Co-funded by the European Union

GreenHive

# Educational Resources for Green Combs

TUS KEAN ΚΥΤΤΑΡΟ ΕΝΑΛΛΑΚΤΙΚΩΝ ΑΝΑΖΗΤΗΣΕΩΝ ΝΕΩΝ lascò femxa TEAM 4 excellence

**Authors**: Gianluca ABBRUZZESE, Nicoleta ACOMI, Ovidiu ACOMI, Marta BURGOS GONZALEZ, Maria del Carmen LOPEZ CRUZ, Miriam LANZETTA, Angela MANGIULLO, Anastasia MARAVELAKI, Dimitra SOFIANOU, Marie TAYLOR, Elaine CLEARY

**Version**: 1.0 – October 2024

**Acknowledgement**

This publication has received funding from the European Commission under the Grant Agreement number 2022-2-IE01-KA220-VET-000097215, Erasmus+ Cooperation Partnership project *Green Hive*.

**Disclaimer**

The European Commission's support for the production of this publication does not constitute an endorsement of the content which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

# Table of Contents

# List of Abbreviations

| Abbreviation | Definition |
|---|---|
| VET | Vocational education and training |
| KPI | Key Performance Indicator |
| SDG | Sustainable Development Goal |
| NGO | Non-Governmental Organization |
| MOU | Memorandum of Understanding |
| NDA | Non-Disclosure Agreement |
| IT | Information Technology |
| UN | United Nations |
| EU | European Union |
| SWOT | Strengths, Weaknesses, Opportunities, Threats |

# Introduction

Welcome to the publication of our comprehensive "Educational Resources for Green Combs". The main purpose of this document is to be a toolkit of collected resources and tools for VET providers to foster learners' sustainability competences. This toolkit includes guidelines to implement open spaces, microlearning videos, workshops, and project-based learning experiences for students, covering the sustainability competences addressed by the European GreenComp Framework.

This document provides guidelines for VET teachers, trainers, and educators seeking to develop the four groups of green competencies developed in GreenComp: Embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures and acting for sustainability. To this end, we have sought guidelines for developing discussion spaces, workshops, project based learning and micro videos that can be implemented with students for the development of green competencies. Let's embark on this transformative journey together, creating a greener and more connected future.

**The purpose and structure of this publication**. The publication collects the results of the GreenHive Project Virtual Knowledge Fair, and the workshops **undertaken** in this event that were facilitated by each GreenHive partner. In addition, it reflects desk research conducted by each partner to build these educational resources guidelines that will help VET providers to develop the green competences reflected in the GreenComp Framework. The development of the publication was conducted in the scope of the

"Green Hive" project - a cooperation partnership co-funded by the European Union under the Erasmus+ Programme.

*Chapter 1*, "The Green Hive Project", presents the project's rationale, objectives and expected results, providing an insight into the context of this Guide.

*Chapter 2*, “European Sustainability Competence Framework (GreenComp)” where this framework is presented.

*Chapter 3*, "Educational Resources Methodology", presents the methodology followed to collect this guideline.

*Chapter 4*, "Educational Resources for Embodying Sustainability Values", presents guidelines of open discussions, workshops, project based learning and micro leaning videos to work these kinds of competences.

*Chapter 5*, "Educational Resources for Embracing Complexity in Sustainability", gives guidelines for open conversations, workshops, project-based learning, and microlearning videos to work on these competencies.

*Chapter 6*, "Educational Resources for Envisioning Sustainable Futures", provides guidance for developing these competencies through open talks, workshops, project-based learning, and microlearning videos.

*Chapter 7*, " Educational Resources for Acting for Sustainability", presents a variety of tools for improving these skills through open talks, workshops, project-based learning, and microlearning videos.

*Chapter 8*, “Conclusions”, provides a remark from the document.

# 1. The Green Hive Project

Green Hive is a Cooperation partnership in the Vocational Education and Training (VET) field co-funded by the Erasmus+ Programme of the European Union. Implemented by a consortium of five entities, such as the Technological University of the Shannon: Midlands Midwest-TUS (Ireland), the companies Lascò (Italy) and Femxa (Spain), and the non-profit and non-governmental organisations KEAN-Cell of Alternative Youth Activities (Greece) and TEAM4 Excellence (Romania), the project aims to increase the capacity of VET providers to prepare learners for the green transition by developing a European platform-based ecosystem for sustainability education called the "Green Hive".

The Green Hive will consist of localised hubs for sustainability education, namely the "Green Combs," established within VET providers. While the Hive will be an open and cross-sectoral long-term cooperation network dedicated to innovation, continuous improvement and co-creation in sustainability education, the Combs will make VET providers the managing centre of networks of local stakeholders (i.e., companies, representatives of universities, civil society organisations and professional associations) for learning, networking and cooperating on sustainability challenges.

Hence, the project promotes the establishment of permanent VET co-creation structures where students will be enabled to think in systems, understand the interconnectedness of the economy, society, and environment, and ultimately develop their systemic and critical thinking competencies by collaborating with other students and external stakeholders.

**Main results** of the project:

- **"Methodological Framework"** for developing a VET sustainability education ecosystem and localised hubs to facilitate the transfer of local experience, knowledge, and innovation in the field of the implementation of the European Sustainability Competence Framework "Green Comp", and encourage collective actions of VET providers, learners, and external stakeholders to co-create solutions for sustainability.
- **"Toolkit for the setup and management of Green Combs"**, including this how-to guide and canvases to support VET providers in setting up, managing, and growing internal hubs for sustainability education.
- **"Educational resources for Green Combs"**, including guidelines to implement open spaces for discussion around learner-generated topics among members of localised hubs, micro-learning videos, workshop scenarios and project-based learning experiences in the four competence areas of the Green Comp.
- The **"Green Hive" Platform**, connecting the hubs through the Internet and providing capacity-building opportunities and digital tools for VET institutions, knowledge-transfer spaces, and co-creation activities for its members. By the end of 2025, the Green Hive is expected to host and connect at least 15 localised hubs and 200 VET learners in 5 countries.

Hence, the Green Hive will be a European-wide platform-based network of localised sustainability education hubs established within VET institutions. The Hive will connect educators, learners, and other stakeholders to enhance the transfer of local experience, knowledge, and innovation for sustainability competence development, and encourage collective actions to co-create solutions for sustainability. The figure in the following page provides a visual representation of the overall Methodological Framework behind Green Hive.

Co-funded by the European Union

GreenHive

# METHODOLOGICAL FRAMEWORK

A EUROPEAN PLATFORM-BASED ECOSYSTEM FOR SUSTAINABILITY EUCATION

## COMPONENTS & FUNCTIONS OF THE ECOSYSTEM

### MANAGING PARTY

**Who:** The Green Hive **Project Consortium**
**Role:**
- **Coordinates** the ecosystem
- Provides **capacity-building opportunities, hackathons** and **contests** for the Hubs
- Provide **knowledge-transfer spaces** and **co-creation activities**

### GREEN COMBS

**Who**: **VET institutions**, as local sustainability education hubs of the Green Hive
**Role**:
- Provide **information, insights and inspiration** on sustainability within and outside their institutions
- Connect people and build a local community around sustainability through **events**
- Provide l**earning opportunities** to students and external stakeholders
- Provide opportunities to design innovative solutions via **open challenges** and **workshops**

### EXTERNAL PARTIES

**Who: External stakeholders**, such as representatives of civil society organisations, companies, Adult, School and Higher Education institutions
**Role:**
- **Participate in the Combs' activities thus contributing to the sustainability education actions of the hubs**

## INTERACTION BETWEEN THE PARTIES & WORK FACILITATION

### DIGITAL PLATFORM

The platform will include:
- A **Resources** section, collecting the educational resources developed in the project, a User Manual for the Combs' coordinators, open to submissions from the hubs;
- An **Activity co-creation tool** to let the hubs co-design with their students, local stakeholders and/or other hubs, learning activities for sustainability education;
- A **Contest management tool** to let the hubs launch and manage hackathons and competitions on sustainability challenges;
- An **Event section**, collecting virtual events promoted by the consortium and the hubs about sustainability education;
- **Profile pages** of the 15 local hubs we have to establish during the project (e.g., information about the hubs, opportunities to collaborate on projects and initiatives);
- An **Interactive map** showing the hubs' location.

## RESOURCES NEEDED FOR THE GREEN COMBS

### TOOLKIT TO SET UP AND MANAGE THE COMBS

A How-to Guide, a set of canvases and a MOOC for VET providers, detailing the processes, tools and methods to set up a Green Comb in six development domains, such as Governance, Organization, Community, Activities, Tools, and Relationships with the Hive.

### EDUCATIONAL RESOURCES

Activities and tools to foster learners' sustainability competencies. For instance: guidelines for open spaces, microlearning videos, workshops and project-based learning experiences for students, covering the twelve sustainability competences addressed by the GreenComp Framework.

# 2. European Sustainability Competence Framework (GreenComp)

GreenComp or the European Sustainability Competence Framework is the non-prescriptive reference framework for learning for environmental sustainability that can be applied in any learning context. The Joint Research Centre of the European Commission contributed to bridging the gap between experts and other stakeholders for a shared definition of green competences through this framework. The framework identifies a set of sustainability competences, divided across four interrelated competence areas, as shown in the below figure.


*Figure 1. GreenComp Areas and Competences*

The European Commission has encouraged Members States to use the framework as a reference when introducing educational initiatives on sustainability.

These competencies are the frame of reference and will be the areas to be developed in this document where different educational resources are presented for each competency area.

# 3. Educational Resources Methodology

Two fundamental aspects have been taken into consideration in the construction of this "Educational Resources Guideline":

**1. Desk research:** Desk research has been carried out with the aim of looking for workshop's scenarios, microlearning videos, project-based learning experiences and guidelines for open space discussions. Each of the partners oversaw a group of the 4 competences that appear in the GreenComp Framework.

**2. Results of the Virtual Knowledge Fair:** The results of the workshops that have taken place in the framework of the Virtual Knowledge Fair have been considered. As reflected in the 'Virtual Knowledge Fair' document, four pavilions were developed, coinciding with each of the competence groups and two workshops were held in which there were four rooms, each of which coincided with the pavilions. The result of these workshops has been collected in these educational resources guidelines.

The toolkit includes the following key components by each group of competences.

### 1. Guidelines for Open Space Discussions

These guidelines outline the steps to implement open spaces for discussion on learner-generated topics. They provide a framework to facilitate conversations among students, teachers, school staff, representatives of Higher Education Institutions (HEIs), School and Adult Education entities, companies, and civil society organisations. The aim is to encourage active

participation and knowledge sharing, creating a dynamic and inclusive learning environment.

## 2. Workshop Scenarios

The workshop scenarios are tailored for VET students and focus on active learning methodologies. They include detailed activity programs, implementation guidelines, templates, reusable presentations, and digital tools. The scenarios promote engagement through discussions, case studies, role plays, and other interactive methods. These resources aim to develop competencies in sustainability by empowering students to take an active role in their learning process.

## 3. Project-Based Learning Experiences

This component provides guidelines for implementing project-based learning activities. These activities involve real-world scenarios where groups of learners design sustainable solutions to environmental challenges. The resources include activity programs, implementation guidelines, templates, reusable presentations, and digital tools. The project-based approach enhances students' problem-solving skills and fosters a deep understanding of sustainability concepts.

## 4. Microlearning Videos

This component includes a collection of microlearning videos aimed at VET students. These videos are designed to develop students' knowledge, attitudes, and skills in the four competence areas defined in the GreenComp. The collection can feature both existing videos and new content created by the consortium (e.g., a video that is on YouTube, or a TED Talk Education type video). The videos should support blended learning by integrating digital content with in-person workshops.

However, it is important to point out that several competencies can be worked with the same resources. For this reason, in this classification we have based ourselves on the main competency to be worked, although other competencies can also be worked with the same educational resource.

# 4. Educational resources for embodying sustainability values

After desk research carried out and with the main conclusions of the workshops held at the Virtual Knowledge Fair, the following educational resources have been selected to work on the group of competences framed of embodying sustainability values. The guides for the open space discussions, the workshops scenarios, the project-based learning experiences and the microlearning videos will be presented below.

## 4.1. Guidelines for Open Space Discussions

| | |
|---|---|
| **Title** | **Guidelines for Open Space Discussions on Valuing Sustainability** |
| **Objectives** | These guidelines provide a structured approach to organising and facilitating Open Space discussions on learner-generated topics related to sustainable values. The framework is designed to engage students, educators, school staff, representatives of Higher Education Institutions (HEIs), Vocational Education and Training (VET) institutes, School and Adult Education entities, and civil society organisations in dynamic, learner-driven conversations.<br>The objectives are to foster open discussion, active participation, critical thinking, and knowledge sharing in alignment with the principles of the European Green Competence Framework (GreenComp) and encourage |

| | |
|---|---|
| | collaboration among Green Combs members. |
| **Participants** | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs, VETs<br>• School and Adult Education Entities<br>• Civil Society Organisations |
| **Group Size** | Not determined |
| **Materials** | • Whiteboards, Flip charts, Markers, Sticky notes.<br>• Online resources: Jamboard, Miro, Free Word Cloud Generator<br>• JRC Publications Repository - GreenComp The European sustainability competence framework |

## Procedure

### a) Preparing for the Open Space Discussion

| **1. Define the Scope and Audience** |
|---|
| • Determine the focus of the discussions (e.g., sustainable values in education, the role of VETs in sustainability, corporate responsibility, valuing sustainability). |
| • Identify the participants: students, teachers, VET representatives, civil society organisations, and other stakeholders. |
| **2. Setting the Theme** |
| • Establish a broad guiding question related to sustainable values, such as: |
| ○ "How can we embed valuing sustainability in our educational practices and daily lives?" |
| ○ "What role do educational institutions play in promoting sustainable values?" |

| 3. Planning Logistics |
|---|
| • Choose a date, time, and venue (physical or virtual). |
| • Set up breakout spaces or rooms for smaller group discussions. |
| • Arrange for materials such as whiteboards, sticky notes, and digital tools for online collaboration (e.g., Miro, Padlet). |

### b) Facilitating the Open Space Discussions

| 1. Introduction and Setting the Agenda |
|---|
| • Begin with a short introduction to the theme of sustainability based on GreenComp principles. (JRC Publications Repository - GreenComp The European sustainability competence framework) |
| • Allow participants to propose discussion topics related to the central theme. |
| • Organise these topics into a flexible agenda, with time slots for different discussions. |
| Example based on the question<br>"How can we embed valuing sustainability in our educational practices and daily lives?<br>**Welcome and Introduction [5-10 minutes]**<br>• Facilitator's Role:<br>o Introduce the topic.<br>o Share a brief overview of sustainability, emphasising its importance in education and daily life.<br>o Outline the structure of the discussion:<br>▪ Setting the stage<br>▪ Educational practices<br>▪ Daily lives<br>o Collaborative brainstorming<br>o Conclusion<br>o Icebreaker Activity:<br>o Ask participants to share one small sustainable action they practice in their daily lives or educational settings. |

## 2. Running the Sessions

- Participants self-select which discussion groups to join based on their interests.
- Discussions should be participant-driven, with minimal interference from facilitators. The emphasis is on peer-to-peer learning and knowledge exchange.

Example based on the question

"How can we embed valuing sustainability in our educational practices and daily lives?"

**Setting the Stage: Defining Sustainability [10-15 minutes]**

Prompt Questions:
- What does "sustainability" mean to you?
- Why is it important to integrate sustainability into our lives and educational systems?

