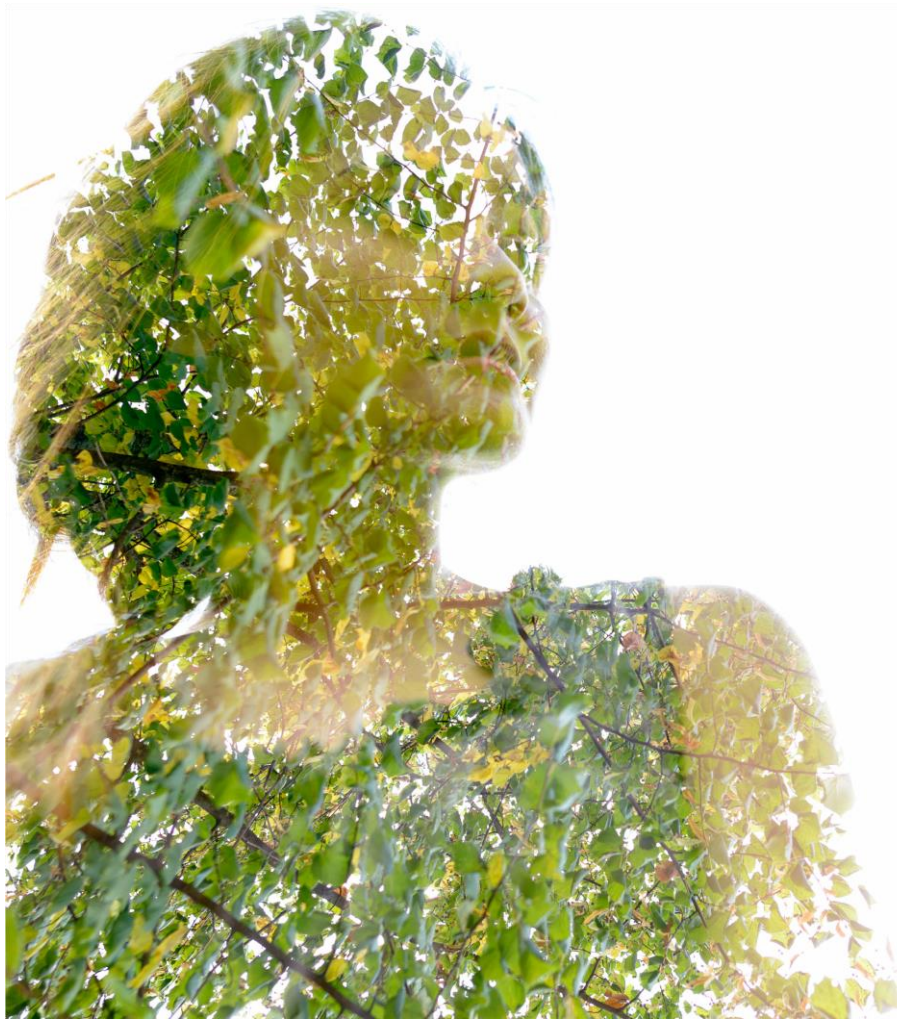# TEACH4SD

D2.4 Learning pathway: Empowering teachers for sustainable institutional transformation

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TEACH4SD
Lead the transition
Centres of Vocational Excellence

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1. Introduction

As educators in higher education (HE) or vocational education and training (VET), you play a central role in shaping how future professionals think and act. Your work goes beyond the classroom: it can influence how your institution evolves, how learners engage with real-world challenges, and how communities transition to more sustainable futures. Educators and staff members have significant influence if they are willing to support this process (Barth & Rieckmann, 2012): you are a change maker!

This pathway can be used as a guide through the TEACH4SD materials and provides methods, guidelines, and tools to help you contribute to your institution's sustainable transition using a whole-institution approach, making not only your educational content more sustainable, but also governance and infrastructure in your institution. The pathway refers to materials on the ESD Academy of TEACH4SD and is based on systems thinking and bottom-up action, meaning change begins with you, your colleagues, and your learners, and scales up to the institutional level.

