EducationForClimate Youth Climate LAB 2 *How to approach AI and climate change in learning communities*

Learning Scenario

This learning scenario has been co-created during the EducationForClimate Coaliton's 2024 Youth Climate Lab. It is inspired by the process outlined in the Scaffold card game – a tool created to support educators in designing learning activities and guiding them step-by-step – from planning to assessment[1].

About

Title

Creating Sustainable Businesses with AI: A Learning Game

Summary

This learning scenario engages students aged 15-17 in secondary education in creating and managing a business through a game. Students will make choices affecting their business's ecological footprint and earn or lose points based on these choices. They will search for and apply guidelines from the European Commission to ensure their business practices are sustainable. Weekly reports to the class will foster reflection and discussion. At the end of the exercise, students will evaluate the effectiveness of their learning and the sustainability of their business decisions.

Keywords

AI, climate change, sustainability, critical thinking, systems thinking, secondary education, business simulation

[1] Scaffold has been produced jointly by the European Training Foundation, in the framework of its Creating New Learning initiative, and the European Commission's Joint Research Centre, in the context of its work on key competences with the Directorate-General for Employment, Social Affairs and Inclusion.

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Overview

For whom is this learning experience?

Define age of students, learning and competence level, as well as learning setting.

Student Age	Learning Level	Competence Level	Learning Setting
15-17	Secondary general education Secondary vocational education	Beginner to intermediate	Formal

What is the goal of the of the learning experience?

The goal of the activity is to use AI to change individual and collective actions focusing on climate change. Students will understand the impact of behavior on the environment and how to change it. They will create sustainable business projects based on guidelines from the European Commission.

What are the subjects covererd?

Select and specify subjects.

Subject(s)	Specification

Science subjects Citizenship education subjects Inter-disciplinary subjects	Environmental Science Civic Education Sustainability and Business Ethics

What are the topics covered?

Topics covered in this learning scenario are AI in environmental protection, sustainable business practices, European Commission guidelines on sustainability and climate change impacts and mitigation.

What shall learners produce?

Learners will produce sustainable business projects simulated through a game, weekly reports on business decisions and their ecological impact and a reflection on the effectiveness of their learning and business decisions.

Which real life links are there to consider?

The activity is relevant as it links to real-life business practices and European Commission guidelines on sustainability, providing students with practical knowledge and skills that are directly applicable to real-world scenarios.

Which competences will learners work on?

List competences from GreenComp and DigComp. Add justifications for the competences chosen.

Competences	**Justification**
GreenComp Systems thinking Critical thinking Political agency Collective action Individual initiative	*Students will develop systems thinking by understanding interactions within and between systems related to sustainability.* *Critical thinking by assessing information and arguments related to climate change.* *Political agency by identifying and acting upon political responsibilities for sustainability.*

DigComp Browsing, searching and filtering data, information and digital content Evaluating data, information, and digital content Managing data, information and digital content Interacting through digital technologies Engaging in citizenship through digital technologies Integrating and re-elaborating digital content Protecting the environment	*Collective action through collaboration to solve environmental problems.* *Individual initiative by identifying potential for personal contribution to sustainability* *Students will develop competences in browsing, searching and filtering data, information and digital content by researching climate-related data.* *They will learn to evaluate data, information and digital content, analyzing the credibility and relevance of information.* *Managing data, information and digital content by organizing and using data effectively.* *Interacting through digital technologies, communicating and collaborating using digital tools and developing digital content by creating digital materials for climate education.* *They will learn to connect to the community through social media and avoid misinformation and disinformation.* *They will also focus on protecting the environment by using digital tools responsibly to minimize environmental impact.*

Which EducationForClimate Innovation Area(s) does the exercise cover?

Select and justify.

Innovation Area	**Justification**

Raising Awareness Developing green skills and competences Changing behaviours	*The exercise covers several innovation areas:* *Raising Awareness with students becoming aware of the environmental impact of business decisions.* *Developing Green Skills and Competences since students will develop skills necessary for sustainable business practices.* *Changing Behaviours by encouraging students to adopt more sustainable behaviors in their decision-making processes.*

How are you going to learn?

Select and describe the learning methodology applied.