Activity:
- Create a word cloud or brainstorm key themes (e.g., environmental, social, economic aspects of sustainability). Free Word Cloud Generator
- Highlight any shared values or priorities.

**Embedding Sustainability in Educational Practices [20-30 minutes]**

Discussion Questions:
- How can sustainability be incorporated into curricula across different subjects and grade levels?
- What role do teachers and educational institutions play in modelling sustainable behaviours?
- What are some examples of successful sustainability-focused initiatives in education?

Case Studies or Examples:
- Share examples of schools, universities, or programs that have successfully integrated sustainability.

Interactive Activity:
- Breakout groups (if virtual/in-person): Ask groups to brainstorm and present one idea for a sustainability project or lesson plan.

### Incorporating Sustainability in Daily Life [20-30 minutes]

Discussion Questions:
- What are practical ways individuals and families can adopt sustainable habits?
- How can workplaces and communities support sustainable living?
- What challenges do people face when trying to live sustainably, and how can we address them?

Tips and Strategies:
- Share easy-to-implement sustainable practices (e.g., reducing waste, conserving energy, sustainable shopping).

Activity:
- Sustainability Pledge: Ask participants to write down or share one new sustainable habit they will adopt in their daily lives.

### Collaborative Brainstorming: Bridging Education and Daily Life [15-20 minutes]

Objective:
- Explore how educational practices can influence daily life and vice versa.

Question:
- How can students act as sustainability ambassadors in their communities?

Activity:
- Group Mapping: Create a visual map of ideas connecting educational practices and lifestyle changes.

## 3. Documenting the Discussions

- Encourage each group to designate a note-taker to document key points, insights, and action items.
- Use digital tools (Jamboard, Miro) or traditional methods (e.g., flip charts) to capture and share ideas.

## c) Reflecting and Sharing Outcomes

| 1. Collective Debriefing |
|---|
| • At the end of the discussions, reconvene for a collective debrief. Each group shares the highlights and key takeaways from their discussions. |
| • Summarize common themes, divergent views, and actionable ideas that emerged. |
| Example based on the question<br>"How can we embed valuing sustainability in our educational practices and daily lives?"<br>**Conclusion and Call to Action [10-15 minutes]**<br>• **Summarise Key Points:**<br>  ○ Recap the main ideas shared during the discussion.<br>• **Facilitator Wrap-Up:**<br>  ○ Emphasise the importance of collective action in embedding sustainability.<br>  ○ Encourage participants to share their learnings and ideas with others. |
| **2. Follow-Up Actions** |
| • Encourage participants to commit to actions based on the discussions. |
| • Identify opportunities for further collaboration, such as setting up working groups, continuing conversations, or initiating joint projects. |

## d) Evaluating the Open Space Discussions

| 1. Feedback and Reflection |
|---|
| • Gather feedback from participants on the content, facilitation, and structure of the event. |
| • Reflect on the process: What worked well? What could be improved in future Open Space discussions? |

| 2. Aligning with GreenComp |
| --- |
| • Evaluate how the discussions contributed to developing the key GreenComp competencies among participants. |
| • Consider how the outcomes can be integrated into educational curricula, organisational strategies, or community initiatives. |

### e) Encouraging Long-Term Engagement

| |
| --- |
| • Promote ongoing communication and networking among participants. |
| • Share outcomes with wider communities through reports, blogs, social media, and educational resources. |
| • Develop future Open Space events on related themes to sustain momentum and deepen understanding of sustainable values. |

### f) Conclusion

These guidelines offer a framework for organizing Open Space discussions on valuing sustainability, fostering a collaborative learning environment in line with the GreenComp competencies. By engaging diverse stakeholders in meaningful conversations, these discussions can drive collective action towards a more sustainable future.

## 4.2. Guidelines for Workshop Scenarios

| | |
|---|---|
| **Title** | **Workshop 1: Embracing sustainability values: Supporting fairness** |
| **Objectives** | Students will explore the interconnectedness of environmental, social, and economic systems, understanding how actions in one area affect others. |
| **Competences** | Embracing sustainability values: Supporting fairness |
| **Target Group** | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs, VETs<br>• School and Adult Education Entities<br>• Civil Society Organisations |
| **Group Size** | Not determined |
| **Materials** | • Reusable presentation slides introducing systems thinking and complexity.<br>• Case study template and guidelines.<br>• Systems mapping templates (physical and digital tools like Miro). |
| **Activity Program** | |

**Format:**

- Duration: 3 hours
- Methodologies: Discussions, Interactive Mapping, Case Study Analysis

## Implementation Guidelines

1. **Introduction [15 minutes]:**
    - Brief presentation on sustainability as a complex system.
    - Explanation of how environmental, social, and economic factors are interconnected.
2. **Activity 1: Systems Thinking Exercise [45 minutes]:**
    - **Interactive Mapping:** In groups, students create a systems map showing connections between different sustainability factors (e.g., climate change, poverty, health).
    - **Discussion:** Groups share their maps and discuss the ripple effects of changes in one area on the entire system.
3. **Activity 2: Case Study Analysis [1 hour]:**
    - Students analyse a real-world case study involving a sustainability challenge (e.g., deforestation and its impacts on local communities, biodiversity, and economy).
    - **Group Discussion:** Each group identifies key stakeholders, examines trade-offs, and proposes solutions.
4. **Activity 3: Reflect and Debrief [30 minutes]:**
    - Open discussion on how understanding complexity can influence decision-making and promote holistic sustainability.
5. **Conclusion and Action Plan [30 minutes]:**
    - Students create individual or group action plans on how they can apply systems thinking in their daily lives or future careers.

## Resources

Additional resources are not needed.

| | |
|---|---|
| **Title** | **Workshop 2: Embodying sustainability values: Promoting nature** |
| **Objectives** | Students will explore how they can take practical steps to promote sustainability in their personal lives, communities, and workplaces. |
| **Competences** | Embodying sustainability values: Promoting nature |
| **Target Group** | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs, VETs<br>• School and Adult Education Entities<br>• Civil Society Organisations |
| **Group Size** | Not determined |
| **Materials** | • Project planning templates and guidelines.<br>• Reusable presentation slides with case studies and best practices.<br>• Digital tools for collaborative project development (e.g., Google Workspace, Miro). |

**Activity Program**

- Duration: 4 hours
- Methodologies: Project-Based Learning, Case Study, Group Discussion

## Implementation Guidelines

1. **Introduction [15 minutes]:**
    - Overview of sustainability in action, highlighting examples of real-world initiatives and grassroots movements.
2. **Activity 1: Local Sustainability Project Planning [1.5 hours]:**
    - In groups, students identify a sustainability issue in their local community or industry.
    - They then design a project or initiative to address this issue (e.g., reducing plastic waste, promoting energy efficiency).
    - Groups develop detailed project plans, including goals, timelines, resources needed, and stakeholder engagement strategies.
3. **Activity 2: Action Plan Presentation and Feedback [1 hour]:**
    - Each group presents their project to the class.
    - Peer feedback sessions allow students to refine their plans based on input from others.
4. **Activity 3: Sustainability in the Workplace [1 hour]:**
    - Case studies on sustainable practices in various industries (e.g., green manufacturing, eco-friendly product design).
    - Group discussion on how students can implement sustainable practices in their future careers.
5. **Conclusion and Commitment [30 minutes]:**
    - Students write down personal sustainability commitments, discussing how they can apply what they learned both personally and professionally.

## Resources

Additional resources are not needed.

| Title | Workshop 3: Embodying sustainability values: supporting fairness |
|---|---|
| **Objectives** | Students will learn the value of collaboration in sustainability efforts by engaging in teamwork, negotiation, and consensus-building exercises, supporting equity and justice for future generations. |
| **Competences** | Embodying sustainability values: Supporting fairness. |
| **Target Group** | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs, VETs<br>• School and Adult Education Entities<br>• Civil Society Organisations |
| **Group Size** | Not determined |
| **Materials** | • Reusable negotiation and role play scenarios.<br>• Templates for group project planning.<br>• Digital collaboration tools for remote teamwork. |

## Activity Program

- Duration: 3 hours
- Methodologies: Group Work, Role Play, Consensus-Building Activities

## Implementation Guidelines

1. **Introduction [15 minutes]:**
    - Introduction to the importance of collaboration in achieving sustainable outcomes.

- Introduction to the importance of equity and justice for future generations.
- Presentation on multi-stakeholder collaboration, emphasising diverse perspectives.

2. **Activity 1: Sustainable Negotiation Simulation [1 hour]:**
   - Students participate in a role-playing simulation where they represent different sectors (e.g., government, business, NGOs) and must negotiate a sustainable development agreement.
   - Focus is on finding common ground and making compromises that lead to mutually beneficial outcomes in the present and in the future.
3. **Activity 2: Group Project – Co-Creating Solutions [1 hour]:**
   - In mixed groups, students co-create a solution to a sustainability challenge (e.g., designing a community garden, reducing campus waste).
   - Emphasis is on teamwork, pooling resources, and combining diverse skills.
4. **Activity 3: Reflecting on Collaboration [30 minutes]:**
   - Debriefing session on what students learned about the dynamics of collaboration.
   - Discussion on how they can foster collaboration in their future workplaces and communities.
5. **Conclusion and Next Steps [15 minutes]:**
   - Students identify ways they can continue collaborating on sustainability initiatives, including joining local groups, volunteering, or starting their own initiatives.

## Resources

Additional resources are not needed.

| Title | Workshop 4: Embodying sustainability values |
|---|---|
| Objectives | Students will develop skills in embodying sustainability solutions and futures through scenario planning and creative problem-solving. |
| Competences | • Valuing sustainability<br>• Supporting fairness<br>• Promoting nature |
| Target Group | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs, VETs<br>• School and Adult Education Entities<br>• Civil Society Organisations |
| Group Size | Not determined |
| Materials | • Scenario planning templates and guidelines.<br>• Vision board templates (physical and digital).<br>• Reusable presentation slides on sustainable futures. |

## Activity Program

**Format:**

- Duration: 3.5 hours
- Methodologies: Scenario Planning, Group Work, Role Play

## Implementation Guidelines

1. **Introduction [20 minutes]:**
    - Presentation on the importance of embodying sustainability values.
    - Introduction to scenario planning and its relevance to sustainability.
2. **Activity 1: Future Visioning Exercise [1 hour]:**
    - In small groups, students imagine and describe sustainable values for their community or industry in 2050. They are encouraged to consider environmental, social, and technological aspects.
    - Groups present their visions using creative formats (e.g., storyboards, vision boards, or role plays).
3. **Activity 2: Strategy Development [1 hour]:**
    - Groups work backward from their values.
    - They outline key milestones, potential barriers, and strategies for overcoming challenges.
4. **Activity 3: Role Play and Simulation [1 hour]:**
    - Students participate in a role-play exercise where they represent different stakeholders (e.g., policymakers, community leaders, business owners) and negotiate solutions that align with their envisioned futures.
    - **Debrief and Reflection:** Discuss the challenges of balancing competing interests while working towards sustainability.
5. **Conclusion and Reflection [30 minutes]:**
    - Students reflect on what they learned and discuss how they can apply future-oriented thinking in their personal and professional lives.

| Resources |
| --- |

Additional resources are not needed.

**Implementation Guidelines for Educators**

| |
| --- |
| **Preparation:** Ensure all digital tools and templates are set up in advance. Familiarise yourself with the content and methodologies. |
| **Facilitation Tips:** Encourage active participation, respect for diverse viewpoints, and creativity. Use guiding questions to keep discussions focused and productive. |
| **Assessment:** Use reflective journals, peer assessments, and group feedback to evaluate student engagement and learning outcomes. |

These workshop scenarios are designed to develop key GreenComp competencies through active learning methodologies, promoting student ownership of their learning and inspiring them to become sustainability advocates in their personal and professional lives.

## 4.3 Project-Based Learning Activities

This educational resource provides a comprehensive guide for implementing Project-Based Learning (PBL) activities focused on sustainability, using the European GreenComp Framework as a foundation. The resources help educators design activities that encourage students to create real-world solutions for environmental challenges while developing key sustainability competencies. The framework emphasises active learning, collaboration, and real-world problem-solving.

In this case, and due to the very nature of the educational resource, Project-Based-Learning, other competencies in sustainability have been included, which are also worked on in a secondary way within the Green Comp framework.

| | |
|---|---|
| **Title** | **Embodying sustainability values: Valuing sustainability** |
| **Objectives** | Students work in groups to design and implement sustainable solutions to environmental challenges within their community or a simulated context. The focus is on developing skills in systems thinking, future-oriented planning, proactive action, and collaboration. |
| **Competences** | Key Competencies (GreenComp):<br>• Embodying sustainability values: Valuing sustainability<br>• Envisioning Sustainable Futures: Exploratory thinking.<br>• Acting for Sustainability: Collective action |
| **Target Group** | VET students, secondary education, and early tertiary education. |
| **Group Size** | Not determined |
| **Materials** | - **Templates:**<br>• Project proposal template.<br>• Systems thinking and scenario planning worksheets.<br>• Design thinking and brainstorming guides.<br>• Project management templates (Gantt charts, action plans).<br>• Reflection and peer assessment forms.<br>- **Presentations:**<br>• Introduction to Project-Based Learning in Sustainability. |

- Understanding Complexity in Sustainability.
- Creative Problem-Solving for Sustainability.
- Effective Collaboration and Project Management.

- **Digital Tools:**
  - **Collaboration Platforms:** Google Workspace, Microsoft Teams, for project tracking and communication.
  - **Design Tools:** Canva, Miro, for visual presentations and design work.
  - **Research Tools:** Access to online libraries, sustainability databases, and digital mapping tools (e.g., ArcGIS).

## Activity Structure

The project can be implemented over 6-8 weeks, with regular sessions for research, planning, implementation, and reflection.

## Implementation Guidelines

### 1. Planning and Preparation

#### 1.1. Project Topic Selection:

- Encourage students to select a sustainability challenge relevant to their local context (e.g., reducing plastic waste, promoting renewable energy, improving urban green spaces).
- Use brainstorming sessions to help students identify issues that resonate with their interests.

#### 1.2. Team Formation and Roles:

- Organise students into diverse teams, ensuring a mix of skills and perspectives.

- Assign roles within each team (e.g., project manager, researcher, designer, communications lead).

**1.3. Project Proposal Development:**

- Provide a template for students to create a project proposal, including:
  - What is the sustainability challenge?
  - **Objectives:** What do they aim to achieve?
  - **Stakeholders:** Who will be involved or affected?
  - **Timeline:** What is the project timeline?
  - **Resources needed:** What materials, tools, or information are required?

**1.4. Presentation and Feedback:**

- Teams present their project proposals for peer and instructor feedback before moving into the implementation phase.

**2. Activity Program: Project Implementation Stages**

**Stage 1: Research and Analysis [1-2 weeks]**

- **Activity:** Students conduct research to understand the complexity of the sustainability issue, mapping out environmental, social, and economic impacts.
- **Tool:** Systems mapping templates (digital or physical).
- **Resource:** Reusable presentation on systems thinking and sustainability.

