Course document

Inquiry Scenario Plan Design form for the promotion of Sustainability Citizenship

Co-funded by the European Union

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SYNAPSES

Title:

From Plate to Soil and then back again– Experience the Closed food circle at School

Short Description (Max 500 words):

This educational scenario engages students aged 12–13 in exploring the full cycle of food—from production to consumption to waste—and how it connects to sustainability, responsibility, and citizenship. Students examine how food choices impact the environment, learn about food waste and composting, and engage in inquiry-based activities that culminate in proposing real improvements for their school community.

Over a series of 6 lessons, students explore the concept of a circular food system through hands-on experiences (e.g. analysing school waste, mapping food journeys, and creating compost), critical thinking tasks, and collaborative group work. The scenario ends with a student-led action: designing and proposing an initiative that supports sustainable food habits at school (e.g. a poster campaign, kitchen experiment, compost bin setup, or suggestions for improving school lunch logistics).

The scenario combines environmental education with active citizenship and systems thinking, empowering students to become agents of change in their own school.

Keywords (Up to 5):

food systems, food waste, composting, sustainability, student action

Information about the Implementation

Language of the students:

Czech

Age of the students:

☒ 9-12 ☒ 12-15 ☐ 15-18 ☐ 18+

Number of Lessons – Duration (per lesson):

Number of Lessons: 6 Duration per Lesson: 90 minutes

Is this activity a STEM Activity?

For which subject(s) the activity is usable, is it an interdisciplinary activity?

Science ☒

Physics ☐ Chemistry ☐ Biology☒ Geosciences☐ Environmental☒ Other☐

Technology ☒

Engineering ☐

Arts ☒

Mathematics ☐

Information about the Scenario

Curriculum and country: Czech Republic – Cross-curricular environmental and civic education.

Link of the current activity to the curriculum: Supports environmental education goals, food waste prevention strategies, and basic biology (decomposition, nutrients, ecosystems). It aligns with competencies in responsible behaviour and active citizenship.

Country: Czech Republic Class: 6th to 8th grade (11 to 13 years old) Grade: 6th to 8th grade (11 to 13 years old)

Topic: Food production and consumption, food waste, composting, circular economy

Learning Objectives (Max 100 words):

What do you want students to be able to know/understand/be able to do at the end of this lesson? (Please use action verbs)

By the end of this scenario, students will be able to:
– **Explain and describe** the stages of the food cycle and their environmental impacts
– **Identify and analyse** sources of food waste in the school environment and **propose improvements**
– **Understand** the basics of composting and biological decomposition
– **Conduct simple experiments**, **investigate** the composting process through observation and measurement and **document** their findings
– **Collaborate** on designing a sustainability campaign or improvement
– **Present** their ideas to the school community
– **Reflect** on their role as active citizens in supporting sustainable practices

Resources / Materials (Max 100 words):

Which resources and materials (software, hardware) are needed?

Software	Hardware
Not necessary, but: Presentation software (e.g., PowerPoint, Google Slides, Canva), mobile apps for taking photos and editing videos (e.g., Camera app, InShot, Adobe Premiere Rush), AI apps for creating posters or similar materials (e.g., Canva, Adobe Express, PosterMyWall), and possibly simulation programs such as PhET Interactive Simulations (https://phet.colorado.edu/), ExploreLearning Gizmos, and EcoMUVE.	Protective gloves (for working with waste and compost), hanging scale, compost thermometer, litmus paper / pH meter, magnifying glass / simple microscope, worksheets in the form of a small booklet, samples of soil, sand, compost for infiltration experiment, compost containing organisms, bowls / PET bottles for infiltration experiment, containers for brought-in food, kitchen equipment or access to kitchen utensils, materials for creating outputs (e.g., paper, markers, glue, mobile phone for photos or video)

Use of School Infrastructure

How are school facilities and equipment used in your educational scenario?

School Infrastructure	School Materials
School kitchen and cafeteria, outdoor garden or green space, compost area or compost bins, standard classrooms	Organic waste samples, thermometers, pH test kits, magnifying glasses, gardening tools, working sheets, materials for student presentations

Green competences:

Which green competences are covered by the activity?

Embodying Sustainable Values	Valuing Sustainability	☒	Supporting Fairness	☒	Promoting Nature	☒
Embracing Complexity in Sustainability	Systems Thinking	☐	Critical Thinking	☒	Problem Framing	☐
Envisioning Sustainable Futures	Futures Literacy	☒	Adaptability	☒	Exploratory Thinking	☒
Acting for Sustainability	Political Agency	☐	Collective Action	☒	Individual Initiative	☒

The definition of the following terms can be found in GreenComp which is translated in all European Union languages.