In this learning pathway you will be guided through the following steps:

1. Building awareness and a shared understanding
2. Transforming the curriculum for more sustainable teaching practices
3. Shaping governance and participation
4. Using the campus as a living lab
5. Planning for change: from ideas to action
6. Conditions for successful ESD practices
7. Evaluating and scaling impact

In each chapter you will find the "objective" of that step, followed by an introduction and a table with what to do, and how to do this. Templates can be found at the end of this document.

You do not need to follow this pathway step by step: feel free to skip the steps you are familiar with and jump to the topics that spark your interest.

2. Building awareness and shared understanding

Objective: Establish a common baseline among educators in your institution on how you see & address competencies for sustainable development and the whole-institution approach.

Start by exploring your actual practice concerning sustainability in your teaching and institutional context. Do you primarily teach content *about* sustainability, or do you provide the learners with competencies *for* sustainable development, including systems thinking, futures literacy, individual and collective action, as described in [GreenComp: the European sustainability competence framework](#) (Joint Research Centre, 2022)?

It is important to keep in mind that education for sustainable development is not only about embedding sustainability in individual modules or lessons, but about the whole institution: integrating sustainability in the curriculum, governance, campus infrastructure and community partnerships in a coherent institutional strategy (Holst, 2022). These different aspects (curriculum, governance, campus infrastructure) will be explored throughout the following pages.

Then, reflect on how your subject connects to sustainability. What competencies are your learners developing? What institutional structures support or limit this development? This step helps align your individual teaching with an institutional sustainability trajectory.

What to do	How to do this (tools)
Get to know the general concept of competencies for sustainable development. Which competencies are there? Have a look at the GreenComp framework.	Learn more about competencies for sustainable development through the TEACH4SD ESD Academy. Then, discuss with colleagues for a common understanding.
Explore the whole-institution approach to understand how your institution can act on different levels and areas.	Learn more about the whole-institution approach in the TEACH4SD ESD Academy. What is going well already, what is ongoing now, what can be improved?
Reflect on how your subject connects to sustainability.	Use the TEACH4SD SD Profile Tool ([sdprofile.eu](#)) to start a group discussion with other educators on how your current teaching practices are linked or can be linked to ESD.

3. Curriculum transformation

Objective: Enable you as an educator to integrate ESD (Education for Sustainable Development) principles into teaching and contribute to curriculum reform.

Your teaching practice remains the most direct way to influence learners' learning about and for sustainability. Yet, the curriculum around your own module(s) or course(s) should also be transformed: collaborate with your colleagues to align content, pedagogy, and institutional purpose with certain goals of sustainable development. Those goals could be the Sustainable Development Goals (SDGs), or maybe your institution already mentions certain sustainability-related goals in the mission or vision. The curriculum is one part of the whole-institution approach, but a very important one

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Side note

A curriculum is the total plan of learning provided by an educational institution. It includes everything that learners are expected to learn and experience under the guidance of educators. In this context, we include the following elements in our definition of curriculum:

- **Subjects and content** to be taught (e.g., math, science, history).
- **Learning objectives or outcomes:** what learners should know or be able to do after instruction.
- **Teaching methods:** how the material will be taught (lectures, discussions, projects, etc.).
- **Assessment methods:** how learning will be evaluated (tests, assignments, presentations).
- **Learning materials** such as textbooks, resources, and digital tools.

What to do	How to do this (tools)
Link your subject content to real-world sustainability challenges. Identify how key concepts, issues or methods in your discipline relate to current sustainability-pressures (e.g., climate change, biodiversity loss, social equity, circular economy) and design learning activities that prompt learners to engage with those challenges.	Take a closer look at the course(s) you teach. You can use "Template 1: Lesson redesign template for embedding Education for sustainable development (ESD)" for this. Templates can be found at the end of this document. Find inspiration for real-world sustainability challenges in the sector-specific cases on the TEACH4SD ESD Academy. Try to find a real-world challenge in your own region & sector to make it even more relevant and recognisable for the learners.
Try to think bigger: can you invite or coordinate with other educators to examine their modules too? Could you initiate a cross-disciplinary curriculum review so that sustainability becomes	Dare to ask meaningful questions such as: What does the labour market expect from the learners? What should the learners be able to do in their professional roles, related to sustainability? What