**Stage 2: Solution Design and Planning [1-2 weeks]**

- **Activity:** Students brainstorm and design their sustainable solution using tools like design thinking and scenario planning.
- **Tool:** Design thinking worksheets and scenario planning templates.
- **Resource:** Reusable presentation on sustainable innovation and creative problem-solving.

| Stage 3: Implementation [2-3 weeks] |
|---|
| • **Activity:** Students take action by implementing their solution, either through a prototype, community event, awareness campaign, or practical intervention. |
| • **Tool:** Project management templates (Gantt charts, action plans). |
| • **Resource:** Reusable slides on project management for sustainability initiatives. |
| **Stage 4: Reflection and Evaluation [1 week]** |
| • **Activity:** Students evaluate the effectiveness of their project, discussing successes, challenges, and learning outcomes. |
| • **Tool:** Reflective journals, peer assessment templates, and digital surveys. |
| • **Resource:** Reusable templates for project evaluation and reflective practice. |

| 3. Assessment and Reflection |
|---|
| **Assessment Approach:** |
| • **Formative Assessment:** Ongoing feedback during research, planning, and implementation stages through check-ins and peer reviews. |
| • **Summative Assessment:** Final evaluation based on project presentations, reports, and reflective journals. |
| **Assessment Criteria:** |
| • Understanding of sustainability concepts. |
| • Creativity and innovation in solution design. |
| • Effective collaboration and teamwork. |
| • Impact and feasibility of the solution. |

| Reflective Practice: |
| --- |
| • After project completion, facilitate a reflection session where students discuss what they learned about sustainability and how they can apply these insights in future endeavours. |

| Sample Project Ideas |
| --- |
| 1. **Community Waste Reduction Campaign:** Students design a campaign to reduce plastic waste in their school or local community, including awareness activities, workshops, and partnerships with local businesses. |
| 2. **Urban Green Space Revitalisation:** Students work with local authorities to design and propose improvements to an underutilised green space, incorporating biodiversity, water management, and community involvement. |
| 3. **Renewable Energy Awareness and Installation:** Students research renewable energy options and design an awareness campaign, potentially piloting a small-scale solar or wind energy solution. |
| 4. **Sustainable Fashion Initiative:** Students create a clothing swap event or an upcycling workshop, promoting sustainable fashion choices within their community. |
| 5. |

| Resources |
| --- |

Additional resources are not needed.

## Conclusion

These educational resources empower students to engage in meaningful, real-world sustainability challenges through Project-Based Learning. By focusing on valuing sustainability, collaboration, critical thinking, and creative problem-solving, students develop key competencies outlined in

the GreenComp framework, preparing them to be active contributors to a sustainable future.

These guidelines and resources are designed to be flexible and adaptable, ensuring that they can be easily integrated into various educational contexts while remaining aligned with the core principles of sustainability.

## 4.4 Micro-Learning Videos

Below are some guidelines for implementing micro-learning videos in an educational environment, as well as a selection of videos that can be used to work mainly on competencies aimed at embodying sustainability values.

### 4.4.1. Guidelines for Integrating Microlearning Videos in Blended Learning

1. **Pre-Workshop Engagement:**
   Share selected videos with students before in-person sessions. Ask them to watch and reflect on the content, preparing for deeper discussion during workshops.
2. **In-Workshop Use:**
   Use the videos as conversation starters, or integrate them into activities like group discussions, role plays, and case study analysis.
3. **Post-Workshop Reflection:**
   Encourage students to revisit videos after workshops to reinforce key concepts and connect theory to their project work.
4. **Assessing Learning Outcomes:**
   Pair videos with reflective questions, short quizzes, or discussion prompts to assess understanding and encourage active engagement.

This microlearning video collection provides flexible, engaging resources to support the development of sustainability competencies in VET students.

By integrating these videos into a blended learning environment, educators can enhance active learning experiences and promote deeper understanding of sustainability values in line with the GreenComp framework.

### 4.4.2 Selected Micro-Learning Videos

#### Sample Videos:

- Kiss the Ground
    - A must-see trailer for Kiss the Ground. Watch it and discover a simple solution for climate change.
- Tomorrow
    - Tomorrow, an inspiring documentary that presents concrete solutions implemented throughout the world by hundreds of communities.
- Shaping a sustainable future. Together
    - Find out how Vanderlande is shaping a sustainable future. Together.

# 5. Educational resources for embracing complexity in sustainability

The following educational resources have been chosen to work on the set of competencies intended for embracing complexity in sustainability, based on desk research and the key findings of the workshops organized at the Virtual Knowledge Fair. This chapter outlines the rules for the project-based learning activities, open-space discussions, workshop situations, and microlearning videos.

## 5.1. Guidelines for Open Space Discussions

| | |
|---|---|
| **Title** | **Open Space Discussions on "Water scarcity and droughts"** |
| **Objectives** | · Facilitate open discussions on the interconnectedness of water shortage using systems mapping.<br>· Facilitate open and inclusive discussions to explore the complex issue of water scarcity and droughts, encouraging participants to share knowledge, ideas, and potential solutions.<br>· Co-create new possibilities, envisioning a future for the whole. |
| **Participants** | · Students<br>· Teachers<br>· School Staff<br>· Representatives of HEIs |

| | |
|---|---|
| | • School and Adult Education Entities<br>• Companies<br>• Civil Society Organizations |
| **Group Size** | At least 10 participants. |
| **Materials** | • Laptop<br>• System Mapping Toolkit Template \| Miroverse<br>• A Brief Introduction on Water Scarcity \| PPTX |
| **Resources** | • 13.3: Water Scarcity and Solutions - Biology LibreTexts<br>• What are Systems Maps?<br>• WWF Water Risk Filter - Europe |

**Procedure**

### 1. Introduction [15 mins]

To set the stage for a meaningful exploration of the issue, start by stating the discussion's goals, such as understanding the causes and impacts of water scarcity, exploring solutions, and fostering collaboration.

Next, prompt your group with a thought-provoking question like: *"What would your day look like if you had only 4 litres of water?".* This would prompt students to think about their daily water usage and appreciate the importance of water in their lives.

To deepen their understanding, show participants a video about the impact of droughts on communities, agriculture, and ecosystems. A video like "What is drought? can visually illustrate the severity of drought conditions and their widespread consequences, making the abstract concept of water scarcity more tangible.

Following the video, navigate the "WWF Water Risk Filter - Europe" map to provide some eye-opening statistics. Highlight the percentage of the

global population facing water scarcity, the number of people without access to clean water, and the regions most affected by droughts. To make the issue even more relevant, share specific information about water scarcity and droughts in the participants' own region or country, connecting the global challenge to their local context. This approach will help participants grasp the seriousness of the issue and inspire them to think critically about possible solutions and collaborative efforts.

### 2. Topic Board Creation - Brainstorming Session [15 mins]

Invite participants to propose subtopics or questions related to water scarcity and droughts. Encourage them to think broadly, considering social, economic, environmental, and technological lenses.

| | |
|---|---|
| Social lenses | • How does water scarcity impact different communities?<br>• How does water scarcity affect public health and sanitation?<br>• What role does culture play in water use and conservation? |
| Economic lenses | • How does water scarcity influence local and global economies?<br>• How do water shortages affect food production and prices? |
| Environmental lenses | • How do droughts impact local ecosystems and biodiversity?<br>• How do human activities exacerbate water scarcity and drought conditions?<br>• What strategies exist for restoring ecosystems affected by drought? |

| | |
|---|---|
| Technological lenses | • What technologies are available to improve water management and efficiency?<br>• What are the challenges and opportunities of using technology to solve water scarcity issues? |

Collect all proposed topics related to water scarcity and displaying them on a board. This visual representation will help everyone see the range of ideas and themes that have emerged.

Photo credit: **Midjourney**

Next, elicit the integration of those aspects by asking participants the following questions:

- "How do social, economic, environmental, and technological factors interact in the context of water scarcity?" This question invites them to consider the complexity of the issue and how these diverse factors influence each other.
- "What policies or initiatives can address water scarcity while

considering these diverse factors?" This will guide the participants toward thinking about practical solutions that account for the multifaceted nature of the problem.

After this reflective discussion, allow participants to vote on the topics they are most interested in exploring and discussing further.

### 3. Open Discussion & System Mapping visualisation [30 mins]

Based on the selected topics, divide participants into smaller groups. Aim for 5-10 people per group to ensure meaningful interaction. Assign a facilitator for each group to guide the discussion, keep it focused, and ensure everyone has a chance to contribute. Offer prompts to help initiate conversations. Examples might include:

- *What are the primary causes of water scarcity in our region?*
- *How do droughts impact agriculture and local communities?*
- *What innovative solutions can we implement to conserve water and manage droughts?*

Use systems mapping techniques (System Mapping Toolkit Template | Miroverse) to visualise the connections between different factors affecting water scarcity, such as climate change, agriculture, and urbanisation.

### 4. Sharing & Reflection [30 mins]

After the group discussions, reconvene for a plenary session. Each group presents a summary of their key insights, ideas, and proposed solutions.
Encourage participants to reflect on the discussions and share their thoughts on potential actions and collaborations that could address the issue.
Teachers may use some of these guided reflection questions:

- *What was the most surprising insight you gained from today's discussion?*

- *How do you see your role in addressing this issue?*
- *What potential actions did you hear that you think could be most effective?*

Capture the main points, ideas, and action items from each group. Teachers shall consider using digital tools such as padlet bulletin boards (e.g A Padlet about Padlet - The Online Bulletin Board) to document and share the outcomes with all participants.

#### 5. Follow up & Actions [15 mins]

Share the documented outcomes with all participants, including any identified action items or collaborative opportunities.

Suggest ways for participants to continue exploring the topic, such as forming working groups, hosting follow-up meetings, or connecting with relevant organisations.

## 5.2. Guidelines for workshop scenarios

| **Title** | **Workshop 1: Urban Sustainability Challenges** |
|---|---|
| **Objectives** | · Equip students with the skills to analyse urban sustainability challenges through systems thinking.<br>· Boost their critical thinking and develop their problem-framing abilities. |
| **Competences** | · System thinking<br>· Critical thinking<br>· Problem framing |
| **Target Group** | · Students ideally from diverse disciplines<br>· Teachers |

| | |
|---|---|
| | • School Staff<br>• Representatives of HEIs<br>• School and Adult Education Entities<br>• Companies<br>• Civil Society Organizations |
| **Group Size** | 20 |
| **Materials** | • Laptop<br>• Projector<br>• Access to collaborative online tools (e.g., Zoom, Google Meet, Jamboard, Miro, etc.)<br>• |

**Activity Program**

**DAY 1**

1. Introduction and Systems Thinking [15 mins]
2. Understanding Systems Thinking [30 mins]
3. System mapping of Urban Challenges [60 mins]
4. Problem Framing technique [45 mins]

**DAY 2**

6. Solution Development and Presentation [90 mins]
7. Closing Remarks and Reflection [30 mins]

## Implementation Guidelines

### 1. Introduction and Systems Thinking [15 mins]

Begin by engaging students with a personal connection to the topic. Ask them to reflect on:

1. A city they live in or have visited;
2. What they love about it;
3. What problems they've observed;

Follow this with an icebreaker activity, "Sustainability Snapshots," where participants share images or examples of sustainable or unsustainable urban practices they've encountered. Use online tools like Padlet or Miro for collaboration.

Next, provide an overview of urban sustainability challenges by watching the video "Challenges of Urban Sustainability [AP Human Geography Unit 6 Topic 11]", focusing on key issues such as transportation, waste management, and energy use.

Encourage a group discussion exploring major urban sustainability challenges, including:

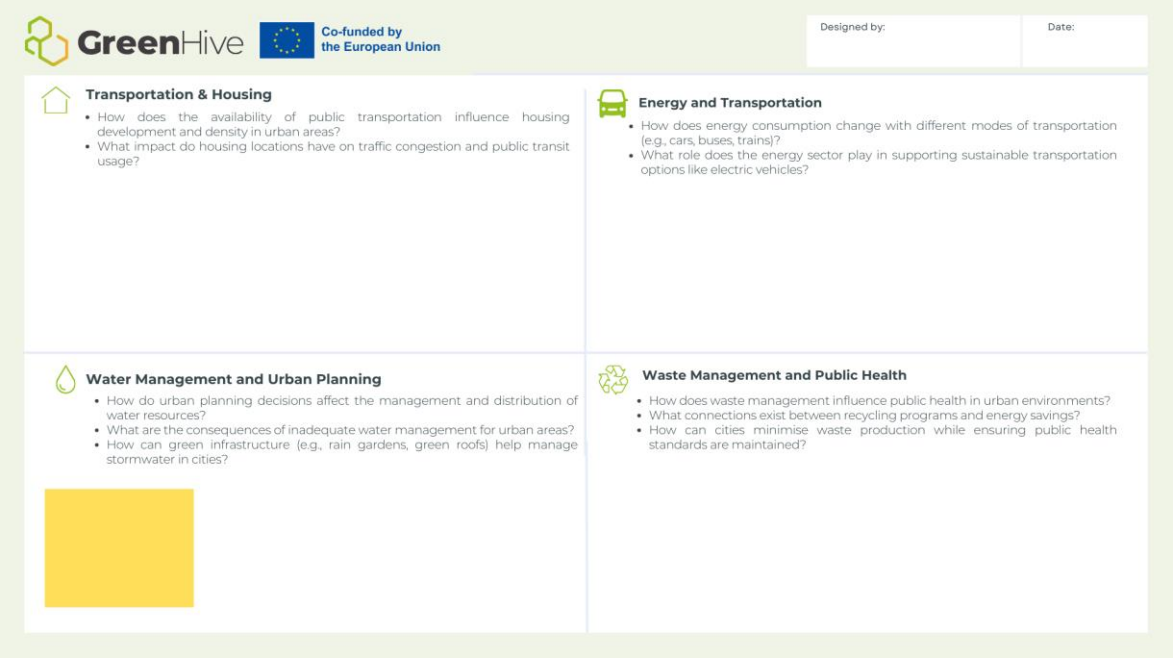
- Overpopulation and Density: The strain on infrastructure, housing, and resources due to growing urban populations.
- Transportation: Problems related to traffic congestion, air pollution, and the need for sustainable public transport solutions.
- Waste Management: The complexities of managing solid waste, recycling, and composting in urban areas.

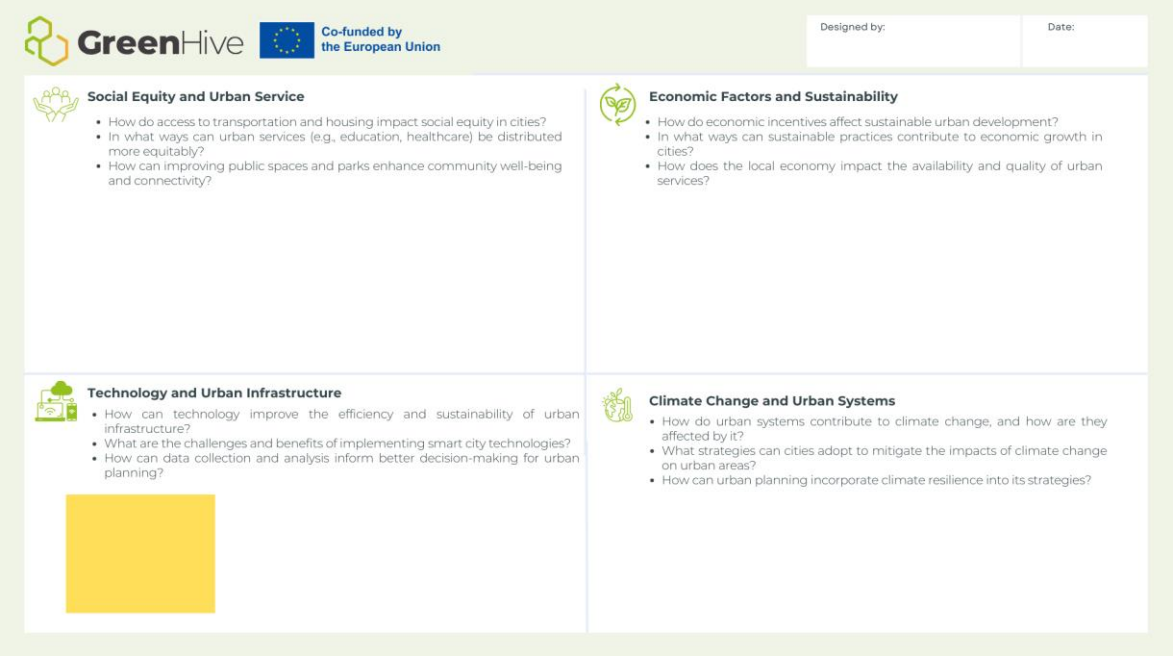
- Water and Energy Use: The challenge of providing sustainable water and energy, particularly in the context of climate change.
- Social Equity: Ensuring equitable access to resources and opportunities for all, including marginalized communities.

