Soil, Society, and Sustainability: A Modular Teaching Framework for Higher Education – an overview

This module consists of four thematic sessions addressing different aspects of soil health. The sessions are designed as stand-alone learning units and can be implemented independently or combined into a complete module, depending on available time, course structure, and learning objectives. Each session document provides a detailed session plan, including time schedules, didactic and factual background, learning objectives, and step-by-step activity descriptions. In addition, all necessary preparatory materials are included, such as worksheets, templates, guides, and printable resources.

This flexible structure allows instructors to adapt the module to diverse teaching contexts and student groups while maintaining coherent learning goals related to soil literacy and sustainability competences.

Session 1: Agricultural Field Trip: Soil in a Real-World Context

In this field-based session, students explore soil and farming systems directly on a working farm. They examine soil characteristics such as texture, moisture, color, and organic matter, and observe how these factors affect plant growth and land use. Through hands-on activities at several learning stations, students investigate basic cultivation techniques and soil-friendly farming practices. They use simple scientific methods to observe, document, and interpret field data.

Working in small, mixed-ability groups, students share tasks, discuss observations, and develop joint solutions. The session also connects local observations to broader soil challenges such as erosion, compaction, and nutrient loss. By reflecting on their findings, students link practical experience with sustainability concepts. Overall, the session strengthens their understanding of soil as an ecosystem and of sustainable land management in a real-world context.

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Session 2: Living Ground: An Introduction to Soil as a Vital Ecosystem

In this session, students experience soil as a living ecosystem and explore why it is essential for food production, water filtration, biodiversity, and climate regulation. They learn how soils are formed, how soil horizons develop, and how soil characteristics influence soil functions. Students also become familiar with major threats to soils in Europe, such as sealing, erosion, compaction, contamination, and the loss of organic carbon.

Through a short quiz, input phases, and hands-on, station-based activities, students actively engage with soil-related questions and simple investigation methods. Working in small groups, they observe, discuss, and document their findings. They reflect on what they have learned and connect local soil issues to broader environmental challenges. By the end of the session, students gain a basic understanding of soil processes, risks, and protection options, as well as why soil conservation is essential for sustainable land use and future resilience

Session 3: Policy decision-making on how land is used - A Role-Playing Game

The role-play “Using Space Instead of Consuming It” is intended to sensitize participants to the issue of **l**and grabbing and to encourage them to become involved in decision-making processes related to land use. In the role-play, participants take on the roles of municipal council representatives. They form parliamentary groups, establish committees, and elect the necessary representatives to discuss measures aimed at curbing land consumption. The aim of the activity is to help participants understand the **e**cological and economic consequences of land consumption through a simulated council decision-making process. The role-playing game is set against the background of the extremely high and continuously increasing use of land. In order to maintain the quality of urban space, it is increasingly necessary to treat land as a finite and valuable resource.

The role-play seeks to contribute to raising awareness among young people about land consumption while making political processes more comprehensible and engaging.

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Session 4: Together for Healthy Soils: From Idea to Action

In this session, students take on the role of *Soil Health Ambassadors* and work on a real local soil health challenge. Depending on the available time, they may, for example, plan and carry out a hands-on community action or design an information campaign with an exhibition. Using the provided **Action Guide**, lecturers and students can choose from a range of activity ideas and adapt their project to local conditions and time constraints.

Working in small groups, students analyse a soil-related problem, define clear objectives, and develop realistic solutions. They identify and contact cooperation partners such as farmers, schools, or environmental organisations. Students plan tasks, distribute responsibilities, and manage timelines as a team. During implementation or the exhibition phase, they engage with community members and communicate soil health knowledge.

Finally, students document and reflect on their activities and evaluate their impact. Through this process, they strengthen skills in teamwork, project planning, critical thinking, and community engagement, while applying what they have learned about soil and sustainable land use in a real-world context.

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