the norm rather than an "add-on"? Take on the role of sustainability ambassador: find colleagues who are (almost) as motivated as you to make sustainability the norm, share good practices, and keep encouraging more colleagues to inspire each other.	changes are needed in our educational system? As an educator, do I see any quick wins for giving sustainability a more prominent place in my course?
Design interdisciplinary case-based or project-based learning activities. Use real contexts and real stakeholders, open-ended questions, and opportunities for learner agency so that learners can *experience* the complexity, uncertainty and discussion inherent to sustainable development.	Have a look at the sector-specific cases on the TEACH4SD ESD Academy related to sustainability for inspiration or create a case yourself. You can then apply transversal competencies for sustainable development on this case, such as the GreenComp competencies (see TEACH4SD ESD Academy).
Foster transversal competencies such as the ones described in the GreenComp framework: critical thinking, collaboration, futures literacy etc. Teach the mindset and capacities to act, on top of knowledge.	Organise peer feedback sessions with other educators to co-develop lesson plans. Distribute transversal competencies evenly over the learners' curriculum to optimally prepare them for the future without overwhelming them.

4. Governance and participation

Objective: Find opportunities to empower you as an educator to contribute meaningfully to institutional decision-making and sustainability governance.

Side note
This step may only make sense if dialogue with management can be successfully established and if management is genuinely willing to support these actions.

Sustainability transitions in education are not only achieved through curriculum reform, but also through participatory governance and collaborative leadership. As an educator, you have a dual role as a practitioner and a change agent: you can make the connection between teaching, research (in case of higher education), practice (in case of vocational education), and institutional decision-making (Lozano, et al., 2015). The more you engage in governance, the more you can help align institutional priorities with sustainability values, promote inclusive decision-making, and create feedback loops between classroom innovation and organisational learning (Barth & Rieckmann, 2012).

Participatory approaches include a shared sense of responsibility across staff, learners, and administrators, transforming the institution into a learning organisation capable of adaptive change (Wals, 2014). When educators and learners collaborate as partners in sustainability initiatives, the institution benefits from new perspectives, distributed leadership, and collective ownership of sustainability transitions (Budowle, Krszjzaniek, & Taylor, 2021).

What to do	How to do this (tools)
Set up dialogues between staff and management. Participate actively in institutional sustainability committees, cross-department working groups, or educator networks that integrate sustainability into strategic planning and day-to-day operations. Such structures lead to opportunities for collaboration, sharing good practices, and systemic reform (Lozano, et al., 2015). Also consider learners as co-creators of change: they too can initiate and sustain sustainability-focused innovations (Budowle, Krszjzaniek, & Taylor, 2021).	To keep track of your actions related to Education for Sustainable Development (ESD), you can use "Template 2: ESD portfolio for educators". Templates can be found at the end of this document.

Encourage staff or initiate small-scale initiatives to test ideas for sustainability transitions on institutional level. Through this, you can identify sustainability challenges within the institution, design interventions, and evaluate their impact. This approach builds organisational learning capacity and embeds sustainability into institutional culture (Wals, 2014).	For this, you can use "Template 3: Action plan for institutional change". Templates can be found at the end of this document.

5. Infrastructure and campus as a living lab

Objective: Find opportunities to use the educational institution's environment as a testing ground for sustainability practices and experiential learning.

The physical environment of the school/university is more than a backdrop for learning: it's a powerful, real-world laboratory for sustainable innovation. Treating the campus as a living lab enables educators, learners, and operational staff to co-create solutions to real sustainability challenges (Evans et al., 2015).

Living lab approaches encourage learning by doing, integrating theory with practice and supporting systemic change across the institution. They create opportunities for learners to apply classroom knowledge to tangible projects or other initiatives (e.g. reducing energy use, promoting biodiversity, designing circular economy systems) while developing key competencies for sustainable development (UNESCO, 2017; Wiek et al., 2011).