## 2. Understanding Systems Thinking [30 mins]

Introduce the concept of systems thinking by explaining how urban systems are interconnected, much like how organs in the human body work together to maintain overall health. This comparison can help students understand how elements like transportation, housing, and energy are interdependent.

Explain that systems thinking is a holistic way of understanding complex interrelationships within a system, focusing on the bigger picture rather than individual components in isolation. Support this with a video on systems thinking, like the one available at https://youtu.be/AP7hMdnNrH4?si=XmJznI_CUBYJqmPB. To reinforce the concept, hand out a systems thinking canvas – editable template provided here - to encourage students to map relationships and dependencies between urban components.




Divide the class into small groups and have them use the [System Mapping Toolkit Template | Miroverse] to create systems maps of their local urban environments, identifying key components and their connections.

### 3. System mapping of Urban Challenges [60 mins]

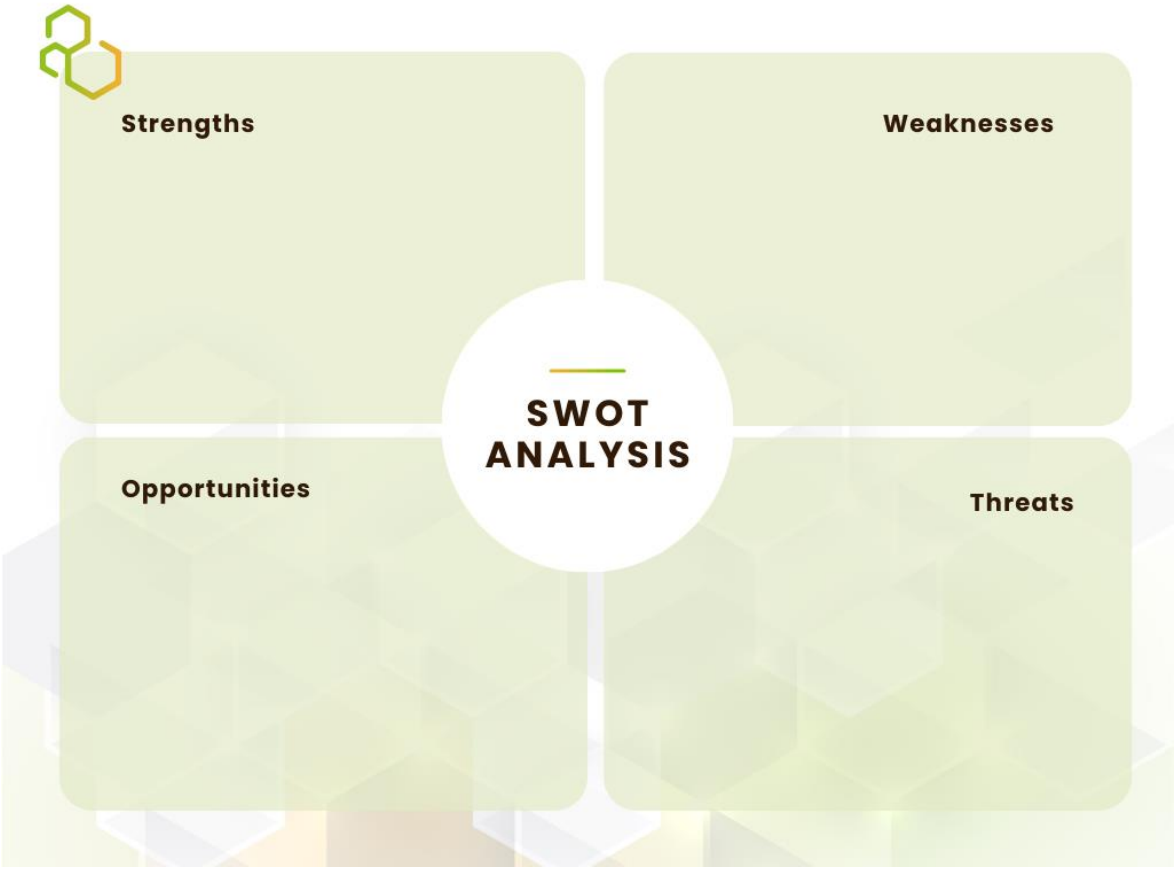
Start by showing the video "Is Copenhagen the World's Most Sustainable City?" to provide a real-world model. Ask students to compare this with a city they know well.

**Group Activity:** Each group selects a challenge (e.g., waste management, energy consumption) and creates a systems map, identifying stakeholders, influences, and feedback loops related to their chosen city.

**Steps:**

- Define the context and the key stakeholders, describing their roles within the system.
- Identify the connections between these stakeholders, such as economic, material, or information flows.
- Analyse the map to identify problems and opportunities, and visually represent them.
- Once complete, suggest ideas to improve the system's overall functioning.

Afterward, have the groups share their maps. Engage the class in a discussion around controversial urban policies (e.g., urban regeneration, social housing), debating their pros and cons. You may find platforms like Kialo helpful for facilitating structured debates, or consider conducting a **SWOT analysis** (Strengths, Weaknesses, Opportunities, Threats) to evaluate policy impacts.




### 4. Problem Framing technique [45 mins]

Introduce problem framing by watching the video "Introduction to Problem Framing (Melanie Smallman)" to emphasise its importance in developing effective sustainability solutions.

Using the systems maps created in the previous activity, groups should reframe their chosen urban challenge by considering different stakeholder perspectives and potential long-term impacts.

**Tips:** Use **Force Field Analysis**, a tool developed by Kurt Lewin, to identify the forces influencing a particular issue. Here's how to apply it:

***Define the problem clearly:*** start by identifying the problem or change you are trying to address. Make sure the issue is framed clearly,

specifying the current situation (status quo) and the desired future state (goal). This provides a foundation for the analysis.

***Identify driving forces:*** list the driving forces, which are factors that support or push toward achieving the desired change. These can be internal or external influences that create momentum for solving the problem.

***Identify restraining forces:*** list the restraining forces, which are factors that resist or hinder progress toward solving the problem. These are the barriers that maintain the status quo or slow down change.

***Visualise the analysis:*** create a chart with the problem in the centre. On one side, list the driving forces, and on the opposite side, list the restraining forces. Assign a score or weight to each force to indicate its strength and impact.

***Analyse the balance:*** evaluate the relative strength of driving versus restraining forces. Are there more forces supporting or resisting the change? Understanding the balance allows you to see which factors need to be strengthened or minimised to shift toward a solution.

***Strategize to enhance driving forces and reduce restraining forces:*** develop strategies to increase or reinforce driving forces and reduce or eliminate restraining forces. This could involve addressing the concerns that create resistance or leveraging resources to strengthen the supportive factors.

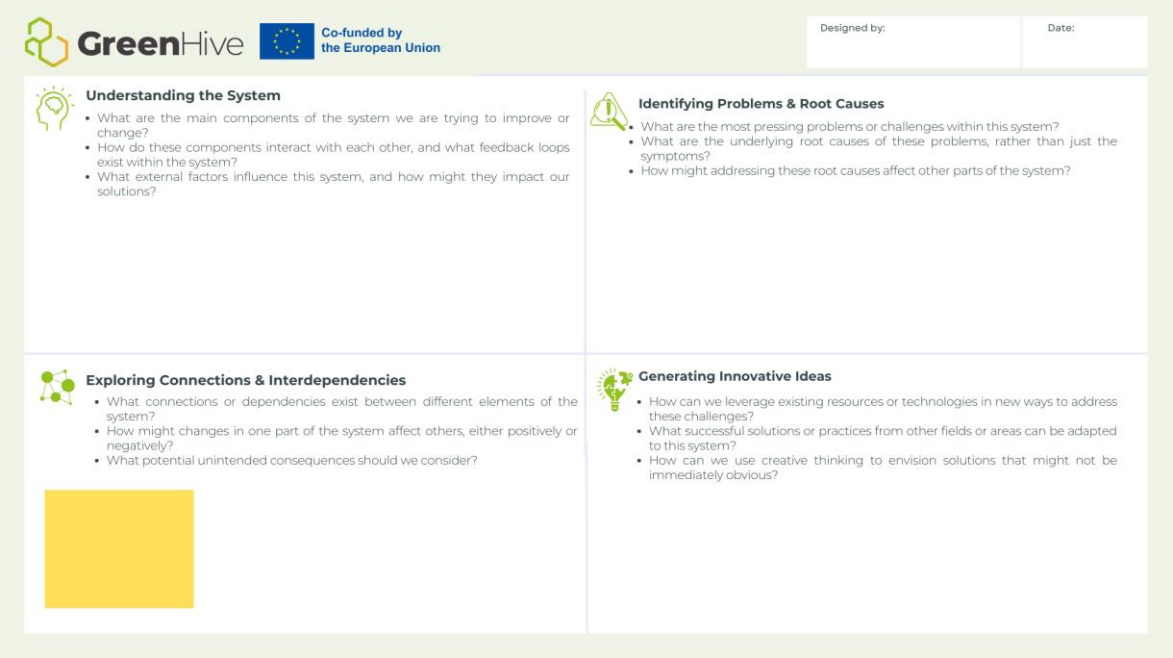
***Reframe the problem based on insights:*** use the findings from the Force Field Analysis to refine how you frame the problem. The analysis

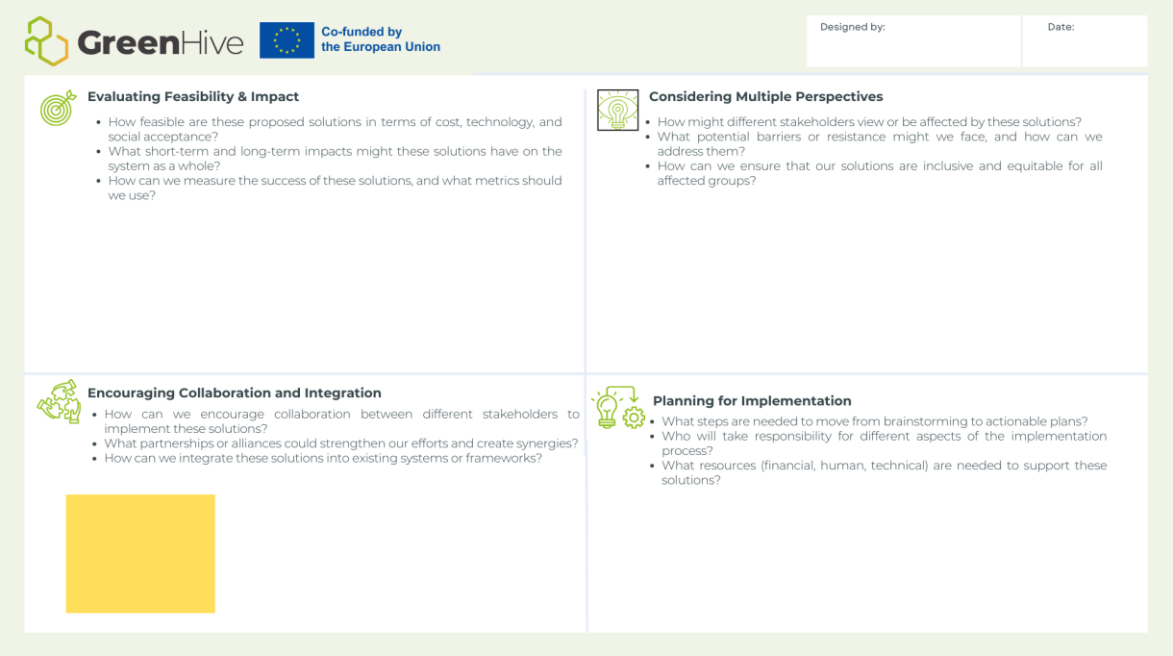
may highlight underlying issues that weren't initially apparent, helping you develop a more comprehensive understanding of the problem. By reframing the problem with this additional context, you may discover new solutions or better ways to address the core issues.

## DAY 2

### 6. Solution Development and Presentation [90 mins]

*Brainstorming*: Groups brainstorm innovative solutions to their reframed urban challenges using systems thinking and critical analysis. Provide canvas templates to guide this process.






*Preparation for Presentation*: Groups prepare a short presentation of their problem framing and proposed solutions, focusing on feasibility, sustainability, and stakeholder impact.

*Presentations*: Each group presents their work to the entire workshop, followed by a Q&A session where other participants and facilitators provide feedback.

### 7. Closing Remarks and Reflection [30 mins]

Participants reflect on their learning experiences, discussing how systems thinking and critical analysis have altered their understanding of urban sustainability.

Use tools like Mentimeter to collect feedback on the workshop and encourage participants to apply their new skills in future projects or studies.

## Resources

- Canvases Templates
- Urban sustainability | European Environment Agency's home page
- Urban Agenda for the EU | Futurium
- Urban sustainability in Europe – opportunities for challenging times
- What is Systems Thinking?
- Systems Thinking: What, Why, When, Where, and How? - The Systems Thinker
- This tool will help improve your critical thinking - Erick Wilberding
- The Role of Critical Thinking in Environmental Sustainability: A Holistic Approach
- Critical Thinking Skills in Environmental Sciences
- Reframing Problems | Roy Rosin | TEDxRadnorHighSchool
- Introduction to Problem Framing (Melanie Smallman)

| Title | Workshop 2: Am I a friend of the environment? |
|---|---|
| Objectives | To present participants with different situations of daily life in order to measure their degree of involvement with the environment. |
| Competences | Embracing complexity in sustainability: system thinking, critical thinking and problem framing. |
| Target Group | • VET students<br>• VET trainees |
| Group Size | 15-20 |
| Materials | N/A |

## Activity Program

How do you deal with everyday situations that affect the environment? Fill in an interactive questionnaire, make decisions regarding the environment and get a final report that will indicate your degree of involvement with the environment.

## Implementation Guidelines

Since the beginning of the industrial revolution, human beings have become a problem in maintaining the balance and sustainability of planet Earth and the environment, polluting and destroying ecosystems and emitting greenhouse gases into the atmosphere at a rate that the planet cannot sustain. This has led in recent years to an increase in the number of climate catastrophes and the creation of new scenarios with terrible and irreversible consequences.

In the educational resource *Am I environmentally friendly?* The starting point is a natural scenario.

1. You have to choose where you want to live, a village, a medium-sized city or a big city.
2. You will answer a series of questions about different everyday situations.
3. You should be aware that the life we lead is environmentally friendly and in this educational resource you will find out.

