should stakeholders express opposing views and vested interests.						

LU designer resources for writing learning outcomes (click Learning Outcomes - Using Taxonomies tab or pyramid here)

Activities and Elements of Learning

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

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)	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,)
00:00 (10 min)	Discuss the range of NBS and underline the importance of NBS in resolving global warming	1	Ask the question: What are NBS projects (PPT slide 1); Then the link must be made to embodying sustainability competences (GreenComp) (PPT Slides 2)	Teacher ask question and posts in the chat function (learner responds verbally or in chat)	Teacher evaluates posts, and invites attendess to provide counterarguments/respond. Summarises responses and expresses final thoughts	Nature-based enterprises | Connecting Nature; European Commission, 2015, https://doi.org/10.2777/ 440514.	Chat function (possibly a Miro board)
00:10 (20 min)	Getting acquainted with the EU ETS and the 2030 madatory carbon market	2	Slides on the relevance of ETS in reducing carbon emission and the goal of introducing carbon taxes (PPT slides 3-5) Ask the questions for breakout rooms: Discuss the relevance of ETS so far (half the group) Evaluate the impact of carbon taxes for non-EU products (half the group)	Teacher asks questions and opens break-out rooms to discuss one of two questions (Learners discuss one question in small groups)	Learners nominate someone to report back on their assessment of ETS and carbon taxes.	Climate Trade (2022) https://climatetrade.com/sustainability-strategies-whitepapers/mandatory-markets/; European Commission, (2024) https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en	Break-out room function

00:30 (15 min)	Evaluate private, public, PPP, insurance and tax support schemes	3	Teacher presents examples comprising some of the support schemes (PPT slides 6-9)	Teacher asks learners to examine support schemes and rank them in terms of importance.	The discussion will be first open for all attendees. Thereafter, a ChatGPT or a similar NLP product wil be asked to do the same and then these ranks will be reported	European Environment Agency (2021), https://doi.org/10.2800/919315; NCFF, 2016 https://climate.ec.europa.eu/system/files/2016-11/ncff_guide_for_applicants_brochure_en.pdf	Chat function
00:45 (15 min)	Even if financial and other support is secured the stakeholders may not be unison in their decision.	4	Teacher discusses the challenges in getting relevant stakeholders to agree (PPT Slides 10-12) present a case study	Teachers asks question: how to negotiate with stakeholders	Attendees could be separated into two groups: a) the promoters/financiers of the project and b) the stakeholders with opposing views.	Wamsler et al. (2020), https://doi.org/10.1007/s10584-019-02557-9	Chat function

NBS- Application of Curriculum, Trends and Skills

Curriculum integration (how it may connect to curriculum)	

Teaching & Learning Trends employed **Highlight all that apply** (Source)	**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.	**Peer learning:** e.g., students work in groups, evaluate the work of their peers, or develop assessment questions to assess peers.	**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.	**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.	
21st Century Skills **Highlight all that apply** (Source)*	**Creativity:** e.g., students think of various solutions for promoting a better lifestyle in their communities or encourage greener solutions to their schools' issues.	**Information/ Media literacy:** students explore examples of NBS, research similar solutions in other communities.	**Collaboration:** e.g., students work in groups and engage in task division to produce outputs.	**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.	**Communication:** e.g., students present their work to the whole class and learn to put forth strong arguments based on facts.

*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 on 25/03/2024 https://files.eun.org/NBS/NBS-pilot-validation-report-final.pdf] p.8.

GreenComp - European Sustainability Competency Framework **Highlight all that apply** (Source) 1- Embodying Sustainability Values and 2 - Embracing Complexity in Sustainability (see pp.13-14)	**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	**1.2 Support Fairness:** To support equity and justice for current and future generations and learn from previous generations for sustainability	**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	**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.	**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.	**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
GreenComp - European Sustainability Competency Framework **Highlight all that apply** (Source) 3- Envisioning sustainable futures and 4 - Acting for Sustainabilty (see pp.13-14)	**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.	**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	**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.	**4.1 Political Agency:** To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability.	**4.2 Collective Action:** To act for change in collaboration with others.	**4.3 Individual Initiative:** To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet

Author and organisation to credit when using the LU	Centre for Social Innovation - Trinity Business School, Trinity College Dublin

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)**
	Nature-based
	Climate Trade
	European
	Wamsler et al.

NBS Keywords Checklist (tick here below)

	Forest Preservation
	Forest Restoration
	Forest enhanced management for woodfuel harvest
	Forest Production
	Grassland Preservation
	Grassland Restoration
	Grassland grazing management
	Coastal Preservation
	Coastal Restoration
	Coastal maintenance of slope vegetation
	Maintenance of coastal, floodplain and riverine vegetation
	Agroforestry
	Reduce tillage and carbon restoration practices
	Agricultural intensificiation
	Urban forests and green spaces
	Urban green roofs
	Climate-change adaptation and mitigation
	Sustainable cities/ sustainable communities
	Re-naturing cities/ re-naturing communities
	Urban regeneration
	Coastal resilience

	Multi-functional watershed management	
	Enhancing the insurance value of ecosystems	
	Sustainability of the use of matter and energy	
x	Sustainable development	
	Innovating with nature	
	Biodiversity	
	Nature-based enterprises	
	Nature-based enterpreneurship	
x	NBS and new business and investment models	
	Citizen participation, stakeholder/community consultation	
	Disaster risk reduction	
	Risk management and resilience	
x	NBS policy development and implementation	
	NBS research	
x	Green infrastructure	
x	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	
x	NBS and new business and investment models	
	NBS and CCAM (Connected, Cooperative and Automated Mobility)	
	Other 1: (Please specify)	Emissions Trading System (ETS)
	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.*