What to do	How to do this (tools)
Conduct campus sustainability audits in areas such as energy, water, waste, food, mobility, etc. Learners can collect and analyse data, propose interventions, and present findings to institutional leadership, turning data collection into a form of engaged learning.	For this, you can use "Template 4: Campus sustainability audit". Templates can be found at the end of this document. If you decide to execute a campus audit on multiple aspects, it might be easiest to fill in one template per audited aspect.
Involve educators and learners to co-develop projects on campus, e.g. green classrooms, biodiversity garden, circular economy initiatives: connect goals for sustainability to the curriculum and campus operations (Evans et al., 2015). When learners and educators jointly design and implement projects, the campus becomes an example of sustainability transition in action (Budowle, Krszjzaniek, & Taylor, 2021).	Not sure where to start? Have a look at "Template 5: Project starter kit for "campus as a living lab" initiatives". Templates can be found at the end of this document.
Link campus sustainability projects to existing courses by using institutional data or real challenges as case studies. This transdisciplinary experiential approach connects the institution's infrastructure and initiatives with learning outcomes, which reinforces the institution's role as a societal change agent (Trencher et al. 2014).	For example, construction, business, or engineering classes might use solar energy data to design efficiency models or investment strategies. For practice-oriented educational programs, it could be relevant to organise a study visit to see how people on the operational level try to work in a more sustainable way.

6. Action planning and implementation

Objective: Translate ideas into structured, achievable initiatives that support your institution's sustainability transition.

Side note
This step may only make sense if dialogue with management can be successfully established and if management is genuinely willing to support these actions.

Effective institutional change requires not only vision but also strategic and participatory planning. Turning sustainability goals into action involves aligning ideas with institutional structures, engaging stakeholders, and setting measurable objectives (Lozano, et al., 2015). A clear plan increases commitment, accountability, and the likelihood of long-term impact (Tilbury, 2011).

An action plan should balance top-down strategic direction with bottom-up innovation, by educators and learners (Barth & Rieckmann, 2012). By following the steps below, institutions can transform abstract sustainability ambitions into tangible outcomes.

What to do	How to do this (tools)
1) Define the challenge: what key sustainability issue (in teaching, governance, or campus operations) do you want to address? 2) Set SMART sustainability goals: specific, measurable, achievable, relevant and time-bound objectives provide clarity and facilitate monitoring and evaluation. 3) Map stakeholders and resources: who is affected and who can contribute? 4) Develop an action timeline: break down long-term goals into short-term actions with clear milestones. 5) Define indicators and monitoring methods: choose both quantitative and qualitative indicators to track impact, for example reduction in emissions, increased participation, or integration of sustainability in curriculum design. Monitoring promotes learning from practice and continuous improvement (Wals, 2014).	For this, you can use "Template 3: Action plan for institutional change". Templates can be found at the end of this document. The template will guide you through these steps.

7. Conditions for successful ESD application

Objective: Guide you as an educator and your institution in creating enabling conditions for Education for Sustainable Development (ESD). This section is intended to support educators discuss concrete needs and actions with management.

For ESD to be effectively implemented, both educators and institutions must cultivate conditions that enable innovation, collaboration, and long-term commitment. Not only individual motivation is important, but also organisational culture, policies, and resources supporting transformative learning and sustainability transitions (Lozano et al., 2015; Barth & Rieckmann, 2012; Tilbury, 2011).