## Resources

https://ambientech.org/test-medioambiental

(Platform with questions related to the subject matter where the student's successes and mistakes are registered)


Resource from ambientech.org

## 5.3. Project-Based Learning Activity

| Title | Biodiversity |
|---|---|
| **Objectives** | • Engage students in exploring and addressing biodiversity challenges<br>• Improve their understanding of systems, critical analysis, and effective problem framing. |
| **Competences** | • System thinking<br>• Critical thinking<br>• Problem framing |
| **Target Group** | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs<br>• School and Adult Education Entities<br>• Companies<br>• Civil Society Organizations |
| **Group Size** | 10-20 |
| **Materials** | • Laptop<br>• Projector |

| Activity Structure |
|---|
| 1.Introduction- Understanding biodiversity [90 mins] |
| 2.Systems Mapping & Research [90 mins] |

| |
|---|
| 3. Problem Identification & Framing [90 mins] |
| 4.Solution Design & Development [90 mins] |
| 5. Create a model [90 mins] |
| 6.Final Presentation [90 mins] |

### 1. Introduction- Understanding biodiversity [90 mins]

Start by introducing the concept of biodiversity with the video What is biodiversity? to provide students with a foundational understanding. Discuss biodiversity's importance, its role in ecosystems, and the threats it faces, such as habitat destruction, climate change, and pollution.

**Invite an expert:** You could invite a biodiversity expert or ecologist to spe about local biodiversity issues and conservation efforts.

**Guided Exploration:** Conduct a guided exploration or research session on a local ecosystem (e.g., forest, wetland, etc) to help students observe and learn about biodiversity. Clearly define the learning objectives, such as understanding species diversity, ecological interactions, and the significance of conservation efforts. Provide guiding questions such as:

- What types of plants and animals are found in this ecosystem?
- How do species interact with each other and their environment?
- What threats to biodiversity are present in this ecosystem?

**Virtual Field Trip:** Students, divided into small groups, embark on a virtual field trip using online resources. Encourage them to explore:

- Videos: Watch documentaries or short videos on the ecosystem.

- Live Streams: Explore live streams from nature reserves or parks, if available.
- Interactive Maps: Use tools like Google Earth to examine the ecosystem's geography and features.
- Students should collaboratively build a virtual species wall using platforms like Padlet or Google Docs. Have them collect data on species and habitats by:
    - Creating a list or table of observed species from the virtual resources.
    - Taking notes on ecological relationships and human impacts.

**Session outcome:** Students acquire foundational knowledge about biodiversity and its ecological importance.

### 2. Systems Mapping & Research [90 mins]

Introduce students to systems thinking and its application in mapping ecosystems, focusing on identifying components, interactions, and dependencies (e.g., food webs, nutrient cycles).

### Key Concepts

- Components: The individual parts of the ecosystem (e.g., species, plants, water sources).
- Interactions: How components interact (e.g., predator-prey relationships, symbiosis).
- Dependencies: How components depend on each other for survival (e.g., food chains, nutrient cycles).

Explain the importance of viewing ecosystems holistically and introduce systems thinking concepts. Have students use online

software such as MindMeister or Lucidchart to draw **dependency diagrams**, showing how components depend on each other. Highlight key dependencies, like the reliance of plants on sunlight and nutrients.

**Group Activity:** In groups, students create systems maps of a selected ecosystem, identifying key species, their roles, and the threats to biodiversity.

**Session Outcome:** Students gain an understanding of ecosystem complexity and interconnections.

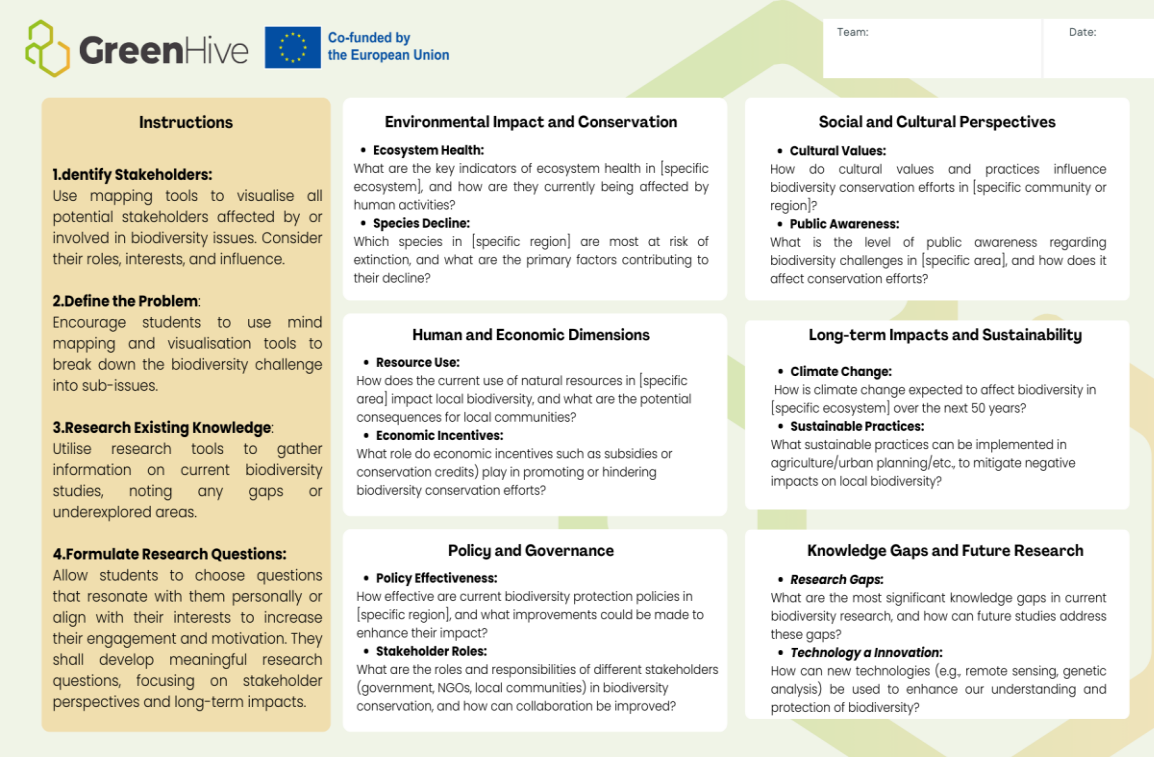
### 3. Problem Identification & Framing [90 mins]

Introduce **problem framing** by showing the video "Introduction to Problem Framing (Melanie Smallman)", emphasising its importance in developing effective sustainability solutions. To guide students, pose the following questions:

- *What happens if a key ecosystem component is removed or significantly altered?*
- *How do human activities impact these interactions and dependencies?*
- *What are the potential ripple effects of changes in the ecosystem?*

**Group Activity:** Each group selects a biodiversity issue (e.g., invasive species, deforestation, pollution) and conducts research to understand its causes and impacts. Groups will frame their problem by considering various stakeholder perspectives and potential long-term impacts, identifying research questions and knowledge gaps along the way.

Students shall follow this process:




**Session Outcome:** Students develop skills in identifying and framing complex biodiversity problems from multiple perspectives.

## 4.Solution Design & Development [90 mins]

Groups will brainstorm potential solutions to their framed biodiversity issues. Guide them through the evaluation process by asking them to consider each solution's feasibility, sustainability, and potential impact using critical thinking.

**Session Outcome:** Students generate innovative solutions and critically assess their viability.

### 5. Create a Model [90 mins]

Students develop prototypes or models of their solutions. For example, they could design a habitat restoration plan, a community awareness campaign, or a species monitoring program.

Start by having students read "What is ecological restoration" either individually or in pairs. Then, guide them to explore current restoration projects using resources like the Restoration Atlas.

**Discussion:** Ask students to differentiate between cleanup initiatives and restoration projects. They should recognise that restoration involves helping ecosystems recover from disruptions, such as habitat destruction or pollution. Sometimes restoration includes cleanup efforts (e.g., Exxon Valdez oil spill), while in other cases, it involves removing man-made structures (e.g., dam removal to restore natural habitats).

The following diagram is an example of the iterative process of testing, evaluation, and adjustment for a restoration project:


Clearly identify the restoration problem, project goals and management objectives
Construct a model of the system with expected responses to management actions ( include expected outcomes of alternative management scenarios). Outline hypotheses, assumptions and uncertainties
Identify the set of management actions most appropriate to meet goals; Design actions to test hypotheses
Construct a method for quantified data collection, recording and analysis. Collect baseline data where possible
Implement management actions within trial framework
Monitor the response of the system ti manage actions. Compare results to the predicted response
Continue with a strategy, revise or develop dew strategies/goals as required. Share learnings

**Session Outcome:** Students apply practical skills to develop and test their solutions, iterating based on feedback.

### 6. Final Presentation [90 mins]

Each group will present their systems map, problem framing, solution design, and test results to the class and a panel of experts. After the presentation, students will engage in a Question & Answer session, receiving constructive feedback and suggestions for improvement.

Conclude the session with a reflection exercise, where students discuss what they've learned about systems thinking, critical thinking, and problem framing throughout the project.

**Session Outcome:** Students develop communication and presentation skills and reflect on their learning journey and their understanding of biodiversity.

**Resources:**

Group Activity Instructions (Canva Template)

What is biodiversity?

Advocacy Toolkit for Nature

Habitat Restoration Planning Guide for Natural Resource Managers

| | |
|---|---|
| **Title** | **Pollution: understand, research, act** |
| **Objectives** | The theme is "Pollution" and the guiding question is: "How can we reduce different types of pollution in our community?<br>Objectives:<br>• Identify and explain the different types of pollution and their effects on the environment.<br>• Develop research and teamwork skills to address environmental problems.<br>• Promote environmental awareness and the impolicy of taking care of our environment.<br>• Create proposals to reduce pollution in the community. |
| **Competences** | Competences: critical thinking, problem framing |
| **Target Group** | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs<br>• School and Adult Education Entities<br>• Companies<br>Civil Society Organisations |
| **Group Size** | 20 |
| **Materials** | Resources<br>• Books and manuals on the environment |

- Online articles from organisations such as Greenpeace and the United Nations Environment Programme (UNEP).
- Documentaries on pollution and environmental conservation (e.g. "Before the Flood").
- Handicraft materials, marker pens, markers, scissors, etc. for the presentation.

https://edtk.co/p/78248

## Activity Structure

Over two sessions of two hours each, students will be divided into groups to investigate different types of pollution: noise, soil, water, and air.

Each group will select one type of pollution and look for information on its causes, effects, and possible solutions. Through practical activities, such as collecting data in their community and developing an awareness campaign, students will learn about the impact of pollution on the environment and on human health. At the end of the project, the groups will present their findings and proposals to the class, promoting collaborative learning and critical reflection on the importance of acting in defence of the environment.

**Duration:** 2 class sessions of 2 hours each.

## Implementation Guidelines

Requirements Students should know basic concepts about the environment and the importance of preserving it. In addition, they should have been previously taught about the water cycle, air, and the diversity of ecosystems. It would be beneficial for them to have some initial knowledge about the effects of pollution on human health and the planet.

### Session 1: Introduction to Pollution

#### Activity 1. Brainstorming [30 minutes]

Students will start the session with a brainstorming session on 'What i pollution?' This will encourage them to share their knowledge an experiences about different types of pollution. The teacher will write th ideas on the board and help students to sort their thoughts into categorie air, water, soil, and noise pollution.

#### Activity 2. Group Formation [15 minutes]

After the initial discussion, students will be divided into small groups. Eac group will select one type of contamination to investigate further. Th teacher will provide a brief description of each type of contamination an facilitate the choice.

#### Activity 3. Online Research [45 minutes]

Students will use digital devices (tablets, laptops, or desktop computers to research the type of pollution they have chosen. Each group should loo for information on causes, health and environmental effects, and example in their community. Students will take notes and begin to develop a outline of what they will present in the next session.

#### Activity 4. Presentation Preparation [30 minutes]

Each group will discuss how they want to present what they have learne in the next session. They will be encouraged to use pictures, graphs, an

any visual resources to support their presentation. They may prepare a poster or a digital presentation. They will be provided with materials to start working on their presentations and will be given time to discuss the ideas they want to include.

## Session 2: Presentation and Action

### Activity 1. Presentations [60 minutes]

During the first part of the second session, each group will have 10 minute to present their findings on the type of contamination they investigated. At the end of each presentation, there will be a space for questions and comments from the other participants. The teacher will facilitate the discussion, helping to connect the dots between each type of contamination.

### Activity 2. Brainstorming Solutions [30 minutes]

After the presentations, the group will discuss possible solutions to reduce pollution in the community. Each group will be encouraged to propose at least three concrete actions that students and their families could take.

### Activity 3. Designing an Awareness Campaign [30 minutes]

The groups will work together to design an awareness campaign based on their presentations. They will use their creativity to come up with advertisements, leaflets or graphics that can be displayed in the school or community. At the end, each group will decide how they will implement their campaign and what steps they will take to match their learning with others.

## 5.4. Microlearning Videos

The following micro learning videos have been selected as examples to work on the competences related to embracing complexity in sustainability.

- A Systems Thinking Approach to Community-Based Urban Agriculture | Kalen Pilkington | TEDxMacEwanU
- Systems Thinking
- What is Systems Thinking?
- Introduction to Systems Thinking for Sustainability

# 6. Educational resources for envisioning sustainable future

The following educational materials have been chosen to work on the set of competencies conceived of envisioning sustainable future based on desk research and the primary findings of the workshops done at the Virtual Knowledge Fair. Below are the guidelines for the project-based learning activities, the open-space discussions, the workshop situations, and the micro-learning videos.

## 6.1 Guidelines for Open Space Discussions

| | |
|---|---|
| **Title** | **Guidelines for Open Space Discussions on Sustainability Challenges** |
| **Objectives** | • Encourage open discussions around sustainability-related topics selected by participants.<br>• Develop an understanding of sustainability from a forward-thinking perspective (Adaptability).<br>• Foster the ability to envision positive futures where social, environmental, and economic factors are in balance (Futures literacy).<br>• Explore the role of innovation, systems thinking, and collaboration in building sustainable futures (Exploratory thinking).<br>• Promote collaboration between students, educators, civil society, and business representatives to generate practical solutions to sustainability challenges. |

| | |
|---|---|
| **Participants** | • Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs<br>• School and Adult Education Entities<br>• Companies<br>• Civil Society Organisations |
| **Group Size** | 15-30 participants |
| **Materials** | • Flip charts<br>• Markers<br>• Sticky notes |
| **Resources** | • Video resources on sustainability challenges and solutions: Building a resilient future: The Green Cities Initiative<br>• Templates for brainstorming and group collaboration. |

**Procedure**

### 1. Introduction [10 mins]

Introduce the workshop objectives and open space format.

Begin by outlining the purpose of the discussion*: to explore the concept of envisioning sustainable futures and empower participants to think about how we can collectively shape a more sustainable world.*

Stress the importance of creativity and collaboration in addressing sustainability challenges.

Highlight that this session aims to encourage participants to imagine what sustainable societies might look like, identify pathways to get there, and recognise the role of individual and collective action in this transformation.

Thought-Provoking Question. Encourage participants to imagine the world 30 years from now and ask them: "What would a day in your life look like in a fully sustainable society?"

Prompt them to consider how transportation, food, energy, technology, education, and communities might function in a world where sustainability is fully integrated into daily life. Ask them to reflect on what changes they expect or hope to see in areas such as renewable energy, waste reduction, biodiversity conservation, and human well-being.

This question is designed to shift participants from a focus on current problems to solutions, inspiring a positive mindset of possibility and innovation.