Working with the community

Which external actors will be involved within the framework of the training scenario?

Organisation Type	**Organisation Name**
NGOs (Non-Governmental Organisations)	Zachraň jídlo – *Save food* (Prague Food Waste - Zachraň jídlo)
PTA (Parent-Teacher Association)	
Local business	Nearby supermarket or grocery store – for food waste mapping or recovery (not sure if they agree to be a partner)
Other (please explain)	School kitchen team (staff)

How will the above-selected institutions help in the educational scenario?

Knowledge and experience of organization Save food, Prague.

Detailed activity description

Fill in the table with the subjects contained in your training scenario. The educational scenario should follow one of the following active teaching strategies: Inquiry Based Learning, Challenge Based Learning or Place Based Learning (see here).

Number and name of courses	Course content	Teaching hours
Lesson 1: What Happens to **(Food) waste in our school**?	Identifying waste points and waste composition (how much of plastics, cans and organics do we put into a regular bins), what actually happens to organic waste in composting plant, dump or incinerator, why and how do we sort organic waste and exploring how the school cafeteria fits into this system	2
Lesson 2: School **kitchen excursion &** a cafeteria **round table**	A guided visit to the school kitchen reveals how much work and regulation is behind food preparation. In a round-table discussion with staff or among students, they reflect on food waste causes and co-create ideas on how to improve food quality, taste, and reduce waste.	2
Lesson 3: **Save food**	Based on students' experience at home, they bring examples of food that often ends up wasted. The class prepares simple snacks from food that is "about to be wasted", while discussing practical strategies to prevent waste. These snacks can later be shared during a school event or presented in front of the school to raise awareness about food waste. Optionally (if the teacher feels confident and it is legally safe), they may explore the area behind a local supermarket and document or collect edible food that would otherwise be thrown away. Photos or stories (if not the actuall food) can be used in student presentations.	2
Lesson 4: **Let your garden teach you** about circularity and material flows	Students explore how nothing is wasted in nature: leaves, grass, and leftovers are all part of a cycle. They observe material flows and decomposition processes in the school garden or a natural setting. They start a compost pile and observe early changes.	2
Lesson 5: **Investigating Compost**: What's Happening Below the Surface?	Students return to the compost pile started in Lesson 4. Working in groups, using thermometers, magnifying glasses, photo documentation, or simple experiments, they investigate what has changed:	2

	temperature, smell, visible decomposers. They hypothesize about what supports decomposition and compare different layers or samples (e.g. top vs bottom, dry vs moist). This lesson is framed as an inquiry – students formulate questions and try to answer them based on evidence (collecting and observing soil organisms, measuring ph, temperature and so on)	
Lesson 6: **Present and Reflect**: Our Path to Sustainability	Students present their projects or findings to peers or school staff (e.g. kitchen, principal). The class reflects on the journey: what have we learned, what can we do now? They may propose small-scale actions, document their learning (e.g. short video, zine, poster), or share outcomes during a school event. (Students come up with a public discussion or a happening based on what they learned. It could be usage of the compost for plants, action leading to waste reduction or similar)	?

Assessment (if any):

How will you assess learning (what could students say, make, create, do etc…)? What specific Assessment of Learning (AfL) and Assessment for Learning (AoL) strategies will you use to gather evidence of learning

Assessment for Learning (AfL): Group discussions, teacher observation, formative feedback during team activities, self-evaluation in worksheets. Assessment of Learning (AoL): Final presentation or campaign, compost observation reports, student-created posters, videos, or other outputs. Optional: individual reflection sheet.

Reflection/Evaluation (if any)

How will you evaluate if the scenario was successful?

The success of the scenario will be evaluated based on student engagement, quality of their group outputs, and changes in student behaviour or attitudes (e.g. less food waste, improved sorting). Feedback can be collected from students and school staff (an external feedback from staff is highly welcome). Teacher reflection will help refine the scenario for future use.

References (if any)

– JCSP Action Verbs for Learning Intentions PDF Bookmarker, – SYNAPSES Booklet – Designing Environments for Teaching Sustainability Citizenship– GreenComp Framework, https://www.cirkularniskoly.cz/

Sustainable Contact Details:

Name	David Beran
Email	David.wotan@seznam.cz

School Informations:

School Name	ZŠ Jánského elementary and secondary school
City name	Prague
Number of pupils and teachers	320 students and 40 teachers
How many students and teachers will be involved?	40 (2x20, two groups) and 4 teachers

Annex

Feel free to add any more information and material you have, indicatively photos from the activity, constructions needed or any handbook that may be available online.

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