Institutions that integrate ESD holistically by embedding it in governance, curriculum, and campus operations, create feedback loops that reinforce sustainable practices and institutional learning (Holst, 2022; Wals, 2014). As an educator, you can advocate for the following conditions:

What to do	How to do this (tools)
Time & recognition: Allocate dedicated time for ESD activities and recognise sustainability efforts in performance evaluation, teaching portfolios, or promotion criteria (Barth & Rieckmann, 2012).	To keep track of your actions related to Education for Sustainable Development (ESD), you can use "Template 2: ESD portfolio for educators". Templates can be found at the end of this document.
Professional development: Staff development supports both pedagogical innovation and systemic understanding of sustainability (UNESCO, 2017).	Offer continuous training and peer-learning opportunities. Professional learning communities and networks can help educators share tools, reflect on practice, and co-create change.
Institutional support: Strong leadership commitment and financial resources are essential to sustain ESD initiatives (UNESCO IESALC, 2023).	Institutions should embed ESD into strategic plans, fund pilot projects, and establish coordination structures that connect educators, learners, and administrators, such as sustainability offices or working groups.
Collaboration culture: Foster experiential learning, connect education to real-world sustainability challenges, and contribute to societal impact (Evans et al., 2015).	Encourage cross-disciplinary teamwork and partnerships with local communities, NGOs, and industry stakeholders.
Reflective practice and adaptive learning: Reflection enables educators to adapt their teaching and institutional strategies, promoting continuous learning and resilience (Wals, 2014).	Provide space and time for critical reflection on ESD practices.

8. Evaluation and scaling

Objective: Ensure that ESD practices are effective, measurable, and scalable.

Evaluation and scaling are essential for transforming individual ESD initiatives into long-lasting institutional change. By systematically assessing outcomes and sharing results, educators and institutions can strengthen accountability, promote organizational learning, and inspire replication across departments or partner institutions (Wals, 2014).

To make evaluation meaningful, it should focus not only on measurable outputs but also on transformative learning processes and cultural change (Barth & Rieckmann, 2012). Tracking both the learners' learning outcomes and institutional impact helps determine whether your ESD efforts contribute to the Sustainable Development Goals (SDGs) and/or the GreenComp competencies (European Commission, 2022).

What to do	How to do this (tools)
Track learning outcomes and the impact of sustainability initiatives.	Collect evidence on the learner's acquisition of sustainability competencies, engagement levels, and behavioural changes. At the institutional level, monitor indicators such as reduced emissions, inclusion of sustainability in strategic plans, and the number of cross-disciplinary projects (European Commission, 2022).
Assess effectiveness by comparing the expected results to the actual outcome.	Include qualitative feedback from learners, colleagues, and community partners to assess broader systemic change (Lozano, et al., 2015).
Share and scale successful practices: inspire others to help increase your positive impact.	Disseminate results through staff meetings, networks, and institutional platforms. Publishing case studies or participating in peer-learning communities enables others to adapt your practices. Cross-institutional exchanges and regional ESD networks foster scaling through collaboration rather than replication (Holst, 2022).

References

Barth, M., & Rieckmann, M. (2012, May). Academic staff development as a catalyst for curriculum change towards education for sustainable development: an output perspective. *Journal of Cleaner Production, 26*, 28-36. doi:10.1016/j.jclepro.2011.12.011

Budowle, R., Krszjzaniek, E., & Taylor, C. (2021). Students as change agents for community-university sustainability transition partnerships. *Sustainability, 13*(11), 6036. doi:10.3390/su13116036

European Commission. (2022). *GreenComp: The European sustainability competence framework.* Publications Office of the European Union. doi:10.2760/13286

Evans, J., Jones, R., Karvonen, A., Millard, L., & Wendler, J. (2015). Living labs and co-production: University campuses as platforms for sustainability science. *Current Opinion in Environmental Sustainability, 16*, 1-6. doi:10.1016/j.cosust.2015.06.005

Holst, J. (2022). Towards coherence on sustainability in education: a systemic review of Whole Insitution Approaches. *Sustainability Science, 18*, 1015-1030. doi:10.1007/s11625-022-01226-8

Lozano, R., Ceulemans, K., Alonso-Almeida, M., Huisingh, D., Lozano, F., Waas, T., . . . Hugé, J. (2015, December 1). A review of commitment and implementation of sustainable development in higher education: results from a worldwide survey. *Journal of Cleaner Production, 108*, 1-18. doi:10.1016/j.jclepro.2014.09.048