### 2. Topic Selection [15 mins]

To deepen participants' understanding, show a short video or infographic that presents different examples of sustainable initiatives around the world (e.g., cities transitioning to 100% renewable energy, communities achieving zero waste, or innovations in sustainable agriculture). Choose a video that highlights the diversity of approaches and emphasizes how sustainable futures can look different based on regional, cultural, or social contexts.

A suggested video could be "Building a resilient future: The Green Cities Initiative," of FAO of UN. Description of video: "*Cities are facing major challenges. If we don't transform cities now, these will only get worse in the future. FAO launched the Green Cities Initiative to improve the well-being of urban dwellers and the resilience of cities in the face of global crises.*"

This visual content will help participants visualise abstract concepts of sustainability, making it more tangible and inspiring.

Connecting Local and Global Visions

After the video, guide participants to share some positive sustainability initiatives or challenges that are present in their region or country to make the conversation more relevant.

Invite participants to suggest sustainability topics they are passionate about.

To make this personal, ask participants to think about:

"*What local actions or innovations are needed in your own community to create a sustainable future?*"

Group participants according to their selected topics (e.g., renewable energy, waste management, sustainable agriculture).

### 3. Discussion Phase 1 [20 mins]

Each group discusses around a table with paper and markers to capture ideas and answers to the guiding questions, about their selected sustainability challenge.

For Problem Analysis, use guiding questions like:

- What are the root causes of this issue? Encourage participants to explore underlying systems, social, economic, and environmental factors.
- What stakeholders are involved? Ask the group to list all key players, including individuals, organizations, institutions, governments, and communities affected by or influencing the issue.

Each group discusses and records their key ideas on the paper at their table.

### 4. Discussion Phase 2 [20 mins]

After the problem analysis, each group shifts focus to developing solutions. They address the following guiding questions:

- *What actions can be taken to address the issue?*
  Encourage brainstorming on practical steps, innovations, and strategies for solving the challenge. Solutions could be local or global, short-term or long-term.
- *Who needs to be involved for successful implementation?*
  Identify the key stakeholders from the previous discussion and define the role each should play in the solution.

### 5. Debriefing [15 mins]

After both rounds, a sharing session is facilitated where each table host presents a summary of their group's discussion and solutions to the entire room. This creates a sense of shared learning and cross-pollination of ideas among all participants.

Facilitators provide feedback and summarise the main ideas.

Facilitators guide the group in identifying common themes or trends from the various discussions. This step helps participants see connections between different sustainability challenges and reinforces the collaborative aspect of problem-solving. Reflection questions:

- What common root causes emerged across the different sustainability challenges?
- Are there any recurring solutions or actions that could be applied across multiple challenges?

### 6. Conclusions and follow up [10 mins]

Recap the discussions and highlight opportunities for collaboration beyond the workshop.

To conclude, shift the focus to actionable next steps by encouraging participants to reflect on how they can apply what they've learned and discussed.

- What immediate actions can you take in your own life or community based on today's discussion?
- Who else do you need to engage (e.g., local government, NGOs, educational institutions) to make progress on your proposed solutions?
- How can we as a group continue collaborating or sharing ideas on this topic?

## 6.2 Guidelines for Workshop Scenarios

| Title | **Workshop 1: Envisioning Circular Economies: Shaping sustainable futures through innovation and collaboration** |
|---|---|
| **Objectives** | • Promote participants' understanding of sustainability challenges.<br>• Engage VET (Vocational Education and Training) students in exploratory thinking to develop a mindset that fosters the circular economy.<br>• Equip participants with tools to create sustainable solutions through collaboration and exploratory thinking.<br>• Stimulate innovative approaches to social interactions, cultural practices, and economic activities in a sustainable future. |
| **Competences** | • Exploratory and systems thinking, fostering innovation and adaptability (Exploratory thinking).<br>• Practical knowledge of circular economy principles and their applications (Futures literacy). |
| **Target Group** | • VET Students<br>• Teachers and Educational Staff<br>• Representatives from companies and civil society |
| **Group Size** | 15-30 participants |
| **Materials** | • Flip charts |

- Markers
- Sticky notes
- Projector and screen for video presentations
- Digital tools for collaborative work (optional)

**Activity Program**

| |
|---|
| **1. Introduction to Sustainability and Icebreaker [30 mins]** |
| Introduce the concept of circular economy and create an open, collaborative atmosphere. |
| **2. Case study: Circular Economy in action [45 mins]** |
| Explore how circular economy practices are applied in different industries and what benefits they offer to society. |
| **3. Role Play: Designing a Circular Product or Service [60 mins]** |
| Stimulate creative thinking by having students design and role-play the development of a sustainable product or service. |
| **4. Exploratory thinking challenge: New cultural practices for a Circular Society [45 mins]** |
| Encourage students to adopt exploratory thinking by imagining new cultural and social practices that support a circular economy. |
| **5. Conclusion and next steps [30 mins]** |
| Consolidate learning and encourage students to think about how they can contribute to a circular economy in their personal and professional lives. Summary of the workshop and setting goals for future action. |

## Implementation Guidelines

### 1. Introduction to Sustainability and Icebreaker [30 mins]

- **Activity description.** Begin with a brief presentation on the principles of the circular economy (reuse, reduce, recycle, redesign, repair, and regenerate). Use examples from real-world industries (e.g., fashion, manufacturing, electronics) to highlight practical applications.
- **Icebreaker.** Conduct a short interactive quiz (using a tool like Kahoot or Mentimeter) where students answer questions about sustainability challenges in today's economy. This gets students thinking about the current "take-make-dispose" linear model.

### 2. Case study: Circular Economy in action [45 mins]

- **Activity.** Present a case study on a company or initiative that successfully adopted circular economy principles (e.g., Ellen MacArthur on Building a Circular Economy, Patagonia's repair and reuse program, IKEA's circular initiatives).
- **Implementation.** Divide students into small groups. Each group receives a portion of the case study, along with a set of guiding questions to analyse:
    1. How does this initiative contribute to the circular economy?
    2. What innovative approaches did the company take in terms of materials, design, or services?
    3. What are the social and cultural implications of this business model?
- **Group discussion**. After 20 minutes of group work, bring everyone together to share their findings.

### 3. Role Play: Designing a Circular Product or Service [60 mins]

- **Activity.** Each group will be assigned to role-play a different stakeholder (e.g., product designer, customer, manufacturer, recycler, policy-maker, or community representative) in the circular economy.
- **Task.** The goal is to collaboratively design a circular product or service that follows the "cradle-to-cradle" model. They must consider how their roles interact to ensure minimal waste, reuse of resources, and sustainable social practices.
- **Guiding Questions.**
    1. What materials will be used in the product, and how can they be reused or recycled?
    2. How can we incentivize customers to return the product or participate in a circular system?
    3. What role does policy or community engagement play in promoting circular economy practices?
- **Presentation.** Each group presents their product or service and explains how it fits into the circular economy.

### 4. Exploratory thinking challenge: New cultural practices for a Circular Society [45 mins]

- **Activity.** Present the students with a scenario:

    *"Imagine your city in 2050 where a circular economy is fully integrated into daily life. How have social interactions, consumption habits, and community relationships changed?"*
- **Implementation.** Students will work in groups to create a vision for a sustainable community. They will focus on areas like:

1. Sharing economy (e.g., tool libraries, communal gardens, co-working spaces).
2. Social behaviors (e.g., repairing over replacing, upcycling, zero-waste lifestyles).
3. New cultural practices (e.g., sustainability education in schools, community-led environmental initiatives).

- **Discussion & Sharing.** Each group will present their vision and discuss how their imagined social practices can support the shift toward a sustainable future.

### 5. Conclusion and next steps [30 mins]

- **Activity.** End the session with an individual reflection exercise. Ask each student to write down:
  1. One action they can take in their daily life to support a circular economy.
  2. How they can apply circular economy principles in their future careers.
- **Wrap-Up Discussion.** Have a few students volunteer to share their reflections and thoughts on what the circular economy means for their future.

## Resources

Reusable Templates:

- Case study analysis template.
- Product or service design canvas (for role-play activity).

Digital Tools:

- Kahoot/Mentimeter for the introductory quiz.

Presentations:

- Links to microlearning videos. Ellen MacArthur on Building a Circular Economy
- https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/examples
- https://www.garyfox.co/ikea-circular-economy-example/
- Presentation slides on sustainability challenges and circular economy

### 6.2.2 Case Study Analysis Template: Circular Economy

This template is designed to guide students in analysing a case study related to circular economy principles. Each section includes guiding questions to help explore various aspects of the case study.

| **1. Case Study Overview** |
|---|
| • What is the name of the company/initiative? |
| • What is the primary focus (e.g., sustainable product design, circular business model)? |
| • In what industry or sector is the company/initiative operating? |
| **2. Circular Economy Principles Applied** |
| • What principles of the circular economy are applied in this case study (e.g., reuse, recycling, redesign, or regeneration)? |
| • How does the company/initiative extend the lifecycle of the product or service? |
| • How does this contribute to reducing waste or lowering environmental impact? |
| **3. Innovation and Social Impact** |
| • What innovative approaches or technologies does the case study present? |
| • How does it impact social behaviours or cultural practices (e.g., consumption habits, repair culture, collaborative practices)? |
| **4. Stakeholders Involved** |
| • Who are the main actors (e.g., manufacturers, customers, policymakers, NGOs)? |

- How do different stakeholders collaborate to ensure the success of the initiative?

**5. Lessons Learned and Future Implications**

- What are the main takeaways from this case study?
- How can these insights be applied to other industries or sectors?
- What future opportunities or challenges do you foresee for the company?

**6. Conclusion**

- Summarize your overall analysis of the case study and provide recommendations for future improvements or developments.

### 6.2.3 Product/Service Design Canvas: Circular Economy Role-Play

| 1. Product/Service Overview | 2. Circular Economy Features |
|---|---|
| Provide a brief description of the product or service you are designing.<br>• What is the product or service?<br>• What need or problem does it address?<br>• How does it fit within a circular economy model? | Identify the key circular economy principles applied to the design of your product or service.<br>• How will you reduce waste in the product's lifecycle?<br>• How will the product or service be reused, repaired, or recycled? |
| **3. Materials and Design**<br>Detail the materials used in the product and their sustainability.<br>• What materials are used in the product/service, and why were they chosen?<br>• Are the materials renewable, recyclable, or biodegradable?<br>• How does the design extend the product's life cycle (e.g., modular design, repairability)? | **4.Stakeholders and Collaboration**<br>Identify the stakeholders involved in the design, production, and use of the product/service.<br>• Who are the key stakeholders (e.g., manufacturers, suppliers, consumers, policymakers)?<br>• How will stakeholders collaborate to ensure the success of the circular product/service? |

| | |
|---|---|
| **5. Customer and User Experience**<br>Describe how the product/service will engage customers and end-users in the circular economy model.<br>• How will customers be encouraged to return, reuse, or repair the product?<br>• What educational or incentive programs will be in place to promote circular usage?<br>• How will the product/service enhance user experience while remaining sustainable? | **6. Business Model and Revenue Streams**<br>Outline the business model for your product or service.<br>• How will the product/service generate revenue while maintaining circular economy principles?<br>• Are there subscription, leasing, or buy-back options to promote circularity?<br>• How does this business model encourage long-term sustainability? |
| **7. Challenges and Solutions**<br>Identify potential challenges in implementing the circular product/service and propose solutions.<br>• What obstacles might arise in production, distribution, or customer engagement?<br>• How can you overcome these challenges to ensure a circular approach? | **8. Impact and Future Potential**<br>Describe the potential impact of your product/service and how it contributes to a circular future.<br>• What are the environmental, social, and economic impacts of your product/service?<br>• How does it contribute to broader sustainability goals (e.g., zero waste, carbon neutrality)? |

| | |
|---|---|
| | • What are the long-term possibilities for scaling or replicating the model? |

This template guides teams in designing a circular product or service by exploring key components related to sustainability, stakeholder collaboration, and lifecycle management.

| | |
|---|---|
| **Title** | **Workshop 2: Climate Emergency and Climate Change** |
| **Objectives** | • Main factors influencing the Earth's climate.<br>• Earth's astronomical parameters and climate<br>• Greenhouse gases and their role.<br>• The interaction of the natural planet and climate.<br>• Human activities and the climate emergency.<br>• Evidence of the climate emergency. |
| **Competences** | Envisioning sustainable futures: future literacy, exploratory thinking. |
| **Target Group** | • VET Students<br>• Teachers and Educational Staff<br>• Representatives from companies and civil society |
| **Group Size** | 15-20 |
| **Materials** | https://ambientech.org/cambio-climatico |

## Activity Program

The educational resource *Climate Emergency* explains the balance between planet Earth and climate, the changes the planet has undergone due to human actions and the evidence and future consequences of this change.

The educational resource proposes the study of the natural factors that influence the climate as well as the human activities that cause climate change. It presents the evidence of climate change and the most polluting activities according to the latest report of the IPCC (The Intergovernmental Panel on Climate Change). At the end of the resource, the user will understand which factors have changed and why until the climate emergency is declared.

## Implementation Guidelines

Six activities have been developed within this educational resource:

- Main factors including about climate on the planet.
- Astronomical parameters on Earth.
- Greenhouse gases and their role.
- The interaction of the natural planet and climate.
- Human activities and climate emergence.
- Evidence of climate emergence.