Methodology	**Description**
Project-based learning Value Creation Pedagogy Play-based learning	The learning methodology includes: Project-based learning where students will develop and implement projects related to climate change. The Value Creation Pedagogy by creating value for stakeholders outside their own group or school by making ecologically responsible business decisions. Playful Learning by engaging students in playful activities designed for learning, ensuring it is age-appropriate and immersive, including the use of a game to explore environmental scenarios and impacts.

Where will the activity take place and with whom?

Define the space of the learning activity and the (local) partners involved.

Space	**Involved**

Online In-person The activity will be accessible both online and in-person via tablets and PCs.	Students Teachers Parents Stakeholders

Which tools and resources are needed to engage in the experience?

Tools and resources needed for this activity include tablets and PCs, AI tools and platforms for business project calculations, sustainable materials for product development and cardboard materials for gaming and simulations.

How much time do you need to prepare for the exercise as an educator and as a learner?

Educators will need approximately 2-3 hours per week to prepare for the exercise. To familiarize themselves with the AI tools and platforms, understand the European Commission guidelines on sustainability and plan the weekly sessions. They will also need to set up the gaming environment, prepare assessment materials and ensure all necessary resources are available for students. Additionally, educators will need time to evaluate students' progress by reviewing their weekly reports and researching guidelines and other resources to provide comprehensive feedback.

The amount of time learners will need to prepare for the exercise depends on their engagement and interest. A suitable amount of time would be approximately 2-3 hours per week. This includes time spent on researching guidelines, making business decisions, preparing weekly reports and reflecting on their learning. Learners can choose to invest more time if they wish to delve deeper into the project.

How much time will you have to run the activity?

Define each activity as part of the learning scenario and how long it will take to teach and learn.

The activity will consist of 2 sessions of 45 minutes each, with short breaks, over a period of 4 weeks.

Activity	**Description and timing**
Introduction to AI and Sustainability (Week 1)	***Session 1:*** *Introduction to the concept of AI and its applications in sustainability. Teaching students how to*

	search for and apply European Commission guidelines on sustainable practices (45 minutes). ***Session 2:*** *Introduction to the game, explaining rules and goals of the game (how they will earn or lose points, explanation of the weekly reports, tools they will need to access and evaluate the information they receive etc). Students begin creating their businesses and make initial decisions (45 minutes).*
Business Development and Decision-Making (Week 2)	***Session 3:*** *Students continue developing their businesses, making decisions that impact their ecological footprint. Educators provide guidance and support (45 minutes).* ***Session 4:*** *Students prepare their first weekly report on their business decisions and present it to the class (45 minutes).*
Implementing Sustainable Practices (Week 3)	***Session 5:*** *Focus on integrating European Commission guidelines into business practices. Students refine their decisions to improve sustainability (45 minutes).* ***Session 6:*** *Preparation and presentation of the second weekly report, discussing improvements and challenges (45 minutes).*
Final Evaluation and Reflection (Week 4)	***Session 7:*** *Students prepare their final reports and present them to the class (45 minutes).* ***Session 8:*** *Teachers evaluate the final reports and announce the winner and the prize. Students answer the quiz and*

	self-reflect on the effectiveness of their learning and business decisions (45 minutes).

How do you assess learners' progress?

Outline assessment methods, including student feedback and teachers' remarks.

Assessment method	**comment**
Automated assessment Questions for learning Self-reflection	*Learners' progress will be assessed through:* *Automated Assessment with small quizzes at the end of each class to estimate immediate understanding and a comprehensive quiz at the end of the course where students explain the challenges faced and solutions developed. At the end of the course, a comprehensive quiz will assess students' overall understanding of the material. This quiz will require students to explain the challenges they faced, the solutions they developed, and the sustainability of their business decisions.* *Questions for Learning through open-ended questions to promote engagement and active learning. These questions will encourage students to think critically about their business decisions and their ecological impacts.* *At the end of the exercise, students will complete a self-reflection activity. They will evaluate their own learning, the effectiveness of their business decisions, and the overall impact of the project on their understanding of sustainability. At the end of the exercise, students will reflect on the effectiveness of their learning and the sustainability of their business decisions. They will consider what*

	they have learned, how they have applied the European Commission guidelines and the impact of their decisions.