Tilbury, D. (2011). *Education for Sustainable Development: An Expert Review of Processes and Learning.* Paris: UNESCO. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000191442

Trencher, G., Yarime, M., McCormick, K., Doll, C., & Kraines, S. (2014). Beyond the third mission: Exploring the emerging university function of co-creation for sustainability. *Science and Public Policy, 41*(2), 151-179. doi:10.1093/scipol/sct044

UNESCO. (2017). Education for sustainable development goals: Learning objectives. Paris: UNESCO. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000247444

UNESCO IESALC. (2023). *General guidelines for the implementation of sustainability in higher education institutions.* UNESCO. doi:https://www.un.org/sites/un2.un.org/files/unai_and_unesco_iesalc_guidelines_for_sdgs_implementation_final_version.pdf

Wals, A. (2014). Sustainability in higher education in the context of the UN DESD: A review of learning and institutionalization processes. *Journal of Cleaner Production, 62*, 8-15. doi:10.1016/j.jclepro.2013.06.007

Wiek, A., Withycombe, L., & Redman, C. (2011). Key competencies in sustainability: A reference framework for academic program development. *Sustainability Science, 6*(2), 203-218. doi:10.1007/s11625-011-0132-6

Template 1: Lesson redesign template: embedding education for sustainable development (ESD)

Objective: To adapt an existing lesson so it embeds sustainability competencies.

Course / Module: …………………………………………………………………………………………..

Educator(s): …………………………………………………………………………………………..…....

Lesson Title: …………………………………………………………………………………………..

Step 1: Identify opportunities

How does this lesson connect to local, regional, or global sustainability issues?

Which of the UN's Sustainable Development Goals (SDGs) or GreenComp competencies are relevant? If you use another framework, feel free to adapt your answer to that framework.

Step 2: Define Competencies

Which ESD key competencies will the learners practice?
This list below is based on the GreenComp framework. However, you can also choose to use another framework, such as the SDGs.

- ☐ Valuing sustainability
- ☐ Supporting fairness
- ☐ Promoting nature
- ☐ Systems thinking
- ☐ Critical thinking
- ☐ Problem framing
- ☐ Futures literacy
- ☐ Adaptability
- ☐ Exploratory thinking
- ☐ Political agency
- ☐ Collective action
- ☐ Individual initiative
- ☐ Other: _____

Step 3: Redesign the Learning Activity

What is the original activity? What is the learning objective of the activity?

What is the revised activity *with* ESD focus?

What methods are used (lecture, project-based, case study, interdisciplinary, simulation, etc.)? Try to include methods that not only address the learner's knowledge, but also attitude and action. *Consult Bloom's taxonomy if you need help designing learning outcomes and assessments that match the depth of sustainability competencies, from remembering and understanding sustainability concepts to applying them in real contexts and creating sustainable solutions.*

Step 4: Assessment & reflection

How will learners demonstrate their learning?
E.g. A presentation, paper, demonstration, project outcome... will show how much the learners have learned.

After the activity, how will you reflect on it and how will you improve this lesson for next time?
E.g. Ask learners for feedback in a group discussion or survey, look at their level of engagement, etc.

Template 2: ESD portfolio for educators

Objective: To document your learning journey about Education for Sustainable Development (ESD) and your contributions to ESD as an educator.

Name:

Department/Discipline:

Section A: My Practice

Courses/modules where I integrated ESD:

Examples of lesson redesign:

Section B: Institutional Engagement

Staff / management members I have discussed sustainability initiatives with:

Projects and initiatives developed with learners/educators/staff:

Committees, councils, or initiatives I have contributed to:

Section C: Reflection & Development

Which challenges did you face?

Which skills do you want to develop further?

What support do you need from your institution?

Template 3: Action plan for institutional change

Objective: To structure sustainability initiatives within your institution (if management is willing to support these actions).

Initiative title:

Initiator(s):

Step 1: Define the challenge

What problem are you addressing?

Why does the problem exist? What are the root causes?