## Resources

https://ambientech.org/cambio-climatico

(Platform with questions related to the subject matter where the student's successes and mistakes are registered)

## 6.3 Project-Based Learning Activities

| Title | **Project-Based Learning Activity: Sustainable solutions for local communities. Energy use** |
|---|---|
| **Objectives** | • Encourage participants to apply sustainability concepts to real-world challenges.<br>• Develop collaboration and project management skills by working on sustainability projects.<br>• Encourages hands-on learning, problem-solving, and critical thinking around energy use and sustainability. |
| **Competences** | • Exploratory thinking<br>• Adaptability<br>• Future literacy |
| **Target Group** | • VET Students<br>• Teachers<br>• Representatives from companies and civil society organizations |
| **Group Size** | 5-7 participants per group (with multiple groups in the workshop) |
| **Materials** | • Canvas templates for project planning<br>• Flip charts<br>• Markers<br>• Digital collaboration tools (optional) |

## Activity Structure

| Phase 1: Introduction and Project-Based Learning and Problem exploration [1 hour] |
|---|
| • Welcome and overview - Set the stage for the day's activities and introduce the topic of sustainable energy use. |
| • Group problem exploration - Identify a local energy challenge to address. |
| **Phase 2: Solution Design and Planning [2.5 hours]** |
| • Brainstorming Energy Solutions - Design a sustainable energy solution to address the identified challenge. |
| • Solution Refinement and Planning - Refine the selected solution and create a detailed implementation plan. |
| **Phase 3: Break [30 minutes]** |
| **Phase 4: Prototype Building and Visualization [1.5 hours]** |
| • Prototyping the Solution - Create a visual or physical prototype of the proposed energy solution. |
| • Preparing the Presentation - Prepare to present the group's solution and prototype to the class. |
| **Phase 5: Presentations and Feedback [1 hour]** |
| • Group Presentations - Present the sustainable energy solution to peers and the facilitator. |
| • Feedback and Reflection - Reflect on the day's work and discuss potential next steps. |

## Implementation Guidelines

### Phase 1: Introduction and Project-Based Learning and Problem exploration [1 hour]

| Welcome and overview |
|---|
| **Activity.** The facilitator introduces the goals of the project, sustainability concepts related to energy (e.g., renewable energy, energy efficiency), |

| |
|---|
| and local energy challenges (e.g., energy consumption, fossil fuel reliance, and carbon emissions). |
| **Tools.** Reusable PowerPoint presentation on energy sustainability, local energy statistics, and challenges. |
| **Group problem exploration** |
| **Activity.** In their groups, learners will research and discuss common energy issues affecting their communities (e.g., high energy consumption, inefficient buildings, lack of renewable energy sources). Each group will choose one challenge to focus on. |
| **Guidelines.** Provide a Problem Exploration Guide to help students define the problem they are focusing on and identify its causes and impacts. |
| **Outcome.** Each group presents their identified energy challenge to the larger group. |

### Phase 2: Solution Design and Planning [2.5 hours]

| |
|---|
| **Brainstorming Energy Solutions** |
| **Activity.** Groups brainstorm potential solutions such as energy-saving technologies, renewable energy integration (solar, wind, etc.), or community-wide energy conservation initiatives. They can use post-it notes or digital collaboration tools (e.g., Miro) to map out ideas. |
| **Tools.** Provide a Solution Design Canvas template to guide students in identifying key elements of their solution, such as energy source, implementation method, and potential impact. |
| **Outcome.** Groups select one solution to develop further. |
| **Solution Refinement and Planning** |
| **Activity.** Using the Solution Design Canvas, groups will refine their ideas, thinking through practical aspects such as: |
| • Feasibility: Can it be implemented within the community? |
| • Resources: What materials, technology, or funding are needed? |

| |
|---|
| • Stakeholders: Who needs to be involved (e.g., local government, energy providers, residents)? |
| • Impact: How will this reduce energy consumption or transition to renewables? |
| Each group creates a detailed project proposal covering the solution, resources, stakeholders, and steps for implementation. |

### Phase 3: Break [30 minutes]

### Phase 4: Prototype Building and Visualization [1.5 hours]

| **Prototyping the Solution** |
|---|
| **Activity.** Groups work on creating a visual model, poster, or 3D prototype that represents their solution. This could be a: |
| • Visual map of the community showing where renewable energy could be installed. |
| • Poster presentation outlining how energy-efficient technologies would be implemented. |
| • Basic 3D prototype of a solar energy system, energy-efficient building, or other proposed solution. |
| **Tools.** Provide art supplies, poster paper, markers, or digital tools (e.g., Canva, PowerPoint) for students to visualize their solutions. |
| **Preparing the Presentation** |
| **Activity.** Groups prepare a 5-minute presentation that includes: |
| • Overview of the identified problem. |
| • Proposed solution and how it addresses the challenge. |
| • Visual or physical prototype. |
| • Explanation of potential impact and feasibility. |
| Each group assigns roles for the presentation, ensuring that all members contribute. |

### Phase 5: Presentations and Feedback [1 hour]

| Group Presentations |
| --- |
| **Activity.** Each group presents their solution (5 minutes per group), explaining the problem they tackled, the sustainable energy solution they designed, and how it can be implemented. |
| **Guidelines.** Facilitator and other groups will ask follow-up questions and provide feedback after each presentation. |
| **Feedback and Reflection** |
| **Activity.** After the presentations, students engage in a group reflection on the challenges they encountered, the feasibility of their solutions, and what they learned about energy use and sustainability. |
| **Guidelines.** Provide reflection prompts such as: |
| • What did you learn about sustainable energy solutions today? |
| • How feasible do you think your solution is for the local community? |
| • What would you change or improve if given more time? |

## Resources

Reusable Presentations:

- Introduction to Sustainable Energy https://www.manutan.com/blog/en/news/energy-transition-and-sustainable-development-what-are-the-challenges-for-companies
- Local Energy Challenges https://www.iea.org/commentaries/empowering-people-the-role-of-local-energy-communities-in-clean-energy-transitions

Templates:

- Problem Exploration Guide

Prototyping Materials:

- Art supplies for posters and prototypes
- Optional digital tools (Canva, PowerPoint) for visual models

Digital Tools:

- Canva for visual prototyping and presentations

### 6.3.1 Problem Exploration Guide: Energy Use Challenges

This template helps guide your group through the process of exploring and identifying a specific energy use challenge. By considering the root causes, stakeholders, and impacts of the problem, you can better understand the issue you are addressing.

| | |
|---|---|
| **1. Problem Identification**<br>Briefly describe the energy-related issue you are focusing on. Examples: energy inefficiency, over-reliance on non-renewable energy sources, high carbon emissions from local industries. | Problem Description |
| **2. Root Causes**<br>Identify the underlying causes of this problem. | Root Causes |

| | |
|---|---|
| What are the contributing factors? Examples: lack of renewable energy infrastructure, poor energy management, public awareness issues. | |
| **3. Impact of the Problem** Describe how this energy issue affects the local community, environment, or economy. Examples: increased pollution, higher energy costs for residents, negative health impacts, global warming. | Impacts |
| **4. Stakeholders** Identify the key stakeholders involved in or affected by this energy issue. Examples: local government, energy companies, citizens, environmental groups. | Stakeholders |

| | |
|---|---|
| | |
| **5. Current Efforts to Address the Problem**<br>What actions or initiatives (if any) are already in place to tackle this problem? Examples: community renewable energy projects, government policies, awareness campaigns. | Current Efforts |
| **6. Potential Barriers to Solving the Problem**<br>What are the possible challenges or barriers to solving this issue? Examples: lack of funding, political resistance, lack of public awareness, technological limitations. | Potential Barriers |

## 6.4. Micro-learning Videos

Envisioning Sustainable Futures

- YouTube: Envisioning Sustainable Futures Introductory
  https://www.youtube.com/watch?v=7jPriXd28Us&ab_channel=KestorSaw
  "Green Skills for Successful Employment in the Transition to a More 'Green' and Environmentally Sustainable Economy" for young people at risk of marginalisation.
- YouTube: Envisioning a Sustainable Future
  https://www.youtube.com/watch?v=1hh7IYk23Lk&ab_channel=Levelup99
  Imagine a world where every individual action contributes to a collective advancement. How does personal growth intersect with societal progress, and how can we, as individuals, make a difference?
- YouTube: A sustainable future
  https://www.youtube.com/watch?v=mbF0EPKxWvA&ab_channel=SustainableFuture%F0%9F%8C%B1
  In this video, we delve into the essence of a sustainable future – a world where environmental, social, and economic dimensions harmonize for the well-being of our planet and generations to come.
- YouTube: Global renewables: Pioneering the energy transition
  https://www.youtube.com/watch?v=UVf2Yw7uFoE&ab_channel=DWDocumentary
  The documentary explores the question of what needs to happen in terms of politics, policies, and society to implement what is technically possible, when it comes to renewable energy.

# 7. Educational resources for acting for sustainability

Based on desk research and the main conclusions of the workshops held at the Virtual Knowledge Fair, the following educational resources have been selected to work on the set of competences envisaged for acting for sustainability. The guidelines for the workshop scenarios, open-space conversations, project-based learning exercises, and microlearning videos are listed in this chapter.

## 7.1 Guidelines for Open Space Discussions

| | |
|---|---|
| **Title** | **Guidelines for Open Space Discussions on sustainable action** |
| **Objectives** | Provide a platform for diverse community members, including citizens, local businesses, and government representatives, to collaboratively explore innovative solutions on reducing food waste. |
| **Participants** | Leave all the applicable ones:<br>• Students<br>• Teachers<br>• School Staff<br>• Representatives of HEIs<br>• School and Adult Education Entities<br>• Companies<br>• Civil Society Organizations |
| **Group Size** | 10+ |

| | |
|---|---|
| **Materials** | Flip charts, Markers, Sticky notes, timer or bell |
| **Resources** | How-to-run-an-Open-Space-event.pdf (transitionnetwork.org)<br>What is Open Space Technology? (Ultimate Guide) \| Facilitator School<br>https://food.ec.europa.eu/food-safety/food-waste_en<br>https://www.unep.org/resources/publication/food-waste-index-report-2024<br>https://www.worldwildlife.org/stories/fight-climate-change-by-preventing-food-waste<br>https://wwfeu.awsassets.panda.org/downloads/wwf_wrap_halvingfoodlossandwasteintheeu_june2020__2_.pdf<br>https://eeb.org/library/the-case-for-bold-legally-binding-food-waste-reduction-targets-in-the-eu/ |

## Procedure

### 1. Objectives of the Open Space Discussions Session

The issue of food waste affects both the environment and communities globally, yet solutions require cooperation across various sectors, including citizens, businesses, and policymakers. The key question driving this session is: *How can we better understand and respond to concerns and needs around reducing food waste?*

Participants are invited to explore how we can foster collaboration and innovate around reducing food waste.

1. Identify Community Concerns: Gather insights on local food waste issues from citizens.
2. Explore Innovative Solutions: Encourage participants to propose

and discuss creative strategies for reducing food waste.

3. Foster Collaboration: Build partnerships among stakeholders to implement solutions effectively.

## 2. Opening Circle [10 mins]

The facilitator welcomes everyone in the circle announces the theme and invites participants to introduce themselves and share their interests related to food waste.

## 3. Agenda Creation [20 mins]

The facilitator invites those who wish to suggest an issue, topic, or question for the group sessions, to take a piece of paper/ post it note and write it down. By doing so, they agree to:

1. Lead the discussion on their chosen topic.
2. Ensure that important insights and conclusions are recorded.
3. Write their name on the paper for accountability.

Once a participant has written down their topic, they will briefly share it with the group and then allocate to it a time slot and location on a matrix (board/flip chart), or marketplace board. Participants will take turns approaching the marketplace board to fill in their discussion points. Each participant chooses a topic they believe they can contribute to effectively or learn from, then goes to the designated location at the agreed time to begin the discussion.

## 4. Group Sessions [40 mins each]

Groups form around each discussion point of the specific topic, allowing participants to delve into discussions, share experiences, and brainstorm solutions. Each group works independently, taking responsibility for managing their own time and documenting the outcomes of their discussions. If a participant feels they are neither contributing nor learning

enough in a discussion, they are free to move to another conversation. During this time, the facilitator serves for session time keeping, ringing the bell for the start and end of each session and helping participants.
After the session ends the recorded insights and conclusions are hung on to a dedicated wall in the venue. This way participants can easily go through the ideas and actions of all the points that have taken place in between sessions.
Then participants move on to the next topic.

### 5. Harvesting Insights and Completion [30-40 mins]

The facilitator should determine the focus of the day based on the scope of the OSD session, whether it's generating ideas or agreeing on concrete actions to implement. An OSD (On-Screen Display) is used in devices like monitors and TVs for adjusting settings, in software for displaying notifications or stats, and in remote management for troubleshooting or system control. It involves overlay menus, graphics, or text on a screen, typically for settings or information display.

This decision will affect how the closing session is structured. It might be as simple as expressing gratitude and hoping everyone had a good time, or it could involve more organised planning, like creating working groups or outlining actionable steps. If the latter is the case, extra time will be required to finalise the agreements.

## 7.2. Guidelines for Workshop Scenarios

| Title | Workshop 1: Tackling textile waste |
|---|---|
| Objectives | • To raise awareness on the impact of textile waste.<br>• To understand what the “fast fashion” phenomenon is.<br>• To understand what “greenwashing” is.<br>• To activate young people to criticise mass consumption and find more sustainable alternatives to express their identity through their appearance.<br>• To suggest innovative solutions to prevent textile waste.<br>• To develop critical thinking and raise awareness on topics connected with environmental protection and sustainability. |
| Competences | • To raise awareness on the impact of textile waste (Individual action).<br>• To understand what the “fast fashion” phenomenon is (Individual action).<br>• To understand what “greenwashing” is (Individual action).<br>• To activate young people to criticize mass consumption and find more sustainable alternatives to express their identity through their appearance (Political agency).<br>• To suggest innovative solutions to prevent textile waste (Collective action).<br>• To develop critical thinking and raise awareness on topics connected with environmental protection and sustainability (Collective action). |

| | |
|---|---|
| **Target Group** | • Young people<br>• Students/ learners |
| **Group Size** | 20 people |
| **Materials** | • YouTube Videos<br>• Clothes labels & clothing<br>• Presentations (Canva/PPT)<br>• Papers, post it papers & pens for the group work, leaflets |

## Activity Program

1. Theoretical framework [2-3 hours]- Day 1
2. Research [4 hours]- Day 2
3. Group work to identify solutions [2 hours]- Day 3


https://www.canva.com/design/DAGW6OtVwh4/y1Ub6OcQzBWDhlBszTS3Uw/edit?utm_content=DAGW6OtVwh4&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

## Implementation Guidelines

### 1. Theoretical Framework [2-3 hours]- Day 1

#### Brainstorming

This activity starts with a brainstorming session on the following questions:

- What is textile waste?
- What is the "fast fashion" phenomenon?
- What is the impact on the environment?
- What are the working conditions in industries that produce fast fashion?

**For the collection of the answers, educators can use the Mentimeter digital tool.*

#### Presentation

After the short discussion, the educator(s) present the theoretical framework of this workshop through the "Textile waste" presentation.


https://www.canva.com/design/DAGW5_Pc_o8/JJuxqW781yq8CWCQdqE2Fw/edit?utm_content=DAGW5_Pc_o8&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

#### Video

For a better understanding of the main elements of the presentations, the participants will watch the "The true cost of fast fashion (youtube.com)" video.

### Exercise

The participants are given the “Industries’ leaflet” and they collect their answers, in order to compare them with the conclusions of the final day.

*What do the clothing industries do to prevent textile waste?*


https://www.canva.com/design/DAGW5-ZqFt4/MIHnjVHhPPUyR_NvWMVeFw/edit?utm_content=DAGW5-ZqFt4&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

### Discussion

This day will end with a closing discussion on the day's topics and special emphasis will be given on the impact of fast fashion and our over consuming behaviour on the environment. Finally, the conclusions of the discussion will be analysed and instructions will be given for the activities of the next two days.

**At the end of the day, we divide participants into 2 groups and assign research activities for the following day.**

## 2. Research [4 hours]- Day 2

### Research

During the second day of the workshop, the participants will conduct research in stores and in their houses.

### First stage of research

The first group is assigned to search for clothing stores that implement strategies to prevent overconsumption of clothing and the second group searches for stores that have not changed their production- recycling methods of products from the past to the present.

They all go to the respective stores and carry out a field survey:

- *What are the materials used in each case?*
- *Search for information/ details on labels of clothes and write down all the indicators of environmental-friendly production. Are they always true or may be misleading?*
- *Where the clothes that are not sold end up?*
- *Where the clothes that are returned for recycling end up?*

### Second stage of research

In the second stage, trainees record information from the labels of the clothes they have in their wardrobe and they fill in the leaflet.


https://www.canva.com/design/DAGW5w4a0Mk/Nnt6J1PzFyuZyxgncnAQmg/edit?utm_content=DAGW5w4a0Mk&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

**“Homework”**

After the end of the second day's research, trainees are asked to watch the following video by the next day:

https://www.youtube.com/watch?v=rwp0Bx0awoE

### 3. Group work to identify solutions [2 hours]- Day 3

#### The problem

In the final stage of the workshop, the two groups record all the data they have collected on two large pieces of cardboard and use post it notes to categorize the same results (in the first column). This teamwork gives the opportunity to discuss more the green washing phenomenon practiced by many stores that promote their "environmentally friendly" tactics.

#### The solutions

Then, in the second column, the trainees write down their suggestions for alternative ways of using the products that end up in the shops' supposed recycling shops or recycling bins.

It’s suggested to watch this video first:

https://www.youtube.com/watch?v=Bh8dnw67rE0

#### The actions

At the end, after all possible proposals are recorded at the individual and social level, the participants prepare a petition to the municipality for collecting signatures, address the competent bodies and ask for the implementation of their proposals at the political level.

#### Guidelines: How to write a petition?

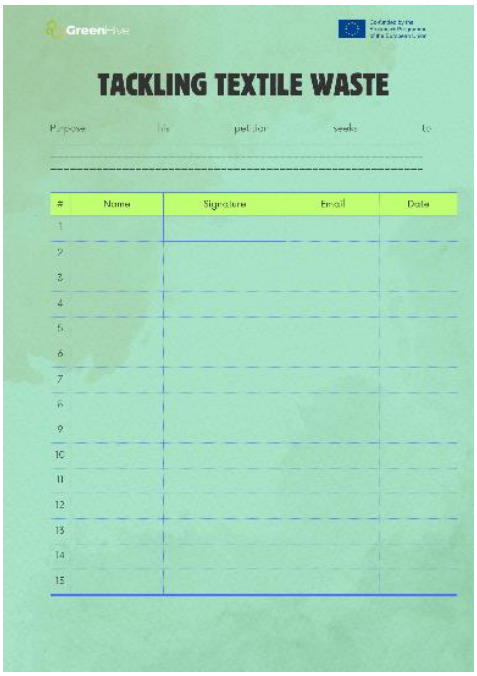
Resource: https://www.wikihow.com/Write-a-Petition

- Research the topic of your petition thoroughly.

- Write a clear and concise statement of your goal.
- Add references to support all of your statements.
- Include other things people can do to support your cause.
- Create a space for people to attach their signature.
- Direct your petition to the proper jurisdiction.
- Promote your petition in person and on social media.

Visit the page https://www.wikihow.com/Write-a-Petition for the detailed process of writing a petition.

Create your own template, using Canva or other digital tools as in the example:




https://www.canva.com/design/DAGW5_ITfdA/4VVcvmamLHuj4qMMqnwYsg/edit?utm_content=DAGW5_ITfdA&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

## Resources

- https://www.canva.com/design/DAGW6OtVwh4/y1Ub6OcQzBWDhIBszTS3Uw/edit?utm_content=DAGW6OtVwh4&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton
- https://www.canva.com/design/DAGW5_Pc_o8/JJuxqW781yq8CWCQdqE2Fw/edit?utm_content=DAGW5_Pc_o8&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton
- https://www.canva.com/design/DAGW5-ZqFt4/MIHnjVHhPPUyR_NvWMVeFw/edit?utm_content=DAGW5-ZqFt4&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton
- https://www.canva.com/design/DAGW5w4a0Mk/Nnt6J1PzFyuZyxgncnAQmg/edit?utm_content=DAGW5w4a0Mk&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton
- https://www.canva.com/design/DAGW5_ITfdA/4VVcvmamLHuj4qMMqnwYsg/edit?utm_content=DAGW5_ITfdA&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton
- https://www.wikihow.com/Write-a-Petition
- https://www.mentimeter.com/
- The true cost of fast fashion (youtube.com)
- https://www.youtube.com/watch?v=Bh8dnw67rE0
- https://www.youtube.com/watch?v=rwp0Bx0awoE

| Title | Workshop 2: Turn waste into resources |
|---|---|
| Objectives | • Global waste generation<br>• What makes up our waste<br>• Turn waste into resources<br>• Life cycle of an electrical/electronic appliance<br>• Biodegradation of waste |
| Competences | • Acting for sustainability: collective action and individual action |
| Target Group | • VET students<br>• VET trainers<br>• Representatives from civil society organisations |
| Group Size | 15-20 |
| Materials | N/A |

**Activity Program**

The educational resource *Turn waste into resources* explains the problem of waste generation and different ways of dealing with it.

The educational itinerary works in depth on the sustainable management of waste. These educational resources will provide scientific knowledge about the generation of waste worldwide, the environmental impact it causes and the corrective measures that can be applied to reduce the accumulation of waste as much as possible. In addition, the life cycle of an electronic electrical appliance is explained, using a refrigerator as an example.

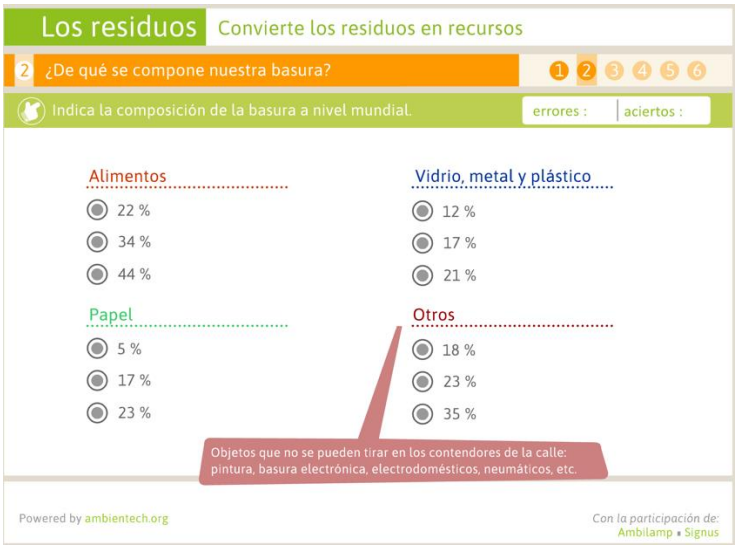
## Implementation Guidelines

1. Explanation and contextualization of waste production worldwide.
2. Exploratory questions to the students in relation to waste generation and the scale of the problem at the global level with different figures.
3. Introduction to the concept of circular economy explaining the conversion of waste to resources.
4. Data in relation to the life cycle of an electrical appliance.
5. Examples of the biodegradation time of waste.

## Resources

https://ambientech.org/itinerario-educativo-convierte-los-residuos-en-recursos

(Platform with questions related to the subject matter where the student's successes and mistakes are registered)




*Taken from ambitech.org*

## 7.3 Project-Based Learning

### 7.3.1 Project-Based Learning Activities 1

| | |
|---|---|
| **Title** | **Access to a Clean and Healthy Environment, a Universal Human Right** |
| **Objectives** | • A deeper understanding of environmental rights as human rights.<br>• Develop skills in research, collaboration, and advocacy. |
| **Competences** | • Political agency<br>• Collective action<br>• Individual initiative |
| **Target Group** | • Students/ learners<br>• Young people |
| **Group Size** | One classroom (20-25 people) |
| **Materials** | • PC and internet connection<br>• YouTube videos<br>• Platforms like Canva for poster or video design<br>• PPTs and Canva presentations |
| **Activity Structure** | |

1. Understanding
2. Research
3. Campaign Creation
4. Advocacy
5. Presentation
6. Reflection

## Implementation Guidelines

### 1. Understanding [1 class period]

Educators will introduce the idea that access to a clean and healthy environment is recognized as a human right by international bodies like the UN. During this time the students/learners will investigate the definition of human rights and environmental rights. Understanding environmental rights in the context of sustainability, health, and social justice.


https://www.canva.com/design/DAGW591LNeM/Lx9470ZiCyantItUTPRDlA/edit?utm_content=DAGW591LNeM&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

### 2. Research [1 month]

Students are divided into groups and select a specific environmental issue that threatens environmental rights, such as:

- Air or water pollution
- Deforestation
- Climate change
- Waste management and plastic pollution, etc…

Students will then research the specific issue focusing on, the **causes** like industrialization, lack of regulation, deforestation, urbanization etc., the

**consequences** on human health, ecosystems, communities (e.g. community displacement or loss of biodiversity) and the **current legal frameworks** like international treaties (e.g., Paris Agreement), national laws or policies ensuring environmental rights. Students should use reliable sources to support their findings using statistics and data on environmental degradation and case studies of affected communities where possible.
*→At the end of research students will present their insights in class.*

### 3. Campaign Creation [1-2 months]

Student groups will develop an awareness campaign on the environmental issue they have researched. They will need to:

- **Define the campaigns' goal,** what will the campaign focus on?
- **Develop a strong message,** create a message that highlights the importance of a healthy environment as a human right. Make it clear, relatable, and action driven.
- **Create Campaign Materials,** posters, videos, or social media posts to show the effects of the environmental issue and its human rights context
- **Develop a strategy,** plan how to raise awareness e.g., use social media, host events, write petitions, or partner with environmental NGOs.

### 4. Advocacy [1-2 months]

Students can organize eco-friendly initiatives like an environmental awareness workshop in their community or school, collaborating with local organizations focused on environmental justice. During this action they can engage policymakers or local government officials to discuss the issue and push for policy changes. Additionally, they can mobilize people to take action, encourage others to make personal environmental commitments, share the campaign, or join a movement for policy change.

### 5. Presentation [1-2 class period]

Students will showcase their research and campaign to the school, community, or through digital platforms (e.g. local newspaper, radio station or tv channels) highlighting the connection between the environment and human rights.

### 6. Reflection [1-2 class period]

All students and educators involved will evaluate the impact of the campaign by assessing community engagement and any shifts in awareness or local action on the issue. Also reflect on the process, the difficulties encountered and how they overcame them, different approaches they will use in the future.

| Resources |
|---|

YouTube videos:

- https://www.youtube.com/watch?v=nDgIVseTkuE
- https://www.youtube.com/watch?v=ohyafhMfXHQ&t=203s
- https://www.canva.com/design/DAGW591LNeM/Lx9470ZiCyantItUTPRDlA/edit?utm_content=DAGW591LNeM&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

## 7.3.2 Project-Based Learning Activities 2

| Title | Water: A Finite Resource and How to Preserve It |
|---|---|
| Objectives | • Understand the critical role of water<br>• Creative problem-solving for conservation,<br>• Foster real-world advocacy |

| | |
|---|---|
| **Competences** | • Political agency<br>• Collective action<br>• Individual initiative |
| **Target Group** | • Students/ learners<br>• Young people |
| **Group Size** | One classroom (20-25 people) |
| **Materials** | • PC and internet connection<br>• YouTube videos<br>• Platforms like Canva for poster or video design<br>• PPT and Canva presentations |

## Activity Structure

1. Understanding
2. Research
3. Campaign Creation
4. Advocacy
5. Presentation
6. **Reflection**

## Implementation Guidelines

### 1. Understanding [1 class period]

Educators will explore why water is essential for life, ecosystems, and human activities like agriculture, industry, and sanitation. The role of water in health, environment, and economy will be highlighted in order to comprehend water as an essential resource.


https://www.canva.com/design/DAGW5_TdsMs/JGy1fl0mTqOwiD1KJVxlxw/edit?utm_content=DAGW5_TdsMs&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

### 2. Research [1 month]

Students are divided into groups and select a specific environmental issue natural water sources, such as:

- Water scarcity and drought
- Pollution of water sources (e.g., chemical, plastic, or industrial pollution)
- Overuse and unsustainable water management practices
- Impact of climate change on water availability
- Access to clean drinking water in underserved communities, etc...

Students will then research the specific issue focusing on, **pollution**, **overuse**, **mismanagement**, like agricultural runoff, industrial waste, poor infrastructure, and climate impacts, the **consequences**, health risks, environmental degradation, agricultural losses, and social conflicts over water and **the legal and social framework**, explore international policies (e.g., UN's Sustainable Development Goal 6: Clean Water and Sanitation) and local regulations related to water protection. Students should use reliable sources to support their findings using data on water availability

and usage in various regions and case studies of communities facing water challenges taking interviews or testimonies from people impacted by water issues where possible.

*→At the end of research students will present their insights in class.*

### 3. Campaign Creation [1-2 months]

Student groups will develop an awareness campaign on the environmental issue they have researched. They will need to:

- **Define the campaigns' goal,** what specific water issue will the campaign address? Examples include reducing water waste, promoting clean water access, or protecting water sources (lakes, rivers, and aquifers) from pollution.
- **Develop a strong message,** create a message that highlights the importance of water conservation and protection, emphasizing how small actions can lead to significant change.
- **Create Campaign Materials,** posters, videos, or social media posts that explain the chosen water issue and suggest solutions.
- **Develop a strategy,** plan how to raise awareness e.g., use social media, host events, write petitions, or partner with environmental NGOs.

### 4. Advocacy [1-2 months]

Students can organize eco-friendly initiatives like an environmental awareness workshop in their community or school, collaborating with local environmental groups working on e.g. clean water access projects, water management agencies, or government bodies to gain support and increase campaign visibility. During this action they can engage policymakers or local government officials to discuss the issue and push for policy changes. Additionally, they can encourage the community to take specific actions,

such as installing water-saving devices, reducing water waste, supporting local water protection efforts, or advocating for stronger policies.

### 5. Presentation [1-2 class period]

Students will showcase their research and campaign to the school, community, or through digital platforms (e.g. local newspaper, radio station or tv channels) highlighting the importance of water as a valuable resource and how everyone can contribute to protecting it.

### 6. Reflection [1-2 class period]

All students and educators involved will evaluate the impact of the campaign by assessing community engagement and any shifts in awareness or local action on the issue. Also reflect on the process, the difficulties encountered and how they overcame them, different approaches they will use in the future.

## Resources

YouTube videos

https://www.youtube.com/watch?v=Q8B4tST8ti8

https://www.youtube.com/watch?v=x0Co6ceNlwE

Canvas and PPTs

https://www.canva.com/design/DAGW5_TdsMs/JGy1f10mTqOwiD1KJVxlxw/edit?utm_content=DAGW5_TdsMs&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

## 7.4. Microlearning Videos

This component includes a collection of microlearning videos aimed at VET students. These videos are **designed to develop students' knowledge, attitudes, and skills** in the **four competence areas** defined in the GreenComp. The collection can feature both existing videos and new content created by the consortium (e.g., a video that is on YouTube, or a TED Talk Education type video). The videos should support blended learning by integrating digital content with in-person workshops.

- Education for Environmental Citizenship: The EEC Model
  - https://www.youtube.com/watch?v=1_EB7Y4biXo
- Be an active citizen for the environment | Barbara Buffaloe | TEDxCoMo
  - https://www.youtube.com/watch?v=Qk2gUv3L8yI
- How to scale community-led advocacy | Chad Nelsen | TEDxLaguna Beach
  - https://www.youtube.com/watch?v=b6x7eVVbhpo
- Why you should be a climate activist
  - https://www.ted.com/talks/luisa_neubauer_why_you_should_be_a_climate_activist?subtitle=en
  - We need to talk about radical climate protests (youtube.com)
  - How to be an activist who creates real change | Carey Theil & Christine Dorchak | TEDxAlexanderPark (youtube.com)
  - "Blah, Blah, Blah": Youth Climate Activists Slam Political Inaction at U.N. Summit Ahead of COP26
  - This is just how unfair climate change is
  - Climate Justice is Social Justice
  - Climate damage: How and why rich countries should pay up

# 8. Conclusions

Throughout this document various educational resources have been presented in the four groups of competences included in GreenComp. It has focused mainly on guides to create open discussion spaces, workshops, project based learning and micro-learning videos.

It is important to take two aspects into consideration: On the one hand, that many of the methodologies listed here are transversal and, on the other hand, that with the same educational several competencies can be worked simultaneously.

The learning derived from desk research and the input collected through the Virtual Knowledge Fair has been key to developing this guide.

Co-funded by the European Union

# GreenHive

TUS KEAN ΚΥΤΤΑΡΟ ΕΝΑΛΛΑΚΤΙΚΩΝ ΑΝΑΖΗΤΗΣΕΩΝ ΝΕΩΝ lascò femxa TEAM 4 excellence