Step 2: Set one or multiple SMART Goals for sustainable solutions.
Your goal(s) should be Specific, Measurable, Achievable, Relevant and Time-bound.

Step 3: Map stakeholders & available resources

Who are the key (internal and external) stakeholders involved?

Which resources (time, expertise, funding if required…) are available? Which are missing?

Co-funded by
the European Union

Step 4: Develop an action timeline

Milestone	Action	Person responsible	Deadline	Progress indicator

Step 5: Evaluation & impact

How is the action's success measured and evaluated?

How are the action's results shared? What & who will help you share the results? What do you need for this?

Template 4: Campus sustainability audit

Objective: To use the campus as a living lab and identify areas for action.

Course/initiative/campus being audited:

Educator(s) executing this audit:

Categories to audit (tick if assessed)

☐ Energy use, efficiency & renewables
☐ Water conservation
☐ Waste reduction & circular initiatives
☐ Sustainable food systems (canteen, catering, sourcing, waste)
☐ Sustainable mobility (student/staff mobility, carbon footprint)
☐ Biodiversity & green spaces (gardens, nature-based solutions)
☐ Procurement (supplies, materials, sustainability criteria)
☐ Social inclusion
☐ Wellbeing
☐ Other: _____

Relevant internal & external stakeholders:

Description of the collected data (e.g. campus data, stakeholder input such as survey results):

What risks and opportunities are associated with your findings?

How can these risks and opportunities be turned into opportunities for learner involvement in sustainability-related actions or projects? How can the involvement of learners contribute to their learning process on one hand, and the institution's sustainability goals on the other hand?

Template 5: Project starter kit for "campus as a living lab" initiatives

Objective: To guide educators through co-creating, planning, and implementing projects for sustainable transition that use the campus as a living lab. Parts of this template may be completed in co-creation with learners.

Tip for educators: Encourage learners to treat the campus as a "mini society" where they can test ideas for sustainability, from small behaviour-change campaigns to innovative technologies. Connect outcomes back to institutional policy or curriculum development whenever possible.

Project title:

Lead educator(s):

Course / programme:

Start & end date:

Description

What is the project about? What is its relevance regarding sustainability?

Main sustainability focus area(s)

☐ Energy efficiency & renewables
☐ Circular economy & waste reduction
☐ Water conservation
☐ Sustainable mobility
☐ Biodiversity & green spaces
☐ Sustainable food systems
☐ Social inclusion
☐ Wellbeing
☐ Other: _____

Educational connection

How does the project link to this course or to the learner's curriculum in general?

Learning outcomes / competencies developed:
(The competencies below are based on GreenComp, but you can also use other frameworks.)

☐ Valuing sustainability
☐ Supporting fairness
☐ Promoting nature
☐ Systems thinking
☐ Critical thinking
☐ Problem framing
☐ Futures literacy
☐ Adaptability
☐ Exploratory thinking
☐ Political agency
☐ Collective action
☐ Individual initiative
☐ Other: _____

Assessment

Depending on your goal as an educator, how will the project results and/or the learning results of the learners be assessed?

Institutional context and stakeholders

Campus location(s) involved:

Key internal & external partners (e.g. facilities, maintenance team, management, administration, union, local businesses, NGOs, community partners...):

Stakeholder roles:

Stakeholder (organisation, department or individual)	Role/contribution	Contact person

Project planning

Identified problem or opportunity:

Goals and objectives:

Main activities/tasks:

Activity	Person responsible	Timeline	Expected output

Resources needed: (e.g. funding, material, space, time, technical expertise...)

Monitoring and evaluation

Indicators of success:

Indicator (e.g. water use)	Measurement method (e.g. water bill)	Target/outcome (e.g. 10% decrease in water usage by next year)

Data collection and documentation: who will record progress and how?

How will outcomes be shared and celebrated? (e.g. poster presentation, website, social media, blog, report, exhibition, showcase, staff meeting, newsletter...)

Reflection & learning

What worked well?

What could be improved next time?

How can this project be expanded or repeated or how can it inspire other projects?